VERTEX

January 24, 2021 Vertex Project #: 20E-00239-017

Spill Closure Report: Eland 32-18-33 RN State
Unit P, Section 32, Township 18 South, Range 33 East
County: Lea
NM OCD Tracking Number: NRM2026850554

Prepared For: Matador Production Company
5400 LBJ Freeway
Suite 1500
Dallas, Texas 75240

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

Matador Production Company (Matador) retained Vertex Resource Services Inc. (Vertex) to conduct a spill assessment and remediation for a produced water release that occurred at Eland 32-18-33 RN State (hereafter referred to as "Eland"). Matador provided immediate notification of the spill to New Mexico Oil Conservation Division (NM OCD) District 1 and the New Mexico State Land Office (SLO), who own the land, via email on September 7, 2020, followed by submission of an initial C-141 Release Notification (Attachment 1) on September 18, 2020. The NM OCD tracking number assigned to this incident is NRM2026850554.

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 a final report to obtain approval from NM OCD for closure of this release.

Incident Description

On September 7, 2020, a release occurred at Matador's Eland site when a newly installed saltwater disposal (SWD) line was damaged. This incident resulted in the release of approximately 451 barrels (bbls) of produced water onto the right-of-way and into adjacent pasture. Upon discovery of the release, an emergency 811 call was placed and the SWD line was daylighted and repaired to prevent further leaks. A hydrovac truck was dispatched to the site to recover free fluids. No produced water was recovered. The spill impacted an area off-lease; however, no produced water was released into sensitive areas or waterways.

Site Characterization

The release at Eland occurred on state-owned land, N 32.698533, W 103.680920, approximately 25 miles southwest of Lovington, New Mexico. The legal description for the site is Unit P, Section 32, Township 18 South, Range 33 East, Lea County, New Mexico. This location is within the Permian Basin in southeast New Mexico and has historically been used for oil and gas exploration and production, and farmland. An aerial photograph and site schematic are included in

Attachment 2.

The Eland site consists of oil and gas production and storage equipment, and a tank battery. It is typical of oil and gas-related sites in the western portion of the Permian Basin. The following sections specifically describe the release area northwest of the wellpad.

The surrounding landscape is associated with dune fields and sandy plains, originating from eolian deposits and alluvium derived from sandstone, typical at elevations of 3,000 to 4,400 feet above sea level. The climate is semi-arid, with average annual precipitation ranging between 10 and 12 inches. The plant community has historically been dominated by giant dropseed and other dropseed grass species, with scattered shinnery oak and soapweed yucca. Bare ground and litter comprise a significant proportion of ground cover while grasses make up the remainder (United States Department of Agriculture, Natural Resources Conservation Service, 2020). Limited to no vegetation is allowed to grow on the compacted wellpad. Vegetation within the right of way where the release occurred had not yet recovered from the disturbance associated with the newly installed SWD pipeline.

The Geological Map of New Mexico indicates the surface geology at Eland is comprised primarily of Qep – interlaid eolian sands and piedmont-slope deposits from the Holocene to middle Pleistocene ages (New Mexico Bureau of Geology and Mineral Resources, 2020). The Natural Resources Conservation Service Web Soil Survey characterizes the soil at the site as Kermit-Palomas fine sands, predominately found on dunes. These soils are comprised of deep layers of fine sand and tend to be excessively drained with very low runoff and low available moisture in the soil profile (United States Department of Agriculture, Natural Resources Conservation Service, 2020). There is low potential for karst geology to be present near Eland (United States Department of the Interior, Bureau of Land Management, 2020).

There is no surface water located at Eland. The nearest significant watercourse, as defined in Subsection P of 19.15.17.7 NMAC, is a Lacustrine lake approximately 5.5 miles south of the site (United States Fish and Wildlife Service, 2020). At Eland, there are no continuously flowing 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.

To verify depth to groundwater at Eland was greater than 100 feet below ground surface (bgs), a test well was bored on the Eland wellpad to a depth of 101 feet bgs, as permitted by the New Mexico Office of the State Engineer (NMOSE). This exploratory water well, located approximately 175 feet north of release, did not indicate the presence of groundwater at less than 100 feet below ground surface. Full borehole data has been submitted to NMOSE and will be available through the NMOSE database (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 Eland is not subject to the requirements of Paragraph (4) of Subsection C of 19.15.29.12 NMAC and the closure criteria for the site are determined

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

Table 1. Closure Criteria for Soils Impacted by a Release

Depth to Groundwater	Constituent	Limit
> 100 feet	Chloride	20,000 mg/kg
	TPH[1] (GRO + DRO + MRO)	2,500 mg/kg
	GRO + DRO	1,000 mg/kg
	BTEX[2]	50 mg/kg
	Benzene	10 mg/kg

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

Remedial Actions

Initial spill inspection and site characterization activities at Eland were completed by Vertex on September 9, 2020. The Daily Field Report (DFR) and field screen data associated with the site visit are included in Attachment 4. Using initial field screen data and soil sample laboratory data as shown in Table 2 (Attachment 5), the release was delineated horizontally and vertically as presented on Figure 1 (Attachment 2), and a remediation plan was developed. On December 7, 2020, Vertex provided 48-hour notification of confirmation sampling to NM OCD (Attachment 6), as required by Subparagraph (a) of Paragraph (1) of Subsection D 19.15.29.12 NMAC.

Excavation of impacted soils at the Eland release site was conducted between December 7 and 9, 2020, with a Vertex representative on-site to conduct field screening to guide the excavation and determine final horizontal and vertical extents of the excavation area as presented on Figure 2 (Attachment 2). As remediation activities were completed, Vertex collected a total of 65 five-point composite confirmatory samples from the base and side walls of the excavation, at depths ranging between ground surface and 8 feet 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 3 (Attachment 5). Laboratory data reports and chain of custody forms are included in Attachment 7.

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 sampling 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 action to address the release at Eland. Laboratory analyses of confirmatory samples showed constituent of concern concentration levels below NM OCD closure criteria for areas where depth to groundwater

is greater than 100 feet bgs as presented in Table 1. There are no anticipated risks to human, ecological or hydrological receptors associated with the release site.

Remediation efforts for the portion of the release that occurred off-lease included excavation of contaminated materials to levels meeting NM OCD restoration and reclamation requirements as outlined in 19.15.29.13 NMAC. The top four feet of 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, and aid in the establishment of vegetation.

Vertex requests that this incident (NRM2026850554) be closed as closure requirements set forth in Subsection E of 19.15.29.12 NMAC and restoration requirements set forth in 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 September 7, 2020, release at Eland.

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 Research Determination Documentation
Attachment 4. Daily Field Report(s) with Photographs
Attachment 5. Tables
Attachment 6. Required 48-hr Notification of Confirmation Sampling to Regulatory Agencies
Attachment 7. Laboratory Data Reports/Chain of Custody Forms

References

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

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

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

United States Department of Agriculture, Natural Resources Conservation Service. (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

United States Fish and Wildlife Service. (2020). *National Wetlands Inventory*. Retrieved from https://www.fws.gov /wetlands/Data/Mapper.html

Limitations

This report has been prepared for the sole benefit of Matador Production Company (Matador). This document may not be used by any other person or entity, with the exception of the New Mexico Oil Conservation Division, without the express written consent of Vertex Resource Services Inc. (Vertex) and Matador. Any use of this report by a third party, or any reliance on decisions made based on it, or damages suffered as a result of the use of this report are the sole responsibility of the user.

The information and conclusions contained in this report are based upon work undertaken by trained professional and technical staff in accordance with generally accepted scientific practices current at the time the work was performed. The conclusions and recommendations presented represent the best judgement of Vertex based on the data collected during the assessment. Due to the nature of the assessment and the data available, Vertex cannot warrant against undiscovered environmental liabilities. Conclusions and recommendations presented in this report should not be considered legal advice.

ATTACHMENT 1

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

State of New Mexico
Energy Minerals and Natural Resources Department

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

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

Incident ID	NRM2026850554
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party: Matador Production Company	OGRID: 228937
Contact Name: John Hurt	Contact Telephone: 972-371-5200
Contact email: JHurt@matadorresources.com	Incident # *(assigned by OCD)* NRM2026850554
Contact mailing address: 5400 LBJ Freeway, Suite 1500 Dallas, TX 75240	

Location of Release Source

Latitude 32.698533 Longitude -103.680920
(NAD 83 in decimal degrees to 5 decimal places)

Site Name: Eland 32-18-33 RN State	Site Type: Oil
Date Release Discovered: 09/07/2020	API# *(if applicable)* 30-025-42977

Unit Letter	Section	Township	Range	County
P	32	18S	33E	Lea

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

Nature and Volume of Release

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

☐ Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
☒ Produced Water	Volume Released (bbls) 451 bbls	Volume Recovered (bbls)
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	☒ Yes ☐ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release:

A recently-installed SWD line was damaged.

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State of New Mexico
Oil Conservation Division

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Application ID	

Was this a major release as defined by 19.15.29.7(A) NMAC? ☒ Yes ☐ No	If YES, for what reason(s) does the responsible party consider this a major release? Release was greater than 25 bbls.
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)? Immediate notification was provided to Jim Griswold and Mike Bratcher of NM OCD, and the NM State Lands Office, by Natalie Gordon of Vertex Resources Group via email on Monday, September 7, 2020 at approximately 5:30pm.	

Initial Response

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

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

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

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

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

Printed Name: John Hurt Title: RES Specialist

Signature: [signature] Date: 9/18/20

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

OCD Only

Received by: Ramona Marcus Date: 9/24/2020

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Page 3

State of New Mexico
Oil Conservation Division

Incident ID	NRM2026850554
District RP	
Facility ID	
Application ID	

Site Assessment/Characterization

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

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

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

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

- ☒ Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.
- ☒ Field data
- ☒ Data table of soil contaminant concentration data
- ☒ Depth to water determination
- ☒ Determination of water sources and significant watercourses within ½-mile of the lateral extents of the release
- ☒ Boring or excavation logs
- ☒ Photographs including date and GIS information
- ☒ Topographic/Aerial maps
- ☒ Laboratory data including chain of custody

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

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State of New Mexico
Oil Conservation Division

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Facility ID	
Application ID	

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

Printed Name: John Hurt Title: RES Specialist

Signature: Date: 1/25/21

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

OCD Only

Received by: Date:

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State of New Mexico
Oil Conservation Division

Incident ID	NRM2026850554
District RP	
Facility ID	
Application ID	

Closure

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

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

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

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

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

[x] Description of remediation activities

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

Printed Name: John Hurt
Title: RES Specialist

Signature:
Date: 1/25/21

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

OCD Only

Received by: _____ Date: _____

Closure approval by the OCD does not relieve the responsible party of liability should their operations have failed to adequately investigate and remediate contamination that poses a threat to groundwater, surface water, human health, or the environment nor does not relieve the responsible party of compliance with any other federal, state, or local laws and/or regulations.

Closure Approved by: _____ Date: _____

Printed Name: _____ Title: _____

Natalie Gordon

From: Dhugal Hanton <vertexresourcegroupusa@gmail.com>
Sent: Monday, September 7, 2020 5:41 PM
To: Natalie Gordon
Subject: Fwd: Notice of PW Release > 25bbls (Matador Production Company)

---------- Forwarded message ---------
From: **Dhugal Hanton** <vertexresourcegroupusa@gmail.com>
Date: Mon, Sep 7, 2020 at 5:40 PM
Subject: Notice of PW Release > 25bbls (Matador Production Company)
To: Griswold, Jim, EMNRD <jim.griswold@state.nm.us>, Bratcher, Mike, EMNRD <Mike.Bratcher@state.nm.us>, <OCD.Enviro@state.nm.us>, <rmann@slo.state.nm.us>

All:

Please accept this email as immediate notification, on behalf of Matador Production Company, of a produced water (PW) release that was discovered in the early morning hours of Monday, September 7, 2020, at the Eland 32 18 33 RN State Com #123, API 30-025-42977. Coordinates for release area are: 32.69798, -103.68048.

Sometime overnight, it appears an SWD line developed a hole resulting in the release of an estimated 40 bbls of produced water. Recovery of fluids, determination of a final estimated volume and initial mitigation activities are currently underway. The produced water did occur just off-pad near the lease road. The land and mineral rights for this site are owned by the New Mexico State Land Office.

Vertex is in the process of delineating and remediating this release. An initial C-141 notification form will be submitted by Matador's environmental rep shortly followed by a closure report within 90 days.

If you have any questions or need additional information about this release, please don't hesitate to give me a call at 505-506-0040.

Thank you very much,
Natalie

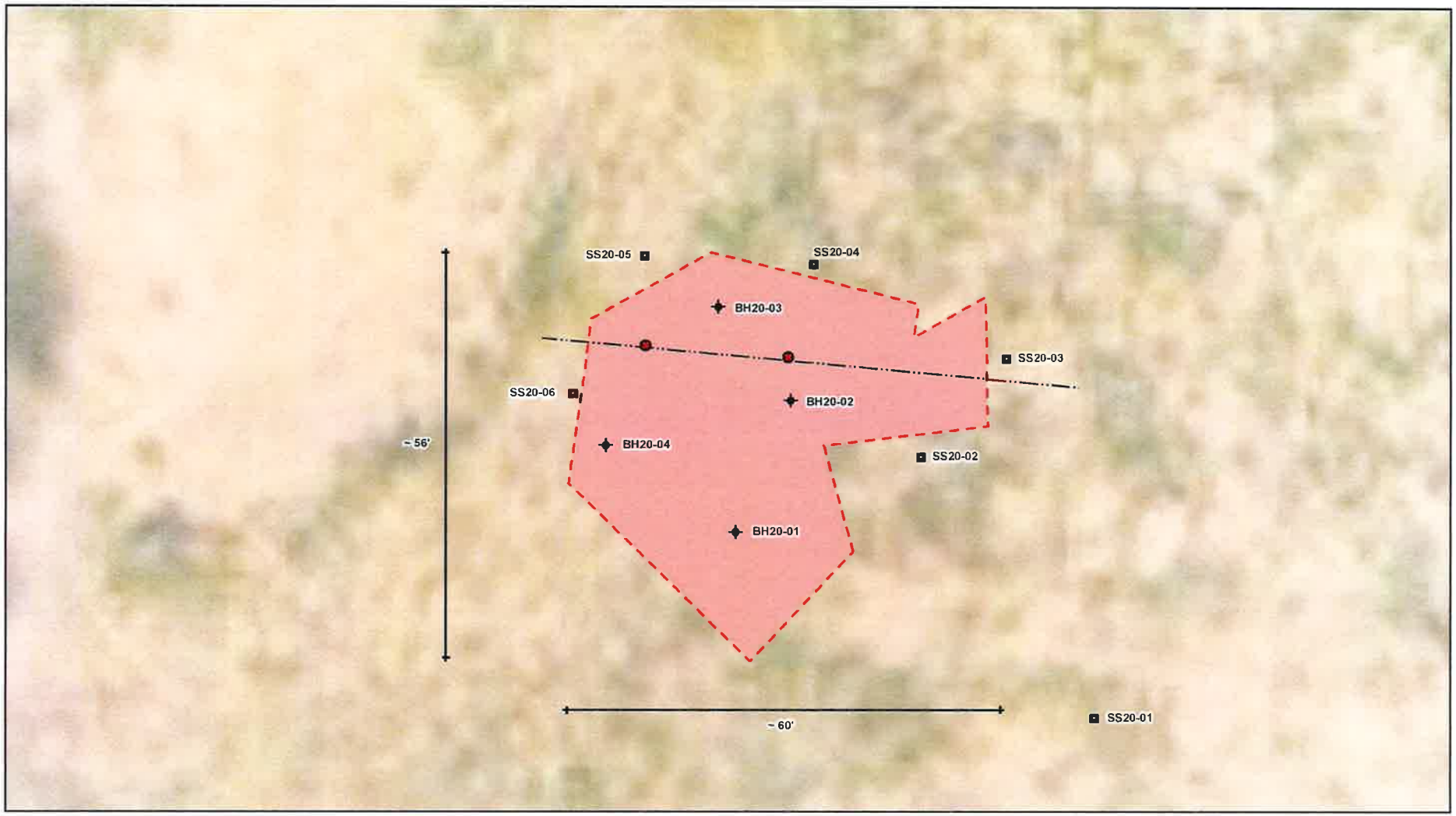
Natalie Gordon
Project Manager

Vertex Resource Group Ltd.
213 S. Mesa Street
Carlsbad, NM 88220

P 575.725.5001 ext 709
C 505.506.0040
F

www.vertex.ca

ATTACHMENT 2



Borehole
Points of Release
Surface Sample
Pipeline (Underground)
Approximate Spill Extent - Surface (~ 1,875 sq. ft.)

VERTEX

0 5 10 20 ft.

Map Center:
Lat/Long: 32.698533, -103.680920

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

N

Site Schematic and Characterization Sampling Locations
Eland State 32-18-33 RN State

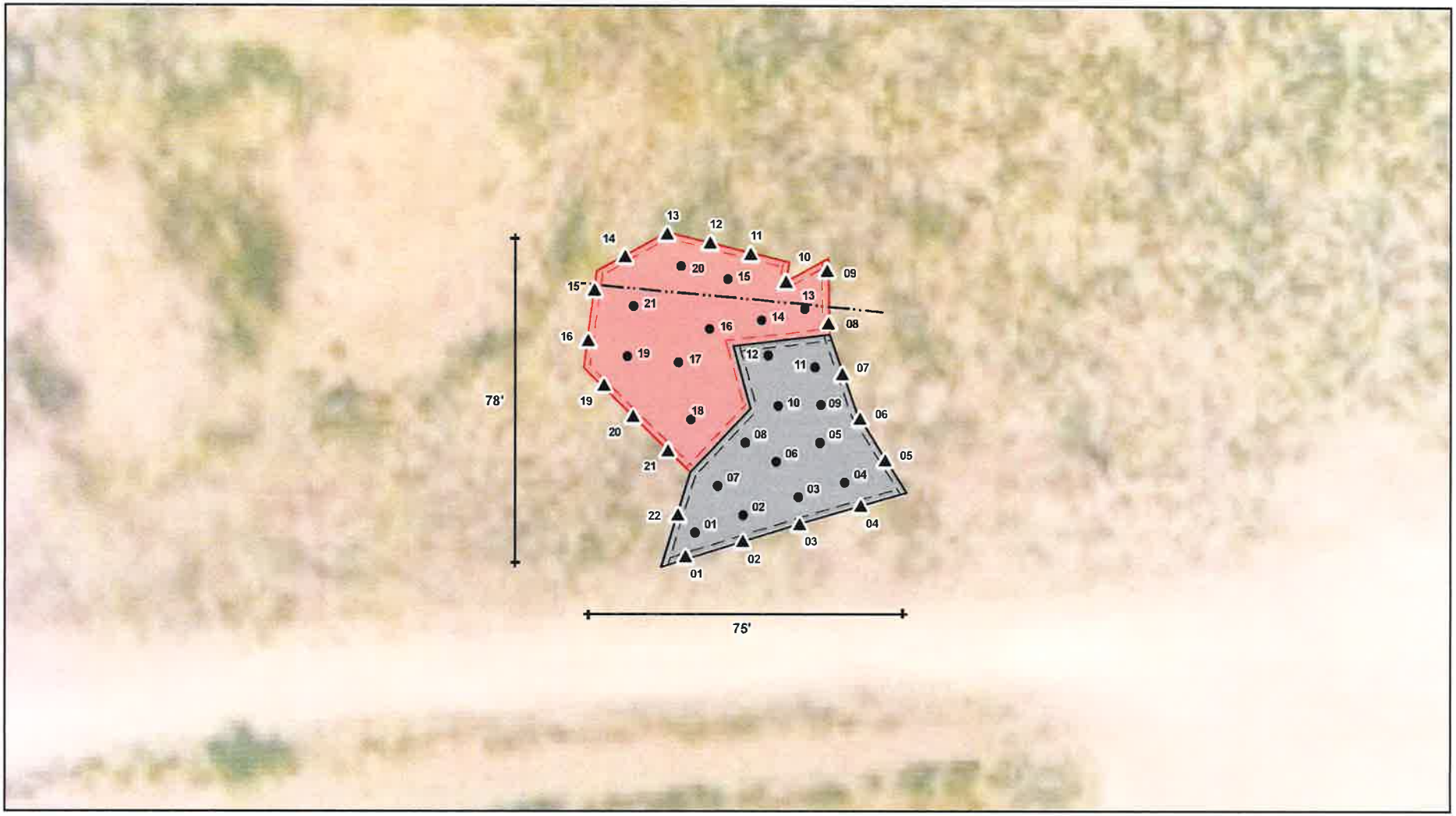
FIGURE:
1

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

Note: Imagery from ESRI, 2018.

