VERTEX

July 5, 2020 Vertex Project #: 20E-00239-011

Spill Closure Report: Black River Booster Station Riser #5
Unit A, Section 5, Township 24 South, Range 28 East
County: Eddy
Tracking Number: NRM2012930770

Prepared For: Matador Production Company
One Lincoln Center
5400 LBJ Freeway
Dallas, Texas 75240

New Mexico Oil Conservation Division – District 2 – Artesia
811 South First Street
Artesia, New Mexico 88210

Matador Production Company (Matador) retained Vertex Resource Services Inc. (Vertex) to conduct a spill assessment and remediation following a produced water release that occurred on May 2, 2020, at Black River Booster Station Riser #5 (hereafter referred to as "Black River"). Matador provided immediate notification of the release to New Mexico Oil Conservation Division (NM OCD) District 2 and the Bureau of Land Management (BLM), who owns the land, on May 4, 2020, followed by submission of the initial C-141 Release Notification on May 7, 2020 (Attachment 1). The NM OCD tracking number assigned to this incident is NRM2012930770.

This letter provides a description of the spill assessment and remediation activities, and demonstrates that closure criteria established in 19.15.29.12 *New Mexico Administrative Code* (NMAC; New Mexico Oil Conservation Division, 2018) have been met and all applicable regulations are being followed. This document is intended to serve as the final report to obtain approval from NM OCD for closure of this release.

Incident Description

On May 3, 2020, a release occurred at Matador's Black River site when a transfer pump connecting to the riser failed. This incident resulted in the release of approximately 58 barrels (bbls) of produced water into the pasture between the booster station and the Jimmy Kone 05 RB# 201/221/241 wellpad. A hydrovac truck was dispatched to the site to recover free fluids; approximately 50 bbls of produced water were recovered. No produced water was released into sensitive areas or waterways.

Site Characterization

The release at Black River occurred on federally-owned land, N 32.253479, W 104.101533, approximately 11 miles south-southeast of Carlsbad, New Mexico. The legal description for the site is Unit A, Section 5, Township 24 South, Range 28 East, Eddy County, New Mexico. This location is within the Permian Basin in southeast New Mexico and has historically been used for oil and gas exploration and production, and farmland. An aerial photograph and site schematic are included in Attachment 2.

Black River is typical of oil and gas exploration and production sites in the western portion of the Permian Basin, and is currently used for oil and gas production and transportation. The following sections specifically describe the area around the release site.

The surrounding landscape has historically been associated plains, ridges and hills consisting of mixed alluvium and residuum weathered from gypsum, and is considered farmland of statewide importance. The climate is semi-arid, with average annual precipitation ranging between 10 and 25 inches. The plant community has historically been dominated by alkali sacaton and black grama where the soils have a deeper gypsic horizon, while gyp grama, black grama and gyp dropseed dominate soils with a shallow gypsic horizon. Saltbush is generally an abundant shrub throughout, while mesquite may invade soils with deeper gypsic horizons that are dominated by tobosa or burrograss. While the landscape generally has a grassland aspect, areas of exposed gypsum outcrops harbor little vegetation, and patches of bare or lichen covered soil surface may be visible between patches of vegetation (United States Department of Agriculture, Natural Resources Conservation Service, 2020).

The Geological Map of New Mexico indicates the surface geology at Black River is comprised of lithological unit Qa – alluvium from the Holocene to upper Pleistocene (New Mexico Bureau of Geology and Mineral Resources, 2020). The National Resources Conservation Service (NRCS) Web Soil Survey characterizes the soil at the site as Gypsum land-Cottonwood complex, which is characterized by shallow loam or fine sandy loam, gypsum material and gypsiferous earth over bedrock. This type of soil tends to be well-drained with low runoff and very low available water storage in the soil profile, and is easily eroded by wind and water when unprotected by plant cover (United States Department of Agriculture, Natural Resources Conservation Service, 2020). There is medium potential for karst geology to be present near Black River (United States Department of the Interior, Bureau of Land Management, 2020).

There is no surface water located on-site. The nearest significant watercourse, as defined in Subsection P of 19.15.17.7 NMAC, is the Black River located approximately 1 mile south of the site (New Mexico Office of the State Engineer, Interstate Stream Commission, 2020). Multiple dry agricultural water conveyance structures, such as canals and ditches, are present in the vicinity. At Black River, there are no continuously flowing watercourses or significant watercourses, lakebeds, sinkholes, playa lakes, or other critical water or community features as outlined in Paragraph (4) of Subsection C of 19.15.29.12 NMAC.

The nearest active well is a New Mexico Office of the State Engineer well located approximately 0.2 miles south-southwest of the site. Data for that well show a depth to groundwater of 30 feet below ground surface (bgs; New Mexico Office of the State Engineer, New Mexico Water Rights Reporting System, 2020). Documentation pertaining to site characterization and depth to groundwater determination is included in Attachment 3.

Closure Criteria Determination

Using site characterization information, a closure criteria determination worksheet (Attachment 3) was completed to determine if the release was subject to any of the special case scenarios outlined in Paragraph (4) of Subsection C of 19.15.29.12 NMAC.

Based on data included in the closure criteria determination worksheet, the release at Black River is not subject to the requirements of Paragraph (4) of Subsection C of 19.15.29.12 NMAC and the closure criteria for the site are determined

to be associated with constituent concentration limits based on depth to groundwater.

Table 1. Closure Criteria for Soils Impacted by a Release		
Depth to Groundwater	**Constituent**	**Limit**
< 50 feet	Chloride	600 mg/kg
	TPH[1] (GRO + DRO + MRO)	100 mg/kg
	BTEX[2]	50 mg/kg
	Benzene	10 mg/kg

[1]Total petroleum hydrocarbons (TPH) = gasoline range organics (GRO) + diesel range organics (DRO) + motor oil range organics (MRO)
[2]Benzene, toluene, ethyl benzene and xylenes (BTEX)

Background Chloride

Based on site research on the historical agricultural use of the area where Black River is located, as well as information from the NRCS Web Soil Survey report included in Attachment 3, Vertex determined there may be potential for existing background chlorides to exceed remediation criteria as outlined in Table 1. At the time of the initial site visit, background samples were collected for laboratory analysis to determine if background chloride levels exceeded the applicable NM OCD closure criteria. These background samples were obtained from a single background borehole location (BG20-01), selected outside of the release footprint per guidance provided in the NM OCD *Procedures for Implementation of the Spill Rule* (19.15.29 NMAC; New Mexico Energy, Minerals and Natural Resources Department, 2019). The samples were collected at intervals, to a depth of 3 feet bgs, which was expected to exceed the projected final depth of remediation. The location of the background sample in relation to the release footprint is presented on Figure 1 (Attachment 2).

Laboratory analysis of the background samples showed natural background chloride levels higher than NM OCD closure criteria for areas where depth to groundwater is less than 50 feet bgs. The background sample laboratory data are included in Table 3 (Attachment 4) and the laboratory data report is included in Attachment 5. As allowed by the 19.15.29.12 NMAC – Closure Criteria for Soils Impacted by a Release table, for chloride remediation, "numerical limits or natural background level, whichever is greater" may be used to determine the level of remediation required for a release. The adjusted closure criteria limits for soils impacted by the release at Black River are presented in Table 2. No changes were made to constituent limits for TPH, BTEX or benzene.

Table 2. Adjusted Closure Criteria for Soils Impacted by the Release at Black River Booster Station Riser #5			
Depth to Groundwater	**Constituent**	**Depth Below Ground Surface**	**Limit**
< 50 feet	Chloride	0.5 feet	4,200 mg/kg
		1 foot	4,800 mg/kg
		2 feet	4,300 mg/kg
		3 feet	2,100 mg/kg
	TPH (GRO + DRO + MRO)	All	100 mg/kg
	BTEX	All	50 mg/kg
	Benzene	All	10 mg/kg

Remedial Actions

Vertex completed initial spill inspection and site characterization activities at Black River on May 4, 2020. The Daily Field Report (DFR) associated with the site visit is included in Attachment 6. Characterization soil samples were collected and field screened, and a selection of those samples was submitted for laboratory analysis to confirm the field screening data. Using initial field screening values and soil sample laboratory data, as presented in Table 3 (Attachment 4), the release at Black River was delineated horizontally and vertically as presented on Figure 1 (Attachment 2). The impacted area was determined to be approximately 435 feet long by 130 feet wide, approximately 20,208 square feet.

On June 19, 2020, Vertex provided 48-hour notification of confirmation sampling to NM OCD and the BLM, as required by Subparagraph (a) of Paragraph (1) of Subsection D 19.15.29.12 NMAC (Attachment 7). Excavation of impacted soils began on June 22, 2020, with a Vertex representative on-site to conduct field screening to guide the excavation and determine the final horizontal and vertical extents of the excavation area as presented on Figure 2 (Attachment 2). On June 24, 2020, as remediation activities were concluding, Vertex collected a total of 80 five-point composite confirmatory samples from the base and side walls of the excavation, at depths ranging between ground surface and 1 foot bgs. 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 NM OCD approval. The composite samples were placed into laboratory-provided containers, preserved on ice and submitted to a National Environmental Laboratory Accreditation Program-approved laboratory for chemical analysis.

Laboratory analyses included Method 300.0 for chlorides, Method 8021B for volatile organics, including BTEX, and EPA Method 8015 for TPH, including MRO, DRO and GRO. Confirmatory sample analytical data are summarized in Table 4 (Attachment 4). Laboratory data reports and chain of custody forms are included in Attachment 5.

A GeoExplorer 7000 Series Trimble global positioning system (GPS) unit, or equivalent, was used to map the approximate center of each of the five-point composite samples. The confirmatory sample locations are presented on Figure 2 (Attachment 2). Relevant equipment and prominent features/reference points at the site are mapped as well.

Closure Request

Vertex recommends no additional remediation to address the release at Black River. Laboratory analyses of the confirmatory samples showed constituent of concern concentration levels below adjusted closure criteria, as presented in Table 2. There are no anticipated risks to human, ecological or hydrological receptors associated with the release site.

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. The remediation area will be re-seeded with an approved seed mix at the appropriate time of year, to take advantage of seasonal rains, in order to aid in the re-establishment of vegetation over the impacted area.

Vertex requests that this incident be closed as all closure requirements set forth in Subsection E of 19.15.29.12 NMAC and reclamation requirements set forth in Subsection D of 19.15.29.13 NMAC have been met. Matador 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 NM OCD requirements to obtain closure on the May 3, 2020, release at Black River.

Should you have any questions or concerns, please do not hesitate to contact the undersigned at 505.506.0040 or ngordon@vertex.ca.

Sincerely,

Natalie Gordon
PROJECT MANAGER

Attachments

Attachment 1. NM OCD C-141 Report
Attachment 2. Figures
Attachment 3. Closure Criteria for Soils Impacted by a Release Determination Documentation
Attachment 4. Characterization and Confirmatory Sampling Laboratory Results Data Tables
Attachment 5. Laboratory Data Reports/Chain of Custody Forms
Attachment 6. Daily Field Report(s) with Photographs
Attachment 7. Required 48-hr Notification of Confirmatory Sampling to Regulatory Agencies

References

New Mexico Bureau of Geology and Mineral Resources. (2020). *Interactive Geologic Map.* Retrieved from http://geoinfo.nmt.edu.

New Mexico Energy, Minerals and Natural Resources Department. (2019). *Procedures for Implementation of the Spill Rule.* Santa Fe, New Mexico.

New Mexico Office of the State Engineer, Interstate Stream Commission. (2020). *OSE Pod Locations - Water Rights Look Up.* Retrieved from http://gis.ose.state.nm.us/gisapps/ose_pod_locations/

New Mexico Office of the State Engineer, New Mexico Water Rights Reporting System. (2020). *Water Column/Average Depth to Water Report*. Retrieved from http://nmwrrs.ose.state.nm.us/nmwrrs/waterColumn.html.

New Mexico Oil Conservation Division. (2018). *New Mexico Administrative Code – Natural Resources and Wildlife Oil and Gas Releases*. Santa Fe, New Mexico.

United States Department of Agriculture, Natural Resources Conservation Service. (2020). *Web Soil Survey*. Retrieved from https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx.

United States Department of the Interior, Bureau of Land Management. (2020). *New Mexico Cave/Karsts*. Retrieved from https://www.blm.gov/programs/recreation/recreation-programs/caves/new-mexico.

Limitations

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

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	NRM2012930770
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party: Matador Production Company	OGRID: 228937
Contact Name: John Hurt	Contact Telephone: 972-371-5200
Contact email: JHurt@matadorresources.com	Incident # *(assigned by OCD)*
Contact mailing address: 5400 LBJ Freeway, Suite 1500 Dallas, TX 75240	

Location of Release Source

Latitude 32.253479 Longitude -104.101533
(NAD 83 in decimal degrees to 5 decimal places)

Site Name: Black River Booster Station Riser #5	Site Type: Booster Station Riser
Date Release Discovered: 5/3/2020	API# *(if applicable)*

Unit Letter	Section	Township	Range	County
A	05	24S	28E	Eddy

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

Nature and Volume of Release

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

☐ Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
☒ Produced Water	Volume Released (bbls) 57.8 bbls	Volume Recovered (bbls) 50 bbls
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	☒ Yes ☐ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release:

Transfer pump connecting to the riser failed.

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State of New Mexico
Oil Conservation Division

Incident ID	NRM2012930770
District RP	
Facility ID	
Application ID	

Was this a major release as defined by 19.15.29.7(A) NMAC? ☒ Yes ☐ No	If YES, for what reason(s) does the responsible party consider this a major release? > 25 bbls
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)? On Monday, May 4, 2020, at approximately 8:30am, Natalie Gordon, of Vertex, left a voice mail message for Jim Griswold. This was followed by an email to Mr. Griswold, Mr. Mike Bratcher and the NM OCD District 2 office at approximately 8:45am, on May 4.	

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.
☒ The impacted area has been secured to protect human health and the environment.
☒ Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices.
☒ All free liquids and recoverable materials have been removed and managed appropriately.

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

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

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

Printed Name: John Hurt Title: RES Specialist

Signature: [signature] Date: 5/7/20

email: JHurt@matadorresources.com Telephone: 972- 371-5200

OCD Only

Received by: Ramona Marcus Date: 5/8/2020

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Page 3

State of New Mexico
Oil Conservation Division

Incident ID	NRM2012930770
District RP	
Facility ID	
Application ID	

Site Assessment/Characterization

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

What is the shallowest depth to groundwater beneath the area affected by the release?	30 (ft bgs)
Did this release impact groundwater or surface water?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	☐ Yes ☒ No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	☐ Yes ☒ No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	☐ Yes ☒ No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	☐ Yes ☒ No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a wetland?	☐ Yes ☒ No
Are the lateral extents of the release overlying a subsurface mine?	☐ Yes ☒ No
Are the lateral extents of the release overlying an unstable area such as karst geology?	☐ Yes ☒ No
Are the lateral extents of the release within a 100-year floodplain?	☐ Yes ☒ No
Did the release impact areas **not** on an exploration, development, production, or storage site?	☒ Yes ☐ No

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

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

- ☒ Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.
- ☒ Field data
- ☒ Data table of soil contaminant concentration data
- ☒ Depth to water determination
- ☒ Determination of water sources and significant watercourses within ½-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.

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State of New Mexico
Oil Conservation Division

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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: John Hurt Title: RES Specialist

Signature: Date: 8/6/20

email: JHurt@matadorresources.com Telephone: 972-371-5200

OCD Only

Received by: Date:

Form C-141
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State of New Mexico
Oil Conservation Division

Incident ID	NRM2012930770
District RP	
Facility ID	
Application ID	

Closure

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

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

[x] A scaled site and sampling diagram as described in 19.15.29.11 NMAC

[x] 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)

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

[x] 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: John Hurt Title: RES Specialist

Signature: Date: 8/6/20

email: JHurt@matadorresources.com Telephone: 972-371-5200

OCD Only

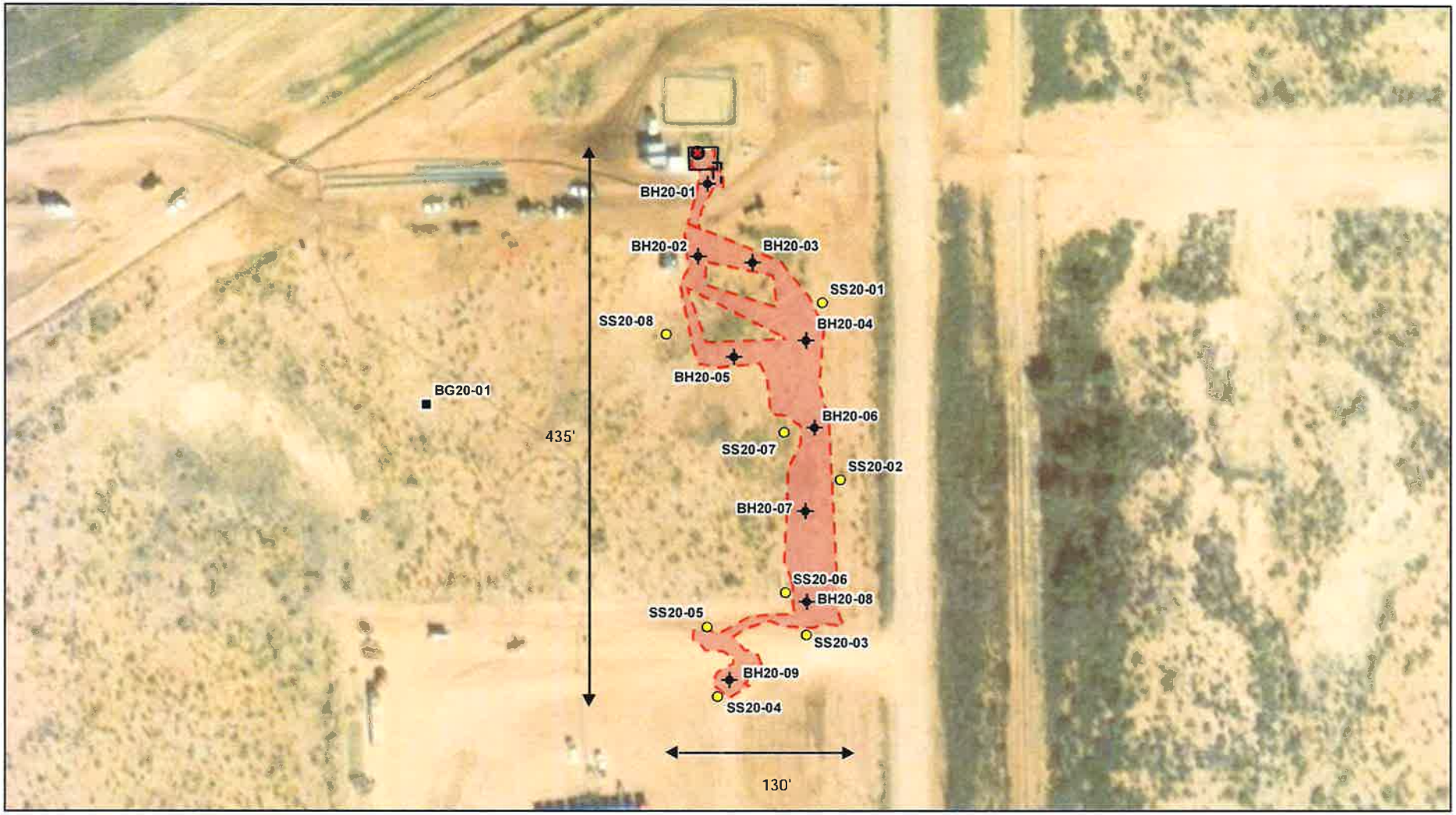
Received by: Date:

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 2



Background Sample
Surface Sample
Spill Area (~ 20,208 sq. ft.)
Borehole
Flowline
Point of Release
Infrastructure (Existing)

VERTEX

0 25 50 100 Feet

Map Center:
Lat/Long: 32.253479, -104.101533

NAD 1983 UTM Zone 13N
Date: May 05/20

N

Site Schematic and Characterization Sampling Locations
Black River Booster Station Riser #5

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: Imagery from ESRI, 2018.

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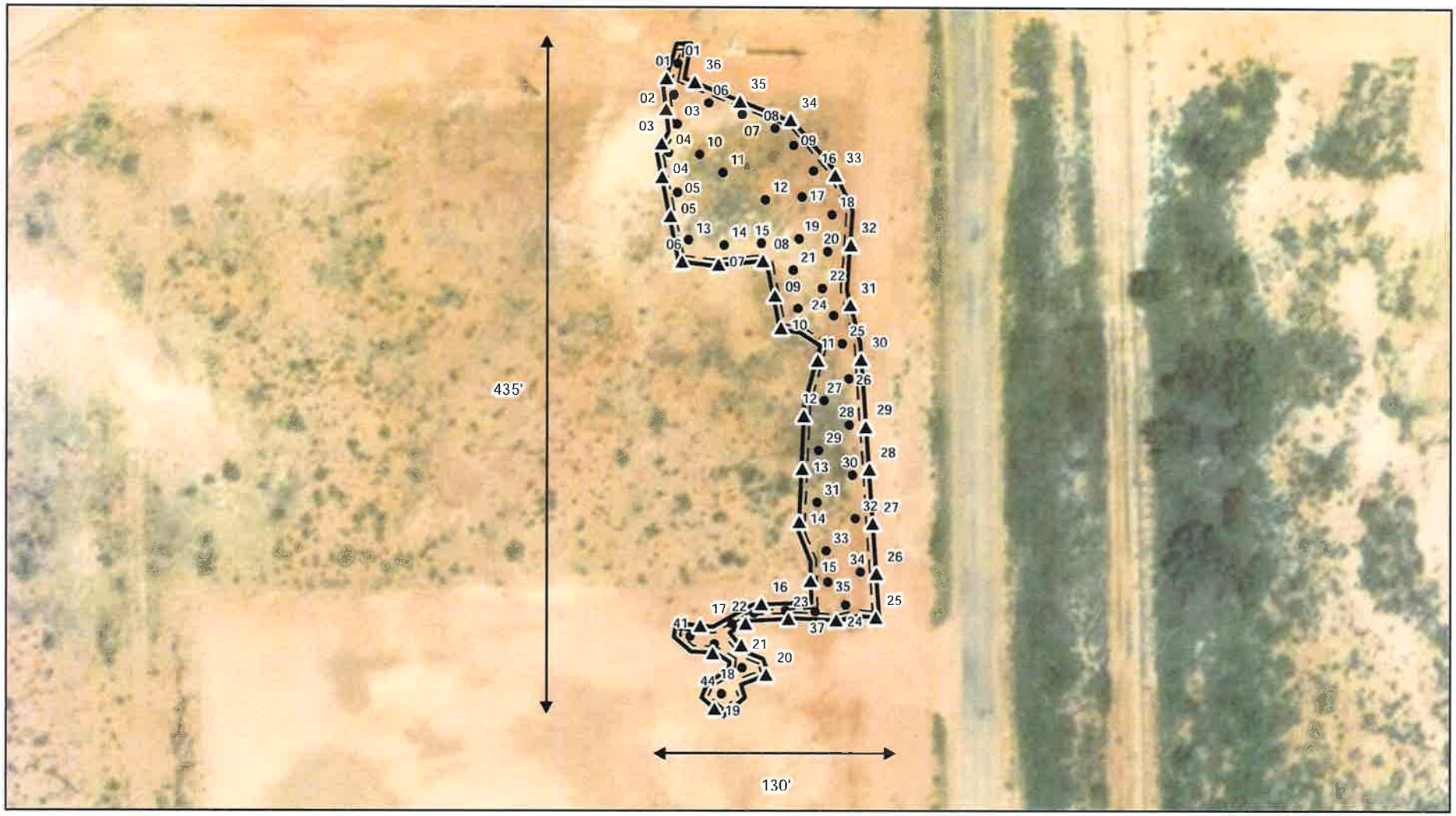
Document Path: G:\11-Projects_US PROJECTS\Matador Resources\20E-00230\011 - Black River Booster Station Riser #5\Fig 1 Black River Booster Station Riser #5 Inital Characterization.mxd



● Base Sample (label prefixed with BS20-)

▲ Wall Sample (label prefixed with WS20-)

Excavation Area (~23,098 sq. ft.)

VERTEX

0 25 50 Feet

Map Center:
Lat/Long: 32.253324, -104.101522

NAD 1983 UTM Zone 13N
Date: Jul 08/20

N

Confirmatory Sampling Locations
Black River Booster Station Riser #5

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: Imagery from ESRI, 2018.

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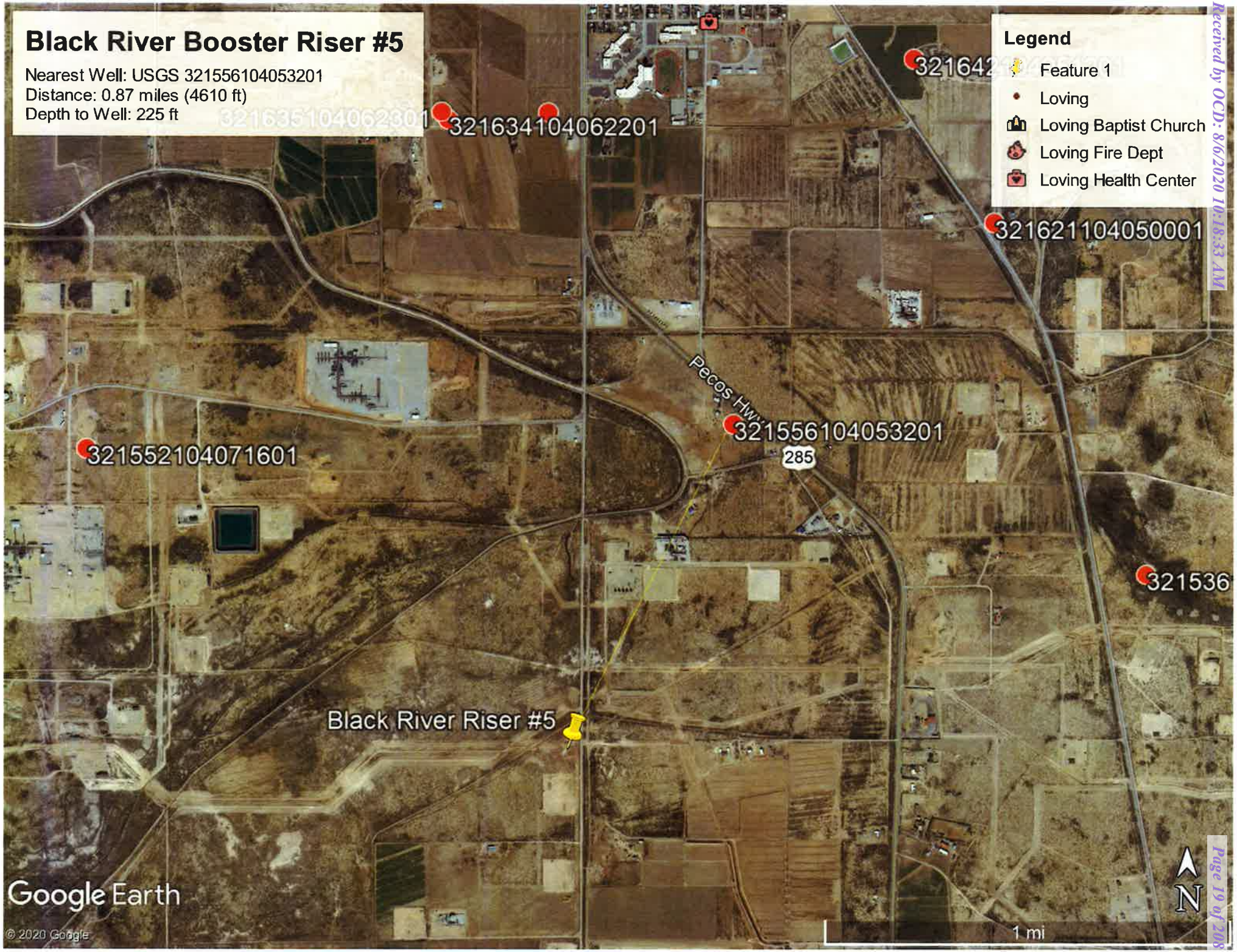
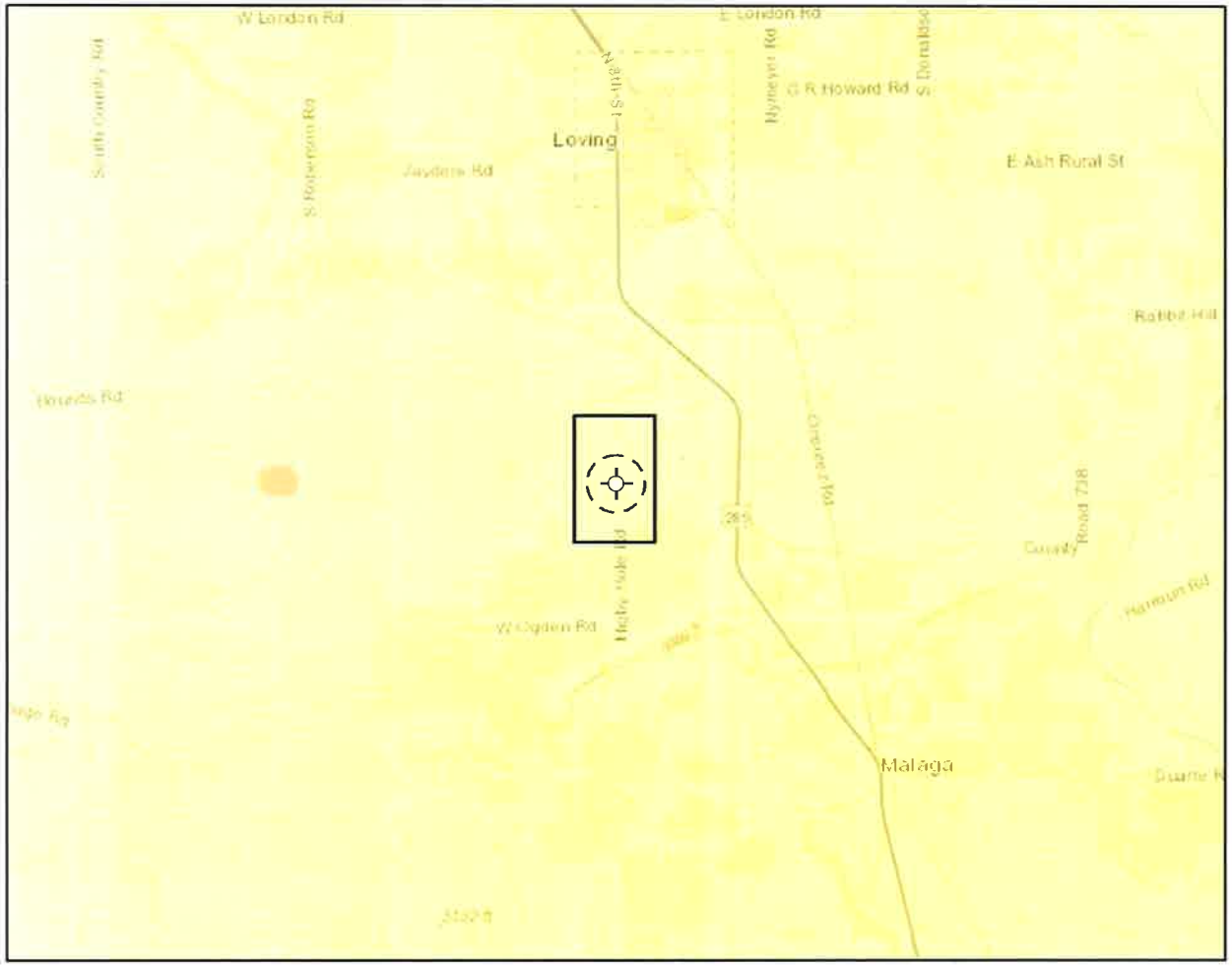
ATTACHMENT 3

Closure Criteria Worksheet			
Site Name: Black River Booster Riser #5			
Spill Coordinates:		X: 32.2539	Y: -104.1016
Site Specific Conditions		Value	Unit
1	Depth to Groundwater	30	feet
2	Within 300 feet of any continuously flowing watercourse or any other significant watercourse	6,567	feet
3	Within 200 feet of any lakebed, sinkhole or playa lake (measured from the ordinary high-water mark)	6,286	feet
4	Within 300 feet from an occupied residence, school, hospital, institution or church	1,423	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**	1,423	feet
	ii) Within 1000 feet of any fresh water well or spring	1,423	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	6,286	feet
8	Within the area overlying a subsurface mine	No	(Y/N)
9	Within an unstable area (Karst Map)	Medium	Critical High Medium Low
10	Within a 100-year Floodplain	>100	year
11	Soil Type	Gypsum land-Cottonwood Complex	
12	Ecological Classification	Upland Gyp	
13	Geology	Qa	
NMAC 19.15.29.12 E (Table 1) Closure Criteria		<50'	<50' 51-100' >100'





Overview Map

0 0.25 0.5 1 mi

Detail Map

0 150 300 600 ft.

