

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.

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2020 Spill Assessment and Closure July 2020

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 vertex.ca

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
	Chloride	600 mg/kg
< 50 feet	TPH <sup>1</sup>	100 mg/kg
	(GRO + DRO + MRO) BTEX <sup>2</sup>	50 mg/kg
	Benzene	10 mg/kg

<sup>&</sup>lt;sup>1</sup>Total petroleum hydrocarbons (TPH) = gasoline range organics (GRO) + diesel range organics (DRO) + motor oil range organics (MRO) <sup>2</sup>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 S		Limit
		0.5 feet	4,200 mg/kg
	Chloride	1 foot	4,800 mg/kg
< 50 feet -	Chioride	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

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2020 Spill Assessment and Closure July 2020

### **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.

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2020 Spill Assessment and Closure

July 2020

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

2020 Spill Assessment and Closure July 2020

### 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.

2020 Spill Assessment and Closure July 2020

### 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 [
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	

			Resp	onsibl	le Party	y
Responsible	Party: Matac	dor Production Co	mpany		OGRID: 22	28937
Contact Nam	e: John Hur	t		(	Contact Te	elephone: 972-371-5200
Contact emai	il: JHurt@m	atadorresources.c	om	I	ncident#	(assigned by OCD)
Contact mail	ing address:	5400 LBJ Freewa	y, Suite 1500 Dall	las, TX 75	5240	
atitude	32.25347	79	Location  (NAD 83 in dec	Lo	ongitude _	-104.101533
Site Name: R	lack River B	Booster Station Ris				Booster Station Riser
Date Release			net #3		API# (if appl	
	Discovered.	3/3/2020			xx τπ (η αρρι	ucuoie)
Unit Letter	Section	Township	Range		Count	ty
Α	05	248	28E Eddy			
Crude Oil	Material					justification for the volumes provided below)  Volume Recovered (bbls)
Produced		Volume Released (bbls)  Volume Released (bbls)  57.8 bbls				
Z r roduced	W diei	Is the concentration of dissolved chloride produced water >10,000 mg/l?			the	Volume Recovered (bbls) 50 bbls  ⊠ Yes □ No
Condensa	te	Volume Released (bbls)				Volume Recovered (bbls)
Natural G	as	Volume Released (Mcf)				Volume Recovered (Mcf)
		Volume/Weight Released (provide units)		units)		Volume/Weight Recovered (provide un
	ase:	L				
Cause of Rele		- A- 41 1 C 11	1			
			1.			
Cause of Rele Fransfer pum	p connecting	g to the riser tailed	-			
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Form C-141 Page 2

### State of New Mexico Oil Conservation Division

Incident ID	NRM2012930770
District RP	
Facility ID	
Application ID	

Was this a major	If YES, for what reason(s) does the responsible party consider this a major release?		
release as defined by			
19.15.29.7(A) NMAC?	> 25 bbls		
⊠ Yes □ No	25 0013		
If YES, was immediate no	otice 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 p	party must undertake the following actions immediately unless they could create a safety hazard that would result in injury		
∑ The source of the rele	ase has been stopped.		
☐ The impacted area has	s been secured to protect human health and the environment.		
Released materials ha	we been contained via the use of berms or dikes, absorbent pads, or other containment devices.		
All free liquids and re	coverable materials have been removed and managed appropriately.		
If all the actions described	l above have not been undertaken, explain why:		
D 1015000D (1) NB (			
	AC the responsible party may commence remediation immediately after discovery of a release. If remediation a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred		
	t area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.		
	mation given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and		
	required to report and/or file certain release notifications and perform corrective actions for releases which may endanger tent. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have		
failed to adequately investiga	ate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In		
	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:	ohn Hurt . Title: RES Specialist .		
Signature:	Date: 5/7/20		
Signature.	Duce.		
5			
email: JHurt@matadori	resources.com Telephone: 972- 371-5200		
OCD Only			
Received by: Ramon	a Marcus Date: 5/8/2020		

Form C-141

Page 3

State of New Mexico
Oil Conservation Division

Incident ID	NRM2012930770	]
District RP		
Facility ID		1
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?	(ft bgs)
Did this release impact groundwater or surface water?	Yes X 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 X No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	Yes X No
Are the lateral extents of the release within 300 feet of a wetland?	Yes X No
Are the lateral extents of the release overlying a subsurface mine?	Yes X No
Are the lateral extents of the release overlying an unstable area such as karst geology?	Yes X No
Are the lateral extents of the release within a 100-year floodplain?	Yes X No
Did the release impact areas <b>not</b> on an exploration, development, production, or storage site?	X 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.

- X 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.

Form C-141

Page 4

### State of New Mexico Oil Conservation Division

Incident ID	NRM2012930770
District RP	
Facility ID	
Application ID	

at of my knowledge and understand that pursuant to OCD rules and ations and perform corrective actions for releases which may endanger D does not relieve the operator of liability should their operations have to groundwater, surface water, human health or the environment. In ponsibility for compliance with any other federal, state, or local laws
_ Title: RES Specialist
Date: 8/6/20
Telephone: 972-371-5200 .
Date:

Form C-141 Page 6

### State of New Mexico Oil Conservation Division

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

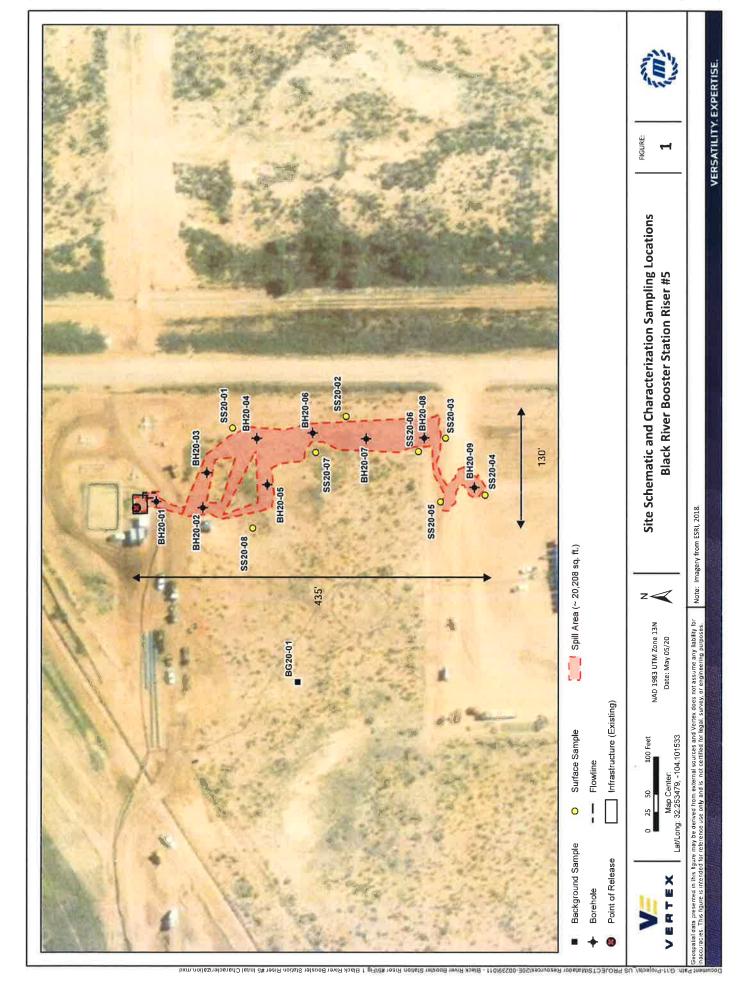
Incident ID	NRM2012930770
District RP	
Facility ID	
Application ID	

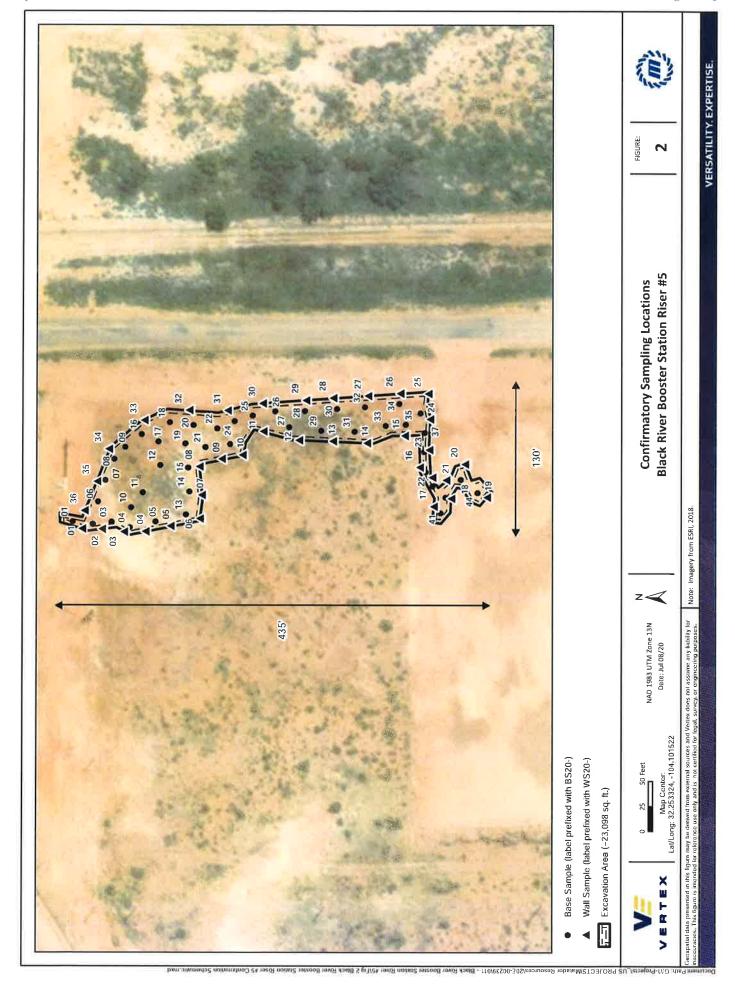
### Closure

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.

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: John Hurt Title: Part Specialist  Signature: John Hurt Title: Part Specialist  Signature: John Hurt Title: Part Specialist  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:	X A scaled site and sampling diagram as described in 19.15.29.11 NMAC	
If 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: John Hurt Title: RES Specialist  Date: JHurt@matadorresources.com Telephone: 972-371-5200  OCD Only  Received by:		е
In 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  Date: Signature: John Hurt Title: Printed Name: Printed Name: John Hurt Title: Printed Name: Printed Name: John Hurt Title: Printed Name: Printed	Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)	
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: John Hurt Date: John Hurt Potential P	Description of remediation activities	
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: John Hurt Title: RES Specialist  Date: John Hurt@matadorresources.com Telephone: 972-371-5200  OCD Onty  Received by:		
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: Date:	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: John Hurt Title: 972-371-5200	es
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:	OCD Only	
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:	Received by: Date:	
Printed Name: Title:	Closure Approved by: Date:	
	Printed Name: Title:	

### **ATTACHMENT 2**

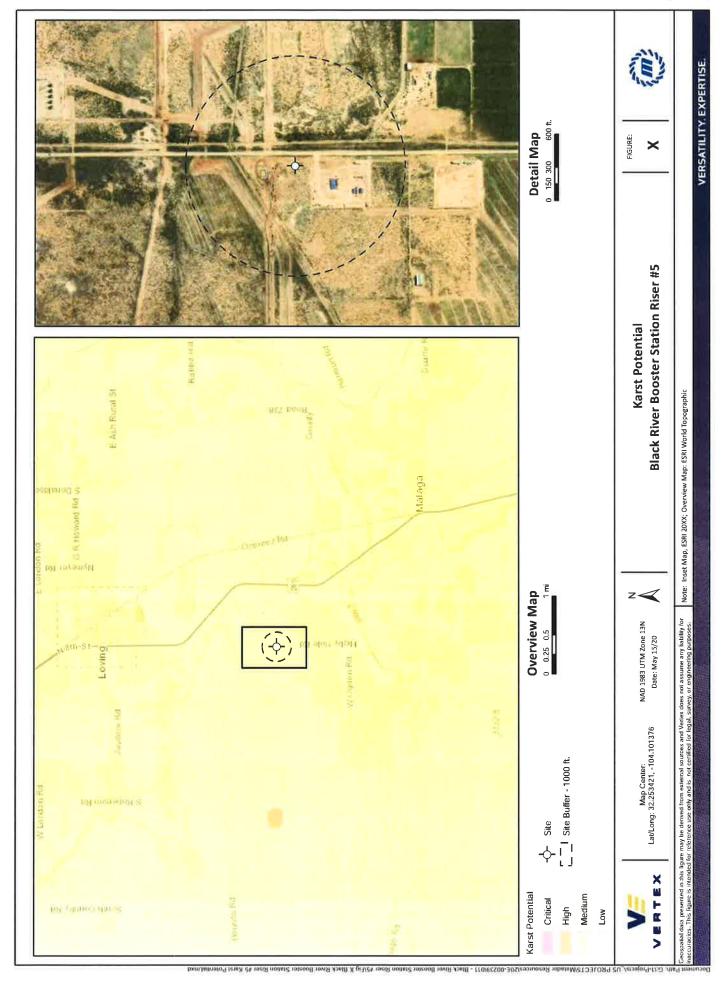




### **ATTACHMENT 3**

	riteria Worksheet		
Spill Coor	e: Black River Booster Riser #5	X: 32.2539	Y: -104.1016
	fic Conditions	Value	Unit
1	Depth to Groundwater	30	feet
	Within 300 feet of any continuously flowing	30	Teet
2	watercourse or any other significant watercourse	6,567	feet
3	Within 200 feet of any lakebed, sinkhole or playa lake	6,286	feet
	(measured from the ordinary high-water mark)		
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, <b>or</b>	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-Cot	tonwood Complex
12	Ecological Classification	Upland Gyp	
13	Geology	C	la
	NMAC 19.15.29.12 E (Table 1) Closure Criteria	<50'ชิ	<50' 51-100' >100'



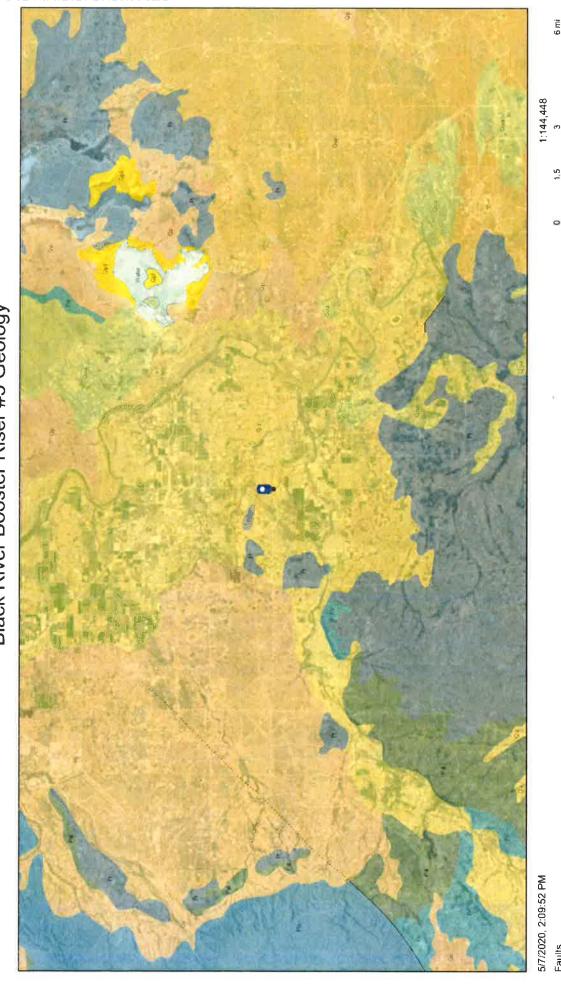


Source, Esri, Digital Globe, GeoEye, Earthstar Geographics, CNES/ Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, NMBGMR.

6 mi

1.5

Black River Booster Riser #5 Geology



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

Faults

Fault, Exposed

Fault, Intermittent

Fault, Concealed

Shere Zone

Web AppBuilder for ArcSIS

Web AppBuilder for Ar

Map Unit Description: Gypsum land-Cottonwood complex, 0 to 3 percent slopes---Eddy Area, New Mexico

### **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 Map Unit Description: Gypsum land-Cottonwood complex, 0 to 3 percent slopes---Eddy Area, New Mexico

### 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**

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

(quarters are smallest to largest)

(NAD83 UTM in meters)

Well Tag **POD Number**  Q64 Q16 Q4 Sec Tws Rng

 $\mathbf{X}$ 

C 01731

24S 28E 4 2 05

584483 3568367\*

Driller License:

Driller Company:

BARRON, EMMETT

**Driller Name:** Drill Start Date:

BARRON, EMMETT

01/15/1977

**Drill Finish Date:** 

03/10/1977

Plug Date:

Shallow

Log File Date:

03/30/1977

PCW Rcv Date:

Source:

Pump Type: Casing Size: Pipe Discharge Size: Depth Well:

80 feet

**Estimated Yield:** Depth Water:

30 feet

Water Bearing Stratifications:

**Bottom Description** 

Top 0 Other/Unknown

10 Other/Unknown

20 Other/Unknown

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

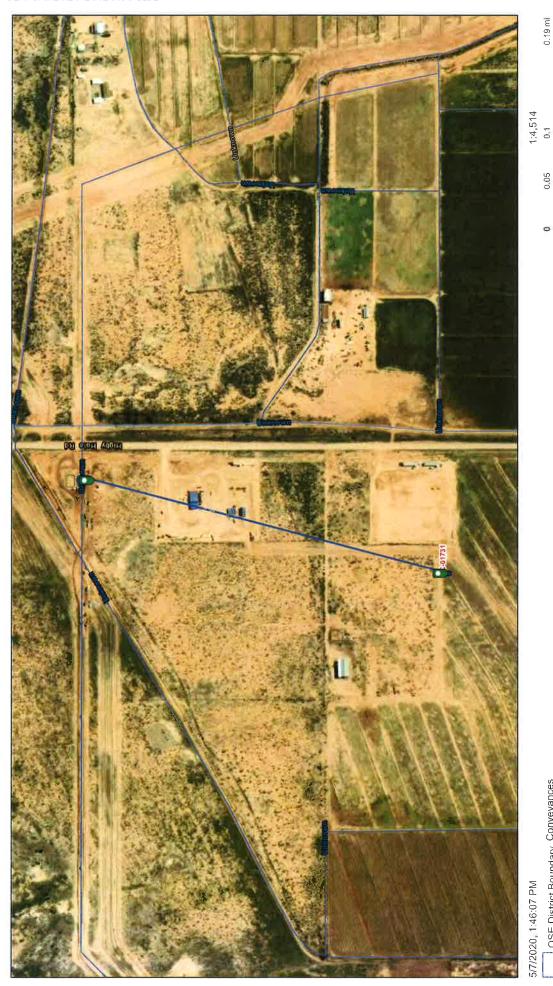
5/7/20 1:47 PM

POINT OF DIVERSION SUMMARY

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

0.05

Black River Booster Riser #5 0.36 miles



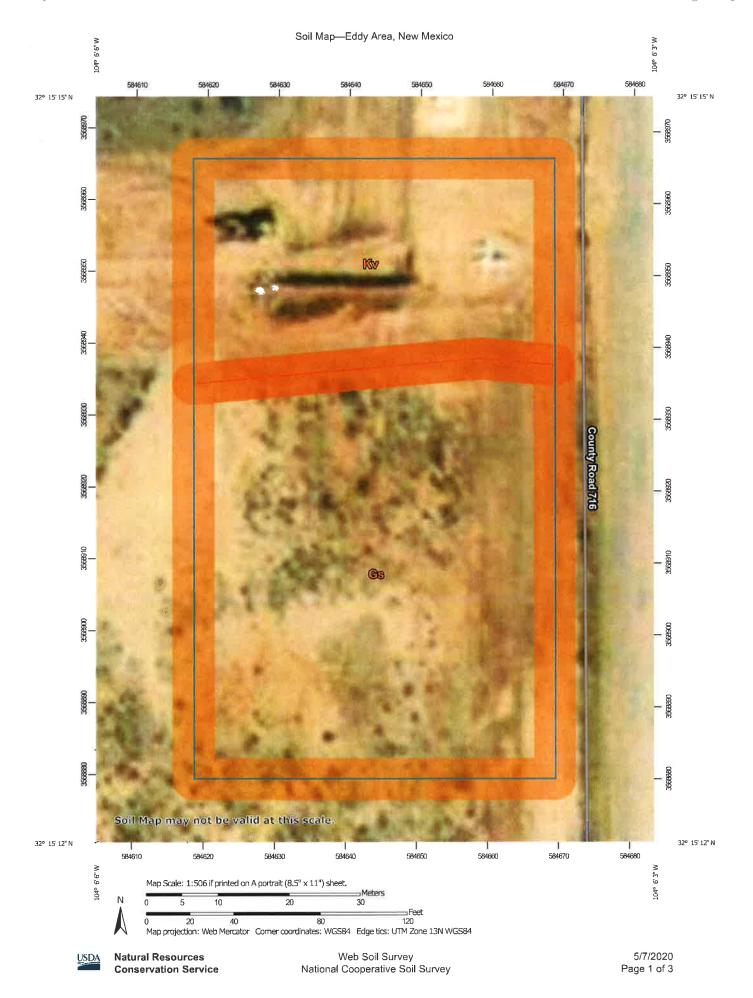
The New Mexico Office of the State Engineer (OSE) provides this geographic data and any associated

Lateral

- Ditch

GIS WATERS PODs Active

OSE District Boundary Conveyances



5/7/2020 Page 2 of 3

# MAP INFORMATION

The soil surveys that comprise your AOI were mapped at

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

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

Please rely on the bar scale on each map sheet for map measurements. Source of Map: Natural Resources Conservation Service Coordinate System: Web Mercator (EPSG:3857) Web Soil Survey URL:

Maps from the Web Soil Survey are based on the Web Mercator distance and area. A projection that preserves area, such as the projection, which preserves direction and shape but distorts 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.

