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** Tomcat 16 State #006 Release Assessment and Closure August 2023

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 1625 North French Drive Hobbs, New Mexico 88240

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

Sally Carttar

Sally Carttar, B.A. ENVIRONMENTAL TECHNOLOGIST, REPORTING September 9, 2023

Date

kent stallings P.G.

Kent Stallings P.G. PROJECT MANAGER, REPORT REVIEW September 21, 2023

Date

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

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#### **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).

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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			
< 50 feet	TPH (GRO+DRO+MRO)	100 mg/kg			
	BTEX	50 mg/kg			
	Benzene	10 mg/kg			

TDS – total dissolved solids

TPH – total petroleum hydrocarbons, GRO – gas range organics, DRO – diesel range organics, MRO – motor oil range organics BTEX – benzene, toluene, ethylbenzene and xylenes

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

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ite Nam	e: Tomcat 16 State 6		
ill 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 watercourse or any other significant watercourse	36074	feet
3	Within 200 feet of any lakebed, sinkhole or playa lake (measured from the ordinary high-water mark)	10594	feet
4	Within 300 feet from an occupied residence, school, hospital, institution or church	30204	feet
5	<ul> <li>i) Within 500 feet of a spring or a private, domestic</li> <li>fresh water well used by less than five households for</li> <li>domestic or stock watering purposes, or</li> </ul>	10594	feet
	ii) Within 1000 feet of any fresh water well or spring	10594	feet
6	Within incorporated municipal boundaries or within a defined municipal fresh water field covered under a municipal ordinance adopted pursuant to Section 3-27-3 NMSA 1978 as amended, unless the municipality specifically approves	No	(Y/N)
7	Within 300 feet of a wetland	22381	feet
8	Within the area overlying a subsurface mine	No	(Y/N)
9	Within an unstable area (Karst Map)	Low	Critical High Medium Low
10	Within a 100-year Floodplain	>100	year
	NMAC 19.15.29.12 E (Table 1) Closure Criteria	<50'	<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 Page 9 of 319

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.

#### 7.0 References

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#### 8.0 Limitations

This report has been prepared for the sole benefit of Devon Energy Production Company, LP 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.

6

## **FIGURES**



06

13

03



## 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

	Table 3. Characterization Sample Field Screen and L							Laboratory Results - Depth to Groundwater <50 feet bgs					
	Sample Des	cription	Fi	eld Screeni	ng	Petroleum Hydrocarbons							
			s			Vola	atile			Extractable	2		Inorganic
Sample ID	Depth (ft)	Sample Date	(PID) (PID) (PID)	Extractable Organic Compounds (PetroFlag)	() (mdd) (md	Benzene (mg/kg)	କ୍ଷି ଅନୁ ଅନୁ	ଅ ଅ Gasoline Range Organics ଅନ୍ଧି (GRO)	ම් Diesel Range Organics කි (DRO)	없 Motor Oil Range Organics (여지 O)	(02KO + DKO) (mg/kg)	표정 Total Petroleum 중국 Hydrocarbons (TPH)	a) (a) (a) (a)
		August 12, 2021	(ppiii)	(ppiii) -	57	(116/16/	(116/16/	-	(116/16/	(116/16/	(116/16/	(116/16/	(116/16/
	0	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	U	July 8, 2023		42	ND	ND	ND	ND	ND	ND	ND	ND	ND
01121-02	0.5	August 12, 2021	-	122	135	ND	ND	ND	ND	ND	ND	ND	ND
	1	August 12, 2021	-	19	100	-	-	-	-	-	-	-	-
	0	August 12, 2021	-	-	80	-	-	-	-	-	-	-	-
		July 8, 2023	0	34	ND	ND	ND	ND	ND	ND	ND	ND	ND
BH21-03	0.5	August 12, 2021	-	23	120	ND	ND	ND	ND	ND	ND	ND	ND
	1	August 12, 2021	-	24	152	-	-	-	-	-	-	-	-
	2	August 12, 2021	-	13	100	ND	ND	ND	ND	ND	ND	ND	ND
	0	August 12, 2021	-	-	77	-	-	-	-	-	-	-	-
BH21-04	0.5	July 8, 2023	0	35	ND	ND	ND	ND	ND	ND	ND	ND	ND
BH21-04	0.5	August 12, 2021	-	29	155	ND	ND	ND	ND	ND	ND	ND	ND
	2	August 12, 2021 August 12, 2021	-	15 13	147 80	- ND	- ND	- ND	- ND	- ND	- ND	- ND	- ND
		August 12, 2021 August 12, 2021	-	-	148	-	-	-	-	-	-	-	ND
	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
BH23-00	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
B1125-07	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	July 8, 2023	0	66	ND	ND	ND	ND	ND	ND	ND	ND	ND
	2	July 8, 2023	0	34	ND	ND	ND	ND	ND	ND	ND	ND	ND
BH23-10	0	July 8, 2023	0	49	ND	ND	ND	ND	ND	ND	ND	ND	ND
		July 8, 2023	0	57	ND	ND	ND	ND	ND	ND	ND	ND	ND
BH23-11	0	July 8, 2023 July 8, 2023	0	50 45	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	43	ND	ND	ND	ND	ND	ND	ND	ND	ND
BH23-12	2	July 8, 2023	0	47 59	ND	ND	ND	ND	ND	ND	ND	ND	ND
	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
							-	-			-		

"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

	· · ·						boratory Results - Depth to Groundwater <50 feet bgs						
	Sample Des	cription	Fi	eld Screeni	ng	Petroleum Hydrocarbons							
			spi			Vola	atile			Extractable	2		Inorganic
Sample ID	Depth (ft)	Sample Date	Volatile Organic Compounds	Extractable Organic Compounds (PetroFlag)	Chloride Concentration	Benzene	BTEX (Total)	Gasoline Range Organics (GRO)	Diesel Range Organics	Motor Oil Range Organics (MRO)	(ero + Dro) (mg/kg)	Hydrocarbons (TPH)	Chloride Concentration
BS23-01	0.5	July 12, 2023	(ppm) 0	(ppm) 31	(ppm) ND	(mg/kg) ND	(mg/kg) ND	(mg/kg) ND	(mg/kg) ND	(mg/kg) ND	(mg/kg) ND	(mg/kg) ND	(mg/kg) ND
BS23-01 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 BS23-11	0.5 0.5	July 12, 2023 July 12, 2023	0	43 20	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND
BS23-11 BS23-12	0.5	July 12, 2023 July 12, 2023	0	20	ND	ND ND	ND	ND	ND	ND	ND	ND	ND ND
BS23-12 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 19	ND	ND	ND	ND	ND	ND	ND	ND	ND
BS23-21 BS23-22	0.5 0.5	July 12, 2023 July 12, 2023	0	39	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND
BS23-22 BS23-23	0.5	July 12, 2023	0	33	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	July 12, 2023	0	18	ND	ND	ND	ND	ND	ND	ND	ND	ND
BS23-29	0.5	July 12, 2023	0	82	ND	ND	ND	ND	ND	ND	ND	ND	ND
BS23-30	0.5	July 12, 2023	0	41 45	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND
BS23-31 BS23-32	0.5 0.5	July 12, 2023 July 12, 2023	0	35	ND	ND	ND	ND	ND	ND	ND	ND	ND
BS23-32 BS23-33	0.5	July 12, 2023	0	11	ND	ND	ND	ND	ND	ND	ND	ND	ND
BS23-34	0.5	July 12, 2023	0	80	59	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 BS23-41	0.5 0.5	July 12, 2023 July 12, 2023	0	22 27	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND
BS23-41 BS23-42	0.5	July 12, 2023	0	50	ND	ND	ND	ND	ND	ND	ND	ND	ND
BS23-42	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 BS23-51	0.5	July 13, 2023 July 13, 2023	0	30 44	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND
BS23-51 BS23-52	0.5	July 13, 2023	0	44 17	ND	ND	ND	ND	ND	ND	ND	ND	ND
BS23-52 BS23-53	0.5	July 13, 2023	0	17	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. Confirmatory Sample Field Screen and La							epth to Gr	oundwate	r <50 feet	bgs		
	Sample Des	cription	Fi	eld Screeni	ng			Petrole	um Hydro	carbons			
			ds			Vol	atile			Extractable	9		Inorganic
Sample ID	Depth (ft)	Sample Date	Volatile Organic Compounds (PID)	Extractable Organic Compounds (PetroFlag)	Chloride Concentration	Benzene	BTEX (Total)	Gasoline Range Organics (GRO)	Diesel Range Organics (DRO)	Motor Oil Range Organics (MRO)	(GRO + DRO)	Total Petroleum Hydrocarbons (TPH)	Chloride Concentration
			(ppm)	(ppm)	(ppm)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
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
BS23-62	0.5	July 13, 2023	0	49	ND	ND	ND	ND	ND	ND	ND	ND	2,200
B323-02	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

"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** 

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

Page 20 of 319

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

## **Release Notification**

## **Responsible Party**

Responsible Party: B&R Trucking	OGRID 275036			
Contact Name: Jonathan Pettit	Contact Telephone: (575) 236-6012			
Contact email Jonathan@bandrinc.com	Incident # (assigned by OCD) NAB1912855636			
Contact mailing address 4501 Grandi Rd, Carlsbad, NM 88220				

## **Location of Release Source**

Latitude	32.3	04888	(NAD 83 in decima	Longitude103	.673818
Site Name	Tomcat 2	16 State #000	5	Site Type Oil and Gas	s Lease Road
Date Release	Discovered	03/22/2019		API# (if applicable) 30-02	5-34949
Unit Letter	Section	Township	Range	County	

Unit Letter	Section	Township	Range	County	ł
Н	16	238	32E	Lea County	

Surface Owner: State Federal Tribal Private (Name:

## Nature and Volume of Release

Mater	ial(s) Released (Select all that apply and attach calculations or specific	c justification for the volumes provided below)
Crude Oil	Volume Released (bbls) 10	Volume Recovered (bbls) 12
Produced Water	Volume Released (bbls)	Volume Recovered (bbls)
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	Yes No
Condensate	Volume Released (bbls)	Volume Recovered (bbls)
Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)
Cause of Palassa	•	•

Cause of Release

A trucker tried to turn around on the lease road and struck the poly flow line running to the Tomcat 16 State #006 well. Approximately 10 bbls of crude oil was spilled onto the ground in an approximately 100' x 100' area. A vac truck was immediately dispatched to remove free fluid and saturated soil.

Page 2

## Oil Conservation Division

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

Was this a major	If YES, for what reason(s) does the responsible party consider this a major release?
release as defined by	
19.15.29.7(A) NMAC?	
🗌 Yes 🔀 No	
If VES was immediate p	ptice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?
II TES, was initiediate no	site given to the OCD? By whom? To whom? when and by what means (phone, email, etc)?

## **Initial Response**

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

 $\square$  The source of the release has been stopped.

The impacted area has been secured to protect human health and the environment.

Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices.

All free liquids and recoverable materials have been removed and managed appropriately.

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

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

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

Printed Name: Jonathan Pettit	Title: <u>Supervisor</u>
Signature:	Date:
email: <u>jonathan@bandrinc.com</u>	Telephone: (575) 236-6012
OCD Only Received by:	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 Harvard Petroleum Company, LLC	OGRID 10155
Contact Name Jeff Harvard	Contact Telephone 575-208-7135
Contact email jharvard@hpcnm.com     Incident # nAB1912855636	
Contact mailing address P.O. Box 936 Roswell, NM 88202	

## **Location of Release Source**

Latitude 32.3048

Longitude <u>-103.6738</u> (NAD 83 in decimal degrees to 5 decimal places)

Site Name Tomcat 16 State #006	Site Type Oil and Gas Lease Road
Date Release Discovered March 22, 2019	API# <b>30-025-34949</b>

Unit Letter	Section	Township	Range	County
Н	16	23S	32E	Lea

Surface Owner: State Federal Tribal Private (Name: \_

## Nature and Volume of Release

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

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

"A trucker tried to turn around on the lease road and struck the poly flow line running to the Tomcat 16 State #006 well. Approximately 10 bbls of crude oil was spilled onto the ground in an approximately 100' x 100' area. A vac truck was immediately dispatched to remove free fluid and saturated soil."

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

Page	2
1 ugo	-

## Oil Conservation Division

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

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

## **Initial Response**

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

 $\square$  The source of the release has been stopped.

The impacted area has been secured to protect human health and the environment.

Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices.

All free liquids and recoverable materials have been removed and managed appropriately.

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

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

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

Printed Name:Jeff Harvard	Title:President and Manager
Signature:	Date:
email:jharvard@hpcnm.com	Telephone: <u>575-208-7135</u>
OCD Only	
Received by:	Date:

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

Page 3

Oil Conservation Division

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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.

	Not Determined
What is the shallowest depth to groundwater beneath the area affected by the release?	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 vertical extents of soil contamination associated with the release have been determined. Refer to 19.15.29.11 NMAC for specifics.

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

- Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.
- Field data
- Data table of soil contaminant concentration data
- $\square$  Depth to water determination
- Determination of water sources and significant watercourses within <sup>1</sup>/<sub>2</sub>-mile of the lateral extents of the release
- Boring or excavation logs
- Photographs including date and GIS information
- Topographic/Aerial maps
- Laboratory data including chain of custody

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

New Merrice		Page 25 of 31				
	Incident ID	nAB1912855636				
vation Division	District RP	1RP-5462				
	Facility ID					
	Application ID					
file certain release notifications and perform a C-141 report by the OCD does not relieve ination that pose a threat to groundwater, s relieve the operator of responsibility for co 	m corrective actions for rele e the operator of liability sh urface water, human health mpliance with any other fe sident and Manager	eases which may endanger ould their operations have or the environment. In deral, state, or local laws				
Telephone:	575-208-7135					
	file certain release notifications and perform a C-141 report by the OCD does not relieve ination that pose a threat to groundwater, s relieve the operator of responsibility for co Title:Pres Date: Telephone:	Incident ID         District RP         Facility ID         Application ID         the and complete to the best of my knowledge and understand that purss         file certain release notifications and perform corrective actions for release         a C-141 report by the OCD does not relieve the operator of liability sh         ination that pose a threat to groundwater, surface water, human health         relieve the operator of responsibility for compliance with any other fe				

Page 6

Oil Conservation Division

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

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## Closure

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

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

 A scaled site and sampling diagram as described in 19.15.29.11 NMAC

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

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

 Description of remediation activities

Printed Name:	Title: <u>President and Manager</u>						
Signature:	Date:						
email:jharvard@hpcnm.com	Telephone: <u>575-208-7135</u>						
OCD Only							
Received by:	Date:						
Closure approval by the OCD does not relieve the responsible party of liability should their operations have failed to adequately investigate and remediate contamination that poses a threat to groundwater, surface water, human health, or the environment nor does not relieve the responsible party of compliance with any other federal, state, or local laws and/or regulations.							
Closure Approved by:	Date:						
Printed Name:							

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

# OSE POD 0.5 mile



## 8/6/2023, 6:07:54 AM

GIS WATERS PODs OSE District Boundary New Mexico State Trust Lands

- Active Water Right Regulations
- Pending
   Closure Area

Subsurface Estate

Both Estates SiteBoundaries 1:18,056



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

And Designed State	W	/ate						00	v	the State ge De	0		ter	
(A CLW##### in the POD suffix indicates the POD has been replaced & no longer serves a water right file.)	(R=POD replaced, O=orpha C=the fil closed)	ned,	l	· •				V 2=NE est to la	3=SW 4=S rgest) (1	E) NAD83 UTM in r	neters)	(In t	feet)	
		Sub-		QQ	Q Q	)							W	ater
POD Number	Code	basin	County	64 1	64	Sec	Tws	Rng	Х	Y	DistanceDep	othWellDep	thWater Co	lumn
<u>C 04712 POD2</u>		CUB	LE	4 4	4	17	23S	32E	623332	3574331 🌍	1660	55		
<u>C 02216</u>		CUB	LE	2 2	2 4	21	23S	32E	625035	3573261* 🌍	1742	585	400	185
										Avera	ge Depth to Wate	er:	400 fee	t
											Minimum De	pth:	400 fee	t
											Maximum Dep	oth:	400 fee	t
Record Count: 2														
UTMNAD83 Radius	s Search (in	meters)	<u>:</u>											
<b>Easting (X):</b> 624	4855		North	ning (N	<i>(</i> ):	3574	1994			<b>Radius:</b> 2000				
*UTM location was derived	from PLSS -	see Help												
The data is furnished by the Maccuracy, completeness, reliable	NMOSE/ISC a pility, usability	and is acc , or suital	epted by the pility for any	e recipi partic	ent ular	with tl purpo	he expresses of the	essed und e data.	lerstanding t	hat the OSE/ISC ma	ake no warranties,	expressed or in	nplied, concert	ning the
8/6/23 6:04 AM											WATER COL	UMN/ AVEF	AGE DEPTI	H TO

WATER

.

Release fiate mus/23/23/24/24/23/24/24/23/24/23/24/24/23/24/24/23/24/24/23/24/24/23/24/24/24/24/24/2



## New Mexico Office of the State Engineer Point of Diversion Summary

<b>Casing Size</b>	e:	Depth Well:		5	5 feet	Dep	oth Water:	
Pump Type	e:	Pipe Discharg	e Size:			Esti	mated Yield	:
Log File Da	ate: 04/04/2023	PCW Rev Dat	e:			Sou	rce:	
Drill Start	Date: 03/09/2023	Drill Finish D	ate:	0	3/09/202	23 Plug	g Date:	03/14/2023
Driller Nar	ne: JASON MALEY							
x Driller Lice	ense: 1833	Driller Compa	ny:	VIS	SION RI	ESOURCES,	INC	
NA	C 04712 POD2	4 4 4	17	23S	32E	623332	3574331	
Well Tag	POD Number	Q64 Q16 Q4	Sec 1	Tws	Rng	X	Y	
		(quarters are sr	nallest to	o largest	)	(NAD83 UT	(NAD83 UTM in meters)	

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

Respired by QCD: 3/11/2024.2:52:42. PMus/nmwrrs/ReportDispatcher?type=WRHTML&name=WaterRightSummaryHTML.jrxml&basin=C&

Section Man		New Mexico	00 0		0
Internials Decay	( annual log	Wate	r Right S	Summa	ı <b>ry</b>
<b>F</b>	WR File Number:	C 04712	Subbasin: CUB	<b>Cross Reference:</b>	-
	<b>Primary Purpose:</b>	MON MONITORING	WELL		
<u>get image list</u>	<b>Primary Status:</b>	PMT PERMIT			
	<b>Total Acres:</b>		Subfile: -		Header: -
	<b>Total Diversion:</b>	0	Cause/Case: -		
	Owner:	VERTEX RESOURCES			
	User:	HARVARD PETROLEU	M COMPANY LLC		
	Contact:	JUSTIN WARREN			
Documents	x on File				
<i>A</i> <b>1</b> .	Trn # Doc File/	Status /Act 1 2 Tra	ansaction Desc.	From/ To Acres	Diversion Consumptive

	Trn #	Doc	File/Act	1	2	Transaction Desc.	То	Acres	Diversion	Consumptive
images	743189	EXPL	2023-02-21	PMT	APR	C 04712 POD1-6	Т	0	0	

(NAD83 UTM in meters)

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

		Q	in meters)
<b>POD Number</b> <u>C 04712 POD1</u>	Well Tag Source NA	64Q16Q4Sec         Tws         Rng         X           1         4         1         31         23S         32E         620917	Y Other Location Desc 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 🛑 TODD24
<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
<u>C 04712 POD6</u>	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

Respined by QGD: 3/11/2024. 3:52:42. PMus/nmwrrs/ReportDispatcher?type=TRANSHTML&name=TransactionSummaryHTML.jrxml&basin=PC& 319

# New Mexico Office of the State Engineer Transaction Summary

			EXPL Permit To Explore	2	
Transaction Nu	<b>mber:</b> 74318	39	Transaction Desc: C 04712	POD1-6 File I	Date: 12/14/2022
	Status: API signed: *** pplicant: VEI User: HA	R App **** RTEX RE	roved ESOURCES PETROLEUM COMPANY LLC	2	
x Events					
images	<b>Date</b> 12/14/2022	<b>Type</b> APP	<b>Description</b> Application Received	Comment *	Processed By *****
images	02/07/2023	TEC	Technical Report	*PLG PLN OPS C	*****
	02/21/2023	FTN	Finalize non-published Trans.		*****
	03/09/2023	QAT	Quality Assurance Completed	DATA	****
	03/14/2023	QAT	Quality Assurance Completed	IMAGE	****
eet get	04/04/2023	LOG	Well Log Received	*C-4712-POD1 DRY	****
images	04/04/2023	DRY	Dry well log received	C-4712 POD1 DRY	****
ect images	04/04/2023	LOG	Well Log Received	*C-4712-POD2 DRY	****
	04/04/2023	DRY	Dry well log received	C-4712-POD2 DRY	*****
et images	04/04/2023	LOG	Well Log Received	*C-4712-POD3 DRY	****
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	06/12/202	23 QAT	Quality Assurance Completed	IMAGE	****

Water Right Information			
WR File Nbr	Acres	Diversion	Consumptive Purpose of Use
C 04712	0	0	MON MONITORING WELL
<b>**Point of Diversion</b>			
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.

- C 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.
- 6 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

# THE STATE

# WELL RECORD & LOG

## OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

1. GENERAL AND WELL LOCATION	OSE POD NO. (W COMPLEX WELL OWNER M Has sand WELL OWNER M P.O., BO WELL LOCATION (FROM GPS) DESCRIPTION F	AAILING X 9: LAT LON	DE 2 ADDRESS 34 DE ITUDE IGITUDE -/	igrees minutes seco 32 17 56	2 W	• DATUM REC	C - 4 ONAL) REQUIRED: ONE TEN QUIRED: WGS 84	STATE NM 88 TH OF A SECOND	ZIP
2. DRILLING & CASING INFORMATION	LICENSE NO. 1833 DRILLING STAR 3-9-202 COMPLETED WI DRILLING FLUII	ELL IS:	NAME OF LICENSED	DEPTH OF COMPLETED WELL (FT) 55	SS CONFINED)	STATIC	NAME OF WELL DR USSON R DEPTH WATER FIR DCY WATER LEVEL PLETED WELL DCY	ILLING COMPANY <u>Sources</u> ST ENCOUNTERED (FT) DATE STATIC Def y	
	DRILLING METH DEPTH (fee FROM			MER CABLE TOOL OTHER - SPI CASING MATERIAL AND/OR GRADE (include each casing string, and note sections of screen)	CA CONN T	SING VECTION YPE ing diameter)	CASING INSIDE DIAM. (inches)	HERE IF PITLESS ADAI LED CASING WALL THICKNESS (inches)	SLOT SIZE (inches)
				None			DSC BIT AT	R 4:2023 PML123	
3. ANNULAR MATERIAL	DEPTH (feet bgl)     BORE HOLE       FROM     TO			LIST ANNULAR SEAL MATERIAL AND GRAVEL PACK SIZE- RANGE BY INTERVAL *(if using Centralizers for Artesian wells- indicate the spacing below)		AMOUNT METHOD OF (cubic feet) PLACEMENT			
				•					
	OSE INTERNA NO. C - 4		Po22	POD NO.	2	WR-20 TRN N	o. 7431	8 LOG (Version 09/22 8 9 PAGE 1	

	DEPTH (feet bgl)					ESTIMATED		
	FROM       TO       THICKNESS (feet)       COLOR AND TYPE OF MATERIAL ENCOUNTERED - INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES (attach supplemental sheets to fully describe all units)				WATER BEARING? (YES / NO)	YIELD FOR WATER- BEARING ZONES (gpm)		
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5. TEST; RIG SUPERVISION	WELL TEST WELL TEST TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING DISCHARGE METHOD, START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.							
	MISCELLANEOUS INFORMATION: hole would not stey open Past 35 Plugged no water							
	PRINT NAME(S) OF DRILL RIG SUPERVISOR(S) THAT PROVIDED ONSITE SUPERVISION OF WELL CONSTRUCTION OTHER THAN LICENSEE:							
	05E DIT APR 4 2023 PM1:23							
6. SIGNATURE	THE UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 30 DAYS AFTER COMPLETION OF WELL DRILLING:							
6.SI	signature of driller / print signee name Date Date							
FO	R OSE INTER	NAL USE		WR-20 WEL	L RECORD & LOG (Ve	rsion 09/22/2022)		
	ENO. C	471	2-POD		743189			
LO	CATION A	rion	~ 23.3:			PAGE 2 OF 2		

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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, empion

Maret Thompson (575) 622-6521

drywell



		(quarters are smallest to largest)					(NAD83 UTM in meters)		
Well Tag	POD Number	Q64 (	Q16 Q4	Sec	Tws	Rng	Χ	Y	
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Driller Na	me: UNKNOWN								
Drill Start	Date:	Drill Fi	nish Da	te:	1	2/31/191	2 Pl	ug Date:	
Log File D	Pate:	PCW R	cv Date	:			So	urce:	
Pump Typ	e:	Pipe Dis	scharge	Size:			Es	timated Yield:	7 GPM
Casing Siz	<b>e:</b> 6.50	Depth V	Vell:		5	85 feet	De	epth Water:	400 feet

\*UTM location was derived from PLSS - see Help

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

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POINT OF DIVERSION SUMMARY

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WATER RIGHT SUMMARY

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# 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

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

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



# U.S. Fish and Wildlife Service National Wetlands Inventory

# 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

Lake Other Riverine This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site. Received by OCD: 3/11/2024 2:52:42 PM



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# New Mexico Office of the State Engineer Active & Inactive Points of Diversion

(with Ownership Information)

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		(acre	ft per annum	)				C=the file is closed)		rs are sn				(NAD	83 UTM in me
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ACTIVE & INACTIVE POINTS OF D



\*UTM location was derived from PLSS - see Help

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POINT OF DIVERSION SUMMARY

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

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WATER RIGHT SUMMARY

.



# U.S. Fish and Wildlife Service National Wetlands Inventory

# Wetland 28,732 feet



# August 6, 2023

#### Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Wetland
- Freshwater Forested/Shrub Wetland

Freshwater Emergent Wetland

Freshwater Pond

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

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

# Active Mines in New Mexico



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



Page 48 of 319

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

# National Flood Hazard Layer FIRMette



## Legend

#### 2°18'38.24"N SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOU Without Base Flood Elevation (BFE) 9 With BFE or Depth Zone AE, AO, AH, VE, A SPECIAL FLOOD HAZARD AREAS **Regulatory Floodway** 0.2% Annual Chance Flood Hazard, Arbis of 1% annual chance flood with avera depth less than one foot or with drain 💒 areas of less than one square mile zolo Future Conditions 1% Annual Chance Flood Hazard Zone X Area with Reduced Flood Risk due to Levee. See Notes. Zone X OTHER AREAS OF Area with Flood Risk due to Levee Zon FLOOD HAZARD NO SCREEN Area of Minimal Flood Hazard Zone X Effective LOMRs OTHER AREAS Area of Undetermined Flood Hazard Zone D GENERAL - - - Channel, Culvert, or Storm Sewer STRUCTURES IIIII Levee, Dike, or Floodwall 20.2 Cross Sections with 1% Annual Chance 17.5 Water Surface Elevation Coastal Transect LEACOUNTY. \_ Base Flood Elevation Line (BFE) Zone'D ~ 513 ~~~~ 350130 Limit of Study T23S R32E S16 T23S R32E S15 Jurisdiction Boundary **Coastal Transect Baseline** OTHER Profile Baseline 35025C1725D FEATURES Hydrographic Feature 12/16/2008 Not Printed Digital Data Available No Digital Data Available MAP PANELS Unmapped The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location. This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 3/26/2019 at 3:11:10 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time. This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, USGS The National Map: Orthoimagery, Data refreshed October, 2017. legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for 🧶 32°18'7.84"N 1:6,000 Feet unmapped and unmodernized areas cannot be used for regulatory purposes.

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United States Department of Agriculture

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.

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

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

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# Contents

Preface	
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

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#### Custom Soil Resource Report

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

# Soil Map

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



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MAP LE	GEND	MAP INFORMATION
Area of Interest (AOI) Area of Interest (AOI)	<ul><li>Spoil Area</li><li>Stony Spot</li></ul>	The soil surveys that comprise your AOI were mapped at 1:20,000.
Soils Soil Map Unit Polygons Soil Map Unit Lines Soil Map Unit Points Special Point Features	<ul> <li>Wery Stony Spot</li> <li>Wet Spot</li> <li>△ Other</li> <li>Special Line Features</li> </ul>	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
Blowout Borrow Pit Clay Spot	Water Features Streams and Canals Transportation	scale. Please rely on the bar scale on each map sheet for map
Closed Depression Gravel Pit Gravelly Spot	<ul> <li>Rails</li> <li>Interstate Highways</li> <li>US Routes</li> <li>Major Roads</li> </ul>	measurements. Source of Map: Natural Resources Conservation Service Web Soil Survey URL: Coordinate System: Web Mercator (EPSG:3857)
<ul> <li>Landfill</li> <li>Lava Flow</li> <li>Marsh or swamp</li> <li>Mine or Quarry</li> </ul>	Local Roads  Background  Aerial Photography	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.
<ul> <li>Miscellaneous Water</li> <li>Perennial Water</li> <li>Rock Outcrop</li> </ul>		This product is generated from the USDA-NRCS certified data a of the version date(s) listed below. Soil Survey Area: Lea County, New Mexico
<ul> <li>Saline Spot</li> <li>Sandy Spot</li> <li>Severely Eroded Spot</li> </ul>		Survey Area Data: Version 15, Sep 12, 2018 Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.
<ul> <li>Sinkhole</li> <li>Slide or Slip</li> <li>Sodic Spot</li> </ul>		Date(s) aerial images were photographed: Dec 31, 2009—Set 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 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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Conservation Service

USDA Natural Resources

# 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

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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

# MLRA-42, SD-3, Loamy Sand



1a. Drought, over grazing, fire suppression.

1b. Brush control, prescribed grazing

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

3. Continued loss of grass cover, erosion.

# State 1 Historic Climax Plant Community

# Community 1.1 Historic Climax Plant Community

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

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

#### Table 5. Annual production by plant type

Plant Type	Low (Lb/Acre)	Representative Value (Lb/Acre)	
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				
Shrub/vine/liana foliar cover				
Grass/grasslike foliar cover				
Forb foliar cover				
Non-vascular plants				
Biological crusts				
Litter				
Surface fragments >0.25" and <=3"				
Surface fragments >3"				
Bedrock	0%			
Water	0%			
Bare ground	22%			

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

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

# State 2 Grass/Shrub

Community 2.1 Grass/Shrub

Grass/Shrub



 Black grame/Mesquits community, with some dropseeds, threesoms, and scattered and shimery oak
 Orass cover low to moderate

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/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	
			· · · · · · · · · · · · · · · · · · ·		

Released to Imaging: 4/23/2024 2:01:30 PM
#### Received by OCD: 3/11/2024 2:52:42 PM

u	<i>by</i> <b>UCD.</b> <i>3/11/2024 2.32.42 1 M</i>				1 uge 75 0j
	sand sagebrush	ARFI2	Artemisia filifolia	61–123	-
	Havard oak	QUHA3	Quercus havardii	61–123	_
11	Shrub	34–61			
	fourwing saltbush	ATCA2	Atriplex canescens	37–61	_
	featherplume	DAFO	Dalea formosa	37–61	_
12	Shrub			37–61	
	jointfir	EPHED	Ephedra	37–61	_
	littleleaf ratany	KRER	Krameria erecta	37–61	_
13	Other Shrubs			37–61	
	Shrub (>.5m)	2SHRUB	Shrub (>.5m)	37–61	_
Forb					
14	Forb	61–123			
	leatherweed	CRPOP	Croton pottsii var. pottsii	61–123	_
	Indian blanket	GAPU	Gaillardia pulchella	61–123	_
	globemallow	SPHAE	Sphaeralcea	61–123	_
15	Forb	12–37			
	woolly groundsel	PACA15	Packera cana	12–37	_
16	Forb			61–123	
	touristplant	DIWI2	Dimorphocarpa wislizeni	61–123	_
	woolly plantain	PLPA2	Plantago patagonica	61–123	_
17	Other Forbs			37–61	
	Forb (herbaceous, not grass nor grass-like)	2FORB	Forb (herbaceous, not grass nor grass-like)	37–61	_

#### **Animal community**

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

Where mesquite has invaded, most resident birds and scissor-tailed flycatcher, morning dove and Swainson's hawk, nest. Vesper and grasshopper sparrows utilize the site during migration.

#### Hydrological functions

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

#### **Recreational uses**

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

#### Wood products

This site has no potential for wood products.

#### Other products

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

#### Other information

Guide to Suggested Initial Stocking Rate Acres per Animal Unit Month Similarity Index Ac/AUM 100 - 76 2.3 - 3.575 - 51 3.0 - 4.550 - 26 4.6 - 9.025 - 0 9.1 +

#### Inventory data references

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

#### **Other references**

Literature Cited:

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

- 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 annualproduction):
- 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:

•



# **APPENDIX C – Daily Field Reports**

# VERTEX

Daily Site	Visit	Report
------------	-------	--------

Client:	Devon Energy Corporation Tomcat 16 State 006 Amanda T. Davis Dennis Williams Amanda Davis (575) 748-0176	Inspection Date: Report Run Date: File (Project) #: API #: Reference	3/27/2019	
Site Location Name:			3/27/2019 7:02 PM	
Project Owner:			19E-00575	
Project Manager:			30-025-34949	
Client Contact Name:			Contractor Line Hit Spill	
Client Contact Phone #:				
		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 N. 7 -P

Run on 3/27/2019 7:02 PM UTC



Page 82 of 319

#### 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.

Run on 3/27/2019 7:02 PM UTC



# **Site Photos** Viewing Direction: Southwest Viewing Direction: South Spill area west of road Spill area on road Viewing Direction: South Viewing Direction: Northwest Spill area on east side of the road. Spill area west of road

Run on 3/27/2019 7:02 PM UTC















#### **Daily Site Visit Signature**

Inspector: Robyn Fisher	$\bigcirc$
Signature:	Signature

•



Client:	Devon Energy Corporation	Inspection Date:	4/30/2019	
Site Location Name:	Tomcat 16 State 006	Report Run Date:	5/1/2019 12:21 AM	
Project Owner:	Amanda T. Davis Dennis Williams Amanda Davis (575) 748-0176	File (Project) #: API #: Reference	19E-00575	
Project Manager:			30-025-34949	
Client Contact Name:			Contractor Line Hit Spill	
Client Contact Phone #:		_		
		Summary 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** Viewing Direction: South Viewing Direction: South Excavated area west side of road Excavated area west side of road Viewing Direction: Northeast Viewing Direction: Northwest Excavated area west side of road Excavated area west side of road





























After backfill east side of road

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



**Daily Site Visit Signature** 

Inspector: Austin Harris

Signature:

•

# VERTEX

#### **Daily Site Visit Report**

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







Advanced BH23-07 on west edge of historical release and excavation.

Run on 7/9/2023 1:04 AM UTC

and excavation.





excavation.

and excavation.

VERTEX

# **Daily Site Visit Report**



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: 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 T	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









**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 T	Times
Arrived at Site	7/13/2023 7:00 AM		
Departed Site	7/13/2023 11:35 AM		

#### **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.

**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


# **Site Photos** Viewing Direction: South Viewing Direction: East Northwest edge of historical release and West edge of historical release and excavation excavation facing south. facing east. Viewing Direction: North Viewing Direction: North Southwest edge of historical release and Southeast edge of historical release and excavation facing north. excavation facing north.