VERSATILITY. EXPERTISE.

Document Path: G:\1-Projects_US PROJECTS\Matador Resources\20E-002390017 - Eland State 32-18-33-RN #123H\Figure 1 Eland State 32-18-33-RN #123H.mxd



- Base Sample (Prefixed by "BS20-")
- Wall Sample (Prefixed by "WS20-")
- Pipeline (Underground)
- Additional Excavation Area (~1,600 sq. ft.)
- Original Spill Excavation (~1,874 sq. ft.)

VERTEX

0 5 10 20 30 ft.

Map Center:
Lat/Long: 32.698478, -103.680882

NAD 1983 UTM Zone 13N
Date: Dec 21/20

N

Confirmatory Sampling Locations
Eland State 32-18-33 RN State

FIGURE: 2

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

Note: Imagery from ESRI, 2018.

VERSATILITY. EXPERTISE.

Document Path: G:\1-Projects_US PROJECTS\Matador Resources\20E-00239017 - Eland State 32-18-33-RN #123H\Figure 2 Confirmatory Schematic Eland State 32-18-33-RN #123H.mxd

ATTACHMENT 3

Closure Criteria Worksheet			
Site Name: Eland State 32-18-33-RN #123H			
Spill Coordinates:		X: 32.6985	Y: -103.6809
Site Specific Conditions		Value	Unit
1	Depth to Groundwater		feet
2	Within 300 feet of any continuously flowing watercourse or any other significant watercourse	183,560	feet
3	Within 200 feet of any lakebed, sinkhole or playa lake (measured from the ordinary high-water mark)	28,668	feet
4	Within 300 feet from an occupied residence, school, hospital, institution or church	27,811	feet
5	i) Within 500 feet of a spring or a private, domestic fresh water well used by less than five households for domestic or stock watering purposes, **or**	27,811	feet
	ii) Within 1000 feet of any fresh water well or spring	>1000	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	28,668	feet
8	Within the area overlying a subsurface mine	No	(Y/N)
9	Within an unstable area (Karst Map)	Low	Critical High Medium Low
10	Within a 100-year Floodplain	>100	year
11	Soil Type	KD	
12	Ecological Classification	R042XC005NM	Deep sand
13	Geology	Qep	
NMAC 19.15.29.12 E (Table 1) Closure Criteria		<50'	<50' 51-100' >100'

Atkins
ENGINEERING ASSOCIATES INC.

2904 W 2nd St
Roswell, NM 88201
voice: 575.624 2420
fax: 575.624 2421
www.atkinseng.com

11/19/2020

DII-NMOSE
1900 W 2nd Street
Roswell, NM 88201

Hand Delivered to the DII Office of the State Engineer

Re: Well Log & Record and Plugging Record CP-1857 Pod

To whom it may concern:

Attached please find a well log & record and plugging record, in duplicate, for a 1 (one) soil borings, CP-1857 Pod1.

If you have any questions, please contact me at 575.499.9244 or lucas@atkinseng.com.

Sincerely,

Lucas Middleton

Enclosures: as noted above

PLUGGING RECORD

NOTE: A Well Plugging Plan of Operations shall be approved by the State Engineer prior to plugging - 19.27.4 NMAC

I. GENERAL / WELL OWNERSHIP:

State Engineer Well Number: CP-1857-POD1

Well owner: Matador Production Company (John Hurt) Phone No.: _____

Mailing address: 5400 LBJ Freeway, Suite 1500

City: Dallas State: TX Zip code: 75240

II. WELL PLUGGING INFORMATION:

1) Name of well drilling company that plugged well: Atkins Engineering Associates, Inc.

2) New Mexico Well Driller License No.: 1249 Expiration Date: 04/30/2021

3) Well plugging activities were supervised by the following well driller(s)/rig supervisor(s): Shane Eldridge

4) Date well plugging began: 11/13/2020 Date well plugging concluded: 11/13/2020

5) GPS Well Location: Latitude: 32° deg, 41' min, 54.26" sec
Longitude: -103° deg, 40' min, 49.46" sec, WGS 84

6) Depth of well confirmed at initiation of plugging as: 107 ft below ground level (bgl), by the following manner: weighted tape

7) Static water level measured at initiation of plugging: N/A ft bgl

8) Date well plugging plan of operations was approved by the State Engineer: 11/10/20

9) Were all plugging activities consistent with an approved plugging plan? Yes If not, please describe differences between the approved plugging plan and the well as it was plugged (attach additional pages as needed):

10) Log of Plugging Activities - Label vertical scale with depths, and indicate separate plugging intervals with horizontal lines as necessary to illustrate material or methodology changes. Attach additional pages if necessary.

For each interval plugged, describe within the following columns:

Depth (ft bgl)	Plugging Material Used (include any additives used)	Volume of Material Placed (gallons)	Theoretical Volume of Borehole/ Casing (gallons)	Placement Method (tremie pipe, other)	Comments ("casing perforated first", "open annular space also plugged", etc.)
	0-10' Hydrated Baroid Hole Plug	31 gallons	29 gallons	Auger	
	10'-107' drill cuttings	Approx. 184 gallons	184 gallons	Auger	

MULTIPLY		BY		AND OBTAIN
cubic feet	x	7.4805	=	gallons
cubic yards	x	201.97	=	gallons

III. SIGNATURE:

I, Jackie D. Atkins, say that I am familiar with the rules of the Office of the State Engineer pertaining to the plugging of wells and that each and all of the statements in this Plugging Record and attachments are true to the best of my knowledge and belief.

Jack Atkins

Signature of Well Driller

11/19/20

Date

Version: September 8, 2009
Page 2 of 2

2020-11-19_CP-01857-POD1_Plugging Record-forsign

Final Audit Report 2020-11-19

Created:	2020-11-19
By:	Lucas Middleton (lucas@atkinseng.com)
Status:	Signed
Transaction ID:	CBJCHBCAABAAI0SUXNn7wMp2gmBN7LDD9YaWEcLkddQL

"2020-11-19_CP-01857-POD1_Plugging Record-forsign" History

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WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

1. GENERAL AND WELL LOCATION

OSE POD NO. (WELL NO.)	WELL TAG ID NO.	OSE FILE NO(S).
POD1 (BH-01)	n/a	CP-1857

WELL OWNER NAME(S)	PHONE (OPTIONAL)
Matador Production Company (John Hurt)	

WELL OWNER MAILING ADDRESS	CITY	STATE	ZIP
5400 LBJ Freeway, Suite 1500	Dallas	TX	75240

WELL LOCATION (FROM GPS)		DEGREES	MINUTES	SECONDS	
	LATITUDE	32°	41'	54.26"	N
	LONGITUDE	-103°	40'	49.46"	W

* ACCURACY REQUIRED: ONE TENTH OF A SECOND
* DATUM REQUIRED: WGS 84

DESCRIPTION RELATING WELL LOCATION TO STREET ADDRESS AND COMMON LANDMARKS – PLSS (SECTION, TOWNSHIP, RANGE) WHERE AVAILABLE

SW SE SE Sec. 32 T18S R33E, NMPM

2. DRILLING & CASING INFORMATION

LICENSE NO.	NAME OF LICENSED DRILLER	NAME OF WELL DRILLING COMPANY
1249	Jackie D. Atkins	Atkins Engineering Associates, Inc.

DRILLING STARTED	DRILLING ENDED	DEPTH OF COMPLETED WELL (FT)	BORE HOLE DEPTH (FT)	DEPTH WATER FIRST ENCOUNTERED (FT)
11/10/20	11/10/20	temporary well material	107	n/a

COMPLETED WELL IS: ☐ ARTESIAN ☑ DRY HOLE ☐ SHALLOW (UNCONFINED) — STATIC WATER LEVEL IN COMPLETED WELL (FT): n/a

DRILLING FLUID: ☑ AIR ☐ MUD ADDITIVES – SPECIFY:

DRILLING METHOD: ☑ ROTARY ☐ HAMMER ☐ CABLE TOOL ☐ OTHER – SPECIFY: Hollow Stem Auger

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	BORE HOLE DIAM (inches)	CASING MATERIAL AND/OR GRADE (include each casing string, and note sections of screen)	CASING CONNECTION TYPE (add coupling diameter)	CASING INSIDE DIAM. (inches)	CASING WALL THICKNESS (inches)	SLOT SIZE (inches)
0	59	±8.5	Boring- HSA	--	--	--	--
59	107	±4.5	Boring- Air Rotary	--	--	--	--

3. ANNULAR MATERIAL

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	BORE HOLE DIAM. (inches)	LIST ANNULAR SEAL MATERIAL AND GRAVEL PACK SIZE-RANGE BY INTERVAL	AMOUNT (cubic feet)	METHOD OF PLACEMENT

FOR OSE INTERNAL USE — WR-20 WELL RECORD & LOG (Version 06/30/17)

FILE NO.	POD NO.	TRN NO.
LOCATION	WELL TAG ID NO.	PAGE 1 OF 2

APPLICANT COPY

4. HYDROGEOLOGIC LOG OF WELL

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	THICKNESS (feet)	COLOR AND TYPE OF MATERIAL ENCOUNTERED - INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES (attach supplemental sheets to fully describe all units)	WATER BEARING? (YES / NO)	ESTIMATED YIELD FOR WATER-BEARING ZONES (gpm)
0	4	4	Sand, medium grained , poorly-graded, Tan	Y ✓ N	
4	14	10	Sand, medium grained with clay, Tanish Brown	Y ✓ N	
14	19	5	Sand, medium grained with clay, and Caliche, Tanish Brown	Y ✓ N	
19	29	10	Sand, medium grained with gravel (0.5") Tanish Brown	Y ✓ N	
29	49	20	Sand, medium grained , poorly-graded, Tanish Brown	Y ✓ N	
49	59	10	Sand, medium grained with and Caliche, Tanish Brown	Y ✓ N	
59	64	5	Clay, Stiff Maroon	Y ✓ N	
64	94	30	Sand, medium/Fine grained with Stiff clay,Dark Brown	Y ✓ N	
94	107	13	Clay, Stiff Maroon	Y ✓ N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	

METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA:

☐ PUMP ☐ AIR LIFT ☐ BAILER ☐ OTHER – SPECIFY:

TOTAL ESTIMATED WELL YIELD (gpm): 0.00

5. TEST; RIG SUPERVISION

WELL TEST: TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING DISCHARGE METHOD, START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.

MISCELLANEOUS INFORMATION: Temporary well materials removed and the soil boring backfilled using drill cuttings from total depth to ten feet below ground surface, then hydrated bentonite chips from ten feet below ground surface to surface.

PRINT NAME(S) OF DRILL RIG SUPERVISOR(S) THAT PROVIDED ONSITE SUPERVISION OF WELL CONSTRUCTION OTHER THAN LICENSEE:

Shane Eldridge

6. SIGNATURE

THE UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 30 DAYS AFTER COMPLETION OF WELL DRILLING:

Jack Atkins — Jackie D. Atkins — 11/19/20

SIGNATURE OF DRILLER / PRINT SIGNEE NAME — DATE

FOR OSE INTERNAL USE — WR-20 WELL RECORD & LOG (Version 06/30/2017)

FILE NO.	POD NO.	TRN NO.	
LOCATION		WELL TAG ID NO.	PAGE 2 OF 2

2020-11-19_CP-01857-POD1_Well Record and Log-for sign

Final Audit Report 2020-11-19

Created:	2020-11-19
By:	Lucas Middleton (lucas@atkinseng.com)
Status:	Signed
Transaction ID:	CBJCHBCAABAAZj956KP2sgGb9UtoKqVEqwp4jz28N41y

"2020-11-19_CP-01857-POD1_Well Record and Log-for sign" History

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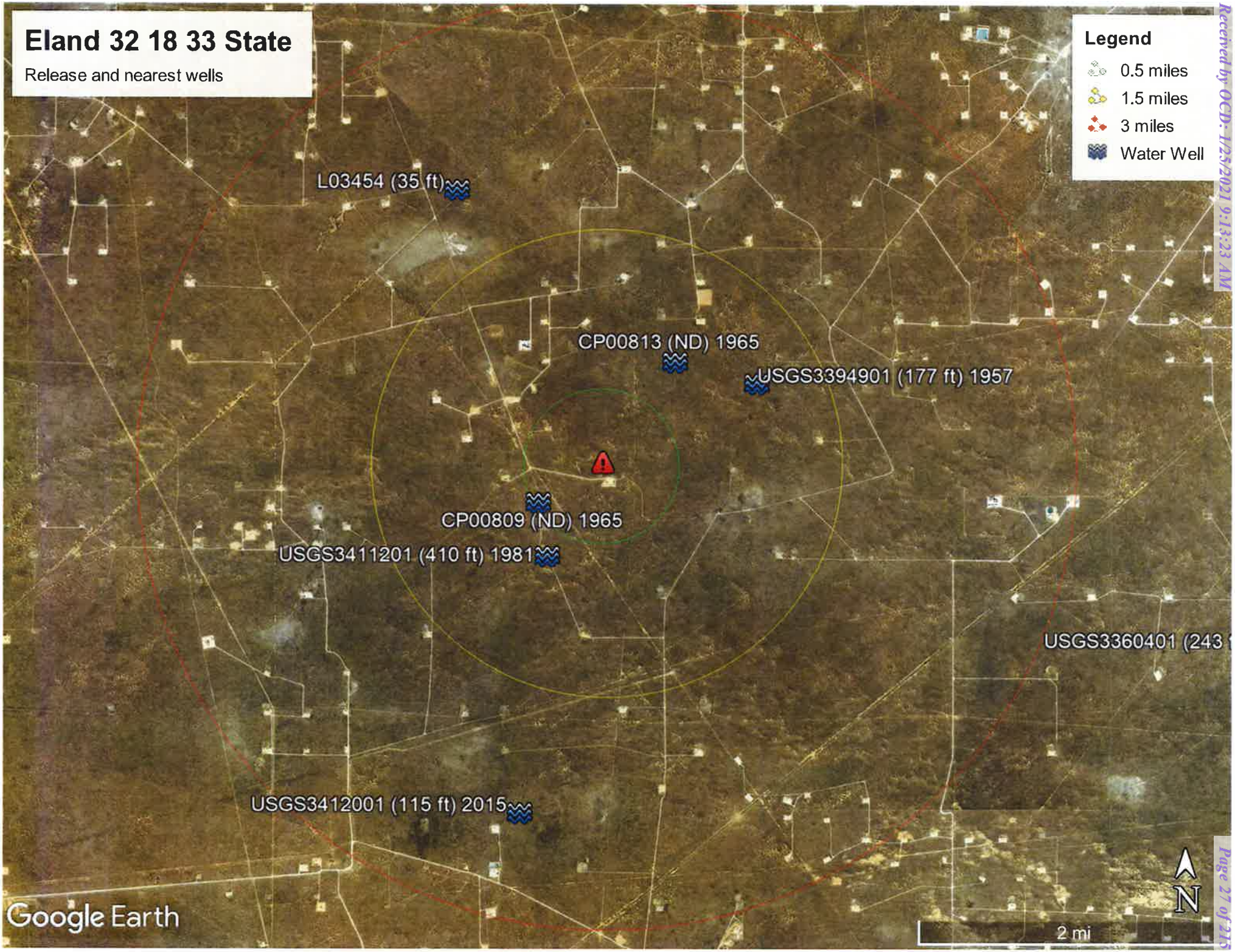

New Mexico Office of the State Engineer

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	Twn	Rng	X	Y
	CP 00809 POD1	2	1		05	19S	33E	623048	3618206*

Driller License: 122 **Driller Company:** UNKNOWN

Driller Name: UNKNOWN, UNKNOWN

Drill Start Date:		**Drill Finish Date:**	12/31/1965	**Plug Date:**	
Log File Date:		**PCW Rcv Date:**		**Source:**	Shallow
Pump Type:		**Pipe Discharge Size:**		**Estimated Yield:**	8 GPM
Casing Size:	6.00	**Depth Well:**	300 feet	**Depth Water:**	

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

New Mexico Office of the State Engineer

Point of Diversion Summary

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest) (NAD83 UTM in meters)

Well Tag	POD Number	Q64	Q16	Q4	Sec	Tws	Rng	X	Y
	CP 00813 POD1			1	33	18S	33E	624441	3619644*

Driller License: 122 **Driller Company:** UNKNOWN

Driller Name: UNKNOWN, UNKNOWN

Drill Start Date:		**Drill Finish Date:**	12/31/1965	**Plug Date:**	
Log File Date:		**PCW Rcv Date:**		**Source:**	Shallow
Pump Type:		**Pipe Discharge Size:**		**Estimated Yield:**	8 GPM
Casing Size:	6.00	**Depth Well:**	300 feet	**Depth Water:**	

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

9/21/20 4:40 PM POINT OF DIVERSION SUMMARY

New Mexico Office of the State Engineer

Point of Diversion Summary

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest) (NAD83 UTM in meters)

Well Tag	POD Number	Q64	Q16	Q4	Sec	Tws	Rng	X	Y
	L 03454	2	2		30	18S	33E	622200	3621422*

Driller License: 99 **Driller Company:** O.R. MUSSELWHITE WATER WELL SE

Driller Name: MUSSELWHITE, O.R.