Karst Potential

- Critical
- High
- Medium
- Low

Site

Site Buffer - 1000 ft.

VERTEX

Map Center:
Lat/Long: 32.253421, -104.101376

NAD 1983 UTM Zone 13N
Date: May 15/20

N

Karst Potential
Black River Booster Station Riser #5

FIGURE:
X

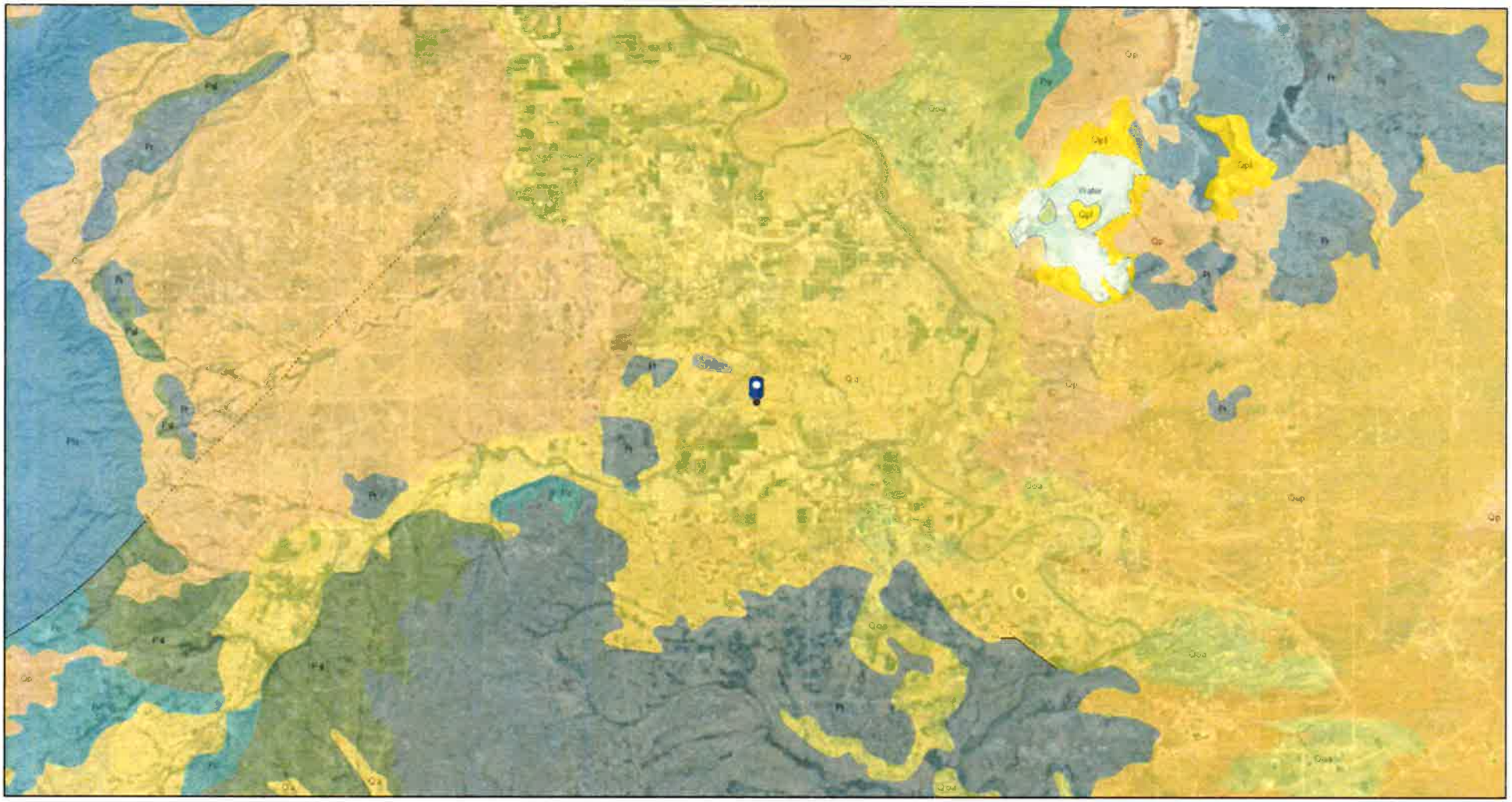
Geospatial data presented in this figure may be derived from external sources and Vertex does not assume any liability for inaccuracies. This figure is intended for reference use only and is not certified for legal, survey, or engineering purposes.

Note: Inset Map, ESRI 20XX; Overview Map: ESRI World Topographic

VERSATILITY. EXPERTISE.

Document Path: G:\Projects_US PROJECTS\Matador Resources\20E-00239011 - Black River Booster Station Riser #5\Fig X Black River Booster Station River #5 Karst Potential.mxd

Black River Booster Riser #5 Geology



5/7/2020, 2:09:52 PM

Faults

- Fault, Exposed
- Fault, Intermittent
- Fault, Concealed
- Shere Zone

1:144,448

0 1.5 3 6 mi

0 2.5 5 10 km

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

Web AppBuilder for ArcGIS

Bureau of Land Management, Network Operations Center (NOC) | Compiled by the Bureau of Land Management (BLM), National Operations Center (NOC), OC-530 | New Mexico Bureau of Geology & Mineral Resources, Bureau of Land Management | New Mexico Bureau of Geology & Mineral Resources | New

Eddy Area, New Mexico

Gs—Gypsum land-Cottonwood complex, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 1w4j
Elevation: 1,250 to 5,000 feet
Mean annual precipitation: 10 to 25 inches
Mean annual air temperature: 57 to 66 degrees F
Frost-free period: 190 to 225 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Gypsum land: 60 percent
Cottonwood and similar soils: 30 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Gypsum Land

Setting

Landform: Plains, ridges, hills
Landform position (two-dimensional): Backslope, footslope, shoulder, toeslope
Landform position (three-dimensional): Side slope, crest, nose slope, head slope
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Residuum weathered from gypsum

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s
Hydric soil rating: No

Description of Cottonwood

Setting

Landform: Ridges, hills
Landform position (two-dimensional): Backslope, footslope, shoulder, toeslope
Landform position (three-dimensional): Side slope, crest, nose slope, head slope
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Residuum weathered from gypsum

Typical profile

H1 - 0 to 9 inches: loam
H2 - 9 to 60 inches: bedrock

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 3 to 12 inches to paralithic bedrock
Natural drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 15 percent
Gypsum, 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: 1.0
Available water storage in profile: Very low (about 1.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: D
Ecological site: Gyp Upland (R042XC006NM)
Hydric soil rating: No

Minor Components

Cottonwood

Percent of map unit: 5 percent
Ecological site: Salty Bottomland (R042XC033NM)
Hydric soil rating: No

Rock outcrop

Percent of map unit: 5 percent
Hydric soil rating: No

Data Source Information

Soil Survey Area: Eddy Area, New Mexico
Survey Area Data: Version 15, Sep 15, 2019

Eddy Area, New Mexico

Kv—Karro loam, saline, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: 1w4x
Elevation: 3,000 to 4,500 feet
Mean annual precipitation: 10 to 14 inches
Mean annual air temperature: 60 to 64 degrees F
Frost-free period: 200 to 220 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Karro and similar soils: 99 percent
Minor components: 1 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Karro

Setting

Landform: Plains, alluvial fans
Landform position (three-dimensional): Riser, talf, rise
Down-slope shape: Convex, linear
Across-slope shape: Linear
Parent material: Mixed alluvium

Typical profile

H1 - 0 to 10 inches: loam
H2 - 10 to 90 inches: loam

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 60 percent
Salinity, maximum in profile: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 13.0
Available water storage in profile: High (about 10.5 inches)

Interpretive groups

Land capability classification (irrigated): 2s
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: C
Ecological site: Salt Flats (R042XC036NM)

Hydric soil rating: No

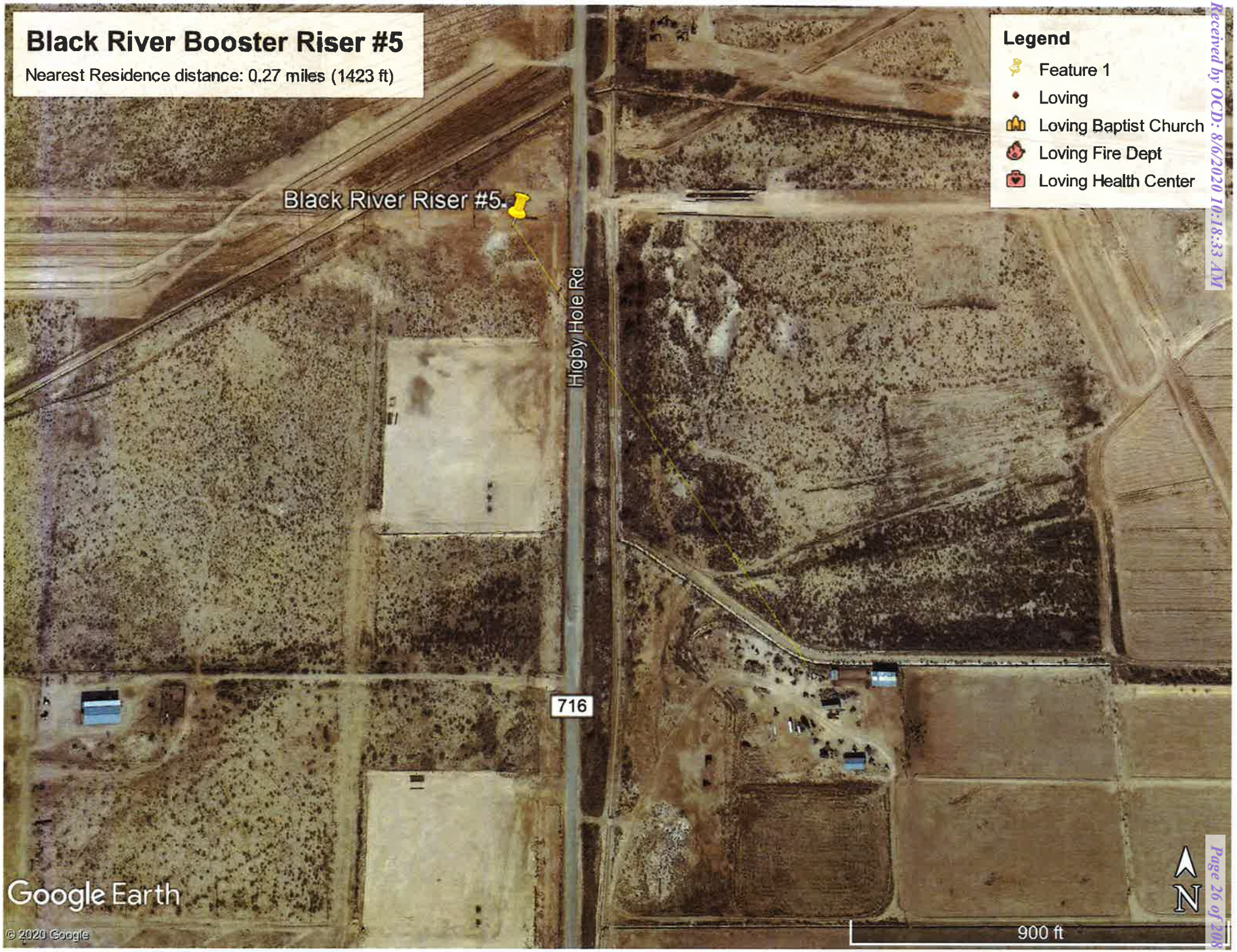
Minor Components

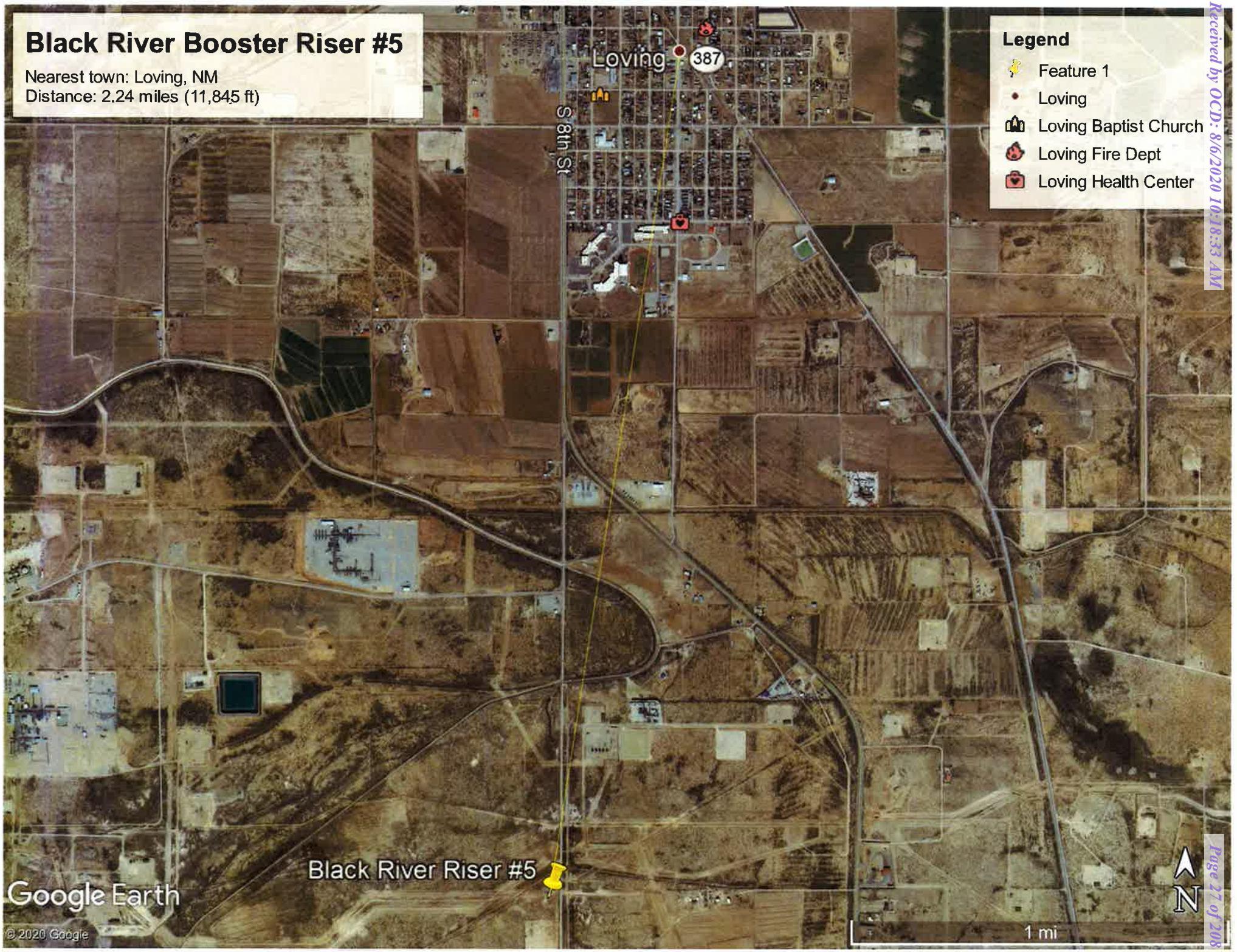
Reeves

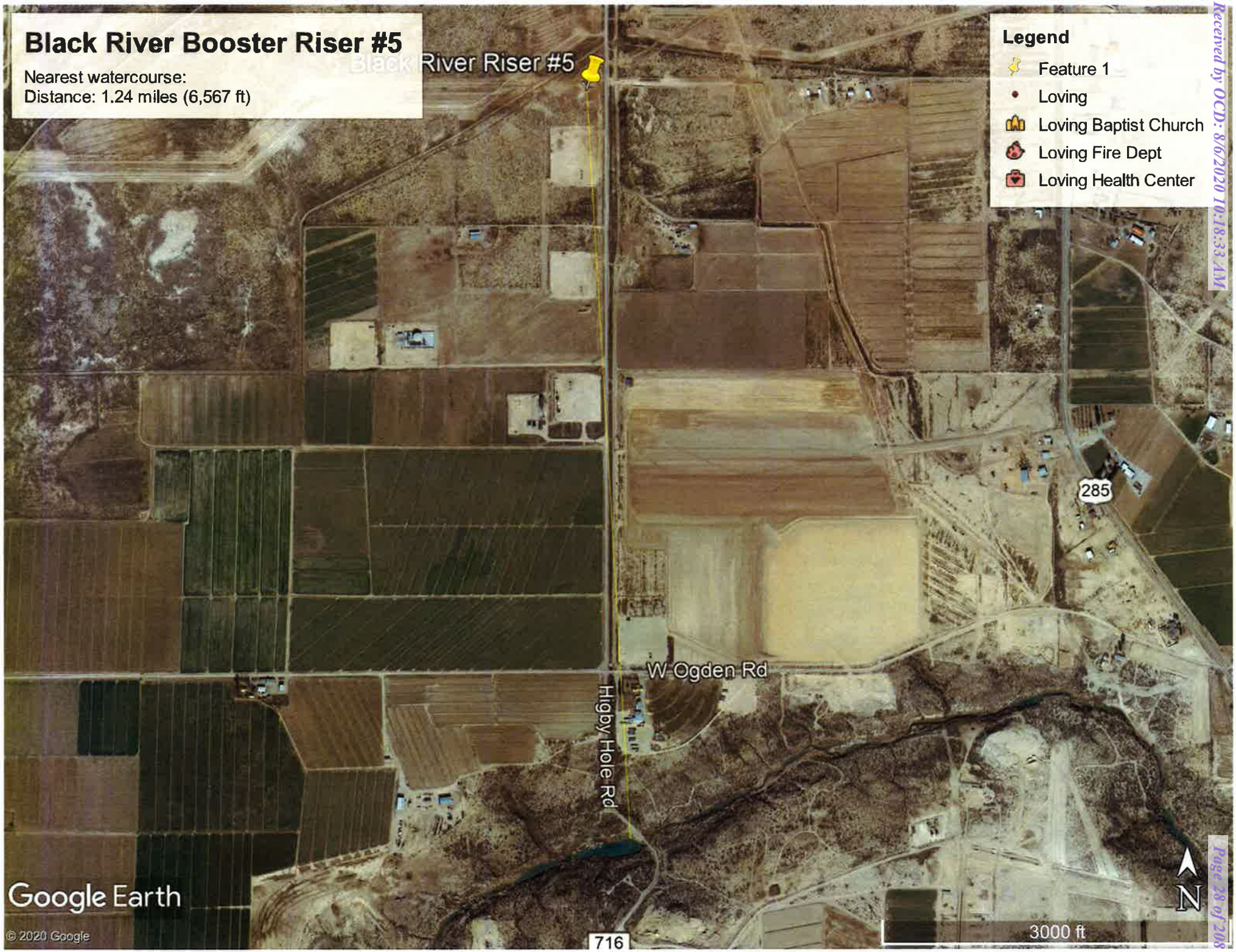
Percent of map unit: 1 percent
Ecological site: Loamy (R042XC007NM)
Hydric soil rating: No

Data Source Information

Soil Survey Area: Eddy Area, New Mexico
Survey Area Data: Version 15, Sep 15, 2019







New Mexico Office of the State Engineer
Point of Diversion Summary

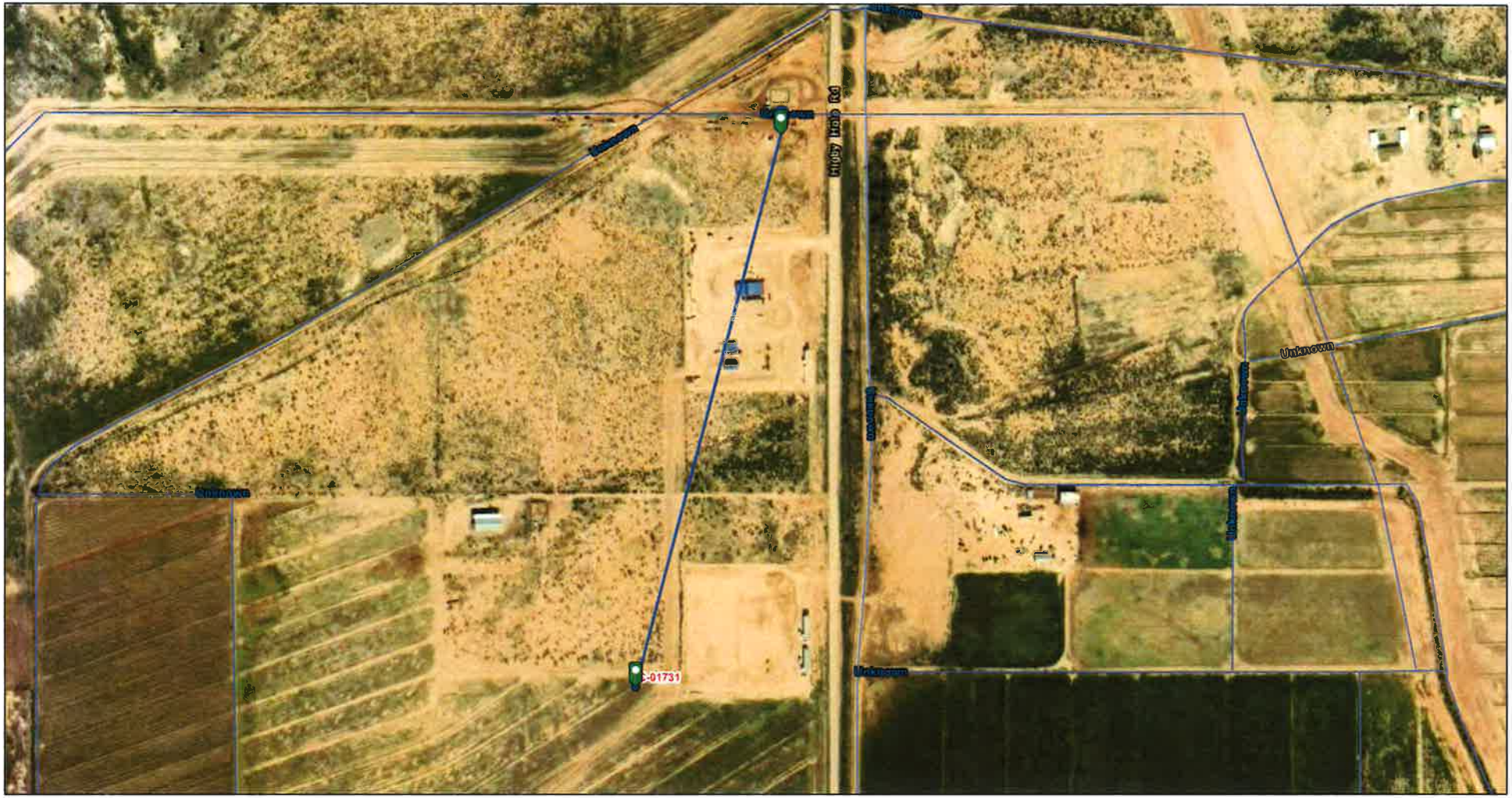
Well Tag	POD Number	(quarters are 1=NW 2=NE 3=SW 4=SE) (quarters are smallest to largest) Q64	Q16	Q4	Sec	Twn	Rng	(NAD83 UTM in meters) X	Y
	C 01731	4	2		05	24S	28E	584483	3568367*

Driller License:	30	**Driller Company:**	BARRON, EMMETT		
Driller Name:	BARRON, EMMETT				
Drill Start Date:	01/15/1977	**Drill Finish Date:**	03/10/1977	**Plug Date:**	
Log File Date:	03/30/1977	**PCW Rcv Date:**		**Source:**	Shallow
Pump Type:		**Pipe Discharge Size:**		**Estimated Yield:**	
Casing Size:		**Depth Well:**	80 feet	**Depth Water:**	30 feet

Water Bearing Stratifications:	Top	Bottom	Description
	0	10	Other/Unknown
	10	30	Other/Unknown
	20	80	Other/Unknown

***UTM location was derived from PLSS - see Help**

Black River Booster Riser #5 0.36 miles



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OSE District Boundary

GIS WATERS PODs

Active

Conveyances

Ditch

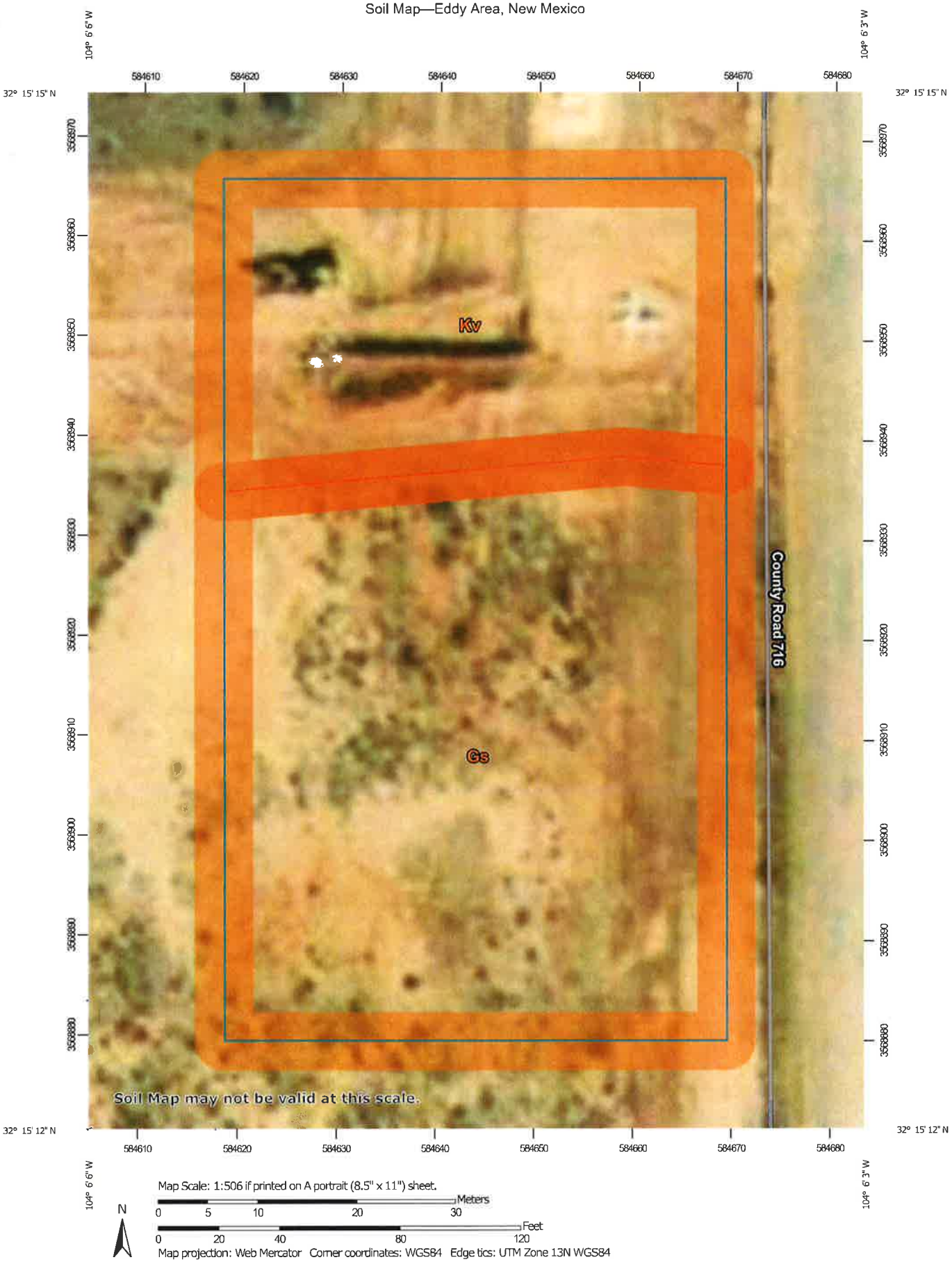
Lateral

1:4,514

0 0.05 0.1 0.19 mi

0 0.07 0.15 0.3 km

Soil Map—Eddy Area, New Mexico



Map Scale: 1:506 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 5 10 20 30

Feet: 0 20 40 80 120

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 13N WGS84

MAP LEGEND

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

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

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

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

Soil Survey Area: Eddy Area, New Mexico
Survey Area Data: Version 15, 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—Jun 10, 2017

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Gs	Gypsum land-Cottonwood complex, 0 to 3 percent slopes	0.7	66.0%
Kv	Karro loam, saline, 0 to 1 percent slopes	0.4	34.0%
Totals for Area of Interest		**1.1**	**100.0%**

USGS science for a changing world

National Water Information System: Web Interface

USGS Water Resources

Data Category: Site Information ▼ Geographic Area: United States ▼ GO

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- **Notice** - The USGS Water Resources Mission Area's priority is to maintain the safety and well-being of our communities, including providing critical situational awareness in times of flooding in all 50 U.S. states and additional territories. Our hydrologic monitoring stations continue to send data in near real-time to NWISWeb, and we are continuing critical water monitoring activities to protect life and property on a case-by-case basis. The health and safety of the public and our employees are our highest priorities, and we continue to follow guidance from the White House, the CDC, and state and local authorities.