Run on 7/13/2023 9:34 PM UTC







#### **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		

#### **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**





Page 114 of 319



East of lease road, southeast of power pole

facing northeast. Re-collected BS23-62

#### Viewing Direction: Southeast



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

Run on 8/5/2023 5:01 PM UTC



**Daily Site Visit Signature** 

Inspector: Lakin Pullman Signature: Signature

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### **APPENDIX D – Notifications**

#### Resejved-by QGD: 3/11/2024 2:52:42 PM

[Quoted text hidden]

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

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> To: "Enviro, OCD, EMNRD" <OCD.Enviro@emnrd.nm.gov>, "Enviro, OCD, EMNRD" <OCD.Enviro@state.nm.us>, KStallings@vertex.ca Fri, Jul 7, 2023 at 7:50 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,

Fri, Jul 7, 2023 at 7:43 PM

Received-by QGD: 3/11/2024 2:52:42 PM

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> 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> 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> To: ": Enviro, OCD, EMNRD" <OCD.Enviro@emnrd.nm.gov>, "Enviro, OCD, EMNRD" <OCD.Enviro@state.nm.us> Cc: KStallings@vertex.ca Tue, Aug 1, 2023 at 10:19 AM

Mon, Jul 10, 2023 at 9:32 AM

Mon, Jul 10, 2023 at 9:31 AM

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, Au

 To: Dhugal Hanton <vertexresourcegroupusa@gmail.com>
 Cc: "Bratcher, Michael, EMNRD" <mike.bratcher@emnrd.nm.gov>, "Velez, Nelson, EMNRD" <Nelson.Velez@emnrd.nm.gov>

Tue, Aug 1, 2023 at 2:11 PM

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

#### Respired 7 by QGD: 3/11/2024 2:52:42 PM

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**



August 24, 2021

Brandon Schafer's Devon Energy 6488 Seven Rivers Highway Artesia, NM 88210 TEL: (505) 350-1336 FAX Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87109 TEL: 505-345-3975 FAX: 505-345-4107 Website: clients.hallenvironmental.com

OrderNo.: 2108788

Dear Brandon Schafer's:

RE: Tomcat 16 State 6

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

Andy Freeman Laboratory Manager 4901 Hawkins NE Albuquerque, NM 87109

Tomcat 16 State 6

2108788-001

**Project:** 

Lab ID:

**Analytical Report** Lab Order 2108788

Date Reported: 8/24/2021

#### Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: BH21-01 0.5' Collection Date: 8/12/2021 11:05:00 AM 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 OF	RGANICS					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: <b>mb</b>
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: <b>mb</b>
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: JMT
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
- Н
- Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit PQL Practical Quanitative Limit
- % Recovery outside of range due to dilution or matrix S

- Analyte detected in the associated Method Blank в
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

Page 1 of 13

**Project:** Tomcat 16 State 6

**Analytical Report** Lab Order 2108788

Date Reported: 8/24/2021

#### Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: BH21-01 2' Collection Date: 8/12/2021 11:15:00 AM **Deceived Deter** 8/14/2021 8:25:00 AM

Lab ID: 2108788-002	Matrix: SOIL	Received Date: 8/14/2021 8:35:00 AM				
Analyses	Result	RL Qu	ual Units	DF	Date Analyzed	
EPA METHOD 8015M/D: DIESEL RANG	E 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	
EPA METHOD 8015D: GASOLINE RANG	θE				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: JMT	
Chloride	ND	60	mg/Kg	20	8/20/2021 11:55:24 AM	

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

**Qualifiers:** 

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

- в Analyte detected in the associated Method Blank
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

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Analytical Report
Lab Order 2108788

Date Reported: 8/24/2021

8/20/2021 12:07:49 PM

#### 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 Result **RL** Qual Units DF **Date Analyzed** Analyses **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 **EPA METHOD 8015D: GASOLINE RANGE** Analyst: mb Gasoline Range Organics (GRO) ND 8/18/2021 6:46:00 PM 4.8 mg/Kg 1 Surr: BFB 98.5 70-130 %Rec 1 8/18/2021 6:46:00 PM **EPA METHOD 8021B: VOLATILES** Analyst: mb Benzene ND 8/18/2021 6:46:00 PM 0.024 mg/Kg 1 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 8/18/2021 6:46:00 PM Surr: 4-Bromofluorobenzene 92.0 70-130 %Rec 1 Analyst: JMT **EPA METHOD 300.0: ANIONS** 

ND

60

ma/Ka

20

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

**Qualifiers:** 

Chloride

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

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Tomcat 16 State 6

**Project:** 

**Analytical Report** Lab Order 2108788

Date Reported: 8/24/2021

#### Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: BH21-03 0.5' Collection Date: 8/12/2021 11:35:00 AM Received Date: 8/14/2021 8:35:00 AM

Lab ID: 2108788-005	Matrix: SOIL	<b>Received Date:</b> 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	9.9	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: mb		
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: mb		
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: JMT		
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
- Н
- Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- % Recovery outside of range due to dilution or matrix S

- Analyte detected in the associated Method Blank в
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

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**Project:** Tomcat 16 State 6

**Analytical Report** Lab Order 2108788

Date Reported: 8/24/2021

#### Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: BH21-03 2' Collection Date: 8/12/2021 12:35:00 PM · 1D A 0/14/2021 0 25 00 ANA \_

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 RANG	E ORGANICS				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 RANG	GE				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
- Н
- Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- % Recovery outside of range due to dilution or matrix S

- в Analyte detected in the associated Method Blank
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

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**Project:** Tomcat 16 State 6

**Analytical Report** Lab Order 2108788

Date Reported: 8/24/2021

#### Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: BH21-04 0.5' Collection Date: 8/12/2021 11:50:00 AM **Deceived Deter** 8/14/2021 8:25:00 AM

Lab ID: 2108788-007	Matrix: SOIL	<b>Received Date:</b> 8/14/2021 8:35:00 A			
Analyses	Result	RL Qua	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE	ORGANICS				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 RANG	E				Analyst: <b>mb</b>
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: <b>mb</b>
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
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit PQL Practical Quanitative Limit
- % Recovery outside of range due to dilution or matrix S

- в Analyte detected in the associated Method Blank
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

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**Project:** Tomcat 16 State 6

**Analytical Report** Lab Order 2108788

Date Reported: 8/24/2021

#### Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: BH21-04 2' Collection Date: 8/12/2021 12:30:00 PM **Deceived Deter** 8/14/2021 8:25:00 AM

Lab ID: 2108788-008	Matrix: SOIL	<b>Received Date:</b> 8/14/2021 8:35:00 AM			
Analyses	Result	RL Qua	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE	ORGANICS				Analyst: <b>SB</b>
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 RANG	E				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
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit PQL Practical Quanitative Limit
- % Recovery outside of range due to dilution or matrix S

- в Analyte detected in the associated Method Blank
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

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Tomcat 16 State 6

**Project:** 

**Analytical Report** Lab Order 2108788

Date Reported: 8/24/2021

#### Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: BH21-05 0.5' Collection Date: 8/12/2021 12:05:00 PM Received Date: 8/14/2021 8:35:00 AM

Lab ID: 2108788-009	Matrix: SOIL	SOIL Received Date: 8/14/2021 8:35:00 A			
Analyses	Result	RL Qua	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE	ORGANICS				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	E				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: <b>mb</b>
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
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- % Recovery outside of range due to dilution or matrix S

- Analyte detected in the associated Method Blank в
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

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**Project:** Tomcat 16 State 6

**Analytical Report** Lab Order 2108788

Date Reported: 8/24/2021

#### Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: BH21-05 2' Collection Date: 8/12/2021 12:25:00 PM wed Date: 9/14/2021 9.25.00 AM ъ

Lab ID: 2108788-011	Matrix: SOIL	ived Date:	ed Date: 8/14/2021 8:35:00 AM			
Analyses	Result	RL Qua	al Units	DF	Date Analyzed	
EPA METHOD 8015M/D: DIESEL RANGE	ORGANICS				Analyst: <b>SB</b>	
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 RANG	E				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
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit PQL Practical Quanitative Limit
- % Recovery outside of range due to dilution or matrix S

- в Analyte detected in the associated Method Blank
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

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Client: Project:		on Energy cat 16 State 6									
Sample ID:	MB-62091	SampTy	/pe: <b>m</b> t	olk	Tes	tCode: EF	PA Method	300.0: Anion	s		
Client ID:	PBS	Batch	ID: 62	091	F	RunNo: <b>80</b>	0680				
Prep Date:	8/20/2021	Analysis Da	ate: <b>8/</b>	20/2021	S	SeqNo: 28	346866	Units: mg/K	g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride		ND	1.5								
Sample ID:	LCS-62091	SampTy	/pe: Ics	5	Tes	tCode: EF	PA Method	300.0: Anion	s		
Client ID:	LCSS	Batch	ID: 62	091	F	RunNo: <b>80</b>	0680				
Prep Date:	8/20/2021	Analysis Da	ate: <b>8/</b>	20/2021	5	SeqNo: 28	346867	Units: <b>mg/K</b>	g		
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			

- \* Value exceeds 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

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2108788

24-Aug-21

WO#:

INIARY REPORT	WO#:	2108788
ronmental Analysis Laboratory, Inc.		24-Aug-21

Client: Devon E Project: Tomcat	Energy 16 State 6	
Sample ID: MB-62022	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics
Client ID: PBS	Batch ID: 62022	RunNo: <b>80624</b>
Prep Date: 8/17/2021	Analysis Date: 8/18/2021	SeqNo: 2844795 Units: mg/Kg
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Diesel Range Organics (DRO)	ND 10	
Motor Oil Range Organics (MRO)	ND 50	
Surr: DNOP	13 10.00	130 70 130 S
Sample ID: MB-62016	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics
Client ID: PBS	Batch ID: 62016	RunNo: 80624
Prep Date: 8/17/2021	Analysis Date: 8/18/2021	SeqNo: 2844796 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	11 10.00	110 70 130
Sample ID: LCS-62022	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics
Client ID: LCSS	Batch ID: 62022	RunNo: 80624
Prep Date: 8/17/2021	Analysis Date: 8/18/2021	SeqNo: 2844798 Units: mg/Kg
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Diesel Range Organics (DRO)	51 10 50.00	0 101 68.9 141
Surr: DNOP	5.2 5.000	104 70 130
Sample ID: LCS-62016	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics
Client ID: LCSS	Batch ID: 62016	RunNo: 80624
Prep Date: 8/17/2021	Analysis Date: 8/18/2021	SeqNo: 2844799 Units: mg/Kg
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Diesel Range Organics (DRO)	52 10 50.00	0 104 68.9 141
Surr: DNOP	5.1 5.000	103 70 130

- 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
- PQL Practical Quanitative Limit
- % Recovery outside of range due to dilution or matrix S

- В Analyte detected in the associated Method Blank
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range

RL Reporting Limit

Client: Devon H Project: Tomcat	Energy 16 State 6									
Sample ID: mb-62002	SampT	ype: ME	BLK	Test	tCode: El	PA Method	8015D: Gaso	line Rang	e	
Client ID: PBS	Batch	n ID: 62	002	R	lunNo: <b>8</b>	0628				
Prep Date: 8/16/2021	Analysis D	0ate: <b>8/</b>	18/2021	S	eqNo: 2	844295	Units: mg/K	g		
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	SampT	ype: LC	S	Test	tCode: El	PA Method	8015D: Gasc	line Rang	e	
Client ID: LCSS	Batch	n ID: 62	002	R	unNo: <b>8</b>	0628				
Prep Date: 8/16/2021	Analysis D	)ate: <b>8/</b>	18/2021	S	eqNo: 2	844297	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	101	78.6	131			
Surr: BFB	1200		1000		119	70	130			

- \* Value exceeds 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

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2108788

24-Aug-21

WO#:

	von Energy ncat 16 State 6									
Sample ID: mb-62002	Samp	Туре: <b>МЕ</b>	BLK	Tes	tCode: El	PA Method	8021B: Volat	iles		
Client ID: PBS	Batc	Batch ID: 62002			lunNo: <b>8</b>					
Prep Date: 8/16/2021	Analysis I	Date: 8/	18/2021	S	eqNo: 2	844329	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	0.95		1.000		95.3	70	130			
Sample ID: Ics-62002	Samp	Туре: <b>LC</b>	s	Tes	tCode: El	PA Method	8021B: Volat	iles		
Client ID: LCSS	Batc	h ID: 62	002	F	lunNo: <b>8</b>	0628				
Prep Date: 8/16/2021	Analysis [	Date: <b>8/</b>	18/2021	S	eqNo: 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			
Ethylbenzene	0.96	0.050	1.000	0	96.0	80	120			
Xylenes, Total	2.9	0.10	3.000	0	96.7	80	120			
Surr: 4-Bromofluorobenzene	0.99		1.000		98.8	70	130			

- \* Value exceeds 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

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2108788

24-Aug-21

WO#:

HALL ENVIRONMENTAL ANALYSIS LABORATORY		TEL: 505-345-	49 Albuquer 3975 FAX	vsis Laboratory 01 Hawkins NE que, NM 87109 505-345-4107 ironmental.com	Sample Log-In Check List				
Client Name:	Devon Energy	Work Order Nur	mber: 210	8788			RcptNo:	1	
Received By:	Isaiah Ortiz	8/14/2021 8:35:00	) AM		<i>T</i> -	.04	6		
Completed By:	Isaiah Ortiz	8/14/2021 10:42:5	55 AM		I-	al	6		
Reviewed By:	CP	8/14/21							
Chain of Cust	tody								
1. Is Chain of Cu	stody complete?		Yes		No [		Not Present		
2. How was the s	sample delivered?		Cou	rier					
Log In 3. Was an attem	pt made to cool the san	nples?	Yes	<b>V</b>	No [				
4. Were all samp	les received at a tempe	rature of >0° C to 6.0°C	Yes		No [		NA 🗌		
5. Sample(s) in p	roper container(s)?		Yes		No [				
6. Sufficient samp	ble volume for indicated	test(s)?	Yes		No [				
7. Are samples (e	except VOA and ONG)	properly preserved?	Yes	~	No [				
8. Was preservat	ive added to bottles?		Yes		No				
9. Received at lea	ast 1 vial with headspac	e <1/4" for AQ VOA?	Yes		No [	2		-70	
10. Were any sam	ple containers received	broken?	Yes		No S				
44 5						b	of preserved ottles checked	8.14.21	
	k match bottle labels?	dv)	Yes		No L	fo	or pH:	12 unless noted)	
	prrectly identified on Ch		Yes		No [		Adjusted?		
	analyses were requeste				No [				
	g times able to be met? stomer for authorization				No 🗌	з	Checked by:		
Special Handli	ng (if applicable)	71							
15. Was client not	ified of all discrepancies	s with this order?	Yes		No [		NA 🔽		
Person N	Notified:	Date	e:			-			
By Whor	n:	Via:	eM.	ail 🔲 Phone	F	ax 🗌	In Person		
Regardir	ig:		,		-				
Client Ins	structions:					_			
16. Additional rem	arks:								
17. <u>Cooler Inform</u> Cooler No	Temp °C Condition	n Seal Intact Seal No	Seal D	ate Sigr	ned By	,			
1	2.9 Good	Not Present	Sear D	ale Sigi	iea By	(			

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Page 1 of 1

HALL ENVIRONMENTAL ANALYSIS LABORATORY	4901 Hawkins NE - Albuquerque, NM 87109	Tel. 505-345-3975 Fax 505-345-4107 Analysis Request	s (8021) bO4, SO4 bCB's	20 / DR (1, 1002) (1, 1002) (4.1) (402) (402) (402) (400) (40) (40) (40) (40) (40) (40) (4	(GH shide shals (Or ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) (	() () () () () () () () () () () () () (			603 < <	DOY PLEASEHOLD	005 V / 1 1 1 1 1 1 200	006 //		%		010 P L E A 5 E H 3 L D	0= ~ ~	Time Remarks: Direct bill Devan	ge 13	
	4901 Hawkins NE -	Anal	)SIWS DCB, <sup>2</sup> s (8051)	30 / DR 504.1) or 827( 5	40) 910 910 910 910 910	HAL No. HAL No. HAL No. Ha by 83 Ha by 83 Ha by 83 RA 8 Method Ha by 83 RA 8 Method RA 9 Method		>		PLEASEH	V	1	-			PLEASEH	0= ~ ~	Date Time Remarks: Orect	Date	
	Tomcat 16 State	21E-00580	Project Manager: Brandon Shafer	Sampler: NYT P On Ice: EV Yes 70 E	# of Coolers:	Cooler Temp(Including CF): 24 + 0* Container Preservative +	# Type										1		Via:	< 1
Chain-of-Custody Record Client: Dwon Energy Wishey Mathuws		Phone #:	email or Fax#: ΩA/QC Package: □ Standard □ Level 4 (Full Validation)	Accreditation:	EDD (Type)		Date         Time         Matrix         Sample Name           8/13         11:05         50:1         01         0.5	11:15 / 8431-01		(1:30 BH21-02 )'	_	- 03	BH21-6	BH31-04	BH31-	SH21-05	V BHQI-05 20	Date: Time: Relinquished by:	Date: Time: Relinquished by:	8/12/201 1.2. N. N.



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

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 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

Andy Freeman Laboratory Manager 4901 Hawkins NE Albuquerque, NM 87109

**Project:** 

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

Tomcat 16 State 006

**Analytical Report** Lab Order 2307353

#### Hall Environmental Analysis Laboratory, Inc.

Date Reported: 7/17/2023

Client Sample ID: BH21-01 0' Collection Date: 7/8/2023 7:30:00 AM **Received Date:** 7/11/2023 0.10.00 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 RANG	E ORGANICS				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 RAN	GE				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: <b>KMN</b>				
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

- Н Holding times for preparation or analysis exceeded
- Not Detected at the Reporting Limit
- ND PQL Practical Quanitative Limit
- % Recovery outside of standard limits. If undiluted results may be estimated. S
- Analyte detected in the associated Method Blank в
- Above Quantitation Range/Estimated Value Е
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

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**Analytical Report** Lab Order 2307353

#### Hall Environmental Analysis Laboratory, Inc.

Date Reported: 7/17/2023 Client Sample ID: BH21-02 0'

Project: Tomcat 16 State 006		Collec	tion Date:	7/8/20	23 7:30:00 AM				
Lab ID: 2307353-002	Matrix: SOIL	<b>Received Date:</b> 7/11/2023 9:10:00 AM							
Analyses	Result	RL Qua	al Units	DF	Date Analyzed				
EPA METHOD 8015M/D: DIESEL RANG	E ORGANICS				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 RANG	GE				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: <b>KMN</b>				
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

- Н Holding times for preparation or analysis exceeded
- Not Detected at the Reporting Limit
- ND PQL Practical Quanitative Limit
- % Recovery outside of standard limits. If undiluted results may be estimated. s
- Analyte detected in the associated Method Blank в
- Above Quantitation Range/Estimated Value Е
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

Page 2 of 42

**Analytical Report** Lab Order 2307353

#### Hall Environmental Analysis Laboratory, Inc.

Date Reported: 7/17/2023 Client Sample ID: BH21-03 0'

Project:	Tomcat 16 State 006		Collec	tion Date:	7/8/20	23 7:30:00 AM				
Lab ID:	2307353-003	Matrix: SOIL	<b>Received Date:</b> 7/11/2023 9:10:00 AM							
Analyses		Result	RL Qu	al Units	DF	Date Analyzed				
EPA ME	THOD 8015M/D: DIESEL RA	NGE ORGANICS				Analyst: PRD				
Diesel R	ange Organics (DRO)	ND	9.8	mg/Kg	1	7/12/2023 1:32:46 AM				
Motor Oi	I Range Organics (MRO)	ND	49	mg/Kg	1	7/12/2023 1:32:46 AM				
Surr: I	DNOP	84.0	69-147	%Rec	1	7/12/2023 1:32:46 AM				
EPA ME	THOD 8015D: GASOLINE R	ANGE				Analyst: KMN				
Gasoline	Range Organics (GRO)	ND	5.0	mg/Kg	1	7/12/2023 5:57:00 PM				
Surr: I	BFB	107	15-244	%Rec	1	7/12/2023 5:57:00 PM				
EPA ME	THOD 8021B: VOLATILES					Analyst: <b>KMN</b>				
Benzene	1	ND	0.025	mg/Kg	1	7/12/2023 5:57:00 PM				
Toluene		ND	0.050	mg/Kg	1	7/12/2023 5:57:00 PM				
Ethylben	zene	ND	0.050	mg/Kg	1	7/12/2023 5:57:00 PM				
Xylenes,	Total	ND	0.099	mg/Kg	1	7/12/2023 5:57:00 PM				
Surr: 4	4-Bromofluorobenzene	100	39.1-146	%Rec	1	7/12/2023 5:57:00 PM				
EPA ME	THOD 300.0: ANIONS					Analyst: CAS				
Chloride		ND	60	mg/Kg	20	7/12/2023 3:53:02 PM				

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

**Qualifiers:** 

Value exceeds Maximum Contaminant Level. Sample Diluted Due to Matrix

D Н

Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

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

Analyte detected in the associated Method Blank в

- Above Quantitation Range/Estimated Value Е
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range

RL Reporting Limit Page 3 of 42

**Analytical Report** Lab Order 2307353

### Hall Environmental Analysis Laboratory, Inc.

Date Reported: 7/17/2023 Client Sample ID: BH21-04 0'

Project:	Tomcat 16 State 006		Collec	ction Date:	7/8/20	23 7:35:00 AM				
Lab ID:	2307353-004	Matrix: SOIL	Received Date: 7/11/2023 9:10:00 AM							
Analyses		Result	RL Qu	al Units	DF	Date Analyzed				
EPA ME	THOD 8015M/D: DIESEL RA	NGE ORGANICS				Analyst: PRD				
Diesel R	ange Organics (DRO)	ND	9.5	mg/Kg	1	7/12/2023 1:43:43 AM				
Motor Oi	l Range Organics (MRO)	ND	48	mg/Kg	1	7/12/2023 1:43:43 AM				
Surr: I	DNOP	84.0	69-147	%Rec	1	7/12/2023 1:43:43 AM				
EPA ME	THOD 8015D: GASOLINE R	ANGE				Analyst: KMN				
Gasoline	Range Organics (GRO)	ND	4.8	mg/Kg	1	7/12/2023 6:19:00 PM				
Surr: I	BFB	101	15-244	%Rec	1	7/12/2023 6:19:00 PM				
EPA ME	THOD 8021B: VOLATILES					Analyst: KMN				
Benzene	)	ND	0.024	mg/Kg	1	7/12/2023 6:19:00 PM				
Toluene		ND	0.048	mg/Kg	1	7/12/2023 6:19:00 PM				
Ethylben	zene	ND	0.048	mg/Kg	1	7/12/2023 6:19:00 PM				
Xylenes,	Total	ND	0.096	mg/Kg	1	7/12/2023 6:19:00 PM				
Surr: 4	4-Bromofluorobenzene	98.1	39.1-146	%Rec	1	7/12/2023 6:19:00 PM				
EPA ME	THOD 300.0: ANIONS					Analyst: CAS				
Chloride		ND	60	mg/Kg	20	7/12/2023 4:05:27 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

- Н
- Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit PQL Practical Quanitative Limit
- % Recovery outside of standard limits. If undiluted results may be estimated. s
- Analyte detected in the associated Method Blank в
- Above Quantitation Range/Estimated Value Е
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

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**Analytical Report** Lab Order 2307353

### Hall Environmental Analysis Laboratory, Inc.

Date Reported: 7/17/2023 Client Sample ID: BH21-05 0'

Project:	Tomcat 16 State 006		Collec	ction Date:	7/8/20	23 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 ME	THOD 8015M/D: DIESEL RA	NGE ORGANICS				Analyst: PRD				
Diesel R	ange Organics (DRO)	ND	9.7	mg/Kg	1	7/12/2023 1:54:43 AM				
Motor Oi	il Range Organics (MRO)	ND	49	mg/Kg	1	7/12/2023 1:54:43 AM				
Surr: I	DNOP	87.0	69-147	%Rec	1	7/12/2023 1:54:43 AM				
EPA ME	THOD 8015D: GASOLINE R	ANGE				Analyst: KMN				
Gasoline	e Range Organics (GRO)	ND	4.9	mg/Kg	1	7/12/2023 6:41:00 PM				
Surr: I	BFB	96.7	15-244	%Rec	1	7/12/2023 6:41:00 PM				
EPA ME	THOD 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				
Ethylben	izene	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	4-Bromofluorobenzene	96.4	39.1-146	%Rec	1	7/12/2023 6:41:00 PM				
EPA ME	THOD 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

Н

Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit PQL Practical Quanitative Limit

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

- Analyte detected in the associated Method Blank в
- Above Quantitation Range/Estimated Value Е
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range

RL Reporting Limit Page 5 of 42

**Analytical Report** Lab Order 2307353

#### Hall Environmental Analysis Laboratory, Inc.

Date Reported: 7/17/2023 Client Sample ID: BH23-06 0'

Project:	Tomcat 16 State 006		Collec	ction Date:	7/8/20	23 8:00:00 AM				
Lab ID:	2307353-006	Matrix: SOIL	Received Date: 7/11/2023 9:10:00 AM							
Analyses		Result	RL Qu	al Units	DF	Date Analyzed				
EPA ME	THOD 8015M/D: DIESEL RA	NGE ORGANICS				Analyst: PRD				
Diesel R	ange Organics (DRO)	ND	9.7	mg/Kg	1	7/12/2023 2:05:39 AM				
Motor Oi	l Range Organics (MRO)	ND	48	mg/Kg	1	7/12/2023 2:05:39 AM				
Surr: I	DNOP	85.3	69-147	%Rec	1	7/12/2023 2:05:39 AM				
EPA ME	THOD 8015D: GASOLINE R	ANGE				Analyst: KMN				
Gasoline	Range Organics (GRO)	ND	4.9	mg/Kg	1	7/12/2023 7:03:00 PM				
Surr: I	BFB	98.0	15-244	%Rec	1	7/12/2023 7:03:00 PM				
EPA ME	THOD 8021B: VOLATILES					Analyst: KMN				
Benzene	)	ND	0.025	mg/Kg	1	7/12/2023 7:03:00 PM				
Toluene		ND	0.049	mg/Kg	1	7/12/2023 7:03:00 PM				
Ethylben	zene	ND	0.049	mg/Kg	1	7/12/2023 7:03:00 PM				
Xylenes,	Total	ND	0.098	mg/Kg	1	7/12/2023 7:03:00 PM				
Surr: 4	4-Bromofluorobenzene	96.7	39.1-146	%Rec	1	7/12/2023 7:03:00 PM				
EPA ME	THOD 300.0: ANIONS					Analyst: CAS				
Chloride		ND	60	mg/Kg	20	7/12/2023 4:30:15 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

- Н
- Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit PQL Practical Quanitative Limit
- % Recovery outside of standard limits. If undiluted results may be estimated. S
- Analyte detected in the associated Method Blank в
- Above Quantitation Range/Estimated Value Е
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

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CLIENT: Vertex Resources Services, Inc.

Project: Tomcat 16 State 006

**Analytical Report** Lab Order 2307353

# Hall Environmental Analysis Laboratory, Inc.

Date Reported: 7/17/2023 Client Sample ID: BH23-06 2' Collection Date: 7/8/2023 8:05:00 AM

Lab ID: 2307353-007	Matrix: SOIL	Rece	Received Date: 7/11/2023 9:10:00 AM				
Analyses	Result	RL Qu	al Units	DF	Date Analyzed		
EPA METHOD 8015M/D: DIESEL RAI	NGE ORGANICS				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 RA	NGE				Analyst: <b>KMN</b>		
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: <b>KMN</b>		
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

- Н
- Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit PQL Practical Quanitative Limit
- % Recovery outside of standard limits. If undiluted results may be estimated. S
- Analyte detected in the associated Method Blank в
- Above Quantitation Range/Estimated Value Е
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

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CLIENT: Vertex Resources Services, Inc.

Project: Tomcat 16 State 006

**Analytical Report** Lab Order 2307353

# Hall Environmental Analysis Laboratory, Inc.

Date Reported: 7/17/2023 Client Sample ID: BH23-07 0' Collection Date: 7/8/2023 8:10:00 AM

Lab ID: 2307353-008	Matrix: SOIL	Rece	<b>Received Date:</b> 7/11/2023 9:10:00 AM				
Analyses	Result	RL Qu	al Units	DF	Date Analyzed		
EPA METHOD 8015M/D: DIESEL RA	NGE ORGANICS				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 RA	ANGE				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. Sample Diluted Due to Matrix

D Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit PQL Practical Quanitative Limit

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

- Analyte detected in the associated Method Blank в
- Above Quantitation Range/Estimated Value Е
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range

RL Reporting Limit Page 8 of 42

Lab ID:

CLIENT: Vertex Resources Services, Inc.

Tomcat 16 State 006

2307353-009

**Analytical Report** Lab Order 2307353

# Hall Environmental Analysis Laboratory, Inc.

Date Reported: 7/17/2023 Client Sample ID: BH23-07 2' Collection Date: 7/8/2023 8:15:00 AM

Received Date: 7/11/2023 9:10:00 AM

Analyses	Result	RL Qu	al 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

Matrix: SOIL

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 PQL Practical Quanitative Limit

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

- Analyte detected in the associated Method Blank в
- Above Quantitation Range/Estimated Value Е
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range

RL Reporting Limit Page 9 of 42

Lab ID:

CLIENT: Vertex Resources Services, Inc.

Tomcat 16 State 006

2307353-010

**Analytical Report** Lab Order 2307353

# Hall Environmental Analysis Laboratory, Inc.

Date Reported: 7/17/2023 Client Sample ID: BH23-08 0' Collection Date: 7/8/2023 8:20:00 AM

Received Date: 7/11/2023 9:10:00 AM

Analyses	Result	RL Qu	ual Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGA	NICS				Analyst: PRD
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	mg/Kg	20	7/12/2023 6:59:10 PM
EPA METHOD 8260B: VOLATILES SHORT LIST					Analyst: RAA
Benzene	ND	0.024	mg/Kg	1	7/12/2023 2:07:49 PM
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	118	64.8-147	%Rec	1	7/12/2023 2:07:49 PM
Surr: 4-Bromofluorobenzene	99.5	62.1-144	%Rec	1	7/12/2023 2:07:49 PM
Surr: Dibromofluoromethane	119	73-145	%Rec	1	7/12/2023 2:07:49 PM
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	4.8	mg/Kg	1	7/12/2023 2:07:49 PM
Surr: BFB	94.7	70-130	%Rec	1	7/12/2023 2:07:49 PM

Matrix: SOIL

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

**Qualifiers:** 

Value exceeds Maximum Contaminant Level. Sample Diluted Due to Matrix

D Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit PQL Practical Quanitative Limit

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

- Analyte detected in the associated Method Blank в
- Above Quantitation Range/Estimated Value Е
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

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CLIENT: Vertex Resources Services, Inc.

Tomcat 16 State 006

**Analytical Report** Lab Order 2307353

# Hall Environmental Analysis Laboratory, Inc.

Date Reported: 7/17/2023 Client Sample ID: BH23-08 2' Collection Date: 7/8/2023 8:25:00 AM Received Date: 7/11/2023 9:10:00 AM

Lab ID: 2307353-011		Matrix: SOIL	Receiv	<b>Received Date:</b> 7/11/2023 9:10:00 AM				
Analyses		Result	RL Qual	Units	DF	Date Analyzed		
EPA ME	THOD 8015M/D: DIESEL R	ANGE ORGANICS				Analyst: PRD		
Diesel R	ange Organics (DRO)	ND	9.7	mg/Kg	1	7/12/2023 2:02:37 PM		
Motor Oi	I Range Organics (MRO)	ND	48	mg/Kg	1	7/12/2023 2:02:37 PM		
Surr: I	ONOP	80.9	69-147	%Rec	1	7/12/2023 2:02:37 PM		
EPA ME	THOD 300.0: ANIONS					Analyst: CAS		
Chloride		ND	60	mg/Kg	20	7/12/2023 7:11:35 PM		
EPA ME	THOD 8260B: VOLATILES	SHORT LIST				Analyst: RAA		
Benzene	9	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		
Ethylben	zene	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: 2	1,2-Dichloroethane-d4	117	64.8-147	%Rec	1	7/12/2023 2:35:24 PM		
Surr: 4	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 ME	THOD 8015D MOD: GASOL	INE RANGE				Analyst: RAA		
Gasoline	Range Organics (GRO)	ND	4.8	mg/Kg	1	7/12/2023 2:35:24 PM		
Surr: E	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. Sample Diluted Due to Matrix
- D Н
- Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit PQL Practical Quanitative Limit
- % Recovery outside of standard limits. If undiluted results may be estimated. S
- Analyte detected in the associated Method Blank в
- Above Quantitation Range/Estimated Value Е
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range Reporting Limit

RL

Page 11 of 42

Lab ID:

CLIENT: Vertex Resources Services, Inc.

Tomcat 16 State 006

2307353-012

**Analytical Report** Lab Order 2307353

Date Reported: 7/17/2023

# Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: BH23-09 0' Collection Date: 7/8/2023 8:30:00 AM 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	9.6	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
EPA METHOD 8260B: VOLATILES SHORT LIST	т				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 RANGE	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

Matrix: SOIL

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

**Qualifiers:** 

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

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Lab ID:

CLIENT: Vertex Resources Services, Inc.

Tomcat 16 State 006

2307353-013

**Analytical Report** Lab Order 2307353

Date Reported: 7/17/2023

# Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: BH23-09 2' Collection Date: 7/8/2023 8:35:00 AM 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 ORGAI	NICS				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
EPA METHOD 8260B: VOLATILES SHORT LIST					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 RANGE					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

Н

Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit PQL Practical Quanitative Limit

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

Analyte detected in the associated Method Blank в

Above Quantitation Range/Estimated Value Е

J Analyte detected below quantitation limits

Р Sample pH Not In Range

RL Reporting Limit Page 13 of 42

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

Lab ID:

CLIENT: Vertex Resources Services, Inc.

Tomcat 16 State 006

2307353-014

**Analytical Report** Lab Order 2307353

Date Reported: 7/17/2023

# Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: BH23-10 0' Collection Date: 7/8/2023 8:40:00 AM Received Date: 7/11/2023 9:10:00 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	7/12/2023 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
EPA METHOD 8260B: VOLATILES SHORT L	.IST				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 RAN	IGE				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

Matrix: SOIL

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

**Qualifiers:** 

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

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Lab ID:

CLIENT: Vertex Resources Services, Inc.

Tomcat 16 State 006

2307353-015

Analytical Report Lab Order 2307353

# Hall Environmental Analysis Laboratory, Inc.

Date Reported: 7/17/2023 Client Sample ID: BH23-10 2' Collection Date: 7/8/2023 8:45:00 AM

Received Date: 7/11/2023 9:10:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGA	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
EPA METHOD 8260B: VOLATILES SHORT LIST					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

Matrix: SOIL

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

**Qualifiers:** 

- Value exceeds Maximum Contaminant Level. Sample Diluted Due to Matrix
- D Sample Diluted Due to Matrix
   H Holding times for preparation or analysis exceed
- H Holding times for preparation or analysis exceeded
- NDNot Detected at the Reporting LimitPQLPractical 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

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Lab ID:

CLIENT: Vertex Resources Services, Inc.

Tomcat 16 State 006

2307353-016

**Analytical Report** Lab Order 2307353

# Hall Environmental Analysis Laboratory, Inc.

Date Reported: 7/17/2023 Client Sample ID: BH23-11 0'

Collection Date: 7/8/2023 8:50:00 AM Received Date: 7/11/2023 9:10:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGA	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
EPA METHOD 8260B: VOLATILES SHORT LIST					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

Matrix: SOIL

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

**Qualifiers:** 

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

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

Tomcat 16 State 006

**Analytical Report** Lab Order 2307353

#### Hall Environmental Analysis Laboratory, Inc.

Date Reported: 7/17/2023 Client Sample ID: BH23-11 2' Collection Date: 7/8/2023 8:55:00 AM Received Date: 7/11/2023 9:10:00 AM

Lab ID: 2307353-017 Matrix: SOIL 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 Benzene 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 **EPA METHOD 8015D MOD: GASOLINE RANGE** Analyst: RAA Gasoline Range Organics (GRO) ND mg/Kg 7/12/2023 5:20:52 PM 5.0 1 Surr: BFB 86.7 70-130 %Rec 1 7/12/2023 5:20:52 PM

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

**Qualifiers:** 

Value exceeds Maximum Contaminant Level. Sample Diluted Due to Matrix

D Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit PQL Practical Quanitative Limit

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

- Analyte detected in the associated Method Blank в
- Е Above Quantitation Range/Estimated Value
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range

RL Reporting Limit Page 17 of 42

Lab ID:

CLIENT: Vertex Resources Services, Inc.

Tomcat 16 State 006

2307353-018

**Analytical Report** Lab Order 2307353

# Hall Environmental Analysis Laboratory, Inc.

Date Reported: 7/17/2023 Client Sample ID: BH23-12 0' Collection Date: 7/8/2023 9:00:00 AM

Received Date: 7/11/2023 9:10:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGA	Analyst: PRD				
Diesel Range Organics (DRO)	ND	9.8	mg/Kg	1	7/12/2023 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

Matrix: SOIL

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
- PQL Practical Quanitative Limit
- % Recovery outside of standard limits. If undiluted results may be estimated. S
- Analyte detected in the associated Method Blank в
- Above Quantitation Range/Estimated Value Е
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

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

Analytical Report Lab Order 2307353

#### Hall Environmental Analysis Laboratory, Inc.

Date Reported: 7/17/2023
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 Result **RL** Qual Units DF **Date Analyzed** Analyses Analyst: PRD EPA METHOD 8015M/D: DIESEL RANGE ORGANICS 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 7/12/2023 9:40:31 PM 59 mg/Kg 20 **EPA METHOD 8260B: VOLATILES SHORT LIST** Analyst: RAA ND 7/12/2023 6:16:07 PM Benzene 0.024 mg/Kg 1 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 %Rec 7/12/2023 6:16:07 PM 127 64.8-147 1 Surr: 4-Bromofluorobenzene 93.5 62.1-144 %Rec 1 7/12/2023 6:16:07 PM Surr: Dibromofluoromethane 73-145 %Rec 1 7/12/2023 6:16:07 PM 124 Surr: Toluene-d8 98.3 70-130 %Rec 1 7/12/2023 6:16:07 PM **EPA METHOD 8015D MOD: GASOLINE RANGE** Analyst: RAA Gasoline Range Organics (GRO) ND mg/Kg 7/12/2023 6:16:07 PM 49 1

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:

Surr: BFB

Value exceeds Maximum Contaminant Level. Sample Diluted Due to Matrix

D Sample Diluted Due to MatrixH Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

POL 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

RL Report

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

**Analytical Report** Lab Order 2307353

#### Hall Environmental Analysis Laboratory, Inc.

Date Reported: 7/17/2023 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 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 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 7/12/2023 10:17:44 PM mg/Kg 20 **EPA METHOD 8260B: VOLATILES SHORT LIST** Analyst: RAA ND 0.025 7/12/2023 6:43:44 PM Benzene mg/Kg 1 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 %Rec 7/12/2023 6:43:44 PM 117 64.8-147 1 Surr: 4-Bromofluorobenzene 90.6 62.1-144 %Rec 1 7/12/2023 6:43:44 PM Surr: Dibromofluoromethane 73-145 %Rec 1 7/12/2023 6:43:44 PM 122 Surr: Toluene-d8 98.9 70-130 %Rec 1 7/12/2023 6:43:44 PM **EPA METHOD 8015D MOD: GASOLINE RANGE** Analyst: RAA Gasoline Range Organics (GRO) ND mg/Kg 7/12/2023 6:43:44 PM 49 1 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. Sample Diluted Due to Matrix

D Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit POL Practical Quanitative Limit

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

- Analyte detected in the associated Method Blank в
- Е Above Quantitation Range/Estimated Value
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range

RL Reporting Limit Page 20 of 42

CLIENT: Vertex Resources Services, Inc.

