Volume calculator

There was no volume calculator prepared when the spill occurred.

Incident Number: nAB1912855636 (1RP-5462)



## **Release Assessment and Closure**

Tomcat 16 State #006

Section 16, Township 23 South, Range 32 East

API: 30-025-34949

**County: Lea** 

Vertex File Number: 21E-02816-25

### **Prepared for:**

Devon Energy Production Company, LP B&R Trucking

### Prepared by:

Vertex Resource Services Inc.

#### Date:

August 2023

### Devon Energy Production Company, LP and B&R Trucking

Release Assessment and Closure August 2023

Tomcat 16 State #006

**Release Assessment and Closure** 

Tomcat 16 State #006

Section 16, Township 23 South, Range 32 East

API: 30-025-34949

**County: Lea** 

Prepared for:

**Devon Energy Production Company, LP** 

6488 Seven Rivers Highway

Artesia, New Mexico 88210

New Mexico Oil Conservation Division - District 1 - Hobbs

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ENVIRONMENTAL TECHNOLOGIST, REPORTING

September 9, 2023

Date

kent stallings P.G.

September 21, 2023

Kent Stallings P.G.

PROJECT MANAGER, REPORT REVIEW

Date

## **Devon Energy Production Company, LP and B&R Trucking**

**Release Assessment and Closure** August 2023

## Tomcat 16 State #006

Tabl	e of Contents	
1.0	Introduction	1
2.0	Incident Description	1
3.0	Site Characteristics	1
4.0	Closure Criteria Determination	2
5.0	Remedial Actions Taken	3
6.0	Closure Request	4
7.0	References	5
8.0	Limitations	6

### Devon Energy Production Company, LP and B&R Trucking

Tomcat 16 State #006

Release Assessment and Closure August 2023

#### **In-text Tables**

- Table 1. Closure Criteria for Soils Impacted by a Release
- Table 2. Closure Criteria Determination

### **List of Figures**

- Figure 1. Characterization Schematic
- Figure 2. Confirmation Schematic

### **List of Tables**

- Table 3. Characterization Sample Field Screen and Laboratory Results Depth to Groundwater <50 feet bgs
- Table 4. Confirmatory Sample Field Screen and Laboratory Results Depth to Groundwater <50 feet bgs

### **List of Appendices**

Appendix A. NMOCD C 141 Report

Appendix B. Closure Criteria Research Documentation
Appendix C. Daily Field Reports with Site Photographs

Appendix D. Notifications

Appendix E. Laboratory Data Reports and Chain of Custody Forms

**Devon Energy Production Company, LP and B&R Trucking** Tomcat 16 State #006

Release Assessment and Closure August 2023

#### 1.0 Introduction

On behalf of Devon Energy Production Company, LP (Devon), B&R Trucking (B&R) retained Vertex Resource Services Inc. (Vertex) to conduct a Release Assessment and Closure for an oil release that occurred on March 22, 2019, from a flowline associated with Tomcat 16 State #006 API 30-025-34949 (hereafter referred to as "Tomcat"). B&R submitted an initial C-141 Release Notification (Appendix A) to New Mexico Oil Conservation Division (NMOCD) District 1 on April 5, 2019. Incident ID number nAB1912855636 and RP number 1RP-5462 were assigned to this incident.

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

### 2.0 Incident Description

On March 22, 2019, a truck driver struck a poly line on the access road south of Devon's Tomcat site, resulting in the release of approximately 10 barrels (bbls) of crude oil onto the open road and the immediate surrounding area. The affected area was assessed to measure approximately 100 feet long and 100 feet wide. A vacuum truck was brought on-site to recover an unknown amount of free-standing fluid from the saturated soil. Although undisturbed pasture was impacted by the release, no oil reached waterways. Additional details relevant to the release are presented in the C-141 Report. Daily Field Reports (DFRs), including site photographs, are included in Appendix C.

#### 3.0 Site Characteristics

The release at Tomcat occurred on state land at 32.304886° N, -103.673765° W, approximately 24 miles northeast of Malaga, New Mexico (Google Inc., 2023). The legal description for the site is Unit H, Section 16, Township 23 South, Range 32 East in Lea County, New Mexico. This location is within the Permian Basin in southeast New Mexico and has historically been used for oil and gas exploration and production, and rangeland. An aerial photograph and site schematic are presented on Figure 1.

The Geological Map of New Mexico indicates the surface geology at Tomcat is comprised primarily of Qep – Eolian and Piedmont deposits from the Holocene to middle Pleistocene ages (New Mexico Bureau of Geology and Mineral Resources, 2023). The United States Department of Agriculture Web Soil Survey characterizes the soil at the site as Pyote loamy fine sand (United States Department of Agriculture, Natural Resources Conservation Service, 2023). The soil is well-drained with a negligible runoff. The karst geology potential for Tomcat 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 on the access road south of the entrance to the constructed pad (Figure 1).

## **Devon Energy Production Company, LP and B&R Trucking** Tomcat 16 State #006

Release Assessment and Closure August 2023

The surrounding landscape is associated with plains of elevations ranging between 3,000 and 3,900 feet above sea level. The climate is semiarid with average annual precipitation ranging between 10 and 12 inches. Using information from the United States Department of Agriculture, the dominant vegetation was determined to be principally black grama. Grasses with shrubs and half-shrubs dominate the historic plant community (United States Department of Agriculture, Natural Resources Conservation Service, 2023). Limited to no vegetation is allowed to grow on the access road.

#### 4.0 Closure Criteria Determination

The nearest active well to the Tomcat is a New Mexico Office of the State Engineer (NMOSE) livestock well located approximately 1 mile south (United States Geological Survey, 2023). Data from 1912 shows the NMOSE borehole recorded a depth to groundwater of 400 feet below ground surface (bgs). Information pertaining to the depth to ground water determination is included in Appendix B. As there is no well meeting NMAC requirements within 0.5 miles of the site, remediation was performed to meet strictest criteria.

There is no surface water located at Tomcat. The nearest significant watercourse, as defined in Subsection P of 19.15.17.7 NMAC, is a riverine located approximately 6.8 miles west of the site (United States Fish and Wildlife Service, 2023).

At Tomcat, 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.

The closure criteria determined for the site are associated with the following constituent concentration limits as presented in Table 1.

Table 1. 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					
	Chloride	600 mg/kg					
450 feet	TPH (GRO+DRO+MRO)	100 mg/kg					
< 50 feet	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

Tomcat 16 State #006

Table 2:	Closure Criteria Determination			
Site Nam	e: Tomcat 16 State 6			
Spill Coo	rdinates:	X: 32.3048	Y: -103.6738	
Site Spec	ific Conditions	Value	Unit	
1	Depth to Groundwater	400	feet	
2	Within 300 feet of any continuously flowing	36074	feet	
2	watercourse or any other significant watercourse	30074	leet	
3	Within 200 feet of any lakebed, sinkhole or playa lake	10594	feet	
3	(measured from the ordinary high-water mark)	10394	ieet	
4	Within 300 feet from an occupied residence, school,	30204	feet	
4	hospital, institution or church	30204	leet	
	i) Within 500 feet of a spring or a private, domestic			
5	fresh water well used by less than five households for	10594	feet	
J	domestic or stock watering purposes, <b>or</b>			
	ii) Within 1000 feet of any fresh water well or spring	10594	feet	
	Within incorporated municipal boundaries or within a			
	defined municipal fresh water field covered under a			
6	municipal ordinance adopted pursuant to Section 3-27-	No	(Y/N)	
	3 NMSA 1978 as amended, unless the municipality			
	specifically approves			
7	Within 300 feet of a wetland	22381	feet	
8	Within the area overlying a subsurface mine	No	(Y/N)	
			Critical	
9	Within an unstable area (Varst Man)	Low	High	
9	Within an unstable area (Karst Map)	LOW	Medium	
			Low	
10	Within a 400 years Flag delain	. 100		
10	Within a 100-year Floodplain	>100	year	
	•		<50'	
	NMAC 19.15.29.12 E (Table 1) Closure Criteria	<50'	51-100'	
			>100'	

### 5.0 Remedial Actions Taken

An initial site inspection of the release area was completed on March 27, 2019, which identified the area of the release specified in the initial C-141 Report. The impacted area was determined to be approximately 149 feet long and 162 feet wide; the total affected area is 14,164 square feet. The DFR associated with the site inspection is included in Appendix C.

Excavation began on April 3, 2019, and was finalized with confirmation sampling on August 5, 2023. Vertex personnel supervised the excavation of impacted soils to a depth of 0.5 feet bgs for the entire excavation area. Field screening was completed on 81 sample points and consisted of analysis using a Photo Ionization Detector (volatile hydrocarbons), Dexsil Petroflag using EPA SW-846 Method 9074 (extractable hydrocarbons) and electrical conductivity (chlorides).

## **Devon Energy Production Company, LP and B&R Trucking** Tomcat 16 State #006

Release Assessment and Closure August 2023

Impacted soil was transported by a licensed waste hauler and disposed of at an approved waste management facility, and the excavation was backfilled with clean, locally-sourced soil. DFRs documenting various phases of the remediation are presented in Appendix C.

Delineation was completed in two phases: August 2021 and July 2023. These events confirmed that the vertical and horizontal boundaries of the release area were covered by the 2019 excavation. Locations of all characterization samples are presented on Figure 1. Samples collected during characterization were sent to Hall Environmental Analysis Laboratory, and the results of field screens and laboratory analysis are presented in Table 3.

Notification of confirmatory sampling was provided to the NMOCD on July 7and August 1, 2023 and are included in Appendix D. A total of 8 wall samples and 73 base samples were collected for laboratory analysis following NMOCD soil sampling procedures. The excavation and all confirmation sample locations are shown on Figure 2. All characterization and confirmatory samples from the Tomcat were submitted to Hall Environmental Analysis Laboratory under chain-of-custody protocols and analyzed for BTEX (EPA Method 8021B), TPHs (GRO, DRO, MRO – EPA Method 8015D) and total chlorides (EPA Method 300.0). Laboratory results are presented in Table 4, with supporting laboratory data reports included in Appendix E. All confirmatory samples collected and analyzed were below closure criteria for the site.

### **6.0 Closure Request**

The release area was fully delineated, remediated, and backfilled with local soils by August 5, 2023. Confirmatory samples were analyzed by the laboratory and found to be below allowable concentrations as per the NMAC Closure Criteria for Soils Impacted by a Release locations "under 50 feet to groundwater". Based on these findings, B&R and Devon request that this release be closed.

Should you have any questions or concerns, please do not hesitate to contact Kent Stallings at 346.814.1413 or KStallings@vertex.ca.

Release Assessment and Closure August 2023

#### 7.0 References

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**Devon Energy Production Company, LP and B&R Trucking** Tomcat 16 State #006

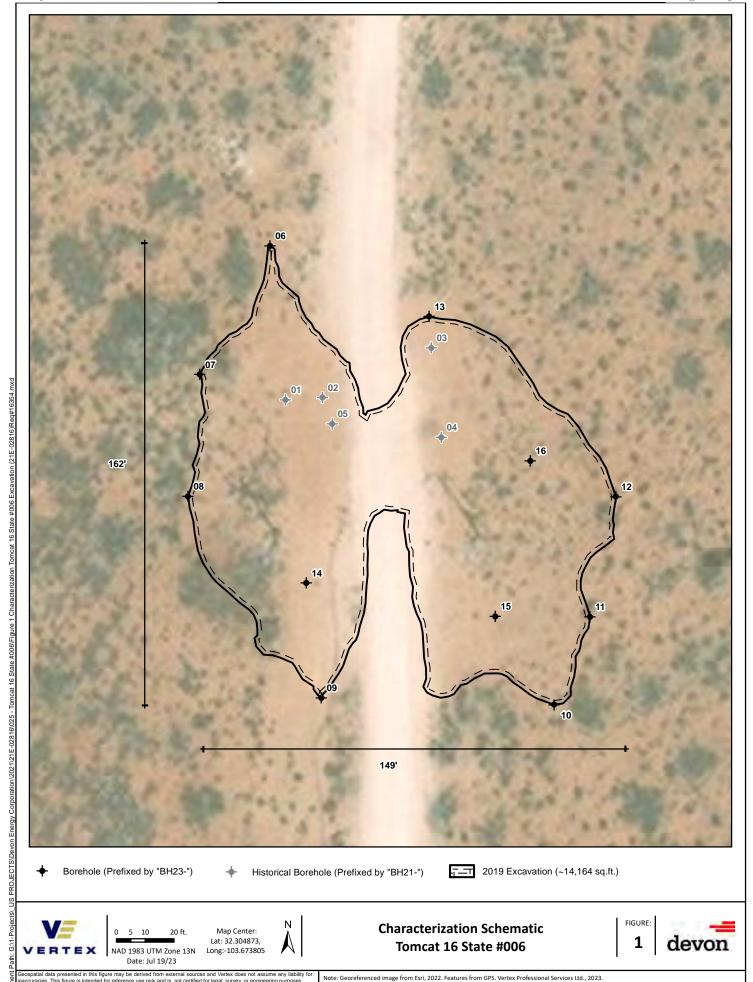
Release Assessment and Closure August 2023

#### 8.0 Limitations

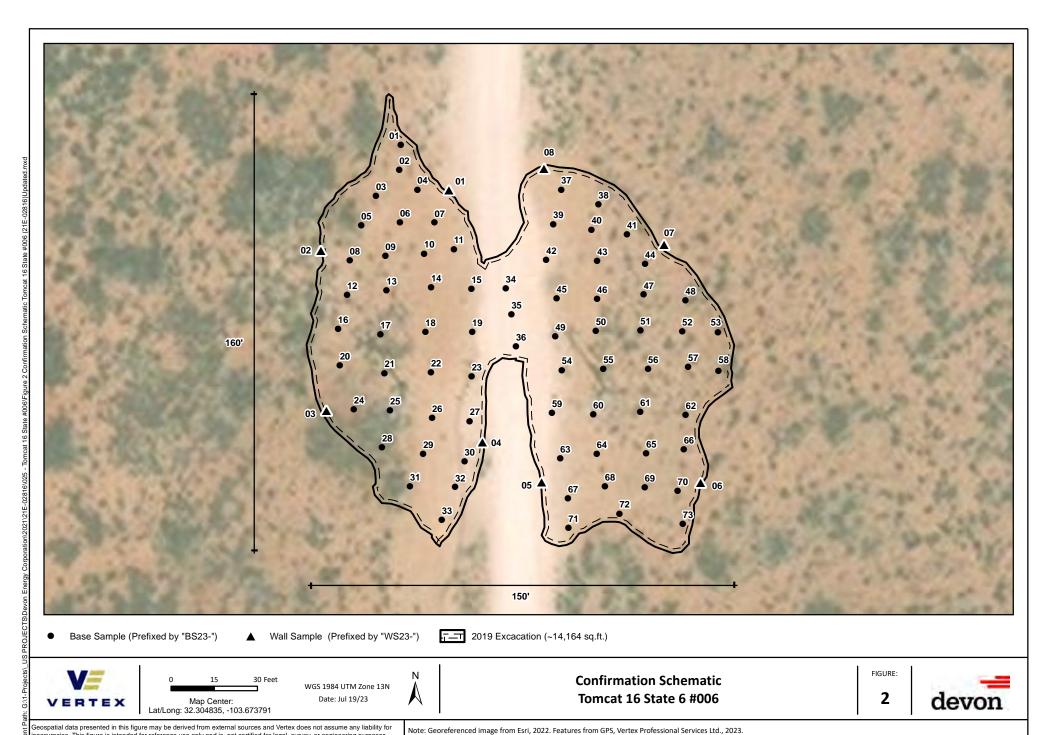
This report has been prepared for the sole benefit of Devon Energy Production Company, LP and B&R Trucking. This document may not be used by any other person or entity, with the exception of the New Mexico Oil Conservation Division, without the express written consent of Vertex Resource Services Inc.,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



VERSATILITY. EXPERTISE.



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## **TABLES**

Client Name: Devon Energy Production Company, LP

Site Name: Tomcat 16 State #006

NM OCD Tracking #: nAB1912855636, 1RP-5462

Project #: 21E-02816-25

Lab Reports: 2108788 and 2307353

	Sample Desc			eld Screeni		,		Petrole	um Hydro				
	Sample Desc	прион		eiu screeiii	i ig	Vol	atile	Petroie		Extractable			Inorgani
Sample ID	Depth (ft)	Sample Date	তি ডি Volatile Organic Compounds ড্র (PID)	Extractable Organic  Gompounds (PetroFlag)	(mdd) Chloride Concentration	Benzene (mg/kg)	(mg/kg) (fotal)	জ জ Gasoline Range Organics (GRO)	Ba Diesel Range Organics   (DRO)	ma Motor Oil Range Organics (MRO)	(GRO + DRO)	ma Total Petroleum  X   Hydrocarbons (TPH)	By/Ra Chloride Concentration
	0	August 12, 2021	-	-	57	-	-	-	-	-	-	-	-
	Ŭ	July 8, 2023	0	47	ND	ND	ND	ND	ND	ND	ND	ND	ND
BH21-01	0.5	August 12, 2021	-	66	157	ND	ND	ND	ND	ND	ND	ND	72
	1	August 12, 2021	-	15	127	-	-	-	-	-	-	-	-
	2	August 12, 2021	-	27	157	ND	ND	ND	ND	ND	ND	ND	ND
	0	August 12, 2021	-	-	102	-		-	-	-	-	-	-
BH21-02	0.5	July 8, 2023	<del> </del>	42	ND 125	ND	ND	ND	ND	ND	ND	ND	ND
	0.5	August 12, 2021	-	122	135	ND	ND	ND -	ND	ND	ND	ND	ND
	1	August 12, 2021	-	19	100	-	-	i e	-	-	-	-	_
	0	August 12, 2021	- 0	34	80	- ND	- ND	- ND	- ND	- ND	- ND	- ND	- ND
BH21-03	0.5	July 8, 2023 August 12, 2021	-	23	ND 130	ND ND	ND	ND ND	ND ND	ND	ND ND	ND ND	ND ND
D1121-03	1	August 12, 2021 August 12, 2021	-	23	120 152	ND -	ND	ND -	ND	ND -	ND	IND -	ND
	2	August 12, 2021	-	13	100	ND	ND	ND	ND	ND	ND	ND	ND.
		August 12, 2021	_	-	77	-	-	-	-	-	-	-	-
BH21-04	0	July 8, 2023	0	35	ND	ND	ND	ND	ND	ND	ND	ND	ND
	0.5	August 12, 2021	-	29	155	ND	ND	ND	ND	ND	ND	ND	ND
	1	August 12, 2021	-	15	147	-	-	-	-	-	-	-	-
	2	August 12, 2021	-	13	80	ND	ND	ND	ND	ND	ND	ND	ND
	0	August 12, 2021	-	-	148	-	-	-	-	-	-	-	-
	0	July 8, 2023	0	38	ND	ND	ND	ND	ND	ND	ND	ND	ND
BH21-05	0.5	August 12, 2021	-	102	100	ND	ND	ND	11	ND	11	11	ND
	1	August 12, 2021	-	60	110	-	-	-	-	-	-	-	-
	2	August 12, 2021	-	84	127	ND	ND	ND	ND	ND	ND	ND	ND
BH23-06	0	July 8, 2023	0	45	ND	ND	ND	ND	ND	ND	ND	ND	ND
	2	July 8, 2023	0	34	ND	ND	ND	ND	ND	ND	ND	ND	ND
BH23-07	0	July 8, 2023	0	50	ND	ND	ND	ND	ND	ND	ND	ND	ND
	2	July 8, 2023	0	39	ND	ND	ND	ND	ND	ND	ND	ND	ND
BH23-08	0	July 8, 2023	0	50	ND	ND	ND	ND	ND	ND	ND	ND	ND
	2	July 8, 2023	0	47	ND	ND	ND	ND	ND	ND	ND	ND	ND
BH23-09	0 2	July 8, 2023	0	66 34	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND
	0	July 8, 2023 July 8, 2023	0	49	ND	ND	ND ND	ND ND	ND	ND	ND ND	ND ND	ND
BH23-10	2	July 8, 2023	0	57	ND ND	ND	ND	ND ND	ND	ND	ND ND	ND ND	ND ND
	0	July 8, 2023	0	50	ND	ND	ND	ND	ND	ND	ND	ND	ND ND
BH23-11	2	July 8, 2023	0	45	ND	ND	ND	ND	ND	ND	ND	ND	ND
	0	July 8, 2023	0	47	ND	ND	ND	ND	ND	ND	ND	ND	ND
BH23-12	2	July 8, 2023	0	59	ND	ND	ND	ND	ND	ND	ND	ND	ND
DU122 42	0	July 8, 2023	0	31	ND	ND	ND	ND	ND	ND	ND	ND	ND
BH23-13	2	July 8, 2023	0	56	ND	ND	ND	ND	ND	ND	ND	ND	ND
	0	July 8, 2023	0	30	ND	ND	ND	ND	ND	ND	ND	ND	ND
BH23-14	0.5	July 8, 2023	0	66	ND	ND	ND	ND	ND	ND	ND	ND	ND
	2	July 8, 2023	0	39	ND	ND	ND	ND	ND	ND	ND	ND	ND
	0	July 8, 2023	0	47	ND	ND	ND	ND	ND	ND	ND	ND	ND
BH23-15	0.5	July 8, 2023	0	45	ND	ND	ND	ND	ND	ND	ND	ND	ND
	2	July 8, 2023	0	54	ND	ND	ND	ND	ND	ND	ND	ND	ND
	0	July 8, 2023	0	45	ND	ND	ND	ND	ND	ND	ND	ND	ND
BH23-16	0.5	July 8, 2023	0	30	ND	ND	ND	ND	ND	ND	ND	ND	ND
	2	July 8, 2023	0	59	ND	ND	ND	ND	ND	ND	ND	ND	ND

<sup>&</sup>quot;ND" Not Detected at the Reporting Limit
"-" indicates not analyzed/assessed

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



Client Name: Devon Energy Production Company, LP

Site Name: Tomcat 16 State #006

NM OCD Tracking #: nAB1912855636, 1RP-5462

Project #: 21E-02816-25

Lab Reports: 2307633, 2307706, 2307984, and 2308384

	Sample Desc	ription	Ei	eld Screeni	ng			Petrole	um Hydro	carbons			
	Jampie Desc	лірціон	1	eiu screeiii	iig	Vol	atile	retion	<u> </u>	Extractable	<u>,                                      </u>		Inorgani
Sample ID	Depth (ft)	Sample Date	Volatile Organic Compounds	Extractable Organic  Compounds (PetroFlag)	Chloride Concentration	Benzene (mg/kg)	BB BTEX (Total)	Gasoline Range Organics (GRO)	B Diesel Range Organics (DRO)	Motor Oil Range Organics (MRO)	(ego + DRO)	Total Petroleum	May Chloride Concentration
BS23-01	0.5	July 12, 2023	0	31	ND	ND	ND	ND	ND	ND	ND	ND	ND
BS23-02	0.5	July 12, 2023	0	29	ND	ND	ND	ND	ND	ND	ND	ND	ND
BS23-03	0.5	July 12, 2023	0	20	ND	ND	ND	ND	ND	ND	ND	ND	ND
BS23-04	0.5	July 12, 2023	0	19	ND	ND	ND	ND	ND	ND	ND	ND	ND
BS23-05	0.5	July 12, 2023	0	22	ND	ND	ND	ND	ND	ND	ND	ND	ND
BS23-06	0.5	July 12, 2023	0	9	ND	ND	ND	ND	ND	ND	ND	ND	ND
BS23-07	0.5	July 12, 2023	0	66	189	ND	ND	ND	ND	ND	ND	ND	160
BS23-08	0.5	July 12, 2023	0	24	ND	ND	ND	ND	ND	ND	ND	ND	ND
BS23-09	0.5	July 12, 2023	0	54	ND	ND	ND	ND	ND	ND	ND	ND	ND
BS23-10	0.5	July 12, 2023	0	43	ND	ND	ND	ND	ND	ND	ND	ND	ND
BS23-11	0.5	July 12, 2023	0	20	ND	ND	ND	ND	ND	ND	ND	ND	ND
BS23-12	0.5	July 12, 2023	0	29	ND	ND	ND	ND	ND	ND	ND	ND	ND
BS23-13	0.5	July 12, 2023	0	42	ND	ND	ND	ND	ND	ND	ND	ND	ND
BS23-14	0.5	July 12, 2023	0	71	ND	ND	ND	ND	ND	ND	ND	ND	ND
BS23-15	0.5	July 12, 2023	0	76	ND	ND	ND	ND	ND	ND	ND	ND	ND
BS23-16	0.5	July 12, 2023	0	14	ND	ND	ND	ND	ND	ND	ND	ND	ND
BS23-17	0.5	July 12, 2023	0	25	ND	ND	ND	ND	ND	ND	ND	ND	ND
BS23-18	0.5	July 12, 2023	0	25	ND	ND	ND	ND	ND	ND	ND	ND	ND
BS23-19	0.5	July 12, 2023	0	29	ND	ND	ND	ND	ND	ND	ND	ND	ND
BS23-20	0.5	July 12, 2023	0	15	ND	ND	ND	ND	ND	ND	ND	ND	ND
BS23-21	0.5	July 12, 2023	0	19	ND	ND	ND	ND	ND	ND	ND	ND	ND
BS23-22	0.5	July 12, 2023	0	39	ND	ND	ND	ND	ND	ND	ND	ND	ND
BS23-23	0.5	July 12, 2023	0	37	ND	ND	ND	ND	ND	ND	ND	ND	ND
BS23-24	0.5	July 12, 2023	0	7	ND	ND	ND	ND	ND	ND	ND	ND	ND
BS23-25	0.5	July 12, 2023	0	55	ND	ND	ND	ND	ND	ND	ND	ND	ND
BS23-26	0.5	July 12, 2023	0	21	ND	ND	ND	ND	ND	ND	ND	ND	ND
BS23-27	0.5	July 12, 2023	0	33	ND	ND	ND	ND	ND	ND	ND	ND	ND
BS23-28	0.5 0.5	July 12, 2023	0	18 82	ND ND	ND ND	ND	ND	ND	ND ND	ND	ND	ND
BS23-29 BS23-30	0.5	July 12, 2023	0	41	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND
BS23-30 BS23-31	0.5	July 12, 2023 July 12, 2023	0	41	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND
BS23-31	0.5	July 12, 2023	0	35	ND ND	ND	ND	ND	ND	ND	ND ND	ND	ND
BS23-33	0.5	July 12, 2023	0	11	ND ND	ND	ND	ND	ND	ND	ND	ND	ND.
BS23-33	0.5	July 12, 2023	0	80	59	ND	ND	ND	ND	ND	ND ND	ND	170
BS23-35	0.5	July 12, 2023	0	28	ND	ND	ND	ND	ND	ND	ND	ND	ND
BS23-36	0.5	July 12, 2023	0	19	ND	ND	ND	ND	ND	ND	ND	ND	ND
BS23-37	0.5	July 12, 2023	0	23	ND	ND	ND	ND	ND	ND	ND	ND	ND
BS23-38	0.5	July 12, 2023	0	38	ND	ND	ND	ND	ND	ND	ND	ND	ND
BS23-39	0.5	July 12, 2023	0	51	ND	ND	ND	ND	ND	ND	ND	ND	ND
BS23-40	0.5	July 12, 2023	0	22	ND	ND	ND	ND	ND	ND	ND	ND	ND
BS23-41	0.5	July 12, 2023	0	27	ND	ND	ND	ND	ND	ND	ND	ND	ND
BS23-42	0.5	July 12, 2023	0	50	ND	ND	ND	ND	ND	ND	ND	ND	ND
BS23-43	0.5	July 12, 2023	0	43	ND	ND	ND	ND	ND	ND	ND	ND	ND
BS23-44	0.5	July 12, 2023	0	28	ND	ND	ND	ND	ND	ND	ND	ND	ND
BS23-45	0.5	July 12, 2023	0	22	ND	ND	ND	ND	ND	ND	ND	ND	ND
BS23-46	0.5	July 12, 2023	0	29	ND	ND	ND	ND	ND	ND	ND	ND	ND
BS23-47	0.5	July 12, 2023	0	33	ND	ND	ND	ND	ND	ND	ND	ND	ND
BS23-48	0.5	July 12, 2023	0	29	ND	ND	ND	ND	ND	ND	ND	ND	ND
BS23-49	0.5	July 13, 2023	0	14	ND	ND	ND	ND	ND	ND	ND	ND	ND
BS23-50	0.5	July 13, 2023	0	30	ND	ND	ND	ND	ND	ND	ND	ND	ND
BS23-51	0.5	July 13, 2023	0	44	ND	ND	ND	ND	ND	ND	ND	ND	ND
BS23-52	0.5	July 13, 2023	0	17	ND	ND	ND	ND	ND	ND	ND	ND	ND
BS23-53	0.5	July 13, 2023	0	14	ND	ND	ND	ND	ND	ND	ND	ND	ND
BS23-54	0.5	July 13, 2023	0	21	ND	ND	ND	ND	ND	ND	ND	ND	ND



Client Name: Devon Energy Production Company, LP

Site Name: Tomcat 16 State #006

NM OCD Tracking #: nAB1912855636, 1RP-5462

Project #: 21E-02816-25

Lab Reports: 2307633, 2307706, 2307984, and 2308384

		Table 4. Confirmator	y Sample	Field Scree	en and Lak	oratory R	esults - De	pth to Gr	oundwate	r <50 feet	bgs		
Sample Description Field Screening				ng	Petroleum Hydrocarbons								
			<u>✓</u> Volatile Extractable							Inorganic			
Sample ID	Depth (ft)	Sample Date	Volatile Organic Compounds	Extractable Organic  Gompounds (PetroFlag)	(maga) Chloride Concentration	Benzene (mg/kg)	BTEX (Total)	্ৰ Gasoline Range Organics (GRO)	Diesel Range Organics (DRO)	Motor Oil Range Organics (MRO)	(mg/kg)	Total Petroleum Hydrocarbons (TPH)	B Ma Chloride Concentration (편
BS23-55	0.5	July 13, 2023	0	30	ND	ND	ND	ND	ND	ND	ND	ND	ND
BS23-56	0.5	July 13, 2023	0	49	ND	ND	ND	ND	ND	ND	ND	ND	ND
BS23-57	0.5	July 13, 2023	0	33	ND	ND	ND	ND	ND	ND	ND	ND	ND
BS23-58	0.5	July 13, 2023	0	20	ND	ND	ND	ND	ND	ND	ND	ND	ND
BS23-59	0.5	July 13, 2023	0	41	ND	ND	ND	ND	ND	ND	ND	ND	ND
BS23-60	0.5	July 13, 2023	0	28	ND	ND	ND	ND	ND	ND	ND	ND	ND
BS23-61	0.5	July 13, 2023	0	50	ND	ND	ND	ND	ND	ND	ND	ND	ND
DC33 C3	0.5	July 13, 2023	0	49	ND	ND	ND	ND	ND	ND	ND	ND	2,200
BS23-62	0.5	August 5, 2023	0	31	ND	ND	ND	ND	ND	ND	ND	ND	ND
BS23-63	0.5	July 13, 2023	0	65	ND	ND	ND	ND	12	ND	12	12	ND
BS23-64	0.5	July 13, 2023	0	58	ND	ND	ND	ND	ND	ND	ND	ND	ND
BS23-65	0.5	July 13, 2023	0	33	ND	ND	ND	ND	ND	ND	ND	ND	ND
BS23-66	0.5	July 13, 2023	0	27	ND	ND	ND	ND	14	ND	14	14	ND
BS23-67	0.5	July 13, 2023	0	43	ND	ND	ND	ND	ND	ND	ND	ND	ND
BS23-68	0.5	July 13, 2023	0	18	ND	ND	ND	ND	ND	ND	ND	ND	ND
BS23-69	0.5	July 13, 2023	0	14	ND	ND	ND	ND	ND	ND	ND	ND	ND
BS23-70	0.5	July 13, 2023	0	18	ND	ND	ND	ND	ND	ND	ND	ND	ND
BS23-71	0.5	July 13, 2023	0	57	ND	ND	ND	ND	ND	ND	ND	ND	ND
BS23-72	0.5	July 13, 2023	0	14	ND	ND	ND	ND	ND	ND	ND	ND	ND
BS23-73	0.5	July 13, 2023	0	14	ND	ND	ND	ND	ND	ND	ND	ND	ND
WS23-01	0-0.5	July 12, 2023	0	27	ND	ND	ND	ND	ND	ND	ND	ND	ND
WS23-02	0-0.5	July 12, 2023	0	32	ND	ND	ND	ND	ND	ND	ND	ND	ND
WS23-03	0-0.5	July 12, 2023	0	23	ND	ND	ND	ND	ND	ND	ND	ND	ND
WS23-04	0-0.5	July 12, 2023	0	26	ND	ND	ND	ND	ND	ND	ND	ND	ND
WS23-05	0-0.5	July 12, 2023	0	24	ND	ND	ND	ND	ND	ND	ND	ND	ND
WS23-06	0-0.5	July 12, 2023	0	29	ND	ND	ND	ND	ND	ND	ND	ND	ND
WS23-07	0-0.5	July 12, 2023	0	28	ND	ND	ND	ND	ND	ND	ND	ND	ND
WS23-08	0-0.5	July 12, 2023	0	26	ND	ND	ND	ND	ND	ND	ND	ND	ND

<sup>&</sup>quot;ND" Not Detected at the Reporting Limit

Bold and green shaded indicates exceedance outside of NMOCD Reclamation Closure Criteria
Bold and blue shaded indicates re-collected sample results inside NMOCD Closure Criteria



## **APPENDIX A - NMOCD C-141 Report**

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

State of New Mexico **Energy Minerals and Natural** Resources Department

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

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

Incident ID	NAB1912855636
District RP	1RP-5462
Facility ID	
Application ID	pAB1912855364

## **Release Notification**

			Resp	onsi	ible Party	7				
Responsible	Party: B&	R Trucking			OGRID	275036	A8			
Contact Nam	ne: Jona	than Pettit			Contact Te		(75) 236-6012			
Contact email Jonathan@bandrinc.com						Incident # (assigned by OCD) NAB1912855636				
Contact mail	ing address	4501 Grand	li Rd, Carlsb	ad, N	VM 88220	)				
			Location	of R	Release So	ource				
Latitude	32.3	304888	(NAD 83 in de	cimal de	Longitude _ egrees to 5 decim		03.673818			
Site Name	Tomcat	16 State #00	6		Site Type	Oil and G	as Lease Road			
Date Release	Discovered	03/22/2019			API# (if app	licable) 30-02	25-34949			
TI.'. I	g	T 1.1.	D							
Unit Letter H	Section 16	Township 23S	Range 32E	County  Lea County			-			
Surface Owner		Federal Tr	Nature and	d Vo	lume of F		e volumes provided below)			
Crude Oil		Volume Release		calcula	tions of specific	Volume Reco				
Produced	Water	Volume Release	d (bbls)			Volume Reco	overed (bbls)			
		Is the concentrate produced water 2	ion of dissolved c>10,000 mg/l?	hloride	e in the	Yes N	Го			
Condensa	ite	Volume Release				Volume Reco	vered (bbls)			
Natural G	as	Volume Release	d (Mcf)			Volume Reco	vered (Mcf)			
Other (de	scribe)	Volume/Weight	Released (provide	e units	)	Volume/Weig	ght Recovered (provide units)			
Cause of Rele		ı								
						1 .	low line running to the			
							s spilled onto the ground in			
i an approx	kimately	100, X 100, 8	ırea. A vac t	ruck	was imm	echatery di	spatched to remove free fluid			

and saturated soil.

Page 21 of 3 19

Incident ID	NAB1912855636
District RP	1RP-5462
Facility ID	
Application ID	pAB1912855364

Was this a major release as defined by 19.15.29.7(A) NMAC?	If YES, for what reason(s) does the respo	nsible party consider this a major release?
☐ Yes ⊠ No		
If YES, was immediate no	otice given to the OCD? By whom? To whether the other states are stated by the other states are stated as a second state of the other states are stated as a second state of the other states are stated as a second state of the other states are stated as a second state of the other states are stated as a second state of the other states are stated as a second state of the other states are stated as a second state of the other states are stated as a second stated stated as a second stated as a second stated stated stated as a second stated stated stated stated as a second stated stat	nom? When and by what means (phone, email, etc)?
	Initial R	esponse
The responsible	party must undertake the following actions immediate	y unless they could create a safety hazard that would result in injury
The source of the rele	ease has been stopped.	
The impacted area ha	s been secured to protect human health and	the environment.
Released materials ha	ave been contained via the use of berms or	likes, absorbent pads, or other containment devices.
	ecoverable materials have been removed an	•
<u> </u>	d above have <u>not</u> been undertaken, explain	
has begun, please attach	a narrative of actions to date. If remedial	emediation immediately after discovery of a release. If remediation efforts have been successfully completed or if the release occurred blease attach all information needed for closure evaluation.
regulations all operators are public health or the environr failed to adequately investig	required to report and/or file certain release not ment. The acceptance of a C-141 report by the Gate and remediate contamination that pose a thro	best of my knowledge and understand that pursuant to OCD rules and fications and perform corrective actions for releases which may endanger OCD does not relieve the operator of liability should their operations have at to groundwater, surface water, human health or the environment. In responsibility for compliance with any other federal, state, or local laws
Printed Name:	Jonathan Pettit	Title: Supervisor
Signature:	JII.	Date:
email:jonathan@	bandrinc.com	Telephone:(575) 236-6012
OCD Only  Received by:	mala Dotamente	Date:5/8/2019

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

State of New Mexico Energy Minerals and Natural Resources Department

Oil Conservation Division 1220 South St. Francis Dr. Santa Fe, NM 87505 Form C-141 Revised August 24, 2018 Submit to appropriate OCD District office

Incident ID	nAB1912855636
District RP	1RP-5462
Facility ID	
Application ID	

## **Release Notification**

### **Responsible Party**

Responsible	Party <b>Harv</b> a	ard Petroleum C	ompany, LLC	OGRID 10155						
Contact Nam	ne Jeff Harv	ard			Contact Telephone 575-208-7135					
Contact ema	il <b>jharvard</b> (	@hpcnm.com			Incident # nAB1912855636					
Contact mail	Contact mailing address P.O. Box 936 Roswell, NM 88202						_			
			Location	n of F	Release So	ource				
Latitude 32.3	048		(NAD 83 in a	lecimal de	Longitude <u>-</u> egrees to 5 decin					
Site Name To	omcat 16 S	state #006			Site Type	Oil and Gas L	ease Road			
Date Release	Discovered	March 22, 2019	)		API# <b>30-0</b>	25-34949				
Unit Letter	Section	Township	Range		Cour	nty				
Н	16	23S	32E	Lea						
	Materia	l(s) Released (Select a	Nature an				volumes provided below)			
Crude Oi	I	Volume Release	ed (bbls) 10		Volume Recovered (bbls) 10					
Produced	Water	Volume Release	ed (bbls)			Volume Recovered (bbls)				
		Is the concentra produced water	tion of dissolved >10,000 mg/l?	chlorid	e in the	☐ Yes ☐ N	0			
Condensa	ite	Volume Release	ed (bbls)			Volume Reco	vered (bbls)			
☐ Natural G	Natural Gas Volume Released (Mcf)					Volume Reco	vered (Mcf)			
Other (de	scribe)	Volume/Weight	Released (provi	de units	)	Volume/Weig	tht Recovered (provide units)			
Cause of Rel	ease					•				
Tomcat 16 S	tate #006 we ately 100' x	round on the lease ell. Approximately 100' area. A vac t	10 bbls of crude	oil was	s spilled onto	the ground in	d			

Release occurred on lease road and in pasture on both sides of lease road south of well pad.

Received by OCD: 3/11/2024 2:52:42 PM Form C-141 State of New Mexico Page 2 Oil Conservation Division

Page 23 of 319

Incident ID	nAB1912855636
District RP	1RP-5462
Facility ID	
Application ID	

Was this a major release as defined by 19.15.29.7(A) NMAC?	If YES, for what reason(s) does the respon	sible party consider this a major release?
☐ Yes ⊠ No		
If YES, was immediate no	otice given to the OCD? By whom? To wh	om? When and by what means (phone, email, etc)?
	Initial Re	esponse
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 rele	ease has been stopped.	
☐ The impacted area ha	s been secured to protect human health and	the environment.
Released materials ha	we been contained via the use of berms or d	ikes, absorbent pads, or other containment devices.
All free liquids and re	ecoverable materials have been removed and	l managed appropriately.
has begun, please attach	a narrative of actions to date. If remedial	emediation immediately after discovery of a release. If remediation efforts have been successfully completed or if the release occurred lease attach all information needed for closure evaluation.
regulations all operators are public health or the environr failed to adequately investig	required to report and/or file certain release notified ment. The acceptance of a C-141 report by the Oate and remediate contamination that pose a threatening that pose as the contamination of the c	best of my knowledge and understand that pursuant to OCD rules and cations and perform corrective actions for releases which may endanger CD does not relieve the operator of liability should their operations have at to groundwater, surface water, human health or the environment. In responsibility for compliance with any other federal, state, or local laws
Printed Name: <u>Jeff</u>	<u>Harvard</u>	Title:President and Manager
Signature:		Date:
email:jharvard@h	pcnm.com	Telephone: <u>575-208-7135</u>
OCD Only		
Received by:		Date:

te of New Mexico

Incident ID	nAB1912855636
District RP	1RP-5462
Facility ID	
Application ID	

## Site Assessment/Characterization

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

What is the shallowest depth to groundwater beneath the area affected by the release?	Not Determined Assume < 50 ft bgs
Did this release impact groundwater or surface water?	☐ Yes ⊠ No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	☐ Yes ⊠ No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	☐ Yes ⊠ No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	☐ Yes ⊠ No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	☐ Yes ⊠ No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	☐ Yes ⊠ No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	☐ Yes ⊠ No
Are the lateral extents of the release within 300 feet of a wetland?	☐ Yes ⊠ No
Are the lateral extents of the release overlying a subsurface mine?	☐ Yes ⊠ No
Are the lateral extents of the release overlying an unstable area such as karst geology?	☐ Yes ⊠ No
Are the lateral extents of the release within a 100-year floodplain?	☐ Yes ⊠ No
Did the release impact areas <b>not</b> on an exploration, development, production, or storage site?	☐ Yes ⊠ No
Attach a comprehensive report (electronic submittals in .pdf format are preferred) demonstrating the lateral and ver contamination associated with the release have been determined. Refer to 19.15.29.11 NMAC for specifics.	tical extents of soil
Characterization Report Checklist: Each of the following items must be included in the report.	
<ul> <li>Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wel</li> <li>Field data</li> <li>Data table of soil contaminant concentration data</li> <li>Depth to water determination</li> <li>Determination of water sources and significant watercourses within ½-mile of the lateral extents of the release</li> </ul>	ls.
Boring or excavation logs	

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

Topographic/Aerial maps

Photographs including date and GIS information

□ Laboratory data including chain of custody

Received by OCD: 3/11/2024 2:52:42 PM Form C-141 State of New Mexico Page 4 Oil Conservation Division

 Page 25 of 319

 Incident ID
 nAB1912855636

 District RP
 1RP-5462

 Facility ID
 1RP-5462

Application ID

Page 26 of 319

Incident ID	nAB1912855636
District RP	1RP-5462
Facility ID	
Application ID	

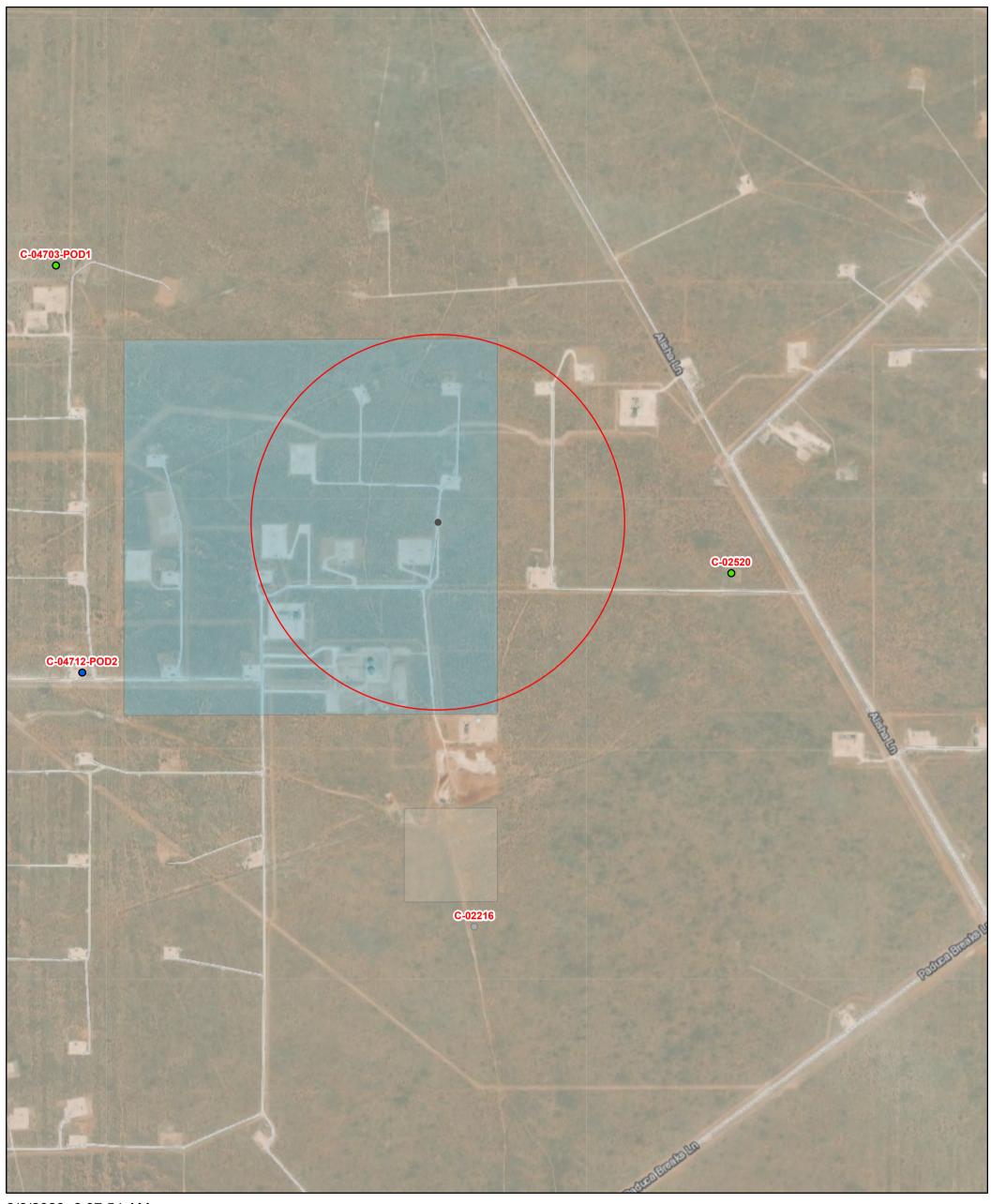
## Closure

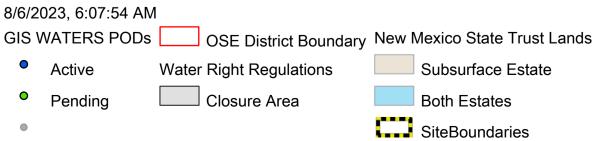
The responsible party must attach information demonstrating they have complied with all applicable closure requirements and any conditions or directives of the OCD. This demonstration should be in the form of a comprehensive report (electronic submittals in .pdf format are preferred) including a scaled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

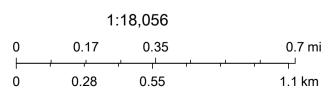
Closure Report Attachment Checklist: Each of the following in	tems must be included in the closure report.
A scaled site and sampling diagram as described in 19.15.29.1	1 NMAC
□ Photographs of the remediated site prior to backfill or photos must be notified 2 days prior to liner inspection)	of the liner integrity if applicable (Note: appropriate OCD District office
□ Laboratory analyses of final sampling (Note: appropriate ODC)	C District office must be notified 2 days prior to final sampling)
Description of remediation activities	
may endanger public health or the environment. The acceptance of	tions. The responsible party acknowledges they must substantially nditions that existed prior to the release or their final land use in CD when reclamation and re-vegetation are complete.
Signature:	
email:jharvard@hpcnm.com	Telephone: <u>575-208-7135</u>
OCD Only	
Received by:	Date:
	of liability should their operations have failed to adequately investigate and water, human health, or the environment nor does not relieve the responsible or regulations.
Closure Approved by:	Date:
Printed Name:	Title:

## **APPENDIX B – Closure Criteria Research Documentation**

# OSE POD 0.5 mile







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



## 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)

X

623332

625035

(In feet)

**POD** 

CUB

Sub-Q Q QCode

LE

Water DistanceDepthWellDepthWater Column

585

**POD Number** C 04712 POD2 C 02216

basin County 64 16 4 Sec Tws Rng CUB 4 4 4 17 23S

2 2 4 21 23S 32E

3574331

3573261\*

1660 55

400 185

Average Depth to Water:

400 feet

Minimum Depth:

1742

400 feet

Maximum Depth:

400 feet

**Record Count: 2** 

<u>UTMNAD83 Radius Search (in meters):</u>

**Easting (X):** 624855

**Northing (Y):** 3574994

Radius: 2000

\*UTM location was derived from PLSS - see Help

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

8/6/23 6:04 AM

WATER COLUMN/ AVERAGE DEPTH TO

WATER



## **Point of Diversion Summary**

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

(quarters are smallest to largest)

(NAD83 UTM in meters)

 Well Tag
 POD Number
 Q64 Q16 Q4
 Sec
 Tws
 Rng
 X

 NA
 C 04712 POD2
 4 4 4 17 23S 32E
 623332

**X Y** 23332 3574331

Driller Company: VISION RESOURCES, INC

**Driller Name:** JASON MALEY

1833

**Drill Start Date:** 03/09/2023

**Drill Finish Date:** 

03/09/2023 Plug Date:

03/14/2023

**Log File Date:** 

**Driller License:** 

04/04/2023

PCW Rcv Date:

Source:

Pump Type:

**Casing Size:** 

Pipe Discharge Size:

**Estimated Yield:** 

Depth Well:

55 feet

Depth Water:

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

8/6/23 6:19 AM

POINT OF DIVERSION SUMMARY



## **Water Right Summary**

Cross Reference: -



WR File Number: C 04712 Subbasin: CUB

Primary Purpose: MON MONITORING WELL

**Primary Status:** PMT PERMIT

Total Acres: Subfile: - Header: -

Total Diversion: 0 Cause/Case: -

Owner: VERTEX RESOURCES

User: HARVARD PETROLEUM COMPANY LLC

Contact: JUSTIN WARREN

#### **Documents on File**

					Sta	atus		From/			
		Trn #	Doc	File/Act	1	2	Transaction Desc.	To	Acres	Diversion	Consumptive
D	get images	743189	EXPL	2023-02-21	PMT	APR	C 04712 POD1-6	T	0	0	

#### **Current Points of Diversion**

(NAD83 UTM in meters)

POD Number	O	Q 64Q16Q4Sec Tws Rng X Y Other Location De	esc
<u>C 04712 POD1</u>	NA	1 4 1 31 23S 32E 620917 3570289 SDE	
<u>C 04712 POD2</u>	NA	4 4 4 17 238 32E 623332 3574331 TOMCAT17	
<u>C 04712 POD3</u>	NA	4 1 2 24 23S 31E 619651 3573877 OTODD24	
<u>C 04712 POD4</u>	NA	1 4 3 14 23S 31E 617535 3574316 TODD14	
<u>C 04712 POD5</u>	NA	4 4 3 09 23S 31E 614393 3575754 NPG9	
C 04712 POD6	NA	3 3 4 08 23S 31E 613147 3575740 NPG8	

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

8/6/23 6:21 AM WATER RIGHT SUMMARY



## **Transaction Summary**

**EXPL** Permit To Explore

Transaction Number: 743189 Transaction Desc: C 04712 POD1-6 File Date: 12/14/2022

Primary Status: PMT Permit
Secondary Status: APR Approved

Person Assigned: \*\*\*\*\*\*

**Applicant:** VERTEX RESOURCES

User: HARVARD PETROLEUM COMPANY LLC

Contact: JUSTIN WARREN

Events					
g <u>et</u>	<b>Date</b> 12/14/2022	Type APP	<b>Description</b> Application Received	Comment *	Processed By
images get	02/07/2023	TEC	Technical Report	*PLG PLN OPS C	*****
images	02/21/2023	FTN	Finalize non-published Trans.		*****
	03/09/2023	QAT	Quality Assurance Completed	DATA	*****
	03/14/2023	QAT	Quality Assurance Completed	IMAGE	*****
) g <u>et</u>	04/04/2023	LOG	Well Log Received	*C-4712-POD1 DRY	*****
images	04/04/2023	DRY	Dry well log received	C-4712 POD1 DRY	*****
g <u>et</u>	04/04/2023	LOG	Well Log Received	*C-4712-POD2 DRY	*****
images	04/04/2023	DRY	Dry well log received	C-4712-POD2 DRY	*****
g <u>et</u>	04/04/2023	LOG	Well Log Received	*C-4712-POD3 DRY	*****
images	04/04/2023	DRY	Dry well log received	C-4712-POD3 DRY	*****
g <u>et</u>	04/04/2023	LOG	Well Log Received	*C-4712-POD4 DRY	*****
images	04/04/2023	DRY	Dry well log received	C-4712-POD4 DRY	*****
g <u>et</u>	04/04/2023	LOG	Well Log Received	*C-4712-POD5 DRY	*****
images	04/04/2023	DRY	Dry well log received	C-4712-POD5 DRY	*****
g <u>et</u>	04/04/2023	LOG	Well Log Received	*C-4712-POD6 DRY	*****
images	04/04/2023	DRY	Dry well log received	C-4712-POD6 DRY	*****

	<del>-</del> ,				
get images	04/04/2023	LGI	Well Log Image	*PLG RECORD C-	*****
get images	04/04/2023	LGI	Well Log Image	*PLG RECORD C-	*****
get images	04/04/2023	LGI	Well Log Image	*PLG RECORD C-	*****
get images	04/04/2023	LGI	Well Log Image	*PLG RECORD C-	*****
get images	04/04/2023	LGI	Well Log Image	*PLG RECORD C-	*****
get images	04/04/2023	LGI	Well Log Image	*PLG RECORD C-	*****
	05/24/2023	QAT	Quality Assurance Completed	DATA WR C-4712	*****
	05/24/2023	QAT	Quality Assurance Completed	DATA PLG RECORD	*****
	06/08/2023	QAT	Quality Assurance Completed	DATA LOG POD1	*****
	06/08/2023	QAT	Quality Assurance Completed	DATA LOG POD2	*****
	06/08/2023	QAT	Quality Assurance Completed	DATA LOG POD3	*****
	06/08/2023	QAT	Quality Assurance Completed	DATA LOG POD4	*****
	06/08/2023	QAT	Quality Assurance Completed	DATA LOG POD5	*****
	06/08/2023	QAT	Quality Assurance Completed	DATA LOG POD6	*****
	06/12/2023	QAT	Quality Assurance Completed	IMAGE	*****

Water Right Information			
WR File Nbr	Acres	Diversion	Consumptive Purpose of Use
C 04712	0	0	MON MONITORING WELL
**Point of Diversion			
C 04712 POD2		623332	3574331
C 04712 POD1		620917	3570289
C 04712 POD3		619651	3573877
C 04712 POD6		613090	3576220
C 04712 POD4		617535	3574316
C 04712 POD5		614393	3575754

#### **Conditions**

- 1A Depth of the well shall not exceed the thickness of the valley fill.
- 4 No water shall be appropriated and beneficially used under this permit.
- B The well shall be drilled by a driller licensed in the State of New Mexico in accordance with 72-12-12 NMSA 1978. A licensed driller shall not be required

- for the construction of a well driven without the use of a drill rig, provided that the casing shall not exceed two and three-eighths (2 3/8) inches outside diameter.
- The well driller must file the well record with the State Engineer and the applicant within 30 days after the well is drilled or driven. It is the well owner's responsibility to ensure that the well driller files the well record. The well driller may obtain the well record form from any District Office or the Office of the State Engineer website.
- The well authorized by this permit shall be plugged completely using the following method per Rules and Regulations Governing Well Driller Licensing, Construction, Repair and Plugging of Wells; Subsection C of 19.27.4.30 NMAC unless an alternative plugging method is proposed by the well owner and approved by the State Engineer upon completion of the permitted use. All pumping appurtenance shall be removed from the well prior to plugging. To plug a well, the entire well shall be filled from the bottom upwards to ground surface using a tremie pipe. The bottom of the tremie shall remain submerged in the sealant throughout the entire sealing process; other placement methods may be acceptable
- 7 The Permittee shall utilize the highest and best technology available to ensure conservation of water to the maximum extent practical.
- 16 Construction of a water well by anyone without a valid New Mexico Well Driller License is illegal, and the landowner shall bear the cost of plugging the well by a licensed New Mexico well driller. This does not apply to driven wells, the casing of which does not exceed two and three-eighths inches outside diameter.
- P The well shall be constructed, maintained, and operated to prevent inter-aquifer exchange of water and to prevent loss of hydraulic head between hydrogeologic zones.
- Q The State Engineer retains jurisdiction over this permit.
- R Pursuant to section 72-8-1 NMSA 1978, the permittee shall allow the State Engineer and OSE representatives entry upon private property for the performance of their respective duties, including access to the ditch or acequia to measure flow and also to the well for meter reading and water level measurement.

#### **Action of the State Engineer**

IT IS THE PERMITTEE'S RESPONSIBILITY TO OBTAIN ALL AUTHORIZATIONS AND PERMISSIONS TO DRILL ON PROPERTY OF OTHER OWNERSHIP BEFORE COMMENCING ACTIVITIES UNDER THIS PERMIT.