- Introducing The Next Generation of USGS Water Data for the Nation
- Full News

USGS 321552104071601 23S.28E.31.23142

Available data for this site SUMMARY OF ALL AVAILABLE DATA ▼ GO

Well Site

DESCRIPTION:
Latitude 32°15'52", Longitude 104°07'16" NAD27
Eddy County, New Mexico , Hydrologic Unit 13060011
Well depth: 93 feet
Land surface altitude: 3,139 feet above NAVD88.
Well completed in "Alluvium, Bolson Deposits and Other Surface Deposits" (110AVMB) local aquifer

AVAILABLE DATA:

Data Type	Begin Date	End Date	Count
Field groundwater-level measurements	1954-02-16	1993-02-03	18
Revisions	Unavailable (site:0) (timeseries:0)		

OPERATION:

Record for this site is maintained by the USGS New Mexico Water Science Center
Email questions about this site to New Mexico Water Science Center Water-Data Inquiries

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

Accessibility Plug-Ins FOIA Privacy Policies and Notices

U.S. Department of the Interior | U.S. Geological Survey

Title: NWIS Site Information for USA: Site Inventory
URL: https://waterdata.usgs.gov/nwis/inventory?agency_code=USGS&site_no=321552104071601

Page Contact Information: New Mexico Water Data Support Team
Page Last Modified: 2020-05-07 15:15:19 EDT
0.4 0.39 caww02

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National Water Information System: Web Interface

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- Full News

USGS 321556104053201 23S.28E.33.123432

Available data for this site SUMMARY OF ALL AVAILABLE DATA ▼ GO

Well Site

DESCRIPTION:
Latitude 32°15'55.6", Longitude 104°05'40.94" NAD83
Eddy County, New Mexico , Hydrologic Unit 13060011
Well depth: 225 feet
Land surface altitude: 3,094.60 feet above NGVD29.
Well completed in "Alluvium, Bolson Deposits and Other Surface Deposits" (110AVMB) local aquifer

AVAILABLE DATA:

Data Type	Begin Date	End Date	Count
Field groundwater-level measurements	1954-10-05	2018-02-13	9
Revisions	Unavailable (site:0) (timeseries:0)		

OPERATION:

Record for this site is maintained by the USGS New Mexico Water Science Center
Email questions about this site to New Mexico Water Science Center Water-Data Inquiries

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

Accessibility Plug-Ins FOIA Privacy Policies and Notices

U.S. Department of the Interior | U.S. Geological Survey

Title: NWIS Site Information for USA: Site Inventory
URL: https://waterdata.usgs.gov/nwis/inventory?agency_code=USGS&site_no=321556104053201

Page Contact Information: New Mexico Water Data Support Team
Page Last Modified: 2020-05-07 15:11:39 EDT
0.44 0.41 caww01

U.S. Fish and Wildlife Service

National Wetlands Inventory

Black River Booster Riser #5 Wetland 1.19

May 7, 2020

Wetlands

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

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

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

ATTACHMENT 4

Client Name: Matador Production Company
Site Name: Black River Booster Station Riser #5
NM OCD Incident Tracking #: NRM2012930770
Vertex Project #: 20E-00239-011
Lab Report: 2001A59

Table 3. Characterization Sampling Field Screening and Laboratory Results

Sample Description			Field Screening			Petroleum Hydrocarbons							Inorganic
						Volatile		Extractable					
Sample ID	Depth (ft)	Sample Date	Volatile Organic Compounds (PID)	Extractable Organic Compounds (Petro-Flag)	Inorganics (Quantab - High/Low)	Benzene	BTEX (Total)	Gasoline Range Organics (GRO)	Diesel Range Organics (DRO)	Motor Oil Range Organics (MRO)	(GRO + DRO)	Total Petroleum Hydrocarbons (TPH)	Chloride
			(ppm)	(ppm)	(+/-)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Background													
BG20-01	0-0.5	May 4, 2020	-	-	9,606	-	-	-	-	-	-	-	4,200
BG20-01	1	May 4, 2020	-	-	7,012	-	-	-	-	-	-	-	4,800
BG20-01	2	May 4, 2020	-	-	6,898	-	-	-	-	-	-	-	4,300
BG20-01	3	May 4, 2020	-	-	5,296	-	-	-	-	-	-	-	2,100
Site Characterization													
BH 20-01	0-0.5	May 4, 2020	-	-	10,925	<0.024	<0.217	<4.8	<9.2	<46	<14	<60	6,800
BH 20-01	1	May 4, 2020	-	-	4,112	-	-	-	-	-	-	-	3,100
BH 20-01	2	May 4, 2020	-	-	4,187	-	-	-	-	-	-	-	-
BH 20-01	3	May 4, 2020	-	-	6,846	-	-	-	-	-	-	-	-
BH 20-02	0-0.5	May 4, 2020	-	-	11,860	-	-	-	-	-	-	-	-
BH 20-02	1	May 4, 2020	-	-	4,084	-	-	-	-	-	-	-	-
BH 20-02	2	May 4, 2020	-	-	3,775	-	-	-	-	-	-	-	-
BH 20-02	3	May 4, 2020	-	-	3,756	-	-	-	-	-	-	-	-
BH 20-03	0-0.5	May 4, 2020	-	-	15,249	-	-	-	-	-	-	-	-
BH 20-03	1	May 4, 2020	-	-	5,538	-	-	-	-	-	-	-	-
BH 20-03	2	May 4, 2020	-	-	4,996	-	-	-	-	-	-	-	-
BH 20-03	2.5	May 4, 2020	-	-	4,672	-	-	-	-	-	-	-	-
BH20-04	0-0.5	May 4, 2020	-	-	19,202	-	-	-	-	-	-	-	10,000
BH20-04	1	May 4, 2020	-	-	7,065	-	-	-	-	-	-	-	4,700
BH 20-04	2	May 4, 2020	-	-	4,934	-	-	-	-	-	-	-	-
BH 20-04	3	May 4, 2020	-	-	4,501	-	-	-	-	-	-	-	-
BH 20-05	0-0.5	May 4, 2020	-	-	17,946	-	-	-	-	-	-	-	-
BH 20-05	1	May 4, 2020	-	-	10,799	-	-	-	-	-	-	-	-
BH 20-05	2	May 4, 2020	-	-	5,479	-	-	-	-	-	-	-	-
BH 20-05	3	May 4, 2020	-	-	5,941	-	-	-	-	-	-	-	-
BH 20-06	0-0.5	May 4, 2020	-	-	14,517	-	-	-	-	-	-	-	-
BH 20-06	1	May 4, 2020	-	-	6,142	-	-	-	-	-	-	-	-
BH 20-06	2	May 4, 2020	-	-	6,902	-	-	-	-	-	-	-	-
BH 20-06	3	May 4, 2020	-	-	5,156	-	-	-	-	-	-	-	-
BH 20-07	0-0.5	May 4, 2020	-	-	7,644	-	-	-	-	-	-	-	-
BH 20-07	1	May 4, 2020	-	-	6,947	-	-	-	-	-	-	-	-
BH 20-07	2	May 4, 2020	-	-	5,935	-	-	-	-	-	-	-	-
BH 20-07	3	May 4, 2020	-	-	3,789	-	-	-	-	-	-	-	-
BH 20-08	0-0.5	May 4, 2020	-	-	16,938	-	-	-	-	-	-	-	4,300
BH 20-08	1	May 4, 2020	-	-	4,301	-	-	-	-	-	-	-	-
BH 20-08	2	May 4, 2020	-	-	5,208	-	-	-	-	-	-	-	-
BH 20-08	3	May 4, 2020	-	-	4,808	-	-	-	-	-	-	-	-
BH 20-09	0-0.5	May 4, 2020	-	-	6,514	<0.025	<0.225	<5.0	<9.8	<49	<14.8	<63.8	3,800
BH 20-09	1	May 4, 2020	-	-	5,156	-	-	-	-	-	-	-	-
BH 20-09	2	May 4, 2020	-	-	4,547	-	-	-	-	-	-	-	-
BH 20-09	3	May 4, 2020	-	-	4,273	-	-	-	-	-	-	-	-
SS 20-01	0	May 4, 2020	-	-	24,265	-	-	-	-	-	-	-	-
SS 20-01	0.5	May 4, 2020	-	-	13,257	-	-	-	-	-	-	-	-
SS 20-02	0	May 4, 2020	-	-	13,306	-	-	-	-	-	-	-	5,300
SS 20-02	0.5	May 4, 2020	-	-	7,635	-	-	-	-	-	-	-	-
SS 20-03	0	May 4, 2020	-	-	11,142	-	-	-	-	-	-	-	-
SS 20-03	0.5	May 4, 2020	-	-	8,800	-	-	-	-	-	-	-	-
SS 20-04	0	May 4, 2020	-	-	14,774	-	-	-	-	-	-	-	370
SS 20-04	0.5	May 4, 2020	-	-	3,808	-	-	-	-	-	-	-	-
SS 20-05	0	May 4, 2020	-	-	11,159	-	-	-	-	-	-	-	-
SS 20-05	0.5	May 4, 2020	-	-	4,368	-	-	-	-	-	-	-	-
SS 20-06	0	May 4, 2020	-	-	9,047	-	-	-	-	-	-	-	4,500
SS 20-06	0.5	May 4, 2020	-	-	4,831	-	-	-	-	-	-	-	-
SS 20-07	0	May 4, 2020	-	-	19,602	-	-	-	-	-	-	-	-
SS 20-07	0.5	May 4, 2020	-	-	15,943	-	-	-	-	-	-	-	-

Client Name: Matador Production Company
Site Name: Black River Booster Station Riser #5
NM OCD Incident Tracking #: NRM2012930770
Vertex Project #: 20E-00239-011
Lab Report: 2001A59

Table 3. Characterization Sampling Field Screening and Laboratory Results

Sample Description			Field Screening			Petroleum Hydrocarbons							Inorganic
						Volatile		Extractable					
Sample ID	Depth (ft)	Sample Date	Volatile Organic Compounds (PID)	Extractable Organic Compounds (Petro Flag)	Inorganics (Quantab - High/Low)	Benzene	BTEX (Total)	Gasoline Range Organics (GRO)	Diesel Range Organics (DRO)	Motor Oil Range Organics (MRO)	(GRO + DRO)	Total Petroleum Hydrocarbons (TPH)	Chloride
			(ppm)	(ppm)	(+/-)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Site Characterization													
SS 20-08	0	May 4, 2020	-	-	1,191	-	-	-	-	-	-	-	-
SS 20-08	0.5	May 4, 2020	-	-	11,426	-	-	-	-	-	-	-	**10,000**

"-" - Not assessed/analyzed

Bold and shaded indicates exceedance outside of, or near, applied action level

VERTEX

Client Name: Matador Production Company
Site Name: Black River Booster Station Riser #5
NM OCD Tracking Number: NRM2012930770
Vertex Project #: 20E-00239-011
Lab Reports: 2006D74 and 2007B62

Table 4. Confirmatory Sampling Laboratory Results

Sample Description			Petroleum Hydrocarbons							Inorganic
			Volatile		Extractable					
Sample ID	Depth (ft)	Sample Date	Benzene	BTEX (Total)	Gasoline Range Organics (GRO)	Diesel Range Organics (DRO)	Motor Oil Range Organics (MRO)	(GRO + DRO)	Total Petroleum Hydrocarbons (TPH)	Chloride
			(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Background										
BG20-01	0.5	May 4, 2020	-	-	-	-	-	-	-	4,200
BG20-01	1	May 4, 2020	-	-	-	-	-	-	-	4,800
BG20-01	2	May 4, 2020	-	-	-	-	-	-	-	4,300
BG20-01	3	May 4, 2020	-	-	-	-	-	-	-	2,100
Excavation										
BS20-01	1	June 24, 2020	<0.025	<0.225	<5.0	<10.0	<50	<15.0	<65.0	810
BS20-02	1	June 24, 2020	<0.025	<0.224	<5.0	<9.2	<46	<14.2	<60.2	1,500
BS20-03	1	June 24, 2020	<0.025	<0.222	<4.9	<9.8	<49	<14.7	<63.7	670
BS20-04	1	June 24, 2020	<0.024	<0.219	<4.9	<9.5	<47	<14.4	<61.4	1,800
BS20-05	1	June 24, 2020	<0.024	<0.220	<4.9	<9.9	<50	<14.8	<64.8	1,500
BS20-06	1	June 24, 2020	<0.025	<0.224	<5.0	<8.7	<43	<13.7	<56.7	1,100
BS20-07	1	June 24, 2020	<0.025	<0.224	<5.0	<9.9	<49	<14.9	<63.9	750
BS20-08	1	June 24, 2020	<0.024	<0.217	<4.8	<9.5	<48	<14.3	<62.3	1,300
BS20-09	1	June 24, 2020	<0.025	<0.225	<5.0	<9.1	<46	<14.1	<60.1	1,500
BS20-10	1	June 24, 2020	<0.024	<0.220	<4.9	<9.8	<49	14.7	<63.7	1,200
BS20-11	1	June 24, 2020	<0.024	<0.217	<4.8	<9.6	<48	<14.4	<62.4	2,200
BS20-12	1	June 24, 2020	<0.025	<0.225	<5.0	<9.9	<49	<14.9	<63.9	1,200
BS20-13	1	June 24, 2020	<0.024	<0.219	<4.9	<9.3	<46	<14.2	<60.2	1,200
BS20-14	1	June 24, 2020	<0.025	<0.222	<4.9	<9.5	<48	<14.4	<62.4	1,900
BS20-15	1	June 24, 2020	<0.024	<0.219	<4.9	<9.2	<46	<14.1	<60.1	1,900
BS20-16	1	June 24, 2020	<0.025	<0.222	<4.9	<9.2	<46	<14.1	<60.1	1,500
BS20-17	1	June 24, 2020	<0.025	<0.224	<5.0	<9.7	<48	<14.7	<62.7	2,200
BS20-18	1	June 24, 2020	<0.024	<0.216	<4.8	<9.2	<46	<14.0	<60.0	2,100
BS20-19	1	June 24, 2020	<0.025	<0.221	<4.9	<9.3	<47	<14.2	<61.2	2,100
BS20-20	1	June 24, 2020	<0.025	<0.225	<5.0	<10.0	<50	<15.0	<65.0	2,200
BS20-21	1	June 24, 2020	<0.025	<0.225	<5.0	<9.1	<46	<14.1	<60.1	1,900
BS20-22	1	June 24, 2020	<0.025	<0.225	<5.0	<9.9	<50	<14.9	<64.9	1,500
BS20-23	1	June 24, 2020	<0.025	<0.224	<5.0	<9.8	<49	<14.8	<63.8	2,700
BS20-24	1	June 24, 2020	<0.025	<0.221	<4.9	<9.2	<46	<14.1	<60.1	2,100
BS20-25	1	June 24, 2020	<0.025	<0.222	<4.9	<9.4	<47	<14.3	<61.3	3,600
BS20-26	1	June 24, 2020	<0.024	<0.220	<4.9	<9.6	<48	<14.5	<62.5	2,200
BS20-27	1	June 24, 2020	<0.025	<0.224	<5.0	<9.8	<49	<14.8	<63.8	3,400
BS20-28	1	June 24, 2020	<0.025	<0.225	<5.0	<9.5	<48	<14.5	<62.5	670
BS20-29	1	June 24, 2020	<0.024	<0.219	<4.9	<9.1	<45	<14.0	<59.0	2,000
BS20-30	1	June 24, 2020	<0.025	<0.224	<5.0	<9.8	<49	<14.8	<63.8	1,900
BS20-31	1	June 24, 2020	<0.025	<0.221	<4.9	<9.8	<49	<14.7	<63.7	2,600
BS20-32	1	June 24, 2020	<0.025	<0.225	<5.0	<9.5	<47	<14.5	<61.5	1,500
BS20-33	1	June 24, 2020	<0.025	<0.222	<4.9	<9.2	<46	<14.1	<60.1	5,100
BS20-33	2.5	July 21, 2020	<0.024	<0.216	<4.8	<10.0	<50	<14.8	<64.8	3,700
BS20-34	1	June 24, 2020	<0.025	<0.224	<5.0	<9.4	<47	<14.4	<61.4	2,600
BS20-35	1	June 24, 2020	<0.025	<0.225	<5.0	<9.5	<48	<14.5	<62.5	2,000
BS20-36	0.5	June 24, 2020	<0.025	<0.225	<5.0	<9.8	<49	<14.8	<63.8	380
BS20-37	0.5	June 24, 2020	<0.025	<0.224	<5.0	<9.1	<45	<14.1	<59.1	3,500
BS20-38	0.5	June 24, 2020	<0.025	<0.225	<5.0	<9.8	<49	<14.8	<63.8	660
BS20-39	0.5	June 24, 2020	<0.025	<0.224	<5.0	<9.3	<46	<14.3	<60.3	790
BS20-40	0.5	June 24, 2020	<0.024	<0.217	<4.8	<9.2	<46	<14.0	<60.0	540
BS20-41	0.5	June 24, 2020	<0.025	<0.221	<4.9	13	49	13	62	1,400
BS20-42	0.5	June 24, 2020	<0.025	<0.221	<4.9	<9.0	<45	<13.9	<58.9	790
BS20-43	0.5	June 24, 2020	<0.025	<0.222	<4.9	<9.6	<48	<14.5	<62.5	650
BS20-44	0.5	June 24, 2020	<0.025	<0.222	<4.9	12	50	12	62	1,700
WS20-01	0-1	June 24, 2020	<0.025	<0.222	<4.9	<9.7	<49	<14.6	<63.6	3,300
WS20-02	0-1	June 24, 2020	<0.025	<0.225	<5.0	<9.2	<46	<14.2	<60.2	3,000
WS20-03	0-1	June 24, 2020	<0.025	<0.222	<4.9	<9.7	<49	<14.6	<63.6	3,000
WS20-04	0-1	June 24, 2020	<0.025	<0.222	<4.9	<9.7	<48	<14.6	<62.6	2,300
WS20-05	0-1	June 24, 2020	<0.025	<0.222	<4.9	<9.9	<49	<14.8	<63.8	2,400

VERTEX

Client Name: Matador Production Company
Site Name: Black River Booster Station Riser #5
NM OCD Tracking Number: NRM2012930770
Vertex Project #: 20E-00239-011
Lab Reports: 2006D74 and 2007B62

Table 4. Confirmatory Sampling Laboratory Results

Sample Description			Petroleum Hydrocarbons							Inorganic
			Volatile		Extractable					
Sample ID	Depth (ft)	Sample Date	Benzene	BTEX (Total)	Gasoline Range Organics (GRO)	Diesel Range Organics (DRO)	Motor Oil Range Organics (MRO)	(GRO + DRO)	Total Petroleum Hydrocarbons (TPH)	Chloride
			(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Excavation										
WS20-06	0-1	June 24, 2020	<0.025	<0.222	<4.9	<9.9	<49	<14.8	<63.8	3,200
WS20-07	0-1	June 24, 2020	<0.025	<0.224	<5.0	<9.7	<48	<14.7	<62.7	4,000
WS20-08	0-1	June 24, 2020	<0.025	<0.221	<4.9	<10.0	<50	<14.9	<64.9	4,100
WS20-09	0-1	June 24, 2020	<0.025	<0.225	<5.0	<9.8	<49	<14.8	<63.8	4,300
WS20-10	0-1	June 24, 2020	<0.025	<0.222	<4.9	<9.8	<49	<14.7	<63.7	1,300
WS20-11	0-1	June 24, 2020	<0.025	<0.224	<5.0	<9.6	<48	<14.6	<62.6	1,000
WS20-12	0-1	June 24, 2020	<0.025	<0.222	<4.9	<9.9	<50	<14.8	<64.8	4,300
WS20-13	0-1	June 24, 2020	<0.024	<0.219	<4.9	<10.0	<50	<14.9	<64.9	1,200
WS20-14	0-1	June 24, 2020	<0.025	<0.224	<5.0	<9.9	<49	<14.9	<63.9	2,700
WS20-15	0-1	June 24, 2020	<0.025	<0.222	<4.9	<9.6	<48	<14.5	<62.5	780
WS20-16	0-1	June 24, 2020	<0.024	<0.220	<4.9	<9.6	<48	<14.5	<62.5	4,300
WS20-17	0-1	June 24, 2020	<0.024	<0.220	<4.9	<9.2	<46	<14.1	<60.1	1,400
WS20-18	0-1	June 24, 2020	<0.025	<0.224	<5.0	<9.9	<50	<14.9	<64.9	740
WS20-19	0-1	June 24, 2020	<0.024	<0.217	<4.8	<10.0	<50	<14.8	<64.8	2,400
WS20-20	0-1	June 24, 2020	<0.024	<0.212	<4.7	<9.5	<47	<14.2	<61.2	2,200
WS20-21	0-1	June 24, 2020	<0.023	<0.210	<4.7	<9.6	<48	<14.3	<62.3	2,800
WS20-22	0-1	June 24, 2020	<0.025	<0.224	<5.0	<9.8	<49	<14.8	<63.8	1,000
WS20-23	0-1	June 24, 2020	<0.024	<0.215	<4.8	<9.9	<49	<14.7	<63.7	1,500
WS20-24	0-1	June 24, 2020	<0.025	<0.221	<4.9	<9.4	<47	<14.3	<61.3	1,400
WS20-25	0-1	June 24, 2020	<0.024	<0.216	<4.8	<9.7	<49	<14.5	<63.5	**7,900**
WS20-25	0-1	July 21, 2020	<0.025	<0.224	<5.0	<10.0	<50	<15.0	<65.0	**3,700**
WS20-26	0-1	June 24, 2020	<0.024	<0.220	<4.9	<9.6	<48	<14.5	<62.5	2,900
WS20-27	0-1	June 24, 2020	<0.023	<0.211	<4.7	<9.5	<48	<14.2	<62.2	2,100
WS20-28	0-1	June 24, 2020	<0.024	<0.219	<4.9	<9.9	<49	<14.8	<63.8	2,500
WS20-29	0-1	June 24, 2020	<0.024	<0.212	<4.7	<9.4	<47	<14.1	<61.1	1,400
WS20-30	0-1	June 24, 2020	<0.023	<0.207	<4.6	<9.4	<47	<14.0	<61.0	3,000
WS20-31	0-1	June 24, 2020	<0.024	<0.215	<4.8	<9.6	<48	<14.4	<62.4	1,500
WS20-32	0-1	June 24, 2020	<0.024	<0.220	<4.9	<9.9	<49	<14.8	<63.8	1,100
WS20-33	0-1	June 24, 2020	<0.024	<0.217	<4.8	<9.8	<49	<14.6	<63.6	**12,000**
WS20-33	0-1	July 21, 2020	<0.024	<0.220	<4.9	<9.5	<47	<14.4	<61.4	**3,600**
WS20-34	0-1	June 24, 2020	<0.024	<0.216	<4.8	<9.6	<48	<14.4	<62.4	860
WS20-35	0-1	June 24, 2020	<0.024	<0.212	<4.7	<9.8	<49	<14.5	<63.5	1,300
WS20-36	0-1	June 24, 2020	<0.025	<0.224	<5.0	<9.9	<49	<14.9	<63.9	2,600

Bold and gray shaded indicates exceedance outside of closure criteria
Bold and green shaded indicates a re-sample of areas previously exceeding closure criteria

VERTEX

ATTACHMENT 5

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

May 19, 2020

Natalie Gordon
Vertex Resource Group Ltd.
3101 Boyd Drive
Carlsbad, NM 88220
TEL: (505) 506-0040
FAX:

RE: Black River Booster Riser 5 OrderNo.: 2005353

Dear Natalie Gordon:

Hall Environmental Analysis Laboratory received 10 sample(s) on 5/8/2020 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2005353**
Date Reported: **5/19/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Black River Booster Riser 5
Lab ID: 2005353-001 **Matrix:** SOIL

Client Sample ID: BH20-01 0-0.5
Collection Date: 5/4/2020 9:15:00 AM
Received Date: 5/8/2020 12:45:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	5/11/2020 1:35:31 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	5/11/2020 1:35:31 PM
Surr: DNOP	101	55.1-146		%Rec	1	5/11/2020 1:35:31 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	5/11/2020 3:55:28 PM
Surr: BFB	98.6	66.6-105		%Rec	1	5/11/2020 3:55:28 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	5/11/2020 3:55:28 PM
Toluene	ND	0.048		mg/Kg	1	5/11/2020 3:55:28 PM
Ethylbenzene	ND	0.048		mg/Kg	1	5/11/2020 3:55:28 PM
Xylenes, Total	ND	0.097		mg/Kg	1	5/11/2020 3:55:28 PM
Surr: 4-Bromofluorobenzene	94.2	80-120		%Rec	1	5/11/2020 3:55:28 PM
EPA METHOD 300.0: ANIONS						Analyst: **CJS**
Chloride	6800	300		mg/Kg	100	5/14/2020 10:26:38 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2005353**
Date Reported: **5/19/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Black River Booster Riser 5
Lab ID: 2005353-002 **Matrix:** SOIL

Client Sample ID: BH20-01 1
Collection Date: 5/4/2020 9:20:00 AM
Received Date: 5/8/2020 12:45:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	3100	150		mg/Kg	50	5/18/2020 12:05:39 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2005353**
Date Reported: **5/19/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Black River Booster Riser 5
Lab ID: 2005353-003 **Matrix:** SOIL

Client Sample ID: BH20-04 0-0.5
Collection Date: 5/4/2020 9:50:00 AM
Received Date: 5/8/2020 12:45:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	10000	600		mg/Kg	200	5/12/2020 6:12:13 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2005353**
Date Reported: **5/19/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Black River Booster Riser 5
Lab ID: 2005353-004 **Matrix:** SOIL

Client Sample ID: BH20-04 1
Collection Date: 5/4/2020 9:55:00 AM
Received Date: 5/8/2020 12:45:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	4700	150		mg/Kg	50	5/18/2020 12:18:00 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2005353**
Date Reported: **5/19/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Black River Booster Riser 5
Lab ID: 2005353-005 **Matrix:** SOIL

Client Sample ID: BH20-08 0-0.5
Collection Date: 5/4/2020 11:00:00 AM
Received Date: 5/8/2020 12:45:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	4300	150		mg/Kg	50	5/12/2020 6:24:38 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2005353**
Date Reported: **5/19/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Black River Booster Riser 5
Lab ID: 2005353-006 **Matrix:** SOIL

Client Sample ID: BH20-09 0-0.5
Collection Date: 5/4/2020 11:15:00 AM
Received Date: 5/8/2020 12:45:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	5/11/2020 2:00:00 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	5/11/2020 2:00:00 PM
Surr: DNOP	95.5	55.1-146		%Rec	1	5/11/2020 2:00:00 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	5/11/2020 4:19:01 PM
Surr: BFB	96.3	66.6-105		%Rec	1	5/11/2020 4:19:01 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	5/11/2020 4:19:01 PM
Toluene	ND	0.050		mg/Kg	1	5/11/2020 4:19:01 PM
Ethylbenzene	ND	0.050		mg/Kg	1	5/11/2020 4:19:01 PM
Xylenes, Total	ND	0.10		mg/Kg	1	5/11/2020 4:19:01 PM
Surr: 4-Bromofluorobenzene	92.1	80-120		%Rec	1	5/11/2020 4:19:01 PM
EPA METHOD 300.0: ANIONS						Analyst: **CJS**
Chloride	3800	150		mg/Kg	50	5/14/2020 10:39:03 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2005353**
Date Reported: **5/19/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Black River Booster Riser 5
Lab ID: 2005353-007 **Matrix:** SOIL

Client Sample ID: SS20-02 0-0.5
Collection Date: 5/4/2020 12:00:00 PM
Received Date: 5/8/2020 12:45:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	5300	150		mg/Kg	50	5/12/2020 6:37:02 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2005353**
Date Reported: **5/19/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Client Sample ID: SS20-04 0-0.5
Project: Black River Booster Riser 5
Collection Date: 5/4/2020 12:15:00 PM
Lab ID: 2005353-008 **Matrix:** SOIL
Received Date: 5/8/2020 12:45:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	370	60		mg/Kg	20	5/11/2020 1:29:43 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	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2005353**
Date Reported: **5/19/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Client Sample ID: SS20-06 0-0.5
Project: Black River Booster Riser 5
Collection Date: 5/4/2020 12:30:00 PM
Lab ID: 2005353-009 **Matrix:** SOIL **Received Date:** 5/8/2020 12:45:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	4500	150		mg/Kg	50	5/12/2020 6:49:27 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2005353**
Date Reported: **5/19/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Black River Booster Riser 5
Lab ID: 2005353-010 **Matrix:** SOIL

Client Sample ID: SS20-08 0-0.5
Collection Date: 5/4/2020 12:45:00 PM
Received Date: 5/8/2020 12:45:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	10000	600		mg/Kg	200	5/12/2020 7:01:51 PM

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2005353**

19-May-20

Client: Vertex Resource Group Ltd.

Project: Black River Booster Riser 5

Sample ID: **MB-52383** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS** Batch ID: **52383** RunNo: **68806**
Prep Date: **5/11/2020** Analysis Date: **5/11/2020** SeqNo: **2381242** Units: **mg/Kg**

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

Sample ID: **LCS-52383** SampType: **lcs** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS** Batch ID: **52383** RunNo: **68806**
Prep Date: **5/11/2020** Analysis Date: **5/11/2020** SeqNo: **2381244** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	90.6	90	110			

Sample ID: **MB-52383** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS** Batch ID: **52383** RunNo: **68806**
Prep Date: **5/11/2020** Analysis Date: **5/11/2020** SeqNo: **2381275** Units: **mg/Kg**

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

Sample ID: **LCS-52383** SampType: **lcs** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS** Batch ID: **52383** RunNo: **68806**
Prep Date: **5/11/2020** Analysis Date: **5/11/2020** SeqNo: **2381276** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	90.7	90	110			

Sample ID: **MB-52432** SampType: **ms** TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC** Batch ID: **52432** RunNo: **68855**
Prep Date: **5/13/2020** Analysis Date: **5/13/2020** SeqNo: **2383894** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5	15.00	0	0	50.4	161			S

Sample ID: **LCS-52432** SampType: **lcs** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS** Batch ID: **52432** RunNo: **68855**
Prep Date: **5/13/2020** Analysis Date: **5/13/2020** SeqNo: **2383895** 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			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2005353**

19-May-20

Client: Vertex Resource Group Ltd.

Project: Black River Booster Riser 5

Sample ID: **MB-52511**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS**	Batch ID: **52511**	RunNo: **68964**
Prep Date: **5/17/2020**	Analysis Date: **5/17/2020**	SeqNo: **2387341** Units: **mg/Kg**

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

Sample ID: **LCS-52511**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS**	Batch ID: **52511**	RunNo: **68964**
Prep Date: **5/17/2020**	Analysis Date: **5/17/2020**	SeqNo: **2387342** 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 Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2005353**

19-May-20

Client: Vertex Resource Group Ltd.