Drill Start Date: 03/29/1957 **Drill Finish Date:** 03/30/1957 **Plug Date:**

Log File Date: 04/17/1957 **PCW Rcv Date:** **Source:** Shallow

Pump Type: **Pipe Discharge Size:** **Estimated Yield:**

Casing Size: 6.63 **Depth Well:** 100 feet **Depth Water:** 35 feet

Water Bearing Stratifications:	Top	Bottom	Description
	70	97	Sandstone/Gravel/Conglomerate

Casing Perforations:	Top	Bottom
	75	100

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

9/21/20 4:41 PM POINT OF DIVERSION SUMMARY

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USGS Water Resources

Data Category: Groundwater | Geographic Area: United States | GO

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Groundwater levels for the Nation

Search Results -- 1 sites found

site_no list =

- 323947103412001

Minimum number of levels = 1

Save file of selected sites to local disk for future upload

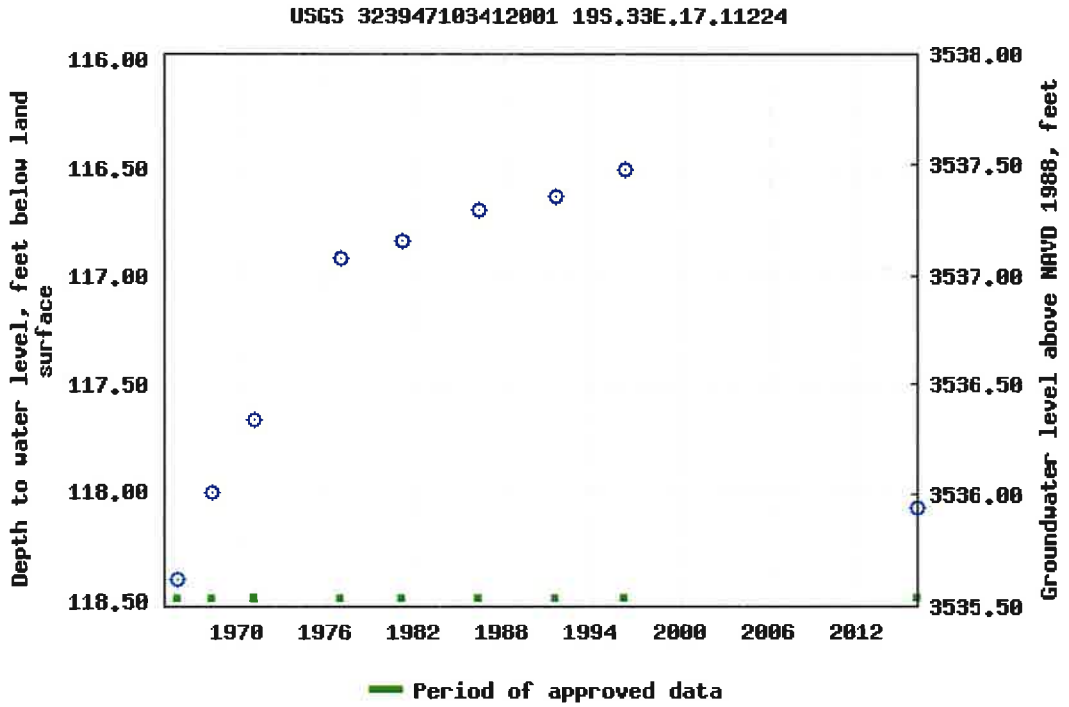
USGS 323947103412001 19S.33E.17.11224

Available data for this site | Groundwater: Field measurements | GO

Lea County, New Mexico
Hydrologic Unit Code 13060011
Latitude 32°40'01.8", Longitude 103°41'24.3" NAD83
Land-surface elevation 3,654 feet above NAVD88
The depth of the well is 131 feet below land surface.
This well is completed in the Alluvium, Bolson Deposits and Other Surface Deposits (110AVMB) local aquifer.

Output formats

Table of data
Tab-separated data
Graph of data
Reselect period



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Title: Groundwater for USA: Water Levels
URL: https://nwis.waterdata.usgs.gov/nwis/gwlevels?

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Page Last Modified: 2020-09-21 18:54:26 EDT
0.71 0.58 nadww01

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site_no list =

- 324046103360401

Minimum number of levels = 1

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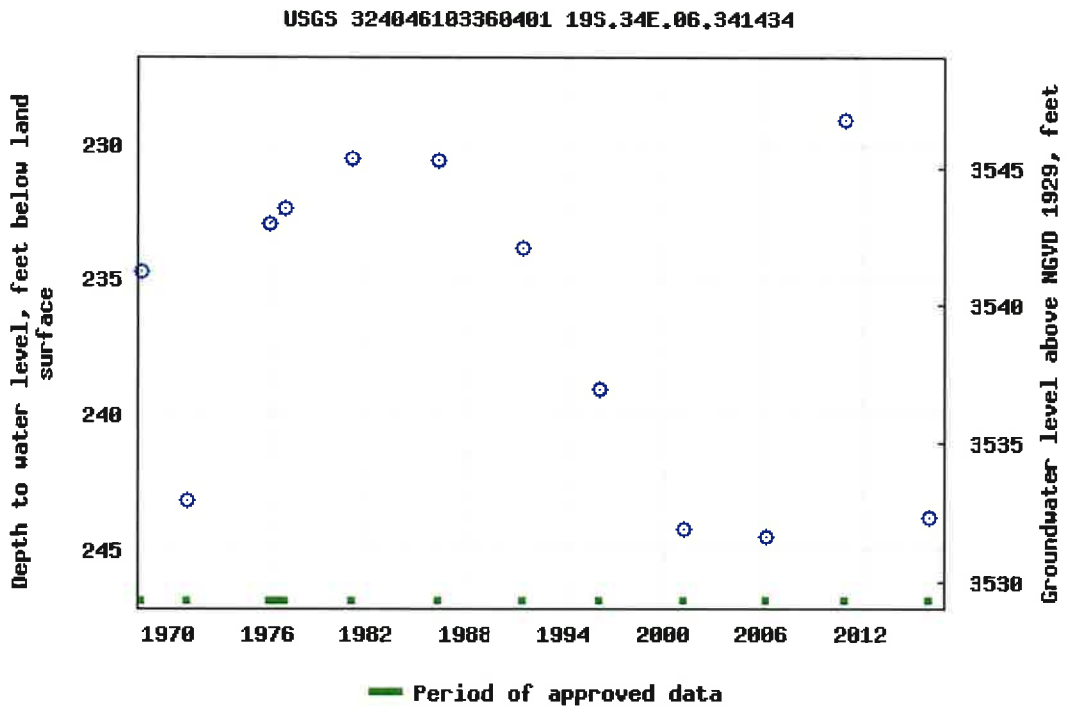
USGS 324046103360401 19S.34E.06.341434

Available data for this site | Groundwater: Field measurements | GO

Lea County, New Mexico
Hydrologic Unit Code 13060011
Latitude 32°41'02.3", Longitude 103°36'09.30" NAD83
Land-surface elevation 3,776.00 feet above NGVD29
The depth of the well is 500 feet below land surface.
This well is completed in the Santa Rosa Sandstone (231SNRS) local aquifer.

Output formats

Table of data
Tab-separated data
Graph of data
Reselect period



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site_no list =

- 324126103411201

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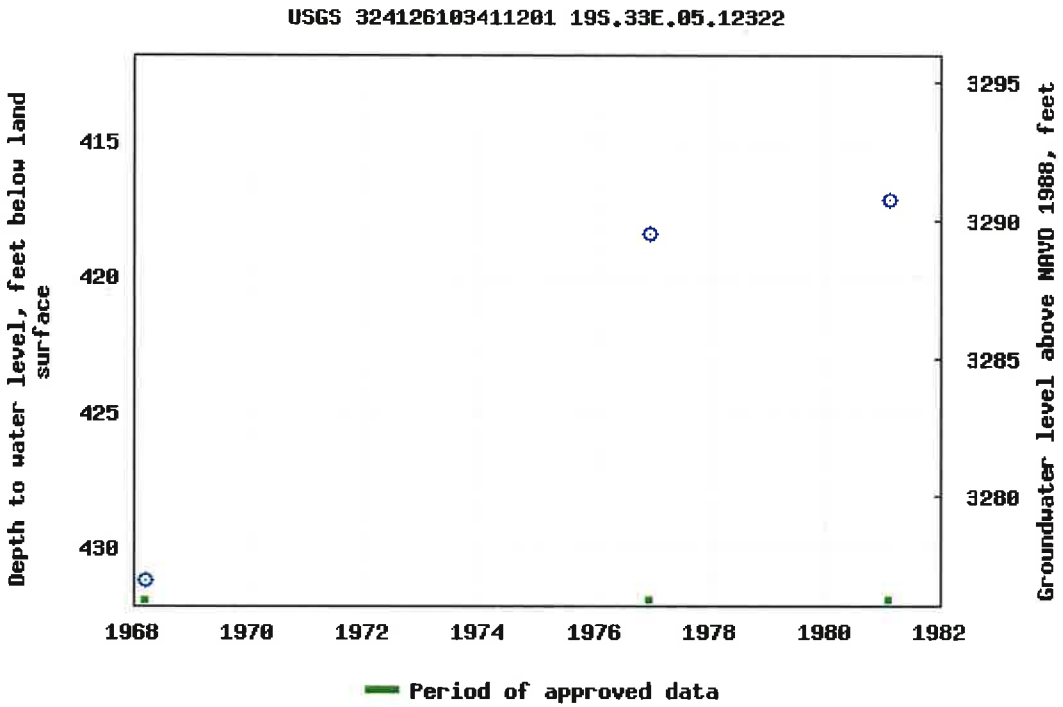
USGS 324126103411201 19S.33E.05.12322

Available data for this site Groundwater: Field measurements | GO

Lea County, New Mexico
Hydrologic Unit Code 13060011
Latitude 32°41'26", Longitude 103°41'12" NAD27
Land-surface elevation 3,708 feet above NAVD88
The depth of the well is 700 feet below land surface.
This well is completed in the Santa Rosa Sandstone (231SNRS) local aquifer.

Output formats

Table of data
Tab-separated data
Graph of data
Reselect period



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- 324224103394901

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USGS 324224103394901 18S.33E.33.21131

Available data for this site Groundwater: Field measurements | GO

Lea County, New Mexico
Hydrologic Unit Code 13060011
Latitude 32°42'24", Longitude 103°39'49" NAD27
Land-surface elevation 3,769 feet above NAVD88
The depth of the well is 200 feet below land surface.
This well is completed in the Chinle Formation (231CHNL) local aquifer.

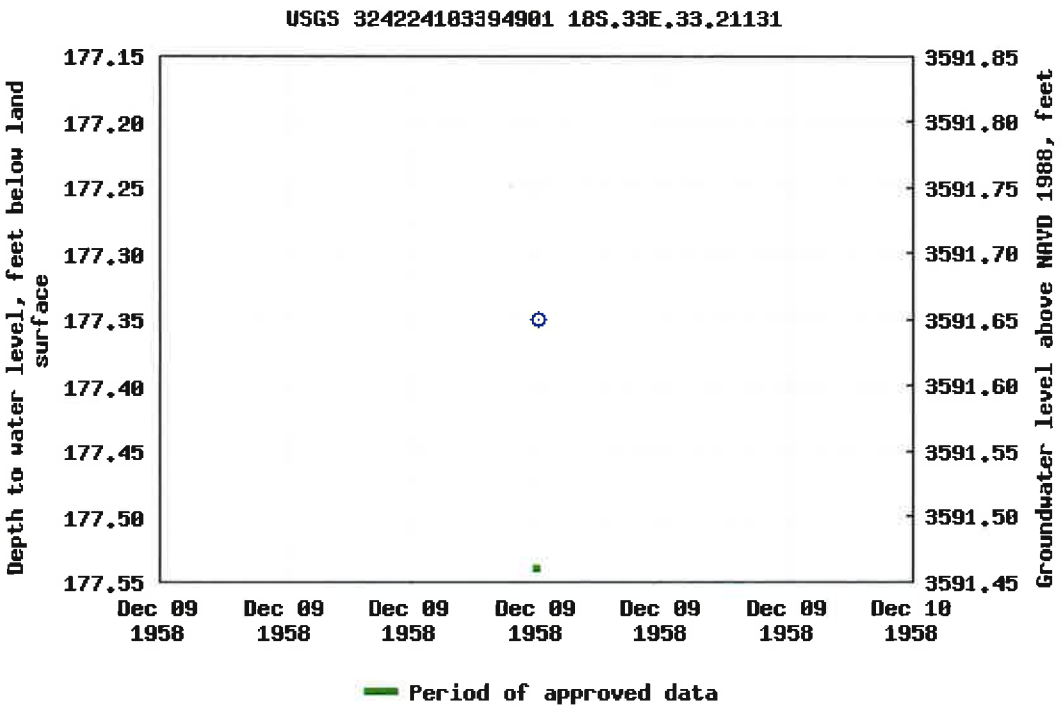
Output formats

Table of data

Tab-separated data

Graph of data

Reselect period



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Lea County, New Mexico
Hydrologic Unit Code 13060011
Latitude 32°42'24", Longitude 103°44'41" NAD27
Land-surface elevation 3,723 feet above NAVD88
This well is completed in the Chinle Formation (231CHNL) local aquifer.

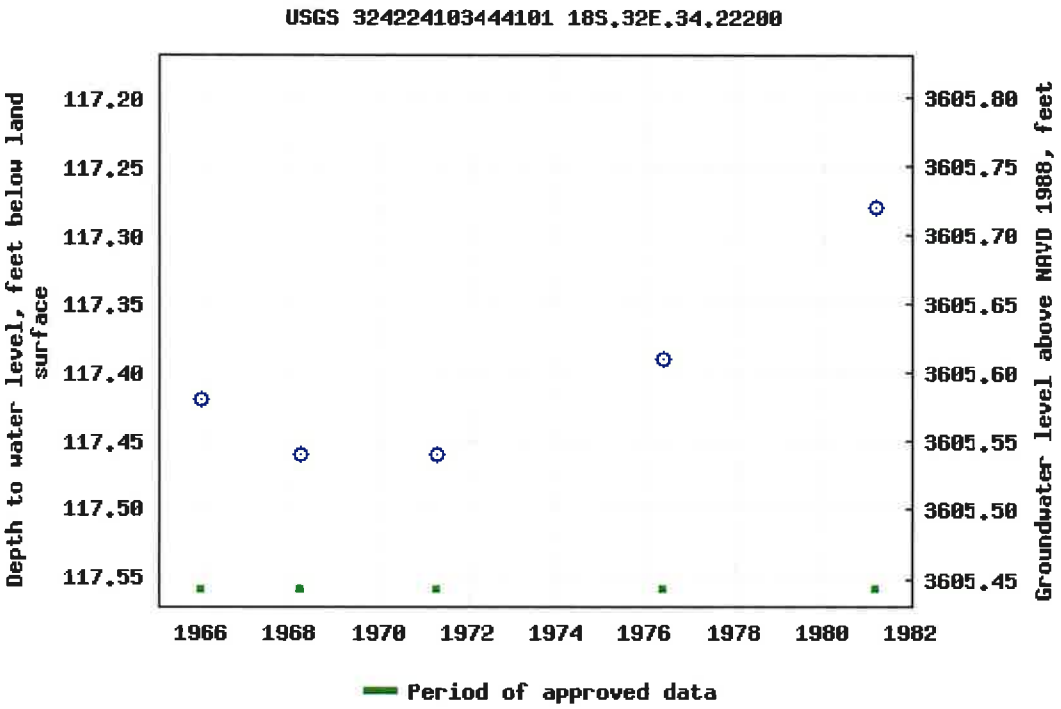
Output formats

Table of data

Tab-separated data

Graph of data

Reselect period



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URL: https://nwis.waterdata.usgs.gov/nwis/gwlevels?

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USGS 324126103411201 19S.33E.05.12322

Available data for this site: SUMMARY OF ALL AVAILABLE DATA | GO

Well Site

DESCRIPTION:
Latitude 32°41'26", Longitude 103°41'12" NAD27
Lea County, New Mexico , Hydrologic Unit 13060011
Well depth: 700 feet
Land surface altitude: 3,708 feet above NAVD88.
Well completed in "Santa Rosa Sandstone" (231SNRS) local aquifer

AVAILABLE DATA:

Data Type	Begin Date	End Date	Count
Field groundwater-level measurements	1968-03-15	1981-02-05	3
Revisions	Unavailable (site:0) (timeseries:0)		