\*\* See Image For Any Additional Conditions of Approval \*\*

 Approval Code:
 A - Approved

 Action Date:
 02/21/2023

 Log Due Date:
 02/21/2024

**State Engineer:** Mike A. Hamman, P.

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

8/6/23 6:22 AM TRANSACTION SUMMARY



## WELL RECORD & LOG

## OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

	OSE POD NO	O. (WELL NO.	200	WELL TAG ID NO.		OSE FILE NO	s). C-4	717		
	WELL OWN		002			PHONE (OPTI		11 —		
3	Harva	d Peta	oleun Compo	c+ Y						
		ER MAILING				CITY .		STATE	ZIP	
		30x 9		EGREES MINUTES SEC	ONDS	Roswell		NM 8	8202	
No.	LOCATIO (FROM GE	rs)	TTUDE		REQUIRED: ONE TEN	TH OF A SECOND				
	DESCRIPTION			D STREET ADDRESS AND COMMON LAND	MARKS - PLSS	(SECTION, TO	WNSHJIP, RANGE) WI	IERE AVAILABLE		
	LICENSE NO	).	NAME OF LICENSED	DRILLER			NAME OF WELL DR	ILLING COMPANY		
	1833 DRILLING S	TARTED	DRILLING ENDED	DEPTH OF COMPLETED WELL (FT)	BODE HOLL	E DEPTH (FT)	Ussion R	esources	T)	
		COLUMN 1	3-9-2023	55	55	E DEFIH (FI)	ACV	ST ENCOUNTERED (F	1)	
	3-9-2023 3-9-2023 55 STATIC WA  COMPLETED WELL IS: ARTESIAN*add DRY HOLE SHALLOW (UNCONFINED)  Centralizer info below (FT)							DATE STATIO	C MEASURE	
	DRILLING F	LUID:	AIR	MUD ADDITIVES – SP	ECIFY:	10.17	Dry	- IO y		
	DRILLING METHOD: TROTARY HAMMER CABLE TOOL OTHER - SPECIFY:						CHECK	HERE IF PITLESS AD.	APTER IS	
2. DRILLING & CASING INFORMATION	DEPTH	(feet bgl)	BORE HOLE	CASING MATERIAL AND/OR	CAS	SING	CASING	CASING WALL	SLOT	
	FROM TO DIAM (inches)		DIAM	(include each casing string, and		ECTION (PE ng diameter)	INSIDE DIAM. (inches)	THICKNESS (inches)	SIZE (inches	
				None						
							DOCOMAN	2 4 2023 pm; 12	3	
-										
	DEPTH (feet bgl) BORE HOLE FROM TO DIAM. (inches)		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			/ 1' C O DI		METHOD OF	
	TROW	ТО		using Centralizers for Artesian wells	- indicate the s	pacing below)	3			

WELL TAG ID NO.

PAGE 1 OF 2

1	DEPTH (feet bgl)		7-5-5-5	COLOR AND TYPE OF MATERIAL ENCOUNTERED -	WATER	ESTIMATED YIELD FOR
	FROM	то	THICKNESS (feet)	INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES (attach supplemental sheets to fully describe all units)		WATER- BEARING ZONES (gpm
	0	35	35	White Caliche.	Y N	
	35	55	55	Red Fine Sand Dry	Y N	
					Y N	
					Y N	
1					Y N	
					Y N	
					Y N	
1					Y N	
					Y N	
					Y N	
4. HYDROGEOLOGIC LOG OF WELL					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: TOTAL			TOTAL ESTIMATED		
	PUMP AIR LIFT		AIR LIFT	BAILER OTHER - SPECIFY: WELL YIELD (gpm):		Dry
	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.					
5. TEST; RIG SUPERVISION	MISCELLANEOUS INFORMATION: Note would not stey open Past 35. Plugged no water					
27	PRINT NAME(S) OF DRILL RIG SUPERVISOR(S) THAT PROVIDED ONSITE SUPERVISION OF WELL CONSTRUCTION OTHER THAN LICENSEE:					
v.	USE DIT APR 4 2023 PM1:23					
6. SIGNALURE	THE UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUCORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENCAND THE PERMIT HOLDER WITHIN 30 DAYS AFTER COMPLETION OF WELL DRILLING:  SIGNATURE OF DRILLER / PRINT SIGNEE NAME  THE UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUCORRECT RECORD WITH THE STATE ENCANDED TO TH					
0.0		SIGNA	TURE OF DRILLE	R / PRINT SIGNEE NAME	DATE	

Released to Imaging: 4/23/2024 2:01:30 PM

PAGE 2 OF 2

Mike A. Hamman, P.E. State Engineer



Roswell Office 1900 WEST SECOND STREET ROSWELL, NM 88201

#### STATE OF NEW MEXICO OFFICE OF THE STATE ENGINEER

Trn Nbr: 743189 File Nbr: C 04712

Well File Nbr: C 04712 POD2

Apr. 04, 2023

VERTEX RESOURCES P.O. BOX 936 ROSWELL, NM 88202

#### Greetings:

The above numbered permit was issued in your name on 02/21/2023.

The Well Record was received in this office on 04/04/2023, stating that it had been completed on 03/09/2023, and was a dry well. The well is to be plugged according to 19.27.4.30 NMAC.

Please note that another well can be drilled under this permit if the well is completed and the well log filed on or before 02/21/2024.

If you have any questions, please feel free to contact us.

Sincerely,

Maret Thompson (575) 622-6521

drywell



# **Point of Diversion Summary**

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

(quarters are smallest to largest)

(NAD83 UTM in meters)

Well Tag POD Number Q64 Q16 Q4 Sec 7

Q64 Q16 Q4 Sec Tws Rng

X Y

625035 3573261\*

Driller License: Driller Company:

**Driller Name:** UNKNOWN

C 02216

Drill Start Date: Drill Finish Date: 12/31/1912 Plug Date:
Log File Date: PCW Rcv Date: Source:

Pump Type:Pipe Discharge Size:Estimated Yield:7 GPMCasing Size:6.50Depth Well:585 feetDepth Water:400 feet

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

8/6/23 6:20 AM

POINT OF DIVERSION SUMMARY

<sup>\*</sup>UTM location was derived from PLSS - see Help



# **Water Right Summary**

Cross Reference: -



WR File Number: C 02216 Subbasin: CUB

Primary Purpose: PLS NON 72-12-1 LIVESTOCK WATERING

Primary Status: DCL DECLARATION

Total Acres: 0 Subfile: - Header: -

Total Diversion: 11.3 Cause/Case: -

Owner: BRININSTOOL XL RANCH LLC Contact: CHRISTINE BRININSTOOL

#### **Documents on File**

				Sta	itus		rom/			
	Trn #	Doc	File/Act	1	2	Transaction Desc.	To	Acres	Diversion	Consumptive
get images	439858	COWNF	2009-07-29	CHG	PRC	C-02216	T	0	0	
get images	234004	COWNF	2002-06-07	CHG	PRC	C-02216	T	0	0	
get images	198936	DCL 1	991-05-21	DCL	PRC	C-02216	T	0	11.3	

#### **Current Points of Diversion**

(NAD83 UTM in meters)

POD Number	Well Tag	Source	640	Q16	6Q4	Sec	Tws Rng	X	Y	Other Location Desc
<u>C 02216</u>			2	2	4	21	23S 32E	625035	3573261*	)

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

#### **Priority Summary**

Priority Status Acres Diversion Pod Number
12/31/1912 DCL 0 11.3 <u>C 02216</u>

#### Place of Use

QQ

256 64 Q16 Q4Sec Tws Rng Acres Diversion CU Use Priority Status Other Location Desc

0 11.3 PLS 12/31/1912 DCL NO PLACE OF USE GIVEN

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8/6/23 6:21 AM

WATER RIGHT SUMMARY



#### U.S. Fish and Wildlife Service

# National Wetlands Inventory

## Intermittent 20,903 feet



August 6, 2023

#### Wetlands

Estuarine and Marine Deepwater

Estuarine and Marine Wetland

Freshwater Emergent Wetland

Freshwater Forested/Shrub Wetland

Freshwater Pond



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.

Received by OCD: 3/11/2024 2:52:42 PM



## Pond 33,274 feet



August 6, 2023

#### Wetlands

Estuarine and Marine Deepwater

Estuarine and Marine Wetland

Freshwater Emergent Wetland

Freshwater Forested/Shrub Wetland

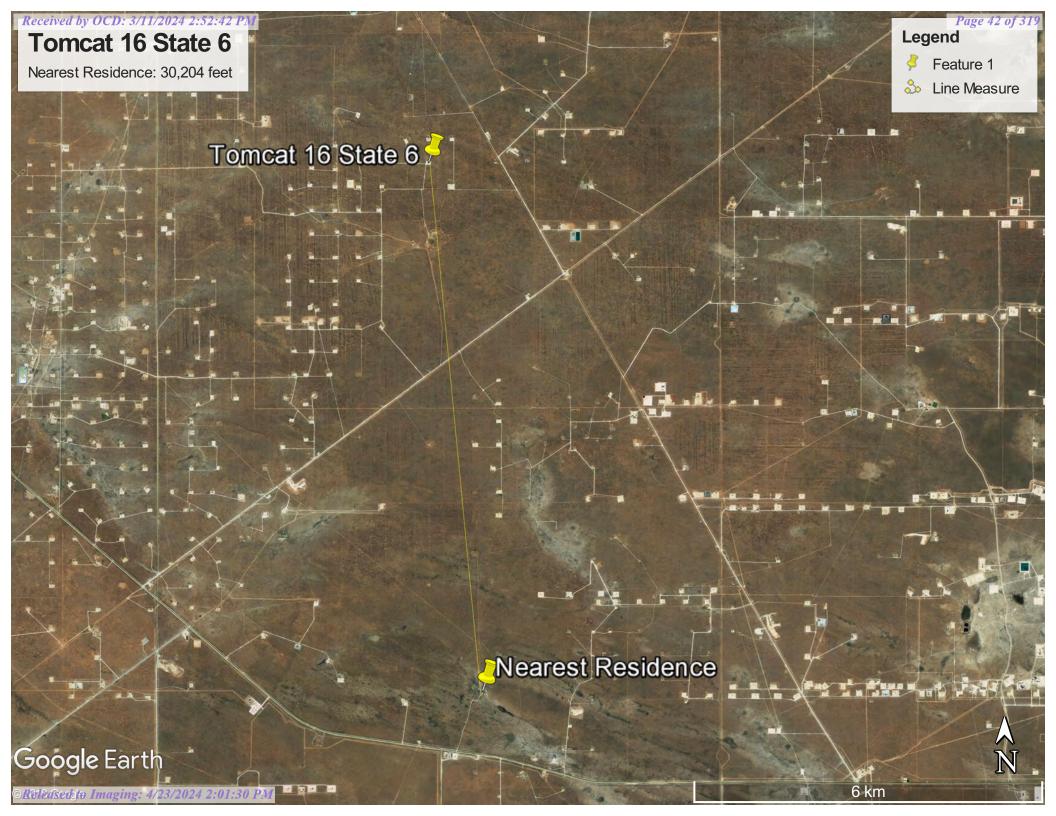
Freshwater Pond



Riverine

Lake

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.





## **Active & Inactive Points of Diversion**

(with Ownership Information)

	(acre ft po	er annum)		Well	(R=POD has been replaced and no longer serves this file, C=the file is closed)		rs are 1=N			=SW 4=SE)		83 UTM in me
WR File Nbr C 02520		version Owner 0 PENWELL ENERGY	County POD Number LE C 02520	Tag	Code Grant	Source	<b>6416 4</b> 1 4	<b>Sec</b> 15		Rng 32E	<b>X</b> 626122	<b>Y</b> 3574791*
C 04712	CUB MON	0 HARVARD PETROLEUM COMPANY LLC	LE <u>C 04712 POD2</u>	NA			4 4 4	17	23S	32E	623331	3574331
<u>C 02216</u>	CUB PLS	11.3 BRININSTOOL XL RANCH LLC	LE <u>C 02216</u>				2 2 4	21	23S	32E	625035	3573261*
<u>C 04703</u>	CUB MON	0 DEVON ENERGY PRODUCTION CO.	LE <u>C 04703 POD1</u>	NA			1 4 4	08	26S	32E	623195	3576072

Record Count: 4

UTMNAD83 Radius Search (in meters):

**Easting (X):** 624855 **Northing (Y):** 3574994 **Radius:** 2000

Sorted by: Distance

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8/6/23 6:05 AM ACTIVE & INACTIVE POINTS OF D.

<sup>\*</sup>UTM location was derived from PLSS - see Help



# **Point of Diversion Summary**

23S 32E

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

(quarters are smallest to largest)

(NAD83 UTM in meters)

Well Tag POD Number Q64 Q16 Q4 Sec Tws Rng

X Y

626122 3574791\*

9

**Driller License:** 

C 02520

**Driller Company:** 

**Driller Name:** 

**Drill Finish Date:** 

Plug Date:

Drill Start Date: Log File Date:

PCW Rcv Date:

Source:

Pump Type:

Pipe Discharge Size:

**Estimated Yield:** 

Casing Size:

Depth Well:

Depth Water:

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8/6/23 6:24 AM

POINT OF DIVERSION SUMMARY

<sup>\*</sup>UTM location was derived from PLSS - see Help



# **Water Right Summary**

WR File Number: C 02520

Subbasin: C

**Cross Reference:** 

Primary Purpose: PRO

72-12-1 PROSPECTING OR DEVELOPMENT OF NATURAL RESOURCE

**Primary Status:** 

**PMT PERMIT** 

**Total Acres:** 

Subfile:

Header: -

**Total Diversion:** 

Cause/Case:

PENWELL ENERGY

Owner: **Contact:** 

**CLRKY GLENN** 

**Documents on File** 

Status

From/

Trn# File/Act 2 Transaction Desc. To

**Diversion Consumptive** 

1997-04-23

EXP EXP C 02520 T

3

**Current Points of Diversion** 

(NAD83 UTM in meters)

**POD Number** 

Well Tag Source 64Q16Q4Sec Tws Rng 1 4 15 23S 32E 626122 3574791\*

**Other Location Desc** 

C 02520

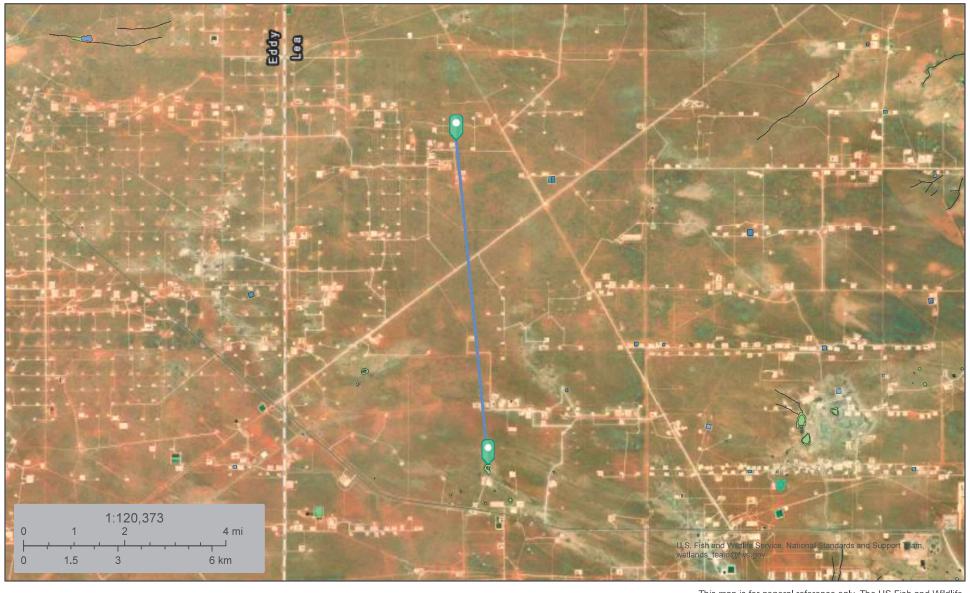
\*An (\*) after northing value indicates UTM location was derived from PLSS - see Help

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

8/6/23 6:24 AM WATER RIGHT SUMMARY



## Wetland 28,732 feet



August 6, 2023

#### Wetlands

Estuarine and Marine Deepwater

Estuarine and Marine Wetland

Freshwater Emergent Wetland

Freshwater Forested/Shrub Wetland

Freshwater Pond

Lake

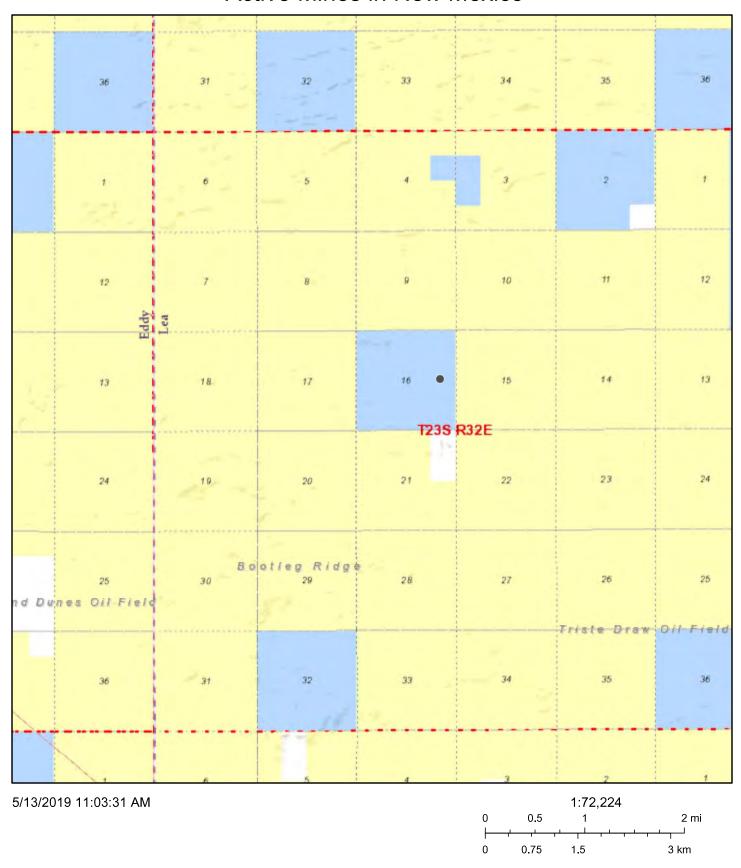
Other

Riverine

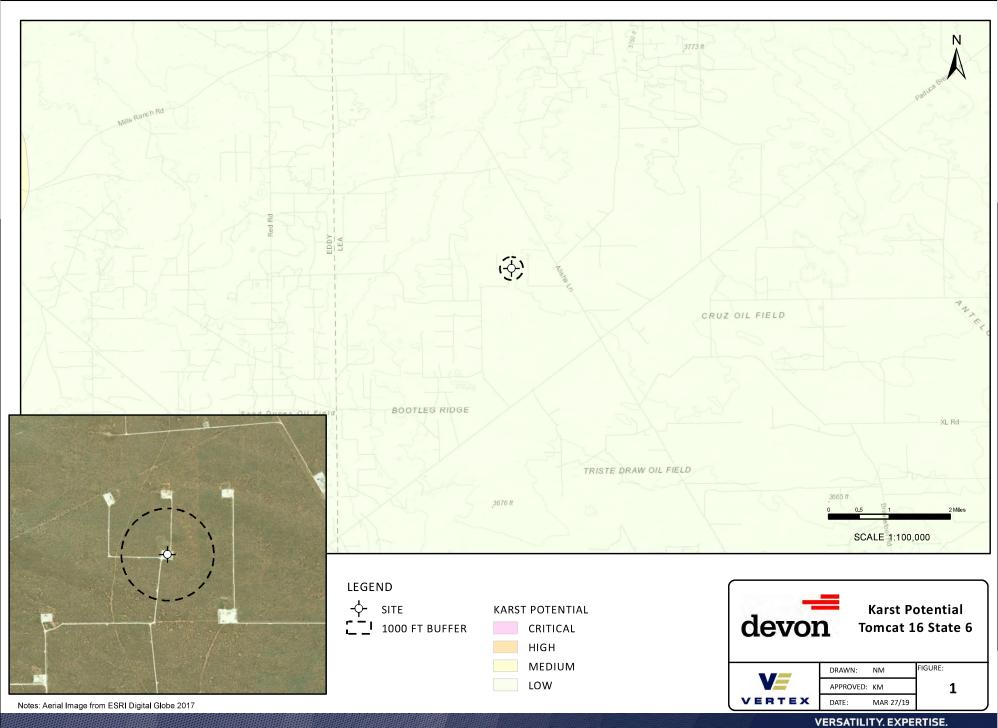
Othe

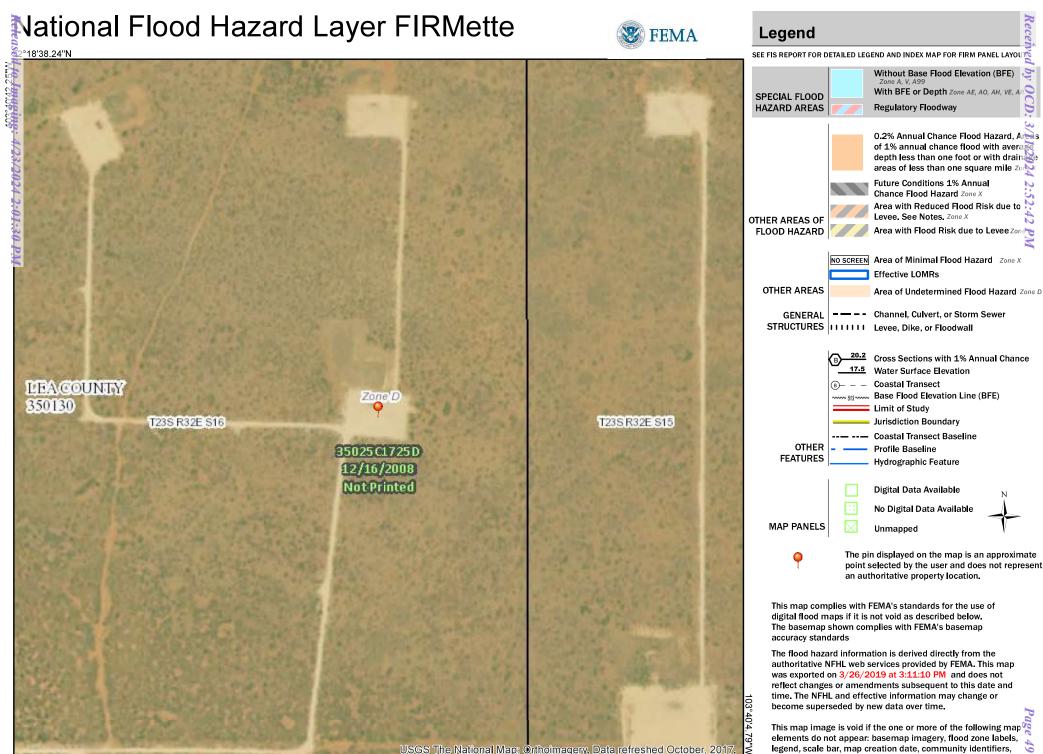
This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

## Active Mines in New Mexico



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





1:6,000

Feet

2,000

250

500

1,000

1,500

FIRM panel number, and FIRM effective date. Map images for 🍣

unmapped and unmodernized areas cannot be used for

regulatory purposes.



**VRCS** 

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



## **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**

Preface	2
How Soil Surveys Are Made	
Soil Map	
Soil Map	
Legend	
Map Unit Legend	
Map Unit Descriptions	
Lea County, New Mexico	
PT—Pyote loamy fine sand	
References	

# **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.



#### 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

(0)

Blowout

 $\boxtimes$ 

Borrow Pit

Ж

Clay Spot

 $\Diamond$ 

Closed Depression

×

Gravel Pit

...

**Gravelly Spot** 

0

Landfill Lava Flow

٨

Marsh or swamp

尕

Mine or Quarry

0

Miscellaneous Water
Perennial Water

0

Rock Outcrop

+

Saline Spot

...

Sandy Spot

Severely Eroded Spot

Sinkhole

26.

Slide or Slip

Sodic Spot

8

Spoil Area

۵

Stony Spot

03

Very Stony Spot

87

Wet Spot Other

Δ.

Special Line Features

#### Water Features

\_\_

Streams and Canals

#### Transportation

ansp

Rails

~

Interstate Highways

\_

US Routes

Major Roads

-

Local Roads

Background

100

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 15, Sep 12, 2018

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

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

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

### Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
PT	Pyote loamy fine sand	0.3	100.0%
Totals for Area of Interest		0.3	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

#### PT—Pyote loamy fine sand

#### **Map Unit Setting**

National map unit symbol: dmqp 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 200 days

Farmland classification: Farmland of statewide importance

#### **Map Unit Composition**

Pyote and similar soils: 85 percent Minor components: 15 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 25 inches: loamy fine sand Bt - 25 to 60 inches: fine sandy loam

#### Properties and qualities

Slope: 0 to 3 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Well drained

Runoff class: Negligible

Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00

in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None Frequency of ponding: None

Calcium carbonate, maximum in profile: 5 percent

Gypsum, maximum in profile: 1 percent

Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0

mmhos/cm)

Sodium adsorption ratio, maximum in profile: 2.0

Available water storage in profile: Low (about 5.3 inches)

#### Interpretive groups

Land capability classification (irrigated): 6e Land capability classification (nonirrigated): 7s

Hydrologic Soil Group: A

Ecological site: Loamy Sand (R042XC003NM)

Hydric soil rating: No

#### **Minor Components**

#### Maljamar

Percent of map unit: 8 percent

Ecological site: Loamy Sand (R042XC003NM)

Hydric soil rating: No

#### **Palomas**

Percent of map unit: 7 percent

Ecological site: Loamy Sand (R042XC003NM)

Hydric soil rating: No

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# Ecological site R070BD003NM Loamy Sand

Accessed: 11/21/2022

#### **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	<b>Sandy</b> Sandy
R070BD005NM	<b>Deep Sand</b> 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	<ul><li>(1) Fan piedmont</li><li>(2) Alluvial fan</li><li>(3) Dune</li></ul>
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	<ul><li>(1) Fine sand</li><li>(2) Fine sandy loam</li><li>(3) Loamy fine sand</li></ul>
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

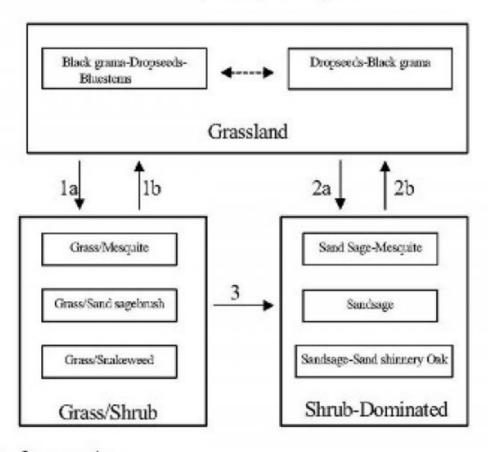
The Loamy Sand site intergrades with the Deep Sand and Sandy sites (SD-3). These sites can be differentiated by surface soil texture and depth to a textural change. Loamy Sand and Deep Sand sites have coarse textured (sands and loamy sand) surface soils while Sandy sites have moderately coarse textured (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):

## MLRA-42, SD-3, Loamy Sand



- 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.
- 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						
Forb foliar cover						
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 .

Jai	ı Fe	eb	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





\*Black grame/Mesquite community, with some dropseeds, threeours, and scattered sand shirnery oak \*Oracs cover low to mederate

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 - 762.3 - 3.5 75 - 513.0 - 4.5 50 - 264.6 - 9.0 25 - 09.1 +

## Inventory data references

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

#### Other references

Literature Cited:

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

Ansley, R. J.; Jones, D. L.; Tunnell, T. R.; [and others]. 1998. Honey mesquite canopy responses to single winter fires: relation to herbaceous fuel, weather and fire temperature. International Journal of Wildland Fire 8(4):241-252.

Britton, Carlton M.; Wright, Henry A. 1971. Correlation of weather and fuel variables to mesquite damage by fire. Journal of Range Management 24:136-141.

Davis, Joseph H., III and Bonham, Charles D. 1979. Interference of sand sagebrush canopy with needleandthread. Journal of Range Management 32(5):384-386.

Herbel, C. H, Steger, R, Gould, W. L. 1974. Managing semidesert ranges of the Southwest Circular 456. Las Cruces, NM: New Mexico State University, Cooperative Extension Service. 48 p.

McDaniel, Kirk C.; Pieper, Rex D.; Loomis, Lyn E.; Osman, Abdelgader A. 1984. Taxonomy and ecology of perennial snakeweeds in New Mexico. Bulletin 711. Las Cruces, NM: New Mexico State University, Agricultural Experiment Station. 34 p.

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

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

#### **Contributors**

Don Sylvester Quinn Hodgson

#### Rangeland health reference sheet

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

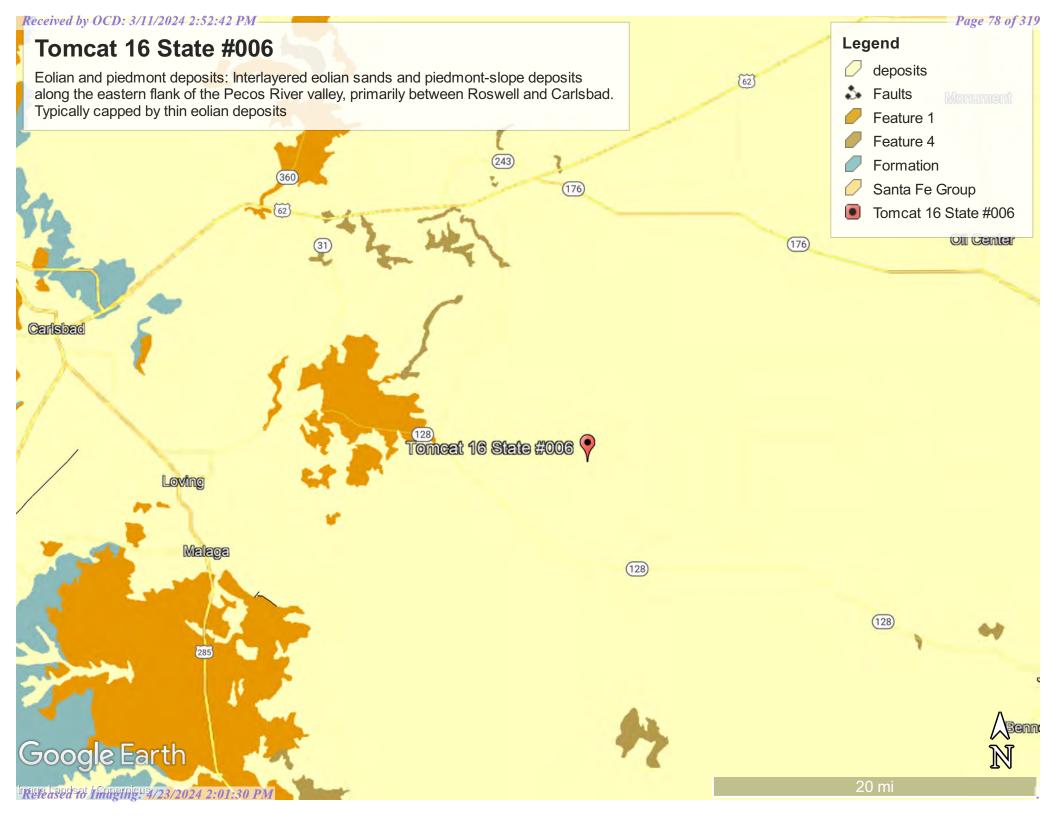
Author(s)/participant(s)	
Contact for lead author	
Date	
Approved by	
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

#### Indicators

1110	licators
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:



# **APPENDIX C – Daily Field Reports**



Client: Devon Energy Inspection Date: 3/27/2019

Corporation

Site Location Name: Tomcat 16 State 006 Report Run Date: 3/27/2019 7:02 PM

Project Owner: Amanda T. Davis File (Project) #: 19E-00575

Project Manager: Dennis Williams API #: 30-025-34949

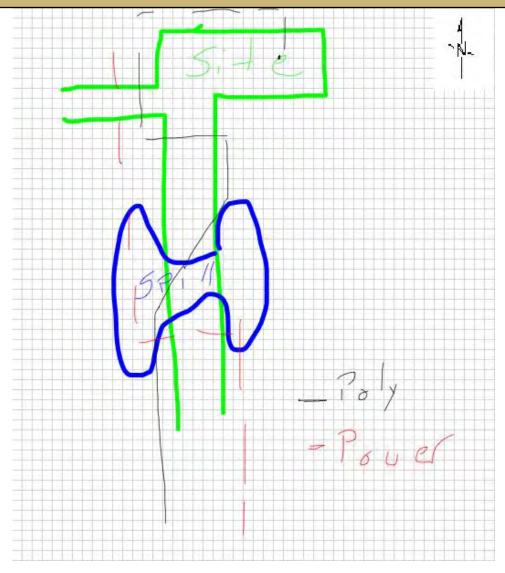
Client Contact Name: Amanda Davis Reference Contractor Line Hit Spill

Client Contact Phone #: (575) 748-0176

	Summary of Times
Left Office	3/27/2019 6:20 AM
Arrived at Site	3/27/2019 8:38 AM
Departed Site	3/27/2019 10:19 AM
Returned to Office	3/27/2019 12:00 PM



## **Site Sketch**





## **Summary of Daily Operations**

9:02 Arrive onsite and fill out all Safety paperwork.

**9:05** Take pictures of and GPS spill location.

## **Next Steps & Recommendations**

- 1 Schedule Locates
- 2 Sampling plan drawn up and work plan built.
- **3** Line up B&R trucking.
- **4** Once locates confirmed, B&R trucking confirmed, schedule Devon safety mentor.
- **5** Complete Remediation.



## **Site Photos**



Spill area on road



**Viewing Direction**: Southwest



Spill area west of road



Spill area on east side of the road.





Spill area on east side of road



Spill area on east side of the road.



Spill area on west side of the road.



Overview of spill area.





Spill area on west side of the road.



Spill area on east side of the road



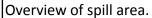
Spill area on east side of the road.



Overview of spill area.









Spill area on east side of the road.



## **Daily Site Visit Signature**

**Inspector:** Robyn Fisher

Signature:



VERTEX

Client: Devon Energy Inspection Date: 4/30/2019

Corporation

Site Location Name: Tomcat 16 State 006 Report Run Date: 5/1/2019 12:21 AM

Project Owner: Amanda T. Davis File (Project) #: 19E-00575

Project Manager: Dennis Williams API #: 30-025-34949

Client Contact Name: Amanda Davis Reference Contractor Line Hit Spill

Client Contact Phone #: (575) 748-0176

Summary	y of Times
---------	------------

Left Office 4/30/2019 8:00 AM

Arrived at Site 4/30/2019 9:23 AM

Departed Site 4/30/2019 4:15 PM

Returned to Office 4/30/2019 5:30 PM

## **Summary of Daily Operations**

9:24 Arrive on site

Fill out safety paperwork

Complete backfill of excavated area

Complete DFR

Return to office

**Close Report** 

#### **Next Steps & Recommendations**

- 1 Complete DFR
- 2 Close report
- **3** Send report to client



#### **Site Photos**



Excavated area west side of road



Viewing Direction: South

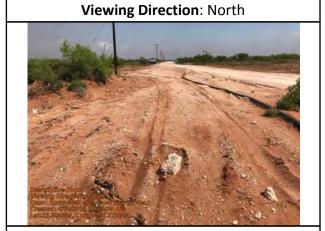


Excavated area west side of road



Excavated area west side of road





Excavated area west side of road



Excavated area east of road



Excavated area east of road



Excavated area east of road









Excavated area east of road



Excavated area east of road



Excavated area east of road





Excavated area west of road



Fill dirt on west of road



Fill dirt on west of road



Fill dirt west of road





Fill dirt east side of road



Fill dirt east side of road



Fill dirt east side of road

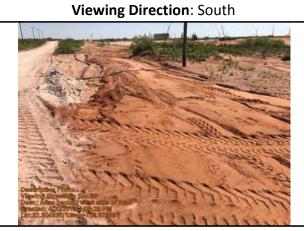


After backfill west side of road





After backfill west side of road



After backfill west side of road



After backfill west side of road



Powered by www.krinkleldar.com Page 7 of 10

Run on 5/1/2019 12:21 AM UTC





After backfill east side of road



After backfill east side of road



After backfill east side of road



After backfill east side of road





After backfill east side of road



## **Daily Site Visit Signature**

**Inspector:** Austin Harris

Signature:



Client:	Devon Energy Corporation	Inspection Date:	7/8/2023
Site Location Name:	Tomcat 16 State 006	Report Run Date:	7/9/2023 1:04 AM
Client Contact Name:	Dale Woodall	API #:	30-025-34949
Client Contact Phone #:	405-318-4697	_	
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	
		Summary of	Times
Arrived at Site	7/8/2023 6:59 AM		
Departed Site	7/8/2023 4:59 PM		

#### **Field Notes**

- 7:17 Completed JSA on arrival. On site to complete horizontal and vertical delineation based on original footprint of historical release.
- 7:30 Swept sampling locations with magnetic locator prior to ground disturbance.
- 7:55 Collected surface samples at historical borehole locations BH21-01, BH21-02, BH21-03, BH21-04, and BH21-05.
- 13:23 Advanced BH23-06, BH23-07, BH23-08, BH23-09, BH23-10, BH23-11, BH23-12, and BH23-13 around edges of historical release and excavation for horizontal delineation. Release area was excavated to 0.5 feet bgs and backfilled in 2019. Samples were collected at 0 and 2 feet bgs.
- 13:25 Advanced BH23-14, BH23-15, and BH23-16 in interior of historical release and excavation for vertical delineation. Release area was excavated to 0.5 feet bgs and backfilled in 2019. Samples were collected at 0, 0.5, and 2 feet bgs.
- 16:30 Field screening results for all samples were below NMOCD strictest criteria for chloride and TPH. All samples will be submitted for laboratory analysis.

## **Next Steps & Recommendations**

1



#### **Site Photos**

## Viewing Direction: Southwest



On lease road facing southwest. Collected surface samples at BH21-01, BH21-02, and BH21-05.

## Viewing Direction: North



Southwest portion of release area facing north. Advanced BH23-14 west of lease road.

## Viewing Direction: South



North of release area facing south. Advanced BH23-13 on north edge of historical release and excavation.

## Viewing Direction: North



Southeast portion of release area facing north. Advanced BH23-15 east of lease road.







East side of release area facing west. Advanced BH23-16 east of lease road.

# Viewing Direction: Southeast

On lease road facing southeast. Collected surface samples at BH21-03 and BH21-04.

## Viewing Direction: South



North of release area facing south. Advanced BH23-06 on north edge of historical release and excavation.

Viewing Direction: Southeast



West of release area facing southeast.
Advanced BH23-07 on west edge of historical release and excavation.





West of release area facing east. Advanced BH23-08 on west edge of historical release and excavation.



South of release area facing north. Advanced BH23-09 on south edge of historical release and excavation.



South of release area facing north. Advanced BH23-10 on south edge of historical release and excavation.



East of release area facing west. Advanced BH23-11 on east edge of historical release and excavation.





East of release area facing west. Advanced BH23-11 on east edge of historical release and excavation.



## **Daily Site Visit Signature**

**Inspector:** Lakin Pullman

Signature:



Client:	Devon Energy Corporation	Inspection Date:	7/12/2023
Site Location Name:	Tomcat 16 State 006	Report Run Date:	7/13/2023 1:14 AM
Client Contact Name:	Dale Woodall	API #:	30-025-34949
Client Contact Phone #:	405-318-4697	_	
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	
		Summary of	Times
Arrived at Site	7/12/2023 8:32 AM		
Departed Site	7/12/2023 4:35 PM		

#### **Field Notes**

- 8:46 Completed JSA once all personnel arrived. On site to collect confirmation samples for 2019 excavation to 0.5 feet bgs.
- 8:47 Swept sampling areas with magnetic locator prior to ground disturbance.
- **16:13** Collected wall samples WS23-01 through WS23-08 from edges of historical release and excavation. Historical excavation was 0.5 feet bgs. 5 boreholes were advanced to 0.5 feet bgs and samples from each were combined to create 5-point composite samples. Each composite sample represented 5 boreholes.
- **16:13** Collected base samples BS23-01 through BS23-48 from historical release and excavation. Historical excavation was 0.5 feet bgs. 5 boreholes were advanced to 0.5 feet bgs and samples from each were combined to create 5-point composite samples. Each composite sample represented 5 boreholes.

## **Next Steps & Recommendations**

1 Continue confirmation sampling.



## **Site Photos**





Northwest corner of historical release and excavation facing south.

## Viewing Direction: North



Southwest corner of historical release and excavation facing north.

## Viewing Direction: East



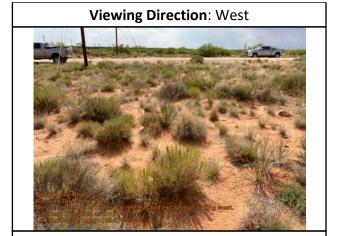
West edge of historical release and excavation facing east.

## Viewing Direction: North

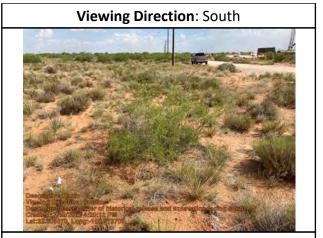


Southeast corner of historical release and excavation facing north.





East edge of historical release and excavation facing west.



Northeast corner of historical release and excavation facing south.



## **Daily Site Visit Signature**

**Inspector:** Lakin Pullman

Signature:



Client:	Devon Energy Corporation	Inspection Date:	7/13/2023
Site Location Name:	Tomcat 16 State 006	Report Run Date:	7/13/2023 9:34 PM
Client Contact Name:	Dale Woodall	API #:	30-025-34949
Client Contact Phone #:	405-318-4697		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	
		Summary of	Times

#### **Field Notes**

- 7:13 Completed JSA on arrival of all personnel. On site to complete confirmation sampling.
- 7:16 Swept sampling areas with magnetic locator prior to ground disturbance.

7/13/2023 7:00 AM 7/13/2023 11:35 AM

- 11:13 Collected remaining confirmation samples BS23-49 through BH23-73 on east side of historical release and excavation.
- **11:15** 5-point confirmation samples were collected at 0.5 feet bgs. For each composite sample, five boreholes were advanced to 0.5 feet bgs with material collected from the base.
- **11:16** Confirmation sampling completed. Samples to be sent to laboratory for analyses.

## **Next Steps & Recommendations**

1

Arrived at Site

**Departed Site** 



#### **Site Photos**





Northwest edge of historical release and excavation facing south.

Viewing Direction: North



Southwest edge of historical release and excavation facing north.

Viewing Direction: East



West edge of historical release and excavation facing east.

Viewing Direction: North

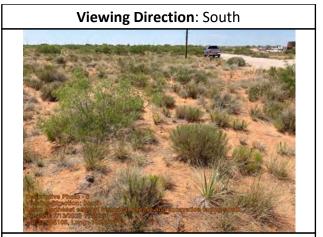


Southeast edge of historical release and excavation facing north.





East edge of historical release and excavation facing west.



Northeast edge of historical release and excavation facing south.



### **Daily Site Visit Signature**

**Inspector:** Lakin Pullman

Signature:



Client:	Devon Energy Corporation	Inspection Date:	8/5/2023
Site Location Name:	Tomcat 16 State 006	Report Run Date:	8/5/2023 5:01 PM
Client Contact Name:	Dale Woodall	API #:	30-025-34949
Client Contact Phone #:	405-318-4697	_	
Unique Project ID		– Project Owner:	
Project Reference #		– Project Manager: –	
		Summary of	Times
Arrived at Site	8/5/2023 7:07 AM		
Departed Site	8/5/2023 8:46 AM		
		=1.11	

#### **Field Notes**

- 7:10 Completed JSA on arrival. On site to re-collect confirmation sample.
- 7:21 Swept sampling area with magnetic locator prior to ground disturbance.
- **7:36** Re-collected historical excavation base sample BS23-62 confirmation sample at 0.5 feet bgs. Sample was 5-point composite representative of 200 square foot area around BS23-62.
- 8:38 Field screening results for BS23-62 composite re-sample were below NMOCD strictest thresholds for chloride and TPH.

## **Next Steps & Recommendations**

1 Submit sample to laboratory for analysis.



#### **Site Photos**

#### **Viewing Direction**: Southwest



East edge of historical release and excavation area facing southwest. Re-collected BS23-62 composite sample.

#### Viewing Direction: West



East edge of historical release and excavation area facing west. Re-collected BS23-62 composite sample.







East edge of historical release and excavation area facing northwest. Re-collected BS23-62 composite sample.

# Viewing Direction: Northeast

East of lease road, southeast of power pole facing northeast. Re-collected BS23-62 composite sample.





East of lease road, southeast of power pole facing east. Re-collected BS23-62 composite sample.

Viewing Direction: Southeast



East of lease road, southeast of power pole facing southeast. Re-collected BS23-62 composite sample.



### **Daily Site Visit Signature**

**Inspector:** Lakin Pullman

Signature:

## **APPENDIX D – Notifications**

[Quoted text hidden]

**Dhugal Hanton** <vertexresourcegroupusa@gmail.com>
To: "Enviro, OCD, EMNRD" <OCD.Enviro@emnrd.nm.gov>

Fri, Jul 7, 2023 at 7:43 PM

All,

Please accept this email as 48-hour notification that Vertex Resource Services has scheduled a confirmation sampling event to be conducted at the following release:

nAB1912855636, Tomcat 16 State 6, DOR 3-22-2019

From Wednesday, July 12, 2023 through Saturday July 15, 2023, at approximately 8:00 a.m, Vertex will be on-site to conduct final confirmation sampling. If you have any questions regarding this notification or need directions to the site, please contact Kent Stallings at 346-814-1413 or Lakin Pullman at 701-495-1722.

Thanks,

#### **Lakin Pullman**

**Environmental Specialist** 

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

C 701,495,1722

[Quoted text hidden]

#### Dhugal Hanton <vertexresourcegroupusa@gmail.com>

Fri, Jul 7, 2023 at 7:50 PM

To: "Enviro, OCD, EMNRD" <OCD.Enviro@emnrd.nm.gov>, "Enviro, OCD, EMNRD" <OCD.Enviro@state.nm.us>, KStallings@vertex.ca

All,

Please accept this email as 48-hour notification that Vertex Resource Services has scheduled a confirmation sampling event to be conducted at the following release:

nAB1912855636, Tomcat 16 State 6, DOR 3-22-2019

From Wednesday, July 12, 2023 through Saturday July 15, 2023, at approximately 8:00 a.m, Vertex will be on-site to conduct final confirmation sampling. If you have any questions regarding this notification or need directions to the site, please contact Kent Stallings at 346-814-1413 or Lakin Pullman at 701-495-1722.

Thanks,

#### **Lakin Pullman**

**Environmental Specialist** 

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

C 701.495.1722

[Quoted text hidden]

#### Enviro, OCD, EMNRD < OCD. Enviro@emnrd.nm.gov>

Mon, Jul 10, 2023 at 9:31 AM

To: Dhugal Hanton <vertexresourcegroupusa@gmail.com>

Cc: "Bratcher, Michael, EMNRD" <mike.bratcher@emnrd.nm.gov>, "Hamlet, Robert, EMNRD" <Robert.Hamlet@emnrd.nm.gov>

Lakin,

The OCD has received your notification. Include a copy of this and all notifications in the remedial and/or closure reports to ensure the notifications are documented in the project file.

[Quoted text hidden]

#### Enviro, OCD, EMNRD < OCD. Enviro@emnrd.nm.gov>

Mon, Jul 10, 2023 at 9:32 AM

To: Dhugal Hanton <vertexresourcegroupusa@gmail.com>

Cc: "Bratcher, Michael, EMNRD" <mike.bratcher@emnrd.nm.gov>, "Hamlet, Robert, EMNRD" <Robert.Hamlet@emnrd.nm.gov>

Lakin,

The OCD has received your notification. Include a copy of this and all notifications in the remedial and/or closure reports to ensure the notifications are documented in the project file.

[Quoted text hidden]

Dhugal Hanton <vertexresourcegroupusa@gmail.com>

Tue, Aug 1, 2023 at 10:19 AM

To: ": Enviro, OCD, EMNRD" <OCD.Enviro@emnrd.nm.gov>, "Enviro, OCD, EMNRD" <OCD.Enviro@state.nm.us> Cc: KStallings@vertex.ca

All,

Please accept this email as 48-hour notification that Vertex Resource Services has scheduled a confirmation sampling event to be conducted at the following release:

nAB1912855636, Tomcat 16 State 6, DOR 3-22-2019

On Saturday, August 5, 2023 at approximately 7:00 a.m, Vertex will be on-site to conduct additional confirmation sampling. If you have any questions regarding this notification or need directions to the site, please contact Kent Stallings at 346-814-1413 or Lakin Pullman at 701-495-1722.

Thanks,

#### **Lakin Pullman**

**Environmental Specialist** 

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

#### C 701,495,1722

[Quoted text hidden]

#### Wells, Shelly, EMNRD <Shelly.Wells@emnrd.nm.gov>

Tue, Aug 1, 2023 at 2:11 PM

To: Dhugal Hanton <vertexresourcegroupusa@gmail.com>

Cc: "Bratcher, Michael, EMNRD" <mike.bratcher@emnrd.nm.gov>, "Velez, Nelson, EMNRD" <Nelson.Velez@emnrd.nm.gov>

Hi Lakin,

The OCD has received your notification. Include a copy of this and all notifications in the remedial and/or closure reports to ensure the notifications are documented in the project file.