Project: Black River Booster Riser 5

Sample ID: **MB-52380**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **52380**	RunNo: **68785**
Prep Date: **5/11/2020**	Analysis Date: **5/11/2020**	SeqNo: **2380388** 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		114	55.1	146			

Sample ID: **LCS-52380**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **52380**	RunNo: **68785**
Prep Date: **5/11/2020**	Analysis Date: **5/11/2020**	SeqNo: **2380489** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	48	10	50.00	0	95.2	70	130			
Surr: DNOP	4.9		5.000		99.0	55.1	146			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2005353**

19-May-20

Client: Vertex Resource Group Ltd.

Project: Black River Booster Riser 5

Sample ID: **mb-52350**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **52350**	RunNo: **68802**
Prep Date: **5/8/2020**	Analysis Date: **5/11/2020**	SeqNo: **2380976** 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		97.3	66.6	105			

Sample ID: **lcs-52350**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **52350**	RunNo: **68802**
Prep Date: **5/8/2020**	Analysis Date: **5/11/2020**	SeqNo: **2380977** 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	91.4	80	120			
Surr: BFB	1100		1000		106	66.6	105			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 Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2005353**

19-May-20

Client: Vertex Resource Group Ltd.

Project: Black River Booster Riser 5

Sample ID: **mb-52350**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **52350**	RunNo: **68802**
Prep Date: **5/8/2020**	Analysis Date: **5/11/2020**	SeqNo: **2381018** 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	0.93		1.000		92.6	80	120			

Sample ID: **LCS-52350**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **52350**	RunNo: **68802**
Prep Date: **5/8/2020**	Analysis Date: **5/11/2020**	SeqNo: **2381019** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.93	0.025	1.000	0	92.9	80	120			
Toluene	0.96	0.050	1.000	0	95.8	80	120			
Ethylbenzene	0.96	0.050	1.000	0	95.6	80	120			
Xylenes, Total	2.9	0.10	3.000	0	95.1	80	120			
Surr: 4-Bromofluorobenzene	0.96		1.000		95.9	80	120			

Qualifiers:

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: VERTEX CARLSBAD Work Order Number: 2005353 RcptNo: 1

Received By: Isaiah Ortiz 5/8/2020 12:45:00 PM I-Ox

Completed By: Isaiah Ortiz 5/8/2020 1:19:50 PM I-Ox

Reviewed By: JB 5/8/20

Chain of Custody

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

Log In

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

# of preserved bottles checked for pH: (<2 or >12 unless noted)
Adjusted?
Checked by: DAD 5/8/20

Special Handling (if applicable)

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

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

16. Additional remarks:

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	3.4	Good	Not Present			
2	1.2	Good	Not Present			

Chain-of-Custody Record

Client: Vertex

Mailing Address:

Phone #:

email or Fax#:

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

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time: 5 Day
☐ Standard ☐ Rush

Project Name: Black River Booster Riser #5

Project #: 20E-00239

Project Manager: Natalie Gordon

Sampler: MJP

On Ice: ☐ Yes ☐ No

# of Coolers:

Cooler Temp(including CF): (°C)

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2005353	(BTEX) MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
5/4	9:15	Soil	BH20-01 0-0.5	4 oz	Ice	-001	✓	✓					✓			
	9:20		BH20-01 1			-002	P	L	E	A	S	E	H	O	L	D
	9:50		BH20-04 0-0.5			-003							✓			
	9:55		BH20-04 1			-004	P	L	E	A	S	E	H	O	L	D
	11:00		BH20-08 0-0.5			-005							✓			
	11:15		BH20-09 0-0.5			-006	✓	✓					✓			
	12:00		SS20-02 0-0.5			-007							✓			
	12:15		SS20-04 0-0.5			-008							✓			
	12:30		SS20-06 0-0.5			-009							✓			
↓	12:45	↓	SS20-08 0-0.5	↓	↓	-010							✓			

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
5/7/20	1330				5/7/20	1330
Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
			TQ	Courier	5/8/20	1245

Remarks: cc: Natalie Gordon

Matador

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

May 13, 2020

Natalie Gordon
Vertex Resource Group Ltd.
3101 Boyd Drive
Carlsbad, NM 88220
TEL: (505) 506-0040
FAX

RE: Black River Booster Riser 5 OrderNo.: 2005352

Dear Natalie Gordon:

Hall Environmental Analysis Laboratory received 4 sample(s) on 5/8/2020 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2005352**
Date Reported: **5/13/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Black River Booster Riser 5
Lab ID: 2005352-001 **Matrix:** SOIL

Client Sample ID: BG20-01 0.5
Collection Date: 5/4/2020 8:45:00 AM
Received Date: 5/8/2020 12:45:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	4200	150		mg/Kg	50	5/12/2020 5:34:59 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2005352**
Date Reported: **5/13/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Black River Booster Riser 5
Lab ID: 2005352-002 **Matrix:** SOIL

Client Sample ID: BG20-01 1
Collection Date: 5/4/2020 8:50:00 AM
Received Date: 5/8/2020 12:45:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	4800	150		mg/Kg	50	5/12/2020 5:47:24 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2005352**
Date Reported: **5/13/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Black River Booster Riser 5
Lab ID: 2005352-003 **Matrix:** SOIL

Client Sample ID: BG20-01 2
Collection Date: 5/4/2020 8:55:00 AM
Received Date: 5/8/2020 12:45:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	4300	150		mg/Kg	50	5/12/2020 5:59:49 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2005352**
Date Reported: **5/13/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Black River Booster Riser 5
Lab ID: 2005352-004 **Matrix:** SOIL

Client Sample ID: BG20-01 3
Collection Date: 5/4/2020 9:00:00 AM
Received Date: 5/8/2020 12:45:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	2100	60		mg/Kg	20	5/11/2020 12:52:29 PM

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2005352**

13-May-20

Client: Vertex Resource Group Ltd.

Project: Black River Booster Riser 5

Sample ID: **MB-52383**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBS**	Batch ID: **52383**	RunNo: **68806**							
Prep Date: **5/11/2020**	Analysis Date: **5/11/2020**	SeqNo: **2381242**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-52383**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSS**	Batch ID: **52383**	RunNo: **68806**							
Prep Date: **5/11/2020**	Analysis Date: **5/11/2020**	SeqNo: **2381244**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	90.6	90	110			

Sample ID: **MB-52383**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBS**	Batch ID: **52383**	RunNo: **68806**							
Prep Date: **5/11/2020**	Analysis Date: **5/11/2020**	SeqNo: **2381275**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-52383**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSS**	Batch ID: **52383**	RunNo: **68806**							
Prep Date: **5/11/2020**	Analysis Date: **5/11/2020**	SeqNo: **2381276**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	90.7	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 Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: VERTEX CARLSBAD Work Order Number: 2005352 RcptNo: 1

Received By: Isaiah Ortiz 5/8/2020 12:45:00 PM I-OX

Completed By: Isaiah Ortiz 5/8/2020 1:23:09 PM I-OX

Reviewed By: JB 5/8/20

Chain of Custody

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

Log In

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

# of preserved bottles checked for pH: (<2 or >12 unless noted)
Adjusted?
Checked by: DAD 5/8/20

Special Handling (if applicable)

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

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

16. Additional remarks:

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	3.4	Good	Not Present			
2	1.2	Good	Not Present			

Chain-of-Custody Record

Client: Vertex

Mailing Address:

Phone #:

email or Fax#:

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

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time: 5 Day
☐ Standard ☐ Rush

Project Name: Black River Booster Riser #5

Project #: 20E-00239

Project Manager: Natalie Gordon

Sampler: MJP

On Ice: ■ Yes ☐ No

# of Coolers: 2 34-0(cf) 3.4°C

Cooler Temp(including CF): 1.2-0(cf) 1.2°(°C)

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2005352	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	(Cl), F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
5/4	8:45	Soil	BG20-01 0.5	4oz	ice	-001							✓			
	8:50		BG20-01 1			-002							✓			
	8:55		BG20-01 2			-003							✓			
	9:00		BG20-01 3			-004							✓			

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
5/7/20	1330				5/7/20	1330
5/7/20	1440				5/8/20	1245

Received by: IQ courier

Remarks: Matador

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

July 08, 2020

Natalie Gordon
Vertex Resource Group Ltd.
3101 Boyd Drive
Carlsbad, NM 88220
TEL: (505) 506-0040
FAX

RE: Black River Booster Station Riser #5 OrderNo.: 2006D74

Dear Natalie Gordon:

Hall Environmental Analysis Laboratory received 80 sample(s) on 6/26/2020 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2006D74**
Date Reported: **7/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Black River Booster Station Riser #5
Lab ID: 2006D74-001 **Matrix:** SOIL

Client Sample ID: BS20-01 1'
Collection Date: 6/24/2020 8:35:00 AM
Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	6/27/2020 11:08:06 AM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	6/27/2020 11:08:06 AM
Surr: DNOP	103	55.1-146		%Rec	1	6/27/2020 11:08:06 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	6/28/2020 3:04:26 AM
Surr: BFB	101	66.6-105		%Rec	1	6/28/2020 3:04:26 AM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.025		mg/Kg	1	6/28/2020 3:04:26 AM
Toluene	ND	0.050		mg/Kg	1	6/28/2020 3:04:26 AM
Ethylbenzene	ND	0.050		mg/Kg	1	6/28/2020 3:04:26 AM
Xylenes, Total	ND	0.10		mg/Kg	1	6/28/2020 3:04:26 AM
Surr: 4-Bromofluorobenzene	104	80-120		%Rec	1	6/28/2020 3:04:26 AM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	810	60		mg/Kg	20	6/28/2020 6:51:18 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2006D74**
Date Reported: **7/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Black River Booster Station Riser #5
Lab ID: 2006D74-002 **Matrix:** SOIL

Client Sample ID: BS20-02 1'
Collection Date: 6/24/2020 8:51:00 AM
Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	6/27/2020 11:18:23 AM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	6/27/2020 11:18:23 AM
Surr: DNOP	104	55.1-146		%Rec	1	6/27/2020 11:18:23 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	6/28/2020 4:14:51 AM
Surr: BFB	97.9	66.6-105		%Rec	1	6/28/2020 4:14:51 AM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.025		mg/Kg	1	6/28/2020 4:14:51 AM
Toluene	ND	0.050		mg/Kg	1	6/28/2020 4:14:51 AM
Ethylbenzene	ND	0.050		mg/Kg	1	6/28/2020 4:14:51 AM
Xylenes, Total	ND	0.099		mg/Kg	1	6/28/2020 4:14:51 AM
Surr: 4-Bromofluorobenzene	100	80-120		%Rec	1	6/28/2020 4:14:51 AM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	1500	60		mg/Kg	20	6/28/2020 7:28:32 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2006D74**
Date Reported: **7/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Black River Booster Station Riser #5
Lab ID: 2006D74-003 **Matrix:** SOIL

Client Sample ID: BS20-03 1'
Collection Date: 6/24/2020 9:02:00 AM
Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	6/27/2020 11:28:43 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	6/27/2020 11:28:43 AM
Surr: DNOP	93.6	55.1-146		%Rec	1	6/27/2020 11:28:43 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	6/28/2020 5:26:01 AM
Surr: BFB	99.4	66.6-105		%Rec	1	6/28/2020 5:26:01 AM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.025		mg/Kg	1	6/28/2020 5:26:01 AM
Toluene	ND	0.049		mg/Kg	1	6/28/2020 5:26:01 AM
Ethylbenzene	ND	0.049		mg/Kg	1	6/28/2020 5:26:01 AM
Xylenes, Total	ND	0.099		mg/Kg	1	6/28/2020 5:26:01 AM
Surr: 4-Bromofluorobenzene	102	80-120		%Rec	1	6/28/2020 5:26:01 AM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	670	60		mg/Kg	20	6/28/2020 7:40:57 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	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2006D74**
Date Reported: **7/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Black River Booster Station Riser #5
Lab ID: 2006D74-004 **Matrix:** SOIL

Client Sample ID: BS20-04 1'
Collection Date: 6/24/2020 9:13:00 AM
Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	6/27/2020 11:39:08 AM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	6/27/2020 11:39:08 AM
Surr: DNOP	97.8	55.1-146		%Rec	1	6/27/2020 11:39:08 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	6/28/2020 5:49:45 AM
Surr: BFB	101	66.6-105		%Rec	1	6/28/2020 5:49:45 AM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.024		mg/Kg	1	6/28/2020 5:49:45 AM
Toluene	ND	0.049		mg/Kg	1	6/28/2020 5:49:45 AM
Ethylbenzene	ND	0.049		mg/Kg	1	6/28/2020 5:49:45 AM
Xylenes, Total	ND	0.097		mg/Kg	1	6/28/2020 5:49:45 AM
Surr: 4-Bromofluorobenzene	103	80-120		%Rec	1	6/28/2020 5:49:45 AM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	1800	60		mg/Kg	20	6/28/2020 7:53:22 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2006D74**
Date Reported: **7/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Black River Booster Station Riser #5
Lab ID: 2006D74-005 **Matrix:** SOIL

Client Sample ID: BS20-05 1
Collection Date: 6/24/2020 9:20:00 AM
Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	6/27/2020 11:49:35 AM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	6/27/2020 11:49:35 AM
Surr: DNOP	100	55.1-146		%Rec	1	6/27/2020 11:49:35 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	6/28/2020 6:13:27 AM
Surr: BFB	102	66.6-105		%Rec	1	6/28/2020 6:13:27 AM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.024		mg/Kg	1	6/28/2020 6:13:27 AM
Toluene	ND	0.049		mg/Kg	1	6/28/2020 6:13:27 AM
Ethylbenzene	ND	0.049		mg/Kg	1	6/28/2020 6:13:27 AM
Xylenes, Total	ND	0.098		mg/Kg	1	6/28/2020 6:13:27 AM
Surr: 4-Bromofluorobenzene	104	80-120		%Rec	1	6/28/2020 6:13:27 AM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	1500	60		mg/Kg	20	6/28/2020 8:05:46 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	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2006D74**
Date Reported: **7/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Black River Booster Station Riser #5
Lab ID: 2006D74-006 **Matrix:** SOIL

Client Sample ID: BS20-06 1
Collection Date: 6/24/2020 9:26:00 AM
Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	8.7		mg/Kg	1	6/27/2020 12:00:15 PM
Motor Oil Range Organics (MRO)	ND	43		mg/Kg	1	6/27/2020 12:00:15 PM
Surr: DNOP	94.4	55.1-146		%Rec	1	6/27/2020 12:00:15 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	6/28/2020 6:37:03 AM
Surr: BFB	101	66.6-105		%Rec	1	6/28/2020 6:37:03 AM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.025		mg/Kg	1	6/28/2020 6:37:03 AM
Toluene	ND	0.050		mg/Kg	1	6/28/2020 6:37:03 AM
Ethylbenzene	ND	0.050		mg/Kg	1	6/28/2020 6:37:03 AM
Xylenes, Total	ND	0.099		mg/Kg	1	6/28/2020 6:37:03 AM
Surr: 4-Bromofluorobenzene	103	80-120		%Rec	1	6/28/2020 6:37:03 AM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	1100	60		mg/Kg	20	6/28/2020 8:18:10 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	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2006D74**
Date Reported: **7/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Black River Booster Station Riser #5
Lab ID: 2006D74-007 **Matrix:** SOIL

Client Sample ID: BS20-07 1'
Collection Date: 6/24/2020 9:31:00 AM
Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	6/27/2020 12:10:50 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	6/27/2020 12:10:50 PM
Surr: DNOP	97.0	55.1-146		%Rec	1	6/27/2020 12:10:50 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	6/28/2020 7:00:37 AM
Surr: BFB	102	66.6-105		%Rec	1	6/28/2020 7:00:37 AM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.025		mg/Kg	1	6/28/2020 7:00:37 AM
Toluene	ND	0.050		mg/Kg	1	6/28/2020 7:00:37 AM
Ethylbenzene	ND	0.050		mg/Kg	1	6/28/2020 7:00:37 AM
Xylenes, Total	ND	0.099		mg/Kg	1	6/28/2020 7:00:37 AM
Surr: 4-Bromofluorobenzene	104	80-120		%Rec	1	6/28/2020 7:00:37 AM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	750	60		mg/Kg	20	6/28/2020 8:30:34 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2006D74**
Date Reported: **7/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Black River Booster Station Riser #5
Lab ID: 2006D74-008 **Matrix:** SOIL

Client Sample ID: BS20-08 1
Collection Date: 6/24/2020 9:38:00 AM
Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	6/27/2020 12:21:28 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	6/27/2020 12:21:28 PM
Surr: DNOP	98.6	55.1-146		%Rec	1	6/27/2020 12:21:28 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	6/28/2020 7:24:04 AM
Surr: BFB	99.1	66.6-105		%Rec	1	6/28/2020 7:24:04 AM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.024		mg/Kg	1	6/28/2020 7:24:04 AM
Toluene	ND	0.048		mg/Kg	1	6/28/2020 7:24:04 AM
Ethylbenzene	ND	0.048		mg/Kg	1	6/28/2020 7:24:04 AM
Xylenes, Total	ND	0.097		mg/Kg	1	6/28/2020 7:24:04 AM
Surr: 4-Bromofluorobenzene	102	80-120		%Rec	1	6/28/2020 7:24:04 AM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	1300	60		mg/Kg	20	6/28/2020 9:07:48 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2006D74**
Date Reported: **7/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Black River Booster Station Riser #5
Lab ID: 2006D74-009 **Matrix:** SOIL

Client Sample ID: BS20-09 1'
Collection Date: 6/24/2020 9:56:00 AM
Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.1		mg/Kg	1	6/27/2020 12:32:01 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	6/27/2020 12:32:01 PM
Surr: DNOP	97.8	55.1-146		%Rec	1	6/27/2020 12:32:01 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	6/28/2020 2:31:52 PM
Surr: BFB	103	66.6-105		%Rec	1	6/28/2020 2:31:52 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	6/28/2020 2:31:52 PM
Toluene	ND	0.050		mg/Kg	1	6/28/2020 2:31:52 PM
Ethylbenzene	ND	0.050		mg/Kg	1	6/28/2020 2:31:52 PM
Xylenes, Total	ND	0.10		mg/Kg	1	6/28/2020 2:31:52 PM
Surr: 4-Bromofluorobenzene	103	80-120		%Rec	1	6/28/2020 2:31:52 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	1500	60		mg/Kg	20	6/28/2020 9:20:13 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	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2006D74**
Date Reported: **7/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Black River Booster Station Riser #5
Lab ID: 2006D74-010 **Matrix:** SOIL

Client Sample ID: BS20-10 1'
Collection Date: 6/24/2020 10:08:00 AM
Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	6/27/2020 2:18:07 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	6/27/2020 2:18:07 PM
Surr: DNOP	85.0	55.1-146		%Rec	1	6/27/2020 2:18:07 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	6/28/2020 2:55:47 PM
Surr: BFB	104	66.6-105		%Rec	1	6/28/2020 2:55:47 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	6/28/2020 2:55:47 PM
Toluene	ND	0.049		mg/Kg	1	6/28/2020 2:55:47 PM
Ethylbenzene	ND	0.049		mg/Kg	1	6/28/2020 2:55:47 PM
Xylenes, Total	ND	0.098		mg/Kg	1	6/28/2020 2:55:47 PM
Surr: 4-Bromofluorobenzene	105	80-120		%Rec	1	6/28/2020 2:55:47 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	1200	60		mg/Kg	20	6/28/2020 9:32:37 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2006D74**
Date Reported: **7/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Black River Booster Station Riser #5
Lab ID: 2006D74-011 **Matrix:** SOIL

Client Sample ID: BS20-11 1'
Collection Date: 6/24/2020 10:20:00 AM
Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	6/27/2020 2:48:44 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	6/27/2020 2:48:44 PM
Surr: DNOP	90.1	55.1-146		%Rec	1	6/27/2020 2:48:44 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	6/28/2020 3:43:39 PM
Surr: BFB	102	66.6-105		%Rec	1	6/28/2020 3:43:39 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	6/28/2020 3:43:39 PM
Toluene	ND	0.048		mg/Kg	1	6/28/2020 3:43:39 PM
Ethylbenzene	ND	0.048		mg/Kg	1	6/28/2020 3:43:39 PM
Xylenes, Total	ND	0.097		mg/Kg	1	6/28/2020 3:43:39 PM
Surr: 4-Bromofluorobenzene	102	80-120		%Rec	1	6/28/2020 3:43:39 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	2200	150		mg/Kg	50	6/29/2020 6:17:46 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2006D74**
Date Reported: **7/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Black River Booster Station Riser #5
Lab ID: 2006D74-012 **Matrix:** SOIL

Client Sample ID: BS20-12 1'
Collection Date: 6/24/2020 10:28:00 AM
Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	6/27/2020 2:58:58 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	6/27/2020 2:58:58 PM
Surr: DNOP	91.1	55.1-146		%Rec	1	6/27/2020 2:58:58 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	6/28/2020 4:07:37 PM
Surr: BFB	107	66.6-105	S	%Rec	1	6/28/2020 4:07:37 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	6/28/2020 4:07:37 PM
Toluene	ND	0.050		mg/Kg	1	6/28/2020 4:07:37 PM
Ethylbenzene	ND	0.050		mg/Kg	1	6/28/2020 4:07:37 PM
Xylenes, Total	ND	0.10		mg/Kg	1	6/28/2020 4:07:37 PM
Surr: 4-Bromofluorobenzene	107	80-120		%Rec	1	6/28/2020 4:07:37 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	1200	60		mg/Kg	20	6/28/2020 10:47:04 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2006D74**
Date Reported: **7/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Black River Booster Station Riser #5
Lab ID: 2006D74-013 **Matrix:** SOIL

Client Sample ID: BS20-13 1'
Collection Date: 6/24/2020 10:30:00 AM
Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	6/27/2020 3:09:12 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	6/27/2020 3:09:12 PM
Surr: DNOP	98.8	55.1-146		%Rec	1	6/27/2020 3:09:12 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	6/28/2020 4:31:33 PM
Surr: BFB	107	66.6-105	S	%Rec	1	6/28/2020 4:31:33 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	6/28/2020 4:31:33 PM
Toluene	ND	0.049		mg/Kg	1	6/28/2020 4:31:33 PM
Ethylbenzene	ND	0.049		mg/Kg	1	6/28/2020 4:31:33 PM
Xylenes, Total	ND	0.097		mg/Kg	1	6/28/2020 4:31:33 PM
Surr: 4-Bromofluorobenzene	106	80-120		%Rec	1	6/28/2020 4:31:33 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	1200	60		mg/Kg	20	6/28/2020 10:59:28 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	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2006D74**
Date Reported: **7/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Black River Booster Station Riser #5
Lab ID: 2006D74-014 **Matrix:** SOIL

Client Sample ID: BS20-14 1'
Collection Date: 6/24/2020 10:33:00 AM
Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	6/27/2020 3:19:28 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	6/27/2020 3:19:28 PM
Surr: DNOP	102	55.1-146		%Rec	1	6/27/2020 3:19:28 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	6/28/2020 4:55:36 PM
Surr: BFB	108	66.6-105	S	%Rec	1	6/28/2020 4:55:36 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	6/28/2020 4:55:36 PM
Toluene	ND	0.049		mg/Kg	1	6/28/2020 4:55:36 PM
Ethylbenzene	ND	0.049		mg/Kg	1	6/28/2020 4:55:36 PM
Xylenes, Total	ND	0.099		mg/Kg	1	6/28/2020 4:55:36 PM
Surr: 4-Bromofluorobenzene	108	80-120		%Rec	1	6/28/2020 4:55:36 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	1900	60		mg/Kg	20	6/28/2020 11:36:41 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	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2006D74**
Date Reported: **7/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Black River Booster Station Riser #5
Lab ID: 2006D74-015 **Matrix:** SOIL

Client Sample ID: BS20-15 1'
Collection Date: 6/24/2020 10:40:00 AM
Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	6/27/2020 3:29:45 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	6/27/2020 3:29:45 PM
Surr: DNOP	93.9	55.1-146		%Rec	1	6/27/2020 3:29:45 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	6/28/2020 5:19:40 PM
Surr: BFB	109	66.6-105	S	%Rec	1	6/28/2020 5:19:40 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	6/28/2020 5:19:40 PM
Toluene	ND	0.049		mg/Kg	1	6/28/2020 5:19:40 PM
Ethylbenzene	ND	0.049		mg/Kg	1	6/28/2020 5:19:40 PM
Xylenes, Total	ND	0.097		mg/Kg	1	6/28/2020 5:19:40 PM
Surr: 4-Bromofluorobenzene	108	80-120		%Rec	1	6/28/2020 5:19:40 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	1900	60		mg/Kg	20	6/28/2020 11:49:06 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	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2006D74**
Date Reported: **7/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Black River Booster Station Riser #5
Lab ID: 2006D74-016 **Matrix:** SOIL

Client Sample ID: BS20-16 1'
Collection Date: 6/24/2020 10:45:00 AM
Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	6/27/2020 3:40:03 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	6/27/2020 3:40:03 PM
Surr: DNOP	97.9	55.1-146		%Rec	1	6/27/2020 3:40:03 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	6/28/2020 5:43:40 PM
Surr: BFB	108	66.6-105	S	%Rec	1	6/28/2020 5:43:40 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	6/28/2020 5:43:40 PM
Toluene	ND	0.049		mg/Kg	1	6/28/2020 5:43:40 PM
Ethylbenzene	ND	0.049		mg/Kg	1	6/28/2020 5:43:40 PM
Xylenes, Total	ND	0.099		mg/Kg	1	6/28/2020 5:43:40 PM
Surr: 4-Bromofluorobenzene	108	80-120		%Rec	1	6/28/2020 5:43:40 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	1500	60		mg/Kg	20	6/29/2020 12:01:31 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	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2006D74**
Date Reported: **7/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Black River Booster Station Riser #5
Lab ID: 2006D74-017 **Matrix:** SOIL

Client Sample ID: BS20-17 1'
Collection Date: 6/24/2020 10:53:00 AM
Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	6/27/2020 3:50:24 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	6/27/2020 3:50:24 PM
Surr: DNOP	93.0	55.1-146		%Rec	1	6/27/2020 3:50:24 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	6/28/2020 6:07:38 PM
Surr: BFB	107	66.6-105	S	%Rec	1	6/28/2020 6:07:38 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	6/28/2020 6:07:38 PM
Toluene	ND	0.050		mg/Kg	1	6/28/2020 6:07:38 PM
Ethylbenzene	ND	0.050		mg/Kg	1	6/28/2020 6:07:38 PM
Xylenes, Total	ND	0.099		mg/Kg	1	6/28/2020 6:07:38 PM
Surr: 4-Bromofluorobenzene	107	80-120		%Rec	1	6/28/2020 6:07:38 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	2200	60		mg/Kg	20	6/29/2020 12:13:56 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2006D74**
Date Reported: **7/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Black River Booster Station Riser #5
Lab ID: 2006D74-018 **Matrix:** SOIL

Client Sample ID: BS20-18 1'
Collection Date: 6/24/2020 11:00:00 AM
Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	6/27/2020 4:00:45 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	6/27/2020 4:00:45 PM
Surr: DNOP	101	55.1-146		%Rec	1	6/27/2020 4:00:45 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	6/28/2020 6:31:39 PM
Surr: BFB	106	66.6-105	S	%Rec	1	6/28/2020 6:31:39 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	6/28/2020 6:31:39 PM
Toluene	ND	0.048		mg/Kg	1	6/28/2020 6:31:39 PM
Ethylbenzene	ND	0.048		mg/Kg	1	6/28/2020 6:31:39 PM
Xylenes, Total	ND	0.096		mg/Kg	1	6/28/2020 6:31:39 PM
Surr: 4-Bromofluorobenzene	106	80-120		%Rec	1	6/28/2020 6:31:39 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	2100	60		mg/Kg	20	6/29/2020 12:26:20 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2006D74**
Date Reported: **7/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Black River Booster Station Riser #5
Lab ID: 2006D74-019 **Matrix:** SOIL

Client Sample ID: BS20-19 1'
Collection Date: 6/24/2020 11:15:00 AM
Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	6/27/2020 4:11:06 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	6/27/2020 4:11:06 PM
Surr: DNOP	98.6	55.1-146		%Rec	1	6/27/2020 4:11:06 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	6/28/2020 6:55:37 PM
Surr: BFB	107	66.6-105	S	%Rec	1	6/28/2020 6:55:37 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	6/28/2020 6:55:37 PM
Toluene	ND	0.049		mg/Kg	1	6/28/2020 6:55:37 PM
Ethylbenzene	ND	0.049		mg/Kg	1	6/28/2020 6:55:37 PM
Xylenes, Total	ND	0.098		mg/Kg	1	6/28/2020 6:55:37 PM
Surr: 4-Bromofluorobenzene	107	80-120		%Rec	1	6/28/2020 6:55:37 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	2100	150		mg/Kg	50	6/29/2020 6:30:06 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2006D74**
Date Reported: **7/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Black River Booster Station Riser #5
Lab ID: 2006D74-020 **Matrix:** SOIL

Client Sample ID: BS20-20 1'
Collection Date: 6/24/2020 11:18:00 AM
Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	6/27/2020 4:21:28 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	6/27/2020 4:21:28 PM
Surr: DNOP	99.2	55.1-146		%Rec	1	6/27/2020 4:21:28 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	6/28/2020 7:19:36 PM
Surr: BFB	105	66.6-105	S	%Rec	1	6/28/2020 7:19:36 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	6/28/2020 7:19:36 PM
Toluene	ND	0.050		mg/Kg	1	6/28/2020 7:19:36 PM
Ethylbenzene	ND	0.050		mg/Kg	1	6/28/2020 7:19:36 PM
Xylenes, Total	ND	0.10		mg/Kg	1	6/28/2020 7:19:36 PM
Surr: 4-Bromofluorobenzene	105	80-120		%Rec	1	6/28/2020 7:19:36 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	2200	150		mg/Kg	50	6/29/2020 6:42:27 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2006D74**
Date Reported: **7/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Black River Booster Station Riser #5
Lab ID: 2006D74-021 **Matrix:** SOIL

Client Sample ID: BS20-21 1'
Collection Date: 6/24/2020 11:21:00 AM
Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.1		mg/Kg	1	6/27/2020 4:31:52 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	6/27/2020 4:31:52 PM
Surr: DNOP	99.8	55.1-146		%Rec	1	6/27/2020 4:31:52 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	6/28/2020 8:31:13 PM
Surr: BFB	103	66.6-105		%Rec	1	6/28/2020 8:31:13 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	6/28/2020 8:31:13 PM
Toluene	ND	0.050		mg/Kg	1	6/28/2020 8:31:13 PM
Ethylbenzene	ND	0.050		mg/Kg	1	6/28/2020 8:31:13 PM
Xylenes, Total	ND	0.10		mg/Kg	1	6/28/2020 8:31:13 PM
Surr: 4-Bromofluorobenzene	103	80-120		%Rec	1	6/28/2020 8:31:13 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	1900	60		mg/Kg	20	6/29/2020 1:03:33 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2006D74**
Date Reported: **7/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Black River Booster Station Riser #5
Lab ID: 2006D74-022 **Matrix:** SOIL