Tomcat 16 State 006

**Analytical Report** Lab Order 2307353

# Hall Environmental Analysis Laboratory, Inc.

Date Reported: 7/17/2023 Client Sample ID: BH23-13 2' Collection Date: 7/8/2023 9:20:00 AM **Received Date:** 7/11/2023 0.10.00 AM

Lab ID: 2307353-021	Matrix: SOIL	Recei	<b>Received Date:</b> 7/11/2023 9:10:00 AM				
Analyses	Result	RL Qua	al Units	DF	Date Analyzed		
EPA METHOD 8015M/D: DIESEL RA	ANGE ORGANICS				Analyst: PRD		
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	mg/Kg	20	7/12/2023 10:30:09 PM		
EPA METHOD 8260B: VOLATILES	SHORT LIST				Analyst: RAA		
Benzene	ND	0.024	mg/Kg	1	7/12/2023 7:11:19 PM		
Toluene	ND	0.048	mg/Kg	1	7/12/2023 7:11:19 PM		
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	64.8-147	%Rec	1	7/12/2023 7:11:19 PM		
Surr: 4-Bromofluorobenzene	93.8	62.1-144	%Rec	1	7/12/2023 7:11:19 PM		
Surr: Dibromofluoromethane	124	73-145	%Rec	1	7/12/2023 7:11:19 PM		
Surr: Toluene-d8	99.9	70-130	%Rec	1	7/12/2023 7:11:19 PM		
EPA METHOD 8015D MOD: GASOL	INE RANGE				Analyst: RAA		
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	7/12/2023 7:11:19 PM		
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. Sample Diluted Due to Matrix
- D Н
- Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit PQL Practical Quanitative Limit
- % Recovery outside of standard limits. If undiluted results may be estimated. S
- Analyte detected in the associated Method Blank в
- Above Quantitation Range/Estimated Value Е
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

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

**Analytical Report** Lab Order 2307353

#### Hall Environmental Analysis Laboratory, Inc.

Date Reported: 7/17/2023 Client Sample ID: BH23-14 0' Collection Date: 7/8/2023 9:35:00 AM

**Project:** Tomcat 16 State 006 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 Benzene 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. Sample Diluted Due to Matrix

D Н Holding times for preparation or analysis exceeded

Not Detected at the Reporting Limit

ND POL Practical Quanitative Limit

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

Analyte detected in the associated Method Blank в

Е Above Quantitation Range/Estimated Value

J Analyte detected below quantitation limits

Р Sample pH Not In Range

RL Reporting Limit Page 22 of 42

Lab ID:

CLIENT: Vertex Resources Services, Inc.

Tomcat 16 State 006

2307353-023

**Analytical Report** Lab Order 2307353

Date Reported: 7/17/2023

# Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: BH23-14 0.5' Collection Date: 7/8/2023 9:35:00 AM Received Date: 7/11/2023 9:10:00 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	9.7	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 L	.IST				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 RAN	IGE				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

Matrix: SOIL

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 PQL Practical Quanitative Limit
- % Recovery outside of standard limits. If undiluted results may be estimated. S
- Analyte detected in the associated Method Blank в
- Above Quantitation Range/Estimated Value Е
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

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

**Analytical Report** Lab Order 2307353

#### Hall Environmental Analysis Laboratory, Inc.

Date Reported: 7/17/2023 Client Sample ID: BH23-14 2'

**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 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 5:41:15 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 7/12/2023 11:07:21 PM mg/Kg 20 **EPA METHOD 8260B: VOLATILES SHORT LIST** Analyst: RAA ND 7/12/2023 8:33:38 PM Benzene 0.024 mg/Kg 1 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 %Rec 7/12/2023 8:33:38 PM 133 64.8-147 1 Surr: 4-Bromofluorobenzene 92.4 62.1-144 %Rec 1 7/12/2023 8:33:38 PM Surr: Dibromofluoromethane 73-145 %Rec 1 7/12/2023 8:33:38 PM 134 Surr: Toluene-d8 98.3 70-130 %Rec 1 7/12/2023 8:33:38 PM **EPA METHOD 8015D MOD: GASOLINE RANGE** Analyst: RAA Gasoline Range Organics (GRO) ND mg/Kg 7/12/2023 8:33:38 PM

87.9

4.8

70-130

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

**Qualifiers:** 

Surr: BFB

Value exceeds Maximum Contaminant Level. Sample Diluted Due to Matrix

D Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

POL Practical Quanitative Limit

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

Analyte detected in the associated Method Blank в

1

1

7/12/2023 8:33:38 PM

%Rec

Е Above Quantitation Range/Estimated Value

J Analyte detected below quantitation limits

Р Sample pH Not In Range

RL Reporting Limit Page 24 of 42

Lab ID:

CLIENT: Vertex Resources Services, Inc.

Tomcat 16 State 006

2307353-025

**Analytical Report** Lab Order 2307353

# Hall Environmental Analysis Laboratory, Inc.

Date Reported: 7/17/2023 Client Sample ID: BH23-15 0' Collection Date: 7/8/2023 9:55:00 AM

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	9.6	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 LIST	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 RANGE	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

Matrix: SOIL

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

**Qualifiers:** 

Value exceeds Maximum Contaminant Level. Sample Diluted Due to Matrix

D Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit PQL Practical Quanitative Limit

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

- Analyte detected in the associated Method Blank в
- Above Quantitation Range/Estimated Value Е
- J Analyte detected below quantitation limits

Р Sample pH Not In Range

RL Reporting Limit Page 25 of 42

Lab ID:

CLIENT: Vertex Resources Services, Inc.

Tomcat 16 State 006

2307353-026

**Analytical Report** Lab Order 2307353

Date Reported: 7/17/2023

# Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: BH23-15 0.5' Collection Date: 7/8/2023 9:55:00 AM Received Date: 7/11/2023 9:10:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE	ORGANICS				Analyst: PRD
Diesel Range Organics (DRO)	ND	9.4	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	mg/Kg	20	7/12/2023 11:32:11 PM
EPA METHOD 8260B: VOLATILES SHORT	LIST				Analyst: RAA
Benzene	ND	0.024	mg/Kg	1	7/12/2023 9:28:16 PM
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	64.8-147	%Rec	1	7/12/2023 9:28:16 PM
Surr: 4-Bromofluorobenzene	94.9	62.1-144	%Rec	1	7/12/2023 9:28:16 PM
Surr: Dibromofluoromethane	126	73-145	%Rec	1	7/12/2023 9:28:16 PM
Surr: Toluene-d8	97.5	70-130	%Rec	1	7/12/2023 9:28:16 PM
EPA METHOD 8015D MOD: GASOLINE RA	ANGE				Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	7/12/2023 9:28:16 PM
Surr: BFB	89.2	70-130	%Rec	1	7/12/2023 9:28:16 PM

Matrix: SOIL

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

**Qualifiers:** 

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

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Lab ID:

Analyses

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

**Analytical Report** Lab Order 2307353

#### Hall Environmental Analysis Laboratory, Inc.

Date Reported: 7/17/2023 Client Sample ID: BH23-15 2'

Tomcat 16 State 006 Collection Date: 7/8/2023 10:00:00 AM 2307353-027 Matrix: SOIL Received Date: 7/11/2023 9:10:00 AM Result **RL** Qual Units DF **Date Analyzed EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** Analyst: PRD Diesel Range Organics (DRO) mg/Kg ND 9.6 1 7/12/2023 6:14:24 PM Motor Oil Range Organics (MRO) ND 1 48 mg/Kg 7/12/2023 6:14:24 PM 85.5 69-147 %Rec 1 7/12/2023 6:14:24 PM

Surr: DNOP	85.5	69-147	%Rec	1	7/12/2023 6:14:24 PM
	00.0		,01.000		
EPA METHOD 300.0: ANIONS					Analyst: <b>RBC</b>
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. Sample Diluted Due to Matrix

D Н Holding times for preparation or analysis exceeded

ND

Not Detected at the Reporting Limit PQL Practical Quanitative Limit

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

- Analyte detected in the associated Method Blank в
- Above Quantitation Range/Estimated Value E
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range

RL Reporting Limit Page 27 of 42

Lab ID:

CLIENT: Vertex Resources Services, Inc.

Tomcat 16 State 006

2307353-028

**Analytical Report** Lab Order 2307353

# Hall Environmental Analysis Laboratory, Inc.

Date Reported: 7/17/2023

Client Sample ID: BH23-16 0' Collection Date: 7/8/2023 10:10:00 AM 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	9.6	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 LIS	т				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 RANG	E				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

Matrix: SOIL

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

**Qualifiers:** 

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

Page 28 of 42

Lab ID:

CLIENT: Vertex Resources Services, Inc.

Tomcat 16 State 006

2307353-029

**Analytical Report** Lab Order 2307353

# Hall Environmental Analysis Laboratory, Inc.

Date Reported: 7/17/2023 Client Sample ID: BH23-16 0.5' Collection Date: 7/8/2023 10:10:00 AM

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: PRD
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	4.9	mg/Kg	1	7/13/2023 4:30:00 AM
Surr: BFB	97.3	15-244	%Rec	1	7/13/2023 4:30:00 AM
EPA METHOD 8021B: VOLATILES					Analyst: <b>KMN</b>
Benzene	ND	0.025	mg/Kg	1	7/13/2023 4:30:00 AM
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	1	7/13/2023 4:30:00 AM
Surr: 4-Bromofluorobenzene	94.9	39.1-146	%Rec	1	7/13/2023 4:30:00 AM
EPA METHOD 300.0: ANIONS					Analyst: RBC
Chloride	ND	60	mg/Kg	20	7/12/2023 2:33:32 PM

Matrix: SOIL

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

**Qualifiers:** 

Value exceeds Maximum Contaminant Level. Sample Diluted Due to Matrix

D Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit PQL Practical Quanitative Limit

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

- Analyte detected in the associated Method Blank в
- Above Quantitation Range/Estimated Value Е
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range

RL Reporting Limit Page 29 of 42

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

**Analytical Report** Lab Order 2307353

# Hall Environmental Analysis Laboratory, Inc.

Date Reported: 7/17/2023 Client Sample ID: BH23-16 2' Collection Date: 7/8/2023 10:15:00 AM

Project:	Tomcat 16 State 006		Collec	tion Date:	7/8/20	23 10:15:00 AM
Lab ID:	2307353-030	Matrix: SOIL	Recei	ived Date:	7/11/2	023 9:10:00 AM
Analyses		Result	RL Qua	al Units	DF	Date Analyzed
EPA ME	THOD 8015M/D: DIESEL RA	NGE ORGANICS				Analyst: PRD
Diesel R	ange Organics (DRO)	ND	10	mg/Kg	1	7/13/2023 12:58:44 AM
Motor Oi	I 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 ME	THOD 8015D: GASOLINE R	ANGE				Analyst: KMN
Gasoline	Range Organics (GRO)	ND	4.9	mg/Kg	1	7/13/2023 5:35:00 AM
Surr: E	BFB	94.6	15-244	%Rec	1	7/13/2023 5:35:00 AM
EPA ME	THOD 8021B: VOLATILES					Analyst: <b>KMN</b>
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
Ethylben	zene	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	4-Bromofluorobenzene	96.3	39.1-146	%Rec	1	7/13/2023 5:35:00 AM
EPA ME	THOD 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

- Н
- Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit PQL Practical Quanitative Limit
- % Recovery outside of standard limits. If undiluted results may be estimated. S
- Analyte detected in the associated Method Blank в
- Above Quantitation Range/Estimated Value Е
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

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**Project:** 

Client ID:

Prep Date:

Sample ID: MB-76141

PBS

7/12/2023

# QC SUMMARY REPORT Hall Environmental Analysis Laboratory, Inc.

Vertex Resources Services, Inc.

SampType: mblk

Batch ID: 76141

Analysis Date: 7/12/2023

Tomcat 16 State 006

						WO#:	2307353
ato	ry, Inc.					w0#:	2307353 17-Jul-23
	-						
	Tes	stCode: EF	PA Method	300.0: Anions	5		
	F	RunNo: <b>98</b>	8155				
3	Ş	SeqNo: 3	571682	Units: mg/K	g		
value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Analyte Chloride		Result ND	PQL 1.5	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sample ID: L		SampT	ype: Ics					300.0: Anions	;		
	.CSS 7/12/2023	Batch Analysis D	n ID: <b>76</b> Date: <b>7/</b>			RunNo: <b>98</b> SeqNo: <b>35</b>		Units: <b>mg/Kg</b>			
Analyte Chloride		Result 14	PQL 1.5	SPK value 15.00	SPK Ref Val 0	%REC 92.5	LowLimit 90	HighLimit 110	%RPD	RPDLimit	Qual
Sample ID: M Client ID: P	/IB-76143 PBS		<sup>-</sup> ype: <b>mb</b> n ID: <b>76</b>			TestCode: EPA Method 300.0: Anions RunNo: 98155					
Prep Date:	7/12/2023	Analysis D	Date: 7/	12/2023	S	SeqNo: 35	571714	Units: mg/K	g		
Analyte Chloride		Result ND	PQL 1.5	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sample ID: L		SampType: Ics			TestCode: EPA Method 300.0: Anions						
	.CSS 7/12/2023	Batch Analysis D	n ID: <b>76</b> Date: <b>7/</b>	-	RunNo: 98155 SeqNo: 3571715 Units: mg/Kg				g		
Analyte Chloride		Result 14	PQL 1.5	SPK value 15.00	SPK Ref Val 0	%REC 90.7	LowLimit 90	HighLimit 110	%RPD	RPDLimit	Qual
Sample ID: N	/IB-76147		ype: ME		Tes	tCode: EF	A Method	300.0: Anions	;		
	PBS 7/12/2023	Batch Analysis D	n ID: <b>76</b> Date: <b>7/</b>			RunNo: <b>98</b> SeqNo: <b>35</b>		Units: <b>mg/K</b>	g		
Analyte Chloride		Result ND	PQL 1.5	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sample ID: L	.CS-76147	SampT	ype: LC	S	Tes	tCode: EF	PA Method	300.0: Anions	5		
	.CSS		n ID: <b>76</b>			RunNo: 98		l Inito:	~		
Prep Date: Analyte	7/12/2023	Analysis D Result	PQL	SPK value	SPK Ref Val	SeqNo: 35 %REC	LowLimit	Units: <b>mg/K</b> HighLimit	g %RPD	RPDLimit	Qual
Chloride		14	1.5	15.00	0	91.5	90	110			

#### Qualifiers:

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

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Tomcat 16 State 006

Hall Envi	WO#:	2307353 17-Jul-23	
Client:	Vertex Resources Services, Inc.		

Project: 1	omcat 16 State 0	00									
Sample ID: LCS-7608	5 Samp	оТуре: <b>L(</b>	cs	Tes	stCode: EP	A Method	8015M/D: Die	sel Range	Organics		
Client ID: LCSS	Bat	ch ID: 76	085	F	RunNo: 98123						
Prep Date: 7/10/202	3 Analysis	Date: 7	/11/2023	:	SeqNo: 35	570553	Units: %Red	;			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Surr: DNOP	5.8		5.000		116	69	147				
Sample ID: LCS-7612	<b>2</b> Samp	оТуре: <b>L(</b>	cs	Tes	stCode: EP	PA Method	8015M/D: Die	sel Range	Organics		
Client ID: LCSS	Bat	ch ID: 76	5122	F	RunNo: <b>98123</b>						
Prep Date: 7/11/202	3 Analysis	Date: 7	/11/2023	:	SeqNo: 35	570554	Units: mg/K	g			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Diesel Range Organics (DR	0) 44	10	50.00	0	87.7	61.9	130				
Surr: DNOP	3.9		5.000		78.9	69	147				
Sample ID: MB-7608	5 Samp	оТуре: <b>М</b>	BLK	Tes	stCode: EP	A Method	8015M/D: Die	sel Range	Organics		
Client ID: PBS	Bat	ch ID: 76	085	RunNo: 98123							
Prep Date: 7/10/202	3 Analysis	Date: 7	/11/2023	:	SeqNo: 35	570556	Units: %Red	;			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Surr: DNOP	12		10.00		120	69	147				
Sample ID: MB-76122	2 Sam	оТуре: <b>М</b>	BLK	Tes	stCode: EP	PA Method	8015M/D: Die	sel Range	Organics		
Client ID: PBS	Bat	ch ID: 76	5122	RunNo: 98123							
Prep Date: 7/11/202	3 Analysis	Date: 7	/11/2023	SeqNo: <b>3570557</b> Units: <b>mg/Kg</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Diesel Range Organics (DR	0) ND	10									
Motor Oil Range Organics (		50					=				
Surr: DNOP	9.2		10.00		92.1	69	147				
Sample ID: 2307353-0	011AMS Samp	оТуре: <b>М</b>	s	Tes	stCode: EP	PA Method	8015M/D: Die	sel Range	Organics		
Client ID: BH23-08	2' Bat	ch ID: 76	132	F	RunNo: <b>98</b>	3153					
Prep Date: 7/11/202	3 Analysis	Date: 7	/12/2023	:	SeqNo: <b>35</b>	571481	Units: mg/K	g			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Diesel Range Organics (DR	,	9.5	47.62	0	94.3	54.2	135				
Surr: DNOP	4.2		4.762		88.7	69	147				
Sample ID: 2307353-0	011AMSD Samp	оТуре: <b>М</b>	SD	Tes	stCode: EP	A Method	8015M/D: Die	sel Range	Organics		
Client ID: BH23-08	2' Bat	ch ID: 76	132	F	RunNo: <b>98</b>	8153					
	3 Analysis	Date: 7	/12/2023	:	SeqNo: 35	571482	Units: <b>mg/K</b>	g			
Prep Date: 7/11/202											
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	

**Qualifiers:** 

\* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

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

в Analyte detected in the associated Method Blank

Е Above Quantitation Range/Estimated Value

J Analyte detected below quantitation limits

Sample pH Not In Range

Р RL Reporting Limit Page 32 of 42

.

Client: Project:		sources Ser 5 State 006	vices,	Inc.							
Sample ID: Client ID: Prep Date:	2307353-011AMSD BH23-08 2' 7/11/2023	SampTyp Batch II Analysis Dat	D: <b>76</b> ′	132	F	tCode: EF RunNo: 98 SegNo: 35	8153	8015M/D: Die Units: mg/K	-	Organics	
Analyte Surr: DNOP			PQL	SPK value 4.845	SPK Ref Val	%REC 71.9	LowLimit 69	HighLimit 147	%RPD 0	RPDLimit 0	Qual
Sample ID: Client ID: Prep Date:	2307353-029AMS BH23-16 0.5' 7/12/2023	SampTyp Batch II Analysis Dat	D: <b>76</b> ′	138	TestCode: EPA Method 8015M/D: Diesel Range Organics RunNo: 98153 SeqNo: 3571501 Units: mg/Kg						
Analyte Diesel Range ( Surr: DNOP	Organics (DRO)	Result 43 4.1	PQL 10	SPK value 49.90 4.990	SPK Ref Val 0	%REC 86.6 82.1	LowLimit 54.2 69	HighLimit 135 147	%RPD	RPDLimit	Qual
Sample ID: Client ID: Prep Date:	2307353-029AMSD BH23-16 0.5' 7/12/2023	SampTyp Batch II Analysis Dat	D: 76' 9: 7/	138 13/2023	F	RunNo: <b>98</b> SeqNo: <b>35</b>	3153 571502	8015M/D: Die Units: mg/K	g	-	
Analyte Diesel Range ( Surr: DNOP	Organics (DRO)	Result 40 3.7	9.2	SPK value 45.91 4.591	SPK Ref Val 0	%REC 86.2 81.4	LowLimit 54.2 69	HighLimit 135 147	%RPD 8.81 0	RPDLimit 29.2 0	Qual
•	LCS-76132 LCSS 7/11/2023	SampTyp Batch II Analysis Dat	D: <b>76</b> ′	132	TestCode: EPA Method 8015M/D: Diesel Range Organics RunNo: 98153 SeqNo: 3571521 Units: mg/Kg						
Analyte Diesel Range ( Surr: DNOP	Organics (DRO)	Result 41 4.0	PQL 10	SPK value 50.00 5.000	SPK Ref Val 0	%REC 82.5 80.7	LowLimit 61.9 69	HighLimit 130 147	%RPD	RPDLimit	Qual
Sample ID: Client ID: Prep Date:	LCS-76138 LCSS 7/12/2023	SampTyp Batch II Analysis Dat	D: <b>76</b> ′	138	F	tCode: EF RunNo: 98 SeqNo: 35	8153	8015M/D: Die Units: mg/K	•	Organics	
Analyte Diesel Range ( Surr: DNOP	Organics (DRO)	Result 44 3.9	PQL 10	SPK value 50.00 5.000	SPK Ref Val 0	%REC 87.1 77.7	LowLimit 61.9 69	HighLimit 130 147	%RPD	RPDLimit	Qual
Sample ID: Client ID: Prep Date: Analyte	MB-76132 PBS 7/11/2023	SampTyp Batch II Analysis Dat Result	D: <b>76</b> ′	132 12/2023	F	RunNo: <b>98</b> SeqNo: <b>35</b>	8153	8015M/D: Die Units: mg/K HighLimit	-	Organics RPDLimit	Qual

Diesel Range Organics (DRO)

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.

ND

10

- 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

2307353

17-Jul-23

**Project:** 

Sample ID: MB-76132

Vertex Resources Services, Inc.

SampType: MBLK

Tomcat 16 State 006

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

WO#:

		0 0						
Client ID: PBS	Batch ID: 76132	RunNo: <b>98153</b>						
Prep Date: 7/11/2023	Analysis Date: 7/12/2023	SeqNo: 3571524 Units: mg/Kg						
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: MB-76138	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: 3571525 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	00.4 00 447						
Surr: DNOP	8.0 10.00	80.4 69 147						
Sample ID: LCS-76160	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics						
Client ID: LCSS	Batch ID: 76160	RunNo: 98169						
Prep Date: 7/12/2023	Analysis Date: 7/13/2023	SeqNo: 3572216 Units: %Rec						
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: LCS	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: 3572217 Units: %Rec						
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: MB-76160	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics						
Client ID: PBS	Batch ID: 76160	RunNo: <b>98169</b>						
Prep Date: 7/12/2023	Analysis Date: 7/13/2023	SeqNo: 3572219 Units: %Rec						
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual						
Surr: DNOP	11 10.00	107 69 147						
Sample ID: MB-76166	SampType: <b>MBLK</b>	TestCode: EPA Method 8015M/D: Diesel Range Organics						
	Sampiype. WIBLN							
Client ID: PBS	Batch ID: 76166	RunNo: <b>98169</b>						
Client ID: <b>PBS</b>		RunNo: <b>98169</b> SeqNo: <b>3572220</b> Units: <b>%Rec</b>						
Client ID: PBS	Batch ID: <b>76166</b> Analysis Date: <b>7/13/2023</b>							

#### 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
- PQL Practical Quanitative Limit
- % Recovery outside of standard limits. If undiluted results may be estimated. S
- Analyte detected in the associated Method Blank в
- Е Above Quantitation Range/Estimated Value
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

2307353

17-Jul-23

Client: Project:		ex Resources Serv cat 16 State 006	ices, Inc.								
Sample ID:	LCS-76168	SampType	E LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics							
Client ID:	LCSS	Batch ID	: <b>76168</b>	R	unNo: <b>98</b>	169					
Prep Date:	7/13/2023	Analysis Date	7/13/2023	S	eqNo: 35	72752	Units: %Rec				
Analyte		Result P	QL 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	E MBLK	Test	tCode: EP	A Method	8015M/D: Dies	el Range	Organics		
Client ID:	PBS	Batch ID	76168	R	unNo: <b>98</b>	169					
Prep Date:	7/13/2023	Analysis Date	7/13/2023	S	eqNo: 35	72754	Units: %Rec				
Analyte		Result P	QL SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Surr: DNOP		8.8	10.00		87.9	69	147				

- \* Value exceeds 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

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2307353

17-Jul-23

# **QC SUMMARY REPORT** Hall Environmental Analysis Laboratory, Inc.

	esources Services, Inc. 16 State 006							
Sample ID: Ics-76111	SampType: LCS	TestCode: EPA Method 8015D: Gasoline Range						
Client ID: LCSS	Batch ID: 76111	RunNo: <b>98150</b>						
Prep Date: 7/11/2023	Analysis Date: 7/12/2023	SeqNo: 3571221 Units: mg/Kg						
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual						
Gasoline Range Organics (GRO) Surr: BFB	23         5.0         25.00           2100         1000	0 90.2 70 130 207 15 244						
Sample ID: mb-76111	SampType: MBLK	TestCode: EPA Method 8015D: Gasoline Range						
Client ID: PBS	Batch ID: 76111	RunNo: <b>98150</b>						
Prep Date: 7/11/2023	Analysis Date: 7/12/2023	SeqNo: 3571222 Units: mg/Kg						
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual						
Gasoline Range Organics (GRO) Surr: BFB	ND 5.0 970 1000	97.1 15 244						
Sample ID: Ics-76082	SampType: LCS	TestCode: EPA Method 8015D: Gasoline Range						
Client ID: LCSS	Batch ID: 76082	RunNo: <b>98150</b>						
Prep Date: 7/10/2023	Analysis Date: 7/12/2023	SeqNo: 3571245 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: 3571246 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: LCS	TestCode: EPA Method 8015D: Gasoline Range						
Client ID: LCSS	Batch ID: 76130	RunNo: 98150						
Prep Date: 7/11/2023	Analysis Date: 7/13/2023	SeqNo: 3571263 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						
		TootCode: EDA Method 004ED. Consultan Dearen						
Sample ID: mb-76130	SampType: MBLK	TestCode: EPA Method 8015D: Gasoline Range						
Sample ID: mb-76130 Client ID: PBS	SampType: MBLK Batch ID: 76130	RunNo: 98150						
		-						
Client ID: <b>PBS</b>	Batch ID: <b>76130</b> Analysis Date: <b>7/13/2023</b>	RunNo: <b>98150</b>						
Client ID: <b>PBS</b> Prep Date: <b>7/11/2023</b>	Batch ID: <b>76130</b> Analysis Date: <b>7/13/2023</b>	RunNo: 98150 SeqNo: 3571264 Units: mg/Kg						

#### **Qualifiers:**

- \* Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
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- PQL Practical Quanitative Limit
- % Recovery outside of standard limits. If undiluted results may be estimated. S
- Analyte detected in the associated Method Blank В
- Е Above Quantitation Range/Estimated Value
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

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	ex Resources cat 16 State 0	,	Inc.							
Sample ID: 2307353-030a	ams Samp	SampType: MS TestCode: EPA Method 8015D: Gasoline Range								
Client ID: BH23-16 2'	Bate	ch ID: 76	130	F	RunNo: <b>98</b>	3150				
Prep Date: 7/11/2023	Analysis	Date: 7/	te: 7/13/2023 SeqNo: 3571267 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: 2307353-030a	amsd Samp	туре: <b>МS</b>	D	Tes	tCode: EF	PA Method	8015D: Gaso	line Range	!	
Client ID: BH23-16 2'	Bate	ch ID: <b>76</b> ′	130	F	RunNo: <b>98</b>	3150				
Prep Date: 7/11/2023	Analysis	Date: 7/	13/2023	S	SeqNo: 3	571268	Units: <b>mg/k</b>	٢g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (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:

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

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17-Jul-23

# **QC SUMMARY REPORT** Hall Environmental Analysis Laboratory, Inc.

Client: Project:		esources S 16 State 00		Inc.							
Sample ID: Ic	cs-76111	Samp	Гуре: <b>LC</b>	S	Tes	tCode: EF	A Method	8021B: Volati	iles		
Client ID: L	CSS	Batc	h ID: <b>76</b> 1	111	F	RunNo: <b>98</b>	8150				
Prep Date:	7/11/2023	Analysis [	Date: 7/	12/2023	5	SeqNo: <b>3571291</b> Units: <b>mg/Kg</b>					
Analuta		Result	PQL	SPK value		%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Analyte Benzene		0.94	0.025	1.000	OFR Rei Vai	93.5	20wLimit 70	130	70KFD	KFULIIIII	Quai
Toluene		0.94	0.020	1.000	0	94.0	70	130			
Ethylbenzene		0.94	0.050	1.000	0	94.2	70	130			
Xylenes, Total		2.8	0.10	3.000	0	94.1	70	130			
Surr: 4-Bromof	fluorobenzene	0.99	0.10	1.000	C C	98.7	39.1	146			
Sample ID: m	nb-76111	Samp	Гуре: МЕ	3LK	Tes	tCode: EF	PA Method	8021B: Volati	iles		
•	PBS		h ID: 76			RunNo: 98					
	-		-					lipito: ma///	· ~		
Prep Date:	7/11/2023	Analysis [		12/2023	č	SeqNo: 35	0/1292	Units: <b>mg/K</b>	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-Bromof	fluorobenzene	0.96		1.000		96.2	39.1	146			
Sample ID: Ic	cs-76130	Samp	Гуре: <b>LC</b>	s	Tes						
Client ID: L	LCSS	Batc	h ID: <b>76</b> 1	130	F						
Prep Date:	7/11/2023	Analysis [	Date: 7/	13/2023	5	SeqNo: 35	571315	Units: <b>mg/K</b>	g		
Prep Date: Analyte	7/11/2023	Analysis I Result	Date: <b>7/</b> PQL	13/2023 SPK value		SeqNo: <b>35</b> %REC	571315 LowLimit	Units: <b>mg/K</b> HighLimit	<b>g</b> %RPD	RPDLimit	Qual
Analyte	7/11/2023	-						_	-	RPDLimit	Qual
Analyte Benzene	7/11/2023	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	-	RPDLimit	Qual
Analyte Benzene Toluene	7/11/2023	Result 0.95	PQL 0.025	SPK value 1.000	SPK Ref Val 0	%REC 94.6	LowLimit 70	HighLimit 130	-	RPDLimit	Qual
Analyte Benzene Toluene Ethylbenzene	7/11/2023	Result 0.95 0.95	PQL 0.025 0.050	SPK value 1.000 1.000	SPK Ref Val 0 0	%REC 94.6 95.1	LowLimit 70 70	HighLimit 130 130	-	RPDLimit	Qual
Analyte Benzene Toluene Ethylbenzene		Result 0.95 0.95 0.95	PQL 0.025 0.050 0.050	SPK value 1.000 1.000 1.000	SPK Ref Val 0 0 0	%REC 94.6 95.1 95.2	LowLimit 70 70 70	HighLimit 130 130 130	-	RPDLimit	Qual
Analyte Benzene Toluene Ethylbenzene Xylenes, Total	fluorobenzene	Result 0.95 0.95 0.95 2.9 0.96	PQL 0.025 0.050 0.050	SPK value 1.000 1.000 3.000 1.000	SPK Ref Val 0 0 0	%REC 94.6 95.1 95.2 95.0 95.9	LowLimit 70 70 70 70 39.1	HighLimit 130 130 130 130	%RPD	RPDLimit	Qual
Analyte Benzene Toluene Ethylbenzene Xylenes, Total Surr: 4-Bromofi Sample ID: m	fluorobenzene	Result 0.95 0.95 0.95 2.9 0.96 Samp	PQL 0.025 0.050 0.050 0.10	SPK value 1.000 1.000 3.000 1.000 BLK	SPK Ref Val 0 0 0 0 Tes	%REC 94.6 95.1 95.2 95.0 95.9	LowLimit 70 70 70 70 39.1 <b>PA Method</b>	HighLimit 130 130 130 130 130 146	%RPD	RPDLimit	Qual
Analyte Benzene Toluene Ethylbenzene Xylenes, Total Surr: 4-Bromofi Sample ID: <b>m</b> Client ID: <b>P</b>	fluorobenzene nb-76130	Result 0.95 0.95 0.95 2.9 0.96 Samp	PQL 0.025 0.050 0.10 Fype: ME h ID: 76'	SPK value 1.000 1.000 3.000 1.000 BLK 130	SPK Ref Val 0 0 0 0 Tes F	%REC 94.6 95.1 95.2 95.0 95.9 tCode: EF	LowLimit 70 70 70 39.1 PA Method 8150	HighLimit 130 130 130 130 130 146	%RPD	RPDLimit	Qual
Analyte Benzene Toluene Ethylbenzene Xylenes, Total Surr: 4-Bromofi Sample ID: <b>m</b> Client ID: <b>P</b>	fluorobenzene nb-76130 PBS	Result 0.95 0.95 2.9 0.96 Samp Batc	PQL 0.025 0.050 0.10 Fype: ME h ID: 76'	SPK value 1.000 1.000 3.000 1.000 BLK 130 13/2023	SPK Ref Val 0 0 0 0 Tes F	%REC 94.6 95.1 95.2 95.0 95.9 tCode: EF	LowLimit 70 70 70 39.1 PA Method 8150	HighLimit 130 130 130 130 130 146 8021B: Volati	%RPD	RPDLimit	Qual
Analyte Benzene Toluene Ethylbenzene Xylenes, Total Surr: 4-Bromof Sample ID: <b>m</b> Client ID: <b>P</b> Prep Date: Analyte	fluorobenzene nb-76130 PBS	Result 0.95 0.95 2.9 0.96 Samp Batc Analysis I	PQL 0.025 0.050 0.050 0.10 Type: <b>ME</b> h ID: <b>76</b> Date: <b>7</b> /	SPK value 1.000 1.000 3.000 1.000 BLK 130 13/2023	SPK Ref Val 0 0 0 0 Tes F	%REC 94.6 95.1 95.2 95.0 95.9 tCode: EF RunNo: 98 SeqNo: 35	LowLimit 70 70 70 39.1 24 Method 3150 571316	HighLimit 130 130 130 130 146 8021B: Volati	%RPD		
Analyte Benzene Toluene Ethylbenzene Xylenes, Total Surr: 4-Bromofi Sample ID: <b>m</b> Client ID: <b>P</b> Prep Date: Analyte Benzene	fluorobenzene nb-76130 PBS	Result 0.95 0.95 2.9 0.96 Samp Batc Analysis I Result	PQL 0.025 0.050 0.10 Fype: <b>ME</b> h ID: <b>76</b> Date: <b>7</b> / PQL	SPK value 1.000 1.000 3.000 1.000 BLK 130 13/2023	SPK Ref Val 0 0 0 0 Tes F	%REC 94.6 95.1 95.2 95.0 95.9 tCode: EF RunNo: 98 SeqNo: 35	LowLimit 70 70 70 39.1 24 Method 3150 571316	HighLimit 130 130 130 130 146 8021B: Volati	%RPD		
Analyte Benzene Toluene Ethylbenzene Xylenes, Total Surr: 4-Bromofi Sample ID: <b>m</b> Client ID: <b>P</b> Prep Date: Analyte Benzene Toluene	fluorobenzene nb-76130 PBS	Result 0.95 0.95 2.9 0.96 Samp Batc Analysis I Result ND	PQL 0.025 0.050 0.10 Type: <b>ME</b> h ID: <b>76</b> Date: <b>7</b> / PQL 0.025	SPK value 1.000 1.000 3.000 1.000 BLK 130 13/2023	SPK Ref Val 0 0 0 0 Tes F	%REC 94.6 95.1 95.2 95.0 95.9 tCode: EF RunNo: 98 SeqNo: 35	LowLimit 70 70 70 39.1 24 Method 3150 571316	HighLimit 130 130 130 130 146 8021B: Volati	%RPD		
Analyte Benzene Toluene Ethylbenzene Xylenes, Total Surr: 4-Bromof Sample ID: <b>m</b> Client ID: <b>P</b> Prep Date: Analyte	fluorobenzene nb-76130 PBS	Result 0.95 0.95 0.95 2.9 0.96 Samp Batc Analysis I Result ND ND	PQL 0.025 0.050 0.10 Type: ME h ID: 76 Date: 7/ PQL 0.025 0.050	SPK value 1.000 1.000 3.000 1.000 BLK 130 13/2023	SPK Ref Val 0 0 0 0 Tes F	%REC 94.6 95.1 95.2 95.0 95.9 tCode: EF RunNo: 98 SeqNo: 35	LowLimit 70 70 70 39.1 24 Method 3150 571316	HighLimit 130 130 130 130 146 8021B: Volati	%RPD		

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- Analyte detected in the associated Method Blank В
- Е Above Quantitation Range/Estimated Value
- J Analyte detected below quantitation limits
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- RL Reporting Limit

2307353

17-Jul-23

# QC SUMMARY REPORT Hall Environmental Analysis Laboratory, Inc.

Client: Project:	Vertex Re Tomcat 16		urces Services, Inc. State 006									
Sample ID: 230	)7353-029ams	SampT	Гуре: МЗ	;	Tes	tCode: EF	PA Method	8021B: Volati	iles			
Client ID: BH2	23-16 0.5'	Batcl	Batch ID: 76130 RunNo: 98150									
Prep Date: 7/	11/2023	Analysis [	Date: 7/13/2023 SeqNo: 3571318 Units: mg/Kg									
Analyte		Result	PQL	SPK value	SPK Ref Val	%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	0.098	2.947	0	102	70	130				
Surr: 4-Bromofluc	orobenzene	0.93		0.9823		94.7	39.1	146				
Sample ID: 230	)7353-029amsd	SampT	Гуре: М	D	Tes	tCode: EF	PA Method	8021B: Volati	iles			
Client ID: BH2	23-16 0.5'	Batcl	h ID: 76	130	F	RunNo: <b>98</b>	8150					
Prep Date: 7/	11/2023	Analysis [	Date: 7/	13/2023	5	SeqNo: 3	571319	Units: mg/K	g			
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	0.099	2.982	0	100	70	130	0.525	20		
Surr: 4-Bromofluo	orobenzene	0.96		0.9940		96.2	39.1	146	0	0		

Qualifiers:

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

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17-Jul-23

# QC SUMMARY REPORT Hall Environmental Analysis Laboratory, Inc.

Vertex Resources Services, Inc.

	6 State 00	,	me								
Sample ID: 2307353-010ams	Samp	Туре: <b>МS</b>	64	TestCode: EPA Method 8260B: Volatiles Short List							
Client ID: BH23-08 0'	Batc	h ID: <b>76</b> 1	125	F	RunNo: <b>98163</b>						
Prep Date: 7/11/2023	Analysis I	Date: 7/	12/2023	\$	SeqNo: 3	572142	Units: <b>mg/K</b>	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	0.48		0.4836		99.7	62.1	144				
Surr: Dibromofluoromethane	0.67		0.4836		138	73	145				
Surr: Toluene-d8	0.48		0.4836		99.8	70	130				
Sample ID: 2307353-010amsd	Samp	Туре: <b>МS</b>	SD4	Tes	stCode: El	PA Method	8260B: Volati	iles Short	List		
Client ID: BH23-08 0'	Batc	h ID: <b>76</b> 1	125	RunNo: 98163							
Prep Date: 7/11/2023	Analysis I	Analysis Date: 7/12/2023			SeqNo: 3	572143	Units: <b>mg/K</b>	(g			
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	0.48		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	Samp	Туре: <b>LC</b>	S4	Tes	stCode: El	PA Method	8260B: Volati	iles Short	List		
Client ID: BatchQC	Batc	h ID: <b>76</b> 1	125	F	RunNo: <b>9</b>	8163					
Prep Date: 7/11/2023	Analysis I	Date: 7/	12/2023	ę	SeqNo: 3	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	0.53		0.5000		105	62.1	144				
					440	70	1 1 5				
Surr: Dibromofluoromethane	0.55		0.5000		110	73	145				

#### Qualifiers:

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- 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

2307353

17-Jul-23

Vertex Resources Services, Inc.