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

U.S. Fish and Wildlife Service
National Wetlands Inventory

Eland State #123H

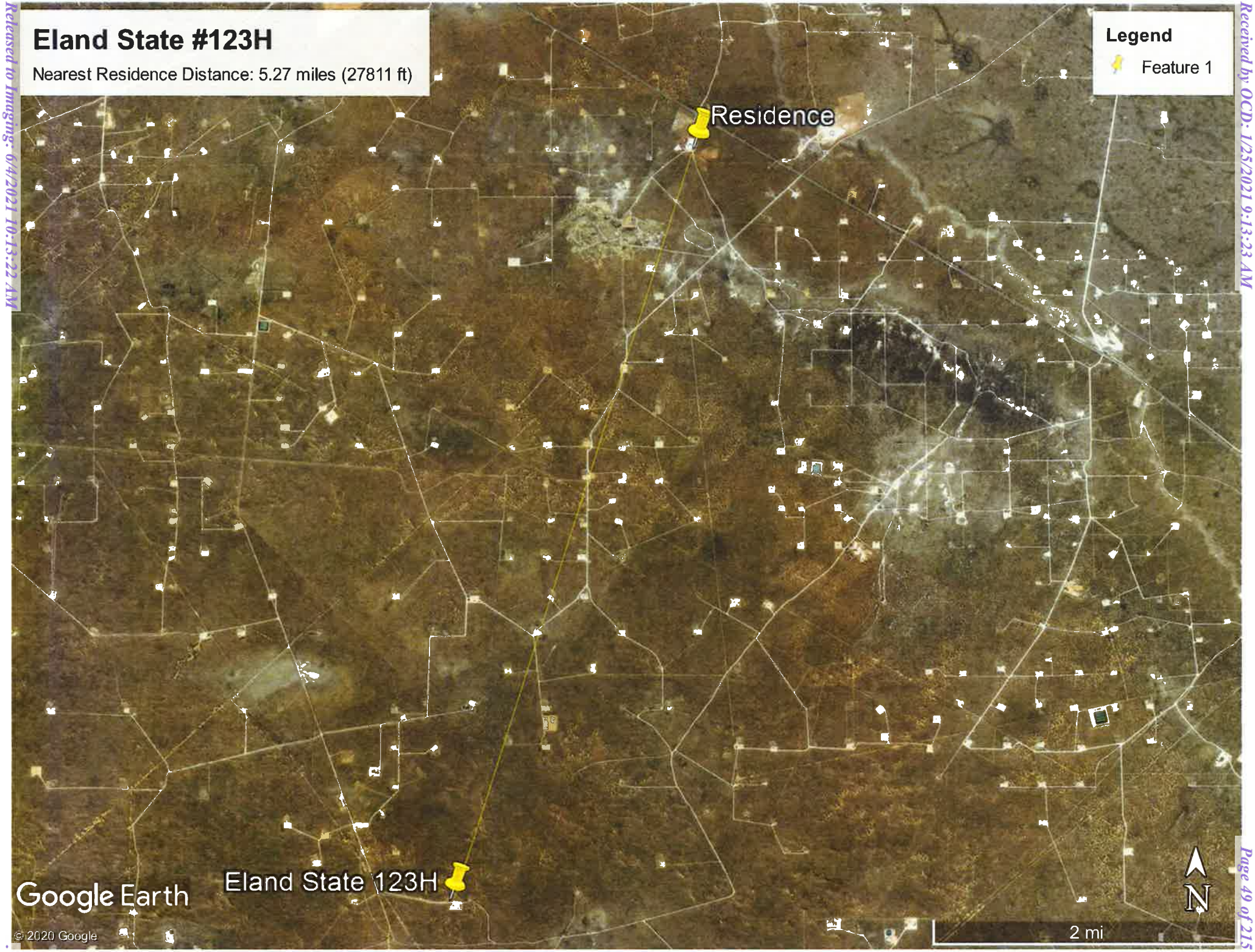
September 15, 2020

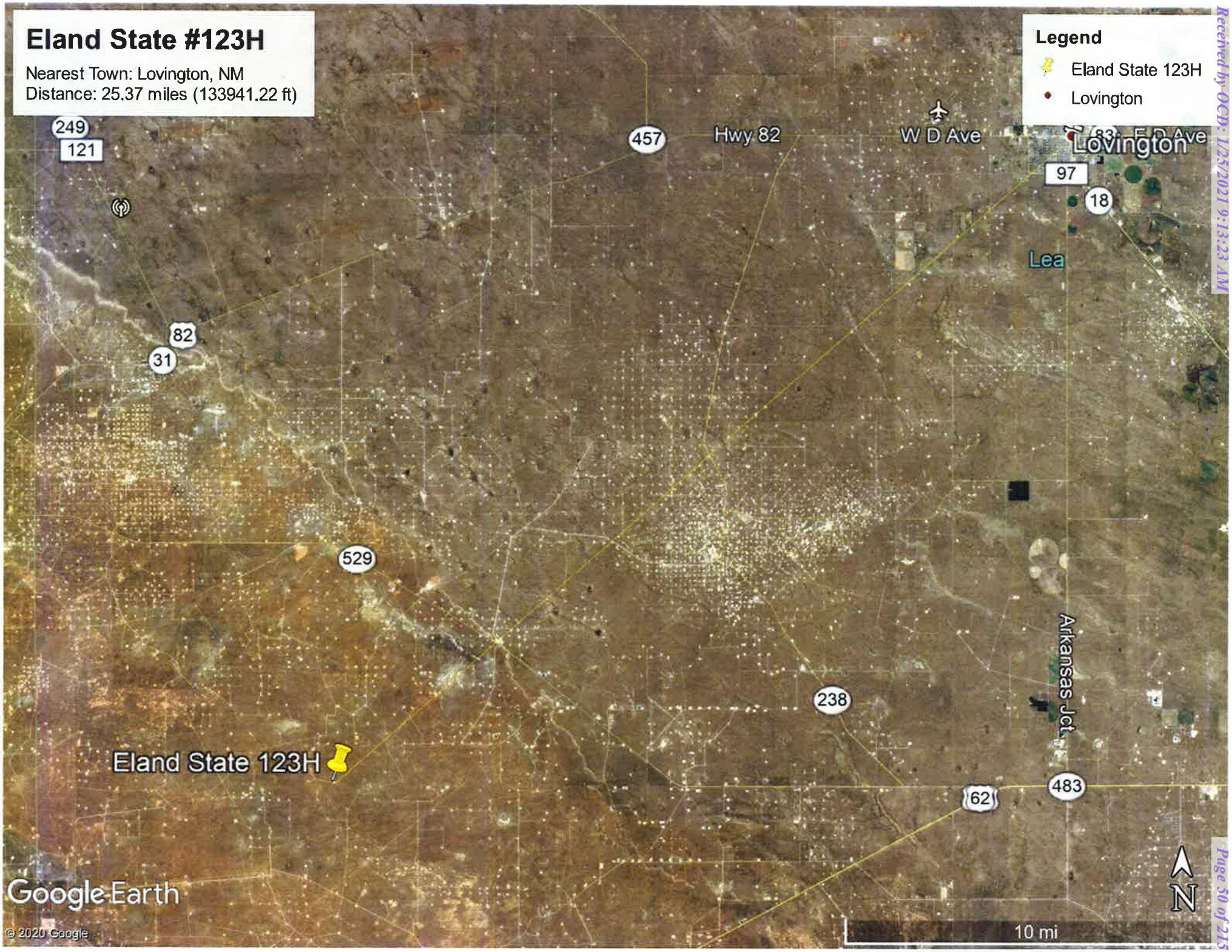
Wetlands

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

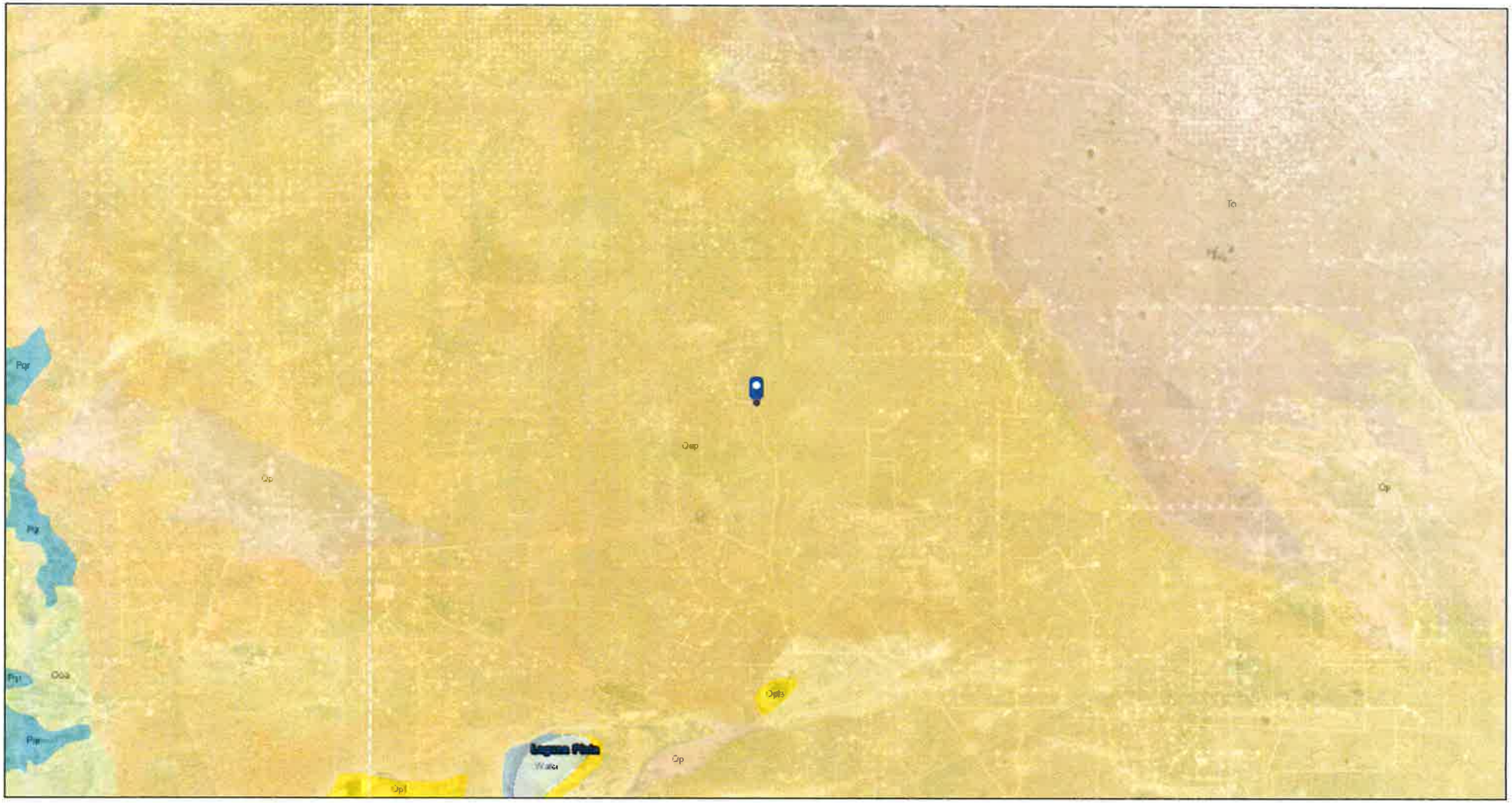
This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

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





Eland State #123H



9/15/2020, 3:30:06 PM

1:144,448

0 1.5 3 6 mi

0 2.25 4.5 9 km

Faults

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

Dikes

- <all other values>
- Dike
- Dike intruding fault
- Volcanic Vents

STATEMAP (1993 to Present) [Publications]

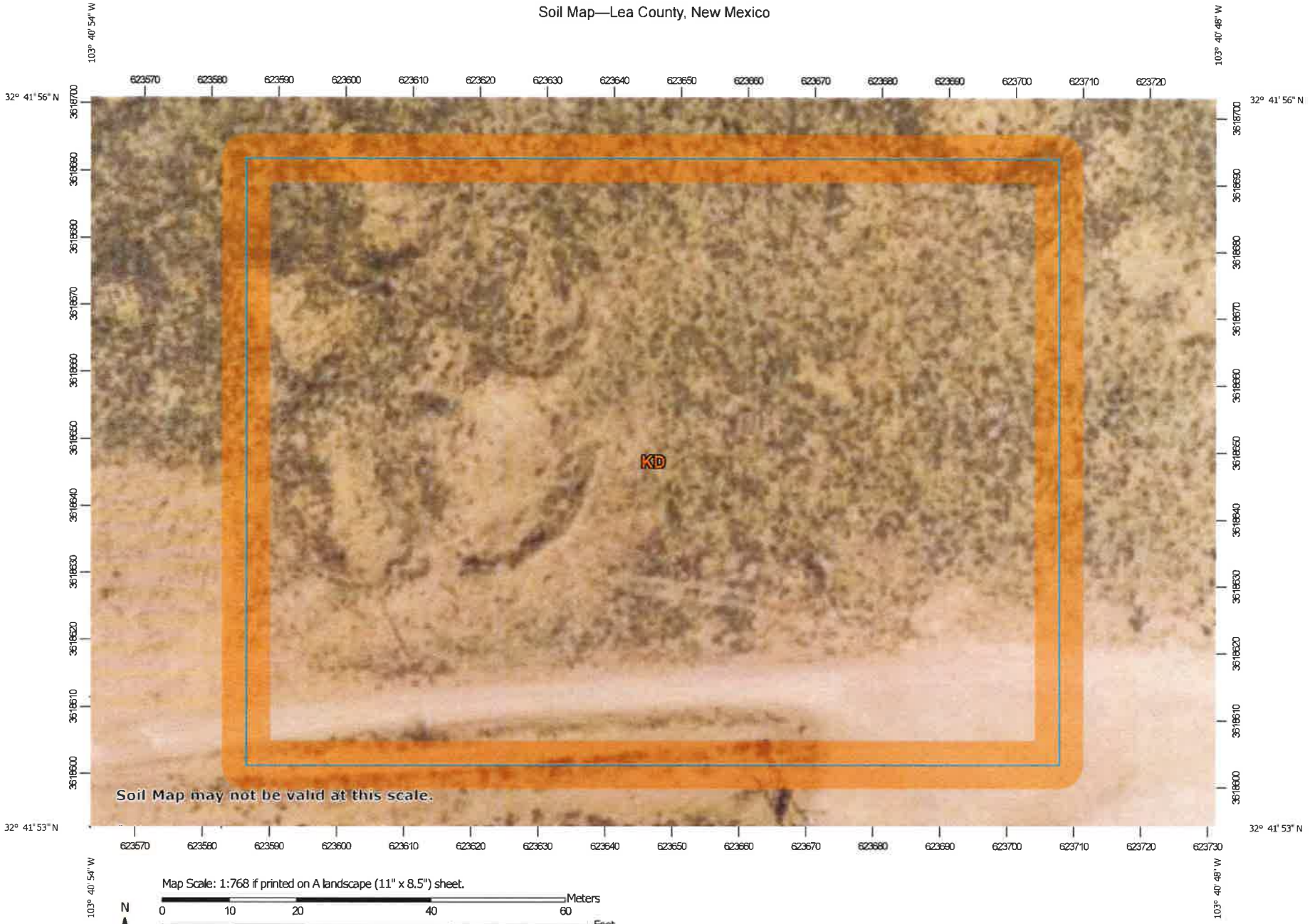
- Mapping in Complete
- Mapping in Progress

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community, NMBGMR

Web AppBuilder for ArcGIS

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

Soil Map—Lea County, New Mexico



Map Scale: 1:768 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 10 20 40 60

Feet: 0 35 70 140 210

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

MAP LEGEND

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

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

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

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

Soil Survey Area: Lea County, New Mexico
Survey Area Data: Version 17, Jun 8, 2020

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

Date(s) aerial images were photographed: Feb 7, 2020—May 12, 2020

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
KD	Kermit-Palomas fine sands, 0 to 12 percent slopes	2.7	100.0%
Totals for Area of Interest		**2.7**	**100.0%**

Lea County, New Mexico

KD—Kermit-Palomas fine sands, 0 to 12 percent slopes

Map Unit Setting

National map unit symbol: dmpv
Elevation: 3,000 to 4,400 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 60 to 62 degrees F
Frost-free period: 190 to 205 days
Farmland classification: Not prime farmland

Map Unit Composition

Kermit and similar soils: 70 percent
Palomas and similar soils: 20 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Kermit

Setting

Landform: Dunes
Landform position (two-dimensional): Shoulder, backslope, footslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex, linear, concave
Across-slope shape: Convex
Parent material: Calcareous sandy eolian deposits derived from sedimentary rock

Typical profile

A - 0 to 8 inches: fine sand
C - 8 to 60 inches: fine sand

Properties and qualities

Slope: 3 to 12 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Very high (20.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.0 mmhos/cm)
Sodium adsorption ratio, maximum: 2.0
Available water capacity: Low (about 3.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e

Hydrologic Soil Group: A
Ecological site: R042XC005NM - Deep Sand
Hydric soil rating: No

Description of Palomas

Setting

Landform: Dunes
Landform position (two-dimensional): Shoulder, backslope, footslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex, linear, concave
Across-slope shape: Convex
Parent material: Alluvium derived from sandstone

Typical profile

A - 0 to 16 inches: fine sand
Bt - 16 to 60 inches: sandy clay loam
Bk - 60 to 66 inches: sandy loam

Properties and qualities

Slope: 0 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 50 percent
Gypsum, maximum content: 1 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 2.0
Available water capacity: Moderate (about 7.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: B
Ecological site: R042XC003NM - Loamy Sand
Hydric soil rating: No

Minor Components

Pyote

Percent of map unit: 4 percent
Ecological site: R042XC003NM - Loamy Sand
Hydric soil rating: No

Maljamar

Percent of map unit: 4 percent
Ecological site: R042XC003NM - Loamy Sand

Hydric soil rating: No

Palomas

Percent of map unit: 1 percent
Ecological site: R042XC003NM - Loamy Sand
Hydric soil rating: No

Dune land

Percent of map unit: 1 percent
Hydric soil rating: No

Data Source Information

Soil Survey Area: Lea County, New Mexico
Survey Area Data: Version 17, Jun 8, 2020

Rev. 09/04/07

Evaluation Worksheet for Rangeland Health

Ranch Name : _____

Management Unit : _____ (Allotment or Pasture) **State:** NM **Office:** _____ **Range/Ecol.Site Code:** R042XC005NM

Ecological Site Name: Deep Sand **Soil Map Unit/Component Name:** Anthony Bluepoint

Observers : John Tunberg, **Date :** 02/17/10

Location (description) :

T. N/A **R.** N/A **or** ° ' " **N. Lat.** **or** **UTM - E** N/A **m** **Position by GPS ?** Y/N Y

Sec. N/A , N/A ° ' " **W. Long.** **UTM - N** N/A **m** **UTM Zone** 13 **Datum** N/A

Photos taken ? **Y/N** _____

Size of evaluation area : 1 to 2 acres

Soil / site verifiction :

Range/Ecol.Site Descr., Soil Surv., and/or Ecol. Ref. Area :

Surface texture : _____

Depth: **Very shallow** ___ **Shallow** ___ **Moderate** ___ **Deep** ___

Type and depth of diagnostic horizons :

1. _____
2. _____
3. _____
4. _____

Surf.Efferv.: **none** ___ **v.slight** ___ **slight** ___ **strong** ___ **violent** ___

Evaluation Area :

Surface texture : _____

Depth: **Very shallow** ___ **Shallow** ___ **Moderate** ___ **Deep** ___

Type and depth of diagnostic horizons :

1. _____
2. _____
3. _____
4. _____

Surf.Efferv.: **none** ___ **v.slight** ___ **slight** ___ **strong** ___ **violent** ___

Parent material _____ **Slope** ___ **%** **Elevation** _____ **Topographic position** _____ **Aspect** _____

Average annual precipitation _____ **inches** **Seasonal distribution** _____

Recent weather (last 2 years) **(1) drought** ___ **(2) normal** X **or (3) wet** ___

Wildlife use, livestock use (intensity and season of alloted use), and recent disturbances :

_____

_____

Off-site influences on evaluation area:

_____

_____

Criteria used to select this particular evaluation are as REPRESENTATIVE (specific info. and factors considered; degree of "representativeness")

_____

_____

Other remarks (continue on back if necessary)

_____

_____

Reference : **(1) Ecological Reference Worksheet :** _____ ; **Author :** _____ **Date :** _____

or (2) Other (e.g. name and date of ecological site description, locations of ecological reference area (s) _____

Photograph (s)

