

Volume calculator

There was no volume calculator prepared when the spill occurred.



June 9, 2023

Vertex Project #: 21E-02816-27

Spill Closure Report: **Tomcat 17 Federal #001**
Unit P, Section 17, Township 23 South, Range 32 East
API: 30-025-34690
County: Lea
Incident Reports: nSAP0219636264, nKJ1524345298 (1RP-3833)

Prepared For: **Devon Energy Production Company**
6488 Seven Rivers Highway
Artesia, New Mexico 88210

New Mexico Oil Conservation Division - District 1 - Hobbs
1625 North French Drive
Hobbs, New Mexico 88240

Devon Energy Production Company (Devon) retained Vertex Resource Services Inc. (Vertex) to conduct a Spill Assessment for two releases of produced oil that occurred at Tomcat 17 Federal #001, API 30-025-34690 (hereafter referred to as "Tomcat"). Incidents nSAP0219636264 and nKJ1524345298 were caused by a perforated fill line and corrosion in the bottom of a tank, respectively. Devon provided immediate notification to the Bureau of Land Management (BLM) and the New Mexico Oil Conservation Division (NMOCD) District 1, via submission of initial C-141 Release Notifications. This letter provides a description of the Spill Assessment and includes a request for Spill Closure. The release area is located at N 32.298882, W -103.690711.

Background

The site is located approximately 3.22 miles north of the intersection of Highway 128 and Red Road, and 2.93 miles east of Red Road (Google Inc., 2023). The legal location for the site is Unit P, Section 17, Township 23 South and Range 32 East in Lea County, New Mexico. The release area is located on BLM property. An aerial photograph and site schematic are presented on Figure 1 (Attachment 1).

The Geological Map of New Mexico (New Mexico Bureau of Geology and Mineral Resources, 2022) indicates the site's surface geology is comprised primarily of Qep - Eolian and piedmont deposits (Holocene to middle Pleistocene) Interlayered eolian sands and piedmont-slope deposits. The Natural Resources Conservation Service *Web Soil Survey* characterizes the predominant soil textures on the site as Maljamar and palomas fine sands or Pyote and Maljamar fine sands. It tends to be well drained with very low to low runoff and low to moderate available moisture levels in the soil profile (United States Department of Agriculture, Natural Resources Conservation Service, 2022). There is low potential for karst geology to be present near Tomcat, though some erosional karst is possible (United States Department of the Interior, Bureau of Land Management, 2018).

The surrounding landscape is associated with 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. Slopes range on this site range

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from 0 to 3% with variable direction. Elevations range from 3,000 to 3,900 feet above sea level. The climate is semi-arid, with an annual precipitation ranging between 10 to 15 inches. Historically, the plant community was dominated by grasses, which stabilized the potentially erosive sandy soils; however, more recent conditions, resulting from fire suppression and extensive grazing, show increased woody plant abundance. The dominant grass species are dropseeds and bluestem interspersed with mesquite. Short grasses are a significant proportion of ground cover while shrubs, litter and, to a lesser extent, bare ground compose the remainder (United States Department of Agriculture, Natural Resources Conservation Service, 2022). Limited to no vegetation is allowed to grow on the compacted facility pad.

There is no surface water located at Tomcat. The nearest significant watercourse, as defined in Subsection P of 19.15.17.7 Mexico Administrative Code (NMAC; New Mexico Oil Conservation Division, 2018), is the intermittent stream located approximately 4.45 miles west-northwest of Tomcat (United States Fish and Wildlife Service, 2022). There are no continuous 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.

Incident Description

nSAP0219636264

The release occurred on July 15, 2002, due to a perforated fill line. The spill was reported on March 22, 2022, and involved the release of approximately 110 barrels (bbl) of produced oil into the unlined containment surrounding the tanks on the west side of the pad. Approximately 34 bbl free fluid was recovered during initial spill clean-up. The release was contained within the bermed, earthen containment on the facility pad. No oil was released into undisturbed areas or waterways. The NMOCD initial C-141 Report for incident nSAP0219636264 is included in Attachment 2. A new initial C-141 for nSAP0219636264 was created because the original is missing. The characterization schematic is presented in Figure 1 (Attachment 1). The daily field reports (DFRs) with site photographs are included in Attachment 3.

nKJ1524345298, 1RP-3833

The release occurred on August 26, 2015, due to the development of a hole in the bottom of an oil tank from internal corrosion. The spill was reported on August 26, 2015, and involved the release of approximately 90 bbl of produced oil into the unlined containment. Approximately 10 bbl of free fluid was recovered during initial spill clean-up. The release was contained within the bermed, earthen containment on the facility pad. No oil was released into undisturbed areas or waterways. The NMOCD C-141 Report for incident nKJ1524345298 and corresponding administrative work order 1RP-3833 is included in Attachment 2. The DFRs and site photographs are included in Attachment 3.

Closure Criteria Determination

The depth to groundwater was determined using information from Oil and Gas Drilling records and the New Mexico Office of the State Engineer Water Column/Average Depth to Water report. The closest recorded depth to groundwater was determined to be 713 feet below ground surface (bgs) and 5,689 feet from the site (New Mexico Office of the State Engineer, New Mexico Water Rights Reporting System, 2023). The available depth to groundwater reference exceeded the 0.5 mile radius limit, and a closer confirmation reference was required.

Devon Energy Production Company, LP
Tomcat 17 Federal #001

2022 Spill Assessment and Closure
June 2023

Vision Resources, Inc. (Vision) obtained a permit from New Mexico Office of the State Engineer approving collection of lithological data for a test borehole for depth to groundwater on the east side of the pad at Tomcat, 200 feet east of the excavation. On March 7, 2023, Vision drilled a well to 63 feet bgs without contacting water. The sand surrounding much of the wellbore collapsed into the well before the casing could be installed. Another well was drilled 10 feet west of the first to attempt to satisfy depth to groundwater requirements. The second well was advanced to 43 feet bgs when the sand in the wellbore began collapsing. The two attempts made to drill the borehole failed due to the instability of the soils beneath the site, and additional boreholes were not recommended due to concerns of instability and possible collapse. The well information and location are included with documentation used in Closure Criteria Determination research in Attachment 4.

Using site characterization information, a closure criteria determination worksheet was completed in accordance with the scenario outlined in Paragraph (5) of Subsection A of 19.15.29.11 NMAC for a release onto an open pad area. Due to the sale of Tomcat and other sites to Harvard Petroleum Company, all unresolved releases associated with divested properties will be remediated sufficiently as to meet reclamation criteria. The closure criteria will also adhere to Paragraph (1) of Subsection D of 19.15.29.13 NMAC for reclamation from surface to 4 feet bgs. The closure criteria determined for the site are associated with the following constituent concentration limits as presented in Table 1.

Devon Energy Production Company, LP
Tomcat 17 Federal #001

2022 Spill Assessment and Closure
June 2023

Closure Criteria Worksheet			
Site Name: Tomcat 17 Federal #001			
Spill Coordinates:		X: 32.2990761	Y: -103.6903
Site Specific Conditions		Value	Unit
1	Depth to Groundwater	>51	feet
2	Within 300 feet of any continuously flowing watercourse or any other significant watercourse	23,531	feet
3	Within 200 feet of any lakebed, sinkhole or playa lake (measured from the ordinary high-water mark)	28,997	feet
4	Within 300 feet from an occupied residence, school, hospital, institution or church	38,311	feet
5	i) Within 500 feet of a spring or a private, domestic fresh water well used by less than five households for domestic or stock watering purposes, or		feet
	ii) Within 1000 feet of any fresh water well or spring	5,689	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	29,695	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	No	year
11	Soil Type	Fine sand, fine sandy loam	
12	Ecological Classification	Loamy Sand	
13	Geology	Eolian and piedmont deposits	
NMAC 19.15.29.12 E (Table 1) Closure Criteria		51-100'	<50' 51-100' >100'

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Tomcat 17 Federal #001

2022 Spill Assessment and Closure
June 2023

	Constituent	Limit
0-4 feet bgs (19.15.29.13)	Chloride	600 mg/kg
	TPH (GRO+DRO+MRO)	100 mg/kg
DTGW 51-100 feet (19.15.29.12)	Chloride	10,000 mg/kg
	TPH (GRO+DRO+MRO)	2,500 mg/kg
	GRO+DRO	1,000 mg/kg
	BTEX	50 mg/kg
	Benzene	10 mg/kg

bgs – Below ground surface

DTGW – Depth to groundwater

TPH – Total petroleum hydrocarbons = gasoline range organics (GRO) + diesel range organics (DRO) + motor oil range organics (MRO),

BTEX - Benzene, toluene, ethylbenzene, and xylenes

Remedial Actions Taken

Initial site inspection and release characterization activities at Tomcat were initiated by Vertex on May 18, 2020. Characterization was finalized on January 17, 2023, when horizontal and vertical delineation of the release was completed. The remaining areas of impact within the containment were a portion immediately north of the northwest tank and an area around the tanks within the south half of the containment. The northern impact area was determined to be approximately 20 feet long and 14 feet wide, covering an area of 78 square feet. The southern impact area was approximately 61 feet long and 29 feet wide, covering an area of 528 square feet. The DFRs associated with the site visits are included in Attachment 3. Characterization sample locations and approximate impacted areas are presented on Figure 1 (Attachment 1). Characterization field screening and laboratory results are summarized in Table 2 (Attachment 5).

Remediation efforts began on July 16, 2020, when Micro-Blaze, a hydrocarbon bioremediation agent, was applied to the impacted area. Sampling conducted well after the 40-day treatment period still exceeded NMOCD reclamation criteria. Excavation began on December 6, 2022, and was completed on January 7, 2023. Vertex personnel supervised the excavation of impacted soils with hand tools. Field screening results were used to identify areas requiring further remediation from those areas showing concentrations below determined closure criteria levels. Field screening was completed using a Photo Ionization Detector (volatile hydrocarbons), Dextsil Petroflag using EPA SW-846 Method 9074 (extractable hydrocarbons) and an Electroconductivity meter (chloride). Field screening results and daily field reports are presented in Attachment 3.

On January 7, 2023, excavation was completed with approximately 465 total yards having been removed for disposal. Soils were removed to a depth of 2 feet bgs east of the tanks, and 4 feet bgs west and north of the tanks. The total surface area of the excavation walls was approximately 1,810 square feet, and the total surface area of the excavation base was approximately 2,600 square feet. Impacted soil was transported by a licensed waste hauler and disposed of at an approved waste management facility.

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Notification that confirmatory samples were being collected was provided to the NMOCD on December 8 and 20, 2022, and January 3, 2023, and are included in Attachment 6. Confirmatory samples were collected from the base and walls of the excavation as five-point composites. Each composite sample was representative of no more than 200 square feet per the alternate sampling method outlined in Subparagraph (c) of Paragraph (1) of Subsection D 19.15.29.12 NMAC, which does not require prior NMOCD approval. A total of 15 excavation base samples, and 21 excavation wall samples, were collected for laboratory analysis following NMOCD soil sampling procedures. Samples were submitted to Hall Environmental Laboratory Analysis under chain-of-custody protocols and analyzed for BTEX (EPA Method 8021B), total petroleum hydrocarbons (GRO, DRO, MRO – EPA Method 8015D) and total chloride (EPA Method 300.0). Laboratory results are presented in Table 3 (Attachment 5) and laboratory data reports are included in Attachment 7. All confirmatory samples collected and analyzed were below closure criteria for the site.

Closure Request

Vertex recommends no additional remedial actions to address the release at Tomcat 17 Federal #001. Soils impacted by the release have tested below the criteria and in accordance with Paragraph (4) of Subsection C of 19.15.29.12 NMAC and Paragraph (1) of Subsection D of 19.15.29.13 NMAC as shown in the laboratory analysis in Attachment 7. Laboratory analyses of the confirmatory samples from surface to 4 feet bgs showed constituent of concern concentration levels below NMOCD closure criteria for areas where depth to groundwater is less than 50 feet bgs as shown in Table 1. Laboratory analyses of the confirmatory samples collected 4 feet bgs and below showed constituent of concern concentration levels below NMOCD closure criteria for areas where depth to groundwater is between 51 and 100 feet bgs as shown in Table 1. The excavation was backfilled with non-waste-containing, uncontaminated, earthen material, sourced locally, and placed to meet the site's existing grade to prevent ponding of water and erosion. There are no anticipated risks to human, ecological or hydrological receptors associated with the release site.

Vertex requests that these incidents (nSAP0219636264 and nKJ1524345298) be closed as all closure requirements set forth in Subsection E of 19.15.29.12 NMAC have been met. Devon certifies that all information in this report and the attachments is correct, and that they have complied with all applicable closure requirements and conditions specified in Division rules and directives to meet NMOCD requirements to obtain closure on the historical releases at Tomcat.

Devon Energy Production Company, LP
Tomcat 17 Federal #001

2022 Spill Assessment and Closure
June 2023

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

Lakin Pullman

Lakin Pullman, B.Sc.
ENVIRONMENTAL SPECIALIST, REPORTING

June 9, 2023

Date

Kent Stallings P.G.

Kent Stallings, P.G.
PROJECT MANAGER, REPORT REVIEW

June 12, 2023

Date

Attachments

- Attachment 1. Figures
- Attachment 2. NMOCD C-141 Reports
- Attachment 3. Daily Field Reports with Photographs
- Attachment 4. Closure Criteria for Soils Impacted by a Release Research Determination Documentation
- Attachment 5. Tables
- Attachment 6. Confirmatory Sampling Notification to the NMOCD
- Attachment 7. Laboratory Data Reports and Chain of Custody Forms

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References

- Google Inc. (2023). *Google Earth Pro* (Version 7.3.4) [Software]. Retrieved from <http://www.google.com/earth> on January 8, 2023.
- New Mexico Bureau of Geology and Mineral Resources. (2022). *Interactive Geologic Map*. Retrieved from <http://geoinfo.nmt.edu>.
- New Mexico Oil Conservation Division. (2018). *New Mexico Administrative Code – Natural Resources and Wildlife Oil and Gas Releases*. Santa Fe, New Mexico.
- New Mexico Office of the State Engineer, New Mexico Water Rights Reporting System. (2023). *Water Column/Average Depth to Water Report*. Retrieved from <http://nmwrrs.ose.state.nm.us/nmwrrs/waterColumn.html>
- United States Department of Agriculture, Natural Resources Conservation Service. (2022). *Web Soil Survey*. Retrieved from <https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>.
- United States Department of the Interior, Bureau of Land Management. (2018). *New Mexico Cave/Karst*. Retrieved from https://www.nm.blm.gov/shapeFiles/cfo/carlsbad_spatial_data.html
- United States Fish and Wildlife Service. (2023). *National Wetland Inventory - Surface Waters and Wetlands*. Retrieved from <https://fwsprimary.wim.usgs.gov/wetlands/apps/wetlands-mapper/>

Devon Energy Production Company, LP
Tomcat 17 Federal #001

2022 Spill Assessment and Closure
June 2023

Limitations

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

ATTACHMENT 1



◆ Borehole (Prefixed by "BH22-")
 ▭ Estimated North Release (~78 sq. ft.)
▭ Estimated South Release (~528 sq. ft.)
▭ Approximate Lease Boundary



NAD 1983 UTM Zone 13N
Date: Feb 14/23



**Characterization Sample Locations
Tomcat 17 Federal #001**

FIGURE:
1

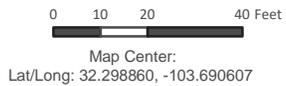


Geospatial data presented in this figure may be derived from external sources and Vertex does not assume any liability for inaccuracies. This figure is intended for reference use only and is not certified for legal, survey, or engineering purposes.

Note: Background imagery from Google Earth, 2022. Features from GPS. Vertex Professional Services Ltd., 2023.



- Base Sample (Prefixed by "BS22-")
- ▲ Wall Sample (Prefixed by "WS22-")
- (with 'C') Compressor
- - Pipeline
- (dashed) Approximate Lease Boundary
- (pink) Excavation to 4' (~1,974 sq. ft.)
- (blue) Excavation to 2' (~626 sq. ft.)



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



Confirmatory Sample Locations Tomcat 17 Federal #001

FIGURE:

2



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

Note: Background imagery from Google Earth, 2022. Features from GPS. Vertex Professional Services Ltd., 2023.

ATTACHMENT 2

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	nSAP0219636264
District RP	
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 # nSAP0219636264
Contact mailing address P.O. Box 936 Roswell, NM 88202	

Location of Release Source

Latitude **32.298865** _____ Longitude **-103.690714** _____
(NAD 83 in decimal degrees to 5 decimal places)

Site Name Tomcat 17 Federal #001	Site Type Oil Well and Tank Battery
Date Release Discovered 07/15/2002	API# 30-025-34690

Unit Letter	Section	Township	Range	County
P	17	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)

<input checked="" type="checkbox"/> Crude Oil	Volume Released (bbls) 110	Volume Recovered (bbls) 34
<input type="checkbox"/> Produced Water	Volume Released (bbls)	Volume Recovered (bbls)
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	<input type="checkbox"/> Yes <input type="checkbox"/> No
<input type="checkbox"/> Condensate	Volume Released (bbls)	Volume Recovered (bbls)
<input type="checkbox"/> Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
<input type="checkbox"/> Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release

**Release is historical and on file with NMOCD but original C-141 is not on file (possibly never uploaded).
Fill likely line leaked, possibly due to perforation. Notation on NMOCD incident web page is as follows:
"FILL LINE WAS REPLACED. SPILL INSIDE TANK BATTERY DIKE. SAMPLES TAKEN & BEING REMEDIATED."**

State of New Mexico
Oil Conservation Division

Page 2

Incident ID	nSAP0219636264
District RP	
Facility ID	
Application ID	

Was this a major release as defined by 19.15.29.7(A) NMAC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If YES, for what reason(s) does the responsible party consider this a major release? Volume released (110 bbl) exceeds 25 bbl.
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)? Release is historical and on file with NMOCD but original C-141 is not on file. Timeline of notice and parties informed are unknown.	

Initial Response

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

<input checked="" type="checkbox"/> The source of the release has been stopped. <input checked="" type="checkbox"/> The impacted area has been secured to protect human health and the environment. <input checked="" type="checkbox"/> Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices. <input checked="" type="checkbox"/> All free liquids and recoverable materials have been removed and managed appropriately.
If all the actions described above have <u>not</u> been undertaken, explain why:
Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.
Printed Name: <u>Jeff Harvard</u> Title: <u>President and Manager</u> Signature: _____ Date: _____ email: <u>jharvard@hpcnm.com</u> Telephone: <u>575-208-7135</u>
<u>OCD Only</u> Received by: _____ Date: _____

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

Form C-141
Revised August 8, 2011

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

Release Notification and Corrective Action

OPERATOR

Initial Report Final Report

Name of Company Devon Energy Production		Contact Dan Suniga	
Address 6488 Seven Rivers Hwy Artesia, NM 88220		Telephone No. 575.390.5850	
Facility Name Tomcat 17 Federal 1		Facility Type Oil	
Surface Owner Federal	Mineral Owner Federal	API No. 30-025-34690	

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
P	17	23S	32E	660	FSL	660	FEL	LEA

Latitude: 32.299008 Longitude: 106.689833

NATURE OF RELEASE

Type of Release Spill Oil	Volume of Release 90 BBL	Volume Recovered 10 BBL
Source of Release Hole at the bottom of oil tank	Date and Hour of Occurrence 8/26/15 11:00 am	Date and Hour of Discovery 8/26/15 11:00 am
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? Jim Amos BLM OCD office	
By Whom? Ray Carter	Date and Hour 8/26/15 11:15 am BLM 8/26/15 11:20 am OCD	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse	

RECEIVED

By OCD District 1 at 12:30 pm, Aug 31, 2015

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*
On 8/26/15 at the Tomcat 17 Fed 1 an oil tank had a hole at the bottom of tank causing a spill all in containment. The well was shut in and a vendor was called out to empty all oil tanks into frac tanks.

Describe Area Affected and Cleanup Action Taken.*
A 90 BBL oil spill and 10 BBL recovered on a 30' X 100' area in unlined containment. An environmental company will be called out to evaluate area.

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

Signature: <i>Jeanette Barron</i>	<u>OIL CONSERVATION DIVISION</u>	
Printed Name: Jeanette Barron	Approved by Environmental Specialist: 	
Title: Field Admin Support	Approval Date: 08/31/2015	Expiration Date: 10/31/2015
E-mail Address: Jeanette.barron@dvn.com	Conditions of Approval: Site samples required. Delineate and remediate as per MNOCD guides. Geotag photographs of remediation required.	Attached <input type="checkbox"/> 6137 IRP-3833
Date: 8/28/15 Phone: 575.748.1813		

* Attach Additional Sheets If Necessary

nKJ1524345298
pKJ1524348116

Incident ID	nSAP0219636264, nKJ1524345298
District RP	1RP-3833
Facility ID	30-025-34690
Application ID	

Site Assessment/Characterization

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

What is the shallowest depth to groundwater beneath the area affected by the release?	<u>>51</u> (ft bgs)
Did this release impact groundwater or surface water?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a wetland?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying a subsurface mine?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying an unstable area such as karst geology?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within a 100-year floodplain?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Did the release impact areas not on an exploration, development, production, or storage site?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

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

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

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

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

State of New Mexico
Oil Conservation Division

Page 4

Incident ID	nSAP0219636264, nKJ1524345298
District RP	1RP-3833
Facility ID	30-025-34690
Application ID	

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

Printed Name: Jeff Harvard Title: President and Manager

Signature: _____ Date: _____

email: jharvard@hpcnm.com Telephone: 575-208-7135

OCD Only

Received by: _____ Date: _____

Incident ID	nSAP0219636264, nKJ1524345298
District RP	1RP-3833
Facility ID	30-025-34690
Application ID	

Closure

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

Closure Report Attachment Checklist: *Each of the following 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

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations. The responsible party acknowledges they must substantially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed prior to the release or their final land use in accordance with 19.15.29.13 NMAC including notification to the OCD when reclamation and re-vegetation are complete.

Printed Name: Jeff Harvard Title: President and Manager

Signature: _____ Date: _____

email: jharvard@hpcnm.com Telephone: 575-208-7135

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: _____ Title: _____

ATTACHMENT 3



Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	7/16/2020
Site Location Name:	Tomcat 17 Federal 001	Report Run Date:	7/17/2020 4:18 PM
Client Contact Name:	Amanda Davis	API #:	30-025-34690
Client Contact Phone #:	(575) 748-0176		
Unique Project ID	-Tomcat 17 Federal 001	Project Owner:	Tom Bynum
Project Reference #	Spill 1RP-3833	Project Manager:	Natalie Gordon

Summary of Times

Arrived at Site	7/16/2020 10:00 AM
Departed Site	7/16/2020 5:03 PM

Field Notes

10:28 Bioremediation of oil release conducted by Wildwest Services. Micro blaze will be applied to impacted area around tanks at a depth of 2-3 feet below surface.

Next Steps & Recommendations

- 1 Continue to water containment area to reactivate microblaze.
- 2 Schedule confirmatory sampling after microblaze sits for approximately 40 days.



Daily Site Visit Report

Site Photos

Viewing Direction: West



Descriptive Photo - 1
Viewing Direction: West
Desc: Impacted Area prior to remediation
Created: 7/18/2020 10:29:07 AM
Lat:32.298901, Long:-103.890855

Impacted Area prior to remediation

Viewing Direction: South



Descriptive Photo - 10
Viewing Direction: South
Desc: Area flooded with microblaze
Created: 7/18/2020 4:21:43 PM
Lat:32.299037, Long:-103.890859

Area flooded with microblaze

Viewing Direction: North



Descriptive Photo - 11
Viewing Direction: North
Desc: Area flooded with microblaze
Created: 7/18/2020 4:23:27 PM
Lat:32.298901, Long:-103.890733

Area flooded with microblaze

Viewing Direction: North

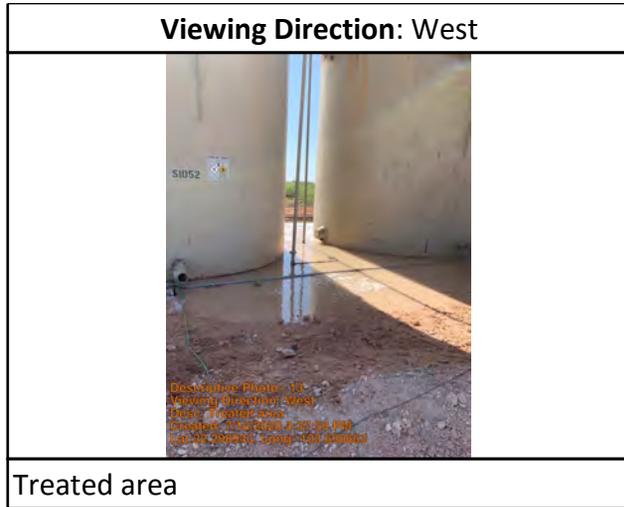


Descriptive Photo - 12
Viewing Direction: North
Desc: Area flooded with microblaze
Created: 7/18/2020 4:25:11 PM
Lat:32.298946, Long:-103.890829

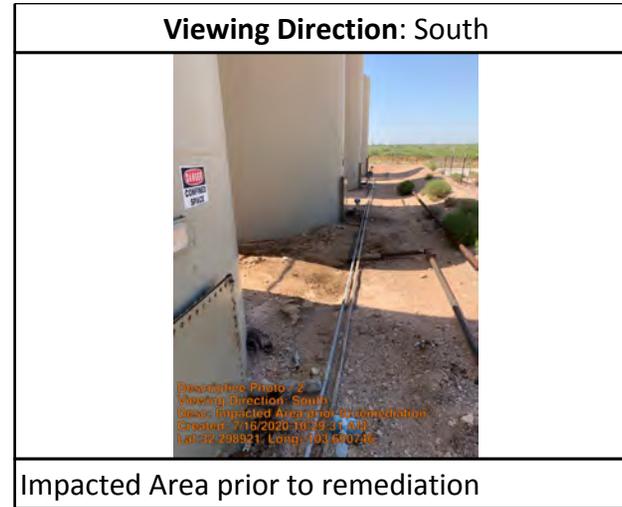
Area flooded with microblaze



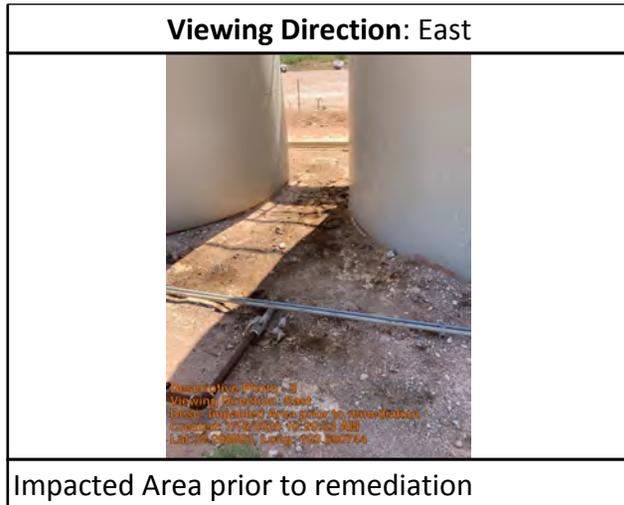
Daily Site Visit Report



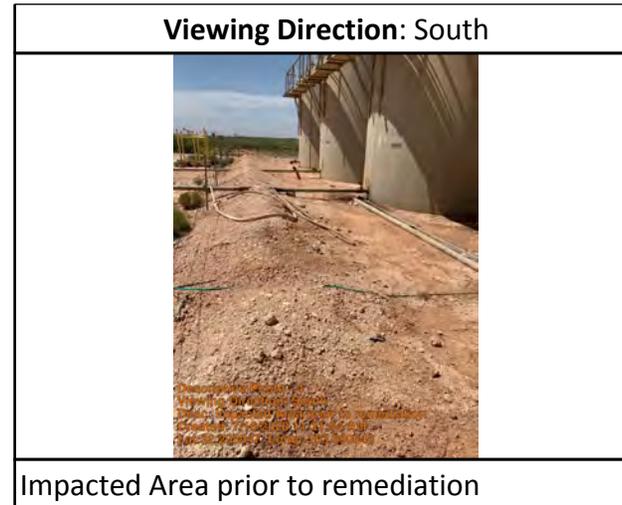
Treated area



Impacted Area prior to remediation



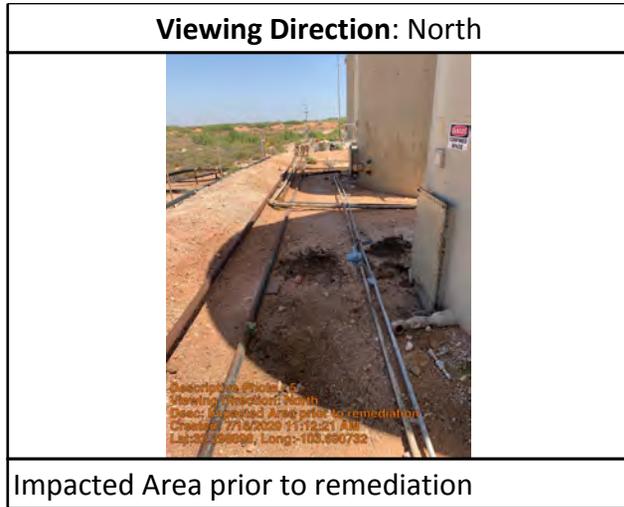
Impacted Area prior to remediation



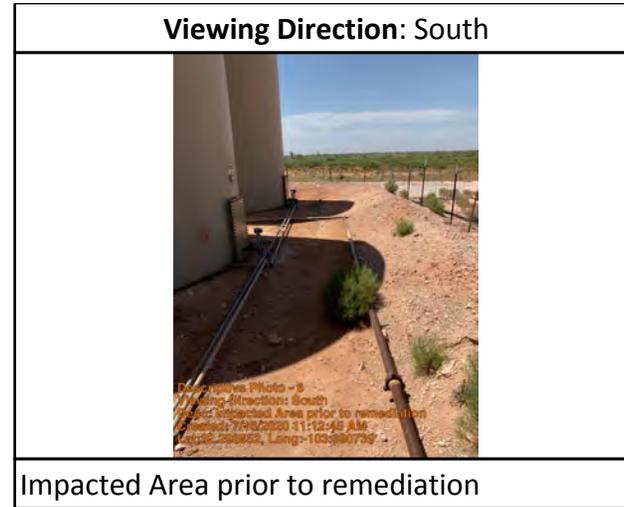
Impacted Area prior to remediation



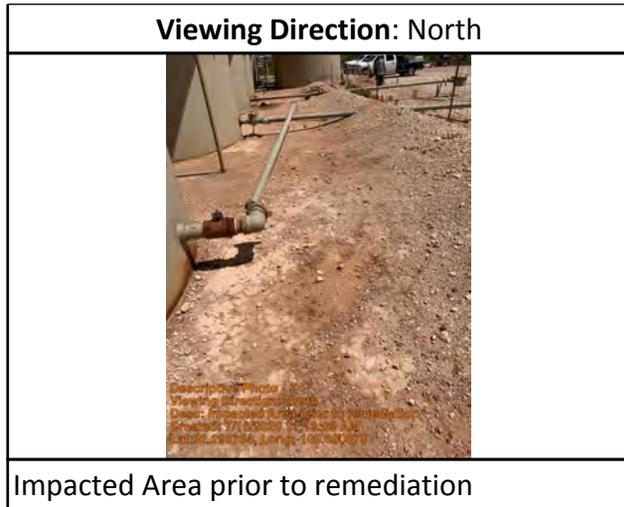
Daily Site Visit Report



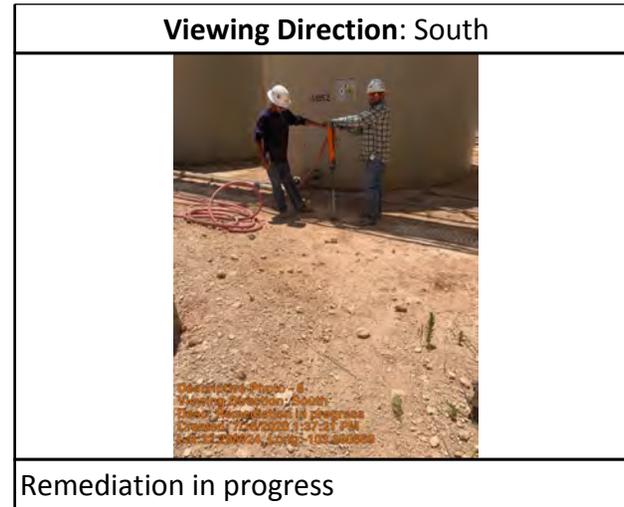
Impacted Area prior to remediation



Impacted Area prior to remediation



Impacted Area prior to remediation



Remediation in progress



Daily Site Visit Report

Viewing Direction: East	
	 <p><small>Descriptive Photo: 3 Viewing Direction: East Image Description used for field notes with a Created: 7/18/2020 4:28:38 PM File: 20200718_042838.jpg</small></p>
Boreholes used to flood subsurface with microblaze	

Daily Site Visit Report



Daily Site Visit Signature

Inspector: Kevin Smith

Signature:

Ken Smith

Signature



Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	5/15/2022
Site Location Name:	Tomcat 17 Federal 001	Report Run Date:	5/15/2022 11:40 PM
Client Contact Name:	Wes Matthews	API #:	30-025-34690
Client Contact Phone #:	(575) 748-0176		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

Summary of Times

Arrived at Site	5/15/2022 6:45 AM
Departed Site	5/15/2022 4:13 PM

Field Notes

- 6:57** Completed safety paperwork at office. Objective for the day is to collect soil samples from 8 boreholes around tank battery and assess current remediation needs.
- 12:42** Collected 0 , 2, and 4 foot bgs samples at 8 boreholes around containment area and packaged all samples for laboratory analysis of chloride, TPH, and BTEX concentrations.
- 16:10** Hydrocarbon odor from general area. Field screened all samples, 10x dilution for PetroFlag to save time.
- 16:11** Created current polygon of containment berm in Arc Collector.

Next Steps & Recommendations

- 1** Check laboratory results.



Daily Site Visit Report

Site Photos

Viewing Direction: West



Descriptive Photo - 9
Viewing Direction: West
Desc: East of tank battery facing west.
Created: 5/15/2022 9:34:33 AM
Lat:32.298773, Long:-103.890660

East of tank battery facing west.

Viewing Direction: Northeast



Descriptive Photo - 10
Viewing Direction: Northeast
Desc: South of tanks facing northeast. Collected BH22-06 southeast of south tank.
Created: 5/15/2022 10:17:48 AM
Lat:32.298854, Long:-103.890752

South of tanks facing northeast. Collected BH22-06 southeast of south tank.

Viewing Direction: Northwest



Descriptive Photo - 11
Viewing Direction: Northwest
Desc: South of tanks facing northwest. Collected BH22-07 west of south tank.
Created: 5/15/2022 10:35:57 AM
Lat:32.298747, Long:-103.890719

South of tanks facing northwest. Collected BH22-07 west of south tank.

Viewing Direction: South



Descriptive Photo - 12
Viewing Direction: South
Desc: Northwest of northeast tank facing south. Collected BH22-08 northeast of northeast tank.
Created: 5/15/2022 10:56:51 AM
Lat:32.298957, Long:-103.890728

Northwest of northeast tank facing south. Collected BH22-08 northeast of northeast tank.



Daily Site Visit Report

Viewing Direction: Northwest



Descriptive Photo - 8
Viewing Direction: Northwest
Desc: Southeast of tank battery facing northwest.
Created: 5/15/2022 7:01:20 AM
Lat:32.299057, Long: -103.600716

Southeast of tank battery facing northwest.

Viewing Direction: Southeast



Descriptive Photo - 7
Viewing Direction: Southeast
Desc: Northwest of tank battery facing southeast.
Created: 5/15/2022 7:01:30 AM
Lat:32.299111, Long: -103.600716

Northwest of tank battery facing southeast.

Viewing Direction: South



Descriptive Photo - 6
Viewing Direction: South
Desc: North of tank battery facing south.
Created: 5/15/2022 7:01:27 AM
Lat:32.299111, Long: -103.600716

North of tank battery facing south.

Viewing Direction: Southeast

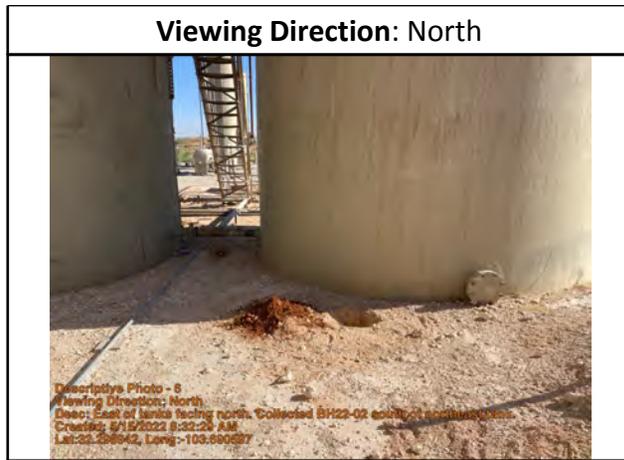


Descriptive Photo - 5
Viewing Direction: Southeast
Desc: Part of view looking southeast. Collected BH22-01 between north tanks.
Created: 5/15/2022 8:04:11 AM
Lat:32.299066, Long: -103.600869

North of tanks facing southeast. Collected BH22-01 between north tanks.



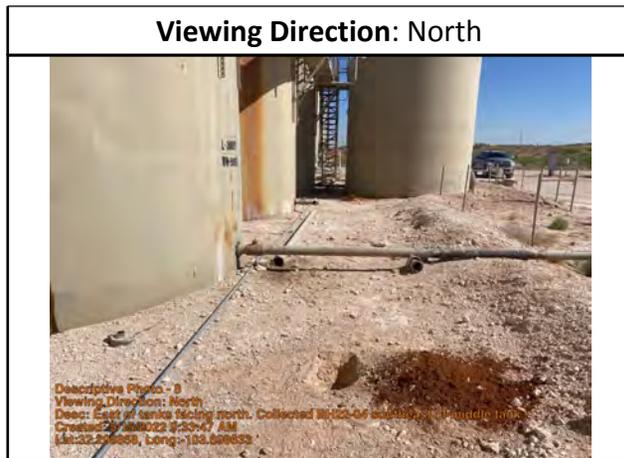
Daily Site Visit Report



East of tanks facing north. Collected BH22-02 south of northeast tank.



West of tanks facing north. Collected BH22-03 northwest of middle tank.



East of tanks facing north. Collected BH22-04 southeast of middle tank.



West of tanks facing southeast. Collected BH22-05 northwest of south tank.

Daily Site Visit Report



Daily Site Visit Signature

Inspector: Lakin Pullman

Signature:

A handwritten signature in black ink, appearing to be 'Lakin Pullman', written over a thin horizontal line. The signature is stylized and cursive.

Signature



Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	1/7/2023
Site Location Name:	Tomcat 17 Federal 001	Report Run Date:	1/7/2023 7:43 PM
Client Contact Name:	Wes Matthews	API #:	30-025-34690
Client Contact Phone #:	(575) 748-0176		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

Summary of Times

Arrived at Site	1/7/2023 6:50 AM
Departed Site	1/7/2023 9:02 AM

Field Notes

- 6:55** Completed JSA on arrival and conducted safety meeting with co-worker. On site to complete confirmation sampling and view final excavation.
- 7:07** Swept sampling surface areas with magnetic locator prior to ground disturbance.
- 8:37** Collected remaining excavation wall confirmation samples WS22-17, WS22-18, WS22-19, WS22-20, and WS22-21. Samples were 5-point composites.
- 8:38** Collected remaining excavation base samples BH22-14 and BH22-15. Samples were 5-point composites.
- 8:39** Excavation was completed and fence reinstalled to limit access to tank battery area and open excavation.
- 9:01** Excavation ready for backfill once laboratory results are confirmed to be below NMOCD requirements.

Next Steps & Recommendations

- 1** Submit confirmation samples for laboratory analyses.



Daily Site Visit Report

Site Photos

Viewing Direction: West



East of tanks facing west.

Viewing Direction: East



Southwest of tanks facing east. Excavation completed.

Viewing Direction: Northeast



Southwest of tanks facing northeast. Excavation completed.

Viewing Direction: West



Southeast of tanks facing west. Excavation completed.



Daily Site Visit Report

Viewing Direction: North



Descriptive Photo - 13
Viewing Direction: North
Desc: Southeast of tanks facing north. Excavation completed.
Created: 1/7/2023 8:28:37 AM
Lat:32.298716, Long:-103.690892

Southeast of tanks facing north. Excavation completed.

Viewing Direction: Northwest



Descriptive Photo - 14
Viewing Direction: Northwest
Desc: Southeast of tanks facing northwest. Excavation completed.
Created: 1/7/2023 8:28:50 AM
Lat:32.298740, Long:-103.690929

Southeast of tanks facing northwest. Excavation completed.

Viewing Direction: South



Descriptive Photo - 15
Viewing Direction: South
Desc: West of tanks facing south. Excavation completed.
Created: 1/7/2023 8:30:17 AM
Lat:32.298954, Long:-103.690644

West of tanks facing south. Excavation completed.

Viewing Direction: Southwest



Descriptive Photo - 16
Viewing Direction: Southwest
Desc: West of tanks facing southwest. Excavation completed.
Created: 1/7/2023 8:30:37 AM
Lat:32.298976, Long:-103.690633

West of tanks facing southwest. Excavation completed.



Daily Site Visit Report

Viewing Direction: West

Descriptive Photo - 2
Viewing Direction: West
Desc: North of tanks facing west. Excavation completed.
Created: 1/7/2023 8:20:28 AM
Lat:32.289056, Long:-103.890682

North of tanks facing west. Excavation completed.

Viewing Direction: South

Descriptive Photo - 3
Viewing Direction: South
Desc: North of tanks facing south. Excavation completed.
Created: 1/7/2023 8:21:09 AM
Lat:32.289056, Long:-103.890682

North of tanks facing south. Excavation completed.

Viewing Direction: South

Descriptive Photo - 4
Viewing Direction: South
Desc: North of tanks facing south. Excavation completed.
Created: 1/7/2023 8:20:57 AM
Lat:32.289056, Long:-103.890682

North of tanks facing south. Excavation completed.

Viewing Direction: West

Descriptive Photo - 5
Viewing Direction: West
Desc: Northwest of tanks facing east. Excavation completed.
Created: 1/7/2023 8:22:09 AM
Lat:32.289056, Long:-103.890682

Northwest of tanks facing east. Excavation completed.



Daily Site Visit Report

Viewing Direction: South

Northwest of tanks facing south. Excavation completed.

Viewing Direction: Northeast

West of tanks facing northeast. Excavation completed.

Viewing Direction: Southeast

West of tanks facing southeast. Excavation completed.

Viewing Direction: North

Southwest of tanks facing north. Excavation completed.

Daily Site Visit Report



Daily Site Visit Signature

Inspector: Lakin Pullman

Signature:

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

Signature



Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	1/16/2023
Site Location Name:	Tomcat 17 Federal 001	Report Run Date:	1/17/2023 1:32 AM
Client Contact Name:	Wes Matthews	API #:	30-025-34690
Client Contact Phone #:	(575) 748-0176		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

Summary of Times

Arrived at Site	1/16/2023 8:40 AM
Departed Site	1/16/2023 4:44 PM

Field Notes

- 9:04** Completed JSA on arrival. On site to collect additional delineation samples.
- 16:36** Swept sampling areas with magnetic locator prior to ground disturbance. Surrounding infrastructure created significant interference.
- 16:40** Advanced BH22-26 northeast of tanks, and BH22-27 west of tanks to 8 feet bgs for vertical delineation.
- 16:41** Collected discrete samples from excavation walls for further horizontal delineation.

Next Steps & Recommendations

- 1** Continue horizontal delineation.



Daily Site Visit Report

Site Photos

Viewing Direction: West



East of tanks facing west.

Viewing Direction: South



Northwest of tanks facing south. Advanced BH22-26 at north end of excavation for vertical delineation.



Daily Site Visit Report

Viewing Direction: North



Descriptive Photo - 5
Viewing Direction: North
Desc: West of tanks facing north. Advanced BH22-27 on south side of excavation for vertical delineation.
Created: 1/19/2023 10:11:33 AM
Lat:32.298796, Long: -103.806617

West of tanks facing north. Advanced BH22-27 on south side of excavation for vertical delineation.

Viewing Direction: South



Descriptive Photo - 6
Viewing Direction: South
Desc: East of tanks facing south. Collected discrete samples from east edge of excavation.
Created: 1/19/2023 10:20:13 AM
Lat:32.298849, Long: -103.806443

East of tanks facing south. Collected discrete samples from east edge of excavation.

Viewing Direction: North



Descriptive Photo - 7
Viewing Direction: North
Desc: Southeast of tanks facing north. Collected discrete samples from east edge of excavation.
Created: 1/19/2023 11:13:11 AM
Lat:32.298796, Long: -103.806617

Southeast of tanks facing north. Collected discrete samples from east edge of excavation.

Viewing Direction: South



Descriptive Photo - 8
Viewing Direction: South
Desc: West of tanks facing south. Collected discrete samples from west edge of excavation.
Created: 1/19/2023 11:13:11 AM
Lat:32.298849, Long: -103.806443

West of tanks facing south. Collected discrete samples from west edge of excavation.

Daily Site Visit Report



Daily Site Visit Signature

Inspector: Lakin Pullman

Signature:


Signature



Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	1/17/2023
Site Location Name:	Tomcat 17 Federal 001	Report Run Date:	1/18/2023 1:40 AM
Client Contact Name:	Wes Matthews	API #:	30-025-34690
Client Contact Phone #:	(575) 748-0176		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

Summary of Times

Arrived at Site	1/17/2023 7:10 AM
Departed Site	1/17/2023 4:50 PM

Field Notes

- 7:47** Completed JSA on arrival. On site to continue additional horizontal delineation.
- 7:54** Swept sampling locations with magnetic locator prior to ground disturbance.
- 11:06** Collected discrete samples from west, north, and northeast points of excavation to refine horizontal delineation.
- 15:36** Completed horizontal and vertical delineation pending laboratory results.

Next Steps & Recommendations

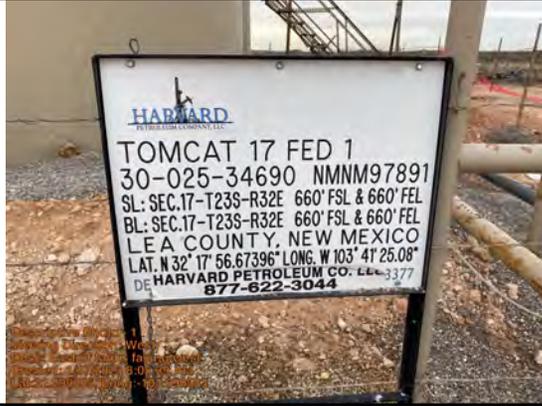
- 1 Complete and submit remediation plan and corresponding closure report pending laboratory results.



Daily Site Visit Report

Site Photos

Viewing Direction: West



East of tanks facing west.

Viewing Direction: West



North of tanks facing west. Collected discrete samples from edges of excavation.

Viewing Direction: South



North of tanks facing south. Collected discrete samples from edges of excavation.

Viewing Direction: Southeast



Northwest of tanks facing southeast. Collected discrete samples from edges of excavation.



Daily Site Visit Report

Viewing Direction: South



Description Photo:
Viewing Direction: South
Date: Northwest of tanks facing south. Collected discrete samples from edges of excavation.
Created: 1/17/2023 11:02:41 AM
Lat:32.289068, Long:-103.880744

Northwest of tanks facing south. Collected discrete samples from edges of excavation.

Viewing Direction: North



Description Photo:
Viewing Direction: North
Date: West of tanks facing north. Collected discrete samples from edges of excavation.
Created: 1/17/2023 11:00:41 AM
Lat:32.289068, Long:-103.880744

West of tanks facing north. Collected discrete samples from edges of excavation.