Thank you,

Shelly

Shelly Wells \* Environmental Specialist-Advanced

Administrative Permitting Program

**EMNRD-Oil Conservation Division** 

1220 S. St. Francis Drive|Santa Fe, NM 87505

(505)469-7520|Shelly.Wells@emnrd.nm.gov

http://www.emnrd.state.nm.us/OCD/

[Quoted text hidden]

**APPENDIX E – Laboratory Data Reports and Chain of Custody Forms** 



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

August 24, 2021

Brandon Schafer's Devon Energy 6488 Seven Rivers Highway Artesia, NM 88210 TEL: (505) 350-1336

FAX

RE: Tomcat 16 State 6 OrderNo.: 2108788

Dear Brandon Schafer's:

Hall Environmental Analysis Laboratory received 11 sample(s) on 8/14/2021 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

Indes

4901 Hawkins NE

Albuquerque, NM 87109

Date Reported: 8/24/2021

## Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Devon Energy Client Sample ID: BH21-01 0.5'

 Project:
 Tomcat 16 State 6
 Collection Date: 8/12/2021 11:05:00 AM

 Lab ID:
 2108788-001
 Matrix: SOIL
 Received Date: 8/14/2021 8:35:00 AM

Analyses	Result	RL (	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORG	SANICS					Analyst: SB
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	8/18/2021 4:22:34 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	8/18/2021 4:22:34 PM
Surr: DNOP	132	70-130	S	%Rec	1	8/18/2021 4:22:34 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: mb
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	8/18/2021 6:06:00 PM
Surr: BFB	106	70-130		%Rec	1	8/18/2021 6:06:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: mb
Benzene	ND	0.023		mg/Kg	1	8/18/2021 6:06:00 PM
Toluene	ND	0.047		mg/Kg	1	8/18/2021 6:06:00 PM
Ethylbenzene	ND	0.047		mg/Kg	1	8/18/2021 6:06:00 PM
Xylenes, Total	ND	0.094		mg/Kg	1	8/18/2021 6:06:00 PM
Surr: 4-Bromofluorobenzene	95.0	70-130		%Rec	1	8/18/2021 6:06:00 PM
EPA METHOD 300.0: ANIONS						Analyst: <b>JMT</b>
Chloride	72	61		mg/Kg	20	8/20/2021 11:43:00 AM

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

Page 1 of 13

Date Reported: 8/24/2021

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy Client Sample ID: BH21-01 2'

 Project:
 Tomcat 16 State 6
 Collection Date: 8/12/2021 11:15:00 AM

 Lab ID:
 2108788-002
 Matrix: SOIL
 Received Date: 8/14/2021 8:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE (	ORGANICS					Analyst: SB
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	8/18/2021 4:34:19 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	8/18/2021 4:34:19 PM
Surr: DNOP	132	70-130	S	%Rec	1	8/18/2021 4:34:19 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: mb
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	8/18/2021 6:26:00 PM
Surr: BFB	100	70-130		%Rec	1	8/18/2021 6:26:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: mb
Benzene	ND	0.024		mg/Kg	1	8/18/2021 6:26:00 PM
Toluene	ND	0.048		mg/Kg	1	8/18/2021 6:26:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	8/18/2021 6:26:00 PM
Xylenes, Total	ND	0.096		mg/Kg	1	8/18/2021 6:26:00 PM
Surr: 4-Bromofluorobenzene	92.9	70-130		%Rec	1	8/18/2021 6:26:00 PM
EPA METHOD 300.0: ANIONS						Analyst: <b>JMT</b>
Chloride	ND	60		mg/Kg	20	8/20/2021 11:55:24 AN

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

Page 2 of 13

Date Reported: 8/24/2021

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy Client Sample ID: BH21-02 0.5'

 Project:
 Tomcat 16 State 6
 Collection Date: 8/12/2021 11:25:00 AM

 Lab ID:
 2108788-003
 Matrix: SOIL
 Received Date: 8/14/2021 8:35:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE (	ORGANICS				Analyst: SB
Diesel Range Organics (DRO)	ND	9.7	mg/Kg	1	8/18/2021 4:46:01 PM
Motor Oil Range Organics (MRO)	ND	48	mg/Kg	1	8/18/2021 4:46:01 PM
Surr: DNOP	122	70-130	%Rec	1	8/18/2021 4:46:01 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>					Analyst: <b>mb</b>
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	8/18/2021 6:46:00 PM
Surr: BFB	98.5	70-130	%Rec	1	8/18/2021 6:46:00 PM
EPA METHOD 8021B: VOLATILES					Analyst: <b>mb</b>
Benzene	ND	0.024	mg/Kg	1	8/18/2021 6:46:00 PM
Toluene	ND	0.048	mg/Kg	1	8/18/2021 6:46:00 PM
Ethylbenzene	ND	0.048	mg/Kg	1	8/18/2021 6:46:00 PM
Xylenes, Total	ND	0.097	mg/Kg	1	8/18/2021 6:46:00 PM
Surr: 4-Bromofluorobenzene	92.0	70-130	%Rec	1	8/18/2021 6:46:00 PM
EPA METHOD 300.0: ANIONS					Analyst: <b>JMT</b>
Chloride	ND	60	mg/Kg	20	8/20/2021 12:07:49 PM

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

Page 3 of 13

Date Reported: 8/24/2021

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy Client Sample ID: BH21-03 0.5

 Project:
 Tomcat 16 State 6
 Collection Date: 8/12/2021 11:35:00 AM

 Lab ID:
 2108788-005
 Matrix: SOIL
 Received Date: 8/14/2021 8:35:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OR	RGANICS				Analyst: <b>SB</b>
Diesel Range Organics (DRO)	ND	9.9	mg/Kg	1	8/18/2021 4:57:31 PM
Motor Oil Range Organics (MRO)	ND	49	mg/Kg	1	8/18/2021 4:57:31 PM
Surr: DNOP	122	70-130	%Rec	1	8/18/2021 4:57:31 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: <b>mb</b>
Gasoline Range Organics (GRO)	ND	4.7	mg/Kg	1	8/18/2021 7:06:00 PM
Surr: BFB	99.8	70-130	%Rec	1	8/18/2021 7:06:00 PM
EPA METHOD 8021B: VOLATILES					Analyst: <b>mb</b>
Benzene	ND	0.023	mg/Kg	1	8/18/2021 7:06:00 PM
Toluene	ND	0.047	mg/Kg	1	8/18/2021 7:06:00 PM
Ethylbenzene	ND	0.047	mg/Kg	1	8/18/2021 7:06:00 PM
Xylenes, Total	ND	0.093	mg/Kg	1	8/18/2021 7:06:00 PM
Surr: 4-Bromofluorobenzene	93.5	70-130	%Rec	1	8/18/2021 7:06:00 PM
EPA METHOD 300.0: ANIONS					Analyst: <b>JMT</b>
Chloride	ND	60	mg/Kg	20	8/20/2021 12:45:03 PM

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

Page 4 of 13

Date Reported: 8/24/2021

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy Client Sample ID: BH21-03 2'

 Project:
 Tomcat 16 State 6
 Collection Date: 8/12/2021 12:35:00 PM

 Lab ID:
 2108788-006
 Matrix: SOIL
 Received Date: 8/14/2021 8:35:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OR	GANICS				Analyst: SB
Diesel Range Organics (DRO)	ND	9.7	mg/Kg	1	8/18/2021 1:24:38 PM
Motor Oil Range Organics (MRO)	ND	49	mg/Kg	1	8/18/2021 1:24:38 PM
Surr: DNOP	102	70-130	%Rec	1	8/18/2021 1:24:38 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: mb
Gasoline Range Organics (GRO)	ND	5.0	mg/Kg	1	8/18/2021 7:26:00 PM
Surr: BFB	107	70-130	%Rec	1	8/18/2021 7:26:00 PM
EPA METHOD 8021B: VOLATILES					Analyst: mb
Benzene	ND	0.025	mg/Kg	1	8/18/2021 7:26:00 PM
Toluene	ND	0.050	mg/Kg	1	8/18/2021 7:26:00 PM
Ethylbenzene	ND	0.050	mg/Kg	1	8/18/2021 7:26:00 PM
Xylenes, Total	ND	0.099	mg/Kg	1	8/18/2021 7:26:00 PM
Surr: 4-Bromofluorobenzene	92.9	70-130	%Rec	1	8/18/2021 7:26:00 PM
EPA METHOD 300.0: ANIONS					Analyst: JMT
Chloride	ND	60	mg/Kg	20	8/20/2021 12:57:27 PM

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

Page 5 of 13

Date Reported: 8/24/2021

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy Client Sample ID: BH21-04 0.5

 Project:
 Tomcat 16 State 6
 Collection Date: 8/12/2021 11:50:00 AM

 Lab ID:
 2108788-007
 Matrix: SOIL
 Received Date: 8/14/2021 8:35:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE O	RGANICS				Analyst: <b>SB</b>
Diesel Range Organics (DRO)	ND	9.3	mg/Kg	1	8/18/2021 1:36:30 PM
Motor Oil Range Organics (MRO)	ND	46	mg/Kg	1	8/18/2021 1:36:30 PM
Surr: DNOP	96.7	70-130	%Rec	1	8/18/2021 1:36:30 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: mb
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	8/18/2021 7:46:00 PM
Surr: BFB	104	70-130	%Rec	1	8/18/2021 7:46:00 PM
EPA METHOD 8021B: VOLATILES					Analyst: mb
Benzene	ND	0.024	mg/Kg	1	8/18/2021 7:46:00 PM
Toluene	ND	0.048	mg/Kg	1	8/18/2021 7:46:00 PM
Ethylbenzene	ND	0.048	mg/Kg	1	8/18/2021 7:46:00 PM
Xylenes, Total	ND	0.096	mg/Kg	1	8/18/2021 7:46:00 PM
Surr: 4-Bromofluorobenzene	95.9	70-130	%Rec	1	8/18/2021 7:46:00 PM
EPA METHOD 300.0: ANIONS					Analyst: <b>JMT</b>
Chloride	ND	60	mg/Kg	20	8/20/2021 1:09:52 PM

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

Page 6 of 13

Date Reported: 8/24/2021

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy Client Sample ID: BH21-04 2'

 Project:
 Tomcat 16 State 6
 Collection Date: 8/12/2021 12:30:00 PM

 Lab ID:
 2108788-008
 Matrix: SOIL
 Received Date: 8/14/2021 8:35:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORG	ANICS				Analyst: SB
Diesel Range Organics (DRO)	ND	9.9	mg/Kg	1	8/18/2021 1:48:18 PM
Motor Oil Range Organics (MRO)	ND	49	mg/Kg	1	8/18/2021 1:48:18 PM
Surr: DNOP	102	70-130	%Rec	1	8/18/2021 1:48:18 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: mb
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	8/18/2021 8:06:00 PM
Surr: BFB	107	70-130	%Rec	1	8/18/2021 8:06:00 PM
EPA METHOD 8021B: VOLATILES					Analyst: mb
Benzene	ND	0.024	mg/Kg	1	8/18/2021 8:06:00 PM
Toluene	ND	0.049	mg/Kg	1	8/18/2021 8:06:00 PM
Ethylbenzene	ND	0.049	mg/Kg	1	8/18/2021 8:06:00 PM
Xylenes, Total	ND	0.097	mg/Kg	1	8/18/2021 8:06:00 PM
Surr: 4-Bromofluorobenzene	96.3	70-130	%Rec	1	8/18/2021 8:06:00 PM
EPA METHOD 300.0: ANIONS					Analyst: <b>JMT</b>
Chloride	ND	61	mg/Kg	20	8/20/2021 1:22:17 PM

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

Page 7 of 13

Date Reported: 8/24/2021

## Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Devon Energy Client Sample ID: BH21-05 0.5'

 Project:
 Tomcat 16 State 6
 Collection Date: 8/12/2021 12:05:00 PM

 Lab ID:
 2108788-009
 Matrix: SOIL
 Received Date: 8/14/2021 8:35:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE O	RGANICS				Analyst: <b>SB</b>
Diesel Range Organics (DRO)	11	9.7	mg/Kg	1	8/18/2021 2:00:07 PM
Motor Oil Range Organics (MRO)	ND	49	mg/Kg	1	8/18/2021 2:00:07 PM
Surr: DNOP	110	70-130	%Rec	1	8/18/2021 2:00:07 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: mb
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	8/18/2021 8:26:00 PM
Surr: BFB	107	70-130	%Rec	1	8/18/2021 8:26:00 PM
EPA METHOD 8021B: VOLATILES					Analyst: mb
Benzene	ND	0.024	mg/Kg	1	8/18/2021 8:26:00 PM
Toluene	ND	0.048	mg/Kg	1	8/18/2021 8:26:00 PM
Ethylbenzene	ND	0.048	mg/Kg	1	8/18/2021 8:26:00 PM
Xylenes, Total	ND	0.096	mg/Kg	1	8/18/2021 8:26:00 PM
Surr: 4-Bromofluorobenzene	95.2	70-130	%Rec	1	8/18/2021 8:26:00 PM
EPA METHOD 300.0: ANIONS					Analyst: <b>JMT</b>
Chloride	ND	60	mg/Kg	20	8/20/2021 1:34:42 PM

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

Page 8 of 13

Date Reported: 8/24/2021

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy Client Sample ID: BH21-05 2'

 Project:
 Tomcat 16 State 6
 Collection Date: 8/12/2021 12:25:00 PM

 Lab ID:
 2108788-011
 Matrix: SOIL
 Received Date: 8/14/2021 8:35:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OI	RGANICS				Analyst: SB
Diesel Range Organics (DRO)	ND	9.8	mg/Kg	1	8/18/2021 2:12:17 PM
Motor Oil Range Organics (MRO)	ND	49	mg/Kg	1	8/18/2021 2:12:17 PM
Surr: DNOP	120	70-130	%Rec	1	8/18/2021 2:12:17 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: mb
Gasoline Range Organics (GRO)	ND	4.7	mg/Kg	1	8/18/2021 8:46:00 PM
Surr: BFB	107	70-130	%Rec	1	8/18/2021 8:46:00 PM
EPA METHOD 8021B: VOLATILES					Analyst: mb
Benzene	ND	0.023	mg/Kg	1	8/18/2021 8:46:00 PM
Toluene	ND	0.047	mg/Kg	1	8/18/2021 8:46:00 PM
Ethylbenzene	ND	0.047	mg/Kg	1	8/18/2021 8:46:00 PM
Xylenes, Total	ND	0.094	mg/Kg	1	8/18/2021 8:46:00 PM
Surr: 4-Bromofluorobenzene	94.4	70-130	%Rec	1	8/18/2021 8:46:00 PM
EPA METHOD 300.0: ANIONS					Analyst: <b>JMT</b>
Chloride	ND	60	mg/Kg	20	8/20/2021 1:47:06 PM

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

Page 9 of 13

## Hall Environmental Analysis Laboratory, Inc.

WO#: **2108788** 

24-Aug-21

Client: Devon Energy
Project: Tomcat 16 State 6

Sample ID: MB-62091 SampType: mblk TestCode: EPA Method 300.0: Anions

Client ID: PBS Batch ID: 62091 RunNo: 80680

Prep Date: 8/20/2021 Analysis Date: 8/20/2021 SeqNo: 2846866 Units: mg/Kg

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

Chloride ND 1.5

Sample ID: LCS-62091 SampType: Ics TestCode: EPA Method 300.0: Anions

Client ID: LCSS Batch ID: 62091 RunNo: 80680

Prep Date: 8/20/2021 Analysis Date: 8/20/2021 SeqNo: 2846867 Units: mg/Kg

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

Chloride 14 1.5 15.00 0 94.1 90 110

#### Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

Page 10 of 13

## Hall Environmental Analysis Laboratory, Inc.

Analysis Date: 8/18/2021

PQL

10

SPK value SPK Ref Val

0

50.00

5.000

Result

52

5.1

WO#: **2108788 24-Aug-21** 

Client: Devon Energy
Project: Tomcat 16 State 6

Sample ID: MB-62022	SampType: MBL	_K	Test	Code: EF	PA Method	8015M/D: Die	esel Range	e Organics	
Client ID: PBS	Batch ID: 6202	22	R	unNo: 80	0624				
Prep Date: 8/17/2021	Analysis Date: 8/18	8/2021	S	eqNo: 28	344795	Units: mg/K	(g		
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	70	130			S
Sample ID: <b>MB-62016</b>	SampType: MBL	_K	TestCode: EPA Method 8015M/D: Diesel Range Organics						
Client ID: PBS	Batch ID: <b>620</b> 1	16	RunNo: 80624						
Prep Date: 8/17/2021	Analysis Date: 8/1	8/2021	S	eqNo: 28	344796	Units: mg/K	(g		
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	11	10.00		110	70	130			
Sample ID: LCS-62022	SampType: <b>LCS</b>	<b>,</b>	Test	Code: EF	PA Method	8015M/D: Die	esel Range	e Organics	
Client ID: LCSS	Batch ID: 6202	22	R	unNo: 80	0624				
Prep Date: 8/17/2021	Analysis Date: 8/1	8/2021	S	eqNo: 28	344798	Units: mg/K	(g		
Analyte	Result PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	51 10	50.00	0	101	68.9	141			
Surr: DNOP	5.2	5.000		104	70	130			
Sample ID: LCS-62016	SampType: LCS	}	Test	Code: <b>EF</b>	PA Method	8015M/D: Die	esel Range	e Organics	
Client ID: LCSS	Batch ID: 6201	16	R	unNo: 80	0624				

#### 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

Prep Date: 8/17/2021

Diesel Range Organics (DRO)

Surr: DNOP

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

SeqNo: 2844799

LowLimit

68.9

70

%REC

104

103

Units: mg/Kg

141

130

%RPD

**RPDLimit** 

HighLimit

- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

Page 11 of 13

## Hall Environmental Analysis Laboratory, Inc.

WO#: **2108788 24-Aug-21** 

Client: Devon Energy
Project: Tomcat 16 State 6

Sample ID: mb-62002 SampType: MBLK TestCode: EPA Method 8015D: Gasoline Range

Client ID: PBS Batch ID: 62002 RunNo: 80628

Prep Date: **8/16/2021** Analysis Date: **8/18/2021** SeqNo: **2844295** 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 104 70 130

Sample ID: Ics-62002 SampType: LCS TestCode: EPA Method 8015D: Gasoline Range

Client ID: LCSS Batch ID: 62002 RunNo: 80628

1200

Prep Date: 8/16/2021 Analysis Date: 8/18/2021 SeqNo: 2844297 Units: mg/Kg

1000

Qual Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Gasoline Range Organics (GRO) 25 5.0 25.00 0 101 78.6 131

119

70

130

#### Qualifiers:

Surr: BFB

- Value exceeds Maximum Contaminant Level
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

Page 12 of 13

## Hall Environmental Analysis Laboratory, Inc.

WO#: **2108788 24-Aug-21** 

Client: Devon Energy
Project: Tomcat 16 State 6

Sample ID: mb-62002 SampType: MBLK TestCode: EPA Method 8021B: Volatiles

Client ID: PBS Batch ID: 62002 RunNo: 80628

Prep Date: 8/16/2021 Analysis Date: 8/18/2021 SeqNo: 2844329 Units: mg/Kg

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

 Benzene
 ND
 0.025

 Toluene
 ND
 0.050

 Ethylbenzene
 ND
 0.050

 Xylenes, Total
 ND
 0.10

Surr: 4-Bromofluorobenzene 0.95 1.000 95.3 70 130

Sample ID: Ics-62002	SampT	Гуре: <b>LC</b>	S	Tes	tCode: El	PA Method	8021B: Volat	tiles		
Client ID: LCSS	Batcl	h ID: <b>62</b> 0	002	F	RunNo: 8	0628				
Prep Date: 8/16/2021	Analysis D	Date: 8/	18/2021	8	SeqNo: 2	844331	Units: mg/k	(g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.93	0.025	1.000	0	93.0	80	120			
Toluene	0.93	0.050	1.000	0	93.2	80	120			

0.96 0.050 0 96.0 80 120 Ethylbenzene 1.000 Xylenes, Total 2.9 0.10 3.000 0 96.7 80 120 Surr: 4-Bromofluorobenzene 0.99 1.000 98.8 70 130

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

Page 13 of 13



Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87109

TEL: 505-345-3975 FAX: 505-345-4107 Website: clients.hallenvironmental.com

# Sample Log-In Check List

Client Name:	Devon Energy	Work Order	Work Order Number: 2108788			RcptNo: 1				
Received By:	Isaiah Ortiz	8/14/2021 8:3	8/14/2021 8:35:00 AM			I-04				
Completed By:	Isaiah Ortiz	8/14/2021 10:	8/14/2021 10:42:55 AM			I=04				
Reviewed By:	CP	8/14/21								
Chain of Cust	ody									
1. Is Chain of Cu	stody complete?		Ye	s 🗸	No 🗌	Not Present				
2. How was the s	sample delivered?		Co	urier						
Log In										
	ot made to cool the sar	nples?	Ye	s 🗸	No 🗆	NA 🗆				
4. Were all sampl	les received at a tempe	erature of >0° C to 6.0°	C Ye	s 🗸	No 🗆	NA 🗌				
5. Sample(s) in p	roper container(s)?		Ye	s 🗸	No 🗌					
6. Sufficient samp	ole volume for indicated	test(s)?	Yes	· •	No 🗆					
	xcept VOA and ONG)		Yes		No 🗆					
	ve added to bottles?	- W1 - 11222 E.M.	Yes	· 🗆	No 🗹	NA 🗆				
9. Received at lea	st 1 vial with headspac	ce <1/4" for AQ VOA?	Yes		No 🗌	NA 🗹	10			
10. Were any sam	ple containers received	broken?	Ye	s 🗆	No 🔽	# of preserved	8.14.2			
	k match bottle labels?	dv)	Yes	<b>V</b>	No 🗆	bottles checked for pH:	-12 unless noted)			
	rrectly identified on Ch		Yes	~	No 🗌	Adjusted?	\			
13. Is it clear what	analyses were requeste	ed?	Yes	~	No 🗌					
	g times able to be met? stomer for authorization		Yes	~	No 🗌	Checked by:				
	ng (if applicable)									
	fied of all discrepancie	s with this order?	Ye	s 🗌	No 🗌	NA 🗹				
Person N	lotified:	-	Date:	_						
By Whon	n:			Mail 🔲	Phone Fax	In Person				
Regardin	g:									
Client Ins	structions:									
16. Additional rem	arks:									
17. Cooler Inform Cooler No	nation Temp °C Condition 2.9 Good	n Seal Intact Seal Not Present	No Seal I	Date	Signed By					

HALL ENVIRONMENTAL ANALYSIS LABORATORY www.hallenvironmental.com 4901 Hawkins NE - Albuquerque, NM 87109 Tel. 505-345-3975 Fax 505-345-4107 Analysis Request	BTEX MTBE / TMB's (8021)  TPH:8015D(GRO / DRO / MRO)  8081 Pesticides/8082 PCB's  PAHs by 8310 or 8270SIMS  RCRA 8 Metals  CITE, Br, NO <sub>3</sub> , NO <sub>2</sub> , PO <sub>4</sub> , SO <sub>4</sub> B270 (Semi-VOA)  Total Coliform (Present/Absent)	20 20 20 20 20 20 20 20 20 20 20 20 20 2	Time: Relinquished by: Via: Date Time Remarks: Direct bill Devon    190   190   100
Turn-Around Time: 5 Oar  Z-Standard   Rush Project Name:  Tomcat 16 State Project #:	Project Manager:  Brandon Shafer  Sampler: My P  On Ice: Yes 20 Manager:  Cooler Temp(including CF): 29 to 1  Container Preservative HEAL No. Type and # Type	7 ) [ 7	Received by: Via: Date  Received by: Via: $8/3/21$ Received by: Via: $8.14.21$ This serves as part and on the raccredited laboratories. This serves as
Chain-of-Custody Record Client: Own Energy Washing Address:  Chain-of-Custody Record Client: Own Charach Washing Address:	ckage: Ird	11.05 So. 1 BH21-01 0.51 11.15   BH31-01 0.5 11.35   BH31-02 0.5 11.35   BH31-03 1 11.35   BH31-03 0.5 13.30   BH31-04 2 13.30   BH31-05 0.5 13.30   BH31-05 0.5 13.30   BH31-05 0.5 13.30   BH31-05 0.5	Date: Time: Relinquished by:  Date: Time: Relinquished by:  8   3   11   10



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

July 17, 2023

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

FAX:

RE: Tomcat 16 State 006 OrderNo.: 2307353

#### Dear Kent Stallings:

Hall Environmental Analysis Laboratory received 30 sample(s) on 7/11/2023 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

Indes

4901 Hawkins NE

Albuquerque, NM 87109

Date Reported: 7/17/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH21-01 0'

**Project:** Tomcat 16 State 006 Collection Date: 7/8/2023 7:30:00 AM

**Lab ID:** 2307353-001 **Matrix:** SOIL **Received Date:** 7/11/2023 9:10:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OI	RGANICS				Analyst: PRD
Diesel Range Organics (DRO)	ND	9.7	mg/Kg	1	7/12/2023 1:00:04 AM
Motor Oil Range Organics (MRO)	ND	48	mg/Kg	1	7/12/2023 1:00:04 AM
Surr: DNOP	96.9	69-147	%Rec	1	7/12/2023 1:00:04 AM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: KMN
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	7/12/2023 5:13:00 PM
Surr: BFB	97.4	15-244	%Rec	1	7/12/2023 5:13:00 PM
EPA METHOD 8021B: VOLATILES					Analyst: KMN
Benzene	ND	0.024	mg/Kg	1	7/12/2023 5:13:00 PM
Toluene	ND	0.048	mg/Kg	1	7/12/2023 5:13:00 PM
Ethylbenzene	ND	0.048	mg/Kg	1	7/12/2023 5:13:00 PM
Xylenes, Total	ND	0.097	mg/Kg	1	7/12/2023 5:13:00 PM
Surr: 4-Bromofluorobenzene	95.6	39.1-146	%Rec	1	7/12/2023 5:13:00 PM
EPA METHOD 300.0: ANIONS					Analyst: CAS
Chloride	ND	60	mg/Kg	20	7/12/2023 3:28:14 PM

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- 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

Page 1 of 42

Date Reported: 7/17/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH21-02 0'

Project: Tomcat 16 State 006 Collection Date: 7/8/2023 7:30:00 AM

**Lab ID:** 2307353-002 **Matrix:** SOIL **Received Date:** 7/11/2023 9:10:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE O	RGANICS				Analyst: PRD
Diesel Range Organics (DRO)	ND	9.7	mg/Kg	1	7/12/2023 1:10:55 AM
Motor Oil Range Organics (MRO)	ND	49	mg/Kg	1	7/12/2023 1:10:55 AM
Surr: DNOP	81.9	69-147	%Rec	1	7/12/2023 1:10:55 AM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: KMN
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	7/12/2023 5:35:00 PM
Surr: BFB	98.6	15-244	%Rec	1	7/12/2023 5:35:00 PM
EPA METHOD 8021B: VOLATILES					Analyst: KMN
Benzene	ND	0.024	mg/Kg	1	7/12/2023 5:35:00 PM
Toluene	ND	0.048	mg/Kg	1	7/12/2023 5:35:00 PM
Ethylbenzene	ND	0.048	mg/Kg	1	7/12/2023 5:35:00 PM
Xylenes, Total	ND	0.096	mg/Kg	1	7/12/2023 5:35:00 PM
Surr: 4-Bromofluorobenzene	97.9	39.1-146	%Rec	1	7/12/2023 5:35:00 PM
EPA METHOD 300.0: ANIONS					Analyst: CAS
Chloride	ND	60	mg/Kg	20	7/12/2023 3:40:38 PM

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

Qualifiers:

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

Page 2 of 42

Date Reported: 7/17/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. Client Sample ID: BH21-03 0

 Project:
 Tomcat 16 State 006
 Collection Date: 7/8/2023 7:30:00 AM

 Lab ID:
 2307353-003
 Matrix: SOIL
 Received Date: 7/11/2023 9:10:00 AM

Result **RL Qual Units** DF **Date Analyzed Analyses** Analyst: PRD **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** Diesel Range Organics (DRO) ND 9.8 mg/Kg 1 7/12/2023 1:32:46 AM Motor Oil Range Organics (MRO) ND 49 mg/Kg 1 7/12/2023 1:32:46 AM Surr: DNOP 84.0 69-147 %Rec 1 7/12/2023 1:32:46 AM **EPA METHOD 8015D: GASOLINE RANGE** Analyst: KMN Gasoline Range Organics (GRO) ND 7/12/2023 5:57:00 PM 5.0 mg/Kg 1 Surr: BFB 107 15-244 %Rec 1 7/12/2023 5:57:00 PM **EPA METHOD 8021B: VOLATILES** Analyst: KMN Benzene ND 7/12/2023 5:57:00 PM 0.025 mg/Kg 1 Toluene ND 0.050 mg/Kg 1 7/12/2023 5:57:00 PM Ethylbenzene ND 0.050 mg/Kg 1 7/12/2023 5:57:00 PM Xylenes, Total ND mg/Kg 7/12/2023 5:57:00 PM 0.099 1 Surr: 4-Bromofluorobenzene 100 39.1-146 %Rec 1 7/12/2023 5:57:00 PM **EPA METHOD 300.0: ANIONS** Analyst: CAS mg/Kg Chloride 7/12/2023 3:53:02 PM ND 60 20

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

Page 3 of 42

Date Reported: 7/17/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH21-04 0

 Project:
 Tomcat 16 State 006
 Collection Date: 7/8/2023 7:35:00 AM

 Lab ID:
 2307353-004
 Matrix: SOIL
 Received Date: 7/11/2023 9:10:00 AM

Result **RL Qual Units** DF **Date Analyzed Analyses** Analyst: PRD **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** Diesel Range Organics (DRO) ND 9.5 mg/Kg 1 7/12/2023 1:43:43 AM Motor Oil Range Organics (MRO) ND 48 mg/Kg 1 7/12/2023 1:43:43 AM Surr: DNOP 84.0 69-147 %Rec 1 7/12/2023 1:43:43 AM **EPA METHOD 8015D: GASOLINE RANGE** Analyst: KMN Gasoline Range Organics (GRO) ND 7/12/2023 6:19:00 PM 4.8 mg/Kg 1 Surr: BFB 101 15-244 %Rec 1 7/12/2023 6:19:00 PM **EPA METHOD 8021B: VOLATILES** Analyst: KMN Benzene ND 7/12/2023 6:19:00 PM 0.024 mg/Kg 1 Toluene ND 0.048 mg/Kg 1 7/12/2023 6:19:00 PM Ethylbenzene ND 0.048 mg/Kg 1 7/12/2023 6:19:00 PM Xylenes, Total ND 0.096 mg/Kg 7/12/2023 6:19:00 PM 1 Surr: 4-Bromofluorobenzene 98.1 39.1-146 %Rec 1 7/12/2023 6:19:00 PM **EPA METHOD 300.0: ANIONS** Analyst: CAS mg/Kg Chloride 7/12/2023 4:05:27 PM ND 60 20

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

Page 4 of 42

Date Reported: 7/17/2023

## Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Vertex Resources Services, Inc. Client Sample ID: BH21-05 0'

**Project:** Tomcat 16 State 006 Collection Date: 7/8/2023 7:35:00 AM

**Lab ID:** 2307353-005 **Matrix:** SOIL **Received Date:** 7/11/2023 9:10:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OR	GANICS				Analyst: <b>PRD</b>
Diesel Range Organics (DRO)	ND	9.7	mg/Kg	1	7/12/2023 1:54:43 AM
Motor Oil Range Organics (MRO)	ND	49	mg/Kg	1	7/12/2023 1:54:43 AM
Surr: DNOP	87.0	69-147	%Rec	1	7/12/2023 1:54:43 AM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: <b>KMN</b>
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	7/12/2023 6:41:00 PM
Surr: BFB	96.7	15-244	%Rec	1	7/12/2023 6:41:00 PM
EPA METHOD 8021B: VOLATILES					Analyst: KMN
Benzene	ND	0.024	mg/Kg	1	7/12/2023 6:41:00 PM
Toluene	ND	0.049	mg/Kg	1	7/12/2023 6:41:00 PM
Ethylbenzene	ND	0.049	mg/Kg	1	7/12/2023 6:41:00 PM
Xylenes, Total	ND	0.097	mg/Kg	1	7/12/2023 6:41:00 PM
Surr: 4-Bromofluorobenzene	96.4	39.1-146	%Rec	1	7/12/2023 6:41:00 PM
EPA METHOD 300.0: ANIONS					Analyst: CAS
Chloride	ND	60	mg/Kg	20	7/12/2023 4:17:51 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

Page 5 of 42

Date Reported: 7/17/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-06 0

 Project:
 Tomcat 16 State 006
 Collection Date: 7/8/2023 8:00:00 AM

 Lab ID:
 2307353-006
 Matrix: SOIL
 Received Date: 7/11/2023 9:10:00 AM

Result **RL Qual Units** DF **Date Analyzed Analyses** Analyst: PRD **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** Diesel Range Organics (DRO) ND 9.7 mg/Kg 1 7/12/2023 2:05:39 AM Motor Oil Range Organics (MRO) ND 48 mg/Kg 1 7/12/2023 2:05:39 AM Surr: DNOP 85.3 69-147 %Rec 1 7/12/2023 2:05:39 AM **EPA METHOD 8015D: GASOLINE RANGE** Analyst: KMN Gasoline Range Organics (GRO) ND 7/12/2023 7:03:00 PM 4.9 mg/Kg 1 Surr: BFB 98.0 15-244 %Rec 1 7/12/2023 7:03:00 PM **EPA METHOD 8021B: VOLATILES** Analyst: KMN Benzene ND 7/12/2023 7:03:00 PM 0.025 mg/Kg 1 Toluene ND 0.049 mg/Kg 1 7/12/2023 7:03:00 PM Ethylbenzene ND 0.049 mg/Kg 1 7/12/2023 7:03:00 PM Xylenes, Total ND 0.098 mg/Kg 7/12/2023 7:03:00 PM 1 Surr: 4-Bromofluorobenzene 96.7 39.1-146 %Rec 1 7/12/2023 7:03:00 PM **EPA METHOD 300.0: ANIONS** Analyst: CAS mg/Kg Chloride 7/12/2023 4:30:15 PM ND 60 20

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

Page 6 of 42

Date Reported: 7/17/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-06 2'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/8/2023 8:05:00 AM

 Lab ID:
 2307353-007
 Matrix: SOIL
 Received Date: 7/11/2023 9:10:00 AM

Analyses	Result	RL Qua	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OR		Analyst: PRD			
Diesel Range Organics (DRO)	ND	10	mg/Kg	1	7/12/2023 2:16:38 AM
Motor Oil Range Organics (MRO)	ND	50	mg/Kg	1	7/12/2023 2:16:38 AM
Surr: DNOP	86.5	69-147	%Rec	1	7/12/2023 2:16:38 AM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: KMN
Gasoline Range Organics (GRO)	ND	5.0	mg/Kg	1	7/12/2023 7:25:00 PM
Surr: BFB	96.4	15-244	%Rec	1	7/12/2023 7:25:00 PM
EPA METHOD 8021B: VOLATILES					Analyst: KMN
Benzene	ND	0.025	mg/Kg	1	7/12/2023 7:25:00 PM
Toluene	ND	0.050	mg/Kg	1	7/12/2023 7:25:00 PM
Ethylbenzene	ND	0.050	mg/Kg	1	7/12/2023 7:25:00 PM
Xylenes, Total	ND	0.099	mg/Kg	1	7/12/2023 7:25:00 PM
Surr: 4-Bromofluorobenzene	96.7	39.1-146	%Rec	1	7/12/2023 7:25:00 PM
EPA METHOD 300.0: ANIONS					Analyst: CAS
Chloride	ND	60	mg/Kg	20	7/12/2023 4:42:39 PM

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

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

QL 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

Page 7 of 42

Date Reported: 7/17/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-07 0'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/8/2023 8:10:00 AM

 Lab ID:
 2307353-008
 Matrix: SOIL
 Received Date: 7/11/2023 9:10:00 AM

Analyses	Result	RL Qua	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORG	SANICS				Analyst: PRD
Diesel Range Organics (DRO)	ND	9.3	mg/Kg	1	7/12/2023 2:27:31 AM
Motor Oil Range Organics (MRO)	ND	47	mg/Kg	1	7/12/2023 2:27:31 AM
Surr: DNOP	84.5	69-147	%Rec	1	7/12/2023 2:27:31 AM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: KMN
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	7/12/2023 7:47:00 PM
Surr: BFB	95.0	15-244	%Rec	1	7/12/2023 7:47:00 PM
EPA METHOD 8021B: VOLATILES					Analyst: KMN
Benzene	ND	0.025	mg/Kg	1	7/12/2023 7:47:00 PM
Toluene	ND	0.049	mg/Kg	1	7/12/2023 7:47:00 PM
Ethylbenzene	ND	0.049	mg/Kg	1	7/12/2023 7:47:00 PM
Xylenes, Total	ND	0.098	mg/Kg	1	7/12/2023 7:47:00 PM
Surr: 4-Bromofluorobenzene	95.1	39.1-146	%Rec	1	7/12/2023 7:47:00 PM
EPA METHOD 300.0: ANIONS					Analyst: CAS
Chloride	ND	60	mg/Kg	20	7/12/2023 5:19:53 PM

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- 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

Page 8 of 42

Date Reported: 7/17/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-07 2'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/8/2023 8:15:00 AM

 Lab ID:
 2307353-009
 Matrix: SOIL
 Received Date: 7/11/2023 9:10:00 AM

Analyses	Result	RL Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGA	NICS				Analyst: PRD
Diesel Range Organics (DRO)	ND	9.6	mg/Kg	1	7/12/2023 1:41:12 PM
Motor Oil Range Organics (MRO)	ND	48	mg/Kg	1	7/12/2023 1:41:12 PM
Surr: DNOP	88.1	69-147	%Rec	1	7/12/2023 1:41:12 PM
EPA METHOD 300.0: ANIONS					Analyst: CAS
Chloride	ND	60	mg/Kg	20	7/12/2023 6:46:45 PM
EPA METHOD 8260B: VOLATILES SHORT LIST					Analyst: RAA
Benzene	ND	0.024	mg/Kg	1	7/12/2023 12:45:13 PM
Toluene	ND	0.049	mg/Kg	1	7/12/2023 12:45:13 PM
Ethylbenzene	ND	0.049	mg/Kg	1	7/12/2023 12:45:13 PM
Xylenes, Total	ND	0.098	mg/Kg	1	7/12/2023 12:45:13 PM
Surr: 1,2-Dichloroethane-d4	111	64.8-147	%Rec	1	7/12/2023 12:45:13 PM
Surr: 4-Bromofluorobenzene	96.3	62.1-144	%Rec	1	7/12/2023 12:45:13 PM
Surr: Dibromofluoromethane	118	73-145	%Rec	1	7/12/2023 12:45:13 PM
Surr: Toluene-d8	100	70-130	%Rec	1	7/12/2023 12:45:13 PM
EPA METHOD 8015D MOD: GASOLINE RANGE					Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	7/12/2023 12:45:13 PM
Surr: BFB	92.3	70-130	%Rec	1	7/12/2023 12:45:13 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

Page 9 of 42

Date Reported: 7/17/2023

#### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-08 0

 Project:
 Tomcat 16 State 006
 Collection Date: 7/8/2023 8:20:00 AM

 Lab ID:
 2307353-010
 Matrix: SOIL
 Received Date: 7/11/2023 9:10:00 AM

Result **RL Qual Units** DF **Date Analyzed** Analyses Analyst: PRD **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** Diesel Range Organics (DRO) ND 9.5 mg/Kg 1 7/12/2023 1:51:54 PM Motor Oil Range Organics (MRO) ND 47 mg/Kg 1 7/12/2023 1:51:54 PM Surr: DNOP 86.5 69-147 %Rec 1 7/12/2023 1:51:54 PM **EPA METHOD 300.0: ANIONS** Analyst: CAS Chloride ND 60 7/12/2023 6:59:10 PM mg/Kg 20 **EPA METHOD 8260B: VOLATILES SHORT LIST** Analyst: RAA ND 7/12/2023 2:07:49 PM 0.024 mg/Kg 1 Toluene ND 0.048 mg/Kg 1 7/12/2023 2:07:49 PM Ethylbenzene ND 0.048 mg/Kg 1 7/12/2023 2:07:49 PM Xylenes, Total ND 0.097 mg/Kg 1 7/12/2023 2:07:49 PM Surr: 1,2-Dichloroethane-d4 %Rec 7/12/2023 2:07:49 PM 118 64.8-147 1 Surr: 4-Bromofluorobenzene 99.5 62.1-144 %Rec 1 7/12/2023 2:07:49 PM Surr: Dibromofluoromethane 73-145 %Rec 1 7/12/2023 2:07:49 PM 119 Surr: Toluene-d8 99.0 70-130 %Rec 1 7/12/2023 2:07:49 PM **EPA METHOD 8015D MOD: GASOLINE RANGE** Analyst: RAA Gasoline Range Organics (GRO) ND mg/Kg 7/12/2023 2:07:49 PM 4.8 1 Surr: BFB 94.7 70-130 %Rec 1 7/12/2023 2:07:49 PM

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

Qualifiers:

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

Page 10 of 42

Date Reported: 7/17/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-08 2'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/8/2023 8:25:00 AM

 Lab ID:
 2307353-011
 Matrix: SOIL
 Received Date: 7/11/2023 9:10:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORG	SANICS				Analyst: PRD
Diesel Range Organics (DRO)	ND	9.7	mg/Kg	1	7/12/2023 2:02:37 PM
Motor Oil Range Organics (MRO)	ND	48	mg/Kg	1	7/12/2023 2:02:37 PM
Surr: DNOP	80.9	69-147	%Rec	1	7/12/2023 2:02:37 PM
EPA METHOD 300.0: ANIONS					Analyst: CAS
Chloride	ND	60	mg/Kg	20	7/12/2023 7:11:35 PM
EPA METHOD 8260B: VOLATILES SHORT LIS	ST				Analyst: RAA
Benzene	ND	0.024	mg/Kg	1	7/12/2023 2:35:24 PM
Toluene	ND	0.048	mg/Kg	1	7/12/2023 2:35:24 PM
Ethylbenzene	ND	0.048	mg/Kg	1	7/12/2023 2:35:24 PM
Xylenes, Total	ND	0.096	mg/Kg	1	7/12/2023 2:35:24 PM
Surr: 1,2-Dichloroethane-d4	117	64.8-147	%Rec	1	7/12/2023 2:35:24 PM
Surr: 4-Bromofluorobenzene	92.6	62.1-144	%Rec	1	7/12/2023 2:35:24 PM
Surr: Dibromofluoromethane	118	73-145	%Rec	1	7/12/2023 2:35:24 PM
Surr: Toluene-d8	98.3	70-130	%Rec	1	7/12/2023 2:35:24 PM
EPA METHOD 8015D MOD: GASOLINE RANG	Ε				Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	7/12/2023 2:35:24 PM
Surr: BFB	91.6	70-130	%Rec	1	7/12/2023 2:35:24 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

Page 11 of 42

Date Reported: 7/17/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-09 0'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/8/2023 8:30:00 AM

 Lab ID:
 2307353-012
 Matrix: SOIL
 Received Date: 7/11/2023 9:10:00 AM

Analyses	Result	RL Qua	l Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORG	ANICS				Analyst: PRD
Diesel Range Organics (DRO)	ND	9.6	mg/Kg	1	7/12/2023 2:34:56 PM
Motor Oil Range Organics (MRO)	ND	48	mg/Kg	1	7/12/2023 2:34:56 PM
Surr: DNOP	80.8	69-147	%Rec	1	7/12/2023 2:34:56 PM
EPA METHOD 300.0: ANIONS					Analyst: CAS
Chloride	ND	60	mg/Kg	20	7/12/2023 7:48:49 PM
<b>EPA METHOD 8260B: VOLATILES SHORT LIS</b>	T				Analyst: RAA
Benzene	ND	0.025	mg/Kg	1	7/12/2023 3:02:59 PM
Toluene	ND	0.049	mg/Kg	1	7/12/2023 3:02:59 PM
Ethylbenzene	ND	0.049	mg/Kg	1	7/12/2023 3:02:59 PM
Xylenes, Total	ND	0.098	mg/Kg	1	7/12/2023 3:02:59 PM
Surr: 1,2-Dichloroethane-d4	126	64.8-147	%Rec	1	7/12/2023 3:02:59 PM
Surr: 4-Bromofluorobenzene	90.0	62.1-144	%Rec	1	7/12/2023 3:02:59 PM
Surr: Dibromofluoromethane	124	73-145	%Rec	1	7/12/2023 3:02:59 PM
Surr: Toluene-d8	99.4	70-130	%Rec	1	7/12/2023 3:02:59 PM
EPA METHOD 8015D MOD: GASOLINE RANG	E				Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	7/12/2023 3:02:59 PM
Surr: BFB	90.8	70-130	%Rec	1	7/12/2023 3:02:59 PM

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- 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

Page 12 of 42

Date Reported: 7/17/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-09 2'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/8/2023 8:35:00 AM

 Lab ID:
 2307353-013
 Matrix: SOIL
 Received Date: 7/11/2023 9:10:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORG	ANICS				Analyst: PRD
Diesel Range Organics (DRO)	ND	9.4	mg/Kg	1	7/12/2023 2:45:44 PM
Motor Oil Range Organics (MRO)	ND	47	mg/Kg	1	7/12/2023 2:45:44 PM
Surr: DNOP	89.9	69-147	%Rec	1	7/12/2023 2:45:44 PM
EPA METHOD 300.0: ANIONS					Analyst: CAS
Chloride	ND	60	mg/Kg	20	7/12/2023 8:01:14 PM
<b>EPA METHOD 8260B: VOLATILES SHORT LIS</b>	T				Analyst: RAA
Benzene	ND	0.025	mg/Kg	1	7/12/2023 3:30:34 PM
Toluene	ND	0.050	mg/Kg	1	7/12/2023 3:30:34 PM
Ethylbenzene	ND	0.050	mg/Kg	1	7/12/2023 3:30:34 PM
Xylenes, Total	ND	0.099	mg/Kg	1	7/12/2023 3:30:34 PM
Surr: 1,2-Dichloroethane-d4	120	64.8-147	%Rec	1	7/12/2023 3:30:34 PM
Surr: 4-Bromofluorobenzene	92.4	62.1-144	%Rec	1	7/12/2023 3:30:34 PM
Surr: Dibromofluoromethane	129	73-145	%Rec	1	7/12/2023 3:30:34 PM
Surr: Toluene-d8	101	70-130	%Rec	1	7/12/2023 3:30:34 PM
EPA METHOD 8015D MOD: GASOLINE RANG	E				Analyst: RAA
Gasoline Range Organics (GRO)	ND	5.0	mg/Kg	1	7/12/2023 3:30:34 PM
Surr: BFB	90.3	70-130	%Rec	1	7/12/2023 3:30:34 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

Page 13 of 42

Date Reported: 7/17/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-10 0'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/8/2023 8:40:00 AM

 Lab ID:
 2307353-014
 Matrix: SOIL
 Received Date: 7/11/2023 9:10:00 AM

Analyses	Result	RL Qua	l Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGAI	NICS				Analyst: PRD
Diesel Range Organics (DRO)	ND	9.6	mg/Kg	1	7/12/2023 2:56:32 PM
Motor Oil Range Organics (MRO)	ND	48	mg/Kg	1	7/12/2023 2:56:32 PM
Surr: DNOP	84.4	69-147	%Rec	1	7/12/2023 2:56:32 PM
EPA METHOD 300.0: ANIONS					Analyst: CAS
Chloride	ND	60	mg/Kg	20	7/12/2023 8:38:28 PM
<b>EPA METHOD 8260B: VOLATILES SHORT LIST</b>					Analyst: RAA
Benzene	ND	0.024	mg/Kg	1	7/12/2023 3:58:11 PM
Toluene	ND	0.049	mg/Kg	1	7/12/2023 3:58:11 PM
Ethylbenzene	ND	0.049	mg/Kg	1	7/12/2023 3:58:11 PM
Xylenes, Total	ND	0.098	mg/Kg	1	7/12/2023 3:58:11 PM
Surr: 1,2-Dichloroethane-d4	115	64.8-147	%Rec	1	7/12/2023 3:58:11 PM
Surr: 4-Bromofluorobenzene	92.9	62.1-144	%Rec	1	7/12/2023 3:58:11 PM
Surr: Dibromofluoromethane	118	73-145	%Rec	1	7/12/2023 3:58:11 PM
Surr: Toluene-d8	98.2	70-130	%Rec	1	7/12/2023 3:58:11 PM
EPA METHOD 8015D MOD: GASOLINE RANGE					Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	7/12/2023 3:58:11 PM
Surr: BFB	88.9	70-130	%Rec	1	7/12/2023 3:58:11 PM

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

Qualifiers:

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

Page 14 of 42

Client Sample ID: BH23-10 2'

Date Reported: 7/17/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

**Project:** Tomcat 16 State 006 Collection Date: 7/8/2023 8:45:00 AM

**Lab ID:** 2307353-015 **Matrix:** SOIL **Received Date:** 7/11/2023 9:10:00 AM

Analyses	Result	RL Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGA	NICS				Analyst: PRD
Diesel Range Organics (DRO)	ND	9.6	mg/Kg	1	7/12/2023 3:07:21 PM
Motor Oil Range Organics (MRO)	ND	48	mg/Kg	1	7/12/2023 3:07:21 PM
Surr: DNOP	75.7	69-147	%Rec	1	7/12/2023 3:07:21 PM
EPA METHOD 300.0: ANIONS					Analyst: CAS
Chloride	ND	60	mg/Kg	20	7/12/2023 8:50:53 PM
<b>EPA METHOD 8260B: VOLATILES SHORT LIST</b>					Analyst: RAA
Benzene	ND	0.024	mg/Kg	1	7/12/2023 4:25:43 PM
Toluene	ND	0.049	mg/Kg	1	7/12/2023 4:25:43 PM
Ethylbenzene	ND	0.049	mg/Kg	1	7/12/2023 4:25:43 PM
Xylenes, Total	ND	0.098	mg/Kg	1	7/12/2023 4:25:43 PM
Surr: 1,2-Dichloroethane-d4	121	64.8-147	%Rec	1	7/12/2023 4:25:43 PM
Surr: 4-Bromofluorobenzene	95.1	62.1-144	%Rec	1	7/12/2023 4:25:43 PM
Surr: Dibromofluoromethane	123	73-145	%Rec	1	7/12/2023 4:25:43 PM
Surr: Toluene-d8	97.5	70-130	%Rec	1	7/12/2023 4:25:43 PM
EPA METHOD 8015D MOD: GASOLINE RANGE					Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	7/12/2023 4:25:43 PM
Surr: BFB	89.9	70-130	%Rec	1	7/12/2023 4:25:43 PM

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- 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

Page 15 of 42

Date Reported: 7/17/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-11 0'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/8/2023 8:50:00 AM

 Lab ID:
 2307353-016
 Matrix: SOIL
 Received Date: 7/11/2023 9:10:00 AM

Analyses	Result	RL Qua	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGAI	NICS				Analyst: PRD
Diesel Range Organics (DRO)	ND	9.9	mg/Kg	1	7/12/2023 3:18:09 PM
Motor Oil Range Organics (MRO)	ND	49	mg/Kg	1	7/12/2023 3:18:09 PM
Surr: DNOP	79.9	69-147	%Rec	1	7/12/2023 3:18:09 PM
EPA METHOD 300.0: ANIONS					Analyst: CAS
Chloride	ND	60	mg/Kg	20	7/12/2023 9:03:17 PM
<b>EPA METHOD 8260B: VOLATILES SHORT LIST</b>					Analyst: RAA
Benzene	ND	0.025	mg/Kg	1	7/12/2023 4:53:17 PM
Toluene	ND	0.049	mg/Kg	1	7/12/2023 4:53:17 PM
Ethylbenzene	ND	0.049	mg/Kg	1	7/12/2023 4:53:17 PM
Xylenes, Total	ND	0.098	mg/Kg	1	7/12/2023 4:53:17 PM
Surr: 1,2-Dichloroethane-d4	121	64.8-147	%Rec	1	7/12/2023 4:53:17 PM
Surr: 4-Bromofluorobenzene	90.0	62.1-144	%Rec	1	7/12/2023 4:53:17 PM
Surr: Dibromofluoromethane	124	73-145	%Rec	1	7/12/2023 4:53:17 PM
Surr: Toluene-d8	96.4	70-130	%Rec	1	7/12/2023 4:53:17 PM
EPA METHOD 8015D MOD: GASOLINE RANGE					Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	7/12/2023 4:53:17 PM
Surr: BFB	87.5	70-130	%Rec	1	7/12/2023 4:53:17 PM

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- 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

Page 16 of 42

Date Reported: 7/17/2023

#### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-11 2'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/8/2023 8:55:00 AM

 Lab ID:
 2307353-017
 Matrix: SOIL
 Received Date: 7/11/2023 9:10:00 AM

Result **RL Qual Units** DF **Date Analyzed** Analyses **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** Analyst: PRD Diesel Range Organics (DRO) ND 9.6 mg/Kg 1 7/12/2023 3:28:59 PM Motor Oil Range Organics (MRO) ND 48 mg/Kg 1 7/12/2023 3:28:59 PM Surr: DNOP 79.9 69-147 %Rec 1 7/12/2023 3:28:59 PM **EPA METHOD 300.0: ANIONS** Analyst: CAS Chloride ND 7/12/2023 9:15:42 PM 60 mg/Kg 20 **EPA METHOD 8260B: VOLATILES SHORT LIST** Analyst: RAA 7/12/2023 5:20:52 PM ND 0.025 mg/Kg 1 Toluene ND 0.050 mg/Kg 1 7/12/2023 5:20:52 PM Ethylbenzene ND 0.050 mg/Kg 1 7/12/2023 5:20:52 PM Xylenes, Total ND 0.099 mg/Kg 1 7/12/2023 5:20:52 PM Surr: 1,2-Dichloroethane-d4 %Rec 7/12/2023 5:20:52 PM 120 64.8-147 1 Surr: 4-Bromofluorobenzene 90.0 62.1-144 %Rec 1 7/12/2023 5:20:52 PM Surr: Dibromofluoromethane 73-145 %Rec 1 7/12/2023 5:20:52 PM 122 Surr: Toluene-d8 95.8 70-130 %Rec 1 7/12/2023 5:20:52 PM

ND

86.7

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

**EPA METHOD 8015D MOD: GASOLINE RANGE** 

Gasoline Range Organics (GRO)

Surr: BFB

- 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

mg/Kg

%Rec

1

1

5.0

70-130

- P Sample pH Not In Range
- RL Reporting Limit

Page 17 of 42

Analyst: RAA

7/12/2023 5:20:52 PM

7/12/2023 5:20:52 PM

Date Reported: 7/17/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-12 0'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/8/2023 9:00:00 AM

 Lab ID:
 2307353-018
 Matrix: SOIL
 Received Date: 7/11/2023 9:10:00 AM

Analyses	Result	RL Qua	l Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGAN	NICS				Analyst: PRD
Diesel Range Organics (DRO)	ND	9.8	mg/Kg	1	7/12/2023 3:39:49 PM
Motor Oil Range Organics (MRO)	ND	49	mg/Kg	1	7/12/2023 3:39:49 PM
Surr: DNOP	87.6	69-147	%Rec	1	7/12/2023 3:39:49 PM
EPA METHOD 300.0: ANIONS					Analyst: CAS
Chloride	ND	60	mg/Kg	20	7/12/2023 9:28:07 PM
EPA METHOD 8260B: VOLATILES SHORT LIST					Analyst: RAA
Benzene	ND	0.024	mg/Kg	1	7/12/2023 5:48:29 PM
Toluene	ND	0.048	mg/Kg	1	7/12/2023 5:48:29 PM
Ethylbenzene	ND	0.048	mg/Kg	1	7/12/2023 5:48:29 PM
Xylenes, Total	ND	0.097	mg/Kg	1	7/12/2023 5:48:29 PM
Surr: 1,2-Dichloroethane-d4	123	64.8-147	%Rec	1	7/12/2023 5:48:29 PM
Surr: 4-Bromofluorobenzene	91.4	62.1-144	%Rec	1	7/12/2023 5:48:29 PM
Surr: Dibromofluoromethane	122	73-145	%Rec	1	7/12/2023 5:48:29 PM
Surr: Toluene-d8	96.0	70-130	%Rec	1	7/12/2023 5:48:29 PM
EPA METHOD 8015D MOD: GASOLINE RANGE					Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	7/12/2023 5:48:29 PM
Surr: BFB	90.0	70-130	%Rec	1	7/12/2023 5:48:29 PM

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

Qualifiers:

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

of the ph Not In Range Page 18 of 42

Date Reported: 7/17/2023

## Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Vertex Resources Services, Inc. Client Sample ID: BH23-12 2'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/8/2023 9:05:00 AM

 Lab ID:
 2307353-019
 Matrix: SOIL
 Received Date: 7/11/2023 9:10:00 AM

Analyses	Result	RL Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORG	ANICS				Analyst: PRD
Diesel Range Organics (DRO)	ND	9.6	mg/Kg	1	7/12/2023 4:01:25 PM
Motor Oil Range Organics (MRO)	ND	48	mg/Kg	1	7/12/2023 4:01:25 PM
Surr: DNOP	97.5	69-147	%Rec	1	7/12/2023 4:01:25 PM
EPA METHOD 300.0: ANIONS					Analyst: CAS
Chloride	ND	59	mg/Kg	20	7/12/2023 9:40:31 PM
<b>EPA METHOD 8260B: VOLATILES SHORT LIS</b>	Т				Analyst: RAA
Benzene	ND	0.024	mg/Kg	1	7/12/2023 6:16:07 PM
Toluene	ND	0.049	mg/Kg	1	7/12/2023 6:16:07 PM
Ethylbenzene	ND	0.049	mg/Kg	1	7/12/2023 6:16:07 PM
Xylenes, Total	ND	0.097	mg/Kg	1	7/12/2023 6:16:07 PM
Surr: 1,2-Dichloroethane-d4	127	64.8-147	%Rec	1	7/12/2023 6:16:07 PM
Surr: 4-Bromofluorobenzene	93.5	62.1-144	%Rec	1	7/12/2023 6:16:07 PM
Surr: Dibromofluoromethane	124	73-145	%Rec	1	7/12/2023 6:16:07 PM
Surr: Toluene-d8	98.3	70-130	%Rec	1	7/12/2023 6:16:07 PM
EPA METHOD 8015D MOD: GASOLINE RANG	E				Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	7/12/2023 6:16:07 PM
Surr: BFB	91.6	70-130	%Rec	1	7/12/2023 6:16:07 PM

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- 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

Page 19 of 42

Date Reported: 7/17/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-13 0'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/8/2023 9:15:00 AM

 Lab ID:
 2307353-020
 Matrix: SOIL
 Received Date: 7/11/2023 9:10:00 AM

Analyses	Result	RL Qu	ıal Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGA	ANICS				Analyst: <b>PRD</b>
Diesel Range Organics (DRO)	ND	9.5	mg/Kg	1	7/12/2023 4:57:33 PM
Motor Oil Range Organics (MRO)	ND	47	mg/Kg	1	7/12/2023 4:57:33 PM
Surr: DNOP	87.7	69-147	%Rec	1	7/12/2023 4:57:33 PM
EPA METHOD 300.0: ANIONS					Analyst: CAS
Chloride	ND	60	mg/Kg	20	7/12/2023 10:17:44 PM
EPA METHOD 8260B: VOLATILES SHORT LIST	Т				Analyst: RAA
Benzene	ND	0.025	mg/Kg	1	7/12/2023 6:43:44 PM
Toluene	ND	0.049	mg/Kg	1	7/12/2023 6:43:44 PM
Ethylbenzene	ND	0.049	mg/Kg	1	7/12/2023 6:43:44 PM
Xylenes, Total	ND	0.098	mg/Kg	1	7/12/2023 6:43:44 PM
Surr: 1,2-Dichloroethane-d4	117	64.8-147	%Rec	1	7/12/2023 6:43:44 PM
Surr: 4-Bromofluorobenzene	90.6	62.1-144	%Rec	1	7/12/2023 6:43:44 PM
Surr: Dibromofluoromethane	122	73-145	%Rec	1	7/12/2023 6:43:44 PM
Surr: Toluene-d8	98.9	70-130	%Rec	1	7/12/2023 6:43:44 PM
EPA METHOD 8015D MOD: GASOLINE RANGE	<b>≣</b>				Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	7/12/2023 6:43:44 PM
Surr: BFB	89.0	70-130	%Rec	1	7/12/2023 6:43:44 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

Page 20 of 42

Date Reported: 7/17/2023

#### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-13 2'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/8/2023 9:20:00 AM

 Lab ID:
 2307353-021
 Matrix: SOIL
 Received Date: 7/11/2023 9:10:00 AM

Result **RL Qual Units** DF **Date Analyzed** Analyses Analyst: PRD **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** Diesel Range Organics (DRO) ND 9.8 mg/Kg 1 7/12/2023 5:08:19 PM Motor Oil Range Organics (MRO) ND 49 mg/Kg 1 7/12/2023 5:08:19 PM Surr: DNOP 81.9 69-147 %Rec 1 7/12/2023 5:08:19 PM **EPA METHOD 300.0: ANIONS** Analyst: CAS Chloride ND 60 7/12/2023 10:30:09 PM mg/Kg 20 **EPA METHOD 8260B: VOLATILES SHORT LIST** Analyst: RAA ND 7/12/2023 7:11:19 PM 0.024 mg/Kg 1 Toluene ND 7/12/2023 7:11:19 PM 0.048 mg/Kg 1 Ethylbenzene ND 0.048 mg/Kg 1 7/12/2023 7:11:19 PM Xylenes, Total ND 0.096 mg/Kg 1 7/12/2023 7:11:19 PM Surr: 1,2-Dichloroethane-d4 125 %Rec 7/12/2023 7:11:19 PM 64.8-147 1 Surr: 4-Bromofluorobenzene 93.8 62.1-144 %Rec 1 7/12/2023 7:11:19 PM Surr: Dibromofluoromethane 73-145 %Rec 1 7/12/2023 7:11:19 PM 124 Surr: Toluene-d8 99.9 70-130 %Rec 1 7/12/2023 7:11:19 PM **EPA METHOD 8015D MOD: GASOLINE RANGE** Analyst: RAA Gasoline Range Organics (GRO) ND mg/Kg 7/12/2023 7:11:19 PM 4.8 1 Surr: BFB 89.7 70-130 %Rec 1 7/12/2023 7:11:19 PM

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- 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

Page 21 of 42

Date Reported: 7/17/2023

#### Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Vertex Resources Services, Inc. Client Sample ID: BH23-14 0<sup>th</sup>

 Project:
 Tomcat 16 State 006
 Collection Date: 7/8/2023 9:35:00 AM

 Lab ID:
 2307353-022
 Matrix: SOIL
 Received Date: 7/11/2023 9:10:00 AM

Result **RL Qual Units** DF **Date Analyzed** Analyses Analyst: PRD **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** Diesel Range Organics (DRO) ND 9.4 mg/Kg 1 7/12/2023 5:19:10 PM Motor Oil Range Organics (MRO) ND 47 mg/Kg 1 7/12/2023 5:19:10 PM Surr: DNOP 77.2 69-147 %Rec 1 7/12/2023 5:19:10 PM **EPA METHOD 300.0: ANIONS** Analyst: CAS Chloride ND 60 7/12/2023 10:42:33 PM mg/Kg 20 **EPA METHOD 8260B: VOLATILES SHORT LIST** Analyst: RAA ND 7/12/2023 7:38:50 PM 0.024 mg/Kg 1 Toluene ND 0.049 mg/Kg 1 7/12/2023 7:38:50 PM Ethylbenzene ND 0.049 mg/Kg 1 7/12/2023 7:38:50 PM Xylenes, Total ND 0.098 mg/Kg 1 7/12/2023 7:38:50 PM Surr: 1,2-Dichloroethane-d4 %Rec 7/12/2023 7:38:50 PM 115 64.8-147 1 Surr: 4-Bromofluorobenzene 91.1 62.1-144 %Rec 1 7/12/2023 7:38:50 PM Surr: Dibromofluoromethane 73-145 %Rec 1 7/12/2023 7:38:50 PM 118 Surr: Toluene-d8 99.1 70-130 %Rec 1 7/12/2023 7:38:50 PM **EPA METHOD 8015D MOD: GASOLINE RANGE** Analyst: RAA Gasoline Range Organics (GRO) ND mg/Kg 7/12/2023 7:38:50 PM 49 1 Surr: BFB 87.8 70-130 %Rec 1 7/12/2023 7:38:50 PM

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- 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

Page 22 of 42

Date Reported: 7/17/2023

## Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Vertex Resources Services, Inc. Client Sample ID: BH23-14 0.5'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/8/2023 9:35:00 AM

 Lab ID:
 2307353-023
 Matrix: SOIL
 Received Date: 7/11/2023 9:10:00 AM

Analyses	Result	RL Qu	ial Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGA	ANICS				Analyst: PRD
Diesel Range Organics (DRO)	ND	9.7	mg/Kg	1	7/12/2023 5:30:13 PM
Motor Oil Range Organics (MRO)	ND	48	mg/Kg	1	7/12/2023 5:30:13 PM
Surr: DNOP	87.0	69-147	%Rec	1	7/12/2023 5:30:13 PM
EPA METHOD 300.0: ANIONS					Analyst: CAS
Chloride	ND	60	mg/Kg	20	7/12/2023 10:54:57 PM
EPA METHOD 8260B: VOLATILES SHORT LIST	Т				Analyst: RAA
Benzene	ND	0.024	mg/Kg	1	7/12/2023 8:06:16 PM
Toluene	ND	0.049	mg/Kg	1	7/12/2023 8:06:16 PM
Ethylbenzene	ND	0.049	mg/Kg	1	7/12/2023 8:06:16 PM
Xylenes, Total	ND	0.097	mg/Kg	1	7/12/2023 8:06:16 PM
Surr: 1,2-Dichloroethane-d4	129	64.8-147	%Rec	1	7/12/2023 8:06:16 PM
Surr: 4-Bromofluorobenzene	94.7	62.1-144	%Rec	1	7/12/2023 8:06:16 PM
Surr: Dibromofluoromethane	126	73-145	%Rec	1	7/12/2023 8:06:16 PM
Surr: Toluene-d8	96.4	70-130	%Rec	1	7/12/2023 8:06:16 PM
EPA METHOD 8015D MOD: GASOLINE RANGE	<b>≣</b>				Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	7/12/2023 8:06:16 PM
Surr: BFB	90.9	70-130	%Rec	1	7/12/2023 8:06:16 PM