MLRA : _____ **Date :** _____

Ecological Site : _____

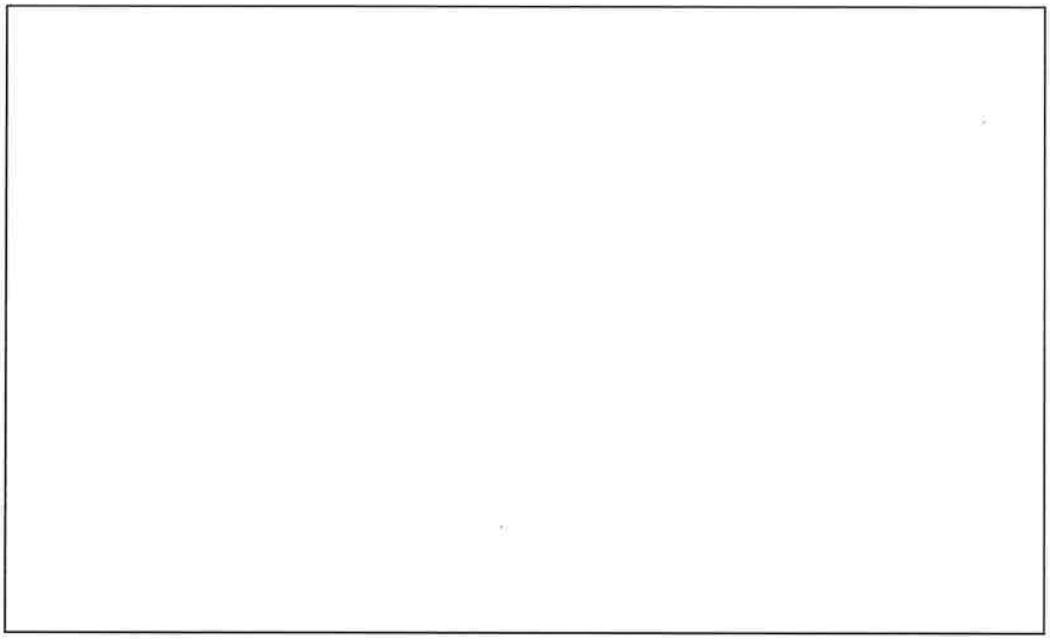


Photo # 1

Comments : _____

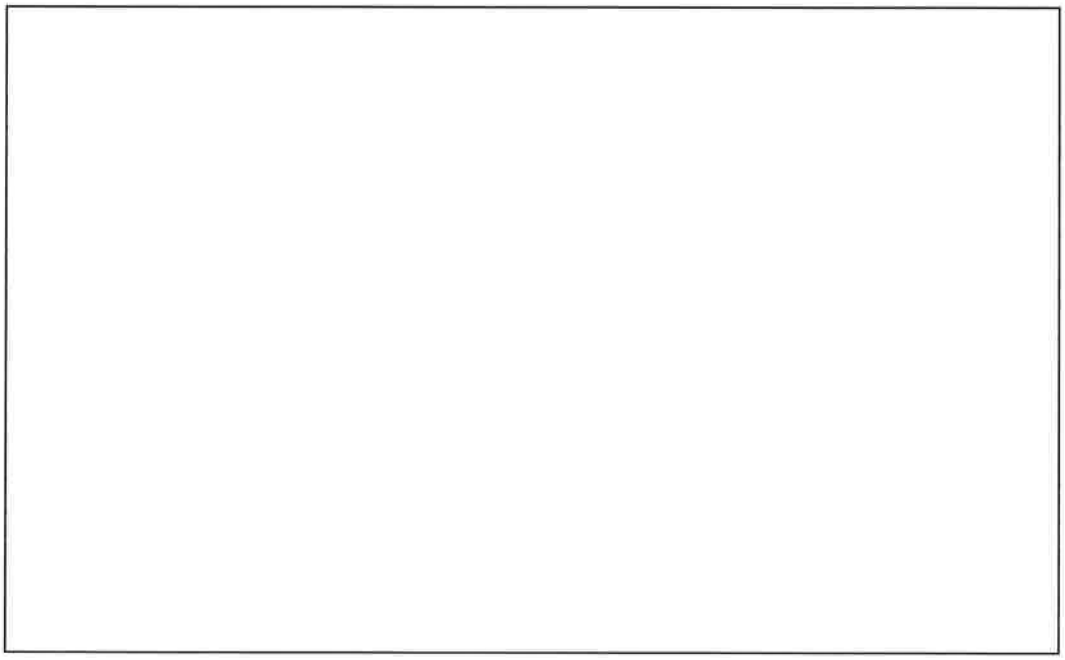


Photo # 2

Comments : _____

Ecological Reference Worksheet

Author(s) / participant(s): John Tunberg,

Contact for lead author : 505-761-4488 **Reference site used? Yes/No** No

Date: 2/17/2010 **MLRA:** 42.3 **Ecological Site:** Deep Sand This *must* be verified based on soils and climate (see Ecological Site Description). Current plant community *cannot* be used to identify the ecological site.

Indicators: For each indicator, describe the potential for the site. Where possible, **(1)** use numbers, **(2)** include expected range of values for above and below average years for **each** community within the reference state, when appropriate & **(3)** site data. Continue description on separate sheet.

1. Number and extent of rills There should not be any rills on this site at less than 5 % slope and few above that range..
After wildfires, or abnormally high human or herbivore impacts or extended drought or combinations of these disturbances rills may double in number on steeper slopes at the margins of this site after high-intensity summer thunderstorms. Any rills formed should not be long lived or interconnected and should heal rapidly.

2. Presence of water flow patterns: None or few on slopes less than 5%. Soils have rapid permeability and low runoff potential

Water flow patterns should only be present following intense storm events on upper slope limits at the margins of this site. Numerous obstructions alter flow paths. Flow pattern length and numbers may double after wildfires, or abnormally high human or herbivore impacts or extended drought or combinations of these disturbances.

3. Number and height of erosional pedestals or terracettes: There should not be any pedestals and terracettes should be rare.
If present plant or rock pedestals and terracettes are almost always in flow patterns. Wind caused pedestals are rare and only would be on the site following after wildfires, or abnormally high human or herbivore impacts or extended drought or combinations of these disturbances. These would show signs of healing within 1 year after event.

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

Bare ground can make up 35 to 40% of the aerial cover on this site. Bare areas can be large up to a meter in size. Bare areas can be distributed throughout the site with limited connectivity.

5. Number of gullies and erosion associated with gullies: There should not be any gullies or erosion associated with gullies on this site.

Natural drainages with little to no active cutting are common on this site. There should not be any accelerated erosion. After high-intensity summer thunderstorms or after wildfire, or abnormally high human or herbivore impacts or extended drought or combinations of these disturbances then gully formation would be accelerated for a year or two. Evidence of healing within 1 year of event and continuing after that. Low stabilized dunes or hummock can be present.

6. Extent of wind scoured, blowouts and/or depositional area
Wind scoured , blowouts and/or depositional areas should be rare and associated with disturbances (e.g. small mammal burrows, resting areas). Wind erosion is minimal when the site is in a well vegetated condition. Significant wind erosion would only be present following high-intensity summer thunderstorms, after wildfire, or abnormally high human or herbivore impacts or extended drought or combinations of these disturbances. After rain events, exposed soil surfaces form physical crusts that tend to reduce wind erosion. Deposition from off site sources can be common on this site and is in fact a primary soil forming process. This site is succeptable to wind erosion when vegetation is removed or significantly decreased.

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

The size of the litter (grass litter) should be small and its movement should be less than 1 meter across bare patches.

8. Soil surface (top few mm) resistance to erosion (stability) values are averages - most sites will show a range of values for both plant canopy and interspaces, if different) :

This site can be susceptible to wind erosion. Stability values are estimated to be 4 to 5 in interspaces at the surface and subsurface and 5 to 6 at bases of vegetation at the surface and subsurface.

9. Soil surface structures and SOM content (include type and strength of structure, and A-horizon color and thickness for both plant canopy and interspaces, if different) :

A1--0 to 4 inches; yellowish red (5YR 5/6) fine sand, yellowish red (5YR 4/6) moist; single grained with thin bedding planes in upper 2 inches; loose; common very fine roots, very porous; neutral; clear smooth boundary. (3 to 5 inches thick). The SOM content should be less than 1%.

10. Effect of plant community composition (relative proportion of different functional groups) & spatial distribution on infiltration & runoff:
In a grassland with uniformly distributed grass patches on coarse-textured soils, runoff should be low to nil. Most water infiltrates at the plant bases as well as in the interspaces.

11. Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction): There should not be any compaction layers on this site.

There are soil profile features in the top 9 inches of the soil profile that would be mistaken for a management induced soil compaction layer. Management induced compaction layers will be more difficult to penetrate than clay lenses.

12. Functional/Structural Groups (list in order of descending dominance by above-ground weight using symbols: indicate much

greater than (>>) , greater than (>) , and equal to (=) :

Dominants: Dropseed >> Bluestems > shrubs > warm season mid grasses > Minor Component: Forbs

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

Short-lived perennial component can exhibit significant mortality in drought, black grama tends to exhibit mortality only when exposed to drought in addition to other stressors. Shrubs/yucca should exhibit low mortality rates.

14. Average percent litter cover (_____ %) and depth (_____ inches).

35 to 40 % litter cover on this site. Well distributed. Depth of 3/4 inch.

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

(Low Production 600 lbs./ac.) (Average RV Production 1300 lbs./ac.) (High Production 2000 lbs./ac.) After wildfires, high herbivore impacts, extended drought, or combinations of these disturbances, can cause production to be significantly reduced (100-200 lbs per ac. the first growing season following a wildfire) and recover slowly under below average precipitation regimes.

16. Potential invasive (including noxious) species (native and non-native). List species which characterize degraded states and which, after a threshold is crossed, "can, and often do , continue to increase regardless of the management of the site and may eventually dominate

Shinnery Oak, Sandsage, lovegrass and Mesquite can be invaders of this site. Invasive plants should not occur in reference plant community. However, lovegrass, Russian thistle, kochia, and other nonnative annuals may initialy invade following extended disturbance. Shinnery Oak, Sandsage and Mesquite and lovegrass are the greatest threat to dominate this site in the long term after disturbance (primarily following wildfire exclusion but also includes high human or herbivore impacts and extended drought). Shinnery Oak, Sandsage, lovegrass and Mesquite are most likely to retain dominance if allowed to alter natural fire regime (this alteration may require poor land management combined with years of wet winter-spring; dry summer-fall conditions). Any of these invaded communities represent a departure from the reference state.

17. Perennial plant reproductive capability :

Bluestems and dropseeds reproduces by seed as soil moisture year dictates. The dropseeds should have high reproductive potential and rapidly recover from drought in the absence of additional stresses (grazing).

Photograph (s)

MLRA : _____ **Date :** _____

Ecological Site : _____

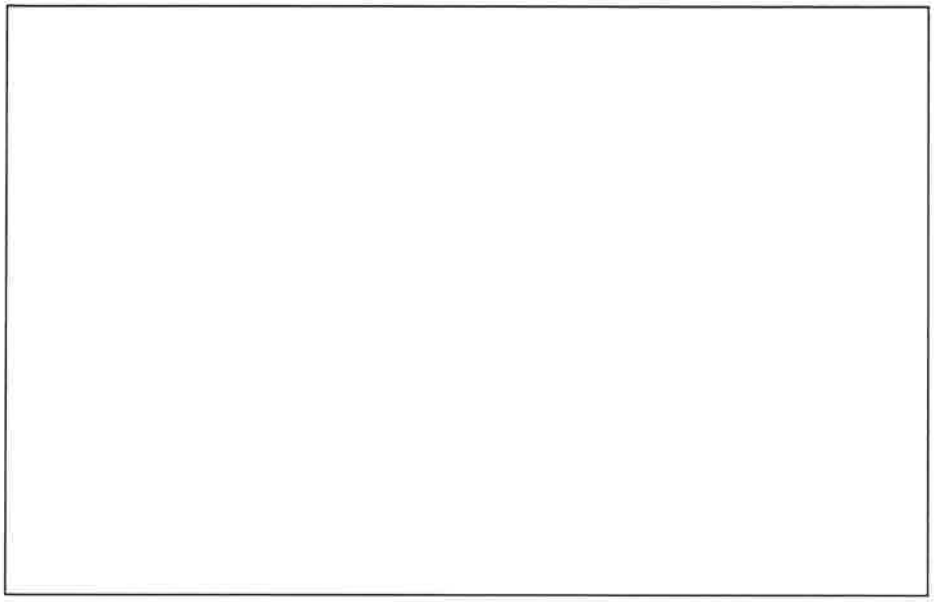


Photo # 1

Comments : _____

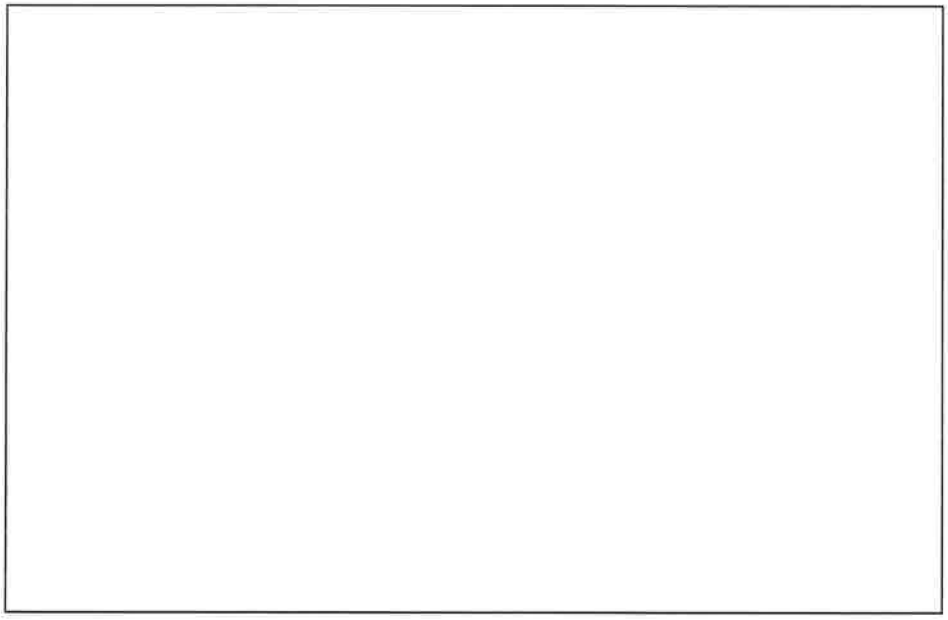


Photo # 2

Comments : _____

Functional / Structural Groups Worksheet

State NM **Office** NMSO **Ecological Site** Sandhills R042XC022NM

Observers John Tunberg, **Date** 2/17/10

Functional / Structural Groups			Species List for Functional / Structural Groups
Name	**Potential 1**	**Actual 2**	**Plant Names**
Biological Crust [3]			

Indicate whether each "structural/functional group" is a Dominant (D) (roughly 40-100% composition), a **Sub-dominant (S)** (roughly 11-40%) composition) a **Minor Component (M)** (3-11% composition), or a **Trace Component (T)** (<3% composition) based on weight or cover composition in the area of interest (e.g., "Actual" column) relative to the "Potential" column derived from information found in the ecological site/description and/or at the ecological reference area.

Biological Crust [3] dominance is evaluated solely on **cover** not composition by weight.

RANGE HEALTH WORKSHEET

Vers.4 - 09/07

Eco-Site : Shallow (R070BY062NM)

Ranch _____ Date _____

Pasture _____ Observer _____

Departure from Expected	Code
None to Slight	N - S
Slight to Moderate	S - M
Moderate	M
Moderate to Extreme	M - E
Extreme to Total	E - T

Instructions :

(1) Assign 17 indicator ratings. If indicator not present, rate None to Slight.

(2) In the three grids below, write the indicator number in the appropriate column for each indicator that is applicable to the attribute.

(3) Assign overall rating for each attribute based on preponderance of evidence.

(4) Justify each attribute rating in writing.

Indicator	Rating	Comments
1. Rills	S H	
2. Water-flow patterns	S H	
3. Pedestals and/or terracettes	S H	
4. Bare Ground % =	S H	
5. Gullies	S H	
6. Wind scoured, blowouts and/or deposition areas	S	
7. Litter movement	S	
8. Soil surface resistance to erosion	S H B	
9. Soil surface loss/degradation	S H B	
10. Plant community composition relative to infiltration/runoff	H	
11. Compaction layer	S H B	
12. Functional/structural groups	B	
13. Plant mortality/decadence	B	
14. Litter amount	H B	
15. Annual production	B	
16. Invasive plants	B	
17. Reproductive capabilty of perennial plants	B	

Attribute Rating
Justification
Soil & Site Stability :

E-T | M-E | M | S-M | N-S

S (10 indicators) :
Soil/Site Stability
Rating :

Attribute Rating
Justification
Hydrologic Function :

E-T | M-E | M | S-M | N-S

H (10 indicators) :
Hydrologic Function
Rating :

Attribute Rating
Justification
Biotic Integrity :

E-T | M-E | M | S-M | N-S

B (9 indicators) :
Biotic Integrity
Rating :

RANGE HEALTH WORKSHEET

Vers.4 - 09/07

Eco-Site : Limy Upland - 77E

Ranch Rancher Roy EXAMPLE Date 09/07/07

Pasture P-12 Windmill Pasture Observer Joe Planner, Suzy Planner

Departure from Expected	Code
None to Slight	N - S
Slight to Moderate	S - M
Moderate	M
Moderate to Extreme	M - E
Extreme to Total	E - T

Instructions :
(1) Assign 17 indicator ratings. If indicator not present, rate None to Slight.
(2) In the three grids below, write the indicator number in the appropriate column for each indicator that is applicable to the attribute.
(3) Assign overall rating for each attribute based on preponderance of evidence.
(4) Justify each attribute rating in writing.

Indicator	Rating	Comments
1. Rills	S H M	Active rill formation evident at infrequent intervals.
2. Water-flow patterns	S H M-E	Flow patterns show cutting and deposition and some connectivity.
3. Pedestals and/or terracettes	S H S-M	Pedestalling in flow patterns only, not common.
4. Bare Ground % = 45	S H M	Bare ground rarely connected.
5. Gullies	S H N-S	
6. Wind scoured, blowouts and/or deposition areas	S N-S	
7. Litter movement	S M	Small litter shows signs of moderate movement, larger litter slight movement.
8. Soil surface resistance to erosion	S H B M-E	Stability values average from 3 - 4 on surfaces under vegetation canopy and 1 - 2 in. interspaces.
9. Soil surface loss/degradation	S H B M	Severe past erosion has left much of the site without much surface horizon.
10. Plant community composition relative to infiltration/runoff	H M-E	Change from grass dominated to shrub dominated has decreased infiltration and % bare ground has increased run-off.
11. Compaction layer	S H B N-S	
12. Functional/structural groups	B M-E	Dominate group basically gone (warm season midgrass) and subdominate group (warm season shortgrass) in low vigor and minimal.
13. Plant mortality/decadence	B S-M	
14. Litter amount	H B M	Very little litter is on the site for the time of year and rainfall fro the year.
15. Annual production	B S-M	Production is about 50% of expected.
16. Invasive plants	B M-E	Yucca and broom snakeweed have increased to the point of domination on this site (>45%)
17. Reproductive capabilty of perennial plants	B M-E	Plants show signs of stress that will reduce seed production and stolon development.

Attribute Rating
Justification
Soil & Site Stability :

E-T	M-E	M	S-M	N-S
		9		
		7		11
	8	4		6
	2	1	3	5

S (10 indicators) :
Soil/Site Stability
Rating : M

Attribute Rating
Justification
Hydrologic Function :

E-T	M-E	M	S-M	N-S
		14		
	10	9		
	8	4		11
	2	1	3	5

H (10 indicators) :
Hydrologic Function
Rating : M

Attribute Rating
Justification
Biotic Integrity :

E-T	M-E	M	S-M	N-S
	17			
	16			
	12	14	15	
	8	9	13	11

B (9 indicators) :
Biotic Integrity
Rating : M-E

Appendix 5.