Daily Site Visit Report



Daily Site Visit Signature

Inspector: Lakin Pullman

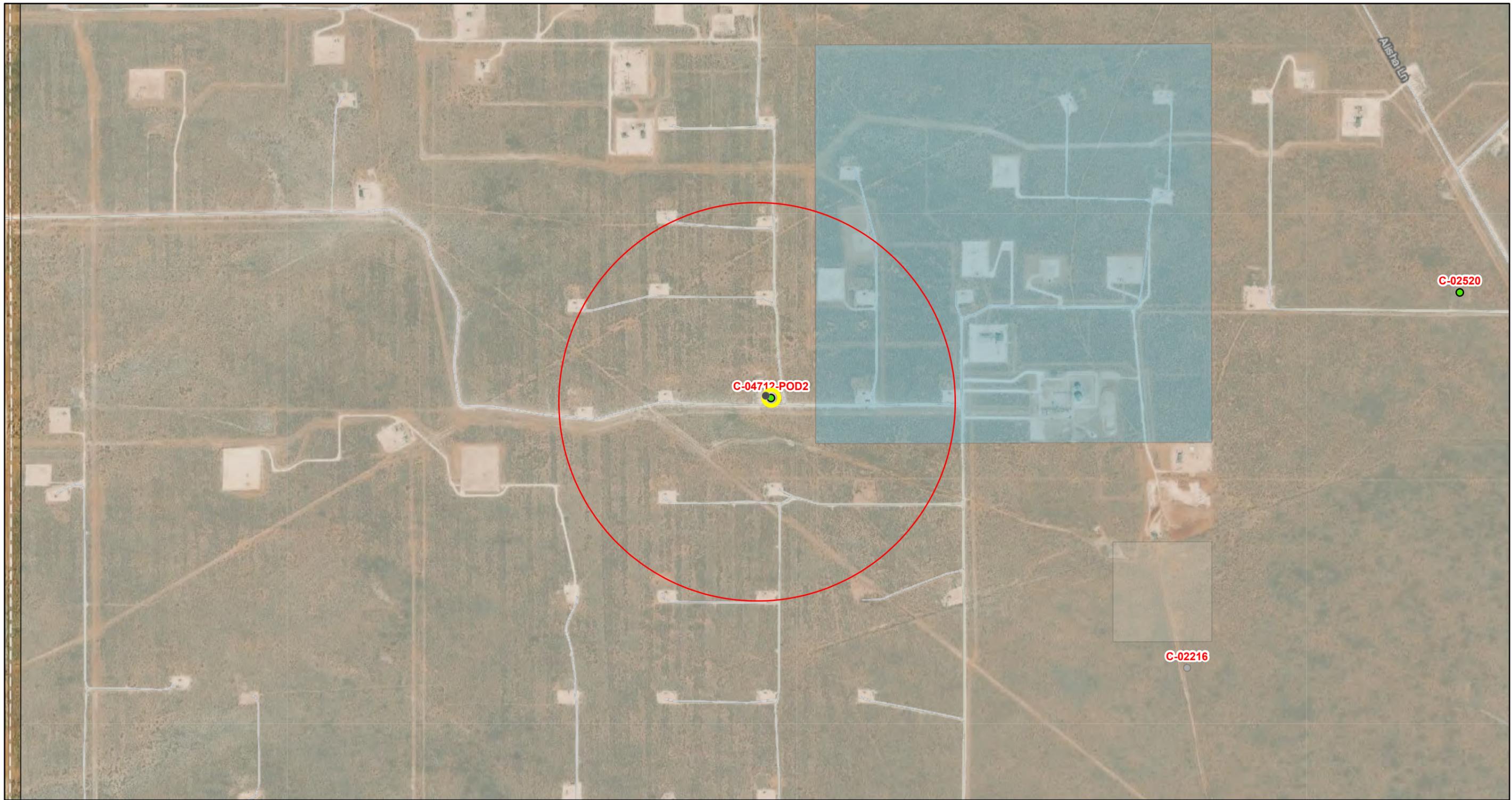
Signature:

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

Signature

ATTACHMENT 4

OSE POD 0.5 mile



4/17/2023, 12:40:39 PM

GIS WATERS PODs

● Pending

●

□ OSE District Boundary

Water Right Regulations

□ Closure Area

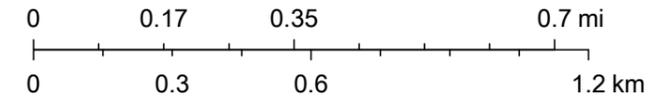
New Mexico State Trust Lands

□ Subsurface Estate

□ Both Estates

□ SiteBoundaries

1:18,056



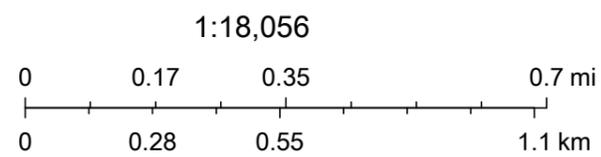
Esri, HERE, iPC, U.S. Department of Energy Office of Legacy Management, Esri, HERE, Garmin, iPC, Maxar

OSE POD 0.5 mile



6/8/2023, 4:39:44 PM

- GIS WATERS PODs
- Active
 - Pending
 -
- OSE District Boundary
 - Closure Area
- New Mexico State Trust Lands
 - Subsurface Estate
 - Both Estates
 - SiteBoundaries



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



New Mexico Office of the State Engineer Point of Diversion Summary

Well Tag	POD Number	(quarters are 1=NW 2=NE 3=SW 4=SE)				(quarters are smallest to largest)		(NAD83 UTM in meters)	
		Q64	Q16	Q4	Sec	Tws	Rng	X	Y
NA	C 04712 POD2	4	4	4	17	23S	32E	623332	3574331 

Driller License: 1833 **Driller Company:** VISION RESOURCES, INC
Driller Name: JASON MALEY
Drill Start Date: 03/09/2023 **Drill Finish Date:** 03/09/2023 **Plug Date:** 03/14/2023
Log File Date: 04/04/2023 **PCW Rev Date:** **Source:**
Pump Type: **Pipe Discharge Size:** **Estimated Yield:**
Casing Size: **Depth Well:** 55 feet **Depth Water:**

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

4/16/23 2:46 PM

POINT OF DIVERSION SUMMARY



New Mexico Office of the State Engineer

Water Column/Average Depth to Water

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

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

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

(quarters are smallest to largest) (NAD83 UTM in meters)

(In feet)

POD Number	Code	POD Sub-basin	County	Q 6	Q 4	Q 4	Sec	Tws	Rng	X	Y	Distance	DepthWell	DepthWater	Water Column
C_04712 POD2	CUB	LE	4	4	4	17	23S	32E	623332	3574331		24	55		
C_03851 POD1	CUB	LE	3	3	4	20	23S	32E	622880	3572660		1734	1392	713	679
C_02216	CUB	LE	2	2	4	21	23S	32E	625035	3573261*		2035	585	400	185
C_03529 POD1	C	LE	2	4	3	29	23S	32E	622651	3571212		3195	550		
C_04712 POD3	CUB	ED	4	1	2	24	23S	31E	619651	3573877		3687	55		
C_02349	CUB	ED		2	3	03	23S	32E	625678	3578004*		4363	525		
C_04712 POD1	CUB	LE	1	4	1	31	23S	32E	620917	3570289		4704	55		

Average Depth to Water: **556 feet**
 Minimum Depth: **400 feet**
 Maximum Depth: **713 feet**

Record Count: 7

UTMNAD83 Radius Search (in meters):

Easting (X): 623309

Northing (Y): 3574340

Radius: 5000

*UTM location was derived from PLSS - see Help

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

4/17/23 12:43 PM

WATER COLUMN/ AVERAGE DEPTH TO WATER



New Mexico Office of the State Engineer

Water Right Summary



[get image list](#)

WR File Number: C 04712 **Subbasin:** CUB **Cross Reference:** -
Primary Purpose: MON MONITORING WELL
Primary Status: PMT PERMIT
Total Acres: **Subfile:** - **Header:** -
Total Diversion: 0 **Cause/Case:** -
Owner: VERTEX RESOURCES
User: HARVARD PETROLEUM COMPANY LLC
Contact: JUSTIN WARREN

Documents on File

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

Current Points of Diversion

(NAD83 UTM in meters)

POD Number	Well Tag	Source	Q				X	Y	Other Location Desc		
			64	Q16	Q4	Sec Tws Rng					
C 04712 POD1	NA		1	4	1	31	23S	32E	620917	3570289	SDE
C 04712 POD2	NA		4	4	4	17	23S	32E	623332	3574331	TOMCAT17
C 04712 POD3	NA		4	1	2	24	23S	31E	619651	3573877	TODD24
C 04712 POD4	NA		1	4	3	14	23S	31E	617535	3574316	TODD14
C 04712 POD5	NA		4	4	3	09	23S	31E	614393	3575754	NPG9
C 04712 POD6	NA		3	3	4	08	23S	31E	613147	3575740	NPG8

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4/17/23 12:50 PM

WATER RIGHT SUMMARY



New Mexico Office of the State Engineer

Transaction Summary

EXPL Permit To Explore

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

Primary Status: PMT Permit
Secondary Status: APR Approved
Person Assigned: *****
Applicant: VERTEX RESOURCES
User: HARVARD PETROLEUM COMPANY LLC
Contact: JUSTIN WARREN

Events

	Date	Type	Description	Comment	Processed By
 get images	12/14/2022	APP	Application Received	*	*****
 get 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	*****
	04/04/2023	LOG	Well Log Received	*C-4712-POD1 DRY	*****
	04/04/2023	DRY	Dry well log received	C-4712 POD1 DRY	*****
	04/04/2023	LOG	Well Log Received	*C-4712-POD2 DRY	*****
	04/04/2023	DRY	Dry well log received	C-4712-POD2 DRY	*****
	04/04/2023	LOG	Well Log Received	*C-4712-POD3 DRY	*****
	04/04/2023	DRY	Dry well log received	C-4712-POD3 DRY	*****
	04/04/2023	LOG	Well Log Received	*C-4712-POD4 DRY	*****
	04/04/2023	DRY	Dry well log received	C-4712-POD4 DRY	*****
	04/04/2023	LOG	Well Log Received	*C-4712-POD5 DRY	*****
	04/04/2023	DRY	Dry well log received	C-4712-POD5 DRY	*****
	04/04/2023	LOG	Well Log Received	*C-4712-POD6 DRY	*****
	04/04/2023	DRY	Dry well log received	C-4712-POD6 DRY	*****

04/04/2023	LGI	Well Log Image	*PLG RECORD C-	*****
04/04/2023	LGI	Well Log Image	*PLG RECORD C-	*****
04/04/2023	LGI	Well Log Image	*PLG RECORD C-	*****
04/04/2023	LGI	Well Log Image	*PLG RECORD C-	*****
04/04/2023	LGI	Well Log Image	*PLG RECORD C-	*****
04/04/2023	LGI	Well Log Image	*PLG RECORD C-	*****
05/24/2023	QAT	Quality Assurance Completed	DATA WR C-4712	*****
05/24/2023	QAT	Quality Assurance Completed	DATA PLG RECORD	*****
06/08/2023	QAT	Quality Assurance Completed	DATA LOG POD1	*****
06/08/2023	QAT	Quality Assurance Completed	DATA LOG POD2	*****
06/08/2023	QAT	Quality Assurance Completed	DATA LOG POD3	*****
06/08/2023	QAT	Quality Assurance Completed	DATA LOG POD4	*****
06/08/2023	QAT	Quality Assurance Completed	DATA LOG POD5	*****
06/08/2023	QAT	Quality Assurance Completed	DATA LOG POD6	*****

Water Right Information

WR File Nbr	Acres	Diversion	Consumptive	Purpose of Use
C 04712	0	0		MON MONITORING WELL

****Point of Diversion**

C 04712 POD2	623332	3574331	
C 04712 POD1	620917	3570289	
C 04712 POD3	619651	3573877	
C 04712 POD6	613090	3576220	
C 04712 POD4	617535	3574316	
C 04712 POD5	614393	3575754	

Conditions

- 1A Depth of the well shall not exceed the thickness of the valley fill.
- 4 No water shall be appropriated and beneficially used under this permit.
- B The well shall be drilled by a driller licensed in the State of New Mexico in accordance with 72-12-12 NMSA 1978. A licensed driller shall not be required for the construction of a well driven without the use of a drill rig, provided that the casing shall not exceed two and three-eighths (2 3/8) inches outside diameter.

- 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

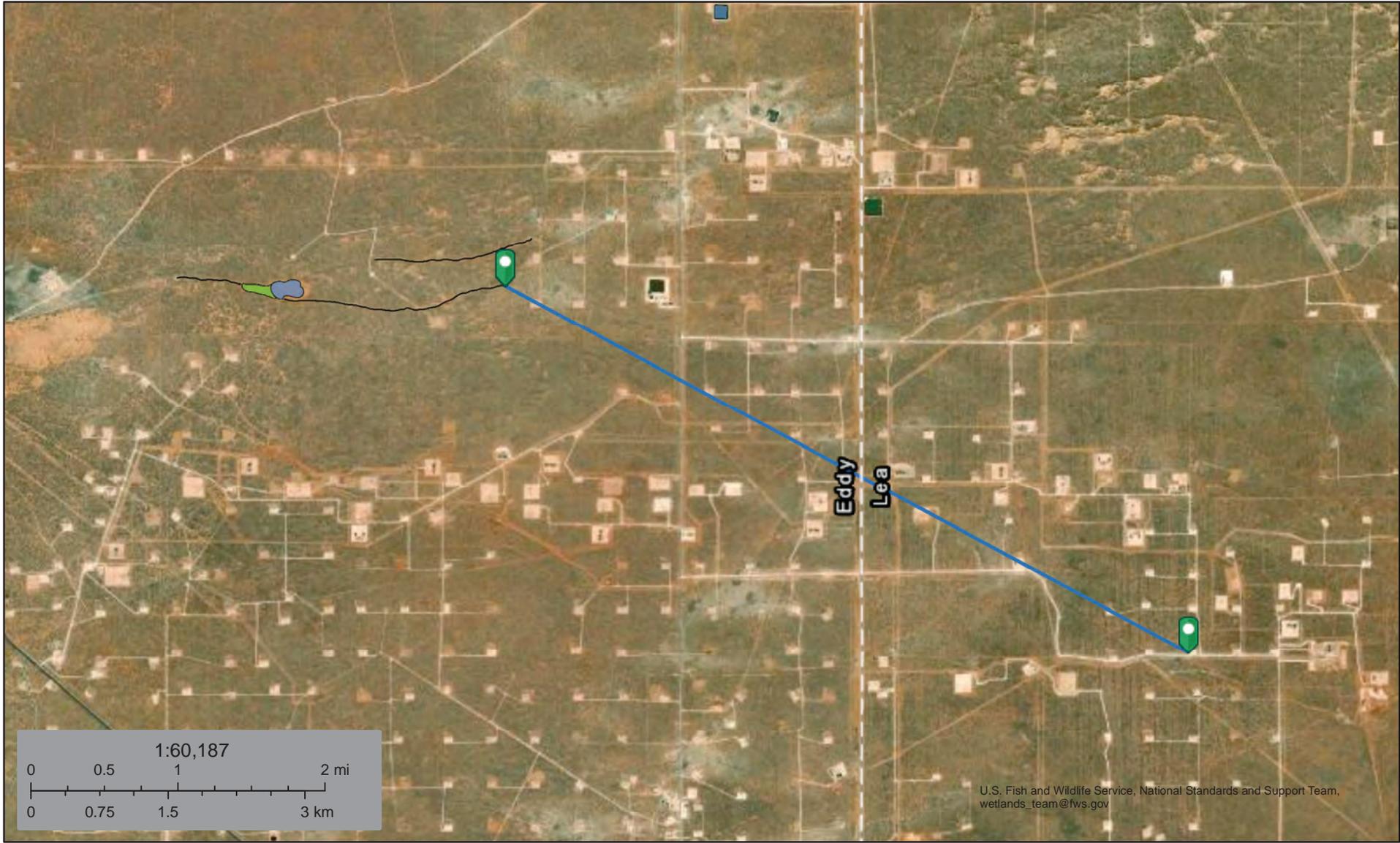
State Engineer: Mike A. Hamman, P.

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6/8/23 4:56 PM

TRANSACTION
SUMMARY

Intermittent 23,531 feet



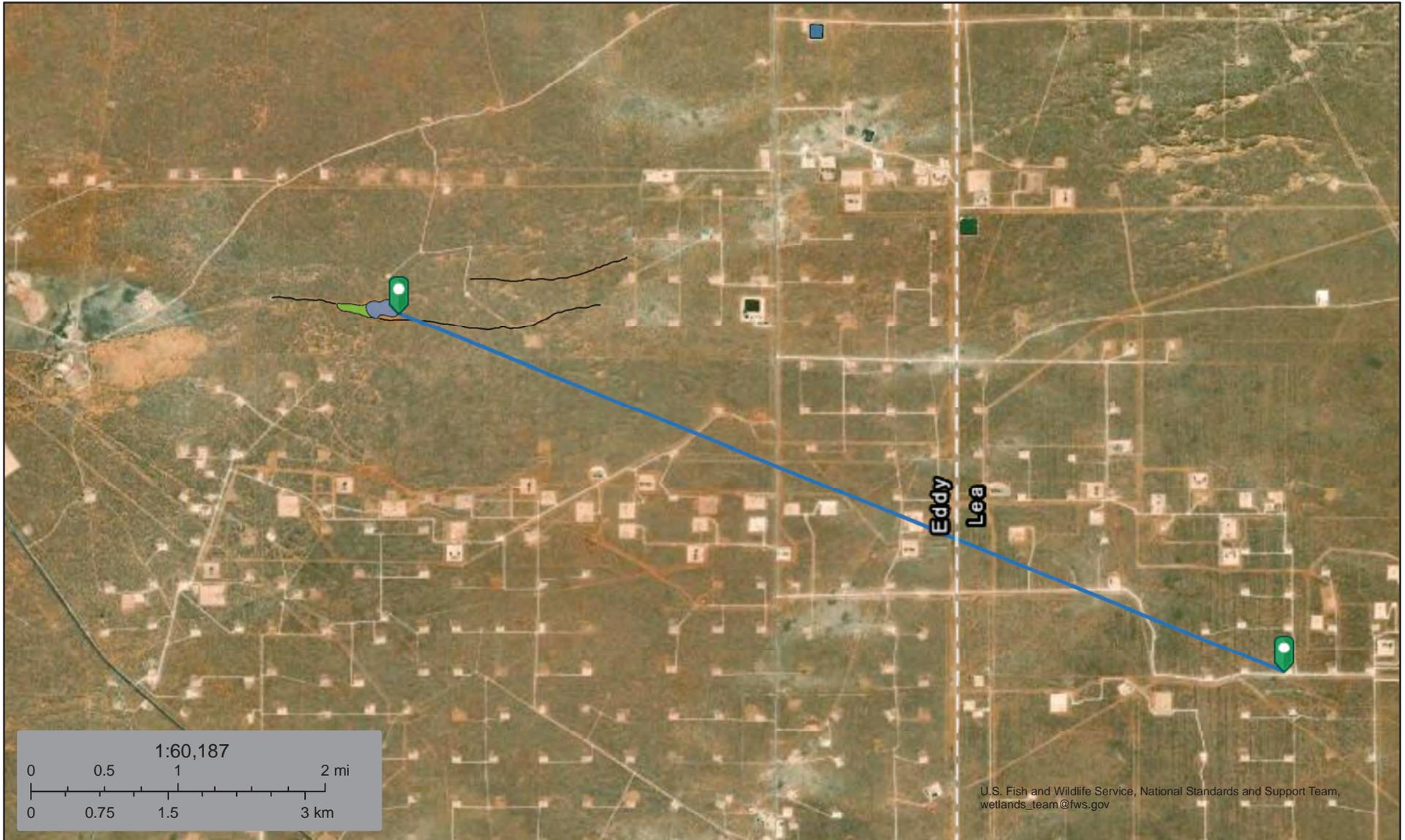
U.S. Fish and Wildlife Service, National Standards and Support Team, wetlands_team@fws.gov

February 14, 2023

Wetlands

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



February 14, 2023

Wetlands

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

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Tomcat 17 Fed 1

Nearest Residence: 7.26 miles (38,311 ft)

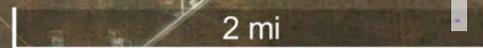
- Feature 1
- 📌 Tomcat 17 Fed 1

Residence

Tomcat 17 Fed 1

128

Jal Hwy





New Mexico Office of the State Engineer

Active & Inactive Points of Diversion

(with Ownership Information)

WR File Nbr	(acre ft per annum)				County	POD Number	Well Tag	Code	Grant	Source	(quarters are 1=NW 2=NE 3=SW 4=SE)			(NAD83 UTM in meters)		Distance				
	Sub basin	Use	Diversion	Owner							q	q	q	X	Y					
C 04712	CUB	MON	0	VERTEX RESOURCES	LE	C 04712 POD2	NA				4	4	17	23S	32E	623331	3574331		24	
C 03851	CUB	MON	0	US DEPARTMENT OF ENERGY	LE	C 03851 POD1				Artesian	3	3	4	20	23S	32E	622879	3572660		1734
C 04703	CUB	MON	0	DEVON ENERGY PRODUCTION CO.	LE	C 04703 POD1	NA				1	4	4	08	26S	32E	623195	3576072		1736
C 02216	CUB	PLS	11.3	BRININSTOOL XL RANCH LLC	LE	C 02216					2	2	4	21	23S	32E	625035	3573261*		2035
C 02520	C	PRO	0	PENWELL ENERGY	LE	C 02520					1	4	15	23S	32E	626122	3574791*		2848	
C 03529	C	STK	0	ANNETTE MCCLOY	LE	C 03529 POD1					2	4	3	29	23S	32E	622651	3571212		3195
C 04704	CUB	MON	0	DEVON ENERGY	ED	C 04704 POD1	NA				3	2	2	13	23S	31E	619854	3575363		3603
C 04712	CUB	MON	0	VERTEX RESOURCES	ED	C 04712 POD3	NA				4	1	2	24	23S	31E	619650	3573877		3687
C 02349	CUB	STK	3	CHARLES F. JAMES	ED	C 02349					2	3	03	23S	32E	625678	3578004*		4363	
C 04712	CUB	MON	0	VERTEX RESOURCES	LE	C 04712 POD1	NA				1	4	1	31	23S	32E	620917	3570289		4704

Record Count: 10

UTMNAD83 Radius Search (in meters):

Easting (X): 623309 **Northing (Y):** 3574340 **Radius:** 5000

Sorted by: Distance

*UTM location was derived from PLSS - see Help

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4/17/23 12:43 PM

ACTIVE & INACTIVE POINTS OF DIVERSION



New Mexico Office of the State Engineer

Point of Diversion Summary

	(quarters are 1=NW 2=NE 3=SW 4=SE) (quarters are smallest to largest)		(NAD83 UTM in meters)	
Well Tag	POD Number	Q64 Q16 Q4 Sec Tws Rng	X	Y
C 03851 POD1		3 3 4 20 23S 32E	622880	3572660

Driller License: 1723		Driller Company: SBQ2, LLC DBA STEWART BROTHERS DRILLING CO.		
Driller Name:				
Drill Start Date: 08/19/2015	Drill Finish Date: 10/02/2015	Plug Date:		
Log File Date: 11/10/2015	PCW Rev Date:	Source: Artesian		
Pump Type:	Pipe Discharge Size:	Estimated Yield: 3 GPM		
Casing Size: 5.00	Depth Well: 1392 feet	Depth Water: 713 feet		

Water Bearing Stratifications:	Top	Bottom	Description
	1354	1380	Limestone/Dolomite/Chalk

Casing Perforations:	Top	Bottom	
	1354	1383	

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1/28/23 3:36 PM

POINT OF DIVERSION SUMMARY



New Mexico Office of the State Engineer

Water Right Summary



[get image list](#)

WR File Number: C 03851 **Subbasin:** CUB **Cross Reference:** -
Primary Purpose: MON MONITORING WELL
Primary Status: PMT PERMIT
Total Acres: **Subfile:** - **Header:** -
Total Diversion: 0 **Cause/Case:** -
Owner: US DEPARTMENT OF ENERGY
Contact: GEORGE BASABILVAZO

Documents on File

Trn #	Doc	File/Act	Status		Transaction Desc.	From/	Acres	Diversion	Consumptive
			1	2		To			
get images	564731	EXPL	2015-07-09	PMT	LOG	C 03851 POD1	T	0	0

Current Points of Diversion

POD Number	Well Tag	Source	Q						X	Y	Other Location Desc		
			(NAD83 UTM in meters)										
			64	Q	16	Q	4	Sec	Tws	Rng			
C 03851	POD1	Artesian	3	3	4	20	23S	32E	622880	3572660		H-10CR (C-2695)	

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1/28/23 3:37 PM

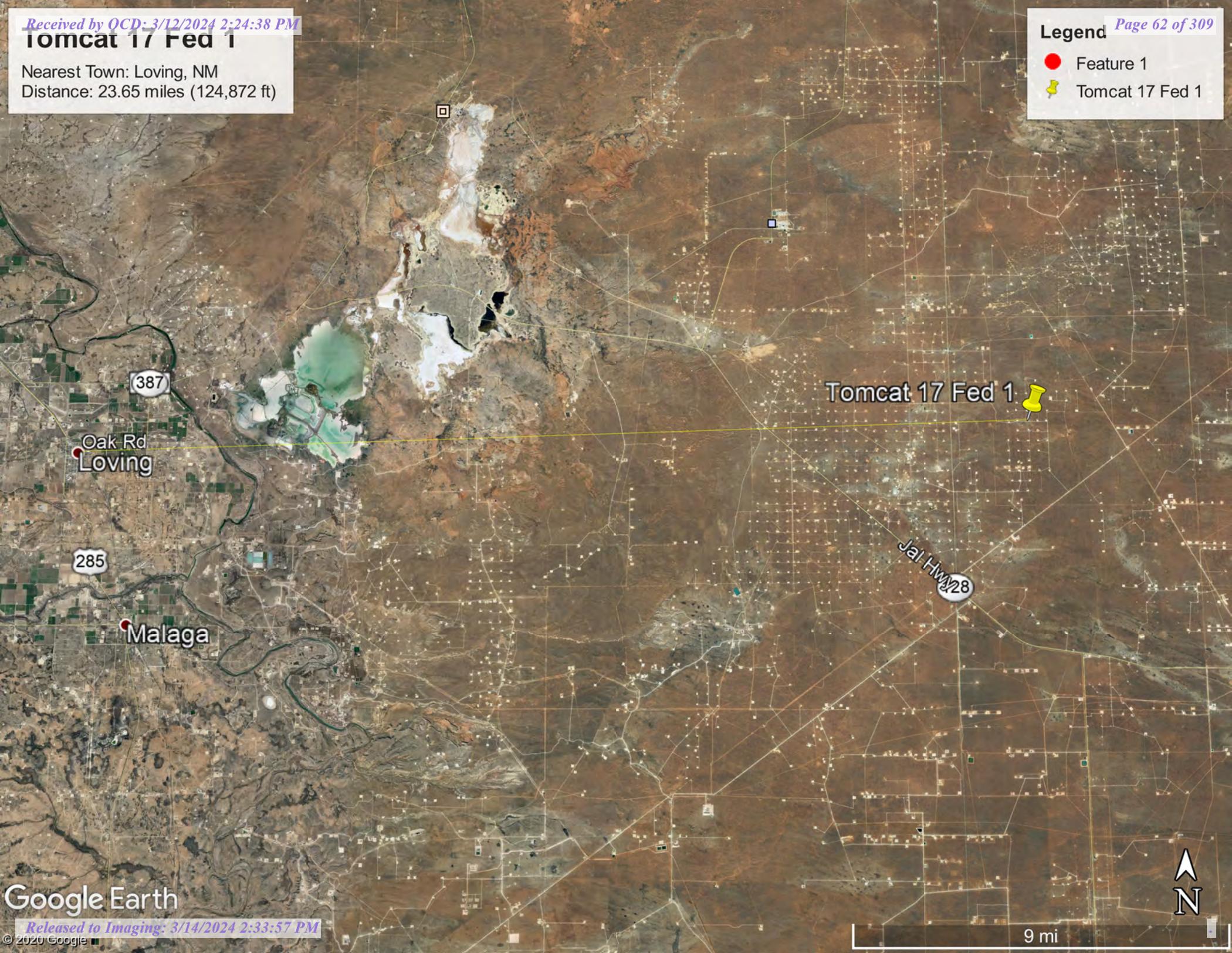
WATER RIGHT SUMMARY

Tomcat 17 Fed 1

Nearest Town: Loving, NM
Distance: 23.65 miles (124,872 ft)

Legend *Page 62 of 309*

- Feature 1
- 📌 Tomcat 17 Fed 1



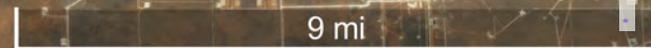
Tomcat 17 Fed 1 📌

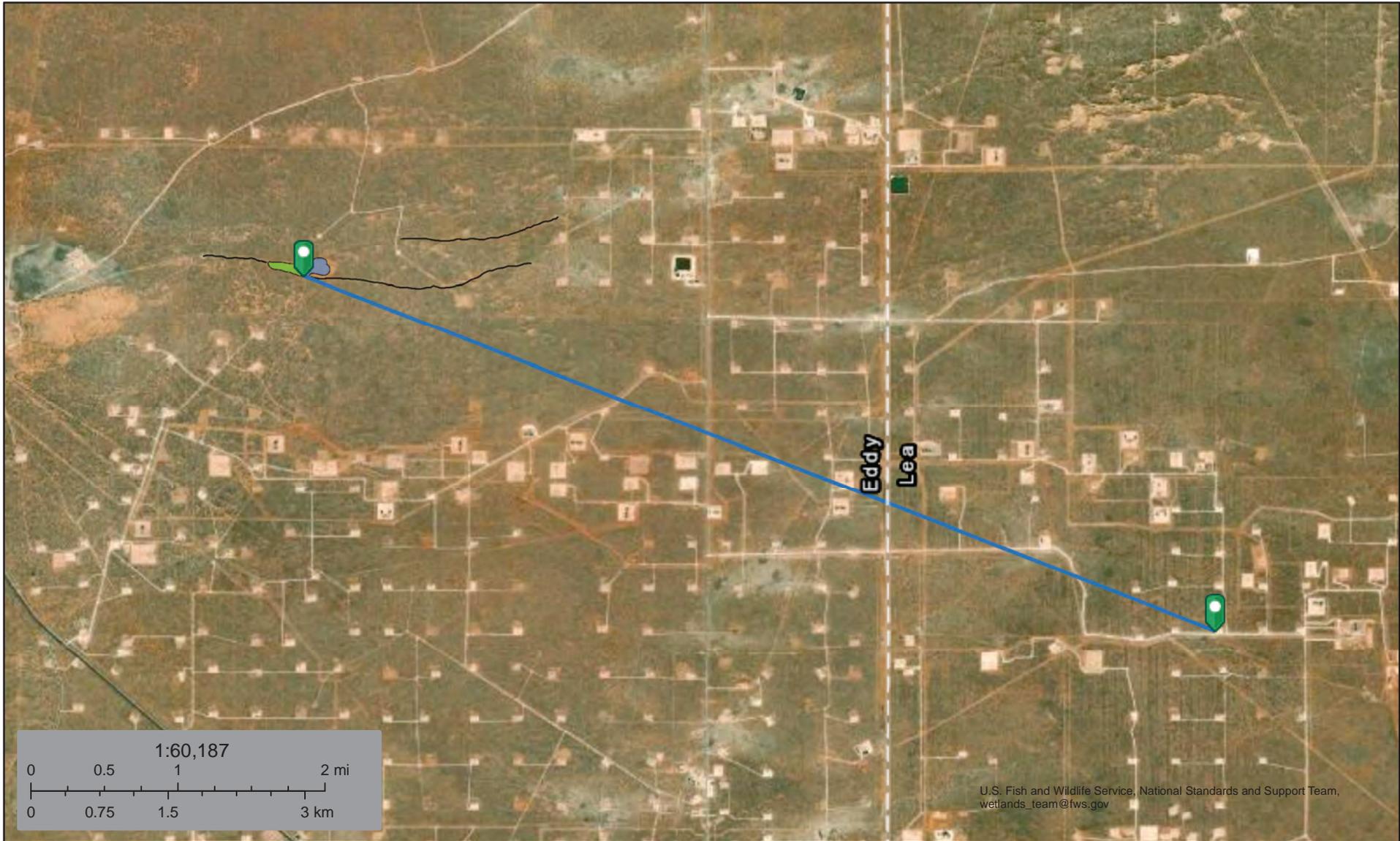
Oak Rd
Loving

285

Malaga

Jal Hwy 28





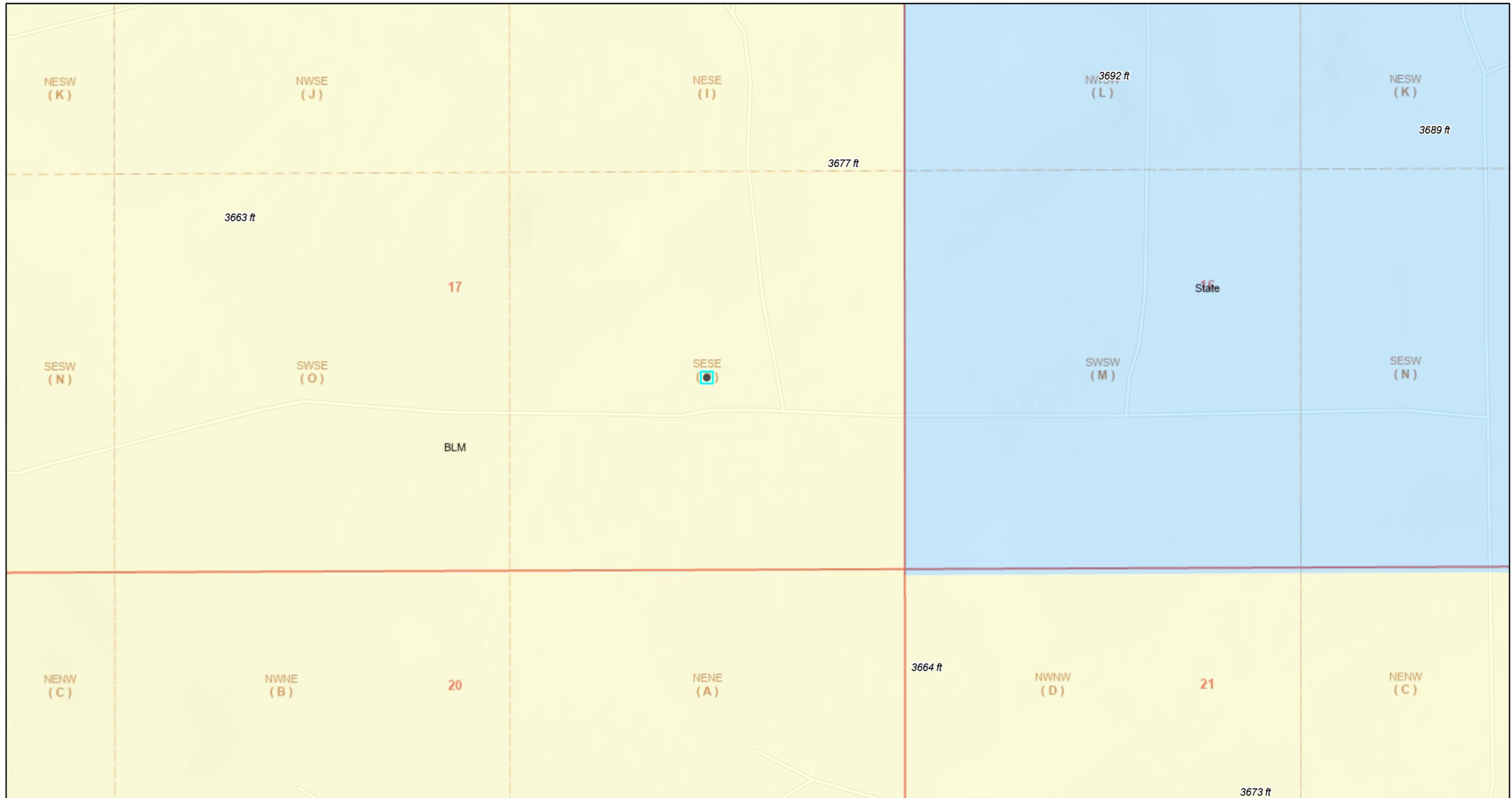
February 14, 2023

Wetlands

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

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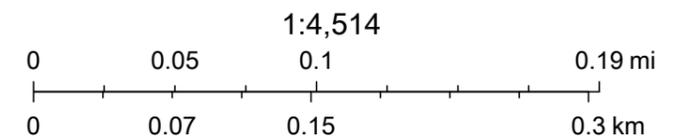
Active Mines in New Mexico



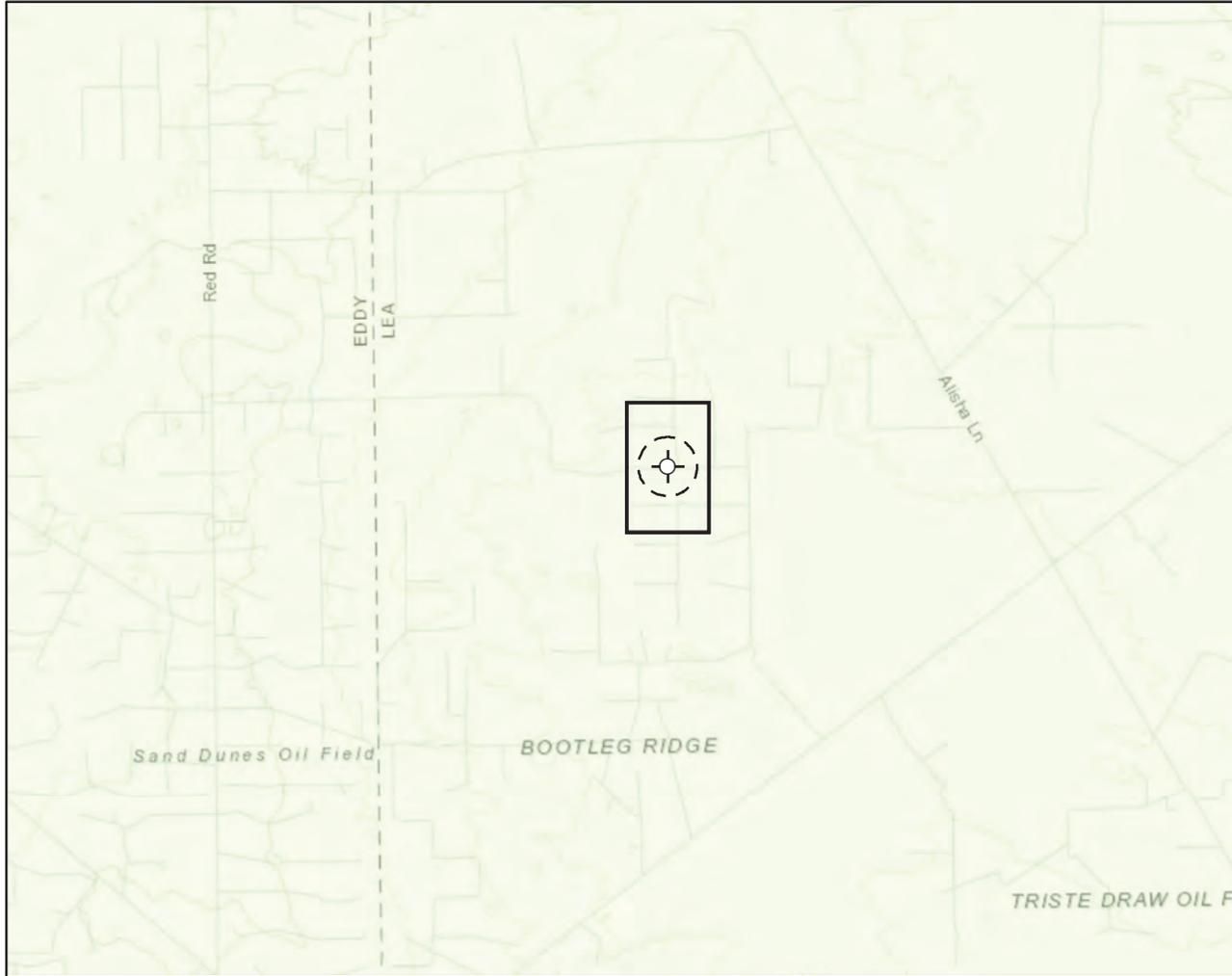
2/14/2023, 6:26:09 AM

Land Ownership

- BLM
- S
- PLSS Second Division
- PLSS First Division



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Karst Potential

- Critical
 - High
 - Medium
 - Low
- + Site
+ Site Buffer (1000 ft.)

Overview Map

0 0.25 0.5 1 mi



Detail Map

0 150 300 600 ft.



Map Center:
Lat/Long: 32.298784, -103.690709

NAD 1983 UTM Zone 13N
Date: May 19/20



**Karst Potential
Tomcat 17 Federal #001**

FIGURE:

X



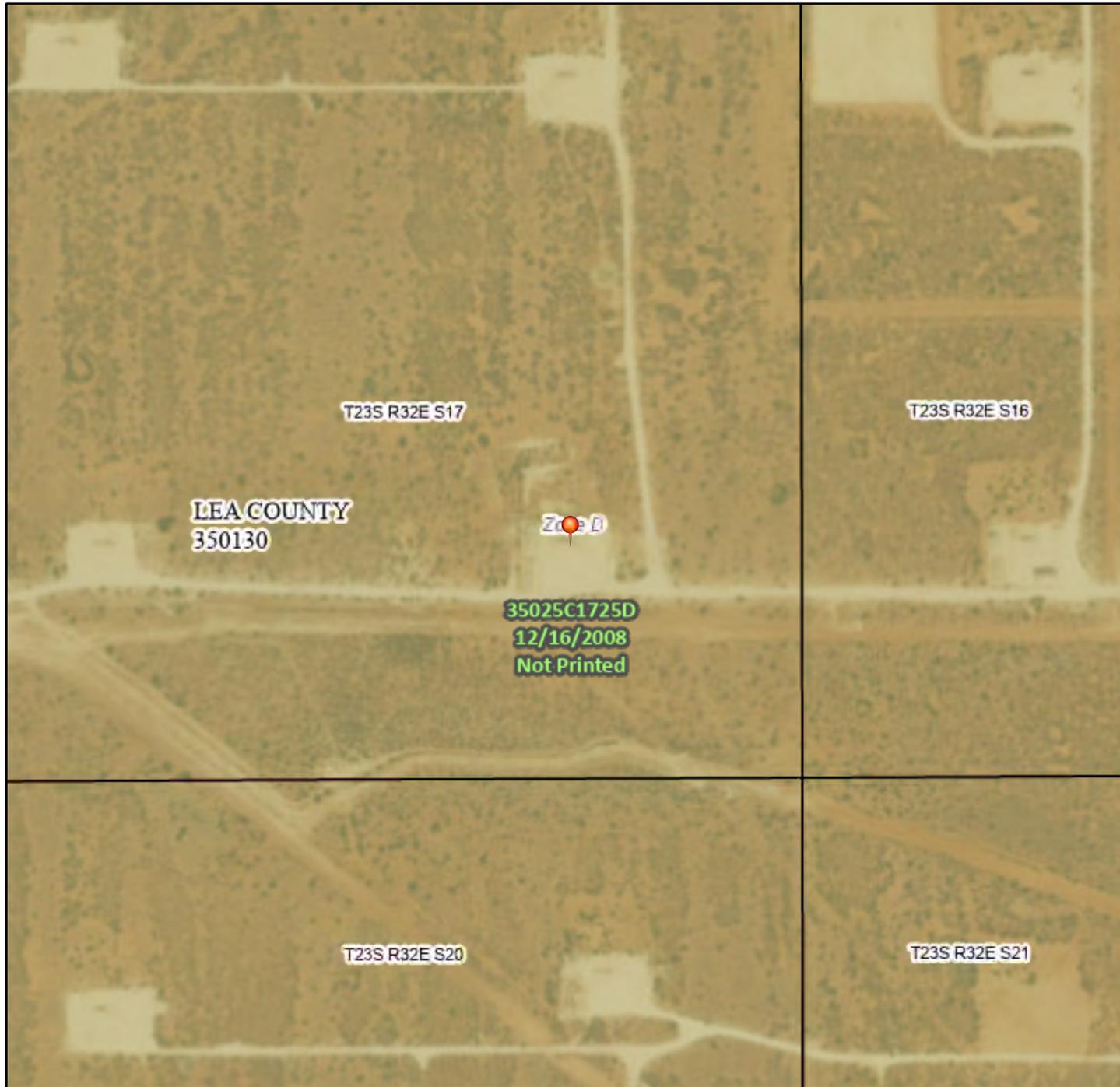
Geospatial data presented in this figure may be derived from external sources and Vertex does not assume any liability for inaccuracies. This figure is intended for reference use only and is not certified for legal, survey, or engineering purposes.

Note: Inset Map, ESRI 2019; Overview Map: ESRI World Topographic

National Flood Hazard Layer FIRMMette



103°41'44"W 32°18'12"N



Legend

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

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

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

OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard <i>Zone X</i>
		Effective LOMRs
		Area of Undetermined Flood Hazard <i>Zone D</i>

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

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

MAP PANELS		Digital Data Available
		No Digital Data Available
		Unmapped



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

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

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 2/13/2023 at 9:09 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

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



MAP LEGEND

- Area of Interest (AOI)
- Area of Interest (AOI)
- Soils**
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points
- Special Point Features**
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features
- Water Features**
- Streams and Canals
- Transportation**
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads
- Background**
- Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

Soil Survey Area: Lea County, New Mexico
 Survey Area Data: Version 16, Sep 15, 2019

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

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

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

Soil Map—Lea County, New Mexico

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
MF	Maljamar and palomas fine sands, 0 to 3 percent slopes	1.4	52.7%
PU	Pyote and maljamar fine sands	1.2	47.3%
Totals for Area of Interest		2.6	100.0%

Map Unit Description: Maljamar and palomas fine sands, 0 to 3 percent slopes---Lea County,
New Mexico

Lea County, New Mexico

MF—Maljamar and palomas fine sands, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: dmqb
Elevation: 3,000 to 3,900 feet
Mean annual precipitation: 10 to 15 inches
Mean annual air temperature: 60 to 62 degrees F
Frost-free period: 190 to 205 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Palomas and similar soils: 45 percent
Maljamar and similar soils: 45 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Palomas

Setting

Landform: Plains
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from sandstone

Typical profile

A - 0 to 16 inches: fine sand
Bt - 16 to 60 inches: sandy clay loam
Bk - 60 to 66 inches: 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: Low
Capacity of the most limiting layer to transmit water (Ksat):
 Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 45 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: Moderate (about 7.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Map Unit Description: Maljamar and palomas fine sands, 0 to 3 percent slopes---Lea County,
New Mexico

Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: B
Ecological site: Loamy Sand (R042XC003NM)
Hydric soil rating: No

Description of Maljamar

Setting

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

Typical profile

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

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 40 to 60 inches to petrocalcic
Natural drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 5 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 5.6 inches)

Interpretive groups

Land capability classification (irrigated): 7e
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: B
Ecological site: Loamy Sand (R042XC003NM)
Hydric soil rating: No

Minor Components

Wink

Percent of map unit: 5 percent
Ecological site: Loamy Sand (R042XC003NM)
Hydric soil rating: No

Kermit

Percent of map unit: 5 percent
Ecological site: Sandhills (R042XC022NM)

Map Unit Description: Maljamar and palomas fine sands, 0 to 3 percent slopes---Lea County,
New Mexico

Hydric soil rating: No

Data Source Information

Soil Survey Area: Lea County, New Mexico
Survey Area Data: Version 16, Sep 15, 2019

Map Unit Description: Pyote and maljamar fine sands---Lea County, New Mexico

Lea County, New Mexico

PU—Pyote and maljamar fine sands

Map Unit Setting

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

Map Unit Composition

Maljamar and similar soils: 45 percent
Pyote and similar soils: 45 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Maljamar

Setting

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

Typical profile

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

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 40 to 60 inches to petrocalcic
Natural drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum 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 5.6 inches)

Map Unit Description: Pyote and maljamar fine sands---Lea County, New Mexico

Interpretive groups

Land capability classification (irrigated): 6e
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: B
Ecological site: Loamy Sand (R042XC003NM)
Hydric soil rating: No

Description of Pyote

Setting

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

Typical profile

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

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
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 5.1 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

Kermit

Percent of map unit: 10 percent
Ecological site: Sandhills (R042XC022NM)

Map Unit Description: Pyote and maljamar fine sands---Lea County, New Mexico

Hydric soil rating: No

Data Source Information

Soil Survey Area: Lea County, New Mexico
Survey Area Data: Version 16, Sep 15, 2019

Ecological site R070BD003NM Loamy Sand

Accessed: 01/15/2023

General information

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

Figure 1. Mapped extent

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

Associated sites

R070BD004NM	Sandy Sandy
R070BD005NM	Deep Sand Deep Sand

Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	Not specified

Physiographic features

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

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

Table 2. Representative physiographic features

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

Climatic features

The average annual precipitation ranges from 8 to 13 inches. Variations of 5 inches, more or less, are common. Over 80 percent of the precipitation falls from April through October. Most of the summer precipitation comes in the form of high intensity-short duration thunderstorms.

Temperatures are characterized by distinct seasonal changes and large annual and diurnal temperature changes.

The average annual temperature is 61 degrees with extremes of 25 degrees below zero in the winter to 112 degrees in the summer.

The average frost-free season is 207 to 220 days. The last killing frost being late March or early April and the first killing frost being in later October or early November.

Temperature and rainfall both favor warm season perennial plant growth. In years of abundant spring moisture, annual forbs and cool season grasses can make up an important component of this site. Strong winds blow from the southwest from January through June, which accelerates soil drying during a critical period for cool season plant growth.

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

Table 3. Representative climatic features

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

Influencing water features

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

Soil features

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

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

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

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

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

Characteristic soils are:

- Maljamar
- Berino
- Parjarito
- Palomas
- Wink
- Pyote

Table 4. Representative soil features

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

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

Ecological dynamics

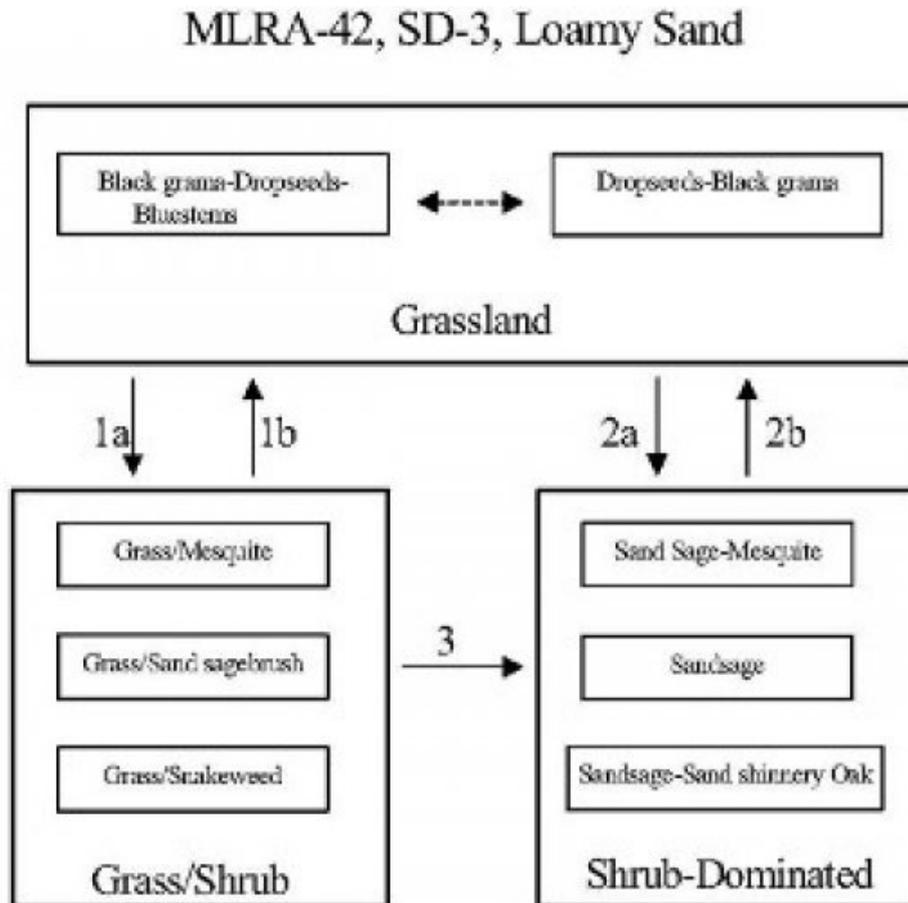
Overview

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

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

State and transition model

Plant Communities and Transitional Pathways (diagram):



1a. Drought, over grazing, fire suppression.