Client Sample ID: BS20-22 1'
Collection Date: 6/24/2020 11:25:00 AM
Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	6/27/2020 4:42:17 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	6/27/2020 4:42:17 PM
Surr: DNOP	93.7	55.1-146		%Rec	1	6/27/2020 4:42:17 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	6/28/2020 9:42:30 PM
Surr: BFB	102	66.6-105		%Rec	1	6/28/2020 9:42:30 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	6/28/2020 9:42:30 PM
Toluene	ND	0.050		mg/Kg	1	6/28/2020 9:42:30 PM
Ethylbenzene	ND	0.050		mg/Kg	1	6/28/2020 9:42:30 PM
Xylenes, Total	ND	0.10		mg/Kg	1	6/28/2020 9:42:30 PM
Surr: 4-Bromofluorobenzene	103	80-120		%Rec	1	6/28/2020 9:42:30 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	1500	60		mg/Kg	20	6/29/2020 1:15:57 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2006D74**
Date Reported: **7/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Client Sample ID: BS20-23 1'
Project: Black River Booster Station Riser #5
Collection Date: 6/24/2020 11:28:00 AM
Lab ID: 2006D74-023 **Matrix:** SOIL
Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	6/27/2020 4:52:43 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	6/27/2020 4:52:43 PM
Surr: DNOP	97.6	55.1-146		%Rec	1	6/27/2020 4:52:43 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	6/28/2020 10:53:20 PM
Surr: BFB	101	66.6-105		%Rec	1	6/28/2020 10:53:20 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	6/28/2020 10:53:20 PM
Toluene	ND	0.050		mg/Kg	1	6/28/2020 10:53:20 PM
Ethylbenzene	ND	0.050		mg/Kg	1	6/28/2020 10:53:20 PM
Xylenes, Total	ND	0.099		mg/Kg	1	6/28/2020 10:53:20 PM
Surr: 4-Bromofluorobenzene	102	80-120		%Rec	1	6/28/2020 10:53:20 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	2700	150		mg/Kg	50	6/29/2020 7:19:29 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	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2006D74**
Date Reported: **7/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Black River Booster Station Riser #5
Lab ID: 2006D74-024 **Matrix:** SOIL

Client Sample ID: BS20-24 1'
Collection Date: 6/24/2020 11:34:00 AM
Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	6/27/2020 5:03:22 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	6/27/2020 5:03:22 PM
Surr: DNOP	93.2	55.1-146		%Rec	1	6/27/2020 5:03:22 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	6/28/2020 11:16:49 PM
Surr: BFB	99.7	66.6-105		%Rec	1	6/28/2020 11:16:49 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	6/28/2020 11:16:49 PM
Toluene	ND	0.049		mg/Kg	1	6/28/2020 11:16:49 PM
Ethylbenzene	ND	0.049		mg/Kg	1	6/28/2020 11:16:49 PM
Xylenes, Total	ND	0.098		mg/Kg	1	6/28/2020 11:16:49 PM
Surr: 4-Bromofluorobenzene	100	80-120		%Rec	1	6/28/2020 11:16:49 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	2100	150		mg/Kg	50	6/29/2020 7:31:50 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2006D74**
Date Reported: **7/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Black River Booster Station Riser #5
Lab ID: 2006D74-025 **Matrix:** SOIL

Client Sample ID: BS20-25 1'
Collection Date: 6/24/2020 11:36:00 AM
Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	6/27/2020 5:13:59 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	6/27/2020 5:13:59 PM
Surr: DNOP	111	55.1-146		%Rec	1	6/27/2020 5:13:59 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	6/28/2020 11:40:17 PM
Surr: BFB	101	66.6-105		%Rec	1	6/28/2020 11:40:17 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	6/28/2020 11:40:17 PM
Toluene	ND	0.049		mg/Kg	1	6/28/2020 11:40:17 PM
Ethylbenzene	ND	0.049		mg/Kg	1	6/28/2020 11:40:17 PM
Xylenes, Total	ND	0.099		mg/Kg	1	6/28/2020 11:40:17 PM
Surr: 4-Bromofluorobenzene	101	80-120		%Rec	1	6/28/2020 11:40:17 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	3600	150		mg/Kg	50	6/29/2020 7:44:10 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	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2006D74**
Date Reported: **7/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Black River Booster Station Riser #5
Lab ID: 2006D74-026 **Matrix:** SOIL

Client Sample ID: BS20-26 1'
Collection Date: 6/24/2020 11:38:00 AM
Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	6/27/2020 5:24:33 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	6/27/2020 5:24:33 PM
Surr: DNOP	125	55.1-146		%Rec	1	6/27/2020 5:24:33 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	6/29/2020 12:03:44 AM
Surr: BFB	101	66.6-105		%Rec	1	6/29/2020 12:03:44 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	6/29/2020 12:03:44 AM
Toluene	ND	0.049		mg/Kg	1	6/29/2020 12:03:44 AM
Ethylbenzene	ND	0.049		mg/Kg	1	6/29/2020 12:03:44 AM
Xylenes, Total	ND	0.098		mg/Kg	1	6/29/2020 12:03:44 AM
Surr: 4-Bromofluorobenzene	103	80-120		%Rec	1	6/29/2020 12:03:44 AM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	2200	60		mg/Kg	20	6/29/2020 2:30:24 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2006D74**
Date Reported: **7/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Black River Booster Station Riser #5
Lab ID: 2006D74-027 **Matrix:** SOIL

Client Sample ID: BS20-27 1'
Collection Date: 6/24/2020 11:51:00 AM
Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	6/27/2020 5:35:07 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	6/27/2020 5:35:07 PM
Surr: DNOP	102	55.1-146		%Rec	1	6/27/2020 5:35:07 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	6/29/2020 12:27:20 AM
Surr: BFB	103	66.6-105		%Rec	1	6/29/2020 12:27:20 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	6/29/2020 12:27:20 AM
Toluene	ND	0.050		mg/Kg	1	6/29/2020 12:27:20 AM
Ethylbenzene	ND	0.050		mg/Kg	1	6/29/2020 12:27:20 AM
Xylenes, Total	ND	0.099		mg/Kg	1	6/29/2020 12:27:20 AM
Surr: 4-Bromofluorobenzene	103	80-120		%Rec	1	6/29/2020 12:27:20 AM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	3400	150		mg/Kg	50	6/29/2020 7:56:31 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	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2006D74**
Date Reported: **7/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Black River Booster Station Riser #5
Lab ID: 2006D74-028 **Matrix:** SOIL

Client Sample ID: BS20-28 1
Collection Date: 6/24/2020 12:18:00 PM
Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	6/27/2020 5:45:39 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	6/27/2020 5:45:39 PM
Surr: DNOP	90.5	55.1-146		%Rec	1	6/27/2020 5:45:39 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	6/29/2020 12:50:44 AM
Surr: BFB	101	66.6-105		%Rec	1	6/29/2020 12:50:44 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	6/29/2020 12:50:44 AM
Toluene	ND	0.050		mg/Kg	1	6/29/2020 12:50:44 AM
Ethylbenzene	ND	0.050		mg/Kg	1	6/29/2020 12:50:44 AM
Xylenes, Total	ND	0.10		mg/Kg	1	6/29/2020 12:50:44 AM
Surr: 4-Bromofluorobenzene	101	80-120		%Rec	1	6/29/2020 12:50:44 AM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	670	60		mg/Kg	20	6/29/2020 2:55:13 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2006D74**
Date Reported: **7/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Black River Booster Station Riser #5
Lab ID: 2006D74-029 **Matrix:** SOIL

Client Sample ID: BS20-29 1'
Collection Date: 6/24/2020 12:20:00 PM
Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.1		mg/Kg	1	6/27/2020 5:56:11 PM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	6/27/2020 5:56:11 PM
Surr: DNOP	91.4	55.1-146		%Rec	1	6/27/2020 5:56:11 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	6/29/2020 1:14:10 AM
Surr: BFB	101	66.6-105		%Rec	1	6/29/2020 1:14:10 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	6/29/2020 1:14:10 AM
Toluene	ND	0.049		mg/Kg	1	6/29/2020 1:14:10 AM
Ethylbenzene	ND	0.049		mg/Kg	1	6/29/2020 1:14:10 AM
Xylenes, Total	ND	0.097		mg/Kg	1	6/29/2020 1:14:10 AM
Surr: 4-Bromofluorobenzene	102	80-120		%Rec	1	6/29/2020 1:14:10 AM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	2000	60		mg/Kg	20	6/29/2020 3:07:38 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2006D74**
Date Reported: **7/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Black River Booster Station Riser #5
Lab ID: 2006D74-030 **Matrix:** SOIL

Client Sample ID: BS20-30 1'
Collection Date: 6/24/2020 12:25:00 PM
Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	6/27/2020 6:58:11 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	6/27/2020 6:58:11 PM
Surr: DNOP	86.8	55.1-146		%Rec	1	6/27/2020 6:58:11 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	6/29/2020 1:37:57 AM
Surr: BFB	100	66.6-105		%Rec	1	6/29/2020 1:37:57 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	6/29/2020 1:37:57 AM
Toluene	ND	0.050		mg/Kg	1	6/29/2020 1:37:57 AM
Ethylbenzene	ND	0.050		mg/Kg	1	6/29/2020 1:37:57 AM
Xylenes, Total	ND	0.099		mg/Kg	1	6/29/2020 1:37:57 AM
Surr: 4-Bromofluorobenzene	101	80-120		%Rec	1	6/29/2020 1:37:57 AM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	1900	60		mg/Kg	20	6/29/2020 3:20:03 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2006D74**
Date Reported: **7/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Black River Booster Station Riser #5
Lab ID: 2006D74-031 **Matrix:** SOIL

Client Sample ID: BS20-31 1'
Collection Date: 6/24/2020 12:27:00 PM
Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	6/27/2020 7:29:19 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	6/27/2020 7:29:19 PM
Surr: DNOP	88.6	55.1-146		%Rec	1	6/27/2020 7:29:19 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	6/29/2020 3:25:53 PM
Surr: BFB	105	66.6-105		%Rec	1	6/29/2020 3:25:53 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	6/29/2020 3:25:53 PM
Toluene	ND	0.049		mg/Kg	1	6/29/2020 3:25:53 PM
Ethylbenzene	ND	0.049		mg/Kg	1	6/29/2020 3:25:53 PM
Xylenes, Total	ND	0.098		mg/Kg	1	6/29/2020 3:25:53 PM
Surr: 4-Bromofluorobenzene	105	80-120		%Rec	1	6/29/2020 3:25:53 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	2600	150		mg/Kg	50	6/30/2020 11:49:06 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	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2006D74**
Date Reported: **7/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Black River Booster Station Riser #5
Lab ID: 2006D74-032 **Matrix:** SOIL

Client Sample ID: BS20-32 1'
Collection Date: 6/24/2020 12:31:00 PM
Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	6/27/2020 7:39:39 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	6/27/2020 7:39:39 PM
Surr: DNOP	85.3	55.1-146		%Rec	1	6/27/2020 7:39:39 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	6/29/2020 3:49:43 PM
Surr: BFB	106	66.6-105	S	%Rec	1	6/29/2020 3:49:43 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	6/29/2020 3:49:43 PM
Toluene	ND	0.050		mg/Kg	1	6/29/2020 3:49:43 PM
Ethylbenzene	ND	0.050		mg/Kg	1	6/29/2020 3:49:43 PM
Xylenes, Total	ND	0.10		mg/Kg	1	6/29/2020 3:49:43 PM
Surr: 4-Bromofluorobenzene	106	80-120		%Rec	1	6/29/2020 3:49:43 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	1500	59		mg/Kg	20	6/29/2020 12:56:50 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2006D74**
Date Reported: **7/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Black River Booster Station Riser #5
Lab ID: 2006D74-033 **Matrix:** SOIL

Client Sample ID: BS20-33 1'
Collection Date: 6/24/2020 12:36:00 PM
Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	6/27/2020 7:49:57 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	6/27/2020 7:49:57 PM
Surr: DNOP	73.9	55.1-146		%Rec	1	6/27/2020 7:49:57 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	6/29/2020 4:13:39 PM
Surr: BFB	108	66.6-105	S	%Rec	1	6/29/2020 4:13:39 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	6/29/2020 4:13:39 PM
Toluene	ND	0.049		mg/Kg	1	6/29/2020 4:13:39 PM
Ethylbenzene	ND	0.049		mg/Kg	1	6/29/2020 4:13:39 PM
Xylenes, Total	ND	0.099		mg/Kg	1	6/29/2020 4:13:39 PM
Surr: 4-Bromofluorobenzene	107	80-120		%Rec	1	6/29/2020 4:13:39 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	5100	150		mg/Kg	50	7/1/2020 12:01:26 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2006D74**
Date Reported: **7/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Black River Booster Station Riser #5
Lab ID: 2006D74-034 **Matrix:** SOIL

Client Sample ID: BS20-34 1'
Collection Date: 6/24/2020 12:39:00 PM
Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	6/27/2020 8:00:14 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	6/27/2020 8:00:14 PM
Surr: DNOP	79.0	55.1-146		%Rec	1	6/27/2020 8:00:14 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	6/29/2020 4:37:32 PM
Surr: BFB	106	66.6-105	S	%Rec	1	6/29/2020 4:37:32 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	6/29/2020 4:37:32 PM
Toluene	ND	0.050		mg/Kg	1	6/29/2020 4:37:32 PM
Ethylbenzene	ND	0.050		mg/Kg	1	6/29/2020 4:37:32 PM
Xylenes, Total	ND	0.099		mg/Kg	1	6/29/2020 4:37:32 PM
Surr: 4-Bromofluorobenzene	107	80-120		%Rec	1	6/29/2020 4:37:32 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	2600	150		mg/Kg	50	7/1/2020 12:13:47 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2006D74**
Date Reported: **7/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Black River Booster Station Riser #5
Lab ID: 2006D74-035 **Matrix:** SOIL

Client Sample ID: BS20-35 1'
Collection Date: 6/24/2020 12:45:00 PM
Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	6/27/2020 8:10:28 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	6/27/2020 8:10:28 PM
Surr: DNOP	86.3	55.1-146		%Rec	1	6/27/2020 8:10:28 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	6/29/2020 5:01:26 PM
Surr: BFB	106	66.6-105	S	%Rec	1	6/29/2020 5:01:26 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	6/29/2020 5:01:26 PM
Toluene	ND	0.050		mg/Kg	1	6/29/2020 5:01:26 PM
Ethylbenzene	ND	0.050		mg/Kg	1	6/29/2020 5:01:26 PM
Xylenes, Total	ND	0.10		mg/Kg	1	6/29/2020 5:01:26 PM
Surr: 4-Bromofluorobenzene	106	80-120		%Rec	1	6/29/2020 5:01:26 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	2000	60		mg/Kg	20	6/29/2020 1:33:51 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2006D74**
Date Reported: **7/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Black River Booster Station Riser #5
Lab ID: 2006D74-036 **Matrix:** SOIL

Client Sample ID: BS20-36 0.5
Collection Date: 6/24/2020 12:51:00 PM
Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	6/27/2020 8:20:45 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	6/27/2020 8:20:45 PM
Surr: DNOP	90.1	55.1-146		%Rec	1	6/27/2020 8:20:45 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	6/29/2020 5:25:22 PM
Surr: BFB	106	66.6-105	S	%Rec	1	6/29/2020 5:25:22 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	6/29/2020 5:25:22 PM
Toluene	ND	0.050		mg/Kg	1	6/29/2020 5:25:22 PM
Ethylbenzene	ND	0.050		mg/Kg	1	6/29/2020 5:25:22 PM
Xylenes, Total	ND	0.10		mg/Kg	1	6/29/2020 5:25:22 PM
Surr: 4-Bromofluorobenzene	106	80-120		%Rec	1	6/29/2020 5:25:22 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	380	60		mg/Kg	20	6/29/2020 1:46:11 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2006D74**
Date Reported: **7/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Black River Booster Station Riser #5
Lab ID: 2006D74-037 **Matrix:** SOIL

Client Sample ID: BS20-37 0.5'
Collection Date: 6/24/2020 12:55:00 PM
Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.1		mg/Kg	1	6/27/2020 8:31:01 PM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	6/27/2020 8:31:01 PM
Surr: DNOP	80.5	55.1-146		%Rec	1	6/27/2020 8:31:01 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	6/29/2020 5:49:16 PM
Surr: BFB	105	66.6-105	S	%Rec	1	6/29/2020 5:49:16 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	6/29/2020 5:49:16 PM
Toluene	ND	0.050		mg/Kg	1	6/29/2020 5:49:16 PM
Ethylbenzene	ND	0.050		mg/Kg	1	6/29/2020 5:49:16 PM
Xylenes, Total	ND	0.099		mg/Kg	1	6/29/2020 5:49:16 PM
Surr: 4-Bromofluorobenzene	105	80-120		%Rec	1	6/29/2020 5:49:16 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	3500	150		mg/Kg	50	7/1/2020 12:26:08 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	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2006D74**
Date Reported: **7/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Black River Booster Station Riser #5
Lab ID: 2006D74-038 **Matrix:** SOIL

Client Sample ID: BS20-38 0.5
Collection Date: 6/24/2020 12:58:00 PM
Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	6/27/2020 8:41:13 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	6/27/2020 8:41:13 PM
Surr: DNOP	74.3	55.1-146		%Rec	1	6/27/2020 8:41:13 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	6/29/2020 6:13:14 PM
Surr: BFB	107	66.6-105	S	%Rec	1	6/29/2020 6:13:14 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	6/29/2020 6:13:14 PM
Toluene	ND	0.050		mg/Kg	1	6/29/2020 6:13:14 PM
Ethylbenzene	ND	0.050		mg/Kg	1	6/29/2020 6:13:14 PM
Xylenes, Total	ND	0.10		mg/Kg	1	6/29/2020 6:13:14 PM
Surr: 4-Bromofluorobenzene	106	80-120		%Rec	1	6/29/2020 6:13:14 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	660	60		mg/Kg	20	6/29/2020 2:35:35 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	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2006D74**
Date Reported: **7/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Black River Booster Station Riser #5
Lab ID: 2006D74-039 **Matrix:** SOIL

Client Sample ID: BS20-39 0.5
Collection Date: 6/24/2020 1:00:00 PM
Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	6/27/2020 8:51:28 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	6/27/2020 8:51:28 PM
Surr: DNOP	82.0	55.1-146		%Rec	1	6/27/2020 8:51:28 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	6/29/2020 6:37:09 PM
Surr: BFB	105	66.6-105	S	%Rec	1	6/29/2020 6:37:09 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	6/29/2020 6:37:09 PM
Toluene	ND	0.050		mg/Kg	1	6/29/2020 6:37:09 PM
Ethylbenzene	ND	0.050		mg/Kg	1	6/29/2020 6:37:09 PM
Xylenes, Total	ND	0.099		mg/Kg	1	6/29/2020 6:37:09 PM
Surr: 4-Bromofluorobenzene	104	80-120		%Rec	1	6/29/2020 6:37:09 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	790	60		mg/Kg	20	6/29/2020 2:47:56 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	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2006D74**
Date Reported: **7/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Black River Booster Station Riser #5
Lab ID: 2006D74-040 **Matrix:** SOIL

Client Sample ID: BS20-40 0.5
Collection Date: 6/24/2020 1:03:00 PM
Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	6/27/2020 9:01:45 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	6/27/2020 9:01:45 PM
Surr: DNOP	91.4	55.1-146		%Rec	1	6/27/2020 9:01:45 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	6/29/2020 7:01:07 PM
Surr: BFB	107	66.6-105	S	%Rec	1	6/29/2020 7:01:07 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	6/29/2020 7:01:07 PM
Toluene	ND	0.048		mg/Kg	1	6/29/2020 7:01:07 PM
Ethylbenzene	ND	0.048		mg/Kg	1	6/29/2020 7:01:07 PM
Xylenes, Total	ND	0.097		mg/Kg	1	6/29/2020 7:01:07 PM
Surr: 4-Bromofluorobenzene	107	80-120		%Rec	1	6/29/2020 7:01:07 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	540	60		mg/Kg	20	6/29/2020 3:00:16 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	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2006D74**
Date Reported: **7/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Black River Booster Station Riser #5
Lab ID: 2006D74-041 **Matrix:** SOIL

Client Sample ID: BS20-41 0.5
Collection Date: 6/24/2020 1:08:00 PM
Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	13	9.9		mg/Kg	1	6/27/2020 9:11:56 PM
Motor Oil Range Organics (MRO)	49	0		mg/Kg	1	6/27/2020 9:11:56 PM
Surr: DNOP	93.1	55.1-146		%Rec	1	6/27/2020 9:11:56 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	6/29/2020 8:12:36 PM
Surr: BFB	108	66.6-105	S	%Rec	1	6/29/2020 8:12:36 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	6/29/2020 8:12:36 PM
Toluene	ND	0.049		mg/Kg	1	6/29/2020 8:12:36 PM
Ethylbenzene	ND	0.049		mg/Kg	1	6/29/2020 8:12:36 PM
Xylenes, Total	ND	0.098		mg/Kg	1	6/29/2020 8:12:36 PM
Surr: 4-Bromofluorobenzene	107	80-120		%Rec	1	6/29/2020 8:12:36 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	1400	59		mg/Kg	20	6/29/2020 3:12:36 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2006D74**
Date Reported: **7/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Black River Booster Station Riser #5
Lab ID: 2006D74-042 **Matrix:** SOIL

Client Sample ID: BS20-42 0.5
Collection Date: 6/24/2020 1:11:00 PM
Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.0		mg/Kg	1	6/27/2020 9:22:08 PM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	6/27/2020 9:22:08 PM
Surr: DNOP	60.5	55.1-146		%Rec	1	6/27/2020 9:22:08 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	6/29/2020 9:23:45 PM
Surr: BFB	105	66.6-105	S	%Rec	1	6/29/2020 9:23:45 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	6/29/2020 9:23:45 PM
Toluene	ND	0.049		mg/Kg	1	6/29/2020 9:23:45 PM
Ethylbenzene	ND	0.049		mg/Kg	1	6/29/2020 9:23:45 PM
Xylenes, Total	ND	0.098		mg/Kg	1	6/29/2020 9:23:45 PM
Surr: 4-Bromofluorobenzene	106	80-120		%Rec	1	6/29/2020 9:23:45 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	790	60		mg/Kg	20	6/29/2020 3:24:57 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	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2006D74**
Date Reported: **7/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Black River Booster Station Riser #5
Lab ID: 2006D74-043 **Matrix:** SOIL

Client Sample ID: BS20-43 0.5
Collection Date: 6/24/2020 1:14:00 PM
Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	6/27/2020 9:32:17 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	6/27/2020 9:32:17 PM
Surr: DNOP	90.1	55.1-146		%Rec	1	6/27/2020 9:32:17 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	6/29/2020 10:34:26 PM
Surr: BFB	102	66.6-105		%Rec	1	6/29/2020 10:34:26 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	6/29/2020 10:34:26 PM
Toluene	ND	0.049		mg/Kg	1	6/29/2020 10:34:26 PM
Ethylbenzene	ND	0.049		mg/Kg	1	6/29/2020 10:34:26 PM
Xylenes, Total	ND	0.099		mg/Kg	1	6/29/2020 10:34:26 PM
Surr: 4-Bromofluorobenzene	103	80-120		%Rec	1	6/29/2020 10:34:26 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	650	59		mg/Kg	20	6/29/2020 3:37:18 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2006D74**
Date Reported: **7/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Black River Booster Station Riser #5
Lab ID: 2006D74-044 **Matrix:** SOIL

Client Sample ID: BS20-44 0.5
Collection Date: 6/24/2020 1:20:00 PM
Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	12	9.9		mg/Kg	1	6/27/2020 9:42:29 PM
Motor Oil Range Organics (MRO)	50	50		mg/Kg	1	6/27/2020 9:42:29 PM
Surr: DNOP	73.8	55.1-146		%Rec	1	6/27/2020 9:42:29 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	6/29/2020 10:57:55 PM
Surr: BFB	101	66.6-105		%Rec	1	6/29/2020 10:57:55 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	6/29/2020 10:57:55 PM
Toluene	ND	0.049		mg/Kg	1	6/29/2020 10:57:55 PM
Ethylbenzene	ND	0.049		mg/Kg	1	6/29/2020 10:57:55 PM
Xylenes, Total	ND	0.099		mg/Kg	1	6/29/2020 10:57:55 PM
Surr: 4-Bromofluorobenzene	103	80-120		%Rec	1	6/29/2020 10:57:55 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	1700	60		mg/Kg	20	6/29/2020 4:14:21 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	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2006D74**
Date Reported: **7/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Black River Booster Station Riser #5
Lab ID: 2006D74-045 **Matrix:** SOIL

Client Sample ID: WS20-01
Collection Date: 6/24/2020 1:22:00 PM
Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	6/27/2020 9:52:43 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	6/27/2020 9:52:43 PM
Surr: DNOP	86.6	55.1-146		%Rec	1	6/27/2020 9:52:43 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	6/29/2020 11:21:23 PM
Surr: BFB	100	66.6-105		%Rec	1	6/29/2020 11:21:23 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	6/29/2020 11:21:23 PM
Toluene	ND	0.049		mg/Kg	1	6/29/2020 11:21:23 PM
Ethylbenzene	ND	0.049		mg/Kg	1	6/29/2020 11:21:23 PM
Xylenes, Total	ND	0.099		mg/Kg	1	6/29/2020 11:21:23 PM
Surr: 4-Bromofluorobenzene	103	80-120		%Rec	1	6/29/2020 11:21:23 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	3300	150		mg/Kg	50	7/1/2020 1:03:09 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2006D74**
Date Reported: **7/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Client Sample ID: WS20-02
Project: Black River Booster Station Riser #5
Collection Date: 6/24/2020 1:24:00 PM
Lab ID: 2006D74-046 **Matrix:** SOIL
Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	6/27/2020 10:02:59 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	6/27/2020 10:02:59 PM
Surr: DNOP	62.9	55.1-146		%Rec	1	6/27/2020 10:02:59 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	6/29/2020 11:44:50 PM
Surr: BFB	100	66.6-105		%Rec	1	6/29/2020 11:44:50 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	6/29/2020 11:44:50 PM
Toluene	ND	0.050		mg/Kg	1	6/29/2020 11:44:50 PM
Ethylbenzene	ND	0.050		mg/Kg	1	6/29/2020 11:44:50 PM
Xylenes, Total	ND	0.10		mg/Kg	1	6/29/2020 11:44:50 PM
Surr: 4-Bromofluorobenzene	103	80-120		%Rec	1	6/29/2020 11:44:50 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	3000	150		mg/Kg	50	7/1/2020 1:15:30 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2006D74**
Date Reported: **7/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Client Sample ID: WS20-03
Project: Black River Booster Station Riser #5
Collection Date: 6/24/2020 1:28:00 PM
Lab ID: 2006D74-047 **Matrix:** SOIL
Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	6/27/2020 10:13:08 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	6/27/2020 10:13:08 PM
Surr: DNOP	76.2	55.1-146		%Rec	1	6/27/2020 10:13:08 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	6/30/2020 12:08:21 AM
Surr: BFB	101	66.6-105		%Rec	1	6/30/2020 12:08:21 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	6/30/2020 12:08:21 AM
Toluene	ND	0.049		mg/Kg	1	6/30/2020 12:08:21 AM
Ethylbenzene	ND	0.049		mg/Kg	1	6/30/2020 12:08:21 AM
Xylenes, Total	ND	0.099		mg/Kg	1	6/30/2020 12:08:21 AM
Surr: 4-Bromofluorobenzene	104	80-120		%Rec	1	6/30/2020 12:08:21 AM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	3000	150		mg/Kg	50	7/1/2020 1:27:49 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	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2006D74**
Date Reported: **7/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Black River Booster Station Riser #5
Lab ID: 2006D74-048 **Matrix:** SOIL

Client Sample ID: WS20-04
Collection Date: 6/24/2020 1:35:00 PM
Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	6/27/2020 10:23:14 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	6/27/2020 10:23:14 PM
Surr: DNOP	87.2	55.1-146		%Rec	1	6/27/2020 10:23:14 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	6/30/2020 12:31:43 AM
Surr: BFB	106	66.6-105	S	%Rec	1	6/30/2020 12:31:43 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	6/30/2020 12:31:43 AM
Toluene	ND	0.049		mg/Kg	1	6/30/2020 12:31:43 AM
Ethylbenzene	ND	0.049		mg/Kg	1	6/30/2020 12:31:43 AM
Xylenes, Total	ND	0.099		mg/Kg	1	6/30/2020 12:31:43 AM
Surr: 4-Bromofluorobenzene	106	80-120		%Rec	1	6/30/2020 12:31:43 AM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	2300	60		mg/Kg	20	6/29/2020 11:26:22 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	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2006D74**
Date Reported: **7/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Black River Booster Station Riser #5
Lab ID: 2006D74-049 **Matrix:** SOIL

Client Sample ID: WS20-05
Collection Date: 6/24/2020 1:46:00 PM
Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	6/27/2020 10:33:23 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	6/27/2020 10:33:23 PM
Surr: DNOP	64.6	55.1-146		%Rec	1	6/27/2020 10:33:23 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	6/30/2020 12:55:12 AM
Surr: BFB	102	66.6-105		%Rec	1	6/30/2020 12:55:12 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	6/30/2020 12:55:12 AM
Toluene	ND	0.049		mg/Kg	1	6/30/2020 12:55:12 AM
Ethylbenzene	ND	0.049		mg/Kg	1	6/30/2020 12:55:12 AM
Xylenes, Total	ND	0.099		mg/Kg	1	6/30/2020 12:55:12 AM
Surr: 4-Bromofluorobenzene	103	80-120		%Rec	1	6/30/2020 12:55:12 AM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	2400	150		mg/Kg	50	7/1/2020 1:40:09 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2006D74**
Date Reported: **7/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Client Sample ID: WS20-06
Project: Black River Booster Station Riser #5
Collection Date: 6/24/2020 1:55:00 PM
Lab ID: 2006D74-050 **Matrix:** SOIL
Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	6/27/2020 11:34:41 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	6/27/2020 11:34:41 PM
Surr: DNOP	92.4	55.1-146		%Rec	1	6/27/2020 11:34:41 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	6/30/2020 1:18:42 AM
Surr: BFB	105	66.6-105		%Rec	1	6/30/2020 1:18:42 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	6/30/2020 1:18:42 AM
Toluene	ND	0.049		mg/Kg	1	6/30/2020 1:18:42 AM
Ethylbenzene	ND	0.049		mg/Kg	1	6/30/2020 1:18:42 AM
Xylenes, Total	ND	0.099		mg/Kg	1	6/30/2020 1:18:42 AM
Surr: 4-Bromofluorobenzene	106	80-120		%Rec	1	6/30/2020 1:18:42 AM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	3200	150		mg/Kg	50	7/1/2020 1:52:29 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2006D74**
Date Reported: **7/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Client Sample ID: WS20-07
Project: Black River Booster Station Riser #5
Collection Date: 6/24/2020 1:58:00 PM
Lab ID: 2006D74-051 **Matrix:** SOIL
Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	6/28/2020 12:05:17 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	6/28/2020 12:05:17 AM
Surr: DNOP	94.2	55.1-146		%Rec	1	6/28/2020 12:05:17 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	6/30/2020 2:29:18 AM
Surr: BFB	103	66.6-105		%Rec	1	6/30/2020 2:29:18 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	6/30/2020 2:29:18 AM
Toluene	ND	0.050		mg/Kg	1	6/30/2020 2:29:18 AM
Ethylbenzene	ND	0.050		mg/Kg	1	6/30/2020 2:29:18 AM
Xylenes, Total	ND	0.099		mg/Kg	1	6/30/2020 2:29:18 AM
Surr: 4-Bromofluorobenzene	104	80-120		%Rec	1	6/30/2020 2:29:18 AM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	4000	150		mg/Kg	50	7/1/2020 2:04:51 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2006D74**
Date Reported: **7/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Black River Booster Station Riser #5
Lab ID: 2006D74-052 **Matrix:** SOIL