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

Qualifiers:

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

Page 23 of 42

Client Sample ID: BH23-14 2'

Date Reported: 7/17/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Project: Tomcat 16 State 006 Collection Date: 7/8/2023 9:40:00 AM

**Lab ID:** 2307353-024 **Matrix:** SOIL **Received Date:** 7/11/2023 9:10:00 AM

Analyses	Result	RL Qua	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORG	ANICS				Analyst: PRD
Diesel Range Organics (DRO)	ND	9.8	mg/Kg	1	7/12/2023 5:41:15 PM
Motor Oil Range Organics (MRO)	ND	49	mg/Kg	1	7/12/2023 5:41:15 PM
Surr: DNOP	87.1	69-147	%Rec	1	7/12/2023 5:41:15 PM
EPA METHOD 300.0: ANIONS					Analyst: CAS
Chloride	ND	60	mg/Kg	20	7/12/2023 11:07:21 PM
EPA METHOD 8260B: VOLATILES SHORT LIS	Т				Analyst: RAA
Benzene	ND	0.024	mg/Kg	1	7/12/2023 8:33:38 PM
Toluene	ND	0.048	mg/Kg	1	7/12/2023 8:33:38 PM
Ethylbenzene	ND	0.048	mg/Kg	1	7/12/2023 8:33:38 PM
Xylenes, Total	ND	0.097	mg/Kg	1	7/12/2023 8:33:38 PM
Surr: 1,2-Dichloroethane-d4	133	64.8-147	%Rec	1	7/12/2023 8:33:38 PM
Surr: 4-Bromofluorobenzene	92.4	62.1-144	%Rec	1	7/12/2023 8:33:38 PM
Surr: Dibromofluoromethane	134	73-145	%Rec	1	7/12/2023 8:33:38 PM
Surr: Toluene-d8	98.3	70-130	%Rec	1	7/12/2023 8:33:38 PM
EPA METHOD 8015D MOD: GASOLINE RANGI	E				Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	7/12/2023 8:33:38 PM
Surr: BFB	87.9	70-130	%Rec	1	7/12/2023 8:33:38 PM

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

Qualifiers:

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

Page 24 of 42

Date Reported: 7/17/2023

## Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Vertex Resources Services, Inc. Client Sample ID: BH23-15 0'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/8/2023 9:55:00 AM

 Lab ID:
 2307353-025
 Matrix: SOIL
 Received Date: 7/11/2023 9:10:00 AM

Analyses	Result	RL Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGA	ANICS				Analyst: PRD
Diesel Range Organics (DRO)	ND	9.6	mg/Kg	1	7/12/2023 5:52:18 PM
Motor Oil Range Organics (MRO)	ND	48	mg/Kg	1	7/12/2023 5:52:18 PM
Surr: DNOP	76.9	69-147	%Rec	1	7/12/2023 5:52:18 PM
EPA METHOD 300.0: ANIONS					Analyst: CAS
Chloride	ND	60	mg/Kg	20	7/12/2023 11:19:46 PM
EPA METHOD 8260B: VOLATILES SHORT LIS	Т				Analyst: RAA
Benzene	ND	0.025	mg/Kg	1	7/12/2023 9:00:56 PM
Toluene	ND	0.050	mg/Kg	1	7/12/2023 9:00:56 PM
Ethylbenzene	ND	0.050	mg/Kg	1	7/12/2023 9:00:56 PM
Xylenes, Total	ND	0.099	mg/Kg	1	7/12/2023 9:00:56 PM
Surr: 1,2-Dichloroethane-d4	119	64.8-147	%Rec	1	7/12/2023 9:00:56 PM
Surr: 4-Bromofluorobenzene	91.7	62.1-144	%Rec	1	7/12/2023 9:00:56 PM
Surr: Dibromofluoromethane	125	73-145	%Rec	1	7/12/2023 9:00:56 PM
Surr: Toluene-d8	97.3	70-130	%Rec	1	7/12/2023 9:00:56 PM
EPA METHOD 8015D MOD: GASOLINE RANGI	E				Analyst: RAA
Gasoline Range Organics (GRO)	ND	5.0	mg/Kg	1	7/12/2023 9:00:56 PM
Surr: BFB	87.1	70-130	%Rec	1	7/12/2023 9:00:56 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

Page 25 of 42

Date Reported: 7/17/2023

#### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-15 0.5'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/8/2023 9:55:00 AM

 Lab ID:
 2307353-026
 Matrix: SOIL
 Received Date: 7/11/2023 9:10:00 AM

Result **RL Qual Units** DF **Date Analyzed** Analyses Analyst: PRD **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** Diesel Range Organics (DRO) ND 9.4 mg/Kg 1 7/12/2023 6:03:21 PM Motor Oil Range Organics (MRO) ND 47 mg/Kg 1 7/12/2023 6:03:21 PM Surr: DNOP 85.8 69-147 %Rec 1 7/12/2023 6:03:21 PM **EPA METHOD 300.0: ANIONS** Analyst: CAS Chloride ND 60 7/12/2023 11:32:11 PM mg/Kg 20 **EPA METHOD 8260B: VOLATILES SHORT LIST** Analyst: RAA 7/12/2023 9:28:16 PM ND 0.024 mg/Kg 1 Toluene ND 0.049 mg/Kg 1 7/12/2023 9:28:16 PM Ethylbenzene ND 0.049 mg/Kg 1 7/12/2023 9:28:16 PM Xylenes, Total ND 0.098 mg/Kg 1 7/12/2023 9:28:16 PM Surr: 1,2-Dichloroethane-d4 125 %Rec 7/12/2023 9:28:16 PM 64.8-147 1 Surr: 4-Bromofluorobenzene 94.9 62.1-144 %Rec 1 7/12/2023 9:28:16 PM Surr: Dibromofluoromethane 73-145 %Rec 1 7/12/2023 9:28:16 PM 126 Surr: Toluene-d8 97.5 70-130 %Rec 1 7/12/2023 9:28:16 PM **EPA METHOD 8015D MOD: GASOLINE RANGE** Analyst: RAA Gasoline Range Organics (GRO) ND mg/Kg 7/12/2023 9:28:16 PM 49 1 Surr: BFB 89.2 70-130 %Rec 1 7/12/2023 9:28:16 PM

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

Qualifiers:

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

Page 26 of 42

Date Reported: 7/17/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-15 2'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/8/2023 10:00:00 AM

 Lab ID:
 2307353-027
 Matrix: SOIL
 Received Date: 7/11/2023 9:10:00 AM

Analyses	Result	RL Qua	l Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGA	NICS				Analyst: PRD
Diesel Range Organics (DRO)	ND	9.6	mg/Kg	1	7/12/2023 6:14:24 PM
Motor Oil Range Organics (MRO)	ND	48	mg/Kg	1	7/12/2023 6:14:24 PM
Surr: DNOP	85.5	69-147	%Rec	1	7/12/2023 6:14:24 PM
EPA METHOD 300.0: ANIONS					Analyst: RBC
Chloride	ND	60	mg/Kg	20	7/12/2023 1:43:54 PM
EPA METHOD 8260B: VOLATILES SHORT LIST					Analyst: RAA
Benzene	ND	0.024	mg/Kg	1	7/13/2023 7:25:45 PM
Toluene	ND	0.048	mg/Kg	1	7/13/2023 7:25:45 PM
Ethylbenzene	ND	0.048	mg/Kg	1	7/13/2023 7:25:45 PM
Xylenes, Total	ND	0.096	mg/Kg	1	7/13/2023 7:25:45 PM
Surr: 1,2-Dichloroethane-d4	110	64.8-147	%Rec	1	7/13/2023 7:25:45 PM
Surr: 4-Bromofluorobenzene	97.0	62.1-144	%Rec	1	7/13/2023 7:25:45 PM
Surr: Dibromofluoromethane	114	73-145	%Rec	1	7/13/2023 7:25:45 PM
Surr: Toluene-d8	98.6	70-130	%Rec	1	7/13/2023 7:25:45 PM
EPA METHOD 8015D MOD: GASOLINE RANGE					Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	7/13/2023 1:06:02 AM
Surr: BFB	91.4	70-130	%Rec	1	7/13/2023 1:06:02 AM

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- 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

Page 27 of 42

Date Reported: 7/17/2023

## Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Vertex Resources Services, Inc. Client Sample ID: BH23-16 0'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/8/2023 10:10:00 AM

 Lab ID:
 2307353-028
 Matrix: SOIL
 Received Date: 7/11/2023 9:10:00 AM

Analyses	Result	RL Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGAN	NICS				Analyst: PRD
Diesel Range Organics (DRO)	ND	9.6	mg/Kg	1	7/12/2023 6:25:25 PM
Motor Oil Range Organics (MRO)	ND	48	mg/Kg	1	7/12/2023 6:25:25 PM
Surr: DNOP	72.4	69-147	%Rec	1	7/12/2023 6:25:25 PM
EPA METHOD 300.0: ANIONS					Analyst: RBC
Chloride	ND	60	mg/Kg	20	7/12/2023 2:21:07 PM
EPA METHOD 8260B: VOLATILES SHORT LIST					Analyst: RAA
Benzene	ND	0.025	mg/Kg	1	7/13/2023 7:53:12 PM
Toluene	ND	0.049	mg/Kg	1	7/13/2023 7:53:12 PM
Ethylbenzene	ND	0.049	mg/Kg	1	7/13/2023 7:53:12 PM
Xylenes, Total	ND	0.098	mg/Kg	1	7/13/2023 7:53:12 PM
Surr: 1,2-Dichloroethane-d4	106	64.8-147	%Rec	1	7/13/2023 7:53:12 PM
Surr: 4-Bromofluorobenzene	96.0	62.1-144	%Rec	1	7/13/2023 7:53:12 PM
Surr: Dibromofluoromethane	113	73-145	%Rec	1	7/13/2023 7:53:12 PM
Surr: Toluene-d8	97.5	70-130	%Rec	1	7/13/2023 7:53:12 PM
EPA METHOD 8015D MOD: GASOLINE RANGE					Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	7/13/2023 1:33:15 AM
Surr: BFB	89.5	70-130	%Rec	1	7/13/2023 1:33:15 AM

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- 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

Page 28 of 42

Date Reported: 7/17/2023

#### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. Client Sample ID: BH23-16 0.5'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/8/2023 10:10:00 AM

 Lab ID:
 2307353-029
 Matrix: SOIL
 Received Date: 7/11/2023 9:10:00 AM

Result **RL Qual Units** DF **Date Analyzed** Analyses Analyst: PRD **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** Diesel Range Organics (DRO) ND 9.9 mg/Kg 1 7/13/2023 12:26:18 AM Motor Oil Range Organics (MRO) ND 50 mg/Kg 1 7/13/2023 12:26:18 AM Surr: DNOP 86.7 69-147 %Rec 1 7/13/2023 12:26:18 AM **EPA METHOD 8015D: GASOLINE RANGE** Analyst: KMN Gasoline Range Organics (GRO) ND 7/13/2023 4:30:00 AM 4.9 mg/Kg 1 Surr: BFB 97.3 15-244 %Rec 1 7/13/2023 4:30:00 AM **EPA METHOD 8021B: VOLATILES** Analyst: KMN Benzene ND 7/13/2023 4:30:00 AM 0.025 mg/Kg 1 Toluene ND 0.049 mg/Kg 1 7/13/2023 4:30:00 AM Ethylbenzene ND 0.049 mg/Kg 1 7/13/2023 4:30:00 AM Xylenes, Total ND 0.098 mg/Kg 7/13/2023 4:30:00 AM 1 Surr: 4-Bromofluorobenzene 94.9 39.1-146 %Rec 1 7/13/2023 4:30:00 AM **EPA METHOD 300.0: ANIONS** Analyst: RBC mg/Kg Chloride 7/12/2023 2:33:32 PM ND 60 20

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

Page 29 of 42

Date Reported: 7/17/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-16 2'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/8/2023 10:15:00 AM

 Lab ID:
 2307353-030
 Matrix: SOIL
 Received Date: 7/11/2023 9:10:00 AM

Analyses	Result	RL Qua	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORG	SANICS				Analyst: PRD
Diesel Range Organics (DRO)	ND	10	mg/Kg	1	7/13/2023 12:58:44 AM
Motor Oil Range Organics (MRO)	ND	50	mg/Kg	1	7/13/2023 12:58:44 AM
Surr: DNOP	86.6	69-147	%Rec	1	7/13/2023 12:58:44 AM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: KMN
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	7/13/2023 5:35:00 AM
Surr: BFB	94.6	15-244	%Rec	1	7/13/2023 5:35:00 AM
EPA METHOD 8021B: VOLATILES					Analyst: KMN
Benzene	ND	0.025	mg/Kg	1	7/13/2023 5:35:00 AM
Toluene	ND	0.049	mg/Kg	1	7/13/2023 5:35:00 AM
Ethylbenzene	ND	0.049	mg/Kg	1	7/13/2023 5:35:00 AM
Xylenes, Total	ND	0.099	mg/Kg	1	7/13/2023 5:35:00 AM
Surr: 4-Bromofluorobenzene	96.3	39.1-146	%Rec	1	7/13/2023 5:35:00 AM
EPA METHOD 300.0: ANIONS					Analyst: RBC
Chloride	ND	60	mg/Kg	20	7/12/2023 2:45:57 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

Page 30 of 42

#### Hall Environmental Analysis Laboratory, Inc.

SampType: Ics

WO#: 2307353

17-Jul-23

**Client:** Vertex Resources Services, Inc.

**Project:** Tomcat 16 State 006

Sample ID: MB-76141 SampType: mblk TestCode: EPA Method 300.0: Anions Client ID: PBS Batch ID: 76141 RunNo: 98155 Prep Date: 7/12/2023 Analysis Date: 7/12/2023 SeqNo: 3571682 Units: mg/Kg SPK value SPK Ref Val %RPD **RPDLimit** Analyte Result PQL %REC LowLimit HighLimit Qual

Chloride ND 1.5

Sample ID: LCS-76141

Chloride

Chloride

Client ID: LCSS Batch ID: 76141 RunNo: 98155 Prep Date: 7/12/2023 Analysis Date: 7/12/2023 SeqNo: 3571683 Units: mg/Kg **RPDLimit** Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD Qual Chloride 14 1.5 15.00 92 5 110

TestCode: EPA Method 300.0: Anions

Sample ID: MB-76143 TestCode: EPA Method 300.0: Anions SampType: mblk Client ID: PBS Batch ID: 76143 RunNo: 98155 Analysis Date: 7/12/2023 Prep Date: 7/12/2023 SeqNo: 3571714 Units: mg/Kg Result POI SPK value SPK Ref Val %REC %RPD **RPDLimit** Qual Analyte I owl imit HighLimit

Sample ID: LCS-76143 SampType: Ics TestCode: EPA Method 300.0: Anions Client ID: LCSS Batch ID: 76143 RunNo: 98155 Prep Date: Analysis Date: 7/12/2023 SeqNo: 3571715 7/12/2023 Units: mg/Kg Analyte Result **PQL** SPK value SPK Ref Val %REC HighLimit %RPD **RPDLimit** Qual LowLimit

Sample ID: MB-76147 SampType: MBLK TestCode: EPA Method 300.0: Anions Client ID: Batch ID: 76147 RunNo: 98158 PRS Prep Date: 7/12/2023 Analysis Date: 7/12/2023 SeqNo: 3571790 Units: mg/Kg

90.7

90

LowLimit

HighLimit

SPK value SPK Ref Val Analyte Result PQL %REC Chloride ND 1.5

ND

14

1.5

Sample ID: LCS-76147 SampType: LCS TestCode: EPA Method 300.0: Anions Client ID: LCSS Batch ID: 76147 RunNo: 98158

15.00

Prep Date: 7/12/2023 Analysis Date: 7/12/2023 SeqNo: 3571791 Units: mg/Kg

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual 14 Chloride 1.5 15.00 91.5

#### Qualifiers:

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

Page 31 of 42

**RPDLimit** 

Qual

%RPD

#### Hall Environmental Analysis Laboratory, Inc.

WO#: 2307353

Qual

**RPDLimit** 

17-Jul-23

**Client:** Vertex Resources Services, Inc.

**Project:** Tomcat 16 State 006

Sample ID: LCS-76085 SampType: LCS TestCode: EPA Method 8015M/D: Diesel Range Organics

Client ID: LCSS Batch ID: 76085 RunNo: 98123

Prep Date: 7/10/2023 Analysis Date: 7/11/2023 SeqNo: 3570553 Units: %Rec

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

Surr: DNOP 5.8 5.000 116 69 147

Sample ID: LCS-76122 TestCode: EPA Method 8015M/D: Diesel Range Organics SampType: LCS Client ID: LCSS Batch ID: 76122 RunNo: 98123 Prep Date: 7/11/2023 Analysis Date: 7/11/2023 SeqNo: 3570554 Units: mq/Kq

%REC Analyte Result PQL SPK value SPK Ref Val LowLimit HighLimit %RPD Diesel Range Organics (DRO) 44 10 50.00 87.7 61.9 130 Surr: DNOP 78.9 3.9 5.000 69 147

Sample ID: MB-76085 SampType: MBLK TestCode: EPA Method 8015M/D: Diesel Range Organics

PBS Batch ID: 76085 Client ID: RunNo: 98123

9.2

Prep Date: 7/10/2023 Analysis Date: 7/11/2023 SeqNo: 3570556 Units: %Rec

PQL SPK value SPK Ref Val %REC HighLimit %RPD **RPDLimit** Analyte LowLimit Qual 10.00 Surr: DNOP 12 120 69 147

Sample ID: MB-76122 SampType: MBLK TestCode: EPA Method 8015M/D: Diesel Range Organics Client ID: PBS Batch ID: 76122 RunNo: 98123 Prep Date: 7/11/2023 Analysis Date: 7/11/2023 SeqNo: 3570557 Units: mg/Kg %RPD Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit **RPDLimit** Qual Diesel Range Organics (DRO) ND 10 Motor Oil Range Organics (MRO) ND 50

92 1

69

147

TestCode: EPA Method 8015M/D: Diesel Range Organics

Sample ID: 2307353-011AMS SampType: MS TestCode: EPA Method 8015M/D: Diesel Range Organics Client ID: BH23-08 2' Batch ID: 76132 RunNo: 98153

Analysis Date: 7/12/2023 Prep Date: 7/11/2023 SeqNo: 3571481 Units: mg/Kg

10.00

%RPD **RPDLimit** Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit Qual Diesel Range Organics (DRO) 45 9.5 47.62 0 94.3 54.2 135 Surr: DNOP 88.7 69 147

4.2 4.762

Client ID: BH23-08 2' Batch ID: 76132 RunNo: 98153

SampType: MSD

Prep Date: 7/11/2023 Analysis Date: 7/12/2023 SeqNo: 3571482 Units: mg/Kg

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

Diesel Range Organics (DRO) 37 48.45 76.0 54.2 135 19.8 29.2 9.7

#### Qualifiers:

Surr: DNOP

Value exceeds Maximum Contaminant Level

D Sample Diluted Due to Matrix

Η Holding times for preparation or analysis exceeded

Not Detected at the Reporting Limit

Sample ID: 2307353-011AMSD

PQL Practical Quanitative Limit

% Recovery outside of standard limits. If undiluted results may be estimated.

Analyte detected in the associated Method Blank

Above Quantitation Range/Estimated Value

Analyte detected below quantitation limits

Sample pH Not In Range

RL Reporting Limit Page 32 of 42

#### Hall Environmental Analysis Laboratory, Inc.

WO#: **2307353** 

Qual

17-Jul-23

Client: Vertex Resources Services, Inc.

**Project:** Tomcat 16 State 006

Sample ID: 2307353-029AMSD

Sample ID:	2307353-011AMSD	SampTyp	ре: <b>М</b> \$	SD	Tes	TestCode: EPA Method 8015M/D: Diesel Range Organics							
Client ID:	BH23-08 2'	Batch I	D: <b>76</b>	132	F	RunNo: 9	98153						
Prep Date:	7/11/2023	Analysis Dat	Analysis Date: 7/12/2023			SeqNo: 3	3571482	Units: mg/Kg					
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual		

 Surr: DNOP
 3.5
 4.845
 71.9
 69
 147
 0
 0

 Sample ID: 2307353-029AMS
 SampType: MS
 TestCode: EPA Method 8015M/D: Diesel Range Organics

 Client ID: BH23-16 0.5'
 Batch ID: 76138
 RunNo: 98153

Prep Date: 7/12/2023 Analysis Date: 7/13/2023 SeqNo: 3571501 Units: mg/Kg

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

 Diesel Range Organics (DRO)
 43
 10
 49.90
 0
 86.6
 54.2
 135

 Surr: DNOP
 4.1
 4.990
 82.1
 69
 147

SampType: MSD

Batch ID: 76138 RunNo: 98153 Client ID: BH23-16 0.5' Prep Date: 7/12/2023 Analysis Date: 7/13/2023 SeqNo: 3571502 Units: mg/Kg PQL SPK value SPK Ref Val %REC HighLimit %RPD **RPDLimit** Qual LowLimit Diesel Range Organics (DRO) 40 9.2 45.91 n 86.2 54.2 135 8.81 29.2 Surr: DNOP 3.7 4.591 81.4 69 147 0

TestCode: EPA Method 8015M/D: Diesel Range Organics

Sample ID: LCS-76132 SampType: LCS TestCode: EPA Method 8015M/D: Diesel Range Organics Client ID: LCSS Batch ID: 76132 RunNo: 98153 Analysis Date: 7/12/2023 Prep Date: 7/11/2023 SeqNo: 3571521 Units: mg/Kg Analyte Result POI SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Diesel Range Organics (DRO) 41 10 50.00 n 82.5 61.9 130 Surr: DNOP 4.0 5.000 80.7 69 147

Sample ID: LCS-76138 SampType: LCS TestCode: EPA Method 8015M/D: Diesel Range Organics Client ID: LCSS Batch ID: 76138 RunNo: 98153 Analysis Date: 7/13/2023 SeqNo: 3571522 Prep Date: 7/12/2023 Units: mg/Kg %RPD **RPDLimit** Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit Qual Diesel Range Organics (DRO) 44 10 50.00 87.1 61.9 130 Surr: DNOP 3.9 5.000 77.7 69 147

Sample ID: MB-76132 SampType: MBLK TestCode: EPA Method 8015M/D: Diesel Range Organics Client ID: PBS Batch ID: 76132 RunNo: 98153 Prep Date: 7/11/2023 Analysis Date: 7/12/2023 SeqNo: 3571524 Units: mg/Kg %REC Analyte Result **PQL** SPK value SPK Ref Val LowLimit HighLimit %RPD **RPDLimit** Qual

Diesel Range Organics (DRO) ND 10

#### 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

Page 33 of 42

# Hall Environmental Analysis Laboratory, Inc.

WO#: **2307353** 

17-Jul-23

Client: Vertex Resources Services, Inc.

**Project:** Tomcat 16 State 006

Project: Tomcat	16 State 006						
Sample ID: <b>MB-76132</b>	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics					
Client ID: PBS	Batch ID: <b>76132</b>	RunNo: 98153					
Prep Date: 7/11/2023	Analysis Date: 7/12/2023	SeqNo: <b>3571524</b> Units: <b>mg/Kg</b>					
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual					
Motor Oil Range Organics (MRO)	ND 50						
Surr: DNOP	8.5 10.00	85.4 69 147					
Sample ID: <b>MB-76138</b>	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics					
Client ID: PBS	Batch ID: 76138	RunNo: 98153					
Prep Date: 7/12/2023	Analysis Date: 7/13/2023	SeqNo: <b>3571525</b> Units: <b>mg/Kg</b>					
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	8.0 10.00	80.4 69 147					
Sample ID: LCS-76160	SampType: <b>LCS</b>	TestCode: EPA Method 8015M/D: Diesel Range Organics					
Client ID: LCSS	Batch ID: <b>76160</b>	RunNo: 98169					
Prep Date: 7/12/2023	Analysis Date: 7/13/2023	SeqNo: <b>3572216</b> Units: <b>%Rec</b>					
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual					
Surr: DNOP	5.5 5.000	110 69 147					
Sample ID: LCS-76166	SampType: <b>LCS</b>	TestCode: EPA Method 8015M/D: Diesel Range Organics					
Client ID: LCSS	Batch ID: 76166	RunNo: 98169					
Prep Date: 7/13/2023	Analysis Date: 7/13/2023	SeqNo: <b>3572217</b> Units: <b>%Rec</b>					
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual					
Surr: DNOP	4.4 5.000	87.4 69 147					
Sample ID: <b>MB-76160</b>	SampType: <b>MBLK</b>	TestCode: EPA Method 8015M/D: Diesel Range Organics					
Client ID: PBS	Batch ID: <b>76160</b>	RunNo: 98169					
Prep Date: 7/12/2023	Analysis Date: 7/13/2023	SeqNo: <b>3572219</b> Units: <b>%Rec</b>					
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual					
Surr: DNOP	11 10.00	107 69 147					
Sample ID: <b>MB-76166</b>	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics					
Client ID: PBS	Batch ID: <b>76166</b>	RunNo: 98169					

#### Qualifiers:

Prep Date:

Surr: DNOP

Analyte

Value exceeds Maximum Contaminant Level.

7/13/2023

- 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.

Analysis Date: 7/13/2023

Result

9.2

B Analyte detected in the associated Method Blank

SeqNo: 3572220

LowLimit

69

%REC

91.7

Units: %Rec

HighLimit

147

%RPD

- E Above Quantitation Range/Estimated Value
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

SPK value SPK Ref Val

10.00

Page 34 of 42

**RPDLimit** 

Qual

## Hall Environmental Analysis Laboratory, Inc.

WO#: **2307353** 

17-Jul-23

Client: Vertex Resources Services, Inc.

**Project:** Tomcat 16 State 006

Sample ID: LCS-76168 SampType: LCS TestCode: EPA Method 8015M/D: Diesel Range Organics

Client ID: LCSS Batch ID: 76168 RunNo: 98169

Prep Date: 7/13/2023 Analysis Date: 7/13/2023 SeqNo: 3572752 Units: %Rec

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

Surr: DNOP 4.3 5.000 85.0 69 147

Sample ID: MB-76168 SampType: MBLK TestCode: EPA Method 8015M/D: Diesel Range Organics

Client ID: PBS Batch ID: 76168 RunNo: 98169

Prep Date: 7/13/2023 Analysis Date: 7/13/2023 SeqNo: 3572754 Units: %Rec

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

Surr: DNOP 8.8 10.00 87.9 69 147

#### Qualifiers:

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

Page 35 of 42

# Hall Environmental Analysis Laboratory, Inc.

WO#: **2307353** 

17-Jul-23

Client: Vertex Resources Services, Inc.

**Project:** Tomcat 16 State 006

Tolleat	10 State 000							
Sample ID: Ics-76111	SampType: <b>LCS</b>	TestCode: EPA Method 8	015D: Gasoline Range					
Client ID: LCSS	Batch ID: <b>76111</b>	RunNo: 98150						
Prep Date: 7/11/2023	Analysis Date: 7/12/2023	SeqNo: <b>3571221</b>	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 90.2 70	130					
Surr: BFB	2100 1000	207 15	244					
Sample ID: mb-76111	SampType: MBLK	TestCode: EPA Method 8015D: Gasoline Range						
Client ID: PBS	Batch ID: 76111	RunNo: 98150						
Prep Date: 7/11/2023	Analysis Date: 7/12/2023	SeqNo: <b>3571222</b>	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	97.1 15	244					
Sample ID: Ics-76082	SampType: LCS	TestCode: EPA Method 8	015D: Gasoline Range					
Client ID: LCSS	Batch ID: 76082	RunNo: 98150						
Prep Date: 7/10/2023	Analysis Date: 7/12/2023	SeqNo: <b>3571245</b>	Units: %Rec					
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit	HighLimit %RPD RPDLimit Qual					
Surr: BFB	2000 1000	200 15	244					
Sample ID: mb-76082	SampType: MBLK	TestCode: EPA Method 8015D: Gasoline Range						
Client ID: PBS	Batch ID: 76082	RunNo: 98150						
Prep Date: 7/10/2023	Analysis Date: 7/12/2023	SeqNo: <b>3571246</b>	Units: %Rec					
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit	HighLimit %RPD RPDLimit Qual					
Surr: BFB	940 1000	94.4 15	244					
Sample ID: Ics-76130	SampType: <b>LCS</b>	TestCode: EPA Method 8	015D: Gasoline Range					
Client ID: LCSS	Batch ID: 76130	RunNo: <b>98150</b>	•					
Prep Date: 7/11/2023	Analysis Date: 7/13/2023	SeqNo: <b>3571263</b>	Units: mg/Kg					
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit	HighLimit %RPD RPDLimit Qual					
Gasoline Range Organics (GRO)	22 5.0 25.00	0 87.9 70	130					
Surr: BFB	2100 1000	210 15	244					
Sample ID: mb-76130	SampType: <b>MBLK</b>	TestCode: EPA Method 8	015D: Gasoline Range					
Client ID: PBS	Batch ID: <b>76130</b>	RunNo: <b>98150</b>						
Prep Date: <b>7/11/2023</b>	Analysis Date: 7/13/2023	SeqNo: <b>3571264</b>	Units: mg/Kg					
			-					

#### Qualifiers:

Surr: BFB

Analyte

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix

Gasoline Range Organics (GRO)

- 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.

PQL

5.0

Result

ND

950

B Analyte detected in the associated Method Blank

94.5

LowLimit

15

HighLimit

244

%RPD

- E Above Quantitation Range/Estimated Value
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

SPK value SPK Ref Val %REC

1000

Page 36 of 42

**RPDLimit** 

Qual

# Hall Environmental Analysis Laboratory, Inc.

WO#: 2307353

17-Jul-23

**Client:** Vertex Resources Services, Inc.

**Project:** Tomcat 16 State 006

Sample ID:	2307353-030ams	SampType: MS			Tes	TestCode: EPA Method 8015D: Gasoline Range						
Client ID:	BH23-16 2'	Batch	1D: <b>761</b>	30	RunNo: <b>98150</b>							
Prep Date:	7/11/2023	Analysis D	ate: <b>7/</b>	13/2023	9	SeqNo: 3	571267	Units: mg/Kg				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Gasoline Range	Organics (GRO)	23	4.9	24.65	0	92.0	70	130				
Surr: BFB		2100		986.2		217	15	244				

Sample ID: 23	07353-030amsd	SampT	mpType: MSD TestCode: EPA Method 8						l 8015D: Gasoline Range					
Client ID: BH	H23-16 2'	Batch	atch ID: <b>76130</b> RunNo: <b>98150</b>											
Prep Date: 7	//11/2023	Analysis D	ate: <b>7/</b>	13/2023	9	SeqNo: 3	71268	Units: mg/Kg						
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual			
Gasoline Range Or	rganics (GRO)	22	4.9	24.58	0	89.4	70	130	3.07	20				
Surr: BFB		2100		983.3		218	15	244	0	0				

#### Qualifiers:

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

Page 37 of 42

# Hall Environmental Analysis Laboratory, Inc.

WO#: **2307353** 

17-Jul-23

Client: Vertex Resources Services, Inc.

**Project:** Tomcat 16 State 006

Samp1	Гуре: <b>LC</b> :	s	Tes	tCode: El						
Batcl	h ID: <b>761</b>	111	F	8150						
Analysis [	Date: <b>7/</b>	12/2023	SeqNo: <b>3571291</b>			Units: mg/Kg				
Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
0.94	0.025	1.000	0	93.5	70	130				
0.94	0.050	1.000	0	94.0	70	130				
0.94	0.050	1.000	0	94.2	70	130				
2.8	0.10	3.000	0	94.1	70	130				
0.99		1.000		98.7	39.1	146				
	Batci Analysis I Result 0.94 0.94 0.94 2.8	Batch ID: 761  Analysis Date: 7/2  Result PQL  0.94 0.025  0.94 0.050  0.94 0.050  2.8 0.10	Result         PQL         SPK value           0.94         0.025         1.000           0.94         0.050         1.000           0.94         0.050         1.000           2.8         0.10         3.000	Batch ID: <b>76111</b> Analysis Date: <b>7/12/2023</b> Result PQL SPK value SPK Ref Val  0.94 0.025 1.000 0  0.94 0.050 1.000 0  0.94 0.050 1.000 0  2.8 0.10 3.000 0	Batch ID: 76111         RunNo: 98           Analysis Date:         7/12/2023         SeqNo: 38           Result         PQL         SPK value         SPK Ref Val         %REC           0.94         0.025         1.000         0         93.5           0.94         0.050         1.000         0         94.0           0.94         0.050         1.000         0         94.2           2.8         0.10         3.000         0         94.1	Batch ID: 76111         RunNo: 98150           Analysis Date: 7/12/2023         SeqNo: 3571291           Result         PQL         SPK value         SPK Ref Val         %REC         LowLimit           0.94         0.025         1.000         0         93.5         70           0.94         0.050         1.000         0         94.0         70           0.94         0.050         1.000         0         94.2         70           2.8         0.10         3.000         0         94.1         70	Batch ID: 76111         RunNo: 98150           Analysis Date: 7/12/2023         SeqNo: 3571291         Units: mg/K           Result         PQL         SPK value         SPK Ref Val         %REC         LowLimit         HighLimit           0.94         0.025         1.000         0         93.5         70         130           0.94         0.050         1.000         0         94.0         70         130           0.94         0.050         1.000         0         94.2         70         130           2.8         0.10         3.000         0         94.1         70         130	Batch ID: 76111       RunNo: 98150         Analysis Date: 7/12/2023       SeqNo: 3571291       Units: mg/Ky         Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD         0.94 0.025 1.000 0 93.5 70       130         0.94 0.050 1.000 0 94.0 70       130         0.94 0.050 1.000 0 94.2 70       130         2.8 0.10 3.000 0 94.1 70       130	Batch ID: 76111       RunNo: 98150         Analysis Date: 7/12/2023       SeqNo: 3571291       Units: mg/Kg         Result PQL SPK value SPK Ref Val %REC LowLimit D.94       HighLimit %RPD       %RPD RPDLimit No.00         0.94       0.025       1.000       0       93.5       70       130         0.94       0.050       1.000       0       94.0       70       130         0.94       0.050       1.000       0       94.2       70       130         2.8       0.10       3.000       0       94.1       70       130	

Sample ID: mb-76111 SampType: MBLK				TestCode: EPA Method 8021B: Volatiles						
Client ID: PBS	Batcl	h ID: <b>76</b> 1	111	F	RunNo: 98	B150				
Prep Date: <b>7/11/2023</b>	Analysis [	Date: <b>7/</b>	12/2023	5	SeqNo: 3	571292	Units: mg/K	g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								_
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.96		1.000		96.2	39.1	146			

Sample ID: Ics-76130 SampType: LCS				TestCode: EPA Method 8021B: Volatiles							
Client ID: LCSS	D: <b>LCSS</b> Batch ID: <b>76130</b>				RunNo: <b>98150</b>						
Prep Date: 7/11/2023	Analysis [	Date: <b>7/</b>	13/2023	5	SeqNo: 35	571315	Units: mg/K	g			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Benzene	0.95	0.025	1.000	0	94.6	70	130				
Toluene	0.95	0.050	1.000	0	95.1	70	130				
Ethylbenzene	0.95	0.050	1.000	0	95.2	70	130				
Xylenes, Total	2.9	2.9 0.10 3.000			95.0	70	130				
Surr: 4-Bromofluorobenzene	0.96		1.000		95.9	39.1	146				

Sample ID: mb-76130 SampType: MBLK				TestCode: EPA Method 8021B: Volatiles						
Client ID: PBS	Batch	n ID: <b>76</b> 1	130	F	RunNo: 98	3150				
Prep Date: 7/11/2023	Analysis D	Analysis Date: <b>7/13/2023</b>			SeqNo: 3	571316	Units: mg/K	g		
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	ırr: 4-Bromofluorobenzene 0.95 1.000			94.8	39.1	146				

#### Qualifiers:

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

Page 38 of 42

# Hall Environmental Analysis Laboratory, Inc.

WO#: **2307353** 

17-Jul-23

Client: Vertex Resources Services, Inc.

**Project:** Tomcat 16 State 006

Sample ID: 2307353-029ams Client ID: BH23-16 0.5'	•	Гуре: <b>МS</b> h ID: <b>76</b> 1			tCode: <b>EF</b> RunNo: <b>9</b> 8		8021B: Volati	les			
Prep Date: 7/11/2023	Analysis [	Date: <b>7/</b>	13/2023	SeqNo: <b>3571318</b>			Units: mg/Kg				
Analyte	Result	Result PQL SPK value			%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Benzene	0.96	0.025	0.9823	0	98.1	70	130				
Toluene	0.99	0.049	0.9823	0	101	70	130				
Ethylbenzene	1.0	0.049	0.9823	0	103	70	130				
Xylenes, Total	3.0	3.0 0.098 2.947			102	70	130				
Surr: 4-Bromofluorobenzene	0.93	0.93 0.9823			94.7	39.1	146				

Sample ID: 2307353-029ams	d Samp	TestCode: EPA Method 8021B: Volatiles								
Client ID: BH23-16 0.5'	Batc	h ID: <b>76</b> 1	130	F	RunNo: 98	8150				
Prep Date: 7/11/2023	Analysis [	Date: <b>7/</b>	13/2023	(	SeqNo: <b>3571319</b> Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.98	0.025	0.9940	0	99.0	70	130	2.07	20	
Toluene	0.99	0.050	0.9940	0	99.9	70	130	0.0251	20	
Ethylbenzene	1.0	0.050	0.9940	0	100	70	130	1.02	20	
Xylenes, Total	3.0	3.0 0.099 2.982			100	70	130	0.525	20	
Surr: 4-Bromofluorobenzene	0.96	0.96 0.9940			96.2	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

Page 39 of 42

# Hall Environmental Analysis Laboratory, Inc.

WO#: **2307353** 

17-Jul-23

Client: Vertex Resources Services, Inc.

**Project:** Tomcat 16 State 006

Sample ID: 2307353-010ams	Samp1	Гуре: МЅ	4	TestCode: EPA Method 8260B: Volatiles Short List						
Client ID: BH23-08 0'	Batch	h ID: <b>761</b>	25	F	RunNo: 98163					
Prep Date: 7/11/2023	Analysis D	nalysis Date: <b>7/12/2023</b>			SeqNo: 3	572142	Units: mg/K	g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.3	0.024	0.9671	0	129	75.8	123			S
Toluene	0.97	0.048	0.9671	0	100	68.3	130			
Ethylbenzene	0.97	0.048	0.9671	0	100	76.6	132			
Xylenes, Total	3.0	0.097	2.901	0	102	74.7	132			
Surr: 1,2-Dichloroethane-d4	0.66		0.4836		136	64.8	147			
Surr: 4-Bromofluorobenzene	Surr: 4-Bromofluorobenzene 0.48 0.4836		0.4836		99.7	62.1	144			
Surr: Dibromofluoromethane 0.67 0.4836			138	73	145					
Surr: Toluene-d8	-d8 0.48 0.4836			99.8	70	130				

Sample ID: 2307353-010amsd	ample ID: 2307353-010amsd SampType: MSD4				TestCode: EPA Method 8260B: Volatiles Short List								
Client ID: BH23-08 0'	Batcl	h ID: <b>761</b>	125	F	RunNo: 98163								
Prep Date: 7/11/2023	Analysis [	Date: 7/	12/2023	5	SeqNo: <b>3572143</b> Units: <b>mg</b>				g/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual			
Benzene	1.2	0.024	0.9699	0	124	75.8	123	4.17	20	S			
Toluene	1.0	0.048	0.9699	0	105	68.3	130	5.00	20				
Ethylbenzene	1.0	0.048	0.9699	0	106	76.6	132	5.83	20				
Xylenes, Total	3.1	0.097	2.910	0	106	74.7	132	4.41	20				
Surr: 1,2-Dichloroethane-d4	0.61		0.4850		126	64.8	147	0	0				
Surr: 4-Bromofluorobenzene	Surr: 4-Bromofluorobenzene 0.48 0.485		0.4850		99.4	62.1	144	0	0				
Surr: Dibromofluoromethane 0.59 0.4850			122	73	145	0	0						
Surr: Toluene-d8	0.49		0.4850		100	70	130	0	0				

Sample ID: Ics-76125 SampType: LCS4				TestCode: EPA Method 8260B: Volatiles Short List						
Client ID: BatchQC	Batch	n ID: <b>76</b> 1	25	F	RunNo: 98					
Prep Date: 7/11/2023	Analysis D	ate: <b>7/</b>	12/2023	٤	SeqNo: 35	572162	Units: mg/K	g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.025	1.000	0	104	80	120			
Toluene	1.0	0.050	1.000	0	100	80	120			
Ethylbenzene	0.98	0.050	1.000	0	98.4	80	120			
Xylenes, Total	3.0	0.10	3.000	0	99.0	80	120			
Surr: 1,2-Dichloroethane-d4	0.54		0.5000		108	64.8	147			
Surr: 4-Bromofluorobenzene	nofluorobenzene 0.53 0.5000			105	62.1	144				
Surr: Dibromofluoromethane	Surr: Dibromofluoromethane 0.55 0.5000			110	73	145				
Surr: Toluene-d8	ne-d8 0.50 0.5000				101	70	130			

#### Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

S % Recovery outside of standard limits. If undiluted results may be estimated.

B Analyte detected in the associated Method Blank

E Above Quantitation Range/Estimated Value

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

Page 40 of 42

# Hall Environmental Analysis Laboratory, Inc.

WO#: **2307353** 

17-Jul-23

Client: Vertex Resources Services, Inc.

**Project:** Tomcat 16 State 006

Sample ID: mb-76125	mple ID: mb-76125 SampType: MBLK				TestCode: EPA Method 8260B: Volatiles Short List						
Client ID: PBS	Batcl	n ID: <b>761</b>	25	F	RunNo: <b>98</b>	3163					
Prep Date: 7/11/2023	Analysis [	Analysis Date: 7/12/2023			SeqNo: 3572163 Units: mg/Kg						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Benzene	ND	0.025									
Toluene	ND	0.050									
Ethylbenzene	ND	0.050									
Xylenes, Total	ND	0.10									
Surr: 1,2-Dichloroethane-d4	0.58		0.5000		115	64.8	147				
Surr: 4-Bromofluorobenzene	0.51		0.5000		102	62.1	144				
Surr: Dibromofluoromethane	0.59		0.5000		119	73	145				
Surr: Toluene-d8	0.52		0.5000		104	70	130				

#### Qualifiers:

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

Page 41 of 42

# Hall Environmental Analysis Laboratory, Inc.

WO#: **2307353** 

17-Jul-23

Client: Vertex Resources Services, Inc.

**Project:** Tomcat 16 State 006

Sample ID: 230	07353-009ams	SampT	уре: МЅ	<b>;</b>	TestCode: EPA Method 8015D Mod: Gasoline Range						
Client ID: BH	l23-07 2'	Batch	ID: <b>76</b> 1	125	F	RunNo: 98	3163				
Prep Date: 7/	/11/2023	Analysis D	ate: <b>7/</b>	12/2023	5	SeqNo: 3	572092	Units: mg/K	(g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Org	ganics (GRO)	24	4.9	24.30	0	99.3	65.9	123			
Surr: BFB		450		485.9		91.8	70	130			
Sample ID: 230	07353-009amsd	SampT	ype: MS	SD .	Tes	tCode: EF	PA Method	8015D Mod:	Gasoline R	lange	
Client ID: BH	l23-07 2'	Batch	ID: <b>76</b> ′	125	F	RunNo: 98	3163				
Prep Date: 7/	/11/2023	Analysis D	ate: <b>7/</b>	12/2023	5	SeqNo: 3	572094	Units: mg/K	(g		
Analyte		Result	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Gasoline Range Org	ganics (GRO)	22	4.9	24.37	0	91.2	65.9	123	8.15	20	
Surr: BFB		430		487.3		88.2	70	130	0	0	
Sample ID: Ics	s-76125	SampT	ype: <b>LC</b>	s	Tes	tCode: EF	PA Method	8015D Mod:	Gasoline R	lange	
Client ID: LC	ss	Batch	ID: <b>76</b>	125	F	RunNo: 98	3163				
Prep Date: 7/	/11/2023	Analysis Da	ate: <b>7/</b>	12/2023	S	SeqNo: 3	572131	Units: mg/K	(g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Org	asoline Range Organics (GRO) 22 5.0 25.00					88.2	70	130			
Surr: BFB		490		500.0		98.7	70	130			
Sample ID: mb	o-76125	SampT	уре: МЕ	BLK	Tes	tCode: EF	PA Method	8015D Mod:	Gasoline R	lange	
Client ID: PB	s	Batch	ID: <b>76</b> 1	125	F	RunNo: 98	3163				

Prep Date: 7/11/2023	Analysis Date: 7/12/2023			S	SeqNo: 35	72133	Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	480		500.0		95.2	70	130			

#### Qualifiers:

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

Page 42 of 42

Qual

Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87109

TEL: 505-345-3975 FAX: 505-345-4107

#### Sample Log-In Check List

Released to Imaging: 4/23/2024 2:01:30 PM

Website: www.hallenvironmental.com Client Name: Work Order Number: 2307353 Vertex Resources RcptNo: 1 Services, Inc. Received By: 7/11/2023 9:10:00 AM Cheyenne Cason Completed By: Cheyenne Cason 7/11/2023 9:50:12 AM 7/11/23 Reviewed By: Chain of Custody No 🗌 Yes 🗸 Not Present 1. Is Chain of Custody complete? 2. How was the sample delivered? Courier Log In 3. Was an attempt made to cool the samples? Yes 🗹 No  $\square$ NA  $\square$ No 🗌 NA 🗌 Yes 🗸 4. Were all samples received at a temperature of >0° C to 6.0°C No 🗌 5. Sample(s) in proper container(s)? Yes 🔽 Yes 🗹 6. Sufficient sample volume for indicated test(s)? Yes 🗸 No 🗌 7. Are samples (except VOA and ONG) properly preserved? NA 🗌 Yes 🗌 No 🗹 8. Was preservative added to bottles? NA 🔽 9. Received at least 1 vial with headspace <1/4" for AQ VOA? No 🗌 Yes 🗌 Yes  $\square$ No 🗹 10. Were any sample containers received broken? # of preserved bottles checked for pH: No 🗌 11. Does paperwork match bottle labels? Yes 🔽 (<2 or >12 unless noted) (Note discrepancies on chain of custody) Adjusted? Yes 🗹 No 🗌 12. Are matrices correctly identified on Chain of Custody? No 🗌 13. Is it clear what analyses were requested? Yes 🗹 14. Were all holding times able to be met? Yes 🗹 No 🗌 (If no, notify customer for authorization.) Special Handling (if applicable) 15. Was client notified of all discrepancies with this order? Yes 🗌 No 🗌 NA 🗸 Person Notified: Date: By Whom: eMail Phone Fax In Person

Additional remarks:

#### 17. Cooler Information

Regarding:

Client Instructions:

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	0.0	Good	Not Present	Yogi		
2	3.3	Good	Not Present	Yogi		

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# HALL ENVIRONMENTAL ANALYSIS LABORATORY

X Rush 48-hour

Project Name: □ Standard

Turn-Around Time:

Receive Chaff. 3/11/224 Sibility Record

Vertex

(direct	bill to De	evon-Har	(direct bill to Devon-Harvard Divest, see Remarks)	Project Name:						<b>M</b>	v.halle	enviro	nmen	www.hallenvironmental.com			
Mailing	Mailing Address:	is:		Tomcat 16 State #006	900#			490	4901 Hawkins NE	kins	- 1	Albua	ueran	e. N	Albuquerane, NM 87109		
				Project #:				He.	. 505-	505-345-3975		Fax	505	505-345-4107	107		
Phone #:	#:			22E-02816-25			d		H		An	alysi	<b>Analysis Request</b>	uest			
email	email or Fax#:			Project Manager:			(1	(0	-7			†O¹		(ţu			
QA/QC	QA/QC Package:	2:		Kent Stallings			305	ЯМ	s,g	SM		S 'b		əsq			
□ Star	Standard		☐ Level 4 (Full Validation)	kstallings@vertex.ca	ca		3) s,	/ O	ьс	IIS0		04 		A\tr			
Accred	Accreditation:	□ Az Cc	□ Az Compliance	٠,	L.Pullman		LMB	N DR				10 <sup>5</sup> '		ıəsə			
□ NELAC	AC	□ Other		On Ice: P	Yes	No You:	L /	O				u "	(AC	14)			
	EDD (Type)			# of Coolers: 7	<u>0</u>	-0.1=0.0	38.	 (GF						w			
				Cooler Temp(including CF):	19 CF): 3.4	-0.1=3.3	TM	12D						ofilo			
Date	Time	Matrix	Sample Name	Container Prese	rvative	HEAL No.	X3T8	08:H9T	8081 Pd EDB (M	d sHA9	AROR S	85e0 (v 85e0 (v	S) 07S8	Total Co			·
07/08/23	07:30	Soil	BH21-01 0'	1, 4oz jar	0	891	×	×									
07/08/23	07:30	Soil	BH21-02 0'	1, 4oz jar	a	200	×	×				×					_
07/08/23	07:30	Soil	BH21-03 0'	1, 4oz jar	8	£3	×	×				×					Γ-
07/08/23	07:35	Soil	BH21-04 0'	1, 4oz jar	Ø	h00	×	×				×					1
07/08/23	07:35	Soil	BH21-05 0'	1, 4oz jar	9	500	×	×				×	~				1
07/08/23	08:00	Soil	BH23-06 0'	1, 4oz jar	Q	900	X	×				×	1				
07/08/23	08:05	Soil	BH23-06 2'	1, 4oz jar	8	507	X	×				×					
07/08/23	08:10	Soil	BH23-07 0'	1, 4oz jar	B	800	X	×				×					
07/08/23	08:15	Soil	BH23-07 2'	1, 4oz jar	B	600	X	×				×					
07/08/23	08:20	Soil	BH23-08 0'	1, 4oz jar	0	010	X	×				×					_
07/08/23	08:25	Soil	BH23-08 2'	1, 4oz jar	9	011	×	×				×					
07/08/23	08:30	Soil	BH23-09 0'	1, 4oz jar	0	210	×	×				×					1
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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



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Olivati		HALL ENVIRONMENTAL
Vertex	☐ Standard X Rush 48-hour	ANALYSTS LABORATORY
	Project Name:	

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tomcat 16 State #006 Project #:

(direct bill to Devon-Harvard Divest, see Remarks)

Mailing Address:

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

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07/08/23	08:35	Soil	BH23-09 2'	1, 4oz jar	6.0	×	×		×						
07/08/23	08:40	Soil	BH23-10 0'	1, 4oz jar	614	×	×		×						
07/08/23	08:45	Soil	BH23-10 2'	1, 4oz jar	610	×	×		×						
07/08/23	08:20	Soil	BH23-11 0'	1, 4oz jar	910	×	×		×						
07/08/23	08:55	Soil	BH23-11 2'	1, 4oz jar	617	×	×		×						
07/08/23	00:60	Soil	BH23-12 0'	1, 4oz jar	018	×	×		×						
07/08/23	09:05	Soil	BH23-12 2'	1, 4oz jar	018	×	×		×						
07/08/23	09:15	Soil	BH23-13 0'	1, 4oz jar	020	×	×		×						
07/08/23	09:20	Soil	BH23-13 2'	1, 4oz jar	021	×	×								
07/08/23	09:35	Soil	BH23-14 0'	1, 4oz jar	022	×	×		×						
07/08/23	09:35	Soil	BH23-14 0.5'	1, 4oz jar	023	×	×		×						
07/08/23			BH23-14 2'		024	×	×		<u>×</u>						-
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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.