1b. Brush control, prescribed grazing

2.a Severe loss of grass cover, fire suppression, erosion.

2b. Brush control, seeding, prescribed grazing.

3. Continued loss of grass cover, erosion.

State 1

Historic Climax Plant Community

Community 1.1

Historic Climax Plant Community

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

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

Table 5. Annual production by plant type

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

Table 6. Ground cover

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

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

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

**State 2
Grass/Shrub**

**Community 2.1
Grass/Shrub**



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

State 3 Shrub Dominated

Community 3.1 Shrub Dominated

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

aggressive rhizome system. Shinnery oak's extensive root system promotes competitive exclusion of grasses and forbs. Sand sage, shinnery oak, and mesquite can be controlled with herbicide (Herbel et al. 1979, Pettit 1986). Transition to Shrub-Dominated (2a): Severe loss of grass species with increased erosion and fire suppression will result in a transition to a shrub-dominated state with sand sage, Shin oak, and honey mesquite directly from the grassland-dominated state. Key indicators of approach to transition: • Severe loss of grass species cover • Surface soil erosion • Bare patch expansion • Increased sand sage, shinnery oak, and mesquite abundance Transition to Historic Plant Community (2b): Brush and grazing management may restore the grassland component and reverse shrub or grass/shrub dominated states back toward the historic plant community. In addition, seeding with native grass species will augment the transition to a grassland-dominated state. Transition to Shrub-Dominated (3): If the grass/shrub site continues to lose grass cover with soil erosion, the site will transition to a shrub-dominated state with sand sage, shinnery oak, and honey mesquite. Key indicators of approach to transition: • Continual loss of dropseeds/threawns cover • Surface soil erosion • Bare patch expansion • Increased sand sage, shinnery oak, and mesquite/dropseed/threawn 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	<i>Schizachyrium scoparium</i>	61–123	–
2	Warm Season			37–61	
	sand bluestem	ANHA	<i>Andropogon hallii</i>	37–61	–
3	Warm Season			37–61	
	cane bluestem	BOBA3	<i>Bothriochloa barbinodis</i>	37–61	–
	silver bluestem	BOSA	<i>Bothriochloa saccharoides</i>	37–61	–
4	Warm Season			123–184	
	black grama	BOER4	<i>Bouteloua eriopoda</i>	123–184	–
	bush muhly	MUPO2	<i>Muhlenbergia porteri</i>	123–184	–
5	Warm Season			123–184	
	thin paspalum	PASE5	<i>Paspalum setaceum</i>	123–184	–
	plains bristlegrass	SEVU2	<i>Setaria vulpiseta</i>	123–184	–
	fringed signalgrass	URCI	<i>Urochloa ciliatissima</i>	123–184	–
6	Warm Season			123–184	
	spike dropseed	SPCO4	<i>Sporobolus contractus</i>	123–184	–
	sand dropseed	SPCR	<i>Sporobolus cryptandrus</i>	123–184	–
	mesa dropseed	SPFL2	<i>Sporobolus flexuosus</i>	123–184	–
7	Warm Season			61–123	
	hooded windmill grass	CHCU2	<i>Chloris cucullata</i>	61–123	–
	Arizona cottontop	DICA8	<i>Digitaria californica</i>	61–123	–
9	Other Perennial Grasses			37–61	
	Grass, perennial	2GP	<i>Grass, perennial</i>	37–61	–
Shrub/Vine					
8	Warm Season			37–61	
	New Mexico feathergrass	HENE5	<i>Hesperostipa neomexicana</i>	37–61	–
	giant dropseed	SPGI	<i>Sporobolus giganteus</i>	37–61	–
10	Shrub			61–123	

	sand sagebrush	ARFI2	<i>Artemisia filifolia</i>	61–123	–
	Havard oak	QUHA3	<i>Quercus havardii</i>	61–123	–
11	Shrub			34–61	
	fourwing saltbush	ATCA2	<i>Atriplex canescens</i>	37–61	–
	featherplume	DAFO	<i>Dalea formosa</i>	37–61	–
12	Shrub			37–61	
	jointfir	EPHED	<i>Ephedra</i>	37–61	–
	littleleaf ratany	KRER	<i>Krameria erecta</i>	37–61	–
13	Other Shrubs			37–61	
	Shrub (>.5m)	2SHRUB	<i>Shrub (>.5m)</i>	37–61	–
Forb					
14	Forb			61–123	
	leatherweed	CRPOP	<i>Croton pottsii var. pottsii</i>	61–123	–
	Indian blanket	GAPU	<i>Gaillardia pulchella</i>	61–123	–
	globemallow	SPHAE	<i>Sphaeralcea</i>	61–123	–
15	Forb			12–37	
	woolly groundsel	PACA15	<i>Packera cana</i>	12–37	–
16	Forb			61–123	
	touristplant	DIWI2	<i>Dimorphocarpa wislizeni</i>	61–123	–
	woolly plantain	PLPA2	<i>Plantago patagonica</i>	61–123	–
17	Other Forbs			37–61	
	Forb (herbaceous, not grass nor grass-like)	2FORB	<i>Forb (herbaceous, not grass nor grass-like)</i>	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, black 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, shinary oak and ephedra will occur. This will also cause an increase in bare ground which will increase soil erodibility. This site will respond well to a system of management that rotates the season of use.

Other information

Guide to Suggested Initial Stocking Rate Acres per Animal Unit Month

Similarity Index Ac/AUM

100 - 76 2.3 – 3.5

75 – 51 3.0 – 4.5

50 – 26 4.6 – 9.0

25 – 0 9.1 +

Inventory data references

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

Other references

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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.

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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

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Quinn Hodgson

Rangeland health reference sheet

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

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

Indicators

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

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

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

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

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

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

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

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

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

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

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

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

Dominant:

Sub-dominant:

Other:

Additional:

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

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

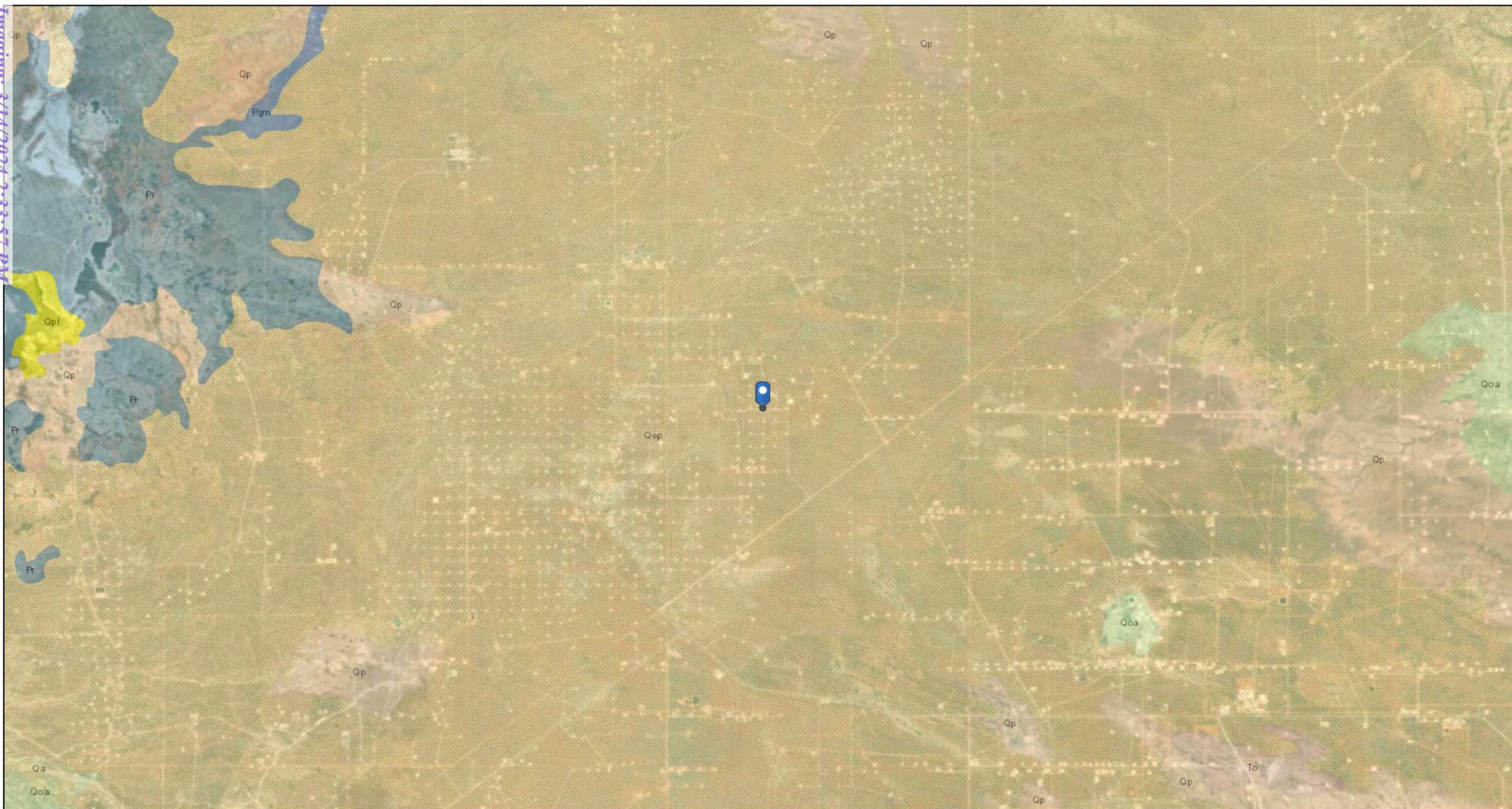
15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):**

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

Tomcat 17 Fed 1

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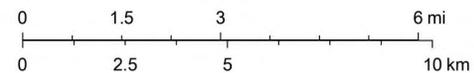
Received by OCD: 3/12/2024 2:24:38 PM



5/18/2020, 1:34:40 PM

- | | | | |
|-------------------------|------------------------|----------------------|---------------------------|
| Faults | ----- Fault, Concealed | Dikes | ++++ Dike intruding fault |
| — Fault, Exposed | ~~~~ Shere Zone | — <all other values> | * Volcanic Vents |
| --- Fault, Intermittent | | — Dike | |

1:144,448



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, NMBGMR

ATTACHMENT 5

Client Name: Devon Energy Production Company, LP
 Site Name: Tomcat 17 Federal #001
 NM OCD Tracking #: nSAP0219636264, nKJ1524345298 (1RP-3833)
 Project #: 21E-02816-27
 Lab Reports: 2205815, 2208929, 2212446, 2301712

Table 2. Sample Field Screen and Laboratory Results - Depth to Groundwater 51-100 feet bgs

Sample ID	Depth (ft)	Sample Date	Field Screening			Petroleum Hydrocarbons							Inorganic
			Volatile Organic Compounds (PID)	Extractable Organic Compounds (PetroFlag)	Chloride Concentration (ppm)	Volatile		Extractable					
						Benzene (mg/kg)	BTEX (Total) (mg/kg)	Gasoline Range Organics (GRO) (mg/kg)	Diesel Range Organics (DRO) (mg/kg)	Motor Oil Range Organics (MRO) (mg/kg)	GRO + DRO (mg/kg)	Total Petroleum Hydrocarbons (TPH) (mg/kg)	
BH22-01	0	May 15, 2022	2	460	ND	ND	ND	ND	47	84	47	131	71
	0	August 10, 2022	-	574	161	ND	ND	ND	330	440	330	770	ND
	2	May 15, 2022	1	330	ND	ND	ND	ND	75	83	75	158	ND
	2	August 10, 2022	-	-	163	ND	ND	ND	310	420	310	730	ND
BH22-02	4	May 15, 2022	1	180	ND	ND	ND	ND	ND	ND	ND	ND	75
	0	May 15, 2022	1	200	ND	ND	ND	ND	ND	ND	ND	ND	72
	0	August 10, 2022	-	-	54	ND	ND	ND	ND	ND	ND	ND	ND
	2	May 15, 2022	1	80	ND	ND	ND	ND	ND	ND	ND	ND	ND
BH22-03	2	August 10, 2022	-	-	17	ND	ND	ND	ND	ND	ND	ND	ND
	4	May 15, 2022	1	40	ND	ND	ND	ND	ND	ND	ND	ND	ND
	0	May 15, 2022	0	>10,000	ND	ND	ND	ND	8300	8000	8,300	16,300	ND
	0	August 10, 2022	-	42	37	ND	ND	ND	ND	ND	ND	ND	ND
BH22-04	2	May 15, 2022	1	260	ND	ND	ND	ND	ND	ND	ND	ND	ND
	2	August 10, 2022	-	-	64	ND	ND	ND	ND	ND	ND	ND	ND
	4	May 15, 2022	1	230	ND	ND	ND	ND	ND	ND	ND	ND	ND
	0	May 15, 2022	0	80	ND	ND	ND	ND	ND	ND	ND	ND	ND
BH22-05	0	August 10, 2022	-	-	49	ND	ND	ND	1200	1900	1,200	3,100	ND
	2	May 15, 2022	1	40	ND	ND	ND	ND	ND	ND	ND	ND	ND
	2	August 10, 2022	-	>10,000	40	ND	ND	ND	1300	1700	1,300	3,000	ND
	4	May 15, 2022	1	110	ND	ND	ND	ND	ND	ND	ND	ND	ND
BH22-06	0	May 15, 2022	0	>10,000	ND	ND	ND	ND	4600	4600	4,600	9,200	ND
	0	August 10, 2022	-	29	63	ND	ND	ND	ND	ND	ND	ND	ND
	2	May 15, 2022	1	780	ND	ND	ND	ND	73	120	73	193	ND
	2	August 10, 2022	-	-	62	ND	ND	ND	ND	ND	ND	ND	ND
BH22-07	4	May 15, 2022	2	240	ND	ND	ND	ND	ND	ND	ND	ND	ND
	0	May 15, 2022	1	240	ND	ND	ND	ND	ND	ND	ND	ND	98
	0	August 10, 2022	-	81	0	ND	ND	ND	ND	ND	ND	ND	ND
	2	May 15, 2022	1	3,540	ND	ND	ND	ND	120	480	120	600	ND
BH22-08	2	August 10, 2022	-	-	27	ND	ND	ND	ND	ND	ND	ND	ND
	4	May 15, 2022	1	160	ND	ND	ND	ND	ND	ND	ND	ND	ND
	0	May 15, 2022	1	240	ND	ND	ND	ND	ND	ND	ND	ND	ND
	0	August 10, 2022	-	-	72	ND	ND	ND	ND	ND	ND	ND	ND
BH22-09	2	May 15, 2022	103	460	ND	ND	ND	ND	230	140	230	370	ND
	2	August 10, 2022	-	51	124	ND	ND	ND	ND	ND	ND	ND	ND
	4	May 15, 2022	7	800	ND	ND	ND	ND	ND	ND	ND	ND	ND
	0	May 15, 2022	2	230	1,003	ND	ND	ND	ND	ND	ND	ND	560
BH22-10	0	August 10, 2022	-	40	378	ND	ND	ND	ND	ND	ND	ND	340
	2	May 15, 2022	1	170	297	ND	ND	ND	ND	ND	ND	ND	400
	2	August 10, 2022	-	-	456	ND	ND	ND	ND	ND	ND	ND	400
	4	May 15, 2022	1	260	3,015	ND	ND	ND	ND	ND	ND	ND	1,900
BH22-11	0	December 6, 2022	0	45	317	ND	ND	ND	ND	ND	ND	ND	92
	2	December 6, 2022	0	31	28	ND	ND	ND	ND	ND	ND	ND	76
BH22-12	0	December 6, 2022	0	40	255	ND	ND	ND	ND	ND	ND	ND	96
	2	December 6, 2022	0	30	112	ND	ND	ND	ND	ND	ND	ND	90
BH22-13	0	December 6, 2022	0	22	ND	ND	ND	ND	ND	ND	ND	ND	ND
	2	December 6, 2022	0	21	ND	ND	ND	ND	ND	ND	ND	ND	75
BH22-14	0	December 6, 2022	0	-	943	ND	ND	ND	ND	ND	ND	ND	680
	2	December 6, 2022	0	55	ND	ND	ND	ND	ND	ND	ND	ND	ND
BH22-15	0	December 6, 2022	0	40	5	ND	ND	ND	ND	ND	ND	ND	61
	2	December 6, 2022	0	36	ND	ND	ND	ND	ND	ND	ND	ND	ND
BH22-16	0	December 6, 2022	0	64	ND	ND	ND	ND	ND	ND	ND	ND	ND
	2	December 6, 2022	0	51	ND	ND	ND	ND	ND	ND	ND	ND	ND



Client Name: Devon Energy Production Company, LP
 Site Name: Tomcat 17 Federal #001
 NM OCD Tracking #: nSAP0219636264, nKJ1524345298 (1RP-3833)
 Project #: 21E-02816-27
 Lab Reports: 2205815, 2208929, 2212446, 2301712

Table 2. Sample Field Screen and Laboratory Results - Depth to Groundwater 51-100 feet bgs

Sample Description			Field Screening			Petroleum Hydrocarbons							Inorganic
Sample ID	Depth (ft)	Sample Date	Volatile Organic Compounds (PID)	Extractable Organic Compounds (PetroFlag)	Chloride Concentration	Volatile		Extractable					Chloride Concentration
						Benzene	BTEX (Total)	Gasoline Range Organics (GRO)	Diesel Range Organics (DRO)	Motor Oil Range Organics (MRO)	GRO + DRO	Total Petroleum Hydrocarbons (TPH)	
			(ppm)	(ppm)	(ppm)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
BH22-15	0	January 16, 2023	0	9	303	ND	ND	ND	ND	ND	ND	ND	ND
	2	January 16, 2023	0	3	216	ND	ND	ND	ND	ND	ND	ND	ND
BH22-16	0	January 16, 2023	0	2	170	ND	ND	ND	ND	ND	ND	ND	ND
	2	January 16, 2023	0	5	223	ND	ND	ND	ND	ND	ND	ND	ND
BH22-17	0	January 16, 2023	0	17	212	ND	ND	ND	ND	ND	ND	ND	ND
	2	January 16, 2023	0	1	232	ND	ND	ND	ND	ND	ND	ND	ND
BH22-18	0	January 16, 2023	0	21	168	ND	ND	ND	ND	ND	ND	ND	ND
	2	January 16, 2023	0	12	168	ND	ND	ND	ND	ND	ND	ND	ND
	4	January 16, 2023	0	15	248	ND	ND	ND	ND	ND	ND	ND	ND
BH22-19	0	January 16, 2023	0	14	193	ND	ND	ND	ND	ND	ND	ND	ND
	2	January 16, 2023	0	12	333	ND	ND	ND	ND	ND	ND	ND	71
	4	January 16, 2023	0	11	506	ND	ND	ND	ND	ND	ND	ND	140
BH22-20	0	January 16, 2023	0	11	331	ND	ND	ND	ND	ND	ND	ND	ND
	2	January 16, 2023	0	14	164	ND	ND	ND	ND	ND	ND	ND	ND
	4	January 16, 2023	0	9	202	ND	ND	ND	ND	ND	ND	ND	ND
BH22-21	0	January 17, 2023	0	1	554	ND	ND	ND	ND	ND	ND	ND	140
	2	January 17, 2023	0	4	292	ND	ND	ND	ND	ND	ND	ND	ND
	4	January 17, 2023	0	12	230	ND	ND	ND	ND	ND	ND	ND	ND
BH22-22	0	January 17, 2023	0	48	170	ND	ND	ND	ND	ND	ND	ND	ND
	2	January 17, 2023	0	14	174	ND	ND	ND	ND	ND	ND	ND	ND
	4	January 17, 2023	0	19	262	ND	ND	ND	ND	ND	ND	ND	ND
BH22-23	0	January 17, 2023	0	51	152	ND	ND	ND	ND	ND	ND	ND	ND
	2	January 17, 2023	0	24	139	ND	ND	ND	ND	ND	ND	ND	ND
	4	January 17, 2023	0	10	144	ND	ND	ND	ND	ND	ND	ND	ND
BH22-24	0	January 17, 2023	0	51	298	ND	ND	ND	ND	ND	ND	ND	61
	2	January 17, 2023	0	40	376	ND	ND	ND	ND	ND	ND	ND	ND
	4	January 17, 2023	0	26	190	ND	ND	ND	ND	ND	ND	ND	ND
BH22-25	0	January 17, 2023	0	20	246	ND	ND	ND	ND	ND	ND	ND	ND
	2	January 17, 2023	0	25	232	ND	ND	ND	ND	ND	ND	ND	ND
	4	January 17, 2023	0	27	337	ND	ND	ND	ND	ND	ND	ND	ND
BH22-26	4	January 17, 2023	0	391	1,189	ND	ND	ND	43	74	43	117	520
	6	January 17, 2023	0	77	907	ND	ND	ND	13	ND	13	13	430
	8	January 17, 2023	0	72	635	ND	ND	ND	17	ND	17	17	250
BH22-27	4	January 17, 2023	0	16	2,033	ND	ND	ND	ND	ND	ND	ND	1100
	6	January 17, 2023	0	57	532	ND	ND	ND	ND	ND	ND	ND	220
	8	January 17, 2023	0	27	337	ND	ND	ND	ND	ND	ND	ND	92

"ND" Not Detected at the Reporting Limit

"-" indicates not analyzed/assessed

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

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



Client Name: Devon Energy Production Company, LP
 Site Name: Tomcat 17 Federal #001
 NM OCD Tracking #: nSAP0219636264, nKJ1524345298 (1RP-3833)
 Project #: 21E-02816-27
 Lab Reports: 2212806, 2212905, 2212E06, 2301323

Table 3. Confirmatory Sample Field Screen and Laboratory Results - Depth to Groundwater 51-100 feet bgs

Sample Description			Field Screening			Petroleum Hydrocarbons							Inorganic
Sample ID	Depth (ft)	Sample Date	Volatile Organic Compounds (PID)	Extractable Organic Compounds (PetroFlag)	Chloride Concentration	Volatile		Extractable					Chloride Concentration
						Benzene	BTEX (Total)	Gasoline Range Organics (GRO)	Diesel Range Organics (DRO)	Motor Oil Range Organics (MRO)	GRO + DRO	Total Petroleum Hydrocarbons (TPH)	
			(ppm)	(ppm)	(ppm)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
BS22-01	2	December 12, 2022	0	31	233	ND	ND	ND	ND	ND	ND	ND	ND
BS22-02	2	December 12, 2022	0	20	119	ND	ND	ND	ND	ND	ND	ND	100
BS22-03	2	December 12, 2022	0	36	44	ND	ND	ND	ND	ND	ND	ND	ND
BS22-04	2	December 12, 2022	0	42	232	ND	ND	ND	ND	ND	ND	ND	ND
BS22-05	4	December 13, 2022	12	87	5,230	ND	ND	ND	ND	ND	ND	ND	2000
BS22-06	4	December 13, 2022	0	55	6,556	ND	ND	ND	ND	ND	ND	ND	4400
BS22-07	4	December 13, 2022	0	25	4,159	ND	ND	ND	ND	ND	ND	ND	2700
BS22-08	4	December 13, 2022	0	188	7,320	ND	ND	ND	43	100	43	143	4900
BS22-09	4	December 13, 2022	0	89	5,074	ND	ND	ND	18	54	18	72	3200
BS22-10	4	December 22, 2022	0	300	4,986	ND	ND	ND	61	160	61	221	4200
BS22-11	4	December 22, 2022	0	1,174	3,270	ND	ND	ND	280	480	280	760	2500
BS22-12	4	December 22, 2022	0	1,017	4,911	ND	ND	ND	250	480	250	730	5400
BS22-13	4	December 22, 2022	0	618	7,635	ND	ND	ND	200	470	200	670	4200
BS22-14	4	January 7, 2023	0	169	2,164	ND	ND	ND	ND	ND	ND	ND	1800
BS22-15	4	January 7, 2023	0	34	2,560	ND	ND	ND	9.8	ND	9.8	9.8	1400
WS22-01	0-2	December 12, 2022	0	22	463	ND	ND	ND	ND	ND	ND	ND	110
WS22-02	0-2	December 12, 2022	0	32	ND	ND	ND	ND	ND	ND	ND	ND	ND
WS22-03	0-2	December 12, 2022	0	46	393	ND	ND	ND	ND	ND	ND	ND	170
WS22-04	0-2	December 12, 2022	0	37	473	ND	ND	ND	ND	ND	ND	ND	150
WS22-05	0-2	December 12, 2022	0	36	402	ND	ND	ND	ND	ND	ND	ND	ND
WS22-06	0-2	December 12, 2022	0	34	342	ND	ND	ND	ND	ND	ND	ND	ND
WS22-07	0-4	December 12, 2022	0	70	616	ND	ND	ND	ND	ND	ND	ND	140
WS22-08	0-4	December 12, 2022	0	41	630	ND	ND	ND	ND	ND	ND	ND	150
WS22-09	0-4	December 12, 2022	0	47	370	ND	ND	ND	ND	ND	ND	ND	ND
WS22-10	0-4	December 12, 2022	0	47	ND	ND	ND	ND	ND	ND	ND	ND	ND
WS22-11	0-4	December 12, 2022	0	51	337	ND	ND	ND	ND	ND	ND	ND	250
WS22-12	2-4	December 12, 2022	0	51	375	ND	ND	ND	ND	ND	ND	ND	ND
WS22-13	0-4	December 12, 2022	0	29	307	ND	ND	ND	ND	ND	ND	ND	ND
WS22-14	0-4	December 22, 2022	0	86	53	ND	ND	ND	ND	ND	ND	ND	130
WS22-15	0-4	December 22, 2022	0	90	212	ND	ND	ND	ND	ND	ND	ND	170
WS22-16	0-4	December 22, 2022	0	31	479	ND	ND	ND	ND	ND	ND	ND	410
WS22-17	0-4	January 7, 2023	0	23	368	ND	ND	ND	ND	ND	ND	ND	ND
WS22-18	0-4	January 7, 2023	0	23	522	ND	ND	ND	ND	ND	ND	ND	ND
WS22-19	0-4	January 7, 2023	0	28	523	ND	ND	ND	ND	ND	ND	ND	ND
WS22-20	0-4	January 7, 2023	0	27	480	ND	ND	ND	ND	ND	ND	ND	120
WS22-21	0-4	January 7, 2023	0	15	467	ND	ND	ND	ND	ND	ND	ND	72

"ND" Not Detected at the Reporting Limit

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

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



ATTACHMENT 6



Dhugal Hanton <vertexresourcegroupusa@gmail.com>

48-Hour Notification - Tomcat 17 Federal 1

6 messages

Dhugal Hanton <vertexresourcegroupusa@gmail.com>
To: "Enviro, OCD, EMNRD" <OCD.Enviro@state.nm.us>
Cc: dale.woodall@dvn.com, KStallings@vertex.ca

Thu, Dec 8, 2022 at 1:52 PM

All,

Please accept this email as a notification that Vertex Resource Services has scheduled a sampling event to be conducted at the following releases:

nKJ1524345298
pKJ1524348116

On Monday, December 12, 2022, at approximately 8:00 a.m., Vertex will be on-site to conduct confirmation sampling. The sampling will continue until Friday, December 16, 2022. If you have any questions regarding this notification or need directions to the site, please contact Kent Stallings at 346-814-1413.

Thank you,

Chance Dixon B.Sc.
Sr Environmental Technologist

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

C 575.988.1472

Enviro, OCD, EMNRD <OCD.Enviro@emnrd.nm.gov>
To: Dhugal Hanton <vertexresourcegroupusa@gmail.com>
Cc: "Bratcher, Michael, EMNRD" <mike.bratcher@emnrd.nm.gov>, "Billings, Bradford, EMNRD" <Bradford.Billings@emnrd.nm.gov>

Thu, Dec 8, 2022 at 2:04 PM

Please be aware that notification requirements are **two business days**, per rule. Please proceed on your schedule. Also, please include this, and all correspondence, in the closure report to insure inclusion in the project file.

Jocelyn Harimon • Environmental Specialist

Environmental Bureau

EMNRD - Oil Conservation Division

[1220 South St. Francis Drive | Santa Fe, NM 87505](#)

(505)469-2821 | Jocelyn.Harimon@emnrd.nm.gov

[http:// www.emnrd.nm.gov](http://www.emnrd.nm.gov)



From: Dhugal Hanton <vertexresourcegroupusa@gmail.com>
Sent: Thursday, December 8, 2022 1:53 PM
To: Enviro, OCD, EMNRD <OCD.Enviro@emnrd.nm.gov>
Cc: dale.woodall@dmv.com; KStallings@vertex.ca
Subject: [EXTERNAL] 48-Hour Notification - Tomcat 17 Federal 1

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

[Quoted text hidden]

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

Tue, Dec 20, 2022 at 8:03 AM

All,

Please accept this email as a notification that Vertex Resource Services has scheduled a sampling event to be conducted at the following releases:

nKJ1524345298, Tomcat 17 Federal 1
pKJ1524348116

On Monday, December 22, 2022, at approximately 8:00 a.m through December 23, 2023, Vertex will be on-site to conduct confirmation sampling. If you have any questions regarding this notification or need directions to the site, please contact Kent Stallings at 346-814-1413.

Thank you,

Kent Stallings

[Quoted text hidden]

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

Tue, Dec 20, 2022 at 10:16 AM

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

Kent,

Thank you for the notification. Please 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.

JH

[Quoted text hidden]

Dhugal Hanton <vertexresourcegroupusa@gmail.com>
To: "Enviro, OCD, EMNRD" <OCD.Enviro@emnrd.nm.gov>
Cc: "Bratcher, Michael, EMNRD" <mike.bratcher@emnrd.nm.gov>, "Billings, Bradford, EMNRD" <Bradford.Billings@emnrd.nm.gov>

Tue, Jan 3, 2023 at 4:18 PM

All,

Please accept this email as a notification that Vertex Resource Services has scheduled a sampling event to be conducted at the following releases:

nKJ1524345298, Tomcat 17 Federal 1
pKJ1524348116, Tomcat 17 Federal 1

On Saturday, January 7, 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.

Thank you,

Kent Stallings

[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>

Tue, Jan 3, 2023 at 4:54 PM

Thank you for the notification. Please 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.

Jocelyn Harimon • Environmental Specialist

[Quoted text hidden]

ATTACHMENT 7



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

May 26, 2022

Monica Peppin

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

RE: Tomcat 17 Federal 001

OrderNo.: 2205815

Dear Monica Peppin:

Hall Environmental Analysis Laboratory received 24 sample(s) on 5/18/2022 for the analyses presented in the following report.

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

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

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

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', is written over a white background.

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report

Lab Order **2205815**

Date Reported: 5/26/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-01 0'

Project: Tomcat 17 Federal 001

Collection Date: 5/15/2022 7:55:00 AM

Lab ID: 2205815-001

Matrix: SOIL

Received Date: 5/18/2022 8:27:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	47	9.9		mg/Kg	1	5/20/2022 6:20:57 PM
Motor Oil Range Organics (MRO)	84	50		mg/Kg	1	5/20/2022 6:20:57 PM
Surr: DNOP	84.4	51.1-141		%Rec	1	5/20/2022 6:20:57 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	5/20/2022 12:39:39 AM
Surr: BFB	96.5	37.7-212		%Rec	1	5/20/2022 12:39:39 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.025		mg/Kg	1	5/20/2022 12:39:39 AM
Toluene	ND	0.050		mg/Kg	1	5/20/2022 12:39:39 AM
Ethylbenzene	ND	0.050		mg/Kg	1	5/20/2022 12:39:39 AM
Xylenes, Total	ND	0.10		mg/Kg	1	5/20/2022 12:39:39 AM
Surr: 4-Bromofluorobenzene	98.8	70-130		%Rec	1	5/20/2022 12:39:39 AM
EPA METHOD 300.0: ANIONS						Analyst: CAS
Chloride	71	59		mg/Kg	20	5/23/2022 3:11:18 PM

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

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2205815**

Date Reported: **5/26/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-01 2'

Project: Tomcat 17 Federal 001

Collection Date: 5/15/2022 8:00:00 AM

Lab ID: 2205815-002

Matrix: SOIL

Received Date: 5/18/2022 8:27:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	75	9.0		mg/Kg	1	5/20/2022 6:54:02 PM
Motor Oil Range Organics (MRO)	83	45		mg/Kg	1	5/20/2022 6:54:02 PM
Surr: DNOP	89.8	51.1-141		%Rec	1	5/20/2022 6:54:02 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	5/20/2022 1:50:00 AM
Surr: BFB	95.9	37.7-212		%Rec	1	5/20/2022 1:50:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.025		mg/Kg	1	5/20/2022 1:50:00 AM
Toluene	ND	0.049		mg/Kg	1	5/20/2022 1:50:00 AM
Ethylbenzene	ND	0.049		mg/Kg	1	5/20/2022 1:50:00 AM
Xylenes, Total	ND	0.098		mg/Kg	1	5/20/2022 1:50:00 AM
Surr: 4-Bromofluorobenzene	99.4	70-130		%Rec	1	5/20/2022 1:50:00 AM
EPA METHOD 300.0: ANIONS						Analyst: CAS
Chloride	ND	59		mg/Kg	20	5/23/2022 3:23:43 PM

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

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2205815**

Date Reported: **5/26/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-01 4'

Project: Tomcat 17 Federal 001

Collection Date: 5/15/2022 8:05:00 AM

Lab ID: 2205815-003

Matrix: SOIL

Received Date: 5/18/2022 8:27:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	5/20/2022 7:05:01 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	5/20/2022 7:05:01 PM
Surr: DNOP	92.7	51.1-141		%Rec	1	5/20/2022 7:05:01 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	5/20/2022 3:00:39 AM
Surr: BFB	92.5	37.7-212		%Rec	1	5/20/2022 3:00:39 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.025		mg/Kg	1	5/20/2022 3:00:39 AM
Toluene	ND	0.049		mg/Kg	1	5/20/2022 3:00:39 AM
Ethylbenzene	ND	0.049		mg/Kg	1	5/20/2022 3:00:39 AM
Xylenes, Total	ND	0.099		mg/Kg	1	5/20/2022 3:00:39 AM
Surr: 4-Bromofluorobenzene	95.0	70-130		%Rec	1	5/20/2022 3:00:39 AM
EPA METHOD 300.0: ANIONS						Analyst: CAS
Chloride	75	60		mg/Kg	20	5/23/2022 3:36:07 PM

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

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2205815**

Date Reported: 5/26/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-02 0'

Project: Tomcat 17 Federal 001

Collection Date: 5/15/2022 8:10:00 AM

Lab ID: 2205815-004

Matrix: SOIL

Received Date: 5/18/2022 8:27:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	8.5		mg/Kg	1	5/20/2022 7:16:01 PM
Motor Oil Range Organics (MRO)	ND	42		mg/Kg	1	5/20/2022 7:16:01 PM
Surr: DNOP	86.8	51.1-141		%Rec	1	5/20/2022 7:16:01 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	5/20/2022 3:24:19 AM
Surr: BFB	91.8	37.7-212		%Rec	1	5/20/2022 3:24:19 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.025		mg/Kg	1	5/20/2022 3:24:19 AM
Toluene	ND	0.049		mg/Kg	1	5/20/2022 3:24:19 AM
Ethylbenzene	ND	0.049		mg/Kg	1	5/20/2022 3:24:19 AM
Xylenes, Total	ND	0.099		mg/Kg	1	5/20/2022 3:24:19 AM
Surr: 4-Bromofluorobenzene	96.4	70-130		%Rec	1	5/20/2022 3:24:19 AM
EPA METHOD 300.0: ANIONS						Analyst: CAS
Chloride	72	60		mg/Kg	20	5/23/2022 3:48:31 PM

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

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2205815**

Date Reported: **5/26/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-02 2'

Project: Tomcat 17 Federal 001

Collection Date: 5/15/2022 8:15:00 AM

Lab ID: 2205815-005

Matrix: SOIL

Received Date: 5/18/2022 8:27:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	5/20/2022 7:27:02 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	5/20/2022 7:27:02 PM
Surr: DNOP	88.8	51.1-141		%Rec	1	5/20/2022 7:27:02 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	5/20/2022 3:47:56 AM
Surr: BFB	95.8	37.7-212		%Rec	1	5/20/2022 3:47:56 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	5/20/2022 3:47:56 AM
Toluene	ND	0.049		mg/Kg	1	5/20/2022 3:47:56 AM
Ethylbenzene	ND	0.049		mg/Kg	1	5/20/2022 3:47:56 AM
Xylenes, Total	ND	0.097		mg/Kg	1	5/20/2022 3:47:56 AM
Surr: 4-Bromofluorobenzene	97.4	70-130		%Rec	1	5/20/2022 3:47:56 AM
EPA METHOD 300.0: ANIONS						Analyst: CAS
Chloride	ND	60		mg/Kg	20	5/23/2022 4:00:55 PM

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

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2205815**

Date Reported: **5/26/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-02 4'

Project: Tomcat 17 Federal 001

Collection Date: 5/15/2022 8:20:00 AM

Lab ID: 2205815-006

Matrix: SOIL

Received Date: 5/18/2022 8:27:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	5/20/2022 7:38:02 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	5/20/2022 7:38:02 PM
Surr: DNOP	92.7	51.1-141		%Rec	1	5/20/2022 7:38:02 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	5/20/2022 4:11:32 AM
Surr: BFB	96.1	37.7-212		%Rec	1	5/20/2022 4:11:32 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.025		mg/Kg	1	5/20/2022 4:11:32 AM
Toluene	ND	0.050		mg/Kg	1	5/20/2022 4:11:32 AM
Ethylbenzene	ND	0.050		mg/Kg	1	5/20/2022 4:11:32 AM
Xylenes, Total	ND	0.099		mg/Kg	1	5/20/2022 4:11:32 AM
Surr: 4-Bromofluorobenzene	98.2	70-130		%Rec	1	5/20/2022 4:11:32 AM
EPA METHOD 300.0: ANIONS						Analyst: CAS
Chloride	ND	60		mg/Kg	20	5/23/2022 4:38:09 PM

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

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2205815**

Date Reported: 5/26/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-03 0'

Project: Tomcat 17 Federal 001

Collection Date: 5/15/2022 8:55:00 AM

Lab ID: 2205815-007

Matrix: SOIL

Received Date: 5/18/2022 8:27:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	8300	990		mg/Kg	100	5/20/2022 7:49:03 PM
Motor Oil Range Organics (MRO)	8000	4900		mg/Kg	100	5/20/2022 7:49:03 PM
Surr: DNOP	0	51.1-141	S	%Rec	100	5/20/2022 7:49:03 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	25		mg/Kg	5	5/20/2022 4:34:57 AM
Surr: BFB	91.9	37.7-212		%Rec	5	5/20/2022 4:34:57 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.12		mg/Kg	5	5/20/2022 4:34:57 AM
Toluene	ND	0.25		mg/Kg	5	5/20/2022 4:34:57 AM
Ethylbenzene	ND	0.25		mg/Kg	5	5/20/2022 4:34:57 AM
Xylenes, Total	ND	0.50		mg/Kg	5	5/20/2022 4:34:57 AM
Surr: 4-Bromofluorobenzene	93.2	70-130		%Rec	5	5/20/2022 4:34:57 AM
EPA METHOD 300.0: ANIONS						Analyst: CAS
Chloride	ND	60		mg/Kg	20	5/23/2022 4:50:33 PM

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

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2205815**

Date Reported: **5/26/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-03 2'

Project: Tomcat 17 Federal 001

Collection Date: 5/15/2022 9:00:00 AM

Lab ID: 2205815-008

Matrix: SOIL

Received Date: 5/18/2022 8:27:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	9.0		mg/Kg	1	5/20/2022 8:00:02 PM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	5/20/2022 8:00:02 PM
Surr: DNOP	91.9	51.1-141		%Rec	1	5/20/2022 8:00:02 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: BRM
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	5/20/2022 5:39:00 AM
Surr: BFB	89.1	37.7-212		%Rec	1	5/20/2022 5:39:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: BRM
Benzene	ND	0.025		mg/Kg	1	5/20/2022 5:39:00 AM
Toluene	ND	0.050		mg/Kg	1	5/20/2022 5:39:00 AM
Ethylbenzene	ND	0.050		mg/Kg	1	5/20/2022 5:39:00 AM
Xylenes, Total	ND	0.10		mg/Kg	1	5/20/2022 5:39:00 AM
Surr: 4-Bromofluorobenzene	91.9	70-130		%Rec	1	5/20/2022 5:39:00 AM
EPA METHOD 300.0: ANIONS						Analyst: CAS
Chloride	ND	60		mg/Kg	20	5/23/2022 5:02:58 PM

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

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2205815**

Date Reported: **5/26/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-03 4'

Project: Tomcat 17 Federal 001

Collection Date: 5/15/2022 9:05:00 AM

Lab ID: 2205815-009

Matrix: SOIL

Received Date: 5/18/2022 8:27:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	5/20/2022 8:11:06 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	5/20/2022 8:11:06 PM
Surr: DNOP	93.6	51.1-141		%Rec	1	5/20/2022 8:11:06 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: BRM
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	5/20/2022 5:59:00 AM
Surr: BFB	89.7	37.7-212		%Rec	1	5/20/2022 5:59:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: BRM
Benzene	ND	0.025		mg/Kg	1	5/20/2022 5:59:00 AM
Toluene	ND	0.049		mg/Kg	1	5/20/2022 5:59:00 AM
Ethylbenzene	ND	0.049		mg/Kg	1	5/20/2022 5:59:00 AM
Xylenes, Total	ND	0.099		mg/Kg	1	5/20/2022 5:59:00 AM
Surr: 4-Bromofluorobenzene	92.9	70-130		%Rec	1	5/20/2022 5:59:00 AM
EPA METHOD 300.0: ANIONS						Analyst: CAS
Chloride	ND	59		mg/Kg	20	5/23/2022 5:40:13 PM

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

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2205815**

Date Reported: **5/26/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-04 0'

Project: Tomcat 17 Federal 001

Collection Date: 5/15/2022 9:20:00 AM

Lab ID: 2205815-010

Matrix: SOIL

Received Date: 5/18/2022 8:27:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	5/20/2022 8:22:04 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	5/20/2022 8:22:04 PM
Surr: DNOP	81.6	51.1-141		%Rec	1	5/20/2022 8:22:04 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: BRM
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	5/20/2022 6:18:00 AM
Surr: BFB	89.3	37.7-212		%Rec	1	5/20/2022 6:18:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: BRM
Benzene	ND	0.024		mg/Kg	1	5/20/2022 6:18:00 AM
Toluene	ND	0.049		mg/Kg	1	5/20/2022 6:18:00 AM
Ethylbenzene	ND	0.049		mg/Kg	1	5/20/2022 6:18:00 AM
Xylenes, Total	ND	0.097		mg/Kg	1	5/20/2022 6:18:00 AM
Surr: 4-Bromofluorobenzene	91.2	70-130		%Rec	1	5/20/2022 6:18:00 AM
EPA METHOD 300.0: ANIONS						Analyst: CAS
Chloride	ND	60		mg/Kg	20	5/23/2022 5:52:38 PM

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

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2205815**

Date Reported: **5/26/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-04 2'

Project: Tomcat 17 Federal 001

Collection Date: 5/15/2022 9:25:00 AM

Lab ID: 2205815-011

Matrix: SOIL

Received Date: 5/18/2022 8:27:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	5/20/2022 8:33:16 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	5/20/2022 8:33:16 PM
Surr: DNOP	90.8	51.1-141		%Rec	1	5/20/2022 8:33:16 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: BRM
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	5/20/2022 6:38:00 AM
Surr: BFB	89.6	37.7-212		%Rec	1	5/20/2022 6:38:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: BRM
Benzene	ND	0.024		mg/Kg	1	5/20/2022 6:38:00 AM
Toluene	ND	0.049		mg/Kg	1	5/20/2022 6:38:00 AM
Ethylbenzene	ND	0.049		mg/Kg	1	5/20/2022 6:38:00 AM
Xylenes, Total	ND	0.098		mg/Kg	1	5/20/2022 6:38:00 AM
Surr: 4-Bromofluorobenzene	91.7	70-130		%Rec	1	5/20/2022 6:38:00 AM
EPA METHOD 300.0: ANIONS						Analyst: CAS
Chloride	ND	60		mg/Kg	20	5/23/2022 6:05:03 PM

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

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2205815**

Date Reported: **5/26/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-04 4'

Project: Tomcat 17 Federal 001

Collection Date: 5/15/2022 9:30:00 AM

Lab ID: 2205815-012

Matrix: SOIL

Received Date: 5/18/2022 8:27:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	5/20/2022 8:44:24 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	5/20/2022 8:44:24 PM
Surr: DNOP	87.4	51.1-141		%Rec	1	5/20/2022 8:44:24 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: BRM
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	5/20/2022 6:58:00 AM
Surr: BFB	86.9	37.7-212		%Rec	1	5/20/2022 6:58:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: BRM
Benzene	ND	0.025		mg/Kg	1	5/20/2022 6:58:00 AM
Toluene	ND	0.050		mg/Kg	1	5/20/2022 6:58:00 AM
Ethylbenzene	ND	0.050		mg/Kg	1	5/20/2022 6:58:00 AM
Xylenes, Total	ND	0.10		mg/Kg	1	5/20/2022 6:58:00 AM
Surr: 4-Bromofluorobenzene	87.0	70-130		%Rec	1	5/20/2022 6:58:00 AM
EPA METHOD 300.0: ANIONS						Analyst: CAS
Chloride	ND	60		mg/Kg	20	5/23/2022 6:17:28 PM

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

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2205815**

Date Reported: **5/26/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-05 0'

Project: Tomcat 17 Federal 001

Collection Date: 5/15/2022 9:40:00 AM

Lab ID: 2205815-013

Matrix: SOIL

Received Date: 5/18/2022 8:27:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	4600	190		mg/Kg	20	5/20/2022 8:55:33 PM
Motor Oil Range Organics (MRO)	4600	970		mg/Kg	20	5/20/2022 8:55:33 PM
Surr: DNOP	0	51.1-141	S	%Rec	20	5/20/2022 8:55:33 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	25		mg/Kg	5	5/20/2022 9:28:09 AM
Surr: BFB	94.6	37.7-212		%Rec	5	5/20/2022 9:28:09 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.12		mg/Kg	5	5/20/2022 9:28:09 AM
Toluene	ND	0.25		mg/Kg	5	5/20/2022 9:28:09 AM
Ethylbenzene	ND	0.25		mg/Kg	5	5/20/2022 9:28:09 AM
Xylenes, Total	ND	0.50		mg/Kg	5	5/20/2022 9:28:09 AM
Surr: 4-Bromofluorobenzene	97.6	70-130		%Rec	5	5/20/2022 9:28:09 AM
EPA METHOD 300.0: ANIONS						Analyst: CAS
Chloride	ND	60		mg/Kg	20	5/23/2022 6:29:53 PM

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

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2205815**

Date Reported: **5/26/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-05 2'

Project: Tomcat 17 Federal 001

Collection Date: 5/15/2022 9:45:00 AM

Lab ID: 2205815-014

Matrix: SOIL

Received Date: 5/18/2022 8:27:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	73	9.6		mg/Kg	1	5/25/2022 4:15:00 AM
Motor Oil Range Organics (MRO)	120	48		mg/Kg	1	5/25/2022 4:15:00 AM
Surr: DNOP	105	51.1-141		%Rec	1	5/25/2022 4:15:00 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	5/20/2022 9:51:34 AM
Surr: BFB	93.5	37.7-212		%Rec	1	5/20/2022 9:51:34 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.025		mg/Kg	1	5/20/2022 9:51:34 AM
Toluene	ND	0.050		mg/Kg	1	5/20/2022 9:51:34 AM
Ethylbenzene	ND	0.050		mg/Kg	1	5/20/2022 9:51:34 AM
Xylenes, Total	ND	0.099		mg/Kg	1	5/20/2022 9:51:34 AM
Surr: 4-Bromofluorobenzene	101	70-130		%Rec	1	5/20/2022 9:51:34 AM
EPA METHOD 300.0: ANIONS						Analyst: CAS
Chloride	ND	60		mg/Kg	20	5/23/2022 5:26:04 PM

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

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2205815**

Date Reported: **5/26/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-05 4'