Project: Tomca	t 16 State 00	6									
Sample ID: mb-76125	SampT	Гуре: МЕ	BLK	TestCode: EPA Method 8260B: Volatiles Short List							
Client ID: PBS	Batcl	h ID: <b>76</b> 1	125	F	RunNo: <b>98</b>	3163					
Prep Date: 7/11/2023	Analysis [	Date: <b>7/</b> *	12/2023	S	SeqNo: 3	572163	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: 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				

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- 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

2307353

17-Jul-23

Vertex Resources Services, Inc.

Project:	Tomcat 1	6 State 00	6	,								
Sample ID:	2307353-009ams	Samo	ype: MS		Tos	tCode: EE	A Mothod	8015D Mod: (	Gasolino F	lango		
•		•			TestCode: EPA Method 8015D Mod: Gasoline Range							
Client ID:	BH23-07 2'		n ID: <b>76</b> 1	-		RunNo: 98163						
Prep Date:	7/11/2023	Analysis D	Date: 7/	12/2023	S	SeqNo: 35	572092	Units: mg/K	g			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Gasoline Rang	e Organics (GRO)	24	4.9	24.30	0	99.3	65.9	123				
Surr: BFB		450		485.9		91.8	70	130				
Sample ID:	2307353-009amsd	SampT	SampType: MSD TestCode: EPA Method 8015D Mod: Gasoline Range									
Client ID:	BH23-07 2'	Batch	n ID: <b>76</b> 1	125	F	RunNo: <b>98</b>	3163					
Prep Date:	7/11/2023	Analysis D	Date: 7/	12/2023	Ş	SeqNo: 35	572094	Units: mg/K	g			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Gasoline Rang	e Organics (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:	lcs-76125	SampT	ype: LC	S	Tes	tCode: EF	PA Method	8015D Mod: (	Gasoline R	lange		
Client ID:	LCSS	Batch	n ID: <b>76</b> 1	125	F	RunNo: <b>98</b>	3163					
Prep Date:	7/11/2023	Analysis D	Date: 7/	12/2023	Ş	SeqNo: 35	572131	Units: mg/K	g			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Gasoline Rang	e Organics (GRO)	22	5.0	25.00	0	88.2	70	130				
Surr: BFB		490		500.0		98.7	70	130				
Sample ID:	mb-76125	SampT	уре: МЕ	BLK	Tes	tCode: EF	PA Method	8015D Mod: (	Gasoline R	lange		
Client ID:	PBS	Batch	n ID: <b>76</b> 1	125	F	RunNo: <b>98</b>	3163					
Prep Date:	7/11/2023	Analysis D	Date: 7/	12/2023	5	SeqNo: 3	572133	Units: mg/K	g			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
-	e 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

2307353

17-Jul-23
ENVIRONMENTA ANALYSIS LABORATORY	AL.	Hall Environmental Albi TEL: 505-345-3975 Website: www.ha	4901 Hawkin uquerque. NM 8 FAX: 505-345	ns NE 87109 <b>Sa</b> 4107	ample Log-In Chec	k List
Client Name: Vertex Reso Services, In		Work Order Number	2307353		RcptNo: 1	
Received By: Cheyenne	Cason	7/11/2023 9:10:00 AM		Chent Chent	e	
Completed By: Cheyenne	Cason	7/11/2023 9:50:12 AM		Chent	,	
Reviewed By: Mg	7/11/23	4				
Chain of Custody						
1. Is Chain of Custody compl	ete?		Yes 🗹	No [	Not Present	
2. How was the sample delive	ered?		Courier			
Log In 3. Was an attempt made to c	ool the samples?		Yes 🗹	No [		
4. Were all samples received	at a temperature of	of ≥0° C to 6.0°C	Yes 🗹	No [	] NA 🗌	
5. Sample(s) in proper contai	ner(s)?		Yes 🗹	No	]	
6. Sufficient sample volume for	or indicated test(s)	?	Yes 🗹	No	]	
7, Are samples (except VOA a	and ONG) properly	preserved?	Yes 🗹	No 🗌	]	
8. Was preservative added to	bottles?		Yes 🗌	No 🔽		
9. Received at least 1 vial with	h headspace <1/4"	for AQ VOA?	Yes	No [		
10. Were any sample containe	ers received broker	?	Yes	No 🗖	# of preserved bottles checked	
11. Does paperwork match bot (Note discrepancies on cha			Yes 🗹	No 🗌		nless noted)
12. Are matrices correctly iden		ustody?	Yes 🗹	No 🗌		
13. Is it clear what analyses we	ere requested?		Yes 🗹	No 🗌		07/11/2
14. Were all holding times able (If no, notify customer for a			Yes 🗹	No 🗌	Checked by: SCM	011117
Special Handling (if app	olicable)					
15. Was client notified of all di	screpancies with t	nis order?	Yes	No	NA 🗹	
Person Notified:		Date:				
By Whom:	provide a second data and a second data	Via: [	] eMail 📋	Phone 🗌 F	ax 🔄 In Person	
Regarding: Client Instructions:						
16. Additional remarks:						
17. Cooler Information						
Cooler No Temp °C			Seal Date	Signed By		
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Page 1 of 1						

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Receive	Phy Sep	364-263	Receive Con 2011-2012 2013 2020 Record	Turn-Around Tim	Time:						-		5		Page 182	Page 182 of 319
Client:		Vertex		□ Standard	X Rush	148-hour				N N		Ś	S I	AB	ANALYSIS LABORATORY	AL DRY
(direct	bill to De	von-Harv	(direct bill to Devon-Harvard Divest, see Remarks)	Project Name:						M	w.hall	enviro	nmei	www.hallenvironmental.com		
Mailinç	Mailing Address:	::		Tomcat 16 State #006	tate #006			490	4901 Hawkins NE -	/kins	ч Ц	Albud	prerq	Albuquerque, NM 87109	87109	
				Project #:				Tel.		505-345-3975	975	Fax	x 505	505-345-4107	107	
Phone #:	#:			22E-02816-25	5						Ar	Analysis	s Re	Request		
email c	email or Fax#:			Project Manager	ger:		(1	(0	1	-		<sup>†</sup> O <sup>†</sup>		(tu		
QA/QC	QA/QC Package:			Kent Stallings			805		s'8;	SM		S '*(		əsd		
□ Star	Standard		Level 4 (Full Validation)	kstallings@vertex.ca	rtex.ca		) s,		ЪС	IIS0		ЪС		A\tr		
Accrec	Accreditation:	□ Az Co	Az Compliance	Sampler:	L.Pullman		BMT					<sup>'2</sup> 01				
		□ Other		On Ice:	D Yes	DNO YOU:	L /					N "	(A(			
	D (Type)			# of Coolers:	20.	1-0.1=0.0	BE									
				Cooler Temp(including CF): 5	ncluding CF): 3.	4-0.1=3.3	TM									
Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.	NTEX /	08:H9T	9081 Pé	d sHA9	3 АЯЭЯ	8360 (M	8) 0728 	Total Co		
07/08/23	3 07:30	Soil	BH21-01 0'	1, 4oz jar		100	×	×								
07/08/23	3 07:30	Soil	BH21-02 0'	1, 4oz jar		200	×	×				×				
07/08/23	3 07:30	Soil	BH21-03 0'	1, 4oz jar		ES	×	×				×				
07/08/23	3 07:35	Soil	BH21-04 0'	1, 4oz jar		had	×	×				×				
07/08/23	3 07:35	Soil	BH21-05 0'	1, 4oz jar		500	×	×				×	~			
07/08/23	08:00	Soil	BH23-06 0'	1, 4oz jar		900	×	×				×	~			
07/08/23	8 08:05	Soil	BH23-06 2'	1, 4oz jar		607	×	×				×				
07/08/23	08:10	Soil	BH23-07 0'	1, 4oz jar		008	×	×				×				
07/08/23	08:15	Soil	BH23-07 2'	1, 4oz jar		609	×	×				×				
07/08/23	08:20	Soil	BH23-08 0'	1, 4oz jar		010	×	×				×				
07/08/23	08:25	Soil	BH23-08 2'	1, 4oz jar		011	×	Х				×				
07/08/23	08:30	Soil	BH23-09 0'	1, 4oz jar		210	×	×				×				
Date:	Time:	Relinquish		Received by:		Date Time	Ren	arks:	Dire	ct bill	to D	von,	Dale	Remarks: Direct bill to Devon, Dale Woodall	=	
X-01-L	つぶしつ	Xerry	JAN (	Multur.			Har	Harvard Divest Site -	Divest	Site	· .	lcat '	l6 Sta	Tomcat 16 State #006	(0)	
Date:	Time:	Refinquished by:	) uu	Received by:	Via:	Date Time	38	CC 1007884901	8490	202						
50°a1;	1960	alu	alucury 1	ON cerm	m 71	7/11/23 09/2	ÿ	cstalli	ngs@	verte	x.ca	or Fi	nal R	cc. kstallings@vertex.ca for Final Report		
	If necessary.	samples sub.	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.	ontracted to other acc	redited laboratorie	ss. This serves as notice of this	s possit	ilitv. An	v sub-co	ntracted	I data wi	be cle	arly not	ated on the	analvtical report.	

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Receive	Wh GCP		Receive Charles - 24-Custody Record	Turn-Around Time:	ime:					I	HALL			Q		LI M	Page	Page 183 of 319	f 319
Client:		Vertex		Standard	X Rush	h48-hour			U	4	A	ž	SIS	1	BO	2		ANALYSIS LABORATORY	
(direct	bill to D€	svon-Harv	(direct bill to Devon-Harvard Divest, see Remarks)	Project Name:						3	ww.ha	allenv	ronm	www.hallenvironmental.com	БО				
Mailing	Mailing Address	s:		Tomcat 16 State	ate #006			49	01 H	4901 Hawkins NE	Ш И И	- Alb	ndne	rque,	Albuquerque, NM 87109	7109			
				Project #:				Ĕ	Tel. 50	505-345-3975	-3975		Fax 5	05-34	505-345-4107	20			
Phone #:	:#			22E-02816-25								Anal		Request	st				
email c	email or Fax#:			Project Manager:	er:		()	1.				<sup>*</sup> O		(10	()11		-	_	
QA/QC	QA/QC Package:			Kent Stallings			803		s'8;		CIAI	S '*(		0341	2501				
□ Star	Standard		Level 4 (Full Validation)	kstallings@vertex	<u>tex.ca</u>		) 2'5		ЪС		100	) PC		v/tu			_		
Accred	Accreditation:		Az Compliance	Sampler: L	L.Pullman				280		170	10 <sup>5</sup>			262				
	AC	□ Other			Yes	DNO YOQI			8/Si			<sup>۶</sup> ۱							
	EDD (Type)			# of Coolers: ¿	20.1-0.	12 0.0	38. 		əbi			<sup>2</sup> ON	(						
				Cooler Temp(including CF):	cluding CF): 3,	4-0.1 z 3.9	TM		oitee			۶۲, 1	AO'		0.000				
Date	Time	Matrix	Sample Name	Container F	Preservative Type	HEAL No.	) XƏTE	08:Hd	9 1808 9 1 Pe	W) 803	а енас 	31' E' E	V) 0928	S) 0728	O leto				
07/08/23	08:35	Soil	BH23-09 2'			013			3				3	_					
07/08/23	ļ		BH23-10 0'	1, 4oz jar		014				-		×						-	
07/08/23	08:45	Soil	BH23-10 2'	1, 4oz jar		615	×	×				×							
07/08/23	08:50	Soil	BH23-11 0'	1, 4oz jar		016	×	×				×							
07/08/23	08:55	Soil	BH23-11 2'	1, 4oz jar		617	×	X				×							
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		019	×	×				×							
07/08/23	09:15	Soil	BH23-13 0'	1, 4oz jar		02.0	×	×				×			_				
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		220	×	×				×							
07/08/23	09:35	Soil	BH23-14 0.5'	1, 4oz jar		023	×	×				×							
07/08/23	_	Soil	BH23-14 2'	1, 4oz jar		420	×	×				×							
Date:	Time:	Relinquished by	UL.	Received by:	Via:	Date Time	Re	mark	s: Dii	rect b	ill to I	Devo	n, Da	le Wo	Remarks: Direct bill to Devon, Dale Woodall				
77-01-2	01.100	MANT	VALA,	O'ALI LE LELL-	1	101 53 420 14	Ha	Harvard Divest Site -	Dive	ist Sil		omca	t 16	Tomcat 16 State #006	900#				
Date:	Time:	Relinquished by	A	Received by:	Via:	Date Time	50	GL Account //00100 CC 1007884901	2001 78849	1007	20								
Sec.01/	1900	Struc	Summer of	cme ce	iew.	7/11/23 0910		cc. kstallings@vertex.ca for Final Report	llings	@vel	tex.c	a for	Final	Repo	ti				
	lf necessary	samples sub	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.	ontracted to other acc	edited laboratorie	es. This serves as notice of	this pos	sibility.	Any sub	-contrac	ted data	will be	clearly r	notated (	on the ar	nalvtical	report.		

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Clain     Vertex     Level     Calification     Level     Achon       Clain     Vertex     Clain     Vertex     Clain     Vertex     Achon       Vertex     Multip Actions.     Multip Actions.     Multip Actions.     Multip Actions.     Multip Actions.     Multip Actions.       Vertex     Propertification     Propertification     Propertification     Propertification     Multip Actions.     Multip Actions.     Multip Actions.       Propertification     Propertification     Propertification     Propertification     Propertification     Propertification     Multip Activity States     Multip Activity Activity Multip Activity Acti	Receive	R -3/1/2	Receive Congen = 301-Cusicady Record	Turn-Around Time:	d Time:						VID	NO		Page 184 of 319
Project Name:     Project Name:     Mountiement       s:     1	Client:	Vertex		□ Standard				U	ANA	XS		ABO	RAT	LORY
Si     Tomeat 16 State #006     4001 Hawkins NE       Project #:     Project #:     22E-02616-25     4001 Hawkins NE       Project Manage::     Project Manage::     22E-02616-25     4001 Hawkins NE       Project Manage::     Project Manage::     22E-02616-25     22E-02616-25     22E-02616-25       Project Manage::     Project Manage::     Project Manage::     22E-02616-25     22E-02616-25     22E-02616-25       Project Manage::     Dample::     Level 4 (Full Validation)     Statilinas Surface     20016     20017     2001     20017     20017     2001     20017     2001     20016     2001     20016     2001     2001     20016     2001	(direct bill to	Devon-Har	vard Divest, see Remarks)	Project Nam					.h.	allenviro	nment	al.com		
Project #:     Project Went Stallings     Tel: 505-345-305       22E-02816.25     Project Manager:     Kent Stallings     22E-02816.25       Project Manager:     Kent Stallings     Rent Stallings     22E-02816.25       Project Manager:     Kent Stallings     Rent Stallings     22E-02816.25       Project Manager:     Level 4 (Full Validation)     Kent Stallings     22E-02816.25       Project Manager:     Level 4 (Full Validation)     Kent Stallings     22E-02816.25       Project Manager:     Level 4 (Full Validation)     Kent Stallings     22E-02816.25       Project Manager:     Level 4 (Full Validation)     Kent Stallings     22E-02816.25       Project Manager:     Level 4 (Full Validation)     Kent Stallings     22E-02816.25       Solid     BH23-15 0.5'     1, 402 jar     2.2, 7.2, 1.2, 3     2.4, 2.1, 2.3       Solid     BH23-16 0'     1, 402 jar     2.2, 7     2.4, 2.1, 2.3     2.4, 2.1, 2.3       Solid     BH23-16 0'     1, 402 jar     2.2, 7     2.4, 2.1, 2.3     2.4, 2.1, 2.3       Solid     BH23-16 0'     1, 402 jar     2.2, 7     2.4, 2.1, 2.3     2.4, 2	Mailing Add	ess:		Tomcat 16	State #006			01 Hawl	kins NE	- Albuc	nerque	e, NM 8	7109	
22E-02316-25     Analysis       Project Manager:     Project Manager:       Project Manager:     Rent Stallings Kent Stallings       Froject Manager:     Project Manager:       Az Compliance     Sample:       Level 4 (Full Validation)     Istallings@vertex.cal       Matrix     Sample:       Container     Semple:       Diffe:     Az Compliance       Soli     BH23-15,0'       1, 402 jar     Container       Soli     BH23-15,0'       1, 402 jar     Cotal       Soli     BH23-16,0'       1, 402 jar     Cotal       Soli     BH23-16,0'       1, 402 jar     Cotal       Soli     BH23-16,0'       1, 402 jar     Cotal       Soli     BH23-16,				Project #:				el. 505-3	45-3975		x 505-	345-410	70	
Project Manager:   Kent Stallings Kent Stallings   Az Compliance Kent Stallings   Az Compliance Sampler: L.Pullman   Dither Sampler: L.Pullman   Attrix Sample Name   Soil BH23-15,0'   1, 4oz jar Contrainer   Soil BH23-15,0'   1, 4oz jar Container   Soil BH23-15,0'   1, 4oz jar Container   Soil BH23-15,0'   1, 4oz jar Container   Soil BH23-15,0'   1, 4oz jar Coto   Soil BH23-16,0'   Soil BH23-16,0'   Soil BH23-16,0'   Soil BH23-16,0'   Soil	Phone #:			22E-02816-2	25					Analysi	s Requ	uest		
I Level 4 (Full Validation) Kent Stallings   Az Compliance Sampler: L.Pullman   Ontoe: Sampler: Jon Vest   Matrix Sample Name # of Coolers: Ø.1-0.1 = 0.0   Matrix Sample Name Preservative HEAL No.   Soil BH23-15.0' 1, 402 jar Ø.4 - 0.1 = 3.3   Soil BH23-15.0' 1, 402 jar Ø.64 - 0.25   Soil BH23-15.0' 1, 402 jar Ø.67   Soil BH23-15.0' 1, 402 jar Ø.67   Soil BH23-15.0' 1, 402 jar Ø.67   Soil BH23-16.0' 1, 402 jar Ø.67   Soil BH23-16.0' 1, 402 jar Ø.26   Soil BH23-16.2' </td <td>email or Fay</td> <td>#:</td> <td></td> <td>Project Mana</td> <td>ager:</td> <td></td> <td>_</td> <td></td> <td>-</td> <td>₹O</td> <td></td> <td>()</td> <td></td> <td></td>	email or Fay	#:		Project Mana	ager:		_		-	₹O		()		
Image: Contract of Coolers: Level 4 (Full Validation) kstallings@vertex.ca   Az Compliance Sampler: L.Pullman   Image: Contract of Coolers: Bampler: L.Pullman   Matrix Sample Name # Yes No   Matrix Sample Name # of Coolers: # of Coolers: # of Coolers:   Matrix Sample Name Type and # Type #EAL No.   Soil BH23-15.0' 1, 4oz jar 0 26   Soil BH23-15.0' 1, 4oz jar 0 26   Soil BH23-16.0' 1, 4oz jar <td< td=""><td>QA/QC Pack</td><td>ige:</td><td></td><td>Kent Stalling</td><td>S</td><td></td><td></td><td></td><td>SM</td><td>S '*(</td><td></td><td>iəsq</td><td></td><td></td></td<>	QA/QC Pack	ige:		Kent Stalling	S				SM	S '*(		iəsq		
Az Compliance     Az Compliance     An tce:     A of Coolers:			Level 4 (Full Validation)	<u>kstallings@v</u>	ertex.ca				1150	ЬО		А'Ли		
Other     Preservative     No     Veg is     No     No <t< td=""><td>Accreditatio</td><td></td><td>ompliance</td><td>Sampler:</td><td>L.Puliman</td><td></td><td>_</td><td>280</td><td></td><td>'<sup>7</sup>0'</td><td></td><td>iəsə</td><td></td><td></td></t<>	Accreditatio		ompliance	Sampler:	L.Puliman		_	280		' <sup>7</sup> 0'		iəsə		
# of Coolers: 2     C. 1 = 0.0       Matrix     Sample Name     # of coolers: 2     0, 1 = 3.3       Matrix     Sample Name     Type     2.3, 4 = 0, 1 = 3.3       Soil     BH23-15,0'     1, 402 jar     0.26     2.60       Soil     BH23-15,0'     1, 402 jar     0.26     2.60     2.60       Soil     BH23-15,0'     1, 402 jar     0.26     2.60 <td< td=""><td></td><td></td><td>er</td><td>On Ice:</td><td>A Yes</td><td>~</td><td></td><td>8/s</td><td>or</td><td></td><td>(A(</td><td>914) </td><td></td><td></td></td<>			er	On Ice:	A Yes	~		8/s	or		(A(	914) 		
Ee   Time   Matrix   Sample Name   Cooler Templementine crit. 3, 4, -0, 1, -3, 3     R23   09:55   Soil   BH23-15,0'   1, 402 jar   Cert 0, 25     R23   10:05   Soil   BH23-15,0'   1, 402 jar   0, 26     R23   10:10   Soil   BH23-15,0'   1, 402 jar   0, 26     R23   10:10   Soil   BH23-16,0'   1, 402 jar   0, 26     R23   10:10   Soil   BH23-16,0'   1, 402 jar   0, 26     R23   10:10   Soil   BH23-16,0'   1, 402 jar   0, 26     R23   10:10   Soil   BH23-16,0'   1, 402 jar   0, 26     R23   10:15   Soil   BH23-16,0'   1, 402 jar   0, 26     R23   10:15   Soil   BH23-16,0'   1, 402 jar   0, 26     R23   10:16   Soil   BH23-16,0'   1, 402 jar   0, 26     R24   Soil   BH23-16,0'   1, 402 jar   0, 26   1, 402 jar   0, 26     R24   Soil   BH23-16,0'   1, 402 jar   0, 27   0, 26   1, 402		(e)		# of Coolers:	2 6.1-	0.1=0.0		əbi:	018	<sup>E</sup> ON		u.		
Image     Time     Matrix     Sample Name     Container     Preservative     HEAL No.       282     09:55     Soil     BH23-15,0'     1,402 jar     0.56     23,735.3     3       282     09:55     Soil     BH23-15,0'     1,402 jar     0.26     264.0.25       282     10:00     Soil     BH23-15.2'     1,402 jar     0.26     2       282     10:10     Soil     BH23-16.0'     1,402 jar     0.26     2       282     10:10     Soil     BH23-16.0'     1,402 jar     0.26     2       283     10:15     Soil     BH23-16.2'     1,402 jar     0.30     0.30       283     10:15     Soil     BH23-16.2'     1,402 jar     0.30     0.30       283     10:15     Soil     BH23-16.2'     1,402 jar     0.30     0.30       283     10:16     Soil     BH23-16.2'     1,402 jar     0.30     0.30       283     10:15     Soil     BH23-16.2'     1,402 jar     0.30     0.30 </td <td></td> <td></td> <td></td> <td>Cooler Temp</td> <td>D(including CF): 3.</td> <td>1</td> <td></td> <td>oitee</td> <td>y 83</td> <td>3r, 1</td> <td></td> <td>otilo</td> <td></td> <td></td>				Cooler Temp	D(including CF): 3.	1		oitee	y 83	3r, 1		otilo		
8/23     06:55     Soil     BH23-15,0°     1, 4oz jar     Get 0.25       8/23     10:00     Soil     BH23-15,2°     1, 4oz jar     0.26       8/23     10:10     Soil     BH23-15,2°     1, 4oz jar     0.26       8/23     10:10     Soil     BH23-16,0°     1, 4oz jar     0.26       8/23     10:10     Soil     BH23-16,0°     1, 4oz jar     0.26       8/23     10:10     Soil     BH23-16,0°     1, 4oz jar     0.26       8/23     10:15     Soil     BH23-16,2°     1, 4oz jar     0.26       8/23     10:16     Soil     BH23-16,0°     1, 4oz jar     0.26       8/23     10:15     Soil     BH23-16,2°     1, 4oz jar     0.30       8/24     Soil     BH23-16,0°     1, 4oz jar     0.30     0.30       8/24     Soil     BH23-16,0°     1, 4oz jar     0.30     0.30       8/24     Soil     BH23-16,0°     1, 4oz jar     0.30     0.30       8/24     Soil     BH23-16,0°				Container Type and #	Preservative Type	HEAL No.		PG 1808	d eHA9	CI' E' E		Total Co		
9/23     09:55     Soil     BH23-15 2'     1, 402 jar     0 2.6       9/23     10:10     Soil     BH23-15 0'     1, 402 jar     0 2.6       9/23     10:10     Soil     BH23-16 0'     1, 402 jar     0 2.6       9/23     10:10     Soil     BH23-16 0'     1, 402 jar     0 2.6       9/23     10:15     Soil     BH23-16 2'     1, 402 jar     0 2.6       9/23     10:15     Soil     BH23-16 2'     1, 402 jar     0 2.6       9/23     10:15     Soil     BH23-16 2'     1, 402 jar     0 2.6       9/24     Time:     RH23-16 2'     1, 402 jar     0 2.6       9/2     10:15     Soil     BH23-16 2'     1, 402 jar     0 2.6       9/2     10:16     Soil     BH23-16 2'     1, 402 jar     0 2.6     0 3.0       9/2     10:15     Soil     BH23-16 2'     1, 402 jar     0 3.0     0 3.0       10:15     Soil     BH23-16 2'     1, 402 jar     0 3.0     0 3.0       10:16 <t< td=""><td></td><td></td><td>BH23-15,0'</td><td>1, 4oz jar</td><td></td><td>Get 025</td><td></td><td></td><td></td><td>×</td><td></td><td></td><td></td><td></td></t<>			BH23-15,0'	1, 4oz jar		Get 025				×				
223     10:00     Soil     BH23-15 2'     1, 4oz jar     26.7       223     10:10     Soil     BH23-16 0'     1, 4oz jar     0.2.8       223     10:10     Soil     BH23-16 0.5'     1, 4oz jar     0.2.8       223     10:15     Soil     BH23-16 0.5'     1, 4oz jar     0.2.8       223     10:15     Soil     BH23-16 2'     1, 4oz jar     0.3.0       223     10:15     Soil     BH23-16 2'     1, 4oz jar     0.3.0       223     10:15     Soil     BH23-16 2'     1, 4oz jar     0.3.0       224     Mathematical action of the standard action of			BH23-15 0.5'	1, 4oz jar		026				×				
V/23   10:10   Soil   BH23-16 0'   1, 4oz jar   Ø28     V/23   10:15   Soil   BH23-16 0'   1, 4oz jar   0.28     V/23   10:15   Soil   BH23-16 2'   1, 4oz jar   0.29     V/23   10:15   Soil   BH23-16 2'   1, 4oz jar   0.30     V/23   10:15   Soil   BH23-16 2'   1, 4oz jar   0.30     V/23   10:15   Soil   BH23-16 2'   1, 4oz jar   0.30     V/23   10:15   Soil   BH23-16 2'   1, 4oz jar   0.30     V/24   10   1, 4oz jar   0.30   0.30   0.30     V/24   10   1.40   1.40   1.40   1.40     V/24   10   1.40   1.40   1.40   1.40     V/24   10   1.40   1.40   1.40   1.40 <td></td> <td></td> <td>BH23-15 2'</td> <td>1, 4oz jar</td> <td></td> <td>527</td> <td></td> <td></td> <td></td> <td>×</td> <td></td> <td></td> <td></td> <td></td>			BH23-15 2'	1, 4oz jar		527				×				
V23     10:10     Soil     BH23-16 0.5'     1, 4oz jar     C 2 9       V23     10:15     Soil     BH23-16 2'     1, 4oz jar     0.30       V23     10:15     Soil     BH23-16 2'     1, 4oz jar     0.30       V2     Ine     Received by:     1, 4oz jar     0.30     0.30       V2     Ine     Received by:     1, 4oz jar     0.30     0.30       V2     Ine     Received by:     1, 4oz jar     0.30     0.30       V2     Ine     Received by:     Via:     0.30     0.30       V2     Ine:     Relinquished by:     Via:     Date <time< td="">     Time       V2     Ine:     Received by:     Via:     Date<time< td="">     Time       V2     U2     U2000000     Via:     Date<time< td="">     Time     Time       M3     U20     M3     M3     M3     Time     Time</time<></time<></time<>			BH23-16 0'	1, 4oz jar		028				×				
V23   10:15   Soil   BH23-16 2'   1,402 jar   Q.30     Image: Solid Soli			BH23-16 0.5'	1, 4oz jar		920				×				
Time: Relinquished Control Date Time   X QTD0 Z/LLLL Z/LLLL Z/LLLL   X QTD1 Z/LLLL Z/LLLL Z/LLLL			BH23-16 2'	1, 4oz jar		0.30				×				
Time: Relinquished M: Received by: Via: Date Time   X M M M M M   X M M M M   X M M M M   X M M M M   X M M M M   X M M M M   X M M M M   X M M M M   X M M M M														
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190 alluman Come Came Came Card			hed by:	Received by:	Via:			ount ///0 884901	0010					
			1 CN	me c	Alt The	Ara Daio	cc. ksta	llings@	vertex.c:	a for Fi	nal Re	port		



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

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 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

Andy Freeman Laboratory Manager 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. Sample Diluted Due to Matrix

- D Sample Diluted Due to MatrixH 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

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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 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 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 7/18/2023 6:32:00 AM 4.8 mg/Kg 1 Surr: BFB 78.5 15-244 %Rec 1 7/18/2023 6:32:00 AM **EPA METHOD 8021B: VOLATILES** Analyst: KMN Benzene ND 7/18/2023 6:32:00 AM 0.024 mg/Kg 1 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 7/18/2023 6:32:00 AM 1 Surr: 4-Bromofluorobenzene 76.4 39.1-146 %Rec 1 7/18/2023 6:32:00 AM **EPA METHOD 300.0: ANIONS** Analyst: CAS mg/Kg Chloride 7/16/2023 12:36:51 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. Sample Diluted Due to Matrix

D Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit PQL Practical Quanitative Limit

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

E Above Quantitation Range/Estimated Value

J Analyte detected below quantitation limits

Р Sample pH Not In Range

Analyte detected in the associated Method Blank

RL Reporting Limit

в

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

Date Reported: 7/24/2023

### Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Vertex Resources Services, Inc. Client Sample ID: WS23-03 0-0.5' **Project:** Tomcat 16 State 006 Collection Date: 7/12/2023 9:10:00 AM Lab ID: 2307633-003 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 9.2 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 Benzene ND 7/18/2023 7:15:00 AM 0.024 mg/Kg 1 Toluene ND 0.049 mg/Kg 1 7/18/2023 7:15:00 AM Ethylbenzene ND 0.049 mg/Kg 1 7/18/2023 7:15:00 AM Xylenes, Total ND 0.098 mg/Kg 7/18/2023 7:15:00 AM 1 Surr: 4-Bromofluorobenzene 77.8 39.1-146 %Rec 1 7/18/2023 7:15:00 AM **EPA METHOD 300.0: ANIONS** Analyst: CAS mg/Kg Chloride 7/16/2023 12:49:15 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. Sample Diluted Due to Matrix

D Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit PQL Practical Quanitative Limit

E Above Quantitation Range/Estimated Value

Analyte detected in the associated Method Blank

J Analyte detected below quantitation limits

Р Sample pH Not In Range

RL Reporting Limit

в

Page 3 of 62

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

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. Sample Diluted Due to Matrix

D Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit PQL Practical Quanitative Limit

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

Analyte detected in the associated Method Blank в

E Above Quantitation Range/Estimated Value

J Analyte detected below quantitation limits

Р 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 Result **RL** Qual Units DF **Date Analyzed** Analyses EPA METHOD 8015M/D: DIESEL RANGE ORGANICS Analyst: DGH 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 7/18/2023 7:59:00 AM 4.9 mg/Kg 1 Surr: BFB 80.6 15-244 %Rec 1 7/18/2023 7:59:00 AM **EPA METHOD 8021B: VOLATILES** Analyst: KMN Benzene ND 7/18/2023 7:59:00 AM 0.025 mg/Kg 1 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 7/18/2023 7:59:00 AM 1 Surr: 4-Bromofluorobenzene 80.1 39.1-146 %Rec 1 7/18/2023 7:59:00 AM **EPA METHOD 300.0: ANIONS** Analyst: CAS mg/Kg Chloride 7/16/2023 1:14:04 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. Sample Diluted Due to Matrix

D Н 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.

Analyte detected in the associated Method Blank в

E Above Quantitation Range/Estimated Value

J Analyte detected below quantitation limits

Р Sample pH Not In Range

RL Reporting 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

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

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

Analyte detected in the associated Method Blank в

E Above Quantitation Range/Estimated Value

J Analyte detected below quantitation limits

Р Sample pH Not In Range

RL Reporting Limit Page 6 of 62

Date Reported: 7/24/2023

### Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Vertex Resources Services, Inc. Client Sample ID: WS23-07 0-0.5' **Project:** Tomcat 16 State 006 Collection Date: 7/12/2023 9:30:00 AM Lab ID: 2307633-007 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 9.4 mg/Kg 1 7/17/2023 5:52:50 PM Motor Oil Range Organics (MRO) ND 47 mg/Kg 1 7/17/2023 5:52:50 PM 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 7/18/2023 8:42:00 AM 4.8 mg/Kg 1 Surr: BFB 78.8 15-244 %Rec 1 7/18/2023 8:42:00 AM **EPA METHOD 8021B: VOLATILES** Analyst: KMN Benzene ND 7/18/2023 8:42:00 AM 0.024 mg/Kg 1 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 7/18/2023 8:42:00 AM 1 Surr: 4-Bromofluorobenzene 77.8 39.1-146 %Rec 1 7/18/2023 8:42:00 AM **EPA METHOD 300.0: ANIONS** Analyst: CAS mg/Kg Chloride 7/16/2023 1:38:54 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. Sample Diluted Due to Matrix

D Sample Diluted Due to MatrixH 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

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CLIENT: Vertex Resources Services, Inc.

Tomcat 16 State 006

**Analytical Report** Lab Order 2307633

Date Reported: 7/24/2023

# Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: WS23-08 0-0.5' Collection Date: 7/12/2023 9:25:00 AM Received Date: 7/14/2023 7:30:00 AM

Lab ID: 2307633-008	Matrix: SOIL	Rece	eived Date:	7/14/2	023 7:30:00 AM
Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE	ORGANICS				Analyst: DGH
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 RANG	E				Analyst: KMN
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 PQL Practical Quanitative Limit

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

- Analyte detected in the associated Method Blank в
- Above Quantitation Range/Estimated Value Е
- J Analyte detected below quantitation limits

Р 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 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 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: KMN Gasoline Range Organics (GRO) ND 7/18/2023 11:50:00 AM 4.9 mg/Kg 1 Surr: BFB 83.6 15-244 %Rec 1 7/18/2023 11:50:00 AM **EPA METHOD 8021B: VOLATILES** Analyst: KMN Benzene ND 7/18/2023 11:50:00 AM 0.024 mg/Kg 1 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 7/18/2023 11:50:00 AM 1 Surr: 4-Bromofluorobenzene 78.5 39.1-146 %Rec 1 7/18/2023 11:50:00 AM **EPA METHOD 300.0: ANIONS** Analyst: RBC mg/Kg Chloride 7/17/2023 2:50:42 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. Sample Diluted Due to Matrix

D Sample Diluted Due to MatrixH 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

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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 Result **RL** Qual Units DF **Date Analyzed** Analyses EPA METHOD 8015M/D: DIESEL RANGE ORGANICS Analyst: DGH 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 7/18/2023 12:11:00 PM 4.9 mg/Kg 1 Surr: BFB 76.9 15-244 %Rec 1 7/18/2023 12:11:00 PM **EPA METHOD 8021B: VOLATILES** Analyst: KMN Benzene ND 7/18/2023 12:11:00 PM 0.024 mg/Kg 1 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 7/18/2023 12:11:00 PM 1 Surr: 4-Bromofluorobenzene 79.6 39.1-146 %Rec 1 7/18/2023 12:11:00 PM **EPA METHOD 300.0: ANIONS** Analyst: RBC mg/Kg Chloride 7/17/2023 3:27:56 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. Sample Diluted Due to Matrix

D Н 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.

Analyte detected in the associated Method Blank в

E Above Quantitation Range/Estimated Value

J Analyte detected below quantitation limits

Р 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 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 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 7/18/2023 12:33:00 PM 4.8 mg/Kg 1 Surr: BFB 78.4 15-244 %Rec 1 7/18/2023 12:33:00 PM **EPA METHOD 8021B: VOLATILES** Analyst: KMN Benzene ND 7/18/2023 12:33:00 PM 0.024 mg/Kg 1 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 7/18/2023 12:33:00 PM 1 Surr: 4-Bromofluorobenzene 80.3 39.1-146 %Rec 1 7/18/2023 12:33:00 PM **EPA METHOD 300.0: ANIONS** Analyst: RBC mg/Kg Chloride 7/17/2023 3:40:20 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. Sample Diluted Due to Matrix

D Sample Diluted Due to MatrixH 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

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

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 80.0 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

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit PQL Practical Quanitative Limit

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

Analyte detected in the associated Method Blank в

E Above Quantitation Range/Estimated Value

J Analyte detected below quantitation limits

Р 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. Sample Diluted Due to Matrix

D Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit PQL Practical Quanitative Limit

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

- Analyte detected in the associated Method Blank в
- E Above Quantitation Range/Estimated Value
- J Analyte detected below quantitation limits
- Р 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 Result **RL** Qual Units DF **Date Analyzed** Analyses EPA METHOD 8015M/D: DIESEL RANGE ORGANICS Analyst: DGH 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 7/18/2023 1:39:00 PM 5.0 mg/Kg 1 Surr: BFB 82.5 15-244 %Rec 1 7/18/2023 1:39:00 PM **EPA METHOD 8021B: VOLATILES** Analyst: KMN Benzene ND 7/18/2023 1:39:00 PM 0.025 mg/Kg 1 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 mg/Kg 7/18/2023 1:39:00 PM 0.10 1 Surr: 4-Bromofluorobenzene 80.6 39.1-146 %Rec 1 7/18/2023 1:39:00 PM **EPA METHOD 300.0: ANIONS** Analyst: RBC mg/Kg Chloride 7/17/2023 4:42:22 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. Sample Diluted Due to Matrix

D Sample Diluted Due to MatrixH 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

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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 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 7/17/2023 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 7/18/2023 3:28:00 PM 4.9 mg/Kg 1 Surr: BFB 83.4 15-244 %Rec 1 7/18/2023 3:28:00 PM **EPA METHOD 8021B: VOLATILES** Analyst: KMN Benzene ND 7/18/2023 3:28:00 PM 0.024 mg/Kg 1 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 7/18/2023 3:28:00 PM 1 Surr: 4-Bromofluorobenzene 81.6 39.1-146 %Rec 1 7/18/2023 3:28:00 PM **EPA METHOD 300.0: ANIONS** Analyst: RBC mg/Kg Chloride 7/17/2023 4:54:47 PM 160 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. Sample Diluted Due to Matrix

D Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit PQL Practical Quanitative Limit

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

Analyte detected in the associated Method Blank в

E Above Quantitation Range/Estimated Value

J Analyte detected below quantitation limits

Р Sample pH Not In Range

RL Reporting Limit Page 15 of 62

CLIENT: Vertex Resources Services, Inc.