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

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.

Stony Spot Spoil Area W Area of Interest (AOI)

Very Stony Spot 8

Soils

Wet Spot Other <

Water Features

Special Line Features

**Transportation** 

Streams and Canals

Interstate Highways Rails ŧ

**US Routes** 

Major Roads Local Roads

Aerial Photography Background

Miscellaneous Water Perennial Water

Rock Outcrop

Saline Spot

Sandy Spot

Sinkhole

Sodic Spot

**Conservation Service** Natural Resources

Soil Map-Eddy Area, New Mexico

## MAP LEGEND

Area of Interest (AOI)

Soil Map Unit Polygons

Soil Map Unit Points Soil Map Unit Lines

Special Point Features

Borrow Pit Blowout 9

Ø

Clay Spot

 $\Diamond$ 

Closed Depression

Gravel Pit

Gravelly Spot Landfill

Lava Flow

Marsh or swamp

Mine or Quarry

Severely Eroded Spot

Slide or Slip

### **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%

9

Geographic Area: United States

Data Category: Site Information

Science for a changing world

5/7/2020

USGS Home Contact USGS Search USGS

USGS 321552104071601 23S.28E.31.23142

# lational Water Information System: Web Interface

system	
Information	ίν)
water	Resource
icional	GS Water
	W

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

9

### 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:

# USGS 321552104071601 23S.28E.31.23142

5/7/2020

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

**OPERATION:** 

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

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Feedback on this web site

Automated retrievals

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Title: NWIS Site Information for USA: Site Inventory

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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

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5/7/2020

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USGS 321556104053201 23S.28E.33.123432

# National Water Information System: Web Interface

USGS Water Resources

ata Category:	Geographic Area:	ea:
Site Information	▼ United States	S

9

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- additional territories. Our hydrologic monitoring stations continue to send data in near real-time to NWISWeb, and health and safety of the public and our employees are our highest priorities, and we continue to follow guidance we are continuing critical water monitoring activities to protect life and property on a case-by-case basis. The communities, including providing critical situational awareness in times of flooding in all 50 U.S. states and Notice - The USGS Water Resources Mission Area's priority is to maintain the safety and well-being of our 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 321556104053201 23S.28E.33.123432

Available data for this site SUMMARY OF ALL AVAILABLE DATA ▼

### 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:

# USGS 321556104053201 23S.28E.33.123432

5/7/2020

Data Type	<b>Begin Date</b>	End Date  Count	Count
Field groundwater-level measurements 1954-10-05	1954-10-05	2018-02-13	6
Revisions	Unavailable (	Unavailable (site:0) (timeseries:0)	eries:0)

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Policies and Notices

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

Title: NWIS Site Information for USA: Site Inventory

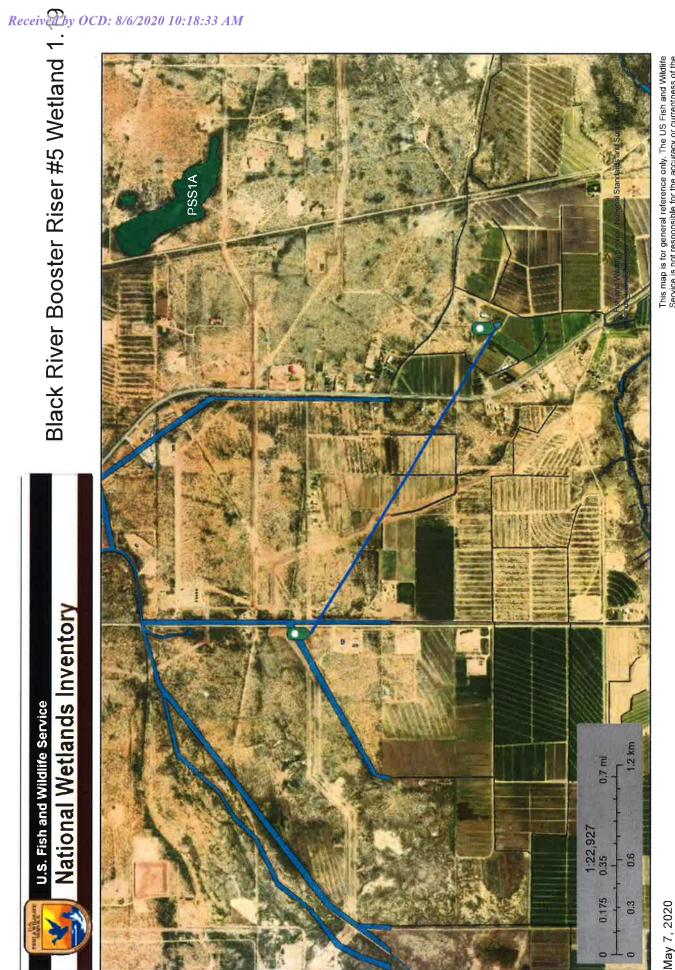
URL: https://waterdata.usgs.gov/nwis/inventory?agency\_code=USGS&site\_no=321556104053201

Page Contact Information: New Mexico Water Data Support Team

Page Last Modified: 2020-05-07 15:11:39 EDT

0.44 0.41 caww01

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



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 wellands related data should be used in accordance with the layer metadata found on the Wellands Mapper web site.

Wetlands

Estuarine and Marine Deepwater

Estuarine and Marine Wetland

Freshwater Emergent Wetland

Freshwater Forested/Shrub Wetland

Freshwater Pond

Lake

Other

Riverine

National Wetlands Inventory (NMI) This page was produced by the NVII 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

						Field Scree	ining and c						$\overline{}$
	Sample Descripti	on	F	ield Screeni	ng			Petrol	eum Hydroc				Inorgan
Sample ID	Depth (ft)	Sample Date	Volatile Organic  Compounds (PID)	Extractable Organic Compounds (Petro-Flag)	+ Inorganics (Quantab - High/Low)	Penzene (mg/kg)	atile (mg/kg) (g)/(g)	の の Gasoline Range A Drganics (GRO)	By Diesel Range Organics (PRO)	May Motor Oil Range (MRO) (Organics (MRO)	(B) (GRO + DRO)	Total Petroleum	(mg/k
ackground													
BG20-01	0-0.5	May 4, 2020			9,606	•				) e			4,200
BG20-01	1	May 4, 2020			7,012	-	-			F:	18	-4:	4,80
BG20-01	2	May 4, 2020			6,898			7.					4,30
BG20-01	3	May 4, 2020		- 3	5,296			- 5		75.	15		2,100
te Characterizat		1 March 2020	2	- L	10.025	40.024	40.717	44.0	40.2	-15	-14	460	C 900
BH 20-01	0-0.5	May 4, 2020			10,925	<0,024	<0,217	<4.8	<9.2	<46	<14	<60	3,100
BH 20-01 BH 20-01	1 2	May 4, 2020	: :-	*	4,112 4,187					10.0	100	55/	3,100
BH 20-01	3	May 4, 2020 May 4, 2020	3		6,846	- :		-:-			16:		
BH 20-01	0-0.5	May 4, 2020		-	11,860	-	-	-	-,				- 2
BH 20-02	1	May 4, 2020		-	4,084						-:-		
BH 20-02	2	May 4, 2020	- 7	- 4	3,775		-	-		- 2	- 6	- 30	- 3
BH 20-02	3	May 4, 2020	- 3	-	3,756	1				- 81		585	
BH 20-03	0-0,5	May 4, 2020		-	15,249	-	-		-	-,	-	1	
BH 20-03	1	May 4, 2020		5.4 5.4	5,538	- 2		*				200	
BH 20-03	2	May 4, 2020	- 1	- 14	4,996			-		25		785	
BH 20-03	2.5	May 4, 2020	- 3	12	4,672	-	•	- F	2:		185		- 32
BH20-04	0-0.5	May 4, 2020			19,202	-		-		*:			10,00
BH20-04	1	May 4, 2020			7,065			8		*:		5*0	4,70
BH 20-04	2	May 4, 2020	- 34	- 34	4,934	- 1		2	25		16	- 38	- 14
BH 20-04	3	May 4, 2020			4,501	2		- 22	- 2	- 21	121	321	100
BH 20-05	0-0.5	May 4, 2020	64		17,946					71	153	- 38	
BH 20-05	1	May 4, 2020	79	- 14	10,799	-	×			#.c		1965	
BH 20-05	2	May 4, 2020	72	, G	5,479	- 2	_ ©		- 2	20	- 27		:41
BH 20-05	3	May 4, 2020			5,941		- :	- 3	÷	27	- 1		12
BH 20-06	0-0.5	May 4, 2020	:-	<u>:</u> •	14,517		*	*	*	±2		2.55	- 190
BH 20-06	1	May 4, 2020	72		6,142	- 3				45	+-	2007	145
BH 20-06	2	May 4, 2020	-3-	- 4	6,902	- 3	- 8 -	- 2	X	3.		(A)	(4)
BH 20-06	3	May 4, 2020		- 37	5,156			- 5		-			- 0.
BH 20-07	0-0.5	May 4, 2020	)*		7,644	- 2					•	100	
BH 20-07	1	May 4, 2020	- 14	74	6,947	- 4			- 2	- 1		: 4:	19:
BH 20-07	2	May 4, 2020	- 75	_ :-	5,935		-	_ :	-			- 0	
BH 20-07	-3	May 4, 2020	÷	2.	3,789	- 3				51		(%)	- 2
BH 20-08	0-0.5	May 4, 2020		- 12	16,938					*	- 8	/€:	4,30
BH 20-08	1	May 4, 2020		- 4	4,301				-	-			
BH 20-08	2	May 4, 2020			5,208	_ 5						050	33/
BH 20-08	3	May 4, 2020	1.5		4,808	<u></u>	*	*	-		- 53	25.	- 25
BH 20-09	0-0.5	May 4, 2020	- 4	- 32	6,514	<0.025	<0.225	<5.0	<9.8	<49	<14.8	<63.8	3,80
BH 20-09	1	May 4, 2020	-	-	5,156							•	
BH 20-09	2	May 4, 2020	38	34	4,547	*	*				*	1000 1000	30
BH 20-09	3	May 4, 2020	- A-	54 52	4,273		-	-	-	- 2		- 10	
SS 20-01	0.5	May 4, 2020	-:-		24,265 13,257				-:		- 2	78	3
SS 20-01 SS 20-02	0.5	May 4, 2020 May 4, 2020			13,306		-				-	-	5,30
SS 20-02 SS 20-02	0.5	May 4, 2020	24		7,635			-		- 8			3,30
SS 20-02	0.5	May 4, 2020		- 3	11,142		- 2	- 2		- 2		7.0	-
SS 20-03	0.5	May 4, 2020			8,800								-
SS 20-03	0.3	May 4, 2020		- 3	14,774	- 3		-					370
SS 20-04	0.5	May 4, 2020	3		3,808						+5		370
SS 20-05	0.3	May 4, 2020	-	-	11,159	-		-	-	-	-		-
SS 20-05	0.5	May 4, 2020	- 6	- 2	4,368	-	-					- 12	
SS 20-05	0.5	May 4, 2020	19	13	9,047	- 2	- 3				1	160	4,50
SS 20-06	0.5	May 4, 2020	72	7.	4,831	3	- 2	- 2		Ŷ		· · ·	4,50
SS 20-07	0	May 4, 2020	-	7	19,602	-		-	-	-	-	1.00	
SS 20-07	0.5	May 4, 2020	-	- 10	15,943								



Client Name: Matador Production Company Site Name: Black River Booster Station Riser #5 NM OCD Incident Tracking #: NRM2012930770 Vertex Project 2012-00239-011

Lab Report: 2001A59

	Sample Description	on	F	ield Screenii	ng			Petrol	eum Hydroc	arbons			lanarani.
						Vol	atile			Extractable			Inorgani
Sample ID	Depth (ft)	Sample Date	Volatile Organic Compounds (PID)	Extractable Organic Compounds (Petro Flag)	Inorganics (Quantab -   High/Low)	Benzene (mg/kg)	(Eg/kg)	Gasoline Range Organics (GRO)	Diesel Range Organics	Motor Oil Range (Strganics (MRO)	(GRO + DRO)	Total Petroleum	(gy/gm)
ite Characteriza	tion	E S IS	(PP-III)		V.3.3	11.00.102	1 2 30	The state of	1	1.50	1 0 0		1 0
SS 20-08	0	May 4, 2020			1,191		-		5_			-	
SS 20-08	0.5	May 4, 2020		-	11,426		+-	+:	•:	16:			10,000

<sup>&</sup>quot;-" - Not assessed/analyzed

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



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

Sample ID	1			ons			. Confirmatory S	Table 4		Samula Description	
Sample ID	Inorganic				neum Hydrocart	Petro	etile I	Vola		Sample Description	
GROUPOIT   1	Chloride (mg/kg)			Motor Oil Range Organics (MRO)	Diesel (DRO)		BTEX (Total)	Benzene	Sample Date	Depth (ft)	Sample ID
GROUPOIT   1		10000				1 0 0		1.0.0			sckground
6620-01	4,200	-	•	- 2		2	- 2		May 4, 2020	0.5	
8620-01 2 May 4, 2000	4,800			-,	-	10	(*)	1.00		1	
	4,300		585				3			2	
\$520-01 1 June 24, 2020 0,0025 0,0225 0,024 0,025 0,025 0,026 0,005 0,00	2,100			*:			1907				BG20-01
\$520-01 1 June 24, 2020 0,0025 0,0225 0,024 0,025 0,025 0,026 0,005 0,00		7 2 2		100							cavation
BSD0002	810	<65.0	<15.0	<50	<10.0	<5.0	<0.225	<0.025	June 24, 2020	1 1	
8520-03	1,500				511	<5.0	<0.224	SOMOOTING		7.25	Transcription 1
BS20-06	670					<4.9	<0.222	<0.025			
BS20-05	1,800										
BS2006	1,500										
BS20-097	1,100										
BS20-08	750										
SEQ-09	1,300										
BSZ0-10	1,500										
SS20-11											
BSZ0-12	1,200										
SSZ0-13	2,200										
SEQ-14	1,200										
SS20-15	1,200										
BS20-16	1,900										
B\$20-17	1,900	<60.1	<14.1	<46	<9.2		<0.219	<0.024	June 24, 2020	1	BS20-15
B\$20-18         1         June 24, 2020         <0.024         <0.216         <4.8         <9.2         <46         <14.0         <60.0           B\$20-19         1         June 24, 2020         <0.025	1,500	<60.1	<14.1	<46	<9.2	<4.9	<0,222	<0.025	June 24, 2020	1	BS20-16
B\$20-19         1         June 24, 2020         <0.025         <0.221         <4.9         <9.3         <47         <14.2         <66.12           B\$20-20         1         June 24, 2020         <0.025	2,200	<62.7	<14.7	<48	<9.7	<5.0	<0.224	<0.025	June 24, 2020	1	BS20-17
BS20-20	2,100	<60.0	<14.0	<46	<9.2	<4.8	<0.216	<0.024	June 24, 2020	1	BS20-18
8520-21         1         June 24, 2020         <0.025         <0.225         <5.0         <9.1         <46         <14.1         <60.1           8520-22         1         June 24, 2020         <0.025	2,100	<61.2	<14.2	<47	<9,3	<4.9	<0.221	<0.025	June 24, 2020	1	BS20-19
BS20-22         1         June 24, 2020         <0.025         <5.0         <9.9         <50         <14.9         <66.9           B520-23         1         June 24, 2020         <0.025	2,200	<65.0	<15,0	<50	<10.0	<5.0	<0.225	<0,025	June 24, 2020	1	BS20-20
8520-23         1         June 24, 2020         <0.025	1,900	<60.1	<14.1	<46	<9.1	<5.0	<0.225	<0.025	June 24, 2020	1	BS20-21
B520-24         1         June 24, 2020         <0.025         <0.221         <4,9         <9,2         <46         <14.1         <60.1           B520-25         1         June 24, 2020         <0.025	1,500	<64.9	<14.9	<50	<9.9	<5.0	<0.225	<0.025	June 24, 2020	1	BS20-22
B520-25         1         June 24, 2020         <0.025         <0.222         <4.9         <9.4         <47         <14.3         <61.3           B520-26         1         June 24, 2020         <0.024	2,700	<63.8	<14.8	<49	<9.8	<5.0	<0.224	<0.025	June 24, 2020	1	BS20-23
B520-25         1         June 24, 2020         <0.025         <0.222         <4.9         <9.4         <47         <14.3         <61.3           B520-26         1         June 24, 2020         <0.024	2,100	<60.1	<14.1	<46	<9.2	<4.9	<0.221	<0.025	June 24, 2020	1	BS20-24
B520-26         1         June 24, 2020         <0.024         <0.220         <4.9         <9.6         <48         <14.5         <62.5           B520-27         1         June 24, 2020         <0.025	3,600					<4.9	< 0.222				
BS20-27         1         June 24, 2020         <0,025         <0,224         <5,0         <9,8         <49         <14,8         <63.8           BS20-28         1         June 24, 2020         <0,025	2,200					<4.9	<0.220	<0.024			
8520-28         1         June 24, 2020         <0.025         <0.225         <5.0         <9.5         <48         <14.5         <62.5           8520-29         1         June 24, 2020         <0.024	3,400										
BS20-29         1         June 24, 2020         <0.024         <0.219         <4.9         <9.1         <45         <14.0         <59.0           B520-30         1         June 24, 2020         <0.025	670										
8520-30         1         June 24, 2020         <0,025	2,000										
8S20-31         1         June 24, 2020         <0.025         <0.221         <4.9         <9.8         <49         <14.7         <63.7           BS20-32         1         June 24, 2020         <0.025											
8520-32         1         June 24, 2020         <0.025         <0.225         <5.0         <9.5         <47         <14.5         <61.5           8520-33         1         June 24, 2020         <0.025	1,900										
8520-33         1         June 24, 2020         <0.025	2,600										
BS20-33         2.5         July 21, 2020         <0.024         <0.216         <4.8         <10.0         <50         <14.8         <64.8           BS20-34         1         June 24, 2020         <0.025	1,500			-							
B520-34         1         June 24, 2020         <0.025         <0,224         <5.0         <9.4         <47         <14.4         <61.4           B520-35         1         June 24, 2020         <0.025	5,100										
BS20-35         1         June 24, 2020         <0.025         <0.225         <5.0         <9.5         <48         <14.5         <62.5           BS20-36         0.5         June 24, 2020         <0.025	3,700										
BS20-36         0.5         June 24, 2020         <0.025	2,600										
BS20-37         0.5         June 24, 2020         <0,025	2,000										
BS20-38         0.5         June 24, 2020         <0.025	380				<9.8					- 21	BS20-36
BS20-39         0.5         June 24, 2020         <0.025	3,500	<59.1	<14.1	<45	<9,1	100000			June 24, 2020		
B520-40         0.5         June 24, 2020         <0.024	660		<14.8	<49	<9.8				June 24, 2020		BS20-38
B520-41         0.5         June 24, 2020         <0.025	790	<60.3	<14.3	<46	<9,3	<5.0	<0,224	<0.025	June 24, 2020	0.5	BS20-39
B520-42         0.5         June 24, 2020         <0.025	540	<60.0	<14.0	<46	<9.2	<4.8	<0.217	<0.024	June 24, 2020	0.5	B520-40
BS20-43         0.5         June 24, 2020         <0.025	1,400	62	13	49	13	<4.9	<0.221	< 0.025	June 24, 2020	0.5	BS20-41
BS20-44     0.5     June 24, 2020     <0,025	790	<\$8.9	<13.9	<45	<9.0	<4.9	<0.221	<0.025	June 24, 2020	0.5	BS20-42
BS20-44         0.5         June 24, 2020         <0.025	650	<62.5	<14.5			<4.9	<0.222	<0.025			
WS20-01 0-1 June 24, 2020 <0.025 <0.222 <4.9 <9.7 <49 <14.6 <63.6 WS20-02 0-1 June 24, 2020 <0.025 <0.225 <5.0 <9.2 <46 <14.2 <60.2	1,700					<4.9	<0.222			- 31	BS20-44
WS20-02 0-1 June 24, 2020 <0.025 <0.225 <5.0 <9.2 <46 <14.2 <60.2	3,300					<4.9					
	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 <4.5 <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						- 22				