Project: Tomcat 17 Federal 001

Collection Date: 5/15/2022 9:50:00 AM

Lab ID: 2205815-015

Matrix: SOIL

Received Date: 5/18/2022 8:27:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	5/20/2022 9:17:46 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	5/20/2022 9:17:46 PM
Surr: DNOP	95.2	51.1-141		%Rec	1	5/20/2022 9:17:46 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	5/20/2022 10:15:05 AM
Surr: BFB	97.7	37.7-212		%Rec	1	5/20/2022 10:15:05 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.025		mg/Kg	1	5/20/2022 10:15:05 AM
Toluene	ND	0.050		mg/Kg	1	5/20/2022 10:15:05 AM
Ethylbenzene	ND	0.050		mg/Kg	1	5/20/2022 10:15:05 AM
Xylenes, Total	ND	0.10		mg/Kg	1	5/20/2022 10:15:05 AM
Surr: 4-Bromofluorobenzene	102	70-130		%Rec	1	5/20/2022 10:15:05 AM
EPA METHOD 300.0: ANIONS						Analyst: CAS
Chloride	ND	60		mg/Kg	20	5/23/2022 6:42:17 PM

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

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2205815**

Date Reported: **5/26/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-06 0'

Project: Tomcat 17 Federal 001

Collection Date: 5/15/2022 10:05:00 AM

Lab ID: 2205815-016

Matrix: SOIL

Received Date: 5/18/2022 8:27:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						
						Analyst: SB
Diesel Range Organics (DRO)	ND	9.1		mg/Kg	1	5/20/2022 9:28:51 PM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	5/20/2022 9:28:51 PM
Surr: DNOP	102	51.1-141		%Rec	1	5/20/2022 9:28:51 PM
EPA METHOD 8015D: GASOLINE RANGE						
						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	5/20/2022 10:38:29 AM
Surr: BFB	96.4	37.7-212		%Rec	1	5/20/2022 10:38:29 AM
EPA METHOD 8021B: VOLATILES						
						Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	5/20/2022 10:38:29 AM
Toluene	ND	0.049		mg/Kg	1	5/20/2022 10:38:29 AM
Ethylbenzene	ND	0.049		mg/Kg	1	5/20/2022 10:38:29 AM
Xylenes, Total	ND	0.098		mg/Kg	1	5/20/2022 10:38:29 AM
Surr: 4-Bromofluorobenzene	97.9	70-130		%Rec	1	5/20/2022 10:38:29 AM
EPA METHOD 300.0: ANIONS						
						Analyst: CAS
Chloride	98	60		mg/Kg	20	5/23/2022 5:38:24 PM

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

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2205815**

Date Reported: **5/26/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-06 2'

Project: Tomcat 17 Federal 001

Collection Date: 5/15/2022 10:10:00 AM

Lab ID: 2205815-017

Matrix: SOIL

Received Date: 5/18/2022 8:27:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	120	95		mg/Kg	10	5/20/2022 9:39:57 PM
Motor Oil Range Organics (MRO)	480	470		mg/Kg	10	5/20/2022 9:39:57 PM
Surr: DNOP	0	51.1-141	S	%Rec	10	5/20/2022 9:39:57 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	24		mg/Kg	5	5/20/2022 11:01:58 AM
Surr: BFB	97.7	37.7-212		%Rec	5	5/20/2022 11:01:58 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.12		mg/Kg	5	5/20/2022 11:01:58 AM
Toluene	ND	0.24		mg/Kg	5	5/20/2022 11:01:58 AM
Ethylbenzene	ND	0.24		mg/Kg	5	5/20/2022 11:01:58 AM
Xylenes, Total	ND	0.49		mg/Kg	5	5/20/2022 11:01:58 AM
Surr: 4-Bromofluorobenzene	99.1	70-130		%Rec	5	5/20/2022 11:01:58 AM
EPA METHOD 300.0: ANIONS						Analyst: CAS
Chloride	ND	60		mg/Kg	20	5/23/2022 5:50:45 PM

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

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2205815**

Date Reported: **5/26/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-06 4'

Project: Tomcat 17 Federal 001

Collection Date: 5/15/2022 10:15:00 AM

Lab ID: 2205815-018

Matrix: SOIL

Received Date: 5/18/2022 8:27:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	5/20/2022 10:02:20 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	5/20/2022 10:02:20 PM
Surr: DNOP	95.8	51.1-141		%Rec	1	5/20/2022 10:02:20 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	5/20/2022 11:25:23 AM
Surr: BFB	95.5	37.7-212		%Rec	1	5/20/2022 11:25:23 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.025		mg/Kg	1	5/20/2022 11:25:23 AM
Toluene	ND	0.050		mg/Kg	1	5/20/2022 11:25:23 AM
Ethylbenzene	ND	0.050		mg/Kg	1	5/20/2022 11:25:23 AM
Xylenes, Total	ND	0.099		mg/Kg	1	5/20/2022 11:25:23 AM
Surr: 4-Bromofluorobenzene	97.7	70-130		%Rec	1	5/20/2022 11:25:23 AM
EPA METHOD 300.0: ANIONS						Analyst: CAS
Chloride	ND	60		mg/Kg	20	5/23/2022 6:03:06 PM

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

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2205815**

Date Reported: **5/26/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-07 0'

Project: Tomcat 17 Federal 001

Collection Date: 5/15/2022 10:25:00 AM

Lab ID: 2205815-019

Matrix: SOIL

Received Date: 5/18/2022 8:27:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	5/20/2022 10:13:32 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	5/20/2022 10:13:32 PM
Surr: DNOP	85.0	51.1-141		%Rec	1	5/20/2022 10:13:32 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	5/20/2022 11:49:05 AM
Surr: BFB	96.5	37.7-212		%Rec	1	5/20/2022 11:49:05 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.025		mg/Kg	1	5/20/2022 11:49:05 AM
Toluene	ND	0.050		mg/Kg	1	5/20/2022 11:49:05 AM
Ethylbenzene	ND	0.050		mg/Kg	1	5/20/2022 11:49:05 AM
Xylenes, Total	ND	0.10		mg/Kg	1	5/20/2022 11:49:05 AM
Surr: 4-Bromofluorobenzene	99.3	70-130		%Rec	1	5/20/2022 11:49:05 AM
EPA METHOD 300.0: ANIONS						Analyst: CAS
Chloride	ND	60		mg/Kg	20	5/23/2022 6:40:08 PM

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

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2205815**

Date Reported: **5/26/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-07 2'

Project: Tomcat 17 Federal 001

Collection Date: 5/15/2022 10:30:00 AM

Lab ID: 2205815-020

Matrix: SOIL

Received Date: 5/18/2022 8:27:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	230	9.1		mg/Kg	1	5/20/2022 10:24:41 PM
Motor Oil Range Organics (MRO)	140	46		mg/Kg	1	5/20/2022 10:24:41 PM
Surr: DNOP	90.0	51.1-141		%Rec	1	5/20/2022 10:24:41 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	5/20/2022 12:12:38 PM
Surr: BFB	98.7	37.7-212		%Rec	1	5/20/2022 12:12:38 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.025		mg/Kg	1	5/20/2022 12:12:38 PM
Toluene	ND	0.050		mg/Kg	1	5/20/2022 12:12:38 PM
Ethylbenzene	ND	0.050		mg/Kg	1	5/20/2022 12:12:38 PM
Xylenes, Total	ND	0.099		mg/Kg	1	5/20/2022 12:12:38 PM
Surr: 4-Bromofluorobenzene	101	70-130		%Rec	1	5/20/2022 12:12:38 PM
EPA METHOD 300.0: ANIONS						Analyst: CAS
Chloride	ND	60		mg/Kg	20	5/23/2022 6:52:30 PM

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

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2205815**

Date Reported: **5/26/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-07 4'

Project: Tomcat 17 Federal 001

Collection Date: 5/15/2022 10:35:00 AM

Lab ID: 2205815-021

Matrix: SOIL

Received Date: 5/18/2022 8:27:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	5/20/2022 11:53:27 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	5/20/2022 11:53:27 PM
Surr: DNOP	84.6	51.1-141		%Rec	1	5/20/2022 11:53:27 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: BRM
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	5/20/2022 11:54:00 AM
Surr: BFB	91.4	37.7-212		%Rec	1	5/20/2022 11:54:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: BRM
Benzene	ND	0.024		mg/Kg	1	5/20/2022 11:54:00 AM
Toluene	ND	0.048		mg/Kg	1	5/20/2022 11:54:00 AM
Ethylbenzene	ND	0.048		mg/Kg	1	5/20/2022 11:54:00 AM
Xylenes, Total	ND	0.097		mg/Kg	1	5/20/2022 11:54:00 AM
Surr: 4-Bromofluorobenzene	92.6	70-130		%Rec	1	5/20/2022 11:54:00 AM
EPA METHOD 300.0: ANIONS						Analyst: CAS
Chloride	ND	61		mg/Kg	20	5/23/2022 7:29:31 PM

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

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2205815**

Date Reported: **5/26/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-08 0'

Project: Tomcat 17 Federal 001

Collection Date: 5/15/2022 10:40:00 AM

Lab ID: 2205815-022

Matrix: SOIL

Received Date: 5/18/2022 8:27:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	5/21/2022 12:26:37 AM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	5/21/2022 12:26:37 AM
Surr: DNOP	90.4	51.1-141		%Rec	1	5/21/2022 12:26:37 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: BRM
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	5/20/2022 12:53:00 PM
Surr: BFB	89.7	37.7-212		%Rec	1	5/20/2022 12:53:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: BRM
Benzene	ND	0.024		mg/Kg	1	5/20/2022 12:53:00 PM
Toluene	ND	0.049		mg/Kg	1	5/20/2022 12:53:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	5/20/2022 12:53:00 PM
Xylenes, Total	ND	0.098		mg/Kg	1	5/20/2022 12:53:00 PM
Surr: 4-Bromofluorobenzene	88.9	70-130		%Rec	1	5/20/2022 12:53:00 PM
EPA METHOD 300.0: ANIONS						Analyst: CAS
Chloride	560	60		mg/Kg	20	5/23/2022 7:41:52 PM

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

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2205815**

Date Reported: **5/26/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-08 2'

Project: Tomcat 17 Federal 001

Collection Date: 5/15/2022 10:45:00 AM

Lab ID: 2205815-023

Matrix: SOIL

Received Date: 5/18/2022 8:27:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	5/21/2022 12:37:39 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	5/21/2022 12:37:39 AM
Surr: DNOP	90.2	51.1-141		%Rec	1	5/21/2022 12:37:39 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: BRM
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	5/20/2022 1:52:00 PM
Surr: BFB	87.1	37.7-212		%Rec	1	5/20/2022 1:52:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: BRM
Benzene	ND	0.024		mg/Kg	1	5/20/2022 1:52:00 PM
Toluene	ND	0.048		mg/Kg	1	5/20/2022 1:52:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	5/20/2022 1:52:00 PM
Xylenes, Total	ND	0.095		mg/Kg	1	5/20/2022 1:52:00 PM
Surr: 4-Bromofluorobenzene	89.4	70-130		%Rec	1	5/20/2022 1:52:00 PM
EPA METHOD 300.0: ANIONS						Analyst: CAS
Chloride	400	60		mg/Kg	20	5/23/2022 7:54:14 PM

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

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2205815**

Date Reported: **5/26/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-08 4'

Project: Tomcat 17 Federal 001

Collection Date: 5/15/2022 10:50:00 AM

Lab ID: 2205815-024

Matrix: SOIL

Received Date: 5/18/2022 8:27:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	5/21/2022 12:48:41 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	5/21/2022 12:48:41 AM
Surr: DNOP	94.0	51.1-141		%Rec	1	5/21/2022 12:48:41 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: BRM
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	5/20/2022 2:12:00 PM
Surr: BFB	94.1	37.7-212		%Rec	1	5/20/2022 2:12:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: BRM
Benzene	ND	0.024		mg/Kg	1	5/20/2022 2:12:00 PM
Toluene	ND	0.049		mg/Kg	1	5/20/2022 2:12:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	5/20/2022 2:12:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	5/20/2022 2:12:00 PM
Surr: 4-Bromofluorobenzene	89.9	70-130		%Rec	1	5/20/2022 2:12:00 PM
EPA METHOD 300.0: ANIONS						Analyst: CAS
Chloride	1900	60		mg/Kg	20	5/23/2022 8:06:35 PM

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

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2205815

26-May-22

Client: Vertex Resources Services, Inc.

Project: Tomcat 17 Federal 001

Sample ID: MB-67621	SampType: mblk	TestCode: EPA Method 300.0: Anions								
Client ID: PBS	Batch ID: 67621	RunNo: 88218								
Prep Date: 5/23/2022	Analysis Date: 5/23/2022	SeqNo: 3127932	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: LCS-67621	SampType: ics	TestCode: EPA Method 300.0: Anions								
Client ID: LCSS	Batch ID: 67621	RunNo: 88218								
Prep Date: 5/23/2022	Analysis Date: 5/23/2022	SeqNo: 3127933	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	94.6	90	110			

Sample ID: MB-67624	SampType: mblk	TestCode: EPA Method 300.0: Anions								
Client ID: PBS	Batch ID: 67624	RunNo: 88218								
Prep Date: 5/23/2022	Analysis Date: 5/23/2022	SeqNo: 3127935	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: LCS-67624	SampType: ics	TestCode: EPA Method 300.0: Anions								
Client ID: LCSS	Batch ID: 67624	RunNo: 88218								
Prep Date: 5/23/2022	Analysis Date: 5/23/2022	SeqNo: 3127936	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	92.9	90	110			

Sample ID: MB-67621	SampType: mblk	TestCode: EPA Method 300.0: Anions								
Client ID: PBS	Batch ID: 67621	RunNo: 88201								
Prep Date: 5/23/2022	Analysis Date: 5/23/2022	SeqNo: 3128092	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: LCS-67621	SampType: ics	TestCode: EPA Method 300.0: Anions								
Client ID: LCSS	Batch ID: 67621	RunNo: 88201								
Prep Date: 5/23/2022	Analysis Date: 5/23/2022	SeqNo: 3128093	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	94.9	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quantitative Limit
- S % Recovery outside of range due to dilution or matrix interference
- B Analyte detected in the associated Method Blank
- E Estimated value
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2205815

26-May-22

Client: Vertex Resources Services, Inc.

Project: Tomcat 17 Federal 001

Sample ID: MB-67624	SampType: mblk	TestCode: EPA Method 300.0: Anions								
Client ID: PBS	Batch ID: 67624	RunNo: 88201								
Prep Date: 5/23/2022	Analysis Date: 5/23/2022	SeqNo: 3128094	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: LCS-67624	SampType: ics	TestCode: EPA Method 300.0: Anions								
Client ID: LCSS	Batch ID: 67624	RunNo: 88201								
Prep Date: 5/23/2022	Analysis Date: 5/23/2022	SeqNo: 3128095	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	93.3	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quantitative Limit
- S % Recovery outside of range due to dilution or matrix interference
- B Analyte detected in the associated Method Blank
- E Estimated value
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2205815

26-May-22

Client: Vertex Resources Services, Inc.

Project: Tomcat 17 Federal 001

Sample ID: 2205815-001AMS	SampType: MS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: BH22-01 0'	Batch ID: 67573	RunNo: 88170								
Prep Date: 5/19/2022	Analysis Date: 5/20/2022	SeqNo: 3126848	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	62	9.7	48.31	47.13	30.8	36.1	154			S
Surr: DNOP	3.6		4.831		74.2	51.1	141			

Sample ID: 2205815-001AMSD	SampType: MSD	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: BH22-01 0'	Batch ID: 67573	RunNo: 88170								
Prep Date: 5/19/2022	Analysis Date: 5/20/2022	SeqNo: 3126849	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	70	10	50.10	47.13	45.6	36.1	154	12.1	33.9	
Surr: DNOP	3.7		5.010		74.2	51.1	141	0	0	

Sample ID: 2205815-021AMS	SampType: MS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: BH22-07 4'	Batch ID: 67574	RunNo: 88170								
Prep Date: 5/19/2022	Analysis Date: 5/21/2022	SeqNo: 3126870	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	51	9.4	47.13	0	108	36.1	154			
Surr: DNOP	4.2		4.713		89.4	51.1	141			

Sample ID: 2205815-021AMSD	SampType: MSD	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: BH22-07 4'	Batch ID: 67574	RunNo: 88170								
Prep Date: 5/19/2022	Analysis Date: 5/21/2022	SeqNo: 3126871	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	38	8.4	42.12	0	89.7	36.1	154	29.9	33.9	
Surr: DNOP	3.6		4.212		84.9	51.1	141	0	0	

Sample ID: LCS-67548	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: LCSS	Batch ID: 67548	RunNo: 88170								
Prep Date: 5/19/2022	Analysis Date: 5/20/2022	SeqNo: 3126893	Units: %Rec							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	5.0		5.000		101	51.1	141			

Sample ID: LCS-67573	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: LCSS	Batch ID: 67573	RunNo: 88170								
Prep Date: 5/19/2022	Analysis Date: 5/20/2022	SeqNo: 3126894	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	42	10	50.00	0	84.8	64.4	127			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quantitative Limit
- S % Recovery outside of range due to dilution or matrix interference
- B Analyte detected in the associated Method Blank
- E Estimated value
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2205815

26-May-22

Client: Vertex Resources Services, Inc.

Project: Tomcat 17 Federal 001

Sample ID: LCS-67573	SampType: LCS		TestCode: EPA Method 8015M/D: Diesel Range Organics							
Client ID: LCSS	Batch ID: 67573		RunNo: 88170							
Prep Date: 5/19/2022	Analysis Date: 5/20/2022		SeqNo: 3126894		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.2		5.000		84.9	51.1	141			

Sample ID: LCS-67574	SampType: LCS		TestCode: EPA Method 8015M/D: Diesel Range Organics							
Client ID: LCSS	Batch ID: 67574		RunNo: 88170							
Prep Date: 5/19/2022	Analysis Date: 5/20/2022		SeqNo: 3126895		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	40	10	50.00	0	80.6	64.4	127			
Surr: DNOP	4.6		5.000		91.5	51.1	141			

Sample ID: MB-67548	SampType: MBLK		TestCode: EPA Method 8015M/D: Diesel Range Organics							
Client ID: PBS	Batch ID: 67548		RunNo: 88170							
Prep Date: 5/19/2022	Analysis Date: 5/20/2022		SeqNo: 3126897		Units: %Rec					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	11		10.00		112	51.1	141			

Sample ID: MB-67573	SampType: MBLK		TestCode: EPA Method 8015M/D: Diesel Range Organics							
Client ID: PBS	Batch ID: 67573		RunNo: 88170							
Prep Date: 5/19/2022	Analysis Date: 5/20/2022		SeqNo: 3126898		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	9.2		10.00		91.6	51.1	141			

Sample ID: MB-67574	SampType: MBLK		TestCode: EPA Method 8015M/D: Diesel Range Organics							
Client ID: PBS	Batch ID: 67574		RunNo: 88170							
Prep Date: 5/19/2022	Analysis Date: 5/20/2022		SeqNo: 3126899		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	10		10.00		103	51.1	141			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quantitative Limit
- S % Recovery outside of range due to dilution or matrix interference
- B Analyte detected in the associated Method Blank
- E Estimated value
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2205815

26-May-22

Client: Vertex Resources Services, Inc.

Project: Tomcat 17 Federal 001

Sample ID: mb-67550	SampType: MBLK		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: PBS	Batch ID: 67550		RunNo: 88115							
Prep Date: 5/18/2022	Analysis Date: 5/20/2022		SeqNo: 3124685		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	970		1000		97.4	37.7	212			

Sample ID: ics-67550	SampType: LCS		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: LCSS	Batch ID: 67550		RunNo: 88115							
Prep Date: 5/18/2022	Analysis Date: 5/19/2022		SeqNo: 3124686		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	27	5.0	25.00	0	109	72.3	137			
Surr: BFB	2100		1000		212	37.7	212			S

Sample ID: 2205815-001ams	SampType: MS		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: BH22-01 0'	Batch ID: 67550		RunNo: 88115							
Prep Date: 5/18/2022	Analysis Date: 5/20/2022		SeqNo: 3124688		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	30	4.9	24.37	0	122	70	130			
Surr: BFB	2200		974.7		223	37.7	212			S

Sample ID: ics-67545	SampType: LCS		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: LCSS	Batch ID: 67545		RunNo: 88144							
Prep Date: 5/18/2022	Analysis Date: 5/19/2022		SeqNo: 3124750		Units: %Rec					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	1900		1000		191	37.7	212			

Sample ID: mb-67545	SampType: MBLK		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: PBS	Batch ID: 67545		RunNo: 88144							
Prep Date: 5/18/2022	Analysis Date: 5/19/2022		SeqNo: 3124752		Units: %Rec					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	910		1000		90.6	37.7	212			

Sample ID: ics-67570	SampType: LCS		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: LCSS	Batch ID: 67570		RunNo: 88180							
Prep Date: 5/19/2022	Analysis Date: 5/20/2022		SeqNo: 3125949		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	5.0	25.00	0	102	72.3	137			
Surr: BFB	2000		1000		200	37.7	212			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quantitative Limit
- S % Recovery outside of range due to dilution or matrix interference
- B Analyte detected in the associated Method Blank
- E Estimated value
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2205815

26-May-22

Client: Vertex Resources Services, Inc.

Project: Tomcat 17 Federal 001

Sample ID: mb-67570	SampType: MBLK		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: PBS	Batch ID: 67570		RunNo: 88180							
Prep Date: 5/19/2022	Analysis Date: 5/20/2022		SeqNo: 3125950		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	910		1000		91.2	37.7	212			

Sample ID: 2205815-021ams	SampType: MS		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: BH22-07 4'	Batch ID: 67570		RunNo: 88180							
Prep Date: 5/19/2022	Analysis Date: 5/20/2022		SeqNo: 3125952		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	4.8	23.88	0	106	70	130			
Surr: BFB	2000		955.1		205	37.7	212			

Sample ID: 2205815-021amsd	SampType: MSD		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: BH22-07 4'	Batch ID: 67570		RunNo: 88180							
Prep Date: 5/19/2022	Analysis Date: 5/20/2022		SeqNo: 3125953		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	26	4.8	24.15	0	106	70	130	1.76	20	
Surr: BFB	2000		966.2		204	37.7	212	0	0	

Sample ID: 2205815-001amsd	SampType: MSD		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: BH22-01 0'	Batch ID: 67550		RunNo: 88181							
Prep Date: 5/18/2022	Analysis Date: 5/20/2022		SeqNo: 3125975		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	29	5.0	24.80	0	118	70	130	1.93	20	
Surr: BFB	2200		992.1		220	37.7	212	0	0	S

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quantitative Limit
- S % Recovery outside of range due to dilution or matrix interference
- B Analyte detected in the associated Method Blank
- E Estimated value
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2205815

26-May-22

Client: Vertex Resources Services, Inc.

Project: Tomcat 17 Federal 001

Sample ID: mb-67550	SampType: MBLK	TestCode: EPA Method 8021B: Volatiles								
Client ID: PBS	Batch ID: 67550	RunNo: 88115								
Prep Date: 5/18/2022	Analysis Date: 5/20/2022	SeqNo: 3124799	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.0		1.000		100	70	130			

Sample ID: LCS-67550	SampType: LCS	TestCode: EPA Method 8021B: Volatiles								
Client ID: LCSS	Batch ID: 67550	RunNo: 88115								
Prep Date: 5/18/2022	Analysis Date: 5/20/2022	SeqNo: 3124807	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.95	0.025	1.000	0	95.4	80	120			
Toluene	0.98	0.050	1.000	0	98.0	80	120			
Ethylbenzene	0.98	0.050	1.000	0	97.8	80	120			
Xylenes, Total	3.0	0.10	3.000	0	98.4	80	120			
Surr: 4-Bromofluorobenzene	1.0		1.000		102	70	130			

Sample ID: lcs-67545	SampType: LCS	TestCode: EPA Method 8021B: Volatiles								
Client ID: LCSS	Batch ID: 67545	RunNo: 88144								
Prep Date: 5/18/2022	Analysis Date: 5/19/2022	SeqNo: 3124827	Units: %Rec							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.89		1.000		89.4	70	130			

Sample ID: mb-67545	SampType: MBLK	TestCode: EPA Method 8021B: Volatiles								
Client ID: PBS	Batch ID: 67545	RunNo: 88144								
Prep Date: 5/18/2022	Analysis Date: 5/19/2022	SeqNo: 3124828	Units: %Rec							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.90		1.000		89.7	70	130			

Sample ID: 2205815-002ams	SampType: MS	TestCode: EPA Method 8021B: Volatiles								
Client ID: BH22-01 2'	Batch ID: 67550	RunNo: 88115								
Prep Date: 5/18/2022	Analysis Date: 5/20/2022	SeqNo: 3124836	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.98	0.025	0.9940	0	98.1	68.8	120			
Toluene	1.0	0.050	0.9940	0	101	73.6	124			
Ethylbenzene	1.0	0.050	0.9940	0	102	72.7	129			
Xylenes, Total	3.1	0.099	2.982	0	103	75.7	126			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quantitative Limit
- S % Recovery outside of range due to dilution or matrix interference
- B Analyte detected in the associated Method Blank
- E Estimated value
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2205815

26-May-22

Client: Vertex Resources Services, Inc.

Project: Tomcat 17 Federal 001

Sample ID: 2205815-002ams	SampType: MS	TestCode: EPA Method 8021B: Volatiles								
Client ID: BH22-01 2'	Batch ID: 67550	RunNo: 88115								
Prep Date: 5/18/2022	Analysis Date: 5/20/2022	SeqNo: 3124836	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	1.0		0.9940		103	70	130			

Sample ID: 2205815-002amsd	SampType: MSD	TestCode: EPA Method 8021B: Volatiles								
Client ID: BH22-01 2'	Batch ID: 67550	RunNo: 88115								
Prep Date: 5/18/2022	Analysis Date: 5/20/2022	SeqNo: 3124848	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.025	0.9970	0	102	68.8	120	3.78	20	
Toluene	1.1	0.050	0.9970	0	106	73.6	124	4.84	20	
Ethylbenzene	1.1	0.050	0.9970	0	107	72.7	129	5.72	20	
Xylenes, Total	3.2	0.10	2.991	0	108	75.7	126	4.51	20	
Surr: 4-Bromofluorobenzene	1.0		0.9970		103	70	130	0	0	

Sample ID: lcs-67570	SampType: LCS	TestCode: EPA Method 8021B: Volatiles								
Client ID: LCSS	Batch ID: 67570	RunNo: 88180								
Prep Date: 5/19/2022	Analysis Date: 5/20/2022	SeqNo: 3125984	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.96	0.025	1.000	0	96.3	80	120			
Toluene	0.97	0.050	1.000	0	97.1	80	120			
Ethylbenzene	0.97	0.050	1.000	0	96.9	80	120			
Xylenes, Total	2.9	0.10	3.000	0	96.4	80	120			
Surr: 4-Bromofluorobenzene	0.91		1.000		91.2	70	130			

Sample ID: mb-67570	SampType: MBLK	TestCode: EPA Method 8021B: Volatiles								
Client ID: PBS	Batch ID: 67570	RunNo: 88180								
Prep Date: 5/19/2022	Analysis Date: 5/20/2022	SeqNo: 3125985	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.91		1.000		91.1	70	130			

Sample ID: 2205815-022ams	SampType: MS	TestCode: EPA Method 8021B: Volatiles								
Client ID: BH22-08 0'	Batch ID: 67570	RunNo: 88180								
Prep Date: 5/19/2022	Analysis Date: 5/20/2022	SeqNo: 3125988	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quantitative Limit
- S % Recovery outside of range due to dilution or matrix interference
- B Analyte detected in the associated Method Blank
- E Estimated value
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2205815

26-May-22

Client: Vertex Resources Services, Inc.

Project: Tomcat 17 Federal 001

Sample ID: 2205815-022ams	SampType: MS		TestCode: EPA Method 8021B: Volatiles							
Client ID: BH22-08 0'	Batch ID: 67570		RunNo: 88180							
Prep Date: 5/19/2022	Analysis Date: 5/20/2022		SeqNo: 3125988		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.95	0.024	0.9747	0	97.2	68.8	120			
Toluene	0.97	0.049	0.9747	0	99.3	73.6	124			
Ethylbenzene	0.98	0.049	0.9747	0	100	72.7	129			
Xylenes, Total	2.9	0.097	2.924	0	99.1	75.7	126			
Surr: 4-Bromofluorobenzene	0.88		0.9747		89.8	70	130			

Sample ID: 2205815-022amsd	SampType: MSD		TestCode: EPA Method 8021B: Volatiles							
Client ID: BH22-08 0'	Batch ID: 67570		RunNo: 88180							
Prep Date: 5/19/2022	Analysis Date: 5/20/2022		SeqNo: 3125989		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.96	0.024	0.9690	0	99.2	68.8	120	1.43	20	
Toluene	0.97	0.048	0.9690	0	100	73.6	124	0.434	20	
Ethylbenzene	0.99	0.048	0.9690	0	102	72.7	129	1.64	20	
Xylenes, Total	2.9	0.097	2.907	0	101	75.7	126	1.54	20	
Surr: 4-Bromofluorobenzene	0.88		0.9690		90.7	70	130	0	0	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quantitative Limit
- S % Recovery outside of range due to dilution or matrix interference
- B Analyte detected in the associated Method Blank
- E Estimated value
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit



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

Sample Log-In Check List

Client Name: Vertex Resources Services, Inc. Work Order Number: 2205815 RcptNo: 1

Received By: Joseph Alderette 5/18/2022 8:27:00 AM
Completed By: Desiree Dominguez 5/18/2022 10:44:08 AM
Reviewed By: CMC 5/18/22

Handwritten initials and date: JD 5/18/22

Chain of Custody

- 1. Is Chain of Custody complete? Yes [checked] No [] Not Present []
2. How was the sample delivered? Courier

Log In

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

of preserved bottles checked for pH: 10
5/18/22
(<2 or >12 unless noted)
Adjusted?
Checked by:

Special Handling (if applicable)

- 15. Was client notified of all discrepancies with this order? Yes [] No [] NA [checked]

Person Notified: [] Date: []
By Whom: [] Via: [] eMail [] Phone [] Fax [] In Person []
Regarding: []
Client Instructions: []

16. Additional remarks:

17. Cooler Information

Table with 7 columns: Cooler No, Temp °C, Condition, Seal Intact, Seal No, Seal Date, Signed By. Row 1: 1, 5.5, Good, [], [], []

Chain-of-Custody Record

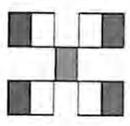
Client: Vertex
 Mailing Address: (Blumen)
 Phone #: _____
 email or Fax#: _____
 QA/QC Package:
 Standard Level 4 (Full Validation)
 Accreditation: Az Compliance
 NELAC Other
 EDD (Type) _____

Turn-Around Time: _____
 Standard Rush 5 Day
 Project Name: Tombert 17 Federal #001
 Project #: 216-01818-27

Project Manager: Monica Peppin
 Sampler: L. Pullman
 On Ice: Yes No
 # of Coolers: 1
 Cooler Temp (including cfi): 5.5-0-5.5 (°C)

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.
5-15-20	09:40	Soil	BH22-05 0'	1 Jar		2205815
5-15-20	09:45	Soil	BH22-05 2'	1 Jar		-10
5-15-20	09:50	Soil	BH22-05 4'	1 Jar		-015
	10:05		BH22-06 0'			-016
	10:10		BH22-06 2'			-017
	10:15		BH22-06 4'			-018
	10:25		BH22-07 0'			-019
	10:30		BH22-07 2'			-020
	10:35		BH22-07 4'			-021
	10:40		BH22-08 0'			-022
	10:45		BH22-08 2'			-023
	10:50		BH22-08 4'			-024

Date: 5/16/20 Time: 07:00 Relinquished by: Sara Pullman
 Date: 5/17/22 Time: 19:00 Relinquished by: (Signature)



HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Analysis Request

BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO ₃ , NO ₂ , PO ₄ , SO ₄	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
X	X					X			
X	X					X			
X	X					X			
X	X					X			
X	X					X			
X	X					X			
X	X					X			
X	X					X			
X	X					X			

Remarks:



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

August 30, 2022

Kent Stallings

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

RE: Tomcat 17 Fed 1

OrderNo.: 2208929

Dear Kent Stallings:

Hall Environmental Analysis Laboratory received 16 sample(s) on 8/16/2022 for the analyses presented in the following report.

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

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

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

Sincerely,

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

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report

Lab Order **2208929**

Date Reported: **8/30/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-01 0ft

Project: Tomcat 17 Fed 1

Collection Date: 8/10/2022 9:10:00 AM

Lab ID: 2208929-001

Matrix: SOIL

Received Date: 8/16/2022 7:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	330	27		mg/Kg	2	8/23/2022 4:00:05 PM
Motor Oil Range Organics (MRO)	440	92		mg/Kg	2	8/23/2022 4:00:05 PM
Surr: DNOP	75.9	21-129		%Rec	2	8/23/2022 4:00:05 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	8/19/2022 3:45:10 AM
Surr: BFB	99.3	37.7-212		%Rec	1	8/19/2022 3:45:10 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.025		mg/Kg	1	8/19/2022 3:45:10 AM
Toluene	ND	0.049		mg/Kg	1	8/19/2022 3:45:10 AM
Ethylbenzene	ND	0.049		mg/Kg	1	8/19/2022 3:45:10 AM
Xylenes, Total	ND	0.098		mg/Kg	1	8/19/2022 3:45:10 AM
Surr: 4-Bromofluorobenzene	95.1	70-130		%Rec	1	8/19/2022 3:45:10 AM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	ND	60		mg/Kg	20	8/19/2022 10:20:37 PM

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

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2208929**

Date Reported: **8/30/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-01 2ft

Project: Tomcat 17 Fed 1

Collection Date: 8/10/2022 9:20:00 AM

Lab ID: 2208929-002

Matrix: SOIL

Received Date: 8/16/2022 7:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	310	29		mg/Kg	2	8/23/2022 4:21:37 PM
Motor Oil Range Organics (MRO)	420	98		mg/Kg	2	8/23/2022 4:21:37 PM
Surr: DNOP	65.2	21-129		%Rec	2	8/23/2022 4:21:37 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	8/19/2022 4:08:32 AM
Surr: BFB	96.5	37.7-212		%Rec	1	8/19/2022 4:08:32 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.025		mg/Kg	1	8/19/2022 4:08:32 AM
Toluene	ND	0.049		mg/Kg	1	8/19/2022 4:08:32 AM
Ethylbenzene	ND	0.049		mg/Kg	1	8/19/2022 4:08:32 AM
Xylenes, Total	ND	0.098		mg/Kg	1	8/19/2022 4:08:32 AM
Surr: 4-Bromofluorobenzene	92.8	70-130		%Rec	1	8/19/2022 4:08:32 AM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	ND	60		mg/Kg	20	8/19/2022 10:57:51 PM

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Estimated value
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix interference		

Analytical Report

Lab Order **2208929**

Date Reported: **8/30/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-02 0ft

Project: Tomcat 17 Fed 1

Collection Date: 8/10/2022 9:30:00 AM

Lab ID: 2208929-003

Matrix: SOIL

Received Date: 8/16/2022 7:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	8/19/2022 6:25:20 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	8/19/2022 6:25:20 AM
Surr: DNOP	95.2	21-129		%Rec	1	8/19/2022 6:25:20 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: BRM
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	8/19/2022 9:12:00 AM
Surr: BFB	105	37.7-212		%Rec	1	8/19/2022 9:12:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: BRM
Benzene	ND	0.025		mg/Kg	1	8/19/2022 9:12:00 AM
Toluene	ND	0.049		mg/Kg	1	8/19/2022 9:12:00 AM
Ethylbenzene	ND	0.049		mg/Kg	1	8/19/2022 9:12:00 AM
Xylenes, Total	ND	0.098		mg/Kg	1	8/19/2022 9:12:00 AM
Surr: 4-Bromofluorobenzene	98.8	70-130		%Rec	1	8/19/2022 9:12:00 AM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	ND	59		mg/Kg	20	8/19/2022 11:10:16 PM

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

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2208929**

Date Reported: **8/30/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-02 2ft

Project: Tomcat 17 Fed 1

Collection Date: 8/10/2022 9:40:00 AM

Lab ID: 2208929-004

Matrix: SOIL

Received Date: 8/16/2022 7:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	8/19/2022 6:49:05 AM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	8/19/2022 6:49:05 AM
Surr: DNOP	96.1	21-129		%Rec	1	8/19/2022 6:49:05 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: BRM
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	8/19/2022 10:11:00 AM
Surr: BFB	101	37.7-212		%Rec	1	8/19/2022 10:11:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: BRM
Benzene	ND	0.023		mg/Kg	1	8/19/2022 10:11:00 AM
Toluene	ND	0.047		mg/Kg	1	8/19/2022 10:11:00 AM
Ethylbenzene	ND	0.047		mg/Kg	1	8/19/2022 10:11:00 AM
Xylenes, Total	ND	0.093		mg/Kg	1	8/19/2022 10:11:00 AM
Surr: 4-Bromofluorobenzene	99.1	70-130		%Rec	1	8/19/2022 10:11:00 AM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	ND	60		mg/Kg	20	8/19/2022 11:22:41 PM

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Estimated value
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix interference		

Analytical Report

Lab Order **2208929**

Date Reported: **8/30/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-03 0ft

Project: Tomcat 17 Fed 1

Collection Date: 8/10/2022 9:50:00 AM

Lab ID: 2208929-005

Matrix: SOIL

Received Date: 8/16/2022 7:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	8/19/2022 7:12:50 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	8/19/2022 7:12:50 AM
Surr: DNOP	98.1	21-129		%Rec	1	8/19/2022 7:12:50 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: BRM
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	8/19/2022 11:10:00 AM
Surr: BFB	101	37.7-212		%Rec	1	8/19/2022 11:10:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: BRM
Benzene	ND	0.024		mg/Kg	1	8/19/2022 11:10:00 AM
Toluene	ND	0.049		mg/Kg	1	8/19/2022 11:10:00 AM
Ethylbenzene	ND	0.049		mg/Kg	1	8/19/2022 11:10:00 AM
Xylenes, Total	ND	0.097		mg/Kg	1	8/19/2022 11:10:00 AM
Surr: 4-Bromofluorobenzene	95.5	70-130		%Rec	1	8/19/2022 11:10:00 AM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	ND	60		mg/Kg	20	8/19/2022 11:35:05 PM

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Estimated value
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix interference		

Analytical Report

Lab Order **2208929**

Date Reported: **8/30/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-03 2ft

Project: Tomcat 17 Fed 1

Collection Date: 8/10/2022 10:00:00 AM

Lab ID: 2208929-006

Matrix: SOIL

Received Date: 8/16/2022 7:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	8/19/2022 7:36:42 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	8/19/2022 7:36:42 AM
Surr: DNOP	94.0	21-129		%Rec	1	8/19/2022 7:36:42 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: BRM
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	8/19/2022 11:30:00 AM
Surr: BFB	101	37.7-212		%Rec	1	8/19/2022 11:30:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: BRM
Benzene	ND	0.024		mg/Kg	1	8/19/2022 11:30:00 AM
Toluene	ND	0.049		mg/Kg	1	8/19/2022 11:30:00 AM
Ethylbenzene	ND	0.049		mg/Kg	1	8/19/2022 11:30:00 AM
Xylenes, Total	ND	0.098		mg/Kg	1	8/19/2022 11:30:00 AM
Surr: 4-Bromofluorobenzene	98.8	70-130		%Rec	1	8/19/2022 11:30:00 AM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	ND	60		mg/Kg	20	8/19/2022 11:47:30 PM

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

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2208929**

Date Reported: **8/30/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-04 0ft

Project: Tomcat 17 Fed 1

Collection Date: 8/10/2022 10:10:00 AM

Lab ID: 2208929-007

Matrix: SOIL

Received Date: 8/16/2022 7:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	1200	290		mg/Kg	20	8/23/2022 4:43:10 PM
Motor Oil Range Organics (MRO)	1900	980		mg/Kg	20	8/23/2022 4:43:10 PM
Surr: DNOP	0	21-129	S	%Rec	20	8/23/2022 4:43:10 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: BRM
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	8/19/2022 11:50:00 AM
Surr: BFB	99.3	37.7-212		%Rec	1	8/19/2022 11:50:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: BRM
Benzene	ND	0.025		mg/Kg	1	8/19/2022 11:50:00 AM
Toluene	ND	0.050		mg/Kg	1	8/19/2022 11:50:00 AM
Ethylbenzene	ND	0.050		mg/Kg	1	8/19/2022 11:50:00 AM
Xylenes, Total	ND	0.099		mg/Kg	1	8/19/2022 11:50:00 AM
Surr: 4-Bromofluorobenzene	96.2	70-130		%Rec	1	8/19/2022 11:50:00 AM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	ND	60		mg/Kg	20	8/19/2022 11:59:55 PM

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Estimated value
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix interference		

Analytical Report

Lab Order **2208929**

Date Reported: **8/30/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-04 2ft

Project: Tomcat 17 Fed 1

Collection Date: 8/10/2022 10:20:00 AM

Lab ID: 2208929-008

Matrix: SOIL

Received Date: 8/16/2022 7:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	1300	140		mg/Kg	10	8/29/2022 4:58:33 PM
Motor Oil Range Organics (MRO)	1700	470		mg/Kg	10	8/29/2022 4:58:33 PM
Surr: DNOP	0	21-129	S	%Rec	10	8/29/2022 4:58:33 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: BRM
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	8/19/2022 12:09:00 PM
Surr: BFB	102	37.7-212		%Rec	1	8/19/2022 12:09:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: BRM
Benzene	ND	0.025		mg/Kg	1	8/19/2022 12:09:00 PM
Toluene	ND	0.050		mg/Kg	1	8/19/2022 12:09:00 PM
Ethylbenzene	ND	0.050		mg/Kg	1	8/19/2022 12:09:00 PM
Xylenes, Total	ND	0.099		mg/Kg	1	8/19/2022 12:09:00 PM
Surr: 4-Bromofluorobenzene	97.9	70-130		%Rec	1	8/19/2022 12:09:00 PM
EPA METHOD 300.0: ANIONS						Analyst: NAI
Chloride	ND	60		mg/Kg	20	8/22/2022 2:37:46 PM

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

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2208929**

Date Reported: **8/30/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-05 0ft

Project: Tomcat 17 Fed 1

Collection Date: 8/10/2022 10:30:00 AM

Lab ID: 2208929-009

Matrix: SOIL

Received Date: 8/16/2022 7:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	8/19/2022 12:41:52 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	8/19/2022 12:41:52 PM
Surr: DNOP	107	21-129		%Rec	1	8/19/2022 12:41:52 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: BRM
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	8/19/2022 12:29:00 PM
Surr: BFB	102	37.7-212		%Rec	1	8/19/2022 12:29:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: BRM
Benzene	ND	0.024		mg/Kg	1	8/19/2022 12:29:00 PM
Toluene	ND	0.049		mg/Kg	1	8/19/2022 12:29:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	8/19/2022 12:29:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	8/19/2022 12:29:00 PM
Surr: 4-Bromofluorobenzene	97.9	70-130		%Rec	1	8/19/2022 12:29:00 PM
EPA METHOD 300.0: ANIONS						Analyst: NAI
Chloride	ND	59		mg/Kg	20	8/22/2022 2:50:07 PM

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Estimated value
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix interference		

Analytical Report

Lab Order **2208929**

Date Reported: **8/30/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-05 2ft

Project: Tomcat 17 Fed 1

Collection Date: 8/10/2022 10:40:00 AM

Lab ID: 2208929-010

Matrix: SOIL

Received Date: 8/16/2022 7:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	8/19/2022 1:05:49 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	8/19/2022 1:05:49 PM
Surr: DNOP	107	21-129		%Rec	1	8/19/2022 1:05:49 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: BRM
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	8/19/2022 12:49:00 PM
Surr: BFB	103	37.7-212		%Rec	1	8/19/2022 12:49:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: BRM
Benzene	ND	0.025		mg/Kg	1	8/19/2022 12:49:00 PM
Toluene	ND	0.049		mg/Kg	1	8/19/2022 12:49:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	8/19/2022 12:49:00 PM
Xylenes, Total	ND	0.098		mg/Kg	1	8/19/2022 12:49:00 PM
Surr: 4-Bromofluorobenzene	100	70-130		%Rec	1	8/19/2022 12:49:00 PM
EPA METHOD 300.0: ANIONS						Analyst: NAI
Chloride	ND	60		mg/Kg	20	8/22/2022 4:16:32 PM

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Estimated value
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix interference		

Analytical Report

Lab Order **2208929**

Date Reported: **8/30/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-06 0ft

Project: Tomcat 17 Fed 1

Collection Date: 8/10/2022 10:50:00 AM

Lab ID: 2208929-011

Matrix: SOIL

Received Date: 8/16/2022 7:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	8/19/2022 4:48:44 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	8/19/2022 4:48:44 PM
Surr: DNOP	97.3	21-129		%Rec	1	8/19/2022 4:48:44 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: BRM
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	8/19/2022 1:09:00 PM
Surr: BFB	104	37.7-212		%Rec	1	8/19/2022 1:09:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: BRM
Benzene	ND	0.025		mg/Kg	1	8/19/2022 1:09:00 PM
Toluene	ND	0.050		mg/Kg	1	8/19/2022 1:09:00 PM
Ethylbenzene	ND	0.050		mg/Kg	1	8/19/2022 1:09:00 PM
Xylenes, Total	ND	0.10		mg/Kg	1	8/19/2022 1:09:00 PM
Surr: 4-Bromofluorobenzene	98.5	70-130		%Rec	1	8/19/2022 1:09:00 PM
EPA METHOD 300.0: ANIONS						Analyst: NAI
Chloride	ND	60		mg/Kg	20	8/22/2022 4:28:54 PM

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

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2208929**

Date Reported: **8/30/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-06 2ft

Project: Tomcat 17 Fed 1

Collection Date: 8/10/2022 11:00:00 AM

Lab ID: 2208929-012

Matrix: SOIL

Received Date: 8/16/2022 7:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	8/19/2022 5:02:43 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	8/19/2022 5:02:43 PM
Surr: DNOP	95.7	21-129		%Rec	1	8/19/2022 5:02:43 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: BRM
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	8/19/2022 1:28:00 PM
Surr: BFB	105	37.7-212		%Rec	1	8/19/2022 1:28:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: BRM
Benzene	ND	0.024		mg/Kg	1	8/19/2022 1:28:00 PM
Toluene	ND	0.048		mg/Kg	1	8/19/2022 1:28:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	8/19/2022 1:28:00 PM
Xylenes, Total	ND	0.096		mg/Kg	1	8/19/2022 1:28:00 PM
Surr: 4-Bromofluorobenzene	101	70-130		%Rec	1	8/19/2022 1:28:00 PM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	ND	60		mg/Kg	20	8/22/2022 1:46:52 PM

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

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2208929**

Date Reported: **8/30/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-07 0'

Project: Tomcat 17 Fed 1

Collection Date: 8/10/2022 11:10:00 AM

Lab ID: 2208929-013

Matrix: SOIL

Received Date: 8/16/2022 7:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	8/19/2022 5:16:41 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	8/19/2022 5:16:41 PM
Surr: DNOP	86.8	21-129		%Rec	1	8/19/2022 5:16:41 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: BRM
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	8/19/2022 2:08:00 PM
Surr: BFB	100	37.7-212		%Rec	1	8/19/2022 2:08:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: BRM
Benzene	ND	0.024		mg/Kg	1	8/19/2022 2:08:00 PM
Toluene	ND	0.048		mg/Kg	1	8/19/2022 2:08:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	8/19/2022 2:08:00 PM
Xylenes, Total	ND	0.096		mg/Kg	1	8/19/2022 2:08:00 PM
Surr: 4-Bromofluorobenzene	97.1	70-130		%Rec	1	8/19/2022 2:08:00 PM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	ND	60		mg/Kg	20	8/22/2022 2:24:05 PM

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

Qualifiers:

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

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

Analytical Report

Lab Order **2208929**

Date Reported: **8/30/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-07 2'

Project: Tomcat 17 Fed 1

Collection Date: 8/10/2022 11:20:00 AM

Lab ID: 2208929-014

Matrix: SOIL

Received Date: 8/16/2022 7:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	8/19/2022 5:30:33 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	8/19/2022 5:30:33 PM
Surr: DNOP	88.6	21-129		%Rec	1	8/19/2022 5:30:33 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: BRM
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	8/19/2022 2:27:00 PM
Surr: BFB	101	37.7-212		%Rec	1	8/19/2022 2:27:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: BRM
Benzene	ND	0.024		mg/Kg	1	8/19/2022 2:27:00 PM
Toluene	ND	0.049		mg/Kg	1	8/19/2022 2:27:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	8/19/2022 2:27:00 PM
Xylenes, Total	ND	0.098		mg/Kg	1	8/19/2022 2:27:00 PM
Surr: 4-Bromofluorobenzene	97.7	70-130		%Rec	1	8/19/2022 2:27:00 PM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	ND	60		mg/Kg	20	8/22/2022 2:36:29 PM

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

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2208929**

Date Reported: **8/30/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-08 0'

Project: Tomcat 17 Fed 1

Collection Date: 8/10/2022 11:30:00 AM

Lab ID: 2208929-015

Matrix: SOIL

Received Date: 8/16/2022 7:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	8/19/2022 5:44:29 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	8/19/2022 5:44:29 PM
Surr: DNOP	94.0	21-129		%Rec	1	8/19/2022 5:44:29 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: BRM
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	8/19/2022 2:47:00 PM
Surr: BFB	101	37.7-212		%Rec	1	8/19/2022 2:47:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: BRM
Benzene	ND	0.024		mg/Kg	1	8/19/2022 2:47:00 PM
Toluene	ND	0.048		mg/Kg	1	8/19/2022 2:47:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	8/19/2022 2:47:00 PM
Xylenes, Total	ND	0.096		mg/Kg	1	8/19/2022 2:47:00 PM
Surr: 4-Bromofluorobenzene	97.7	70-130		%Rec	1	8/19/2022 2:47:00 PM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	340	60		mg/Kg	20	8/22/2022 2:48:53 PM

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

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2208929**

Date Reported: **8/30/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-08 2'

Project: Tomcat 17 Fed 1

Collection Date: 8/10/2022 11:40:00 AM

Lab ID: 2208929-016

Matrix: SOIL

Received Date: 8/16/2022 7:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	8/19/2022 5:58:26 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	8/19/2022 5:58:26 PM
Surr: DNOP	90.7	21-129		%Rec	1	8/19/2022 5:58:26 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: BRM
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	8/19/2022 3:07:00 PM
Surr: BFB	104	37.7-212		%Rec	1	8/19/2022 3:07:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: BRM
Benzene	ND	0.025		mg/Kg	1	8/19/2022 3:07:00 PM
Toluene	ND	0.050		mg/Kg	1	8/19/2022 3:07:00 PM
Ethylbenzene	ND	0.050		mg/Kg	1	8/19/2022 3:07:00 PM
Xylenes, Total	ND	0.099		mg/Kg	1	8/19/2022 3:07:00 PM
Surr: 4-Bromofluorobenzene	97.9	70-130		%Rec	1	8/19/2022 3:07:00 PM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	400	60		mg/Kg	20	8/22/2022 3:01:19 PM

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

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2208929

30-Aug-22

Client: Vertex Resources Services, Inc.