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# **ANALYSIS LABORATORY** HALL ENVIRONMENTAL X Rush 48-hour Turn-Around Time: ☐ Standard Project Name:

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tomcat 16 State #006

(direct bill to Devon-Harvard Divest, see Remarks)

Mailing Address:

Vertex

Receive Con 99Pi-364-2013 18 18 PMRecord

Project #:

Fax 505-345-4107

Tel. 505-345-3975

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07/08/23	09:55 Soil	BH23-15,0'	1, 4oz jar	Gest 0.25	×	×			×				-	
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07/08/23 1	10:00 Soil	BH23-15 2'	1, 4oz jar	120	×	×			×					
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Hall Environmental Analysis Laboratory

TEL: 505-345-3975 FAX: 505-345-4107

Website: www.hallenvironmental.com

4901 Hawkins NE

Albuquerque, NM 87109



July 24, 2023

Kent Stallings

Vertex Resources Services, Inc. 3101 Boyd Drive

Carlsbad, NM 88220 TEL: (505) 506-0040

FAX:

RE: Tomcat 16 State 006 OrderNo.: 2307633

#### Dear Kent Stallings:

Hall Environmental Analysis Laboratory received 56 sample(s) on 7/14/2023 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

Indes

4901 Hawkins NE

Albuquerque, NM 87109

Date Reported: 7/24/2023

#### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: WS23-01 0-0.5

 Project:
 Tomcat 16 State 006
 Collection Date: 7/12/2023 9:00:00 AM

 Lab ID:
 2307633-001
 Matrix: SOIL
 Received Date: 7/14/2023 7:30:00 AM

Result **RL Qual Units** DF **Date Analyzed Analyses EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** Analyst: **DGH** Diesel Range Organics (DRO) ND 9.3 mg/Kg 1 7/17/2023 3:01:26 PM Motor Oil Range Organics (MRO) ND 46 mg/Kg 1 7/17/2023 3:01:26 PM Surr: DNOP 84.9 69-147 %Rec 1 7/17/2023 3:01:26 PM **EPA METHOD 8015D: GASOLINE RANGE** Analyst: KMN Gasoline Range Organics (GRO) ND 7/18/2023 6:10:00 AM 4.9 mg/Kg 1 Surr: BFB 79.7 15-244 %Rec 1 7/18/2023 6:10:00 AM **EPA METHOD 8021B: VOLATILES** Analyst: KMN Benzene ND 7/18/2023 6:10:00 AM 0.024 mg/Kg 1 Toluene ND 0.049 mg/Kg 1 7/18/2023 6:10:00 AM Ethylbenzene ND 0.049 mg/Kg 1 7/18/2023 6:10:00 AM Xylenes, Total ND 0.097 mg/Kg 7/18/2023 6:10:00 AM 1 Surr: 4-Bromofluorobenzene 78.4 39.1-146 %Rec 1 7/18/2023 6:10:00 AM **EPA METHOD 300.0: ANIONS** Analyst: CAS mg/Kg Chloride 7/15/2023 11:59:37 PM ND 60 20

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

QL 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

Page 1 of 62

Date Reported: 7/24/2023

#### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: WS23-02 0-0.5'

**Project:** Tomcat 16 State 006 **Collection Date:** 7/12/2023 9:05:00 AM

**Lab ID:** 2307633-002 **Matrix:** SOIL **Received Date:** 7/14/2023 7:30:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OR	GANICS				Analyst: <b>DGH</b>
Diesel Range Organics (DRO)	ND	9.6	mg/Kg	1	7/17/2023 3:25:37 PM
Motor Oil Range Organics (MRO)	ND	48	mg/Kg	1	7/17/2023 3:25:37 PM
Surr: DNOP	90.9	69-147	%Rec	1	7/17/2023 3:25:37 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: KMN
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	7/18/2023 6:32:00 AM
Surr: BFB	78.5	15-244	%Rec	1	7/18/2023 6:32:00 AM
EPA METHOD 8021B: VOLATILES					Analyst: KMN
Benzene	ND	0.024	mg/Kg	1	7/18/2023 6:32:00 AM
Toluene	ND	0.048	mg/Kg	1	7/18/2023 6:32:00 AM
Ethylbenzene	ND	0.048	mg/Kg	1	7/18/2023 6:32:00 AM
Xylenes, Total	ND	0.097	mg/Kg	1	7/18/2023 6:32:00 AM
Surr: 4-Bromofluorobenzene	76.4	39.1-146	%Rec	1	7/18/2023 6:32:00 AM
EPA METHOD 300.0: ANIONS					Analyst: CAS
Chloride	ND	60	mg/Kg	20	7/16/2023 12:36:51 AM

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

Qualifiers:

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

Page 2 of 62

2307633-003

Lab ID:

Benzene

Toluene

Chloride

Ethylbenzene

Xylenes, Total

Surr: 4-Bromofluorobenzene

**EPA METHOD 300.0: ANIONS** 

# Analytical Report Lab Order 2307633

Received Date: 7/14/2023 7:30:00 AM

Date Reported: 7/24/2023

7/18/2023 7:15:00 AM

7/16/2023 12:49:15 AM

Analyst: CAS

#### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: WS23-03 0-0.5

Matrix: SOIL

**Project:** Tomcat 16 State 006 **Collection Date:** 7/12/2023 9:10:00 AM

Result **RL Qual Units** DF **Date Analyzed Analyses EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** Analyst: **DGH** Diesel Range Organics (DRO) ND 9.2 mg/Kg 1 7/17/2023 3:49:50 PM Motor Oil Range Organics (MRO) ND 46 mg/Kg 1 7/17/2023 3:49:50 PM Surr: DNOP 92.8 69-147 %Rec 1 7/17/2023 3:49:50 PM **EPA METHOD 8015D: GASOLINE RANGE** Analyst: KMN Gasoline Range Organics (GRO) ND 7/18/2023 7:15:00 AM 4.9 mg/Kg 1 Surr: BFB 78.3 15-244 %Rec 1 7/18/2023 7:15:00 AM **EPA METHOD 8021B: VOLATILES** Analyst: KMN

ND

ND

ND

ND

77.8

ND

0.024

0.049

0.049

0.098

60

39.1-146

mg/Kg

mg/Kg

mg/Kg

mg/Kg

%Rec

mg/Kg

1

1

1

1

1

20

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

Page 3 of 62

Date Reported: 7/24/2023

#### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: WS23-04 0-0.5

 Project:
 Tomcat 16 State 006
 Collection Date: 7/12/2023 9:20:00 AM

 Lab ID:
 2307633-004
 Matrix: SOIL
 Received Date: 7/14/2023 7:30:00 AM

Result **RL Qual Units** DF **Date Analyzed Analyses EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** Analyst: **DGH** Diesel Range Organics (DRO) ND 9.9 mg/Kg 1 7/17/2023 4:38:33 PM Motor Oil Range Organics (MRO) ND 50 mg/Kg 1 7/17/2023 4:38:33 PM Surr: DNOP 92.0 69-147 %Rec 1 7/17/2023 4:38:33 PM **EPA METHOD 8015D: GASOLINE RANGE** Analyst: KMN Gasoline Range Organics (GRO) ND 7/18/2023 7:37:00 AM 4.9 mg/Kg 1 Surr: BFB 76.2 15-244 %Rec 1 7/18/2023 7:37:00 AM **EPA METHOD 8021B: VOLATILES** Analyst: KMN Benzene ND 7/18/2023 7:37:00 AM 0.024 mg/Kg 1 Toluene ND 0.049 mg/Kg 1 7/18/2023 7:37:00 AM Ethylbenzene ND 0.049 mg/Kg 1 7/18/2023 7:37:00 AM Xylenes, Total ND 0.097 mg/Kg 7/18/2023 7:37:00 AM 1 Surr: 4-Bromofluorobenzene 78.8 39.1-146 %Rec 1 7/18/2023 7:37:00 AM **EPA METHOD 300.0: ANIONS** Analyst: CAS mg/Kg Chloride 7/16/2023 1:01:40 AM ND 60 20

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

QL 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

Page 4 of 62

Date Reported: 7/24/2023

#### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: WS23-05 0-0.5'

**Project:** Tomcat 16 State 006 **Collection Date:** 7/12/2023 9:25:00 AM

**Lab ID:** 2307633-005 **Matrix:** SOIL **Received Date:** 7/14/2023 7:30:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE O	RGANICS				Analyst: <b>DGH</b>
Diesel Range Organics (DRO)	ND	9.5	mg/Kg	1	7/17/2023 5:02:51 PM
Motor Oil Range Organics (MRO)	ND	47	mg/Kg	1	7/17/2023 5:02:51 PM
Surr: DNOP	88.6	69-147	%Rec	1	7/17/2023 5:02:51 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: KMN
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	7/18/2023 7:59:00 AM
Surr: BFB	80.6	15-244	%Rec	1	7/18/2023 7:59:00 AM
EPA METHOD 8021B: VOLATILES					Analyst: KMN
Benzene	ND	0.025	mg/Kg	1	7/18/2023 7:59:00 AM
Toluene	ND	0.049	mg/Kg	1	7/18/2023 7:59:00 AM
Ethylbenzene	ND	0.049	mg/Kg	1	7/18/2023 7:59:00 AM
Xylenes, Total	ND	0.098	mg/Kg	1	7/18/2023 7:59:00 AM
Surr: 4-Bromofluorobenzene	80.1	39.1-146	%Rec	1	7/18/2023 7:59:00 AM
EPA METHOD 300.0: ANIONS					Analyst: CAS
Chloride	ND	60	mg/Kg	20	7/16/2023 1:14:04 AM

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

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

QL 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

ting Limit Page 5 of 62

Date Reported: 7/24/2023

#### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: WS23-06 0-0.5

 Project:
 Tomcat 16 State 006
 Collection Date: 7/12/2023 9:35:00 AM

 Lab ID:
 2307633-006
 Matrix: SOIL
 Received Date: 7/14/2023 7:30:00 AM

Result **RL Qual Units** DF **Date Analyzed** Analyses **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** Analyst: **DGH** Diesel Range Organics (DRO) ND 9.6 mg/Kg 1 7/17/2023 5:27:35 PM Motor Oil Range Organics (MRO) ND 48 mg/Kg 1 7/17/2023 5:27:35 PM Surr: DNOP 93.3 69-147 %Rec 1 7/17/2023 5:27:35 PM **EPA METHOD 8015D: GASOLINE RANGE** Analyst: KMN Gasoline Range Organics (GRO) ND 7/18/2023 8:21:00 AM 4.9 mg/Kg 1 Surr: BFB 84.9 15-244 %Rec 1 7/18/2023 8:21:00 AM **EPA METHOD 8021B: VOLATILES** Analyst: KMN Benzene ND 7/18/2023 8:21:00 AM 0.025 mg/Kg 1 Toluene ND 0.049 mg/Kg 1 7/18/2023 8:21:00 AM Ethylbenzene ND 0.049 mg/Kg 1 7/18/2023 8:21:00 AM Xylenes, Total ND mg/Kg 7/18/2023 8:21:00 AM 0.099 1 Surr: 4-Bromofluorobenzene 81.5 39.1-146 %Rec 1 7/18/2023 8:21:00 AM **EPA METHOD 300.0: ANIONS** Analyst: CAS mg/Kg Chloride 7/16/2023 1:26:29 AM ND 60 20

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

Page 6 of 62

2307633-007

Lab ID:

# Analytical Report Lab Order 2307633

Received Date: 7/14/2023 7:30:00 AM

Date Reported: 7/24/2023

#### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: WS23-07 0-0.5

Matrix: SOIL

**Project:** Tomcat 16 State 006 **Collection Date:** 7/12/2023 9:30:00 AM

**Analyses** Result **RL Qual Units** DF **Date Analyzed EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** Analyst: **DGH** Diesel Range Organics (DRO) mg/Kg ND 9.4 1 7/17/2023 5:52:50 PM Motor Oil Range Organics (MRO) ND 1 7/17/2023 5:52:50 PM 47 mg/Kg Surr: DNOP 86.1 69-147 %Rec 1 7/17/2023 5:52:50 PM **EPA METHOD 8015D: GASOLINE RANGE** Analyst: KMN

					. ,
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	7/18/2023 8:42:00 AM
Surr: BFB	78.8	15-244	%Rec	1	7/18/2023 8:42:00 AM
EPA METHOD 8021B: VOLATILES					Analyst: <b>KMN</b>
Benzene	ND	0.024	mg/Kg	1	7/18/2023 8:42:00 AM
Toluene	ND	0.048	mg/Kg	1	7/18/2023 8:42:00 AM
Ethylbenzene	ND	0.048	mg/Kg	1	7/18/2023 8:42:00 AM
Xylenes, Total	ND	0.096	mg/Kg	1	7/18/2023 8:42:00 AM
Surr: 4-Bromofluorobenzene	77.8	39.1-146	%Rec	1	7/18/2023 8:42:00 AM
EPA METHOD 300.0: ANIONS					Analyst: CAS
Chloride	ND	60	mg/Kg	20	7/16/2023 1:38:54 AM

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- 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

Page 7 of 62

Date Reported: 7/24/2023

#### Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Vertex Resources Services, Inc. Client Sample ID: WS23-08 0-0.5'

**Project:** Tomcat 16 State 006 **Collection Date:** 7/12/2023 9:25:00 AM

2307633-008 Lab ID: Matrix: SOIL **Received Date:** 7/14/2023 7:30:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORG	GANICS				Analyst: <b>DGH</b>
Diesel Range Organics (DRO)	ND	9.7	mg/Kg	1	7/17/2023 6:18:05 PM
Motor Oil Range Organics (MRO)	ND	48	mg/Kg	1	7/17/2023 6:18:05 PM
Surr: DNOP	90.4	69-147	%Rec	1	7/17/2023 6:18:05 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: <b>KMN</b>
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	7/18/2023 11:28:00 AM
Surr: BFB	82.0	15-244	%Rec	1	7/18/2023 11:28:00 AM
EPA METHOD 8021B: VOLATILES					Analyst: KMN
Benzene	ND	0.024	mg/Kg	1	7/18/2023 11:28:00 AM
Toluene	ND	0.048	mg/Kg	1	7/18/2023 11:28:00 AM
Ethylbenzene	ND	0.048	mg/Kg	1	7/18/2023 11:28:00 AM
Xylenes, Total	ND	0.097	mg/Kg	1	7/18/2023 11:28:00 AM
Surr: 4-Bromofluorobenzene	78.3	39.1-146	%Rec	1	7/18/2023 11:28:00 AM
EPA METHOD 300.0: ANIONS					Analyst: RBC
Chloride	ND	60	mg/Kg	20	7/17/2023 2:38:17 PM

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

Qualifiers:

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

Page 8 of 62

Date Reported: 7/24/2023

#### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS23-01 0.5'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/12/2023 9:40:00 AM

 Lab ID:
 2307633-009
 Matrix: SOIL
 Received Date: 7/14/2023 7:30:00 AM

Analyses	Result	RL Qua	l Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OR	Analyst: <b>DGH</b>				
Diesel Range Organics (DRO)	ND	9.6	mg/Kg	1	7/17/2023 6:43:20 PM
Motor Oil Range Organics (MRO)	ND	48	mg/Kg	1	7/17/2023 6:43:20 PM
Surr: DNOP	91.2	69-147	%Rec	1	7/17/2023 6:43:20 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: <b>KMN</b>
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	7/18/2023 11:50:00 AM
Surr: BFB	83.6	15-244	%Rec	1	7/18/2023 11:50:00 AM
EPA METHOD 8021B: VOLATILES					Analyst: <b>KMN</b>
Benzene	ND	0.024	mg/Kg	1	7/18/2023 11:50:00 AM
Toluene	ND	0.049	mg/Kg	1	7/18/2023 11:50:00 AM
Ethylbenzene	ND	0.049	mg/Kg	1	7/18/2023 11:50:00 AM
Xylenes, Total	ND	0.097	mg/Kg	1	7/18/2023 11:50:00 AM
Surr: 4-Bromofluorobenzene	78.5	39.1-146	%Rec	1	7/18/2023 11:50:00 AM
EPA METHOD 300.0: ANIONS					Analyst: RBC
Chloride	ND	60	mg/Kg	20	7/17/2023 2:50:42 PM

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

Qualifiers:

Value exceeds Maximum Contaminant Level.

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

Page 9 of 62

Date Reported: 7/24/2023

#### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS23-02 0.5'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/12/2023 9:45:00 AM

 Lab ID:
 2307633-010
 Matrix: SOIL
 Received Date: 7/14/2023 7:30:00 AM

Analyses	Result	RL Qua	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORG	Analyst: <b>DGH</b>				
Diesel Range Organics (DRO)	ND	10	mg/Kg	1	7/17/2023 7:08:41 PM
Motor Oil Range Organics (MRO)	ND	50	mg/Kg	1	7/17/2023 7:08:41 PM
Surr: DNOP	86.9	69-147	%Rec	1	7/17/2023 7:08:41 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: KMN
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	7/18/2023 12:11:00 PM
Surr: BFB	76.9	15-244	%Rec	1	7/18/2023 12:11:00 PM
EPA METHOD 8021B: VOLATILES					Analyst: KMN
Benzene	ND	0.024	mg/Kg	1	7/18/2023 12:11:00 PM
Toluene	ND	0.049	mg/Kg	1	7/18/2023 12:11:00 PM
Ethylbenzene	ND	0.049	mg/Kg	1	7/18/2023 12:11:00 PM
Xylenes, Total	ND	0.097	mg/Kg	1	7/18/2023 12:11:00 PM
Surr: 4-Bromofluorobenzene	79.6	39.1-146	%Rec	1	7/18/2023 12:11:00 PM
EPA METHOD 300.0: ANIONS					Analyst: RBC
Chloride	ND	60	mg/Kg	20	7/17/2023 3:27:56 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

Page 10 of 62

Date Reported: 7/24/2023

#### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS23-03 0.5'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/12/2023 9:45:00 AM

 Lab ID:
 2307633-011
 Matrix: SOIL
 Received Date: 7/14/2023 7:30:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OR	GANICS				Analyst: <b>DGH</b>
Diesel Range Organics (DRO)	ND	9.9	mg/Kg	1	7/17/2023 7:34:00 PM
Motor Oil Range Organics (MRO)	ND	50	mg/Kg	1	7/17/2023 7:34:00 PM
Surr: DNOP	83.3	69-147	%Rec	1	7/17/2023 7:34:00 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: KMN
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	7/18/2023 12:33:00 PM
Surr: BFB	78.4	15-244	%Rec	1	7/18/2023 12:33:00 PM
EPA METHOD 8021B: VOLATILES					Analyst: KMN
Benzene	ND	0.024	mg/Kg	1	7/18/2023 12:33:00 PM
Toluene	ND	0.048	mg/Kg	1	7/18/2023 12:33:00 PM
Ethylbenzene	ND	0.048	mg/Kg	1	7/18/2023 12:33:00 PM
Xylenes, Total	ND	0.096	mg/Kg	1	7/18/2023 12:33:00 PM
Surr: 4-Bromofluorobenzene	80.3	39.1-146	%Rec	1	7/18/2023 12:33:00 PM
EPA METHOD 300.0: ANIONS					Analyst: RBC
Chloride	ND	60	mg/Kg	20	7/17/2023 3:40:20 PM

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- 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
- B Analyte detected in the associated Method Blank
- E Above Quantitation Range/Estimated Value
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

Page 11 of 62

Date Reported: 7/24/2023

#### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS23-04 0.5

 Project:
 Tomcat 16 State 006
 Collection Date: 7/12/2023 9:50:00 AM

 Lab ID:
 2307633-012
 Matrix: SOIL
 Received Date: 7/14/2023 7:30:00 AM

Result **RL Qual Units** DF **Date Analyzed** Analyses **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** Analyst: **DGH** Diesel Range Organics (DRO) ND 9.7 mg/Kg 1 7/17/2023 7:59:16 PM Motor Oil Range Organics (MRO) ND 49 mg/Kg 1 7/17/2023 7:59:16 PM Surr: DNOP 87.5 69-147 %Rec 1 7/17/2023 7:59:16 PM **EPA METHOD 8015D: GASOLINE RANGE** Analyst: KMN Gasoline Range Organics (GRO) ND 7/18/2023 12:55:00 PM 4.8 mg/Kg 1 Surr: BFB 82.9 15-244 %Rec 1 7/18/2023 12:55:00 PM **EPA METHOD 8021B: VOLATILES** Analyst: KMN Benzene ND 7/18/2023 12:55:00 PM 0.024 mg/Kg 1 Toluene ND 0.048 mg/Kg 1 7/18/2023 12:55:00 PM Ethylbenzene ND 0.048 mg/Kg 1 7/18/2023 12:55:00 PM Xylenes, Total ND 0.096 mg/Kg 7/18/2023 12:55:00 PM 1 Surr: 4-Bromofluorobenzene 0.08 39.1-146 %Rec 1 7/18/2023 12:55:00 PM **EPA METHOD 300.0: ANIONS** Analyst: RBC mg/Kg Chloride 7/17/2023 4:17:33 PM ND 60 20

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

Page 12 of 62

Date Reported: 7/24/2023

#### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS23-05 0.5

 Project:
 Tomcat 16 State 006
 Collection Date: 7/12/2023 9:50:00 AM

 Lab ID:
 2307633-013
 Matrix: SOIL
 Received Date: 7/14/2023 7:30:00 AM

Result **RL Qual Units** DF **Date Analyzed** Analyses **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** Analyst: **DGH** Diesel Range Organics (DRO) ND 9.8 mg/Kg 1 7/17/2023 8:24:28 PM Motor Oil Range Organics (MRO) ND 49 mg/Kg 1 7/17/2023 8:24:28 PM Surr: DNOP 92.4 69-147 %Rec 1 7/17/2023 8:24:28 PM **EPA METHOD 8015D: GASOLINE RANGE** Analyst: KMN Gasoline Range Organics (GRO) ND 7/18/2023 1:17:00 PM 4.9 mg/Kg 1 Surr: BFB 80.2 15-244 %Rec 1 7/18/2023 1:17:00 PM **EPA METHOD 8021B: VOLATILES** Analyst: KMN Benzene ND 7/18/2023 1:17:00 PM 0.024 mg/Kg 1 Toluene ND 0.049 mg/Kg 1 7/18/2023 1:17:00 PM Ethylbenzene ND 0.049 mg/Kg 1 7/18/2023 1:17:00 PM Xylenes, Total ND 0.098 mg/Kg 7/18/2023 1:17:00 PM 1 Surr: 4-Bromofluorobenzene 81.0 39.1-146 %Rec 1 7/18/2023 1:17:00 PM **EPA METHOD 300.0: ANIONS** Analyst: RBC mg/Kg Chloride 7/17/2023 4:29:57 PM ND 60 20

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

Page 13 of 62

Date Reported: 7/24/2023

#### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS23-06 0.5'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/12/2023 9:55:00 AM

 Lab ID:
 2307633-014
 Matrix: SOIL
 Received Date: 7/14/2023 7:30:00 AM

Analyses	Result	RL Qua	l Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGA	Analyst: <b>DGH</b>				
Diesel Range Organics (DRO)	ND	9.5	mg/Kg	1	7/17/2023 8:49:36 PM
Motor Oil Range Organics (MRO)	ND	47	mg/Kg	1	7/17/2023 8:49:36 PM
Surr: DNOP	89.2	69-147	%Rec	1	7/17/2023 8:49:36 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: KMN
Gasoline Range Organics (GRO)	ND	5.0	mg/Kg	1	7/18/2023 1:39:00 PM
Surr: BFB	82.5	15-244	%Rec	1	7/18/2023 1:39:00 PM
EPA METHOD 8021B: VOLATILES					Analyst: KMN
Benzene	ND	0.025	mg/Kg	1	7/18/2023 1:39:00 PM
Toluene	ND	0.050	mg/Kg	1	7/18/2023 1:39:00 PM
Ethylbenzene	ND	0.050	mg/Kg	1	7/18/2023 1:39:00 PM
Xylenes, Total	ND	0.10	mg/Kg	1	7/18/2023 1:39:00 PM
Surr: 4-Bromofluorobenzene	80.6	39.1-146	%Rec	1	7/18/2023 1:39:00 PM
EPA METHOD 300.0: ANIONS					Analyst: RBC
Chloride	ND	60	mg/Kg	20	7/17/2023 4:42:22 PM

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- 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

Page 14 of 62

Date Reported: 7/24/2023

#### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS23-07 0.5'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/12/2023 9:55:00 AM

 Lab ID:
 2307633-015
 Matrix: SOIL
 Received Date: 7/14/2023 7:30:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OR	Analyst: PRD				
Diesel Range Organics (DRO)	ND	9.9	mg/Kg	1	7/17/2023 4:45:57 PM
Motor Oil Range Organics (MRO)	ND	49	mg/Kg	1	7/17/2023 4:45:57 PM
Surr: DNOP	106	69-147	%Rec	1	7/17/2023 4:45:57 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: KMN
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	7/18/2023 3:28:00 PM
Surr: BFB	83.4	15-244	%Rec	1	7/18/2023 3:28:00 PM
EPA METHOD 8021B: VOLATILES					Analyst: KMN
Benzene	ND	0.024	mg/Kg	1	7/18/2023 3:28:00 PM
Toluene	ND	0.049	mg/Kg	1	7/18/2023 3:28:00 PM
Ethylbenzene	ND	0.049	mg/Kg	1	7/18/2023 3:28:00 PM
Xylenes, Total	ND	0.097	mg/Kg	1	7/18/2023 3:28:00 PM
Surr: 4-Bromofluorobenzene	81.6	39.1-146	%Rec	1	7/18/2023 3:28:00 PM
EPA METHOD 300.0: ANIONS					Analyst: RBC
Chloride	160	60	mg/Kg	20	7/17/2023 4:54:47 PM

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

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

QL 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

Page 15 of 62

Date Reported: 7/24/2023

#### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS23-08 0.5'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/12/2023 10:00:00 AM

 Lab ID:
 2307633-016
 Matrix: SOIL
 Received Date: 7/14/2023 7:30:00 AM

Analyses	Result	RL Qua	l Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OR	Analyst: PRD				
Diesel Range Organics (DRO)	ND	9.8	mg/Kg	1	7/17/2023 4:57:03 PM
Motor Oil Range Organics (MRO)	ND	49	mg/Kg	1	7/17/2023 4:57:03 PM
Surr: DNOP	110	69-147	%Rec	1	7/17/2023 4:57:03 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: KMN
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	7/18/2023 4:35:00 PM
Surr: BFB	80.5	15-244	%Rec	1	7/18/2023 4:35:00 PM
EPA METHOD 8021B: VOLATILES					Analyst: KMN
Benzene	ND	0.024	mg/Kg	1	7/18/2023 4:35:00 PM
Toluene	ND	0.049	mg/Kg	1	7/18/2023 4:35:00 PM
Ethylbenzene	ND	0.049	mg/Kg	1	7/18/2023 4:35:00 PM
Xylenes, Total	ND	0.098	mg/Kg	1	7/18/2023 4:35:00 PM
Surr: 4-Bromofluorobenzene	80.6	39.1-146	%Rec	1	7/18/2023 4:35:00 PM
EPA METHOD 300.0: ANIONS					Analyst: RBC
Chloride	ND	59	mg/Kg	20	7/17/2023 5:07:11 PM

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

Qualifiers:

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

Page 16 of 62

Date Reported: 7/24/2023

#### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS23-09 0.5'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/12/2023 10:00:00 AM

 Lab ID:
 2307633-017
 Matrix: SOIL
 Received Date: 7/14/2023 7:30:00 AM

Analyses	Result	RL Qua	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGA	Analyst: PRD				
Diesel Range Organics (DRO)	ND	9.8	mg/Kg	1	7/17/2023 5:08:20 PM
Motor Oil Range Organics (MRO)	ND	49	mg/Kg	1	7/17/2023 5:08:20 PM
Surr: DNOP	105	69-147	%Rec	1	7/17/2023 5:08:20 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: <b>KMN</b>
Gasoline Range Organics (GRO)	ND	4.6	mg/Kg	1	7/18/2023 5:41:00 PM
Surr: BFB	82.8	15-244	%Rec	1	7/18/2023 5:41:00 PM
EPA METHOD 8021B: VOLATILES					Analyst: KMN
Benzene	ND	0.023	mg/Kg	1	7/18/2023 5:41:00 PM
Toluene	ND	0.046	mg/Kg	1	7/18/2023 5:41:00 PM
Ethylbenzene	ND	0.046	mg/Kg	1	7/18/2023 5:41:00 PM
Xylenes, Total	ND	0.093	mg/Kg	1	7/18/2023 5:41:00 PM
Surr: 4-Bromofluorobenzene	78.7	39.1-146	%Rec	1	7/18/2023 5:41:00 PM
EPA METHOD 300.0: ANIONS					Analyst: RBC
Chloride	ND	60	mg/Kg	20	7/17/2023 5:19:35 PM

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- 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

Page 17 of 62

Date Reported: 7/24/2023

#### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS23-10 0.5'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/12/2023 10:05:00 AM

 Lab ID:
 2307633-018
 Matrix: SOIL
 Received Date: 7/14/2023 7:30:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OR	Analyst: PRD				
Diesel Range Organics (DRO)	ND	9.7	mg/Kg	1	7/17/2023 5:19:37 PM
Motor Oil Range Organics (MRO)	ND	48	mg/Kg	1	7/17/2023 5:19:37 PM
Surr: DNOP	102	69-147	%Rec	1	7/17/2023 5:19:37 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: KMN
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	7/18/2023 6:03:00 PM
Surr: BFB	80.9	15-244	%Rec	1	7/18/2023 6:03:00 PM
EPA METHOD 8021B: VOLATILES					Analyst: KMN
Benzene	ND	0.024	mg/Kg	1	7/18/2023 6:03:00 PM
Toluene	ND	0.048	mg/Kg	1	7/18/2023 6:03:00 PM
Ethylbenzene	ND	0.048	mg/Kg	1	7/18/2023 6:03:00 PM
Xylenes, Total	ND	0.096	mg/Kg	1	7/18/2023 6:03:00 PM
Surr: 4-Bromofluorobenzene	79.3	39.1-146	%Rec	1	7/18/2023 6:03:00 PM
EPA METHOD 300.0: ANIONS					Analyst: RBC
Chloride	ND	60	mg/Kg	20	7/17/2023 5:31:59 PM

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- 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

Page 18 of 62

Date Reported: 7/24/2023

#### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS23-11 0.5'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/12/2023 10:05:00 AM

 Lab ID:
 2307633-019
 Matrix: SOIL
 Received Date: 7/14/2023 7:30:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OF		Analyst: PRD			
Diesel Range Organics (DRO)	ND	9.7	mg/Kg	1	7/17/2023 5:31:02 PM
Motor Oil Range Organics (MRO)	ND	49	mg/Kg	1	7/17/2023 5:31:02 PM
Surr: DNOP	96.0	69-147	%Rec	1	7/17/2023 5:31:02 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: <b>KMN</b>
Gasoline Range Organics (GRO)	ND	4.7	mg/Kg	1	7/18/2023 6:25:00 PM
Surr: BFB	83.3	15-244	%Rec	1	7/18/2023 6:25:00 PM
EPA METHOD 8021B: VOLATILES					Analyst: KMN
Benzene	ND	0.023	mg/Kg	1	7/18/2023 6:25:00 PM
Toluene	ND	0.047	mg/Kg	1	7/18/2023 6:25:00 PM
Ethylbenzene	ND	0.047	mg/Kg	1	7/18/2023 6:25:00 PM
Xylenes, Total	ND	0.094	mg/Kg	1	7/18/2023 6:25:00 PM
Surr: 4-Bromofluorobenzene	78.4	39.1-146	%Rec	1	7/18/2023 6:25:00 PM
EPA METHOD 300.0: ANIONS					Analyst: RBC
Chloride	ND	60	mg/Kg	20	7/17/2023 5:44:24 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

Page 19 of 62

Date Reported: 7/24/2023

#### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS23-12 0.5'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/12/2023 10:10:00 AM

 Lab ID:
 2307633-020
 Matrix: SOIL
 Received Date: 7/14/2023 7:30:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OI		Analyst: PRD			
Diesel Range Organics (DRO)	ND	9.7	mg/Kg	1	7/17/2023 5:42:30 PM
Motor Oil Range Organics (MRO)	ND	49	mg/Kg	1	7/17/2023 5:42:30 PM
Surr: DNOP	106	69-147	%Rec	1	7/17/2023 5:42:30 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: KMN
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	7/18/2023 6:47:00 PM
Surr: BFB	78.7	15-244	%Rec	1	7/18/2023 6:47:00 PM
EPA METHOD 8021B: VOLATILES					Analyst: KMN
Benzene	ND	0.025	mg/Kg	1	7/18/2023 6:47:00 PM
Toluene	ND	0.049	mg/Kg	1	7/18/2023 6:47:00 PM
Ethylbenzene	ND	0.049	mg/Kg	1	7/18/2023 6:47:00 PM
Xylenes, Total	ND	0.098	mg/Kg	1	7/18/2023 6:47:00 PM
Surr: 4-Bromofluorobenzene	78.7	39.1-146	%Rec	1	7/18/2023 6:47:00 PM
EPA METHOD 300.0: ANIONS					Analyst: RBC
Chloride	ND	60	mg/Kg	20	7/17/2023 5:56:49 PM

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

Qualifiers:

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

Page 20 of 62

Date Reported: 7/24/2023

#### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS23-13 0.5'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/12/2023 10:10:00 AM

 Lab ID:
 2307633-021
 Matrix: SOIL
 Received Date: 7/14/2023 7:30:00 AM

Analyses	Result	RL Qua	l Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGA	Analyst: PRD				
Diesel Range Organics (DRO)	ND	9.9	mg/Kg	1	7/17/2023 5:53:57 PM
Motor Oil Range Organics (MRO)	ND	49	mg/Kg	1	7/17/2023 5:53:57 PM
Surr: DNOP	95.2	69-147	%Rec	1	7/17/2023 5:53:57 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: KMN
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	7/18/2023 7:09:00 PM
Surr: BFB	76.1	15-244	%Rec	1	7/18/2023 7:09:00 PM
EPA METHOD 8021B: VOLATILES					Analyst: KMN
Benzene	ND	0.025	mg/Kg	1	7/18/2023 7:09:00 PM
Toluene	ND	0.049	mg/Kg	1	7/18/2023 7:09:00 PM
Ethylbenzene	ND	0.049	mg/Kg	1	7/18/2023 7:09:00 PM
Xylenes, Total	ND	0.099	mg/Kg	1	7/18/2023 7:09:00 PM
Surr: 4-Bromofluorobenzene	78.2	39.1-146	%Rec	1	7/18/2023 7:09:00 PM
EPA METHOD 300.0: ANIONS					Analyst: RBC
Chloride	ND	61	mg/Kg	20	7/17/2023 6:09:13 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

Page 21 of 62

Date Reported: 7/24/2023

#### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS23-14 0.5'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/12/2023 10:15:00 AM

 Lab ID:
 2307633-022
 Matrix: SOIL
 Received Date: 7/14/2023 7:30:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OF	Analyst: PRD				
Diesel Range Organics (DRO)	ND	10	mg/Kg	1	7/17/2023 6:05:24 PM
Motor Oil Range Organics (MRO)	ND	50	mg/Kg	1	7/17/2023 6:05:24 PM
Surr: DNOP	99.3	69-147	%Rec	1	7/17/2023 6:05:24 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: KMN
Gasoline Range Organics (GRO)	ND	4.7	mg/Kg	1	7/18/2023 7:31:00 PM
Surr: BFB	79.9	15-244	%Rec	1	7/18/2023 7:31:00 PM
EPA METHOD 8021B: VOLATILES					Analyst: KMN
Benzene	ND	0.024	mg/Kg	1	7/18/2023 7:31:00 PM
Toluene	ND	0.047	mg/Kg	1	7/18/2023 7:31:00 PM
Ethylbenzene	ND	0.047	mg/Kg	1	7/18/2023 7:31:00 PM
Xylenes, Total	ND	0.094	mg/Kg	1	7/18/2023 7:31:00 PM
Surr: 4-Bromofluorobenzene	78.5	39.1-146	%Rec	1	7/18/2023 7:31:00 PM
EPA METHOD 300.0: ANIONS					Analyst: RBC
Chloride	ND	60	mg/Kg	20	7/17/2023 6:46:26 PM

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- 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

Page 22 of 62

Date Reported: 7/24/2023

#### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS23-15 0.5'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/12/2023 10:15:00 AM

 Lab ID:
 2307633-023
 Matrix: SOIL
 Received Date: 7/14/2023 7:30:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OR	Analyst: PRD				
Diesel Range Organics (DRO)	ND	9.9	mg/Kg	1	7/17/2023 6:28:04 PM
Motor Oil Range Organics (MRO)	ND	49	mg/Kg	1	7/17/2023 6:28:04 PM
Surr: DNOP	93.3	69-147	%Rec	1	7/17/2023 6:28:04 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: KMN
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	7/18/2023 7:53:00 PM
Surr: BFB	81.9	15-244	%Rec	1	7/18/2023 7:53:00 PM
EPA METHOD 8021B: VOLATILES					Analyst: KMN
Benzene	ND	0.024	mg/Kg	1	7/18/2023 7:53:00 PM
Toluene	ND	0.048	mg/Kg	1	7/18/2023 7:53:00 PM
Ethylbenzene	ND	0.048	mg/Kg	1	7/18/2023 7:53:00 PM
Xylenes, Total	ND	0.095	mg/Kg	1	7/18/2023 7:53:00 PM
Surr: 4-Bromofluorobenzene	78.4	39.1-146	%Rec	1	7/18/2023 7:53:00 PM
EPA METHOD 300.0: ANIONS					Analyst: RBC
Chloride	ND	60	mg/Kg	20	7/17/2023 6:58:50 PM

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

Qualifiers:

Value exceeds Maximum Contaminant Level.

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

Page 23 of 62

Date Reported: 7/24/2023

#### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS23-16 0.5'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/12/2023 10:20:00 AM

 Lab ID:
 2307633-024
 Matrix: SOIL
 Received Date: 7/14/2023 7:30:00 AM

Analyses	Result	RL Qua	l Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGA	Analyst: PRD				
Diesel Range Organics (DRO)	ND	9.3	mg/Kg	1	7/17/2023 6:39:19 PM
Motor Oil Range Organics (MRO)	ND	46	mg/Kg	1	7/17/2023 6:39:19 PM
Surr: DNOP	101	69-147	%Rec	1	7/17/2023 6:39:19 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: <b>KMN</b>
Gasoline Range Organics (GRO)	ND	4.7	mg/Kg	1	7/18/2023 8:15:00 PM
Surr: BFB	80.5	15-244	%Rec	1	7/18/2023 8:15:00 PM
EPA METHOD 8021B: VOLATILES					Analyst: KMN
Benzene	ND	0.024	mg/Kg	1	7/18/2023 8:15:00 PM
Toluene	ND	0.047	mg/Kg	1	7/18/2023 8:15:00 PM
Ethylbenzene	ND	0.047	mg/Kg	1	7/18/2023 8:15:00 PM
Xylenes, Total	ND	0.094	mg/Kg	1	7/18/2023 8:15:00 PM
Surr: 4-Bromofluorobenzene	78.7	39.1-146	%Rec	1	7/18/2023 8:15:00 PM
EPA METHOD 300.0: ANIONS					Analyst: RBC
Chloride	ND	60	mg/Kg	20	7/17/2023 7:11:14 PM

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- 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
- 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

of the pH Not In Range Page 24 of 62

Date Reported: 7/24/2023

#### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS23-17 0.5'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/12/2023 10:20:00 AM

 Lab ID:
 2307633-025
 Matrix: SOIL
 Received Date: 7/14/2023 7:30:00 AM

Analyses	Result	RL Qua	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORG	Analyst: PRD				
Diesel Range Organics (DRO)	ND	9.7	mg/Kg	1	7/17/2023 6:50:33 PM
Motor Oil Range Organics (MRO)	ND	49	mg/Kg	1	7/17/2023 6:50:33 PM
Surr: DNOP	99.6	69-147	%Rec	1	7/17/2023 6:50:33 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: <b>KMN</b>
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	7/18/2023 9:20:00 PM
Surr: BFB	77.0	15-244	%Rec	1	7/18/2023 9:20:00 PM
EPA METHOD 8021B: VOLATILES					Analyst: KMN
Benzene	ND	0.025	mg/Kg	1	7/18/2023 9:20:00 PM
Toluene	ND	0.049	mg/Kg	1	7/18/2023 9:20:00 PM
Ethylbenzene	ND	0.049	mg/Kg	1	7/18/2023 9:20:00 PM
Xylenes, Total	ND	0.099	mg/Kg	1	7/18/2023 9:20:00 PM
Surr: 4-Bromofluorobenzene	77.0	39.1-146	%Rec	1	7/18/2023 9:20:00 PM
EPA METHOD 300.0: ANIONS					Analyst: RBC
Chloride	ND	60	mg/Kg	20	7/17/2023 2:31:26 PM

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- 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

Page 25 of 62

Date Reported: 7/24/2023

#### Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Vertex Resources Services, Inc. Client Sample ID: BS23-18 0.5'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/12/2023 10:25:00 AM

 Lab ID:
 2307633-026
 Matrix: SOIL
 Received Date: 7/14/2023 7:30:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE O		Analyst: PRD			
Diesel Range Organics (DRO)	ND	9.8	mg/Kg	1	7/17/2023 7:01:57 PM
Motor Oil Range Organics (MRO)	ND	49	mg/Kg	1	7/17/2023 7:01:57 PM
Surr: DNOP	101	69-147	%Rec	1	7/17/2023 7:01:57 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: <b>KMN</b>
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	7/18/2023 9:42:00 PM
Surr: BFB	76.0	15-244	%Rec	1	7/18/2023 9:42:00 PM
EPA METHOD 8021B: VOLATILES					Analyst: KMN
Benzene	ND	0.024	mg/Kg	1	7/18/2023 9:42:00 PM
Toluene	ND	0.048	mg/Kg	1	7/18/2023 9:42:00 PM
Ethylbenzene	ND	0.048	mg/Kg	1	7/18/2023 9:42:00 PM
Xylenes, Total	ND	0.095	mg/Kg	1	7/18/2023 9:42:00 PM
Surr: 4-Bromofluorobenzene	77.4	39.1-146	%Rec	1	7/18/2023 9:42:00 PM
EPA METHOD 300.0: ANIONS					Analyst: RBC
Chloride	ND	60	mg/Kg	20	7/17/2023 3:08:27 PM

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- 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

Page 26 of 62

Date Reported: 7/24/2023

#### Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Vertex Resources Services, Inc. Client Sample ID: BS23-19 0.5'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/12/2023 10:25:00 AM

 Lab ID:
 2307633-027
 Matrix: SOIL
 Received Date: 7/14/2023 7:30:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OR		Analyst: PRD			
Diesel Range Organics (DRO)	ND	9.3	mg/Kg	1	7/17/2023 7:13:21 PM
Motor Oil Range Organics (MRO)	ND	47	mg/Kg	1	7/17/2023 7:13:21 PM
Surr: DNOP	91.3	69-147	%Rec	1	7/17/2023 7:13:21 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: KMN
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	7/18/2023 10:04:00 PM
Surr: BFB	80.0	15-244	%Rec	1	7/18/2023 10:04:00 PM
EPA METHOD 8021B: VOLATILES					Analyst: <b>KMN</b>
Benzene	ND	0.024	mg/Kg	1	7/18/2023 10:04:00 PM
Toluene	ND	0.049	mg/Kg	1	7/18/2023 10:04:00 PM
Ethylbenzene	ND	0.049	mg/Kg	1	7/18/2023 10:04:00 PM
Xylenes, Total	ND	0.098	mg/Kg	1	7/18/2023 10:04:00 PM
Surr: 4-Bromofluorobenzene	77.6	39.1-146	%Rec	1	7/18/2023 10:04:00 PM
EPA METHOD 300.0: ANIONS					Analyst: RBC
Chloride	ND	60	mg/Kg	20	7/17/2023 3:45:30 PM

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

Qualifiers:

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

Page 27 of 62

Date Reported: 7/24/2023

#### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS23-20 0.5'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/12/2023 10:30:00 AM

 Lab ID:
 2307633-028
 Matrix: SOIL
 Received Date: 7/14/2023 7:30:00 AM

Analyses	Result	RL Qua	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGA	Analyst: PRD				
Diesel Range Organics (DRO)	ND	9.9	mg/Kg	1	7/17/2023 7:24:45 PM
Motor Oil Range Organics (MRO)	ND	50	mg/Kg	1	7/17/2023 7:24:45 PM
Surr: DNOP	107	69-147	%Rec	1	7/17/2023 7:24:45 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: KMN
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	7/18/2023 10:25:00 PM
Surr: BFB	76.9	15-244	%Rec	1	7/18/2023 10:25:00 PM
EPA METHOD 8021B: VOLATILES					Analyst: KMN
Benzene	ND	0.024	mg/Kg	1	7/18/2023 10:25:00 PM
Toluene	ND	0.048	mg/Kg	1	7/18/2023 10:25:00 PM
Ethylbenzene	ND	0.048	mg/Kg	1	7/18/2023 10:25:00 PM
Xylenes, Total	ND	0.096	mg/Kg	1	7/18/2023 10:25:00 PM
Surr: 4-Bromofluorobenzene	76.7	39.1-146	%Rec	1	7/18/2023 10:25:00 PM
EPA METHOD 300.0: ANIONS					Analyst: RBC
Chloride	ND	60	mg/Kg	20	7/17/2023 3:57:50 PM

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- 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

Page 28 of 62

Date Reported: 7/24/2023

#### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS23-21 0.5'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/12/2023 10:30:00 AM

 Lab ID:
 2307633-029
 Matrix: SOIL
 Received Date: 7/14/2023 7:30:00 AM

Analyses	Result	RL Qua	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGA	Analyst: PRD				
Diesel Range Organics (DRO)	ND	9.8	mg/Kg	1	7/17/2023 7:35:55 PM
Motor Oil Range Organics (MRO)	ND	49	mg/Kg	1	7/17/2023 7:35:55 PM
Surr: DNOP	108	69-147	%Rec	1	7/17/2023 7:35:55 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: KMN
Gasoline Range Organics (GRO)	ND	4.7	mg/Kg	1	7/18/2023 10:47:00 PM
Surr: BFB	79.8	15-244	%Rec	1	7/18/2023 10:47:00 PM
EPA METHOD 8021B: VOLATILES					Analyst: KMN
Benzene	ND	0.024	mg/Kg	1	7/18/2023 10:47:00 PM
Toluene	ND	0.047	mg/Kg	1	7/18/2023 10:47:00 PM
Ethylbenzene	ND	0.047	mg/Kg	1	7/18/2023 10:47:00 PM
Xylenes, Total	ND	0.094	mg/Kg	1	7/18/2023 10:47:00 PM
Surr: 4-Bromofluorobenzene	76.4	39.1-146	%Rec	1	7/18/2023 10:47:00 PM
EPA METHOD 300.0: ANIONS					Analyst: RBC
Chloride	ND	60	mg/Kg	20	7/17/2023 4:34:53 PM

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- 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

Page 29 of 62

Date Reported: 7/24/2023

#### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS23-22 0.5'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/12/2023 10:35:00 AM

 Lab ID:
 2307633-030
 Matrix: SOIL
 Received Date: 7/14/2023 7:30:00 AM

Analyses	Result	RL Qua	l Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGA	Analyst: PRD				
Diesel Range Organics (DRO)	ND	9.6	mg/Kg	1	7/17/2023 7:47:16 PM
Motor Oil Range Organics (MRO)	ND	48	mg/Kg	1	7/17/2023 7:47:16 PM
Surr: DNOP	96.1	69-147	%Rec	1	7/17/2023 7:47:16 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: KMN
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	7/18/2023 11:09:00 PM
Surr: BFB	77.2	15-244	%Rec	1	7/18/2023 11:09:00 PM
EPA METHOD 8021B: VOLATILES					Analyst: KMN
Benzene	ND	0.024	mg/Kg	1	7/18/2023 11:09:00 PM
Toluene	ND	0.049	mg/Kg	1	7/18/2023 11:09:00 PM
Ethylbenzene	ND	0.049	mg/Kg	1	7/18/2023 11:09:00 PM
Xylenes, Total	ND	0.098	mg/Kg	1	7/18/2023 11:09:00 PM
Surr: 4-Bromofluorobenzene	76.2	39.1-146	%Rec	1	7/18/2023 11:09:00 PM
EPA METHOD 300.0: ANIONS					Analyst: RBC
Chloride	ND	60	mg/Kg	20	7/17/2023 4:47:14 PM

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

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

QL 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

Page 30 of 62

Date Reported: 7/24/2023

#### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS23-23 0.5'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/12/2023 10:35:00 AM

 Lab ID:
 2307633-031
 Matrix: SOIL
 Received Date: 7/14/2023 7:30:00 AM

Analyses	Result	RL Qua	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORG	Analyst: PRD				
Diesel Range Organics (DRO)	ND	9.7	mg/Kg	1	7/17/2023 7:58:23 PM
Motor Oil Range Organics (MRO)	ND	48	mg/Kg	1	7/17/2023 7:58:23 PM
Surr: DNOP	100	69-147	%Rec	1	7/17/2023 7:58:23 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: KMN
Gasoline Range Organics (GRO)	ND	5.0	mg/Kg	1	7/18/2023 11:31:00 PM
Surr: BFB	79.2	15-244	%Rec	1	7/18/2023 11:31:00 PM
EPA METHOD 8021B: VOLATILES					Analyst: <b>KMN</b>
Benzene	ND	0.025	mg/Kg	1	7/18/2023 11:31:00 PM
Toluene	ND	0.050	mg/Kg	1	7/18/2023 11:31:00 PM
Ethylbenzene	ND	0.050	mg/Kg	1	7/18/2023 11:31:00 PM
Xylenes, Total	ND	0.10	mg/Kg	1	7/18/2023 11:31:00 PM
Surr: 4-Bromofluorobenzene	76.8	39.1-146	%Rec	1	7/18/2023 11:31:00 PM
EPA METHOD 300.0: ANIONS					Analyst: RBC
Chloride	ND	60	mg/Kg	20	7/17/2023 4:59:34 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

Page 31 of 62

Date Reported: 7/24/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS23-24 0.5'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/12/2023 10:40:00 AM

 Lab ID:
 2307633-032
 Matrix: SOIL
 Received Date: 7/14/2023 7:30:00 AM

Analyses	Result	RL Qua	l Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGA	Analyst: PRD				
Diesel Range Organics (DRO)	ND	9.8	mg/Kg	1	7/17/2023 8:09:29 PM
Motor Oil Range Organics (MRO)	ND	49	mg/Kg	1	7/17/2023 8:09:29 PM
Surr: DNOP	108	69-147	%Rec	1	7/17/2023 8:09:29 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: KMN
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	7/18/2023 11:52:00 PM
Surr: BFB	77.7	15-244	%Rec	1	7/18/2023 11:52:00 PM
EPA METHOD 8021B: VOLATILES					Analyst: KMN
Benzene	ND	0.024	mg/Kg	1	7/18/2023 11:52:00 PM
Toluene	ND	0.048	mg/Kg	1	7/18/2023 11:52:00 PM
Ethylbenzene	ND	0.048	mg/Kg	1	7/18/2023 11:52:00 PM
Xylenes, Total	ND	0.095	mg/Kg	1	7/18/2023 11:52:00 PM
Surr: 4-Bromofluorobenzene	77.5	39.1-146	%Rec	1	7/18/2023 11:52:00 PM
EPA METHOD 300.0: ANIONS					Analyst: RBC
Chloride	ND	60	mg/Kg	20	7/17/2023 5:11:54 PM

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- 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

Page 32 of 62

Date Reported: 7/24/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS23-25 0.5'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/12/2023 10:40:00 AM

 Lab ID:
 2307633-033
 Matrix: SOIL
 Received Date: 7/14/2023 7:30:00 AM

Analyses	Result	RL Qua	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGA	Analyst: PRD				
Diesel Range Organics (DRO)	ND	9.7	mg/Kg	1	7/18/2023 10:38:46 AM
Motor Oil Range Organics (MRO)	ND	48	mg/Kg	1	7/18/2023 10:38:46 AM
Surr: DNOP	105	69-147	%Rec	1	7/18/2023 10:38:46 AM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: KMN
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	7/19/2023 12:14:00 AM
Surr: BFB	79.6	15-244	%Rec	1	7/19/2023 12:14:00 AM
EPA METHOD 8021B: VOLATILES					Analyst: KMN
Benzene	ND	0.025	mg/Kg	1	7/19/2023 12:14:00 AM
Toluene	ND	0.049	mg/Kg	1	7/19/2023 12:14:00 AM
Ethylbenzene	ND	0.049	mg/Kg	1	7/19/2023 12:14:00 AM
Xylenes, Total	ND	0.099	mg/Kg	1	7/19/2023 12:14:00 AM
Surr: 4-Bromofluorobenzene	77.2	39.1-146	%Rec	1	7/19/2023 12:14:00 AM
EPA METHOD 300.0: ANIONS					Analyst: RBC
Chloride	ND	60	mg/Kg	20	7/17/2023 5:24:15 PM

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

Qualifiers:

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

Page 33 of 62

Date Reported: 7/24/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS23-26 0.5'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/12/2023 10:45:00 AM

 Lab ID:
 2307633-034
 Matrix: SOIL
 Received Date: 7/14/2023 7:30:00 AM

Analyses	Result	RL Qua	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGA	Analyst: PRD				
Diesel Range Organics (DRO)	ND	9.2	mg/Kg	1	7/18/2023 10:49:21 AM
Motor Oil Range Organics (MRO)	ND	46	mg/Kg	1	7/18/2023 10:49:21 AM
Surr: DNOP	105	69-147	%Rec	1	7/18/2023 10:49:21 AM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: KMN
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	7/19/2023 12:36:00 AM
Surr: BFB	79.5	15-244	%Rec	1	7/19/2023 12:36:00 AM
EPA METHOD 8021B: VOLATILES					Analyst: KMN
Benzene	ND	0.024	mg/Kg	1	7/19/2023 12:36:00 AM
Toluene	ND	0.048	mg/Kg	1	7/19/2023 12:36:00 AM
Ethylbenzene	ND	0.048	mg/Kg	1	7/19/2023 12:36:00 AM
Xylenes, Total	ND	0.095	mg/Kg	1	7/19/2023 12:36:00 AM
Surr: 4-Bromofluorobenzene	78.4	39.1-146	%Rec	1	7/19/2023 12:36:00 AM
EPA METHOD 300.0: ANIONS					Analyst: RBC
Chloride	ND	60	mg/Kg	20	7/17/2023 5:36:36 PM

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

Qualifiers:

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

Page 34 of 62

Date Reported: 7/24/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS23-27 0.5'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/12/2023 10:45:00 AM

 Lab ID:
 2307633-035
 Matrix: SOIL
 Received Date: 7/14/2023 7:30:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORG	Analyst: PRD				
Diesel Range Organics (DRO)	ND	9.8	mg/Kg	1	7/18/2023 10:59:58 AM
Motor Oil Range Organics (MRO)	ND	49	mg/Kg	1	7/18/2023 10:59:58 AM
Surr: DNOP	88.9	69-147	%Rec	1	7/18/2023 10:59:58 AM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	7/18/2023 6:45:49 PM
Surr: BFB	96.6	15-244	%Rec	1	7/18/2023 6:45:49 PM
EPA METHOD 8021B: VOLATILES					Analyst: JJP
Benzene	ND	0.025	mg/Kg	1	7/18/2023 6:45:49 PM
Toluene	ND	0.049	mg/Kg	1	7/18/2023 6:45:49 PM
Ethylbenzene	ND	0.049	mg/Kg	1	7/18/2023 6:45:49 PM
Xylenes, Total	ND	0.098	mg/Kg	1	7/18/2023 6:45:49 PM
Surr: 4-Bromofluorobenzene	99.4	39.1-146	%Rec	1	7/18/2023 6:45:49 PM
EPA METHOD 300.0: ANIONS					Analyst: RBC
Chloride	ND	60	mg/Kg	20	7/17/2023 5:48:56 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

Page 35 of 62

Date Reported: 7/24/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS23-28 0.5'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/12/2023 10:50:00 AM

 Lab ID:
 2307633-036
 Matrix: SOIL
 Received Date: 7/14/2023 7:30:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OR		Analyst: PRD			
Diesel Range Organics (DRO)	ND	10	mg/Kg	1	7/18/2023 11:10:38 AM
Motor Oil Range Organics (MRO)	ND	50	mg/Kg	1	7/18/2023 11:10:38 AM
Surr: DNOP	109	69-147	%Rec	1	7/18/2023 11:10:38 AM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: <b>JJP</b>
Gasoline Range Organics (GRO)	ND	5.0	mg/Kg	1	7/18/2023 7:57:02 PM
Surr: BFB	92.9	15-244	%Rec	1	7/18/2023 7:57:02 PM
EPA METHOD 8021B: VOLATILES					Analyst: JJP
Benzene	ND	0.025	mg/Kg	1	7/18/2023 7:57:02 PM
Toluene	ND	0.050	mg/Kg	1	7/18/2023 7:57:02 PM
Ethylbenzene	ND	0.050	mg/Kg	1	7/18/2023 7:57:02 PM
Xylenes, Total	ND	0.099	mg/Kg	1	7/18/2023 7:57:02 PM
Surr: 4-Bromofluorobenzene	96.0	39.1-146	%Rec	1	7/18/2023 7:57:02 PM
EPA METHOD 300.0: ANIONS					Analyst: RBC
Chloride	ND	61	mg/Kg	20	7/17/2023 6:01:16 PM

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

Qualifiers:

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

Page 36 of 62

Date Reported: 7/24/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS23-29 0.5'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/12/2023 10:50:00 AM

 Lab ID:
 2307633-037
 Matrix: SOIL
 Received Date: 7/14/2023 7:30:00 AM

Analyses	Result	RL Qua	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OR	Analyst: PRD				
Diesel Range Organics (DRO)	ND	9.6	mg/Kg	1	7/18/2023 11:21:20 AM
Motor Oil Range Organics (MRO)	ND	48	mg/Kg	1	7/18/2023 11:21:20 AM
Surr: DNOP	93.9	69-147	%Rec	1	7/18/2023 11:21:20 AM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	7/18/2023 9:07:58 PM
Surr: BFB	92.1	15-244	%Rec	1	7/18/2023 9:07:58 PM
EPA METHOD 8021B: VOLATILES					Analyst: JJP
Benzene	ND	0.025	mg/Kg	1	7/18/2023 9:07:58 PM
Toluene	ND	0.049	mg/Kg	1	7/18/2023 9:07:58 PM
Ethylbenzene	ND	0.049	mg/Kg	1	7/18/2023 9:07:58 PM
Xylenes, Total	ND	0.098	mg/Kg	1	7/18/2023 9:07:58 PM
Surr: 4-Bromofluorobenzene	95.8	39.1-146	%Rec	1	7/18/2023 9:07:58 PM
EPA METHOD 300.0: ANIONS					Analyst: RBC
Chloride	ND	60	mg/Kg	20	7/17/2023 6:13:36 PM

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

Qualifiers:

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

Page 37 of 62

Date Reported: 7/24/2023

## Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Vertex Resources Services, Inc. Client Sample ID: BS23-30 0.5'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/12/2023 10:55:00 AM

 Lab ID:
 2307633-038
 Matrix: SOIL
 Received Date: 7/14/2023 7:30:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OF	RGANICS				Analyst: PRD
Diesel Range Organics (DRO)	ND	9.6	mg/Kg	1	7/18/2023 11:32:02 AM
Motor Oil Range Organics (MRO)	ND	48	mg/Kg	1	7/18/2023 11:32:02 AM
Surr: DNOP	104	69-147	%Rec	1	7/18/2023 11:32:02 AM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: JJP
Gasoline Range Organics (GRO)	ND	5.0	mg/Kg	1	7/18/2023 9:31:35 PM
Surr: BFB	92.9	15-244	%Rec	1	7/18/2023 9:31:35 PM
EPA METHOD 8021B: VOLATILES					Analyst: JJP
Benzene	ND	0.025	mg/Kg	1	7/18/2023 9:31:35 PM
Toluene	ND	0.050	mg/Kg	1	7/18/2023 9:31:35 PM
Ethylbenzene	ND	0.050	mg/Kg	1	7/18/2023 9:31:35 PM
Xylenes, Total	ND	0.099	mg/Kg	1	7/18/2023 9:31:35 PM
Surr: 4-Bromofluorobenzene	96.6	39.1-146	%Rec	1	7/18/2023 9:31:35 PM
EPA METHOD 300.0: ANIONS					Analyst: RBC
Chloride	ND	60	mg/Kg	20	7/17/2023 6:25:57 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

Page 38 of 62

Date Reported: 7/24/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS23-31 0.5'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/12/2023 10:55:00 AM

 Lab ID:
 2307633-039
 Matrix: SOIL
 Received Date: 7/14/2023 7:30:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORG	Analyst: PRD				
Diesel Range Organics (DRO)	ND	9.8	mg/Kg	1	7/18/2023 11:42:49 AM
Motor Oil Range Organics (MRO)	ND	49	mg/Kg	1	7/18/2023 11:42:49 AM
Surr: DNOP	96.4	69-147	%Rec	1	7/18/2023 11:42:49 AM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.7	mg/Kg	1	7/18/2023 9:55:10 PM
Surr: BFB	92.4	15-244	%Rec	1	7/18/2023 9:55:10 PM
EPA METHOD 8021B: VOLATILES					Analyst: JJP
Benzene	ND	0.023	mg/Kg	1	7/18/2023 9:55:10 PM
Toluene	ND	0.047	mg/Kg	1	7/18/2023 9:55:10 PM
Ethylbenzene	ND	0.047	mg/Kg	1	7/18/2023 9:55:10 PM
Xylenes, Total	ND	0.093	mg/Kg	1	7/18/2023 9:55:10 PM
Surr: 4-Bromofluorobenzene	97.2	39.1-146	%Rec	1	7/18/2023 9:55:10 PM
EPA METHOD 300.0: ANIONS					Analyst: RBC
Chloride	ND	60	mg/Kg	20	7/17/2023 7:02:59 PM

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- 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

Page 39 of 62

Date Reported: 7/24/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS23-32 0.5'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/12/2023 11:00:00 AM

 Lab ID:
 2307633-040
 Matrix: SOIL
 Received Date: 7/14/2023 7:30:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OR	Analyst: PRD				
Diesel Range Organics (DRO)	ND	9.2	mg/Kg	1	7/18/2023 11:53:37 AM
Motor Oil Range Organics (MRO)	ND	46	mg/Kg	1	7/18/2023 11:53:37 AM
Surr: DNOP	90.6	69-147	%Rec	1	7/18/2023 11:53:37 AM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	7/18/2023 10:18:41 PM
Surr: BFB	90.4	15-244	%Rec	1	7/18/2023 10:18:41 PM
EPA METHOD 8021B: VOLATILES					Analyst: JJP
Benzene	ND	0.024	mg/Kg	1	7/18/2023 10:18:41 PM
Toluene	ND	0.048	mg/Kg	1	7/18/2023 10:18:41 PM
Ethylbenzene	ND	0.048	mg/Kg	1	7/18/2023 10:18:41 PM
Xylenes, Total	ND	0.096	mg/Kg	1	7/18/2023 10:18:41 PM
Surr: 4-Bromofluorobenzene	95.9	39.1-146	%Rec	1	7/18/2023 10:18:41 PM
EPA METHOD 300.0: ANIONS					Analyst: RBC
Chloride	ND	60	mg/Kg	20	7/17/2023 7:15:20 PM