Evaluation Matrix for Rangeland Health

State NM **Office** _____ **Ecological Site** Deep Sand **Site ID** R042XC005NM

Author(s) 505-761-4488 **Date** 2/17/10

INDICATOR	EXTREME	MODERATE TO EXTREME	MODERATE	SLIGHT TO MODERATE	NONE TO SLIGHT
1 - RILLS	Rill formation is severe and well defined throughout most of area.	Rill formation is moderately active and well defined throughout most of the area.	Active rill formation is slight at infrequent intervals, mostly in exposed areas.	No recent formation of rills; old rills have blunt or muted features.	Minimal evidence of current or past formation of rills.
2 - WATER FLOW PATTERNS	Extensive and numerous; unstable with active erosion. Flow patterns usually connected.	More numerous than expected; deposition and cut areas common. Flow patterns occasionally connected.	Nearly matches what is expected for the site; erosion is minor with some instability. Some deposition occurring.	Matches what is expected for the site; some evidence of minor erosion. Flow patterns are stable and short.	Matches what is expected for the site; minimal evidence of past or current soil movement (deposition or erosion).
3 - PEDESTALS and/or TERRACETTES (Wind or Water)	Abundant active pedestaling and numerous terracettes. Most rocks and plants are pedastaled; exposed plant roots are common.	Moderate active pedestaling; terracettes common. Some rocks and plants are pedestaled with occasional exposed roots.	Slight active pedestaling; most pedestals are in flow paths and interspaces and/or on exposed slopes. Occasional terracettes present.	No indications of active pedestaling or terracette formation; some evidence of past pedestal formation especially in flow paths and/or from wind on exposed slopes.	Minimal current or past evidence of pedestaled plants or rocks. Terracettes absent or uncommon.

INDICATOR	EXTREME	MODERATE TO EXTREME	MODERATE	SLIGHT TO MODERATE	NONE TO SLIGHT

4 - BARE GROUND	Amount of bare ground much higher than expected for the site. Bare areas are large and connected.	Amount of bare ground moderately higher than expected for the site. Bare areas are large and occasionally connected.	Amount of bare ground moderately to slightly higher than expected for the site. Bare areas are of intermediate size and sporadically connected.	Amount of bare ground slightly higher than expected for the site. Bare areas are small and rarely connected.	Amount and size of bare areas matches that expected for the site.
5 - GULLIES	Present with indications of active erosion, vegetation is infrequent on slopes and/or bed. Nickpoints and headcuts are numerous and active.	Present with indications of active erosion, vegetation is intermittent on slopes and/or bed. Headcuts are active; downcutting is not apparent.	Moderate in number with indications of active erosion, vegetation is intermittent on slopes and/or bed. Occasional headcuts are evident.	Uncommon, vegetation is stabilized on bed and slopes; no signs of active headcuts, nickpoints, or bed erosion.	Drainages are represented as natural stable channels; no signs of erosion with vegetation common.
6 - WIND SCOURED AREAS	Wind scoured areas extensive with exposed roots common.	Wind scoured areas common with some exposed roots.	Occasional wind scoured areas present with some exposed roots.	Infrequent evidence of wind scoured areas or exposed roots.	Minimal evidence of active or past wind scoured areas.
7 - LITTER MOVEMENT	Extreme; liter concentrated around obstructions. Most size classes of litter redistributed by wind or water.	Extreme to moderate; loosely concentrated near obstructions. Moderate to small size classes of litter redistributed by wind or water.	Moderate litter (smaller size) movement in scattered concentrations around obstructions and in depressions.	Slightly more than expected for the site with only small size classes of litter being redistributed.	Litter movement matches that expected for the site, with a fairly uniform distribution of litter.

INDICATOR	EXTREME	MODERATE TO	MODERATE	SLIGHT TO	NONE TO

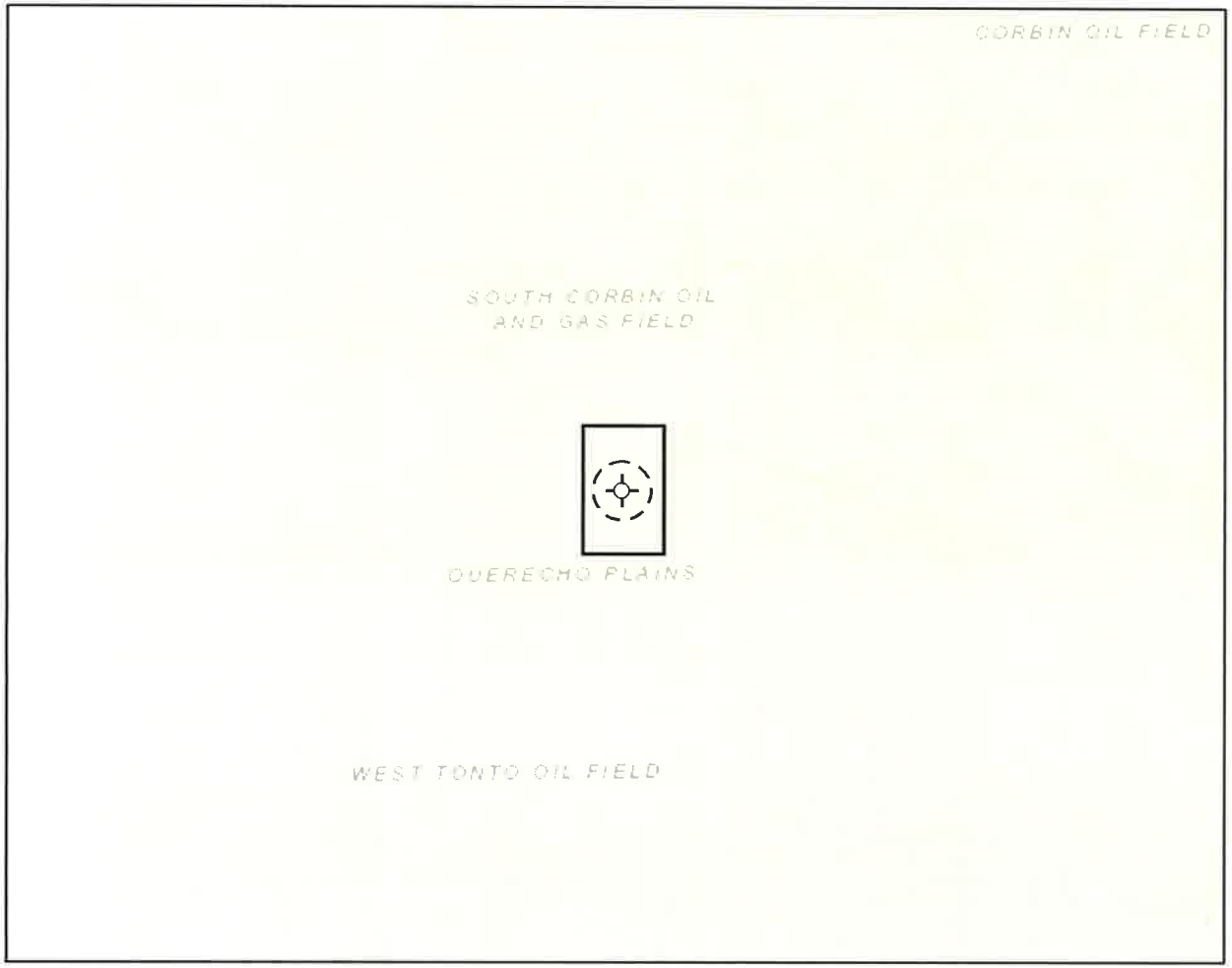
		EXTREME		MODERATE	SLIGHT
8 - PHYSICAL & CHEMICAL SOIL CRUSTS	Bare areas have thick and widespread physical or chemical crusts.	Bare areas have moderately thick widespread physical or chemical crusts.	Bare areas have thin and widespread to scattered physical or chemical crusts.	Bare areas have "soft" and scattered physical or chemical crusts.	Physical and chemical crusts largely absent.
9 - SOIL SURFACE ORGANIC MATTER	Surface organic layer rarely present and then only in association with protected areas.	25-50% of the surface organic layer is absent.	Less than 25% of the surface organic matter is absent.	Some signs of past loss of surface organic matter with stable surface now.	Minimal evidence of surface organic layer loss.
10 - PLANT COMMUNITY COMPOSITION & DISTRIBUTION RELATIVE TO INFILTRATION & RUNOFF	Infiltration is severely decreased due to adverse changes in plant community composition and/or distribution. Adverse plant cover	Infiltration is moderately decreased due to adverse changes in plant community composition and/ or distribution. Detrimental plant cover changes have occurred.	Infiltration is somewhat reduced due to adverse changes in plant community composition and/or distribution. Plant cover changes negatively affect infiltration.	Infiltration relatively unaffected by minor changes in plant community composition and/ or distribution. Plant cover changes have only amonor effect on infiltration.	Infiltration and runoff is equal to that expected for the site. Plant cover (distribution and amount) adequate for site protection.
11 - COMPACTION LAYER	Extensive with >1" depth, severely restricts water movement and root penetration.	Widespread with >1" depth, greatly restricts water movement and root penetration.	Moderately wide-spread, <1" depth, moderately restricts water movement and root penetration.	Occurs infrequently or is thin and weakly restrictive to water movement and root penetration.	None to minimal, not restrictive to water movement and root penetration.

INDICATOR	EXTREME	MODERATE TO EXTREME	MODERATE	SLIGHT TO MODERATE	NONE TO SLIGHT
12 - PLANT FUNCTIONAL & STRUCTURAL	Less dominant plant functional groups dominate	Dominant plant functional groups represented by	Dominant plant functional groups occur, but no	Dominant plant functional groups are diminished but	Functional plant groups and number of

GROUPS	the site. Plant functional groups not present in the historic plant communities also may dominate. Number of species in most functional groups is extremely low.	scattered few individual species. Less dominant plant functional groups now dominate the site. Plant functional groups not present in historic plant community are common. Number of species in most functional groups is low.	longer dominate. Less dominant plant functional groups now dominate the site. Plant functional groups not present in historic plant communities may be present. Number of species in most functional groups is low to moderate.	still dominate. Less dominant plant functional groups are represented in slightly higher proportion than expected for the site. Number of species in most functional groups is nearly equal to that expected for the site.	species in each group closely match that expected for the site.
13 - PLANT MORTALITY	Dead and/or decadent plants common.	Dead plants and/or decadent plants are somewhat common.	Some dead and/or decadent plants are present.	Slight plant mortality and/or decadence.	Plant mortality & decadence matches that expected for the site.
14 - LITTER AMOUNT	Litter largely absent relative to site potential and weather.	Litter present but amount greatly reduced relative to site potential and weather.	Litter present but moderately more or less relative to site potential and weather.	Litter amount slightly more or less relative to site potential and weather.	Amount of litter is what is expected for the site potential and weather.
15 - ANNUAL PRODUCTION	Productivity less than 20% of potential production.	Productivity 20-40% of potential production.	Productivity 40-60% of potential production.	Productivity 60-80% of potential production.	Productivity exceeds 80% of potential production.

INDICATOR	EXTREME	MODERATE TO EXTREME	MODERATE	SLIGHT TO MODERATE	NONE TO SLIGHT
16 - NOXIOUS & INVASIVE PLANTS	Dominate the site.	Common throughout the site.	Scattered throughout the site.	Present primarily in disturbed areas.	Rarely present on the site.

17 - REPRODUCTIVE CAPABILITY OF PERENNIAL PLANTS	Ability of plants to produce seed or vegetative tillers is severely reduced relative to recent climatic conditions.	Ability of plants to produce seed or vegetative tillers is greatly reduced relative to recent climatic conditions.	Ability of plants to produce seed or vegetative tillers is somewhat limited relative to recent climatic conditions.	Ability of plants to produce seed or vegetative tillers is only slightly limited relative to recent climatic conditions.	Ability of plants to produce seed or vegetative tillers is not limited relative to recent climatic conditions.



Karst Potential

- Critical
- High
- Medium
- Low

Site

Site Buffer (1000 ft.)

Overview Map

0 0.25 0.5 1 mi

Detail Map

0 150 300 600 ft

VERTEX

Map Center:
Lat/Long: 32.698014, -103.680055

NAD 1983 UTM Zone 13N
Date: Sep 17/20

N

Karst Potential
Eland State 32-18-33-RN #123H

FIGURE:
X

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

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

VERSATILITY. EXPERTISE.

Document Path: G:\1-Projects_US PROJECTS\Matador Resources\20E-00236\017 - Eland State 32-18-33-RN #123H\Fig X Eland State 32-18-33-RN #123H Karst.mxd

ATTACHMENT 4

Daily Site Visit Report

VERTEX

Client:	Matador Resources	Inspection Date:	9/8/2020
Site Location Name:	Eland 32 18 33 State Com #123H	Report Run Date:	9/8/2020 11:56 PM
Client Contact Name:	John Hurt	API #:	30-025-42977
Client Contact Phone #:			
Unique Project ID	-Eland 32 18 33 State Com #123H	Project Owner:	John Hurt
Project Reference #	9/7/20 - Buried SWD line release	Project Manager:	Natalie Gordon

Summary of Times

Arrived at Site	9/8/2020 7:45 AM
Departed Site	9/8/2020 4:30 PM

Field Notes

7:56 At first overview of spill it seems that there was another blow out just East of original blow out.

12:22 A low point southeast of first point of release is where fluid seemed to have puddled. Took bh1 within middle of low point for vertical delineation

12:23 On bh1 attempted to do 1 ft increments for vertical delineation. Noticed numbers were rising with depth so started working on 2 ft increments

12:35 Completed emergency 811 call to get hydrovac and excavator to site to get site cleaned up before rainstorm that is expected to hit tonight and Wednesday.

Next Steps & Recommendations

1

Daily Site Visit Report

VERTEX

Site Photos

Viewing Direction: Northwest

Looking northwest at spill

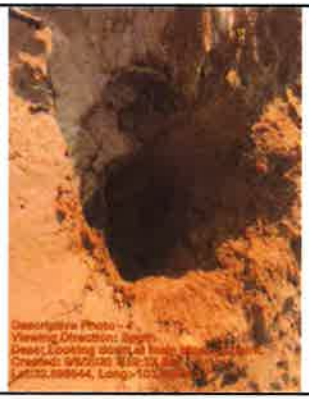
Viewing Direction: Northwest

Looking northwest at possible second release point.

Viewing Direction: Southeast

Looking southeast at spill

Viewing Direction: South



Looking down at main blowout point.

Daily Site Visit Report

VERTEX

Viewing Direction: East	**Viewing Direction**: North
	
Looking East at main collection and low point of spill.	Looking north at spill.

Daily Site Visit Report

VERTEX

Daily Site Visit Signature

Inspector: Monica Peppin

Signature:

Daily Site Visit Report

VERTEX

Client:	Matador Resources	Inspection Date:	9/9/2020
Site Location Name:	Eland 32 18 33 State Com #123H	Report Run Date:	9/10/2020 1:31 AM
Client Contact Name:	John Hurt	API #:	30-025-42977
Client Contact Phone #:			
Unique Project ID	-Eland 32 18 33 State Com #123H	Project Owner:	John Hurt
Project Reference #	9/7/20 - Buried SWD line release	Project Manager:	Natalie Gordon

Summary of Times

Arrived at Site	9/9/2020 7:55 AM
Departed Site	9/9/2020 4:28 PM

Field Notes

7:31 Continuing emergency clean up on right of way. Aiming to complete clean up by end of day

9:32 For surface samples on bh1-3 ran bh1 and bh2 at 1 gram with petroflag due to distinct color and strong odor. BH3 did not have a smell or discoloring so ran at 10 grams. Both bh1&2 came back error on one gram. Running 4 ft and 8 ft with petroflag to show that tph does drop

12:10 Excavation around flow line so repair can be made is larger than original footprint. Tested north wall to see where we were and came back hot between 3-4 ft deep

19:28 Excavation occurred on walls to get good side wall samples and vertical delineation went to 13 ft deep.

Next Steps & Recommendations

1 Continue excavation

2 Use field screens for guidance

3 Determine amount of samples to take

Daily Site Visit Report

VERTEX

Daily Site Visit Report

VERTEX

Site Photos

Viewing Direction: North

Excavation progress

Viewing Direction: East

Part of excavation near road

Viewing Direction: West

Excavation near flow line

Viewing Direction: North

Point of release

Daily Site Visit Report

VERTEX

Daily Site Visit Signature

Inspector: Monica Peppin

Signature:

9/8 Eland 123H
2 - 20 yrd belly dumps loaded
1 hydrorac 1/2 full 3-4 yrds

9/9
(tally) 20yrd belly - 1111111

9/10 - 1111111
Send SS1, SS4, SS5, SS7, BH2

SS1	0-7	BH2	0
SS1	7-13	BH2	4
SS4	0-7	BH2	8
SS4	7-13	BH2	13
SS5	0-7		
SS5	7-13		
SS7	0-7		
SS7	7-13		

SS7 - Moving out footage 8-10 ft still dirty out 6 ft 1st then 10 ft.

Testing 0-4 ft then 4-8 ft

Moved closer to Road 0-4 clean 4-8 clean

Daily Site Visit Report

VERTEX

Client:	Matador Resources	Inspection Date:	11/10/2020
Site Location Name:	Eland 32 18 33 State Com #123H	Report Run Date:	11/11/2020 2:30 AM
Client Contact Name:	John Hurt	API #:	30-025-42977
Client Contact Phone #:			
Unique Project ID	-Eland 32 18 33 State Com #123H	Project Owner:	John Hurt
Project Reference #	9/7/20 - Buried SWD line release	Project Manager:	Natalie Gordon

Summary of Times

Arrived at Site	11/10/2020 9:20 AM
Departed Site	11/10/2020 5:00 PM

Field Notes

11:21 Drilling borehole with Atkins Engineering to 101 ft to determine if any water is above 100 ft for pipeline release

13:39 Cobble layer around 16 ft and sand seems to be sticking to drill making it difficult to get past 60 ft

15:27 After the cobble layer hits a softer sand packed mixed with clay the closer to 100 ft the more of a harder type of clay layer is present. No signs of any ground water

15:42 Softer type of sandy sediment around 96-100 ft but still has a hard consistency

17:24 Total depth was 108 ft. Driller wanted to give a little extra to ensure a full depth of 100 ft was maintained due to possible cave in from softer sand layers within borehole

Next Steps & Recommendations

1 Await 72 hours for any water to collect within borehole

Daily Site Visit Report

VERTEX

Site Photos

Viewing Direction: Southwest

Starting of drilling

Viewing Direction: South

Drill

Viewing Direction: Southwest

Set up of air to complete drilling

Viewing Direction: East

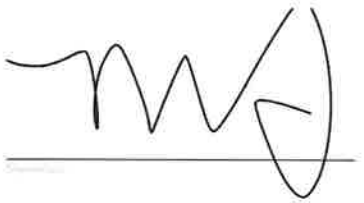
Deposits coming from borehole

Daily Site Visit Report

VERTEX

Daily Site Visit Signature

Inspector: Monica Peppin

Signature: 

Daily Site Visit Report

VERTEX

Client:	Matador Resources	Inspection Date:	12/7/2020
Site Location Name:	Eland 32 18 33 State Com #123H	Report Run Date:	12/9/2020 12:38 AM
Client Contact Name:	John Hurt	API #:	30-025-42977
Client Contact Phone #:			
Unique Project ID	-Eland 32 18 33 State Com #123H	Project Owner:	John Hurt
Project Reference #	9/7/20 - Buried SWD line release	Project Manager:	Natalie Gordon

Summary of Times

Arrived at Site	12/7/2020 8:00 AM
Departed Site	12/7/2020 2:00 PM

Field Notes

10:34 Pothole areas are pins release to show top four ft is clean. Borehole for water well has been completed to show that dtgw is greater than 100 ft

12:03 Top four feet of soil is clean. 4-8 ft is below closure criteria for dtgw. No additional digging should be necessary to complete the closure of the release