Project: Tomcat 17 Fed 1

Sample ID: MB-69643	SampType: mblk		TestCode: EPA Method 300.0: Anions							
Client ID: PBS	Batch ID: 69643		RunNo: 90418							
Prep Date: 8/19/2022	Analysis Date: 8/19/2022		SeqNo: 3228127		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: LCS-69643	SampType: ics		TestCode: EPA Method 300.0: Anions							
Client ID: LCSS	Batch ID: 69643		RunNo: 90418							
Prep Date: 8/19/2022	Analysis Date: 8/19/2022		SeqNo: 3228128		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	93.0	90	110			

Sample ID: MB-69658	SampType: mblk		TestCode: EPA Method 300.0: Anions							
Client ID: PBS	Batch ID: 69658		RunNo: 90467							
Prep Date: 8/22/2022	Analysis Date: 8/22/2022		SeqNo: 3230756		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: LCS-69658	SampType: ics		TestCode: EPA Method 300.0: Anions							
Client ID: LCSS	Batch ID: 69658		RunNo: 90467							
Prep Date: 8/22/2022	Analysis Date: 8/22/2022		SeqNo: 3230757		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	92.6	90	110			

Sample ID: MB-69662	SampType: mblk		TestCode: EPA Method 300.0: Anions							
Client ID: PBS	Batch ID: 69662		RunNo: 90487							
Prep Date: 8/22/2022	Analysis Date: 8/22/2022		SeqNo: 3231258		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: LCS-69662	SampType: ics		TestCode: EPA Method 300.0: Anions							
Client ID: LCSS	Batch ID: 69662		RunNo: 90487							
Prep Date: 8/22/2022	Analysis Date: 8/22/2022		SeqNo: 3231259		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	91.1	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quantitative Limit
- S % Recovery outside of range due to dilution or matrix interference
- B Analyte detected in the associated Method Blank
- E Estimated value
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2208929

30-Aug-22

Client: Vertex Resources Services, Inc.

Project: Tomcat 17 Fed 1

Sample ID: MB-69591	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: PBS	Batch ID: 69591	RunNo: 90431								
Prep Date: 8/18/2022	Analysis Date: 8/19/2022	SeqNo: 3227097			Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	15								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	9.2		10.00		91.8	21	129			

Sample ID: LCS-69591	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: LCSS	Batch ID: 69591	RunNo: 90431								
Prep Date: 8/18/2022	Analysis Date: 8/19/2022	SeqNo: 3227098			Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	54	15	50.00	0	107	64.4	127			
Surr: DNOP	5.0		5.000		99.3	21	129			

Sample ID: MB-69588	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: PBS	Batch ID: 69588	RunNo: 90394								
Prep Date: 8/17/2022	Analysis Date: 8/18/2022	SeqNo: 3231792			Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	15								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	8.7		10.00		87.1	21	129			

Sample ID: LCS-69588	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: LCSS	Batch ID: 69588	RunNo: 90394								
Prep Date: 8/17/2022	Analysis Date: 8/18/2022	SeqNo: 3231796			Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	47	15	50.00	0	93.8	64.4	127			
Surr: DNOP	4.6		5.000		91.2	21	129			

Sample ID: LCS-69815	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: LCSS	Batch ID: 69815	RunNo: 90634								
Prep Date: 8/29/2022	Analysis Date: 8/29/2022	SeqNo: 3238730			Units: %Rec					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	3.7		5.000		73.9	21	129			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quantitative Limit
- S % Recovery outside of range due to dilution or matrix interference
- B Analyte detected in the associated Method Blank
- E Estimated value
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2208929

30-Aug-22

Client: Vertex Resources Services, Inc.

Project: Tomcat 17 Fed 1

Sample ID: MB-69815	SampType: MBLK		TestCode: EPA Method 8015M/D: Diesel Range Organics							
Client ID: PBS	Batch ID: 69815		RunNo: 90634							
Prep Date: 8/29/2022	Analysis Date: 8/29/2022		SeqNo: 3238731				Units: %Rec			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	8.4		10.00		83.6	21	129			

Sample ID: LCS-69828	SampType: LCS		TestCode: EPA Method 8015M/D: Diesel Range Organics							
Client ID: LCSS	Batch ID: 69828		RunNo: 90634							
Prep Date: 8/29/2022	Analysis Date: 8/30/2022		SeqNo: 3239246				Units: %Rec			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	3.9		5.000		77.2	21	129			

Sample ID: MB-69828	SampType: MBLK		TestCode: EPA Method 8015M/D: Diesel Range Organics							
Client ID: PBS	Batch ID: 69828		RunNo: 90634							
Prep Date: 8/29/2022	Analysis Date: 8/30/2022		SeqNo: 3239248				Units: %Rec			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	9.2		10.00		91.9	21	129			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quantitative Limit
- S % Recovery outside of range due to dilution or matrix interference
- B Analyte detected in the associated Method Blank
- E Estimated value
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2208929

30-Aug-22

Client: Vertex Resources Services, Inc.

Project: Tomcat 17 Fed 1

Sample ID: mb-69551	SampType: MBLK		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: PBS	Batch ID: 69551		RunNo: 90389							
Prep Date: 8/16/2022	Analysis Date: 8/18/2022		SeqNo: 3225364		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	1100		1000		107	37.7	212			

Sample ID: lcs-69551	SampType: LCS		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: LCSS	Batch ID: 69551		RunNo: 90389							
Prep Date: 8/16/2022	Analysis Date: 8/18/2022		SeqNo: 3225365		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	27	5.0	25.00	0	108	72.3	137			
Surr: BFB	2200		1000		215	37.7	212			S

Sample ID: lcs-69575	SampType: LCS		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: LCSS	Batch ID: 69575		RunNo: 90452							
Prep Date: 8/17/2022	Analysis Date: 8/19/2022		SeqNo: 3227560		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	26	5.0	25.00	0	103	72.3	137			
Surr: BFB	2200		1000		222	37.7	212			S

Sample ID: mb-69575	SampType: MBLK		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: PBS	Batch ID: 69575		RunNo: 90452							
Prep Date: 8/17/2022	Analysis Date: 8/19/2022		SeqNo: 3227561		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	1000		1000		102	37.7	212			

Sample ID: 2208929-003ams	SampType: MS		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: BH22-02 0ft	Batch ID: 69575		RunNo: 90452							
Prep Date: 8/17/2022	Analysis Date: 8/19/2022		SeqNo: 3227563		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	4.9	24.41	0	98.6	70	130			
Surr: BFB	2200		976.6		225	37.7	212			S

Sample ID: 2208929-003amsd	SampType: MSD		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: BH22-02 0ft	Batch ID: 69575		RunNo: 90452							
Prep Date: 8/17/2022	Analysis Date: 8/19/2022		SeqNo: 3227564		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	4.9	24.41	0	98.6	70	130			
Surr: BFB	2200		976.6		225	37.7	212			S

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quantitative Limit
- S % Recovery outside of range due to dilution or matrix interference
- B Analyte detected in the associated Method Blank
- E Estimated value
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2208929

30-Aug-22

Client: Vertex Resources Services, Inc.

Project: Tomcat 17 Fed 1

Sample ID: 2208929-003amsd	SampType: MSD	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: BH22-02 0ft	Batch ID: 69575	RunNo: 90452								
Prep Date: 8/17/2022	Analysis Date: 8/19/2022	SeqNo: 3227564 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	4.8	24.22	0	95.8	70	130	3.58	20	
Surr: BFB	2100		969.0		218	37.7	212	0	0	S

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quantitative Limit
- S % Recovery outside of range due to dilution or matrix interference
- B Analyte detected in the associated Method Blank
- E Estimated value
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2208929

30-Aug-22

Client: Vertex Resources Services, Inc.

Project: Tomcat 17 Fed 1

Sample ID: mb-69551	SampType: MBLK		TestCode: EPA Method 8021B: Volatiles							
Client ID: PBS	Batch ID: 69551		RunNo: 90389							
Prep Date: 8/16/2022	Analysis Date: 8/18/2022		SeqNo: 3225418		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.99		1.000		99.3	70	130			

Sample ID: LCS-69551	SampType: LCS		TestCode: EPA Method 8021B: Volatiles							
Client ID: LCSS	Batch ID: 69551		RunNo: 90389							
Prep Date: 8/16/2022	Analysis Date: 8/18/2022		SeqNo: 3225419		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.025	1.000	0	101	80	120			
Toluene	1.0	0.050	1.000	0	105	80	120			
Ethylbenzene	1.1	0.050	1.000	0	105	80	120			
Xylenes, Total	3.1	0.10	3.000	0	104	80	120			
Surr: 4-Bromofluorobenzene	1.0		1.000		99.6	70	130			

Sample ID: Ics-69575	SampType: LCS		TestCode: EPA Method 8021B: Volatiles							
Client ID: LCSS	Batch ID: 69575		RunNo: 90452							
Prep Date: 8/17/2022	Analysis Date: 8/19/2022		SeqNo: 3227608		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.83	0.025	1.000	0	82.6	80	120			
Toluene	0.85	0.050	1.000	0	85.3	80	120			
Ethylbenzene	0.86	0.050	1.000	0	86.0	80	120			
Xylenes, Total	2.6	0.10	3.000	0	85.5	80	120			
Surr: 4-Bromofluorobenzene	0.99		1.000		99.1	70	130			

Sample ID: mb-69575	SampType: MBLK		TestCode: EPA Method 8021B: Volatiles							
Client ID: PBS	Batch ID: 69575		RunNo: 90452							
Prep Date: 8/17/2022	Analysis Date: 8/19/2022		SeqNo: 3227609		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.99		1.000		99.3	70	130			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quantitative Limit
- S % Recovery outside of range due to dilution or matrix interference
- B Analyte detected in the associated Method Blank
- E Estimated value
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2208929

30-Aug-22

Client: Vertex Resources Services, Inc.

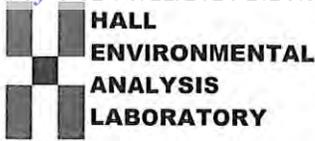
Project: Tomcat 17 Fed 1

Sample ID: 2208929-004ams	SampType: MS		TestCode: EPA Method 8021B: Volatiles							
Client ID: BH22-02 2ft	Batch ID: 69575		RunNo: 90452							
Prep Date: 8/17/2022	Analysis Date: 8/19/2022		SeqNo: 3227612		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.83	0.024	0.9681	0	85.7	68.8	120			
Toluene	0.85	0.048	0.9681	0	88.3	73.6	124			
Ethylbenzene	0.89	0.048	0.9681	0	91.8	72.7	129			
Xylenes, Total	2.6	0.097	2.904	0	91.0	75.7	126			
Surr: 4-Bromofluorobenzene	0.97		0.9681		99.7	70	130			

Sample ID: 2208929-004amsd	SampType: MSD		TestCode: EPA Method 8021B: Volatiles							
Client ID: BH22-02 2ft	Batch ID: 69575		RunNo: 90452							
Prep Date: 8/17/2022	Analysis Date: 8/19/2022		SeqNo: 3227613		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.81	0.024	0.9579	0	84.1	68.8	120	2.98	20	
Toluene	0.83	0.048	0.9579	0	86.8	73.6	124	2.80	20	
Ethylbenzene	0.86	0.048	0.9579	0	89.8	72.7	129	3.23	20	
Xylenes, Total	2.6	0.096	2.874	0	89.5	75.7	126	2.69	20	
Surr: 4-Bromofluorobenzene	0.95		0.9579		99.3	70	130	0	0	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quantitative Limit
- S % Recovery outside of range due to dilution or matrix interference
- B Analyte detected in the associated Method Blank
- E Estimated value
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit



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

Sample Log-In Check List

Client Name: Vertex Resources Services, Inc. Work Order Number: 2208929 RcptNo: 1

Received By: Juan Rojas 8/16/2022 7:25:00 AM
Completed By: Cheyenne Cason 8/16/2022 9:31:33 AM
Reviewed By: KDC 8-16-22

Chain of Custody

- 1. Is Chain of Custody complete? Yes [checked] No [] Not Present []
2. How was the sample delivered? Courier

Log In

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

of preserved bottles checked for pH:
(<2 or >12 unless noted)
Adjusted?
Checked by: jn 8/16/22

Special Handling (if applicable)

- 15. Was client notified of all discrepancies with this order? Yes [] No [] NA [checked]

Person Notified: _____ Date: _____
By Whom: _____ Via: [] eMail [] Phone [] Fax [] In Person
Regarding: _____
Client Instructions: _____

16. Additional remarks:

17. Cooler Information

Table with 7 columns: Cooler No, Temp °C, Condition, Seal Intact, Seal No, Seal Date, Signed By. Row 1: 1, 3.6, Good, Not Present, , ,

Chain-of-Custody Record

Client: Dexon Energy (Vertex)
 Mailing Address: On file
 Phone #: _____
 email or Fax#: _____
 QA/QC Package: Standard Level 4 (Full Validation)
 Accreditation: Az Compliance Other
 NELAC Other
 EDD (Type) _____

Turn-Around Time:
 Standard Rush 5 Day
 Project Name:
Tomcat 17 Fed 1
 Project #:
215-02816-027
~~215-02816-027~~

Project Manager:
Kent Stallings
 Sampler:
Fernando Rodriguez
 On Ice: Yes No
 # of Coolers: 1
 Cooler Temp (including CF): 3.6-3.6 (°C)

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.
8/10	9:10	Soil	BH22-01 off HDJW	ICE		22089289
	9:20		BH22-01 2ft			001
	9:30		BH22-02 0ft			002
	9:40		BH22-02 2ft			003
	9:50		BH22-03 0ft			004
	10:00		BH22-03 2ft			005
	10:10		BH22-04 0ft			006
	10:20		BH22-04 2ft			007
	10:30		BH22-05 0ft			008
	10:40		BH22-05 2ft			009
	10:50		BH22-06 0ft			010
	11:00		BH22-06 2ft			011
						012

Received by: [Signature] Date: 8/10/22 Time: 9:30
 Relinquished by: [Signature]
 Received by: [Signature] Date: 8/16/22 Time: 7:25
 Relinquished by: [Signature]



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

Analysis Request

<input checked="" type="checkbox"/> BTEX / MTBE / TMBs (8021)	<input checked="" type="checkbox"/> TPH:8015D(GRO / DRO / MRO)	<input type="checkbox"/> 8081 Pesticides/8082 PCBs	<input type="checkbox"/> EDB (Method 504.1)	<input type="checkbox"/> PAHs by 8310 or 8270SIMS	<input type="checkbox"/> RCRA 8 Metals	<input checked="" type="checkbox"/> F, Br, NO ₃ , NO ₂ , PO ₄ , SO ₄	<input type="checkbox"/> 8260 (VOA)	<input type="checkbox"/> 8270 (Semi-VOA)	<input type="checkbox"/> Total Coliform (Present/Absent)
---	--	--	---	---	--	--	-------------------------------------	--	--

Remarks:
CC: Kent Stallings
Direct Bill Dexon

Chain-of-Custody Record

Client: Devon/Kentex

Mailing Address: On File

Phone #: _____

email or Fax#: _____

QA/QC Package: Level 4 (Full Validation)

Standard Az Compliance

Accreditation: NELAC Other

EDD (Type) _____

Turn-Around Time: S-Day

Standard Rush

Project Name: Tomcat 17 Fed 1

Project #: 21E-02816-027

Project Manager: Kent Stallings

Sampler: CD

On Ice: Yes No

of Coolers: 1

Cooler Temp (including CF): 3.6-3.6 (°C)

Container Type and #

Preservative Type

HEAL No. 9112

Date 7/15/21

Date	Time	Matrix	Sample Name
8/10	11:10	Soil	BHZZ-07 0'
	11:20		BHZZ-07 2'
	11:30		BHZZ-08 0'
	11:40		BHZZ-08 2'

Container Type and #	Preservative Type	Date	Time
402	ICF	7/15/21	013
			014
			015
			016

Received by: William Date: 8/15/21 Time: 9:30

Relinquished by: William Date: 8/16/21 Time: 7:25



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

Analysis Request

Analysis Request	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCBs	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl ₂ , F, Br, NO ₃ , NO ₂ , PO ₄ , SO ₄	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
BTEX / MTBE / TMBs (8021)	✓								
	✓								
	✓								

Remarks: CC: Kent
Direct Bill Devon

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



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

December 16, 2022

Kent Stallings

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

RE: Tomcat 17 Federal 001

OrderNo.: 2212446

Dear Kent Stallings:

Hall Environmental Analysis Laboratory received 12 sample(s) on 12/8/2022 for the analyses presented in the following report.

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

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

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

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', is written over a white background.

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report

Lab Order **2212446**

Date Reported: **12/16/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-09 0'

Project: Tomcat 17 Federal 001

Collection Date: 12/6/2022 9:20:00 AM

Lab ID: 2212446-001

Matrix: SOIL

Received Date: 12/8/2022 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	12/12/2022 1:02:20 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	12/12/2022 1:02:20 PM
Surr: DNOP	117	21-129		%Rec	1	12/12/2022 1:02:20 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	12/12/2022 7:46:30 PM
Surr: BFB	90.3	37.7-212		%Rec	1	12/12/2022 7:46:30 PM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.025		mg/Kg	1	12/12/2022 7:46:30 PM
Toluene	ND	0.049		mg/Kg	1	12/12/2022 7:46:30 PM
Ethylbenzene	ND	0.049		mg/Kg	1	12/12/2022 7:46:30 PM
Xylenes, Total	ND	0.099		mg/Kg	1	12/12/2022 7:46:30 PM
Surr: 4-Bromofluorobenzene	88.9	70-130		%Rec	1	12/12/2022 7:46:30 PM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	92	60		mg/Kg	20	12/14/2022 4:16:42 PM

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

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

Analytical Report

Lab Order **2212446**

Date Reported: **12/16/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-09 2'

Project: Tomcat 17 Federal 001

Collection Date: 12/6/2022 9:25:00 AM

Lab ID: 2212446-002

Matrix: SOIL

Received Date: 12/8/2022 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	12/12/2022 8:18:25 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	12/12/2022 8:18:25 PM
Surr: DNOP	107	21-129		%Rec	1	12/12/2022 8:18:25 PM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	76	60		mg/Kg	20	12/14/2022 4:29:06 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: RAA
Benzene	ND	0.024		mg/Kg	1	12/9/2022 5:51:57 PM
Toluene	ND	0.048		mg/Kg	1	12/9/2022 5:51:57 PM
Ethylbenzene	ND	0.048		mg/Kg	1	12/9/2022 5:51:57 PM
Xylenes, Total	ND	0.097		mg/Kg	1	12/9/2022 5:51:57 PM
Surr: 1,2-Dichloroethane-d4	91.4	70-130		%Rec	1	12/9/2022 5:51:57 PM
Surr: 4-Bromofluorobenzene	97.8	70-130		%Rec	1	12/9/2022 5:51:57 PM
Surr: Dibromofluoromethane	101	70-130		%Rec	1	12/9/2022 5:51:57 PM
Surr: Toluene-d8	110	70-130		%Rec	1	12/9/2022 5:51:57 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/9/2022 5:51:57 PM
Surr: BFB	90.9	70-130		%Rec	1	12/9/2022 5:51:57 PM

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

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

Analytical Report

Lab Order **2212446**

Date Reported: **12/16/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-10 0'

Project: Tomcat 17 Federal 001

Collection Date: 12/6/2022 9:30:00 AM

Lab ID: 2212446-003

Matrix: SOIL

Received Date: 12/8/2022 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	12/12/2022 8:31:46 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/12/2022 8:31:46 PM
Surr: DNOP	104	21-129		%Rec	1	12/12/2022 8:31:46 PM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	96	60		mg/Kg	20	12/14/2022 4:41:31 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: RAA
Benzene	ND	0.025		mg/Kg	1	12/9/2022 6:18:59 PM
Toluene	ND	0.049		mg/Kg	1	12/9/2022 6:18:59 PM
Ethylbenzene	ND	0.049		mg/Kg	1	12/9/2022 6:18:59 PM
Xylenes, Total	ND	0.098		mg/Kg	1	12/9/2022 6:18:59 PM
Surr: 1,2-Dichloroethane-d4	95.5	70-130		%Rec	1	12/9/2022 6:18:59 PM
Surr: 4-Bromofluorobenzene	98.8	70-130		%Rec	1	12/9/2022 6:18:59 PM
Surr: Dibromofluoromethane	112	70-130		%Rec	1	12/9/2022 6:18:59 PM
Surr: Toluene-d8	107	70-130		%Rec	1	12/9/2022 6:18:59 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	12/9/2022 6:18:59 PM
Surr: BFB	88.9	70-130		%Rec	1	12/9/2022 6:18:59 PM

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

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

Analytical Report

Lab Order **2212446**

Date Reported: **12/16/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-10 2'

Project: Tomcat 17 Federal 001

Collection Date: 12/6/2022 9:35:00 AM

Lab ID: 2212446-004

Matrix: SOIL

Received Date: 12/8/2022 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	12/12/2022 8:45:01 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	12/12/2022 8:45:01 PM
Surr: DNOP	107	21-129		%Rec	1	12/12/2022 8:45:01 PM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	90	60		mg/Kg	20	12/14/2022 4:53:55 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: RAA
Benzene	ND	0.025		mg/Kg	1	12/9/2022 6:45:59 PM
Toluene	ND	0.050		mg/Kg	1	12/9/2022 6:45:59 PM
Ethylbenzene	ND	0.050		mg/Kg	1	12/9/2022 6:45:59 PM
Xylenes, Total	ND	0.10		mg/Kg	1	12/9/2022 6:45:59 PM
Surr: 1,2-Dichloroethane-d4	94.3	70-130		%Rec	1	12/9/2022 6:45:59 PM
Surr: 4-Bromofluorobenzene	98.5	70-130		%Rec	1	12/9/2022 6:45:59 PM
Surr: Dibromofluoromethane	106	70-130		%Rec	1	12/9/2022 6:45:59 PM
Surr: Toluene-d8	106	70-130		%Rec	1	12/9/2022 6:45:59 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	12/9/2022 6:45:59 PM
Surr: BFB	93.2	70-130		%Rec	1	12/9/2022 6:45:59 PM

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

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

Analytical Report

Lab Order **2212446**

Date Reported: **12/16/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-11 0'

Project: Tomcat 17 Federal 001

Collection Date: 12/6/2022 9:40:00 AM

Lab ID: 2212446-005

Matrix: SOIL

Received Date: 12/8/2022 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	12/12/2022 9:11:31 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	12/12/2022 9:11:31 PM
Surr: DNOP	103	21-129		%Rec	1	12/12/2022 9:11:31 PM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	ND	60		mg/Kg	20	12/14/2022 5:06:19 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: RAA
Benzene	ND	0.025		mg/Kg	1	12/9/2022 7:12:59 PM
Toluene	ND	0.049		mg/Kg	1	12/9/2022 7:12:59 PM
Ethylbenzene	ND	0.049		mg/Kg	1	12/9/2022 7:12:59 PM
Xylenes, Total	ND	0.099		mg/Kg	1	12/9/2022 7:12:59 PM
Surr: 1,2-Dichloroethane-d4	94.6	70-130		%Rec	1	12/9/2022 7:12:59 PM
Surr: 4-Bromofluorobenzene	102	70-130		%Rec	1	12/9/2022 7:12:59 PM
Surr: Dibromofluoromethane	112	70-130		%Rec	1	12/9/2022 7:12:59 PM
Surr: Toluene-d8	104	70-130		%Rec	1	12/9/2022 7:12:59 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	12/9/2022 7:12:59 PM
Surr: BFB	91.9	70-130		%Rec	1	12/9/2022 7:12:59 PM

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

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

Analytical Report

Lab Order **2212446**

Date Reported: **12/16/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-11 2'

Project: Tomcat 17 Federal 001

Collection Date: 12/6/2022 9:45:00 AM

Lab ID: 2212446-006

Matrix: SOIL

Received Date: 12/8/2022 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	12/12/2022 9:24:47 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	12/12/2022 9:24:47 PM
Surr: DNOP	111	21-129		%Rec	1	12/12/2022 9:24:47 PM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	75	60		mg/Kg	20	12/14/2022 5:43:32 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: RAA
Benzene	ND	0.025		mg/Kg	1	12/9/2022 7:39:59 PM
Toluene	ND	0.049		mg/Kg	1	12/9/2022 7:39:59 PM
Ethylbenzene	ND	0.049		mg/Kg	1	12/9/2022 7:39:59 PM
Xylenes, Total	ND	0.098		mg/Kg	1	12/9/2022 7:39:59 PM
Surr: 1,2-Dichloroethane-d4	89.3	70-130		%Rec	1	12/9/2022 7:39:59 PM
Surr: 4-Bromofluorobenzene	98.6	70-130		%Rec	1	12/9/2022 7:39:59 PM
Surr: Dibromofluoromethane	106	70-130		%Rec	1	12/9/2022 7:39:59 PM
Surr: Toluene-d8	105	70-130		%Rec	1	12/9/2022 7:39:59 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	12/9/2022 7:39:59 PM
Surr: BFB	89.2	70-130		%Rec	1	12/9/2022 7:39:59 PM

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

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

Analytical Report

Lab Order **2212446**

Date Reported: **12/16/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-12 0'

Project: Tomcat 17 Federal 001

Collection Date: 12/6/2022 10:05:00 AM

Lab ID: 2212446-007

Matrix: SOIL

Received Date: 12/8/2022 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	12/12/2022 9:38:08 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	12/12/2022 9:38:08 PM
Surr: DNOP	107	21-129		%Rec	1	12/12/2022 9:38:08 PM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	680	60		mg/Kg	20	12/14/2022 6:45:34 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: RAA
Benzene	ND	0.024		mg/Kg	1	12/9/2022 8:06:58 PM
Toluene	ND	0.048		mg/Kg	1	12/9/2022 8:06:58 PM
Ethylbenzene	ND	0.048		mg/Kg	1	12/9/2022 8:06:58 PM
Xylenes, Total	ND	0.097		mg/Kg	1	12/9/2022 8:06:58 PM
Surr: 1,2-Dichloroethane-d4	96.7	70-130		%Rec	1	12/9/2022 8:06:58 PM
Surr: 4-Bromofluorobenzene	101	70-130		%Rec	1	12/9/2022 8:06:58 PM
Surr: Dibromofluoromethane	118	70-130		%Rec	1	12/9/2022 8:06:58 PM
Surr: Toluene-d8	108	70-130		%Rec	1	12/9/2022 8:06:58 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/9/2022 8:06:58 PM
Surr: BFB	94.4	70-130		%Rec	1	12/9/2022 8:06:58 PM

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

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

Analytical Report

Lab Order **2212446**

Date Reported: **12/16/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-12 2'

Project: Tomcat 17 Federal 001

Collection Date: 12/6/2022 10:10:00 AM

Lab ID: 2212446-008

Matrix: SOIL

Received Date: 12/8/2022 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	12/12/2022 9:51:30 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/12/2022 9:51:30 PM
Surr: DNOP	0	21-129	S	%Rec	1	12/12/2022 9:51:30 PM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	ND	60		mg/Kg	20	12/14/2022 6:57:58 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: RAA
Benzene	ND	0.025		mg/Kg	1	12/9/2022 8:33:58 PM
Toluene	ND	0.050		mg/Kg	1	12/9/2022 8:33:58 PM
Ethylbenzene	ND	0.050		mg/Kg	1	12/9/2022 8:33:58 PM
Xylenes, Total	ND	0.099		mg/Kg	1	12/9/2022 8:33:58 PM
Surr: 1,2-Dichloroethane-d4	99.3	70-130		%Rec	1	12/9/2022 8:33:58 PM
Surr: 4-Bromofluorobenzene	101	70-130		%Rec	1	12/9/2022 8:33:58 PM
Surr: Dibromofluoromethane	116	70-130		%Rec	1	12/9/2022 8:33:58 PM
Surr: Toluene-d8	104	70-130		%Rec	1	12/9/2022 8:33:58 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	12/9/2022 8:33:58 PM
Surr: BFB	92.7	70-130		%Rec	1	12/9/2022 8:33:58 PM

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

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

Analytical Report

Lab Order **2212446**

Date Reported: **12/16/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-13 0'

Project: Tomcat 17 Federal 001

Collection Date: 12/6/2022 10:25:00 AM

Lab ID: 2212446-009

Matrix: SOIL

Received Date: 12/8/2022 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	12/12/2022 10:04:48 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/12/2022 10:04:48 PM
Surr: DNOP	106	21-129		%Rec	1	12/12/2022 10:04:48 PM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	61	60		mg/Kg	20	12/14/2022 7:10:23 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: RAA
Benzene	ND	0.024		mg/Kg	1	12/9/2022 9:00:58 PM
Toluene	ND	0.049		mg/Kg	1	12/9/2022 9:00:58 PM
Ethylbenzene	ND	0.049		mg/Kg	1	12/9/2022 9:00:58 PM
Xylenes, Total	ND	0.097		mg/Kg	1	12/9/2022 9:00:58 PM
Surr: 1,2-Dichloroethane-d4	88.8	70-130		%Rec	1	12/9/2022 9:00:58 PM
Surr: 4-Bromofluorobenzene	97.5	70-130		%Rec	1	12/9/2022 9:00:58 PM
Surr: Dibromofluoromethane	112	70-130		%Rec	1	12/9/2022 9:00:58 PM
Surr: Toluene-d8	105	70-130		%Rec	1	12/9/2022 9:00:58 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	12/9/2022 9:00:58 PM
Surr: BFB	90.6	70-130		%Rec	1	12/9/2022 9:00:58 PM

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

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

Analytical Report

Lab Order **2212446**

Date Reported: **12/16/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-13 2'

Project: Tomcat 17 Federal 001

Collection Date: 12/6/2022 10:30:00 AM

Lab ID: 2212446-010

Matrix: SOIL

Received Date: 12/8/2022 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	12/12/2022 10:17:59 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	12/12/2022 10:17:59 PM
Surr: DNOP	109	21-129		%Rec	1	12/12/2022 10:17:59 PM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	ND	60		mg/Kg	20	12/14/2022 7:22:47 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: RAA
Benzene	ND	0.025		mg/Kg	1	12/12/2022 3:30:46 PM
Toluene	ND	0.050		mg/Kg	1	12/12/2022 3:30:46 PM
Ethylbenzene	ND	0.050		mg/Kg	1	12/12/2022 3:30:46 PM
Xylenes, Total	ND	0.099		mg/Kg	1	12/12/2022 3:30:46 PM
Surr: 1,2-Dichloroethane-d4	98.5	70-130		%Rec	1	12/12/2022 3:30:46 PM
Surr: 4-Bromofluorobenzene	97.3	70-130		%Rec	1	12/12/2022 3:30:46 PM
Surr: Dibromofluoromethane	108	70-130		%Rec	1	12/12/2022 3:30:46 PM
Surr: Toluene-d8	106	70-130		%Rec	1	12/12/2022 3:30:46 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	12/12/2022 3:30:46 PM
Surr: BFB	96.1	70-130		%Rec	1	12/12/2022 3:30:46 PM

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

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

Analytical Report

Lab Order **2212446**

Date Reported: **12/16/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-14 0'

Project: Tomcat 17 Federal 001

Collection Date: 12/6/2022 2:00:00 PM

Lab ID: 2212446-011

Matrix: SOIL

Received Date: 12/8/2022 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	12/12/2022 10:31:13 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	12/12/2022 10:31:13 PM
Surr: DNOP	109	21-129		%Rec	1	12/12/2022 10:31:13 PM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	ND	60		mg/Kg	20	12/14/2022 7:35:11 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: RAA
Benzene	ND	0.024		mg/Kg	1	12/12/2022 3:57:54 PM
Toluene	ND	0.049		mg/Kg	1	12/12/2022 3:57:54 PM
Ethylbenzene	ND	0.049		mg/Kg	1	12/12/2022 3:57:54 PM
Xylenes, Total	ND	0.097		mg/Kg	1	12/12/2022 3:57:54 PM
Surr: 1,2-Dichloroethane-d4	88.9	70-130		%Rec	1	12/12/2022 3:57:54 PM
Surr: 4-Bromofluorobenzene	97.9	70-130		%Rec	1	12/12/2022 3:57:54 PM
Surr: Dibromofluoromethane	118	70-130		%Rec	1	12/12/2022 3:57:54 PM
Surr: Toluene-d8	110	70-130		%Rec	1	12/12/2022 3:57:54 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	12/12/2022 3:57:54 PM
Surr: BFB	95.3	70-130		%Rec	1	12/12/2022 3:57:54 PM

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

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

Analytical Report

Lab Order **2212446**

Date Reported: **12/16/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-14 2'

Project: Tomcat 17 Federal 001

Collection Date: 12/6/2022 2:05:00 PM

Lab ID: 2212446-012

Matrix: SOIL

Received Date: 12/8/2022 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	12/12/2022 10:44:30 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	12/12/2022 10:44:30 PM
Surr: DNOP	109	21-129		%Rec	1	12/12/2022 10:44:30 PM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	ND	60		mg/Kg	20	12/14/2022 7:47:35 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: RAA
Benzene	ND	0.024		mg/Kg	1	12/12/2022 4:24:58 PM
Toluene	ND	0.049		mg/Kg	1	12/12/2022 4:24:58 PM
Ethylbenzene	ND	0.049		mg/Kg	1	12/12/2022 4:24:58 PM
Xylenes, Total	ND	0.097		mg/Kg	1	12/12/2022 4:24:58 PM
Surr: 1,2-Dichloroethane-d4	96.3	70-130		%Rec	1	12/12/2022 4:24:58 PM
Surr: 4-Bromofluorobenzene	96.7	70-130		%Rec	1	12/12/2022 4:24:58 PM
Surr: Dibromofluoromethane	113	70-130		%Rec	1	12/12/2022 4:24:58 PM
Surr: Toluene-d8	104	70-130		%Rec	1	12/12/2022 4:24:58 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	12/12/2022 4:24:58 PM
Surr: BFB	89.5	70-130		%Rec	1	12/12/2022 4:24:58 PM

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2212446

16-Dec-22

Client: Vertex Resources Services, Inc.

Project: Tomcat 17 Federal 001

Sample ID: MB-72081	SampType: MBLK	TestCode: EPA Method 300.0: Anions								
Client ID: PBS	Batch ID: 72081	RunNo: 93288								
Prep Date: 12/14/2022	Analysis Date: 12/14/2022	SeqNo: 3362629	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: LCS-72081	SampType: LCS	TestCode: EPA Method 300.0: Anions								
Client ID: LCSS	Batch ID: 72081	RunNo: 93288								
Prep Date: 12/14/2022	Analysis Date: 12/14/2022	SeqNo: 3362630	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	15	1.5	15.00	0	96.9	90	110			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2212446

16-Dec-22

Client: Vertex Resources Services, Inc.

Project: Tomcat 17 Federal 001

Sample ID: LCS-71996	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: LCSS	Batch ID: 71996	RunNo: 93225								
Prep Date: 12/9/2022	Analysis Date: 12/12/2022	SeqNo: 3360006	Units: %Rec							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	6.2		5.000		124	21	129			

Sample ID: MB-71996	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: PBS	Batch ID: 71996	RunNo: 93225								
Prep Date: 12/9/2022	Analysis Date: 12/12/2022	SeqNo: 3360008	Units: %Rec							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	12		10.00		122	21	129			

Sample ID: LCS-71999	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: LCSS	Batch ID: 71999	RunNo: 93225								
Prep Date: 12/9/2022	Analysis Date: 12/12/2022	SeqNo: 3360523	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	47	15	50.00	0	95.0	64.4	127			
Surr: DNOP	5.9		5.000		119	21	129			

Sample ID: MB-71999	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: PBS	Batch ID: 71999	RunNo: 93225								
Prep Date: 12/9/2022	Analysis Date: 12/12/2022	SeqNo: 3360524	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	15								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	11		10.00		112	21	129			

Sample ID: 2212446-001AMS	SampType: MS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: BH22-09 0'	Batch ID: 71999	RunNo: 93225								
Prep Date: 12/9/2022	Analysis Date: 12/12/2022	SeqNo: 3360525	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	48	15	49.80	0	97.2	36.1	154			
Surr: DNOP	6.4		4.980		128	21	129			

Sample ID: 2212446-001AMSD	SampType: MSD	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: BH22-09 0'	Batch ID: 71999	RunNo: 93225								
Prep Date: 12/9/2022	Analysis Date: 12/12/2022	SeqNo: 3360526	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	43	13	42.41	0	101	36.1	154	12.0	33.9	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2212446

16-Dec-22

Client: Vertex Resources Services, Inc.

Project: Tomcat 17 Federal 001

Sample ID: 2212446-001AMSD	SampType: MSD	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: BH22-09 0'	Batch ID: 71999	RunNo: 93225								
Prep Date: 12/9/2022	Analysis Date: 12/12/2022	SeqNo: 3360526	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	5.4		4.241		128	21	129	0	0	

Sample ID: MB-71989	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: PBS	Batch ID: 71989	RunNo: 93210								
Prep Date: 12/9/2022	Analysis Date: 12/12/2022	SeqNo: 3361735	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	15								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	11		10.00		108	21	129			

Sample ID: LCS-71989	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: LCSS	Batch ID: 71989	RunNo: 93210								
Prep Date: 12/9/2022	Analysis Date: 12/12/2022	SeqNo: 3361736	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	47	15	50.00	0	94.3	64.4	127			
Surr: DNOP	5.0		5.000		101	21	129			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2212446

16-Dec-22

Client: Vertex Resources Services, Inc.

Project: Tomcat 17 Federal 001

Sample ID: ics-71958	SampType: LCS		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: LCSS	Batch ID: 71958		RunNo: 93221							
Prep Date: 12/8/2022	Analysis Date: 12/12/2022		SeqNo: 3359719		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	5.0	25.00	0	99.8	72.3	137			
Surr: BFB	1900		1000		186	37.7	212			

Sample ID: ics-71979	SampType: LCS		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: LCSS	Batch ID: 71979		RunNo: 93221							
Prep Date: 12/9/2022	Analysis Date: 12/12/2022		SeqNo: 3359720		Units: %Rec					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	1900		1000		194	37.7	212			

Sample ID: mb-71958	SampType: MBLK		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: PBS	Batch ID: 71958		RunNo: 93221							
Prep Date: 12/8/2022	Analysis Date: 12/12/2022		SeqNo: 3359721		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	880		1000		88.1	37.7	212			

Sample ID: mb-71979	SampType: MBLK		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: PBS	Batch ID: 71979		RunNo: 93221							
Prep Date: 12/9/2022	Analysis Date: 12/12/2022		SeqNo: 3359722		Units: %Rec					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	900		1000		90.4	37.7	212			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2212446

16-Dec-22

Client: Vertex Resources Services, Inc.

Project: Tomcat 17 Federal 001

Sample ID: LCS-71958	SampType: LCS		TestCode: EPA Method 8021B: Volatiles							
Client ID: LCSS	Batch ID: 71958		RunNo: 93221							
Prep Date: 12/8/2022	Analysis Date: 12/12/2022		SeqNo: 3360087		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.94	0.025	1.000	0	94.1	80	120			
Toluene	0.95	0.050	1.000	0	95.4	80	120			
Ethylbenzene	0.95	0.050	1.000	0	95.4	80	120			
Xylenes, Total	2.9	0.10	3.000	0	95.9	80	120			
Surr: 4-Bromofluorobenzene	0.88		1.000		88.5	70	130			

Sample ID: LCS-71979	SampType: LCS		TestCode: EPA Method 8021B: Volatiles							
Client ID: LCSS	Batch ID: 71979		RunNo: 93221							
Prep Date: 12/9/2022	Analysis Date: 12/12/2022		SeqNo: 3360088		Units: %Rec					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.89		1.000		89.3	70	130			

Sample ID: mb-71958	SampType: MBLK		TestCode: EPA Method 8021B: Volatiles							
Client ID: PBS	Batch ID: 71958		RunNo: 93221							
Prep Date: 12/8/2022	Analysis Date: 12/12/2022		SeqNo: 3360089		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.88		1.000		88.2	70	130			

Sample ID: mb-71979	SampType: MBLK		TestCode: EPA Method 8021B: Volatiles							
Client ID: PBS	Batch ID: 71979		RunNo: 93221							
Prep Date: 12/9/2022	Analysis Date: 12/12/2022		SeqNo: 3360090		Units: %Rec					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.90		1.000		89.7	70	130			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2212446

16-Dec-22

Client: Vertex Resources Services, Inc.

Project: Tomcat 17 Federal 001

Sample ID: LCS-71962	SampType: LCS4	TestCode: EPA Method 8260B: Volatiles Short List								
Client ID: BatchQC	Batch ID: 71962	RunNo: 93195								
Prep Date: 12/8/2022	Analysis Date: 12/9/2022	SeqNo: 3358165	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.025	1.000	0	106	80	120			
Toluene	1.2	0.050	1.000	0	116	80	120			
Ethylbenzene	1.1	0.050	1.000	0	107	80	120			
Xylenes, Total	3.3	0.10	3.000	0	111	80	120			
Surr: 1,2-Dichloroethane-d4	0.46		0.5000		92.8	70	130			
Surr: 4-Bromofluorobenzene	0.48		0.5000		96.3	70	130			
Surr: Dibromofluoromethane	0.50		0.5000		100	70	130			
Surr: Toluene-d8	0.54		0.5000		107	70	130			

Sample ID: mb-71962	SampType: MBLK	TestCode: EPA Method 8260B: Volatiles Short List								
Client ID: PBS	Batch ID: 71962	RunNo: 93195								
Prep Date: 12/8/2022	Analysis Date: 12/9/2022	SeqNo: 3358166	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 1,2-Dichloroethane-d4	0.49		0.5000		97.1	70	130			
Surr: 4-Bromofluorobenzene	0.50		0.5000		101	70	130			
Surr: Dibromofluoromethane	0.53		0.5000		105	70	130			
Surr: Toluene-d8	0.55		0.5000		110	70	130			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2212446

16-Dec-22

Client: Vertex Resources Services, Inc.

Project: Tomcat 17 Federal 001

Sample ID: LCS-71962	SampType: LCS	TestCode: EPA Method 8015D Mod: Gasoline Range								
Client ID: LCSS	Batch ID: 71962	RunNo: 93195								
Prep Date: 12/8/2022	Analysis Date: 12/9/2022	SeqNo: 3358133	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	26	5.0	25.00	0	105	70	130			
Surr: BFB	490		500.0		97.3	70	130			

Sample ID: mb-71962	SampType: MBLK	TestCode: EPA Method 8015D Mod: Gasoline Range								
Client ID: PBS	Batch ID: 71962	RunNo: 93195								
Prep Date: 12/8/2022	Analysis Date: 12/9/2022	SeqNo: 3358134	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	460		500.0		91.8	70	130			

Qualifiers:

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



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

Sample Log-In Check List

Client Name: Vertex Resources Services, Inc. Work Order Number: 2212446 RcptNo: 1

Received By: Tracy Casarrubias 12/8/2022 7:20:00 AM

Completed By: Tracy Casarrubias 12/8/2022 8:28:17 AM

Reviewed By: [Handwritten signature]

Chain of Custody

- 1. Is Chain of Custody complete? Yes [checked] No [] Not Present []
2. How was the sample delivered? Courier

Log In

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

of preserved bottles checked for pH: (<2 or >12 unless noted)
Adjusted?
Checked by: KPG 12.08.22

Special Handling (if applicable)

- 15. Was client notified of all discrepancies with this order? Yes [] No [] NA [checked]

Person Notified: [] Date: []
By Whom: [] Via: [] eMail [] Phone [] Fax [] In Person []
Regarding: []
Client Instructions: []

16. Additional remarks:

17. Cooler Information

Table with 7 columns: Cooler No, Temp °C, Condition, Seal Intact, Seal No, Seal Date, Signed By. Row 1: 1, 1.2, Good, Yes, [], [], []



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

January 30, 2023

Kent Stallings

Vertex Resources Services, Inc.

3101 Boyd Drive

Carlsbad, NM 88220

TEL: (505) 506-0040

FAX

RE: Tomcat 17 Federal 001

OrderNo.: 2301712

Dear Kent Stallings:

Hall Environmental Analysis Laboratory received 37 sample(s) on 1/19/2023 for the analyses presented in the following report.

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

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

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

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', is written over a white background.