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

Vertex Project #: 20E-00239-011 Lab Reports: 2006D74 and 2007B62

			rable	4. Confirmatory	Sampling Labora					
	Sample Descriptio	វា			Peti	roleum Hydrocai				Inorganic
			Vo	latile			Extractable			organn
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)
cavation	2.1	T 1 24 2222								
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
W520-15	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



# **ATTACHMENT 5**



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

andyl

4901 Hawkins NE

Albuquerque, NM 87109

Lab Order 2005353

Date Reported: 5/19/2020

# Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Black River Booster Riser 5

**Lab ID:** 20

Project:

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 Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORG	ANICS				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: <b>NSB</b>
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
- POL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

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

Page 1 of 15

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

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 Qua	al Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS					Analyst: <b>MRA</b>
Chloride	3100	150	mg/Kg	50	5/18/2020 12:05:39 PM

Matrix: SOIL

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

Qualifiers:

Value exceeds Maximum Contaminant Level

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

Page 2 of 15

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

Sample Diluted Due to Matrix

Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

Page 3 of 15

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

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 Qua	al Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS					Analyst: MRA
Chloride	4700	150	mg/Kg	50	5/18/2020 12:18:00 PM

Matrix: SOIL

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

Qualifiers:

Value exceeds Maximum Contaminant Level

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

Page 4 of 15

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 Qua	d Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS					Analyst: <b>JMT</b>
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

Page 5 of 15

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

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 Q	ual Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OF	RGANICS				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

Matrix: SOIL

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

#### Qualifiers:

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

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

Page 6 of 15

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

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 Qua	l Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS					Analyst: <b>JMT</b>
Chloride	5300	150	mg/Kg	50	5/12/2020 6:37:02 PM

Matrix: SOIL

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

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

QL Practical Quanitative Limit

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

Page 7 of 15

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: 2005353-008 Client Sample ID: SS20-04 0-0.5

Collection Date: 5/4/2020 12:15:00 PM

Received Date: 5/8/2020 12:45:00 PM

Analyses	Result	RL Qua	I Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS					Analyst: <b>JMT</b>
Chloride	370	60	mg/Kg	20	5/11/2020 1:29:43 PM

Matrix: SOIL

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

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

Practical Quanitative Limit

% Recovery outside of range due to dilution or matrix

Analyte detected in the associated Method Blank

Value above quantitation range

Analyte detected below quantitation limits

Sample pH Not In Range

RL Reporting Limit Page 8 of 15

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:** 2005353-009

Client Sample ID: SS20-06 0-0.5

Collection Date: 5/4/2020 12:30:00 PM

Received Date: 5/8/2020 12:45:00 PM

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

Matrix: SOIL

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

Qualifiers:

Value exceeds Maximum Contaminant Level

D Sample Diluted Due to Matrix

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

porting Limit Page 9 of 15

Project:

**Analytical Report** 

Lab Order 2005353

Date Reported: 5/19/2020

#### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Black River Booster Riser 5

**Lab ID:** 2005353-010

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

Matrix: SOIL

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

Qualifiers:

Value exceeds Maximum Contaminant Level

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

Page 10 of 15

#### Hall Environmental Analysis Laboratory, Inc.

WO#:

2005353

19-May-20

Client: Project: Vertex Resource Group Ltd. Black River Booster Riser 5

Sample ID: MB-52383

SampType: mblk

Batch ID: 52383

TestCode: EPA Method 300.0: Anions

Client ID: PBS

RunNo: 68806

Prep Date: 5/11/2020

Analysis Date: 5/11/2020

SeqNo: 2381242 Units: mg/Kg

Analyte

SPK value SPK Ref Val %REC LowLimit POL

**RPDLimit** %RPD

Qual

Chloride

ND 1.5

SampType: Ics

Sample ID: LCS-52383 Client ID: LCSS

Batch ID: 52383

PQL

TestCode: EPA Method 300.0: Anions

RunNo: 68806

Units: mg/Kg

HighLimit

Prep Date:

5/11/2020 Analysis Date: 5/11/2020

Result

SeqNo: 2381244

HighLimit %RPD Qual

Analyte Chloride

1.5 15.00

90.6 TestCode: EPA Method 300.0: Anions

SPK value SPK Ref Val %REC LowLimit

SPK value SPK Ref Val %REC LowLimit

0

**RPDLimit** 

Sample ID: MB-52383

SampType: mblk Client ID: PBS

Batch ID: 52383

RunNo: 68806

Prep Date: 5/11/2020

Analysis Date: 5/11/2020

SeqNo: 2381275

Units: mg/Kg

Qual

Analyte

Result PQL ND 1.5

HighLimit %RPD **RPDLimit** 

%RPD

%RPD

%RPD

Chloride

Sample ID: LCS-52383

SampType: Ics

TestCode: EPA Method 300.0: Anions

Client ID: LCSS Prep Date: 5/11/2020

Sample ID: MB-52432

Client ID: BatchQC

Batch ID: 52383

RunNo: 68806

Analysis Date: 5/11/2020

14

Result

Result

14

ND

SeqNo: 2381276

Units: mg/Kg

**RPDLimit** 

Analyte

Result **PQL** SPK value SPK Ref Val

%REC LowLimit 90.7

HighLimit

Qual

Chloride

SampType: ms

TestCode: EPA Method 300.0: Anions

Batch ID: 52432

PQL

POL

1.5

1.5

1.5

RunNo: 68855

%REC

90

110

Analyte

Prep Date: 5/13/2020

Analysis Date: 5/13/2020

SeqNo: 2383894

Units: mg/Kg

Qual

Chloride

SampType: Ics

TestCode: EPA Method 300.0: Anions

SPK value SPK Ref Val

SPK value SPK Ref Val

LowLimit

50.4

HighLimit 161

**RPDLimit** 

s

Sample ID: LCS-52432 Client ID: LCSS

Batch ID: 52432

15.00

15.00

RunNo: 68855

%REC

94.6

0

Analyte

Prep Date: 5/13/2020

Analysis Date: 5/13/2020

15.00

SeqNo: 2383895

LowLimit

Units: mg/Kg

HighLimit

**RPDLimit** Qual

Chloride

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

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

Page 11 of 15

# 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

**RPDLimit** %RPD

Qual

Analyte Chloride

**PQL** ND 1.5

Sample ID: LCS-52511

SampType: Ics Batch ID: 52511

RunNo: 68964

Prep Date: 5/17/2020

Client ID: LCSS

SeqNo: 2387342

Units: mg/Kg

HighLimit

Analyte

Analysis Date: 5/17/2020

SPK value SPK Ref Val %REC LowLimit

SPK value SPK Ref Val %REC LowLimit

HighLimit

%RPD

**RPDLimit** 

Qual

PQL

TestCode: EPA Method 300.0: Anions

110

Chloride

0 1.5 15.00

93.1

14

#### Qualifiers:

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

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

Page 12 of 15

# 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	SampT	ype: ME	BLK	Tes	tCode: El	PA Method	8015M/D: Die	esel Range	e Organics	
Client ID: PBS	Batch	n ID: <b>52</b> 3	380	F	RunNo: 6	8785				
Prep Date: 5/11/2020	Analysis D	ate: 5/	11/2020	8	SeqNo: 2	380388	Units: mg/K	(g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	11		10.00		114	55.1	146			

Sample ID: LCS-52380	SampT	ype: LC	s	Tes	tCode: El	PA Method	8015M/D: Die	esel Rang	e Organics	
Client ID: LCSS	Batch	1D: <b>52</b>	380	R	RunNo: 6	8785				
Prep Date: 5/11/2020	Analysis D	ate: 5/	11/2020	S	SeqNo: 2	380489	Units: mg/K	g		
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

Page 13 of 15

### Hall Environmental Analysis Laboratory, Inc.

WO#:

2005353

19-May-20

Client: **Project:**  Vertex Resource Group Ltd. Black River Booster Riser 5

Sample ID: mb-52350

SampType: MBLK

5.0

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

Result **PQL** SPK value SPK Ref Val %REC

Batch ID: 52350

**PQL** 

HighLimit

SPK value SPK Ref Val

LowLimit

66.6

%RPD **RPDLimit** 

Qual

Gasoline Range Organics (GRO) Surr: BFB

ND 970

1000

97.3

105

Sample ID: Ics-52350 Client ID: LCSS

SampType: LCS

TestCode: EPA Method 8015D: Gasoline Range

%REC

RunNo: 68802

LowLimit

Prep Date: 5/8/2020

Analysis Date: 5/11/2020

SeqNo: 2380977

Units: mg/Kg

HighLimit %RPD

Gasoline Range Organics (GRO) Surr: BFB

Analyte

1100

Result

23

5.0 25.00 1000 91.4 106

66.6

105

**RPDLimit** 

s

Qual

#### **Oualifiers:**

Value exceeds Maximum Contaminant Level

D Sample Diluted Due to Matrix

Holding times for preparation or analysis exceeded Н

Not Detected at the Reporting Limit ND PQL Practical Quanitative Limit

% Recovery outside of range due to dilution or matrix

Analyte detected in the associated Method Blank

Value above quantitation range

Analyte detected below quantitation limits

Sample pH Not In Range Reporting Limit RL

Page 14 of 15

#### Hall Environmental Analysis Laboratory, Inc.

WO#: 2005353

19-May-20

Client: Project:

Vertex Resource Group Ltd. Black River Booster Riser 5

Result

ND

ND

ND

ND

Sample ID: mb-52350

SampType: MBLK

TestCode: EPA Method 8021B: Volatiles

Client ID: PBS

Batch ID: 52350

RunNo: 68802

SPK value SPK Ref Val %REC LowLimit

Prep Date: 5/8/2020

Analysis Date: 5/11/2020 PQL

0.025

0.050

0.050

0.10

SeqNo: 2381018

Units: mg/Kg HighLimit

**RPDLimit** 

Qual

Qual

Analyte Benzene Toluene Ethylbenzene

Xylenes, Total Surr: 4-Bromofluorobenzene

0.93 SampType: LCS

TestCode: EPA Method 8021B: Volatiles

Client ID: LCSS Prep Date: 5/8/2020

Sample ID: LCS-52350

Batch ID: 52350

Analysis Date: 5/11/2020

1.000

RunNo: 68802 SeqNo: 2381019

Units: mg/Kg

120

120

120

120

120

120

HighLimit %RPD **RPDLimit** 

%RPD

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

#### Qualifiers:

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

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

Page 15 of 15



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 Numb	er: <b>2005353</b>		RoptNo	o: 1
Received By:	Isaiah Ortiz	5/8/2020 12:45:00 P	М	INO	4	
Completed By:	Isaiah Ortiz	5/8/2020 1:19:50 PM	1	エへの	4	
Reviewed By:	NB	5/9/20				
Chain of Cus	stody					
1. Is Chain of C	Custody sufficiently complete?		Yes 🗹	No 🗌	Not Present	
2. How was the	e sample delivered?		Courier			
Log In  3. Was an atter	mpt made to cool the samples	7	Yes 🗹	No 🗌	NA □	
	The mode to door the sumples	1	163	,,,,	WA L	
4. Were all sam	ples received at a temperatur	e of >0° C to 6.0°C	Yes 🗹	No 🗆	NA 🗆	
5. Sample(s) in	proper container(s)?		Yes 🗹	No 🔲		
6. Sufficient sar	nple volume for indicated test	(s)?	Yes 🗹	No 🗆		
7. Are samples	(except VOA and ONG) prope	erly preserved?	Yes 🗸	No 🗌		
8. Was preserva	ative added to bottles?		Yes 🗌	No 🗹	NA 🗌	
9. Received at l	east 1 vial with headspace <1	/4" for AQ VOA?	Yes 🗌	No 🗌	NA 🗹	
10, Were any sa	mple containers received brok	ken?	Yes 🗀	No 🗹	# of preserved bottles checked	
	ork match bottle labels? ancies on chain of custody)		Yes 🗹	No 🗆	for pH:	or >12 unless noted)
12. Are matrices	correctly identified on Chain of	f Custody?	Yes 🗹	No 🗌	Adjusted?	
13. Is it clear wha	at analyses were requested?		Yes 🗸	No 🗆		
	ing times able to be met? customer for authorization.)		Yes 🗹	No 🗌	Checked by:	DAD 578120
Special Hand	ling (if applicable)					
15. Was client n	otified of all discrepancies with	n this order?	Yes 🗌	No 🗌	NA 🗹	
Persor	Notified:	Date:	1			
By Wh	om:	Via:	eMail	] Phone [ ] Fax	In Person	
Regard	ding:	***************************************				
Client I	Instructions:					
16. Additional re	emarks:					
17. <u>Cooler Info</u> Cooler No		Seal Intact   Seal No	Seal Date	Signed By		
1		ot Present	Joan Date	Oigned by		
2		ot Present				

٦	hain.	-of-Cı	Chain-of-Custody Record	Turn-Around Time:	Time:	Door			_	•		i		(		ĺ	Ì		
Client:	7	メッナ		□ Standard	□ ⊠	·		100		MALL ENVI	,   		7		HALL ENVIKONMENTAL			= 2	
				Project Name:	d	Rosto			_	<b>*</b>	thalle	www.hallenvironmental.com	a a	tal c	ntal com	5	2	Z	
Mailing	Mailing Address:			5.50				4901	Haw	4901 Hawkins NF	- 1	Albuo	IPLU	2	Albuquerque NM 87109	90			
				174-				Tel.	505-	Tel. 505-345-3975		Fa	505	-345	Eax 505-345-4107				
Phone #:	#:			30E	00339						An	Analysis Request	s Rec	dues			N		310
email c	email or Fax#:			Project Manager:	iger:			(0	_		F	₽O	_	(tr		H	_		
QA/QC	QA/QC Package:			200	Jan. G	0000			0.07	SM		S '\$(		pser					
□ Star	Standard		☐ Level 4 (Full Validation)		,							)d '		Α∖tn:					
Accred	Accreditation:	☐ Az Cor	npliance	Sampler: 17	9 7 C	c. C.						ZON	(/						
□ EDD (Tv	EDD (Type)			# of Coolers:	3	200						O <sup>3</sup> '	/O/			_			
				Cooler Temp	emp(including cF);	(0,)					_								
ţ.	( <u>8</u>	NO.	o Reco	#	Preservative	HEAL No.	(X3T	108:Hq	081 Pes EDB (Me	γd sHA	8 ARO	]} F, Βr 260 (VC	SY) 072	otal Col					
17/5	10	min.	50.5		1 ype	3					4					+	+		
	4.30	37-mag)	BH20-01	2		200-	9 1	5	K	S	W	I.	,—	9					
	9.50		BH30-040-0.4			-03						>							
	55:10	11.11.00	BH20-04 1			4004	2	E	A	V	147	୍ଦ ⊤	ک	۵					
	0		BH30-080-05			-0x						4							
	11:15		BH30-09 0-05			900-	2	1				5							
	19:00		5520-02 0-05			رى						5							
and defined	13.15		5520-04 0-0.5			-00%					4	1							
	13 130		55-00-06 0-0.5			-004						3							
3	12 49	5	5000 80-085	>	<b>→</b>	-010		-			_	1				-			
							+	_											
	j	:			6		┪	$\dashv$	4		-	$\dashv$	_			-	_		
5/7/2	Time:   330	Relinquished by	3	Received by:	/ Via:	5/1/20 (33	Remarks: ?	rks:			0	Ü	1	7	6	ړ	3	3 or day	/
Date:		Relinquished by:		Received by:	Via:	Date Time													
				ST.	الماريد الماريد	Alsho 1245						2	2	Total	0	è			
	If necessary	camples cub	samples submitted to Half Environmental and was be	orted to other	phorator	1 6	Shilli	h, Any	41.5	ntracted	doto in	1 Po od 1	ton silve	ac post	the and	hetinal re	1		1



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

Lab Order 2005352

Date Reported: 5/13/2020

#### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Black River Booster Riser 5

**Lab ID:** 2005352-001

Project:

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 Qua	al Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS	=				Analyst: <b>JMT</b>
Chloride	4200	150	mg/Kg	50	5/12/2020 5:34:59 PM

Matrix: SOIL

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

Qualifiers:

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

Page 1 of 5

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

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

Matrix: SOIL

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

Qualifiers:

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

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

Page 2 of 5

Lab Order 2005352

Date Reported: 5/13/2020

5/12/2020 5:59:49 PM

#### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Project: Black River Booster Riser 5

**Lab ID:** 2005352-003

Chloride

Client Sample ID: BG20-01 2

mg/Kg

Collection Date: 5/4/2020 8:55:00 AM Received Date: 5/8/2020 12:45:00 PM

50

Analyses Result RL Qual Units DF Date Analyzed

EPA METHOD 300.0: ANIONS Analyst: JMT

150

4300

Matrix: SOIL

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

Qualifiers:

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

Page 3 of 5

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

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 Qua	l Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS			_		Analyst: <b>JMT</b>
Chloride	2100	60	mg/Kg	20	5/11/2020 12:52:29 PM

Matrix: SOIL

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

Qualifiers:

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

Page 4 of 5

#### Hall Environmental Analysis Laboratory, Inc.

WO#: 2005352

13-May-20

Client:

Vertex Resource Group Ltd.