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- 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

rting Limit Page 40 of 62

Date Reported: 7/24/2023

#### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. Client Sample ID: BS23-33 0.5'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/12/2023 11:00:00 AM

 Lab ID:
 2307633-041
 Matrix: SOIL
 Received Date: 7/14/2023 7:30:00 AM

Result **RL Qual Units** DF **Date Analyzed** Analyses Analyst: PRD **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** Diesel Range Organics (DRO) ND 9.9 mg/Kg 1 7/18/2023 12:04:26 PM Motor Oil Range Organics (MRO) ND 49 mg/Kg 1 7/18/2023 12:04:26 PM Surr: DNOP 98.1 69-147 %Rec 1 7/18/2023 12:04:26 PM **EPA METHOD 8015D: GASOLINE RANGE** Analyst: JJP Gasoline Range Organics (GRO) ND 7/18/2023 10:42:10 PM 4.8 mg/Kg 1 Surr: BFB 90.2 15-244 %Rec 1 7/18/2023 10:42:10 PM **EPA METHOD 8021B: VOLATILES** Analyst: JJP Benzene ND 7/18/2023 10:42:10 PM 0.024 mg/Kg 1 Toluene ND 0.048 mg/Kg 1 7/18/2023 10:42:10 PM Ethylbenzene ND 0.048 mg/Kg 1 7/18/2023 10:42:10 PM Xylenes, Total ND 0.096 mg/Kg 7/18/2023 10:42:10 PM 1 Surr: 4-Bromofluorobenzene 94.4 39.1-146 %Rec 1 7/18/2023 10:42:10 PM **EPA METHOD 300.0: ANIONS** Analyst: RBC mg/Kg Chloride 7/17/2023 7:27:40 PM ND 59 20

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

Page 41 of 62

Date Reported: 7/24/2023

## Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Vertex Resources Services, Inc. Client Sample ID: BS23-34 0.5'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/12/2023 11:05:00 AM

 Lab ID:
 2307633-042
 Matrix: SOIL
 Received Date: 7/14/2023 7:30:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OF		Analyst: PRD			
Diesel Range Organics (DRO)	ND	9.5	mg/Kg	1	7/18/2023 12:15:05 PM
Motor Oil Range Organics (MRO)	ND	48	mg/Kg	1	7/18/2023 12:15:05 PM
Surr: DNOP	97.4	69-147	%Rec	1	7/18/2023 12:15:05 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	7/18/2023 11:05:37 PM
Surr: BFB	89.3	15-244	%Rec	1	7/18/2023 11:05:37 PM
EPA METHOD 8021B: VOLATILES					Analyst: JJP
Benzene	ND	0.025	mg/Kg	1	7/18/2023 11:05:37 PM
Toluene	ND	0.049	mg/Kg	1	7/18/2023 11:05:37 PM
Ethylbenzene	ND	0.049	mg/Kg	1	7/18/2023 11:05:37 PM
Xylenes, Total	ND	0.098	mg/Kg	1	7/18/2023 11:05:37 PM
Surr: 4-Bromofluorobenzene	93.8	39.1-146	%Rec	1	7/18/2023 11:05:37 PM
EPA METHOD 300.0: ANIONS					Analyst: RBC
Chloride	170	60	mg/Kg	20	7/17/2023 7:40:01 PM

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

Qualifiers:

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

Page 42 of 62

Date Reported: 7/24/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS23-35 0.5'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/12/2023 11:05:00 AM

 Lab ID:
 2307633-043
 Matrix: SOIL
 Received Date: 7/14/2023 7:30:00 AM

Analyses	Result	RL Qu	al Units	DF	<b>Date Analyzed</b>
EPA METHOD 8015M/D: DIESEL RANGE C		Analyst: PRD			
Diesel Range Organics (DRO)	ND	9.6	mg/Kg	1	7/18/2023 12:36:37 PM
Motor Oil Range Organics (MRO)	ND	48	mg/Kg	1	7/18/2023 12:36:37 PM
Surr: DNOP	99.3	69-147	%Rec	1	7/18/2023 12:36:37 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	7/18/2023 11:29:07 PM
Surr: BFB	91.4	15-244	%Rec	1	7/18/2023 11:29:07 PM
EPA METHOD 8021B: VOLATILES					Analyst: JJP
Benzene	ND	0.025	mg/Kg	1	7/18/2023 11:29:07 PM
Toluene	ND	0.049	mg/Kg	1	7/18/2023 11:29:07 PM
Ethylbenzene	ND	0.049	mg/Kg	1	7/18/2023 11:29:07 PM
Xylenes, Total	ND	0.099	mg/Kg	1	7/18/2023 11:29:07 PM
Surr: 4-Bromofluorobenzene	96.4	39.1-146	%Rec	1	7/18/2023 11:29:07 PM
EPA METHOD 300.0: ANIONS					Analyst: RBC
Chloride	ND	60	mg/Kg	20	7/17/2023 7:52:21 PM

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- 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

Page 43 of 62

Date Reported: 7/24/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS23-36 0.5'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/12/2023 11:10:00 AM

 Lab ID:
 2307633-044
 Matrix: SOIL
 Received Date: 7/14/2023 7:30:00 AM

		KL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OR	Analyst: PRD				
Diesel Range Organics (DRO)	ND	9.9	mg/Kg	1	7/18/2023 12:47:32 PM
Motor Oil Range Organics (MRO)	ND	49	mg/Kg	1	7/18/2023 12:47:32 PM
Surr: DNOP	90.5	69-147	%Rec	1	7/18/2023 12:47:32 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: <b>JJP</b>
Gasoline Range Organics (GRO)	ND	4.7	mg/Kg	1	7/18/2023 11:52:33 PM
Surr: BFB	92.5	15-244	%Rec	1	7/18/2023 11:52:33 PM
EPA METHOD 8021B: VOLATILES					Analyst: JJP
Benzene	ND	0.023	mg/Kg	1	7/18/2023 11:52:33 PM
Toluene	ND	0.047	mg/Kg	1	7/18/2023 11:52:33 PM
Ethylbenzene	ND	0.047	mg/Kg	1	7/18/2023 11:52:33 PM
Xylenes, Total	ND	0.093	mg/Kg	1	7/18/2023 11:52:33 PM
Surr: 4-Bromofluorobenzene	94.7	39.1-146	%Rec	1	7/18/2023 11:52:33 PM
EPA METHOD 300.0: ANIONS					Analyst: RBC
Chloride	ND	60	mg/Kg	20	7/17/2023 8:04:42 PM

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- 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

Page 44 of 62

Date Reported: 7/24/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS23-37 0.5'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/12/2023 11:10:00 AM

 Lab ID:
 2307633-045
 Matrix: SOIL
 Received Date: 7/14/2023 7:30:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OF	RGANICS				Analyst: PRD
Diesel Range Organics (DRO)	ND	9.9	mg/Kg	1	7/18/2023 12:58:06 PM
Motor Oil Range Organics (MRO)	ND	50	mg/Kg	1	7/18/2023 12:58:06 PM
Surr: DNOP	106	69-147	%Rec	1	7/18/2023 12:58:06 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: JJP
Gasoline Range Organics (GRO)	ND	5.0	mg/Kg	1	7/19/2023 12:39:24 AM
Surr: BFB	91.4	15-244	%Rec	1	7/19/2023 12:39:24 AM
EPA METHOD 8021B: VOLATILES					Analyst: JJP
Benzene	ND	0.025	mg/Kg	1	7/19/2023 12:39:24 AM
Toluene	ND	0.050	mg/Kg	1	7/19/2023 12:39:24 AM
Ethylbenzene	ND	0.050	mg/Kg	1	7/19/2023 12:39:24 AM
Xylenes, Total	ND	0.099	mg/Kg	1	7/19/2023 12:39:24 AM
Surr: 4-Bromofluorobenzene	96.6	39.1-146	%Rec	1	7/19/2023 12:39:24 AM
EPA METHOD 300.0: ANIONS					Analyst: RBC
Chloride	ND	60	mg/Kg	20	7/17/2023 8:41:43 PM

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- 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

Page 45 of 62

Date Reported: 7/24/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS23-38 0.5'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/12/2023 11:15:00 AM

 Lab ID:
 2307633-046
 Matrix: SOIL
 Received Date: 7/14/2023 7:30:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OR	GANICS				Analyst: PRD
Diesel Range Organics (DRO)	ND	9.9	mg/Kg	1	7/18/2023 1:08:42 PM
Motor Oil Range Organics (MRO)	ND	50	mg/Kg	1	7/18/2023 1:08:42 PM
Surr: DNOP	104	69-147	%Rec	1	7/18/2023 1:08:42 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	7/19/2023 1:02:47 AM
Surr: BFB	88.7	15-244	%Rec	1	7/19/2023 1:02:47 AM
EPA METHOD 8021B: VOLATILES					Analyst: JJP
Benzene	ND	0.024	mg/Kg	1	7/19/2023 1:02:47 AM
Toluene	ND	0.049	mg/Kg	1	7/19/2023 1:02:47 AM
Ethylbenzene	ND	0.049	mg/Kg	1	7/19/2023 1:02:47 AM
Xylenes, Total	ND	0.097	mg/Kg	1	7/19/2023 1:02:47 AM
Surr: 4-Bromofluorobenzene	94.3	39.1-146	%Rec	1	7/19/2023 1:02:47 AM
EPA METHOD 300.0: ANIONS					Analyst: RBC
Chloride	ND	60	mg/Kg	20	7/17/2023 8:54:04 PM

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- 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

Page 46 of 62

Date Reported: 7/24/2023

## Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Vertex Resources Services, Inc. Client Sample ID: BS23-39 0.5'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/12/2023 11:15:00 AM

 Lab ID:
 2307633-047
 Matrix: SOIL
 Received Date: 7/14/2023 7:30:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE O	RGANICS				Analyst: PRD
Diesel Range Organics (DRO)	ND	9.3	mg/Kg	1	7/19/2023 9:42:20 AM
Motor Oil Range Organics (MRO)	ND	46	mg/Kg	1	7/19/2023 9:42:20 AM
Surr: DNOP	110	69-147	%Rec	1	7/19/2023 9:42:20 AM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: <b>JJP</b>
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	7/19/2023 1:26:16 AM
Surr: BFB	87.6	15-244	%Rec	1	7/19/2023 1:26:16 AM
EPA METHOD 8021B: VOLATILES					Analyst: JJP
Benzene	ND	0.024	mg/Kg	1	7/19/2023 1:26:16 AM
Toluene	ND	0.048	mg/Kg	1	7/19/2023 1:26:16 AM
Ethylbenzene	ND	0.048	mg/Kg	1	7/19/2023 1:26:16 AM
Xylenes, Total	ND	0.096	mg/Kg	1	7/19/2023 1:26:16 AM
Surr: 4-Bromofluorobenzene	93.4	39.1-146	%Rec	1	7/19/2023 1:26:16 AM
EPA METHOD 300.0: ANIONS					Analyst: RBC
Chloride	ND	60	mg/Kg	20	7/17/2023 10:20:27 PM

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- 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

Page 47 of 62

Date Reported: 7/24/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS23-40 0.5'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/12/2023 11:20:00 AM

 Lab ID:
 2307633-048
 Matrix: SOIL
 Received Date: 7/14/2023 7:30:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE	ORGANICS				Analyst: PRD
Diesel Range Organics (DRO)	ND	9.9	mg/Kg	1	7/19/2023 10:00:31 AM
Motor Oil Range Organics (MRO)	ND	50	mg/Kg	1	7/19/2023 10:00:31 AM
Surr: DNOP	93.5	69-147	%Rec	1	7/19/2023 10:00:31 AM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	7/19/2023 1:49:38 AM
Surr: BFB	88.3	15-244	%Rec	1	7/19/2023 1:49:38 AM
EPA METHOD 8021B: VOLATILES					Analyst: <b>JJP</b>
Benzene	ND	0.024	mg/Kg	1	7/19/2023 1:49:38 AM
Toluene	ND	0.049	mg/Kg	1	7/19/2023 1:49:38 AM
Ethylbenzene	ND	0.049	mg/Kg	1	7/19/2023 1:49:38 AM
Xylenes, Total	ND	0.098	mg/Kg	1	7/19/2023 1:49:38 AM
Surr: 4-Bromofluorobenzene	94.3	39.1-146	%Rec	1	7/19/2023 1:49:38 AM
EPA METHOD 300.0: ANIONS					Analyst: RBC
Chloride	ND	60	mg/Kg	20	7/17/2023 10:32:47 PM

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- 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

Page 48 of 62

Date Reported: 7/24/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS23-41 0.5'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/12/2023 11:20:00 AM

 Lab ID:
 2307633-049
 Matrix: SOIL
 Received Date: 7/14/2023 7:30:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE O	RGANICS				Analyst: PRD
Diesel Range Organics (DRO)	ND	9.9	mg/Kg	1	7/19/2023 10:18:41 AM
Motor Oil Range Organics (MRO)	ND	49	mg/Kg	1	7/19/2023 10:18:41 AM
Surr: DNOP	95.6	69-147	%Rec	1	7/19/2023 10:18:41 AM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	7/19/2023 2:13:18 AM
Surr: BFB	88.6	15-244	%Rec	1	7/19/2023 2:13:18 AM
EPA METHOD 8021B: VOLATILES					Analyst: JJP
Benzene	ND	0.024	mg/Kg	1	7/19/2023 2:13:18 AM
Toluene	ND	0.048	mg/Kg	1	7/19/2023 2:13:18 AM
Ethylbenzene	ND	0.048	mg/Kg	1	7/19/2023 2:13:18 AM
Xylenes, Total	ND	0.097	mg/Kg	1	7/19/2023 2:13:18 AM
Surr: 4-Bromofluorobenzene	93.8	39.1-146	%Rec	1	7/19/2023 2:13:18 AM
EPA METHOD 300.0: ANIONS					Analyst: RBC
Chloride	ND	60	mg/Kg	20	7/17/2023 10:45:08 PM

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

Qualifiers:

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

Page 49 of 62

Date Reported: 7/24/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS23-42 0.5'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/12/2023 11:25:00 AM

 Lab ID:
 2307633-050
 Matrix: SOIL
 Received Date: 7/14/2023 7:30:00 AM

Analyses	Result	RL Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORG	GANICS				Analyst: PRD
Diesel Range Organics (DRO)	ND	9.7	mg/Kg	1	7/19/2023 10:36:54 AM
Motor Oil Range Organics (MRO)	ND	49	mg/Kg	1	7/19/2023 10:36:54 AM
Surr: DNOP	99.8	69-147	%Rec	1	7/19/2023 10:36:54 AM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.7	mg/Kg	1	7/19/2023 2:36:42 AM
Surr: BFB	90.9	15-244	%Rec	1	7/19/2023 2:36:42 AM
EPA METHOD 8021B: VOLATILES					Analyst: JJP
Benzene	ND	0.023	mg/Kg	1	7/19/2023 2:36:42 AM
Toluene	ND	0.047	mg/Kg	1	7/19/2023 2:36:42 AM
Ethylbenzene	ND	0.047	mg/Kg	1	7/19/2023 2:36:42 AM
Xylenes, Total	ND	0.094	mg/Kg	1	7/19/2023 2:36:42 AM
Surr: 4-Bromofluorobenzene	96.7	39.1-146	%Rec	1	7/19/2023 2:36:42 AM
EPA METHOD 300.0: ANIONS					Analyst: RBC
Chloride	ND	60	mg/Kg	20	7/17/2023 10:57:28 PM

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- 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

Page 50 of 62

Date Reported: 7/24/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS23-43 0.5'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/12/2023 11:25:00 AM

 Lab ID:
 2307633-051
 Matrix: SOIL
 Received Date: 7/14/2023 7:30:00 AM

Analyses	Result	RL Qua	l Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGA	ANICS				Analyst: PRD
Diesel Range Organics (DRO)	ND	9.7	mg/Kg	1	7/19/2023 10:55:16 AM
Motor Oil Range Organics (MRO)	ND	49	mg/Kg	1	7/19/2023 10:55:16 AM
Surr: DNOP	98.7	69-147	%Rec	1	7/19/2023 10:55:16 AM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	7/19/2023 3:00:07 AM
Surr: BFB	90.7	15-244	%Rec	1	7/19/2023 3:00:07 AM
EPA METHOD 8021B: VOLATILES					Analyst: JJP
Benzene	ND	0.024	mg/Kg	1	7/19/2023 3:00:07 AM
Toluene	ND	0.048	mg/Kg	1	7/19/2023 3:00:07 AM
Ethylbenzene	ND	0.048	mg/Kg	1	7/19/2023 3:00:07 AM
Xylenes, Total	ND	0.097	mg/Kg	1	7/19/2023 3:00:07 AM
Surr: 4-Bromofluorobenzene	98.1	39.1-146	%Rec	1	7/19/2023 3:00:07 AM
EPA METHOD 300.0: ANIONS					Analyst: RBC
Chloride	ND	60	mg/Kg	20	7/17/2023 11:09:49 PM

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

Qualifiers:

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

Page 51 of 62

Date Reported: 7/24/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS23-44 0.5'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/12/2023 11:30:00 AM

 Lab ID:
 2307633-052
 Matrix: SOIL
 Received Date: 7/14/2023 7:30:00 AM

Analyses	Result	RL Qua	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORG	ANICS				Analyst: PRD
Diesel Range Organics (DRO)	ND	9.8	mg/Kg	1	7/19/2023 11:13:46 AM
Motor Oil Range Organics (MRO)	ND	49	mg/Kg	1	7/19/2023 11:13:46 AM
Surr: DNOP	99.5	69-147	%Rec	1	7/19/2023 11:13:46 AM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	7/19/2023 3:23:35 AM
Surr: BFB	90.0	15-244	%Rec	1	7/19/2023 3:23:35 AM
EPA METHOD 8021B: VOLATILES					Analyst: JJP
Benzene	ND	0.024	mg/Kg	1	7/19/2023 3:23:35 AM
Toluene	ND	0.049	mg/Kg	1	7/19/2023 3:23:35 AM
Ethylbenzene	ND	0.049	mg/Kg	1	7/19/2023 3:23:35 AM
Xylenes, Total	ND	0.097	mg/Kg	1	7/19/2023 3:23:35 AM
Surr: 4-Bromofluorobenzene	96.7	39.1-146	%Rec	1	7/19/2023 3:23:35 AM
EPA METHOD 300.0: ANIONS					Analyst: RBC
Chloride	ND	60	mg/Kg	20	7/17/2023 11:22:09 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
- B Analyte detected in the associated Method Blank
- E Above Quantitation Range/Estimated Value
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

Page 52 of 62

#### Hall Environmental Analysis Laboratory, Inc.

WO#: **2307633** 

24-Jul-23

Client: Vertex Resources Services, Inc.

**Project:** Tomcat 16 State 006

Sample ID: MB-76231 SampType: mblk TestCode: EPA Method 300.0: Anions

Client ID: PBS Batch ID: 76231 RunNo: 98247

Prep Date: 7/15/2023 Analysis Date: 7/15/2023 SeqNo: 3575713 Units: mg/Kg

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

Chloride ND 1.5

Sample ID: LCS-76231 SampType: Ics TestCode: EPA Method 300.0: Anions

Client ID: LCSS Batch ID: 76231 RunNo: 98247

Prep Date: 7/15/2023 Analysis Date: 7/15/2023 SeqNo: 3575714 Units: mg/Kg

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

Chloride 14 1.5 15.00 0 96.0 90 110

Sample ID: MB-76258 SampType: MBLK TestCode: EPA Method 300.0: Anions

Client ID: PBS Batch ID: 76258 RunNo: 98270

Prep Date: 7/17/2023 Analysis Date: 7/17/2023 SeqNo: 3576593 Units: mg/Kg

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

Chloride ND 1.5

Sample ID: LCS-76258 SampType: LCS TestCode: EPA Method 300.0: Anions

Client ID: LCSS Batch ID: 76258 RunNo: 98270

Prep Date: 7/17/2023 Analysis Date: 7/17/2023 SeqNo: 3576594 Units: mg/Kg

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

Chloride 14 1.5 15.00 0 92.1 90 110

Chloride 14 1.5 15.00 0 92.1 90 110

Sample ID: MB-76271 SampType: MBLK TestCode: EPA Method 300.0: Anions

Client ID: **PBS** Batch ID: **76271** RunNo: **98270** 

Prep Date: 7/17/2023 Analysis Date: 7/17/2023 SeqNo: 3576623 Units: mg/Kg

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

Chloride ND 1.5

Sample ID: LCS-76271 SampType: LCS TestCode: EPA Method 300.0: Anions

Client ID: LCSS Batch ID: 76271 RunNo: 98270

Prep Date: 7/17/2023 Analysis Date: 7/17/2023 SeqNo: 3576624 Units: mg/Kg

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

Chloride 14 1.5 15.00 0 91.8 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

Page 53 of 62

## Hall Environmental Analysis Laboratory, Inc.

2307633

WO#:

24-Jul-23

**Client:** Vertex Resources Services, Inc.

**Project:** Tomcat 16 State 006

Sample ID: MB-76252 SampType: MBLK TestCode: EPA Method 300.0: Anions

PBS Client ID: Batch ID: 76252 RunNo: 98275

Prep Date: 7/17/2023 Analysis Date: 7/17/2023 SeqNo: 3576788 Units: mg/Kg

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

Chloride ND 1.5

Sample ID: LCS-76252 SampType: LCS TestCode: EPA Method 300.0: Anions

Client ID: LCSS Batch ID: 76252 RunNo: 98275

Prep Date: 7/17/2023 Analysis Date: 7/17/2023 SeqNo: 3576789 Units: mg/Kg

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

Chloride 15.00 91.0 110

#### Qualifiers:

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

Page 54 of 62

## Hall Environmental Analysis Laboratory, Inc.

WO#: **2307633** 

24-Jul-23

Client: Vertex Resources Services, Inc.

**Project:** Tomcat 16 State 006

Project: Tomcat	16 State 006	
Sample ID: LCS-76232	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics
Client ID: LCSS	Batch ID: 76232	RunNo: 98230
Prep Date: 7/15/2023	Analysis Date: 7/17/2023	SeqNo: <b>3574891</b> Units: <b>mg/Kg</b>
Analyte	Result PQL SPK value	e SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Diesel Range Organics (DRO)	56 10 50.00	
Surr: DNOP	6.0 5.000	119 69 147
Sample ID: <b>MB-76232</b>	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics
Client ID: PBS	Batch ID: <b>76232</b>	RunNo: 98230
Prep Date: 7/15/2023	Analysis Date: 7/17/2023	SeqNo: <b>3574892</b> Units: <b>mg/Kg</b>
Analyte		SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Diesel Range Organics (DRO)	ND 10	
Motor Oil Range Organics (MRO) Surr: DNOP	ND 50 11 10.00	105 69 147
Sample ID: MB-76217	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics
Client ID: PBS	Batch ID: <b>76217</b>	RunNo: 98269
Prep Date: 7/14/2023	Analysis Date: 7/17/2023	SeqNo: <b>3576667</b> Units: <b>mg/Kg</b>
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Diesel Range Organics (DRO)  Motor Oil Range Organics (MRO)	ND 10 ND 50	
Surr: DNOP	9.4 10.00	93.8 69 147
Sample ID: LCS-76217	SampType: <b>LCS</b>	TestCode: EPA Method 8015M/D: Diesel Range Organics
Client ID: LCSS	Batch ID: <b>76217</b>	RunNo: 98269
Prep Date: 7/14/2023	Analysis Date: <b>7/17/2023</b>	SeqNo: <b>3576668</b> Units: <b>mg/Kg</b>
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Diesel Range Organics (DRO)	44 10 50.00	0 88.0 61.9 130
Surr: DNOP	4.4 5.000	87.9 69 147
Sample ID: LCS-76218	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics
Client ID: LCSS	Batch ID: 76218	RunNo: 98230
Prep Date: 7/14/2023	Analysis Date: 7/17/2023	SeqNo: <b>3576935</b> Units: <b>mg/Kg</b>
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Diesel Range Organics (DRO)	61 10 50.00	0 122 61.9 130
Surr: DNOP	5.5 5.000	109 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

Page 55 of 62

## Hall Environmental Analysis Laboratory, Inc.

2307633 24-Jul-23

WO#:

Client: Vertex Resources Services, Inc.

**Project:** Tomcat 16 State 006

Sample ID: MB-76218	SampT	уре: МЕ	BLK	Tes	tCode: El	PA Method	8015M/D: Dies	el Range	Organics	
Client ID: PBS	Batch	n ID: <b>76</b> 2	218	F	RunNo: 9	3230				
Prep Date: 7/14/2023	Analysis D	Date: 7/	17/2023	S	SeqNo: 3	576936	Units: mg/Kg	3		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	12		10.00		119	69	147			
Sample ID: 2307633-015AMS	SampT	уре: МЅ	3	Tes	tCode: El	PA Method	8015M/D: Dies	el Range	Organics	
Client ID: BS23-07 0.5'	Batch	n ID: <b>76</b> 2	218	F	RunNo: 9	3349				
Prep Date: 7/14/2023	Analysis D	Date: 7/	19/2023	5	SeqNo: 3	579947	Units: mg/Kg	)		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	55	9.8	49.12	0	111	54.2	135			
Surr: DNOP	4.9		4.912		98.9	69	147			
Sample ID: 2307633-015AMSD	SampT	уре: МЅ	SD.	Tes	tCode: El	PA Method	8015M/D: Dies	sel Range	Organics	
Client ID: BS23-07 0.5'	Batch	n ID: <b>76</b> 2	218	F	RunNo: 9	3349				
Prep Date: 7/14/2023	Analysis D	Date: 7/	19/2023	5	SeqNo: 3	579948	Units: mg/Kg	)		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	46	9.8	49.16	0	94.1	54.2	135	16.5	29.2	
Diesel Range Organics (DRO) Surr: DNOP	46 5.2	9.8	49.16 4.916	0	94.1 106	54.2 69	135 147	16.5 0	29.2 0	
, ,	5.2	9.8 Type: <b>ME</b>	4.916		106	69		0	0	
Surr: DNOP	5.2 SampT		4.916	Tes	106	69 PA Method	147	0	0	
Surr: DNOP  Sample ID: MB-76297	5.2 SampT	ype: <b>ME</b>	4.916 BLK 297	Tes	106 tCode: El	69 PA Method 8349	147	0	0	
Surr: DNOP  Sample ID: MB-76297  Client ID: PBS	5.2 SampT Batch	ype: <b>ME</b>	4.916 BLK 297	Tes	106 tCode: <b>EI</b> RunNo: <b>9</b> 6	69 PA Method 8349	147 8015M/D: Dies	0	0	Qual
Surr: DNOP  Sample ID: MB-76297 Client ID: PBS Prep Date: 7/18/2023	5.2 SampT Batch Analysis D	Type: <b>ME</b> n ID: <b>762</b> Date: <b>7/</b>	4.916 BLK 297 19/2023	Tes F	tCode: EIRunNo: 98	69 PA Method 8349 579967	147 8015M/D: Dies Units: %Rec	o sel Range	0 Organics	Qual
Surr: DNOP  Sample ID: MB-76297 Client ID: PBS Prep Date: 7/18/2023 Analyte	SampT Batch Analysis D Result 9.1	Type: <b>ME</b> n ID: <b>762</b> Date: <b>7/</b>	4.916 BLK 297 19/2023 SPK value 10.00	Tes F S SPK Ref Val	tCode: El RunNo: 96 SeqNo: 3: %REC 90.8	69 PA Method 3349 579967 LowLimit 69	147 8015M/D: Dies Units: %Rec HighLimit	0 sel Range	Organics  RPDLimit	Qual
Surr: DNOP  Sample ID: MB-76297  Client ID: PBS  Prep Date: 7/18/2023  Analyte  Surr: DNOP	SampT Batch Analysis D Result 9.1 SampT	Type: <b>ME</b> ID: <b>762</b> Date: <b>7</b> /	4.916  BLK 297  19/2023  SPK value 10.00	Tes F SPK Ref Val	tCode: El RunNo: 96 SeqNo: 3: %REC 90.8	PA Method 3349 579967 LowLimit 69	147 8015M/D: Dies Units: %Rec HighLimit 147	0 sel Range	Organics  RPDLimit	Qual
Surr: DNOP  Sample ID: MB-76297 Client ID: PBS Prep Date: 7/18/2023 Analyte Surr: DNOP  Sample ID: LCS-76297	SampT Batch Analysis D Result 9.1 SampT	Type: ME Type: ME Type: ME Type: Type: LC Type: LC	4.916 BLK 297 19/2023 SPK value 10.00 S	Tes F SPK Ref Val Tes	tCode: EI RunNo: 96 SeqNo: 38 %REC 90.8 tCode: EI	69 PA Method 3349 579967 LowLimit 69 PA Method 3349	147 8015M/D: Dies Units: %Rec HighLimit 147	0 sel Range	Organics  RPDLimit	Qual
Surr: DNOP  Sample ID: MB-76297 Client ID: PBS Prep Date: 7/18/2023 Analyte Surr: DNOP  Sample ID: LCS-76297 Client ID: LCSS	SampT Batch Analysis D Result 9.1 SampT Batch	Type: ME Type: ME Type: ME Type: Type: LC Type: LC	4.916 BLK 297 19/2023 SPK value 10.00 S	Tes F SPK Ref Val Tes	tCode: EI RunNo: 96 SeqNo: 3: %REC 90.8 tCode: EI RunNo: 96	69 PA Method 3349 579967 LowLimit 69 PA Method 3349	147 8015M/D: Dies Units: %Rec HighLimit 147 8015M/D: Dies	0 sel Range	Organics  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 Quantitative Limit
- S  $\,\,$  % Recovery outside of standard limits. If undiluted results may be estimated.
- B Analyte detected in the associated Method Blank
- E Above Quantitation Range/Estimated Value
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

Page 56 of 62

## Hall Environmental Analysis Laboratory, Inc.

WO#: **2307633** 

24-Jul-23

Client: Vertex Resources Services, Inc.

**Project:** Tomcat 16 State 006

Sample ID.	lcs-76209	Sampi	ype: <b>LC</b>	S	I es	tCode: EF	PA Method	8015D: Gaso	line Range	!	
Client ID:	LCSS	Batch	n ID: <b>76</b> 2	209	F	RunNo: 98	3241				
Prep Date:	7/14/2023	Analysis D	Date: 7/	18/2023	9	SeqNo: 3	76385	Units: mg/K	(g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Rang	e Organics (GRO)	24	5.0	25.00	0	96.6	70	130			
Surr: BFB		2000		1000		201	15	244			
Sample ID:	mb-76209	SampT	уре: МЕ	BLK	Tes	tCode: EF	PA Method	8015D: Gaso	line Range		
Client ID:	PBS	Batch	n ID: <b>76</b> 2	209	F	RunNo: 98	3241				
Prep Date:	7/14/2023	Analysis D	Date: 7/	18/2023	5	SeqNo: 3	76386	Units: mg/K	ζg		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Rang	e Organics (GRO)	ND	5.0								
Surr: BFB		790		1000		79.1	15	244			
				1000		70.1					
Sample ID:	lcs-76215		ype: <b>LC</b>		Tes			8015D: Gaso	line Range		
	lcs-76215 LCSS	SampT	ype: <b>LC</b>	s			PA Method		line Range	r	
Sample ID:		SampT	n ID: <b>76</b> 2	S 215	F	tCode: EF	PA Method		J		
Sample ID: Client ID:	LCSS	SampT Batch	n ID: <b>76</b> 2	S 215	F	tCode: <b>EF</b> RunNo: <b>9</b> 8	PA Method	8015D: Gaso	J	RPDLimit	Qual
Sample ID: Client ID: Prep Date: Analyte	LCSS	SampT Batch Analysis D	n ID: <b>76</b> 2 Date: <b>7/</b>	S 215 18/2023	F	etCode: EFRunNo: 98	PA Method 3285 577324	8015D: Gasol	(g		Qual
Sample ID: Client ID: Prep Date: Analyte	LCSS 7/14/2023	SampT Batch Analysis D Result	n ID: <b>762</b> Date: <b>7/</b> PQL	\$ 215 18/2023 SPK value	F S SPK Ref Val	etCode: <b>EF</b> RunNo: <b>98</b> SeqNo: <b>38</b> %REC	PA Method 3285 577324 LowLimit	<b>8015D: Gaso</b> l Units: <b>mg/K</b> HighLimit	(g		Qual
Sample ID: Client ID: Prep Date: Analyte Gasoline Rang Surr: BFB	LCSS 7/14/2023	SampT Batch Analysis D Result 23 2000	n ID: <b>762</b> Date: <b>7/</b> PQL	\$215 18/2023 SPK value 25.00 1000	SPK Ref Val	stCode: EF RunNo: 98 SeqNo: 38 %REC 90.3 197	PA Method 3285 577324 LowLimit 70 15	8015D: Gasol Units: mg/K HighLimit 130	《g %RPD	RPDLimit	Qual
Sample ID: Client ID: Prep Date: Analyte Gasoline Rang Surr: BFB	LCSS 7/14/2023 e Organics (GRO)	SampT Batch Analysis D Result 23 2000	PQL 5.0	\$ 215 18/2023 SPK value 25.00 1000	SPK Ref Val 0	stCode: EF RunNo: 98 SeqNo: 38 %REC 90.3 197	PA Method 3285 577324 LowLimit 70 15	8015D: Gasol Units: mg/K HighLimit 130 244	《g %RPD	RPDLimit	Qual
Sample ID: Client ID: Prep Date: Analyte Gasoline Rang Surr: BFB	LCSS 7/14/2023 e Organics (GRO) 2307633-035ams	SampT Batch Analysis D Result 23 2000	PQL 5.0  Type: MS	S 215 18/2023 SPK value 25.00 1000	SPK Ref Val 0	stCode: EFRunNo: 98 SeqNo: 38 %REC 90.3 197	PA Method 3285 577324 LowLimit 70 15 PA Method 3285	8015D: Gasol Units: mg/K HighLimit 130 244	%RPD	RPDLimit	Qual
Sample ID: Client ID: Prep Date: Analyte Gasoline Rang Surr: BFB Sample ID: Client ID:	LCSS 7/14/2023 e Organics (GRO) 2307633-035ams BS23-27 0.5'	SampT Batch Analysis E Result 23 2000 SampT Batch	PQL 5.0  Type: MS	S 215 18/2023 SPK value 25.00 1000 6 215 18/2023	SPK Ref Val 0	stCode: EF RunNo: 98 SeqNo: 35 %REC 90.3 197 stCode: EF RunNo: 98	PA Method 3285 577324 LowLimit 70 15 PA Method 3285	Units: mg/K HighLimit 130 244	%RPD	RPDLimit	Qual

Sample ID: 2307633-035amsd	SampType: MSD TestCode: EPA N					PA Method	hod 8015D: Gasoline Range					
Client ID: BS23-27 0.5'	Batcl	Batch ID: <b>76215</b> RunNo: <b>98285</b>										
Prep Date: 7/14/2023	Analysis [	Date: 7/	18/2023	5	SeqNo: 3	577931	Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual		
Gasoline Range Organics (GRO)	21	4.9	24.46	0	85.0	70	130	5.67	20			
Surr: BFB	1900		978.5		198	15	244	0	0			

978.5

Sample ID: <b>mb-76215</b>	SampType: MBLK	TestCode: EPA Method	8015D: Gasoline Range
Client ID: PBS	Batch ID: 76215	RunNo: 98285	
Prep Date: 7/14/2023	Analysis Date: 7/18/2023	SeqNo: <b>3577949</b>	Units: mg/Kg
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit	HighLimit %RPD RPDLimit Qual

#### Qualifiers:

Surr: BFB

- 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.

1900

B Analyte detected in the associated Method Blank

194

15

244

- E Above Quantitation Range/Estimated Value
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

Page 57 of 62

## Hall Environmental Analysis Laboratory, Inc.

WO#: **2307633** 

24-Jul-23

Client: Vertex Resources Services, Inc.

**Project:** Tomcat 16 State 006

Project:	Tomcat 1	6 State 00	6								
Sample ID:	mb-76215	SampT	уре: <b>МЕ</b>	BLK	Tes	tCode: El	PA Method	8015D: Gaso	line Range	•	
Client ID:	PBS	Batch	n ID: <b>76</b> 2	215	F	RunNo: 9	8285				
Prep Date:	7/14/2023	Analysis D	ate: <b>7/</b>	18/2023	5	SeqNo: 3	577949	Units: mg/k	ζg		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Surr: BFB	e Organics (GRO)	ND 970	5.0	1000		96.8	15	244			
Sample ID:	lcs-76212	SampT	ype: <b>LC</b>	s	Tes	tCode: El	PA Method	8015D: Gaso	line Range	•	
Client ID:	LCSS	Batch	n ID: <b>76</b> 2	212	F	RunNo: 9	8314				
Prep Date:	7/14/2023	Analysis D	ate: <b>7/</b>	18/2023	Ş	SeqNo: 3	578083	Units: mg/k	ζg		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
_	e Organics (GRO)	23	5.0	25.00	0	90.5	70	130			
Surr: BFB		1900		1000		189	15	244			
Sample ID:	mb-76212	SampT	уре: МЕ	BLK	Tes	tCode: El	PA Method	8015D: Gaso	line Range	)	
Client ID:	PBS	Batch	n ID: <b>76</b> 2	212	F	RunNo: 9	8314				
Prep Date:	7/14/2023	Analysis D	ate: <b>7/</b>	18/2023	5	SeqNo: 3	578085	Units: mg/k	(g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Surr: BFB	e Organics (GRO)	ND 830	5.0	1000		83.1	15	244			
Sample ID:	2307633-015ams	SampT	ype: <b>MS</b>	3	Tes	tCode: El	PA Method	8015D: Gaso	line Range	)	
Client ID:	BS23-07 0.5'	Batch	n ID: <b>76</b> 2	212	F	RunNo: 9	8314				
Prep Date:	7/14/2023	Analysis D	ate: <b>7/</b>	18/2023	5	SeqNo: 3	578089	Units: mg/k	(g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
_	e Organics (GRO)	22	4.9	24.39	0	89.5	70	130			
Surr: BFB		1900		975.6		196	15	244			
Sample ID:	2307633-015amsd	SampT	уре: <b>м</b>	SD	Tes	tCode: El	PA Method	8015D: Gaso	line Range	)	
Client ID:	BS23-07 0.5'	Batch	n ID: <b>76</b> 2	212	F	RunNo: 9	8314				
Prep Date:	7/14/2023	Analysis D	ate: <b>7/</b>	18/2023		SeqNo: 3	578091	Units: mg/k	(g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range	e Organics (GRO)	22	4.9	24.27	0	90.4	70	130	0.536	20	
Surr: BFB		1900		970.9		198	15	244	0	0	
Sample ID:	lcs-76261	SampT	ype: <b>LC</b>	s	Tes	tCode: El	PA Method	8015D: Gaso	line Range	)	
Client ID:	LCSS	Batch	n ID: <b>76</b>	261	F	RunNo: 9	8314				
D D 1	=/4=/0000	A 1 '- D		40/0000				11-1- 0/-			

#### Qualifiers:

Analyte

Prep Date:

Value exceeds Maximum Contaminant Level.

7/17/2023

- 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.

Analysis Date: 7/19/2023

PQL

Result

B Analyte detected in the associated Method Blank

SeqNo: 3578132

LowLimit

Units: %Rec

HighLimit

%RPD

E Above Quantitation Range/Estimated Value

%REC

- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

SPK value SPK Ref Val

Page 58 of 62

**RPDLimit** 

Qual

## Hall Environmental Analysis Laboratory, Inc.

WO#: **2307633** 

24-Jul-23

Client: Vertex Resources Services, Inc.

**Project:** Tomcat 16 State 006

Sample ID: Ics-76261 SampType: LCS TestCode: EPA Method 8015D: Gasoline Range

Client ID: LCSS Batch ID: 76261 RunNo: 98314

Prep Date: 7/17/2023 Analysis Date: 7/19/2023 SeqNo: 3578132 Units: %Rec

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

 Surr: BFB
 1800
 1000
 183
 15
 244

Sample ID: mb-76261 SampType: MBLK TestCode: EPA Method 8015D: Gasoline Range

Client ID: PBS Batch ID: 76261 RunNo: 98314

Prep Date: 7/17/2023 Analysis Date: 7/19/2023 SeqNo: 3578133 Units: %Rec

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

Surr: BFB 790 1000 78.8 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

Page 59 of 62

## Hall Environmental Analysis Laboratory, Inc.

WO#: **2307633** 

24-Jul-23

Client: Vertex Resources Services, Inc.

**Project:** Tomcat 16 State 006

Sample ID: Ics-76209	SampT	Гуре: <b>LC</b> :	S	Tes	tCode: EF	iles				
Client ID: LCSS	Batch	h ID: <b>762</b>	209	F	RunNo: 98					
Prep Date: 7/14/2023	Analysis D	Date: <b>7/</b> 1	18/2023	5	576413	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	87.7	70	130			
Toluene	0.90	0.050	1.000	0	89.5	70	130			
Ethylbenzene	0.90	0.050	1.000	0	90.4	70	130			
Xylenes, Total	2.7	0.10	3.000	0	90.2	70	130			
Surr: 4-Bromofluorobenzene	0.81		1.000		80.5	39.1	146			

Sample ID: <b>mb-76209</b>	Samp1	Гуре: МЕ	BLK	TestCode: EPA Method 8021B: Volatiles						
Client ID: PBS	Batcl	h ID: <b>762</b>	209	F	RunNo: 98	3241				
Prep Date: 7/14/2023	Analysis [	Date: <b>7/</b>	18/2023	5	SeqNo: 3	576414	Units: mg/K	g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.80		1.000		79.5	39.1	146			

Sample ID: LCS-76215	Samp <sup>¬</sup>	Type: <b>LC</b>	S	TestCode: EPA Method 8021B: Volatiles						
Client ID: LCSS	Batc	h ID: <b>762</b>	215	F	RunNo: <b>98</b>	3285				
Prep Date: 7/14/2023	Analysis [	Date: <b>7/</b>	18/2023	5	SeqNo: 35	77952	Units: mg/K	g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.86	0.025	1.000	0	85.6	70	130			
Toluene	0.88	0.050	1.000	0	88.3	70	130			
Ethylbenzene	0.89	0.050	1.000	0	89.5	70	130			
Xylenes, Total	2.7	0.10	3.000	0	90.7	70	130			
Surr: 4-Bromofluorobenzene	0.99		1.000		99.4	39.1	146			

Sample ID: <b>mb-76215</b>	SampT	уре: МЕ	BLK	Tes						
Client ID: PBS	Batch	n ID: <b>762</b>	215	F	RunNo: <b>98</b>	3285				
Prep Date: 7/14/2023	Analysis D	Date: 7/	18/2023	9	SeqNo: 3	577953	Units: mg/K	g		
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	0.98		1.000		97.8	39.1	146			

#### Qualifiers:

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

Page 60 of 62

## Hall Environmental Analysis Laboratory, Inc.

WO#: **2307633** 

24-Jul-23

Client: Vertex Resources Services, Inc.

**Project:** Tomcat 16 State 006

Sample ID: 2307633-036ams	Samp	Гуре: МЅ	;	TestCode: EPA Method 8021B: Volatiles						
Client ID: BS23-28 0.5'	Batcl	h ID: <b>762</b>	215	F	RunNo: 98	3285				
Prep Date: 7/14/2023	Analysis [	Date: <b>7/</b>	18/2023	9	SeqNo: 3	577960	Units: mg/K	(g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.81	0.025	0.9960	0	81.4	70	130			
Toluene	0.86	0.050	0.9960	0	86.6	70	130			
Ethylbenzene	0.89	0.050	0.9960	0	89.0	70	130			
Xylenes, Total	2.7	0.10	2.988	0	90.2	70	130			
Surr: 4-Bromofluorobenzene	0.98		0.9960		98.5	39.1	146			

Sample ID: 2307633-036amsd	Samp1	SampType: MSD TestCode: EPA Method 8021B: Volatiles								
Client ID: BS23-28 0.5'	Batch	n ID: <b>762</b>	215	F	RunNo: 98	3285				
Prep Date: 7/14/2023	Analysis D	Date: <b>7/</b>	18/2023	5	SeqNo: 3	577961	Units: mg/K	g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.85	0.025	0.9901	0	85.5	70	130	4.27	20	
Toluene	0.88	0.050	0.9901	0	89.3	70	130	2.55	20	
Ethylbenzene	0.90	0.050	0.9901	0	90.5	70	130	1.05	20	
Xylenes, Total	2.7	0.099	2.970	0	91.3	70	130	0.558	20	
Surr: 4-Bromofluorobenzene	0.98		0.9901		98.6	39.1	146	0	0	

Sample ID: Ics-76212	Samp	Гуре: <b>LC</b>	S	TestCode: EPA Method 8021B: Volatiles						
Client ID: LCSS	Batcl	h ID: <b>76</b> 2	212	F	RunNo: 9	8314				
Prep Date: <b>7/14/2023</b>	Analysis [	Date: <b>7/</b>	18/2023	5	SeqNo: 3	578179	Units: mg/K	(g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.86	0.025	1.000	0	86.0	70	130			
Toluene	0.87	0.050	1.000	0	87.1	70	130			
Ethylbenzene	0.90	0.050	1.000	0	89.7	70	130			
Xylenes, Total	2.7	0.10	3.000	0	89.7	70	130			
Surr: 4-Bromofluorobenzene	0.82		1.000		82.2	39.1	146			

Sample ID: mb-76212	SampT	SampType: <b>MBLK</b>			tCode: EF	les				
Client ID: PBS	Batch	h ID: <b>762</b>	212	F	RunNo: 98	8314				
Prep Date: 7/14/2023	Analysis D	Date: <b>7/</b>	18/2023	9	SeqNo: 3	578180	Units: mg/K	g		
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	0.82		1.000		81.8	39.1	146			

#### Qualifiers:

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

Page 61 of 62

## Hall Environmental Analysis Laboratory, Inc.

2307633

WO#:

24-Jul-23

Client: Vertex Resources Services, Inc.

**Project:** Tomcat 16 State 006

Sample ID: 2307633-016ams	SampT	уре: МЅ		Tes						
Client ID: BS23-08 0.5'	Batch	n ID: <b>762</b>	12	F	RunNo: <b>98</b>					
Prep Date: 7/14/2023	Analysis D	ate: <b>7/</b> 1	18/2023	SeqNo: <b>3578183</b> Units: <b>mg/Kg</b>				g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.85	0.025	0.9814	0	87.1	70	130			
Toluene	0.89	0.049	0.9814	0	90.6	70	130			
Ethylbenzene	0.91	0.049	0.9814	0	93.1	70	130			
Xylenes, Total	2.7	0.098	2.944	0	93.3	70	130			
Surr: 4-Bromofluorobenzene	0.80		0.9814		81.3	39.1	146			

Sample ID: 2307633-016amsd	SampT	SampType: MSD TestCode: EPA Method 8021B: Volatiles								
Client ID: BS23-08 0.5'	Batch	n ID: <b>762</b>	212	F	RunNo: 98	3314				
Prep Date: 7/14/2023	Analysis D	Date: 7/	18/2023	5	SeqNo: 3	578184	Units: mg/K	g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.85	0.024	0.9766	0	87.0	70	130	0.540	20	
Toluene	0.87	0.049	0.9766	0	89.6	70	130	1.58	20	
Ethylbenzene	0.89	0.049	0.9766	0	91.3	70	130	2.40	20	
Xylenes, Total	2.7	0.098	2.930	0	91.5	70	130	2.47	20	
Surr: 4-Bromofluorobenzene	0.82		0.9766		83.7	39.1	146	0	0	

Sample ID: Ics-76261	SampT	ype: <b>LC</b>	s	Tes	tCode: El	PA Method	8021B: Volati	les		
Client ID: LCSS	Batch	n ID: <b>76</b> 2	261	F	RunNo: 9	8314				
Prep Date: 7/17/2023	Analysis D	ate: <b>7/</b>	19/2023	5	SeqNo: 3	578205	Units: %Rec	;		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.79		1.000	<u> </u>	79.1	39.1	146		<u> </u>	

Sample ID: mb-76261	SampT	уре: МЕ	BLK	Tes	tCode: El	PA Method	8021B: Volati	les		
Client ID: PBS	Batch	ID: <b>76</b>	261	F	RunNo: 9	8314				
Prep Date: 7/17/2023	Analysis D	ate: 7/	19/2023	(	SeqNo: 3	578206	Units: %Rec	:		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.79		1.000		78.7	39.1	146			

#### Qualifiers:

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

Page 62 of 62

Hall Environmental Analysis Laboratory 4901 Hawkins NE

Albuquerque, NM 87109 TEL: 505-345-3975 FAX: 505-345-4107

## Sample Log-In Check List

Released to Imaging: 4/23/2024 2:01:30 PM

	Website: www.halle	nvii omnen.	ai.com		
Client Name: Vertex Resources Work Services, Inc.	k Order Number:	2307633		RoptNo	: 1
Received By: Tracy Casarrubias 7/14/20	023 7:30:00 AM				
Completed By: Tracy Casarrubias 7/14/20	023 8:13:05 AM				
Reviewed By: # 7-14-23					
Chain of Custody					
1. Is Chain of Custody complete?		Yes 🗌	No 🗹	Not Present	
2. How was the sample delivered?	!	<u>Courier</u>			
<u>Log In</u>					
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 present	ved?	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 $\sqcup$	No 🗹	# of preserved	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	,	Yes 🔽	No 🗌	bottles checked for pH:	or >12 unless noted)
2. Are matrices correctly identified on Chain of Custody	? '	Yes 🔽	No 🗌	Adjusted?	
3. Is it clear what analyses were requested?		Yes 🗹	No 🗌		110
14. Were all holding times able to be met? (If no, notify customer for authorization.)	•	Yes 🗹	No 🗌	Checked by:	Jn 7/14/23
Special Handling (if applicable)					
15. Was client notified of all discrepancies with this orde	r?	Yes 🗌	No 🗌	NA 🗹	
Person Notified:	Date:	de Trimanie marte			
By Whom:	Via:	eMail [	] Phone [] Fax	☐ In Person	
Regarding:		and the same of the same of	STREET STREET,		

#### 17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	3.4	Good	Yes	Yogi		

eceived	Mostly .	18420Ch	eceived Math 36 120 US 120 13 14 Record	Turn-Around Time:	ime:				Ì	7	M	Z	ROI	HALL ENVIRONMENTAL 5119	249 of 319
Client:		Vertex		☐ Standard	X Rush 3-day	V		П	A	M	YS	IS	LAB	ANALYSIS LABORATORY	ORY
(direct b	ill to Dev	von-Harva	(direct bill to Devon-Harvard Divest, see Remarks)	Project Name:					\$	w.ha	llenvir	onme	www.hallenvironmental.com	_	
Mailing	Mailing Address:			Tomcat 16 Stat	ite #006		4	4901 Hawkins NE	awkins		- Albu	dnerc	lue, NN	Albuquerque, NM 87109	
				Project #:				Tel. 50	505-345-3975	-3975	Fa	Fax 50	505-345-4107	107	
Phone #:	#			22E-02816-25							Analys	is Re	Analysis Request		
email or Fax#:	Fax#:			Project Manager:	er:				•		'os	-	(Juə		
QA/QC F	QA/QC Package:			Kent Stallings							'ÞO		sdA\		
□ Standard	dard		☐ Level 4 (Full Validation)	kstallings@vertex.ca	tex.ca					207	d '²		дuə		
Accreditation:	tation:	□ Az Col	Az Compliance	٠	an					70 I	ON				
□ NELAC	AC	□ Other			V Yes 🗆 No	:Boh									
	EDD (Type)			# of Coolers:	1	-X-2 tl.c									
				Cooler 1 at 11 p(mainaing cr.):	Γ.	5.60									
Date	T a a	Matrix	Sample Name	Container F	Preservative H	7.307633	X3T8	8:H9T 1 1808	EDB (	PAHs ARDA	Cl, F,	0228	0728 IstoT		
07/12/23		S. Io	WS23-01 0-0.5'		00		×				×				
07/12/23		_	WS23-02 0-0.5'	1, 4oz jar	200		×				×	-			
07/12/23		_	WS23-03 0-0.5'	1, 4oz jar	500		×			$\dashv$	×				
07/12/23	09:20	_	WS23-04 0-0.5'	1, 4oz jar	700		×	J		$\dashv$	×	+	-		
07/12/23		_	WS23-05 0-0.5'	1, 4oz jar	COS		×			_	×				
07/12/23			WS23-06 0-0.5'	1, 4oz jar	200		×	J		+	×		1		
07/12/23	06:30	Soil	WS23-07 0-0.5'	1, 4oz jar	(00)		×	×			×	_			
07/12/23	09:25	Soil	WS23-08 0-0.5'	1, 4oz jar	300		×	×		$\dashv$	×	+	-		
07/12/23	09:40	Soil	BS23-01 0.5'	1, 4oz jar	500		×	×	$\perp$	+	×	+	-		
07/12/23	09:45	Soil	BS23-02 0.5'	1, 4oz jar	010		×	×		$\dashv$	×				
07/12/23	09:45	Soil	BS23-03 0.5'	1, 4oz jar	CC		×	×		+	×				
07/12/23			BS23-04 0.5'	1, 4oz jar	0/0		×	×		_	×				
Date:	Time:	S.	led by	Received by:	Via: Date	te Time	Rema	rks: D	irect		Remarks: Direct bill to Devon,		Devon, Dale Woodall	dall	
7-13-13	00:10	- Lake	TA (M)	Chliman	5.		Harva GL A	Harvard Divest Site GL Account 7700100	est 3 t 7700		200	9	olaic #	2	
Date:	Time:	Relinquished b	led by:	Received by:	Via Count Date	V Z	CC 10	CC 1007884901	1901		•	i	(		ا/د
(B)	1910	P.A. I.	( Maria de		2/M/2	173 + 3	cc. ks	talling	gs@ve	ertex.	ca for	Final	kstallings@vertex.ca for Final Report		フ
	2000000	WWW I	at vem lettemorrivo	seatracted to other ac	credited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.	serves as notice of this	lidissod	ty. Any s	ub-contr	acted da	ta will be	clearly	notated or	the analytical rep	ort.

If necessary, samples submitted to Hall Environmental may, be subsentiaced to other accredited laboratories. This serves as notice of this poss

eived Oylo	5Pn3(	672@U	ceived @1981 Practice of State of Bull Record	Turn-Around Time:			Ī	ALL	ENA	RON	HALL ENVIRONMENTAND 319	61
Client:		Vertex		□ Standard	X Rush_3-day		A I	MAL	SIS	LAB	ANALYSIS LABORATORY	
direct bill to	o Dev	on-Harva	(direct bill to Devon-Harvard Divest, see Remarks)	Project Name:			> 	<u>=</u>	nvironm	www.hallenvironmental.com		
Mailing Address:	dress:			Tomcat 16 State #006	ate #006	490	4901 Hawkins NE	b	Albuquer	Albuquerque, NM 87109	87109	
				Project #:		Д <u>ө</u> .	1. 505-345-3975	-3975	Fax 5	505-345-4107	107	
Phone #:				22E-02816-25				Ā -	Analysis kequest	nsanba		
email or Fax#:	ax#:			Project Manager:	jer:					juəs		-
QA/QC Package:	kage:			Kent Stallings					' <sup>†</sup> Ос	sdA\		
□ Standard	þ		☐ Level 4 (Full Validation)	kstallings@vertex.ca	rtex.ca		(			ļuəs		
Accreditation:		☐ Az Co	☐ Az Compliance	Sampler: I	L.Pullman	MT /	808\s 1.40a		) ''	(Pres		
□ NELAC	1.	<u> </u>		olers:			; po	lstə				
	)  -  -			Cooler Temp(ii	Cooler Temp(induding CF): S 00 CMCLMS+		qjəl	M 8				
				Container	Preservative HEAL No		M) 8	AA:	E' E	S) 07 O lsi		
Date Tir	Time	Matrix	Sample Name	#	Type 7307633	-	ŒΒ	ВС		_		
07/12/23 06	09:50	Soil	BS23-05 0.5'	1, 4oz jar	0.13	×			×			
	09:55	Soil	BS23-06 0.5'	1, 4oz jar	614	×			×			
	09:55	Soil	BS23-07 0.5'	1, 4oz jar	015	×		+	×	+		
	10:00	Soil	BS23-08 0.5'	1, 4oz jar	910	×	+		×			
	10:00	Soil	BS23-09 0.5'	1, 4oz jar	510	×			×			
	10:05	Soil	BS23-10 0.5'	1, 4oz jar	010	×			×			
L	10:05	Soil	BS23-11 0.5'	1, 4oz jar	019	×			×			
	10:10	Soil	BS23-12 0.5'	1, 4oz jar	020	×			×			
07/12/23 1	10:10	Soil	BS23-13 0.5'	1, 4oz jar	120	×			×	-		
	10:15	Soil	BS23-14 0.5'	1, 4oz jar	220	×			×			
	10:15	Soil	BS23-15 0.5'	1, 4oz jar	520	×		+	×			
	10:20	Soil	BS23-16 0.5'	1, 4oz jar	K20	×			×			
Date: Tin		Relinquish	ефьх:	Received by:		Remark	Remarks: Direct bill to Devon, Dale Woodall	bill to D	evon, D	Devon, Dale Woodal	Jali	
7-18-13 0	00,10	Twee T	Jan /	Oldenning	(13/93	Harvard ⊢GL Acc	Harvard Divest Site – GL Account 7700100		mcar 10	olale #		
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If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-con

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(direct bill t	to Dev	on-Harva	(direct bill to Devon-Harvard Divest, see Remarks)	Project Name:					<b>M</b>	www.hallenvironmental.com	nviron	nenta	.com	
Mailing Address:	dress:			Tomcat 16 Stat	ate #006		49	4901 Hawkins NE	/kins		nbnql	erdne	Albuquerque, NM 87109	
				Project #:			ř	Tel. 505-	505-345-3975	975	Рах	505-3	Fax 505-345-4107	
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email or Fax#:	ax#:			Project Manager:	ler:			5		05	200		้านอง	
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07/12/23 1	10:50	Soil	BS23-29 0.5'	1, 4oz jar	T\$0		×	$\frac{1}{2}$	_		×			
	10:55	Soil	BS23-30 0.5'	1, 4oz jar	380		×		_		×			
	10:55	Soil	BS23-31 0.5'	1, 4oz jar	039		×				×			
	11:00	Soil	BS23-32 0.5'	1, 4oz jar	040		×		$\dashv$		×			
	11:00	Soil	BS23-33 0.5'	1, 4oz jar	140		×		$\dashv$		×			
_	11:05	Soil	BS23-34 0.5'	1, 4oz jar	2h0		×				×			
1_	11:05	Soil	BS23-35 0.5'	1, 4oz jar	500		×		-		×			
	11:10	Soil	BS23-36 0.5'	1, 4oz jar	400		×				×			
	11:10	Soil	BS23-37 0.5'	1, 4oz jar	Sho		×		$\dashv$		×			
	11:15	Soil	BS23-38 0.5'	1, 4oz jar	940		×		$\dashv$		×			
<del></del>	11:15	Soil	BS23-39 0.5'	1, 4oz jar	440		×	_	-	1	×			
i	11.20	lio	BS23-40 0.5'	1, 4oz jar	240		×				×			
Date:	Time:	Relinquished by	My par	Received by:	Via: Date		Remar	ks: Dir	ect bi	T to D	evon,	Dale	Remarks: Direct bill to Devon, Dale Woodall	
07-13-13 07:00		77		allum	1.		Harvard Divest Site – GL Account 7700100	Harvard Divest Site – GL Account 7700100	St 310		ב א	810 0		
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113/33	1900	100	Office of		1	114/23	cc. kst	kstallings@vertex.ca for Final Report	@ver	tex.ca	for Fi	al Re	port	- 1
	Vicesaga	Salumes Sill	samples submitted to Hall Environments 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.	contracted to other as	ccredited laboratories. This sen	ves as notice of this	possibility	. Any sub	-contract	ed data w	ill be cle	ırly nota	ed on the analytica	Il report.