Next Steps & Recommendations

1 Collect confirmation samples

Daily Site Visit Report

VERTEX

Daily Site Visit Signature

Inspector: Monica Peppin

Signature:

VERTEX

Spill Response and Sampling

Client:	Matador
Date:	12/7/20
*Site Name:	Eland
Site Location:	
Project Owner:	
Project Manager:	
Project #:	

Initial Spill Information - Record on First Visit	
*Spill Date:	
*Spill Volume:	
*Spill Cause:	
*Spill Product:	
Recovered Spill Volume:	
Recovery Method:	

Sampling

		Field Screening			Data Collection (Check for Yes)			
Sample ID	Depth (ft)	VOC (PID)	Petroflag TPH (ppm)	Quantab (High/Low) Cor	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+	Ex. Hydrocarbon Chloride			
BS 1	4.5			0.87/19.6				
2	4.5			3.08/18.5				
3	4.5			0.86/18.6				
4	4.5			0.08/18.4				
BS 1	4			0.10/19.3				
2	4			0.05/19.2				
3	4			0.02/19.2				
4	4			0.02/19.4				
WS 1	0-4			0.09/18.7				
2	0-4			0.01/18.8				
3	0-4			0.02/19.2				
4	0-4			0.02/19.3				
WS 1	4-8		25	1.83/19.3				
2	4-8		27	1.58/19.2				
3	4-8		24	2.36/19.0				
4	4-8		0	0.02/19.5				
BS 1	8			0.95/19.9				
2	8			1.10/18.5				
3	8			0.49/18.6				
4	8			0.20/19.5				

ATTACHMENT 5

Client Name: Matador Production Company
Site Name: Eland 32-18-33 RN State
NM OCD Incident Tracking Number: NRM2026850554
Project #: 20E-00239-017
Lab Reports: 2009630 and 2009697

Table 2. Characterization Sampling Field Screening and Laboratory Data - Depth to Groundwater > 100 ft

Sample Description			Field Screening			Petroleum Hydrocarbons							Inorganic
						Volatile		Extractable					
Sample ID	Depth (ft)	Sample Date	Volatile Organic Compounds (PID)	Extractable Organic Compounds (Petro Flag)	Inorganics (Quantab - High/Low)	Benzene	BTEX (Total)	Gasoline Range Organics (GRO)	Diesel Range Organics (DRO)	Motor Oil Range Organics (MRO)	(GRO + DRO)	Total Petroleum Hydrocarbons (TPH)	Chloride
			(ppm)	(ppm)	(+/-)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
SS20-01	0-7	September 10, 2020	-	-	162	<0.025	<0.221	<4.9	<9.5	<48	<14.4	<62.4	<60
SS20-01	7-13	September 10, 2020	-	-	149	<0.024	<0.219	<4.9	<9.3	<46	<14.2	<60.2	<60
SS20-02	0-7	September 9, 2020	-	-	<0	-	-	-	-	-	-	-	-
SS20-02	7-13	September 9, 2020	-	-	<0	-	-	-	-	-	-	-	-
SS20-03	0-7	September 9, 2020	-	-	<0	-	-	-	-	-	-	-	-
SS20-03	7-13	September 9, 2020	-	-	<0	-	-	-	-	-	-	-	-
SS20-04	0-7	September 9, 2020	-	-	<0	<0.023	<0.207	<4.6	<9.5	<47	<14.1	<61.1	<60
SS20-04	7-13	September 9, 2020	-	-	<0	<0.023	<0.211	<4.7	<9.4	<47	<14.1	<61.1	<60
SS20-05	0-7	September 9, 2020	-	-	156	<0.024	<0.220	<4.9	<9.7	<49	<14.6	<63.6	<60
SS20-05	7-13	September 9, 2020	-	-	156	<0.023	<0.210	<4.7	<9.6	<48	<14.3	<62.3	<60
SS20-06	0-7	September 9, 2020	-	-	<0	-	-	-	-	-	-	-	-
SS20-06	7-13	September 9, 2020	-	-	<0	-	-	-	-	-	-	-	-
SS20-07	0-7	September 10, 2020	-	-	194	<0.025	<0.225	<5.0	<9.2	<46	<14.2	<60.2	180
SS20-07	7-13	September 10, 2020	-	-	227	<0.024	<0.217	<4.8	<9.9	<50	<14.7	<64.7	<60
BH20-01	0	September 9, 2020	625.3	>2,500	5,987	-	-	-	-	-	-	-	-
	1	September 9, 2020	-	-	4,892	-	-	-	-	-	-	-	-
	2	September 9, 2020	-	-	5,333	-	-	-	-	-	-	-	-
	4	September 9, 2020	2.9	>2,500	**10,447**	-	-	-	-	-	-	-	-
	5	September 9, 2020	-	-	**13,439**	-	-	-	-	-	-	-	-
	6	September 9, 2020	-	-	**14,546**	-	-	-	-	-	-	-	-
	8	September 9, 2020	0.6	-	**14,513**	-	-	-	-	-	-	-	-
	12	September 10, 2020	-	-	**16,754**	-	-	-	-	-	-	-	-
BH20-02	0	September 9, 2020	523.6	>2,500	8,543	0.14	52.640	510	12,000	7,200	**12,510**	**19,710**	7,300
	2	September 9, 2020	19.4	-	6,009	-	-	-	-	-	-	-	-
	4	September 9, 2020	4.2	139	5,713	<0.023	<0.207	<4.6	10	<48	10	10	4,900
	6	September 9, 2020	-	-	**12,915**	-	-	-	-	-	-	-	-
	8	September 9, 2020	1.7	57	**13,953**	<0.024	<0.213	<4.7	24	<50	24	24	**17,000**
	13	September 9, 2020	-	0	314	<0.025	<0.221	<4.9	<9.4	<47	<14.3	<61.3	68
BH20-03	0	September 9, 2020	0.2	223	**11,736**	-	-	-	-	-	-	-	-
	1	September 9, 2020	0.5	-	4,066	-	-	-	-	-	-	-	-
	2	September 9, 2020	-	-	3,881	-	-	-	-	-	-	-	-
	4	September 9, 2020	2.5	13	5,661	-	-	-	-	-	-	-	-
	6	September 9, 2020	-	-	4,131	-	-	-	-	-	-	-	-
	8	September 9, 2020	-	-	3,529	-	-	-	-	-	-	-	-
	10	September 9, 2020	-	-	**13,217**	-	-	-	-	-	-	-	-
BH20-04	13	September 10, 2020	-	-	8,708	-	-	-	-	-	-	-	-
	15	September 10, 2020	-	-	**13,413**	-	-	-	-	-	-	-	-
	17	September 10, 2020	-	-	3,873	-	-	-	-	-	-	-	-
	18	September 10, 2020	-	-	1,657	-	-	-	-	-	-	-	-
	19	September 10, 2020	-	-	949	-	-	-	-	-	-	-	-
	20	September 10, 2020	-	-	813	<0.024	<0.216	<4.8	<9.1	<46	<13.9	<59.9	310

"-" indicates not analyzed
Bold and shaded indicates exceedance outside of NM OCD Closure Criteria

VERTEX

Client Name: Matador Production Company
Site Name: Eland 32-18-33 RN State
NM OCD Incident Tracking Number: NRM2026850554
Project #: 20E-00239-017
Lab Report: 2012612

Table 3. Confirmatory Sampling Laboratory Data - Depth to Groundwater > 100 ft

Sample Description			Petroleum Hydrocarbons							Inorganic
			Volatile		Extractable					
Sample ID	Depth (ft)	Sample Date	Benzene	BTEX (Total)	Gasoline Range Organics (GRO)	Diesel Range Organics (DRO)	Motor Oil Range Organics (MRO)	(GRO + DRO)	Total Petroleum Hydrocarbons (TPH)	Chloride
			(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
WS20-01	0-4	December 9, 2020	<0.025	<0.222	<4.9	<9.4	<47	<14.3	<61.3	<60
WS20-01	4-8	December 9, 2020	<0.024	<0.217	<4.8	<9.6	<48	<14.4	<62.4	2,900
WS20-02	0-4	December 9, 2020	<0.025	<0.222	<4.9	<9.8	<49	<14.7	<63.7	<59
WS20-02	4-8	December 9, 2020	<0.023	<0.211	<4.7	<9.6	<48	<14.3	<62.3	4,200
WS20-03	0-4	December 9, 2020	<0.025	<0.221	<4.9	<9.8	<49	<14.7	<63.7	<60
WS20-03	4-8	December 9, 2020	<0.025	<0.225	<5.0	<9.4	<47	<14.4	<61.4	1,200
WS20-04	0-4	December 9, 2020	<0.023	<0.207	<4.6	<9.7	<48	<14.3	<62.3	<60
WS20-04	4-8	December 9, 2020	<0.024	<0.220	<4.9	<9.7	<49	<14.6	<63.6	<60
WS20-05	0-4	December 9, 2020	<0.024	<0.213	<4.7	<9.6	<48	<14.3	<62.3	<59
WS20-05	4-8	December 9, 2020	<0.023	<0.208	<4.6	<9.5	<47	<14.1	<61.1	180
WS20-06	0-4	December 9, 2020	<0.024	<0.216	<4.8	<9.8	<49	<14.6	<63.6	79
WS20-06	4-8	December 9, 2020	<0.024	<0.217	<4.8	<9.0	<45	<13.8	<58.8	580
WS20-07	0-4	December 9, 2020	<0.023	<0.208	<4.6	<9.7	<48	<14.3	<62.3	<60
WS20-07	4-8	December 9, 2020	<0.025	<0.222	<4.9	<8.8	<44	<13.7	<57.7	490
WS20-08	0-4	December 9, 2020	<0.024	<0.220	<4.9	<9.8	<49	<14.7	<63.7	190
WS20-08	4-8	December 9, 2020	<0.024	<0.216	<4.8	<9.3	<47	<14.1	<61.1	860
WS20-09	0-4	December 9, 2020	<0.024	<0.216	<4.8	<10.0	<50	<14.8	<64.8	<60
WS20-09	4-8	December 9, 2020	<0.024	<0.215	<4.8	<9.8	<49	<14.6	<63.6	1,700
WS20-10	0-4	December 9, 2020	<0.024	<0.213	<4.7	<10.0	<50	<14.7	<64.7	110
WS20-10	4-8	December 9, 2020	<0.023	0.211	<4.7	<9.9	<49	<14.6	<63.6	690
WS20-11	0-4	December 9, 2020	<0.024	<0.220	<4.9	<9.8	<49	<14.7	<63.7	140
WS20-11	4-8	December 9, 2020	<0.025	<0.225	<5.0	<9.6	<48	<14.6	<62.6	2,600
WS20-12	0-4	December 9, 2020	<0.024	<0.215	<4.8	<9.6	<48	<14.4	<62.4	<60
WS20-12	4-8	December 9, 2020	<0.024	<0.216	<4.8	<9.5	<47	<14.3	<61.3	1,300
WS20-13	0-4	December 9, 2020	<0.024	<0.217	<4.8	<10.0	<50	<14.8	<64.8	210
WS20-13	4-8	December 9, 2020	<0.025	<0.222	<4.9	<9.7	<49	<14.6	<63.6	3,000
WS20-14	0-4	December 9, 2020	<0.025	<0.222	<4.9	<9.7	<48	<14.6	<62.6	<61
WS20-14	4-8	December 9, 2020	<0.024	<0.217	<4.8	<9.5	<48	<14.3	<62.3	3,100
WS20-15	0-4	December 9, 2020	<0.023	<0.208	<4.6	<9.5	<48	<14.1	<62.1	<60
WS20-15	4-8	December 9, 2020	<0.024	<0.216	<4.8	<9.5	<47	<14.3	<61.3	<60
WS20-16	0-4	December 9, 2020	<0.024	<0.216	<4.8	<9.8	<49	<14.6	<63.6	100
WS20-16	4-8	December 9, 2020	<0.023	<0.206	<4.6	<9.5	<47	<14.1	<61.1	73
WS20-17	0-4	December 9, 2020	<0.024	<0.217	<4.8	<9.6	<48	<14.4	<62.4	360
WS20-17	4-8	December 9, 2020	<0.024	<0.215	<4.8	<9.6	<48	<14.4	<62.4	320
WS20-18	0-4	December 9, 2020	<0.024	<0.220	<4.9	<9.9	<50	<14.8	<64.8	130
WS20-18	4-8	December 9, 2020	<0.025	<0.221	<4.9	<9.8	<49	<14.7	<63.7	260
WS20-19	0-4	December 9, 2020	<0.024	<0.216	<4.8	<9.8	<49	<14.6	<63.6	<60
WS20-19	4-8	December 9, 2020	<0.023	<0.207	<4.6	<9.7	<49	<14.3	<63.3	2,800
WS20-20	0-4	December 9, 2020	<0.024	<0.216	<4.8	<9.7	<48	<14.5	<62.5	300
WS20-20	4-8	December 9, 2020	<0.024	<0.216	<4.8	<9.7	<49	<14.5	<63.5	8,100
WS20-21	0-4	December 9, 2020	<0.024	<0.216	<4.8	<9.7	<49	<14.5	<63.5	210
WS20-21	4-8	December 9, 2020	<0.025	<0.224	<5.0	<9.9	<49	<14.9	<63.9	4,300
WS20-22	0-4	December 9, 2020	<0.024	<0.215	<4.8	<9.3	<46	<14.2	<60.2	310
WS20-22	4-8	December 9, 2020	<0.025	<0.221	<4.9	<9.2	<46	<14.1	<60.1	4,000
BS20-01	8	December 9, 2020	<0.025	<0.225	<5.0	<9.3	<46	<14.3	<60.3	1,400
BS20-02	8	December 9, 2020	<0.024	<0.220	<4.9	<8.9	<45	<13.8	<58.8	2,200
BS20-03	8	December 9, 2020	<0.024	<0.219	<4.9	<9.0	<45	<13.9	<58.9	430
BS20-04	8	December 9, 2020	<0.025	<0.222	<4.9	<9.6	<48	<14.5	<62.5	180
BS20-05	8	December 9, 2020	<0.024	<0.219	<4.9	<9.9	<49	<14.8	<63.8	1,100
BS20-06	8	December 9, 2020	<0.024	<0.217	<4.8	<9.9	<49	<14.7	<63.7	440
BS20-07	8	December 9, 2020	<0.024	<0.213	<4.7	<9.8	<49	<14.5	<63.5	<60
BS20-08	8	December 9, 2020	<0.023	<0.208	<4.6	<9.6	<48	<14.2	<62.2	74
BS20-09	8	December 9, 2020	<0.023	<0.206	<4.6	<9.5	<47	<14.1	<61.1	140
BS20-10	8	December 9, 2020	<0.024	<0.219	<4.9	<9.8	<49	<14.7	<63.7	220
BS20-11	8	December 9, 2020	<0.120	<1.090	<24.0	<8.8	<44	<32.8	<76.8	1,200
BS20-12	8	December 9, 2020	<0.024	<0.213	<4.7	<9.5	<48	<14.2	<62.2	66
BS20-13	8	December 9, 2020	<0.024	<0.216	<4.8	60	51	60	111	4,800
BS20-14	8	December 9, 2020	<0.025	<0.224	<5.0	22	<49	22	22	7,100

VERTEX

Client Name: Matador Production Company
Site Name: Eland 32-18-33 RN State
NM OCD Incident Tracking Number: NRM2026850554
Project #: 20E-00239-017
Lab Report: 2012612

Table 3. Confirmatory Sampling Laboratory Data - Depth to Groundwater > 100 ft

Sample Description			Petroleum Hydrocarbons							Inorganic
			Volatile		Extractable					
Sample ID	Depth (ft)	Sample Date	Benzene	BTEX (Total)	Gasoline Range Organics (GRO)	Diesel Range Organics (DRO)	Motor Oil Range Organics (MRO)	(GRO + DRO)	Total Petroleum Hydrocarbons (TPH)	Chloride
			(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
BS20-15	8	December 9, 2020	<0.023	<0.211	<4.7	<9.7	<48	<14.4	<62.4	140
BS20-16	8	December 9, 2020	<0.024	<0.217	<4.8	<9.6	<48	<14.4	<62.4	2,700
BS20-17	8	December 9, 2020	<0.024	<0.216	<4.8	<9.3	<46	<14.1	<60.1	2,500
BS20-18	8	December 9, 2020	<0.024	<0.212	<4.7	<9.7	<48	<14.4	<62.4	64
BS20-19	8	December 9, 2020	<0.024	<0.212	<4.7	<9.8	<49	<14.5	<63.5	4,900
BS20-20	8	December 9, 2020	<0.023	<0.210	<4.7	<9.8	<49	<14.5	<63.5	8,000
BS20-21	8	December 9, 2020	<0.024	<0.217	<4.8	<9.6	<48	<14.4	<62.4	8,000

"-" indicates not analyzed
Bold and shaded indicates exceedance outside of NM OCD Closure Criteria

VERTEX

ATTACHMENT 6

Natalie Gordon

From: Dhugal Hanton <vertexresourcegroupusa@gmail.com>
Sent: Sunday, December 6, 2020 1:58 PM
To: Natalie Gordon
Subject: Fwd: NRM2026850554: Eland 32 18 33 RN State - 48-hr Notification of Confirmatory Sampling

---------- Forwarded message ---------
From: **Dhugal Hanton** <vertexresourcegroupusa@gmail.com>
Date: Sun, Dec 6, 2020 at 1:57 PM
Subject: NRM2026850554: Eland 32 18 33 RN State - 48-hr Notification of Confirmatory Sampling
To: Enviro, OCD, EMNRD <OCD.Enviro@state.nm.us>, <spills@slo.state.nm.us>, <rmann@slo.state.nm.us>, Boone, Brandon W. <bboone@slo.state.nm.us>

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 Eland 32 18 33 for the produced water release that occurred on September 7, 2020, incident tracking # NRM2026850554.

This work will be completed on behalf of Matador Production Company.

On Wednesday, December 9, 2020 at approximately 8:00 a.m., Monica Peppin of Vertex will be onsite to guide final remediation activities and conduct confirmatory sampling. This work may continue into Thursday, December 10, 2020.