Project:

Black River Booster Riser 5

Result

Sample ID: MB-52383

SampType: mblk

TestCode: EPA Method 300.0: Anions

LowLimit

Client ID: PBS

Batch ID: 52383

RunNo: 68806

SPK value SPK Ref Val %REC

SPK value SPK Ref Val

15.00

Prep Date: 5/11/2020

Analysis Date: 5/11/2020 PQL

SeqNo: 2381242

Units: mg/Kg HighLimit

%RPD

%RPD

**RPDLimit** 

Qual

Analyte Chloride

1.5

Sample ID: LCS-52383 Client ID: LCSS

SampType: Ics Batch ID: 52383

14

Result

Result

14

ND

TestCode: EPA Method 300.0: Anions

%REC

90.6

RunNo: 68806

LowLimit

90

Units: mg/Kg

110

Analyte

Analysis Date: 5/11/2020

PQL

1.5

SeqNo: 2381244

HighLimit

Qual **RPDLimit** 

Chloride

SampType: mblk

TestCode: EPA Method 300.0: Anions

Client ID: PBS Prep Date: 5/11/2020

Sample ID: MB-52383

Prep Date: 5/11/2020

Batch ID: 52383

RunNo: 68806 SeqNo: 2381275

Units: mg/Kg

Analyte

Analysis Date: 5/11/2020 POL

1.5

SPK value SPK Ref Val %REC LowLimit

HighLimit %RPD **RPDLimit** 

Qual

Chloride

SampType: Ics

TestCode: EPA Method 300.0: Anions RunNo: 68806

Prep Date: 5/11/2020

Sample ID: LCS-52383

Client ID: LCSS

Batch ID: 52383

Analysis Date: 5/11/2020

SeqNo: 2381276

Units: mg/Kg

Analyte

**PQL** 

SPK value SPK Ref Val

%REC

LowLimit

HighLimit

**RPDLimit** 

%RPD

Qual

Chloride

1.5

15.00

0

90.7

90

110

Value exceeds Maximum Contaminant Level

Sample Diluted Due to Matrix

Н Holding times for preparation or analysis exceeded

Analyte detected in the associated Method Blank

Value above quantitation range

Analyte detected below quantitation limits Sample pH Not In Range

RL. Reporting Limit Page 5 of 5

**Oualifiers:** 

Not Detected at the Reporting Limit ND

PQL Practical Quanitative Limit

% Recovery outside of range due to dilution or matrix



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-,C	24
Completed By:	Isaiah Ortiz	5/8/2020 1:23:09 PM		I-, C	n_/
Reviewed By:	10	5/8/10		and to be to	7
riononeu by:	PU				
Chain of Cust	ody				
1. Is Chain of Cu	stody sufficiently complete?		Yes 🗹	No 🗌	Not Present
2. How was the s	ample delivered?		Courier		
Log In					
	ot made to cool the samples	?	Yes 🗹	No 🗌	NA 🗆
4. Were all sample	les received at a temperature	e of >0° C to 6.0°C	Yes 🗹	No 🗌	NA 🗆
5. Sample(s) in o	roper container(s)?		Yes 🗹	No 🗌	
	ropor contamor(o).		163 1	140	
<ol><li>Sufficient samp</li></ol>	ole volume for indicated test(	s)?	Yes 🗹	No 🗆	
7. Are samples (e	xcept VOA and ONG) prope	rly preserved?	Yes 🗹	No 🗌	
8. Was preservati	ve added to bottles?		Yes 🗌	No 🗹	NA 🗆
9. Received at lea	st 1 vial with headspace <1/	4" for AQ VOA?	Yes 🗌	No 🗀	NA 🗹
10. Were any sam	ple containers received brok	en?	Yes	No 🔽	
					# of preserved bottles checked
	k match bottle labels?		Yes 🗹	No 🗌	for pH:
	ncies on chain of custody)	F.C. controlled	v 🐼	Na C	(<2 or >12 unless noted) Adjusted?
	orrectly identified on Chain of analyses were requested?	Custody?	Yes 🗹	No □ No □	
	g times able to be met?		Yes 🗹	No 🗆	Checked by: DAD 5/8/20
	stomer for authorization.)		.00		, 5.00 57 67 60
Special Handlin	ng (if applicable)				
15. Was client noti	fied of all discrepancies with	this order?	Yes 🗌	No 🗀	NA 🔽
Person N	lotified:	Date:			
By Whor	n:	Via:	eMail [	Phone Fax	☐ In Person
Regardin	ig:				
Client Ins	structions:				
16. Additional rem	parks:				
17. Cooler Inform	nation				
Cooler No	Temp °C Condition S		eal Date	Signed By	
1 2		ot Present			
4	1.2 Good No	ot Present			

Chain-of-Custody Record	Turn-Around Time:	Lime: √	740			9		-	Ì				
Client: Vorticx	☐ Standard	□ Rush			7 [	AN	>	N V	⊻ ≦	MALL ENVIKONMENTAL ANALYSTS LABODATODY		Z .	, >
	Project Name.	d	Boss to			WWW.	hallen	vironn	www.hallenvironmental.com		5		<b>.</b>
Mailing Address:	Solar Ch	# ひ * c #		490	1 Haw	4901 Hawkins NE	,	pnane	Colle	Albuquerque, NM 87109	60		
	Project #:			Te T	. 505-	Tel. 505-345-3975		Faxed	05-34	Eax 505-345-4107	2		
Phone #:	30E- (	55000					Ana	ysis F	Analysis Request	st	1	Ē	
email or Fax#:	Project Manager:	Jer:		_	-		<sup>₹</sup> C		(1)	(2)	H		_
QA/QC Package:	Ale to the	7			8,8	SV	)S Ԡ		1950	1000			
☐ Standard ☐ Level 4 (Full Validation)					Юd	VISC	ЮA			7. (0)			
	Sampler: [V	158					10 <sup>5</sup> '		1926	1000			
□ NELAC □ Other		F Yes	ON [	_		10	_		_				_
□ EDD (Type)	# of Coolers: -	48 2	-0/ce/34C			01.				\			
	Cooler Temp(including CF): 1.2	27:(42 Guiprior	. 6 lee 1.2. ( (C)			£8 \	_			10.111	_		_
	Container	Preservative	HEAI No	/ XE	99 h M) E	(d s⊦	8 A.F 8 ,7	v) 0	62) 0 00 le	00.15			
Date Time Matrix Sample Name	#	Туре	1005357			1∀4	1	_					
5/4 8:45 soil BG 20-01 0.5	402	100	100				7						
1 8:50 1 36.30-01	poper treat	سندي	, 002				)						
8155 BG30-01 2			. 603				3		_				
V9:30 V BG20-01 3	À	$\rightarrow$	7007				>		-				
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							$\vdash$		╁		-		-
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ime:	Received by:	Wia:	Date Time 5/7/20 /330	Remarks:	-2.2								
Date:, Time: Relinquished by:	Receivedby	Via:	Date Time			8							
17/10/190 13	100	cooker s	डिशिट १र५5	کے	to col	000							
If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report	contracted to other acc	redited laboratories	s. This serves as notice of this	possibility. A	ny sub-co	ntracted d	ata will b	e clearly	notated	on the ana	ytical rep	늄	



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

OrderNo.: 2006D74

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

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

andyl

4901 Hawkins NE

Albuquerque, NM 87109

Lab Order 2006D74

#### Date Reported: 7/8/2020

6/28/2020 6:51:18 PM

#### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Black River Booster Station Riser #5

**Lab ID:** 2006D74-001

Project:

Chloride

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 6/27/2020 11:08:06 AM 1 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 6/28/2020 3:04:26 AM mg/Kg 1 Toluene ND 0.050 mg/Kg 1 6/28/2020 3:04:26 AM Ethylbenzene ND 0.050 mg/Kg 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 6/28/2020 3:04:26 AM %Rec 1 **EPA METHOD 300.0: ANIONS** Analyst: JMT

810

60

mg/Kg

20

Matrix: SOIL

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

#### Qualifiers:

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

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

Page 1 of 94

Lab Order 2006D74

Date Reported: 7/8/2020

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Black River Booster Station Riser #5

**Lab ID:** 2006D74-002

Project:

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 Qu	ıal Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE C	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: <b>JMT</b>
Chloride	1500	60	mg/Kg	20	6/28/2020 7:28:32 PM

Matrix: SOIL

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

#### Qualifiers:

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

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

Page 2 of 94

Lab Order 2006D74

Date Reported: 7/8/2020

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Black River Booster Station Riser #5

**Lab ID:** 2006D74-003

Project:

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 Q	ual Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE C	PRGANICS				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: <b>JMT</b>
Chloride	670	60	mg/Kg	20	6/28/2020 7:40:57 PM

Matrix: SOIL

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

#### Qualifiers:

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

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

Page 3 of 94

Lab Order 2006D74

Date Reported: 7/8/2020

## Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Vertex Resource Group Ltd.

Lab ID:

Project:

2006D74-004

Black River Booster Station Riser #5

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 Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORG	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
<b>EPA METHOD 8021B: VOLATILES</b>					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: <b>JMT</b>
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
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- % Recovery outside of range due to dilution or matrix
- Analyte detected in the associated Method Blank
- Value above quantitation range Ε
- Analyte detected below quantitation limits
- Sample pH Not In Range
- RL Reporting Limit

Page 4 of 94

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

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 Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORG	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: <b>JMT</b>
Chloride	1500	60	mg/Kg	20	6/28/2020 8:05:46 PM

Matrix: SOIL

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

#### Qualifiers:

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

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

Page 5 of 94

Lab Order 2006D74

Date Reported: 7/8/2020

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Black River Booster Station Riser #5

**Lab ID:** 2006D74-006

Project:

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 Qu	ıal Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE C	RGANICS				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: <b>JMT</b>
Chloride	1100	60	mg/Kg	20	6/28/2020 8:18:10 PM

Matrix: SOIL

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

Qualifiers:

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

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

Page 6 of 94

Lab Order 2006D74

Date Reported: 7/8/2020

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Black River Booster Station Riser #5

Lab ID: 2006D74-007

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 Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE C	RGANICS				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: <b>JMT</b>
Chloride	750	60	mg/Kg	20	6/28/2020 8:30:34 PM

Matrix: SOIL

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

#### Qualifiers:

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

ting Limit Page 7 of 94

Lab Order 2006D74

Date Reported: 7/8/2020

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Black River Booster Station Riser #5

**Lab ID:** 2006D74-008

Project:

00CD74 000

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 Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE C	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: <b>JMT</b>
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

Page 8 of 94

Lab Order 2006D74

Date Reported: 7/8/2020

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Black River Booster Station Riser #5

**Lab ID:** 2006D74-009

Project:

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 C	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: <b>JMT</b>
Chloride	1500	60	mg/Kg	20	6/28/2020 9:20:13 PM

Matrix: SOIL

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

#### Qualifiers:

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

Page 9 of 94

Lab Order 2006D74

Date Reported: 7/8/2020

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Lab ID: 2006D74-010

Black River Booster Station Riser #5

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 Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OF	RGANICS				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: <b>JMT</b>
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
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit PQL Practical Quanitative Limit
- % Recovery outside of range due to dilution or matrix

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

Page 10 of 94

Analytical Report
Lab Order 2006D74

Date Reported: 7/8/2020

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Black River Booster Station Riser #5

**Lab ID:** 2006D74-011

Project:

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 Qu	ıal Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE	ORGANICS				Analyst: <b>BRM</b>
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

Matrix: SOIL

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

#### Qualifiers:

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

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

Page 11 of 94

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

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 O	RGANICS					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: <b>JMT</b>
Chloride	1200	60		mg/Kg	20	6/28/2020 10:47:04 PM

Matrix: SOIL

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

### Qualifiers:

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

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

Page 12 of 94

Lab Order 2006D74

Date Reported: 7/8/2020

# Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Black River Booster Station Riser #5

**Lab ID:** 2006D74-013

Project:

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 ORG	ANICS					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: <b>JMT</b>
Chloride	1200	60		mg/Kg	20	6/28/2020 10:59:28 PM

Matrix: SOIL

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

#### Qualifiers:

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

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

Page 13 of 94

Lab Order 2006D74

Date Reported: 7/8/2020

# Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Black River Booster Station Riser #5

Lab ID: 2006D74-014

Project:

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: <b>JMT</b>
Chloride	1900	60		mg/Kg	20	6/28/2020 11:36:41 PM

Matrix: SOIL

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

#### Qualifiers:

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

Page 14 of 94

Lab Order 2006D74

Date Reported: 7/8/2020

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Black River Booster Station Riser #5

**Lab ID:** 2006D74-015

Project:

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 ORG	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: <b>JMT</b>
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\_
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

Page 15 of 94

Lab Order 2006D74

Date Reported: 7/8/2020

## Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Vertex Resource Group Ltd.

Black River Booster Station Riser #5 Project:

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 OR	EPA METHOD 8015M/D: DIESEL RANGE ORGANICS					
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: <b>JMT</b>
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
- D Sample Diluted Due to Matrix
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- % Recovery outside of range due to dilution or matrix

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

Page 16 of 94

Lab Order 2006D74

Date Reported: 7/8/2020

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Black River Booster Station Riser #5

**Lab ID:** 2006D74-017

Project:

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: <b>JMT</b>
Chloride	2200	60		mg/Kg	20	6/29/2020 12:13:56 AM

Matrix: SOIL

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

#### Qualifiers:

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

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

Page 17 of 94

Lab Order 2006D74

Date Reported: 7/8/2020

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Black River Booster Station Riser #5

**Lab ID:** 2006D74-018

Project:

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 C	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: <b>JMT</b>
Chloride	2100	60		mg/Kg	20	6/29/2020 12:26:20 AM

Matrix: SOIL

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

#### Qualifiers:

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

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

Page 18 of 94

Lab Order 2006D74

Date Reported: 7/8/2020

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Black River Booster Station Riser #5

**Lab ID:** 2006D74-019

**Project:** 

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 O	RGANICS					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

Matrix: SOIL

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

#### Qualifiers:

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

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

Page 19 of 94

Lab Order 2006D74

Date Reported: 7/8/2020

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Black River Booster Station Riser #5

**Lab ID:** 2006D74-020

Project:

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	4	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

Matrix: SOIL

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

Qualifiers:

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

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

Page 20 of 94

Lab Order 2006D74

Date Reported: 7/8/2020

## Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Vertex Resource Group Ltd.

Black River Booster Station Riser #5

**Lab ID:** 2006D74-021

Project:

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 Q	ual Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE C	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: <b>JMT</b>
Chloride	1900	60	mg/Kg	20	6/29/2020 1:03:33 AM

Matrix: SOIL

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

Qualifiers:

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

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

Page 21 of 94

Lab Order 2006D74

Date Reported: 7/8/2020

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Black River Booster Station Riser #5

**Lab ID:** 2006D74-022

Project:

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 Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OR	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: <b>JMT</b>
Chloride	1500	60	mg/Kg	20	6/29/2020 1:15:57 AM

Matrix: SOIL

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

#### Qualifiers:

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

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

Page 22 of 94

Lab Order 2006D74

Date Reported: 7/8/2020

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Black River Booster Station Riser #5

**Lab ID:** 2006D74-023

**Project:** 

Client Sample ID: BS20-23 1'

Collection Date: 6/24/2020 11:28:00 AM

Received Date: 6/26/2020 9:30:00 AM

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

Matrix: SOIL

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

Qualifiers:

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

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

Page 23 of 94

Lab Order 2006D74

Date Reported: 7/8/2020

## Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Vertex Resource Group Ltd.

Black River Booster Station Riser #5

**Lab ID:** 2006D74-024

Project:

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 Q	ual Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE C	RGANICS				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

Matrix: SOIL

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

#### Qualifiers:

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

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

Page 24 of 94

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

(1861 #3

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

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

Page 25 of 94

Lab Order 2006D74

Date Reported: 7/8/2020

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Black River Booster Station Riser #5

**Lab ID:** 2006D74-026

Project:

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 Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE C	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

Matrix: SOIL

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

#### Qualifiers:

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

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

Page 26 of 94

Lab Order 2006D74

Date Reported: 7/8/2020

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Black River Booster Station Riser #5

**Lab ID:** 2006D74-027

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 Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OR	GANICS				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

Matrix: SOIL

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

Qualifiers:

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

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

Page 27 of 94

Lab Order 2006D74

Date Reported: 7/8/2020

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

d. Client Sample ID: BS20-28 1

Project:

Black River Booster Station Riser #5

**Lab ID:** 2006D74-028

Matrix: SOIL

Collection Date: 6/24/2020 12:18:00 PM Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OR	GANICS				Analyst: <b>BRM</b>
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: <b>JMT</b>
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

Page 28 of 94

Lab Order 2006D74

Date Reported: 7/8/2020

## Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Vertex Resource Group Ltd.

Lab ID: 2006D74-029

Project:

Black River Booster Station Riser #5

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

EPA METHOD 8015M/D: DIESEL RANGE OF	RGANICS				
	ND				Analyst: <b>BRM</b>
Diesel Range Organics (DRO)	IND	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: <b>JMT</b>
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
- Holding times for preparation or analysis exceeded н
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- % Recovery outside of range due to dilution or matrix

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

Page 29 of 94

Lab Order 2006D74

Date Reported: 7/8/2020

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Vertex Resource Group Ltd.