Tomcat 16 State 006

**Analytical Report** Lab Order 2307633

Date Reported: 7/24/2023

# Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: BS23-08 0.5' Collection Date: 7/12/2023 10:00:00 AM Received Date: 7/14/2023 7:30:00 AM

Lab ID: 2307633-016	Matrix: SOIL	Rece	eived Date:	7/14/2	023 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	9.8	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 RANG	E				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. Sample Diluted Due to Matrix

D Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit PQL Practical Quanitative Limit

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

- Analyte detected in the associated Method Blank в
- Above Quantitation Range/Estimated Value Е
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

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Lab ID:

CLIENT: Vertex Resources Services, Inc.

Tomcat 16 State 006

2307633-017

**Analytical Report** Lab Order 2307633

Date Reported: 7/24/2023

# Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: BS23-09 0.5' Collection Date: 7/12/2023 10:00:00 AM 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	9.8	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	E				Analyst: KMN
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

Matrix: SOIL

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
- Not Detected at the Reporting Limit
- ND PQL Practical Quanitative Limit
- % Recovery outside of standard limits. If undiluted results may be estimated. S
- Analyte detected in the associated Method Blank в
- Above Quantitation Range/Estimated Value Е
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

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CLIENT: Vertex Resources Services, Inc.

Tomcat 16 State 006

**Analytical Report** Lab Order 2307633

Date Reported: 7/24/2023

# Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: BS23-10 0.5' Collection Date: 7/12/2023 10:05:00 AM Received Date: 7/14/2023 7:30:00 AM

Lab ID: 2307633-018	Matrix: SOIL	Rece	<b>Received Date:</b> 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	9.7	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 RANG	E				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. Sample Diluted Due to Matrix
- D Н
- Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit PQL Practical Quanitative Limit
- % Recovery outside of standard limits. If undiluted results may be estimated. S
- Analyte detected in the associated Method Blank в
- Above Quantitation Range/Estimated Value Е
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

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CLIENT: Vertex Resources Services, Inc.

Tomcat 16 State 006

**Analytical Report** Lab Order 2307633

Date Reported: 7/24/2023

# Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: BS23-11 0.5' Collection Date: 7/12/2023 10:05:00 AM Received Date: 7/14/2023 7:30:00 AM

Lab ID: 2307633-019	Matrix: SOIL	Rece	<b>Received Date:</b> 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	9.7	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 RANGI	E				Analyst: KMN	
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

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit PQL Practical Quanitative Limit

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

- Analyte detected in the associated Method Blank в
- Above Quantitation Range/Estimated Value Е
- J Analyte detected below quantitation limits
- Р 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 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 7/17/2023 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 7/18/2023 6:47:00 PM 4.9 mg/Kg 1 Surr: BFB 78.7 15-244 %Rec 1 7/18/2023 6:47:00 PM **EPA METHOD 8021B: VOLATILES** Analyst: KMN Benzene ND 7/18/2023 6:47:00 PM 0.025 mg/Kg 1 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 mg/Kg Chloride 7/17/2023 5:56:49 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. Sample Diluted Due to Matrix

D Sample Diluted Due to MatrixH 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

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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 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 7/17/2023 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 7/18/2023 7:09:00 PM 4.9 mg/Kg 1 Surr: BFB 76.1 15-244 %Rec 1 7/18/2023 7:09:00 PM **EPA METHOD 8021B: VOLATILES** Analyst: KMN Benzene ND 7/18/2023 7:09:00 PM 0.025 mg/Kg 1 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 mg/Kg 7/18/2023 7:09:00 PM 0.099 1 Surr: 4-Bromofluorobenzene 78.2 39.1-146 %Rec 1 7/18/2023 7:09:00 PM **EPA METHOD 300.0: ANIONS** Analyst: RBC mg/Kg Chloride 7/17/2023 6:09:13 PM ND 61 20

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

**Qualifiers:** 

Value exceeds Maximum Contaminant Level. Sample Diluted Due to Matrix

D Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit PQL Practical Quanitative Limit

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

Analyte detected in the associated Method Blank в

E Above Quantitation Range/Estimated Value

J Analyte detected below quantitation limits

Р 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 Result **RL** Qual Units DF **Date Analyzed** Analyses Analyst: PRD EPA METHOD 8015M/D: DIESEL RANGE ORGANICS 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 7/18/2023 7:31:00 PM 4.7 mg/Kg 1 Surr: BFB 79.9 15-244 %Rec 1 7/18/2023 7:31:00 PM **EPA METHOD 8021B: VOLATILES** Analyst: KMN Benzene ND 7/18/2023 7:31:00 PM 0.024 mg/Kg 1 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 7/18/2023 7:31:00 PM 1 Surr: 4-Bromofluorobenzene 78.5 39.1-146 %Rec 1 7/18/2023 7:31:00 PM **EPA METHOD 300.0: ANIONS** Analyst: RBC mg/Kg Chloride 7/17/2023 6:46:26 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

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

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

- Analyte detected in the associated Method Blank в
- E Above Quantitation Range/Estimated Value
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range

RL Reporting Limit Page 22 of 62

Lab ID:

CLIENT: Vertex Resources Services, Inc.

Tomcat 16 State 006

2307633-023

**Analytical Report** Lab Order 2307633

Date Reported: 7/24/2023

# Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: BS23-15 0.5' Collection Date: 7/12/2023 10:15:00 AM Matrix: SOIL Received Date: 7/14/2023 7:30:00 AM

Analyses	Result	RL Q	ual Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OR	GANICS				Analyst: PRD
Diesel Range Organics (DRO)	ND	9.9	mg/Kg	1	7/17/2023 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

- Н Holding times for preparation or analysis exceeded
- Not Detected at the Reporting Limit
- ND PQL Practical Quanitative Limit
- % Recovery outside of standard limits. If undiluted results may be estimated. S
- Analyte detected in the associated Method Blank в
- Above Quantitation Range/Estimated Value Е
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

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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 Result **RL** Qual Units DF **Date Analyzed** Analyses Analyst: PRD EPA METHOD 8015M/D: DIESEL RANGE ORGANICS 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: KMN Gasoline Range Organics (GRO) ND 7/18/2023 8:15:00 PM 4.7 mg/Kg 1 Surr: BFB 80.5 15-244 %Rec 1 7/18/2023 8:15:00 PM **EPA METHOD 8021B: VOLATILES** Analyst: KMN Benzene ND 7/18/2023 8:15:00 PM 0.024 mg/Kg 1 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 7/18/2023 8:15:00 PM 1 Surr: 4-Bromofluorobenzene 78.7 39.1-146 %Rec 1 7/18/2023 8:15:00 PM **EPA METHOD 300.0: ANIONS** Analyst: RBC mg/Kg Chloride 7/17/2023 7:11:14 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. Sample Diluted Due to Matrix

D Sample Diluted Due to MatrixH 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 62

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

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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 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 7/17/2023 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: KMN Gasoline Range Organics (GRO) ND 7/18/2023 9:20:00 PM 4.9 mg/Kg 1 Surr: BFB 77.0 15-244 %Rec 1 7/18/2023 9:20:00 PM **EPA METHOD 8021B: VOLATILES** Analyst: KMN Benzene ND 7/18/2023 9:20:00 PM 0.025 mg/Kg 1 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 mg/Kg 7/18/2023 9:20:00 PM 0.099 1 Surr: 4-Bromofluorobenzene 77.0 39.1-146 %Rec 1 7/18/2023 9:20:00 PM **EPA METHOD 300.0: ANIONS** Analyst: RBC mg/Kg Chloride 7/17/2023 2:31:26 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. Sample Diluted Due to Matrix

D Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit PQL Practical Quanitative Limit

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

Analyte detected in the associated Method Blank в

E Above Quantitation Range/Estimated Value

J Analyte detected below quantitation limits

Р Sample pH Not In Range

RL Reporting Limit Page 25 of 62

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

CLIENT: Vertex Resources Services, Inc.

Tomcat 16 State 006

**Analytical Report** Lab Order 2307633

Date Reported: 7/24/2023

# Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: BS23-18 0.5' Collection Date: 7/12/2023 10:25:00 AM Received Date: 7/14/2023 7:30:00 AM

Lab ID: 2307633-026	Matrix: SOIL	Rece	<b>Received Date:</b> 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	9.8	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 RANGI	E				Analyst: KMN	
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

- Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit PQL Practical Quanitative Limit

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

- Analyte detected in the associated Method Blank в
- Above Quantitation Range/Estimated Value Е
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range

RL Reporting Limit Page 26 of 62

Lab ID:

CLIENT: Vertex Resources Services, Inc.

Tomcat 16 State 006

2307633-027

**Analytical Report** Lab Order 2307633

Date Reported: 7/24/2023

# Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: BS23-19 0.5' Collection Date: 7/12/2023 10:25:00 AM Received Date: 7/14/2023 7:30:00 AM

Analyses	Result	RL Q	ual Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORG	GANICS				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: KMN
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

Matrix: SOIL

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

**Qualifiers:** 

Value exceeds Maximum Contaminant Level. Sample Diluted Due to Matrix

D Н

Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit PQL Practical Quanitative Limit

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

Analyte detected in the associated Method Blank в

Above Quantitation Range/Estimated Value Е

J Analyte detected below quantitation limits

Р 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 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 7/17/2023 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 7/18/2023 10:25:00 PM 4.8 mg/Kg 1 Surr: BFB 76.9 15-244 %Rec 1 7/18/2023 10:25:00 PM **EPA METHOD 8021B: VOLATILES** Analyst: KMN Benzene ND 7/18/2023 10:25:00 PM 0.024 mg/Kg 1 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 7/18/2023 10:25:00 PM 1 Surr: 4-Bromofluorobenzene 76.7 39.1-146 %Rec 1 7/18/2023 10:25:00 PM **EPA METHOD 300.0: ANIONS** Analyst: RBC mg/Kg Chloride 7/17/2023 3:57:50 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. Sample Diluted Due to Matrix

D Н 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.

Analyte detected in the associated Method Blank в

E Above Quantitation Range/Estimated Value

J Analyte detected below quantitation limits

Р Sample pH Not In Range

RL Reporting Limit Page 28 of 62

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

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 Result **RL** Qual Units DF **Date Analyzed** Analyses EPA METHOD 8015M/D: DIESEL RANGE ORGANICS 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 7/18/2023 10:47:00 PM 4.7 mg/Kg 1 Surr: BFB 79.8 15-244 %Rec 1 7/18/2023 10:47:00 PM **EPA METHOD 8021B: VOLATILES** Analyst: KMN Benzene ND 7/18/2023 10:47:00 PM 0.024 mg/Kg 1 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 7/18/2023 10:47:00 PM 1 Surr: 4-Bromofluorobenzene 76.4 39.1-146 %Rec 1 7/18/2023 10:47:00 PM **EPA METHOD 300.0: ANIONS** Analyst: RBC mg/Kg Chloride 7/17/2023 4:34:53 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. Sample Diluted Due to Matrix

D Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit PQL Practical Quanitative Limit

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

Analyte detected in the associated Method Blank в

E Above Quantitation Range/Estimated Value

J Analyte detected below quantitation limits

Р Sample pH Not In Range

RL Reporting Limit Page 29 of 62

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

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 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 7/17/2023 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 7/18/2023 11:09:00 PM 4.9 mg/Kg 1 Surr: BFB 77.2 15-244 %Rec 1 7/18/2023 11:09:00 PM **EPA METHOD 8021B: VOLATILES** Analyst: KMN Benzene ND 7/18/2023 11:09:00 PM 0.024 mg/Kg 1 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 7/18/2023 11:09:00 PM 1 Surr: 4-Bromofluorobenzene 76.2 39.1-146 %Rec 1 7/18/2023 11:09:00 PM **EPA METHOD 300.0: ANIONS** Analyst: RBC mg/Kg Chloride 7/17/2023 4:47:14 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. Sample Diluted Due to Matrix

D Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit PQL Practical Quanitative Limit

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

Analyte detected in the associated Method Blank в

E Above Quantitation Range/Estimated Value

J Analyte detected below quantitation limits

Р Sample pH Not In Range

RL Reporting Limit Page 30 of 62

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

Lab ID:

Analyses

Surr: BFB

Benzene

Toluene

Chloride

Ethylbenzene

Xylenes, Total

Surr: 4-Bromofluorobenzene

**EPA METHOD 300.0: ANIONS** 

**Analytical Report** Lab Order 2307633

Date Reported: 7/24/2023

7/18/2023 11:31:00 PM

7/17/2023 4:59:34 PM

Analyst: RBC

#### Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Vertex Resources Services, Inc. Client Sample ID: BS23-23 0.5' Tomcat 16 State 006 Collection Date: 7/12/2023 10:35:00 AM 2307633-031 Matrix: SOIL Received Date: 7/14/2023 7:30:00 AM Result **RL** Qual Units DF **Date Analyzed** Analyst: PRD EPA METHOD 8015M/D: DIESEL RANGE ORGANICS 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 7/18/2023 11:31:00 PM 5.0 mg/Kg 1 79.2 15-244 %Rec 1 7/18/2023 11:31:00 PM **EPA METHOD 8021B: VOLATILES** Analyst: KMN

0.025

0.050

0.050

0.10

60

39.1-146

mg/Kg

mg/Kg

mg/Kg

mg/Kg

%Rec

mg/Kg

1

1

1

1

1

20

ND

ND

ND

ND

76.8

ND

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
- PQL Practical Quanitative Limit
- S

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

- Analyte detected in the associated Method Blank в
- E Above Quantitation Range/Estimated Value
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

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Released to Imaging: 4/23/2024 2:01:30 PM
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 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 7/17/2023 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 7/18/2023 11:52:00 PM 4.8 mg/Kg 1 Surr: BFB 77.7 15-244 %Rec 1 7/18/2023 11:52:00 PM **EPA METHOD 8021B: VOLATILES** Analyst: KMN Benzene ND 7/18/2023 11:52:00 PM 0.024 mg/Kg 1 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 7/18/2023 11:52:00 PM 1 Surr: 4-Bromofluorobenzene 77.5 39.1-146 %Rec 1 7/18/2023 11:52:00 PM **EPA METHOD 300.0: ANIONS** Analyst: RBC mg/Kg Chloride 7/17/2023 5:11:54 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. Sample Diluted Due to Matrix

D Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit POL Practical Quanitative Limit

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

- Analyte detected in the associated Method Blank в
- E Above Quantitation Range/Estimated Value
- J Analyte detected below quantitation limits
- Р 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 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 7/18/2023 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 7/19/2023 12:14:00 AM 4.9 mg/Kg 1 Surr: BFB 79.6 15-244 %Rec 1 7/19/2023 12:14:00 AM **EPA METHOD 8021B: VOLATILES** Analyst: KMN Benzene ND 7/19/2023 12:14:00 AM 0.025 mg/Kg 1 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 mg/Kg 7/19/2023 12:14:00 AM 0.099 1 Surr: 4-Bromofluorobenzene 77.2 39.1-146 %Rec 1 7/19/2023 12:14:00 AM **EPA METHOD 300.0: ANIONS** Analyst: RBC mg/Kg Chloride 7/17/2023 5:24:15 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. Sample Diluted Due to Matrix

D Sample Diluted Due to MatrixH 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

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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 Result **RL** Qual Units DF **Date Analyzed** Analyses Analyst: PRD EPA METHOD 8015M/D: DIESEL RANGE ORGANICS 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 7/19/2023 12:36:00 AM 4.8 mg/Kg 1 Surr: BFB 79.5 15-244 %Rec 1 7/19/2023 12:36:00 AM **EPA METHOD 8021B: VOLATILES** Analyst: KMN Benzene ND 7/19/2023 12:36:00 AM 0.024 mg/Kg 1 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 7/19/2023 12:36:00 AM 1 Surr: 4-Bromofluorobenzene 78.4 39.1-146 %Rec 1 7/19/2023 12:36:00 AM **EPA METHOD 300.0: ANIONS** Analyst: RBC mg/Kg Chloride 7/17/2023 5:36:36 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. Sample Diluted Due to Matrix

- D Sample Diluted Due to MatrixH 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

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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 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 7/18/2023 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 7/18/2023 6:45:49 PM 4.9 mg/Kg 1 Surr: BFB 96.6 15-244 %Rec 1 7/18/2023 6:45:49 PM **EPA METHOD 8021B: VOLATILES** Analyst: JJP Benzene ND 7/18/2023 6:45:49 PM 0.025 mg/Kg 1 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 7/18/2023 6:45:49 PM 1 Surr: 4-Bromofluorobenzene 99.4 39.1-146 %Rec 1 7/18/2023 6:45:49 PM **EPA METHOD 300.0: ANIONS** Analyst: RBC mg/Kg Chloride 7/17/2023 5:48:56 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

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

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

- Analyte detected in the associated Method Blank в
- E Above Quantitation Range/Estimated Value
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range

RL Reporting Limit Page 35 of 62

**Project:** 

CLIENT: Vertex Resources Services, Inc.

Tomcat 16 State 006

**Analytical Report** Lab Order 2307633

Date Reported: 7/24/2023

### Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: BS23-28 0.5' Collection Date: 7/12/2023 10:50:00 AM Received Date: 7/14/2023 7:30:00 AM

Lab ID: 2307633-036	Matrix: SOIL	Rece	<b>Received Date:</b> 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	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 RANGI	E				Analyst: JJP			
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: <b>JJP</b>			
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

- Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit PQL Practical Quanitative Limit

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

- Analyte detected in the associated Method Blank в
- Above Quantitation Range/Estimated Value Е
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range

RL Reporting Limit Page 36 of 62

Date Reported: 7/24/2023

7/17/2023 6:13:36 PM

#### 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 Result **RL** Qual Units DF **Date Analyzed** Analyses Analyst: PRD EPA METHOD 8015M/D: DIESEL RANGE ORGANICS 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 7/18/2023 9:07:58 PM 4.9 mg/Kg 1 Surr: BFB 92.1 15-244 %Rec 1 7/18/2023 9:07:58 PM **EPA METHOD 8021B: VOLATILES** Analyst: JJP Benzene ND 7/18/2023 9:07:58 PM 0.025 mg/Kg 1 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 7/18/2023 9:07:58 PM 1 Surr: 4-Bromofluorobenzene 95.8 39.1-146 %Rec 1 7/18/2023 9:07:58 PM **EPA METHOD 300.0: ANIONS** Analyst: RBC

ND

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

**Qualifiers:** 

Chloride

Value exceeds Maximum Contaminant Level. Sample Diluted Due to Matrix

D Н

Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit PQL Practical Quanitative Limit

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

Analyte detected in the associated Method Blank в

E Above Quantitation Range/Estimated Value

J Analyte detected below quantitation limits

mg/Kg

20

60

Р Sample pH Not In Range

RL Reporting Limit Page 37 of 62

**Project:** 

Lab ID:

CLIENT: Vertex Resources Services, Inc.

Tomcat 16 State 006

2307633-038

**Analytical Report** Lab Order 2307633

Date Reported: 7/24/2023

### Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: BS23-30 0.5' Collection Date: 7/12/2023 10:55:00 AM Received Date: 7/14/2023 7:30:00 AM

Analyses	Result	RL Q	ual Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE O	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

Matrix: SOIL

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
- Not Detected at the Reporting Limit
- ND PQL Practical Quanitative Limit
- % Recovery outside of standard limits. If undiluted results may be estimated. S
- Analyte detected in the associated Method Blank в
- Above Quantitation Range/Estimated Value Е
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

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

**Project:** 

Lab ID:

CLIENT: Vertex Resources Services, Inc.

Tomcat 16 State 006

2307633-039

**Analytical Report** Lab Order 2307633

Date Reported: 7/24/2023

### Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: BS23-31 0.5' Collection Date: 7/12/2023 10:55:00 AM Received Date: 7/14/2023 7:30:00 AM

Analyses	Result	RL Qu	ual Units	DF	Date Analyzed		
EPA METHOD 8015M/D: DIESEL RANGE	ORGANICS				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 RANG	E				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		

Matrix: SOIL

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
- Not Detected at the Reporting Limit
- ND PQL Practical Quanitative Limit
- % Recovery outside of standard limits. If undiluted results may be estimated. S

Analyte detected in the associated Method Blank в

- Above Quantitation Range/Estimated Value Е
- J Analyte detected below quantitation limits
- Р 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 Result **RL** Qual Units DF **Date Analyzed** Analyses Analyst: PRD EPA METHOD 8015M/D: DIESEL RANGE ORGANICS 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 7/18/2023 10:18:41 PM 4.8 mg/Kg 1 Surr: BFB 90.4 15-244 %Rec 1 7/18/2023 10:18:41 PM **EPA METHOD 8021B: VOLATILES** Analyst: JJP Benzene ND 7/18/2023 10:18:41 PM 0.024 mg/Kg 1 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 7/18/2023 10:18:41 PM 1 Surr: 4-Bromofluorobenzene 95.9 39.1-146 %Rec 1 7/18/2023 10:18:41 PM **EPA METHOD 300.0: ANIONS** Analyst: RBC mg/Kg Chloride 7/17/2023 7:15:20 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. Sample Diluted Due to Matrix

D Н 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.

Analyte detected in the associated Method Blank в

E Above Quantitation Range/Estimated Value

J Analyte detected below quantitation limits

Р Sample pH Not In Range

RL Reporting Limit Page 40 of 62

**Project:** 

CLIENT: Vertex Resources Services, Inc.

Tomcat 16 State 006

**Analytical Report** Lab Order 2307633

Date Reported: 7/24/2023

## Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: BS23-33 0.5' Collection Date: 7/12/2023 11:00:00 AM Received Date: 7/14/2023 7:30:00 AM

Lab ID: 2307633-041	Matrix: SOIL	Rec	<b>Received Date:</b> 7/14/2023 7:30:00 AM					
Analyses	Result	RL Qu	ual Units	DF	Date Analyzed			
EPA METHOD 8015M/D: DIESEL RANGE	ORGANICS				Analyst: PRD			
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 RANGI	E				Analyst: JJP			
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	7/18/2023 10:42:10 PM			
Surr: BFB	90.2	15-244	%Rec	1	7/18/2023 10:42:10 PM			
EPA METHOD 8021B: VOLATILES					Analyst: JJP			
Benzene	ND	0.024	mg/Kg	1	7/18/2023 10:42:10 PM			
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	1	7/18/2023 10:42:10 PM			
Surr: 4-Bromofluorobenzene	94.4	39.1-146	%Rec	1	7/18/2023 10:42:10 PM			
EPA METHOD 300.0: ANIONS					Analyst: RBC			
Chloride	ND	59	mg/Kg	20	7/17/2023 7:27:40 PM			

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

**Qualifiers:** 

Value exceeds Maximum Contaminant Level. Sample Diluted Due to Matrix

D Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit PQL Practical Quanitative Limit

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

- Analyte detected in the associated Method Blank в
- Above Quantitation Range/Estimated Value Е
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range Reporting Limit

RL

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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 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 7/18/2023 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 7/18/2023 11:05:37 PM 4.9 mg/Kg 1 Surr: BFB 89.3 15-244 %Rec 1 7/18/2023 11:05:37 PM **EPA METHOD 8021B: VOLATILES** Analyst: JJP Benzene ND 7/18/2023 11:05:37 PM 0.025 mg/Kg 1 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 7/18/2023 11:05:37 PM 1 Surr: 4-Bromofluorobenzene 93.8 39.1-146 %Rec 1 7/18/2023 11:05:37 PM **EPA METHOD 300.0: ANIONS** Analyst: RBC mg/Kg Chloride 7/17/2023 7:40:01 PM 170 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. Sample Diluted Due to Matrix

D Sample Diluted Due to MatrixH 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

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

\*

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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 Result **RL** Qual Units DF **Date Analyzed** Analyses Analyst: PRD EPA METHOD 8015M/D: DIESEL RANGE ORGANICS 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 7/18/2023 11:29:07 PM 4.9 mg/Kg 1 Surr: BFB 91.4 15-244 %Rec 1 7/18/2023 11:29:07 PM **EPA METHOD 8021B: VOLATILES** Analyst: JJP Benzene ND 7/18/2023 11:29:07 PM 0.025 mg/Kg 1 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 mg/Kg 7/18/2023 11:29:07 PM 0.099 1 Surr: 4-Bromofluorobenzene 96.4 39.1-146 %Rec 1 7/18/2023 11:29:07 PM **EPA METHOD 300.0: ANIONS** Analyst: RBC mg/Kg Chloride 7/17/2023 7:52:21 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. Sample Diluted Due to Matrix

D Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit PQL Practical Quanitative Limit

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

- Analyte detected in the associated Method Blank в
- E Above Quantitation Range/Estimated Value
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

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**Project:** 

Lab ID:

CLIENT: Vertex Resources Services, Inc.

Tomcat 16 State 006

2307633-044

**Analytical Report** Lab Order 2307633

Date Reported: 7/24/2023

## Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: BS23-36 0.5' Collection Date: 7/12/2023 11:10:00 AM Received Date: 7/14/2023 7:30:00 AM

20070000011	Soll					
Analyses	Result	RL Qu	al Units	DF	Date Analyzed	
EPA METHOD 8015M/D: DIESEL RANGE C	ORGANICS				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: JJP	
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	

Matrix: SOIL

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
- Not Detected at the Reporting Limit
- ND PQL Practical Quanitative Limit
- % Recovery outside of standard limits. If undiluted results may be estimated. S
- Analyte detected in the associated Method Blank в
- Above Quantitation Range/Estimated Value Е
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

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**Project:** 

Lab ID:

CLIENT: Vertex Resources Services, Inc.

Tomcat 16 State 006

2307633-045

**Analytical Report** Lab Order 2307633

Date Reported: 7/24/2023

### Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: BS23-37 0.5' Collection Date: 7/12/2023 11:10:00 AM 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 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

- Н Holding times for preparation or analysis exceeded
- Not Detected at the Reporting Limit
- ND PQL Practical Quanitative Limit
- % Recovery outside of standard limits. If undiluted results may be estimated. S

Analyte detected in the associated Method Blank в

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

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**EPA METHOD 300.0: ANIONS** 

Chloride

**Analytical Report** Lab Order 2307633

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 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 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 7/19/2023 1:02:47 AM 4.9 mg/Kg 1 Surr: BFB 88.7 15-244 %Rec 1 7/19/2023 1:02:47 AM **EPA METHOD 8021B: VOLATILES** Analyst: JJP Benzene ND 7/19/2023 1:02:47 AM 0.024 mg/Kg 1 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 7/19/2023 1:02:47 AM 1 Surr: 4-Bromofluorobenzene 94.3 39.1-146 %Rec 1 7/19/2023 1:02:47 AM

ND

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

PQL Practical Quanitative Limit

S

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

Analyte detected in the associated Method Blank в

E Above Quantitation Range/Estimated Value

J Analyte detected below quantitation limits

Р Sample pH Not In Range

mg/Kg

20

60

RL Reporting Limit Page 46 of 62

Analyst: RBC

7/17/2023 8:54:04 PM

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

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 Result **RL** Qual Units DF **Date Analyzed** Analyses Analyst: PRD EPA METHOD 8015M/D: DIESEL RANGE ORGANICS 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 69-147 %Rec 1 7/19/2023 9:42:20 AM 110 **EPA METHOD 8015D: GASOLINE RANGE** Analyst: JJP Gasoline Range Organics (GRO) ND 7/19/2023 1:26:16 AM 4.8 mg/Kg 1 Surr: BFB 87.6 15-244 %Rec 1 7/19/2023 1:26:16 AM **EPA METHOD 8021B: VOLATILES** Analyst: JJP Benzene ND 7/19/2023 1:26:16 AM 0.024 mg/Kg 1 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 7/19/2023 1:26:16 AM 1 Surr: 4-Bromofluorobenzene 93.4 39.1-146 %Rec 1 7/19/2023 1:26:16 AM **EPA METHOD 300.0: ANIONS** Analyst: RBC mg/Kg Chloride 7/17/2023 10:20:27 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. Sample Diluted Due to Matrix

D Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit PQL

S

Р

Practical Quanitative Limit

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

Analyte detected in the associated Method Blank в

E Above Quantitation Range/Estimated Value

J Analyte detected below quantitation limits

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 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 7/19/2023 10:00:31 AM Motor Oil Range Organics (MRO) 7/19/2023 10:00:31 AM ND 50 mg/Kg 1 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 7/19/2023 1:49:38 AM 4.9 mg/Kg 1 Surr: BFB 88.3 15-244 %Rec 1 7/19/2023 1:49:38 AM **EPA METHOD 8021B: VOLATILES** Analyst: JJP Benzene ND 7/19/2023 1:49:38 AM 0.024 mg/Kg 1 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 7/19/2023 1:49:38 AM 1 Surr: 4-Bromofluorobenzene 94.3 39.1-146 %Rec 1 7/19/2023 1:49:38 AM **EPA METHOD 300.0: ANIONS** Analyst: RBC mg/Kg Chloride 7/17/2023 10:32:47 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. Sample Diluted Due to Matrix

D Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit PQL Practical Quanitative Limit

Analyte detected in the associated Method Blank в

E Above Quantitation Range/Estimated Value

J Analyte detected below quantitation limits

Р Sample pH Not In Range

RL Reporting Limit Page 48 of 62

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

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 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 7/19/2023 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 7/19/2023 2:13:18 AM 4.8 mg/Kg 1 Surr: BFB 88.6 15-244 %Rec 1 7/19/2023 2:13:18 AM **EPA METHOD 8021B: VOLATILES** Analyst: JJP Benzene ND 7/19/2023 2:13:18 AM 0.024 mg/Kg 1 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 7/19/2023 2:13:18 AM 1 Surr: 4-Bromofluorobenzene 93.8 39.1-146 %Rec 1 7/19/2023 2:13:18 AM **EPA METHOD 300.0: ANIONS** Analyst: RBC mg/Kg Chloride 7/17/2023 10:45:08 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. Sample Diluted Due to Matrix

D Н 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.

Analyte detected in the associated Method Blank в

E Above Quantitation Range/Estimated Value

J Analyte detected below quantitation limits

Р 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 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 7/19/2023 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 7/19/2023 2:36:42 AM 4.7 mg/Kg 1 Surr: BFB 90.9 15-244 %Rec 1 7/19/2023 2:36:42 AM **EPA METHOD 8021B: VOLATILES** Analyst: JJP Benzene ND 7/19/2023 2:36:42 AM 0.023 mg/Kg 1 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 7/19/2023 2:36:42 AM 1 Surr: 4-Bromofluorobenzene 96.7 39.1-146 %Rec 1 7/19/2023 2:36:42 AM **EPA METHOD 300.0: ANIONS** Analyst: RBC mg/Kg Chloride 7/17/2023 10:57:28 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. Sample Diluted Due to Matrix

- D Н 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.

- Analyte detected in the associated Method Blank в
- E Above Quantitation Range/Estimated Value
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

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**Project:** 

Lab ID:

CLIENT: Vertex Resources Services, Inc.

Tomcat 16 State 006

2307633-051

**Analytical Report** Lab Order 2307633

Date Reported: 7/24/2023

### Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: BS23-43 0.5' Collection Date: 7/12/2023 11:25:00 AM Received Date: 7/14/2023 7:30:00 AM

<b>Eub ID:</b> 2507055 051	Man Soll	neet					
Analyses	Result	RL Qu	al Units	DF	Date Analyzed		
EPA METHOD 8015M/D: DIESEL RANG	GE ORGANICS				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 RAN	IGE				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		

Matrix: SOIL

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 PQL Practical Quanitative Limit
- % Recovery outside of standard limits. If undiluted results may be estimated. S
- Analyte detected in the associated Method Blank в
- Above Quantitation Range/Estimated Value Е
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

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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 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 7/19/2023 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 7/19/2023 3:23:35 AM 4.9 mg/Kg 1 Surr: BFB 90.0 15-244 %Rec 1 7/19/2023 3:23:35 AM **EPA METHOD 8021B: VOLATILES** Analyst: JJP Benzene ND 7/19/2023 3:23:35 AM 0.024 mg/Kg 1 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 7/19/2023 3:23:35 AM 1 Surr: 4-Bromofluorobenzene 96.7 39.1-146 %Rec 1 7/19/2023 3:23:35 AM **EPA METHOD 300.0: ANIONS** Analyst: RBC mg/Kg Chloride 7/17/2023 11:22:09 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. Sample Diluted Due to Matrix

D Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit PQL Practical Quanitative Limit

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

Analyte detected in the associated Method Blank в

E Above Quantitation Range/Estimated Value

J Analyte detected below quantitation limits

Р Sample pH Not In Range

RL Reporting Limit Page 52 of 62

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

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<b>C</b>		ntal Analysis Laborat	wo#:	2307633 24-Jul-23
Client: Project:		x Resources Services, Inc. at 16 State 006		
Sample ID:	MB-76231	SampType: <b>mblk</b>	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	e 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	e 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	e 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	e SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit	Qual
Chloride		14 1.5 15.00	0 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	

#### Qualifiers:

Prep Date:

Sample ID: LCS-76271

LCSS

7/17/2023

Analyte

Client ID:

Prep Date:

Analyte

Chloride

Chloride

\* Value exceeds Maximum Contaminant Level.

7/17/2023

- D Sample Diluted Due to Matrix
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- % Recovery outside of standard limits. If undiluted results may be estimated. S

Analysis Date: 7/17/2023

PQL

SampType: LCS

Batch ID: 76271

Analysis Date: 7/17/2023

PQL

1.5

1.5

Result

Result

14

ND

Analyte detected in the associated Method Blank в

SeqNo: 3576623

RunNo: 98270

91.8

SeqNo: 3576624

LowLimit

TestCode: EPA Method 300.0: Anions

LowLimit

90

Units: mg/Kg

Units: mg/Kg

110

HighLimit

HighLimit

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

SPK value SPK Ref Val %REC

SPK value SPK Ref Val %REC

0

15.00

RPDLimit

RPDLimit

Qual

Qual

%RPD

%RPD

Client: Project:		ex Resources Ser loat 16 State 006	,	Inc.							
Sample ID:	MB-76252	SampTy	pe: <b>ME</b>	BLK	Tes	tCode: EF	PA Method	300.0: Anions	5		
Client ID:	PBS	Batch	ID: 762	252	F	RunNo: <b>98</b>	3275				
Prep Date:	7/17/2023	Analysis Da	ite: <b>7/</b>	17/2023	S	SeqNo: 35	576788	Units: mg/K	g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride		ND	1.5								
Sample ID:	LCS-76252	SampTy	pe: <b>LC</b>	S	Tes	tCode: EF	PA Method	300.0: Anions	6		
Client ID:	LCSS	Batch	ID: 762	252	F	RunNo: <b>98</b>	3275				
Prep Date:	7/17/2023	Analysis Da	ite: 7/*	17/2023	5	SeqNo: 35	576789	Units: mg/K	g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride		14	1.5	15.00	0	91.0	90	110			

Qualifiers:

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- 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

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24-Jul-23

# **QC SUMMARY REPORT** Hall Environmental Analysis Laboratory, Inc.

	esources Service	s, Inc.							
Sample ID: LCS-76232	SampType: L	cs	Tes	tCode: EF	PA Method	8015M/D: Die	sel Range	Organics	
Client ID: LCSS	Batch ID: 7	6232	F	RunNo: <b>98</b>	3230				
Prep Date: 7/15/2023	Analysis Date:	7/17/2023	S	SeqNo: 35	574891	Units: mg/K	g		
Analyte	Result PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	56 10	50.00	0	112	61.9	130			
Surr: DNOP	6.0	5.000		119	69	147			
Sample ID: MB-76232	SampType: <b>N</b>	IBLK	Tes	tCode: EF	PA Method	8015M/D: Die	sel Range	Organics	
Client ID: PBS	Batch ID: 7	6232	F	RunNo: <b>98</b>	3230				
Prep Date: 7/15/2023	Analysis Date:	7/17/2023	S	SeqNo: 35	574892	Units: <b>mg/K</b>	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		105	69	147			
Sample ID: MB-76217	SampType: N	e: MBLK TestCode: EPA Method 8015M/D: Diesel Range Organics					Organics		
Client ID: PBS	Batch ID: 7	6217	F	RunNo: <b>98</b>	3269				
Prep Date: 7/14/2023	Analysis Date:	7/17/2023	S	SeqNo: 35	576667	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	9.4	10.00		93.8	69	147			
Sample ID: LCS-76217	SampType: L	cs	Tes	tCode: EF	PA Method	8015M/D: Die	sel Range	Organics	
Client ID: LCSS	Batch ID: 7	6217	F	RunNo: <b>98</b>	3269				
Prep Date: 7/14/2023	Analysis Date:	7/17/2023	S	SeqNo: 35	576668	Units: mg/K	g		
Analyte	Result PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	44 10		0	88.0	61.9	130			
Surr: DNOP	4.4	5.000		87.9	69	147			
Sample ID: LCS-76218	SampType: L	cs	Tes	tCode: EF	A Method	8015M/D: Die	sel Range	Organics	
Client ID: LCSS	Batch ID: 7	6218	F	RunNo: <b>98</b>	3230				
Prep Date: 7/14/2023	Analysis Date:	7/17/2023	S	SeqNo: 35	576935	Units: mg/K	g		
Analyte	Result PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Analyte									
Diesel Range Organics (DRO)	61 10	50.00	0	122	61.9	130			

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- Analyte detected in the associated Method Blank В
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- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- Reporting Limit RL

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24-Jul-23

<b>L</b>		WO#:	2307633
Hall Env	ironmental Analysis Laboratory, Inc.		24-Jul-23
Client:	Vertex Resources Services, Inc.		