Client Sample ID: WS20-08
Collection Date: 6/24/2020 2:03:00 PM
Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	6/28/2020 12:15:34 AM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	6/28/2020 12:15:34 AM
Surr: DNOP	83.4	55.1-146		%Rec	1	6/28/2020 12:15:34 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	6/30/2020 2:52:40 AM
Surr: BFB	99.9	66.6-105		%Rec	1	6/30/2020 2:52:40 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	6/30/2020 2:52:40 AM
Toluene	ND	0.049		mg/Kg	1	6/30/2020 2:52:40 AM
Ethylbenzene	ND	0.049		mg/Kg	1	6/30/2020 2:52:40 AM
Xylenes, Total	ND	0.098		mg/Kg	1	6/30/2020 2:52:40 AM
Surr: 4-Bromofluorobenzene	102	80-120		%Rec	1	6/30/2020 2:52:40 AM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	4100	150		mg/Kg	50	7/1/2020 2:17:12 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	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2006D74**
Date Reported: **7/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Client Sample ID: WS20-09
Project: Black River Booster Station Riser #5
Collection Date: 6/24/2020 2:05:00 PM
Lab ID: 2006D74-053 **Matrix:** SOIL
Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	6/28/2020 12:25:55 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	6/28/2020 12:25:55 AM
Surr: DNOP	92.5	55.1-146		%Rec	1	6/28/2020 12:25:55 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	6/30/2020 3:16:01 AM
Surr: BFB	101	66.6-105		%Rec	1	6/30/2020 3:16:01 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	6/30/2020 3:16:01 AM
Toluene	ND	0.050		mg/Kg	1	6/30/2020 3:16:01 AM
Ethylbenzene	ND	0.050		mg/Kg	1	6/30/2020 3:16:01 AM
Xylenes, Total	ND	0.10		mg/Kg	1	6/30/2020 3:16:01 AM
Surr: 4-Bromofluorobenzene	104	80-120		%Rec	1	6/30/2020 3:16:01 AM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	4300	150		mg/Kg	50	7/1/2020 2:29:52 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2006D74**
Date Reported: **7/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Client Sample ID: WS20-10
Project: Black River Booster Station Riser #5
Collection Date: 6/24/2020 2:07:00 PM
Lab ID: 2006D74-054 **Matrix:** SOIL
Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	6/28/2020 12:36:21 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	6/28/2020 12:36:21 AM
Surr: DNOP	85.5	55.1-146		%Rec	1	6/28/2020 12:36:21 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	6/30/2020 3:39:27 AM
Surr: BFB	100	66.6-105		%Rec	1	6/30/2020 3:39:27 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	6/30/2020 3:39:27 AM
Toluene	ND	0.049		mg/Kg	1	6/30/2020 3:39:27 AM
Ethylbenzene	ND	0.049		mg/Kg	1	6/30/2020 3:39:27 AM
Xylenes, Total	ND	0.099		mg/Kg	1	6/30/2020 3:39:27 AM
Surr: 4-Bromofluorobenzene	102	80-120		%Rec	1	6/30/2020 3:39:27 AM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	1300	60		mg/Kg	20	6/30/2020 1:05:06 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2006D74**
Date Reported: **7/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Client Sample ID: WS20-11
Project: Black River Booster Station Riser #5
Collection Date: 6/24/2020 2:10:00 PM
Lab ID: 2006D74-055 **Matrix:** SOIL
Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	6/28/2020 12:46:39 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	6/28/2020 12:46:39 AM
Surr: DNOP	94.6	55.1-146		%Rec	1	6/28/2020 12:46:39 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	6/30/2020 4:03:00 AM
Surr: BFB	102	66.6-105		%Rec	1	6/30/2020 4:03:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	6/30/2020 4:03:00 AM
Toluene	ND	0.050		mg/Kg	1	6/30/2020 4:03:00 AM
Ethylbenzene	ND	0.050		mg/Kg	1	6/30/2020 4:03:00 AM
Xylenes, Total	ND	0.099		mg/Kg	1	6/30/2020 4:03:00 AM
Surr: 4-Bromofluorobenzene	103	80-120		%Rec	1	6/30/2020 4:03:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	1000	60		mg/Kg	20	6/29/2020 8:08:52 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2006D74**
Date Reported: **7/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Client Sample ID: WS20-12
Project: Black River Booster Station Riser #5
Collection Date: 6/24/2020 2:15:00 PM
Lab ID: 2006D74-056 **Matrix:** SOIL
Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	6/28/2020 12:57:02 AM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	6/28/2020 12:57:02 AM
Surr: DNOP	102	55.1-146		%Rec	1	6/28/2020 12:57:02 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	6/30/2020 4:26:20 AM
Surr: BFB	102	66.6-105		%Rec	1	6/30/2020 4:26:20 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	6/30/2020 4:26:20 AM
Toluene	ND	0.049		mg/Kg	1	6/30/2020 4:26:20 AM
Ethylbenzene	ND	0.049		mg/Kg	1	6/30/2020 4:26:20 AM
Xylenes, Total	ND	0.099		mg/Kg	1	6/30/2020 4:26:20 AM
Surr: 4-Bromofluorobenzene	103	80-120		%Rec	1	6/30/2020 4:26:20 AM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	4300	150		mg/Kg	50	7/1/2020 2:42:13 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2006D74**
Date Reported: **7/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Black River Booster Station Riser #5
Lab ID: 2006D74-057 **Matrix:** SOIL

Client Sample ID: WS20-13
Collection Date: 6/24/2020 2:21:00 PM
Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	6/28/2020 1:07:25 AM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	6/28/2020 1:07:25 AM
Surr: DNOP	99.1	55.1-146		%Rec	1	6/28/2020 1:07:25 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	6/30/2020 4:49:44 AM
Surr: BFB	103	66.6-105		%Rec	1	6/30/2020 4:49:44 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	6/30/2020 4:49:44 AM
Toluene	ND	0.049		mg/Kg	1	6/30/2020 4:49:44 AM
Ethylbenzene	ND	0.049		mg/Kg	1	6/30/2020 4:49:44 AM
Xylenes, Total	ND	0.097		mg/Kg	1	6/30/2020 4:49:44 AM
Surr: 4-Bromofluorobenzene	104	80-120		%Rec	1	6/30/2020 4:49:44 AM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	1200	60		mg/Kg	20	6/29/2020 8:33:32 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2006D74**
Date Reported: **7/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Client Sample ID: WS20-14
Project: Black River Booster Station Riser #5
Collection Date: 6/24/2020 2:30:00 PM
Lab ID: 2006D74-058 **Matrix:** SOIL
Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	6/28/2020 1:18:02 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	6/28/2020 1:18:02 AM
Surr: DNOP	87.0	55.1-146		%Rec	1	6/28/2020 1:18:02 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	6/30/2020 5:13:19 AM
Surr: BFB	103	66.6-105		%Rec	1	6/30/2020 5:13:19 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	6/30/2020 5:13:19 AM
Toluene	ND	0.050		mg/Kg	1	6/30/2020 5:13:19 AM
Ethylbenzene	ND	0.050		mg/Kg	1	6/30/2020 5:13:19 AM
Xylenes, Total	ND	0.099		mg/Kg	1	6/30/2020 5:13:19 AM
Surr: 4-Bromofluorobenzene	105	80-120		%Rec	1	6/30/2020 5:13:19 AM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	2700	150		mg/Kg	50	7/1/2020 2:54:34 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2006D74**
Date Reported: **7/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Black River Booster Station Riser #5
Lab ID: 2006D74-059 **Matrix:** SOIL

Client Sample ID: WS20-15
Collection Date: 6/24/2020 2:32:00 PM
Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	6/28/2020 1:28:43 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	6/28/2020 1:28:43 AM
Surr: DNOP	101	55.1-146		%Rec	1	6/28/2020 1:28:43 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	7/2/2020 3:12:16 PM
Surr: BFB	97.7	66.6-105		%Rec	1	7/2/2020 3:12:16 PM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.025		mg/Kg	1	7/2/2020 3:12:16 PM
Toluene	ND	0.049		mg/Kg	1	7/2/2020 3:12:16 PM
Ethylbenzene	ND	0.049		mg/Kg	1	7/2/2020 3:12:16 PM
Xylenes, Total	ND	0.099		mg/Kg	1	7/2/2020 3:12:16 PM
Surr: 4-Bromofluorobenzene	106	80-120		%Rec	1	7/2/2020 3:12:16 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	780	59		mg/Kg	20	6/29/2020 8:58:15 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2006D74**
Date Reported: **7/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Client Sample ID: WS20-16
Project: Black River Booster Station Riser #5
Collection Date: 6/24/2020 2:34:00 PM
Lab ID: 2006D74-060 **Matrix:** SOIL
Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	6/28/2020 1:39:22 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	6/28/2020 1:39:22 AM
Surr: DNOP	96.4	55.1-146		%Rec	1	6/28/2020 1:39:22 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	7/2/2020 3:36:04 PM
Surr: BFB	98.5	66.6-105		%Rec	1	7/2/2020 3:36:04 PM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.024		mg/Kg	1	7/2/2020 3:36:04 PM
Toluene	ND	0.049		mg/Kg	1	7/2/2020 3:36:04 PM
Ethylbenzene	ND	0.049		mg/Kg	1	7/2/2020 3:36:04 PM
Xylenes, Total	ND	0.098		mg/Kg	1	7/2/2020 3:36:04 PM
Surr: 4-Bromofluorobenzene	107	80-120		%Rec	1	7/2/2020 3:36:04 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	4300	150		mg/Kg	50	7/1/2020 3:31:36 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2006D74**
Date Reported: **7/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Client Sample ID: WS20-17
Project: Black River Booster Station Riser #5
Collection Date: 6/24/2020 2:45:00 PM
Lab ID: 2006D74-061 **Matrix:** SOIL
Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	6/28/2020 12:20:08 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	6/28/2020 12:20:08 PM
Surr: DNOP	91.5	55.1-146		%Rec	1	6/28/2020 12:20:08 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	7/1/2020 11:30:52 PM
Surr: BFB	101	66.6-105		%Rec	1	7/1/2020 11:30:52 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	7/1/2020 11:30:52 PM
Toluene	ND	0.049		mg/Kg	1	7/1/2020 11:30:52 PM
Ethylbenzene	ND	0.049		mg/Kg	1	7/1/2020 11:30:52 PM
Xylenes, Total	ND	0.098		mg/Kg	1	7/1/2020 11:30:52 PM
Surr: 4-Bromofluorobenzene	107	80-120		%Rec	1	7/1/2020 11:30:52 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	1400	60		mg/Kg	20	6/29/2020 9:47:36 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2006D74**
Date Reported: **7/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Black River Booster Station Riser #5
Lab ID: 2006D74-062 **Matrix:** SOIL

Client Sample ID: WS20-18
Collection Date: 6/24/2020 2:47:00 PM
Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	6/28/2020 12:50:38 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	6/28/2020 12:50:38 PM
Surr: DNOP	88.5	55.1-146		%Rec	1	6/28/2020 12:50:38 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	7/2/2020 12:41:14 AM
Surr: BFB	99.9	66.6-105		%Rec	1	7/2/2020 12:41:14 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	7/2/2020 12:41:14 AM
Toluene	ND	0.050		mg/Kg	1	7/2/2020 12:41:14 AM
Ethylbenzene	ND	0.050		mg/Kg	1	7/2/2020 12:41:14 AM
Xylenes, Total	ND	0.099		mg/Kg	1	7/2/2020 12:41:14 AM
Surr: 4-Bromofluorobenzene	104	80-120		%Rec	1	7/2/2020 12:41:14 AM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	740	60		mg/Kg	20	6/29/2020 9:59:57 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	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2006D74**
Date Reported: **7/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Black River Booster Station Riser #5
Lab ID: 2006D74-063 **Matrix:** SOIL

Client Sample ID: WS20-19
Collection Date: 6/24/2020 2:51:00 PM
Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	6/28/2020 1:00:47 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	6/28/2020 1:00:47 PM
Surr: DNOP	92.2	55.1-146		%Rec	1	6/28/2020 1:00:47 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/2/2020 1:51:39 AM
Surr: BFB	98.9	66.6-105		%Rec	1	7/2/2020 1:51:39 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	7/2/2020 1:51:39 AM
Toluene	ND	0.048		mg/Kg	1	7/2/2020 1:51:39 AM
Ethylbenzene	ND	0.048		mg/Kg	1	7/2/2020 1:51:39 AM
Xylenes, Total	ND	0.097		mg/Kg	1	7/2/2020 1:51:39 AM
Surr: 4-Bromofluorobenzene	102	80-120		%Rec	1	7/2/2020 1:51:39 AM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	2400	150		mg/Kg	50	7/1/2020 3:43:56 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2006D74**
Date Reported: **7/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Client Sample ID: WS20-20
Project: Black River Booster Station Riser #5
Collection Date: 6/24/2020 2:55:00 PM
Lab ID: 2006D74-064 **Matrix:** SOIL
Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	6/28/2020 1:10:58 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	6/28/2020 1:10:58 PM
Surr: DNOP	82.0	55.1-146		%Rec	1	6/28/2020 1:10:58 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	7/2/2020 3:59:59 PM
Surr: BFB	99.5	66.6-105		%Rec	1	7/2/2020 3:59:59 PM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.024		mg/Kg	1	7/2/2020 3:59:59 PM
Toluene	ND	0.047		mg/Kg	1	7/2/2020 3:59:59 PM
Ethylbenzene	ND	0.047		mg/Kg	1	7/2/2020 3:59:59 PM
Xylenes, Total	ND	0.094		mg/Kg	1	7/2/2020 3:59:59 PM
Surr: 4-Bromofluorobenzene	106	80-120		%Rec	1	7/2/2020 3:59:59 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	2200	150		mg/Kg	50	7/1/2020 11:45:54 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2006D74**
Date Reported: **7/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Client Sample ID: WS20-21
Project: Black River Booster Station Riser #5
Collection Date: 6/24/2020 3:01:00 PM
Lab ID: 2006D74-065 **Matrix:** SOIL
Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	6/28/2020 1:21:10 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	6/28/2020 1:21:10 PM
Surr: DNOP	80.9	55.1-146		%Rec	1	6/28/2020 1:21:10 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	7/2/2020 4:23:57 PM
Surr: BFB	99.3	66.6-105		%Rec	1	7/2/2020 4:23:57 PM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.023		mg/Kg	1	7/2/2020 4:23:57 PM
Toluene	ND	0.047		mg/Kg	1	7/2/2020 4:23:57 PM
Ethylbenzene	ND	0.047		mg/Kg	1	7/2/2020 4:23:57 PM
Xylenes, Total	ND	0.093		mg/Kg	1	7/2/2020 4:23:57 PM
Surr: 4-Bromofluorobenzene	107	80-120		%Rec	1	7/2/2020 4:23:57 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	2800	150		mg/Kg	50	7/1/2020 11:58:15 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2006D74**
Date Reported: **7/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Black River Booster Station Riser #5
Lab ID: 2006D74-066 **Matrix:** SOIL

Client Sample ID: WS20-22
Collection Date: 6/24/2020 3:03:00 PM
Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	6/28/2020 1:31:24 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	6/28/2020 1:31:24 PM
Surr: DNOP	96.3	55.1-146		%Rec	1	6/28/2020 1:31:24 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	7/2/2020 7:11:22 PM
Surr: BFB	97.7	66.6-105		%Rec	1	7/2/2020 7:11:22 PM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.025		mg/Kg	1	7/2/2020 7:11:22 PM
Toluene	ND	0.050		mg/Kg	1	7/2/2020 7:11:22 PM
Ethylbenzene	ND	0.050		mg/Kg	1	7/2/2020 7:11:22 PM
Xylenes, Total	ND	0.099		mg/Kg	1	7/2/2020 7:11:22 PM
Surr: 4-Bromofluorobenzene	107	80-120		%Rec	1	7/2/2020 7:11:22 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	1000	60		mg/Kg	20	6/30/2020 3:22:17 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2006D74**
Date Reported: **7/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Black River Booster Station Riser #5
Lab ID: 2006D74-067 **Matrix:** SOIL

Client Sample ID: WS20-23
Collection Date: 6/24/2020 3:05:00 PM
Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	6/28/2020 1:41:37 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	6/28/2020 1:41:37 PM
Surr: DNOP	85.4	55.1-146		%Rec	1	6/28/2020 1:41:37 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/2/2020 7:35:11 PM
Surr: BFB	97.7	66.6-105		%Rec	1	7/2/2020 7:35:11 PM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.024		mg/Kg	1	7/2/2020 7:35:11 PM
Toluene	ND	0.048		mg/Kg	1	7/2/2020 7:35:11 PM
Ethylbenzene	ND	0.048		mg/Kg	1	7/2/2020 7:35:11 PM
Xylenes, Total	ND	0.095		mg/Kg	1	7/2/2020 7:35:11 PM
Surr: 4-Bromofluorobenzene	106	80-120		%Rec	1	7/2/2020 7:35:11 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	1500	60		mg/Kg	20	6/30/2020 3:34:39 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	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2006D74**
Date Reported: **7/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Client Sample ID: WS20-24
Project: Black River Booster Station Riser #5
Collection Date: 6/24/2020 3:09:00 PM
Lab ID: 2006D74-068 **Matrix:** SOIL
Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	6/28/2020 1:51:51 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	6/28/2020 1:51:51 PM
Surr: DNOP	86.0	55.1-146		%Rec	1	6/28/2020 1:51:51 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	7/2/2020 7:59:03 PM
Surr: BFB	98.1	66.6-105		%Rec	1	7/2/2020 7:59:03 PM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.025		mg/Kg	1	7/2/2020 7:59:03 PM
Toluene	ND	0.049		mg/Kg	1	7/2/2020 7:59:03 PM
Ethylbenzene	ND	0.049		mg/Kg	1	7/2/2020 7:59:03 PM
Xylenes, Total	ND	0.098		mg/Kg	1	7/2/2020 7:59:03 PM
Surr: 4-Bromofluorobenzene	106	80-120		%Rec	1	7/2/2020 7:59:03 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	1400	60		mg/Kg	20	6/30/2020 3:47:00 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2006D74**
Date Reported: **7/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Client Sample ID: WS20-25
Project: Black River Booster Station Riser #5
Collection Date: 6/24/2020 3:12:00 PM
Lab ID: 2006D74-069 **Matrix:** SOIL
Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	6/28/2020 2:02:08 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	6/28/2020 2:02:08 PM
Surr: DNOP	95.1	55.1-146		%Rec	1	6/28/2020 2:02:08 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/2/2020 8:22:52 PM
Surr: BFB	99.0	66.6-105		%Rec	1	7/2/2020 8:22:52 PM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.024		mg/Kg	1	7/2/2020 8:22:52 PM
Toluene	ND	0.048		mg/Kg	1	7/2/2020 8:22:52 PM
Ethylbenzene	ND	0.048		mg/Kg	1	7/2/2020 8:22:52 PM
Xylenes, Total	ND	0.096		mg/Kg	1	7/2/2020 8:22:52 PM
Surr: 4-Bromofluorobenzene	107	80-120		%Rec	1	7/2/2020 8:22:52 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	7900	300		mg/Kg	100	7/2/2020 12:10:35 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2006D74**
Date Reported: **7/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Client Sample ID: WS20-26
Project: Black River Booster Station Riser #5
Collection Date: 6/24/2020 3:18:00 PM
Lab ID: 2006D74-070 **Matrix:** SOIL
Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	6/28/2020 2:12:25 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	6/28/2020 2:12:25 PM
Surr: DNOP	88.0	55.1-146		%Rec	1	6/28/2020 2:12:25 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	7/2/2020 8:46:41 PM
Surr: BFB	99.2	66.6-105		%Rec	1	7/2/2020 8:46:41 PM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.024		mg/Kg	1	7/2/2020 8:46:41 PM
Toluene	ND	0.049		mg/Kg	1	7/2/2020 8:46:41 PM
Ethylbenzene	ND	0.049		mg/Kg	1	7/2/2020 8:46:41 PM
Xylenes, Total	ND	0.098		mg/Kg	1	7/2/2020 8:46:41 PM
Surr: 4-Bromofluorobenzene	108	80-120		%Rec	1	7/2/2020 8:46:41 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	2900	150		mg/Kg	50	7/2/2020 12:22:55 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2006D74**
Date Reported: **7/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Client Sample ID: WS20-27
Project: Black River Booster Station Riser #5
Collection Date: 6/24/2020 3:21:00 PM
Lab ID: 2006D74-071 **Matrix:** SOIL
Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	6/28/2020 2:22:43 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	6/28/2020 2:22:43 PM
Surr: DNOP	98.4	55.1-146		%Rec	1	6/28/2020 2:22:43 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	7/2/2020 9:10:30 PM
Surr: BFB	97.8	66.6-105		%Rec	1	7/2/2020 9:10:30 PM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.023		mg/Kg	1	7/2/2020 9:10:30 PM
Toluene	ND	0.047		mg/Kg	1	7/2/2020 9:10:30 PM
Ethylbenzene	ND	0.047		mg/Kg	1	7/2/2020 9:10:30 PM
Xylenes, Total	ND	0.094		mg/Kg	1	7/2/2020 9:10:30 PM
Surr: 4-Bromofluorobenzene	106	80-120		%Rec	1	7/2/2020 9:10:30 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	2100	60		mg/Kg	20	6/30/2020 6:03:18 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	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2006D74**
Date Reported: **7/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Client Sample ID: WS20-28
Project: Black River Booster Station Riser #5
Collection Date: 6/24/2020 3:26:00 PM
Lab ID: 2006D74-072 **Matrix:** SOIL
Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	6/28/2020 2:33:02 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	6/28/2020 2:33:02 PM
Surr: DNOP	95.6	55.1-146		%Rec	1	6/28/2020 2:33:02 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	7/2/2020 9:34:08 PM
Surr: BFB	98.0	66.6-105		%Rec	1	7/2/2020 9:34:08 PM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.024		mg/Kg	1	7/2/2020 9:34:08 PM
Toluene	ND	0.049		mg/Kg	1	7/2/2020 9:34:08 PM
Ethylbenzene	ND	0.049		mg/Kg	1	7/2/2020 9:34:08 PM
Xylenes, Total	ND	0.097		mg/Kg	1	7/2/2020 9:34:08 PM
Surr: 4-Bromofluorobenzene	107	80-120		%Rec	1	7/2/2020 9:34:08 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	2500	150		mg/Kg	50	7/2/2020 12:35:16 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	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
P	Sample pH Not In Range
PQL	Practical Quanitative Limit
RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix

Analytical Report
Lab Order **2006D74**
Date Reported: **7/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. **Client Sample ID:** WS20-29
Project: Black River Booster Station Riser #5 **Collection Date:** 6/24/2020 3:29:00 PM
Lab ID: 2006D74-073 **Matrix:** SOIL **Received Date:** 6/26/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	6/28/2020 2:43:23 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	6/28/2020 2:43:23 PM
Surr: DNOP	99.0	55.1-146		%Rec	1	6/28/2020 2:43:23 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	7/2/2020 9:57:44 PM
Surr: BFB	97.7	66.6-105		%Rec	1	7/2/2020 9:57:44 PM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.024		mg/Kg	1	7/2/2020 9:57:44 PM
Toluene	ND	0.047		mg/Kg	1	7/2/2020 9:57:44 PM
Ethylbenzene	ND	0.047		mg/Kg	1	7/2/2020 9:57:44 PM
Xylenes, Total	ND	0.094		mg/Kg	1	7/2/2020 9:57:44 PM
Surr: 4-Bromofluorobenzene	106	80-120		%Rec	1	7/2/2020 9:57:44 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	1400	59		mg/Kg	20	6/30/2020 6:27:59 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2006D74**
Date Reported: **7/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Client Sample ID: WS20-30
Project: Black River Booster Station Riser #5
Collection Date: 6/24/2020 3:33:00 PM
Lab ID: 2006D74-074 **Matrix:** SOIL
Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	6/28/2020 2:53:44 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	6/28/2020 2:53:44 PM
Surr: DNOP	89.1	55.1-146		%Rec	1	6/28/2020 2:53:44 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	7/2/2020 10:21:24 PM
Surr: BFB	94.9	66.6-105		%Rec	1	7/2/2020 10:21:24 PM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.023		mg/Kg	1	7/2/2020 10:21:24 PM
Toluene	ND	0.046		mg/Kg	1	7/2/2020 10:21:24 PM
Ethylbenzene	ND	0.046		mg/Kg	1	7/2/2020 10:21:24 PM
Xylenes, Total	ND	0.092		mg/Kg	1	7/2/2020 10:21:24 PM
Surr: 4-Bromofluorobenzene	104	80-120		%Rec	1	7/2/2020 10:21:24 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	3000	150		mg/Kg	50	7/2/2020 12:47:38 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2006D74**
Date Reported: **7/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Client Sample ID: WS20-31
Project: Black River Booster Station Riser #5
Collection Date: 6/24/2020 3:35:00 PM
Lab ID: 2006D74-075 **Matrix:** SOIL
Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	6/28/2020 3:04:07 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	6/28/2020 3:04:07 PM
Surr: DNOP	91.5	55.1-146		%Rec	1	6/28/2020 3:04:07 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/2/2020 10:45:00 PM
Surr: BFB	96.3	66.6-105		%Rec	1	7/2/2020 10:45:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.024		mg/Kg	1	7/2/2020 10:45:00 PM
Toluene	ND	0.048		mg/Kg	1	7/2/2020 10:45:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	7/2/2020 10:45:00 PM
Xylenes, Total	ND	0.095		mg/Kg	1	7/2/2020 10:45:00 PM
Surr: 4-Bromofluorobenzene	105	80-120		%Rec	1	7/2/2020 10:45:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	1500	60		mg/Kg	20	6/30/2020 6:52:41 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2006D74**
Date Reported: **7/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Client Sample ID: WS20-32
Project: Black River Booster Station Riser #5
Collection Date: 6/24/2020 3:39:00 PM
Lab ID: 2006D74-076 **Matrix:** SOIL
Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	6/28/2020 3:14:32 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	6/28/2020 3:14:32 PM
Surr: DNOP	74.2	55.1-146		%Rec	1	6/28/2020 3:14:32 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	7/3/2020 1:06:11 AM
Surr: BFB	95.2	66.6-105		%Rec	1	7/3/2020 1:06:11 AM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.024		mg/Kg	1	7/3/2020 1:06:11 AM
Toluene	ND	0.049		mg/Kg	1	7/3/2020 1:06:11 AM
Ethylbenzene	ND	0.049		mg/Kg	1	7/3/2020 1:06:11 AM
Xylenes, Total	ND	0.098		mg/Kg	1	7/3/2020 1:06:11 AM
Surr: 4-Bromofluorobenzene	106	80-120		%Rec	1	7/3/2020 1:06:11 AM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	1100	59		mg/Kg	20	6/30/2020 7:05:02 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2006D74**
Date Reported: **7/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Black River Booster Station Riser #5
Lab ID: 2006D74-077 **Matrix:** SOIL

Client Sample ID: WS20-33
Collection Date: 6/24/2020 3:46:00 PM
Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	6/28/2020 3:25:09 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	6/28/2020 3:25:09 PM
Surr: DNOP	80.7	55.1-146		%Rec	1	6/28/2020 3:25:09 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/3/2020 1:29:46 AM
Surr: BFB	95.1	66.6-105		%Rec	1	7/3/2020 1:29:46 AM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.024		mg/Kg	1	7/3/2020 1:29:46 AM
Toluene	ND	0.048		mg/Kg	1	7/3/2020 1:29:46 AM
Ethylbenzene	ND	0.048		mg/Kg	1	7/3/2020 1:29:46 AM
Xylenes, Total	ND	0.097		mg/Kg	1	7/3/2020 1:29:46 AM
Surr: 4-Bromofluorobenzene	105	80-120		%Rec	1	7/3/2020 1:29:46 AM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	12000	600		mg/Kg	200	7/6/2020 1:06:42 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2006D74**
Date Reported: **7/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Client Sample ID: WS20-34
Project: Black River Booster Station Riser #5
Collection Date: 6/24/2020 3:50:00 PM
Lab ID: 2006D74-078 **Matrix:** SOIL
Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	6/28/2020 3:35:46 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	6/28/2020 3:35:46 PM
Surr: DNOP	82.3	55.1-146		%Rec	1	6/28/2020 3:35:46 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/3/2020 1:53:11 AM
Surr: BFB	93.8	66.6-105		%Rec	1	7/3/2020 1:53:11 AM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.024		mg/Kg	1	7/3/2020 1:53:11 AM
Toluene	ND	0.048		mg/Kg	1	7/3/2020 1:53:11 AM
Ethylbenzene	ND	0.048		mg/Kg	1	7/3/2020 1:53:11 AM
Xylenes, Total	ND	0.096		mg/Kg	1	7/3/2020 1:53:11 AM
Surr: 4-Bromofluorobenzene	103	80-120		%Rec	1	7/3/2020 1:53:11 AM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	860	60		mg/Kg	20	6/30/2020 7:29:44 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2006D74**
Date Reported: **7/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. **Client Sample ID:** WS20-35
Project: Black River Booster Station Riser #5 **Collection Date:** 6/24/2020 3:56:00 PM
Lab ID: 2006D74-079 **Matrix:** SOIL **Received Date:** 6/26/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	6/28/2020 3:46:21 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	6/28/2020 3:46:21 PM
Surr: DNOP	82.1	55.1-146		%Rec	1	6/28/2020 3:46:21 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	7/3/2020 2:16:41 AM
Surr: BFB	94.0	66.6-105		%Rec	1	7/3/2020 2:16:41 AM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.024		mg/Kg	1	7/3/2020 2:16:41 AM
Toluene	ND	0.047		mg/Kg	1	7/3/2020 2:16:41 AM
Ethylbenzene	ND	0.047		mg/Kg	1	7/3/2020 2:16:41 AM
Xylenes, Total	ND	0.094		mg/Kg	1	7/3/2020 2:16:41 AM
Surr: 4-Bromofluorobenzene	104	80-120		%Rec	1	7/3/2020 2:16:41 AM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	1300	60		mg/Kg	20	6/30/2020 8:06:48 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2006D74**
Date Reported: **7/8/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. **Client Sample ID:** WS20-36
Project: Black River Booster Station Riser #5 **Collection Date:** 6/24/2020 4:00:00 PM
Lab ID: 2006D74-080 **Matrix:** SOIL **Received Date:** 6/26/2020 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	6/28/2020 3:56:54 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	6/28/2020 3:56:54 PM
Surr: DNOP	90.3	55.1-146		%Rec	1	6/28/2020 3:56:54 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	7/3/2020 2:40:12 AM
Surr: BFB	93.8	66.6-105		%Rec	1	7/3/2020 2:40:12 AM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.025		mg/Kg	1	7/3/2020 2:40:12 AM
Toluene	ND	0.050		mg/Kg	1	7/3/2020 2:40:12 AM
Ethylbenzene	ND	0.050		mg/Kg	1	7/3/2020 2:40:12 AM
Xylenes, Total	ND	0.099		mg/Kg	1	7/3/2020 2:40:12 AM
Surr: 4-Bromofluorobenzene	103	80-120		%Rec	1	7/3/2020 2:40:12 AM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	2600	150		mg/Kg	50	7/2/2020 12:59:59 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	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2006D74**

08-Jul-20

Client: Vertex Resource Group Ltd.