Black River Booster Station Riser #5

**Lab ID:** 2006D74-030

Project:

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 Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE C	RGANICS				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: <b>JMT</b>
Chloride	1900	60	mg/Kg	20	6/29/2020 3:20:03 AM

Matrix: SOIL

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

#### Qualifiers:

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

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

Page 30 of 94

Lab Order 2006D74

Date Reported: 7/8/2020

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Black River Booster Station Riser #5

**Lab ID:** 2006D74-031

Project:

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 Qu	ual Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE C	DRGANICS				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: <b>NSB</b>
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

Matrix: SOIL

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

#### Qualifiers:

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

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

Page 31 of 94

Lab Order 2006D74

Date Reported: 7/8/2020

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Black River Booster Station Riser #5

**Lab ID:** 2006D74-032

Project:

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 C	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OF	RGANICS					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

Page 32 of 94

Lab Order 2006D74

Date Reported: 7/8/2020

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Black River Booster Station Riser #5

Lab ID: 2

Project:

2006D74-033

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 ORG	ANICS					Analyst: <b>BRM</b>
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

Matrix: SOIL

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

#### Qualifiers:

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

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

Page 33 of 94

Lab Order 2006D74

Date Reported: 7/8/2020

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Black River Booster Station Riser #5

**Lab ID:** 2006D74-034

Project:

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

Page 34 of 94

Lab Order 2006D74

Date Reported: 7/8/2020

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Client Sample ID: BS20-35 1'

Project:

Black River Booster Station Riser #5

**Collection Date:** 6/24/2020 12:45:00 PM

Lab ID:

2006D74-035

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 ORG	GANICS					Analyst: <b>BRM</b>
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

Page 35 of 94

Lab Order 2006D74

Date Reported: 7/8/2020

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Project: Lab ID:

2006D74-036

Black River Booster Station Riser #5

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 C	RGANICS					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
- Sample Diluted Due to Matrix
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- Practical Quanitative Limit
- % Recovery outside of range due to dilution or matrix
- Analyte detected in the associated Method Blank
- Value above quantitation range
- Analyte detected below quantitation limits
- Sample pH Not In Range
- RL Reporting Limit

Page 36 of 94

Lab Order 2006D74

Date Reported: 7/8/2020

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Black River Booster Station Riser #5

Lab ID: 2006D74-037

Project:

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

Page 37 of 94

Lab Order 2006D74

Date Reported: 7/8/2020

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Black River Booster Station Riser #5

**Lab ID:** 2006D74-038

Project:

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

Page 38 of 94

Lab Order 2006D74

Date Reported: 7/8/2020

6/29/2020 2:47:56 PM

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Black River Booster Station Riser #5

**Lab ID:** 2006D74-039

Project:

Chloride

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 Analyst: BRM **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** ND 6/27/2020 8:51:28 PM Diesel Range Organics (DRO) 9.3 mg/Kg 1 Motor Oil Range Organics (MRO) ND 46 mg/Kg 1 6/27/2020 8:51:28 PM 82.0 %Rec 1 6/27/2020 8:51:28 PM Surr: DNOP 55.1-146 **EPA METHOD 8015D: GASOLINE RANGE** Analyst: NSB Gasoline Range Organics (GRO) ND 5.0 mg/Kg 1 6/29/2020 6:37:09 PM 6/29/2020 6:37:09 PM Surr: BFB 105 66.6-105 S %Rec 1 **EPA METHOD 8021B: VOLATILES** Analyst: NSB 6/29/2020 6:37:09 PM Benzene ND 0.025 mg/Kg 1 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 ND 0.099 mg/Kg 1 6/29/2020 6:37:09 PM Xylenes, Total Surr: 4-Bromofluorobenzene 104 80-120 %Rec 1 6/29/2020 6:37:09 PM **EPA METHOD 300.0: ANIONS** Analyst: CAS

790

60

mg/Kg

20

Matrix: SOIL

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

Qualifiers:

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

Page 39 of 94

Lab Order 2006D74

Date Reported: 7/8/2020

# Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Black River Booster Station Riser #5

**Lab ID:** 2006D74-040

Project:

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 OR	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

Matrix: SOIL

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

#### Qualifiers:

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

Page 40 of 94

Lab Order 2006D74

Date Reported: 7/8/2020

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Black River Booster Station Riser #5

Lab ID: 2006D74-041

Project:

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 ORG	Analyst: BRM				
Diesel Range Organics (DRO)	13	9.9	mg/Kg	<b>;</b> 1	6/27/2020 9:11:56 PM
Motor Oil Range Organics (MRO)	49	0	mg/Kg	<b>1</b>	6/27/2020 9:11:56 PM
Surr: DNOP	93.1	55.1-146	%Red	1	6/27/2020 9:11:56 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	<b>j</b> 1	6/29/2020 8:12:36 PM
Surr: BFB	108	66.6-105	S %Red	1	6/29/2020 8:12:36 PM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	0.025	mg/Kg	<b>j</b> 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	%Red	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

Matrix: SOIL

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

#### Qualifiers:

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

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

Page 41 of 94

# 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

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 OF	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

Matrix: SOIL

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

#### Qualifiers:

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

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

Page 42 of 94

Lab Order 2006D74

Date Reported: 7/8/2020

# Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Black River Booster Station Riser #5

**Lab ID:** 2006D74-043

Project:

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 Qu	ıal Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OF	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: <b>NSB</b>
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

Matrix: SOIL

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

#### Qualifiers:

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

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

Page 43 of 94

Lab Order 2006D74

Date Reported: 7/8/2020

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Black River Booster Station Riser #5

**Lab ID:** 2006D74-044

**Project:** 

ack River Booster Station Riser #3

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 Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORG	ANICS				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
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

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

Page 44 of 94

Lab Order 2006D74

Date Reported: 7/8/2020

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Black River Booster Station Riser #5

**Lab ID:** 2006D74-045

Project:

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 Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OR	Analyst: <b>BRM</b>				
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

Matrix: SOIL

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

#### Qualifiers:

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

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

Page 45 of 94

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 #5Collection Date: 6/24/2020 1:24:00 PMLab ID:2006D74-046Matrix: SOILReceived Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORG	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 Quantitative Limit
- S % Recovery outside of range due to dilution or matrix

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

Page 46 of 94

Lab Order 2006D74

Date Reported: 7/8/2020

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Black River Booster Station Riser #5

Lab ID: 2

Project:

2006D74-047

Matrix: SOIL

Client Sample ID: WS20-03

Collection Date: 6/24/2020 1:28:00 PM Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORG	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: <b>NSB</b>
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
- D Sample Diluted Due to Matrix
- Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

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

Page 47 of 94

Lab Order 2006D74

Date Reported: 7/8/2020

# Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: WS20-04

**Project:** Black River Booster Station Riser #5

CLIENT: Vertex Resource Group Ltd.

**Collection Date:** 6/24/2020 1:35:00 PM

Lab ID: 2006D74-048

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

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

Page 48 of 94

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

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 Q	Qual Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE C	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

Matrix: SOIL

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

#### Qualifiers:

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

Page 49 of 94

**Analytical Report** Lab Order 2006D74

Date Reported: 7/8/2020

# Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Black River Booster Station Riser #5 Project:

Lab ID: 2006D74-050 Client Sample ID: WS20-06

Collection Date: 6/24/2020 1:55:00 PM Received Date: 6/26/2020 9:30:00 AM

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

Matrix: SOIL

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

#### Qualifiers:

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

Page 50 of 94

Lab Order 2006D74

Date Reported: 7/8/2020

Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: WS20-07

**Project:** Black River Booster Station Riser #5

CLIENT: Vertex Resource Group Ltd.

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 Qua	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORG	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
<b>EPA METHOD 8021B: VOLATILES</b>					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.
- Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

Page 51 of 94

Lab Order 2006D74

Date Reported: 7/8/2020

# Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Black River Booster Station Riser #5

**Lab ID:** 2006D74-052

Project:

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 Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OR	GANICS				Analyst: <b>BRM</b>
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.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
  - E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

Page 52 of 94

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 Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGA	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: <b>NSB</b>
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
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quantitative Limit
- S % Recovery outside of range due to dilution or matrix

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

Page 53 of 94

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

# Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: WS20-10

Project: Black River Booster Station Riser #5

CLIENT: Vertex Resource Group Ltd.

**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 Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OR	Analyst: <b>BRM</b>				
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
- Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

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

Page 54 of 94

Lab Order 2006D74

Date Reported: 7/8/2020

# Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Black River Booster Station Riser #5

**Lab ID:** 2006D74-055

Project:

Matrix: SOIL

Client Sample ID: WS20-11

Collection Date: 6/24/2020 2:10:00 PM Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE O	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: <b>NSB</b>
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

Page 55 of 94

Analytical Report
Lab Order 2006D74

Date Reported: 7/8/2020

# Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

roject: Black River Booster Station Riser #5

**Lab ID:** 2006D74-056

Client Sample ID: WS20-12

**Collection Date:** 6/24/2020 2:15:00 PM

Received Date: 6/26/2020 9:30:00 AM

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

Matrix: SOIL

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

#### Qualifiers:

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

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

Page 56 of 94

Lab Order 2006D74

Date Reported: 7/8/2020

# Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Black River Booster Station Riser #5 Project:

Lab ID: 2006D74-057 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 Qua	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORG	Analyst: <b>BRM</b>				
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

Matrix: SOIL

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

#### Qualifiers:

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

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

Page 57 of 94

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:** 2006D74-058

Client Sample ID: WS20-14

**Collection Date:** 6/24/2020 2:30:00 PM **Received Date:** 6/26/2020 9:30:00 AM

Analyses	Result	RL Ç	Qual Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORG	ANICS				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

Matrix: SOIL

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

#### Qualifiers:

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

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

Page 58 of 94

# 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

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 Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORG	GANICS				Analyst: <b>BRM</b>
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	া	7/2/2020 3:12:16 PM
Surr: 4-Bromofluorobenzene	106	80-120	%Rec	4	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

Matrix: SOIL

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

#### Qualifiers:

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

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

Page 59 of 94

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:** 2006D74-060

Client Sample ID: WS20-16

**Collection Date:** 6/24/2020 2:34:00 PM

Received Date: 6/26/2020 9:30:00 AM

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

Matrix: SOIL

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

## Qualifiers:

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

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

Page 60 of 94

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:** 2006D74-061

Client Sample ID: WS20-17

**Collection Date:** 6/24/2020 2:45:00 PM

Received Date: 6/26/2020 9:30:00 AM

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

Matrix: SOIL

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

#### Qualifiers:

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

Page 61 of 94

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: 2006D7

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 Q	ual Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORG	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
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

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

Page 62 of 94

Lab Order 2006D74

Date Reported: 7/8/2020

# Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Black River Booster Station Riser #5 Project:

Lab ID: 2006D74-063 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 Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORG	ANICS				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
<b>EPA METHOD 8021B: VOLATILES</b>					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

Matrix: SOIL

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

#### Qualifiers:

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

Page 63 of 94

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 #5Collection Date: 6/24/2020 2:55:00 PMLab ID:2006D74-064Matrix: SOILReceived Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORG	SANICS				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
<b>EPA METHOD 8021B: VOLATILES</b>					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 Quantitative Limit
- S % Recovery outside of range due to dilution or matrix

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

Page 64 of 94

CLIENT: Vertex Resource Group Ltd.

**Analytical Report** Lab Order 2006D74

Date Reported: 7/8/2020

# Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: WS20-21

Black River Booster Station Riser #5 Collection Date: 6/24/2020 3:01:00 PM Project:

Lab ID: 2006D74-065 Matrix: SOIL Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORG	ANICS		1		Analyst: <b>BRM</b>
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.
- Sample Diluted Due to Matrix D
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- % Recovery outside of range due to dilution or matrix

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

Page 65 of 94

Lab Order 2006D74

Date Reported: 7/8/2020

# Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Black River Booster Station Riser #5

**Lab ID:** 2006D74-066

Project:

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 Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORG	GANICS				Analyst: <b>BRM</b>
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

Matrix: SOIL

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

#### Qualifiers:

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

Page 66 of 94

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

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

Matrix: SOIL

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

#### Qualifiers:

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

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

Page 67 of 94

Lab Order 2006D74 Date Reported: 7/8/2020

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Vertex Resource Group Ltd. Client Sample ID: WS20-24

Black River Booster Station Riser #5 Collection Date: 6/24/2020 3:09:00 PM Project: Lab ID: 2006D74-068 Matrix: SOIL Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORG	ANICS				Analyst: <b>BRM</b>
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
- Н Holding times for preparation or analysis exceeded
- Not Detected at the Reporting Limit ND
- Practical Quanitative Limit PQL
- % Recovery outside of range due to dilution or matrix
- Analyte detected in the associated Method Blank
  - Е Value above quantitation range
- Analyte detected below quantitation limits
- Sample pH Not In Range
- RL Reporting Limit

Page 68 of 94

Analytical Report
Lab Order 2006D74

Date Reported: 7/8/2020

## Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: WS20-25

**Project:** Black River Booster Station Riser #5

CLIENT: Vertex Resource Group Ltd.

**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 Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORG	SANICS				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

Page 69 of 94

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 #5Collection Date: 6/24/2020 3:18:00 PMLab ID:2006D74-070Matrix: SOILReceived Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORG	ANICS				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
- Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

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

Page 70 of 94

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: 2006D74-071

Client Sample ID: WS20-27

Cheff Sample 1D. W520-27

**Collection Date:** 6/24/2020 3:21:00 PM **Received Date:** 6/26/2020 9:30:00 AM

Result **RL Qual Units** DF **Date Analyzed** Analyses **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** Analyst: BRM ND 9.5 6/28/2020 2:22:43 PM Diesel Range Organics (DRO) mg/Kg 1 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 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 Analyst: RAA **EPA METHOD 8021B: VOLATILES** 7/2/2020 9:10:30 PM ND 0.023 mg/Kg 1 Benzene 7/2/2020 9:10:30 PM ND 0.047 mg/Kg Toluene Ethylbenzene ND 0.047 mg/Kg 7/2/2020 9:10:30 PM ND 0.094 mg/Kg 1 7/2/2020 9:10:30 PM Xylenes, Total %Rec 1 7/2/2020 9:10:30 PM Surr: 4-Bromofluorobenzene 106 80-120 Analyst: CAS **EPA METHOD 300.0: ANIONS** 6/30/2020 6:03:18 PM Chloride 2100 60 mg/Kg 20

Matrix: SOIL

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

#### Qualifiers:

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

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

Page 71 of 94

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:** 2006D74-072

Client Sample ID: WS20-28

Cheft Sample 1D. W 520-20

**Collection Date:** 6/24/2020 3:26:00 PM **Received Date:** 6/26/2020 9:30:00 AM

Analyses	Result	RL C	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

Matrix: SOIL

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

## Qualifiers:

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

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

Page 72 of 94

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 #5Collection Date: 6/24/2020 3:29:00 PMLab ID:2006D74-073Matrix: SOILReceived Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL Q	ual Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORG	GANICS				Analyst: <b>BRM</b>
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

Page 73 of 94

**Analytical Report** Lab Order 2006D74

Date Reported: 7/8/2020

## Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Vertex Resource Group Ltd.

Black River Booster Station Riser #5 Project:

Lab ID: 2006D74-074 Client Sample ID: WS20-30

Collection Date: 6/24/2020 3:33:00 PM Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL Qua	l Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORG	ANICS				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

Matrix: SOIL

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

#### Qualifiers:

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

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

Page 74 of 94

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 #5Collection Date: 6/24/2020 3:35:00 PMLab ID:2006D74-075Matrix: SOILReceived Date: 6/26/2020 9:30:00 AM

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

Page 75 of 94

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:** 2006D74-076

Client Sample ID: WS20-32

**Collection Date:** 6/24/2020 3:39:00 PM

Received Date: 6/26/2020 9:30:00 AM

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

Matrix: SOIL

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

#### Qualifiers:

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

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

Page 76 of 94

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

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 Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OR	GANICS				Analyst: <b>BRM</b>
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

Matrix: SOIL

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

#### Qualifiers:

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

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

Page 77 of 94

Lab Order 2006D74

Date Reported: 7/8/2020

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Black River Booster Station Riser #5

Lab ID: 2006D74-078

Project:

Client Sample ID: WS20-34

**Collection Date:** 6/24/2020 3:50:00 PM **Received Date:** 6/26/2020 9:30:00 AM

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

Matrix: SOIL

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

Qualifiers:

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

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

Page 78 of 94

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:** 2006D74-079

Matrix: SOIL

Client Sample ID: WS20-35

**Collection Date:** 6/24/2020 3:56:00 PM

Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OF	GANICS				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
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

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

Page 79 of 94

Lab Order 2006D74

Date Reported: 7/8/2020

## Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Vertex Resource Group Ltd.

Lab ID: 2006D74-080

Project:

Black River Booster Station Riser #5

Matrix: SOIL

Client Sample ID: WS20-36

Collection Date: 6/24/2020 4:00:00 PM

Received Date: 6/26/2020 9:30:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OI	RGANICS				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
- Sample Diluted Due to Matrix
- Н Holding times for preparation or analysis exceeded
- Not Detected at the Reporting Limit ND
- Practical Quanitative Limit PQL
- % Recovery outside of range due to dilution or matrix

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

Page 80 of 94

#### Hall Environmental Analysis Laboratory, Inc.

WO#: 2006D74

08-Jul-20

Client:

Vertex Resource Group Ltd.

Result

Result

Result

Result

Result

14

Project:

Black River Booster Station Riser #5

Sample ID: MB-53364

SampType: mblk

TestCode: EPA Method 300.0: Anions

LowLimit

90

Client ID: PBS

Batch ID: 53364

**PQL** 

RunNo: 69968

Prep Date: 6/28/2020

Analysis Date: 6/28/2020

SeqNo: 2430898

Units: mg/Kg HighLimit

**RPDLimit** %RPD

Analyte Chloride

Analyte

Chloride

ND 1.5

Sample ID: LCS-53364 Client ID: LCSS

Prep Date: 6/28/2020

SampType: Ics Batch ID: 53364

Analysis Date: 6/28/2020

PQL

1.5

TestCode: EPA Method 300.0: Anions

%REC

95.9

RunNo: 69968

SeqNo: 2430899

SPK value SPK Ref Val %REC LowLimit

0

Units: mg/Kg

HighLimit 110 **RPDLimit** 

Qual

Qual

Sample ID: MB-53365 Client ID: PBS

SampType: mblk Batch ID: 53365 TestCode: EPA Method 300.0: Anions

RunNo: 69968

Units: mg/Kg

Prep Date: 6/28/2020

Analysis Date: 6/28/2020

SeqNo: 2430930 SPK value SPK Ref Val %REC LowLimit

HighLimit

%RPD

%RPD

**RPDLimit** 

Analyte Chloride

ND

1.5

SPK value SPK Ref Val

15.00

SPK value SPK Ref Val

15.00

Qual

Prep Date: 6/28/2020

Sample ID: LCS-53365 Client ID: LCSS

SampType: Ics Batch ID: 53365

Analysis Date: 6/28/2020

PQL

1.5

RunNo: 69968 SeqNo: 2430931

HighLimit 110

Units: mg/Kg

**RPDLimit** Qual

Analyte Chloride

Sample ID: MB-53383

SampType: mblk

TestCode: EPA Method 300.0: Anions

LowLimit

TestCode: EPA Method 300.0: Anions

Client ID: PBS

Prep Date: 6/29/2020

Batch ID: 53383 Analysis Date: 6/29/2020 RunNo: 70007

%REC

95.3

Units: mg/Kg

%RPD

Analyte Chloride

PQL SPK value SPK Ref Val %REC LowLimit

SeqNo: 2432186

HighLimit

%RPD

**RPDLimit** 

Qual

ND 1.5

SampType: Ics

TestCode: EPA Method 300.0: Anions

Sample ID: LCS-53383

Client ID: LCSS

Prep Date: 6/29/2020

Batch ID: 53383

14

RunNo: 70007 SeqNo: 2432187

Units: mg/Kg

HighLimit

110

Qual

Analyte Chloride

Result

Analysis Date: 6/29/2020 **PQL** 1.5

15.00

SPK value SPK Ref Val %REC LowLimit 0

93.0

%RPD

**RPDLimit** 

PQL

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

- Analyte detected in the associated Method Blank
- Value above quantitation range Analyte detected below quantitation limits
- Sample oH Not In Range Reporting Limit

Page 81 of 94

#### 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

Batch ID: 53399

TestCode: EPA Method 300.0: Anions

Client ID:

**PBS** 

RunNo: 70007

Units: mg/Kg

Prep Date: 6/29/2020

Analysis Date: 6/29/2020

SeqNo: 2432216

Analyte

Result **PQL** ND 1.5 SPK value SPK Ref Val %REC LowLimit

HighLimit

%RPD **RPDLimit** 

Qual

Chloride

Sample ID: LCS-53399

SampType: Ics

TestCode: EPA Method 300.0: Anions

Client ID: LCSS

Batch ID: 53399

RunNo: 70007

Units: mg/Kg

Prep Date: 6/29/2020 Analysis Date: 6/29/2020

1.5

SeqNo: 2432217

Analyte

PQL

SPK value SPK Ref Val %REC LowLimit HighLimit Qual

15.00

94.2

90 110 **RPDLimit** 

Chloride

Analysis Date: 6/30/2020

TestCode: EPA Method 300.0: Anions

%RPD

Sample ID: MB-53417 Client ID: **PBS** 

Prep Date: 6/30/2020

SampType: mblk

14

Batch ID: 53417

RunNo: 70021

Units: mg/Kg

Analyte

ND 1.5

%RPD

SPK value SPK Ref Val %REC LowLimit

SPK value SPK Ref Val

15.00

SeqNo: 2433057

HighLimit

**RPDLimit** 

Qual

Chloride

Sample ID: LCS-53417 SampType: Ics

TestCode: EPA Method 300.0: Anions

RunNo: 70021

95.0

Units: mg/Kg

Analyte

POL

Batch ID: 53417

Analysis Date: 6/30/2020

SeqNo: 2433058 %REC

Lowl imit

HighLimit

**RPDLimit** 

Qual

Chloride

Sample ID: MB-53428

Prep Date: 6/30/2020

Prep Date: 6/30/2020

Client ID: LCSS

14 1.5

TestCode: EPA Method 300.0: Anions

90

Client ID:

**PBS** 

SampType: mblk Batch ID: 53428

RunNo: 70021

Analyte

Analysis Date: 6/30/2020

SeqNo: 2433091

Units: mg/Kg

%RPD

%RPD

Result 14

Result

PQL

SPK value SPK Ref Val %REC LowLimit

%RPD

**RPDLimit** Qual

Chloride

ND 1.5

Batch ID: 53428

PQL

1.5

TestCode: EPA Method 300.0: Anions

HighLimit

**RPDLimit** 

Qual

Analyte

Prep Date: 6/30/2020

Sample ID: LCS-53428

Client ID: LCSS

Analysis Date: 6/30/2020

SampType: Ics

15.00

SPK value SPK Ref Val %REC LowLimit 0

96.1

RunNo: 70021

SeqNo: 2433092

90

HighLimit 110

Units: mg/Kg

Chloride

PQL

- Qualifiers:
  - Sample Diluted Due to Matrix

Practical Quanitative Limit

- Н Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit
- Value exceeds Maximum Contaminant Level

% Recovery outside of range due to dilution or matrix

- Value above quantitation range
- Sample pH Not In Range RLReporting Limit
- Analyte detected in the associated Method Blank Analyte detected below quantitation limits
- Page 82 of 94

## Hall Environmental Analysis Laboratory, Inc.

WO#: **2006D74 08-Jul-20** 

Client:

Vertex Resource Group Ltd.