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

Analytical Report

Lab Order **2301712**

Date Reported: **1/30/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-15 0'

Project: Tomcat 17 Federal 001

Collection Date: 1/16/2023 10:25:00 AM

Lab ID: 2301712-001

Matrix: SOIL

Received Date: 1/19/2023 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	1/23/2023 11:44:21 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	1/23/2023 11:44:21 PM
Surr: DNOP	110	69-147		%Rec	1	1/23/2023 11:44:21 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	1/21/2023 1:48:03 PM
Surr: BFB	103	37.7-212		%Rec	1	1/21/2023 1:48:03 PM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.024		mg/Kg	1	1/21/2023 1:48:03 PM
Toluene	ND	0.049		mg/Kg	1	1/21/2023 1:48:03 PM
Ethylbenzene	ND	0.049		mg/Kg	1	1/21/2023 1:48:03 PM
Xylenes, Total	ND	0.097		mg/Kg	1	1/21/2023 1:48:03 PM
Surr: 4-Bromofluorobenzene	98.2	70-130		%Rec	1	1/21/2023 1:48:03 PM
EPA METHOD 300.0: ANIONS						Analyst: NAI
Chloride	ND	61		mg/Kg	20	1/21/2023 6:31:13 PM

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

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

Analytical Report

Lab Order **2301712**

Date Reported: **1/30/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-15 2'

Project: Tomcat 17 Federal 001

Collection Date: 1/16/2023 10:30:00 AM

Lab ID: 2301712-002

Matrix: SOIL

Received Date: 1/19/2023 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	1/23/2023 11:54:53 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	1/23/2023 11:54:53 PM
Surr: DNOP	109	69-147		%Rec	1	1/23/2023 11:54:53 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	1/21/2023 2:34:37 PM
Surr: BFB	106	37.7-212		%Rec	1	1/21/2023 2:34:37 PM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.025		mg/Kg	1	1/21/2023 2:34:37 PM
Toluene	ND	0.050		mg/Kg	1	1/21/2023 2:34:37 PM
Ethylbenzene	ND	0.050		mg/Kg	1	1/21/2023 2:34:37 PM
Xylenes, Total	ND	0.10		mg/Kg	1	1/21/2023 2:34:37 PM
Surr: 4-Bromofluorobenzene	101	70-130		%Rec	1	1/21/2023 2:34:37 PM
EPA METHOD 300.0: ANIONS						Analyst: NAI
Chloride	ND	59		mg/Kg	20	1/21/2023 7:08:14 PM

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

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

Analytical Report

Lab Order **2301712**

Date Reported: **1/30/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-16 0'

Project: Tomcat 17 Federal 001

Collection Date: 1/16/2023 10:35:00 AM

Lab ID: 2301712-003

Matrix: SOIL

Received Date: 1/19/2023 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	8.8		mg/Kg	1	1/24/2023 12:05:25 AM
Motor Oil Range Organics (MRO)	ND	44		mg/Kg	1	1/24/2023 12:05:25 AM
Surr: DNOP	130	69-147		%Rec	1	1/24/2023 12:05:25 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	1/21/2023 2:57:56 PM
Surr: BFB	104	37.7-212		%Rec	1	1/21/2023 2:57:56 PM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.025		mg/Kg	1	1/21/2023 2:57:56 PM
Toluene	ND	0.049		mg/Kg	1	1/21/2023 2:57:56 PM
Ethylbenzene	ND	0.049		mg/Kg	1	1/21/2023 2:57:56 PM
Xylenes, Total	ND	0.099		mg/Kg	1	1/21/2023 2:57:56 PM
Surr: 4-Bromofluorobenzene	99.0	70-130		%Rec	1	1/21/2023 2:57:56 PM
EPA METHOD 300.0: ANIONS						Analyst: NAI
Chloride	ND	60		mg/Kg	20	1/21/2023 7:45:15 PM

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

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

Analytical Report

Lab Order **2301712**

Date Reported: **1/30/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-16 2'

Project: Tomcat 17 Federal 001

Collection Date: 1/16/2023 10:40:00 AM

Lab ID: 2301712-004

Matrix: SOIL

Received Date: 1/19/2023 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	1/24/2023 12:15:55 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	1/24/2023 12:15:55 AM
Surr: DNOP	103	69-147		%Rec	1	1/24/2023 12:15:55 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	1/21/2023 3:21:16 PM
Surr: BFB	104	37.7-212		%Rec	1	1/21/2023 3:21:16 PM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.025		mg/Kg	1	1/21/2023 3:21:16 PM
Toluene	ND	0.050		mg/Kg	1	1/21/2023 3:21:16 PM
Ethylbenzene	ND	0.050		mg/Kg	1	1/21/2023 3:21:16 PM
Xylenes, Total	ND	0.10		mg/Kg	1	1/21/2023 3:21:16 PM
Surr: 4-Bromofluorobenzene	98.4	70-130		%Rec	1	1/21/2023 3:21:16 PM
EPA METHOD 300.0: ANIONS						Analyst: NAI
Chloride	ND	60		mg/Kg	20	1/21/2023 7:57:35 PM

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

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

Analytical Report

Lab Order **2301712**

Date Reported: **1/30/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-17 0'

Project: Tomcat 17 Federal 001

Collection Date: 1/16/2023 10:45:00 AM

Lab ID: 2301712-005

Matrix: SOIL

Received Date: 1/19/2023 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	1/24/2023 12:26:24 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	1/24/2023 12:26:24 AM
Surr: DNOP	105	69-147		%Rec	1	1/24/2023 12:26:24 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	1/21/2023 3:44:35 PM
Surr: BFB	104	37.7-212		%Rec	1	1/21/2023 3:44:35 PM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.025		mg/Kg	1	1/21/2023 3:44:35 PM
Toluene	ND	0.049		mg/Kg	1	1/21/2023 3:44:35 PM
Ethylbenzene	ND	0.049		mg/Kg	1	1/21/2023 3:44:35 PM
Xylenes, Total	ND	0.098		mg/Kg	1	1/21/2023 3:44:35 PM
Surr: 4-Bromofluorobenzene	98.5	70-130		%Rec	1	1/21/2023 3:44:35 PM
EPA METHOD 300.0: ANIONS						Analyst: NAI
Chloride	ND	60		mg/Kg	20	1/21/2023 8:34:37 PM

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

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

Analytical Report

Lab Order **2301712**

Date Reported: **1/30/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-17 2'

Project: Tomcat 17 Federal 001

Collection Date: 1/16/2023 10:50:00 AM

Lab ID: 2301712-006

Matrix: SOIL

Received Date: 1/19/2023 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	1/24/2023 12:47:20 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	1/24/2023 12:47:20 AM
Surr: DNOP	103	69-147		%Rec	1	1/24/2023 12:47:20 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	1/21/2023 4:07:57 PM
Surr: BFB	104	37.7-212		%Rec	1	1/21/2023 4:07:57 PM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.025		mg/Kg	1	1/21/2023 4:07:57 PM
Toluene	ND	0.049		mg/Kg	1	1/21/2023 4:07:57 PM
Ethylbenzene	ND	0.049		mg/Kg	1	1/21/2023 4:07:57 PM
Xylenes, Total	ND	0.098		mg/Kg	1	1/21/2023 4:07:57 PM
Surr: 4-Bromofluorobenzene	98.2	70-130		%Rec	1	1/21/2023 4:07:57 PM
EPA METHOD 300.0: ANIONS						Analyst: NAI
Chloride	ND	60		mg/Kg	20	1/21/2023 8:46:59 PM

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

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

Analytical Report

Lab Order **2301712**

Date Reported: **1/30/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-18 0'

Project: Tomcat 17 Federal 001

Collection Date: 1/16/2023 11:00:00 AM

Lab ID: 2301712-007

Matrix: SOIL

Received Date: 1/19/2023 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	1/24/2023 12:57:52 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	1/24/2023 12:57:52 AM
Surr: DNOP	99.6	69-147		%Rec	1	1/24/2023 12:57:52 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	1/21/2023 4:31:17 PM
Surr: BFB	105	37.7-212		%Rec	1	1/21/2023 4:31:17 PM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.024		mg/Kg	1	1/21/2023 4:31:17 PM
Toluene	ND	0.049		mg/Kg	1	1/21/2023 4:31:17 PM
Ethylbenzene	ND	0.049		mg/Kg	1	1/21/2023 4:31:17 PM
Xylenes, Total	ND	0.097		mg/Kg	1	1/21/2023 4:31:17 PM
Surr: 4-Bromofluorobenzene	98.9	70-130		%Rec	1	1/21/2023 4:31:17 PM
EPA METHOD 300.0: ANIONS						Analyst: NAI
Chloride	ND	60		mg/Kg	20	1/21/2023 8:59:20 PM

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

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

Analytical Report

Lab Order **2301712**

Date Reported: **1/30/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-18 2'

Project: Tomcat 17 Federal 001

Collection Date: 1/16/2023 11:05:00 AM

Lab ID: 2301712-008

Matrix: SOIL

Received Date: 1/19/2023 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	1/24/2023 1:08:23 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	1/24/2023 1:08:23 AM
Surr: DNOP	101	69-147		%Rec	1	1/24/2023 1:08:23 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	1/21/2023 4:54:35 PM
Surr: BFB	103	37.7-212		%Rec	1	1/21/2023 4:54:35 PM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.024		mg/Kg	1	1/21/2023 4:54:35 PM
Toluene	ND	0.048		mg/Kg	1	1/21/2023 4:54:35 PM
Ethylbenzene	ND	0.048		mg/Kg	1	1/21/2023 4:54:35 PM
Xylenes, Total	ND	0.096		mg/Kg	1	1/21/2023 4:54:35 PM
Surr: 4-Bromofluorobenzene	97.0	70-130		%Rec	1	1/21/2023 4:54:35 PM
EPA METHOD 300.0: ANIONS						Analyst: NAI
Chloride	ND	60		mg/Kg	20	1/21/2023 9:11:40 PM

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

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

Analytical Report

Lab Order **2301712**

Date Reported: **1/30/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-18 4'

Project: Tomcat 17 Federal 001

Collection Date: 1/16/2023 11:10:00 AM

Lab ID: 2301712-009

Matrix: SOIL

Received Date: 1/19/2023 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	1/24/2023 1:18:48 AM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	1/24/2023 1:18:48 AM
Surr: DNOP	100	69-147		%Rec	1	1/24/2023 1:18:48 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	1/21/2023 5:17:49 PM
Surr: BFB	105	37.7-212		%Rec	1	1/21/2023 5:17:49 PM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.024		mg/Kg	1	1/21/2023 5:17:49 PM
Toluene	ND	0.049		mg/Kg	1	1/21/2023 5:17:49 PM
Ethylbenzene	ND	0.049		mg/Kg	1	1/21/2023 5:17:49 PM
Xylenes, Total	ND	0.097		mg/Kg	1	1/21/2023 5:17:49 PM
Surr: 4-Bromofluorobenzene	101	70-130		%Rec	1	1/21/2023 5:17:49 PM
EPA METHOD 300.0: ANIONS						Analyst: NAI
Chloride	ND	60		mg/Kg	20	1/21/2023 9:24:02 PM

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

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

Analytical Report

Lab Order **2301712**

Date Reported: **1/30/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-19 0'

Project: Tomcat 17 Federal 001

Collection Date: 1/16/2023 11:15:00 AM

Lab ID: 2301712-010

Matrix: SOIL

Received Date: 1/19/2023 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	1/24/2023 1:29:11 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	1/24/2023 1:29:11 AM
Surr: DNOP	104	69-147		%Rec	1	1/24/2023 1:29:11 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	1/21/2023 5:41:03 PM
Surr: BFB	104	37.7-212		%Rec	1	1/21/2023 5:41:03 PM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.025		mg/Kg	1	1/21/2023 5:41:03 PM
Toluene	ND	0.050		mg/Kg	1	1/21/2023 5:41:03 PM
Ethylbenzene	ND	0.050		mg/Kg	1	1/21/2023 5:41:03 PM
Xylenes, Total	ND	0.10		mg/Kg	1	1/21/2023 5:41:03 PM
Surr: 4-Bromofluorobenzene	99.4	70-130		%Rec	1	1/21/2023 5:41:03 PM
EPA METHOD 300.0: ANIONS						Analyst: NAI
Chloride	ND	60		mg/Kg	20	1/21/2023 9:36:22 PM

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

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

Analytical Report

Lab Order **2301712**

Date Reported: **1/30/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-19 2'

Project: Tomcat 17 Federal 001

Collection Date: 1/16/2023 11:20:00 AM

Lab ID: 2301712-011

Matrix: SOIL

Received Date: 1/19/2023 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	1/24/2023 1:39:32 AM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	1/24/2023 1:39:32 AM
Surr: DNOP	99.0	69-147		%Rec	1	1/24/2023 1:39:32 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	1/21/2023 6:04:18 PM
Surr: BFB	103	37.7-212		%Rec	1	1/21/2023 6:04:18 PM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.024		mg/Kg	1	1/21/2023 6:04:18 PM
Toluene	ND	0.048		mg/Kg	1	1/21/2023 6:04:18 PM
Ethylbenzene	ND	0.048		mg/Kg	1	1/21/2023 6:04:18 PM
Xylenes, Total	ND	0.096		mg/Kg	1	1/21/2023 6:04:18 PM
Surr: 4-Bromofluorobenzene	97.7	70-130		%Rec	1	1/21/2023 6:04:18 PM
EPA METHOD 300.0: ANIONS						Analyst: NAI
Chloride	71	60		mg/Kg	20	1/21/2023 9:48:43 PM

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

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

Analytical Report

Lab Order **2301712**

Date Reported: **1/30/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-19 4'

Project: Tomcat 17 Federal 001

Collection Date: 1/16/2023 11:25:00 AM

Lab ID: 2301712-012

Matrix: SOIL

Received Date: 1/19/2023 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	1/24/2023 1:49:52 AM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	1/24/2023 1:49:52 AM
Surr: DNOP	106	69-147		%Rec	1	1/24/2023 1:49:52 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	1/21/2023 7:13:49 PM
Surr: BFB	102	37.7-212		%Rec	1	1/21/2023 7:13:49 PM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.025		mg/Kg	1	1/21/2023 7:13:49 PM
Toluene	ND	0.050		mg/Kg	1	1/21/2023 7:13:49 PM
Ethylbenzene	ND	0.050		mg/Kg	1	1/21/2023 7:13:49 PM
Xylenes, Total	ND	0.099		mg/Kg	1	1/21/2023 7:13:49 PM
Surr: 4-Bromofluorobenzene	98.6	70-130		%Rec	1	1/21/2023 7:13:49 PM
EPA METHOD 300.0: ANIONS						Analyst: NAI
Chloride	140	60		mg/Kg	20	1/21/2023 10:01:03 PM

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

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

Analytical Report

Lab Order **2301712**

Date Reported: **1/30/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-20 0'

Project: Tomcat 17 Federal 001

Collection Date: 1/16/2023 11:30:00 AM

Lab ID: 2301712-013

Matrix: SOIL

Received Date: 1/19/2023 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	1/24/2023 2:00:10 AM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	1/24/2023 2:00:10 AM
Surr: DNOP	99.7	69-147		%Rec	1	1/24/2023 2:00:10 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	1/21/2023 7:36:56 PM
Surr: BFB	101	37.7-212		%Rec	1	1/21/2023 7:36:56 PM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.024		mg/Kg	1	1/21/2023 7:36:56 PM
Toluene	ND	0.049		mg/Kg	1	1/21/2023 7:36:56 PM
Ethylbenzene	ND	0.049		mg/Kg	1	1/21/2023 7:36:56 PM
Xylenes, Total	ND	0.098		mg/Kg	1	1/21/2023 7:36:56 PM
Surr: 4-Bromofluorobenzene	96.8	70-130		%Rec	1	1/21/2023 7:36:56 PM
EPA METHOD 300.0: ANIONS						Analyst: NAI
Chloride	ND	60		mg/Kg	20	1/21/2023 10:13:24 PM

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

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

Analytical Report

Lab Order **2301712**

Date Reported: **1/30/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-20 2'

Project: Tomcat 17 Federal 001

Collection Date: 1/16/2023 11:35:00 AM

Lab ID: 2301712-014

Matrix: SOIL

Received Date: 1/19/2023 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	1/24/2023 2:10:29 AM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	1/24/2023 2:10:29 AM
Surr: DNOP	104	69-147		%Rec	1	1/24/2023 2:10:29 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	1/21/2023 8:00:03 PM
Surr: BFB	103	37.7-212		%Rec	1	1/21/2023 8:00:03 PM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.025		mg/Kg	1	1/21/2023 8:00:03 PM
Toluene	ND	0.049		mg/Kg	1	1/21/2023 8:00:03 PM
Ethylbenzene	ND	0.049		mg/Kg	1	1/21/2023 8:00:03 PM
Xylenes, Total	ND	0.099		mg/Kg	1	1/21/2023 8:00:03 PM
Surr: 4-Bromofluorobenzene	98.5	70-130		%Rec	1	1/21/2023 8:00:03 PM
EPA METHOD 300.0: ANIONS						Analyst: NAI
Chloride	ND	60		mg/Kg	20	1/21/2023 10:25:44 PM

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

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

Analytical Report

Lab Order **2301712**

Date Reported: **1/30/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-20 4'

Project: Tomcat 17 Federal 001

Collection Date: 1/16/2023 11:40:00 AM

Lab ID: 2301712-015

Matrix: SOIL

Received Date: 1/19/2023 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	1/24/2023 2:20:48 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	1/24/2023 2:20:48 AM
Surr: DNOP	105	69-147		%Rec	1	1/24/2023 2:20:48 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	1/21/2023 8:23:10 PM
Surr: BFB	101	37.7-212		%Rec	1	1/21/2023 8:23:10 PM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.024		mg/Kg	1	1/21/2023 8:23:10 PM
Toluene	ND	0.049		mg/Kg	1	1/21/2023 8:23:10 PM
Ethylbenzene	ND	0.049		mg/Kg	1	1/21/2023 8:23:10 PM
Xylenes, Total	ND	0.098		mg/Kg	1	1/21/2023 8:23:10 PM
Surr: 4-Bromofluorobenzene	96.5	70-130		%Rec	1	1/21/2023 8:23:10 PM
EPA METHOD 300.0: ANIONS						Analyst: NAI
Chloride	ND	60		mg/Kg	20	1/21/2023 11:02:45 PM

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

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

Analytical Report

Lab Order **2301712**

Date Reported: **1/30/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-21 0'

Project: Tomcat 17 Federal 001

Collection Date: 1/17/2023 8:05:00 AM

Lab ID: 2301712-016

Matrix: SOIL

Received Date: 1/19/2023 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	1/24/2023 2:31:08 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	1/24/2023 2:31:08 AM
Surr: DNOP	107	69-147		%Rec	1	1/24/2023 2:31:08 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	1/21/2023 8:46:16 PM
Surr: BFB	100	37.7-212		%Rec	1	1/21/2023 8:46:16 PM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.025		mg/Kg	1	1/21/2023 8:46:16 PM
Toluene	ND	0.050		mg/Kg	1	1/21/2023 8:46:16 PM
Ethylbenzene	ND	0.050		mg/Kg	1	1/21/2023 8:46:16 PM
Xylenes, Total	ND	0.10		mg/Kg	1	1/21/2023 8:46:16 PM
Surr: 4-Bromofluorobenzene	95.9	70-130		%Rec	1	1/21/2023 8:46:16 PM
EPA METHOD 300.0: ANIONS						Analyst: NAI
Chloride	140	60		mg/Kg	20	1/21/2023 11:15:07 PM

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

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

Analytical Report

Lab Order **2301712**

Date Reported: **1/30/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-21 2'

Project: Tomcat 17 Federal 001

Collection Date: 1/17/2023 8:10:00 AM

Lab ID: 2301712-017

Matrix: SOIL

Received Date: 1/19/2023 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	1/24/2023 2:51:45 AM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	1/24/2023 2:51:45 AM
Surr: DNOP	88.6	69-147		%Rec	1	1/24/2023 2:51:45 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	1/23/2023 11:23:40 PM
Surr: BFB	102	37.7-212		%Rec	1	1/23/2023 11:23:40 PM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.025		mg/Kg	1	1/23/2023 11:23:40 PM
Toluene	ND	0.049		mg/Kg	1	1/23/2023 11:23:40 PM
Ethylbenzene	ND	0.049		mg/Kg	1	1/23/2023 11:23:40 PM
Xylenes, Total	ND	0.099		mg/Kg	1	1/23/2023 11:23:40 PM
Surr: 4-Bromofluorobenzene	95.5	70-130		%Rec	1	1/23/2023 11:23:40 PM
EPA METHOD 300.0: ANIONS						Analyst: NAI
Chloride	ND	60		mg/Kg	20	1/24/2023 2:49:12 AM

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

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

Analytical Report

Lab Order **2301712**

Date Reported: **1/30/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-21 4'

Project: Tomcat 17 Federal 001

Collection Date: 1/17/2023 8:15:00 AM

Lab ID: 2301712-018

Matrix: SOIL

Received Date: 1/19/2023 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	1/24/2023 3:23:14 AM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	1/24/2023 3:23:14 AM
Surr: DNOP	92.8	69-147		%Rec	1	1/24/2023 3:23:14 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	1/24/2023 12:33:20 AM
Surr: BFB	103	37.7-212		%Rec	1	1/24/2023 12:33:20 AM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.024		mg/Kg	1	1/24/2023 12:33:20 AM
Toluene	ND	0.049		mg/Kg	1	1/24/2023 12:33:20 AM
Ethylbenzene	ND	0.049		mg/Kg	1	1/24/2023 12:33:20 AM
Xylenes, Total	ND	0.098		mg/Kg	1	1/24/2023 12:33:20 AM
Surr: 4-Bromofluorobenzene	96.1	70-130		%Rec	1	1/24/2023 12:33:20 AM
EPA METHOD 300.0: ANIONS						Analyst: NAI
Chloride	ND	60		mg/Kg	20	1/24/2023 3:01:34 AM

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

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

Analytical Report

Lab Order **2301712**

Date Reported: **1/30/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-22 0'

Project: Tomcat 17 Federal 001

Collection Date: 1/17/2023 8:20:00 AM

Lab ID: 2301712-019

Matrix: SOIL

Received Date: 1/19/2023 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	1/24/2023 3:33:49 AM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	1/24/2023 3:33:49 AM
Surr: DNOP	93.0	69-147		%Rec	1	1/24/2023 3:33:49 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	1/24/2023 1:42:58 AM
Surr: BFB	101	37.7-212		%Rec	1	1/24/2023 1:42:58 AM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.024		mg/Kg	1	1/24/2023 1:42:58 AM
Toluene	ND	0.048		mg/Kg	1	1/24/2023 1:42:58 AM
Ethylbenzene	ND	0.048		mg/Kg	1	1/24/2023 1:42:58 AM
Xylenes, Total	ND	0.096		mg/Kg	1	1/24/2023 1:42:58 AM
Surr: 4-Bromofluorobenzene	93.7	70-130		%Rec	1	1/24/2023 1:42:58 AM
EPA METHOD 300.0: ANIONS						Analyst: NAI
Chloride	ND	60		mg/Kg	20	1/24/2023 3:13:56 AM

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

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

Analytical Report

Lab Order **2301712**

Date Reported: **1/30/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-22 2'

Project: Tomcat 17 Federal 001

Collection Date: 1/17/2023 8:25:00 AM

Lab ID: 2301712-020

Matrix: SOIL

Received Date: 1/19/2023 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	1/24/2023 3:44:25 AM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	1/24/2023 3:44:25 AM
Surr: DNOP	93.5	69-147		%Rec	1	1/24/2023 3:44:25 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	1/24/2023 2:06:07 AM
Surr: BFB	102	37.7-212		%Rec	1	1/24/2023 2:06:07 AM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.024		mg/Kg	1	1/24/2023 2:06:07 AM
Toluene	ND	0.049		mg/Kg	1	1/24/2023 2:06:07 AM
Ethylbenzene	ND	0.049		mg/Kg	1	1/24/2023 2:06:07 AM
Xylenes, Total	ND	0.098		mg/Kg	1	1/24/2023 2:06:07 AM
Surr: 4-Bromofluorobenzene	95.1	70-130		%Rec	1	1/24/2023 2:06:07 AM
EPA METHOD 300.0: ANIONS						Analyst: NAI
Chloride	ND	60		mg/Kg	20	1/24/2023 3:26:17 AM

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

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

Analytical Report

Lab Order **2301712**

Date Reported: **1/30/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-22 4'

Project: Tomcat 17 Federal 001

Collection Date: 1/17/2023 8:30:00 AM

Lab ID: 2301712-021

Matrix: SOIL

Received Date: 1/19/2023 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	1/26/2023 3:54:56 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	1/26/2023 3:54:56 PM
Surr: DNOP	117	69-147		%Rec	1	1/26/2023 3:54:56 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	1/24/2023 2:29:20 AM
Surr: BFB	102	37.7-212		%Rec	1	1/24/2023 2:29:20 AM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.024		mg/Kg	1	1/24/2023 2:29:20 AM
Toluene	ND	0.049		mg/Kg	1	1/24/2023 2:29:20 AM
Ethylbenzene	ND	0.049		mg/Kg	1	1/24/2023 2:29:20 AM
Xylenes, Total	ND	0.098		mg/Kg	1	1/24/2023 2:29:20 AM
Surr: 4-Bromofluorobenzene	94.9	70-130		%Rec	1	1/24/2023 2:29:20 AM
EPA METHOD 300.0: ANIONS						Analyst: NAI
Chloride	ND	60		mg/Kg	20	1/24/2023 4:03:18 AM

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

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

Analytical Report

Lab Order **2301712**

Date Reported: **1/30/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-23 0'

Project: Tomcat 17 Federal 001

Collection Date: 1/17/2023 8:40:00 AM

Lab ID: 2301712-022

Matrix: SOIL

Received Date: 1/19/2023 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	8.7		mg/Kg	1	1/24/2023 4:05:54 AM
Motor Oil Range Organics (MRO)	ND	44		mg/Kg	1	1/24/2023 4:05:54 AM
Surr: DNOP	94.7	69-147		%Rec	1	1/24/2023 4:05:54 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	1/24/2023 2:52:32 AM
Surr: BFB	103	37.7-212		%Rec	1	1/24/2023 2:52:32 AM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.024		mg/Kg	1	1/24/2023 2:52:32 AM
Toluene	ND	0.049		mg/Kg	1	1/24/2023 2:52:32 AM
Ethylbenzene	ND	0.049		mg/Kg	1	1/24/2023 2:52:32 AM
Xylenes, Total	ND	0.098		mg/Kg	1	1/24/2023 2:52:32 AM
Surr: 4-Bromofluorobenzene	96.5	70-130		%Rec	1	1/24/2023 2:52:32 AM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	ND	60		mg/Kg	20	1/24/2023 8:20:54 PM

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

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

Analytical Report

Lab Order **2301712**

Date Reported: **1/30/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-23 2'

Project: Tomcat 17 Federal 001

Collection Date: 1/17/2023 8:45:00 AM

Lab ID: 2301712-023

Matrix: SOIL

Received Date: 1/19/2023 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	1/24/2023 4:16:45 AM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	1/24/2023 4:16:45 AM
Surr: DNOP	96.3	69-147		%Rec	1	1/24/2023 4:16:45 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	1/24/2023 3:15:44 AM
Surr: BFB	102	37.7-212		%Rec	1	1/24/2023 3:15:44 AM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.025		mg/Kg	1	1/24/2023 3:15:44 AM
Toluene	ND	0.050		mg/Kg	1	1/24/2023 3:15:44 AM
Ethylbenzene	ND	0.050		mg/Kg	1	1/24/2023 3:15:44 AM
Xylenes, Total	ND	0.099		mg/Kg	1	1/24/2023 3:15:44 AM
Surr: 4-Bromofluorobenzene	95.0	70-130		%Rec	1	1/24/2023 3:15:44 AM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	ND	60		mg/Kg	20	1/24/2023 8:33:15 PM

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

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

Analytical Report

Lab Order **2301712**

Date Reported: **1/30/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-23 4'

Project: Tomcat 17 Federal 001

Collection Date: 1/17/2023 8:50:00 AM

Lab ID: 2301712-024

Matrix: SOIL

Received Date: 1/19/2023 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	1/24/2023 4:27:34 AM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	1/24/2023 4:27:34 AM
Surr: DNOP	98.0	69-147		%Rec	1	1/24/2023 4:27:34 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	1/24/2023 3:38:57 AM
Surr: BFB	101	37.7-212		%Rec	1	1/24/2023 3:38:57 AM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.025		mg/Kg	1	1/24/2023 3:38:57 AM
Toluene	ND	0.049		mg/Kg	1	1/24/2023 3:38:57 AM
Ethylbenzene	ND	0.049		mg/Kg	1	1/24/2023 3:38:57 AM
Xylenes, Total	ND	0.099		mg/Kg	1	1/24/2023 3:38:57 AM
Surr: 4-Bromofluorobenzene	94.7	70-130		%Rec	1	1/24/2023 3:38:57 AM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	ND	60		mg/Kg	20	1/24/2023 8:45:35 PM

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

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

Analytical Report

Lab Order **2301712**

Date Reported: **1/30/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-24 0'

Project: Tomcat 17 Federal 001

Collection Date: 1/17/2023 8:55:00 AM

Lab ID: 2301712-025

Matrix: SOIL

Received Date: 1/19/2023 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	1/24/2023 4:38:21 AM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	1/24/2023 4:38:21 AM
Surr: DNOP	80.6	69-147		%Rec	1	1/24/2023 4:38:21 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	1/24/2023 4:02:09 AM
Surr: BFB	103	37.7-212		%Rec	1	1/24/2023 4:02:09 AM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.024		mg/Kg	1	1/24/2023 4:02:09 AM
Toluene	ND	0.048		mg/Kg	1	1/24/2023 4:02:09 AM
Ethylbenzene	ND	0.048		mg/Kg	1	1/24/2023 4:02:09 AM
Xylenes, Total	ND	0.097		mg/Kg	1	1/24/2023 4:02:09 AM
Surr: 4-Bromofluorobenzene	96.4	70-130		%Rec	1	1/24/2023 4:02:09 AM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	61	60		mg/Kg	20	1/24/2023 8:57:55 PM

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

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

Analytical Report

Lab Order **2301712**

Date Reported: **1/30/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-24 2'

Project: Tomcat 17 Federal 001

Collection Date: 1/17/2023 9:00:00 AM

Lab ID: 2301712-026

Matrix: SOIL

Received Date: 1/19/2023 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	1/24/2023 4:59:36 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	1/24/2023 4:59:36 AM
Surr: DNOP	97.4	69-147		%Rec	1	1/24/2023 4:59:36 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	1/24/2023 4:25:18 AM
Surr: BFB	101	37.7-212		%Rec	1	1/24/2023 4:25:18 AM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.025		mg/Kg	1	1/24/2023 4:25:18 AM
Toluene	ND	0.050		mg/Kg	1	1/24/2023 4:25:18 AM
Ethylbenzene	ND	0.050		mg/Kg	1	1/24/2023 4:25:18 AM
Xylenes, Total	ND	0.10		mg/Kg	1	1/24/2023 4:25:18 AM
Surr: 4-Bromofluorobenzene	95.0	70-130		%Rec	1	1/24/2023 4:25:18 AM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	ND	60		mg/Kg	20	1/24/2023 9:34:56 PM

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

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

Analytical Report

Lab Order **2301712**

Date Reported: **1/30/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-24 4'

Project: Tomcat 17 Federal 001

Collection Date: 1/17/2023 9:05:00 AM

Lab ID: 2301712-027

Matrix: SOIL

Received Date: 1/19/2023 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	8.6		mg/Kg	1	1/24/2023 5:10:23 AM
Motor Oil Range Organics (MRO)	ND	43		mg/Kg	1	1/24/2023 5:10:23 AM
Surr: DNOP	88.3	69-147		%Rec	1	1/24/2023 5:10:23 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	1/24/2023 5:11:43 AM
Surr: BFB	99.6	37.7-212		%Rec	1	1/24/2023 5:11:43 AM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.025		mg/Kg	1	1/24/2023 5:11:43 AM
Toluene	ND	0.049		mg/Kg	1	1/24/2023 5:11:43 AM
Ethylbenzene	ND	0.049		mg/Kg	1	1/24/2023 5:11:43 AM
Xylenes, Total	ND	0.099		mg/Kg	1	1/24/2023 5:11:43 AM
Surr: 4-Bromofluorobenzene	93.3	70-130		%Rec	1	1/24/2023 5:11:43 AM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	ND	60		mg/Kg	20	1/24/2023 9:47:17 PM

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

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

Analytical Report

Lab Order **2301712**

Date Reported: **1/30/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-25 0'

Project: Tomcat 17 Federal 001

Collection Date: 1/17/2023 9:15:00 AM

Lab ID: 2301712-028

Matrix: SOIL

Received Date: 1/19/2023 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	1/24/2023 5:21:09 AM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	1/24/2023 5:21:09 AM
Surr: DNOP	91.4	69-147		%Rec	1	1/24/2023 5:21:09 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	1/24/2023 5:34:57 AM
Surr: BFB	100	37.7-212		%Rec	1	1/24/2023 5:34:57 AM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.024		mg/Kg	1	1/24/2023 5:34:57 AM
Toluene	ND	0.049		mg/Kg	1	1/24/2023 5:34:57 AM
Ethylbenzene	ND	0.049		mg/Kg	1	1/24/2023 5:34:57 AM
Xylenes, Total	ND	0.097		mg/Kg	1	1/24/2023 5:34:57 AM
Surr: 4-Bromofluorobenzene	93.5	70-130		%Rec	1	1/24/2023 5:34:57 AM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	ND	60		mg/Kg	20	1/24/2023 9:59:38 PM

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

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

Analytical Report

Lab Order **2301712**

Date Reported: **1/30/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-25 2'

Project: Tomcat 17 Federal 001

Collection Date: 1/17/2023 9:20:00 AM

Lab ID: 2301712-029

Matrix: SOIL

Received Date: 1/19/2023 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	1/24/2023 5:31:57 AM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	1/24/2023 5:31:57 AM
Surr: DNOP	87.0	69-147		%Rec	1	1/24/2023 5:31:57 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	1/24/2023 5:58:10 AM
Surr: BFB	102	37.7-212		%Rec	1	1/24/2023 5:58:10 AM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.024		mg/Kg	1	1/24/2023 5:58:10 AM
Toluene	ND	0.048		mg/Kg	1	1/24/2023 5:58:10 AM
Ethylbenzene	ND	0.048		mg/Kg	1	1/24/2023 5:58:10 AM
Xylenes, Total	ND	0.095		mg/Kg	1	1/24/2023 5:58:10 AM
Surr: 4-Bromofluorobenzene	95.8	70-130		%Rec	1	1/24/2023 5:58:10 AM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	ND	60		mg/Kg	20	1/24/2023 10:11:59 PM

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

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

Analytical Report

Lab Order **2301712**

Date Reported: **1/30/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-25 4'

Project: Tomcat 17 Federal 001

Collection Date: 1/17/2023 9:25:00 AM

Lab ID: 2301712-030

Matrix: SOIL

Received Date: 1/19/2023 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	1/24/2023 5:42:41 AM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	1/24/2023 5:42:41 AM
Surr: DNOP	85.5	69-147		%Rec	1	1/24/2023 5:42:41 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	1/24/2023 6:21:24 AM
Surr: BFB	104	37.7-212		%Rec	1	1/24/2023 6:21:24 AM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.024		mg/Kg	1	1/24/2023 6:21:24 AM
Toluene	ND	0.048		mg/Kg	1	1/24/2023 6:21:24 AM
Ethylbenzene	ND	0.048		mg/Kg	1	1/24/2023 6:21:24 AM
Xylenes, Total	ND	0.097		mg/Kg	1	1/24/2023 6:21:24 AM
Surr: 4-Bromofluorobenzene	96.8	70-130		%Rec	1	1/24/2023 6:21:24 AM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	ND	60		mg/Kg	20	1/24/2023 10:24:19 PM

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

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

Analytical Report

Lab Order **2301712**

Date Reported: **1/30/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-26 4'

Project: Tomcat 17 Federal 001

Collection Date: 1/16/2023 9:45:00 AM

Lab ID: 2301712-031

Matrix: SOIL

Received Date: 1/19/2023 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	43	9.2		mg/Kg	1	1/24/2023 5:53:25 AM
Motor Oil Range Organics (MRO)	74	46		mg/Kg	1	1/24/2023 5:53:25 AM
Surr: DNOP	93.0	69-147		%Rec	1	1/24/2023 5:53:25 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	1/24/2023 6:44:38 AM
Surr: BFB	102	37.7-212		%Rec	1	1/24/2023 6:44:38 AM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.024		mg/Kg	1	1/24/2023 6:44:38 AM
Toluene	ND	0.048		mg/Kg	1	1/24/2023 6:44:38 AM
Ethylbenzene	ND	0.048		mg/Kg	1	1/24/2023 6:44:38 AM
Xylenes, Total	ND	0.095		mg/Kg	1	1/24/2023 6:44:38 AM
Surr: 4-Bromofluorobenzene	96.0	70-130		%Rec	1	1/24/2023 6:44:38 AM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	520	60		mg/Kg	20	1/24/2023 10:36:40 PM

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

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

Analytical Report

Lab Order **2301712**

Date Reported: **1/30/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-26 6'

Project: Tomcat 17 Federal 001

Collection Date: 1/16/2023 9:50:00 AM

Lab ID: 2301712-032

Matrix: SOIL

Received Date: 1/19/2023 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	13	9.7		mg/Kg	1	1/24/2023 6:14:37 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	1/24/2023 6:14:37 AM
Surr: DNOP	71.4	69-147		%Rec	1	1/24/2023 6:14:37 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	1/24/2023 7:07:54 AM
Surr: BFB	102	37.7-212		%Rec	1	1/24/2023 7:07:54 AM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.024		mg/Kg	1	1/24/2023 7:07:54 AM
Toluene	ND	0.048		mg/Kg	1	1/24/2023 7:07:54 AM
Ethylbenzene	ND	0.048		mg/Kg	1	1/24/2023 7:07:54 AM
Xylenes, Total	ND	0.096		mg/Kg	1	1/24/2023 7:07:54 AM
Surr: 4-Bromofluorobenzene	95.1	70-130		%Rec	1	1/24/2023 7:07:54 AM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	430	60		mg/Kg	20	1/24/2023 10:49:01 PM

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

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

Analytical Report

Lab Order **2301712**

Date Reported: **1/30/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-26 8'

Project: Tomcat 17 Federal 001

Collection Date: 1/16/2023 9:55:00 AM

Lab ID: 2301712-033

Matrix: SOIL

Received Date: 1/19/2023 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	17	8.8		mg/Kg	1	1/24/2023 6:25:19 AM
Motor Oil Range Organics (MRO)	ND	44		mg/Kg	1	1/24/2023 6:25:19 AM
Surr: DNOP	111	69-147		%Rec	1	1/24/2023 6:25:19 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	1/24/2023 7:31:11 AM
Surr: BFB	101	37.7-212		%Rec	1	1/24/2023 7:31:11 AM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.025		mg/Kg	1	1/24/2023 7:31:11 AM
Toluene	ND	0.050		mg/Kg	1	1/24/2023 7:31:11 AM
Ethylbenzene	ND	0.050		mg/Kg	1	1/24/2023 7:31:11 AM
Xylenes, Total	ND	0.099		mg/Kg	1	1/24/2023 7:31:11 AM
Surr: 4-Bromofluorobenzene	96.3	70-130		%Rec	1	1/24/2023 7:31:11 AM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	250	60		mg/Kg	20	1/24/2023 11:01:22 PM

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

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

Analytical Report

Lab Order **2301712**

Date Reported: **1/30/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-27 4'

Project: Tomcat 17 Federal 001

Collection Date: 1/16/2023 10:05:00 AM

Lab ID: 2301712-034

Matrix: SOIL

Received Date: 1/19/2023 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	1/24/2023 6:36:17 AM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	1/24/2023 6:36:17 AM
Surr: DNOP	77.6	69-147		%Rec	1	1/24/2023 6:36:17 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	1/24/2023 7:54:24 AM
Surr: BFB	104	37.7-212		%Rec	1	1/24/2023 7:54:24 AM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.025		mg/Kg	1	1/24/2023 7:54:24 AM
Toluene	ND	0.050		mg/Kg	1	1/24/2023 7:54:24 AM
Ethylbenzene	ND	0.050		mg/Kg	1	1/24/2023 7:54:24 AM
Xylenes, Total	ND	0.10		mg/Kg	1	1/24/2023 7:54:24 AM
Surr: 4-Bromofluorobenzene	96.2	70-130		%Rec	1	1/24/2023 7:54:24 AM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	1100	60		mg/Kg	20	1/24/2023 11:13:44 PM

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

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

Analytical Report

Lab Order **2301712**

Date Reported: **1/30/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-27 6'

Project: Tomcat 17 Federal 001

Collection Date: 1/16/2023 10:10:00 AM

Lab ID: 2301712-035

Matrix: SOIL

Received Date: 1/19/2023 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	1/24/2023 6:46:58 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	1/24/2023 6:46:58 AM
Surr: DNOP	78.5	69-147		%Rec	1	1/24/2023 6:46:58 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	1/24/2023 8:17:37 AM
Surr: BFB	104	37.7-212		%Rec	1	1/24/2023 8:17:37 AM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.024		mg/Kg	1	1/24/2023 8:17:37 AM
Toluene	ND	0.048		mg/Kg	1	1/24/2023 8:17:37 AM
Ethylbenzene	ND	0.048		mg/Kg	1	1/24/2023 8:17:37 AM
Xylenes, Total	ND	0.095		mg/Kg	1	1/24/2023 8:17:37 AM
Surr: 4-Bromofluorobenzene	98.2	70-130		%Rec	1	1/24/2023 8:17:37 AM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	220	60		mg/Kg	20	1/24/2023 11:26:04 PM

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

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

Analytical Report

Lab Order **2301712**

Date Reported: **1/30/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-27 8'

Project: Tomcat 17 Federal 001

Collection Date: 1/16/2023 10:15:00 AM

Lab ID: 2301712-036

Matrix: SOIL

Received Date: 1/19/2023 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	1/24/2023 6:57:36 AM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	1/24/2023 6:57:36 AM
Surr: DNOP	71.5	69-147		%Rec	1	1/24/2023 6:57:36 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	1/24/2023 8:40:49 AM
Surr: BFB	102	37.7-212		%Rec	1	1/24/2023 8:40:49 AM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.024		mg/Kg	1	1/24/2023 8:40:49 AM
Toluene	ND	0.049		mg/Kg	1	1/24/2023 8:40:49 AM
Ethylbenzene	ND	0.049		mg/Kg	1	1/24/2023 8:40:49 AM
Xylenes, Total	ND	0.098		mg/Kg	1	1/24/2023 8:40:49 AM
Surr: 4-Bromofluorobenzene	96.2	70-130		%Rec	1	1/24/2023 8:40:49 AM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	92	60		mg/Kg	20	1/25/2023 12:03:04 AM

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2301712

30-Jan-23

Client: Vertex Resources Services, Inc.

Project: Tomcat 17 Federal 001

Sample ID: MB-72744	SampType: mblk	TestCode: EPA Method 300.0: Anions								
Client ID: PBS	Batch ID: 72744	RunNo: 94110								
Prep Date: 1/21/2023	Analysis Date: 1/21/2023	SeqNo: 3398072	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: LCS-72744	SampType: ics	TestCode: EPA Method 300.0: Anions								
Client ID: LCSS	Batch ID: 72744	RunNo: 94110								
Prep Date: 1/21/2023	Analysis Date: 1/21/2023	SeqNo: 3398073	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	95.7	90	110			

Sample ID: MB-72764	SampType: mblk	TestCode: EPA Method 300.0: Anions								
Client ID: PBS	Batch ID: 72764	RunNo: 94135								
Prep Date: 1/23/2023	Analysis Date: 1/23/2023	SeqNo: 3399030	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: LCS-72764	SampType: ics	TestCode: EPA Method 300.0: Anions								
Client ID: LCSS	Batch ID: 72764	RunNo: 94135								
Prep Date: 1/23/2023	Analysis Date: 1/23/2023	SeqNo: 3399031	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	94.0	90	110			

Sample ID: MB-72790	SampType: mblk	TestCode: EPA Method 300.0: Anions								
Client ID: PBS	Batch ID: 72790	RunNo: 94168								
Prep Date: 1/24/2023	Analysis Date: 1/24/2023	SeqNo: 3400495	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: LCS-72790	SampType: ics	TestCode: EPA Method 300.0: Anions								
Client ID: LCSS	Batch ID: 72790	RunNo: 94168								
Prep Date: 1/24/2023	Analysis Date: 1/24/2023	SeqNo: 3400496	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	93.1	90	110			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2301712

30-Jan-23

Client: Vertex Resources Services, Inc.

Project: Tomcat 17 Federal 001

Sample ID: 2301712-017AMS	SampType: MS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: BH22-21 2'	Batch ID: 72725	RunNo: 94119								
Prep Date: 1/20/2023	Analysis Date: 1/24/2023	SeqNo: 3399109	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	42	9.6	48.12	0	88.2	54.2	135			
Surr: DNOP	4.6		4.812		96.0	69	147			

Sample ID: 2301712-017AMSD	SampType: MSD	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: BH22-21 2'	Batch ID: 72725	RunNo: 94119								
Prep Date: 1/20/2023	Analysis Date: 1/24/2023	SeqNo: 3399110	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	42	9.8	49.16	0	85.7	54.2	135	0.741	29.2	
Surr: DNOP	4.4		4.916		90.0	69	147	0	0	

Sample ID: LCS-72725	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: LCSS	Batch ID: 72725	RunNo: 94119								
Prep Date: 1/20/2023	Analysis Date: 1/23/2023	SeqNo: 3399134	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	40	10	50.00	0	80.7	61.9	130			
Surr: DNOP	5.0		5.000		99.5	69	147			

Sample ID: LCS-72726	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: LCSS	Batch ID: 72726	RunNo: 94119								
Prep Date: 1/20/2023	Analysis Date: 1/23/2023	SeqNo: 3399135	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	41	10	50.00	0	83.0	61.9	130			
Surr: DNOP	5.4		5.000		107	69	147			

Sample ID: LCS-72740	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: LCSS	Batch ID: 72740	RunNo: 94119								
Prep Date: 1/20/2023	Analysis Date: 1/23/2023	SeqNo: 3399136	Units: %Rec							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	5.4		5.000		108	69	147			

Sample ID: MB-72725	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: PBS	Batch ID: 72725	RunNo: 94119								
Prep Date: 1/20/2023	Analysis Date: 1/23/2023	SeqNo: 3399138	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2301712

30-Jan-23

Client: Vertex Resources Services, Inc.

Project: Tomcat 17 Federal 001

Sample ID: MB-72725	SampType: MBLK		TestCode: EPA Method 8015M/D: Diesel Range Organics							
Client ID: PBS	Batch ID: 72725		RunNo: 94119							
Prep Date: 1/20/2023	Analysis Date: 1/23/2023		SeqNo: 3399138		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	9.6		10.00		95.9	69	147			

Sample ID: MB-72726	SampType: MBLK		TestCode: EPA Method 8015M/D: Diesel Range Organics							
Client ID: PBS	Batch ID: 72726		RunNo: 94119							
Prep Date: 1/20/2023	Analysis Date: 1/23/2023		SeqNo: 3399139		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	9.9		10.00		98.5	69	147			

Sample ID: MB-72740	SampType: MBLK		TestCode: EPA Method 8015M/D: Diesel Range Organics							
Client ID: PBS	Batch ID: 72740		RunNo: 94119							
Prep Date: 1/20/2023	Analysis Date: 1/23/2023		SeqNo: 3399140		Units: %Rec					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	12		10.00		116	69	147			

Sample ID: LCS-72755	SampType: LCS		TestCode: EPA Method 8015M/D: Diesel Range Organics							
Client ID: LCSS	Batch ID: 72755		RunNo: 94153							
Prep Date: 1/23/2023	Analysis Date: 1/24/2023		SeqNo: 3399719		Units: %Rec					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	6.5		5.000		129	69	147			

Sample ID: LCS-72769	SampType: LCS		TestCode: EPA Method 8015M/D: Diesel Range Organics							
Client ID: LCSS	Batch ID: 72769		RunNo: 94153							
Prep Date: 1/23/2023	Analysis Date: 1/24/2023		SeqNo: 3399720		Units: %Rec					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	5.5		5.000		109	69	147			

Sample ID: MB-72755	SampType: MBLK		TestCode: EPA Method 8015M/D: Diesel Range Organics							
Client ID: PBS	Batch ID: 72755		RunNo: 94153							
Prep Date: 1/23/2023	Analysis Date: 1/24/2023		SeqNo: 3399722		Units: %Rec					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	13		10.00		126	69	147			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2301712

30-Jan-23

Client: Vertex Resources Services, Inc.

Project: Tomcat 17 Federal 001

Sample ID: MB-72769	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: PBS	Batch ID: 72769	RunNo: 94153								
Prep Date: 1/23/2023	Analysis Date: 1/24/2023	SeqNo: 3399723	Units: %Rec							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	11		10.00		106	69	147			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2301712

30-Jan-23

Client: Vertex Resources Services, Inc.

Project: Tomcat 17 Federal 001

Sample ID: ics-72717	SampType: LCS		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: LCSS	Batch ID: 72717		RunNo: 94108							
Prep Date: 1/19/2023	Analysis Date: 1/21/2023		SeqNo: 3397801		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	20	5.0	25.00	0	80.0	72.3	137			
Surr: BFB	1900		1000		191	37.7	212			

Sample ID: mb-72717	SampType: MBLK		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: PBS	Batch ID: 72717		RunNo: 94108							
Prep Date: 1/19/2023	Analysis Date: 1/21/2023		SeqNo: 3397804		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	1000		1000		100	37.7	212			

Sample ID: ics-72722	SampType: LCS		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: LCSS	Batch ID: 72722		RunNo: 94128							
Prep Date: 1/19/2023	Analysis Date: 1/23/2023		SeqNo: 3398775		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	21	5.0	25.00	0	83.8	72.3	137			
Surr: BFB	2000		1000		195	37.7	212			

Sample ID: ics-72733	SampType: LCS		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: LCSS	Batch ID: 72733		RunNo: 94128							
Prep Date: 1/20/2023	Analysis Date: 1/23/2023		SeqNo: 3398776		Units: %Rec					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	2000		1000		197	37.7	212			

Sample ID: mb-72722	SampType: MBLK		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: PBS	Batch ID: 72722		RunNo: 94128							
Prep Date: 1/19/2023	Analysis Date: 1/23/2023		SeqNo: 3398777		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	1000		1000		102	37.7	212			

Sample ID: mb-72733	SampType: MBLK		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: PBS	Batch ID: 72733		RunNo: 94128							
Prep Date: 1/20/2023	Analysis Date: 1/23/2023		SeqNo: 3398778		Units: %Rec					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	1100		1000		107	37.7	212			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2301712

30-Jan-23

Client: Vertex Resources Services, Inc.

Project: Tomcat 17 Federal 001

Sample ID: 2301712-017ams	SampType: MS	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: BH22-21 2'	Batch ID: 72722	RunNo: 94128								
Prep Date: 1/19/2023	Analysis Date: 1/23/2023	SeqNo: 3398780	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	18	4.9	24.65	0	73.0	70	130			
Surr: BFB	1900		986.2		192	37.7	212			

Sample ID: 2301712-017amsd	SampType: MSD	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: BH22-21 2'	Batch ID: 72722	RunNo: 94128								
Prep Date: 1/19/2023	Analysis Date: 1/24/2023	SeqNo: 3398781	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	18	4.9	24.39	0	72.6	70	130	1.74	20	
Surr: BFB	1900		975.6		198	37.7	212	0	0	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2301712

30-Jan-23

Client: Vertex Resources Services, Inc.

Project: Tomcat 17 Federal 001

Sample ID: LCS-72717	SampType: LCS	TestCode: EPA Method 8021B: Volatiles								
Client ID: LCSS	Batch ID: 72717	RunNo: 94108								
Prep Date: 1/19/2023	Analysis Date: 1/21/2023	SeqNo: 3397873	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.89	0.025	1.000	0	89.1	80	120			
Toluene	0.93	0.050	1.000	0	92.9	80	120			
Ethylbenzene	0.93	0.050	1.000	0	93.1	80	120			
Xylenes, Total	2.8	0.10	3.000	0	92.2	80	120			
Surr: 4-Bromofluorobenzene	0.99		1.000		99.2	70	130			

Sample ID: mb-72717	SampType: MBLK	TestCode: EPA Method 8021B: Volatiles								
Client ID: PBS	Batch ID: 72717	RunNo: 94108								
Prep Date: 1/19/2023	Analysis Date: 1/21/2023	SeqNo: 3397876	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.97		1.000		96.7	70	130			

Sample ID: LCS-72722	SampType: LCS	TestCode: EPA Method 8021B: Volatiles								
Client ID: LCSS	Batch ID: 72722	RunNo: 94128								
Prep Date: 1/19/2023	Analysis Date: 1/23/2023	SeqNo: 3398825	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.89	0.025	1.000	0	88.6	80	120			
Toluene	0.92	0.050	1.000	0	92.1	80	120			
Ethylbenzene	0.93	0.050	1.000	0	93.0	80	120			
Xylenes, Total	2.8	0.10	3.000	0	92.4	80	120			
Surr: 4-Bromofluorobenzene	1.0		1.000		99.9	70	130			

Sample ID: LCS-72733	SampType: LCS	TestCode: EPA Method 8021B: Volatiles								
Client ID: LCSS	Batch ID: 72733	RunNo: 94128								
Prep Date: 1/20/2023	Analysis Date: 1/23/2023	SeqNo: 3398826	Units: %Rec							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.98		1.000		97.8	70	130			

Sample ID: mb-72722	SampType: MBLK	TestCode: EPA Method 8021B: Volatiles								
Client ID: PBS	Batch ID: 72722	RunNo: 94128								
Prep Date: 1/19/2023	Analysis Date: 1/23/2023	SeqNo: 3398827	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2301712

30-Jan-23

Client: Vertex Resources Services, Inc.