If necessary, samples submitted to Hall Environmentatinary be subcontracted to other accredited laboratories.

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(direct bill to De	von-Harv	(direct bill to Devon-Harvard Divest, see Remarks)	Project Name:	i.					W	v.halle	anviro	nme	www.hallenvironmental.com	
Mailing Address:	::		Tomcat 16 State #006	tate #006			4901	4901 Hawkins NE	kins	1	Albuc	luerd	Albuquerque, NM 87109	
			Project #:				Tel.	Tel. 505-345-3975	45-3	975	Fa (g	200	Fax 505-345-4107	
Phone #:			22E-02816-25	2					M	A	alysi	s Re	Analysis Request	
email or Fax#:			Project Manager	ger:		(1	-	_			‡O.9		(Jua	
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□ Standard		□ Level 4 (Full Validation)	kstallings@vertex.ca	ertex.ca		) s,e					)d '		УДU	
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07/12/23 11:20	Soil	B323-4   0.3	1, 4oz jar		000	×	×	4		$\dashv$	×	$\dashv$		
07/12/23 11:25	Soil	BS23-42 0.5'	1, 4oz jar		050	×	×				×			
07/12/23 11:25	Soil	BS23-43 0.5'	1, 4oz jar		150	×	×				×			
07/12/23 11:30	Soil	BS23-44 0.5'	1, 40z jar		051	×	×				×			
07/12/23 11:30	Soll	BS23-45 0.5'	1, 40z jar		053	*	×				×			
07/12/29 11:35	Soll	BS23-46-0.5'	1, 40z jar		1,50	*	*				×			
02/12/23 11:35	Soll	BS23-47 0.5'	1, 4oz jar		055	×	×				×			
07/12/23 11:40	Soil	BS23-48-0.5	1, 4oz jar		1	×	×				×			
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							$\dashv$				$\dashv$	$\dashv$		
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02:60	To the second	A Shall	- 77	, &		F E	Harvard Divest Site - Gl Account 7700100	ivest nt 77	Site		ıcat	16 Si	Tomcat 16 State #006	
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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

TEL: 505-345-3975 FAX: 505-345-4107

Website: www.hallenvironmental.com

4901 Hawkins NE

Albuquerque, NM 87109



July 24, 2023

Kent Stallings

Vertex Resources Services, Inc. 3101 Boyd Drive

Carlsbad, NM 88220 TEL: (505) 506-0040

FAX:

RE: Tomcat 16 State 006 OrderNo.: 2307706

#### Dear Kent Stallings:

Hall Environmental Analysis Laboratory received 25 sample(s) on 7/15/2023 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

Indes

4901 Hawkins NE

Albuquerque, NM 87109

Date Reported: 7/24/2023

### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS23-49 0.5'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/13/2023 7:20:00 AM

 Lab ID:
 2307706-001
 Matrix: SOIL
 Received Date: 7/15/2023 7:30:00 AM

Analyses	Result	RL Qua	l Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OR	GANICS				Analyst: SB
Diesel Range Organics (DRO)	ND	10	mg/Kg	1	7/18/2023 10:58:24 AM
Motor Oil Range Organics (MRO)	ND	50	mg/Kg	1	7/18/2023 10:58:24 AM
Surr: DNOP	108	69-147	%Rec	1	7/18/2023 10:58:24 AM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: KMN
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	7/19/2023 3:50:00 AM
Surr: BFB	80.8	15-244	%Rec	1	7/19/2023 3:50:00 AM
EPA METHOD 8021B: VOLATILES					Analyst: KMN
Benzene	ND	0.024	mg/Kg	1	7/19/2023 3:50:00 AM
Toluene	ND	0.049	mg/Kg	1	7/19/2023 3:50:00 AM
Ethylbenzene	ND	0.049	mg/Kg	1	7/19/2023 3:50:00 AM
Xylenes, Total	ND	0.098	mg/Kg	1	7/19/2023 3:50:00 AM
Surr: 4-Bromofluorobenzene	76.7	39.1-146	%Rec	1	7/19/2023 3:50:00 AM
EPA METHOD 300.0: ANIONS					Analyst: CAS
Chloride	ND	60	mg/Kg	20	7/18/2023 5:31:16 PM

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

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

S % Recovery outside of standard limits. If undiluted results may be estimated.

B Analyte detected in the associated Method Blank

E Above Quantitation Range/Estimated Value

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

Page 1 of 34

Date Reported: 7/24/2023

### Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Vertex Resources Services, Inc. Client Sample ID: BS23-50 0.5'

**Project:** Tomcat 16 State 006 **Collection Date:** 7/13/2023 7:20:00 AM 2307706-002 Lab ID: Matrix: SOIL **Received Date:** 7/15/2023 7:30:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OR	GANICS				Analyst: SB
Diesel Range Organics (DRO)	ND	9.1	mg/Kg	1	7/18/2023 11:54:21 AM
Motor Oil Range Organics (MRO)	ND	46	mg/Kg	1	7/18/2023 11:54:21 AM
Surr: DNOP	103	69-147	%Rec	1	7/18/2023 11:54:21 AM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: KMN
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	7/19/2023 4:56:00 AM
Surr: BFB	76.1	15-244	%Rec	1	7/19/2023 4:56:00 AM
EPA METHOD 8021B: VOLATILES					Analyst: KMN
Benzene	ND	0.024	mg/Kg	1	7/19/2023 4:56:00 AM
Toluene	ND	0.048	mg/Kg	1	7/19/2023 4:56:00 AM
Ethylbenzene	ND	0.048	mg/Kg	1	7/19/2023 4:56:00 AM
Xylenes, Total	ND	0.096	mg/Kg	1	7/19/2023 4:56:00 AM
Surr: 4-Bromofluorobenzene	77.3	39.1-146	%Rec	1	7/19/2023 4:56:00 AM
EPA METHOD 300.0: ANIONS					Analyst: SNS
Chloride	ND	60	mg/Kg	20	7/18/2023 3:59:25 PM

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

Qualifiers:

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

Reporting Limit

Page 2 of 34

Date Reported: 7/24/2023

#### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS23-51 0.5

 Project:
 Tomcat 16 State 006
 Collection Date: 7/13/2023 7:25:00 AM

 Lab ID:
 2307706-003
 Matrix: SOIL
 Received Date: 7/15/2023 7:30:00 AM

Result **RL Qual Units** DF **Date Analyzed** Analyses **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** Analyst: SB Diesel Range Organics (DRO) ND 9.3 mg/Kg 1 7/18/2023 1:13:56 PM Motor Oil Range Organics (MRO) ND 46 mg/Kg 1 7/18/2023 1:13:56 PM Surr: DNOP 104 69-147 %Rec 1 7/18/2023 1:13:56 PM **EPA METHOD 8015D: GASOLINE RANGE** Analyst: KMN Gasoline Range Organics (GRO) ND 7/19/2023 6:01:00 AM 4.6 mg/Kg 1 Surr: BFB 77.6 15-244 %Rec 1 7/19/2023 6:01:00 AM **EPA METHOD 8021B: VOLATILES** Analyst: KMN Benzene ND 7/19/2023 6:01:00 AM 0.023 mg/Kg 1 Toluene ND 0.046 mg/Kg 1 7/19/2023 6:01:00 AM Ethylbenzene ND 0.046 mg/Kg 1 7/19/2023 6:01:00 AM Xylenes, Total ND 0.093 mg/Kg 1 7/19/2023 6:01:00 AM Surr: 4-Bromofluorobenzene 78.8 39.1-146 %Rec 1 7/19/2023 6:01:00 AM **EPA METHOD 300.0: ANIONS** Analyst: SNS mg/Kg Chloride 7/18/2023 4:11:46 PM ND 59 20

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

QL 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

ple pH Not In Range
outing Limit Page 3 of 34

Date Reported: 7/24/2023

#### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS23-52 0.5

 Project:
 Tomcat 16 State 006
 Collection Date: 7/13/2023 7:25:00 AM

 Lab ID:
 2307706-004
 Matrix: SOIL
 Received Date: 7/15/2023 7:30:00 AM

Result **RL Qual Units** DF **Date Analyzed** Analyses **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** Analyst: SB Diesel Range Organics (DRO) ND 9.8 mg/Kg 1 7/18/2023 1:33:04 PM Motor Oil Range Organics (MRO) ND 49 mg/Kg 1 7/18/2023 1:33:04 PM Surr: DNOP 97.6 69-147 %Rec 1 7/18/2023 1:33:04 PM **EPA METHOD 8015D: GASOLINE RANGE** Analyst: KMN Gasoline Range Organics (GRO) ND 7/19/2023 6:22:00 AM 4.9 mg/Kg 1 Surr: BFB 78.9 15-244 %Rec 1 7/19/2023 6:22:00 AM **EPA METHOD 8021B: VOLATILES** Analyst: KMN Benzene ND 7/19/2023 6:22:00 AM 0.024 mg/Kg 1 Toluene ND 0.049 mg/Kg 1 7/19/2023 6:22:00 AM Ethylbenzene ND 0.049 mg/Kg 1 7/19/2023 6:22:00 AM Xylenes, Total ND 0.097 mg/Kg 7/19/2023 6:22:00 AM 1 Surr: 4-Bromofluorobenzene 77.5 39.1-146 %Rec 1 7/19/2023 6:22:00 AM **EPA METHOD 300.0: ANIONS** Analyst: SNS mg/Kg Chloride 7/18/2023 4:24:07 PM ND 59 20

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

QL 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

ple pH Not In Range
orting Limit
Page 4 of 34

Date Reported: 7/24/2023

### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS23-53 0.5'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/13/2023 7:30:00 AM

 Lab ID:
 2307706-005
 Matrix: SOIL
 Received Date: 7/15/2023 7:30:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORG	GANICS				Analyst: <b>SB</b>
Diesel Range Organics (DRO)	ND	9.3	mg/Kg	1	7/18/2023 1:52:22 PM
Motor Oil Range Organics (MRO)	ND	47	mg/Kg	1	7/18/2023 1:52:22 PM
Surr: DNOP	96.9	69-147	%Rec	1	7/18/2023 1:52:22 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: KMN
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	7/19/2023 6:44:00 AM
Surr: BFB	80.6	15-244	%Rec	1	7/19/2023 6:44:00 AM
EPA METHOD 8021B: VOLATILES					Analyst: KMN
Benzene	ND	0.024	mg/Kg	1	7/19/2023 6:44:00 AM
Toluene	ND	0.048	mg/Kg	1	7/19/2023 6:44:00 AM
Ethylbenzene	ND	0.048	mg/Kg	1	7/19/2023 6:44:00 AM
Xylenes, Total	ND	0.096	mg/Kg	1	7/19/2023 6:44:00 AM
Surr: 4-Bromofluorobenzene	77.1	39.1-146	%Rec	1	7/19/2023 6:44:00 AM
EPA METHOD 300.0: ANIONS					Analyst: SNS
Chloride	ND	59	mg/Kg	20	7/18/2023 4:36:26 PM

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- 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

Page 5 of 34

Date Reported: 7/24/2023

#### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS23-54 0.5

 Project:
 Tomcat 16 State 006
 Collection Date: 7/13/2023 7:30:00 AM

 Lab ID:
 2307706-006
 Matrix: SOIL
 Received Date: 7/15/2023 7:30:00 AM

Result **RL Qual Units** DF **Date Analyzed** Analyses Analyst: SB **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** Diesel Range Organics (DRO) ND 9.9 mg/Kg 1 7/18/2023 2:11:42 PM Motor Oil Range Organics (MRO) ND 49 mg/Kg 1 7/18/2023 2:11:42 PM Surr: DNOP 102 69-147 %Rec 1 7/18/2023 2:11:42 PM **EPA METHOD 8015D: GASOLINE RANGE** Analyst: KMN Gasoline Range Organics (GRO) ND 7/19/2023 7:06:00 AM 4.7 mg/Kg 1 Surr: BFB 80.6 15-244 %Rec 1 7/19/2023 7:06:00 AM **EPA METHOD 8021B: VOLATILES** Analyst: KMN Benzene ND 7/19/2023 7:06:00 AM 0.024 mg/Kg 1 Toluene ND 0.047 mg/Kg 1 7/19/2023 7:06:00 AM Ethylbenzene ND 0.047 mg/Kg 1 7/19/2023 7:06:00 AM Xylenes, Total ND 0.095 mg/Kg 7/19/2023 7:06:00 AM 1 Surr: 4-Bromofluorobenzene 76.8 39.1-146 %Rec 1 7/19/2023 7:06:00 AM **EPA METHOD 300.0: ANIONS** Analyst: SNS mg/Kg Chloride 7/18/2023 4:48:48 PM ND 60 20

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

Page 6 of 34

Date Reported: 7/24/2023

### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS23-55 0.5'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/13/2023 7:35:00 AM

 Lab ID:
 2307706-007
 Matrix: SOIL
 Received Date: 7/15/2023 7:30:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORG	GANICS				Analyst: <b>SB</b>
Diesel Range Organics (DRO)	ND	9.7	mg/Kg	1	7/18/2023 2:31:15 PM
Motor Oil Range Organics (MRO)	ND	49	mg/Kg	1	7/18/2023 2:31:15 PM
Surr: DNOP	98.0	69-147	%Rec	1	7/18/2023 2:31:15 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: KMN
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	7/19/2023 7:27:00 AM
Surr: BFB	80.3	15-244	%Rec	1	7/19/2023 7:27:00 AM
EPA METHOD 8021B: VOLATILES					Analyst: KMN
Benzene	ND	0.025	mg/Kg	1	7/19/2023 7:27:00 AM
Toluene	ND	0.049	mg/Kg	1	7/19/2023 7:27:00 AM
Ethylbenzene	ND	0.049	mg/Kg	1	7/19/2023 7:27:00 AM
Xylenes, Total	ND	0.099	mg/Kg	1	7/19/2023 7:27:00 AM
Surr: 4-Bromofluorobenzene	78.1	39.1-146	%Rec	1	7/19/2023 7:27:00 AM
EPA METHOD 300.0: ANIONS					Analyst: SNS
Chloride	ND	59	mg/Kg	20	7/18/2023 5:01:09 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

Page 7 of 34

Date Reported: 7/24/2023

### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS23-56 0.5'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/13/2023 7:35:00 AM

 Lab ID:
 2307706-008
 Matrix: SOIL
 Received Date: 7/15/2023 7:30:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OR	GANICS				Analyst: SB
Diesel Range Organics (DRO)	ND	9.6	mg/Kg	1	7/18/2023 2:50:49 PM
Motor Oil Range Organics (MRO)	ND	48	mg/Kg	1	7/18/2023 2:50:49 PM
Surr: DNOP	92.7	69-147	%Rec	1	7/18/2023 2:50:49 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: KMN
Gasoline Range Organics (GRO)	ND	4.7	mg/Kg	1	7/19/2023 8:11:00 AM
Surr: BFB	83.5	15-244	%Rec	1	7/19/2023 8:11:00 AM
EPA METHOD 8021B: VOLATILES					Analyst: KMN
Benzene	ND	0.023	mg/Kg	1	7/19/2023 8:11:00 AM
Toluene	ND	0.047	mg/Kg	1	7/19/2023 8:11:00 AM
Ethylbenzene	ND	0.047	mg/Kg	1	7/19/2023 8:11:00 AM
Xylenes, Total	ND	0.093	mg/Kg	1	7/19/2023 8:11:00 AM
Surr: 4-Bromofluorobenzene	79.8	39.1-146	%Rec	1	7/19/2023 8:11:00 AM
EPA METHOD 300.0: ANIONS					Analyst: SNS
Chloride	ND	60	mg/Kg	20	7/18/2023 5:13:29 PM

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

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

QL 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

Page 8 of 34

Date Reported: 7/24/2023

### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS23-57 0.5'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/13/2023 8:10:00 AM

 Lab ID:
 2307706-009
 Matrix: SOIL
 Received Date: 7/15/2023 7:30:00 AM

Analyses	Result	RL Qua	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORG	ANICS				Analyst: SB
Diesel Range Organics (DRO)	ND	9.8	mg/Kg	1	7/18/2023 3:10:30 PM
Motor Oil Range Organics (MRO)	ND	49	mg/Kg	1	7/18/2023 3:10:30 PM
Surr: DNOP	93.9	69-147	%Rec	1	7/18/2023 3:10:30 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: KMN
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	7/19/2023 8:33:00 AM
Surr: BFB	79.9	15-244	%Rec	1	7/19/2023 8:33:00 AM
EPA METHOD 8021B: VOLATILES					Analyst: KMN
Benzene	ND	0.024	mg/Kg	1	7/19/2023 8:33:00 AM
Toluene	ND	0.048	mg/Kg	1	7/19/2023 8:33:00 AM
Ethylbenzene	ND	0.048	mg/Kg	1	7/19/2023 8:33:00 AM
Xylenes, Total	ND	0.096	mg/Kg	1	7/19/2023 8:33:00 AM
Surr: 4-Bromofluorobenzene	79.6	39.1-146	%Rec	1	7/19/2023 8:33:00 AM
EPA METHOD 300.0: ANIONS					Analyst: SNS
Chloride	ND	59	mg/Kg	20	7/18/2023 5:25:50 PM

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- 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

of the ph Not in Range Page 9 of 34

Date Reported: 7/24/2023

### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS23-58 0.5'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/13/2023 8:10:00 AM

 Lab ID:
 2307706-010
 Matrix: SOIL
 Received Date: 7/15/2023 7:30:00 AM

Analyses	Result	RL Qua	l Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OR	GANICS				Analyst: <b>SB</b>
Diesel Range Organics (DRO)	ND	9.3	mg/Kg	1	7/18/2023 3:30:26 PM
Motor Oil Range Organics (MRO)	ND	46	mg/Kg	1	7/18/2023 3:30:26 PM
Surr: DNOP	95.3	69-147	%Rec	1	7/18/2023 3:30:26 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: KMN
Gasoline Range Organics (GRO)	ND	4.6	mg/Kg	1	7/19/2023 8:55:00 AM
Surr: BFB	76.6	15-244	%Rec	1	7/19/2023 8:55:00 AM
EPA METHOD 8021B: VOLATILES					Analyst: KMN
Benzene	ND	0.023	mg/Kg	1	7/19/2023 8:55:00 AM
Toluene	ND	0.046	mg/Kg	1	7/19/2023 8:55:00 AM
Ethylbenzene	ND	0.046	mg/Kg	1	7/19/2023 8:55:00 AM
Xylenes, Total	ND	0.093	mg/Kg	1	7/19/2023 8:55:00 AM
Surr: 4-Bromofluorobenzene	76.2	39.1-146	%Rec	1	7/19/2023 8:55:00 AM
EPA METHOD 300.0: ANIONS					Analyst: SNS
Chloride	ND	60	mg/Kg	20	7/18/2023 5:38:10 PM

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- 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

Page 10 of 34

Date Reported: 7/24/2023

#### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS23-59 0.5

 Project:
 Tomcat 16 State 006
 Collection Date: 7/13/2023 8:15:00 AM

 Lab ID:
 2307706-011
 Matrix: SOIL
 Received Date: 7/15/2023 7:30:00 AM

Result **RL Qual Units** DF **Date Analyzed** Analyses Analyst: SB **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** Diesel Range Organics (DRO) ND 9.9 mg/Kg 1 7/18/2023 3:50:42 PM Motor Oil Range Organics (MRO) ND 50 mg/Kg 1 7/18/2023 3:50:42 PM Surr: DNOP 83.9 69-147 %Rec 1 7/18/2023 3:50:42 PM **EPA METHOD 8015D: GASOLINE RANGE** Analyst: KMN Gasoline Range Organics (GRO) ND 7/19/2023 7:36:00 PM 4.7 mg/Kg 1 Surr: BFB 79.9 15-244 %Rec 1 7/19/2023 7:36:00 PM **EPA METHOD 8021B: VOLATILES** Analyst: KMN Benzene ND 7/19/2023 7:36:00 PM 0.023 mg/Kg 1 Toluene ND 0.047 mg/Kg 1 7/19/2023 7:36:00 PM Ethylbenzene ND 0.047 mg/Kg 1 7/19/2023 7:36:00 PM Xylenes, Total ND 0.094 mg/Kg 7/19/2023 7:36:00 PM 1 Surr: 4-Bromofluorobenzene 77.0 39.1-146 %Rec 1 7/19/2023 7:36:00 PM **EPA METHOD 300.0: ANIONS** Analyst: SNS mg/Kg Chloride 7/18/2023 5:50:31 PM ND 60 20

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

Page 11 of 34

Date Reported: 7/24/2023

### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS23-60 0.5'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/13/2023 8:15:00 AM

 Lab ID:
 2307706-012
 Matrix: SOIL
 Received Date: 7/15/2023 7:30:00 AM

Analyses	Result	RL Qua	l Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OR	GANICS				Analyst: <b>SB</b>
Diesel Range Organics (DRO)	ND	9.3	mg/Kg	1	7/18/2023 4:10:59 PM
Motor Oil Range Organics (MRO)	ND	47	mg/Kg	1	7/18/2023 4:10:59 PM
Surr: DNOP	92.5	69-147	%Rec	1	7/18/2023 4:10:59 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: KMN
Gasoline Range Organics (GRO)	ND	5.0	mg/Kg	1	7/19/2023 7:58:00 PM
Surr: BFB	80.8	15-244	%Rec	1	7/19/2023 7:58:00 PM
EPA METHOD 8021B: VOLATILES					Analyst: KMN
Benzene	ND	0.025	mg/Kg	1	7/19/2023 7:58:00 PM
Toluene	ND	0.050	mg/Kg	1	7/19/2023 7:58:00 PM
Ethylbenzene	ND	0.050	mg/Kg	1	7/19/2023 7:58:00 PM
Xylenes, Total	ND	0.099	mg/Kg	1	7/19/2023 7:58:00 PM
Surr: 4-Bromofluorobenzene	78.3	39.1-146	%Rec	1	7/19/2023 7:58:00 PM
EPA METHOD 300.0: ANIONS					Analyst: SNS
Chloride	ND	60	mg/Kg	20	7/18/2023 6:27:33 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

Page 12 of 34

Date Reported: 7/24/2023

### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS23-61 0.5'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/13/2023 8:25:00 AM

 Lab ID:
 2307706-013
 Matrix: SOIL
 Received Date: 7/15/2023 7:30:00 AM

Analyses	Result	RL Qua	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OR	GANICS				Analyst: <b>SB</b>
Diesel Range Organics (DRO)	ND	9.6	mg/Kg	1	7/18/2023 4:31:14 PM
Motor Oil Range Organics (MRO)	ND	48	mg/Kg	1	7/18/2023 4:31:14 PM
Surr: DNOP	92.9	69-147	%Rec	1	7/18/2023 4:31:14 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: KMN
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	7/19/2023 8:20:00 PM
Surr: BFB	78.5	15-244	%Rec	1	7/19/2023 8:20:00 PM
EPA METHOD 8021B: VOLATILES					Analyst: KMN
Benzene	ND	0.024	mg/Kg	1	7/19/2023 8:20:00 PM
Toluene	ND	0.048	mg/Kg	1	7/19/2023 8:20:00 PM
Ethylbenzene	ND	0.048	mg/Kg	1	7/19/2023 8:20:00 PM
Xylenes, Total	ND	0.095	mg/Kg	1	7/19/2023 8:20:00 PM
Surr: 4-Bromofluorobenzene	78.9	39.1-146	%Rec	1	7/19/2023 8:20:00 PM
EPA METHOD 300.0: ANIONS					Analyst: SNS
Chloride	ND	60	mg/Kg	20	7/18/2023 6:39:53 PM

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- 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

Page 13 of 34

Date Reported: 7/24/2023

### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS23-62 0.5'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/13/2023 8:25:00 AM

 Lab ID:
 2307706-014
 Matrix: SOIL
 Received Date: 7/15/2023 7:30:00 AM

Analyses	Result	RL Qua	l Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGA	ANICS				Analyst: SB
Diesel Range Organics (DRO)	ND	9.6	mg/Kg	1	7/18/2023 4:50:47 PM
Motor Oil Range Organics (MRO)	ND	48	mg/Kg	1	7/18/2023 4:50:47 PM
Surr: DNOP	98.1	69-147	%Rec	1	7/18/2023 4:50:47 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: KMN
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	7/19/2023 8:41:00 PM
Surr: BFB	83.1	15-244	%Rec	1	7/19/2023 8:41:00 PM
EPA METHOD 8021B: VOLATILES					Analyst: KMN
Benzene	ND	0.024	mg/Kg	1	7/19/2023 8:41:00 PM
Toluene	ND	0.049	mg/Kg	1	7/19/2023 8:41:00 PM
Ethylbenzene	ND	0.049	mg/Kg	1	7/19/2023 8:41:00 PM
Xylenes, Total	ND	0.097	mg/Kg	1	7/19/2023 8:41:00 PM
Surr: 4-Bromofluorobenzene	77.6	39.1-146	%Rec	1	7/19/2023 8:41:00 PM
EPA METHOD 300.0: ANIONS					Analyst: SNS
Chloride	2200	60	mg/Kg	20	7/18/2023 6:52:14 PM

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- 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

Page 14 of 34

Date Reported: 7/24/2023

### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS23-63 0.5'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/13/2023 8:30:00 AM

 Lab ID:
 2307706-015
 Matrix: SOIL
 Received Date: 7/15/2023 7:30:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORG	GANICS				Analyst: SB
Diesel Range Organics (DRO)	12	9.4	mg/Kg	1	7/18/2023 5:10:16 PM
Motor Oil Range Organics (MRO)	ND	47	mg/Kg	1	7/18/2023 5:10:16 PM
Surr: DNOP	94.6	69-147	%Rec	1	7/18/2023 5:10:16 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: <b>KMN</b>
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	7/19/2023 9:03:00 PM
Surr: BFB	81.1	15-244	%Rec	1	7/19/2023 9:03:00 PM
EPA METHOD 8021B: VOLATILES					Analyst: KMN
Benzene	ND	0.025	mg/Kg	1	7/19/2023 9:03:00 PM
Toluene	ND	0.049	mg/Kg	1	7/19/2023 9:03:00 PM
Ethylbenzene	ND	0.049	mg/Kg	1	7/19/2023 9:03:00 PM
Xylenes, Total	ND	0.099	mg/Kg	1	7/19/2023 9:03:00 PM
Surr: 4-Bromofluorobenzene	78.0	39.1-146	%Rec	1	7/19/2023 9:03:00 PM
EPA METHOD 300.0: ANIONS					Analyst: SNS
Chloride	ND	60	mg/Kg	20	7/18/2023 7:04:34 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

Page 15 of 34

Date Reported: 7/24/2023

### Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Vertex Resources Services, Inc. Client Sample ID: BS23-64 0.5'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/13/2023 8:30:00 AM

 Lab ID:
 2307706-016
 Matrix: SOIL
 Received Date: 7/15/2023 7:30:00 AM

Analyses	Result	RL Qua	l Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OR		Analyst: <b>SB</b>			
Diesel Range Organics (DRO)	ND	9.7	mg/Kg	1	7/18/2023 5:29:45 PM
Motor Oil Range Organics (MRO)	ND	49	mg/Kg	1	7/18/2023 5:29:45 PM
Surr: DNOP	99.9	69-147	%Rec	1	7/18/2023 5:29:45 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: KMN
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	7/19/2023 9:25:00 PM
Surr: BFB	82.0	15-244	%Rec	1	7/19/2023 9:25:00 PM
EPA METHOD 8021B: VOLATILES					Analyst: KMN
Benzene	ND	0.024	mg/Kg	1	7/19/2023 9:25:00 PM
Toluene	ND	0.048	mg/Kg	1	7/19/2023 9:25:00 PM
Ethylbenzene	ND	0.048	mg/Kg	1	7/19/2023 9:25:00 PM
Xylenes, Total	ND	0.096	mg/Kg	1	7/19/2023 9:25:00 PM
Surr: 4-Bromofluorobenzene	77.4	39.1-146	%Rec	1	7/19/2023 9:25:00 PM
EPA METHOD 300.0: ANIONS					Analyst: SNS
Chloride	ND	59	mg/Kg	20	7/18/2023 7:16:55 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
- B Analyte detected in the associated Method Blank
- E Above Quantitation Range/Estimated Value
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

Page 16 of 34

Date Reported: 7/24/2023

### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS23-65 0.5'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/13/2023 8:40:00 AM

 Lab ID:
 2307706-017
 Matrix: SOIL
 Received Date: 7/15/2023 7:30:00 AM

Analyses	Result	RL Qua	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORG	ANICS				Analyst: SB
Diesel Range Organics (DRO)	ND	9.5	mg/Kg	1	7/18/2023 5:49:12 PM
Motor Oil Range Organics (MRO)	ND	48	mg/Kg	1	7/18/2023 5:49:12 PM
Surr: DNOP	105	69-147	%Rec	1	7/18/2023 5:49:12 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: <b>KMN</b>
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	7/19/2023 10:31:00 PM
Surr: BFB	77.2	15-244	%Rec	1	7/19/2023 10:31:00 PM
EPA METHOD 8021B: VOLATILES					Analyst: KMN
Benzene	ND	0.024	mg/Kg	1	7/19/2023 10:31:00 PM
Toluene	ND	0.049	mg/Kg	1	7/19/2023 10:31:00 PM
Ethylbenzene	ND	0.049	mg/Kg	1	7/19/2023 10:31:00 PM
Xylenes, Total	ND	0.098	mg/Kg	1	7/19/2023 10:31:00 PM
Surr: 4-Bromofluorobenzene	76.8	39.1-146	%Rec	1	7/19/2023 10:31:00 PM
EPA METHOD 300.0: ANIONS					Analyst: SNS
Chloride	ND	60	mg/Kg	20	7/18/2023 7:29:16 PM

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

Qualifiers:

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

Page 17 of 34

Date Reported: 7/24/2023

### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS23-66 0.5'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/13/2023 8:40:00 AM

 Lab ID:
 2307706-018
 Matrix: SOIL
 Received Date: 7/15/2023 7:30:00 AM

Analyses	Result	RL Qua	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OR				Analyst: <b>SB</b>	
Diesel Range Organics (DRO)	14	9.7	mg/Kg	1	7/18/2023 6:08:50 PM
Motor Oil Range Organics (MRO)	ND	48	mg/Kg	1	7/18/2023 6:08:50 PM
Surr: DNOP	105	69-147	%Rec	1	7/18/2023 6:08:50 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: KMN
Gasoline Range Organics (GRO)	ND	5.0	mg/Kg	1	7/19/2023 10:52:00 PM
Surr: BFB	77.0	15-244	%Rec	1	7/19/2023 10:52:00 PM
EPA METHOD 8021B: VOLATILES					Analyst: KMN
Benzene	ND	0.025	mg/Kg	1	7/19/2023 10:52:00 PM
Toluene	ND	0.050	mg/Kg	1	7/19/2023 10:52:00 PM
Ethylbenzene	ND	0.050	mg/Kg	1	7/19/2023 10:52:00 PM
Xylenes, Total	ND	0.099	mg/Kg	1	7/19/2023 10:52:00 PM
Surr: 4-Bromofluorobenzene	76.5	39.1-146	%Rec	1	7/19/2023 10:52:00 PM
EPA METHOD 300.0: ANIONS					Analyst: SNS
Chloride	ND	61	mg/Kg	20	7/18/2023 7:41:37 PM

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

Qualifiers:

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

Page 18 of 34

Date Reported: 7/24/2023

#### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS23-67 0.5

 Project:
 Tomcat 16 State 006
 Collection Date: 7/13/2023 8:45:00 AM

 Lab ID:
 2307706-019
 Matrix: SOIL
 Received Date: 7/15/2023 7:30:00 AM

Result **RL Qual Units** DF **Date Analyzed** Analyses Analyst: SB **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** Diesel Range Organics (DRO) ND 9.3 mg/Kg 1 7/18/2023 6:28:02 PM Motor Oil Range Organics (MRO) ND 46 mg/Kg 1 7/18/2023 6:28:02 PM Surr: DNOP 98.8 69-147 %Rec 1 7/18/2023 6:28:02 PM **EPA METHOD 8015D: GASOLINE RANGE** Analyst: KMN Gasoline Range Organics (GRO) ND 7/19/2023 11:14:00 PM 4.9 mg/Kg 1 Surr: BFB 81.6 15-244 %Rec 1 7/19/2023 11:14:00 PM **EPA METHOD 8021B: VOLATILES** Analyst: KMN Benzene ND 7/19/2023 11:14:00 PM 0.025 mg/Kg 1 Toluene ND 0.049 mg/Kg 1 7/19/2023 11:14:00 PM Ethylbenzene ND 0.049 mg/Kg 1 7/19/2023 11:14:00 PM Xylenes, Total ND 0.098 mg/Kg 7/19/2023 11:14:00 PM 1 Surr: 4-Bromofluorobenzene 76.4 39.1-146 %Rec 1 7/19/2023 11:14:00 PM **EPA METHOD 300.0: ANIONS** Analyst: SNS mg/Kg Chloride 7/18/2023 7:53:57 PM ND 60 20

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

Page 19 of 34

Date Reported: 7/24/2023

### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS23-68 0.5'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/13/2023 8:45:00 AM

 Lab ID:
 2307706-020
 Matrix: SOIL
 Received Date: 7/15/2023 7:30:00 AM

Analyses	Result	RL Qua	l Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OR				Analyst: SB	
Diesel Range Organics (DRO)	ND	9.8	mg/Kg	1	7/18/2023 6:47:10 PM
Motor Oil Range Organics (MRO)	ND	49	mg/Kg	1	7/18/2023 6:47:10 PM
Surr: DNOP	96.1	69-147	%Rec	1	7/18/2023 6:47:10 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: <b>KMN</b>
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	7/19/2023 11:36:00 PM
Surr: BFB	78.5	15-244	%Rec	1	7/19/2023 11:36:00 PM
EPA METHOD 8021B: VOLATILES					Analyst: <b>KMN</b>
Benzene	ND	0.024	mg/Kg	1	7/19/2023 11:36:00 PM
Toluene	ND	0.048	mg/Kg	1	7/19/2023 11:36:00 PM
Ethylbenzene	ND	0.048	mg/Kg	1	7/19/2023 11:36:00 PM
Xylenes, Total	ND	0.096	mg/Kg	1	7/19/2023 11:36:00 PM
Surr: 4-Bromofluorobenzene	76.2	39.1-146	%Rec	1	7/19/2023 11:36:00 PM
EPA METHOD 300.0: ANIONS					Analyst: SNS
Chloride	ND	60	mg/Kg	20	7/18/2023 8:06:19 PM

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- 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

Page 20 of 34

Date Reported: 7/24/2023

### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS23-69 0.5'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/13/2023 8:50:00 AM

 Lab ID:
 2307706-021
 Matrix: SOIL
 Received Date: 7/15/2023 7:30:00 AM

Analyses	Result	RL Qua	l Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGA	NICS				Analyst: <b>DGH</b>
Diesel Range Organics (DRO)	ND	8.7	mg/Kg	1	7/18/2023 7:54:18 PM
Motor Oil Range Organics (MRO)	ND	44	mg/Kg	1	7/18/2023 7:54:18 PM
Surr: DNOP	80.8	69-147	%Rec	1	7/18/2023 7:54:18 PM
EPA METHOD 300.0: ANIONS					Analyst: SNS
Chloride	ND	59	mg/Kg	20	7/19/2023 2:28:59 AM
EPA METHOD 8260B: VOLATILES SHORT LIST					Analyst: RAA
Benzene	ND	0.025	mg/Kg	1	7/18/2023 12:57:07 PM
Toluene	ND	0.050	mg/Kg	1	7/18/2023 12:57:07 PM
Ethylbenzene	ND	0.050	mg/Kg	1	7/18/2023 12:57:07 PM
Xylenes, Total	ND	0.099	mg/Kg	1	7/18/2023 12:57:07 PM
Surr: 1,2-Dichloroethane-d4	105	64.8-147	%Rec	1	7/18/2023 12:57:07 PM
Surr: 4-Bromofluorobenzene	99.0	62.1-144	%Rec	1	7/18/2023 12:57:07 PM
Surr: Dibromofluoromethane	109	73-145	%Rec	1	7/18/2023 12:57:07 PM
Surr: Toluene-d8	99.1	70-130	%Rec	1	7/18/2023 12:57:07 PM
EPA METHOD 8015D MOD: GASOLINE RANGE					Analyst: RAA
Gasoline Range Organics (GRO)	ND	5.0	mg/Kg	1	7/18/2023 12:57:07 PM
Surr: BFB	90.0	70-130	%Rec	1	7/18/2023 12:57:07 PM

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- 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

Page 21 of 34

Date Reported: 7/24/2023

### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS23-70 0.5'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/13/2023 8:50:00 AM

 Lab ID:
 2307706-022
 Matrix: SOIL
 Received Date: 7/15/2023 7:30:00 AM

Analyses	Result	RL Qua	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORG		Analyst: <b>DGH</b>			
Diesel Range Organics (DRO)	ND	8.7	mg/Kg	1	7/18/2023 8:18:11 PM
Motor Oil Range Organics (MRO)	ND	43	mg/Kg	1	7/18/2023 8:18:11 PM
Surr: DNOP	87.0	69-147	%Rec	1	7/18/2023 8:18:11 PM
EPA METHOD 300.0: ANIONS					Analyst: SNS
Chloride	ND	60	mg/Kg	20	7/19/2023 2:41:19 AM
<b>EPA METHOD 8260B: VOLATILES SHORT LIS</b>	T				Analyst: RAA
Benzene	ND	0.024	mg/Kg	1	7/18/2023 2:19:39 PM
Toluene	ND	0.049	mg/Kg	1	7/18/2023 2:19:39 PM
Ethylbenzene	ND	0.049	mg/Kg	1	7/18/2023 2:19:39 PM
Xylenes, Total	ND	0.098	mg/Kg	1	7/18/2023 2:19:39 PM
Surr: 1,2-Dichloroethane-d4	121	64.8-147	%Rec	1	7/18/2023 2:19:39 PM
Surr: 4-Bromofluorobenzene	95.4	62.1-144	%Rec	1	7/18/2023 2:19:39 PM
Surr: Dibromofluoromethane	113	73-145	%Rec	1	7/18/2023 2:19:39 PM
Surr: Toluene-d8	97.5	70-130	%Rec	1	7/18/2023 2:19:39 PM
EPA METHOD 8015D MOD: GASOLINE RANG	E				Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	7/18/2023 2:19:39 PM
Surr: BFB	89.8	70-130	%Rec	1	7/18/2023 2:19:39 PM

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- 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

Page 22 of 34

Date Reported: 7/24/2023

### Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Vertex Resources Services, Inc. Client Sample ID: BS23-71 0.5'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/13/2023 8:55:00 AM

 Lab ID:
 2307706-023
 Matrix: SOIL
 Received Date: 7/15/2023 7:30:00 AM

Analyses	Result	RL Qua	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGAN	NICS				Analyst: <b>DGH</b>
Diesel Range Organics (DRO)	ND	9.9	mg/Kg	1	7/18/2023 8:42:01 PM
Motor Oil Range Organics (MRO)	ND	49	mg/Kg	1	7/18/2023 8:42:01 PM
Surr: DNOP	85.4	69-147	%Rec	1	7/18/2023 8:42:01 PM
EPA METHOD 300.0: ANIONS					Analyst: SNS
Chloride	ND	60	mg/Kg	20	7/19/2023 2:53:40 AM
EPA METHOD 8260B: VOLATILES SHORT LIST					Analyst: RAA
Benzene	ND	0.024	mg/Kg	1	7/18/2023 2:47:17 PM
Toluene	ND	0.048	mg/Kg	1	7/18/2023 2:47:17 PM
Ethylbenzene	ND	0.048	mg/Kg	1	7/18/2023 2:47:17 PM
Xylenes, Total	ND	0.096	mg/Kg	1	7/18/2023 2:47:17 PM
Surr: 1,2-Dichloroethane-d4	112	64.8-147	%Rec	1	7/18/2023 2:47:17 PM
Surr: 4-Bromofluorobenzene	91.0	62.1-144	%Rec	1	7/18/2023 2:47:17 PM
Surr: Dibromofluoromethane	116	73-145	%Rec	1	7/18/2023 2:47:17 PM
Surr: Toluene-d8	97.7	70-130	%Rec	1	7/18/2023 2:47:17 PM
EPA METHOD 8015D MOD: GASOLINE RANGE					Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	7/18/2023 2:47:17 PM
Surr: BFB	88.0	70-130	%Rec	1	7/18/2023 2:47:17 PM

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- 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

Page 23 of 34

Date Reported: 7/24/2023

#### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS23-72 0.5

 Project:
 Tomcat 16 State 006
 Collection Date: 7/13/2023 8:55:00 AM

 Lab ID:
 2307706-024
 Matrix: SOIL
 Received Date: 7/15/2023 7:30:00 AM

Result **RL Qual Units** DF **Date Analyzed** Analyses **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** Analyst: **DGH** Diesel Range Organics (DRO) ND 8.8 mg/Kg 1 7/18/2023 9:05:57 PM Motor Oil Range Organics (MRO) ND 44 mg/Kg 1 7/18/2023 9:05:57 PM Surr: DNOP 89.0 69-147 %Rec 1 7/18/2023 9:05:57 PM **EPA METHOD 300.0: ANIONS** Analyst: SNS Chloride ND 60 7/19/2023 3:06:01 AM mg/Kg 20 **EPA METHOD 8260B: VOLATILES SHORT LIST** Analyst: RAA ND 7/18/2023 3:14:57 PM 0.025 mg/Kg 1 Toluene ND 7/18/2023 3:14:57 PM 0.050 mg/Kg 1 Ethylbenzene ND 0.050 mg/Kg 1 7/18/2023 3:14:57 PM Xylenes, Total ND 0.099 mg/Kg 1 7/18/2023 3:14:57 PM Surr: 1,2-Dichloroethane-d4 %Rec 7/18/2023 3:14:57 PM 114 64.8-147 1 Surr: 4-Bromofluorobenzene 96.1 62.1-144 %Rec 1 7/18/2023 3:14:57 PM Surr: Dibromofluoromethane 73-145 %Rec 1 7/18/2023 3:14:57 PM 116 Surr: Toluene-d8 98.9 70-130 %Rec 1 7/18/2023 3:14:57 PM **EPA METHOD 8015D MOD: GASOLINE RANGE** Analyst: RAA Gasoline Range Organics (GRO) ND mg/Kg 7/18/2023 3:14:57 PM 5.0 1 Surr: BFB 93.0 70-130 %Rec 1 7/18/2023 3:14:57 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

Page 24 of 34

Date Reported: 7/24/2023

### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS23-73 0.5'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/13/2023 9:00:00 AM

 Lab ID:
 2307706-025
 Matrix: SOIL
 Received Date: 7/15/2023 7:30:00 AM

Analyses	Result	RL Qua	l Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGA	NICS				Analyst: <b>DGH</b>
Diesel Range Organics (DRO)	ND	9.5	mg/Kg	1	7/18/2023 9:29:48 PM
Motor Oil Range Organics (MRO)	ND	48	mg/Kg	1	7/18/2023 9:29:48 PM
Surr: DNOP	86.1	69-147	%Rec	1	7/18/2023 9:29:48 PM
EPA METHOD 300.0: ANIONS					Analyst: SNS
Chloride	ND	60	mg/Kg	20	7/19/2023 3:18:23 AM
EPA METHOD 8260B: VOLATILES SHORT LIST					Analyst: RAA
Benzene	ND	0.025	mg/Kg	1	7/18/2023 3:42:42 PM
Toluene	ND	0.049	mg/Kg	1	7/18/2023 3:42:42 PM
Ethylbenzene	ND	0.049	mg/Kg	1	7/18/2023 3:42:42 PM
Xylenes, Total	ND	0.098	mg/Kg	1	7/18/2023 3:42:42 PM
Surr: 1,2-Dichloroethane-d4	118	64.8-147	%Rec	1	7/18/2023 3:42:42 PM
Surr: 4-Bromofluorobenzene	89.6	62.1-144	%Rec	1	7/18/2023 3:42:42 PM
Surr: Dibromofluoromethane	119	73-145	%Rec	1	7/18/2023 3:42:42 PM
Surr: Toluene-d8	95.9	70-130	%Rec	1	7/18/2023 3:42:42 PM
EPA METHOD 8015D MOD: GASOLINE RANGE					Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	7/18/2023 3:42:42 PM
Surr: BFB	87.2	70-130	%Rec	1	7/18/2023 3:42:42 PM

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- 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

Page 25 of 34

#### Hall Environmental Analysis Laboratory, Inc.

WO#: 2307706 24-Jul-23

**Client:** Vertex Resources Services, Inc.

**Project:** Tomcat 16 State 006

Sample ID: MB-76284 SampType: MBLK TestCode: EPA Method 300.0: Anions

Client ID: PBS Batch ID: 76284 RunNo: 98289

Prep Date: 7/18/2023 Analysis Date: 7/18/2023 SeqNo: 3578639 Units: mq/Kq

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

Chloride ND 1.5

Sample ID: LCS-76284 SampType: LCS TestCode: EPA Method 300.0: Anions

Client ID: LCSS Batch ID: 76284 RunNo: 98289

Prep Date: 7/18/2023 Analysis Date: 7/18/2023 SeqNo: 3578640 Units: mg/Kg

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

Chloride 14 1.5 15.00 92 4 110

Sample ID: MB-76308 SampType: mblk TestCode: EPA Method 300.0: Anions

Client ID: PBS Batch ID: 76308 RunNo: 98334

Analysis Date: 7/18/2023 Prep Date: 7/18/2023 SeqNo: 3578775 Units: mg/Kg

Result POI SPK value SPK Ref Val %REC %RPD **RPDLimit** Qual Analyte I owl imit HighLimit

Chloride ND

Sample ID: LCS-76308 SampType: Ics TestCode: EPA Method 300.0: Anions

Client ID: LCSS Batch ID: 76308 RunNo: 98334

Prep Date: Analysis Date: 7/18/2023 SeqNo: 3578776 7/18/2023 Units: mg/Kg

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

Chloride 14 1.5 15.00 92.3 90

Sample ID: MB-76292 SampType: mblk TestCode: EPA Method 300.0: Anions

Client ID: Batch ID: 76292 RunNo: 98334 PRS

Prep Date: 7/18/2023 Analysis Date: 7/18/2023 SeqNo: 3578824 Units: mg/Kg

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

Chloride ND 1.5

Sample ID: LCS-76292 SampType: Ics TestCode: EPA Method 300.0: Anions

Client ID: LCSS Batch ID: 76292 RunNo: 98334

Prep Date: 7/18/2023 Analysis Date: 7/18/2023 SeqNo: 3578825 Units: mg/Kg

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

14 Chloride 1.5 15.00

#### Qualifiers:

Value exceeds Maximum Contaminant Level

D Sample Diluted Due to Matrix

Η Holding times for preparation or analysis exceeded

Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

% Recovery outside of standard limits. If undiluted results may be estimated.

Analyte detected in the associated Method Blank

Above Quantitation Range/Estimated Value

Analyte detected below quantitation limits

Sample pH Not In Range

RL Reporting Limit Page 26 of 34

### Hall Environmental Analysis Laboratory, Inc.

2307706

WO#:

24-Jul-23

Client: Vertex Resources Services, Inc.

**Project:** Tomcat 16 State 006

Project: 1 omcat 1	6 State 006									
Sample ID: LCS-76267	SampTy	pe: <b>LC</b>	s	Tes	tCode: EF	PA Method	8015M/D: Die	sel Range	Organics	
Client ID: LCSS	Batch	ID: <b>76</b> 2	267	F	RunNo: 98	3282				
Prep Date: 7/17/2023	Analysis Da	ate: 7/	18/2023	Ş	SeqNo: 3	576989	Units: mg/k	(g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	63	10	50.00	0	127	61.9	130			
Surr: DNOP	5.5		5.000		109	69	147			
Sample ID: 2307706-001AMS SampType: MS TestCode: EPA Method 8015M/D: Diesel Range Organics										
Client ID: BS23-49 0.5'	Batch	ID: <b>76</b> 2	267	RunNo: 98282						
Prep Date: 7/17/2023	Analysis Da	ate: <b>7/</b>	18/2023	5	SeqNo: 3	576991	Units: mg/k	(g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	47	9.4	47.13	0	98.8	54.2	135			
Surr: DNOP	4.8		4.713		103	69	147			
Sample ID: 2307706-001AMSD SampType: MSD TestCode: EPA Method 8015M/D: Diesel Range Organics										
Client ID: BS23-49 0.5'	Batch	Batch ID: <b>76267</b> RunNo: <b>98282</b>				3282				
Prep Date: 7/17/2023	Analysis Da	ate: <b>7/</b>	18/2023		SeqNo: 3	576992	Units: mg/k	(g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	45	9.7	48.45	0	93.1	54.2	135	3.15	29.2	
Surr: DNOP	4.7		4.845		97.5	69	147	0	0	
Sample ID: <b>MB-76296</b>	SampTy	ре: <b>МЕ</b>	BLK	Tes	tCode: EF	PA Method	8015M/D: Die	sel Range	Organics	
Client ID: PBS	Batch	ID: <b>76</b> 2	296	F	RunNo: 98	3287				
Prep Date: 7/18/2023	Analysis Da	ate: <b>7/</b>	18/2023	Ş	SeqNo: 3	577902	Units: mg/k	(g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	8.4		10.00		84.2	69	147			
Sample ID: LCS-76296	SampTy	pe: <b>LC</b>	s	Tes	tCode: EF	PA Method	8015M/D: Die	sel Range	Organics	
Client ID: LCSS	Batch	ID: <b>76</b> 2	296	F	RunNo: 98	3287				
Prep Date: 7/18/2023	Analysis Da	ate: 7/	18/2023		SeqNo: 3	577903	Units: mg/k	(g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	44	10	50.00	0	88.2	61.9	130			
0 01100										

#### Qualifiers:

Surr: DNOP

- 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.

4.1

B Analyte detected in the associated Method Blank

81.3

69

147

- E Above Quantitation Range/Estimated Value
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

5.000

Page 27 of 34

#### Hall Environmental Analysis Laboratory, Inc.

2307706

WO#:

24-Jul-23

Client: Vertex Resources Services, Inc.

**Project:** Tomcat 16 State 006

Sample ID: MB-76267 SampType: MBLK TestCode: EPA Method 8015M/D: Diesel Range Organics

Client ID: PBS Batch ID: 76267 RunNo: 98282

Prep Date: 7/17/2023 Analysis Date: 7/18/2023 SeqNo: 3578063 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 10.00 129 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

Page 28 of 34

### Hall Environmental Analysis Laboratory, Inc.

WO#: **2307706** 

24-Jul-23

Client: Vertex Resources Services, Inc.

**Project:** Tomcat 16 State 006

Sample ID:	lcs-76261	SampT	ype: <b>LC</b>	s	Tes	tCode: EF	PA Method	8015D: Gaso	line Range	!	
Client ID:	LCSS	Batch	1D: <b>76</b> 2	261	F	RunNo: 98	3314				
Prep Date:	7/17/2023	Analysis D	ate: <b>7/</b>	19/2023	5	SeqNo: 3	578132	Units: mg/K	(g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
•	e Organics (GRO)	22	5.0	25.00	0	88.8	70	130			
Surr: BFB		1800		1000		183	15	244			
Sample ID:	mb-76261	SampT	ype: <b>ME</b>	BLK	Tes	tCode: EF	PA Method	8015D: Gaso	line Range		
Client ID:	PBS	Batch	1D: <b>76</b> 2	261	F	RunNo: 98	3314				
Prep Date:	7/17/2023	Analysis D	ate: 7/	19/2023	5	SeqNo: 3	578133	Units: mg/K	(g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
_	e Organics (GRO)	ND	5.0					<u></u>		<u></u>	
Surr: BFB		790		1000		78.8	15	244			
Sample ID:	2307706-001ams	SampT	ype: <b>MS</b>	6	Tes	tCode: EF	PA Method	8015D: Gaso	line Range		
Client ID:	BS23-49 0.5'	Batch	1D: <b>76</b> 2	261	F	RunNo: 98	3314				
Prep Date:	7/17/2023	Analysis D	ate: <b>7/</b>	19/2023	5	SeqNo: 3	578135	Units: mg/K	(g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range	e Organics (GRO)	24	4.9	24.44	0	98.0	70	130			
Surr: BFB		1900		977.5		198	15	244			
Sample ID:	2307706-001amsd	SampT	ype: <b>MS</b>	SD	Tes	tCode: EF	PA Method	8015D: Gaso	line Range		
Client ID:	BS23-49 0.5'	Batch	ID: <b>76</b> 2	261	F	RunNo: 98	3314				
Prep Date:	7/17/2023	Analysis D	ate: 7/	19/2023	S	SeqNo: 3	578136	Units: mg/K	(g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
_	e Organics (GRO)	23	4.9	24.44	0	93.0	70	130	5.24	20	
Surr: BFB		1900		977.5		194	15	244	0	0	
	lcs-76293		vpe: <b>LC</b>					8015D: Gaso		<u> </u>	

Client ID:	LCSS	Batch	ID: <b>76</b> 2	293	F	RunNo: 98	8347				
Prep Date:	7/18/2023	Analysis Da	ate: <b>7/</b>	19/2023	5	SeqNo: 3	579525	Units: %Rec			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB		1800		1000		178	15	244			

Sample ID: <b>mb-76293</b>	SampType: MBLK	TestCode: EPA Method 8015D: Gasoline	e Range
Client ID: PBS	Batch ID: 76293	RunNo: 98347	
Prep Date: 7/18/2023	Analysis Date: 7/20/202	SeqNo: 3579526 Units: %Rec	
Analyte	Result PQL SPK	alue SPK Ref Val %REC LowLimit HighLimit	%RPD RPDLimit Qual
Surr: BFB	840	000 84.4 15 244	

Surr: BFB 840 1000 84.4 15

#### 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

Page 29 of 34

### Hall Environmental Analysis Laboratory, Inc.

WO#: **2307706** 

24-Jul-23

Client: Vertex Resources Services, Inc.

**Project:** Tomcat 16 State 006

Sample ID: Ics-76261	SampT	ype: LC:	S	Tes	TestCode: EPA Method 8021B: Volatiles						
Client ID: LCSS	Batch	n ID: <b>762</b>	261	RunNo: 98314							
Prep Date: <b>7/17/2023</b>	Analysis D	Date: 7/1	19/2023	SeqNo: 3578205 Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Benzene	0.87	0.025	1.000	0	86.8	70	130				
Toluene	0.89	0.050	1.000	0	89.1	70	130				
Ethylbenzene	0.90	0.050	1.000	0	89.9	70	130				
Xylenes, Total	2.7	0.10	3.000	0	89.7	70	130				
Surr: 4-Bromofluorobenzene	0.79		1.000		79.1	39.1	146				

Sample ID: <b>mb-76261</b>	Samp1	SampType: MBLK TestCode: EPA Method 8021B: Volatiles						les			
Client ID: PBS	Batch	n ID: <b>76</b> 2	261	F	RunNo: 98314						
Prep Date: 7/17/2023	Analysis D	Date: 7/	19/2023	5	SeqNo: 3	578206	Units: mg/K	g/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	0.79		1.000		78.7	39.1	146				

Sample ID: 2307706-002ams	Samp <sup>-</sup>	Гуре: МЅ	}	Tes	tCode: El	PA Method	8021B: Volati	iles		
Client ID: BS23-50 0.5'	Batc	h ID: <b>76</b> 2	261	RunNo: 98314						
Prep Date: 7/17/2023	Analysis [	Date: <b>7/</b>	19/2023	5	578209	Units: mg/K	(g			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.71	0.024	0.9569	0	74.3	70	130			
Toluene	0.73	0.048	0.9569	0	76.2	70	130			
Ethylbenzene	0.74	0.048	0.9569	0	77.4	70	130			
Xylenes, Total	2.2	0.096	2.871	0	77.3	70	130			
Surr: 4-Bromofluorobenzene	0.74		0.9569		77.2	39.1	146			

Sample ID: 2307706-002amsd	SampType: MSD TestCode: EPA Meth					PA Method	8021B: Volati	les		
Client ID: BS23-50 0.5'	Batch	n ID: <b>762</b>	261	RunNo: 98314						
Prep Date: 7/17/2023	Analysis Date: 7/19/2023 SeqNo: 35					578210	Units: mg/K	g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.82	0.024	0.9569	0	86.2	70	130	14.8	20	
Toluene	0.86	0.048	0.9569	0	89.5	70	130	16.1	20	
Ethylbenzene	0.87	0.048	0.9569	0	91.4	70	130	16.6	20	
Xylenes, Total	2.6	0.096	2.871	0	90.6	70	130	15.9	20	
Surr: 4-Bromofluorobenzene	0.75		0.9569		78.7	39.1	146	0	0	

#### Qualifiers:

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

Page 30 of 34

### Hall Environmental Analysis Laboratory, Inc.

2307706

WO#:

24-Jul-23

Client: Vertex Resources Services, Inc.