Project:

Black River Booster Station Riser #5

49

4.5

9.3

46.64

4.664

Sample ID: LCS-53344											
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         10         50.00         106         70         130           Sample ID:         MB-53344         SampType: MBLK         TestCode:         EPA Method         8015M/D: Diesel Range Organics         Prange Organics           Client ID:         PBS         Batch ID:         53344         RunNo:         69949         Units:         mg/Kg         Analyse         Prep Date:         6/26/2020         Analysis Date:         6/27/2020         SeqNo:         2429357         Units:         mg/Kg         Prep Date:         Mpl.         Prep Date:         Mpl.         Prep Date:         Mpl.         Prep Date:         Mpl.         Prep Date:         Prep Date:         Mpl.         Prep Date:         Prep Date:         Mpl.         Prep Date:         Prep Date:         Mpl.         Prep Da	Sample ID: LCS-53344	SampTy	ype: LC	s	Tes	tCode: E	PA Method	8015M/D: Die	esel Rang	e Organics	
Analyte	Client ID: LCSS	Batch	ID: 53	344	F	RunNo: 6	9949				
Diesel Range Organics (DRO)   53   10   50.00   0   106   70   130   146   1	Prep Date: 6/26/2020	Analysis Da	ate: 6/	27/2020	8	SeqNo: 2	429356	Units: mg/K	(g		
Surr. DNOP	Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sample ID: MB-53344         SampType: MBLK         TestCode: EPA Method 8015M/D: Dieset 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 Diesel Range Organics (DRO)         ND         10 bits of PQL         SPK value SPK Ref Val MREC         MREC LowLimit Low Limit Low Low Low Limit Low Low Low Limit Low Low Limit Low Low Low Limit Low L	Diesel Range Organics (DRO)	53	10	50.00	0	106	70	130			
Client ID:   PBS   Batch   ID:   53344   RunNo:   69949	Surr: DNOP	5.2		5.000		105	55.1	146			
Prep Date:         6/26/2020         Analysis Date:         6/27/2020         SeqNo:         24/29357         Units:         mg/Kg           Analyte         Result         PQL         SPK value         SPK Ref Val         %REC         LowLimit         HighLimit         %RPD         RPDLimit         Qual           Diesel Range Organics (DRO)         ND         10         10         55.1         146         FRECOIL RANGE         146         FRECOIL RANGE	Sample ID: MB-53344	SampType: MBLK TestCode: EPA Method 8015M/D: Diesel Range Organi								e Organics	
Analyte	Client ID: PBS	Batch	ID: <b>53</b>	344	F	RunNo: 6	9949				
Diesel Range Organics (DRO)   ND   10   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: B\$20-10 1'   Batch ID: 53347   RunNo: 69949   SeqNo: 2429703   Units: mg/Kg   Analyse   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 (DRO)   Client ID: B\$20-10 1'   Batch ID: 53347   RunNo: 69949   Prep Date: 6/26/2020   Analysis Date: 6/27/2020   SeqNo: 2429704   Units: mg/Kg	Prep Date: 6/26/2020	Analysis Da	ate: 6/	27/2020	8	SeqNo: 2	429357	Units: mg/K	(g		
ND   Surr: DNOP   11   10.00   110   55.1   146	Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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         TestCode: EPA Method 8015M/D: Diesel Range Organics           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	Diesel Range Organics (DRO)	ND	10								
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	Motor Oil Range Organics (MRO)	ND	50								
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	Surr: DNOP	11		10.00		110	55.1	146			
Prep Date:         6/26/2020         Analysis Date:         6/27/2020         SeqNo:         24/29703         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         136         146 <td>Sample ID: 2006D74-010AMS</td> <td>SampTy</td> <td>ype: MS</td> <td>3</td> <td>Tes</td> <td>tCode: E</td> <td>PA Method</td> <td>8015M/D: Die</td> <td>esel Rang</td> <td>e Organics</td> <td></td>	Sample ID: 2006D74-010AMS	SampTy	ype: MS	3	Tes	tCode: E	PA Method	8015M/D: Die	esel Rang	e Organics	
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	Client ID: BS20-10 1'	Batch	ID: <b>53</b>	347	F	RunNo: 6	9949				
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 1¹         Batch ID: 53347         RunNo: 69949           Prep Date:         6/26/2020         Analysis Date: 6/27/2020         SeqNo: 2429704         Units: mg/Kg	Prep Date: 6/26/2020	Analysis Da	ate: 6/	27/2020	5	SeqNo: 2	429703	Units: mg/K	(g		
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
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	Diesel Range Organics (DRO)	46	9.5	47.66	0	96.1	47.4	136			
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	Surr: DNOP	4.3		4.766		90.9	55.1	146			
Prep Date: 6/26/2020 Analysis Date: 6/27/2020 SeqNo: 2429704 Units: mg/Kg	Sample ID: 2006D74-010AMS	D SampTy	ype: <b>M</b> \$	SD	Tes	tCode: E	PA Method	8015M/D: Die	esel Rang	e Organics	
75 197	Client ID: <b>B\$20-10 1'</b>	Batch	ID: <b>53</b>	347	F	RunNo: 6	9949				
Application of the Control of the Co	Prep Date: 6/26/2020	Analysis Da	ate: 6/	27/2020	9	SeqNo: 2	429704	Units: mg/K	ζg		
Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual	Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Sample ID: 2006D74-030AMS	SampT	уре: МS	3	TestCode: EPA Method 8015M/D: Diesel Range Organics						
Client ID: BS20-30 1'	Batch	ID: 53	351	RunNo: 69949						
Prep Date: 6/27/2020	Analysis D	ate: 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			

0

105

96.4

47.4

55.1

#### Qualifiers:

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

Diesel Range Organics (DRO)

Surr: DNOP

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

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

Page 83 of 94

6.24

0

136

146

43.4

0

2006D74

08-Jul-20

## **QC SUMMARY REPORT**

#### Hall Environmental Analysis Laboratory, Inc.

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

BS20-30 1' Client ID:

Batch ID: 53351

RunNo: 69949

%REC

95.3

87.4

Prep Date: 6/27/2020

Analysis Date: 6/27/2020

SeqNo: 2429726 Units: mg/Kg

47.4

55.1

Analyte

Result **PQL** SPK value SPK Ref Val

LowLimit HighLimit %RPD **RPDLimit** Qual 136 142 43 4

٥

Diesel Range Organics (DRO) Surr: DNOP

SampType: MS

96

47.89

4.789

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

Client ID: WS20-06 Prep Date: 6/27/2020

Sample ID: 2006D74-050AMS

Batch ID: 53354

46

4.2

RunNo: 69949

Units: mg/Kg

146

146

WO#:

Analysis Date: 6/27/2020 Result PQL SPK value SPK Ref Val

SeqNo: 2429747 %REC LowLimit

HighLimit 136 **RPDLimit** 

0

Diesel Range Organics (DRO) 49 9.7 48.31 4.3 4.831

100 47.4 89.6 55.1

%RPD Qual

Surr: DNOP

Sample ID: 2006D74-050AMSD

SampType: MSD

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

1.50

0

Client ID: WS20-06

Batch ID: 53354

4.4

5.8

RunNo: 69949

89.3

Units: mg/Kg

Prep Date: 6/27/2020 Analysis Date: 6/27/2020 SeqNo: 2429748

Analyte Diesel Range Organics (DRO)

SPK value SPK Ref Val Result **PQL** 48 9.8

%REC LowLimit 97.3

HighLimit %RPD 136

146

**RPDLimit** Qual 43.4

0

Surr: DNOP

SampType: LCS

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

47.4

55.1

Client ID: LCSS

Sample ID: LCS-53347

Batch ID: 53347

RunNo: 69949

Prep Date: 6/26/2020

Analysis Date: 6/27/2020

SeqNo: 2429760

Units: mg/Kg

Analyte

49.12

4.912

70

146

130

146

Units: mg/Kg

HighLimit

**RPDLimit** Qual

Diesel Range Organics (DRO)

Result **PQL** 50.00 63 10

SPK value SPK Ref Val

0

%REC

LowLimit

HighLimit 130

%RPD

Surr: DNOP

Sample ID: LCS-53351

SampType: LCS

126

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

Client ID: LCSS

Prep Date: 6/27/2020

Batch ID: 53351

Analysis Date: 6/27/2020

5.000

50.00

5.000

RunNo: 69949

Analyte Diesel Range Organics (DRO)

Result PQL 10 53

4.8

Result

SPK value SPK Ref Val

SeqNo: 2429761 %REC

105

95.5

Units: mg/Kg LowLimit HighLimit

70

55.1

LowLimit

**RPDLimit** 

Qual

Surr: DNOP

Client ID:

Sample ID: LCS-53354

LCSS

Prep Date: 6/27/2020

SampType: LCS

Batch ID: 53354

Analysis Date: 6/27/2020

RunNo: 69949

SeqNo: 2429762

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

%RPD

%RPD

**RPDLimit** 

Qual

# Analyte

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

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

SPK value SPK Ref Val %REC

Page 84 of 94

## Hall Environmental Analysis Laboratory, Inc.

08-Jul-20

2006D74

WO#:

Client:

Vertex Resource Group Ltd.

**Project:** 

Black River Booster Station Riser #5

Sample ID: LCS-53354	SampT	ype: LC	S	TestCode: EPA Method 8015M/D: Diesel Range Organics						
Client ID: LCSS	Batch	i ID: <b>53</b> :	354	RunNo: <b>69949</b>						
Prep Date: 6/27/2020	Analysis D	ate: 6/	27/2020	SeqNo: <b>2429762</b> Units: <b>mg/Kg</b>						
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			
SUIT: DNOP	44		5,000		88.7	55.1	146			

Sample ID: MB-53347	SampT	ype: ME	BLK	Tes	TestCode: EPA Method 8015M/D: Diesel Range Organics					
Client ID: PBS	Batch ID: 53347			F	RunNo: 69949					
Prep Date: 6/26/2020	Analysis D	ate: <b>6/</b> 2	27/2020	S	SeqNo: 2	429763	Units: mg/K	g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	12		10,00		118	55.1	146			

Sample ID: MB-53351	SampT	ype: ME	BLK	Tes	tCode: El	PA Method	8015M/D: Die	esel Range	e Organics	
Client ID: PBS	Batch	1D: <b>53</b>	351	F	RunNo: <b>6</b> 9	9949				
Prep Date: 6/27/2020	Analysis D	ate: 6/	27/2020	S	SeqNo: 24	429764	Units: mg/K	g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								,
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	8.5		10.00		85.2	55.1	146			

Sample ID: MB-53354	SampT	ype: ME	BLK	TestCode: EPA Method 8015M/D: Diesel Range Organics						
Client ID: PBS	Batch	ID: <b>53</b>	354	F	RunNo: 69	9949				
Prep Date: 6/27/2020	Analysis D	ate: 6/	27/2020	S	SeqNo: 24	129765	Units: mg/K	g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	8.3		10.00		83.3	55.1	146			

Sample ID: 2006D74-061AMS	SampT	ype: MS	6	Tes	tCode: El	PA Method	8015M/D: Die	esel Rango	organics	
Client ID: WS20-17	Batch	ID: <b>53</b>	363	F	lunNo: 6	9959				
Prep Date: 6/28/2020	Analysis D	ate: 6/	28/2020	S	SeqNo: 24	430453	Units: mg/K	(g		
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.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

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

Page 85 of 94

## Hall Environmental Analysis Laboratory, Inc.

WO#: **2006D74** 

08-Jul-20

Client:

Vertex Resource Group Ltd.

Project:

Black River Booster Station Riser #5

Sample ID: 2006D74-061AMSI	SampT	уре: <b>М</b> \$	SD	Tes	tCode: El	PA Method	8015M/D: Di	esel Range	e Organics	
Client ID: W\$20-17	Batch	ID: <b>53</b>	363	F	RunNo: 6	9959				
Prep Date: 6/28/2020	Analysis D	ate: 6/	28/2020	S	SeqNo: 2	430454	Units: mg/K	(g		
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	s	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: LCSS	Batch	ID: <b>53</b>	363	F	RunNo: 6	9959				
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	SampT	уре: <b>МЕ</b>	BLK	Tes	tCode: El	PA Method	8015M/D: Die	esel Range	e Organics	
Client ID: PBS	Batch	ID: <b>53</b>	363	R	RunNo: 6	9959				
Prep Date: 6/28/2020	Analysis D	ate: 6/	28/2020	S	SeqNo: 2	430475	Units: mg/K	g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	9.2		10.00		91.9	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

Page 86 of 94

## Hall Environmental Analysis Laboratory, Inc.

08-Jul-20

2006D74

WO#:

Client:

Vertex Resource Group Ltd.

	ck River Booster Station								
Sample ID: 2006D74-00	2AMS SampType: MS		Test	Code: EF	PA Method	8015D: Gaso	line Rang	e	
Client ID: B\$20-02 1'	Batch ID: 533	341	R	RunNo: 69	9963				
Prep Date: 6/26/2020	Analysis Date: 6/2	28/2020	S	SeqNo: 24	130047	Units: mg/K	(g		
Analyte	Result PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRI Surr: BFB	23 4.9 1100	24.44 977.5	0	95.5 109	80 66.6	120 105			s
Sample ID: 2006D74-00	2AMSD SampType: MS	iD D	Test	tCode: <b>EF</b>	A Method	8015D: Gaso	line Rang	e	
Client ID: BS20-02 1'	Batch ID: 533	341	R	RunNo: <b>6</b> 9	9963				
Prep Date: 6/26/2020	Analysis Date: 6/2	28/2020	S	SeqNo: 24	430048	Units: mg/K	(g		
Analyte	Result PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO Surr: BFB	23 5.0 1100	24.83 993.0	0	91.7 110	80 66.6	120 105	2.48 0	20 0	s
Suri. BFB									
Sample ID: Ics-53341	SampType: LC					8015D: Gaso	line Rang	е	
Client ID: LCSS	Batch ID: 53			RunNo: 69					
Prep Date: 6/26/2020	Analysis Date: 6/	28/2020	S	SeqNo: 24	430054	Units: mg/K	(g		
Analyte	Result PQL		SPK Ref Val		LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO Surr: BFB	24 5.0 1100	25.00 1000	0	94.2 112	80 66.6	120 105			S
Sample ID: mb-53341	SampType: <b>ME</b>	BLK	Tes	tCode: EF	PA Method	8015D: Gaso	line Rang	e	
Client ID: PBS	Batch ID: 533	341	F	RunNo: <b>6</b> 9	9963				
Prep Date: 6/26/2020	Analysis Date: 6/	28/2020	S	SeqNo: 24	430056	Units: mg/k	ζg		
Analyte	Result PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GR Surr: BFB	O) ND 5.0 1000	1000		103	66.6	105			
Sample ID: mb-53342	SampType: <b>ME</b>	BLK	Tes	tCode: El	PA Method	8015D: Gaso	line Rang	e	
Client ID: PBS	Batch ID: 53:	342	F	RunNo: 6	9967				
Prep Date: 6/26/2020	Analysis Date: 6/	28/2020	S	SeqNo: 2	430406	Units: mg/M	ζg		
Analyte	Result PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GR Surr: BFB	O) ND 5.0 1000	1000		102	66.6	105			
Sample ID: Ics-53342	SampType: <b>LC</b>	s	Tes	tCode: El	PA Method	8015D: Gaso	line Rang	е	
Client ID: LCSS	Batch ID: 53	342	F	RunNo: 6	9967				
I									
Prep Date: 6/26/2020	Analysis Date: 6/	28/2020	S	SeqNo: 2	430407	Units: mg/F	(g		

#### Qualifiers:

- Value exceeds Maximum Contaminant Level
- D Sample Diluted Due to Matrix
- Н Holding times for preparation or analysis exceeded

- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- % Recovery outside of range due to dilution or matrix

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

Page 87 of 94

## Hall Environmental Analysis Laboratory, Inc.

WO#: 2006D74 08-Jul-20

Client:

Vertex Resource Group Ltd.