Project: Tomcat 17 Federal 001

Sample ID: mb-72722	SampType: MBLK	TestCode: EPA Method 8021B: Volatiles								
Client ID: PBS	Batch ID: 72722	RunNo: 94128								
Prep Date: 1/19/2023	Analysis Date: 1/23/2023	SeqNo: 3398827	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.95		1.000		95.0	70	130			

Sample ID: mb-72733	SampType: MBLK	TestCode: EPA Method 8021B: Volatiles								
Client ID: PBS	Batch ID: 72733	RunNo: 94128								
Prep Date: 1/20/2023	Analysis Date: 1/23/2023	SeqNo: 3398828	Units: %Rec							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.99		1.000		99.2	70	130			

Sample ID: 2301712-018ams	SampType: MS	TestCode: EPA Method 8021B: Volatiles								
Client ID: BH22-21 4'	Batch ID: 72722	RunNo: 94128								
Prep Date: 1/19/2023	Analysis Date: 1/24/2023	SeqNo: 3398831	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.85	0.024	0.9747	0	86.9	68.8	120			
Toluene	0.91	0.049	0.9747	0.01660	91.2	73.6	124			
Ethylbenzene	0.91	0.049	0.9747	0	93.3	72.7	129			
Xylenes, Total	2.7	0.097	2.924	0	92.8	75.7	126			
Surr: 4-Bromofluorobenzene	0.94		0.9747		96.9	70	130			

Sample ID: 2301712-018amsd	SampType: MSD	TestCode: EPA Method 8021B: Volatiles								
Client ID: BH22-21 4'	Batch ID: 72722	RunNo: 94128								
Prep Date: 1/19/2023	Analysis Date: 1/24/2023	SeqNo: 3398832	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.70	0.024	0.9756	0	71.3	68.8	120	19.6	20	
Toluene	0.81	0.049	0.9756	0.01660	81.8	73.6	124	10.6	20	
Ethylbenzene	0.83	0.049	0.9756	0	85.4	72.7	129	8.78	20	
Xylenes, Total	2.5	0.098	2.927	0	84.8	75.7	126	8.93	20	
Surr: 4-Bromofluorobenzene	0.94		0.9756		96.1	70	130	0	0	

Qualifiers:

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



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

Sample Log-In Check List

Client Name: Vertex Resources Services, Inc. Work Order Number: 2301712 RcptNo: 1

Received By: Juan Rojas 1/19/2023 7:20:00 AM

Juan Rojas

Completed By: Sean Livingston 1/19/2023 8:27:53 AM

Sean Livingston

Reviewed By: KPG 1/19/23

Chain of Custody

1. Is Chain of Custody complete? Yes No Not Present

2. How was the sample delivered? Courier

Log In

3. Was an attempt made to cool the samples? Yes No NA

4. Were all samples received at a temperature of >0° C to 6.0°C Yes No NA

5. Sample(s) in proper container(s)? Yes No

6. Sufficient sample volume for indicated test(s)? Yes No

7. Are samples (except VOA and ONG) properly preserved? Yes No

8. Was preservative added to bottles? Yes No NA

9. Received at least 1 vial with headspace <1/4" for AQ VOA? Yes No NA

10. Were any sample containers received broken? Yes No

11. Does paperwork match bottle labels? Yes No

(Note discrepancies on chain of custody)

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

(If no, notify customer for authorization.)

of preserved bottles checked for pH: _____
(<2 or >12 unless noted)
Adjusted? _____
Checked by: *gm/1/19/23*

Special Handling (if applicable)

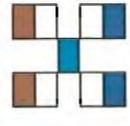
15. Was client notified of all discrepancies with this order? Yes No NA

Person Notified:	<input type="text"/>	Date:	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	<input type="text"/>		

16. Additional remarks:

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	4.4	Good	Not Present	Morty		



HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Turn-Around Time: Standard Rush 5 Day

Project Name: Tomcat 17 Federal #001

Project #: 22E-02816-27

Project Manager: Kent Stallings
kstallings@vertex.ca

Sampler: L. Pullman

On Ice: Yes No

of Coolers: 1

Cooler Temp (including CF): 4.4-5.4

Container Type and #	Preservative Type	HEAL No.
1, 4oz jar		025
1, 4oz jar		026
1, 4oz jar		027
1, 4oz jar		028
1, 4oz jar		029
1, 4oz jar		030
1, 4oz jar		031
1, 4oz jar		032
1, 4oz jar		033
1, 4oz jar		034
1, 4oz jar		035
1, 4oz jar		036

Client: Vertex
 (direct bill to Devon)

Mailing Address:

Phone #: 22E-02816-27

email or Fax#:

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

Accreditation: Az Compliance NELAC Other EDD (Type)

Date	Time	Matrix	Sample Name
01/17/23	8:55	Soil	BH22-24 0'
01/17/23	9:00	Soil	BH22-24 2'
01/17/23	9:05	Soil	BH22-24 4'
01/17/23	9:15	Soil	BH22-25 0'
01/17/23	9:20	Soil	BH22-25 2'
01/17/23	9:25	Soil	BH22-25 4'
01/16/23	9:45	Soil	BH22-26 4'
01/16/23	9:50	Soil	BH22-26 6'
01/16/23	9:55	Soil	BH22-26 8'
01/16/23	10:05	Soil	BH22-27 4'
01/16/23	10:10	Soil	BH22-27 6'
01/16/23	10:15	Soil	BH22-27 8'

Received by: [Signature] Date: 1/18/23 Time: 700

Received by: [Signature] Date: 1/19/23 Time: 7:20

Analysis Request										
BTEX / MTBE / TMBs (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCBs	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO ₃ , NO ₂ , PO ₄ , SO ₄	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)	
X	X					X				
X	X					X				
X	X					X				
X	X					X				
X	X					X				
X	X					X				
X	X					X				
X	X					X				
X	X					X				
X	X					X				
X	X					X				
X	X					X				
X	X					X				
X	X					X				

Remarks:
 Direct bill to Devon, Dale Woodall
 cc. kstallings@vertex.ca for Final Report

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



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

December 21, 2022

Kent Stallings

Vertex Resources Services, Inc.

3101 Boyd Drive

Carlsbad, NM 88220

TEL: (505) 506-0040

FAX:

RE: Tomcat 17 Federal 001

OrderNo.: 2212806

Dear Kent Stallings:

Hall Environmental Analysis Laboratory received 17 sample(s) on 12/14/2022 for the analyses presented in the following report.

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

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

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

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', is written over a white background.

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

Analytical Report

Lab Order **2212806**

Date Reported: **12/21/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: WS22-01 0-2'

Project: Tomcat 17 Federal 001

Collection Date: 12/12/2022 7:45:00 AM

Lab ID: 2212806-001

Matrix: SOIL

Received Date: 12/14/2022 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	12/16/2022 6:01:13 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/16/2022 6:01:13 PM
Surr: DNOP	109	21-129		%Rec	1	12/16/2022 6:01:13 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: CCM
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	12/16/2022 12:47:00 PM
Surr: BFB	103	37.7-212		%Rec	1	12/16/2022 12:47:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: CCM
Benzene	ND	0.025		mg/Kg	1	12/16/2022 12:47:00 PM
Toluene	ND	0.050		mg/Kg	1	12/16/2022 12:47:00 PM
Ethylbenzene	ND	0.050		mg/Kg	1	12/16/2022 12:47:00 PM
Xylenes, Total	ND	0.099		mg/Kg	1	12/16/2022 12:47:00 PM
Surr: 4-Bromofluorobenzene	108	70-130		%Rec	1	12/16/2022 12:47:00 PM
EPA METHOD 300.0: ANIONS						Analyst: NAI
Chloride	110	60		mg/Kg	20	12/16/2022 12:29:01 PM

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

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

Analytical Report

Lab Order **2212806**

Date Reported: **12/21/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: WS22-02 0-2'

Project: Tomcat 17 Federal 001

Collection Date: 12/12/2022 7:55:00 AM

Lab ID: 2212806-002

Matrix: SOIL

Received Date: 12/14/2022 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	12/16/2022 6:32:52 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/16/2022 6:32:52 PM
Surr: DNOP	123	21-129		%Rec	1	12/16/2022 6:32:52 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: CCM
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	12/16/2022 1:46:00 PM
Surr: BFB	96.8	37.7-212		%Rec	1	12/16/2022 1:46:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: CCM
Benzene	ND	0.025		mg/Kg	1	12/16/2022 1:46:00 PM
Toluene	ND	0.050		mg/Kg	1	12/16/2022 1:46:00 PM
Ethylbenzene	ND	0.050		mg/Kg	1	12/16/2022 1:46:00 PM
Xylenes, Total	ND	0.099		mg/Kg	1	12/16/2022 1:46:00 PM
Surr: 4-Bromofluorobenzene	106	70-130		%Rec	1	12/16/2022 1:46:00 PM
EPA METHOD 300.0: ANIONS						Analyst: NAI
Chloride	ND	60		mg/Kg	20	12/16/2022 1:06:14 PM

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

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

Analytical Report

Lab Order **2212806**

Date Reported: **12/21/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: WS22-03 0-2'

Project: Tomcat 17 Federal 001

Collection Date: 12/12/2022 8:00:00 AM

Lab ID: 2212806-003

Matrix: SOIL

Received Date: 12/14/2022 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	12/16/2022 6:43:31 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/16/2022 6:43:31 PM
Surr: DNOP	104	21-129		%Rec	1	12/16/2022 6:43:31 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: CCM
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	12/16/2022 2:45:00 PM
Surr: BFB	102	37.7-212		%Rec	1	12/16/2022 2:45:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: CCM
Benzene	ND	0.025		mg/Kg	1	12/16/2022 2:45:00 PM
Toluene	ND	0.050		mg/Kg	1	12/16/2022 2:45:00 PM
Ethylbenzene	ND	0.050		mg/Kg	1	12/16/2022 2:45:00 PM
Xylenes, Total	ND	0.099		mg/Kg	1	12/16/2022 2:45:00 PM
Surr: 4-Bromofluorobenzene	110	70-130		%Rec	1	12/16/2022 2:45:00 PM
EPA METHOD 300.0: ANIONS						Analyst: NAI
Chloride	170	60		mg/Kg	20	12/16/2022 1:43:26 PM

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

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

Analytical Report

Lab Order **2212806**

Date Reported: **12/21/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: WS22-04 0-2'

Project: Tomcat 17 Federal 001

Collection Date: 12/12/2022 8:05:00 AM

Lab ID: 2212806-004

Matrix: SOIL

Received Date: 12/14/2022 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	12/16/2022 6:54:12 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/16/2022 6:54:12 PM
Surr: DNOP	104	21-129		%Rec	1	12/16/2022 6:54:12 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: CCM
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	12/16/2022 3:05:00 PM
Surr: BFB	109	37.7-212		%Rec	1	12/16/2022 3:05:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: CCM
Benzene	ND	0.025		mg/Kg	1	12/16/2022 3:05:00 PM
Toluene	ND	0.049		mg/Kg	1	12/16/2022 3:05:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	12/16/2022 3:05:00 PM
Xylenes, Total	ND	0.098		mg/Kg	1	12/16/2022 3:05:00 PM
Surr: 4-Bromofluorobenzene	110	70-130		%Rec	1	12/16/2022 3:05:00 PM
EPA METHOD 300.0: ANIONS						Analyst: NAI
Chloride	150	60		mg/Kg	20	12/16/2022 2:20:39 PM

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

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

Analytical Report

Lab Order **2212806**

Date Reported: **12/21/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: WS22-05 0-2'

Project: Tomcat 17 Federal 001

Collection Date: 12/12/2022 8:10:00 AM

Lab ID: 2212806-005

Matrix: SOIL

Received Date: 12/14/2022 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	12/16/2022 7:04:53 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	12/16/2022 7:04:53 PM
Surr: DNOP	101	21-129		%Rec	1	12/16/2022 7:04:53 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: CCM
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	12/16/2022 3:24:00 PM
Surr: BFB	93.9	37.7-212		%Rec	1	12/16/2022 3:24:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: CCM
Benzene	ND	0.025		mg/Kg	1	12/16/2022 3:24:00 PM
Toluene	ND	0.049		mg/Kg	1	12/16/2022 3:24:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	12/16/2022 3:24:00 PM
Xylenes, Total	ND	0.099		mg/Kg	1	12/16/2022 3:24:00 PM
Surr: 4-Bromofluorobenzene	103	70-130		%Rec	1	12/16/2022 3:24:00 PM
EPA METHOD 300.0: ANIONS						Analyst: NAI
Chloride	ND	60		mg/Kg	20	12/16/2022 2:33:04 PM

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

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

Analytical Report

Lab Order **2212806**

Date Reported: **12/21/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: WS22-06 0-4'

Project: Tomcat 17 Federal 001

Collection Date: 12/12/2022 9:00:00 AM

Lab ID: 2212806-006

Matrix: SOIL

Received Date: 12/14/2022 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	12/16/2022 7:15:33 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/16/2022 7:15:33 PM
Surr: DNOP	103	21-129		%Rec	1	12/16/2022 7:15:33 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: CCM
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/16/2022 3:44:00 PM
Surr: BFB	101	37.7-212		%Rec	1	12/16/2022 3:44:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: CCM
Benzene	ND	0.024		mg/Kg	1	12/16/2022 3:44:00 PM
Toluene	ND	0.048		mg/Kg	1	12/16/2022 3:44:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	12/16/2022 3:44:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	12/16/2022 3:44:00 PM
Surr: 4-Bromofluorobenzene	107	70-130		%Rec	1	12/16/2022 3:44:00 PM
EPA METHOD 300.0: ANIONS						Analyst: NAI
Chloride	ND	61		mg/Kg	20	12/16/2022 2:45:28 PM

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

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

Analytical Report

Lab Order **2212806**

Date Reported: **12/21/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: WS22-07 0-4'

Project: Tomcat 17 Federal 001

Collection Date: 12/12/2022 9:05:00 AM

Lab ID: 2212806-007

Matrix: SOIL

Received Date: 12/14/2022 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	12/16/2022 7:26:14 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	12/16/2022 7:26:14 PM
Surr: DNOP	106	21-129		%Rec	1	12/16/2022 7:26:14 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: CCM
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	12/16/2022 4:04:00 PM
Surr: BFB	101	37.7-212		%Rec	1	12/16/2022 4:04:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: CCM
Benzene	ND	0.025		mg/Kg	1	12/16/2022 4:04:00 PM
Toluene	ND	0.049		mg/Kg	1	12/16/2022 4:04:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	12/16/2022 4:04:00 PM
Xylenes, Total	ND	0.099		mg/Kg	1	12/16/2022 4:04:00 PM
Surr: 4-Bromofluorobenzene	110	70-130		%Rec	1	12/16/2022 4:04:00 PM
EPA METHOD 300.0: ANIONS						Analyst: NAI
Chloride	140	60		mg/Kg	20	12/16/2022 2:57:53 PM

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

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

Analytical Report

Lab Order **2212806**

Date Reported: **12/21/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: WS22-08 0-4'

Project: Tomcat 17 Federal 001

Collection Date: 12/12/2022 9:10:00 AM

Lab ID: 2212806-008

Matrix: SOIL

Received Date: 12/14/2022 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	12/16/2022 7:36:51 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	12/16/2022 7:36:51 PM
Surr: DNOP	112	21-129		%Rec	1	12/16/2022 7:36:51 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: CCM
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	12/16/2022 4:23:00 PM
Surr: BFB	103	37.7-212		%Rec	1	12/16/2022 4:23:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: CCM
Benzene	ND	0.025		mg/Kg	1	12/16/2022 4:23:00 PM
Toluene	ND	0.050		mg/Kg	1	12/16/2022 4:23:00 PM
Ethylbenzene	ND	0.050		mg/Kg	1	12/16/2022 4:23:00 PM
Xylenes, Total	ND	0.10		mg/Kg	1	12/16/2022 4:23:00 PM
Surr: 4-Bromofluorobenzene	110	70-130		%Rec	1	12/16/2022 4:23:00 PM
EPA METHOD 300.0: ANIONS						Analyst: NAI
Chloride	150	60		mg/Kg	20	12/16/2022 3:10:17 PM

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

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

Analytical Report

Lab Order **2212806**

Date Reported: **12/21/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: WS22-09 0-4'

Project: Tomcat 17 Federal 001

Collection Date: 12/12/2022 9:15:00 AM

Lab ID: 2212806-009

Matrix: SOIL

Received Date: 12/14/2022 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	12/16/2022 7:57:56 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/16/2022 7:57:56 PM
Surr: DNOP	105	21-129		%Rec	1	12/16/2022 7:57:56 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: CCM
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/16/2022 4:43:00 PM
Surr: BFB	96.7	37.7-212		%Rec	1	12/16/2022 4:43:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: CCM
Benzene	ND	0.024		mg/Kg	1	12/16/2022 4:43:00 PM
Toluene	ND	0.048		mg/Kg	1	12/16/2022 4:43:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	12/16/2022 4:43:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	12/16/2022 4:43:00 PM
Surr: 4-Bromofluorobenzene	105	70-130		%Rec	1	12/16/2022 4:43:00 PM
EPA METHOD 300.0: ANIONS						Analyst: NAI
Chloride	ND	60		mg/Kg	20	12/16/2022 3:22:42 PM

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

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

Analytical Report

Lab Order **2212806**

Date Reported: **12/21/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: WS22-10 0-4'

Project: Tomcat 17 Federal 001

Collection Date: 12/12/2022 9:30:00 AM

Lab ID: 2212806-010

Matrix: SOIL

Received Date: 12/14/2022 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	12/16/2022 8:08:36 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	12/16/2022 8:08:36 PM
Surr: DNOP	125	21-129		%Rec	1	12/16/2022 8:08:36 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: CCM
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	12/16/2022 5:02:00 PM
Surr: BFB	97.4	37.7-212		%Rec	1	12/16/2022 5:02:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: CCM
Benzene	ND	0.025		mg/Kg	1	12/16/2022 5:02:00 PM
Toluene	ND	0.050		mg/Kg	1	12/16/2022 5:02:00 PM
Ethylbenzene	ND	0.050		mg/Kg	1	12/16/2022 5:02:00 PM
Xylenes, Total	ND	0.099		mg/Kg	1	12/16/2022 5:02:00 PM
Surr: 4-Bromofluorobenzene	107	70-130		%Rec	1	12/16/2022 5:02:00 PM
EPA METHOD 300.0: ANIONS						Analyst: NAI
Chloride	ND	60		mg/Kg	20	12/16/2022 3:35:06 PM

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

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

Analytical Report

Lab Order **2212806**

Date Reported: **12/21/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: WS22-11 0-4'

Project: Tomcat 17 Federal 001

Collection Date: 12/12/2022 9:35:00 AM

Lab ID: 2212806-011

Matrix: SOIL

Received Date: 12/14/2022 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	12/16/2022 8:19:13 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	12/16/2022 8:19:13 PM
Surr: DNOP	155	21-129	S	%Rec	1	12/16/2022 8:19:13 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: CCM
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	12/16/2022 5:42:00 PM
Surr: BFB	106	37.7-212		%Rec	1	12/16/2022 5:42:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: CCM
Benzene	ND	0.025		mg/Kg	1	12/16/2022 5:42:00 PM
Toluene	ND	0.050		mg/Kg	1	12/16/2022 5:42:00 PM
Ethylbenzene	ND	0.050		mg/Kg	1	12/16/2022 5:42:00 PM
Xylenes, Total	ND	0.099		mg/Kg	1	12/16/2022 5:42:00 PM
Surr: 4-Bromofluorobenzene	107	70-130		%Rec	1	12/16/2022 5:42:00 PM
EPA METHOD 300.0: ANIONS						Analyst: NAI
Chloride	250	60		mg/Kg	20	12/16/2022 4:12:19 PM

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

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

Analytical Report

Lab Order **2212806**

Date Reported: **12/21/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: WS22-12 2-4'

Project: Tomcat 17 Federal 001

Collection Date: 12/12/2022 9:40:00 AM

Lab ID: 2212806-012

Matrix: SOIL

Received Date: 12/14/2022 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	12/16/2022 8:29:51 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/16/2022 8:29:51 PM
Surr: DNOP	109	21-129		%Rec	1	12/16/2022 8:29:51 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: CCM
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	12/16/2022 6:01:00 PM
Surr: BFB	98.4	37.7-212		%Rec	1	12/16/2022 6:01:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: CCM
Benzene	ND	0.024		mg/Kg	1	12/16/2022 6:01:00 PM
Toluene	ND	0.049		mg/Kg	1	12/16/2022 6:01:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	12/16/2022 6:01:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	12/16/2022 6:01:00 PM
Surr: 4-Bromofluorobenzene	108	70-130		%Rec	1	12/16/2022 6:01:00 PM
EPA METHOD 300.0: ANIONS						Analyst: NAI
Chloride	ND	60		mg/Kg	20	12/16/2022 5:14:21 PM

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

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

Analytical Report

Lab Order **2212806**

Date Reported: **12/21/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: WS22-13 0-4'

Project: Tomcat 17 Federal 001

Collection Date: 12/12/2022 10:00:00 AM

Lab ID: 2212806-013

Matrix: SOIL

Received Date: 12/14/2022 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	12/16/2022 8:40:28 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	12/16/2022 8:40:28 PM
Surr: DNOP	97.1	21-129		%Rec	1	12/16/2022 8:40:28 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: CCM
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	12/16/2022 6:21:00 PM
Surr: BFB	95.2	37.7-212		%Rec	1	12/16/2022 6:21:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: CCM
Benzene	ND	0.024		mg/Kg	1	12/16/2022 6:21:00 PM
Toluene	ND	0.049		mg/Kg	1	12/16/2022 6:21:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	12/16/2022 6:21:00 PM
Xylenes, Total	ND	0.098		mg/Kg	1	12/16/2022 6:21:00 PM
Surr: 4-Bromofluorobenzene	107	70-130		%Rec	1	12/16/2022 6:21:00 PM
EPA METHOD 300.0: ANIONS						Analyst: NAI
Chloride	ND	61		mg/Kg	20	12/16/2022 5:51:34 PM

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

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

Analytical Report

Lab Order **2212806**

Date Reported: **12/21/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS22-01 2'

Project: Tomcat 17 Federal 001

Collection Date: 12/12/2022 8:30:00 AM

Lab ID: 2212806-014

Matrix: SOIL

Received Date: 12/14/2022 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	12/16/2022 8:51:01 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	12/16/2022 8:51:01 PM
Surr: DNOP	104	21-129		%Rec	1	12/16/2022 8:51:01 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: CCM
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/16/2022 6:41:00 PM
Surr: BFB	99.8	37.7-212		%Rec	1	12/16/2022 6:41:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: CCM
Benzene	ND	0.024		mg/Kg	1	12/16/2022 6:41:00 PM
Toluene	ND	0.048		mg/Kg	1	12/16/2022 6:41:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	12/16/2022 6:41:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	12/16/2022 6:41:00 PM
Surr: 4-Bromofluorobenzene	107	70-130		%Rec	1	12/16/2022 6:41:00 PM
EPA METHOD 300.0: ANIONS						Analyst: NAI
Chloride	ND	59		mg/Kg	20	12/16/2022 6:03:58 PM

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

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

Analytical Report

Lab Order **2212806**

Date Reported: **12/21/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS22-02 2'

Project: Tomcat 17 Federal 001

Collection Date: 12/12/2022 8:35:00 AM

Lab ID: 2212806-015

Matrix: SOIL

Received Date: 12/14/2022 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	12/16/2022 9:01:37 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	12/16/2022 9:01:37 PM
Surr: DNOP	98.8	21-129		%Rec	1	12/16/2022 9:01:37 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: CCM
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	12/16/2022 7:00:00 PM
Surr: BFB	98.3	37.7-212		%Rec	1	12/16/2022 7:00:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: CCM
Benzene	ND	0.025		mg/Kg	1	12/16/2022 7:00:00 PM
Toluene	ND	0.049		mg/Kg	1	12/16/2022 7:00:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	12/16/2022 7:00:00 PM
Xylenes, Total	ND	0.099		mg/Kg	1	12/16/2022 7:00:00 PM
Surr: 4-Bromofluorobenzene	107	70-130		%Rec	1	12/16/2022 7:00:00 PM
EPA METHOD 300.0: ANIONS						Analyst: NAI
Chloride	100	60		mg/Kg	20	12/16/2022 6:16:22 PM

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

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

Analytical Report

Lab Order **2212806**

Date Reported: **12/21/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS22-03 2'

Project: Tomcat 17 Federal 001

Collection Date: 12/12/2022 8:40:00 AM

Lab ID: 2212806-016

Matrix: SOIL

Received Date: 12/14/2022 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	12/16/2022 9:12:10 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	12/16/2022 9:12:10 PM
Surr: DNOP	118	21-129		%Rec	1	12/16/2022 9:12:10 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: CCM
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	12/16/2022 7:20:00 PM
Surr: BFB	99.9	37.7-212		%Rec	1	12/16/2022 7:20:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: CCM
Benzene	ND	0.025		mg/Kg	1	12/16/2022 7:20:00 PM
Toluene	ND	0.050		mg/Kg	1	12/16/2022 7:20:00 PM
Ethylbenzene	ND	0.050		mg/Kg	1	12/16/2022 7:20:00 PM
Xylenes, Total	ND	0.10		mg/Kg	1	12/16/2022 7:20:00 PM
Surr: 4-Bromofluorobenzene	108	70-130		%Rec	1	12/16/2022 7:20:00 PM
EPA METHOD 300.0: ANIONS						Analyst: NAI
Chloride	ND	60		mg/Kg	20	12/16/2022 6:28:46 PM

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

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

Analytical Report

Lab Order **2212806**

Date Reported: **12/21/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS22-04 2'

Project: Tomcat 17 Federal 001

Collection Date: 12/12/2022 8:45:00 AM

Lab ID: 2212806-017

Matrix: SOIL

Received Date: 12/14/2022 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	12/16/2022 9:22:44 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/16/2022 9:22:44 PM
Surr: DNOP	97.6	21-129		%Rec	1	12/16/2022 9:22:44 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: CCM
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	12/16/2022 7:40:00 PM
Surr: BFB	105	37.7-212		%Rec	1	12/16/2022 7:40:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: CCM
Benzene	ND	0.024		mg/Kg	1	12/16/2022 7:40:00 PM
Toluene	ND	0.049		mg/Kg	1	12/16/2022 7:40:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	12/16/2022 7:40:00 PM
Xylenes, Total	ND	0.098		mg/Kg	1	12/16/2022 7:40:00 PM
Surr: 4-Bromofluorobenzene	108	70-130		%Rec	1	12/16/2022 7:40:00 PM
EPA METHOD 300.0: ANIONS						Analyst: NAI
Chloride	ND	60		mg/Kg	20	12/16/2022 6:41:10 PM

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2212806

21-Dec-22

Client: Vertex Resources Services, Inc.

Project: Tomcat 17 Federal 001

Sample ID: MB-72139	SampType: mblk	TestCode: EPA Method 300.0: Anions								
Client ID: PBS	Batch ID: 72139	RunNo: 93360								
Prep Date: 12/16/2022	Analysis Date: 12/16/2022	SeqNo: 3367761			Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: LCS-72139	SampType: ics	TestCode: EPA Method 300.0: Anions								
Client ID: LCSS	Batch ID: 72139	RunNo: 93360								
Prep Date: 12/16/2022	Analysis Date: 12/16/2022	SeqNo: 3367762			Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	15	1.5	15.00	0	97.4	90	110			

Sample ID: MB-72145	SampType: mblk	TestCode: EPA Method 300.0: Anions								
Client ID: PBS	Batch ID: 72145	RunNo: 93360								
Prep Date: 12/16/2022	Analysis Date: 12/16/2022	SeqNo: 3367791			Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: LCS-72145	SampType: ics	TestCode: EPA Method 300.0: Anions								
Client ID: LCSS	Batch ID: 72145	RunNo: 93360								
Prep Date: 12/16/2022	Analysis Date: 12/16/2022	SeqNo: 3367792			Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	15	1.5	15.00	0	97.0	90	110			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2212806

21-Dec-22

Client: Vertex Resources Services, Inc.

Project: Tomcat 17 Federal 001

Sample ID: LCS-72125	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: LCSS	Batch ID: 72125	RunNo: 93380								
Prep Date: 12/15/2022	Analysis Date: 12/16/2022	SeqNo: 3367303	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	41	15	50.00	0	82.3	64.4	127			
Surr: DNOP	5.0		5.000		101	21	129			

Sample ID: MB-72125	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: PBS	Batch ID: 72125	RunNo: 93380								
Prep Date: 12/15/2022	Analysis Date: 12/16/2022	SeqNo: 3367305	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	15								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	9.6		10.00		95.7	21	129			

Sample ID: 2212806-001AMS	SampType: MS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: WS22-01 0-2'	Batch ID: 72125	RunNo: 93380								
Prep Date: 12/15/2022	Analysis Date: 12/16/2022	SeqNo: 3369622	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	31	15	48.73	0	62.9	36.1	154			
Surr: DNOP	4.5		4.873		91.4	21	129			

Sample ID: 2212806-001AMSD	SampType: MSD	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: WS22-01 0-2'	Batch ID: 72125	RunNo: 93380								
Prep Date: 12/15/2022	Analysis Date: 12/16/2022	SeqNo: 3369623	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	46	14	47.71	0	97.0	36.1	154	40.6	33.9	R
Surr: DNOP	6.1		4.771		128	21	129	0	0	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2212806

21-Dec-22

Client: Vertex Resources Services, Inc.

Project: Tomcat 17 Federal 001

Sample ID: ics-72084	SampType: LCS		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: LCSS	Batch ID: 72084		RunNo: 93374							
Prep Date: 12/14/2022	Analysis Date: 12/16/2022		SeqNo: 3366972		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	5.0	25.00	0	93.6	72.3	137			
Surr: BFB	2200		1000		219	37.7	212			S

Sample ID: mb-72084	SampType: MBLK		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: PBS	Batch ID: 72084		RunNo: 93374							
Prep Date: 12/14/2022	Analysis Date: 12/16/2022		SeqNo: 3366973		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	1000		1000		101	37.7	212			

Sample ID: 2212806-001ams	SampType: MS		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: WS22-01 0-2'	Batch ID: 72084		RunNo: 93374							
Prep Date: 12/14/2022	Analysis Date: 12/16/2022		SeqNo: 3366975		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	4.9	24.70	0	95.3	70	130			
Surr: BFB	2200		988.1		222	37.7	212			S

Sample ID: 2212806-001amsd	SampType: MSD		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: WS22-01 0-2'	Batch ID: 72084		RunNo: 93374							
Prep Date: 12/14/2022	Analysis Date: 12/16/2022		SeqNo: 3366976		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	5.0	24.80	0	95.9	70	130	0.982	20	
Surr: BFB	2200		992.1		217	37.7	212	0	0	S

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2212806

21-Dec-22

Client: Vertex Resources Services, Inc.

Project: Tomcat 17 Federal 001

Sample ID: ics-72084	SampType: LCS		TestCode: EPA Method 8021B: Volatiles							
Client ID: LCSS	Batch ID: 72084		RunNo: 93374							
Prep Date: 12/14/2022	Analysis Date: 12/16/2022		SeqNo: 3366994		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.92	0.025	1.000	0	92.1	80	120			
Toluene	0.94	0.050	1.000	0	94.0	80	120			
Ethylbenzene	0.94	0.050	1.000	0	94.1	80	120			
Xylenes, Total	2.8	0.10	3.000	0	93.8	80	120			
Surr: 4-Bromofluorobenzene	1.1		1.000		106	70	130			

Sample ID: mb-72084	SampType: MBLK		TestCode: EPA Method 8021B: Volatiles							
Client ID: PBS	Batch ID: 72084		RunNo: 93374							
Prep Date: 12/14/2022	Analysis Date: 12/16/2022		SeqNo: 3366995		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.1		1.000		106	70	130			

Sample ID: 2212806-002ams	SampType: MS		TestCode: EPA Method 8021B: Volatiles							
Client ID: WS22-02 0-2'	Batch ID: 72084		RunNo: 93374							
Prep Date: 12/14/2022	Analysis Date: 12/16/2022		SeqNo: 3367000		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.025	0.9950	0	103	68.8	120			
Toluene	1.0	0.050	0.9950	0	105	73.6	124			
Ethylbenzene	1.1	0.050	0.9950	0	106	72.7	129			
Xylenes, Total	3.2	0.10	2.985	0	107	75.7	126			
Surr: 4-Bromofluorobenzene	1.1		0.9950		108	70	130			

Sample ID: 2212806-002amsd	SampType: MSD		TestCode: EPA Method 8021B: Volatiles							
Client ID: WS22-02 0-2'	Batch ID: 72084		RunNo: 93374							
Prep Date: 12/14/2022	Analysis Date: 12/16/2022		SeqNo: 3367001		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.025	0.9930	0	102	68.8	120	0.816	20	
Toluene	1.0	0.050	0.9930	0	106	73.6	124	0.306	20	
Ethylbenzene	1.1	0.050	0.9930	0	107	72.7	129	0.532	20	
Xylenes, Total	3.2	0.099	2.979	0	107	75.7	126	0.705	20	
Surr: 4-Bromofluorobenzene	1.1		0.9930		108	70	130	0	0	

Qualifiers:

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



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

Sample Log-In Check List

Client Name: Vertex Resources Services, Inc.

Work Order Number: 2212806

RcptNo: 1

Received By: Cheyenne Cason 12/14/2022 7:30:00 AM

Completed By: Sean Livingston 12/14/2022 8:16:32 AM

Reviewed By: TME 12/14/22

Handwritten signatures and initials

Chain of Custody

- 1. Is Chain of Custody complete? Yes [checked] No [] Not Present []
2. How was the sample delivered? Courier

Log In

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

Samples were collected the same day and chilled.

of preserved bottles checked for pH: (<2 or >12 unless noted)
Adjusted?
Checked by: [Signature] 12-14-22

Special Handling (if applicable)

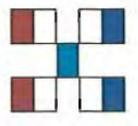
- 15. Was client notified of all discrepancies with this order? Yes [] No [] NA [checked]

Person Notified: [] Date: []
By Whom: [] Via: [] eMail [] Phone [] Fax [] In Person []
Regarding: []
Client Instructions: []

16. Additional remarks:

17. Cooler Information

Table with 7 columns: Cooler No, Temp °C, Condition, Seal Intact, Seal No, Seal Date, Signed By. Row 1: 1, -1.3, Good, [], [], []



Receive On Call: 314-224-3266 by Record
 Client: Vertex
 (direct bill to Devon)
 Mailing Address:
 Phone #:
 email or Fax#:
 QA/QC Package:
 Standard Level 4 (Full Validation)
 Accreditation: Az Compliance Other
 NELAC Other
 EDD (Type)

Turn-Around Time:
 Standard Rush 5 Day
 Project Name:
 Tomcat 17 Federal #001
 Project #:
 22E-02816-27

Project Manager:
 Kent Stallings
kstallings@vertex.ca
 Sampler: L. Pullman
 On Ice: Yes No
 # of Coolers: 1
 Cooler Temp (including CF): -1.1 - 0.2 = -1.3

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCBs	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO ₃ , NO ₂ , PO ₄ , SO ₄	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
12/12/22	10:00	Soil	WS22-13 0-4'	1, 4oz jar		013	X	X					X			
12/12/22	8:30	Soil	BS22-01 2'	1, 4oz jar		014	X	X					X			
12/12/22	8:35	Soil	BS22-02 2'	1, 4oz jar		015	X	X					X			
12/12/22	8:40	Soil	BS22-03 2'	1, 4oz jar		016	X	X					X			
12/12/22	8:45	Soil	BS22-04 2'	1, 4oz jar		017	X	X					X			

Analysis Request
 Remarks:
 Direct bill to Devon, Dale Woodall
 cc. kstallings@vertex.ca for Final Report

Relinquished by: Sally Woodall Date: 12-13-22 07:00
 Relinquished by: One Date: 12/13/22 19:00

Received by: Stallings Date: 12/13/22 7:00
 Received by: One Date: 12/13/22 19:00



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

December 21, 2022

Kent Stallings

Vertex Resources Services, Inc.

3101 Boyd Drive

Carlsbad, NM 88220

TEL: (505) 506-0040

FAX:

RE: Tomcat 17 Federal 1

OrderNo.: 2212905

Dear Kent Stallings:

Hall Environmental Analysis Laboratory received 5 sample(s) on 12/15/2022 for the analyses presented in the following report.

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

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

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

Sincerely,

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

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

Analytical Report

Lab Order **2212905**

Date Reported: **12/21/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS22-05 4'

Project: Tomcat 17 Federal 1

Collection Date: 12/13/2022 9:20:00 AM

Lab ID: 2212905-001

Matrix: SOIL

Received Date: 12/15/2022 7:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	12/16/2022 6:59:57 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/16/2022 6:59:57 PM
Surr: DNOP	105	21-129		%Rec	1	12/16/2022 6:59:57 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	12/17/2022 8:02:46 AM
Surr: BFB	82.3	37.7-212		%Rec	1	12/17/2022 8:02:46 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.025		mg/Kg	1	12/17/2022 8:02:46 AM
Toluene	ND	0.049		mg/Kg	1	12/17/2022 8:02:46 AM
Ethylbenzene	ND	0.049		mg/Kg	1	12/17/2022 8:02:46 AM
Xylenes, Total	ND	0.098		mg/Kg	1	12/17/2022 8:02:46 AM
Surr: 4-Bromofluorobenzene	80.2	70-130		%Rec	1	12/17/2022 8:02:46 AM
EPA METHOD 300.0: ANIONS						Analyst: NAI
Chloride	2000	60		mg/Kg	20	12/16/2022 8:08:00 PM

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

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

Analytical Report

Lab Order **2212905**

Date Reported: **12/21/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS22-06 4'

Project: Tomcat 17 Federal 1

Collection Date: 12/13/2022 1:30:00 PM

Lab ID: 2212905-002

Matrix: SOIL

Received Date: 12/15/2022 7:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	12/16/2022 7:23:51 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/16/2022 7:23:51 PM
Surr: DNOP	111	21-129		%Rec	1	12/16/2022 7:23:51 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/17/2022 9:11:46 AM
Surr: BFB	80.3	37.7-212		%Rec	1	12/17/2022 9:11:46 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	12/17/2022 9:11:46 AM
Toluene	ND	0.048		mg/Kg	1	12/17/2022 9:11:46 AM
Ethylbenzene	ND	0.048		mg/Kg	1	12/17/2022 9:11:46 AM
Xylenes, Total	ND	0.097		mg/Kg	1	12/17/2022 9:11:46 AM
Surr: 4-Bromofluorobenzene	84.0	70-130		%Rec	1	12/17/2022 9:11:46 AM
EPA METHOD 300.0: ANIONS						Analyst: CAS
Chloride	4400	150		mg/Kg	50	12/19/2022 10:51:23 AM

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

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

Analytical Report

Lab Order **2212905**

Date Reported: **12/21/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS22-07 4'

Project: Tomcat 17 Federal 1

Collection Date: 12/13/2022 2:50:00 PM

Lab ID: 2212905-003

Matrix: SOIL

Received Date: 12/15/2022 7:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	12/16/2022 7:47:39 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	12/16/2022 7:47:39 PM
Surr: DNOP	102	21-129		%Rec	1	12/16/2022 7:47:39 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/17/2022 10:20:56 AM
Surr: BFB	80.0	37.7-212		%Rec	1	12/17/2022 10:20:56 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	12/17/2022 10:20:56 AM
Toluene	ND	0.048		mg/Kg	1	12/17/2022 10:20:56 AM
Ethylbenzene	ND	0.048		mg/Kg	1	12/17/2022 10:20:56 AM
Xylenes, Total	ND	0.097		mg/Kg	1	12/17/2022 10:20:56 AM
Surr: 4-Bromofluorobenzene	83.0	70-130		%Rec	1	12/17/2022 10:20:56 AM
EPA METHOD 300.0: ANIONS						Analyst: CAS
Chloride	2700	150		mg/Kg	50	12/19/2022 11:03:44 AM

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

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

Analytical Report

Lab Order **2212905**

Date Reported: **12/21/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS22-08 4'

Project: Tomcat 17 Federal 1

Collection Date: 12/13/2022 11:00:00 AM

Lab ID: 2212905-004

Matrix: SOIL

Received Date: 12/15/2022 7:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	43	14		mg/Kg	1	12/18/2022 5:01:51 PM
Motor Oil Range Organics (MRO)	100	47		mg/Kg	1	12/18/2022 5:01:51 PM
Surr: DNOP	109	21-129		%Rec	1	12/18/2022 5:01:51 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	12/17/2022 10:44:02 AM
Surr: BFB	80.0	37.7-212		%Rec	1	12/17/2022 10:44:02 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	12/17/2022 10:44:02 AM
Toluene	ND	0.049		mg/Kg	1	12/17/2022 10:44:02 AM
Ethylbenzene	ND	0.049		mg/Kg	1	12/17/2022 10:44:02 AM
Xylenes, Total	ND	0.098		mg/Kg	1	12/17/2022 10:44:02 AM
Surr: 4-Bromofluorobenzene	82.7	70-130		%Rec	1	12/17/2022 10:44:02 AM
EPA METHOD 300.0: ANIONS						Analyst: CAS
Chloride	4900	300		mg/Kg	100	12/19/2022 11:16:05 AM

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

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

Analytical Report

Lab Order **2212905**

Date Reported: **12/21/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS22-09 4'

Project: Tomcat 17 Federal 1

Collection Date: 12/13/2022 9:25:00 AM

Lab ID: 2212905-005

Matrix: SOIL

Received Date: 12/15/2022 7:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	18	15		mg/Kg	1	12/19/2022 4:05:09 PM
Motor Oil Range Organics (MRO)	54	49		mg/Kg	1	12/19/2022 4:05:09 PM
Surr: DNOP	101	21-129		%Rec	1	12/19/2022 4:05:09 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	12/17/2022 11:07:11 AM
Surr: BFB	79.3	37.7-212		%Rec	1	12/17/2022 11:07:11 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.025		mg/Kg	1	12/17/2022 11:07:11 AM
Toluene	ND	0.049		mg/Kg	1	12/17/2022 11:07:11 AM
Ethylbenzene	ND	0.049		mg/Kg	1	12/17/2022 11:07:11 AM
Xylenes, Total	ND	0.098		mg/Kg	1	12/17/2022 11:07:11 AM
Surr: 4-Bromofluorobenzene	82.2	70-130		%Rec	1	12/17/2022 11:07:11 AM
EPA METHOD 300.0: ANIONS						Analyst: CAS
Chloride	3200	150		mg/Kg	50	12/19/2022 11:28:26 AM

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2212905

21-Dec-22

Client: Vertex Resources Services, Inc.

Project: Tomcat 17 Federal 1

Sample ID: MB-72145	SampType: mblk	TestCode: EPA Method 300.0: Anions								
Client ID: PBS	Batch ID: 72145	RunNo: 93360								
Prep Date: 12/16/2022	Analysis Date: 12/16/2022	SeqNo: 3367791	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: LCS-72145	SampType: lcs	TestCode: EPA Method 300.0: Anions								
Client ID: LCSS	Batch ID: 72145	RunNo: 93360								
Prep Date: 12/16/2022	Analysis Date: 12/16/2022	SeqNo: 3367792	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	15	1.5	15.00	0	97.0	90	110			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2212905

21-Dec-22

Client: Vertex Resources Services, Inc.

Project: Tomcat 17 Federal 1

Sample ID: LCS-72133	SampType: LCS		TestCode: EPA Method 8015M/D: Diesel Range Organics							
Client ID: LCSS	Batch ID: 72133		RunNo: 93356							
Prep Date: 12/15/2022	Analysis Date: 12/16/2022		SeqNo: 3366255		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	44	15	50.00	0	88.0	64.4	127			
Surr: DNOP	4.6		5.000		92.7	21	129			

Sample ID: MB-72133	SampType: MBLK		TestCode: EPA Method 8015M/D: Diesel Range Organics							
Client ID: PBS	Batch ID: 72133		RunNo: 93356							
Prep Date: 12/15/2022	Analysis Date: 12/16/2022		SeqNo: 3366256		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	15								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	13		10.00		133	21	129			S

Sample ID: LCS-72140	SampType: LCS		TestCode: EPA Method 8015M/D: Diesel Range Organics							
Client ID: LCSS	Batch ID: 72140		RunNo: 93393							
Prep Date: 12/16/2022	Analysis Date: 12/19/2022		SeqNo: 3368186		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	38	15	50.00	0	76.4	64.4	127			
Surr: DNOP	5.2		5.000		103	21	129			

Sample ID: MB-72140	SampType: MBLK		TestCode: EPA Method 8015M/D: Diesel Range Organics							
Client ID: PBS	Batch ID: 72140		RunNo: 93393							
Prep Date: 12/16/2022	Analysis Date: 12/19/2022		SeqNo: 3368187		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	15								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	9.6		10.00		96.2	21	129			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2212905

21-Dec-22

Client: Vertex Resources Services, Inc.

Project: Tomcat 17 Federal 1

Sample ID: mb-72124	SampType: MBLK		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: PBS	Batch ID: 72124		RunNo: 93355							
Prep Date: 12/15/2022	Analysis Date: 12/17/2022		SeqNo: 3366805		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	790		1000		78.7	37.7	212			

Sample ID: lcs-72124	SampType: LCS		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: LCSS	Batch ID: 72124		RunNo: 93355							
Prep Date: 12/15/2022	Analysis Date: 12/17/2022		SeqNo: 3366806		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	86.7	72.3	137			
Surr: BFB	1700		1000		170	37.7	212			

Sample ID: 2212905-001ams	SampType: MS		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: BS22-05 4'	Batch ID: 72124		RunNo: 93355							
Prep Date: 12/15/2022	Analysis Date: 12/17/2022		SeqNo: 3366808		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	4.9	24.56	0	93.0	70	130			
Surr: BFB	1700		982.3		176	37.7	212			

Sample ID: 2212905-001amsd	SampType: MSD		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: BS22-05 4'	Batch ID: 72124		RunNo: 93355							
Prep Date: 12/15/2022	Analysis Date: 12/17/2022		SeqNo: 3366809		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22	4.9	24.61	0	89.6	70	130	3.57	20	
Surr: BFB	1700		984.3		176	37.7	212	0	0	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2212905

21-Dec-22

Client: Vertex Resources Services, Inc.

Project: Tomcat 17 Federal 1

Sample ID: mb-72124	SampType: MBLK	TestCode: EPA Method 8021B: Volatiles								
Client ID: PBS	Batch ID: 72124	RunNo: 93355								
Prep Date: 12/15/2022	Analysis Date: 12/17/2022	SeqNo: 3366878	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.82		1.000		81.6	70	130			

Sample ID: LCS-72124	SampType: LCS	TestCode: EPA Method 8021B: Volatiles								
Client ID: LCSS	Batch ID: 72124	RunNo: 93355								
Prep Date: 12/15/2022	Analysis Date: 12/17/2022	SeqNo: 3366879	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.84	0.025	1.000	0	84.5	80	120			
Toluene	0.87	0.050	1.000	0	86.8	80	120			
Ethylbenzene	0.85	0.050	1.000	0	84.9	80	120			
Xylenes, Total	2.6	0.10	3.000	0	85.1	80	120			
Surr: 4-Bromofluorobenzene	0.83		1.000		83.4	70	130			

Sample ID: 2212905-002ams	SampType: MS	TestCode: EPA Method 8021B: Volatiles								
Client ID: BS22-06 4'	Batch ID: 72124	RunNo: 93355								
Prep Date: 12/15/2022	Analysis Date: 12/17/2022	SeqNo: 3366882	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.89	0.024	0.9718	0	91.2	68.8	120			
Toluene	0.93	0.049	0.9718	0	95.6	73.6	124			
Ethylbenzene	0.92	0.049	0.9718	0	95.2	72.7	129			
Xylenes, Total	2.8	0.097	2.915	0.01814	94.7	75.7	126			
Surr: 4-Bromofluorobenzene	0.81		0.9718		83.7	70	130			

Sample ID: 2212905-002amsd	SampType: MSD	TestCode: EPA Method 8021B: Volatiles								
Client ID: BS22-06 4'	Batch ID: 72124	RunNo: 93355								
Prep Date: 12/15/2022	Analysis Date: 12/17/2022	SeqNo: 3366883	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.92	0.024	0.9737	0	94.7	68.8	120	3.92	20	
Toluene	0.98	0.049	0.9737	0	100	73.6	124	5.16	20	
Ethylbenzene	0.97	0.049	0.9737	0	99.8	72.7	129	4.96	20	
Xylenes, Total	2.9	0.097	2.921	0.01814	98.9	75.7	126	4.51	20	
Surr: 4-Bromofluorobenzene	0.82		0.9737		84.7	70	130	0	0	

Qualifiers:

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



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

Sample Log-In Check List

Client Name: Vertex Resources Services, Inc. Work Order Number: 2212905 RcptNo: 1

Received By: Tracy Casarrubias 12/15/2022 7:55:00 AM
Completed By: Tracy Casarrubias 12/15/2022 8:10:38 AM
Reviewed By: [Signature] 12-15-22

Chain of Custody

- 1. Is Chain of Custody complete? Yes [checked] No [] Not Present []
2. How was the sample delivered? Courier

Log In

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

of preserved bottles checked for pH: (<2 or >12 unless noted)
Adjusted?
Checked by: KPA 12-15-22

Special Handling (if applicable)

- 15. Was client notified of all discrepancies with this order? Yes [] No [] NA [checked]

Person Notified: [] Date: []
By Whom: [] Via: [] eMail [] Phone [] Fax [] In Person []
Regarding: []
Client Instructions: []

16. Additional remarks:

17. Cooler Information

Table with 7 columns: Cooler No, Temp °C, Condition, Seal Intact, Seal No, Seal Date, Signed By. Row 1: 1, 1.1, Good, Yes, [], [], []

Chain-of-Custody Record

Client: Vertex (Devon)
 Mailing Address: on file
 Phone #: _____
 email or Fax#: CC: scarthar@vertex.ca

QA/QC Package:
 Standard Level 4 (Full Validation)
 Accreditation: Az Compliance
 NELAC Other
 EDD (Type) _____

Turn-Around Time:
 Standard Rush 5 Day
 Project Name: Tomcat 17 Federal 1
 Project #: _____
21E-02816-27
 Project Manager: Kent Stallings

Sampler: SPC
 On Ice: Yes No
 # of Coolers: 1
 Cooler Temp (including CF): 1.1 ~~1.1~~ -1.1 (°C)

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.
12/13	9:20	Soil	BS22-05 4'	4og jar	ice	2212905 001
	13:30		BS22-06 4'			002
	14:50		BS22-07 4'			003
	11:00		BS22-08 4'			004
	9:25		BS22-09 4'			005

Date: 12/13 Time: 18:20 Relinquished by: Sally Carter
 Date: 12/14/2022 Time: 19:00 Relinquished by: [Signature]
 Received by: [Signature] Date: 12/14/22 Time: 07:00
 Received by: [Signature] Date: 12/15/22 Time: 7:55

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

Analysis Request	Analysis Request
<input checked="" type="checkbox"/> BTEX / MTBE / TMB's (8021)	<input checked="" type="checkbox"/>
TPH:8015D(GRO / DRO / MRO)	<input checked="" type="checkbox"/>
8081 Pesticides/8082 PCB's	
EDB (Method 504.1)	
PAHs by 8310 or 8270SIMS	
RCRA 8 Metals	<input checked="" type="checkbox"/>
CF, Br, NO ₃ , NO ₂ , PO ₄ , SO ₄	<input checked="" type="checkbox"/>
8260 (VOA)	
8270 (Semi-VOA)	
Total Coliform (Present/Absent)	

Remarks: Send to Laura Calderwood and Dale Woodward



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

January 06, 2023

Kent Stallings

Vertex Resources Services, Inc.