**Project:** Tomcat 16 State 006

Sample ID: Ics-76293 SampType: LCS TestCode: EPA Method 8021B: Volatiles

Client ID: LCSS Batch ID: 76293 RunNo: 98347

Prep Date: 7/18/2023 Analysis Date: 7/20/2023 SeqNo: 3579615 Units: %Rec

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

Surr: 4-Bromofluorobenzene 0.78 1.000 78.2 39.1 146

Sample ID: mb-76293 SampType: MBLK TestCode: EPA Method 8021B: Volatiles

Client ID: PBS Batch ID: 76293 RunNo: 98347

Prep Date: 7/18/2023 Analysis Date: 7/20/2023 SeqNo: 3579616 Units: %Rec

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

Surr: 4-Bromofluorobenzene 0.77 1.000 76.7 39.1 146

#### Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quantitative Limit

S % Recovery outside of standard limits. If undiluted results may be estimated.

B Analyte detected in the associated Method Blank

E Above Quantitation Range/Estimated Value

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

Page 31 of 34

### Hall Environmental Analysis Laboratory, Inc.

WO#: **2307706 24-Jul-23** 

Client: Vertex Resources Services, Inc.

**Project:** Tomcat 16 State 006

Sample ID: Ics-76270	Samp	Type: <b>LC</b>	S4	TestCode: EPA Method 8260B: Volatiles Short List							
Client ID: BatchQC	Batc	h ID: <b>76</b> 2	270	F	RunNo: 9	8320					
Prep Date: 7/17/2023	Analysis [	Date: <b>7/</b>	18/2023		SeqNo: 3	578345	Units: mg/k				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Benzene	0.92	0.025	1.000	0	91.6	80	120				
Toluene	0.94	0.050	1.000	0	94.4	80	120				
Ethylbenzene	0.97	0.050	1.000	0	97.2	80	120				
Xylenes, Total	2.9	0.10	3.000	0	95.4	80	120				
Surr: 1,2-Dichloroethane-d4	0.52		0.5000		105	64.8	147				
Surr: 4-Bromofluorobenzene	0.50		0.5000		100	62.1	144				
Surr: Dibromofluoromethane	0.54		0.5000		108	73	145				
Surr: Toluene-d8	0.50		0.5000		99.5	70	130				
Sample ID: mb-76270	Samp	Туре: МЕ	3LK	Tes	tCode: El	PA Method	8260B: Volat	iles Short	List		
Client ID: PBS	Batc	h ID: <b>762</b>	270	F	RunNo: 9	8320					
Prep Date: 7/17/2023	Analysis [	Date: <b>7/</b>	18/2023	5	SeqNo: 3	578346	Units: mg/k	(g			
Analyte	Result	POI	SPK value	SPK Ref Val	%RFC	I owl imit	Highl imit	%RPD	RPDI imit	Qual	

Prep Date: 7/17/2023	Analysis Date: 7/18/2023			5	SeqNo: 3578346 Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 1,2-Dichloroethane-d4	0.54		0.5000		108	64.8	147			
Surr: 4-Bromofluorobenzene	0.50		0.5000		99.7	62.1	144			
Surr: Dibromofluoromethane	0.56		0.5000		111	73	145			
Surr: Toluene-d8	0.50		0.5000		100	70	130			

SampType: MS4			TestCode: EPA Method 8260B: Volatiles Short List							TestCode: EPA Method 8260B: Volatiles Short List						
Client ID: <b>BS23-70 0.5'</b> Batch ID: <b>7627</b>				RunNo: 98337												
Analysis Date: 7/19/2023			8	SeqNo: 3	578959	Units: mg/K	g									
Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual							
0.99	0.024	0.9766	0	102	75.8	123										
0.95	0.049	0.9766	0.008856	96.5	68.3	130										
0.94	0.049	0.9766	0	96.6	76.6	132										
2.9	0.098	2.930	0	98.3	74.7	132										
0.55		0.4883		113	64.8	147										
0.45		0.4883		91.6	62.1	144										
0.57		0.4883		117	73	145										
0.49		0.4883		99.3	70	130										
	Result  0.99  0.95  0.94  2.9  0.55  0.45  0.57	Batch ID: 762 Analysis Date: 7/ Result PQL 0.99 0.024 0.95 0.049 0.94 0.049 2.9 0.098 0.55 0.45 0.57	Result         PQL         SPK value           0.99         0.024         0.9766           0.95         0.049         0.9766           0.94         0.049         0.9766           2.9         0.098         2.930           0.55         0.4883           0.45         0.4883           0.57         0.4883	Batch ID: 76270 F Analysis Date: 7/19/2023 S  Result PQL SPK value SPK Ref Val  0.99 0.024 0.9766 0 0.95 0.049 0.9766 0.008856 0.94 0.049 0.9766 0 2.9 0.098 2.930 0 0.55 0.4883 0.45 0.4883 0.57 0.4883	Batch ID: 76270         RunNo: 98           Analysis Date:         7/19/2023         SeqNo: 38           Result         PQL         SPK value         SPK Ref Val         %REC           0.99         0.024         0.9766         0.008856         96.5           0.94         0.049         0.9766         0         96.6           2.9         0.098         2.930         0         98.3           0.55         0.4883         113           0.45         0.4883         91.6           0.57         0.4883         117	Batch ID: 76270         RunNo: 98337           Analysis Date: 7/19/2023         SeqNo: 3578959           Result         PQL         SPK value         SPK Ref Val         %REC         LowLimit           0.99         0.024         0.9766         0         102         75.8           0.95         0.049         0.9766         0.008856         96.5         68.3           0.94         0.049         0.9766         0         96.6         76.6           2.9         0.098         2.930         0         98.3         74.7           0.55         0.4883         113         64.8           0.45         0.4883         91.6         62.1           0.57         0.4883         117         73	Batch ID: 76270       RunNo: 98337         Analysis Date: 7/19/2023       SeqNo: 3578959       Units: mg/K         Result       PQL       SPK value       SPK Ref Val       %REC       LowLimit       HighLimit         0.99       0.024       0.9766       0       102       75.8       123         0.95       0.049       0.9766       0.008856       96.5       68.3       130         0.94       0.049       0.9766       0       96.6       76.6       132         2.9       0.098       2.930       0       98.3       74.7       132         0.55       0.4883       113       64.8       147         0.45       0.4883       91.6       62.1       144         0.57       0.4883       117       73       145	Batch ID: 76≥70       RunNo: 98337         Analysis Date: 7/19/2023       SeqNo: 3578959       Units: mg/Kg         Result       PQL       SPK value       SPK Ref Val       %REC       LowLimit       High Limit       %RPD         0.99       0.024       0.9766       0       102       75.8       123         0.95       0.049       0.9766       0.008856       96.5       68.3       130         0.94       0.049       0.9766       0       96.6       76.6       132         2.9       0.098       2.930       0       98.3       74.7       132         0.55       0.4883       113       64.8       147         0.45       0.4883       91.6       62.1       144         0.57       0.4883       117       73       145	Batch ID: 76≥70       RunNo: 98337         Analysis Date: 7/19/2023       SeqNo: 3578959       Units: mg/Kg         Result       PQL       SPK value       SPK Ref Val       %REC       LowLimit       HighLimit       %RPD       RPDLimit         0.99       0.024       0.9766       0       102       75.8       123         0.95       0.049       0.9766       0.008856       96.5       68.3       130         0.94       0.049       0.9766       0       96.6       76.6       132         2.9       0.098       2.930       0       98.3       74.7       132         0.55       0.4883       113       64.8       147         0.45       0.4883       91.6       62.1       144         0.57       0.4883       117       73       145							

#### 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
- B Analyte detected in the associated Method Blank
- E Above Quantitation Range/Estimated Value
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

Page 32 of 34

### Hall Environmental Analysis Laboratory, Inc.

WO#: **2307706** 

24-Jul-23

Client: Vertex Resources Services, Inc.

**Project:** Tomcat 16 State 006

Sample ID: 2307706-022amsd	Samp1	уре: МЅ	D4	Tes	tCode: EF	PA Method	8260B: Volati	les Short l	Short List					
Client ID: BS23-70 0.5'	Batcl	n ID: <b>762</b>	270	RunNo: 98337										
Prep Date: 7/17/2023	Analysis Date: 7/19/2023			5	SeqNo: 3578960 Units: mg/Kg									
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual				
Benzene	1.0	0.024	0.9775	0	103	75.8	123	1.41	20					
Toluene	0.93	0.049	0.9775	0.008856	94.3	68.3	130	2.17	20					
Ethylbenzene	0.92	0.049	0.9775	0	94.0	76.6	132	2.68	20					
Xylenes, Total	2.9	0.098	2.933	0	100	74.7	132	1.85	20					
Surr: 1,2-Dichloroethane-d4	0.56		0.4888		114	64.8	147	0	0					
Surr: 4-Bromofluorobenzene	0.44		0.4888		90.7	62.1	144	0	0					
Surr: Dibromofluoromethane	0.55		0.4888		113	73	145	0	0					
Surr: Toluene-d8	0.48		0.4888		98.0	70	130	0	0					

#### Qualifiers:

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

Page 33 of 34

### Hall Environmental Analysis Laboratory, Inc.

2307706 24-Jul-23

WO#:

Client: Vertex Resources Services, Inc.

**Project:** Tomcat 16 State 006

Sample ID: 2	2307706-021ams	SampType: MS TestCode: EPA Method 8015D Mod: Gasoline Range							lange			
Client ID: B	3S23-69 0.5'	Batch	ID: <b>762</b>	270	F	RunNo: 98	3320					
Prep Date:	7/17/2023	Analysis D	ate: <b>7/</b>	18/2023	5	SeqNo: <b>3578301</b> Units: <b>mg/Kg</b>						
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Gasoline Range (	Organics (GRO)	27	4.9	24.63	0	110	65.9	123				
Surr: BFB		470		492.6		95.2	70	130				
Sample ID: 2	2307706-021amsd	SampT	SampType: MSD TestCode: EPA Method 8015D Mod: Gasoline Range									
Client ID: B	3S23-69 0.5'	Batch	ID: <b>762</b>	270	F	RunNo: 98	3320					
Prep Date:	7/17/2023	Analysis D	ate: <b>7/</b>	18/2023	5	SeqNo: 3	578302	Units: mg/k	(g			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Gasoline Range (	Organics (GRO)	25	4.9	24.73	0	102	65.9	123	7.53	20		
Surr: BFB		480		494.6		97.9	70	130	0	0		
Sample ID: Id	cs-76270	SampT	ype: <b>LC</b>	s	Tes	tCode: EF	PA Method	8015D Mod:	Gasoline R	lange		
Client ID: L	css	Batch	ID: <b>762</b>	270	F	RunNo: 98	3320					
Prep Date:	7/17/2023	Analysis D	ate: <b>7/</b>	18/2023	5	SeqNo: 3	578322	Units: mg/k	(g			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Gasoline Range (	Organics (GRO)	25	5.0	25.00	0	98.9	70	130		·		
Surr: BFB		490		500.0		99.0	70	130				

Sample ID: <b>mb-76270</b>	SampT	ype: ME	BLK	Tes	tCode: <b>EF</b>	PA Method	8015D Mod: 0	Gasoline R	ange	
Client ID: PBS	F	RunNo: <b>98</b>	3320							
Prep Date: 7/17/2023	Analysis D	ate: <b>7/</b>	18/2023	5	SeqNo: 35	578323	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	470		500.0		94.4	70	130			

#### Qualifiers:

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

Page 34 of 34



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

Released to Imaging: 4/23/2024 2:01:30 PM

	Vertex Resoure Services, Inc.	ces	Work (	Order Numb	per: 2307706		RcptNc	e: 1
Received By:	Juan Rojas			3 7:30:00 A		Hawing Huming		
Completed By: Reviewed By:	Juan Rojas SCM	07/17/2		073L		J. Saur-ay		
Chain of Cust	ody							
1. Is Chain of Cu	stody complete	?			Yes 🗌	No 🔽	Not Present	
2. How was the s	sample delivere	d?			Courier			
<u>Log In</u> 3. Was an attem	pt made to cool	the samples?			Yes 🗸	No 🗌	NA $\square$	
4. Were all samp	les received at	a temperature o	ıf>0°Ctı	o 6.0°C	Yes 🗹	No 🗌	NA 🗆	
5. Sample(s) in p	oroper container	r(s)?			Yes 🗸	No 🗌		
6. Sufficient sam	ple volume for i	ndicated test(s)	?		Yes 🗹	No 🗌		
7. Are samples (e	except VOA and	d ONG) properly	preserve	d?	Yes 🗸	No 🗌		
8. Was preservat	ive added to bo	ottles?			Yes 🗌	No 🗸	NA 🗌	
9. Received at lea	ast 1 vial with h	eadspace <1/4"	for AQ V	OA?	Yes 🗌	No 🗌	NA 🗹	
10. Were any sam	nple containers	received broker	ı?		Yes 🗌	No 🗹	# of preserved	
11. Does paperwo	rk match bottle incies on chain				Yes 🗹	No 🗌	bottles checked for pH:	or >12 unless noted)
12. Are matrices of			ustody?		Yes 🗹	No 🗌	Adjusted?	/
13. Is it clear what	analyses were	requested?			Yes 🗸	No 🗌		7 7 11 ch2
14. Were all holdin	ng times able to ustomer for auth				Yes 🗹	No 📙	Checked by:	N4 (15 / 6)
Special Handle	ing (if applic	cable)						
15. Was client no	tified of all disc	repancies with t	nis order?		Yes 🗌	No 🗌	NA 🗹	
Person	Notified:			Date				
By Who	om:			Via:	eMail	Phone Fax	In Person	
Regardi	ing:							
Client Ir	nstructions:							
16. Additional rea	marks:							
Client n	nissing mailing	address,phone	number ar	nd email ad	dress on COC	C. JR 7/15/23		
17. Cooler Infor						1	i .	
Cooler No			al Intact	Seal No	Seal Date	Signed By		
1	1.7 G	Good No		Morty				

Page 290 of 319 **ANALYSIS LABORATORY** HALL ENVIRONMENTAL 4901 Hawkins NE - Albuquerque, NM 87109 Fax 505-345-4107 Remarks: Direct bill to Devon, Dale Woodall Harvard Divest Site - Tomcat 16 State #006 www.hallenvironmental.com す ハケン チラ つc. kstallings@vertex.ca for Final Report Analysis Request Total Coliform (Present/Absent) (AOV-im92) 07S8 (AOV) 09S8 'EON NO<sup>5</sup>, PO<sub>4</sub>, SO<sub>4</sub> Cl' E' Br, × × × × × × × × ×  $\times$ × × Tel. 505-345-3975 RCRA 8 Metals **GL Account 7700100** PAHs by 8310 or 8270SIMS EDB (Method 504.1) CC 1007884901 8081 Pesticides/8082 PCB's PH:8015D(GRO / DRO / MRO) × × × × × × × × × × × BTEX / MTBE / TMB's (8021) × × × × × × × × × × 26 Time Time HEAL No. 600-900-36770 -007 701 101 -008 200--003 100-0/0-7007 001 56/14/33 X Rush 3-day Date % □ 0,0 100000 **Preservative** Cooler Temp(including CF): 1 Tomcat 16 State #006 L.Pullman D Tres kstallings@vertex.ca Received by: Na: Turn-Around Time: Type Via: Project Manager: 22E-02816-25 Project Name: Kent Stallings □ Standard # of Coolers. 1, 4oz jar Received by: Type and # 1, 4oz jar Container Project #: Sampler: On Ice: ☐ Level 4 (Full Validation) (direct bill to Devon-Harvard Divest, see Remarks) Received be Pering 1640 Elst 6 dy Record Sample Name BS23-49 0.5' BS23-50 0.5' BS23-51 0.5' BS23-52 0.5' BS23-53 0.51 BS23-56 0.5' BS23-54 0.5' BS23-55 0.5' BS23-57 0.5' BS23-58 0.5' BS23-59 0.5' BS23-60 0.5' Mummy Hall ☐ Az Compliance Other Matrix Vertex Soil Mailing Address: Time QA/QC Package: 07:20 07:25 07:25 07:35 07:20 07:35 08:15 08:15 07:30 07:30 08:10 08:10 EDD (Type) email or Fax#; Accreditation: 1/433/1900 7-14-23 |07:00 rime: Time: □ Standard □ NELAC Phone #: 07/13/23 07/13/23 Date 07/13/23 07/13/23 07/13/23 07/13/23 07/13/23 07/13/23 07/13/23 07/13/23 07/13/23 07/13/23 Client: Date:

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.

Received IC	18 B	19-30EA	Received 10 9 Still 18 19 8 18 18 18 Record	Turn-Around Time:					<	Ш	2	TD	Page 291	1 of 319
Client:		Vertex		Standard	X Rush_3-day_			. 4	ANAL	1	YSIS	1	ABORATORY	RY
(direct b	ill to Dev	von-Harv	(direct bill to Devon-Harvard Divest, see Remarks)	ai			1		www.hallenvironmental.com	allenv	vironn	nental.	mo	
Mailing	Mailing Address:			Tomcat 16 State #006	900		4901	Hawki	4901 Hawkins NE	1	enbno	rque,	Albuquerque, NM 87109	
				Project #:			Tel. 5	505-34	505-345-3975		ax	05-34	Fax 505-345-4107	
Phone #:	÷.			22E-02816-25			N		B	Analy	sis F	Analysis Request		
email or Fax#:	Fax#:			Project Manager:		(1)			-	<sup>⊅</sup> OS		(tue		
QA/QC F	QA/QC Package:			Kent Stallings		Z08)			SWI	5 '⁵C				
□ Standard	dard		☐ Level 4 (Full Validation)	kstallings@vertex.ca	, a	) s'E			S02	)d '		7,140		
Accreditation:	ation:	□ Az Co	☐ Az Compliance	Sampler: L.Pul	Pullman	IMT			728	ON				
□ NELAC	4C	□ Other		On Ice: Thes	ss 🗆 No	. / :								
□ EDD (Type)	(Type)_			# of Coolers:	Marty	 				ON	()			
				Cooler Temp(including	CF: 1-9-0-2-1.7	LW /					ΑΟV			
Date	Time	Matrix	Sample Name	Container Prese	Preservative 780790 6	BTEX	)8:H9T 	EDB (I	PAHs ARDR	Cl' E'	) 0928	) 0728 ) lstoT		
07/13/23	08:25	Soil	BS23-61 0.5'	1, 4oz jar	- 013	×	×			×				
07/13/23	08:25	Soil	BS23-62 0.5'	1, 4oz jar	h10~	×	×			×				
07/13/23	08:30	Soil	BS23-63 0.5'	1, 4oz jar	510-	×	×			×				
07/13/23	08:30	Soil	BS23-64 0.5'	1, 4oz jar	210-	×	×			×				
07/13/23	08:40	Soil	BS23-65 0.5'	1, 4oz jar	-017	×	×			×				
07/13/23	08:40	Soil	BS23-66 0.5'	1, 4oz jar	210-	×	×			×		$\dashv$		
07/13/23	08:45	Soil	BS23-67 0.5'	1, 4oz jar	-019	×	×			×				
07/13/23	08:45	Soil	BS23-68 0.5'	1, 4oz jar	-620	×	×			×		_		
07/13/23	08:50	Soil	BS23-69 0.5'	1, 4oz jar	-021	×	×			×				
07/13/23	08:50	Soil	BS23-70 0.5'	1, 4oz jar	-022	×	×			×		_		
07/13/23	08:55	Soil	BS23-71 0.5'	1, 4oz jar	-023	×	×			×				
07/13/23	08:55	Soil	B\$23-72 0.5'		0 -	×	×			×				
	Time:	Relinquished by:	// : // led by:	Received by: Via:	Date	Rem	arks:	Direct	끋	Deve	on, D	ale Wo	odali	
~3		Jack.	DAMM!	777	2/4/20	Harv	ard Di	Harvard Divest Site - Gl Account 7700100		Lomo	at 16	Tomcat 16 State #006		
Date:	Time:	Relinquished by:	led by:	_	Date Time	001	1007884901	4901						1/6
1433	ME	1/V	J. Marine	THE STATE OF THE S	100ver 4/15/23 7130	cc. k	stallin	gs@\	cc. kstallings@vertex.ca for Final Report	ca fo	r Fina	II Rep		\ <u>\</u>
	1000000	duo adamos	ironmontol	may be subcontracted to other accredited labo	ratories This serves	idisson	itv. Anv	sub-con	racted da	ta will b	e clearly	notated	s notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.	

Page 292 of 319 **ANALYSIS LABORATORY** HALL ENVIRONMENTAL 4901 Hawkins NE - Albuquerque, NM 87109 Fax 505-345-4107 Remarks: Direct bill to Devon, Dale Woodal Harvard Divest Site - Tomcat 16 State #006 www.hallenvironmental.com Analysis Request アロシャルタルタトラー23 ランスの cc. kstallings@vertex.ca for Final Report Total Coliform (Present/Absent) (AOV-ima2) 07S8 (AOV) 0928 Cl' E' B¹' NO³' NO⁵' bO⁴' 2O⁴ × Tel. 505-345-3975 RCRA 8 Metals **GL Account 7700100** PAHs by 8310 or 8270SIMS EDB (Method 504.1) CC 1007884901 8081 Pesticides/8082 PCB's TPH:8015D(GRO / DRO / MRO) × BTEX / MTBE / TMB's (8021) × 230770 Time Time HEAL No. X Rush\_3-day Cooler Temp(including CF): 1 9-0-2 2/14/28 Date Preservative Tomcat 16 State #006 L.Pullman □ Yes kstallings@vertex.ca Turn-Around Time: Type Munny ∑iä: Project Manager: 22E-02816-25 Project Name: Kent Stallings □ Standard # of Coolers: Type and # 1, 4oz jar Container Received by: Project #: Sampler: Received by On Ice: ☐ Level 4 (Full Validation) (direct bill to Devon-Harvard Divest, see Remarks) Sample Name BS23-73 0.5' Zahr Jullhom ☐ Az Compliance Relinquished by Relinquished by □ Other Matrix Vertex Soil Mailing Address: Time QA/QC Package: 00:60 EDD (Type) email or Fax#: Accreditation: Ma 8,5 □ Standard Time: □ NELAC Phone #: Client: 07/13/23 Date 7-8-1 Date:

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.



July 31, 2023

Kent Stallings Devon Energy 6488 Seven Rivers Highway Artesia, NM 88210

TEL: (575) 748-0176 FAX:

RE: Tomcat 16 State 006

OrderNo.: 2307984

Hall Environmental Analysis Laboratory

TEL: 505-345-3975 FAX: 505-345-4107

Website: www.hallenvironmental.com

4901 Hawkins NE

Albuquerque, NM 87109

### Dear Kent Stallings:

Hall Environmental Analysis Laboratory received 4 sample(s) on 7/21/2023 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

Indes

4901 Hawkins NE

Albuquerque, NM 87109

Date Reported: 7/31/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy Client Sample ID: BS23-45 0.5'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/12/2023 11:30:00 AM

 Lab ID:
 2307984-001
 Matrix: SOIL
 Received Date: 7/21/2023 7:50:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE O	RGANICS				Analyst: PRD
Diesel Range Organics (DRO)	ND	10	mg/Kg	1	7/23/2023 4:54:05 PM
Motor Oil Range Organics (MRO)	ND	50	mg/Kg	1	7/23/2023 4:54:05 PM
Surr: DNOP	95.9	69-147	%Rec	1	7/23/2023 4:54:05 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.7	mg/Kg	1	7/24/2023 12:10:20 PM
Surr: BFB	95.2	15-244	%Rec	1	7/24/2023 12:10:20 PM
EPA METHOD 8021B: VOLATILES					Analyst: JJP
Benzene	ND	0.024	mg/Kg	1	7/24/2023 12:10:20 PM
Toluene	ND	0.047	mg/Kg	1	7/24/2023 12:10:20 PM
Ethylbenzene	ND	0.047	mg/Kg	1	7/24/2023 12:10:20 PM
Xylenes, Total	ND	0.095	mg/Kg	1	7/24/2023 12:10:20 PM
Surr: 4-Bromofluorobenzene	121	39.1-146	%Rec	1	7/24/2023 12:10:20 PM
EPA METHOD 300.0: ANIONS					Analyst: RBC
Chloride	ND	60	mg/Kg	20	7/25/2023 10:47:07 PM

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- 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

Page 1 of 8

Date Reported: 7/31/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy Client Sample ID: BS23-46 0.5'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/12/2023 11:35:00 AM

 Lab ID:
 2307984-002
 Matrix: SOIL
 Received Date: 7/21/2023 7:50:00 AM

Analyses	Result	RL Qua	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGA	ANICS				Analyst: PRD
Diesel Range Organics (DRO)	ND	9.2	mg/Kg	1	7/23/2023 5:18:42 PM
Motor Oil Range Organics (MRO)	ND	46	mg/Kg	1	7/23/2023 5:18:42 PM
Surr: DNOP	100	69-147	%Rec	1	7/23/2023 5:18:42 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.7	mg/Kg	1	7/24/2023 12:33:47 PM
Surr: BFB	92.2	15-244	%Rec	1	7/24/2023 12:33:47 PM
EPA METHOD 8021B: VOLATILES					Analyst: JJP
Benzene	ND	0.024	mg/Kg	1	7/24/2023 12:33:47 PM
Toluene	ND	0.047	mg/Kg	1	7/24/2023 12:33:47 PM
Ethylbenzene	ND	0.047	mg/Kg	1	7/24/2023 12:33:47 PM
Xylenes, Total	ND	0.095	mg/Kg	1	7/24/2023 12:33:47 PM
Surr: 4-Bromofluorobenzene	118	39.1-146	%Rec	1	7/24/2023 12:33:47 PM
EPA METHOD 300.0: ANIONS					Analyst: RBC
Chloride	ND	60	mg/Kg	20	7/25/2023 10:59:31 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

ample pH Not In Range
Reporting Limit

Page 2 of 8

Date Reported: 7/31/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy Client Sample ID: BS23-47 0.5'

 Project:
 Tomcat 16 State 006
 Collection Date: 7/12/2023 11:35:00 AM

 Lab ID:
 2307984-003
 Matrix: SOIL
 Received Date: 7/21/2023 7:50:00 AM

Analyses	Result	RL Qua	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORG	ANICS				Analyst: PRD
Diesel Range Organics (DRO)	ND	8.3	mg/Kg	1	7/23/2023 5:43:17 PM
Motor Oil Range Organics (MRO)	ND	42	mg/Kg	1	7/23/2023 5:43:17 PM
Surr: DNOP	108	69-147	%Rec	1	7/23/2023 5:43:17 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.7	mg/Kg	1	7/24/2023 12:57:20 PM
Surr: BFB	98.1	15-244	%Rec	1	7/24/2023 12:57:20 PM
EPA METHOD 8021B: VOLATILES					Analyst: JJP
Benzene	ND	0.023	mg/Kg	1	7/24/2023 12:57:20 PM
Toluene	ND	0.047	mg/Kg	1	7/24/2023 12:57:20 PM
Ethylbenzene	ND	0.047	mg/Kg	1	7/24/2023 12:57:20 PM
Xylenes, Total	ND	0.093	mg/Kg	1	7/24/2023 12:57:20 PM
Surr: 4-Bromofluorobenzene	123	39.1-146	%Rec	1	7/24/2023 12:57:20 PM
EPA METHOD 300.0: ANIONS					Analyst: RBC
Chloride	ND	60	mg/Kg	20	7/25/2023 11:11:56 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

of the pH Not In Range Page 3 of 8

Date Reported: 7/31/2023

## Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Devon Energy Client Sample ID: BS23-48 0.5'

**Project:** Tomcat 16 State 006 **Collection Date:** 7/12/2023 11:40:00 AM 2307984-004 Lab ID: Matrix: SOIL **Received Date:** 7/21/2023 7:50:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OR	GANICS				Analyst: PRD
Diesel Range Organics (DRO)	ND	9.9	mg/Kg	1	7/23/2023 6:07:50 PM
Motor Oil Range Organics (MRO)	ND	49	mg/Kg	1	7/23/2023 6:07:50 PM
Surr: DNOP	96.6	69-147	%Rec	1	7/23/2023 6:07:50 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.7	mg/Kg	1	7/24/2023 1:20:57 PM
Surr: BFB	93.5	15-244	%Rec	1	7/24/2023 1:20:57 PM
EPA METHOD 8021B: VOLATILES					Analyst: JJP
Benzene	ND	0.024	mg/Kg	1	7/24/2023 1:20:57 PM
Toluene	ND	0.047	mg/Kg	1	7/24/2023 1:20:57 PM
Ethylbenzene	ND	0.047	mg/Kg	1	7/24/2023 1:20:57 PM
Xylenes, Total	ND	0.095	mg/Kg	1	7/24/2023 1:20:57 PM
Surr: 4-Bromofluorobenzene	119	39.1-146	%Rec	1	7/24/2023 1:20:57 PM
EPA METHOD 300.0: ANIONS					Analyst: RBC
Chloride	ND	60	mg/Kg	20	7/25/2023 11:24:21 PM

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

Qualifiers:

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

Reporting Limit

Page 4 of 8

## Hall Environmental Analysis Laboratory, Inc.

WO#: **2307984** 

31-Jul-23

Client: Devon Energy
Project: Tomcat 16 State 006

Sample ID: MB-76448 SampType: MBLK TestCode: EPA Method 300.0: Anions

Client ID: PBS Batch ID: 76448 RunNo: 98504

Prep Date: 7/25/2023 Analysis Date: 7/25/2023 SeqNo: 3586471 Units: mg/Kg

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

Chloride ND 1.5

Sample ID: LCS-76448 SampType: LCS TestCode: EPA Method 300.0: Anions

Client ID: LCSS Batch ID: 76448 RunNo: 98504

Prep Date: 7/25/2023 Analysis Date: 7/25/2023 SeqNo: 3586472 Units: mg/Kg

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

Chloride 14 1.5 15.00 0 93.2 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

B Analyte detected in the associated Method Blank

E Above Quantitation Range/Estimated Value

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

Page 5 of 8

## Hall Environmental Analysis Laboratory, Inc.

WO#: **2307984** 

31-Jul-23

Client: Devon Energy
Project: Tomcat 16 State 006

Sample ID: LCS-76387	SampT	ype: LC	S	Tes	tCode: EF	PA Method	8015M/D: Die	sel Range	Organics	
Client ID: LCSS	Batch	ID: <b>763</b>	887	F	RunNo: <b>98</b>	3368				
Prep Date: 7/21/2023	Analysis D	ate: 7/2	23/2023	9	SeqNo: 3	583070	Units: mg/K	g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	50	10	50.00	0	99.3	61.9	130			
Surr: DNOP	4.6		5.000		91.4	69	147			

Sample ID: MB-76387	Samp1	уре: МЕ	BLK	Tes	tCode: EF	PA Method	8015M/D: Die	sel Range	Organics	
Client ID: PBS	Batch	n ID: <b>76</b> 3	387	F	RunNo: 98	8451				
Prep Date: 7/21/2023	Analysis D	)ate: 7/2	24/2023	5	SeqNo: 3	583918	Units: mg/K	g		
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	11		10.00		107	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

Page 6 of 8

## Hall Environmental Analysis Laboratory, Inc.

WO#: **2307984** 

31-Jul-23

Client: Devon Energy
Project: Tomcat 16 State 006

Sample ID: Ics-76381 SampType: LCS TestCode: EPA Method 8015D: Gasoline Range Client ID: LCSS Batch ID: 76381 RunNo: 98452 Prep Date: 7/21/2023 Analysis Date: 7/24/2023 SeqNo: 3583843 Units: mg/Kg PQL SPK value SPK Ref Val %REC HighLimit %RPD **RPDLimit** Analyte Result LowLimit Qual Gasoline Range Organics (GRO) 24 5.0 25.00 0 94.4 70 130 Surr: BFB 2000 1000 197 15 244

Sample ID: mb-76381 SampType: MBLK TestCode: EPA Method 8015D: Gasoline Range Client ID: PBS Batch ID: 76381 RunNo: 98452 Prep Date: Analysis Date: 7/24/2023 SeqNo: 3583844 7/21/2023 Units: mg/Kg Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual

Gasoline Range Organics (GRO) ND 5.0

Surr: BFB 950 1000 95.2 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

Page 7 of 8

## Hall Environmental Analysis Laboratory, Inc.

WO#: **2307984** 

31-Jul-23

Client: Devon Energy
Project: Tomcat 16 State 006

Sample ID: LCS-76381	Samp	Гуре: <b>LC</b>	s	Tes	tCode: EF	PA Method	8021B: Volati	les		
Client ID: LCSS	Batcl	h ID: <b>76</b> 3	381	F	RunNo: <b>98</b>	3452				
Prep Date: <b>7/21/2023</b>	Analysis [	Date: <b>7/</b> 2	24/2023	5	SeqNo: 3	583856	Units: mg/K	g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.025	1.000	0	114	70	130			
Toluene	1.1	0.050	1.000	0	115	70	130			
Ethylbenzene	1.2	0.050	1.000	0	117	70	130			
Xylenes, Total	3.5	0.10	3.000	0	118	70	130			
Surr: 4-Bromofluorobenzene	1.2		1.000		120	39.1	146			

Sample ID: mb-76381	Samp1	Гуре: МЕ	BLK	Tes	tCode: El	PA Method	8021B: Volati	iles		
Client ID: PBS	Batcl	h ID: <b>76</b> :	381	F	RunNo: 9	8452				
Prep Date: <b>7/21/2023</b>	Analysis [	Date: <b>7/</b>	24/2023	5	SeqNo: 3	583857	Units: mg/K	(g		
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	1.2		1.000		119	39.1	146			

#### Qualifiers:

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

Page 8 of 8

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

Released to Imaging: 4/23/2024 2:01:30 PM

Client Name: Devon Energy Work C	Order Number: 2307984		RcptNo: 1
Received By: Juan Rojas 7/21/202	3 7:50:00 AM	Guara g	
Completed By: Tracy Casarrubias 7/21/202	3 8:07:55 AM		
Reviewed By 7/21/23			
Chain of Custody			
1. Is Chain of Custody complete?	Yes 🗌	No 🗹	Not Present
2. How was the sample delivered?	Courier		
<u>Log In</u>			
3. Was an attempt made to cool the samples?	Yes 🗹	No 🗌	na 🗆
4. Were all samples received at a temperature of >0° C to	o 6.0°C Yes <b>✓</b>	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	d? Yes ✓	No 🗌	
8. Was preservative added to bottles?	Yes 🗌	No 🗸	NA 🗌
9. Received at least 1 vial with headspace <1/4" for AQ VC	DA? Yes	No 🗌	NA 🗹 🛔
10. Were any sample containers received broken?	Yes $\square$	No 🗹	# of preserved
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes 🗹	No 🗆	bottles checked for pH: (<2 or >12 unless noted
2. Are matrices correctly identified on Chain of Custody?	Yes 🗹	No 🗌	Adjusted?
3. Is it clear what analyses were requested?	Yes 🗹	No 🗌	1/000 07/
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes 🗸	No 🗌	Checked by: Oli U/(
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:			

Seal Date

Signed By

17. Cooler Information Cooler No

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Seal Intact | Seal No

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email or Fax#:	· Fax#:			Project Manager:	iger:						⁵OS		(Jue			
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Released to Imaging: 4/23/2024 2:01:30 PM



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

August 14, 2023

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

FAX:

RE: Tomcat 16 State 006 OrderNo.: 2308384

#### Dear Kent Stallings:

Hall Environmental Analysis Laboratory received 1 sample(s) on 8/8/2023 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman

Laboratory Manager

Indes

4901 Hawkins NE

Albuquerque, NM 87109

Date Reported: 8/14/2023

## Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Vertex Resources Services, Inc. Client Sample ID: BS23-62-B 0.5'

**Project:** Tomcat 16 State 006 Collection Date: 8/5/2023 7:30:00 AM

**Lab ID:** 2308384-001 **Matrix:** SOIL **Received Date:** 8/8/2023 7:20:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OR	GANICS				Analyst: <b>mb</b>
Diesel Range Organics (DRO)	ND	9.5	mg/Kg	1	8/10/2023 2:00:01 PM
Motor Oil Range Organics (MRO)	ND	47	mg/Kg	1	8/10/2023 2:00:01 PM
Surr: DNOP	95.4	69-147	%Rec	1	8/10/2023 2:00:01 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	8/10/2023 4:42:22 AM
Surr: BFB	91.8	15-244	%Rec	1	8/10/2023 4:42:22 AM
EPA METHOD 8021B: VOLATILES					Analyst: JJP
Benzene	ND	0.024	mg/Kg	1	8/10/2023 4:42:22 AM
Toluene	ND	0.048	mg/Kg	1	8/10/2023 4:42:22 AM
Ethylbenzene	ND	0.048	mg/Kg	1	8/10/2023 4:42:22 AM
Xylenes, Total	ND	0.097	mg/Kg	1	8/10/2023 4:42:22 AM
Surr: 4-Bromofluorobenzene	104	39.1-146	%Rec	1	8/10/2023 4:42:22 AM
EPA METHOD 300.0: ANIONS					Analyst: RBC
Chloride	ND	60	mg/Kg	20	8/10/2023 11:34:52 AM

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

Qualifiers:

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

Page 1 of 5

## Hall Environmental Analysis Laboratory, Inc.

WO#: **2308384** 

14-Aug-23

Client: Vertex Resources Services, Inc.

**Project:** Tomcat 16 State 006

Sample ID: MB-76785 SampType: MBLK TestCode: EPA Method 300.0: Anions

Client ID: PBS Batch ID: 76785 RunNo: 98880

Prep Date: 8/10/2023 Analysis Date: 8/10/2023 SeqNo: 3603269 Units: mg/Kg

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

Chloride ND 1.5

Sample ID: LCS-76785 SampType: LCS TestCode: EPA Method 300.0: Anions

Client ID: LCSS Batch ID: 76785 RunNo: 98880

Prep Date: 8/10/2023 Analysis Date: 8/10/2023 SeqNo: 3603270 Units: mg/Kg

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

Chloride 15 1.5 15.00 0 98.0 90 110

#### Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

S % Recovery outside of standard limits. If undiluted results may be estimated.

B Analyte detected in the associated Method Blank

E Above Quantitation Range/Estimated Value

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

Page 2 of 5

### Hall Environmental Analysis Laboratory, Inc.

Vertex Resources Services, Inc.

WO#: **2308384** *14-Aug-23* 

**Project:** Tomcat 16 State 006

**Client:** 

Sample ID: LCS-76761 SampType: LCS TestCode: EPA Method 8015M/D: Diesel Range Organics

Client ID: LCSS Batch ID: 76761 RunNo: 98859

Prep Date: 8/9/2023 Analysis Date: 8/10/2023 SeqNo: 3601553 Units: %Rec

SPK Ref Val %REC HighLimit %RPD **RPDLimit** Analyte Result SPK value LowLimit Qual Surr: DNOP 4.5 5.000 90.4 69 147

Sample ID: MB-76761 SampType: MBLK TestCode: EPA Method 8015M/D: Diesel Range Organics Client ID: PBS Batch ID: 76761 RunNo: 98859 Prep Date: 8/9/2023 Analysis Date: 8/10/2023 SeqNo: 3601556 Units: %Rec %REC %RPD **RPDLimit** Analyte Result PQL SPK value SPK Ref Val LowLimit HighLimit Qual

Surr: DNOP 10 10.00 101 69 147

TestCode: EPA Method 8015M/D: Diesel Range Organics Sample ID: LCS-76771 SampType: LCS Client ID: LCSS Batch ID: 76771 Prep Date: Analysis Date: 8/10/2023 SeqNo: 3602161 Units: mg/Kg 8/9/2023 SPK value SPK Ref Val Analyte Result PQL %REC LowLimit HighLimit %RPD **RPDLimit** Qual Diesel Range Organics (DRO) 54 10 0 107 50.00 Surr: DNOP 5.0 5.000 101 69 147

Sample ID: MB-76771 TestCode: EPA Method 8015M/D: Diesel Range Organics SampType: MBLK Client ID: PBS Batch ID: 76771 RunNo: 98859 Units: mg/Kg Prep Date: 8/9/2023 Analysis Date: 8/10/2023 SeqNo: 3602162 %RPD Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit **RPDLimit** Qual Diesel Range Organics (DRO) ND 10

 Motor Oil Range Organics (MRO)
 ND
 50

 Surr: DNOP
 12
 10.00
 122
 69
 147

#### Qualifiers:

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

Page 3 of 5

## Hall Environmental Analysis Laboratory, Inc.

WO#: 2308384

14-Aug-23

**Client:** Vertex Resources Services, Inc.

**Project:** Tomcat 16 State 006

Sample ID: Ics-76742 SampType: LCS TestCode: EPA Method 8015D: Gasoline Range Batch ID: 76742 Client ID: LCSS RunNo: 98834 Prep Date: 8/8/2023 Analysis Date: 8/9/2023 SeqNo: 3602041 Units: mg/Kg PQL SPK value SPK Ref Val %REC HighLimit %RPD **RPDLimit** Analyte Result LowLimit Qual Gasoline Range Organics (GRO) 21 5.0 25.00 n 83.4 70 130

Surr: BFB 2000 1000 196 15 244

Sample ID: mb-76742 SampType: MBLK TestCode: EPA Method 8015D: Gasoline Range

PBS Batch ID: 76742 Client ID: RunNo: 98834

Prep Date: Analysis Date: 8/9/2023 8/8/2023 SeqNo: 3602042 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 940 1000 94.5 15 244

#### Qualifiers:

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

Page 4 of 5

## Hall Environmental Analysis Laboratory, Inc.

WO#: **2308384** 

14-Aug-23

Client: Vertex Resources Services, Inc.

**Project:** Tomcat 16 State 006

Sample ID: LCS-76742	Samp <sup>-</sup>	Гуре: <b>LC</b>	S	Tes	tCode: EF	PA Method	8021B: Volati	iles		
Client ID: LCSS	Batc	h ID: <b>76</b> 7	742	F	RunNo: 98	3834				
Prep Date: 8/8/2023	Analysis [	Date: <b>8/</b> 9	9/2023	5	SeqNo: 30	602074	Units: mg/K	(g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.025	1.000	0	104	70	130			
Toluene	1.0	0.050	1.000	0	104	70	130			
Ethylbenzene	1.0	0.050	1.000	0	104	70	130			
Xylenes, Total	3.1	0.10	3.000	0	105	70	130			
Surr: 4-Bromofluorobenzene	1.1		1.000		108	39.1	146			

Sample ID: mb-76742	Samp <sup>-</sup>	Гуре: МЕ	BLK	Tes	tCode: EF	PA Method	8021B: Volati	les		
Client ID: PBS	Batc	h ID: <b>76</b> 7	742	F	RunNo: 98	3834				
Prep Date: 8/8/2023	Analysis [	Date: <b>8/</b> 9	9/2023	5	SeqNo: 30	602075	Units: mg/K	g		
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		106	39.1	146			

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- B Analyte detected in the associated Method Blank
- E Above Quantitation Range/Estimated Value
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

Page 5 of 5



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

Released to Imaging: 4/23/2024 2:01:30 PM

Client Name: Vertex Resources Services, Inc.	Work Order Number	2308384		RcptNo: 1
Received By: Steve McQuiston	8/8/2023 7:20:00 AM		for Made	
Completed By: Tracy Casarrubias	8/8/2023 8:00:48 AM			
Reviewed By: 188/23				
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 sam	slaa?	Yes 🗹	No 🗌	NA 🗆
5. Was an attempt made to cool the sam	oles?	res 💌	110	NA 🗆
4. Were all samples received at a temper	ature of >0° C to 6.0°C	Yes 🗹	No 🗌	NA $\square$
5. Sample(s) in proper container(s)?		Yes 🗹	No 🗌	
6. Sufficient sample volume for indicated	rest(s)?	Yes 🗸	No 🗌	
7. Are samples (except VOA and ONG) p	operly preserved?	Yes 🗸	No 🗌	
8. Was preservative added to bottles?		Yes 🗌	No 🗸	NA $\square$
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 🗹	# of preserved
11. Does paperwork match bottle labels?		Yes 🗹	No 🗌	bottles checked for pH:
(Note discrepancies on chain of custod	y)	165 🖭	110	(<2 or >12 unless noted)
12. Are matrices correctly identified on Cha	in of Custody?	Yes 🗸	No 🗌	Adjusted?
13. Is it clear what analyses were requeste	d?	Yes 🗹	No 🗌	15cm valo
14. Were all holding times able to be met? (If no, notify customer for authorization	)	Yes 🗸	No 🗌	Checked by: 011 08/0
Special Handling (if applicable)				·
15. Was client notified of all discrepancies	with this order?	Yes $\square$	No 🗌	NA 🗹
Person Notified:	Date:			
By Whom:	Via: [	eMail	Phone 🗌 Fax	☐ In Person
Regarding:				AND CONTRACT CONTRACT CONTRACTOR
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16. Additional remarks:				
Mailling address, phone number	and Email/Fax - TMC 8/8/23			
17. Cooler Information				
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**State of New Mexico Energy, Minerals and Natural Resources Oil Conservation Division** 1220 S. St Francis Dr. **Santa Fe, NM 87505** 

QUESTIONS

Action 322245

#### **QUESTIONS**

Operator:	OGRID:
DEVON ENERGY PRODUCTION COMPANY, LP	6137
333 West Sheridan Ave.	Action Number:
Oklahoma City, OK 73102	322245
	Action Type:
	[C-141] Remediation Closure Request C-141 (C-141-v-Closure)

#### QUESTIONS

Prerequisites	
Incident ID (n#)	nAB1912855636
Incident Name	NAB1912855636 TOMCAT 16 STATE #006 @ 30-025-34949
Incident Type	Oil Release
Incident Status	Remediation Closure Report Received
Incident Well	[30-025-34949] TOMCAT 16 STATE #006

Location of Release Source	
Please answer all the questions in this group.	
Site Name	TOMCAT 16 STATE #006
Date Release Discovered	03/22/2019
Surface Owner	State

Incident Details	
Please answer all the questions in this group.	
Incident Type	Oil 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	or the volumes provided should be attached to the follow-up C-141 submission.
Crude Oil Released (bbls) Details	Cause: Human Error   Flow Line - Production   Crude Oil   Released: 10 BBL   Recovered: 10 BBL   Lost: 0 BBL.
Produced Water Released (bbls) Details	Not answered.
Is the concentration of chloride in the produced water >10,000 mg/l	Not answered.
Condensate Released (bbls) Details	Not answered.
Natural Gas Vented (Mcf) Details	Not answered.
Natural Gas Flared (Mcf) Details	Not answered.
Other Released Details	Not answered.
Are there additional details for the questions above (i.e. any answer containing Other, Specify, Unknown, and/or Fire, or any negative lost amounts)	Not answered.

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

QUESTIONS, Page 2

Action 322245

QUEST	TONS (continued)
Operator:  DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137 Action Number: 322245 Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)
QUESTIONS	•
Nature and Volume of Release (continued)	
Is this a gas only submission (i.e. only significant Mcf values reported)	No, according to supplied volumes this does not appear to be a "gas only" report.
Was this a major release as defined by Subsection A of 19.15.29.7 NMAC	No
Reasons why this would be considered a submission for a notification of a major release	Unavailable.
With the implementation of the 19.15.27 NMAC (05/25/2021), venting and/or flaring of natural gas (i	e. gas only) are to be submitted on the C-129 form.
Initial Response	
The responsible party must undertake the following actions immediately unless they could create a	safety hazard that would result in injury.
The source of the release has been stopped	True
The impacted area has been secured to protect human health and the environment	True
Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices	True
All free liquids and recoverable materials have been removed and managed appropriately	True
If all the actions described above have not been undertaken, explain why	Not answered.
	flation immediately after discovery of a release. If remediation has begun, please prepare and attach a narrative o eted or if the release occurred within a lined containment area (see Subparagraph (a) of Paragraph (5) of evaluation in the follow-up C-141 submission.
to report and/or file certain release notifications and perform corrective actions for rele the OCD does not relieve the operator of liability should their operations have failed to	knowledge and understand that pursuant to OCD rules and regulations all operators are required tasses which may endanger public health or the environment. The acceptance of a C-141 report by adequately investigate and remediate contamination that pose a threat to groundwater, surface rt does not relieve the operator of responsibility for compliance with any other federal, state, or
	Name: Dale Woodall

Title: EHS Professional

Date: 03/11/2024

Email: Dale.Woodall@dvn.com

I hereby agree and sign off to the above statement

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QUESTIONS, Page 3

Action 322245

#### **QUESTIONS** (continued)

Operator:	OGRID:
DEVON ENERGY PRODUCTION COMPANY, LP	6137
333 West Sheridan Ave.	Action Number:
Oklahoma City, OK 73102	322245
	Action Type:
	[C-141] Remediation Closure Request C-141 (C-141-v-Closure)

#### QUESTIONS

Site Characterization		
Please answer all the questions in this group (only required when seeking remediation plan approval and beyond). This information must be provided to the appropriate district office no later than 90 days after the release discovery date.		
What is the shallowest depth to groundwater beneath the area affected by the release in feet below ground surface (ft bgs)	Between 100 and 500 (ft.)	
What method was used to determine the depth to ground water	NM OSE iWaters Database Search	
Did this release impact groundwater or surface water	No	
What is the minimum distance, between the closest lateral extents of the release and the following surface areas:		
A continuously flowing watercourse or any other significant watercourse	Greater than 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	Between 1 and 5 (mi.)	
Any other fresh water well or spring	Between 1 and 5 (mi.)	
Incorporated municipal boundaries or a defined municipal fresh water well field	Greater than 5 (mi.)	
A wetland	Greater than 5 (mi.)	
A subsurface mine	Between 1 and 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	Between 1 and 5 (mi.)	
Did the release impact areas not on an exploration, development, production, or storage site	Yes	

Remediation Plan		
Please answer all the questions that apply or are inc	dicated. This information must be provided to t	the appropriate district office no later than 90 days after the release discovery date.
Requesting a remediation plan approval w	vith this submission	Yes
Attach a comprehensive report demonstrating the lat	teral 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 cont	tamination been fully delineated	Yes
Was this release entirely contained within a	a lined containment area	No
Soil Contamination Sampling: (Provide the h	ighest observable value for each, in mill	ligrams per kilograms.)
Chloride (EPA 300	0.0 or SM4500 CI B)	2200
TPH (GRO+DRO+MRO) (EPA SW-8	346 Method 8015M)	14
GRO+DRO (EPA SW	V-846 Method 8015M)	14
BTEX (EPA SW	/-846 Method 8021B or 8260B)	0
Benzene (EPA SV	V-846 Method 8021B or 8260B)	0
Per Subsection B of 19.15.29.11 NMAC unless the s which includes the anticipated timelines for beginning		efforts at remediation, the report must include a proposed remediation plan in accordance with 19.15.29.12 NMAC,
On what estimated date will the remediation	on commence	04/03/2019
On what date will (or did) the final sampling	g or liner inspection occur	08/01/2023
On what date will (or was) the remediation	complete(d)	08/05/2023
What is the estimated surface area (in squa	are feet) that will be reclaimed	14164
What is the estimated volume (in cubic yard	ds) that will be reclaimed	262
What is the estimated surface area (in squa	are feet) that will be remediated	14164
What is the estimated volume (in cubic yard	ds) that will be remediated	262
These estimated dates and measurements are recogn	nized 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 mea	asures may have to be minimally adjusted in a	ccordance 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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# State of New Mexico Energy, Minerals and Natural Resources Oil Conservation Division 1220 S. St Francis Dr. Santa Fe, NM 87505

QUESTIONS, Page 4

Action 322245

**QUESTIONS** (continued)

Operator:	OGRID:
DEVON ENERGY PRODUCTION COMPANY, LP	6137
333 West Sheridan Ave.	Action Number:
Oklahoma City, OK 73102	322245
	Action Type:
	[C-141] Remediation Closure Request C-141 (C-141-v-Closure)

#### QUESTIONS

Remediation Plan (continued)	
Please answer all the questions that apply or are indicated. This information must be provided to the appropriate district office no later than 90 days after the release discovery date.	
This remediation will (or is expected to) utilize the following processes to remediate	/ reduce contaminants:
(Select all answers below that apply.)	
(Ex Situ) Excavation and off-site disposal (i.e. dig and haul, hydrovac, etc.)	Yes
Which OCD approved facility will be used for off-site disposal	R360 Artesia LLC LANDFARM [fEEM0112340644]
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: Dale Woodall Title: EHS Professional Email: Dale.Woodall@dvn.com

Date: 03/11/2024

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

QUESTIONS, Page 5

Action 322245

**QUESTIONS** (continued)

Operator:	OGRID:
DEVON ENERGY PRODUCTION COMPANY, LP	6137
333 West Sheridan Ave.	Action Number:
Oklahoma City, OK 73102	322245
	Action Type:
	[C-141] Remediation Closure Request C-141 (C-141-v-Closure)

#### QUESTIONS

Deferral Requests Only	
Only answer the questions in this group if seeking a deferral upon approval this submission. Each of	the following items must be confirmed as part of any request for deferral of remediation.
Requesting a deferral of the remediation closure due date with the approval of this submission	No

District I

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

QUESTIONS, Page 6

Action 322245

**QUESTIONS** (continued)

Operator:	OGRID:
DEVON ENERGY PRODUCTION COMPANY, LP	6137
333 West Sheridan Ave.	Action Number:
Oklahoma City, OK 73102	322245
	Action Type:
	[C-141] Remediation Closure Request C-141 (C-141-v-Closure)

#### QUESTIONS

Sampling Event Information	
Last sampling notification (C-141N) recorded	322249
Sampling date pursuant to Subparagraph (a) of Paragraph (1) of Subsection D of 19.15.29.12 NMAC	08/05/2023
What was the (estimated) number of samples that were to be gathered	1
What was the sampling surface area in square feet	200

Remediation Closure Request		
Only answer the questions in this group if seeking remediation closure for this release because all remediation steps have been completed.		
Requesting a remediation closure approval with this submission	Yes	
Have the lateral and vertical extents of contamination been fully delineated	Yes	
Was this release entirely contained within a lined containment area	No	
All areas reasonably needed for production or subsequent drilling operations have been stabilized, returned to the sites existing grade, and have a soil cover that prevents ponding of water, minimizing dust and erosion	Yes	
What was the total surface area (in square feet) remediated	14164	
What was the total volume (cubic yards) remediated	262	
All areas not reasonably needed for production or subsequent drilling operations have been reclaimed to contain a minimum of four feet of non-waste contain earthen material with concentrations less than 600 mg/kg chlorides, 100 mg/kg TPH, 50 mg/kg BTEX, and 10 mg/kg Benzene	Yes	
What was the total surface area (in square feet) reclaimed	0	
What was the total volume (in cubic yards) reclaimed	0	
Summarize any additional remediation activities not included by answers (above)	see report	

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

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

Name: Dale Woodall
Title: EHS Professional
Email: Dale.Woodall@dvn.com
Date: 03/11/2024

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QUESTIONS, Page 7

Action 322245

**QUESTIONS** (continued)

Operator:	OGRID:
DEVON ENERGY PRODUCTION COMPANY, LP	6137
333 West Sheridan Ave.	Action Number:
Oklahoma City, OK 73102	322245
	Action Type:
	[C-141] Remediation Closure Request C-141 (C-141-v-Closure)

#### QUESTIONS

Reclamation Report	
Only answer the questions in this group if all reclamation steps have been completed.	
Requesting a reclamation approval with this submission	No

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CONDITIONS

Action 322245

#### **CONDITIONS**

Operator:	OGRID:
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333 West Sheridan Ave.	Action Number:
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	Action Type:
	[C-141] Remediation Closure Request C-141 (C-141-v-Closure)

#### CONDITIONS

Created By	Condition	Condition Date
scott.rodgers	This Remediation Closure Report is approved. A report for reclamation and revegetation will need to be submitted and approved prior to this incident receiving the final status of "Restoration Complete".	4/23/2024
scott.rodgers	The reclamation report will need to include: Executive Summary of the reclamation activities; Scaled Site Map including sampling locations; Analytical results including, but not limited to, results showing that any remaining impacts meet the reclamation standards and results to prove the backfill is non-waste containing; At least one (1) representative 5-point composite sample will need to be collected from the backfill material that will be used for the reclamation of the top four feet of the excavation. OCD reserves the right to request additional sampling if needed; pictures of the backfilled areas showing that the area is back, as nearly as practical, to the original condition or the final land use and maintain those areas to control dust and minimize erosion to the extent practical; pictures of the top layer, which is either the background thickness of topsoil or one foot of suitable material to establish vegetation at the site, whichever is greater; and a revegetation plan.	4/23/2024