Project:

Black River Booster Station Riser #5

Sample ID: Ics-53342	SampType: LCS TestCode: EPA Method 8015D: Gasoline Range								
Client ID: LCSS	Batch ID: 53	342	F	RunNo: 69	9967				
Prep Date: 6/26/2020	Analysis Date: 6	/28/2020	S	SeqNo: 24	430407	Units: mg/K	(g		
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			
Sum: BFB	1200	1000		115	66.6	105			S
Sample ID: 2006d74-022ams	SampType: M	s	Tes	tCode: El	PA Method	8015D: Gasc	line Rang	e	
Client ID: BS20-22 1'	Batch ID: 53	342	F	RunNo: <b>69967</b>					
Prep Date: 6/26/2020	Analysis Date: 6	/28/2020	\$	SeqNo: 2	430410	Units: mg/k	(g		
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: 2006d74-022ams	d SampType: M	SD	Tes	tCode: El	PA Method	8015D: Gaso	line Rang	е	
Client ID: BS20-22 1'	Batch ID: 53	342	F	RunNo: 6	9967				
Prep Date: 6/26/2020	Analysis Date: 6	/28/2020	5	SeqNo: 2	430411	Units: mg/k	(g		
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: <b>mb-53345</b>	SampType: M	BLK	Tes	tCode: El	PA Method	8015D: Gaso	line Rang	е	
Client ID: PBS	Batch ID: <b>53345</b> F				RunNo: 69992				

Sample ID: Ion 52245	SampTi	mo: I C	e	Toe	Code: El	PA Mothod	901ED: Casa	lino Dana	^	
Surr: BFB	1000		1000		102	66.6	105			
Gasoline Range Organics (GRO)	ND	5.0								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Prep Date: 6/26/2020	Analysis Da	ate: 6/	29/2020	S	eqNo: 2	431446	Units: mg/K	(g		
Client ID: PBS	Batch	Batch ID: 53345			tunNo: 6	9992				
Campio is: iiis coore		, , , , , , , , , ,			_					

Sample ID: Ics-53345	SampT	ype: LC	S	Test	tCode: El	PA Method	8015D: Gaso	line Rang	e	
Client ID: LCSS	Batch	ID: <b>53</b>	345	F	RunNo: 6	9992				
Prep Date: 6/26/2020	Analysis D	ate: 6/	29/2020	S	SeqNo: 2	431447	Units: mg/K	(g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	5.0	25.00	0	98.2	80	120			
Surr: BFB	1100		1000		112	66.6	105			S

Sample ID: 2006d74-042ams	SampType: <b>MS</b>	TestCode: EPA Method	8015D: Gasoline Range	
Client ID: B\$20-42 0.5	Batch ID: 53345	RunNo: 69992		
Prep Date: 6/26/2020	Analysis Date: 6/29/2020	SeqNo: <b>2431450</b>	Units: mg/Kg	
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit	HighLimit %RPD RPDLimit	Qual

#### Qualifiers:

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

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

Page 88 of 94

## 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 042ame	d SamaTi	uno: MC	· D	Ton	Cada, E	DA Mashad	0045D: C	lina Dana	_	
Surr: BFB	1200		998.0		116	66.6	105			S
Gasoline Range Organics (GRO)	23	5.0	24.95	0	90.3	80	120			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Prep Date: 6/26/2020	Analysis D	ate: 6/	29/2020	S	SeqNo: 2	431450	Units: mg/K	(g		
Client ID: BS20-42 0.5	Batch	ID: <b>53</b>	345	F	RunNo: 6	9992				
Sample ID: 2006d74-042ams	SampT	ype: MS	8	Tes	tCode: E	PA Method	8015D: Gaso	line Rang	е	

Tourne in the second is a second	The same and the s					. deceded. Et 71 inclined of 1021 case into Italia					
Client ID: B\$20-42 0.5	Batch	ID: <b>53</b>	345	F	RunNo: <b>69992</b>						
Prep Date: 6/26/2020	Analysis D	ate: 6/	29/2020	8	SeqNo: 2	431451	Units: mg/K	(g			
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: <b>mb-53350</b>	SampT	уре: МЕ	BLK	Test	tCode: El	PA Method	8015D: Gaso	line Rang	е	
Client ID: PBS	Batch	ID: <b>53</b>	350	R	tunNo: 7	0053				
Prep Date: 6/27/2020	Analysis D	ate: 7/	1/2020	S	SeqNo: 2	434124	Units: mg/K	g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5,0								
Surr: BFB	990		1000		99.4	66.6	105			

Sample ID: Ics-53350	SampT	ype: LC	s	TestCode: EPA Method 8015D: Gasoline Range						
Client ID: LCSS	Batch	1D: <b>53</b>	350	R	RunNo: 7	0053				
Prep Date: 6/27/2020	Analysis D	ate: 7/	1/2020	S	SeqNo: 2	434125	Units: mg/K	(g		
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	SampT	ype: MS	3	Test	tCode: El	PA Method	8015D: Gaso	line Rang	е	
Client ID: WS20-18	Batch	ID: 53	350	R	RunNo: 7	0053				
Prep Date: 6/27/2020	Analysis D	ate: 7/	2/2020	S	SeqNo: 2	434128	Units: mg/K	(g		
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: M	SD	Test	Code: E	PA Method	8015D: Gaso	line Range	e	
Client ID: WS20-18	Batch ID: 53	3350	R	lunNo: 7	0053				
Prep Date: 6/27/2020	Analysis Date: 7	/2/2020	S	eqNo: 2	434129	Units: mg/K	g		
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

QL Practical Quanitative Limit

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

Page 89 of 94

#### 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

RunNo: 70053

Batch ID: 53350 Analysis Date: 7/2/2020

Prep Date: 6/27/2020

PQL

4.8

SeqNo: 2434129

Units: mg/Kg

Analyte Gasoline Range Organics (GRO) Result 20

23.97

81.7

SPK value SPK Ref Val %REC LowLimit

0

80

HighLimit %RPD 1.80 120 0

20 0 S

Qual

**RPDLimit** 

Surr: BFB 1000 958.8 108 66.6 105

Qualifiers:

Value exceeds Maximum Contaminant Level

D Sample Diluted Due to Matrix

Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

% Recovery outside of range due to dilution or matrix

Analyte detected in the associated Method Blank

Value above quantitation range

Analyte detected below quantitation limits

Sample pH Not In Range

RLReporting Limit Page 90 of 94

## Hall Environmental Analysis Laboratory, Inc.

WO#:

2006D74

08-Jul-20

Client:

Vertex Resource Group Ltd.

Project:

Black River Booster Station Riser #5

Sample ID: 2006D74-001AMS	<b>D</b> SampT	ype: MS	SD.	Tes	tCode: El	tiles				
Client ID: BS20-01 1'	Batch	n ID: <b>53</b> 3	341	F	RunNo: 6	9963				
Prep Date: 6/26/2020	Analysis D	ate: 6/2	28/2020	S	SeqNo: 2	430061	Units: mg/k	(g		
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				104	80	120	0	0	

Sample ID: 2006D74-001AMS	SampT	ype: MS	3	Tes	tCode: El	iles				
Client ID: BS20-01 1'	Batch	ID: <b>53</b> 3	341	F	RunNo: 69	9963				
Prep Date: 6/26/2020	Analysis D	ate: 6/2	28/2020	S	SeqNo: 24	430072	Units: mg/K	(g		
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	SampT	ype: LC	s	Tes	tCode: El	tiles				
Client ID: LCSS	Batch	1D: <b>53</b>	341	F	RunNo: 6	9963				
Prep Date: 6/26/2020	Analysis D	ate: 6/	28/2020	S	SeqNo: 2	430076	Units: mg/K	ζg		
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	SampT	ype: ME	BLK	TestCode: EPA Method 8021B: Volatiles						·
Client ID: PBS	Batch	n ID: <b>53</b>	341	F	lunNo: 6	9963				
Prep Date: 6/26/2020	Analysis D	ate: 6/	28/2020	S	eqNo: 2	430078	Units: mg/K	g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.1		1.000		105	80	120			

#### Qualifiers:

\* Value exceeds Maximum Contaminant Level

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

Page 91 of 94

## 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	SampT	ype: ME	BLK	Tes	tCode: El	iles				
Client ID: PBS	Batch	n ID: <b>53</b> :	342	F	RunNo: 6	9967				
Prep Date: 6/26/2020	Analysis D	Analysis Date: 6/28/2020			SeqNo: 2	430436	Units: mg/K	g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.0		1.000		103	80	120			

Sample ID: LCS-53342	SampT	ype: LC	S	Tes	tCode: El	PA Method	8021B: Volat	iles		
Client ID: LCSS	Batch	n ID: <b>53</b> 3	342	R	RunNo: 69	9967				
Prep Date: 6/26/2020	Analysis D	ate: 6/2	28/2020	S	SeqNo: 24	430437	Units: mg/K	g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.92	0.025	1.000	0	91.8	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	SampT	ype: MS		Tes	tCode: El	tiles				
Client ID: BS20-21 1'	Batch	ID: <b>53</b>	342	F	RunNo: 6	9967				
Prep Date: 6/26/2020	Analysis D	ate: 6/	28/2020	S	SeqNo: 2	430439	Units: mg/K	(g		
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	I SampT	ype: MS	SD.	Tes	tCode: El	iles				
Client ID: B\$20-21 1'	Batch	ID: <b>53</b>	342	F	RunNo: 6	9967				
Prep Date: 6/26/2020	Analysis D	ate: 6/2	28/2020	S	SeqNo: 2	430440	Units: mg/K	g		
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

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

Page 92 of 94

## 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	SampT	ype: ME	BLK	Tes	tCode: El	PA Method	8021B: Volat	iles		
Client ID: PBS	Batcl	n ID: 53	345	F	RunNo: 6	9992				
Prep Date: 6/26/2020	Analysis D	ate: 6/	29/2020	S	SeqNo: 2	431499	Units: mg/K	g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0,025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.0		1.000		102	80	120			

Sample ID: LCS-53345	SampT	ype: LC	S	Tes	tCode: El	PA Method	8021B: Volat	iles		
Client ID: LCSS	Batcl	n ID: <b>53</b> 3	345	F	RunNo: 6	9992				
Prep Date: 6/26/2020	Analysis D	oate: 6/	29/2020	S	SeqNo: 2	431501	Units: mg/K	g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.93	0.025	1.000	0	93,2	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	s Samp	Гуре: МS	6	Tes	tCode: El	PA Method	8021B: Vola	tiles		
Client ID: BS20-41 0.5	Batc	h ID: <b>53</b>	345	F	RunNo: 6	9992				
Prep Date: 6/26/2020	Analysis [	Date: <b>6</b> /	29/2020	5	SeqNo: 2	431504	Units: mg/k	(g		
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: 2006d74-041ams	<b>d</b> SampT	ype: MS	D	Tes	tCode: El	PA Method	8021B: Volat	tiles		
Client ID: BS20-41 0.5	Batch	n ID: <b>53</b>	345	F	RunNo: 6	9992				
Prep Date: 6/26/2020	Analysis D	oate: 6/	29/2020	S	SeqNo: 2	431506	Units: mg/K	(g		
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

Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

QL Practical Quanitative Limit

8 % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

Page 93 of 94

## 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	SampT	ype: ME	BLK	Tes	tCode: El	PA Method	8021B: Volat	iles		
Client ID: PBS	Batcl	n ID: 53	350	F	RunNo: 7	0053				
Prep Date: 6/27/2020	Analysis D	)ate: <b>7</b> /	1/2020	S	eqNo: 2	434168	Units: mg/K	g	*	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	NĐ	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.0		1.000		104	80	120			

Sample ID: LCS-53350	SampT	ype: LC	s	Tes	tCode: El	PA Method	8021B: Volat	iles		
Client ID: LCSS	Batch	n ID: <b>53</b> 0	350	F	RunNo: 70	0053				
Prep Date: 6/27/2020	Analysis D	ate: 71	1/2020	8	SeqNo: 2	434169	Units: mg/K	g		
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	s Samp	Гуре: МS	5	Tes	tCode: El	PA Method	8021B: Volat	tiles		
Client ID: WS20-17	Batc	h ID: <b>53</b> :	350	F	RunNo: 7	0053				
Prep Date: 6/27/2020	Analysis [	Date: <b>7/</b>	1/2020	S	SeqNo: 2	434171	Units: mg/K	(g		
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: 2006d74-061amsc	<b>s</b> SampT	ype: MS	SD	Test	tCode: El	PA Method	8021B: Volat	tiles		
Client ID: WS20-17	Batch	n ID: 53	350	R	RunNo: 7	0053				
Prep Date: 6/27/2020	Analysis D	ate: <b>7</b> /	2/2020	S	SeqNo: 2	434172	Units: mg/K	ζg		
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

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

% Recovery outside of range due to dilution or matrix

Analyte detected in the associated Method Blank

Value above quantitation range

Analyte detected below quantitation limits

Sample pH Not In Range

RLReporting Limit Page 94 of 94



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 Grou Ltd.	up Work Order Nu	mber: 2006D74		RcptNo: 1
Received By:	Juan Rojas	6/26/2020 9:30:0	0 AM	Generally.	
Completed By:	Juan Rojas	6/26/2020 9:47:1	0 AM	Grandy	
Reviewed By:	SPA 6.26.	20			
Chain of Cus	stody				
1. Is Chain of C	ustody complete?		Yes 🗹	No 🗌	Not Present
2. How was the	sample delivered?		Courier		
Log In			_		_
<ol><li>Was an atten</li></ol>	npt made to cool the sar	mples?	Yes 🗸	No 🗔	NA 🗌
4. Were all sam	ples received at a tempe	erature of >0° C to 6.0°C	Yes 🗸	No 🗌	NA 🗆
5. Sample(s) in	proper container(s)?		Yes 🔽	No 🗌	
6. Sufficient sam	nple valume for indicated	d test(s)?	Yes 🔽	No 🗌	
7. Are samples (	(except VOA and ONG)	properly preserved?	Yes 🔽	No 🗌	
8. Was preserva	tive added to bottles?		Yes	No 🗹	NA 🗌
9. Received at le	east 1 vial with headspace	ce <1/4" for AQ VOA?	Yes	No 🗌	NA 🗹
10. Were any sar	mple containers received	d broken?	Yes	No 🗹	# of preserved
	ork match bottle labels? ancies on chain of custo	dy)	Yes 🔽	No 🗆	bottles checked for pH: (<2 or >12 unless noted)
12. Are matrices	correctly identified on Ch	nain of Custody?	Yes 🗹	No 🗆	Adjusted?
13, Is it clear wha	t analyses were request	ed?	Yes 🗹	No 🗌	- martart
	ng times able to be met' ustomer for authorization		Yes 🗹	No 🗆	Checked by: JR 6 26 7
Special Handl	ing (if applicable)				
15. Was client no	tified of all discrepancie	s with this order?	Yes 🗌	No 🗌	NA 🗹
Person	Notified:	Dat	e		
By Who	om:	Via	: eMail [] l	Phone 🗌 Fax	In Person
Regard	ing:				
Client I	nstructions:				
16. Additional re	marks:				
17. Cooler Infor	mation				
Cooler No		n Seal Intact Seal No	Seal Date	Signed By	
1	3.6 Good				
2	3.3 Good				

Date

Date:

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

Project Name: River Ross ter River Rose Manager:    Nate   le Cordon   No   No   No   No   No   No   No	S	ain-of-C	Chain-of-Custody Record	Turn-Around Time:	d Time:	S DAY TURN				į	Pa	Pase 3 of 7	47	
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Contract   Full Validation   Project Manager:   Nutrice   Cordor	Phone #:			306						\nai	sis R	guest		
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Other   Cooler   Formation   Cooler	Accreditati		Compliance			J+in		_		O <sup>5</sup> '		uəs		
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Time   Matrix   Sample   Name   Type and # Type   7001,034   © 1				Container		3.3.023.3 HEAL No.			(d sH/					
	Date Tir			Type and #		7001.034	- 114	_	/d					
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**ANALYSIS LABORATORY** HALL ENVIRONMENTAL I 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 Page 4 of 7 4901 Hawkins NE - Albuquerque, NM 87109 Fax 505-345-4107 www.hallenvironmental.com Send to Natalia **Analysis Request** Total Coliform (Present/Absent) (AOV-ima2) 07S8 (AOV) 09S8 'EON (T) F, NO2, PO4, SO4 Br, × Tel. 505-345-3975 RCRA 8 Metals PAHs by 8310 or 82705IMS EDB (Method 504.1) 8081 Pesticides/8082 PCB's Remarks: (OAM \ OAG \ OAB)G\$108:H9T × (1508) e'aMT \ 38TM KABTB 101x18 6/2/10 9/30 (O<sub>e</sub>) 1030 3.3-02.3.3 HEAL No. 700 6074 Time Black River Boosur Statisa 5 DAY TURN 240-FNOT -000 K 1000 100 -637 260-010-701 150-110-3.8-0-3.8 100 125/20 Daile 205-00239-011 Smith % \_\_\_\_ Gordon Riser #5 □ Rush Preservative インシン M Cooler Temp(including CF): Mate lie A Yes ゴブ Turn-Around Time: N Via: ζia: Project Manager: 又 Standard Project Name: # of Coolers: Type and # 8 Received Container Project #: Sampler: 7041 On Ice: 0.5 0.51 0.5' 0.5 15.0 0,51 □ Level 4 (Full Validation) 50 Š Ö Chain-of-Custody Record BS20- 43 BS20-38 60-085M BS20-37 B520-39 8520-40 BS20-42 HO-OPSM Sample Name 840-44 E0-085M BS20-41 14520-01 □ Az Compliance 4 Relinquished by: Relinquished by: Vertex □ Other 0 Matrix <u>.</u> ج 15:21 Mailing Address: QA/QC Package: 12:58 Cin 1:24 . 28 □ EDD (Type) Time 1:00 1.83 61:1 1.70 1.72 email or Fax#: 80:1 1.35 Accreditation: 11:11 Time: Time: □ Standard O NELAC Phone #: ce/h2/9 12/20 A Client: Date Date:

ANALYSIS LABORATORY HALL ENVIRONMENTAL Pase 5 of 7 4901 Hawkins NE - Albuquerque, NM 87109 Fax 505-345-4107 www.hallenvironmental.com **Analysis Request** Total Coliform (Present/Absent) Send to Northie (AOV-im92) 07S8 (AOV) 09S8 0 NO3, NO2, PO4, SO4 X Br, Tel. 505-345-3975 RCRA 8 Metals 2MI20728 10 0168 vd eHA9 EDB (Method 504.1) 8081 Pesticides/8082 PCB's Remarks: (ORM \ ORG \ DRD)G2198:H9T MTBE / TMB's (8021) **ETE** 7006.1774 6 12cho 9.30 (O.) 7.7 -0-8.8 3.3-0= 3.6 Time Black River Booster Station 5 DAY TURN 1050 1050 F 50-1050 6000-750--0x-6 1050 -053 -652 1,6 C 105 13/20 Smith Natalie Gordon 706-00139-011 ON [ Riser AS □ Rush Preservative ともとう Kevin Cooler Temp(Including CF): E-Yes Turn-Around Time: Type Via: Project Manager: Project Name: 以 Standard # of Coolers: Type and # Received W 2 402,00 Container Project #: Sampler: On Ice: ☐ Level 4 (Full Validation) Chain-of-Custody Record MS20-10 80-075M MSAD-09 30-045M 10-055W 11-0-ESM 21-oresm 20-065 L WSPOIS 11-085M NS3-0-13 M-cosm Sample Name □ Az Compliance 五面 Relinquished by: Relinquished by: Vertex □ Other 3 Matrix ō S Mailing Address: 7:34 QAVQC Package: 2:03 30:2 12:10 25:3 7:30 1.58 2.07 EDD (Type) 94:1 Jelhe19 Time 2:21 email or Fax#: Accreditation: 2:15 Тіте Гіте: □ Standard □ NELAC Phone #: Date Date: 

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

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email or Fax#	Fax#:			Project Manager:	ager:		_		_		°O	-	(tr				
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Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87109 TEL: 505-345-3975 FAX: 505-345-4107 Website: clients.hallenvironmental.com

OrderNo.: 2007B62

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

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

andyl

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.