Project: Black River Booster Station Riser #5

Sample ID: **MB-53364**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBS**	Batch ID: **53364**	RunNo: **69968**							
Prep Date: **6/28/2020**	Analysis Date: **6/28/2020**	SeqNo: **2430898**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-53364**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSS**	Batch ID: **53364**	RunNo: **69968**							
Prep Date: **6/28/2020**	Analysis Date: **6/28/2020**	SeqNo: **2430899**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	95.9	90	110			

Sample ID: **MB-53365**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBS**	Batch ID: **53365**	RunNo: **69968**							
Prep Date: **6/28/2020**	Analysis Date: **6/28/2020**	SeqNo: **2430930**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-53365**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSS**	Batch ID: **53365**	RunNo: **69968**							
Prep Date: **6/28/2020**	Analysis Date: **6/28/2020**	SeqNo: **2430931**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	95.3	90	110			

Sample ID: **MB-53383**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBS**	Batch ID: **53383**	RunNo: **70007**							
Prep Date: **6/29/2020**	Analysis Date: **6/29/2020**	SeqNo: **2432186**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-53383**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSS**	Batch ID: **53383**	RunNo: **70007**							
Prep Date: **6/29/2020**	Analysis Date: **6/29/2020**	SeqNo: **2432187**	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			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2006D74**

08-Jul-20

Client: Vertex Resource Group Ltd.

Project: Black River Booster Station Riser #5

Sample ID: **MB-53399** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS** Batch ID: **53399** RunNo: **70007**
Prep Date: **6/29/2020** Analysis Date: **6/29/2020** SeqNo: **2432216** Units: **mg/Kg**

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

Sample ID: **LCS-53399** SampType: **lcs** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS** Batch ID: **53399** RunNo: **70007**
Prep Date: **6/29/2020** Analysis Date: **6/29/2020** SeqNo: **2432217** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	94.2	90	110			

Sample ID: **MB-53417** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS** Batch ID: **53417** RunNo: **70021**
Prep Date: **6/30/2020** Analysis Date: **6/30/2020** SeqNo: **2433057** Units: **mg/Kg**

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

Sample ID: **LCS-53417** SampType: **lcs** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS** Batch ID: **53417** RunNo: **70021**
Prep Date: **6/30/2020** Analysis Date: **6/30/2020** SeqNo: **2433058** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	95.0	90	110			

Sample ID: **MB-53428** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS** Batch ID: **53428** RunNo: **70021**
Prep Date: **6/30/2020** Analysis Date: **6/30/2020** SeqNo: **2433091** Units: **mg/Kg**

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

Sample ID: **LCS-53428** SampType: **lcs** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS** Batch ID: **53428** RunNo: **70021**
Prep Date: **6/30/2020** Analysis Date: **6/30/2020** SeqNo: **2433092** 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.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2006D74**

08-Jul-20

Client: Vertex Resource Group Ltd.

Project: Black River Booster Station Riser #5

Sample ID: **LCS-53344** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **53344** RunNo: **69949**
Prep Date: **6/26/2020** Analysis Date: **6/27/2020** SeqNo: **2429356** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	53	10	50.00	0	106	70	130			
Surr: DNOP	5.2		5.000		105	55.1	146			

Sample ID: **MB-53344** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **53344** RunNo: **69949**
Prep Date: **6/26/2020** Analysis Date: **6/27/2020** SeqNo: **2429357** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	11		10.00		110	55.1	146			

Sample ID: **2006D74-010AMS** SampType: **MS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BS20-10 1'** Batch ID: **53347** RunNo: **69949**
Prep Date: **6/26/2020** Analysis Date: **6/27/2020** SeqNo: **2429703** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	46	9.5	47.66	0	96.1	47.4	136			
Surr: DNOP	4.3		4.766		90.9	55.1	146			

Sample ID: **2006D74-010AMSD** SampType: **MSD** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BS20-10 1'** Batch ID: **53347** RunNo: **69949**
Prep Date: **6/26/2020** Analysis Date: **6/27/2020** SeqNo: **2429704** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	49	9.3	46.64	0	105	47.4	136	6.24	43.4	
Surr: DNOP	4.5		4.664		96.4	55.1	146	0	0	

Sample ID: **2006D74-030AMS** SampType: **MS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BS20-30 1'** Batch ID: **53351** RunNo: **69949**
Prep Date: **6/27/2020** Analysis Date: **6/27/2020** SeqNo: **2429725** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	53	10	49.90	0	105	47.4	136			
Surr: DNOP	4.9		4.990		98.7	55.1	146			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2006D74**

08-Jul-20

Client: Vertex Resource Group Ltd.

Project: Black River Booster Station Riser #5

Sample ID: **2006D74-030AMSD**	SampType: **MSD**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BS20-30 1'**	Batch ID: **53351**	RunNo: **69949**
Prep Date: **6/27/2020**	Analysis Date: **6/27/2020**	SeqNo: **2429726** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	46	9.6	47.89	0	95.3	47.4	136	14.2	43.4	
Surr: DNOP	4.2		4.789		87.4	55.1	146	0	0	

Sample ID: **2006D74-050AMS**	SampType: **MS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **WS20-06**	Batch ID: **53354**	RunNo: **69949**
Prep Date: **6/27/2020**	Analysis Date: **6/27/2020**	SeqNo: **2429747** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	49	9.7	48.31	0	100	47.4	136			
Surr: DNOP	4.3		4.831		89.6	55.1	146			

Sample ID: **2006D74-050AMSD**	SampType: **MSD**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **WS20-06**	Batch ID: **53354**	RunNo: **69949**
Prep Date: **6/27/2020**	Analysis Date: **6/27/2020**	SeqNo: **2429748** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	48	9.8	49.12	0	97.3	47.4	136	1.50	43.4	
Surr: DNOP	4.4		4.912		89.3	55.1	146	0	0	

Sample ID: **LCS-53347**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **53347**	RunNo: **69949**
Prep Date: **6/26/2020**	Analysis Date: **6/27/2020**	SeqNo: **2429760** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	63	10	50.00	0	126	70	130			
Surr: DNOP	5.8		5.000		116	55.1	146			

Sample ID: **LCS-53351**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **53351**	RunNo: **69949**
Prep Date: **6/27/2020**	Analysis Date: **6/27/2020**	SeqNo: **2429761** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	53	10	50.00	0	105	70	130			
Surr: DNOP	4.8		5.000		95.5	55.1	146			

Sample ID: **LCS-53354**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **53354**	RunNo: **69949**
Prep Date: **6/27/2020**	Analysis Date: **6/27/2020**	SeqNo: **2429762** Units: **mg/Kg**

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2006D74**

08-Jul-20

Client: Vertex Resource Group Ltd.

Project: Black River Booster Station Riser #5

Sample ID: **LCS-53354**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **53354**	RunNo: **69949**
Prep Date: **6/27/2020**	Analysis Date: **6/27/2020**	SeqNo: **2429762** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	50	10	50.00	0	100	70	130			
Surr: DNOP	4.4		5.000		88.7	55.1	146			

Sample ID: **MB-53347**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **53347**	RunNo: **69949**
Prep Date: **6/26/2020**	Analysis Date: **6/27/2020**	SeqNo: **2429763** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	12		10.00		118	55.1	146			

Sample ID: **MB-53351**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **53351**	RunNo: **69949**
Prep Date: **6/27/2020**	Analysis Date: **6/27/2020**	SeqNo: **2429764** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	8.5		10.00		85.2	55.1	146			

Sample ID: **MB-53354**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **53354**	RunNo: **69949**
Prep Date: **6/27/2020**	Analysis Date: **6/27/2020**	SeqNo: **2429765** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	8.3		10.00		83.3	55.1	146			

Sample ID: **2006D74-061AMS**	SampType: **MS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **WS20-17**	Batch ID: **53363**	RunNo: **69959**
Prep Date: **6/28/2020**	Analysis Date: **6/28/2020**	SeqNo: **2430453** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	48	9.7	48.31	0	100	47.4	136			
Surr: DNOP	4.4		4.831		91.0	55.1	146			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2006D74**

08-Jul-20

Client: Vertex Resource Group Ltd.

Project: Black River Booster Station Riser #5

Sample ID: **2006D74-061AMSD**	SampType: **MSD**			TestCode: **EPA Method 8015M/D: Diesel Range Organics**					
Client ID: **WS20-17**	Batch ID: **53363**			RunNo: **69959**					
Prep Date: **6/28/2020**	Analysis Date: **6/28/2020**			SeqNo: **2430454**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	51	10	49.90	0	101	47.4	136	4.31	43.4	
Surr: DNOP	4.7		4.990		93.2	55.1	146	0	0	

Sample ID: **LCS-53363**	SampType: **LCS**			TestCode: **EPA Method 8015M/D: Diesel Range Organics**					
Client ID: **LCSS**	Batch ID: **53363**			RunNo: **69959**					
Prep Date: **6/28/2020**	Analysis Date: **6/28/2020**			SeqNo: **2430474**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	50	10	50.00	0	100	70	130			
Surr: DNOP	4.3		5.000		86.6	55.1	146			

Sample ID: **MB-53363**	SampType: **MBLK**			TestCode: **EPA Method 8015M/D: Diesel Range Organics**					
Client ID: **PBS**	Batch ID: **53363**			RunNo: **69959**					
Prep Date: **6/28/2020**	Analysis Date: **6/28/2020**			SeqNo: **2430475**		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		91.9	55.1	146			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2006D74**

08-Jul-20

Client: Vertex Resource Group Ltd.

Project: Black River Booster Station Riser #5

Sample ID: **2006D74-002AMS**	SampType: **MS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BS20-02 1'**	Batch ID: **53341**	RunNo: **69963**
Prep Date: **6/26/2020**	Analysis Date: **6/28/2020**	SeqNo: **2430047** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	4.9	24.44	0	95.5	80	120			
Surr: BFB	1100		977.5		109	66.6	105			S

Sample ID: **2006D74-002AMSD**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BS20-02 1'**	Batch ID: **53341**	RunNo: **69963**
Prep Date: **6/26/2020**	Analysis Date: **6/28/2020**	SeqNo: **2430048** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	5.0	24.83	0	91.7	80	120	2.48	20	
Surr: BFB	1100		993.0		110	66.6	105	0	0	S

Sample ID: **lcs-53341**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **53341**	RunNo: **69963**
Prep Date: **6/26/2020**	Analysis Date: **6/28/2020**	SeqNo: **2430054** 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	94.2	80	120			
Surr: BFB	1100		1000		112	66.6	105			S

Sample ID: **mb-53341**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **53341**	RunNo: **69963**
Prep Date: **6/26/2020**	Analysis Date: **6/28/2020**	SeqNo: **2430056** 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		103	66.6	105			

Sample ID: **mb-53342**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **53342**	RunNo: **69967**
Prep Date: **6/26/2020**	Analysis Date: **6/28/2020**	SeqNo: **2430406** 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	66.6	105			

Sample ID: **lcs-53342**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **53342**	RunNo: **69967**
Prep Date: **6/26/2020**	Analysis Date: **6/28/2020**	SeqNo: **2430407** Units: **mg/Kg**

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2006D74**

08-Jul-20

Client: Vertex Resource Group Ltd.

Project: Black River Booster Station Riser #5

Sample ID: **lcs-53342**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **53342**	RunNo: **69967**
Prep Date: **6/26/2020**	Analysis Date: **6/28/2020**	SeqNo: **2430407** 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	93.1	80	120			
Surr: BFB	1200		1000		115	66.6	105			S

Sample ID: **2006d74-022ams**	SampType: **MS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BS20-22 1'**	Batch ID: **53342**	RunNo: **69967**
Prep Date: **6/26/2020**	Analysis Date: **6/28/2020**	SeqNo: **2430410** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	4.9	24.65	0	98.1	80	120			
Surr: BFB	1200		986.2		118	66.6	105			S

Sample ID: **2006d74-022amsd**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BS20-22 1'**	Batch ID: **53342**	RunNo: **69967**
Prep Date: **6/26/2020**	Analysis Date: **6/28/2020**	SeqNo: **2430411** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	20	4.9	24.51	0	82.9	80	120	17.3	20	
Surr: BFB	1100		980.4		115	66.6	105	0	0	S

Sample ID: **mb-53345**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **53345**	RunNo: **69992**
Prep Date: **6/26/2020**	Analysis Date: **6/29/2020**	SeqNo: **2431446** 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	66.6	105			

Sample ID: **lcs-53345**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **53345**	RunNo: **69992**
Prep Date: **6/26/2020**	Analysis Date: **6/29/2020**	SeqNo: **2431447** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	5.0	25.00	0	98.2	80	120			
Surr: BFB	1100		1000		112	66.6	105			S

Sample ID: **2006d74-042ams**	SampType: **MS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BS20-42 0.5**	Batch ID: **53345**	RunNo: **69992**
Prep Date: **6/26/2020**	Analysis Date: **6/29/2020**	SeqNo: **2431450** Units: **mg/Kg**

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2006D74**

08-Jul-20

Client: Vertex Resource Group Ltd.

Project: Black River Booster Station Riser #5

Sample ID: **2006d74-042ams**	SampType: **MS**	TestCode: **EPA Method 8015D: Gasoline Range**								
Client ID: **BS20-42 0.5**	Batch ID: **53345**	RunNo: **69992**								
Prep Date: **6/26/2020**	Analysis Date: **6/29/2020**	SeqNo: **2431450**	Units: **mg/Kg**							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	5.0	24.95	0	90.3	80	120			
Surr: BFB	1200		998.0		116	66.6	105			S

Sample ID: **2006d74-042amsd**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**								
Client ID: **BS20-42 0.5**	Batch ID: **53345**	RunNo: **69992**								
Prep Date: **6/26/2020**	Analysis Date: **6/29/2020**	SeqNo: **2431451**	Units: **mg/Kg**							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	21	4.9	24.63	0	87.2	80	120	4.76	20	
Surr: BFB	1100		985.2		115	66.6	105	0	0	S

Sample ID: **mb-53350**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**								
Client ID: **PBS**	Batch ID: **53350**	RunNo: **70053**								
Prep Date: **6/27/2020**	Analysis Date: **7/1/2020**	SeqNo: **2434124**	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	990		1000		99.4	66.6	105			

Sample ID: **lcs-53350**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**								
Client ID: **LCSS**	Batch ID: **53350**	RunNo: **70053**								
Prep Date: **6/27/2020**	Analysis Date: **7/1/2020**	SeqNo: **2434125**	Units: **mg/Kg**							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22	5.0	25.00	0	87.6	80	120			
Surr: BFB	1100		1000		109	66.6	105			S

Sample ID: **2006d74-062ams**	SampType: **MS**	TestCode: **EPA Method 8015D: Gasoline Range**								
Client ID: **WS20-18**	Batch ID: **53350**	RunNo: **70053**								
Prep Date: **6/27/2020**	Analysis Date: **7/2/2020**	SeqNo: **2434128**	Units: **mg/Kg**							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	20	4.7	23.54	0	84.7	80	120			
Surr: BFB	1000		941.6		110	66.6	105			S

Sample ID: **2006d74-062amsd**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**								
Client ID: **WS20-18**	Batch ID: **53350**	RunNo: **70053**								
Prep Date: **6/27/2020**	Analysis Date: **7/2/2020**	SeqNo: **2434129**	Units: **mg/Kg**							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2006D74**

08-Jul-20

Client: Vertex Resource Group Ltd.

Project: Black River Booster Station Riser #5

Sample ID: **2006d74-062amsd**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **WS20-18**	Batch ID: **53350**	RunNo: **70053**
Prep Date: **6/27/2020**	Analysis Date: **7/2/2020**	SeqNo: **2434129** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	20	4.8	23.97	0	81.7	80	120	1.80	20	
Surr: BFB	1000		958.8		108	66.6	105	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 Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2006D74**

08-Jul-20

Client: Vertex Resource Group Ltd.

Project: Black River Booster Station Riser #5

Sample ID: **2006D74-001AMSD**	SampType: **MSD**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BS20-01 1'**	Batch ID: **53341**	RunNo: **69963**
Prep Date: **6/26/2020**	Analysis Date: **6/28/2020**	SeqNo: **2430061** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.90	0.024	0.9643	0	93.0	78.5	119	11.7	20	
Toluene	0.92	0.048	0.9643	0.01077	93.9	75.7	123	12.3	20	
Ethylbenzene	0.92	0.048	0.9643	0	95.3	74.3	126	14.0	20	
Xylenes, Total	2.8	0.096	2.893	0	96.8	72.9	130	13.4	20	
Surr: 4-Bromofluorobenzene	1.0		0.9643		104	80	120	0	0	

Sample ID: **2006D74-001AMS**	SampType: **MS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BS20-01 1'**	Batch ID: **53341**	RunNo: **69963**
Prep Date: **6/26/2020**	Analysis Date: **6/28/2020**	SeqNo: **2430072** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.025	0.9891	0	102	78.5	119			
Toluene	1.0	0.049	0.9891	0.01077	104	75.7	123			
Ethylbenzene	1.1	0.049	0.9891	0	107	74.3	126			
Xylenes, Total	3.2	0.099	2.967	0	108	72.9	130			
Surr: 4-Bromofluorobenzene	1.1		0.9891		107	80	120			

Sample ID: **LCS-53341**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **53341**	RunNo: **69963**
Prep Date: **6/26/2020**	Analysis Date: **6/28/2020**	SeqNo: **2430076** 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	88.8	80	120			
Toluene	0.89	0.050	1.000	0	89.2	80	120			
Ethylbenzene	0.89	0.050	1.000	0	89.1	80	120			
Xylenes, Total	2.7	0.10	3.000	0	90.4	80	120			
Surr: 4-Bromofluorobenzene	1.1		1.000		106	80	120			

Sample ID: **mb-53341**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **53341**	RunNo: **69963**
Prep Date: **6/26/2020**	Analysis Date: **6/28/2020**	SeqNo: **2430078** 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		105	80	120			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2006D74**

08-Jul-20

Client: Vertex Resource Group Ltd.

Project: Black River Booster Station Riser #5

Sample ID: **mb-53342**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **53342**	RunNo: **69967**
Prep Date: **6/26/2020**	Analysis Date: **6/28/2020**	SeqNo: **2430436** 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		103	80	120			

Sample ID: **LCS-53342**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **53342**	RunNo: **69967**
Prep Date: **6/26/2020**	Analysis Date: **6/28/2020**	SeqNo: **2430437** 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	91.8	80	120			
Toluene	0.94	0.050	1.000	0	93.9	80	120			
Ethylbenzene	0.94	0.050	1.000	0	93.7	80	120			
Xylenes, Total	2.9	0.10	3.000	0	95.1	80	120			
Surr: 4-Bromofluorobenzene	1.0		1.000		105	80	120			

Sample ID: **2006d74-021ams**	SampType: **MS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BS20-21 1'**	Batch ID: **53342**	RunNo: **69967**
Prep Date: **6/26/2020**	Analysis Date: **6/28/2020**	SeqNo: **2430439** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.96	0.025	0.9901	0	96.5	78.5	119			
Toluene	0.98	0.050	0.9901	0	99.3	75.7	123			
Ethylbenzene	1.0	0.050	0.9901	0	101	74.3	126			
Xylenes, Total	3.1	0.099	2.970	0.01687	102	72.9	130			
Surr: 4-Bromofluorobenzene	1.1		0.9901		107	80	120			

Sample ID: **2006d74-021amsd**	SampType: **MSD**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BS20-21 1'**	Batch ID: **53342**	RunNo: **69967**
Prep Date: **6/26/2020**	Analysis Date: **6/28/2020**	SeqNo: **2430440** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.94	0.025	0.9814	0	95.9	78.5	119	1.55	20	
Toluene	0.97	0.049	0.9814	0	98.5	75.7	123	1.70	20	
Ethylbenzene	0.98	0.049	0.9814	0	99.7	74.3	126	2.00	20	
Xylenes, Total	3.0	0.098	2.944	0.01687	101	72.9	130	2.21	20	
Surr: 4-Bromofluorobenzene	1.1		0.9814		108	80	120	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
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		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2006D74**

08-Jul-20

Client: Vertex Resource Group Ltd.

Project: Black River Booster Station Riser #5

Sample ID: **mb-53345**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **53345**	RunNo: **69992**
Prep Date: **6/26/2020**	Analysis Date: **6/29/2020**	SeqNo: **2431499** 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		102	80	120			

Sample ID: **LCS-53345**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **53345**	RunNo: **69992**
Prep Date: **6/26/2020**	Analysis Date: **6/29/2020**	SeqNo: **2431501** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.93	0.025	1.000	0	93.2	80	120			
Toluene	0.95	0.050	1.000	0	95.1	80	120			
Ethylbenzene	0.96	0.050	1.000	0	95.9	80	120			
Xylenes, Total	2.9	0.10	3.000	0	97.5	80	120			
Surr: 4-Bromofluorobenzene	1.1		1.000		105	80	120			

Sample ID: **2006d74-041ams**	SampType: **MS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BS20-41 0.5**	Batch ID: **53345**	RunNo: **69992**
Prep Date: **6/26/2020**	Analysis Date: **6/29/2020**	SeqNo: **2431504** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.90	0.025	0.9950	0	90.4	78.5	119			
Toluene	0.91	0.050	0.9950	0	91.9	75.7	123			
Ethylbenzene	0.93	0.050	0.9950	0	93.5	74.3	126			
Xylenes, Total	2.8	0.10	2.985	0.01673	94.0	72.9	130			
Surr: 4-Bromofluorobenzene	1.1		0.9950		109	80	120			

Sample ID: **2006d74-041amsd**	SampType: **MSD**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BS20-41 0.5**	Batch ID: **53345**	RunNo: **69992**
Prep Date: **6/26/2020**	Analysis Date: **6/29/2020**	SeqNo: **2431506** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.87	0.025	0.9881	0	87.8	78.5	119	3.62	20	
Toluene	0.89	0.049	0.9881	0	89.9	75.7	123	2.92	20	
Ethylbenzene	0.90	0.049	0.9881	0	91.2	74.3	126	3.19	20	
Xylenes, Total	2.8	0.099	2.964	0.01673	92.2	72.9	130	2.53	20	
Surr: 4-Bromofluorobenzene	1.0		0.9881		106	80	120	0	0	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2006D74**

08-Jul-20

Client: Vertex Resource Group Ltd.

Project: Black River Booster Station Riser #5

Sample ID: **mb-53350**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **53350**	RunNo: **70053**
Prep Date: **6/27/2020**	Analysis Date: **7/1/2020**	SeqNo: **2434168** 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		104	80	120			

Sample ID: **LCS-53350**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **53350**	RunNo: **70053**
Prep Date: **6/27/2020**	Analysis Date: **7/1/2020**	SeqNo: **2434169** 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	0.91	0.050	1.000	0	91.0	80	120			
Ethylbenzene	0.91	0.050	1.000	0	91.2	80	120			
Xylenes, Total	2.8	0.10	3.000	0	92.5	80	120			
Surr: 4-Bromofluorobenzene	1.1		1.000		106	80	120			

Sample ID: **2006d74-061ams**	SampType: **MS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **WS20-17**	Batch ID: **53350**	RunNo: **70053**
Prep Date: **6/27/2020**	Analysis Date: **7/1/2020**	SeqNo: **2434171** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.91	0.025	0.9921	0	91.6	78.5	119			
Toluene	0.95	0.050	0.9921	0	95.8	75.7	123			
Ethylbenzene	0.96	0.050	0.9921	0	96.9	74.3	126			
Xylenes, Total	2.9	0.099	2.976	0	97.8	72.9	130			
Surr: 4-Bromofluorobenzene	1.1		0.9921		109	80	120			

Sample ID: **2006d74-061amsd**	SampType: **MSD**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **WS20-17**	Batch ID: **53350**	RunNo: **70053**
Prep Date: **6/27/2020**	Analysis Date: **7/2/2020**	SeqNo: **2434172** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.91	0.025	0.9901	0	92.1	78.5	119	0.357	20	
Toluene	0.95	0.050	0.9901	0	96.1	75.7	123	0.0727	20	
Ethylbenzene	0.96	0.050	0.9901	0	97.3	74.3	126	0.142	20	
Xylenes, Total	2.9	0.099	2.970	0	97.9	72.9	130	0.0961	20	
Surr: 4-Bromofluorobenzene	1.1		0.9901		107	80	120	0	0	

Qualifiers:

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: Vertex Resource Group Ltd. Work Order Number: 2006D74 RcptNo: 1

Received By: **Juan Rojas** 6/26/2020 9:30:00 AM

Completed By: **Juan Rojas** 6/26/2020 9:47:10 AM

Reviewed By: SPA 6.26.20

Chain of Custody

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

Log In

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

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

Adjusted?

Checked by: JR 6/26/20

Special Handling (if applicable)

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

Person Notified: Date

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

Regarding:

Client Instructions:

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	3.6	Good				
2	3.3	Good				

Chain-of-Custody Record

Client: Vertex

Mailing Address: On FILE

Phone #:

email or Fax#:

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

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time: 5 Day Turn
☒ Standard ☐ Rush

Project Name: Black River Booster Station Riser #5

Project #: 20E-0023[illegible]-011

Project Manager: Natalie Gordon

Sampler: Levin Smith

On Ice: ☒ Yes ☐ No

# of Coolers: 2

Cooler Temp (including CF): 3.6-0=3.6 (°C) 3.3-0=3.3

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

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2106074	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
6/24/20	8:35	Soil	BS20-01 1'	4oz. jar	Ice	-001	X	X					X			
X	8:51	X	BS20-02 1'	X	X	-002	X	X					X			
X	9:02	X	BS20-03 1'	X	X	-003	X	X					X			
X	9:13	X	BS20-04 1'	X	X	-004	X	X					X			
X	9:20	X	BS20-05 1'	X	X	-005	X	X					X			
X	9:26	X	BS20-06 1'	X	X	-006	X	X					X			
X	9:31	X	BS20-07 1'	X	X	-007	X	X					X			
X	9:38	X	BS20-08 1'	X	X	-008	X	X					X			
X	9:56	X	BS20-09 1'	X	X	-009	X	X					X			
X	10:08	X	BS20-10 1'	X	X	-010	X	X					X			
X	10:20	X	BS20-11 1'	X	X	-011	X	X					X			
X	10:28	X	BS20-12 1'	X	X	-012	X	X					X			

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
					6/25/20	1030
6/25/20	1600			courier	6/26/20	9:30

Remarks: Send report to Natalie Gordon

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

Chain-of-Custody Record

Client: Vertex

Mailing Address: on FILE

Phone #:

email or Fax#:

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance

☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time: 5 Day Turn

☒ Standard ☐ Rush

Project Name: Black River Booster Station Riser #5

Project #: 20E-00239-011

Project Manager: Natalie Gordon

Sampler: Kevin Smith

On Ice: ☒ Yes ☐ No

# of Coolers: 2

Cooler Temp(including CF): 3.3-0=3.3 (°C) 2.6-0=3.6

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

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2006174	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
6/24/20	10:30	Soil	BS20-13 1'	4oz jar	ice	-013	X	X					X			
	10:33		BS20-14 1'			-014										
	10:40		BS20-15 1'			-015										
	10:45		BS20-16 1'			-016										
	10:53		BS20-17 1'			-017										
	11:00		BS20-18 1'			-018										
	11:15		BS20-19 1'			-019										
	11:18		BS20-20 1'			-020										
	11:21		BS20-21 1'			-021										
	11:25		BS20-22 1'			-022										
	11:28		BS20-23 1'			-023										
	11:34		BS20-24 1'			-024										

Date:	Time:	Relinquished by:	Received by:	Via:	Date Time
					6/25/20 1030
6/25/20	1400			courier	6/26/20 9:30

Remarks: Send to Natalie Gordon

Chain-of-Custody Record

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Client:	Vertex
Mailing Address:	ON FILE
Phone #:	
email or Fax#:	
QA/QC Package:	☐ Standard ☐ Level 4 (Full Validation)
Accreditation:	☐ Az Compliance ☐ NELAC ☐ Other
☐ EDD (Type)	
Turn-Around Time:	5 DAY TURN
	☒ Standard ☐ Rush
Project Name:	Black River Booster Station Riser #5
Project #:	20E-00239-011
Project Manager:	Natalie Gordon
Sampler:	Kevin Smith
On Ice:	☒ Yes ☐ No
# of Coolers:	2
Cooler Temp(including CF):	3.6-0=3.6 (°C)

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	3.3-0=3.3 HEAL No. 2006074	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
6/24/20	11:36	Soil	BS20-25 1'	4oz jar	ICE	-025	X	X					X			
	11:38		BS20-26 1'			-026										
	11:51		BS20-27 1'			-027										
	12:18		BS20-28 1'			-028										
	12:20		BS20-29 1'			-029										
	12:25		BS20-30 1'			-030										
	12:27		BS20-31 1'			-031										
	12:31		BS20-32 1'			-032										
	12:36		BS20-33 1'			-033										
	12:39		BS20-34 1'			-034										
	12:45		BS20-35 1'			-035										
	12:51		BS20-36 0.5'			-036										

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
					6/25/20	1030
6/25/20	1900			courier	6/26/20	9:30

Remarks: Send to Natalie

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

Chain-of-Custody Record

Client: Vertex

Mailing Address: On file

Phone #:

email or Fax#:

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance

☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time: 5 DAY TURN

☒ Standard ☐ Rush

Project Name: Black River Booster Station Riser #5

Project #: 20E-00239-011

Project Manager: Natalie Gordon

Sampler: Kevin Smith

On Ice: ☒ Yes ☐ No

# of Coolers: 2

Cooler Temp(including CF): 3.6-0=3.6 (°C) 3.3-0=3.3

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

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2006074	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
6/24/20	12:55	Soil	BS20-37 0.5'	4oz jar	ICE	-037	X	X					X			
	12:58		BS20-38 0.5'			-038										
	1:00		BS20-39 0.5'			-039										
	1:03		BS20-40 0.5'			-040										
	1:08		BS20-41 0.5'			-041										
	1:11		BS20-42 0.5'			-042										
	1:14		BS20-43 0.5'			-043										
	1:20		BS20-44 0.5'			-044										
	1:22		WS20-01			-045										
	1:24		WS20-02			-046										
	1:28		WS20-03			-047										
	1:35		WS20-04			-048										

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
					6/25/20	1030
6/25/20	1410			courier	6/26/20	9:30