Project:	Tomcat 10	o State 00	6								
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: <b>9</b>	8230				
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 C	Organics (DRO)	ND	10								
-	e Organics (MRO)	ND	50								
Surr: DNOP		12		10.00		119	69	147			
Sample ID:	2307633-015AMS	SampT	ype: MS	;	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: <b>9</b>	8349				
Prep Date:	7/14/2023	Analysis D	Date: 7/	19/2023	S	SeqNo: 3	579947	Units: mg/Kg	9		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range C	Drganics (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: МS	D	Tes	tCode: El	PA Method	8015M/D: Dies	sel Range	Organics	
Client ID:	BS23-07 0.5'	Batch	n ID: 762	218	F	RunNo: <b>9</b>	8349				
Prep Date:	7/14/2023	Analysis D	Date: 7/	19/2023	5	SeqNo: 3	579948	Units: mg/Kg	9		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range C							LOWENIN	-			Quai
0	Organics (DRO)	46	9.8	49.16	0	94.1	54.2	135	16.5	29.2	Quai
Surr: DNOP		46 5.2	9.8	49.16 4.916				135 147	16.5 0	29.2 0	Quai
-		5.2	9.8 - ype: <b>ME</b>	4.916	0	94.1 106	54.2 69		0	0	Quai
Surr: DNOP		5.2 SampT		4.916	0 Tes	94.1 106	54.2 69 PA Method	147	0	0	
Surr: DNOP Sample ID:	MB-76297	5.2 SampT	ype: <b>ME</b>	4.916 BLK 297	0 Tes F	94.1 106 tCode: <b>EI</b>	54.2 69 PA Method 8 8349	147	0	0	
Surr: DNOP Sample ID: Client ID:	MB-76297 PBS	5.2 SampT Batch	ype: <b>ME</b>	4.916 BLK 297	0 Tes F	94.1 106 atCode: <b>El</b> RunNo: <b>9</b>	54.2 69 PA Method 8 8349	147 8015M/D: Dies	0	0	Qual
Surr: DNOP Sample ID: Client ID: Prep Date:	MB-76297 PBS 7/18/2023	5.2 SampT Batch Analysis D	ype: <b>ME</b> 1D: <b>762</b> Date: <b>7/</b> 1	4.916 BLK 297 19/2023	0 Tes F	94.1 106 ttCode: <b>El</b> RunNo: <b>9</b> SeqNo: <b>3</b>	54.2 69 PA Method 8 8349 579967	147 8015M/D: Dies Units: %Rec	0 sel Range	0 Organics	
Surr: DNOP Sample ID: Client ID: Prep Date: Analyte Surr: DNOP	MB-76297 PBS 7/18/2023	5.2 SampT Batch Analysis D Result 9.1	ype: <b>ME</b> 1D: <b>762</b> Date: <b>7/</b> 1	4.916 BLK 297 19/2023 SPK value 10.00	0 Tes F SPK Ref Val	94.1 106 atCode: El RunNo: 94 SeqNo: 34 %REC 90.8	54.2 69 PA Method 5 8349 579967 LowLimit 69	147 8015M/D: Dies Units: %Rec HighLimit	0 sel Range %RPD	0 Organics RPDLimit	
Surr: DNOP Sample ID: Client ID: Prep Date: Analyte Surr: DNOP Sample ID:	MB-76297 PBS 7/18/2023	5.2 SampT Batch Analysis D Result 9.1 SampT	<sup>-</sup> ype: <b>ME</b> n ID: <b>762</b> Date: <b>7</b> / PQL	4.916 BLK 297 19/2023 SPK value 10.00 S	0 Tes F SPK Ref Val	94.1 106 atCode: El RunNo: 94 SeqNo: 34 %REC 90.8	54.2 69 PA Method 8 8349 579967 LowLimit 69 PA Method 8	147 8015M/D: Dies Units: %Rec HighLimit 147	0 sel Range %RPD	0 Organics RPDLimit	
Surr: DNOP Sample ID: Client ID: Prep Date: Analyte Surr: DNOP Sample ID:	MB-76297 PBS 7/18/2023 LCS-76297	5.2 SampT Batch Analysis D Result 9.1 SampT	ype: <b>ME</b> n ID: <b>76</b> Date: <b>7</b> / PQL	4.916 BLK 297 19/2023 SPK value 10.00 S 297	0 Tes SPK Ref Val Tes F	94.1 106 ttCode: EI RunNo: 9 SeqNo: 3 %REC 90.8 ttCode: EI	54.2 69 PA Method 3 8349 579967 LowLimit 69 PA Method 3 8349	147 8015M/D: Dies Units: %Rec HighLimit 147	0 sel Range %RPD	0 Organics RPDLimit	
Surr: DNOP Sample ID: Client ID: Prep Date: Analyte Surr: DNOP Sample ID: Client ID:	MB-76297 PBS 7/18/2023 LCS-76297 LCSS	5.2 SampT Batch Analysis D Result 9.1 SampT Batch	ype: <b>ME</b> n ID: <b>76</b> Date: <b>7</b> / PQL	4.916 BLK 297 19/2023 SPK value 10.00 S 297 19/2023	0 Tes SPK Ref Val Tes F	94.1 106 ttCode: EI RunNo: 94 SeqNo: 34 %REC 90.8 ttCode: EI RunNo: 94	54.2 69 PA Method 3 8349 579967 LowLimit 69 PA Method 3 8349	147 8015M/D: Dies Units: %Rec HighLimit 147 8015M/D: Dies	0 sel Range %RPD	0 Organics RPDLimit	

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- в Analyte detected in the associated Method Blank
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- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
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# **QC SUMMARY REPORT** Hall Environmental Analysis Laboratory, Inc.

Client: Project:	Vertex Re Tomcat 10		-	Inc.							
Sample ID:	lcs-76209	SampT	ype: LC	S	Tes	tCode: EF	PA Method	8015D: Gaso	ine Range		
Client ID:	LCSS	Batch	n ID: <b>762</b>	209	F	RunNo: <b>98</b>	3241				
Prep Date:	7/14/2023	Analysis E	Date: 7/*	18/2023	S	SeqNo: 3	576385	Units: mg/K	g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Rang Surr: BFB	ge Organics (GRO)	24 2000	5.0	25.00 1000	0	96.6 201	70 15	130 244			
Sample ID:	mb-76209	SampT	уре: МВ	LK	Tes	tCode: EF	PA Method	8015D: Gaso	ine Range		
Client ID:	PBS	Batch	n ID: <b>762</b>	209	F	RunNo: <b>98</b>	3241				
Prep Date:	7/14/2023	Analysis D	Date: 7/*	18/2023	S	SeqNo: 3	576386	Units: mg/K	g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Rang Surr: BFB	ge Organics (GRO)	ND 790	5.0	1000		79.1	15	244			
Sample ID:	lcs-76215	SampT	ype: LC	S	Tes	tCode: EF	PA Method	8015D: Gaso	ine Range		
Client ID:	LCSS	Batch	n ID: <b>762</b>	215	F	RunNo: <b>98</b>	3285				
Prep Date:	7/14/2023	Analysis D	Date: 7/*	18/2023	S	SeqNo: 3	577324	Units: mg/K	g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
	ge Organics (GRO)	23	5.0	25.00	0	90.3	70	130			
Surr: BFB		2000		1000		197	15	244			
Sample ID:	2307633-035ams	SampT	туре: <b>МS</b>	;	Tes	tCode: EF	PA Method	8015D: Gaso	ine Range		
Client ID:	BS23-27 0.5'	Batch	n ID: <b>762</b>	215	F	RunNo: <b>98</b>	3285				
Prep Date:	7/14/2023	Analysis E	Date: 7/*	18/2023	S	SeqNo: 3	577930	Units: mg/K	g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
-	ge Organics (GRO)	22	4.9	24.46	0	90.0	70	130			
Surr: BFB		1900		978.5		194	15	244			
Sample ID:	2307633-035amsd	SampT	уре: <b>МS</b>	D	Tes	tCode: EF	PA Method	8015D: Gaso	ine Range		
Client ID:	BS23-27 0.5'	Batch	n ID: 762	215	F	RunNo: <b>98</b>	3285				
Prep Date:	7/14/2023	Analysis E	Date: 7/	18/2023	5	SeqNo: 3	577931	Units: mg/K	g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
	ge 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	
Sample ID:	mb-76215	SampT	уре: МВ	LK	Tes	tCode: EF	PA Method	8015D: Gaso	ine Range		
Client ID:	PBS	Batcl	n ID: <b>762</b>	215	F	RunNo: <b>98</b>	3285				
Prep Date:	7/14/2023	Analysis E	Date: 7/*	18/2023	S	SeqNo: 3	577949	Units: mg/K	g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

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

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	esources Services, In 6 State 006	c.							
Sample ID: mb-76215	SampType: MBLK		Tes	tCode: EF	PA Method	8015D: Gasoli	ine Range		
Client ID: PBS	Batch ID: 76215		F	RunNo: <b>98</b>	8285				
Prep Date: 7/14/2023	Analysis Date: 7/18/2	2023	S	SeqNo: 3	577949	Units: mg/K	g		
Analyte	Result PQL S	PK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO) Surr: BFB	ND 5.0 970	1000		96.8	15	244			
Sample ID: Ics-76212	SampType: LCS		Tes	tCode: EF	PA Method	8015D: Gasoli	ine Range		
Client ID: LCSS	Batch ID: 76212		F	RunNo: <b>98</b>	8314				
Prep Date: 7/14/2023	Analysis Date: 7/18/2	2023	5	SeqNo: 3	578083	Units: mg/K	g		
Analyte	Result PQL S	PK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23 5.0	25.00	0	90.5	70	130			
Surr: BFB	1900	1000		189	15	244			
Sample ID: mb-76212	SampType: MBLK		Tes	tCode: EF	PA Method	8015D: Gasoli	ine Range		
Client ID: PBS	Batch ID: 76212		F	RunNo: <b>98</b>	8314				
Prep Date: 7/14/2023	Analysis Date: 7/18/2	2023	S	SeqNo: 3	578085	Units: mg/K	9		
Analyte	Result PQL S	PK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO) Surr: BFB	ND 5.0 830	1000		83.1	15	244			
Sample ID: 2307633-015ams	SampType: MS		Tes	tCode: EF	PA Method	8015D: Gasoli	ine Range		
Client ID: BS23-07 0.5'	Batch ID: 76212		F	RunNo: <b>98</b>	8314				
Prep Date: 7/14/2023	Analysis Date: 7/18/2	2023	5	SeqNo: 3	578089	Units: mg/Kg	g		
Analyte	Result PQL S	PK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22 4.9	24.39	0	89.5	70	130			<u> </u>
Surr: BFB	1900	975.6		196	15	244			
Sample ID: 2307633-015amsd	SampType: MSD		Tes	tCode: EF	PA Method	8015D: Gasoli	ine Range		
Client ID: BS23-07 0.5'	Batch ID: 76212		F	RunNo: <b>98</b>	8314				
Prep Date: 7/14/2023	Analysis Date: 7/18/2	2023	S	SeqNo: 3	578091	Units: mg/K	9		
Analyte	Result PQL S	PK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range 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: Ics-76261	SampType: LCS		Tes	tCode: EF	PA Method	8015D: Gasoli	ine Range		
Client ID: LCSS	Batch ID: 76261		F	RunNo: <b>98</b>	8314				
Prep Date: 7/17/2023	Analysis Date: 7/19/2	2023	S	SeqNo: 3	578132	Units: %Rec			
Analyte	Result PQL S	PK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

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ND Not Detected at the Reporting Limit

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- B Analyte detected in the associated Method Blank
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- J Analyte detected below quantitation limits
- P Sample pH Not In Range

RL Reporting Limit

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Client: Project:		ex Resources Service cat 16 State 006	es, Inc.							
Sample ID:	lcs-76261	SampType: L	.CS	Tes	tCode: E	PA Method	8015D: Gasoli	ne Range		
Client ID:	LCSS	Batch ID: 7	6261	R	RunNo: 🤉	98314				
Prep Date:	7/17/2023	Analysis Date:	7/19/2023	S	SeqNo: 3	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: <b>N</b>	IBLK	Tes	tCode: E	PA Method	8015D: Gasoli	ne Range		
Client ID:	PBS	Batch ID: 7	6261	R	RunNo: 🤉	98314				
Prep Date:	7/17/2023	Analysis Date:	7/19/2023	S	SeqNo: 3	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			

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- J Analyte detected below quantitation limits
- P Sample pH Not In Range
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24-Jul-23

# **QC SUMMARY REPORT** Hall Environmental Analysis Laboratory, Inc.

	Resources S 16 State 00	-	Inc.							
Sample ID: Ics-76209	SampT	ype: LC	S	Tes	stCode: EF	A Method	8021B: Volat	iles		
Client ID: LCSS	Batch	n ID: <b>762</b>	209	F	RunNo: <b>98</b>	3241				
Prep Date: 7/14/2023	Analysis D	Date: 7/*	18/2023	ç	SeqNo: 35	576413	Units: mg/K	(g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	- %RPD	RPDLimit	Qual
Benzene	0.88	0.025	1.000	0	87.7	20wEiniit 70	130			Quai
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: mb-76209	SampT	уре: МЕ	BLK	Tes	tCode: EF	PA Method	8021B: Volat	iles		
Client ID: PBS	Batch	n ID: <b>762</b>	209	F	RunNo: <b>98</b>	3241				
Prep Date: 7/14/2023	Analysis D	Date: 7/	18/2023	S	SeqNo: 35	576414	Units: <b>mg/K</b>	(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	SampT	ype: LC	S	Tes	stCode: EF	PA Method	8021B: Volat	iles		
Client ID: LCSS	Batch	n ID: <b>762</b>	215	F	RunNo: <b>98</b>	3285				
Prep Date: 7/14/2023	Analysis D	Date: 7/	18/2023	5	SeqNo: 35	577952	Units: <b>mg/K</b>	(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: mb-76215	SampT	уре: МЕ	BLK	Tes	tCode: EF	A Method	8021B: Volat	iles		
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	5	SeqNo: 35	577953	Units: <b>mg/K</b>	(g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
· · · ·		0.050								
	ND									
Ethylbenzene Xylenes, Total	ND ND 0.98	0.10	1.000		97.8	39.1	146			

\* 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

PQL Practical Quanitative Limit

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

Analyte detected in the associated Method Blank В

Е Above Quantitation Range/Estimated Value

J Analyte detected below quantitation limits

Р Sample pH Not In Range

RL Reporting Limit Page 60 of 62

2307633

24-Jul-23

# QC SUMMARY REPORT Hall Environmental Analysis Laboratory, Inc.

Client: Vertex Re Project: Tomcat 10		-	Inc.							
Sample ID: 2307633-036ams	Samp <sup>-</sup>	Type: MS	;	Tes	tCode: EF	A Method	8021B: Volat	iles		
Client ID: BS23-28 0.5'	Batc	h ID: 762	215	F	RunNo: <b>98</b>	3285				
Prep Date: 7/14/2023	Analysis [	Date: <b>7/</b> *	18/2023	Ş	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	Samp	Type: MS	D	Tes	tCode: EF	A Method	8021B: Volat	iles		
Client ID: BS23-28 0.5'	Batc	h ID: 762	215	F	RunNo: <b>98</b>	3285				
Prep Date: 7/14/2023	Analysis [	Date: 7/	18/2023	S	SeqNo: 35	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	Type: LC	s	Tes	tCode: EF	PA Method	8021B: Volat	iles		
Client ID: LCSS	Batc	h ID: <b>76</b> 2	212	F	RunNo: <b>98</b>	3314				
Prep Date: 7/14/2023	Analysis [	Date: 7/	18/2023	S	SeqNo: 35	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	Samp	Туре: <b>МЕ</b>	BLK	Tes	tCode: EF	A Method	8021B: Volat	iles		
Client ID: PBS	Batc	h ID: 762	212	F	RunNo: <b>98</b>	3314				
Prep Date: 7/14/2023	Analysis [	Date: <b>7/</b> *	18/2023	S	SeqNo: 35	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			

\* Value exceeds 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

WO#: **2307633** 

24-Jul-23

# **QC SUMMARY REPORT** Hall Environmental Analysis Laboratory, Inc.

Client: Project:	Vertex Re Tomcat 10			Inc.							
Sample ID:	2307633-016ams	SampT	Гуре: <b>МS</b>	;	Tes	tCode: EF	PA Method	8021B: Volatil	es		
Client ID:	BS23-08 0.5'	Batch	h ID: 762	212	F	RunNo: <b>98</b>	3314				
Prep Date:	7/14/2023	Analysis D	Date: <b>7/</b> *	18/2023	S	SeqNo: 35	578183	Units: mg/Kg	]		
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-Brom	ofluorobenzene	0.80		0.9814		81.3	39.1	146			
Sample ID:	2307633-016amsd	SampT	Гуре: <b>МS</b>	D	Tes	tCode: EF	PA Method	8021B: Volatil	es		
Client ID:	BS23-08 0.5'	Batch	h ID: 762	212	F	RunNo: <b>98</b>	3314				
Prep Date:	7/14/2023	Analysis E	Date: 7/	18/2023	S	SeqNo: 35	578184	Units: mg/Kg	9		
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-Brom	ofluorobenzene	0.82		0.9766		83.7	39.1	146	0	0	
Sample ID:	lcs-76261	SampT	Гуре: <b>LC</b>	S	Tes	tCode: EF	PA Method	8021B: Volatil	es		
Client ID:	LCSS	Batcl	h ID: 762	261	F	RunNo: <b>98</b>	3314				
Prep Date:	7/17/2023	Analysis D	Date: <b>7/</b> *	19/2023	S	SeqNo: 35	578205	Units: %Rec			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Brom	ofluorobenzene	0.79		1.000		79.1	39.1	146			
Sample ID:	mb-76261	SampT	Гуре: МЕ	BLK	Tes	tCode: EF	PA Method	8021B: Volatil	es		
Client ID:	PBS	Batch	h ID: 762	261	F	RunNo: <b>98</b>	3314				
Prep Date:	7/17/2023	Analysis E	Date: <b>7/</b> *	19/2023	S	SeqNo: 35	578206	Units: %Rec			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Brom	ofluorobenzene	0.79		1.000		78.7	39.1	146			

#### **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
- PQL Practical Quanitative Limit
- % Recovery outside of standard limits. If undiluted results may be estimated. S
- Analyte detected in the associated Method Blank В
- Е Above Quantitation Range/Estimated Value
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

2307633

24-Jul-23

HALL ENVIRONMENTAL ANALYSIS LABORATORY	TEL: 505-345-3975	4901 Hawkins NE Iquerque, NM 87109	Sam	ple Log-In C	heck List
Client Name: Vertex Resources Services, Inc.	Work Order Number:	2307633		RcptNo:	1
Received By: Tracy Casarrubias	7/14/2023 7:30:00 AM				
Completed By: Tracy Casarrubias	7/14/2023 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>			
Log In 3. Was an attempt made to cool the samples	?	Yes 🗸	No 🗌	NA 🗌	
4. Were all samples received at a temperatur	e 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) prope	erly preserved?	Yes 🗹	No 🗌		
8. Was preservative added to bottles?		Yes	No 🗹	NA 🗌	
9. Received at least 1 vial with headspace <1	/4" for AQ VOA?	Yes	No 🗌	NA 🔽	
10. Were any sample containers received bro	ken?	Yes	No 🗹	# of preserved bottles checked	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)		Yes 🗹	No 🗌	for pH:	>12 unless noted)
12. Are matrices correctly identified on Chain of	of Custody?	Yes 🗹	No 🗌	Adjusted?	
13. 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:	7~7/14/23
Special Handling (if applicable)					
15. Was client notified of all discrepancies wit	h this order?	Yes	No 🗌	NA 🗹	
Person Notified:	Date:		inschutichen dietr		
By Whom:	Via: [	] eMail 🗌 Phor	ne 🗌 Fax	In Person	
Regarding: Client Instructions: Mailing addres:	- shase sumber and Fassil	(Fou are missing of	COC TM	C 7/14/02	
16. Additional remarks:	s.phone number and Email	reax are missing of		C 1/14/25	
17. Cooler Information	0				
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Page 1 of 1					
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Page 248 of 319

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ļ	09:05 Soil	WS23-02 0-0.5'	1, 4oz jar	007	×		×			
	09:10 Soil	WS23-03 0-0.5'	1, 4oz jar	83	×		×			
		WS23-04 0-0.5'	1, 4oz jar	CON	×		×			
		WS23-05 0-0.5'	1, 4oz jar	005	×		×	-		
_		WS23-06 0-0.5'	1, 4oz jar	2010	×		×			
	09:30 Soil	WS23-07 0-0.5	1, 4oz jar	007	×		×			
		WS23-08 0-0.5'	1, 4oz jar	006	×		×			
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	10:00 Soil	BS23-08 0.5'	1, 4oz jar	J	016	×	×		+	×			
	10:00 Soil	BS23-09 0.5'	1, 4oz jar	-	E10	×	×		+	×			
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L	10:05 Soil	BS23-11 0.5'	1, 4oz jar		019	×	×			×			
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07/12/23 10:40		BS23-25 0.5'	1, 4oz jar		033	× ×			×			
	5 Soil	BS23-26 0.5'	1, 4oz jar		034	×			×			
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		BS23-28 0.5'	1, 4oz jar		036	×			×			
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If necessary, samples submitted to Hall Environmental may be subcontracted To other accredited faboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

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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

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 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

Andy Freeman Laboratory Manager 4901 Hawkins NE Albuquerque, NM 87109

CLIENT: Vertex Resources Services, Inc.

Tomcat 16 State 006

**Analytical Report** Lab Order 2307706

Date Reported: 7/24/2023

## Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: BS23-49 0.5' Collection Date: 7/13/2023 7:20:00 AM Received Date: 7/15/2023 7:30:00 AM

Lab ID: 2307706-001	Matrix: SOIL	Rece	vived Date:	7/15/2	023 7:30:00 AM
Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE	ORGANICS				Analyst: SB
Diesel Range Organics (DRO)	ND	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 RANG	E				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

- Н Holding times for preparation or analysis exceeded
- Not Detected at the Reporting Limit

ND PQL Practical Quanitative Limit

- % Recovery outside of standard limits. If undiluted results may be estimated. S
- Analyte detected in the associated Method Blank в
- Above Quantitation Range/Estimated Value Е
- J Analyte detected below quantitation limits

Р Sample pH Not In Range

RL Reporting Limit Page 1 of 34

Lab ID:

CLIENT: Vertex Resources Services, Inc.

Tomcat 16 State 006

2307706-002

**Analytical Report** Lab Order 2307706

## Hall Environmental Analysis Laboratory, Inc.

Date Reported: 7/24/2023 Client Sample ID: BS23-50 0.5' Collection Date: 7/13/2023 7:20:00 AM

Received Date: 7/15/2023 7:30:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OF	RGANICS				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

Matrix: SOIL

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 PQL Practical Quanitative Limit
- % Recovery outside of standard limits. If undiluted results may be estimated. S
- Analyte detected in the associated Method Blank в
- Above Quantitation Range/Estimated Value Е
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

Page 2 of 34

Lab ID:

CLIENT: Vertex Resources Services, Inc.

Tomcat 16 State 006

2307706-003

**Analytical Report** Lab Order 2307706

## Hall Environmental Analysis Laboratory, Inc.

Date Reported: 7/24/2023 Client Sample ID: BS23-51 0.5' Collection Date: 7/13/2023 7:25:00 AM

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	9.3	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	4.6	mg/Kg	1	7/19/2023 6:01:00 AM
Surr: BFB	77.6	15-244	%Rec	1	7/19/2023 6:01:00 AM
EPA METHOD 8021B: VOLATILES					Analyst: KMN
Benzene	ND	0.023	mg/Kg	1	7/19/2023 6:01:00 AM
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
Chloride	ND	59	mg/Kg	20	7/18/2023 4:11:46 PM

Matrix: SOIL

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
- Not Detected at the Reporting Limit

ND PQL Practical Quanitative Limit

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

- Analyte detected in the associated Method Blank в
- Above Quantitation Range/Estimated Value Е
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range

RL Reporting Limit Page 3 of 34

CLIENT: Vertex Resources Services, Inc.

Tomcat 16 State 006

**Analytical Report** Lab Order 2307706

Date Reported: 7/24/2023

## Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: BS23-52 0.5' Collection Date: 7/13/2023 7:25:00 AM Received Date: 7/15/2023 7:30:00 AM

Lab ID: 2307706-004	Matrix: SOIL	Reco	eived Date:	7/15/2	023 7:30:00 AM
Analyses	Result	RL Qu	ual Units	DF	Date Analyzed
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 RANG	E				Analyst: KMN
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	7/19/2023 6:22:00 AM
Surr: BFB	78.9	15-244	%Rec	1	7/19/2023 6:22:00 AM
EPA METHOD 8021B: VOLATILES					Analyst: KMN
Benzene	ND	0.024	mg/Kg	1	7/19/2023 6:22:00 AM
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	1	7/19/2023 6:22:00 AM
Surr: 4-Bromofluorobenzene	77.5	39.1-146	%Rec	1	7/19/2023 6:22:00 AM
EPA METHOD 300.0: ANIONS					Analyst: SNS
Chloride	ND	59	mg/Kg	20	7/18/2023 4:24:07 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

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit PQL Practical Quanitative Limit

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

- Analyte detected in the associated Method Blank в
- Above Quantitation Range/Estimated Value Е
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range

RL Reporting Limit Page 4 of 34

Lab ID:

CLIENT: Vertex Resources Services, Inc.

Tomcat 16 State 006

2307706-005

**Analytical Report** Lab Order 2307706

## Hall Environmental Analysis Laboratory, Inc.

Date Reported: 7/24/2023 Client Sample ID: BS23-53 0.5' Collection Date: 7/13/2023 7:30:00 AM

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	9.3	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

Matrix: SOIL

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
- PQL Practical Quanitative Limit
- % Recovery outside of standard limits. If undiluted results may be estimated. S
- Analyte detected in the associated Method Blank в
- Above Quantitation Range/Estimated Value Е
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range

RL Reporting Limit Page 5 of 34

CLIENT: Vertex Resources Services, Inc.

Tomcat 16 State 006

**Analytical Report** Lab Order 2307706

Date Reported: 7/24/2023

## Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: BS23-54 0.5' Collection Date: 7/13/2023 7:30:00 AM Received Date: 7/15/2023 7:30:00 AM

Lab ID: 2307706-006	Matrix: SOIL	Rece	eived Date:	7/15/2	023 7:30:00 AM
Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE	ORGANICS				Analyst: <b>SB</b>
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 RANG	E				Analyst: KMN
Gasoline Range Organics (GRO)	ND	4.7	mg/Kg	1	7/19/2023 7:06:00 AM
Surr: BFB	80.6	15-244	%Rec	1	7/19/2023 7:06:00 AM
EPA METHOD 8021B: VOLATILES					Analyst: KMN
Benzene	ND	0.024	mg/Kg	1	7/19/2023 7:06:00 AM
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	1	7/19/2023 7:06:00 AM
Surr: 4-Bromofluorobenzene	76.8	39.1-146	%Rec	1	7/19/2023 7:06:00 AM
EPA METHOD 300.0: ANIONS					Analyst: SNS
Chloride	ND	60	mg/Kg	20	7/18/2023 4:48:48 PM

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

**Qualifiers:** 

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

- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit PQL Practical Quanitative Limit
- % Recovery outside of standard limits. If undiluted results may be estimated. S
- Analyte detected in the associated Method Blank в
- Above Quantitation Range/Estimated Value Е
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

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

Tomcat 16 State 006

**Analytical Report** Lab Order 2307706

Date Reported: 7/24/2023

## Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: BS23-55 0.5' Collection Date: 7/13/2023 7:35:00 AM Received Date: 7/15/2023 7:30:00 AM

Lab ID: 2307706-007	Matrix: SOIL	Rece	eived Date:	7/15/2	2023 7:30:00 AM
Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE	ORGANICS				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 RANG	E				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

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit PQL

Practical Quanitative Limit

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

- Analyte detected in the associated Method Blank в
- Above Quantitation Range/Estimated Value Е
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range Reporting Limit

RL

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Lab ID:

CLIENT: Vertex Resources Services, Inc.

Tomcat 16 State 006

2307706-008

**Analytical Report** Lab Order 2307706

## Hall Environmental Analysis Laboratory, Inc.

Date Reported: 7/24/2023 Client Sample ID: BS23-56 0.5' Collection Date: 7/13/2023 7:35:00 AM

Received Date: 7/15/2023 7:30:00 AM

Analyses	Result	RL Q	ual 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

Matrix: SOIL

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
- Not Detected at the Reporting Limit
- ND PQL Practical Quanitative Limit
- % Recovery outside of standard limits. If undiluted results may be estimated. S
- Analyte detected in the associated Method Blank в
- Above Quantitation Range/Estimated Value Е
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

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CLIENT: Vertex Resources Services, Inc.

Tomcat 16 State 006

**Analytical Report** Lab Order 2307706

Date Reported: 7/24/2023

## Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: BS23-57 0.5' Collection Date: 7/13/2023 8:10:00 AM Received Date: 7/15/2023 7:30:00 AM

Lab ID: 2307706-009	Matrix: SOIL	Rece	eived Date:	7/15/2	023 7:30:00 AM
Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE	ORGANICS				Analyst: <b>SB</b>
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 RANG	E				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

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit PQL Practical Quanitative Limit

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

- Analyte detected in the associated Method Blank в
- Above Quantitation Range/Estimated Value Е
- J Analyte detected below quantitation limits

Р Sample pH Not In Range Reporting Limit

RL

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Lab ID:

CLIENT: Vertex Resources Services, Inc.

Tomcat 16 State 006

2307706-010

**Analytical Report** Lab Order 2307706

## Hall Environmental Analysis Laboratory, Inc.

Date Reported: 7/24/2023 Client Sample ID: BS23-58 0.5' Collection Date: 7/13/2023 8:10:00 AM

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	9.3	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

Matrix: SOIL

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

**Qualifiers:** 

Value exceeds Maximum Contaminant Level. Sample Diluted Due to Matrix

D Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit PQL Practical Quanitative Limit

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

- Analyte detected in the associated Method Blank в
- Above Quantitation Range/Estimated Value Е
- J Analyte detected below quantitation limits

Р Sample pH Not In Range

RL Reporting Limit Page 10 of 34

Lab ID:

CLIENT: Vertex Resources Services, Inc.

Tomcat 16 State 006

2307706-011

**Analytical Report** Lab Order 2307706

## Hall Environmental Analysis Laboratory, Inc.

Date Reported: 7/24/2023 Client Sample ID: BS23-59 0.5' Collection Date: 7/13/2023 8:15:00 AM

Received Date: 7/15/2023 7:30:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OF	GANICS				Analyst: SB
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	4.7	mg/Kg	1	7/19/2023 7:36:00 PM
Surr: BFB	79.9	15-244	%Rec	1	7/19/2023 7:36:00 PM
EPA METHOD 8021B: VOLATILES					Analyst: KMN
Benzene	ND	0.023	mg/Kg	1	7/19/2023 7:36:00 PM
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	1	7/19/2023 7:36:00 PM
Surr: 4-Bromofluorobenzene	77.0	39.1-146	%Rec	1	7/19/2023 7:36:00 PM
EPA METHOD 300.0: ANIONS					Analyst: SNS
Chloride	ND	60	mg/Kg	20	7/18/2023 5:50:31 PM

Matrix: SOIL

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
- PQL Practical Quanitative Limit

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

- Analyte detected in the associated Method Blank в
- Above Quantitation Range/Estimated Value Е
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

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Lab ID:

CLIENT: Vertex Resources Services, Inc.

Tomcat 16 State 006

2307706-012

**Analytical Report** Lab Order 2307706

## Hall Environmental Analysis Laboratory, Inc.

Date Reported: 7/24/2023 Client Sample ID: BS23-60 0.5' Collection Date: 7/13/2023 8:15:00 AM

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	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

Matrix: SOIL

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
- Not Detected at the Reporting Limit
- ND PQL Practical Quanitative Limit
- % Recovery outside of standard limits. If undiluted results may be estimated. S
- Analyte detected in the associated Method Blank в
- Above Quantitation Range/Estimated Value Е
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

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CLIENT: Vertex Resources Services, Inc.

Tomcat 16 State 006

**Analytical Report** Lab Order 2307706

Date Reported: 7/24/2023

## Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: BS23-61 0.5' Collection Date: 7/13/2023 8:25:00 AM Received Date: 7/15/2023 7:30:00 AM

Lab ID:      2307706-013      Matrix:      SOIL		Rece	<b>Received Date:</b> 7/15/2023 7:30:0				
Analyses	Result	RL Qu	al Units	DF	Date Analyzed		
EPA METHOD 8015M/D: DIESEL RANGE	ORGANICS				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 RANG	E				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

- Н
- Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit PQL Practical Quanitative Limit
- % Recovery outside of standard limits. If undiluted results may be estimated. S
- Analyte detected in the associated Method Blank в
- Above Quantitation Range/Estimated Value Е
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

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

Tomcat 16 State 006

**Analytical Report** Lab Order 2307706

Date Reported: 7/24/2023

## Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: BS23-62 0.5' Collection Date: 7/13/2023 8:25:00 AM Received Date: 7/15/2023 7:30:00 AM

Lab ID:      2307706-014      Matrix:      SOIL		Reco	<b>Received Date:</b> 7/15/2023 7:30:00 AM				
Analyses	Result	RL Qu	al Units	DF	Date Analyzed		
EPA METHOD 8015M/D: DIESEL RANG	E ORGANICS				Analyst: <b>SB</b>		
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 RAN	GE				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

- Н Holding times for preparation or analysis exceeded
- Not Detected at the Reporting Limit
- ND PQL Practical Quanitative Limit
- % Recovery outside of standard limits. If undiluted results may be estimated. S
- Analyte detected in the associated Method Blank в
- Above Quantitation Range/Estimated Value Е
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

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CLIENT: Vertex Resources Services, Inc.

Tomcat 16 State 006

**Analytical Report** Lab Order 2307706

Date Reported: 7/24/2023

## Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: BS23-63 0.5' Collection Date: 7/13/2023 8:30:00 AM Received Date: 7/15/2023 7:30:00 AM

Lab ID:      2307706-015      Matrix:      SOIL		Rece	<b>Received Date:</b> 7/15/2023 7:30:00 AM				
Analyses	Result	RL Qu	al Units	DF	Date Analyzed		
EPA METHOD 8015M/D: DIESEL RANGE	ORGANICS				Analyst: <b>SB</b>		
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 RANGI	E				Analyst: KMN		
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

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit PQL Practical Quanitative Limit

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

- Analyte detected in the associated Method Blank в
- Above Quantitation Range/Estimated Value Е
- J Analyte detected below quantitation limits

Р Sample pH Not In Range

RL Reporting Limit Page 15 of 34

Lab ID:

CLIENT: Vertex Resources Services, Inc.

Tomcat 16 State 006

2307706-016

**Analytical Report** Lab Order 2307706

## Hall Environmental Analysis Laboratory, Inc.

Date Reported: 7/24/2023 Client Sample ID: BS23-64 0.5' Collection Date: 7/13/2023 8:30:00 AM

Received Date: 7/15/2023 7:30:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OF	Analyst: SB				
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: <b>KMN</b>
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

Matrix: SOIL

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 PQL Practical Quanitative Limit

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

- Analyte detected in the associated Method Blank в
- Above Quantitation Range/Estimated Value Е
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range

RL Reporting Limit Page 16 of 34

Lab ID:

CLIENT: Vertex Resources Services, Inc.

Tomcat 16 State 006

2307706-017

**Analytical Report** Lab Order 2307706

## Hall Environmental Analysis Laboratory, Inc.

Date Reported: 7/24/2023 Client Sample ID: BS23-65 0.5' Collection Date: 7/13/2023 8:40:00 AM

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	EPA METHOD 8015M/D: DIESEL RANGE ORGANICS					
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: KMN	
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	

Matrix: SOIL

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 PQL Practical Quanitative Limit

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

- Analyte detected in the associated Method Blank в
- Above Quantitation Range/Estimated Value Е
- J Analyte detected below quantitation limits

Р Sample pH Not In Range

RL Reporting Limit Page 17 of 34

Lab ID:

CLIENT: Vertex Resources Services, Inc.

Tomcat 16 State 006

2307706-018

**Analytical Report** Lab Order 2307706

## Hall Environmental Analysis Laboratory, Inc.

Date Reported: 7/24/2023 Client Sample ID: BS23-66 0.5' Collection Date: 7/13/2023 8:40:00 AM

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	Analyst: SB				
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

Matrix: SOIL

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 PQL Practical Quanitative Limit

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

- Analyte detected in the associated Method Blank в
- Above Quantitation Range/Estimated Value Е
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range

RL Reporting Limit Page 18 of 34

Lab ID:

CLIENT: Vertex Resources Services, Inc.

Tomcat 16 State 006

2307706-019

Analytical Report Lab Order 2307706

## Hall Environmental Analysis Laboratory, Inc.

Date Reported: 7/24/2023 Client Sample ID: BS23-67 0.5' Collection Date: 7/13/2023 8:45:00 AM

Received Date: 7/15/2023 7:30:00 AM

Analyses	Result	RL Q	ual Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OR	Analyst: SB				
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	4.9	mg/Kg	1	7/19/2023 11:14:00 PM
Surr: BFB	81.6	15-244	%Rec	1	7/19/2023 11:14:00 PM
EPA METHOD 8021B: VOLATILES					Analyst: KMN
Benzene	ND	0.025	mg/Kg	1	7/19/2023 11:14:00 PM
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	1	7/19/2023 11:14:00 PM
Surr: 4-Bromofluorobenzene	76.4	39.1-146	%Rec	1	7/19/2023 11:14:00 PM
EPA METHOD 300.0: ANIONS					Analyst: SNS
Chloride	ND	60	mg/Kg	20	7/18/2023 7:53:57 PM

Matrix: SOIL

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

**Qualifiers:** 

- Value exceeds Maximum Contaminant Level. Sample Diluted Due to Matrix
- D Sample Diluted Due to Matrix
  H Holding times for preparation or analysis exceed.
- H Holding times for preparation or analysis exceeded
- NDNot Detected at the Reporting LimitPQLPractical 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

Lab ID:

CLIENT: Vertex Resources Services, Inc.