Black River Booster Station Riser 5

**Lab ID: 20** 

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 Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OF	RGANICS				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: <b>JMT</b>
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

Page 1 of 6

Lab Order 2007B62

Date Reported: 7/29/2020

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Black River Booster Station Riser 5

**Lab ID:** 2007B62-002

Project:

Matrix: SOIL

Client Sample ID: WS20-25

**Collection Date:** 7/21/2020 12:18:00 PM

Received Date: 7/23/2020 9:44:00 AM

Analyses	Result	RL Qu	al 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
<b>EPA METHOD 8015D: GASOLINE RANGE</b>					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: <b>JMT</b>
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
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

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

Page 2 of 6

Lab Order 2007B62

Date Reported: 7/29/2020

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Black River Booster Station Riser 5

**Lab ID:** 2007B62-003

Project:

Client Sample ID: WS20-33

**Collection Date:** 7/21/2020 12:41:00 PM

Received Date: 7/23/2020 9:44:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE C	RGANICS				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: <b>JMT</b>
Chloride	3600	150	mg/Kg	50	7/29/2020 1:49:26 AM

Matrix: SOIL

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

#### Qualifiers:

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

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

Page 3 of 6

## 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

 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

Page 4 of 6

## Hall Environmental Analysis Laboratory, Inc.

WO#: 2007B62

29-Jul-20

Client:

Vertex Resource Group Ltd.

Project:

Black River Booster Station Riser 5

Sample ID: ics-53918	SampT	ype: LC	s	Tes	tCode: El	PA Method	8015D: Gaso	oline Rang	е	
Client ID: LCSS	Batcl	h ID: <b>53</b>	918	F	RunNo: 7	0588				
Prep Date: 7/23/2020	Analysis D	)ate: 7/	24/2020	S	SeqNo: 2	455823	Units: mg/k	(g		
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	SampT	ype: ME	BLK	Tes	tCode: El	PA Method	8015D: Gaso	line Rang	е	
Client ID: PBS	Batch	n ID: 53	918	F	RunNo: 70	0588				
Prep Date: 7/23/2020	Analysis D	ate: 7/	24/2020	S	SeqNo: 2	455825	Units: mg/K	(g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BEB	900		1000		90.1	66.6	105			

#### Qualifiers:

Value exceeds Maximum Contaminant Level

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, Inc.

WO#: 2007B62

29-Jul-20

Client: Vertex Resource Group Ltd.

**Project:** Black River Booster Station Riser 5

Sample ID: LCS-53918	SampT	ype: LC	S	Tes	tCode: El	PA Method	8021B: Volat	tiles		
Client ID: LCSS	Batch	n ID: 53	918	F	RunNo: 70	0588				
Prep Date: <b>7/23/2020</b>	Analysis D	ate: 7/	24/2020	S	SeqNo: 2	455880	Units: mg/K	(g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.93	0.025	1.000	0	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	SampT	уре: МЕ	BLK	Tes	tCode: E	PA Method	8021B: Volat	iles			
Client ID: PBS	Batcl	n ID: 53	918	F	RunNo: 7	0588					
Prep Date: 7/23/2020	Analysis D	ate: <b>7/</b>	24/2020	8	SeqNo: 2	455882	Units: mg/K	(g			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Benzene	ND	0.025									
Toluene	ND	0.050									
Ethylbenzene	ND	0.050									
Xylenes, Total	ND	0.10									
Surr: 4-Bromofluorobenzene	1.0		1.000		102	80	120				

#### Qualifiers:

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

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

Page 6 of 6



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 Nam	e; Vertex Ltd.	Resource Group	Work Order Nur	nber: 2007B6	2	RcptNo	: <b>1</b>
Received B	ly: Cheye	enne Cason	7/23/2020 9:44:00	AM			
Completed	By: Juan I	Rojas	7/23/2020 10:04:1	3 AM	Hears	3	
Reviewed B	y: SPA	7.23	10 10:40		8		
Chain of C	<u>Custody</u>						
1. Is Chain	of Custody co	omplete?		Yes 🗹	No [	Not Present	
2. How was	the sample o	delivered?		Courier			
Log In				_		_	
3. Wasan a	ittempt made	to cool the sampl	es?	Yes 🗹	No [	_ NA □	
4. Were all s	samples recei	ived at a temperat	ure of >0° C to 6.0°C	Yes 🗹	No [	□ NA □	
5. Sample(s	) in proper co	ontainer(s)?		Yes 🗹	No E		
6. Sufficient	sample volun	ne for indicated te	st(s)?	Yes 🗹	No [		
7. Are sample	es (except V	OA and ONG) pro	perly preserved?	Yes 🗹	No [		
8. Was prese				Yes 🗌	No 🖳	NA 🗆	
9. Received	at least 1 vial	with headspace	:1/4" for AQ VOA?	Yes 🗌	No [	NA ☑	
10. Were any	sample cont	ainers received br	oken?	Yes	No 🛭	4./	
11. Does pape		bottle labels? chain of custody)		Yes 🗹	No [		r >12 unless noted)
		dentified on Chair		Yes 🔽	No [	1 44/1-10	12 2.11002 (10102)
		s were requested?		Yes 🗹	No [		
14. Were all h	olding times	able to be met? or authorization.)		Yes 🗹	No [	Checked by:	1/23/20 On
Special Hai	ndling (if a	applicable)					
15. Was clien	t notified of a	ıll discrepancies w	ith this order?	Yes 🗌	No [	□ NA 🗹	
Pers	son Notified:		Date			<u> </u>	
By \	Whom:	L	Via:	☐ eMail	Phone F	ax 🔲 In Person	
Reg	arding:						
Clie	nt Instruction	s:	#1 #1 (1 <del>11)</del> 111111 - 111111 (11) 11 11 11 11 11 11 11 11 11 11 11 11				
16. Additiona	l remarks:						-
17. Cooler in		angentin. : premiuma est	necessaria de la companya de la comp	Landan Adams	Martinest System on the	DESCRIP	
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3	2.7		Yes			<del></del>	

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Mailing Address:	Address	ر ن	£.1.	Slack K	Kive 13,005+	Boosto Station RiserAS		4901 Hawkins NE	kins N		pnane	rane. N	- Albuqueraue, NM 87109	
				Project #:			<u>_</u>	Tel. 505-345-3975	345-39		Fax £	505-345-4107	-4107	
Phone #:	4.			20E-	206-00339	110-				Ana	ysis F	Analysis Request		
email or Fax#:	Fax#:		<del>→</del>	Project Manager:	iger:			-		\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\		(ţu		
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Accreditation:	ation:	□ Az Co	1 5	Sampler: Kevin	1	Smith mino							360	
□ EDD (Type)	(Type)			# of Coolers:										-0
				Cooler Temp(including CF)	(including CF)	Smits (°C)							1030	
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Date:	Time:	Relinquished by:	ed by:	Received by:	Via:	Date Time	25.00	7,71	57.0					n žen
_	necessary	r, samples suk	If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.	ontracted to other a	ccredited laborator	ies. This serves as notice of this	possibility.	Any sub-c	ontracted	data will	ne clearly	notated o	n the analytical report.	

#### **ATTACHMENT 6**

#### VERTEX

### **Daily Site Visit Report**

Client:	Matador Resources	Inspection Date:	5/4/2020
Site Location Name:	Black River Booster Riser #5	Report Run Date:	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

5/4/2020 7:30 AM 5/4/2020 8:00 AM

Returned to Office

Arrived at Site Departed Site

Left Office

#### Summary of Daily Operations

location. Pasture area where undisturbed has a calcareous/gypsum layer in spotted areas. Across the road is an irrigation ditch for farm containment and overflowed underneath piping of risers traveling south with the contour of the land sloping. Spill ended on matador 9:10 Affected area from release has already been scraped and partially cleaned up. Point of release is on pump #5 and filled lines

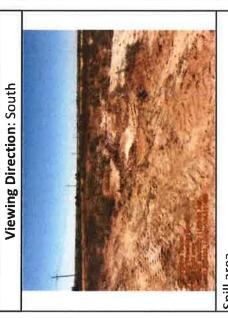
14:50 Scraped area is around 0.5" deep in pasture area and hand digging occurred underneath equipment and risers near lined containment 14:54 Pad area has been scraped to get rid of staining and along fence line where it came down hill and ran onto pad

#### Next Steps & Recommendations

-



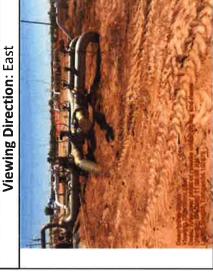
Site Photos



Spill area



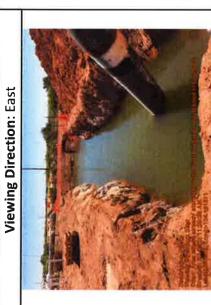
Pasture area that is undisturbed but has calcereous/gypsum layer



Area near point of release under piping and risers



Spill area where emergency clean up took place



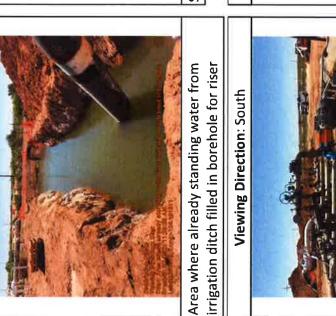
irrigation ditch filled in borehole for riser



Scraped area near equipment



Undisturbed areas in between where scrape occurred

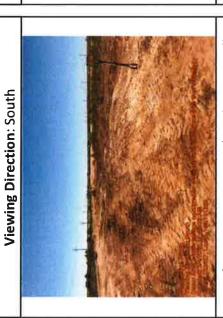


Containment area where point of release is located and where overflow happened

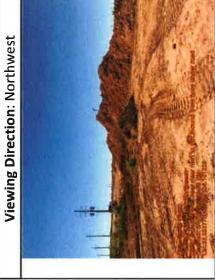


Powered by www.krinkleldar.com

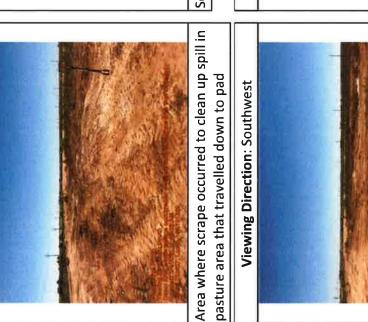
### **Daily Site Visit Report**





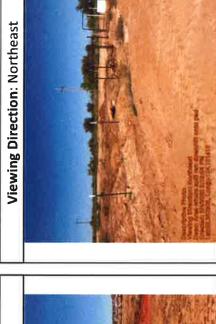


Scraped area near riser next to dirt mound from bore under road



Scraped area in pasture

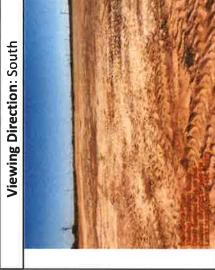
Viewing Direction: West



Area where spill ran downhill onto pad

Dirt mound next to equipment and risers

Viewing Direction: West



Scraped area on pad

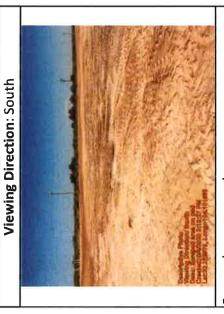
Scraped area along north fence line



Page 6 of 7



## **Daily Site Visit Report**



Scraped area on pad



**Daily Site Visit Signature** 

Inspector: Monica Peppin

Signature:

Run on 5/5/2020 5:12 PM UTC

Spill Res	ponse an	d Samplin	12					W
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Project Manager	rs.	200000000000000000000000000000000000000			. Spill Product:			The state of the s
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	Project #:	ndandawki naka si lik bekani kalik lik lik	Tanki mandirikatini ka k			Rocovured Splft Volume:			
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Client:		d Sampling						ERT
Date:		1 00			Initial Spill Information -	Record on Fir	st Visit	
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Project Owner:					Spill Cause:			
Project Manager:					Spill Product:			
roject#;					Recovered Spill Volume:			
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				28.4	11401			
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e 11	2.5			3.66/32.8	4172			
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w	0.5			13.70/31.9	1700			
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3

#### Page 1 of 3

### **Daily Site Visit Report**

			XU-14>
Client:	Matador Resources	Inspection Date:	6/22/2020
Site Location Name:	Black River Booster	Report Run Date:	6/23/2020 12:13 AM
	Station Riser #5		
Client Contact Name:	John Hurt	API #:	N/A
Client Contact Phone #:			
Unique Project ID	-Black River Booster	Project Owner:	John Hurt
	Station Riser #5		
Project Reference #	NM OCD Tracking #	Project Manager:	Natalie Gordon
	NRM2012930770		

# 6/22/2020 7:00 AM 6/22/2020 4:30 PM

Arrived at Site **Departed Site** 

Summary of Times

Large dirt pile that was here	oss road
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

Field Notes

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

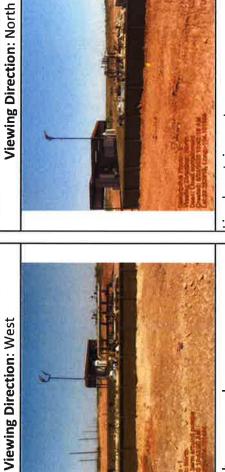
17:12 Loamy soil compared to caliche soil seemed to have a higher reading when running titration

### Next Steps & Recommendations

- 1 Finish collecting photos
- 2 Possible further excavation



Site Photos



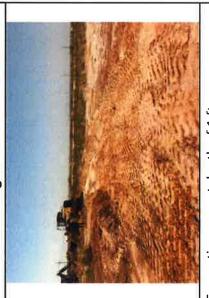
Lined containment



Excavation area 1ft



Viewing Direction: South



Excavation area at depth of 1 ft



Daily Site Visit Signature

Inspector: Monica Peppin

Signature:

VERTE

Spill Respo	onse and	Sampling			VEF	TE
Client:	2	Marta			Initial Spill Information - Record on First Visit	
Date:		6-23	- 2020 Risace		Spill Date:	
Site Name:	S=	Booste	· Risace	75	Spill Volume:	
Site Location:					Spill Cause:	
Project Owner:	8-				Spill Product:	
Project Manager:					Recovered Spill Volume:	
Project #:				Sampling	Recovery Method:	W 171.3
			Field Screening		Data Collection (Check for Yes)	410
Sample ID	Depth (ft)	VOC (PID)	PetroFlag TPH (ppm)	Quantab (High/Low) + or -	Lah Analysis Dicture	larked oi te Sketcl
SS/TP/BH - Year - Number Ex. BH18-01	Ех. '2ft	Ex. 400 ppm	200 ppm	*Titocoh's ~ Ex. 'High +	Ex. Hydrocarbon Chloride	
WS20-01	0-6"			5200		
INS20-02				4300		
WS20-03				4000		
WS10-04				6100		
W520-05				5900		
Wisher-06				6200		
WSZS-07			P .	4700		
W520-08				4300	*	
Megrog				4600		
W520-10				4900		
WDO-11				9,600	/ (4)	
M30-15				6100		
WS20-13				6300		
Mismily				7400		
ws2015				2,900	0	
Mero 16				2600		
TI OAZW				3300	-	
was 18				1860		
W580 14				1400		_
WS# 20				2300		
WS 70 21				2500	3.	
usto 22				3100	×	6

Spill Resp	onse an	d Sampling	3				V	ERTE
Client:		Mase 6-24-2 Risco	dor		Initial Spill Information - Re	ecord on Firs	t Visit	
Date:		6-24-8	20		Spill Date:			
Site Name:		_ Riser	45		Spill Volume:			
Site Location:					Spill Cause:			
Project Owner:					Spill Product:			
Project Manager:					Recovered Spill Volume:			
Project#:			SI-JEURS	Sampling	Recovery Method:			
			Field Screening		Data Collection	(Check for Y	es)	
Sample ID	Depth (ft)	VOC (PID)	PetroFlag TPH (ppm)	Quantab (High/Low) + or -	Lab Analysis	Picture	Trimble Coordinates	Marked or Site Sketch
SS/TP/BH - Year - Number Ex. BH18-01	Ех. '2ft	Ex. 400 ppm	200 ppm	Firedop Ex. High +	Ex. Hydrocarbon Chloride			
BS20-23	B 1'			3100				
24	1			Zios				
25				2100 4000				
26				2400				
27				3500				
28				1000				
29				2200				
30		ENERY		2100				
31				2800				
37				1300				
33				4700				
34				2600				
35				1700				
36	0.5'			700				
37				3800				
36				900				
39				800				
40	FIF AN			700				
41				1700				
42				800				
И3				700	36			
71		-0.40		1900				
		<b>国第</b> 三十二十二十二十二十二十二十二十二十二十二十二十二十二十二十二十二十二十二十二			VERS	ATILITY F	XPERTISE.	THE

Spill Resp	onse and	d Sampling		evin Sm.	J.L			V	EATE
Client:		Matad	01		l	Initial Spill Information - R	ecord on First	VIsit	
Date:		6-24-	20			Spill Date:			
Site Name:		Black R	ver Bouser	Station Program	15	Spill Volume:			
Site Location:		_ Eda	y, Nm			Spill Cause:			
Project Owner:			· ·			Spill Product:			
Project Manager:						Recovered Spill Volume:			
Project#:			- van	Sampling		Recovery Method:			
			Field Screening			Data Collection	(Check for Ye	9)	
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 + Titroution		Ex. Hydrocarbon Chloride			
B520-01	1'			1100					
B520-02				1600					
B520-03				900					
BS20-04				2000					,
BSLD-05				1700					
B520-06				1200					
07				950					
08				1500					
04				1600					
10			1	1000					
lı				2400					
17				1000					
13				1300					
,4				1900					
15				2100					
16				1400					
17				2300					
18				2100					
19				2200					
20				7500					
21	١			2000					
12	(			1700					

VERSATILITY, EXPERTISE.



			XHLHHA
Client:	Matador Resources	Inspection Date:	7/21/2020
Site Location Name:	Black River Booster	Report Run Date:	7/21/2020 9:21 PM
	Station Riser #5		
Client Contact Name:	John Hurt	API #:	N/A
Client Contact Phone #:			
Unique Project ID	-Black River Booster	Project Owner:	John Hurt
	Station Riser #5		
Project Reference #	NM OCD Tracking #	Project Manager: Natalie Gordon	Natalie Gordon
	NRM2012930770		

Field Notes

Summary of Times

7/21/2020 7:56 AM 7/21/2020 1:03 PM

**Arrived at Site Departed Site**  15:12 Completing additional remediation for areas which exceeded initial confirmatory sampling.

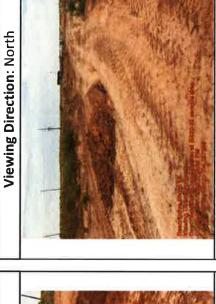
15:13 Samples area will be extended in six inch increments until field screens are below NMOCD criteria. Samples recollected will be BS20-33,WS20-25, and WS20-33.

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

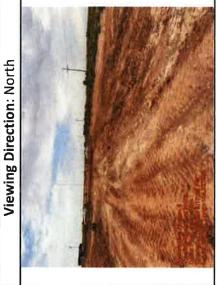
- 1 Submit confirmatory samples for laboratory analysis
- 2 After awaiting laboratory results complete incident closure report.



Site Photos



Additional remediation at BS20-33 sample area









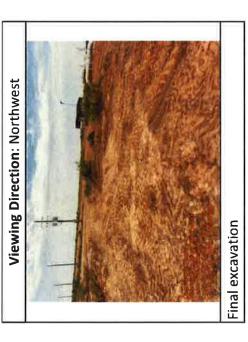


Additional remediation at WS20-25 sampling area

Page 3 of 4



# **Daily Site Visit Report**





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 >, 

<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

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#### **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 < <u>jim.griswold@state.nm.us</u>>, Bratcher, Mike, EMNRD < <u>Mike.Bratcher@state.nm.us</u>>, Venegas, Victoria, EMNRD < <u>Victoria.Venegas@state.nm.us</u>>, Hamlet, Robert, EMNRD < <u>Robert.Hamlet@state.nm.us</u>>

#### 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 < <a href="mailto:vertexresourcegroupusa@gmail.com">vertexresourcegroupusa@gmail.com</a>> 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

#### www.vertex.ca

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