Remarks: Send to Natalie

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Chain-of-Custody Record

Client: Vertex

Mailing Address: ON FILE

Phone #:

email or Fax#:

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

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time: 5 DAY TURN
☒ Standard ☐ Rush

Project Name: Black River Booster Station Riser #5

Project #: 20E-00239-011

Project Manager: Natalie Gordon

Sampler: Kevin Smith

On Ice: ☒ Yes ☐ No

# of Coolers: 2

Cooler Temp(Including CF): 3.6-0=3.6 (°C)
3.3-0=3.3

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

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2006174	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
6/24/20	1:46	Soil	WS20-05	4oz jar	ICE	-049	X	X					X			
	1:55		WS20-06			-050										
	1:58		WS20-07			-051										
	2:03		WS20-08			-052										
	2:05		WS20-09			-053										
	2:07		WS20-10			-054										
	2:10		WS20-11			-055										
	2:15		WS20-12			-056										
	2:21		WS20-13			-057										
	2:30		WS20-14			-058										
	2:32		WS20-15			-059										
	2:34		WS20-16			-060										

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
					6/25/20	1030
6/25/20	1910			Courier	6/26/20	9:30

Remarks: Send to Natalie

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

Chain-of-Custody Record

Client: Vertex

Mailing Address: ON FILE

Phone #:

email or Fax#:

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

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other
☐ EDD (Type)

Turn-Around Time: 5 DAY TURN
☑ Standard ☐ Rush

Project Name: Black River Booster Station Riser #5

Project #: 20E-00239-011

Project Manager: Natalie Gordon

Sampler: Kevin Smith

On Ice: ☑ Yes ☐ No

# of Coolers: 2

Cooler Temp (including CF): 3.6-0=3.6 (°C)
3.3-0=3.3

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

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
6/24/20	2:45	Soil	WS20-17	4oz jar	ICE	-061	X	X					X			
	2:47		WS20-18	1		-062										
	2:51		WS20-19			-063										
	2:55		WS20-20			-064										
	3:01		WS20-21			-065										
	3:03		WS20-22			-066										
	3:05		WS20-23			-067										
	3:09		WS20-24			-068										
	3:12		WS20-25			-069										
	3:18		WS20-26			-06 070										
	3:21		WS20-27			-071										
	3:26		WS20-28			-072										

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
					6/25/20	1030
6/25/20	1110		courier		6/26/20	9:30

Remarks: Send to Natalie

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

Chain-of-Custody Record

Client: Vertex

Mailing Address: ON FILE

Phone #:

email or Fax#:

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

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time: 5 DAY TURN
☒ Standard ☐ Rush

Project Name: Black River Booster Station Riser #5

Project #: 20E-00239-011

Project Manager: Natalie Gordon

Sampler: Kevin Smith

On Ice: ☑ Yes ☐ No

# of Coolers: 2

Cooler Temp(including CF): 3.6-0=3.6 (°C) 3.3-0=3.3

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

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2006274	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
6/24/20	3:29	Soil	WS20-29	4 oz jar	ICE	-073										
"	3:33	"	WS20-30	"	"	-074										
"	3:35	"	WS20-31	"	"	-075										
"	3:39	"	WS20-32	"	"	-076										
"	3:46	"	WS20-33	"	"	-077										
"	3:50	"	WS20-34	"	"	-78										
"	3:56	"	WS20-35	"	"	-079										
"	4:00	"	WS20-36	"	"	-080										

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
					6/25/20	1030
Date: 6/25/20	Time: 1400	Relinquished by:	Received by:	Via: courier	Date 6/26/20	Time 9:30

Remarks:

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

July 29, 2020

Natalie Gordon
Vertex Resource Group Ltd.
3101 Boyd Drive
Carlsbad, NM 88220
TEL: (505) 506-0040
FAX

RE: Black River Booster Station Riser 5 OrderNo.: 2007B62

Dear Natalie Gordon:

Hall Environmental Analysis Laboratory received 3 sample(s) on 7/23/2020 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2007B62**
Date Reported: **7/29/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Black River Booster Station Riser 5
Lab ID: 2007B62-001 **Matrix:** SOIL

Client Sample ID: BS20-33 2.5'
Collection Date: 7/21/2020 11:53:00 AM
Received Date: 7/23/2020 9:44:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	7/24/2020 5:20:12 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	7/24/2020 5:20:12 PM
Surr: DNOP	67.9	30.4-154		%Rec	1	7/24/2020 5:20:12 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/25/2020 2:43:25 AM
Surr: BFB	92.1	66.6-105		%Rec	1	7/25/2020 2:43:25 AM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.024		mg/Kg	1	7/25/2020 2:43:25 AM
Toluene	ND	0.048		mg/Kg	1	7/25/2020 2:43:25 AM
Ethylbenzene	ND	0.048		mg/Kg	1	7/25/2020 2:43:25 AM
Xylenes, Total	ND	0.096		mg/Kg	1	7/25/2020 2:43:25 AM
Surr: 4-Bromofluorobenzene	102	80-120		%Rec	1	7/25/2020 2:43:25 AM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	3700	300		mg/Kg	100	7/29/2020 1:24:37 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2007B62**
Date Reported: **7/29/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. **Client Sample ID:** WS20-25
Project: Black River Booster Station Riser 5 **Collection Date:** 7/21/2020 12:18:00 PM
Lab ID: 2007B62-002 **Matrix:** SOIL **Received Date:** 7/23/2020 9:44:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	7/24/2020 5:44:25 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	7/24/2020 5:44:25 PM
Surr: DNOP	68.7	30.4-154		%Rec	1	7/24/2020 5:44:25 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	7/25/2020 3:06:57 AM
Surr: BFB	90.6	66.6-105		%Rec	1	7/25/2020 3:06:57 AM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.025		mg/Kg	1	7/25/2020 3:06:57 AM
Toluene	ND	0.050		mg/Kg	1	7/25/2020 3:06:57 AM
Ethylbenzene	ND	0.050		mg/Kg	1	7/25/2020 3:06:57 AM
Xylenes, Total	ND	0.099		mg/Kg	1	7/25/2020 3:06:57 AM
Surr: 4-Bromofluorobenzene	102	80-120		%Rec	1	7/25/2020 3:06:57 AM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	3700	150		mg/Kg	50	7/29/2020 1:37:02 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2007B62**
Date Reported: **7/29/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. **Client Sample ID:** WS20-33
Project: Black River Booster Station Riser 5 **Collection Date:** 7/21/2020 12:41:00 PM
Lab ID: 2007B62-003 **Matrix:** SOIL **Received Date:** 7/23/2020 9:44:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	7/24/2020 6:08:23 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	7/24/2020 6:08:23 PM
Surr: DNOP	77.4	30.4-154		%Rec	1	7/24/2020 6:08:23 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	7/25/2020 3:30:31 AM
Surr: BFB	88.8	66.6-105		%Rec	1	7/25/2020 3:30:31 AM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.024		mg/Kg	1	7/25/2020 3:30:31 AM
Toluene	ND	0.049		mg/Kg	1	7/25/2020 3:30:31 AM
Ethylbenzene	ND	0.049		mg/Kg	1	7/25/2020 3:30:31 AM
Xylenes, Total	ND	0.098		mg/Kg	1	7/25/2020 3:30:31 AM
Surr: 4-Bromofluorobenzene	101	80-120		%Rec	1	7/25/2020 3:30:31 AM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	3600	150		mg/Kg	50	7/29/2020 1:49:26 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	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2007B62**

29-Jul-20

Client: Vertex Resource Group Ltd.

Project: Black River Booster Station Riser 5

Sample ID: **LCS-53926**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **53926**	RunNo: **70581**
Prep Date: **7/23/2020**	Analysis Date: **7/24/2020**	SeqNo: **2455254** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	58	10	50.00	0	116	70	130			
Surr: DNOP	5.8		5.000		117	55.1	146			

Sample ID: **MB-53926**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **53926**	RunNo: **70581**
Prep Date: **7/23/2020**	Analysis Date: **7/24/2020**	SeqNo: **2455255** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	13		10.00		127	55.1	146			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2007B62**

29-Jul-20

Client: Vertex Resource Group Ltd.

Project: Black River Booster Station Riser 5

Sample ID: **lcs-53918**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **53918**	RunNo: **70588**
Prep Date: **7/23/2020**	Analysis Date: **7/24/2020**	SeqNo: **2455823** 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	83.6	72.5	106			
Surr: BFB	1100		1000		105	66.6	105			S

Sample ID: **mb-53918**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **53918**	RunNo: **70588**
Prep Date: **7/23/2020**	Analysis Date: **7/24/2020**	SeqNo: **2455825** 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	900		1000		90.1	66.6	105			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2007B62**

29-Jul-20

Client: Vertex Resource Group Ltd.

Project: Black River Booster Station Riser 5

Sample ID: **LCS-53918**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **53918**	RunNo: **70588**
Prep Date: **7/23/2020**	Analysis Date: **7/24/2020**	SeqNo: **2455880** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.93	0.025	1.000	0	92.7	80	120			
Toluene	0.94	0.050	1.000	0	93.6	80	120			
Ethylbenzene	0.95	0.050	1.000	0	95.3	80	120			
Xylenes, Total	2.9	0.10	3.000	0	96.6	80	120			
Surr: 4-Bromofluorobenzene	1.1		1.000		107	80	120			

Sample ID: **mb-53918**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **53918**	RunNo: **70588**
Prep Date: **7/23/2020**	Analysis Date: **7/24/2020**	SeqNo: **2455882** 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		102	80	120			

Qualifiers:

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: Vertex Resource Group Ltd. Work Order Number: 2007B62 RcptNo: 1

Received By: Cheyenne Cason 7/23/2020 9:44:00 AM

Completed By: Juan Rojas 7/23/2020 10:04:13 AM

Reviewed By: SPA 7.23.20 10:40

Chain of Custody

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

Log In

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

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

Adjusted? _____

Checked by: 7/23/20 CM

Special Handling (if applicable)

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

Person Notified: _____ Date _____

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

Regarding: _____

Client Instructions: _____

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	5.3	Good	Yes			
2	2	Good	Yes			
3	2.7	Good	Yes			

Chain-of-Custody Record

Client: Vertex

Mailing Address: on file

Phone #:

email or Fax#:

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

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time: 5 Day Turn
☒ Standard ☐ Rush

Project Name: Black River Booster Station Riser #5

Project #: 20E-00239-011

Project Manager: Natalie Gordon

Sampler: Kevin Smith

On Ice: ☒ Yes ☐ No

# of Coolers: 3

Cooler Temp (including CF): see Remarks (°C)

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

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2007B62	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)
7/21/20	11:53	Soil	BS20-33 2.5'	4oz jar	ICE	-001	X	X					X			
"	12:18	"	WS20-25	"	"	-002	"	"					"			
"	12:41	"	WS20-33	"	"	-003	"	"					"			

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
					7/22/20	1130
7/22/20	1900			Courier	7/23/20	0944

Remarks: Send to Natalie Gordon
5.4 - 0.1 = 5.3c
2.8 - 0.1 = 2.7c
2.1 - 0.1 = 2.0c

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.

ATTACHMENT 6

Daily Site Visit Report

VERTEX

Client:	Matador Resources	Inspection Date:	5/4/2020
Site Location Name:	Black River Booster Riser #5	Report Run Date:	5/5/2020 5:12 PM
Project Owner:	John Hurt	File (Project) #:	20E-00239
Project Manager:	Natalie Gordon	API #:	
Client Contact Name:	John Hurt	Reference	50bbl PW release
Client Contact Phone #:			

Summary of Times

Left Office	5/4/2020 7:30 AM
Arrived at Site	5/4/2020 8:00 AM
Departed Site	
Returned to Office	

Summary of Daily Operations

9:10 Affected area from release has already been scraped and partially cleaned up. Point of release is on pump #5 and filled lines containment and overflowed underneath piping of risers traveling south with the contour of the land sloping. Spill ended on matador location. Pasture area where undisturbed has a calcareous/gypsum layer in spotted areas. Across the road is an irrigation ditch for farm use

14:50 Scraped area is around 0.5" deep in pasture area and hand digging occurred underneath equipment and risers near lined containment

14:54 Pad area has been scraped to get rid of staining and along fence line where it came down hill and ran onto pad

Next Steps & Recommendations

1

Daily Site Visit Report

VERTEX

Site Photos

Viewing Direction: South

Spill area

Viewing Direction: West

Pasture area that is undisturbed but has calcereous/gypsum layer

Viewing Direction: East

Spill area where emergency clean up took place

Viewing Direction: East

Area near point of release under piping and risers

Daily Site Visit Report

Viewing Direction: East

Area where already standing water from irrigation ditch filled in borehole for riser

Viewing Direction: West

Scraped area near equipment

Viewing Direction: South

Containment area where point of release is located and where overflow happened

Viewing Direction: East

Undisturbed areas in between where scrape occurred

Daily Site Visit Report

Viewing Direction: South

Area where scrape occurred to clean up spill in pasture area that travelled down to pad

Viewing Direction: Southwest

Scraped area north of pad

Viewing Direction: Southwest

Scraped area in pasture

Viewing Direction: Northwest

Scraped area near riser next to dirt mound from bore under road

Daily Site Visit Report

Viewing Direction: West

Dirt mound next to equipment and risers

Viewing Direction: Northeast

Area where spill ran downhill onto pad

Viewing Direction: West

Scraped area along north fence line

Viewing Direction: South

Scraped area on pad

Daily Site Visit Report

Viewing Direction: South

Scraped area on pad

Daily Site Visit Report

VERTEX

Daily Site Visit Signature

Inspector: Monica Peppin

Signature:

Spill Response and Sampling

Client: Matador
Date: 5/4
Site Name: Black River Booster
Site Location:
Project Owner:
Project Manager:
Project #:

Initial Spill Information - Record on First Visit

Spill Date:
Spill Volume:
Spill Cause:
Spill Product:
Recovered Spill Volume:
Recovery Method:

Sample ID	Depth (ft)	Field Screening: VOC (PID)	Field Screening: Petroflag TPH (ppm)	Field Screening: Quantab (High/Low) + or -	Data Collection (Check for Yes): Lab Analysis	Picture	Trimble Coordinates	Marked on Site Sketch
SS/TP/HA - Year - Number Ex. BH18-01	Ex. 2ft	Ex. 400 ppm	200 ppm	Ex. High +	Ex. Hydrocarbon Chloride			
BH4	1	hold		5.24/30.2	7065			
	2			3.85/33.1	4934			
	3			3.52/32.1	4501			
BH5	0			12.83/31.9	17946			
	0.5			12.24/30.9	17138			
	1			7.83/30.3	10799			
	2			3.97/24.5	5479			
	3			4.29/24.5	5941			
BH6	0			10.13/21.1	14517			
	0.5			5.90/20.6	8434			
	1			4.30/20.2	6142			
	2			4.83/20.3	6902			
	3			3.62/20.3	5156			
BH7	0			4.38/21.4	6205			
	0.5			5.38/21.5	7644			
	1			4.90/21.6	6947			
	2			4.22/22.3	5935			
	3			2.73/22.2	3787			
BH8	0			11.84/22.2	16938			
	0.5			3.72/21.6	5244			
	1			3.07/21.7	4301			
	2			3.71/22.1	5208			

Spill Response and Sampling

VERTEX

Client: Matador
Date: 5/14
Site Name: Black River Booster
Site Location:
Project Owner:
Project Manager:
Project #:

Initial Spill Information - Record on First Visit

Spill Date:
Spill Volume:
Spill Cause:
Spill Product:
Recovered Spill Volume:
Recovery Method:

Sampling

Sample ID	Depth (ft)	Field Screening: VOC (ppm)	Field Screening: Petroflag TPH (ppm)	Chemtab (High/Low) + or -	Data Collection (Check for Yes): Lab Analysis	Picture	Trimble Coordinates	Marked on Site Sketch
SS/TP/BH - Your Number Ex. BH18-01	Ex. 2.0	Ex. 400 ppm	200 ppm	Ex. High +	Ex. Hydrocarbon Chloride			
BH8	3			3.43/22.0	4808			
A113 BH9	* 0			3.63/21.7	5110 Pad			
	0.5			4.60/21.6	6514			
	1			3.65/21.3	5156			
	2			3.24/21.7	4547			
	3			3.05/21.7	4273			
SS1	0			16.98/24.3	24265			
	0.5			9.32/23.2	13257			
SS2	0			9.33/22.4	13306			
	0.5			5.41/22.7	7635			
SS3	0			15.52/22.1	22253			
	0.5			6.25/23.8	8800			
SS4	0			10.41/24.5	14774			
	0.5			2.80/24.1	3808			
SS5	0			7.89/24.0	11159			
	0.5			3.17/23.5	4368			
SS6	0			6.46/25.1	9047			
	0.5			3.53/24.8	4831			
SS7	0			13.77/25.0	19602			
	0.5			11.22/24.5	15943			
SS8	0			8.56/25.1	11991			
	0.5			8.09/24.5	11426			

VERTEX

Spill Response and Sampling

Client:	Matador
Date:	
Site Name:	Booster Riser 5
Site Location:	
Project Owner:	
Project Manager:	
Project #:	

Initial Spill Information - Record on First Visit	
Spill Date:	
Spill Volume:	
Spill Cause:	
Spill Product:	
Recovered Spill Volume:	
Recovery Method:	

		Sampling						
		Field Screening			Data Collection (Check for Yes)			
Sample ID	Depth (ft)	VOC (PID)	PetroFlag TPH (ppm)	Quantab (High/Low) + or	Lab Analysis	Picture	Trimble Coordinates	Marked on Site Sketch
SS/TP/BH - Year - Number Ex. BH18-01	Ex. '2ft	Ex. 400 ppm	200 ppm	Titration Ex. 'High +	Ex. Hydrocarbon Chloride			
BS 1				2302.5	BG @ 1ft 4800			
BS 2				970				
BS 3				875				
x 4				2742.5				
5				670				
6				722.5				
y 7				2262.5	2477.5?	3050		
8				905				
9								
10								
11								
12								
13								
14				3977.5				
15								
16								
17								
18								
19								
20								
21								
22								

Spill Response and Sampling

VERTEX

Client: Matador

Date: 5/4/20

Site Name: Black River Booster #5

Site Location:

Project Owner:

Project Manager:

Project #: 20E-00239

Initial Spill Information - Record on First Visit

Spill Date:

Spill Volume:

Spill Cause:

Spill Pocket:

Recovered Spill Volume:

Recovery Method:

Sampling

Sample ID	Depth (ft)	Field Screening: VOC (PID)	Field Screening: PetroFlag TPH (ppm)	Chemlab (High/Low) ppm	Data Collection (Check for Yes): Lab Analysis	Picture	Trimble Coordinates	Marked on Site Sketch
SS/TP/BH - Your Number Ex. BH18-01	Ex. 2ft	Ex. 400 ppm	200 ppm	Ex. 10pt++	Ex. Hydrocarbon Chloride			
BG1	* 0	mix		6.97/29.2	9606			
	*0.5			4.77/28.2	6502			
	1			5.14/28.1	7012			
	1.5			5.07/28.4	6878			
BH1	0			3.96/28.4	5296			
	* 0.5			7.89/29.7	10925			
	1	hold		6.75/29.2	9288			
	2			3.17/29.4	4112			
	3			3.01/29.0	4187			
BH2	0			5.04/28.6	6846			
	0.5			8.52/28.8	11860			
	1			8.19/28.4	11401			
	2			3.12/28.4	4084			
	3			2.90/28.2	3775			
BH3	0			2.89/28.3	3756			
	0.5			10.85/29.2	15249			
	1			4.43/28.2	5983			
	2			4.11/27.8	5538			
	2.5			3.92/34.0	4996			
BH4	0			3.64/32.8	4672			
	* 0.5			13.70/31.9	19202			
				9.11/31.3	12603			

Daily Site Visit Report

Client:	Matador Resources	Inspection Date:	6/22/2020
Site Location Name:	Black River Booster Station Riser #5	Report Run Date:	6/23/2020 12:13 AM
Client Contact Name:	John Hurt	API #:	N/A
Client Contact Phone #:			
Unique Project ID	-Black River Booster Station Riser #5	Project Owner:	John Hurt
Project Reference #	NM OCD Tracking # NRM2012930770	Project Manager:	Natalie Gordon

Summary of Times

Arrived at Site	6/22/2020 7:00 AM
Departed Site	6/22/2020 4:30 PM

Field Notes

10:41 Containment where point of release occurred has been extended and is a metal lined containment. Large dirt pile that was here during characterization has been knocked down and filled in the borehole where pipeline went across road

10:47 Using background sample to determine depth of full excavation. Depth at 1 ft matches what background levels are at. Area is very high in natural chlorides and old farm land. Gypsum stringers are within the soil and also contains a layer of gypsum caliche. Area has different patches of white crystallized substance away from where spill occurred and is a natural occurrence for the area

17:12 Loamy soil compared to caliche soil seemed to have a higher reading when running titration

Next Steps & Recommendations

1. Finish collecting photos
2. Possible further excavation

Daily Site Visit Report

VERTEX

Site Photos

Viewing Direction: West

New metal berm around pumps

Viewing Direction: North

Lined containment

Viewing Direction: South

Excavation area at depth of 1 ft

Viewing Direction: South

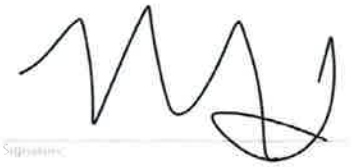
Excavation area 1ft

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Monica Peppin

Signature:



VERTEX

Spill Response and Sampling

Client:	Matador
Date:	6-23-2020
Site Name:	Booster Ris-#5
Site Location:	
Project Owner:	
Project Manager:	
Project #:	

Initial Spill Information - Record on First Visit	
Spill Date:	
Spill Volume:	
Spill Cause:	
Spill Product:	
Recovered Spill Volume:	
Recovery Method:	

Sampling

		Field Screening			Data Collection (Check for Yes)			
Sample ID	Depth (ft)	VOC (PID)	PetroFlag TPH (ppm)	Quantab (High/Low) + or -	Lab Analysis	Picture	Trimble Coordinates	Marked on Site Sketch
SS/TP/BH - Year - Number Ex. BH18-01	Ex. '2ft	Ex. 400 ppm	200 ppm	Titrachs ~ Ex. 'High +	Ex. Hydrocarbon Chloride			
WS20-01	0-6"			5200				
WS20-02				4800				
WS20-03				4000				
WS20-04				6100				
WS20-05				5900				
WS20-06				6200				
WS20-07				4700				
WS20-08				4300				
WS20-09				4600				
WS20-10				4900				
WS20-11				4,600				
WS20-12				6100				
WS20-13				6300				
WS20-14				7400				
WS20 15				2900				
WS20 16				2600				
WS20 17				3300				
WS20 18				1860				
WS20 19				1400				
WS20 20				2300				
WS20 21				2500				
WS20 22				3100				

VERTEX

Spill Response and Sampling

Client:	Matador
Date:	6-24-20
Site Name:	Riser #5
Site Location:	
Project Owner:	
Project Manager:	
Project #:	

Initial Spill Information - Record on First Visit	
Spill Date:	
Spill Volume:	
Spill Cause:	
Spill Product:	
Recovered Spill Volume:	
Recovery Method:	

Sampling								
		Field Screening			Data Collection (Check for Yes)			
Sample ID	Depth (ft)	VOC (PID)	PetroFlag TPH (ppm)	Quantab (High/Low) + or -	Lab Analysis	Picture	Trimble Coordinates	Marked on Site Sketch
SS/TP/BH - Year - Number Ex. BH18-01	Ex. '2ft	Ex. 400 ppm	200 ppm	Titration Ex. 'High +	Ex. Hydrocarbon Chloride			
BS20-23	@ 1'			3100				
24				2100				
25				4000				
26				2400				
27				3500				
28				1000				
29				2200				
30				2100				
31				2800				
32				1300				
33				4700				
34				2600				
35				1700				
36	0.5'			~~700~~				
37				3800				
38				900				
39				800				
40				700				
41				1700				
42				400				
43				700				
44				1900				

Spill Response and Sampling

Kevin Smith

VERTEX

Client:	Matador
Date:	6-24-20
Site Name:	Black River Booster Station Riser #5
Site Location:	Eddy, Nm
Project Owner:	
Project Manager:	
Project #:	

Initial Spill Information - Record on First Visit	
Spill Date:	
Spill Volume:	
Spill Cause:	
Spill Product:	
Recovered Spill Volume:	
Recovery Method:	

Sampling

		Field Screening			Data Collection (Check for Yes)			
Sample ID	Depth (ft)	VOC (PID)	PetroFlag TPH (ppm)	~~Quantab~~ (High/Low) + or -	Lab Analysis	Picture	Trimble Coordinates	Marked on Site Sketch
SS/TP/BH - Year - Number Ex. BH18-01	Ex. '2ft	Ex. 400 ppm	200 ppm	~~Ex. High +~~ Titration	Ex. Hydrocarbon Chloride			
BS20-01	1'			1100				
BS20-02	↓			1600				
BS20-03				900				
BS20-04				2000				
BS20-05				1700				
BS20-06				1200				
07				950				
08				1500				
09				1600				
10				1000				
11				2400				
12				1000				
13				1300				
14				1900				
15				2100				
16				1400				
17				2300				
18				2100				
19				2200				
20				2500				
21				2000				
22	↓			1700				

Daily Site Visit Report

VERTEX

Client:	Matador Resources	Inspection Date:	7/21/2020
Site Location Name:	Black River Booster Station Riser #5	Report Run Date:	7/21/2020 9:21 PM
Client Contact Name:	John Hurt	API #:	N/A
Client Contact Phone #:			
Unique Project ID	-Black River Booster Station Riser #5	Project Owner:	John Hurt
Project Reference #	NM OCD Tracking # NRM2012930770	Project Manager:	Natalie Gordon

Summary of Times

Arrived at Site	7/21/2020 7:56 AM
Departed Site	7/21/2020 1:03 PM

Field Notes

15:12 Completing additional remediation for areas which exceeded initial confirmatory sampling.

15:13 Samples area will be extended in six inch increments until field screens are below NMOCD criteria. Samples recollected will be BS20-33,WS20-25, and WS20-33.

Next Steps & Recommendations

1 Submit confirmatory samples for laboratory analysis

2 After awaiting laboratory results complete incident closure report.

Daily Site Visit Report

VERTEX

Site Photos

Viewing Direction: North

Additional remediation at WS20-25

Viewing Direction: North

Additional remediation at BS20-33 sample area

Viewing Direction: South

Additional remediation at WS20-25 sampling area

Viewing Direction: North

Final excavation

Daily Site Visit Report

Viewing Direction: Northwest

Final excavation

Daily Site Visit Report

VERTEX

Daily Site Visit Signature

Inspector: Kevin Smith

Signature: 

ATTACHMENT 7

Natalie Gordon

From: Dhugal Hanton <vertexresourcegroupusa@gmail.com>
Sent: Friday, June 19, 2020 4:42 PM
To: Natalie Gordon
Subject: Fwd: NRM2012930770: Black River Booster Station Riser #5 48-hour Notification of Confirmatory Sampling

---------- Forwarded message ---------
From: **Dhugal Hanton** <vertexresourcegroupusa@gmail.com>
Date: Fri, Jun 19, 2020 at 4:41 PM
Subject: NRM2012930770: Black River Booster Station Riser #5 48-hour Notification of Confirmatory Sampling
To: Bratcher, Mike, EMNRD <Mike.Bratcher@state.nm.us>, Venegas, Victoria, EMNRD <Victoria.Venegas@state.nm.us>, Hamlet, Robert, EMNRD <Robert.Hamlet@state.nm.us>, CFO_Spill, BLM_NM <blm_nm_cfo_spill@blm.gov>, Kelsey <KWade@blm.gov>, Amos, James A <Jamos@blm.gov>

All,

Please accept this email as 48-hr notification that Vertex Resource Services has scheduled remediation field activities and confirmatory sampling to be conducted at Black River Booster Station Riser #5 for the release that occurred on May 3, 2020, incident tracking # NRM2012930770.

This work will be completed on behalf of Matador Production Company.

On Monday, June 22, 2020 at approximately 7:00 a.m., Monica Peppin of Vertex will be onsite using field screening methods to guide remediation activities. This work is expected to last several days. Final confirmatory sampling will be conducted as the remediation activities finish up, beginning on the morning of Wednesday, June 24, 2020. If you have any questions or concerns regarding this notification, or need directions to the site, please give me a call at 505-506-0040.

Thank you,
Natalie

Natalie Gordon
Project Manager

Vertex Resource Group Ltd.
213 S. Mesa Street
Carlsbad, NM 88220

P 575.725.5001 ext 709
C 505.506.0040

www.vertex.ca

Natalie Gordon

From: Dhugal Hanton <vertexresourcegroupusa@gmail.com>
Sent: Monday, May 4, 2020 10:02 AM
To: Natalie Gordon
Subject: Fwd: Notice of PW Release > 25bbls (Matador Production CompanY)

---------- Forwarded message ---------
From: **Dhugal Hanton** <vertexresourcegroupusa@gmail.com>
Date: Mon, May 4, 2020 at 10:01 AM
Subject: Re: Notice of PW Release > 25bbls (Matador Production CompanY)
To: Griswold, Jim, EMNRD <jim.griswold@state.nm.us>, Bratcher, Mike, EMNRD <Mike.Bratcher@state.nm.us>, Venegas, Victoria, EMNRD <Victoria.Venegas@state.nm.us>, Hamlet, Robert, EMNRD <Robert.Hamlet@state.nm.us>

All:

Sorry for the second email, but in reference to the phone call notification to Jim Griswold earlier and the 24-hour notification email of this PW release: This incident was from a San Mateo Midstream riser but because San Mateo Midstream does not have their own OGRID number with OCD, it is being submitted under Matador's name, which is the company used for these regulatory matters. I'm not sure this makes much difference in the long-run on reporting and cleanup, but San Mateo and Vertex want to assure that OCD has all of the most accurate information on these releases.

As always, if you have any questions, please let me know.

Thank you,
Natalie

On Mon, May 4, 2020 at 8:43 AM Dhugal Hanton <vertexresourcegroupusa@gmail.com> wrote:

All:

Please accept this email as immediate notification on behalf of Matador Production Company of a produced water (PW) release that occurred on Sunday, May 3, 2020, at the #5 Riser of the Black River Booster Station. Coordinates for the general location are: 32.24646, -104.10155.

Yesterday morning, Sunday, May 3, 2020, Matador was notified that there was a release at the #5 riser of approximately 40-50 bbls of produced water onto the right of way. No produced water is believed to have been released into undisturbed areas. The surface land in this area is privately owned.

Vertex is in the process of delineating and remediating this release and uncovering more detailed information about the location and cause of release. An initial C-141 notification form will be submitted by Matador's environmental rep in the next few days followed by a closure report within 90 days.

If you have any questions or need additional information about this release, please don't hesitate to give me a call at 505-506-0040.

Thank you very much,
Natalie

Natalie Gordon
Project Manager

Vertex Resource Group Ltd.
213 S. Mesa Street
Carlsbad, NM 88220

P 575.725.5001 ext 709
C 505.506.0040
F

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