3101 Boyd Drive

Carlsbad, NM 88220

TEL: (505) 506-0040

FAX:

RE: Tomcat 17 Federal 1

OrderNo.: 2212E06

Dear Kent Stallings:

Hall Environmental Analysis Laboratory received 8 sample(s) on 12/28/2022 for the analyses presented in the following report.

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

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

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

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', is written over a white background.

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

Analytical Report

Lab Order **2212E06**

Date Reported: **1/6/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS22-10 4'

Project: Tomcat 17 Federal 1

Collection Date: 12/22/2022 9:00:00 AM

Lab ID: 2212E06-001

Matrix: SOIL

Received Date: 12/28/2022 6:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	61	15		mg/Kg	1	12/30/2022 1:49:02 PM
Motor Oil Range Organics (MRO)	160	50		mg/Kg	1	12/30/2022 1:49:02 PM
Surr: DNOP	128	21-129		%Rec	1	12/30/2022 1:49:02 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	12/29/2022 1:02:00 PM
Surr: BFB	113	37.7-212		%Rec	1	12/29/2022 1:02:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.024		mg/Kg	1	12/29/2022 1:02:00 PM
Toluene	ND	0.049		mg/Kg	1	12/29/2022 1:02:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	12/29/2022 1:02:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	12/29/2022 1:02:00 PM
Surr: 4-Bromofluorobenzene	119	70-130		%Rec	1	12/29/2022 1:02:00 PM
EPA METHOD 300.0: ANIONS						Analyst: NAI
Chloride	4200	150		mg/Kg	50	1/5/2023 3:11:16 AM

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

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

Analytical Report

Lab Order **2212E06**

Date Reported: **1/6/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS22-11 4'

Project: Tomcat 17 Federal 1

Collection Date: 12/22/2022 9:05:00 AM

Lab ID: 2212E06-002

Matrix: SOIL

Received Date: 12/28/2022 6:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	280	15		mg/Kg	1	1/4/2023 11:27:56 AM
Motor Oil Range Organics (MRO)	480	49		mg/Kg	1	1/4/2023 11:27:56 AM
Surr: DNOP	100	21-129		%Rec	1	1/4/2023 11:27:56 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	12/29/2022 2:04:00 PM
Surr: BFB	101	37.7-212		%Rec	1	12/29/2022 2:04:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.025		mg/Kg	1	12/29/2022 2:04:00 PM
Toluene	ND	0.050		mg/Kg	1	12/29/2022 2:04:00 PM
Ethylbenzene	ND	0.050		mg/Kg	1	12/29/2022 2:04:00 PM
Xylenes, Total	ND	0.099		mg/Kg	1	12/29/2022 2:04:00 PM
Surr: 4-Bromofluorobenzene	113	70-130		%Rec	1	12/29/2022 2:04:00 PM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	2500	150		mg/Kg	50	1/3/2023 10:04:32 AM

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

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

Analytical Report

Lab Order **2212E06**

Date Reported: **1/6/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS22-12 4'

Project: Tomcat 17 Federal 1

Collection Date: 12/22/2022 9:10:00 AM

Lab ID: 2212E06-003

Matrix: SOIL

Received Date: 12/28/2022 6:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	250	15		mg/Kg	1	1/4/2023 12:10:00 PM
Motor Oil Range Organics (MRO)	480	49		mg/Kg	1	1/4/2023 12:10:00 PM
Surr: DNOP	104	21-129		%Rec	1	1/4/2023 12:10:00 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	12/29/2022 4:22:00 PM
Surr: BFB	108	37.7-212		%Rec	1	12/29/2022 4:22:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.025		mg/Kg	1	12/29/2022 4:22:00 PM
Toluene	ND	0.049		mg/Kg	1	12/29/2022 4:22:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	12/29/2022 4:22:00 PM
Xylenes, Total	ND	0.098		mg/Kg	1	12/29/2022 4:22:00 PM
Surr: 4-Bromofluorobenzene	118	70-130		%Rec	1	12/29/2022 4:22:00 PM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	5400	300		mg/Kg	100	1/3/2023 10:16:56 AM

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

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

Analytical Report

Lab Order **2212E06**

Date Reported: 1/6/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS22-13 4'

Project: Tomcat 17 Federal 1

Collection Date: 12/22/2022 9:15:00 AM

Lab ID: 2212E06-004

Matrix: SOIL

Received Date: 12/28/2022 6:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	200	14		mg/Kg	1	12/30/2022 3:55:41 PM
Motor Oil Range Organics (MRO)	470	48		mg/Kg	1	12/30/2022 3:55:41 PM
Surr: DNOP	116	21-129		%Rec	1	12/30/2022 3:55:41 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	12/29/2022 5:01:00 PM
Surr: BFB	103	37.7-212		%Rec	1	12/29/2022 5:01:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.025		mg/Kg	1	12/29/2022 5:01:00 PM
Toluene	ND	0.049		mg/Kg	1	12/29/2022 5:01:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	12/29/2022 5:01:00 PM
Xylenes, Total	ND	0.098		mg/Kg	1	12/29/2022 5:01:00 PM
Surr: 4-Bromofluorobenzene	113	70-130		%Rec	1	12/29/2022 5:01:00 PM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	4200	150		mg/Kg	50	1/3/2023 10:29:20 AM

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

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

Analytical Report

Lab Order **2212E06**

Date Reported: **1/6/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: WS22-14 4'

Project: Tomcat 17 Federal 1

Collection Date: 12/22/2022 9:30:00 AM

Lab ID: 2212E06-005

Matrix: SOIL

Received Date: 12/28/2022 6:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	12/29/2022 2:57:52 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	12/29/2022 2:57:52 PM
Surr: DNOP	112	21-129		%Rec	1	12/29/2022 2:57:52 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	12/29/2022 5:21:00 PM
Surr: BFB	107	37.7-212		%Rec	1	12/29/2022 5:21:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.025		mg/Kg	1	12/29/2022 5:21:00 PM
Toluene	ND	0.050		mg/Kg	1	12/29/2022 5:21:00 PM
Ethylbenzene	ND	0.050		mg/Kg	1	12/29/2022 5:21:00 PM
Xylenes, Total	ND	0.10		mg/Kg	1	12/29/2022 5:21:00 PM
Surr: 4-Bromofluorobenzene	115	70-130		%Rec	1	12/29/2022 5:21:00 PM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	130	60		mg/Kg	20	12/30/2022 11:28:32 PM

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

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

Analytical Report

Lab Order **2212E06**

Date Reported: 1/6/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: WS22-15 4'

Project: Tomcat 17 Federal 1

Collection Date: 12/22/2022 9:35:00 AM

Lab ID: 2212E06-006

Matrix: SOIL

Received Date: 12/28/2022 6:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	12/29/2022 3:08:25 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	12/29/2022 3:08:25 PM
Surr: DNOP	111	21-129		%Rec	1	12/29/2022 3:08:25 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	12/29/2022 5:40:00 PM
Surr: BFB	104	37.7-212		%Rec	1	12/29/2022 5:40:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.025		mg/Kg	1	12/29/2022 5:40:00 PM
Toluene	ND	0.049		mg/Kg	1	12/29/2022 5:40:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	12/29/2022 5:40:00 PM
Xylenes, Total	ND	0.098		mg/Kg	1	12/29/2022 5:40:00 PM
Surr: 4-Bromofluorobenzene	115	70-130		%Rec	1	12/29/2022 5:40:00 PM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	170	60		mg/Kg	20	12/31/2022 12:05:44 AM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quantitative Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.

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

Analytical Report

Lab Order **2212E06**

Date Reported: **1/6/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: WS22-16 4'

Project: Tomcat 17 Federal 1

Collection Date: 12/22/2022 9:40:00 AM

Lab ID: 2212E06-007

Matrix: SOIL

Received Date: 12/28/2022 6:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	12/29/2022 4:06:02 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	12/29/2022 4:06:02 PM
Surr: DNOP	130	21-129	S	%Rec	1	12/29/2022 4:06:02 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	12/29/2022 6:00:00 PM
Surr: BFB	110	37.7-212		%Rec	1	12/29/2022 6:00:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.025		mg/Kg	1	12/29/2022 6:00:00 PM
Toluene	ND	0.050		mg/Kg	1	12/29/2022 6:00:00 PM
Ethylbenzene	ND	0.050		mg/Kg	1	12/29/2022 6:00:00 PM
Xylenes, Total	ND	0.099		mg/Kg	1	12/29/2022 6:00:00 PM
Surr: 4-Bromofluorobenzene	118	70-130		%Rec	1	12/29/2022 6:00:00 PM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	410	61		mg/Kg	20	12/31/2022 12:18:08 AM

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

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

Analytical Report

Lab Order **2212E06**

Date Reported: 1/6/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: WS22-17 4'

Project: Tomcat 17 Federal 1

Collection Date: 12/22/2022 9:45:00 AM

Lab ID: 2212E06-008

Matrix: SOIL

Received Date: 12/28/2022 6:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	640	300		mg/Kg	20	12/29/2022 4:55:27 PM
Motor Oil Range Organics (MRO)	1400	990		mg/Kg	20	12/29/2022 4:55:27 PM
Surr: DNOP	0	21-129	S	%Rec	20	12/29/2022 4:55:27 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	12/29/2022 6:20:00 PM
Surr: BFB	105	37.7-212		%Rec	1	12/29/2022 6:20:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.025		mg/Kg	1	12/29/2022 6:20:00 PM
Toluene	ND	0.049		mg/Kg	1	12/29/2022 6:20:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	12/29/2022 6:20:00 PM
Xylenes, Total	ND	0.099		mg/Kg	1	12/29/2022 6:20:00 PM
Surr: 4-Bromofluorobenzene	120	70-130		%Rec	1	12/29/2022 6:20:00 PM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	170	60		mg/Kg	20	12/31/2022 12:30:32 AM

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

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quantitative Limit
- S % Recovery outside of standard limits. If undiluted results may be estimated.

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2212E06

06-Jan-23

Client: Vertex Resources Services, Inc.

Project: Tomcat 17 Federal 1

Sample ID: MB-72391	SampType: mblk	TestCode: EPA Method 300.0: Anions								
Client ID: PBS	Batch ID: 72391	RunNo: 93647								
Prep Date: 12/30/2022	Analysis Date: 12/30/2022	SeqNo: 3380712	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: LCS-72391	SampType: lcs	TestCode: EPA Method 300.0: Anions								
Client ID: LCSS	Batch ID: 72391	RunNo: 93647								
Prep Date: 12/30/2022	Analysis Date: 12/30/2022	SeqNo: 3380713	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	15	1.5	15.00	0	101	90	110			

Sample ID: MB-72385	SampType: MBLK	TestCode: EPA Method 300.0: Anions								
Client ID: PBS	Batch ID: 72385	RunNo: 93648								
Prep Date: 12/29/2022	Analysis Date: 12/30/2022	SeqNo: 3380968	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: LCS-72385	SampType: LCS	TestCode: EPA Method 300.0: Anions								
Client ID: LCSS	Batch ID: 72385	RunNo: 93648								
Prep Date: 12/29/2022	Analysis Date: 12/30/2022	SeqNo: 3380969	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	15	1.5	15.00	0	96.7	90	110			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2212E06

06-Jan-23

Client: Vertex Resources Services, Inc.

Project: Tomcat 17 Federal 1

Sample ID: LCS-72351	SampType: LCS		TestCode: EPA Method 8015M/D: Diesel Range Organics							
Client ID: LCSS	Batch ID: 72351		RunNo: 93614							
Prep Date: 12/28/2022	Analysis Date: 12/29/2022		SeqNo: 3378144		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	50	15	50.00	0	99.9	64.4	127			
Surr: DNOP	6.5		5.000		131	21	129			S

Sample ID: MB-72351	SampType: MBLK		TestCode: EPA Method 8015M/D: Diesel Range Organics							
Client ID: PBS	Batch ID: 72351		RunNo: 93614							
Prep Date: 12/28/2022	Analysis Date: 12/29/2022		SeqNo: 3378146		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	15								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	12		10.00		118	21	129			

Sample ID: LCS-72383	SampType: LCS		TestCode: EPA Method 8015M/D: Diesel Range Organics							
Client ID: LCSS	Batch ID: 72383		RunNo: 93644							
Prep Date: 12/29/2022	Analysis Date: 12/30/2022		SeqNo: 3379607		Units: %Rec					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	6.2		5.000		125	21	129			

Sample ID: MB-72383	SampType: MBLK		TestCode: EPA Method 8015M/D: Diesel Range Organics							
Client ID: PBS	Batch ID: 72383		RunNo: 93644							
Prep Date: 12/29/2022	Analysis Date: 12/30/2022		SeqNo: 3379608		Units: %Rec					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	12		10.00		121	21	129			

Sample ID: LCS-72412	SampType: LCS		TestCode: EPA Method 8015M/D: Diesel Range Organics							
Client ID: LCSS	Batch ID: 72412		RunNo: 93700							
Prep Date: 1/3/2023	Analysis Date: 1/4/2023		SeqNo: 3382185		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	40	15	50.00	0	80.3	64.4	127			
Surr: DNOP	5.1		5.000		103	21	129			

Sample ID: MB-72412	SampType: MBLK		TestCode: EPA Method 8015M/D: Diesel Range Organics							
Client ID: PBS	Batch ID: 72412		RunNo: 93700							
Prep Date: 1/3/2023	Analysis Date: 1/4/2023		SeqNo: 3382187		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	15								

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2212E06

06-Jan-23

Client: Vertex Resources Services, Inc.

Project: Tomcat 17 Federal 1

Sample ID: MB-72412	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: PBS	Batch ID: 72412	RunNo: 93700								
Prep Date: 1/3/2023	Analysis Date: 1/4/2023	SeqNo: 3382187	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	10		10.00		99.7	21	129			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2212E06

06-Jan-23

Client: Vertex Resources Services, Inc.

Project: Tomcat 17 Federal 1

Sample ID: ics-72341	SampType: LCS		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: LCSS	Batch ID: 72341		RunNo: 93636							
Prep Date: 12/28/2022	Analysis Date: 12/29/2022		SeqNo: 3378986		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	26	5.0	25.00	0	104	72.3	137			
Surr: BFB	2300		1000		225	37.7	212			S

Sample ID: mb-72341	SampType: MBLK		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: PBS	Batch ID: 72341		RunNo: 93636							
Prep Date: 12/28/2022	Analysis Date: 12/29/2022		SeqNo: 3378987		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	1100		1000		113	37.7	212			

Sample ID: 2212E06-001ams	SampType: MS		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: BS22-10 4'	Batch ID: 72341		RunNo: 93636							
Prep Date: 12/28/2022	Analysis Date: 12/29/2022		SeqNo: 3378993		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	27	4.8	24.22	0	110	70	130			
Surr: BFB	2300		969.0		236	37.7	212			S

Sample ID: 2212E06-001amsd	SampType: MSD		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: BS22-10 4'	Batch ID: 72341		RunNo: 93636							
Prep Date: 12/28/2022	Analysis Date: 12/29/2022		SeqNo: 3378994		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	29	4.9	24.46	0	118	70	130	7.35	20	
Surr: BFB	2400		978.5		241	37.7	212	0	0	S

Sample ID: ics-72377	SampType: LCS		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: LCSS	Batch ID: 72377		RunNo: 93664							
Prep Date: 12/29/2022	Analysis Date: 12/30/2022		SeqNo: 3380310		Units: %Rec					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	2300		1000		230	37.7	212			S

Sample ID: mb-72377	SampType: MBLK		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: PBS	Batch ID: 72377		RunNo: 93664							
Prep Date: 12/29/2022	Analysis Date: 12/30/2022		SeqNo: 3380311		Units: %Rec					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	1100		1000		110	37.7	212			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2212E06

06-Jan-23

Client: Vertex Resources Services, Inc.

Project: Tomcat 17 Federal 1

Sample ID: ics-72382	SampType: LCS		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: LCSS	Batch ID: 72382		RunNo: 93664							
Prep Date: 12/29/2022	Analysis Date: 12/30/2022		SeqNo: 3380334		Units: %Rec					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	2300		1000		230	37.7	212			S

Sample ID: mb-72382	SampType: MBLK		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: PBS	Batch ID: 72382		RunNo: 93664							
Prep Date: 12/29/2022	Analysis Date: 12/30/2022		SeqNo: 3380335		Units: %Rec					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	1100		1000		108	37.7	212			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2212E06

06-Jan-23

Client: Vertex Resources Services, Inc.

Project: Tomcat 17 Federal 1

Sample ID: ics-72341	SampType: LCS		TestCode: EPA Method 8021B: Volatiles							
Client ID: LCSS	Batch ID: 72341		RunNo: 93636							
Prep Date: 12/28/2022	Analysis Date: 12/29/2022		SeqNo: 3379011		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.025	1.000	0	110	80	120			
Toluene	1.1	0.050	1.000	0	111	80	120			
Ethylbenzene	1.1	0.050	1.000	0	111	80	120			
Xylenes, Total	3.4	0.10	3.000	0	112	80	120			
Surr: 4-Bromofluorobenzene	1.2		1.000		124	70	130			

Sample ID: mb-72341	SampType: MBLK		TestCode: EPA Method 8021B: Volatiles							
Client ID: PBS	Batch ID: 72341		RunNo: 93636							
Prep Date: 12/28/2022	Analysis Date: 12/29/2022		SeqNo: 3379012		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.2		1.000		124	70	130			

Sample ID: 2212E06-002ams	SampType: MS		TestCode: EPA Method 8021B: Volatiles							
Client ID: BS22-11 4'	Batch ID: 72341		RunNo: 93636							
Prep Date: 12/28/2022	Analysis Date: 12/29/2022		SeqNo: 3379019		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.025	0.9921	0	109	68.8	120			
Toluene	1.1	0.050	0.9921	0	111	73.6	124			
Ethylbenzene	1.1	0.050	0.9921	0	110	72.7	129			
Xylenes, Total	3.3	0.099	2.976	0	110	75.7	126			
Surr: 4-Bromofluorobenzene	1.2		0.9921		118	70	130			

Sample ID: 2212E06-002amsd	SampType: MSD		TestCode: EPA Method 8021B: Volatiles							
Client ID: BS22-11 4'	Batch ID: 72341		RunNo: 93636							
Prep Date: 12/28/2022	Analysis Date: 12/29/2022		SeqNo: 3379020		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.2	0.025	0.9891	0	123	68.8	120	11.6	20	S
Toluene	1.2	0.049	0.9891	0	125	73.6	124	11.9	20	S
Ethylbenzene	1.2	0.049	0.9891	0	125	72.7	129	12.9	20	
Xylenes, Total	3.7	0.099	2.967	0	126	75.7	126	12.8	20	
Surr: 4-Bromofluorobenzene	1.2		0.9891		119	70	130	0	0	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2212E06

06-Jan-23

Client: Vertex Resources Services, Inc.

Project: Tomcat 17 Federal 1

Sample ID: ics-72377	SampType: LCS		TestCode: EPA Method 8021B: Volatiles							
Client ID: LCSS	Batch ID: 72377		RunNo: 93664							
Prep Date: 12/29/2022	Analysis Date: 12/30/2022		SeqNo: 3380364				Units: %Rec			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	1.2		1.000		122	70	130			

Sample ID: mb-72377	SampType: MBLK		TestCode: EPA Method 8021B: Volatiles							
Client ID: PBS	Batch ID: 72377		RunNo: 93664							
Prep Date: 12/29/2022	Analysis Date: 12/30/2022		SeqNo: 3380365				Units: %Rec			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	1.2		1.000		122	70	130			

Sample ID: ics-72382	SampType: LCS		TestCode: EPA Method 8021B: Volatiles							
Client ID: LCSS	Batch ID: 72382		RunNo: 93664							
Prep Date: 12/29/2022	Analysis Date: 12/30/2022		SeqNo: 3380388				Units: %Rec			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	1.2		1.000		123	70	130			

Sample ID: mb-72382	SampType: MBLK		TestCode: EPA Method 8021B: Volatiles							
Client ID: PBS	Batch ID: 72382		RunNo: 93664							
Prep Date: 12/29/2022	Analysis Date: 12/30/2022		SeqNo: 3380389				Units: %Rec			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	1.2		1.000		120	70	130			

Qualifiers:

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



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

Sample Log-In Check List

Client Name: Vertex Resources Services, Inc. Work Order Number: 2212E06 RcptNo: 1

Received By: Isaiah Ortiz 12/28/2022 6:50:00 AM I-OX
Completed By: Isaiah Ortiz 12/28/2022 7:33:56 AM I-OX
Reviewed By: [Signature] 12-28-22

Chain of Custody

- 1. Is Chain of Custody complete? Yes [checked] No [] Not Present []
2. How was the sample delivered? Courier

Log In

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

of preserved bottles checked for pH: (<2 or >12 unless noted)
Adjusted?
Checked by: [Signature]

Special Handling (if applicable)

- 15. Was client notified of all discrepancies with this order? Yes [] No [] NA [checked]

Person Notified: [] Date: []
By Whom: [] Via: [] eMail [] Phone [] Fax [] In Person []
Regarding: []
Client Instructions: []

16. Additional remarks:

17. Cooler Information

Table with 7 columns: Cooler No, Temp °C, Condition, Seal Intact, Seal No, Seal Date, Signed By. Row 1: 1, 3.3, Good, Yes, [], [], []

Chain-of-Custody Record

Client: Vertex (Devon)
 Mailing Address: on file
 Phone #: _____

email or Fax#: CC: Scar-Har@vertex.ca
 QA/QC Package:
 Standard Level 4 (Full Validation)

Accreditation: Az Compliance
 NELAC Other
 EDD (Type) _____

Turn-Around Time:
 Standard Rush 5 Day
 Project Name:
Tomcat 17 Federal #1
 Project #:
21E-02816-27

Project Manager:
Kent Stallings
 Sampler: SPC
 On Ice: Yes No
 # of Coolers: 1
 Cooler Temp (including CF): 3.3 ± 0 (°C)

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.
12/22	9:00	Soil	BS22-10 4'	4oz jar	ice	7712E06 001
	9:05		BS22-11 4'			002
	9:10		BS22-12 4'			003
	9:15		BS22-13 4'			004
	9:30		WS22-14 4'			005
	9:35		WS22-15 4'			006
	9:40		WS22-16 4'			007
	9:45		WS22-17 4'			008

Date: 12/22/22 Time: 10:42 Relinquished by: Sally Carttan
 Date: 1/10/23 Time: 1900 Relinquished by: [Signature]

Received by: [Signature] Date: 12/22/22 Time: 0650
 Received by: [Signature] Date: _____ Time: _____

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

<input checked="" type="checkbox"/> TPH:8015D(GRO / DRO / MRO)	<input checked="" type="checkbox"/> EDB (Method 504.1)	<input checked="" type="checkbox"/> PAHs by 8310 or 8270SIMS	<input checked="" type="checkbox"/> RCRA 8 Metals	<input checked="" type="checkbox"/> PF, Br, NO ₃ , NO ₂ , PO ₄ , SO ₄	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
<input checked="" type="checkbox"/> BTEX / MTBE / TMB's (8021)	<input checked="" type="checkbox"/> 8081 Pesticides/8082 PCBs						

Remarks:
Bill Laura Calderwood and Dale Wordale
cellscott@ver...



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

January 17, 2023

Kent Stallings

Vertex Resources Services, Inc.

3101 Boyd Drive

Carlsbad, NM 88220

TEL: (505) 506-0040

FAX:

RE: Tomcat 17 Federal 001

OrderNo.: 2301323

Dear Kent Stallings:

Hall Environmental Analysis Laboratory received 7 sample(s) on 1/10/2023 for the analyses presented in the following report.

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

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

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

Sincerely,

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

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

Analytical Report

Lab Order **2301323**

Date Reported: **1/17/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: WS22-17 0-4'

Project: Tomcat 17 Federal 001

Collection Date: 1/7/2023 7:15:00 AM

Lab ID: 2301323-001

Matrix: SOIL

Received Date: 1/10/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	1/12/2023 11:27:07 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	1/12/2023 11:27:07 PM
Surr: DNOP	118	69-147		%Rec	1	1/12/2023 11:27:07 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	1/13/2023 1:53:43 AM
Surr: BFB	96.3	37.7-212		%Rec	1	1/13/2023 1:53:43 AM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.025		mg/Kg	1	1/13/2023 1:53:43 AM
Toluene	ND	0.050		mg/Kg	1	1/13/2023 1:53:43 AM
Ethylbenzene	ND	0.050		mg/Kg	1	1/13/2023 1:53:43 AM
Xylenes, Total	ND	0.10		mg/Kg	1	1/13/2023 1:53:43 AM
Surr: 4-Bromofluorobenzene	95.5	70-130		%Rec	1	1/13/2023 1:53:43 AM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	ND	60		mg/Kg	20	1/13/2023 4:41:06 PM

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

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

Analytical Report

Lab Order **2301323**

Date Reported: **1/17/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: WS22-18 0-4'

Project: Tomcat 17 Federal 001

Collection Date: 1/7/2023 7:20:00 AM

Lab ID: 2301323-002

Matrix: SOIL

Received Date: 1/10/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	1/12/2023 11:37:51 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	1/12/2023 11:37:51 PM
Surr: DNOP	98.6	69-147		%Rec	1	1/12/2023 11:37:51 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	1/13/2023 2:16:48 AM
Surr: BFB	97.1	37.7-212		%Rec	1	1/13/2023 2:16:48 AM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.025		mg/Kg	1	1/13/2023 2:16:48 AM
Toluene	ND	0.050		mg/Kg	1	1/13/2023 2:16:48 AM
Ethylbenzene	ND	0.050		mg/Kg	1	1/13/2023 2:16:48 AM
Xylenes, Total	ND	0.10		mg/Kg	1	1/13/2023 2:16:48 AM
Surr: 4-Bromofluorobenzene	96.6	70-130		%Rec	1	1/13/2023 2:16:48 AM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	ND	60		mg/Kg	20	1/13/2023 4:53:30 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quantitative Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.

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

Analytical Report

Lab Order **2301323**

Date Reported: **1/17/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: WS22-19 0-4'

Project: Tomcat 17 Federal 001

Collection Date: 1/7/2023 7:25:00 AM

Lab ID: 2301323-003

Matrix: SOIL

Received Date: 1/10/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	1/12/2023 11:48:36 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	1/12/2023 11:48:36 PM
Surr: DNOP	104	69-147		%Rec	1	1/12/2023 11:48:36 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	1/13/2023 2:39:52 AM
Surr: BFB	97.1	37.7-212		%Rec	1	1/13/2023 2:39:52 AM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.025		mg/Kg	1	1/13/2023 2:39:52 AM
Toluene	ND	0.050		mg/Kg	1	1/13/2023 2:39:52 AM
Ethylbenzene	ND	0.050		mg/Kg	1	1/13/2023 2:39:52 AM
Xylenes, Total	ND	0.099		mg/Kg	1	1/13/2023 2:39:52 AM
Surr: 4-Bromofluorobenzene	96.6	70-130		%Rec	1	1/13/2023 2:39:52 AM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	ND	60		mg/Kg	20	1/13/2023 5:05:55 PM

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

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

Analytical Report

Lab Order **2301323**

Date Reported: **1/17/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: WS22-20 0-4'

Project: Tomcat 17 Federal 001

Collection Date: 1/7/2023 7:30:00 AM

Lab ID: 2301323-004

Matrix: SOIL

Received Date: 1/10/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	1/12/2023 11:59:19 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	1/12/2023 11:59:19 PM
Surr: DNOP	108	69-147		%Rec	1	1/12/2023 11:59:19 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	1/13/2023 3:25:56 AM
Surr: BFB	95.6	37.7-212		%Rec	1	1/13/2023 3:25:56 AM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.025		mg/Kg	1	1/13/2023 3:25:56 AM
Toluene	ND	0.049		mg/Kg	1	1/13/2023 3:25:56 AM
Ethylbenzene	ND	0.049		mg/Kg	1	1/13/2023 3:25:56 AM
Xylenes, Total	ND	0.099		mg/Kg	1	1/13/2023 3:25:56 AM
Surr: 4-Bromofluorobenzene	94.9	70-130		%Rec	1	1/13/2023 3:25:56 AM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	120	61		mg/Kg	20	1/13/2023 5:18:19 PM

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

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

Analytical Report

Lab Order **2301323**

Date Reported: **1/17/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: WS22-21 0-4'

Project: Tomcat 17 Federal 001

Collection Date: 1/7/2023 7:35:00 AM

Lab ID: 2301323-005

Matrix: SOIL

Received Date: 1/10/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	1/13/2023 12:10:01 AM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	1/13/2023 12:10:01 AM
Surr: DNOP	120	69-147		%Rec	1	1/13/2023 12:10:01 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	1/13/2023 3:48:54 AM
Surr: BFB	94.1	37.7-212		%Rec	1	1/13/2023 3:48:54 AM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.025		mg/Kg	1	1/13/2023 3:48:54 AM
Toluene	ND	0.049		mg/Kg	1	1/13/2023 3:48:54 AM
Ethylbenzene	ND	0.049		mg/Kg	1	1/13/2023 3:48:54 AM
Xylenes, Total	ND	0.098		mg/Kg	1	1/13/2023 3:48:54 AM
Surr: 4-Bromofluorobenzene	93.7	70-130		%Rec	1	1/13/2023 3:48:54 AM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	72	60		mg/Kg	20	1/13/2023 5:30:44 PM

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

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

Analytical Report

Lab Order **2301323**

Date Reported: **1/17/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS22-14 4'

Project: Tomcat 17 Federal 001

Collection Date: 1/7/2023 7:45:00 AM

Lab ID: 2301323-006

Matrix: SOIL

Received Date: 1/10/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	1/13/2023 12:20:41 AM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	1/13/2023 12:20:41 AM
Surr: DNOP	105	69-147		%Rec	1	1/13/2023 12:20:41 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	1/13/2023 4:11:56 AM
Surr: BFB	94.9	37.7-212		%Rec	1	1/13/2023 4:11:56 AM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.025		mg/Kg	1	1/13/2023 4:11:56 AM
Toluene	ND	0.049		mg/Kg	1	1/13/2023 4:11:56 AM
Ethylbenzene	ND	0.049		mg/Kg	1	1/13/2023 4:11:56 AM
Xylenes, Total	ND	0.099		mg/Kg	1	1/13/2023 4:11:56 AM
Surr: 4-Bromofluorobenzene	94.8	70-130		%Rec	1	1/13/2023 4:11:56 AM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	1800	61		mg/Kg	20	1/13/2023 5:43:08 PM

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

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

Analytical Report

Lab Order **2301323**

Date Reported: **1/17/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS22-15 4'

Project: Tomcat 17 Federal 001

Collection Date: 1/7/2023 7:50:00 AM

Lab ID: 2301323-007

Matrix: SOIL

Received Date: 1/10/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	9.8	8.9		mg/Kg	1	1/13/2023 12:31:21 AM
Motor Oil Range Organics (MRO)	ND	44		mg/Kg	1	1/13/2023 12:31:21 AM
Surr: DNOP	114	69-147		%Rec	1	1/13/2023 12:31:21 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	1/13/2023 4:34:56 AM
Surr: BFB	93.9	37.7-212		%Rec	1	1/13/2023 4:34:56 AM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.024		mg/Kg	1	1/13/2023 4:34:56 AM
Toluene	ND	0.049		mg/Kg	1	1/13/2023 4:34:56 AM
Ethylbenzene	ND	0.049		mg/Kg	1	1/13/2023 4:34:56 AM
Xylenes, Total	ND	0.097		mg/Kg	1	1/13/2023 4:34:56 AM
Surr: 4-Bromofluorobenzene	93.3	70-130		%Rec	1	1/13/2023 4:34:56 AM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	1400	60		mg/Kg	20	1/13/2023 5:55:33 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quantitative Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2301323

17-Jan-23

Client: Vertex Resources Services, Inc.

Project: Tomcat 17 Federal 001

Sample ID: MB-72612	SampType: MBLK	TestCode: EPA Method 300.0: Anions								
Client ID: PBS	Batch ID: 72612	RunNo: 93954								
Prep Date: 1/13/2023	Analysis Date: 1/13/2023	SeqNo: 3392167	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: LCS-72612	SampType: LCS	TestCode: EPA Method 300.0: Anions								
Client ID: LCSS	Batch ID: 72612	RunNo: 93954								
Prep Date: 1/13/2023	Analysis Date: 1/13/2023	SeqNo: 3392168	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	96.1	90	110			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2301323

17-Jan-23

Client: Vertex Resources Services, Inc.

Project: Tomcat 17 Federal 001

Sample ID: LCS-72585	SampType: LCS		TestCode: EPA Method 8015M/D: Diesel Range Organics							
Client ID: LCSS	Batch ID: 72585		RunNo: 93911							
Prep Date: 1/12/2023	Analysis Date: 1/12/2023		SeqNo: 3390353		Units: %Rec					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	5.6		5.000		111	69	147			

Sample ID: MB-72585	SampType: MBLK		TestCode: EPA Method 8015M/D: Diesel Range Organics							
Client ID: PBS	Batch ID: 72585		RunNo: 93911							
Prep Date: 1/12/2023	Analysis Date: 1/12/2023		SeqNo: 3390355		Units: %Rec					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	11		10.00		106	69	147			

Sample ID: LCS-72584	SampType: LCS		TestCode: EPA Method 8015M/D: Diesel Range Organics							
Client ID: LCSS	Batch ID: 72584		RunNo: 93911							
Prep Date: 1/11/2023	Analysis Date: 1/12/2023		SeqNo: 3391719		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	41	10	50.00	0	82.0	61.9	130			
Surr: DNOP	5.3		5.000		106	69	147			

Sample ID: MB-72584	SampType: MBLK		TestCode: EPA Method 8015M/D: Diesel Range Organics							
Client ID: PBS	Batch ID: 72584		RunNo: 93911							
Prep Date: 1/11/2023	Analysis Date: 1/12/2023		SeqNo: 3391724		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		113	69	147			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2301323

17-Jan-23

Client: Vertex Resources Services, Inc.

Project: Tomcat 17 Federal 001

Sample ID: ics-72577	SampType: LCS	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: LCSS	Batch ID: 72577	RunNo: 93928								
Prep Date: 1/11/2023	Analysis Date: 1/12/2023	SeqNo: 3391322			Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	5.0	25.00	0	95.6	72.3	137			
Surr: BFB	2000		1000		195	37.7	212			

Sample ID: mb-72577	SampType: MBLK	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: PBS	Batch ID: 72577	RunNo: 93928								
Prep Date: 1/11/2023	Analysis Date: 1/12/2023	SeqNo: 3391323			Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	1000		1000		102	37.7	212			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2301323

17-Jan-23

Client: Vertex Resources Services, Inc.

Project: Tomcat 17 Federal 001

Sample ID: LCS-72577	SampType: LCS		TestCode: EPA Method 8021B: Volatiles							
Client ID: LCSS	Batch ID: 72577		RunNo: 93928							
Prep Date: 1/11/2023	Analysis Date: 1/12/2023		SeqNo: 3391519		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.95	0.025	1.000	0	95.2	80	120			
Toluene	0.97	0.050	1.000	0	96.9	80	120			
Ethylbenzene	0.96	0.050	1.000	0	96.1	80	120			
Xylenes, Total	2.9	0.10	3.000	0	96.7	80	120			
Surr: 4-Bromofluorobenzene	1.0		1.000		99.9	70	130			

Sample ID: mb-72577	SampType: MBLK		TestCode: EPA Method 8021B: Volatiles							
Client ID: PBS	Batch ID: 72577		RunNo: 93928							
Prep Date: 1/11/2023	Analysis Date: 1/12/2023		SeqNo: 3391520		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.0		1.000		99.5	70	130			

Qualifiers:

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



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

Sample Log-In Check List

Client Name: Vertex Resources Services, Inc. Work Order Number: 2301323 RcptNo: 1

Received By: Juan Rojas 1/10/2023 7:30:00 AM
Completed By: Sean Livingston 1/10/2023 8:31:11 AM
Reviewed By: Jn 1/10/23

Chain of Custody

- 1. Is Chain of Custody complete? Yes [checked] No [] Not Present []
2. How was the sample delivered? Courier

Log In

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

of preserved bottles checked for pH:
(<2 or >12 unless noted)
Adjusted?
Checked by: KPA 1.10.23

Special Handling (if applicable)

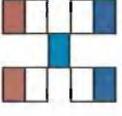
- 15. Was client notified of all discrepancies with this order? Yes [] No [] NA [checked]

Person Notified: [] Date: []
By Whom: [] Via: [] eMail [] Phone [] Fax [] In Person []
Regarding: []
Client Instructions: []

16. Additional remarks:

17. Cooler Information

Table with 7 columns: Cooler No, Temp °C, Condition, Seal Intact, Seal No, Seal Date, Signed By. Row 1: 1, 0.0, Good, [], [], [], []



HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Turn-Around Time: 5 Day

Standard Rush

Project Name: Tomcat 17 Federal #001

Project #: 22E-02816-27

Client: Vertex
(direct bill to Devon)

Mailing Address: _____

Phone #: _____

email or Fax#: _____

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

Accreditation: Az Compliance NELAC Other

EDD (Type) _____

Project Manager: Kent Stallings
kstallings@vertex.ca

Sampler: L. Pullman

On Ice: Yes No

of Coolers: 1

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

Analysis Request										
BTEX / MTBE / TMB's (8021)	TFH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO ₃ , NO ₂ , PO ₄ , SO ₄	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)	
X	X					X				
X	X					X				
X	X					X				
X	X					X				
X	X					X				
X	X					X				
X	X					X				

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.
01/07/23	7:15	Soil	WS22-17 0-4'	1, 4oz jar		2301323
01/07/23	7:20	Soil	WS22-18 0-4'	1, 4oz jar		407
01/07/23	7:25	Soil	WS22-19 0-4'	1, 4oz jar		007
01/07/23	7:30	Soil	WS22-20 0-4'	1, 4oz jar		004
01/07/23	7:35	Soil	WS22-21 0-4'	1, 4oz jar		005
01/07/23	7:45	Soil	BS22-14 4'	1, 4oz jar		006
01/07/23	7:50	Soil	BS22-15 4'	1, 4oz jar		007

Date: 1-9-23 Time: 07:00

Date: 1/9/23 Time: 1900

Relinquished by: [Signature]

Relinquished by: [Signature]

Received by: [Signature] Date: 1/9/23 Time: 700

Received by: [Signature] Date: 1/10/23 Time: 7:30

Remarks: **Direct bill to Devon, Dale Woodall**
cc. kstallings@vertex.ca for Final Report

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

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

QUESTIONS

Action 322635

QUESTIONS

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 322635
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Prerequisites	
Incident ID (n#)	nKJ1524345298
Incident Name	NKJ1524345298 TOMCAT 17 FEDERAL #001 @ 30-025-34690
Incident Type	Oil Release
Incident Status	Remediation Closure Report Received
Incident Well	[30-025-34690] TOMCAT 17 FEDERAL #001

Location of Release Source

Please answer all the questions in this group.

Site Name	TOMCAT 17 FEDERAL #001
Date Release Discovered	08/26/2015
Surface Owner	Federal

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.

Crude Oil Released (bbls) Details	Cause: Equipment Failure Tank (Any) Crude Oil Released: 90 BBL Recovered: 10 BBL Lost: 80 BBL.
Produced Water Released (bbls) Details	Not answered.
Is the concentration of chloride in the produced water >10,000 mg/l	Not answered.
Condensate Released (bbls) Details	Not answered.
Natural Gas Vented (Mcf) Details	Not answered.
Natural Gas Flared (Mcf) Details	Not answered.
Other Released Details	Not answered.
Are there additional details for the questions above (i.e. any answer containing Other, Specify, Unknown, and/or Fire, or any negative lost amounts)	Not answered.

District I
 1625 N. French Dr., Hobbs, NM 88240
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 Phone:(575) 748-1283 Fax:(575) 748-9720
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 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, Page 2

Action 322635

QUESTIONS (continued)

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 322635
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Nature and Volume of Release (continued)	
Is this a gas only submission (i.e. only significant Mcf values reported)	No, according to supplied volumes this does not appear to be a "gas only" report.
Was this a major release as defined by Subsection A of 19.15.29.7 NMAC	Yes
Reasons why this would be considered a submission for a notification of a major release	From paragraph A. "Major release" determine using: (1) an unauthorized release of a volume, excluding gases, of 25 barrels or more.
<i>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.</i>	

Initial Response

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

The source of the release has been stopped	True
The impacted area has been secured to protect human health and the environment	True
Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices	True
All free liquids and recoverable materials have been removed and managed appropriately	True
If all the actions described above have not been undertaken, explain why	<i>Not answered.</i>

Per Paragraph (4) of Subsection B of 19.15.29.8 NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please prepare and attach a narrative of actions to date in the follow-up C-141 submission. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see Subparagraph (a) of Paragraph (5) of Subsection A of 19.15.29.11 NMAC), please prepare and attach all information needed for closure evaluation in the follow-up C-141 submission.

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

I hereby agree and sign off to the above statement	Name: Dale Woodall Title: EHS Professional Email: Dale.Woodall@dmv.com Date: 03/12/2024
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Oil Conservation Division
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Santa Fe, NM 87505

QUESTIONS (continued)

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID:	6137
	Action Number:	322635
	Action Type:	[C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Site Characterization
Please answer all the questions in this group (only required when seeking remediation plan approval and beyond). This information must be provided to the appropriate district office no later than 90 days after the release discovery date.

What is the shallowest depth to groundwater beneath the area affected by the release in feet below ground surface (ft bgs)	Between 51 and 75 (ft.)
What method was used to determine the depth to ground water	NM OSE iWaters Database Search
Did this release impact groundwater or surface water	No
What is the minimum distance, between the closest lateral extents of the release and the following surface areas:	
A continuously flowing watercourse or any other significant watercourse	Between 1 and 5 (mi.)
Any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)	Greater than 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	No

Remediation Plan

Please answer all the questions that apply or are indicated. This information must be provided to the appropriate district office no later than 90 days after the release discovery date.

Requesting a remediation plan approval with this submission	Yes
<i>Attach a comprehensive report demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined, pursuant to 19.15.29.11 NMAC and 19.15.29.13 NMAC.</i>	
Have the lateral and vertical extents of contamination been fully delineated	Yes
Was this release entirely contained within a lined containment area	No

Soil Contamination Sampling: (Provide the highest observable value for each, in milligrams per kilograms.)

Chloride (EPA 300.0 or SM4500 Cl B)	5400
TPH (GRO+DRO+MRO) (EPA SW-846 Method 8015M)	16300
GRO+DRO (EPA SW-846 Method 8015M)	8300
BTEX (EPA SW-846 Method 8021B or 8260B)	0
Benzene (EPA SW-846 Method 8021B or 8260B)	0

Per Subsection B of 19.15.29.11 NMAC unless the site characterization report includes completed efforts at remediation, the report must include a proposed remediation plan in accordance with 19.15.29.12 NMAC, which includes the anticipated timelines for beginning and completing the remediation.

On what estimated date will the remediation commence	07/16/2020
On what date will (or did) the final sampling or liner inspection occur	01/17/2023
On what date will (or was) the remediation complete(d)	01/07/2023
What is the estimated surface area (in square feet) that will be reclaimed	2600
What is the estimated volume (in cubic yards) that will be reclaimed	339
What is the estimated surface area (in square feet) that will be remediated	2600
What is the estimated volume (in cubic yards) that will be remediated	339

These estimated dates and measurements are recognized to be the best guess or calculation at the time of submission and may (be) change(d) over time as more remediation efforts are completed.

The OCD recognizes that proposed remediation measures may have to be minimally adjusted in accordance with the physical realities encountered during remediation. If the responsible party has any need to significantly deviate from the remediation plan proposed, then it should consult with the division to determine if another remediation plan submission is required.

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QUESTIONS, Page 4

Action 322635

QUESTIONS (continued)

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID:	6137
	Action Number:	322635
	Action Type:	[C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Remediation Plan (continued)

Please answer all the questions that apply or are indicated. This information must be provided to the appropriate district office no later than 90 days after the release discovery date.

This remediation will (or is expected to) utilize the following processes to remediate / reduce contaminants:

(Select all answers below that apply.)

(Ex Situ) Excavation and off-site disposal (i.e. dig and haul, hydrovac, etc.)	Yes
Which OCD approved facility will be used for off-site disposal	R360 Artesia LLC LANDFARM [FEEM0112340644]
OR which OCD approved well (API) will be used for off-site disposal	Not answered.
OR is the off-site disposal site, to be used, out-of-state	Not answered.
OR is the off-site disposal site, to be used, an NMED facility	Not answered.
(Ex Situ) Excavation and on-site remediation (i.e. On-Site Land Farms)	Not answered.
(In Situ) Soil Vapor Extraction	Not answered.
(In Situ) Chemical processing (i.e. Soil Shredding, Potassium Permanganate, etc.)	Not answered.
(In Situ) Biological processing (i.e. Microbes / Fertilizer, etc.)	Yes
(In Situ) Physical processing (i.e. Soil Washing, Gypsum, Disking, etc.)	Not answered.
Ground Water Abatement pursuant to 19.15.30 NMAC	Not answered.
OTHER (Non-listed remedial process)	Not answered.

Per Subsection B of 19.15.29.11 NMAC unless the site characterization report includes completed efforts at remediation, the report must include a proposed remediation plan in accordance with 19.15.29.12 NMAC, which includes the anticipated timelines for beginning and completing the remediation.

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

I hereby agree and sign off to the above statement	Name: Dale Woodall Title: EHS Professional Email: Dale.Woodall@dvn.com Date: 03/12/2024
--	--

The OCD recognizes that proposed remediation measures may have to be minimally adjusted in accordance with the physical realities encountered during remediation. If the responsible party has any need to significantly deviate from the remediation plan proposed, then it should consult with the division to determine if another remediation plan submission is required.

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QUESTIONS, Page 5

Action 322635

QUESTIONS (continued)

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 322635
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Deferral Requests Only	
<i>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.</i>	
Requesting a deferral of the remediation closure due date with the approval of this submission	No

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QUESTIONS, Page 6

Action 322635

QUESTIONS (continued)

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 322635
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Sampling Event Information	
Last sampling notification (C-141N) recorded	322620
Sampling date pursuant to Subparagraph (a) of Paragraph (1) of Subsection D of 19.15.29.12 NMAC	01/07/2023
What was the (estimated) number of samples that were to be gathered	7
What was the sampling surface area in square feet	1

Remediation Closure Request	
<i>Only answer the questions in this group if seeking remediation closure for this release because all remediation steps have been completed.</i>	
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	2600
What was the total volume (cubic yards) remediated	339
All areas not reasonably needed for production or subsequent drilling operations have been reclaimed to contain a minimum of four feet of non-waste contain earthen material with concentrations less than 600 mg/kg chlorides, 100 mg/kg TPH, 50 mg/kg BTEX, and 10 mg/kg Benzene	Yes
What was the total surface area (in square feet) reclaimed	0
What was the total volume (in cubic yards) reclaimed	0
Summarize any additional remediation activities not included by answers (above)	see report

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

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations. The responsible party acknowledges they must substantially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed prior to the release or their final land use in accordance with 19.15.29.13 NMAC including notification to the OCD when reclamation and re-vegetation are complete.

I hereby agree and sign off to the above statement	Name: Dale Woodall Title: EHS Professional Email: Dale.Woodall@dmn.com Date: 03/12/2024
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QUESTIONS, Page 7

Action 322635

QUESTIONS (continued)

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 322635
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Reclamation Report	
<i>Only answer the questions in this group if all reclamation steps have been completed.</i>	
Requesting a reclamation approval with this submission	No

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CONDITIONS

Action 322635

CONDITIONS

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 322635
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

CONDITIONS

Created By	Condition	Condition Date
crystal.walker	Closure Approved. Final remediation and reclamation shall take place in accordance with 19.15.29.12 and 19.15.29.13 NMAC once the site is no longer being used for oil and gas operations.	3/14/2024