Tomcat 16 State 006

2307706-020

**Analytical Report** Lab Order 2307706

## Hall Environmental Analysis Laboratory, Inc.

Date Reported: 7/24/2023 Client Sample ID: BS23-68 0.5' Collection Date: 7/13/2023 8:45:00 AM

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	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: KMN
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: KMN
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

Matrix: SOIL

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 PQL Practical Quanitative Limit

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

- Analyte detected in the associated Method Blank в
- Above Quantitation Range/Estimated Value Е
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range

RL Reporting Limit Page 20 of 34

Analytical Report Lab Order 2307706

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 Result **RL** Qual Units DF **Date Analyzed** Analyses EPA METHOD 8015M/D: DIESEL RANGE ORGANICS Analyst: DGH 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 7/19/2023 2:28:59 AM 59 mg/Kg 20 **EPA METHOD 8260B: VOLATILES SHORT LIST** Analyst: RAA 0.025 7/18/2023 12:57:07 PM Benzene ND mg/Kg 1 Toluene ND 7/18/2023 12:57:07 PM 0.050 mg/Kg 1 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 %Rec 7/18/2023 12:57:07 PM 64.8-147 1 Surr: 4-Bromofluorobenzene 99.0 62.1-144 %Rec 1 7/18/2023 12:57:07 PM Surr: Dibromofluoromethane 73-145 %Rec 1 7/18/2023 12:57:07 PM 109 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 mg/Kg 7/18/2023 12:57:07 PM 5.0 1 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. Sample Diluted Due to Matrix

D Sample Diluted Due to MatrixH Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

POL 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

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Lab ID:

CLIENT: Vertex Resources Services, Inc.

Tomcat 16 State 006

2307706-022

**Analytical Report** Lab Order 2307706

Date Reported: 7/24/2023

## Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: BS23-70 0.5' Collection Date: 7/13/2023 8:50:00 AM Received Date: 7/15/2023 7:30:00 AM

Analyses	Result	RL Qua	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGA	ANICS				Analyst: DGH
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
EPA METHOD 8260B: VOLATILES SHORT LIST	Г				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 RANGE					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

Matrix: SOIL

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

**Qualifiers:** 

\* Value exceeds Maximum Contaminant Level. Sample Diluted Due to Matrix

D Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit PQL Practical Quanitative Limit

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

Analyte detected in the associated Method Blank в

Above Quantitation Range/Estimated Value Е

- J Analyte detected below quantitation limits
- Р Sample pH Not In Range

RL Reporting Limit Page 22 of 34

Lab ID:

CLIENT: Vertex Resources Services, Inc.

Tomcat 16 State 006

2307706-023

**Analytical Report** Lab Order 2307706

Date Reported: 7/24/2023

## Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: BS23-71 0.5' Collection Date: 7/13/2023 8:55:00 AM Received Date: 7/15/2023 7:30:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE O	Analyst: DGH				
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 RA	NGE				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

Matrix: SOIL

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

**Qualifiers:** 

Value exceeds Maximum Contaminant Level. Sample Diluted Due to Matrix

D Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit PQL Practical Quanitative Limit

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

Analyte detected in the associated Method Blank в

Above Quantitation Range/Estimated Value Е

J Analyte detected below quantitation limits

Р Sample pH Not In Range

RL Reporting Limit Page 23 of 34

Lab ID:

CLIENT: Vertex Resources Services, Inc.

Tomcat 16 State 006

2307706-024

**Analytical Report** Lab Order 2307706

Date Reported: 7/24/2023

## Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: BS23-72 0.5' Collection Date: 7/13/2023 8:55:00 AM Received Date: 7/15/2023 7:30:00 AM

Analyses	Result	RL Qu	ual Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OR	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	mg/Kg	20	7/19/2023 3:06:01 AM
EPA METHOD 8260B: VOLATILES SHORT LI	ST				Analyst: RAA
Benzene	ND	0.025	mg/Kg	1	7/18/2023 3:14:57 PM
Toluene	ND	0.050	mg/Kg	1	7/18/2023 3:14:57 PM
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	114	64.8-147	%Rec	1	7/18/2023 3:14:57 PM
Surr: 4-Bromofluorobenzene	96.1	62.1-144	%Rec	1	7/18/2023 3:14:57 PM
Surr: Dibromofluoromethane	116	73-145	%Rec	1	7/18/2023 3:14:57 PM
Surr: Toluene-d8	98.9	70-130	%Rec	1	7/18/2023 3:14:57 PM
EPA METHOD 8015D MOD: GASOLINE RANG	θE				Analyst: RAA
Gasoline Range Organics (GRO)	ND	5.0	mg/Kg	1	7/18/2023 3:14:57 PM
Surr: BFB	93.0	70-130	%Rec	1	7/18/2023 3:14:57 PM

Matrix: SOIL

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

**Qualifiers:** 

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

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Lab ID:

CLIENT: Vertex Resources Services, Inc.

Tomcat 16 State 006

2307706-025

**Analytical Report** Lab Order 2307706

Date Reported: 7/24/2023

## Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: BS23-73 0.5' Collection Date: 7/13/2023 9:00:00 AM Received Date: 7/15/2023 7:30:00 AM

Analyses	Result	RL Qua	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGA	NICS				Analyst: DGH
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

Matrix: SOIL

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

**Qualifiers:** 

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

RL

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<b>C</b>		ental Analysis Laborat	ory, Inc.	2307706 24-Jul-23
Client: Project:		tex Resources Services, Inc. ncat 16 State 006		
Sample ID:	MB-76284	SampType: <b>MBLK</b>	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: mg/Kg	
Analyte Chloride		Result PQL SPK value ND 1.5	e SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit	Qual
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	
Analyte		Result PQL SPK value	e SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit	Qual
Chloride		14 1.5 15.00		
Sample ID:	MB-76308	SampType: mblk	TestCode: EPA Method 300.0: Anions	
Client ID:	PBS	Batch ID: 76308	RunNo: 98334	
Prep Date:	7/18/2023	Analysis Date: 7/18/2023	SeqNo: 3578775 Units: mg/Kg	
Analyte Chloride		Result PQL SPK value ND 1.5	e SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit	Qual
	LCS-76308	SampType: Ics	TestCode: EPA Method 300.0: Anions	
Client ID:	LCSS	Batch ID: 76308	RunNo: 98334	
Prep Date:	7/18/2023	Analysis Date: 7/18/2023	SeqNo: 3578776 Units: mg/Kg	
Analyte		Result PQL SPK value	e SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit	Qual
Chloride		14 1.5 15.00	0 92.3 90 110	
Sample ID:	MB-76292	SampType: <b>mblk</b>	TestCode: EPA Method 300.0: Anions	
Client ID:	PBS	Batch ID: 76292	RunNo: 98334	
Prep Date:	7/18/2023	Analysis Date: 7/18/2023	SeqNo: 3578824 Units: mg/Kg	
Analyte		Result PQL SPK value	e SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit	Qual
			5	

Chloride	ND	1.5								
Sample ID: LCS-76292	SampT	ype: Ics		Tes	tCode: EF	PA Method	300.0: Anions	6		
Client ID: LCSS	Batch	n ID: 762	292	F	RunNo: <b>98</b>	3334				
Prep Date: 7/18/2023	Analysis D	ate: 7/	18/2023	5	SeqNo: 3	578825	Units: mg/K	g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	92.5	90	110			

#### Qualifiers:

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

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# QC SUMMARY REPORT Hall Environmental Analysis Laboratory, Inc.

	esources Servic 6 State 006	ees, Inc.							
Sample ID: LCS-76267	SampType:	LCS	Tes	tCode: EP	A Method	8015M/D: Die:	sel Range	Organics	
Client ID: LCSS	Batch ID:	76267	F	RunNo: <b>98</b>	3282				
Prep Date: 7/17/2023	Analysis Date:	7/18/2023	Ş	SeqNo: 35	576989	Units: mg/K	g		
Analyte	Result PC	L 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	Tes	tCode: EP	A Method	8015M/D: Die	sel Range	Organics	
Client ID: BS23-49 0.5'	Batch ID:	76267	F	RunNo: <b>98</b>	3282				
Prep Date: 7/17/2023	Analysis Date:	7/18/2023	S	SeqNo: 35	576991	Units: mg/K	g		
Analyte	Result PC	L SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	47 9	9.4 47.13	0	98.8	54.2	135			
Surr: DNOP	4.8	4.713		103	69	147			
Sample ID: 2307706-001AMSI	SampType:	MSD	Tes	tCode: EP	A Method	8015M/D: Die:	sel Range	Organics	
Client ID: BS23-49 0.5'	Batch ID:	76267	F	RunNo: <b>98</b>	3282				
Prep Date: 7/17/2023	Analysis Date:	7/18/2023	S	SeqNo: 35	576992	Units: mg/K	g		
Analyte	Result PC	L SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	45 9	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: MB-76296	SampType:	MBLK	Tes	tCode: EP	A Method	8015M/D: Die:	sel Range	Organics	
Client ID: PBS	Batch ID:	76296	F	RunNo: <b>98</b>	3287				
Prep Date: 7/18/2023	Analysis Date:	7/18/2023	S	SeqNo: 35	577902	Units: mg/K	g		
Analyte	Result PG	L 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	SampType:	LCS	Tes	tCode: EP	A Method	8015M/D: Die:	sel Range	Organics	
Client ID: LCSS	Batch ID:	76296	F	RunNo: <b>98</b>	3287				
Prep Date: 7/18/2023	Analysis Date:	7/18/2023	Ş	SeqNo: 35	577903	Units: mg/K	g		
Analyte	Result PC	L 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			
Surr: DNOP	4.1	5.000		81.3	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

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WO#:

# QC SUMMARY REPORT Hall Environmental Analysis Laboratory, Inc.

	Resources S 16 State 00	,	Inc.							
Sample ID: MB-76267	SampT	Гуре: <b>МЕ</b>	BLK	Tes	tCode: EF	PA Method	8015M/D: Die	sel Range	Organics	
Client ID: PBS	Batcl	h ID: 762	267	F	RunNo: <b>98</b>	3282				
Prep Date: 7/17/2023	Analysis [	Date: 7/	18/2023	S	SeqNo: 3	578063	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		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

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# **QC SUMMARY REPORT** Hall Environmental Analysis Laboratory, Inc.

Client: Project:	Vertex Re Tomcat 10			Inc.							
Sample ID:	lcs-76261	SampT	ype: LC	s	Tes	tCode: EF	PA Method	8015D: Gasoli	ne Range		
Client ID:	LCSS	Batch	ID: 762	261	RunNo: 98314						
Prep Date:	7/17/2023	Analysis D	ate: 7/	19/2023	S	SeqNo: 3	578132	Units: mg/Kg	9		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Rang Surr: BFB	e Organics (GRO)	22 1800	5.0	25.00 1000	0	88.8 183	70 15	130 244			
Sample ID:	mb-76261	SampT	уре: МЕ	BLK	Tes	tCode: E	PA Method	8015D: Gasoli	ne Range		
Client ID:	PBS	Batch	ID: 762	261	F	RunNo: <b>9</b> 8	8314				
Prep Date:	7/17/2023	Analysis D	ate: 7/	19/2023	Ş	SeqNo: 3	578133	Units: mg/Kg	9		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Rang Surr: BFB	e Organics (GRO)	ND 790	5.0	1000		78.8	15	244			
Sample ID:	2307706-001ams	SampT	уре: МS	5	Tes	tCode: EF	PA Method	8015D: Gasoli	ne Range		
Client ID:	BS23-49 0.5'	Batch	ID: 762	261	F	RunNo: <b>9</b> 8	8314				
Prep Date:	7/17/2023	Analysis D	ate: 7/	19/2023	S	SeqNo: 3	578135	Units: mg/Kg	9		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
-	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	уре: <b>МS</b>	D	Tes	tCode: Ef	PA Method	8015D: Gasoli	ne Range		
Client ID:	BS23-49 0.5'	Batch	ID: 762	261	F	RunNo: <b>9</b> 8	8314				
Prep Date:	7/17/2023	Analysis D	ate: 7/	19/2023	Ş	SeqNo: 3	578136	Units: mg/Kg	9		
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	
Sample ID:	lcs-76293	SampT	ype: LC	s	Tes	tCode: EF	PA Method	8015D: Gasoli	ne Range		
Client ID:	LCSS	Batch	ID: 762	293	F	RunNo: <b>9</b>	8347				
Prep Date:	7/18/2023	Analysis D	ate: 7/	19/2023	S	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:	mb-76293	SampT	ype: ME	BLK	Tes	tCode: El	PA Method	8015D: Gasoli	ne Range		
Client ID:	PBS	Batch	ID: 762	293	F	RunNo: <b>9</b> 8	8347				
Prep Date:	7/18/2023	Analysis D	ate: 7/2	20/2023	S	SeqNo: 3	579526	Units: %Rec			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB		840	~-	1000		84.4	15	244			

**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

- PQL Practical Quanitative Limit
- % Recovery outside of standard limits. If undiluted results may be estimated. S
- Analyte detected in the associated Method Blank В
- Е Above Quantitation Range/Estimated Value
- J Analyte detected below quantitation limits
- Sample pH Not In Range
- Р RL Reporting Limit

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# QC SUMMARY REPORT Hall Environmental Analysis Laboratory, Inc.

Client: Project:	Vertex Re Tomcat 10			Inc.							
Sample ID:	lcs-76261	Samp	Туре: <b>LC</b>	S	Tes	tCode: EF	PA Method	8021B: Volat	iles		
Client ID:	LCSS	Batc	h ID: 76	261	F	RunNo: <b>98</b>	3314				
Prep Date:	7/17/2023	Analysis [	Date: 7/	19/2023	S	SeqNo: 3	578205	Units: mg/K	٢g		
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-Brom	ofluorobenzene	0.79		1.000		79.1	39.1	146			
Sample ID:	mb-76261	Samp	Туре: <b>МЕ</b>	BLK	Tes	tCode: EF	PA Method	8021B: Volat	iles		
Client ID:	PBS	Batc	h ID: <b>76</b> 2	261	F	RunNo: <b>98</b>	3314				
Prep Date:	7/17/2023	Analysis [	Date: 7/	19/2023	S	SeqNo: 3	578206	Units: mg/K	ζg		
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-Brom	ofluorobenzene	0.79		1.000		78.7	39.1	146			
Sample ID:	2307706-002ams	Samp	Туре: М	6	Tes	tCode: EF	PA Method	8021B: Volat	iles		
Client ID:	BS23-50 0.5'	Batc	h ID: <b>76</b> 2	261	F	RunNo: <b>98</b>	3314				
Prep Date:	7/17/2023	Analysis [	Date: 7/	19/2023	S	SeqNo: 3	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-Brom	ofluorobenzene	0.74		0.9569		77.2	39.1	146			
Sample ID:	2307706-002amsd	Samp	Туре: <b>М</b>	SD	Tes	tCode: EF	PA Method	8021B: Volat	iles		
Client ID:	BS23-50 0.5'	Batc	h ID: <b>76</b> 2	261	F	RunNo: <b>98</b>	3314				
Prep Date:	7/17/2023	Analysis [	Date: 7/	19/2023	S	SeqNo: 3	578210	Units: mg/K	(g		
Analyte		Result	PQL		SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
		0.00	0.024	0.9569	0	86.2	70	130	14.8	20	
Benzene		0.82	0.024								
Benzene Toluene		0.82 0.86	0.024	0.9569	0	89.5	70	130	16.1	20	
						89.5 91.4	70 70	130 130	16.1 16.6	20 20	
Toluene		0.86	0.048	0.9569	0						

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

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Client: Project:		Resources Sector 16 State 00		, Inc.							
Sample ID: Ics-	76293	SampT	ype: LC	S	Tes	tCode: E	PA Method	8021B: Volatil	es		
Client ID: LCS	SS	Batch	n ID: <b>76</b>	293	F	RunNo: 9	8347				
Prep Date: 7/1	18/2023	Analysis D	ate: 7/	20/2023	5	SeqNo: 3	579615	Units: %Rec			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluo	robenzene	0.78		1.000		78.2	39.1	146			
Sample ID: mb-	-76293	SampT	ype: ME	BLK	Tes	tCode: El	PA Method	8021B: Volatil	es		
Client ID: PBS	S	Batch	n ID: <b>76</b>	293	F	RunNo: 9	8347				
Prep Date: 7/1	18/2023	Analysis D	ate: 7/	20/2023	5	SeqNo: 3	579616	Units: %Rec			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluo	robenzene	0.77		1.000		76.7	39.1	146			

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- P Sample pH Not In Range
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# QC SUMMARY REPORT Hall Environmental Analysis Laboratory, Inc.

	esources S 6 State 00	,	Inc.									
Sample ID: Ics-76270	Samp	Туре: <b>LC</b>	S4	Tes	TestCode: EPA Method 8260B: Volatiles Short List							
Client ID: BatchQC	Batc	h ID: 762	270	RunNo: 98320								
Prep Date: 7/17/2023	Analysis I	Date: 7/	18/2023	ç	SeqNo: 3	578345	Units: mg/K	g				
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	BLK	Tes	tCode: EF	PA Method	8260B: Volati	iles Short	List			
Client ID: PBS	Batc	h ID: 762	270	F	RunNo: <b>98</b>	8320						
Prep Date: 7/17/2023	Analysis I	Date: 7/	18/2023	S	SeqNo: 3	578346	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: 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					
Sample ID: 2307706-022ams	Samp	Type: MS	64	Tes	tCode: EF	PA Method	8260B: Volati	iles Short	List			
Client ID: BS23-70 0.5'	Batc	h ID: 762	270	F	RunNo: <b>98</b>	8337						
Prep Date: 7/17/2023	Analysis I	Date: 7/	19/2023	5	SeqNo: 3	578959	Units: mg/K	g				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual		
Benzene	0.99	0.024	0.9766	0	102	75.8	123					
Toluene	0.95	0.049	0.9766	0.008856	96.5	68.3	130					
				0	96.6	76.6	132					
Ethylbenzene	0.94	0.049	0.9766	0								
,	0.94 2.9	0.049	2.930	0	98.3	74.7	132					
							132 147					
Ethylbenzene Xylenes, Total Surr: 1,2-Dichloroethane-d4 Surr: 4-Bromofluorobenzene	2.9		2.930		98.3	74.7 64.8						
Xylenes, Total Surr: 1,2-Dichloroethane-d4	2.9 0.55		2.930 0.4883		98.3 113	74.7	147					

#### **Qualifiers:**

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

WO#: 2307706 24-Jul-23

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**Client:** 

**Project:** 

Client ID:

Prep Date:

Sample ID: 2307706-022amsd

BS23-70 0.5'

7/17/2023

Vertex Resources Services, Inc.

SampType: MSD4

Batch ID: 76270

Analysis Date: 7/19/2023

Tomcat 16 State 006

20 20 20	
20	
20	
20	
0	
0	
0	
0	
	0 0

TestCode: EPA Method 8260B: Volatiles Short List

Units: mg/Kg

RunNo: 98337

SeqNo: 3578960

Qualifiers:

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- 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

WO#:	2307706
	24-Jul-23

**Client:** 

Vertex Resources Services, Inc.

Project:	Tomcat 1	6 State 00	6								
Sample ID:	2307706-021ams SampType: MS				TestCode: EPA Method 8015D Mod: Gasoline Range						
Client ID:	BS23-69 0.5'	Batch ID: 76270			RunNo: 98320						
Prep Date:	7/17/2023	Analysis Date: 7/18/2023			SeqNo: 3578301			Units: <b>mg/Kg</b>			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sasoline Rang	e Organics (GRO)	27	4.9	24.63	0	110	65.9	123			
Surr: BFB		470		492.6		95.2	70	130			
Sample ID:	2307706-021amsd SampType: MSD				TestCode: EPA Method 8015D Mod: Gasoline Range						
Client ID:	BS23-69 0.5'	Batcl	h ID: 762	270	RunNo: 98320						
Prep Date:	7/17/2023	Analysis Date: 7/18/2023			SeqNo: 3578302			Units: mg/Kg			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Basoline Rang	e 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:	cs-76270 SampType: LCS				TestCode: EPA Method 8015D Mod: Gasoline Range						
Client ID:	LCSS	Batch ID: 76270			RunNo: 98320						
Prep Date:	7/17/2023	Analysis Date: 7/18/2023			SeqNo: 3578322			Units: mg/Kg			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Basoline Rang	e Organics (GRO)	25	5.0	25.00	0	98.9	70	130			
Surr: BFB		490		500.0		99.0	70	130			
Sample ID:	mb-76270 SampType: MBLK			TestCode: EPA Method 8015D Mod: Gasoline Range							
Client ID:	BS Batch ID: 76270			RunNo: <b>98320</b>							
Prep Date:	7/17/2023	Analysis Date: 7/18/2023			SeqNo: 3578323 Units: mg/Kg				(g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
•	e Organics (GRO)	ND	5.0								
Surr: BFB		470		500.0		94.4	70	130			

#### Qualifiers:

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

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24-Jul-23
Client Name:       Varker Resources inc.       Work Order Number: 2307706       RcpINo: 1         Received By:       Juan Rojas       7/15/2023 7:30:00 AM       Juan Roja         Completed By:       Juan Rojas       7/15/2023 7:41:15 AM       Juan Roja         Chain of Custody       0 7 / 17 / 9.3       © 0 7 3 H       Juan Roja         Chain of Custody complete?       Yes       No       Not Present         1. Is Chain of Custody complete?       Yes       No       NA         2. How was the sample delivered?       Counfert       No       NA         3. Was an attempt made to cool the samplos?       Yes       No       NA         4. Were all samples received at a temperature of >0° C to 8.0°C       Yes       No       NA         5. Sample(s) in proper container(s)?       Yes       No       NA          6. Sufficient sample volume for indicated test(s)?       Yes       No       NA          9. Received at least 1 vial with headspace <1/a^* for AQ VOA?       Yes       No       NA          10. Were any sample containers received broker?       Yes       No       If of preserved broked for property preserved?       Yes       No          13. is to clear what analyses were requested?       Yes       No       If of p	ENVIRONMENTAL ANALYSIS LABORATORY TEL: 5	nvironmental Analysis Labor 4901 Hawki Albuquerque, NM 505-345-3975 FAX: 505-345 soite: www.hallenvironmenta	ns NE 87109 <b>Sam</b> -4107	ple Log-In Check List
Reviewed By:       SCM       07/17/23       @ 0734         Chain of Custody Complete?       Yes       No       No       Not Present         1.       bithin of Custody complete?       Yes       No       No         2.       How was the sample delivered?       Counter         Loa In       3.       Was an attempt made to cool the samples?       Yes       No       NA         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       NA         6.       Sufficient sample volume for indicated test(s)?       Yes       No       NA         7.       Are samples (except VOA and ONG) properly preserved?       Yes       No       NA         9.       Received at least 1 vial with headspace <1/4° for AQ VOA?		der Number: 2307706		RcptNo: 1
Reviewed By:       SCM       07/17/23       @ 0734         Chain of Custody       No       No       No       No         1.       6. Stain of Custody complete?       Yes       No       No       No         2.       How was the sample delivered?       Courier       Courier         2.       How was the sample delivered?       No       NA         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       NA          7.       Are samples (except VOA and ONG) properly preserved?       Yes       No       NA          9.       Received at least 1 vial with headspace <1/4" for AQ VOA?	Received By: Juan Rojas 7/15/2023	7:30:00 AM	Heaventy	
Chain of Custody         1. Is Chain of Custody complete?       Yes       No       ✓       Not Present         2. How was the sample delivered?       Courier         Load In       S. Was an attempt made to cool the samples?       Yes       No       NA         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. Sampla(s) in proper container(s)?       Yes       No       NA         6. Sufficient sample volume for indicated test(s)?       Yes       No       NA         7. Are samples (except VOA and ONG) properly preserved?       Yes       No       NA         9. Received at least 1 vial with headspace <1/a" for AQ VOA?	Completed By: Juan Rojas 7/15/2023	7:41:15 AM	Guarsa g	
1. Is Chain of Custody complete?       Yes       No       Not Present         2. How was the sample delivered?       Courier         Log In	Reviewed By: SCM 07/17/23 @	0734	-	
2. How was the sample delivered? Courier   Log In 3. Was an attempt made to cool the samples? Yes   3. Was an attempt made to cool the samples? Yes No   4. Were all samples received at a temperature of >0° C to 6.0°C Yes No   5. Sample(s) in proper container(s)? Yes No   6. Sufficient sample volume for indicated test(s)? Yes No   7. Are samples (except VOA and ONG) properly preserved? Yes No   8. Was preservative added to bottles? Yes No   9. Received at least 1 vial with headspace <1/4° for AQ VOA?	Chain of Custody	_		_
Log In         3. Was an attempt made to cool the samples?       Yes       No       NA         4. Were all samples received at a temperature of >0° C to 6.0°C       Yes       No       NA         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       NA         6. Sufficient sample volume for indicated test(s)?       Yes       No       NA         7. Are samples (except VOA and ONG) property preserved?       Yes       No       NA         9. Received at least 1 viai with headspace <1/4" for AQ VOA?	1. Is Chain of Custody complete?	Yes	No 🗹	Not Present
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       NA         6. Sufficient sample volume for indicated test(s)?       Yes       No       NA         7. Are samples (except VOA and ONG) properly preserved?       Yes       No       NA         9. Received at least 1 vial with headspace <1/4" for AQ VOA?	2. How was the sample delivered?	<u>Courier</u>		
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       NA         6. Sufficient sample volume for indicated test(s)?       Yes       No          7. Are samples (except VOA and ONG) properly preserved?       Yes       No          8. Was preservative added to bottles?       Yes       No       NA         9. Received at least 1 vial with headspace <1/4° for AQ VOA?		Von M	No	NA
A. Here an samples reducted at a temperature of a to or	<ol><li>was an attempt made to cool the samples?</li></ol>	res 💌		
6. Sufficient sample volume for indicated test(s)?       Yes       No         7. Are samples (except VOA and ONG) properly preserved?       Yes       No         8. Was preservative added to bottles?       Yes       No       NA         9. Received at least 1 vial with headspace <1/4" for AQ VOA?	4. Were all samples received at a temperature of >0° C to 6	6.0°C Yes 🗹	No 🗌	
0. dimension comparison to transition context, in the status context, in thestitus context, in the status context, in the status	5. Sample(s) in proper container(s)?	Yes 🗹	No 🗌	
8. Was preservative added to bottles?       Yes       No       NA         9. Received at least 1 vial with headspace <1/4" for AQ VOA?	6. Sufficient sample volume for indicated test(s)?	Yes 🗹	No 🗌	
9. Received at least 1 vial with headspace <1/4" for AQ VOA?		Yes 🗹	No 🗌	
10. Were any sample containers received broken?       Yes       No       ✓       # of preserved bottles checked         11. Does paperwork match bottle labels?       Yes       No       □       # of preserved bottles checked         11. Does paperwork match bottle labels?       Yes       No       □       Image: state in the image: st	8. Was preservative added to bottles?	Yes	No 🗹	NA 🗌
11. Does paperwork match bottle labels?       Yes       No       bottles checked for pH:         (Note discrepancies on chain of custody)       Yes       No       Adjusted?         12. Are matrices correctly identified on Chain of Custody?       Yes       No       Adjusted?         13. Is it clear what analyses were requested?       Yes       No       Adjusted?         14. Were all holding times able to be met?       Yes       No       Checked by:       Tv 7       15       23         15. Was client notified of all discrepancies with this order?       Yes       No       NA       Image: Checked by:       Tv 7       15       23         16. Additional remarks:       Client missing mailing address, phone number and email address on COC. JR 7/15/23       17. Cooler Information       Seal No       Seal No       Seal Date       Signed By	9. Received at least 1 vial with headspace <1/4" for AQ VO/	A? Yes 🗌	No 🗌	NA 🗹
11. Does paperwork match bottle labels?       Yes ♥       No       bottles checked for pH:         (Note discrepancies on chain of custody)       Yes ♥       No       Adjusted?         12. Are matrices correctly identified on Chain of Custody?       Yes ♥       No       Adjusted?         13. Is it clear what analyses were requested?       Yes ♥       No       Adjusted?         14. Were all holding times able to be met?       Yes ♥       No       Checked by: 7v.7       15/23         15. Was client notified of all discrepancies with this order?       Yes       No       Na       ♥         15. Was client notified:       Date	10. Were any sample containers received broken?	Yes	No 🗹 🗍	# of preserved
12. Are matrices correctly identified on Chain of Custody? Yes ♥ No   13. Is it clear what analyses were requested? Yes ♥ No   14. Were all holding times able to be met? Yes ♥ No   14. Were all holding times able to be met? Yes ♥ No <b>Special Handling (if applicable)</b> 15. Was client notified of all discrepancies with this order? Yes No No NA ♥ Person Notified: By Whom: Client Instructions: Client Instructions: Client missing mailing address, phone number and email address on COC. JR 7/15/23 17. Cooler Information Cooler No Temp °C Condition Seal Intact Seal No Seal Date Signed By		Yes 🔽	No 🗌	bottles checked for pH:
13. Is it clear what analyses were requested?       Yes ♥       No       Image: Checked by: 7v.7 15/23         14. Were all holding times able to be met?       Yes ♥       No       Image: Checked by: 7v.7 15/23         14. Were all holding times able to be met?       Yes ♥       No       Image: Checked by: 7v.7 15/23         15. Was client notified of all discrepancies with this order?       Yes       No       NA         Person Notified:       Date       Date       Image: Client Instructions:         16. Additional remarks:       Client missing mailing address, phone number and email address on COC. JR 7/15/23       Image: Client Information         Cooler No       Temp °C       Condition       Seal Intact       Seal No       Seal Date       Signed By		Vec M	No 🗌	
14. Were all holding times able to be met?       Yes       No       Checked by: 70.7 [15] 25         14. Were all holding times able to be met?       Yes       No       Checked by: 70.7 [15] 25         Special Handling (if applicable)       15. Was client notified of all discrepancies with this order?       Yes       No       NA         Person Notified:				1 100
Special Handling (if applicable)         15. Was client notified of all discrepancies with this order?       Yes       No       NA         Person Notified:       Date	14. Were all holding times able to be met?		_	Checked by: 7~7 [15]23
15. Was client notified of all discrepancies with this order?       Yes       No       NA         Person Notified:	Special Handling (if applicable)			
By Whom:       Via:       eMail       Phone       Fax       In Person         Regarding:       Client Instructions:       Client Instructions:       Client Instructions:       Client Instructions:         16. Additional remarks:       Client missing mailing address,phone number and email address on COC. JR 7/15/23       Cooler Information         17. Cooler Information       Cooler No       Temp °C       Condition       Seal Intact       Seal No       Seal Date       Signed By		Yes	No 🗌	NA 🗹
By Whom:       Via:       eMail       Phone       Fax       In Person         Regarding:       Client Instructions:       Client Instructions:       Client Instructions:       Client Instructions:         16. Additional remarks:       Client missing mailing address,phone number and email address on COC. JR 7/15/23       Cooler Information         17. Cooler Information       Cooler No       Temp °C       Condition       Seal Intact       Seal No       Seal Date       Signed By	Person Notified:	Date		
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16. Additional remarks: Client missing mailing address,phone number and email address on COC. JR 7/15/23 17. <u>Cooler Information</u> <u>Cooler No Temp °C Condition Seal Intact Seal No Seal Date Signed By</u>	Regarding:			
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17. <u>Cooler Information</u> <u>Cooler No</u> Temp <sup>o</sup> C Condition Seal Intact Seal No Seal Date Signed By	16. Additional remarks:			
Cooler No Temp °C Condition Seal Intact Seal No Seal Date Signed By	Client missing mailing address, phone number and	email address on COC.	IR 7/15/23	
	17. <u>Cooler Information</u>			12
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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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Client:	Vertex		□ Standard X	X Rush_3-day_			NAL	VSTS	AALL ENVIRONMENTAL ANALYSTS LABORATORY	ATORY
(direct bill to	Devon-Han	(direct bill to Devon-Harvard Divest, see Remarks)					www.hall	environm	www.hallenvironmental.com	
Mailing Address:	ress:		Tomcat 16 State #006	06	490	4901 Hawkins NE	1	Albuque	Albuquerque, NM 87109	Q
			Project #:		Tel.	. 505-34	10	Fax 5	505-345-4107	
Phone #:			22E-02816-25				Ar	Analysis Request	tequest	
email or Fax#:	c#:		Project Manager:		1	-		¢O,	(tu	
QA/QC Package:	age:		Kent Stallings	р. 1.		s'8)		S '*O	əsdA	
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Accreditation:		Az Compliance		an						
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🗆 EDD (Type)	ce)		# of Coolers: )	inety			lete			
			Cooler Temp(including CF):	F. 1- 9- 0- 7=1.7			W 8	AO		
Date Time	le Matrix	Sample Name	Container Preservative Type and # Type	vative HEAL No. 2369306	\ XЭТ8 08:НЧТ	EDB (N	PAHs b AADA	85e0 ( <i>/</i> Cl' E' E	2) 0728 D letoT	
07/13/23 07:20	20 Soil	BS23-49 0.5'	1, 4oz jar	- 00 -	××			×		
07/13/23 07:20	20 Soil	BS23-50 0.5'	1, 4oz jar	000-				×		
07/13/23 07:25	25 Soil	BS23-51 0.5'	1, 4oz jar	-003	<u> </u>					
07/13/23 07:25	25 Soil	BS23-52 0.5'	1, 4oz jar	-004	××			×		
07/13/23 07:30	30 Soil	BS23-53 0.5'	1, 4oz jar	-005-	××			×		
07/13/23 07:30	30 Soil	BS23-54 0.5'	1, 4oz jar	-006	××			×		
07/13/23 07:35	35 Soil	BS23-55 0.5'	1, 4oz jar	-007	X X			×		
07/13/23 07:35	35 Soil	BS23-56 0.5'	1, 4oz jar	-008	××			×		
07/13/23 08:10		BS23-57 0.5'	1, 4oz jar	-009	××			×		
07/13/23 08:10	10 Soil	BS23-58 0.5'	1, 4oz jar	-010	××			×		
07/13/23 08:15	15 Soil	BS23-59 0.5'	1, 4oz jar	-011	××			×		
23	15	√/ BS23-60 0.5'		210-	××			×		
Date: Time:	Relindushed by	//: Aq pal		Date Time	Remarks	: Direct	bill to De	evon, Da	Remarks: Direct bill to Devon, Dale Woodall	
A	A TAME	MNV	amand	R	Harvard Divest Site -	Divest S		ncat 16	Tomcat 16 State #006	
Date: Time:			Received by: Ma:	Date Time	CC 1007884901	84901	202			~ -
not seekil	CY ANN	190 annon	1001	n'er 7/15/237.30	cc. kstallings@vertex.ca for Final Report	ings@v	ertex.ca	for Final	Report	7,3
If neces	sarv. samples sub	bmitted to Hall Environmental may be subc	ontracted to other accredited is	bhoratories. This serves as notice of this mossibility. Any sub-contracted data will be clearly notated on the analytical renort	nossibility. Ar	v sub-contra	in data hatan	I ho alaariw	the and on the analytic	ral renort

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5 If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-

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Client:	Vertex		□ Standard	X Rush	3-day				AN	AL	YS!	S	ABO	ANALYSIS LABORATORY	×
(direct bill to De	evon-Harv	(direct bill to Devon-Harvard Divest, see Remarks)	Project Name:						Ŵ	w.hall	enviro	nme	www.hallenvironmental.com		
Mailing Address:	S:		Tomcat 16 State #006	tate #006			4901	l Hav	4901 Hawkins NE	ч Ш Z	Albud	luerq	Albuquerque, NM 87109	37109	
			Project #:				Tel.	505-	505-345-3975	975	ЧЦ	x 50!	Fax 505-345-4107	07	
Phone #:			22E-02816-25	2						Ā	alysi	s Re	Analysis Request		
email or Fax#:			Project Manager:	ger:		(1)	-	_	_		*O5	-	(ìne		-
QA/QC Package:			Kent Stallings			208)		s.g.	SMI		S '≉C		esdA		
Standard		Level 4 (Full Validation)	kstallings@vert	ertex.ca		) s,Ę		) H (	S04		, P(		/µua		
Accreditation:	□ Az Co	Az Compliance	Sampler:	L.Pullman		IMT					201	(			
	□ Other			TYes [	No	. / :				S	3, 1	AO			
🗆 EDD (Type)			olers:	1	Marty	38.				letə	ON				
			Cooler Temp	(including CF):   _C	7-0-2-1.7	LM /				M 8					
Date Time	Matrix	Sample Name	Container Type and #	Preservative Type	2307706	ХЭТВ	)8:H9T	9 1808 1 1808	I) 803 I <sub>8</sub> HA9	АЯЭЯ	CI' E'	) 0728 ) 0728	) IstoT		
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		-014	×	×				×				
07/13/23 08:30	Soil	BS23-63 0.5'	1, 4oz jar		-05	×	×				×				
07/13/23 08:30	Soil	BS23-64 0.5'	1, 4oz jar		-016	×	×				×				
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		- 018	×	×				×	_			
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		-020	×	×	-			×				
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		BS23-71 0.5'	1, 4oz jar		-023	×	×				×				_
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7-14-73 07:00	Jak d	VIIIIV	ONAMAMA	in	006 50/HIL	Harv	ard L	Dives	Harvard Divest Site - GI Account 7700100		mcat	16 S	Tomcat 16 State #006	20	
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COLD See MI	acu	acuma	10	+ IUUNIRI	- 7/15/23 7130	cc. k	stalli	ngs(	Øvert	ех.са	for F	inal I	kstallings@vertex.ca for Final Report		2
If necessary	v. samples sut	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.	contracted to other a	ccredited laboratories	. This serves as notice of this	s possib	ility. An	iy sub-c	contracte	data v	vill be cl	early no	ated on the	analytical report.	

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	HALL ENVIKONMENTA ANALYSTS LABORATOR		s NE - Albuqueraue. NM 87109	10	Analysis	¢C	)S '*	о́	<sup>'Z</sup> ON	ج (A(	-AC	ime Me Mo Mo	3 CRA 8 3260 (V 3270 (S 701 Cd	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2							Remarks: Direct bill to Devon, Dale Woodall Harvard Divest Site – Tomcat 16 State #006	GL Account 7700100 CC 1007884901 cc_kstallings@vertex_ca_for_Final Penort
			4901 Hawkins NE	Tel 505-345-3975		-	s'5 MR(	ЪСЕ 0 / I	ם R 1082 1)	05 8/s	HD) B bo	ethc ethc	/ X∃T8 08:H91 99 1808 99 808 (M) 803		-						Remarks: Direct bill t Harvard Divest Site –	
Turn-Around Time:	□ Standard X Rush_3-day_	Project Name:	Tomcat 16 State #006	Project #:	- 22E-02816-25	Project Manager:	Kent Stallings	<u>kstallings@vertex.ca</u>		On Ice: Pres ONO	# of Coolers: 1 Werts	Cooler Temp(including cF): ] 9-6-2-1.7	Container Preservative HEAL No. Type and # Type								Pate Time The Time	yia
eceived bOYBIN16902034609 Record	Client: Vertex	(direct bill to Devon-Harvard Divest, see Remarks)	Mailing Address:		Phone #:	email or Fax#:	QA/QC Package:	Standard     Level 4 (Full Validation)	on: 🛛 Az Compliance	Other	EDD (Type)		Date Time Matrix Sample Name	07/13/23 09:00 Soil BS23-73 0.5'							7-8-25 OT'20 BARNING BAN	



July 31, 2023

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

RE: Tomcat 16 State 006

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

OrderNo.: 2307984

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

Andy Freeman Laboratory Manager 4901 Hawkins NE Albuquerque, NM 87109

Tomcat 16 State 006

**Project:** 

**Analytical Report** Lab Order 2307984

### Hall Environmental Analysis Laboratory, Inc.

Date Reported: 7/31/2023

Client Sample ID: BS23-45 0.5' Collection Date: 7/12/2023 11:30:00 AM Received Date: 7/21/2023 7:50:00 AM

Lab ID: 2307984-001	Matrix: SOIL	Rece	eived Date:	7/21/2	023 7:50:00 AM
Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE	ORGANICS				Analyst: PRD
Diesel Range Organics (DRO)	ND	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 RANG	E				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

- Н Holding times for preparation or analysis exceeded
- Not Detected at the Reporting Limit

ND PQL Practical Quanitative Limit

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

- Analyte detected in the associated Method Blank в
- Above Quantitation Range/Estimated Value Е
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

Page 1 of 8

**Project:** 

Tomcat 16 State 006

**Analytical Report** Lab Order 2307984

### Hall Environmental Analysis Laboratory, Inc.

Date Reported: 7/31/2023

Client Sample ID: BS23-46 0.5' Collection Date: 7/12/2023 11:35:00 AM Received Date: 7/21/2023 7:50:00 AM

Lab ID: 2307984-002	Matrix: SOIL	Rece	eived Date:	7/21/2	023 7:50:00 AM
Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE	ORGANICS				Analyst: PRD
Diesel Range Organics (DRO)	ND	9.2	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 RANGI	E				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. Sample Diluted Due to Matrix
- D Н
- Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit PQL
- Practical Quanitative Limit % Recovery outside of standard limits. If undiluted results may be estimated. S
- Analyte detected in the associated Method Blank в
- Above Quantitation Range/Estimated Value Е
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

Page 2 of 8

Tomcat 16 State 006

**Project:** 

**Analytical Report** Lab Order 2307984

### Hall Environmental Analysis Laboratory, Inc.

Date Reported: 7/31/2023

Client Sample ID: BS23-47 0.5' Collection Date: 7/12/2023 11:35:00 AM Received Date: 7/21/2023 7:50:00 AM

Lab ID: 2307984-003	Matrix: SOIL	Rece	eived Date:	7/21/2	023 7:50:00 AM
Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE	ORGANICS				Analyst: PRD
Diesel Range Organics (DRO)	ND	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 RANG	E				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

Н

Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit PQL Practical Quanitative Limit

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

- Analyte detected in the associated Method Blank в
- Above Quantitation Range/Estimated Value Е
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range

RL Reporting Limit Page 3 of 8

\*

Tomcat 16 State 006

**Project:** 

**Analytical Report** Lab Order 2307984

### Hall Environmental Analysis Laboratory, Inc.

Date Reported: 7/31/2023

Client Sample ID: BS23-48 0.5' Collection Date: 7/12/2023 11:40:00 AM Received Date: 7/21/2023 7:50:00 AM

Lab ID: 2307984-004	Matrix: SOIL	Rece	eived Date:	7/21/2	023 7:50:00 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	7/23/2023 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 RANG	E				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. Sample Diluted Due to Matrix
- D Н
- Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit PQL Practical Quanitative Limit
- % Recovery outside of standard limits. If undiluted results may be estimated. S
- Analyte detected in the associated Method Blank в
- Above Quantitation Range/Estimated Value Е
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range Reporting Limit
- RL

Page 4 of 8

Client: Project:		n Energy cat 16 State 006	
Sample ID:	MB-76448	SampType: MBLK	TestCode: EPA Method 300.0: Anions
Client ID:	PBS	Batch ID: 76448	RunNo: <b>98504</b>
Prep Date:	7/25/2023	Analysis Date: 7/25/2023	SeqNo: 3586471 Units: mg/Kg
Analyte		Result PQL SPK val	lue 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: <b>98504</b>
Prep Date:	7/25/2023	Analysis Date: 7/25/2023	SeqNo: 3586472 Units: mg/Kg
Analyte		Result PQL SPK val	lue SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Chloride		14 1.5 15.	00 0 93.2 90 110

- \* Value exceeds 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

2307984

31-Jul-23

Client:	Devon Energy									
Project:	Tomcat 16 State	006								
Sample ID: LCS-7	6387 Sam	рТуре: <b>LC</b>	S	Tes	tCode: EF	PA Method	8015M/D: Die	sel Range	Organics	
Client ID: LCSS	Ba	tch ID: 76	387	F	RunNo: <b>98</b>	3368				
Prep Date: 7/21/2	2023 Analysis	s Date: 7/	23/2023	S	SeqNo: 35	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-76	0			-	·					
	387 Sam	рТуре: МЕ	BLK	les	tCode: EF	PA Method	8015M/D: Die	sel Range	Organics	
Client ID: PBS		p1ype: Mit tch ID: 76			tCode: EF RunNo: 98		8015M/D: Die	sel Range	Organics	
	Ba		387	F		3451	8015M/D: Die Units: mg/K	Ū	Organics	
Client ID: PBS	Ba	tch ID: 76 Date: 7/	387	F	RunNo: <b>98</b>	3451		Ū	Organics RPDLimit	Qual
Client ID: PBS Prep Date: 7/21/2	Ba 2023 Analysi: Result	tch ID: <b>76</b> Date: <b>7</b> /	387 24/2023	F	RunNo: <b>98</b> SeqNo: <b>35</b>	3451 583918	Units: <b>mg/K</b>	g	J	Qual
Client ID: PBS Prep Date: 7/21/2 Analyte	Ba 2023 Analysis Result (DRO) ND	tch ID: <b>76</b> Date: <b>7/</b> PQL	387 24/2023	F	RunNo: <b>98</b> SeqNo: <b>35</b>	3451 583918	Units: <b>mg/K</b>	g	J	Qual

- \* Value exceeds 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

2307984

31-Jul-23

	Energy at 16 State 00	6								
Sample ID: Ics-76381	•	ype: LC					8015D: Gaso	line Range	!	
Client ID: LCSS	Batch	n ID: 763	381	F	RunNo: <b>98</b>	3452				
Prep Date: 7/21/2023	Analysis D	ate: 7/2	24/2023	5	SeqNo: 3	583843	Units: mg/k	(g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	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	SampT	уре: МЕ	BLK	Tes	tCode: EF	PA Method	8015D: Gaso	line Range	!	
Client ID: PBS	Batch	n ID: 763	381	F	RunNo: <b>98</b>	8452				
Prep Date: 7/21/2023	Analysis D	ate: 7/2	24/2023	S	SeqNo: 3	583844	Units: <b>mg/k</b>	(g		
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			

- \* Value exceeds 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

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2307984

31-Jul-23

# QC SUMMARY REPORT Hall Environmental Analysis Laboratory, Inc.

	WO#:	2307984
nc.		31-Jul-23

	Energy at 16 State 00	6								
Sample ID: LCS-76381	Samp	Гуре: LC	s	Tes	tCode: EF	PA Method	8021B: Volati	les		
Client ID: LCSS	Batc	h ID: 763	381	F	RunNo: <b>98</b>	3452				
Prep Date: 7/21/2023	Analysis [	Date: 7/2	24/2023	S	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			
Kylenes, 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	Samp	Гуре: МВ	BLK	Tes	tCode: EF	PA Method	8021B: Volati	les		
Client ID: PBS	Batc	h ID: 763	381	F	RunNo: <b>98</b>	3452				
Prep Date: 7/21/2023	Analysis [	Date: 7/2	24/2023	S	SeqNo: 3	583857	Units: <b>mg/K</b>	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								
(ylenes, Total	ND	0.10								

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 8 of 8

Client Name: Devon Energy Received By: Juan Rojas Completed By: Tracy Casarrubias Reviewed By: 7/21/23 <u>Chain of Custody</u> 1. Is Chain of Custody complete? 2. How was the sample delivered? <u>Log In</u> 3. Was an attempt made to cool the samples? 4. Were all samples received at a temperature of	Work Order Number 7/21/2023 7:50:00 AM 7/21/2023 8:07:55 AM	1	Juansey No ☑	RcptNo: 1 Not Present
Completed By: Tracy Casarrubias Reviewed By: 7/21/23 Chain of Custody 1. Is Chain of Custody complete? 2. How was the sample delivered? Log In 3. Was an attempt made to cool the samples?	7/21/2023 8:07:55 AN	Yes □ <u>Courier</u> Yes ☑	No 🗹	
Reviewed By: 7/21/23 Chain of Custody 1. Is Chain of Custody complete? 2. How was the sample delivered? Log In 3. Was an attempt made to cool the samples?		Yes □ <u>Courier</u> Yes ☑		
<ul> <li><u>Chain of Custody</u></li> <li>1. Is Chain of Custody complete?</li> <li>2. How was the sample delivered?</li> <li><u>Log In</u></li> <li>3. Was an attempt made to cool the samples?</li> </ul>	of >0° C to 6.0°C	<u>Courier</u> Yes ☑		
<ol> <li>Is Chain of Custody complete?</li> <li>How was the sample delivered?</li> <li>Log In</li> <li>Was an attempt made to cool the samples?</li> </ol>	of >0° C to 6.0°C	<u>Courier</u> Yes ☑		
<ul> <li>2. How was the sample delivered?</li> <li><u>Log In</u></li> <li>3. Was an attempt made to cool the samples?</li> </ul>	of >0° C to 6.0°C	<u>Courier</u> Yes ☑		
Log In 3. Was an attempt made to cool the samples?	of >0° C to 6.0°C	Yes 🗹	No 🗌	NA 🗌
3. Was an attempt made to cool the samples?	of >0° C to 6.0°C		No 🗌	
4. Were all samples received at a temperature of	of >0° C to 6.0°C	Vac 🖌		
		ies 🖭	Νο	
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	y preserved?	Yes 🗹	No 🗌	
8. Was preservative added to bottles?		Yes 🗌	No 🔽	NA 🗌
9. Received at least 1 vial with headspace <1/4	for AQ VOA?	Yes	No 🗌	NA 🗹 🔥
10. Were any sample containers received broken	n?	Yes	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)
12. Are matrices correctly identified on Chain of 0	Custody?	Yes 🗹	No 🗌	Adjusted?
13. Is it clear what analyses were requested?		Yes 🗹	No 🗌	1100 ontoil-
14. Were all holding times able to be met? (If no, notify customer for authorization.)		Yes 🗹	No	Checked by: 5CM 07/21/7
Special Handling (if applicable)				
15. Was client notified of all discrepancies with t	his order?	Yes 🗌	No 🗌	NA 🗹
Person Notified:	Date:		and an an an an and a second different of	
By Whom:	Via:	🗌 eMail 🚺	] Phone 🗌 Fax	In Person
Regarding: Client Instructions: Mailing address, t	phone number and Ema	il/Fax are mis	sing on COC - TI	MC 7/21/23
16. Additional remarks:	- 740 Ø 1980 - 11 FO		= 0 3-6-50 5 =0	
Cooler Information       Cooler No     Temp °C     Condition     Set       1     0.7     Good     Yes		Seal Date	Signed By	
Page 1 of 1				

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J	hain	-of-CI	Chain-of-Custody Record	Turn-Around Time:	Time:				I		2		0	HALL ENVIRONMENTAL	NTAI	_
Client:	DRNTM	2		Standard		K Rush J Davy			2	AL	NS.	S	AB	ANALYSIS LABORATORY	TOR	<u>ک</u>
	6 64			Project Name:		7			3	ww.ha	www.hallenvironmental.com	nmen	tal.co	E		
Mailing	Mailing Address:	s: NV	4 IL	Toward	14 State OOD	006		4901	Hawkin	NR	Albud	herqu	le, NN	4901 Hawkins NE - Albuquerque, NM 87109		
				Project #:				Tel. 5	505-345-3975	-3975	Fax	x 505	505-345-4107	t107		
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QA/QC	QA/QC Package:				2		208			QIAI	S '⊅C		əsd/			-
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	D (Type)			# of Coolers:		4001	1 181	_	po		_		_			
				Cooler Temp(Induding CF):	(Including CF): (	)-6-10-120.7-(°			qзәу		_					
Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	73.079.84	BLEX	)8:H9T 9 1808	EDB (I	PAHs I	G'E'	) 0728 ) 0728	) letoT	-		
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C Llant	If necessary	Y, samples su	IPD PRO DUCT AND RANGE OF THE PART AND REPORT AND REPORT AND REPORT AND REPORT AND REPORT AND REPORT.	ocontracted to other a	CCredited laboratories.	ies. This serves as notice o	f this possil	K542.1	Sub-contra	cted data	will be d	early not	ated on	the analytica	t report.	
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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

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 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

Andy Freeman Laboratory Manager 4901 Hawkins NE Albuquerque, NM 87109

**Project:** 

Lab ID:

CLIENT: Vertex Resources Services, Inc.

Tomcat 16 State 006

2308384-001

Analytical Report Lab Order 2308384

Date Reported: 8/14/2023

### Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: BS23-62-B 0.5' Collection Date: 8/5/2023 7:30:00 AM Received Date: 8/8/2023 7:20:00 AM

200201001				0, 0, 20	20 /120100 1101
Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE C	RGANICS				Analyst: mb
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

Matrix: SOIL

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

**Qualifiers:** 

Value exceeds Maximum Contaminant Level. Sample Diluted Due to Matrix

D Sample Diluted Due to Matrix
 H Holding times for preparation or analysis exceed

H Holding times for preparation or analysis exceeded

NDNot Detected at the Reporting LimitPQLPractical 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

\*

Client: Project:		ex Resources Service acat 16 State 006	s, Inc.							
Sample ID:	MB-76785	SampType: M	BLK	Tes	tCode: EP	A Method	300.0: Anions	5		
Client ID:	PBS	Batch ID: 7	6785	F	RunNo: <b>98</b>	880				
Prep Date:	8/10/2023	Analysis Date: 8	8/10/2023	S	SeqNo: <b>36</b>	03269	Units: mg/K	g		
Analyte		Result PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride		ND 1.5								
Sample ID:	LCS-76785	SampType: L	cs	Tes	tCode: EP	A Method	300.0: Anions	5		
Client ID:	LCSS	Batch ID: 7	6785	F	RunNo: <b>98</b>	880				
Prep Date:	8/10/2023	Analysis Date: 8	/10/2023	5	SeqNo: <b>36</b>	03270	Units: mg/K	g		
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			

- \* Value exceeds 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

2308384

14-Aug-23

# QC SUMMARY REPORT Hall Environmental Analysis Laboratory, Inc.

Client: Project:		Resources Ser 16 State 006	vices,	Inc.							
Sample ID:	LCS-76761	SampTyp	e: LC	S	Tes	tCode: EF	PA Method	8015M/D: Dies	sel Range	Organics	
Client ID:	LCSS	Batch II	D: 767	761	R	lunNo: <b>98</b>	3859				
Prep Date:	8/9/2023	Analysis Date	e: <b>8/</b>	10/2023	S	SeqNo: 36	601553	Units: %Rec			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	)	4.5		5.000		90.4	69	147			
Sample ID:	MB-76761	SampTyp	e: ME	BLK	Tes	tCode: EF	PA Method	8015M/D: Dies	sel Range	Organics	
Client ID:	PBS	Batch II	D: 767	761	R	tunNo: <b>98</b>	3859				
Prep Date:	8/9/2023	Analysis Date	e: <b>8/</b>	10/2023	S	SeqNo: 36	601556	Units: %Rec			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	)	10		10.00		101	69	147			
Sample ID:	LCS-76771	SampTyp	e: LC	s	Tes	tCode: EF	PA Method	8015M/D: Dies	sel Range	Organics	
Client ID:	LCSS	Batch II	D: 767	771	R	tunNo: <b>98</b>	3859				
Client ID: Prep Date:		Batch II Analysis Date				tunNo: 98 SeqNo: 36		Units: <b>mg/K</b> g	9		
		Analysis Date		10/2023		SeqNo: 36		Units: <b>mg/K</b> g HighLimit	g %RPD	RPDLimit	Qual
Prep Date: Analyte		Analysis Date	e: <b>8/</b>	10/2023	S	SeqNo: 36	602161	•	-	RPDLimit	Qual
Prep Date: Analyte	<b>8/9/2023</b> Organics (DRO)	Analysis Date Result I	e: <b>8/</b> PQL	<b>10/2023</b> SPK value	SPK Ref Val	SeqNo: 36 %REC	502161 LowLimit	HighLimit	-	RPDLimit	Qual
Prep Date: Analyte Diesel Range ( Surr: DNOP	<b>8/9/2023</b> Organics (DRO)	Analysis Date Result 1 54	e: <b>8/</b> PQL 10	<b>10/2023</b> SPK value 50.00 5.000	SPK Ref Val 0	SeqNo: 36 %REC 107 101	602161 LowLimit 61.9 69	HighLimit 130	%RPD		Qual
Prep Date: Analyte Diesel Range ( Surr: DNOP	8/9/2023 Organics (DRO)	Analysis Data Result 54 5.0	e: <b>8/</b> PQL 10 pe: <b>ME</b>	10/2023 SPK value 50.00 5.000	SPK Ref Val 0 Tes	SeqNo: 36 %REC 107 101	502161 LowLimit 61.9 69 PA Method	HighLimit 130 147	%RPD		Qual
Prep Date: Analyte Diesel Range ( Surr: DNOP Sample ID:	8/9/2023 Organics (DRO) MB-76771	Analysis Date Result 54 5.0 SampTyp	e: <b>8/</b> PQL 10 De: <b>ME</b> D: <b>767</b>	10/2023 SPK value 50.00 5.000 BLK 771	SPK Ref Val 0 Tes R	SeqNo: 36 %REC 107 101 tCode: EF	502161 LowLimit 61.9 69 PA Method 3859	HighLimit 130 147	%RPD		Qual
Prep Date: Analyte Diesel Range ( Surr: DNOP Sample ID: Client ID:	8/9/2023 Organics (DRO) MB-76771 PBS	Analysis Data Result 1 54 5.0 SampTyp Batch II Analysis Data	e: <b>8/</b> PQL 10 De: <b>ME</b> D: <b>767</b>	10/2023 SPK value 50.00 5.000 SLK 771 10/2023	SPK Ref Val 0 Tes R	SeqNo: 36 %REC 107 101 tCode: EF	502161 LowLimit 61.9 69 PA Method 3859	HighLimit 130 147 8015M/D: Dies	%RPD		Qual
Prep Date: Analyte Diesel Range ( Surr: DNOP Sample ID: Client ID: Prep Date: Analyte Diesel Range (	8/9/2023 Organics (DRO) MB-76771 PBS 8/9/2023 Organics (DRO)	Analysis Data Result 54 5.0 SampTyp Batch II Analysis Data Result 1 ND	e: <b>8</b> / PQL 10 De: <b>ME</b> D: <b>767</b> e: <b>8</b> / PQL 10	10/2023 SPK value 50.00 5.000 SLK 771 10/2023	SPK Ref Val 0 Tes R S	SeqNo: 36 %REC 107 101 tCode: EF RunNo: 98 SeqNo: 36	502161 LowLimit 61.9 69 PA Method 3859 502162	HighLimit 130 147 8015M/D: Dies Units: mg/Kg	%RPD sel Range	Organics	
Prep Date: Analyte Diesel Range ( Surr: DNOP Sample ID: Client ID: Prep Date: Analyte Diesel Range (	8/9/2023 Organics (DRO) MB-76771 PBS 8/9/2023 Organics (DRO) ge Organics (MRO)	Analysis Data Result 54 5.0 SampTyp Batch II Analysis Data Result	e: <b>8</b> / PQL 10 De: <b>ME</b> D: <b>76</b> 7 e: <b>8</b> / PQL	10/2023 SPK value 50.00 5.000 SLK 771 10/2023	SPK Ref Val 0 Tes R S	SeqNo: 36 %REC 107 101 tCode: EF RunNo: 98 SeqNo: 36	502161 LowLimit 61.9 69 PA Method 3859 502162	HighLimit 130 147 8015M/D: Dies Units: mg/Kg	%RPD sel Range	Organics	

Qualifiers:

- \* Value exceeds 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

2308384

14-Aug-23

Client: Project:	Vertex Reso Tomcat 16		,	Inc.							
Sample ID: Ics-76		SampTy		-				8015D: Gaso	line Range		
Client ID: LCSS Prep Date: 8/8/2		Batch Analysis Da	ID: <b>767</b> ate: <b>8/</b> 9			RunNo: <b>98</b> SeqNo: <b>36</b>		Units: <b>mg/K</b>	g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organ Surr: BFB	nics (GRO)	21 2000	5.0	25.00 1000	0	83.4 196	70 15	130 244			
Sample ID: mb-7	6742	SampTy	/pe: <b>ME</b>	BLK	Tes	tCode: EF	PA Method	8015D: Gaso	line Range		
Client ID: PBS		Batch	ID: 767	742	F	RunNo: <b>98</b>	3834				
Prep Date: 8/8/2	2 <b>023</b> A	Analysis Da	ate: <b>8/</b> 9	9/2023	S	SeqNo: <b>36</b>	602042	Units: mg/K	g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organ Surr: BFB	nics (GRO)	ND 940	5.0	1000		94.5	15	244			

- \* Value exceeds Maximum Contaminant Level.
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- H Holding times for preparation or analysis exceeded
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Page 4 of 5

2308384

14-Aug-23

# QC SUMMARY REPORT Hall Environmental Analysis Laboratory, Inc.

Client: Project:	Vertex Reso Tomcat 16 S		,	Inc.							
Sample ID: LCS-7	6742	SampT	ype: LC	s	Tes	tCode: EF	PA Method	8021B: Volati	les		
Client ID: LCSS		Batch	ID: 767	42	F	RunNo: <b>98</b>	3834				
Prep Date: 8/8/2	<b>023</b> A	nalysis D	ate: 8/9	9/2023	S	SeqNo: 36	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-Bromofluorob	enzene	1.1		1.000		108	39.1	146			
Sample ID: mb-76	742	SampT	ype: MB	LK	Tes	tCode: EF	PA Method	8021B: Volati	les		
Client ID: PBS		Batch	ID: 767	42	F	RunNo: <b>98</b>	3834				
Prep Date: 8/8/2	<b>023</b> A	nalysis D	ate: 8/9	9/2023	S	SeqNo: 36	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								
Kylenes, Total		ND	0.10								
Surr: 4-Bromofluorob	enzene	1.1		1.000		106	39.1	146			

Qualifiers:

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Page 5 of 5

WO#: 2308384

14-Aug-23

HALL ENVIRC ANALY LABOR		TEL: 505-345-3975	4901 Hawkins N querque, NM 8710	<sup>E</sup> 9 Sam	ple Log-In Check	List
	Vertex Resources Services, Inc.	Work Order Number:	2308384		RcptNo: 1	
Received By:	Steve McQuiston	8/8/2023 7:20:00 AM		for hate		
Completed By:	Tracy Casarrubias	8/8/2023 8:00:48 AM				
Reviewed By:	In-8/8/23					
Chain of Cust	ody					
1. Is Chain of Cu			Yes	No 🗹	Not Present	
2. How was the s	ample delivered?		<u>Courier</u>			
<u>Log In</u> 3. Was an attemp	ot made to cool the samples?		Yes 🗹	No 🗌	na 🗌	
4. Were all sampl	les received at a temperature	of >0° C to 6.0°C	Yes 🗹	No 🗌	NA 🗌	
5. Sample(s) in p	roper container(s)?		Yes 🗹	No 🗌		
6. Sufficient samp	ble volume for indicated test(s	)?	Yes 🗹	No 🗌		
7. Are samples (e	except VOA and ONG) properl	y preserved?	Yes 🔽	No 🗌		
8. Was preservati	ive added to bottles?		Yes	No 🔽	NA 🗌	
9. Received at lea	ast 1 vial with headspace <1/4	" for AQ VOA?	Yes	No 🗌	NA 🗹	
10. Were any sam	ple containers received broke	n?	Yes	No 🗹	# of preserved	
	rk match bottle labels? ncies on chain of custody)		Yes 🗹	No 🗌	bottles checked for pH: (<2 or >12 unle	ss noted)
12. Are matrices co	orrectly identified on Chain of	Custody?	Yes 🗹	No 🗌	Adjusted?	
	analyses were requested?		Yes 🗹	No 🗌	1. Scm	08/08/23
	g times able to be met? stomer for authorization.)		Yes 🗹	No 🗌	Checked by:	6000000
Special Handli	ng (if applicable)					
15. Was client not	ified of all discrepancies with	his order?	Yes	No 🗌	NA 🔽	
Person I	Notified:	Date:				
By Who	m:	Via:	] eMail 📋 Pho	one 🗌 Fax	In Person	
Regardi	ng:					
Client In	structions:					
16. Additional ren	narks:					
Mailling	address, phone number, and	Email/Fax - TMC 8/8/23				
17. Cooler Inform	mation					
Cooler No	Temp °C Condition S	eal Intact Seal No S	Seal Date S	igned By		
1	3.0 Good Ye	s Morty				

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

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Receive Magger of Jender ody PRecord	Turn-Around Time:	HALLENVTRONMENTAL
Client: Vertex	□ Standard X Rush 3-day	ANALYSIS LABORATORY
(direct bill to Devon-Harvard Divest, see Remarks)	Project Name:	www.hailenvironmental.com
Mailing Address:	Tomcat 16 State #006	4901 Hawkins NE - Albuquerque, NM 87109
	Project #:	Tel. 505-345-3975 Fax 505-345-4107
Phone #:	22E-02816-25	Analysis Request
email or Fax#:	Project Manager:	(O)
QA/QC Package:	Kent Stallings	я. s.a: SW
Standard     Level 4 (Full Validation)	<ol> <li>kstallings@vertex.ca</li> </ol>	), PC
	Sampler: L.Pullman	7 D / D 2808/ 758 m 2010 2010 2 2010 2 2 0 10 2 2 0 10 2 2 0 10 2 2 10 2 2 10 10 2 10 10 2 10 10 10 2 10 10 10 2 2 2 2
	Mare: 1	۸O O <sup>3</sup> , I 0 C d 50 d 50 d
	Cooler Temp(including cF): 7,0 -0 -3,0 °C /	5D(( stici- sthoo 83° 83° 83° 83° 9 83° 83° 83° 83° 83° 9 83° 9 83° 9 83° 9 83° 9 83° 9 83° 9 83° 9 83° 9 83° 9 83° 9 83° 9 83° 9 80 83° 9 80° 9 83° 9 83° 9 80° 9 80° 9 80° 9 80° 9 80° 9 80° 9 80° 9 80° 9 80° 9 80° 9 80° 9 80° 9 80° 9 80° 9 80° 9 80° 80° 9 80° 9 80° 9 80° 9 80° 9 80° 9 80° 9 80° 9 80° 9 80° 9 80° 9 80° 9 80° 9 80° 80° 80° 80° 80° 80° 80° 80° 80° 80°
Date Time Matrix Sample Name	Container Preservative HEAL No. Trone and # Trone	PH:801 PH:801 PH:801 PHS PHS PMHS PMHS PM PM PM PM PM PM PM PM PM PM PM PM PM
		3 3 3 3 4 4 4 3 3 2 3
		<
Date: Time: Relinquished by	Received by: Via: Date Time	Remarks: Direct bill to Devon, Dale Woodall
/ Wall India 0020 St-1-2	CUMMMUL 8/1/23 760	Harvard Divest Site – Tomcat 16 State #006
Date: Time: Relinquished by: V 8/1/73 19/00 01 ALAAAA	Received by: Via: The Date Time	CC 1007884901 CC 1007884901 cc. kstallings@vertex.ca for Final Report
If necessary, samples submitted to Hall Environmental may be s	subcontracted to other accredited laboratories. This serves as notice of thi	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.

811 S. First St., Artesia, NM 88210 Phone:(575) 748-1283 Fax:(575) 748-9720

District III

1000 Rio Brazos Rd., Aztec, NM 87410 Phone:(505) 334-6178 Fax:(505) 334-6170

District IV 1220 S. St Francis Dr., Santa Fe, NM 87505

Phone:(505) 476-3470 Fax:(505) 476-3462

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

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 the volumes provided should be attached to the follow-up C-141 submission. Cause: Human Error | Flow Line - Production | Crude Oil | Released: 10 BBL | Recovered: 10 Crude Oil Released (bbls) Details 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 Not answered. Other, Specify, Unknown, and/or Fire, or any negative lost amounts)

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District IV

1220 S. St Francis Dr., Santa Fe, NM 87505 Phone: (505) 476-3470 Fax: (505) 476-3462

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

QUESTIONS, Page 2

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

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	Res	ponse
		ponoo

· · · · · · · · · · · · · · · · · · ·	
The responsible party must undertake the following actions immediately unless they could create a s	afety 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.
	ation immediately after discovery of a release. If remediation has begun, please prepare and attach a narrative of ted or if the release occurred within a lined containment area (see Subparagraph (a) of Paragraph (5) of valuation in the follow-up C-141 submission.
to report and/or file certain release notifications and perform corrective actions for releat the OCD does not relieve the operator of liability should their operations have failed to a	knowledge and understand that pursuant to OCD rules and regulations all operators are required ases 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 t does not relieve the operator of responsibility for compliance with any other federal, state, or
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

811 S. First St., Artesia, NM 88210 Phone:(575) 748-1283 Fax:(575) 748-9720

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Operator:

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District IV

1220 S. St Francis Dr., Santa Fe, NM 87505 Phone:(505) 476-3470 Fax:(505) 476-3462

333 West Sheridan Ave.

Oklahoma City, OK 73102

DEVON ENERGY PRODUCTION COMPANY, LP

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

**QUESTIONS** (continued)

OGRID:

Action Number:

6137

322245

QUESTIONS, Page 3

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Action 322245

UESTIONS	
ite Characterization	
lease answer all the questions in this group (only required when seeking remediation plan approv elease discovery date.	al and beyond). This information must be provided to the appropriate district office no later than 90 days
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
Vhat is the minimum distance, between the closest lateral extents of the release a	nd 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 Remediation Plan Please answer all the questions that apply or are indicated. This information must be provided to th	
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storage site         Remediation Plan         Nease answer all the questions that apply or are indicated. This information must be provided to the Requesting a remediation plan approval with this submission         Ittach a comprehensive report demonstrating the lateral and vertical extents of soil contamination at the the lateral and vertical extents of contamination been fully delineated         Was this release entirely contained within a lined containment area         Soil Contamination Sampling: (Provide the highest observable value for each, in milli         Chloride       (EPA 300.0 or SM4500 Cl B)	e appropriate district office no later than 90 days after the release discovery date. Yes Issociated with the release have been determined, pursuant to 19.15.29.11 NMAC and 19.15.29.13 NMAR Yes No grams per kilograms.) 2200
storage site         Remediation Plan         Release answer all the questions that apply or are indicated. This information must be provided to the Requesting a remediation plan approval with this submission         Itach a comprehensive report demonstrating the lateral and vertical extents of soil contamination of Have the lateral and vertical extents of contamination been fully delineated         Was this release entirely contained within a lined containment area         soil Contamination Sampling: (Provide the highest observable value for each, in milli         Chloride       (EPA 300.0 or SM4500 Cl B)         TPH (GRO+DRO+MRO)       (EPA SW-846 Method 8015M)	e appropriate district office no later than 90 days after the release discovery date. Yes ssociated with the release have been determined, pursuant to 19.15.29.11 NMAC and 19.15.29.13 NMAC Yes No grams per kilograms.) 2200 14
storage site         Remediation Plan         Please answer all the questions that apply or are indicated. This information must be provided to the Requesting a remediation plan approval with this submission         Itach a comprehensive report demonstrating the lateral and vertical extents of soil contamination and vertical extents of contamination been fully delineated         Was this release entirely contained within a lined containment area         Koll Contamination Sampling: (Provide the highest observable value for each, in milli         Chloride       (EPA 300.0 or SM4500 Cl B)         TPH (GRO+DRO+MRO)       (EPA SW-846 Method 8015M)         GRO+DRO       (EPA SW-846 Method 8015M)	e appropriate district office no later than 90 days after the release discovery date. Yes ssociated with the release have been determined, pursuant to 19.15.29.11 NMAC and 19.15.29.13 NMAR Yes No grams per kilograms.) 2200 14 14 14
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storage site         Remediation Plan         Requesting a remediation plan approval with this submission         Itach a comprehensive report demonstrating the lateral and vertical extents of soil contamination of Have the lateral and vertical extents of contamination been fully delineated         Was this release entirely contained within a lined containment area         Soil Contamination Sampling: (Provide the highest observable value for each, in milli         Chloride       (EPA 300.0 or SM4500 Cl B)         TPH (GR0+DR0+MRO)       (EPA SW-846 Method 8015M)         GRO+DRO       (EPA SW-846 Method 8015M)         BTEX       (EPA SW-846 Method 8021B or 8260B)         Benzene       (EPA SW-846 Method 8021B or 8260B)         Per Subsection B of 19.15.29.11 NMAC unless the site characterization report includes completed of thich includes the anticipated timelines for beginning and completing the remediation.         On what estimated date will the remediation commence	e appropriate district office no later than 90 days after the release discovery date. Yes Issociated with the release have been determined, pursuant to 19.15.29.11 NMAC and 19.15.29.13 NMAR Yes No grams per kilograms.) 2200 14 14 14 0 0 0 0 ifforts at remediation, the report must include a proposed remediation plan in accordance with 19.15.29.1 04/03/2019
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storage site         Remediation Plan         Nease answer all the questions that apply or are indicated. This information must be provided to the Requesting a remediation plan approval with this submission         Itach a comprehensive report demonstrating the lateral and vertical extents of soil contamination at the the lateral and vertical extents of contamination been fully delineated         Was this release entirely contained within a lined containment area         Soil Contamination Sampling: (Provide the highest observable value for each, in milli         Chloride       (EPA 300.0 or SM4500 Cl B)         TPH (GRO+DRO+MRO)       (EPA SW-846 Method 8015M)         GRO+DRO       (EPA SW-846 Method 8015M)         BTEX       (EPA SW-846 Method 8021B or 8260B)         Benzene       (EPA SW-846 Method 8021B or 8260B)         Per Subsection B of 19.15.29.11 NMAC unless the site characterization report includes completed of thich includes the anticipated timelines for beginning and completing the remediation.         On what estimated date will the remediation commence       On what date will (or did) the final sampling or liner inspection occur         On what date will (or was) the remediation complete(d)       What is the estimated surface area (in square feet) that will be reclaimed         What is the estimated surface area (in square feet) that will be reclaimed       What is the estimated surface area (in square feet) that will be remediated	e appropriate district office no later than 90 days after the release discovery date.         Yes         associated with the release have been determined, pursuant to 19.15.29.11 NMAC and 19.15.29.13 NMAR         Yes         No         grams per kilograms.)         2200         14         14         04/03/2019         08/05/2023         14164         262         14164
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811 S. First St., Artesia, NM 88210 Phone:(575) 748-1283 Fax:(575) 748-9720

District III

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District IV 1020 S St Francis Dr., Santa Fe, NM 87505

# **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

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QUESTIONS (continued)			
Operator: DEVON ENERGY PRODUCTION COMPANY, LP	OGRID: 6137		
333 West Sheridan Ave. Oklahoma City, OK 73102	Action Number: 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			
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 ef which includes the anticipated timelines for beginning and completing the remediation.	Forts at remediation, the report must include a proposed remediation plan in accordance with 19.15.29.12 NMAC		
to report and/or file certain release notifications and perform corrective actions for relea the OCD does not relieve the operator of liability should their operations have failed to a	knowledge and understand that pursuant to OCD rules and regulations all operators are required ases 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 t does not relieve the operator of responsibility for compliance with any other federal, state, or		
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		

811 S. First St., Artesia, NM 88210 Phone:(575) 748-1283 Fax:(575) 748-9720

District III

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District IV

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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

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Action 322245

QUESTIONS (continued)	
Operator: DEVON ENERGY PRODUCTION COMPANY, LP	OGRID: 6137
333 West Sheridan Ave. Oklahoma City, OK 73102	Action Number: 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	Νο

811 S. First St., Artesia, NM 88210 Phone:(575) 748-1283 Fax:(575) 748-9720

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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 re	emediation 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
	closure requirements and any conditions or directives of the OCD. This demonstration should be in the form of a notes, photographs of any excavation prior to backfilling, laboratory data including chain of custody documents of
to report and/or file certain release notifications and perform corrective actions for release the OCD does not relieve the operator of liability should their operations have failed to water, human health or the environment. In addition, OCD acceptance of a C-141 report	knowledge and understand that pursuant to OCD rules and regulations all operators are required ises 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 t does not relieve the operator of responsibility for compliance with any other federal, state, or ially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed

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
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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.

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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 7

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Action 322245

QUESTIONS (continued)	
Operator: DEVON ENERGY PRODUCTION COMPANY, LP	OGRID: 6137
333 West Sheridan Ave. Oklahoma City, OK 73102	Action Number: 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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# **State of New Mexico Energy, Minerals and Natural Resources Oil Conservation Division** 1220 S. St Francis Dr. Santa Fe, NM 87505

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CONDITIONS

Action 322245

CONDITIONS

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)

#### CONDITIONS

Created By	Condition	Condition
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".	Date 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