Monica can be reached at 575-361-9880. If you need directions to the site, please do not hesitate to contact her. If you have any questions or concerns regarding this notification, 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
F

www.vertex.ca

ATTACHMENT 7

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

September 18, 2020

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

RE: Eland State 123H OrderNo.: 2009630

Dear Natalie Gordon:

Hall Environmental Analysis Laboratory received 8 sample(s) on 9/11/2020 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2009630**
Date Reported: **9/18/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Eland State 123H
Lab ID: 2009630-001 **Matrix:** SOIL

Client Sample ID: BH-20-02 0'
Collection Date: 9/9/2020 10:15:00 AM
Received Date: 9/11/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	12000	460		mg/Kg	50	9/15/2020 6:17:26 PM
Motor Oil Range Organics (MRO)	7200	2300		mg/Kg	50	9/15/2020 6:17:26 PM
Surr: DNOP	0	30.4-154	S	%Rec	50	9/15/2020 6:17:26 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	510	24		mg/Kg	5	9/15/2020 9:13:30 AM
Surr: BFB	766	75.3-105	S	%Rec	5	9/15/2020 9:13:30 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	0.14	0.12		mg/Kg	5	9/15/2020 9:13:30 AM
Toluene	4.5	0.24		mg/Kg	5	9/15/2020 9:13:30 AM
Ethylbenzene	16	0.24		mg/Kg	5	9/15/2020 9:13:30 AM
Xylenes, Total	32	0.47		mg/Kg	5	9/15/2020 9:13:30 AM
Surr: 4-Bromofluorobenzene	219	80-120	S	%Rec	5	9/15/2020 9:13:30 AM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	7300	300		mg/Kg	100	9/17/2020 4:02:29 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2009630**
Date Reported: **9/18/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Eland State 123H
Lab ID: 2009630-002 **Matrix:** SOIL

Client Sample ID: BH-20-02 4'
Collection Date: 9/9/2020 10:20:00 AM
Received Date: 9/11/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	10	9.6		mg/Kg	1	9/15/2020 11:12:33 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	9/15/2020 11:12:33 AM
Surr: DNOP	134	30.4-154		%Rec	1	9/15/2020 11:12:33 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	9/15/2020 10:47:24 AM
Surr: BFB	98.0	75.3-105		%Rec	1	9/15/2020 10:47:24 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.023		mg/Kg	1	9/15/2020 10:47:24 AM
Toluene	ND	0.046		mg/Kg	1	9/15/2020 10:47:24 AM
Ethylbenzene	ND	0.046		mg/Kg	1	9/15/2020 10:47:24 AM
Xylenes, Total	ND	0.092		mg/Kg	1	9/15/2020 10:47:24 AM
Surr: 4-Bromofluorobenzene	98.4	80-120		%Rec	1	9/15/2020 10:47:24 AM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	4900	300		mg/Kg	100	9/17/2020 4:14:50 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2009630**
Date Reported: **9/18/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Eland State 123H
Lab ID: 2009630-003 **Matrix:** SOIL

Client Sample ID: BH-20-02 8'
Collection Date: 9/9/2020 10:25:00 AM
Received Date: 9/11/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	24	9.9		mg/Kg	1	9/15/2020 11:22:06 AM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	9/15/2020 11:22:06 AM
Surr: DNOP	111	30.4-154		%Rec	1	9/15/2020 11:22:06 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	9/15/2020 11:57:56 AM
Surr: BFB	103	75.3-105		%Rec	1	9/15/2020 11:57:56 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	9/15/2020 11:57:56 AM
Toluene	ND	0.047		mg/Kg	1	9/15/2020 11:57:56 AM
Ethylbenzene	ND	0.047		mg/Kg	1	9/15/2020 11:57:56 AM
Xylenes, Total	ND	0.095		mg/Kg	1	9/15/2020 11:57:56 AM
Surr: 4-Bromofluorobenzene	98.5	80-120		%Rec	1	9/15/2020 11:57:56 AM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	17000	600		mg/Kg	200	9/17/2020 4:27:10 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2009630**
Date Reported: **9/18/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Eland State 123H
Lab ID: 2009630-004 **Matrix:** SOIL

Client Sample ID: BH-20-02 13'
Collection Date: 9/9/2020 10:30:00 AM
Received Date: 9/11/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	9/15/2020 11:31:39 AM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	9/15/2020 11:31:39 AM
Surr: DNOP	129	30.4-154		%Rec	1	9/15/2020 11:31:39 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	9/15/2020 12:21:21 PM
Surr: BFB	93.8	75.3-105		%Rec	1	9/15/2020 12:21:21 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	9/15/2020 12:21:21 PM
Toluene	ND	0.049		mg/Kg	1	9/15/2020 12:21:21 PM
Ethylbenzene	ND	0.049		mg/Kg	1	9/15/2020 12:21:21 PM
Xylenes, Total	ND	0.098		mg/Kg	1	9/15/2020 12:21:21 PM
Surr: 4-Bromofluorobenzene	98.2	80-120		%Rec	1	9/15/2020 12:21:21 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	68	60		mg/Kg	20	9/15/2020 2:02:55 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2009630**
Date Reported: **9/18/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Eland State 123H
Lab ID: 2009630-005 **Matrix:** SOIL

Client Sample ID: SS-20-04 0-7
Collection Date: 9/9/2020 9:10:00 AM
Received Date: 9/11/2020 8:00:00 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	9/15/2020 11:41:15 AM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	9/15/2020 11:41:15 AM
Surr: DNOP	130	30.4-154		%Rec	1	9/15/2020 11:41:15 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	9/15/2020 12:44:44 PM
Surr: BFB	96.1	75.3-105		%Rec	1	9/15/2020 12:44:44 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.023		mg/Kg	1	9/15/2020 12:44:44 PM
Toluene	ND	0.046		mg/Kg	1	9/15/2020 12:44:44 PM
Ethylbenzene	ND	0.046		mg/Kg	1	9/15/2020 12:44:44 PM
Xylenes, Total	ND	0.092		mg/Kg	1	9/15/2020 12:44:44 PM
Surr: 4-Bromofluorobenzene	98.9	80-120		%Rec	1	9/15/2020 12:44:44 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	ND	60		mg/Kg	20	9/15/2020 2:15:19 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2009630**
Date Reported: **9/18/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Eland State 123H
Lab ID: 2009630-006 **Matrix:** SOIL

Client Sample ID: SS-20-04 7-13
Collection Date: 9/9/2020 9:15:00 AM
Received Date: 9/11/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	9/15/2020 11:50:50 AM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	9/15/2020 11:50:50 AM
Surr: DNOP	147	30.4-154		%Rec	1	9/15/2020 11:50:50 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	9/15/2020 1:08:11 PM
Surr: BFB	97.1	75.3-105		%Rec	1	9/15/2020 1:08:11 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.023		mg/Kg	1	9/15/2020 1:08:11 PM
Toluene	ND	0.047		mg/Kg	1	9/15/2020 1:08:11 PM
Ethylbenzene	ND	0.047		mg/Kg	1	9/15/2020 1:08:11 PM
Xylenes, Total	ND	0.094		mg/Kg	1	9/15/2020 1:08:11 PM
Surr: 4-Bromofluorobenzene	98.8	80-120		%Rec	1	9/15/2020 1:08:11 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	ND	60		mg/Kg	20	9/15/2020 2:27:43 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2009630**
Date Reported: **9/18/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Eland State 123H
Lab ID: 2009630-007 **Matrix:** SOIL

Client Sample ID: SS-20-05 0-7
Collection Date: 9/9/2020 9:20:00 AM
Received Date: 9/11/2020 8:00:00 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	9/15/2020 12:00:24 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	9/15/2020 12:00:24 PM
Surr: DNOP	140	30.4-154		%Rec	1	9/15/2020 12:00:24 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	9/15/2020 1:31:41 PM
Surr: BFB	97.0	75.3-105		%Rec	1	9/15/2020 1:31:41 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	9/15/2020 1:31:41 PM
Toluene	ND	0.049		mg/Kg	1	9/15/2020 1:31:41 PM
Ethylbenzene	ND	0.049		mg/Kg	1	9/15/2020 1:31:41 PM
Xylenes, Total	ND	0.098		mg/Kg	1	9/15/2020 1:31:41 PM
Surr: 4-Bromofluorobenzene	98.4	80-120		%Rec	1	9/15/2020 1:31:41 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	ND	60		mg/Kg	20	9/15/2020 2:40:08 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2009630**
Date Reported: **9/18/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Eland State 123H
Lab ID: 2009630-008 **Matrix:** SOIL

Client Sample ID: SS-20-05 7-13
Collection Date: 9/9/2020 9:25:00 AM
Received Date: 9/11/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	9/15/2020 12:10:01 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	9/15/2020 12:10:01 PM
Surr: DNOP	134	30.4-154		%Rec	1	9/15/2020 12:10:01 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	9/15/2020 1:55:20 PM
Surr: BFB	93.0	75.3-105		%Rec	1	9/15/2020 1:55:20 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.023		mg/Kg	1	9/15/2020 1:55:20 PM
Toluene	ND	0.047		mg/Kg	1	9/15/2020 1:55:20 PM
Ethylbenzene	ND	0.047		mg/Kg	1	9/15/2020 1:55:20 PM
Xylenes, Total	ND	0.093		mg/Kg	1	9/15/2020 1:55:20 PM
Surr: 4-Bromofluorobenzene	98.1	80-120		%Rec	1	9/15/2020 1:55:20 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	ND	60		mg/Kg	20	9/15/2020 2:52:33 PM

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2009630**

18-Sep-20

Client: Vertex Resource Group Ltd.

Project: Eland State 123H

Sample ID: **MB-55161**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS**	Batch ID: **55161**	RunNo: **71884**
Prep Date: **9/15/2020**	Analysis Date: **9/15/2020**	SeqNo: **2516008** Units: **mg/Kg**

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

Sample ID: **LCS-55161**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS**	Batch ID: **55161**	RunNo: **71884**
Prep Date: **9/15/2020**	Analysis Date: **9/15/2020**	SeqNo: **2516009** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	95.1	90	110			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2009630**

18-Sep-20

Client: Vertex Resource Group Ltd.

Project: Eland State 123H

Sample ID: **2009632-036AMS** SampType: **MS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**

Client ID: **BatchQC** Batch ID: **55142** RunNo: **71844**

Prep Date: **9/14/2020** Analysis Date: **9/15/2020** SeqNo: **2514504** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	52	9.6	47.76	0	108	47.4	136			
Surr: DNOP	5.3		4.776		112	30.4	154			

Sample ID: **2009632-036AMSD** SampType: **MSD** TestCode: **EPA Method 8015M/D: Diesel Range Organics**

Client ID: **BatchQC** Batch ID: **55142** RunNo: **71844**

Prep Date: **9/14/2020** Analysis Date: **9/15/2020** SeqNo: **2514505** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	52	8.6	42.92	0	121	47.4	136	0.678	43.4	
Surr: DNOP	5.5		4.292		128	30.4	154	0	0	

Sample ID: **LCS-55142** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**

Client ID: **LCSS** Batch ID: **55142** RunNo: **71844**

Prep Date: **9/14/2020** Analysis Date: **9/15/2020** SeqNo: **2514517** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	57	10	50.00	0	114	70	130			
Surr: DNOP	6.0		5.000		120	30.4	154			

Sample ID: **MB-55142** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**

Client ID: **PBS** Batch ID: **55142** RunNo: **71844**

Prep Date: **9/14/2020** Analysis Date: **9/15/2020** SeqNo: **2514518** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	12		10.00		122	30.4	154			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2009630**

18-Sep-20

Client: Vertex Resource Group Ltd.

Project: Eland State 123H

Sample ID: **mb-55136**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **55136**	RunNo: **71866**
Prep Date: **9/14/2020**	Analysis Date: **9/15/2020**	SeqNo: **2515362** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	940		1000		93.7	75.3	105			

Sample ID: **lcs-55136**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **55136**	RunNo: **71866**
Prep Date: **9/14/2020**	Analysis Date: **9/15/2020**	SeqNo: **2515363** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	5.0	25.00	0	101	72.5	106			
Surr: BFB	1100		1000		107	75.3	105			S

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2009630**

18-Sep-20

Client: Vertex Resource Group Ltd.

Project: Eland State 123H

Sample ID: **mb-55136** SampType: **MBLK** TestCode: **EPA Method 8021B: Volatiles**

Client ID: **PBS** Batch ID: **55136** RunNo: **71866**

Prep Date: **9/14/2020** Analysis Date: **9/15/2020** SeqNo: **2515387** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.98		1.000		98.1	80	120			

Sample ID: **LCS-55136** SampType: **LCS** TestCode: **EPA Method 8021B: Volatiles**

Client ID: **LCSS** Batch ID: **55136** RunNo: **71866**

Prep Date: **9/14/2020** Analysis Date: **9/15/2020** SeqNo: **2515388** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.92	0.025	1.000	0	92.1	80	120			
Toluene	0.95	0.050	1.000	0	94.9	80	120			
Ethylbenzene	0.96	0.050	1.000	0	95.9	80	120			
Xylenes, Total	2.9	0.10	3.000	0	96.9	80	120			
Surr: 4-Bromofluorobenzene	0.99		1.000		99.1	80	120			

Sample ID: **2009630-002ams** SampType: **MS** TestCode: **EPA Method 8021B: Volatiles**

Client ID: **BH-20-02 4'** Batch ID: **55136** RunNo: **71866**

Prep Date: **9/14/2020** Analysis Date: **9/15/2020** SeqNo: **2515391** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.91	0.024	0.9479	0	95.6	76.3	120			
Toluene	0.93	0.047	0.9479	0.01248	96.9	78.5	120			
Ethylbenzene	0.96	0.047	0.9479	0	101	78.1	124			
Xylenes, Total	2.9	0.095	2.844	0.02052	100	79.3	125			
Surr: 4-Bromofluorobenzene	0.96		0.9479		101	80	120			

Sample ID: **2009630-002amsd** SampType: **MSD** TestCode: **EPA Method 8021B: Volatiles**

Client ID: **BH-20-02 4'** Batch ID: **55136** RunNo: **71866**

Prep Date: **9/14/2020** Analysis Date: **9/15/2020** SeqNo: **2515392** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.95	0.024	0.9775	0	97.1	76.3	120	4.57	20	
Toluene	0.99	0.049	0.9775	0.01248	100	78.5	120	6.17	20	
Ethylbenzene	1.0	0.049	0.9775	0	103	78.1	124	5.15	20	
Xylenes, Total	3.1	0.098	2.933	0.02052	103	79.3	125	6.35	20	
Surr: 4-Bromofluorobenzene	0.99		0.9775		101	80	120	0	0	

Qualifiers:

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: Vertex Resource Group Ltd. Work Order Number: 2009630 RcptNo: 1

Received By: Cheyenne Cason 9/11/2020 8:00:00 AM

Completed By: Emily Mocho 9/11/2020 8:39:37 AM

Reviewed By: GMC 9/11/20

Chain of Custody

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

Log In

3. Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C Yes ☑ No ☐ NA ☐
5. Sample(s) in proper container(s)? Yes ☑ No ☐
6. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
7. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
8. Was preservative added to bottles? Yes ☐ No ☑ NA ☐
9. Received at least 1 vial with headspace <1/4" for AQ VOA? Yes ☐ No ☐ NA ☑
10. Were any sample containers received broken? Yes ☐ No ☑
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody) Yes ☑ No ☐ # of preserved bottles checked for pH: (<2 or >12 unless noted)
12. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐ Adjusted?
13. Is it clear what analyses were requested? Yes ☑ No ☐
14. Were all holding times able to be met? (If no, notify customer for authorization.) Yes ☑ No ☐ Checked by: SPA 9.11.20

Special Handling (if applicable)

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

Person Notified: Date:

By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

16. Additional remarks:

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	5.3	Good	Not Present			

Chain-of-Custody Record

Client: Vortex

Mailing Address:

Phone #:

email or Fax#:

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

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other
☐ EDD (Type)

Turn-Around Time: 5 Day
☑ Standard ☐ Rush

Project Name: Eland State #123H

Project #: 20E-00239

Project Manager: Natalie Gordon

Sampler: JR
On Ice: ☑ Yes ☐ No
# of Coolers: 1
Cooler Temp(including CF): 5.2+0.1=5.3 (°C)

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

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2009630	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
9/9	10:15	Soil	BH20-02 0'	4 oz	ice	001	✓	✓					✓			
	10:20		BH20-02 4'			002										
	10:25		BH20-02 8'			003										
	10:30		BH20-02 13'			004										
~~9/9~~	~~9:00~~		~~SS20-01 0-7~~													
~~9/9~~	~~9:05~~		~~SS20-01 7-13~~													
9/9	9:10		SS20-04 0-7			005										
9/9	9:15		SS20-04 7-13			006										
9/9	9:20		SS20-05 0-7			007										
9/9	9:25		SS20-05 7-13			008										
~~9/9~~	~~9:30~~		~~SS20-07 0-7~~													
~~9/9~~	~~9:35~~	↓	~~SS20-07 7-13~~	↓	↓		↓	↓					↓			

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
9/10/20	1130		A Cummings		9/10/20	1130
9/10/20	1900	A Cummings	CMC	Courier	9/11/20	0800

Remarks: CC: Natalie Gordon

Matador

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

September 18, 2020

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

RE: Eland State 123H OrderNo.: 2009697

Dear Natalie Gordon:

Hall Environmental Analysis Laboratory received 5 sample(s) on 9/12/2020 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2009697**
Date Reported: **9/18/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Eland State 123H
Lab ID: 2009697-001 **Matrix:** SOIL

Client Sample ID: BH20-04 20'
Collection Date: 9/10/2020 1:00:00 PM
Received Date: 9/12/2020 8:08:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	310	59		mg/Kg	20	9/17/2020 2:59:44 PM	55233
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**	
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	9/15/2020 8:59:13 PM	55150
Surr: BFB	101	70-130		%Rec	1	9/15/2020 8:59:13 PM	55150
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**	
Diesel Range Organics (DRO)	ND	9.1		mg/Kg	1	9/16/2020 11:15:58 AM	55174
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	9/16/2020 11:15:58 AM	55174
Surr: DNOP	103	30.4-154		%Rec	1	9/16/2020 11:15:58 AM	55174
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**	
Benzene	ND	0.024		mg/Kg	1	9/15/2020 8:59:13 PM	55150
Toluene	ND	0.048		mg/Kg	1	9/15/2020 8:59:13 PM	55150
Ethylbenzene	ND	0.048		mg/Kg	1	9/15/2020 8:59:13 PM	55150
Xylenes, Total	ND	0.096		mg/Kg	1	9/15/2020 8:59:13 PM	55150
Surr: 1,2-Dichloroethane-d4	98.6	70-130		%Rec	1	9/15/2020 8:59:13 PM	55150
Surr: 4-Bromofluorobenzene	98.8	70-130		%Rec	1	9/15/2020 8:59:13 PM	55150
Surr: Dibromofluoromethane	108	70-130		%Rec	1	9/15/2020 8:59:13 PM	55150
Surr: Toluene-d8	100	70-130		%Rec	1	9/15/2020 8:59:13 PM	55150

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

Qualifiers:

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

Analytical Report
Lab Order **2009697**
Date Reported: **9/18/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Eland State 123H
Lab ID: 2009697-002 **Matrix:** SOIL

Client Sample ID: SS20-01 0-7'
Collection Date: 9/10/2020 3:00:00 PM
Received Date: 9/12/2020 8:08:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	ND	60		mg/Kg	20	9/17/2020 4:01:26 PM	55233
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	9/15/2020 9:27:37 PM	55150
Surr: BFB	103	70-130		%Rec	1	9/15/2020 9:27:37 PM	55150
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**	
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	9/16/2020 11:25:43 AM	55174
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	9/16/2020 11:25:43 AM	55174
Surr: DNOP	126	30.4-154		%Rec	1	9/16/2020 11:25:43 AM	55174
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**	
Benzene	ND	0.025		mg/Kg	1	9/15/2020 9:27:37 PM	55150
Toluene	ND	0.049		mg/Kg	1	9/15/2020 9:27:37 PM	55150
Ethylbenzene	ND	0.049		mg/Kg	1	9/15/2020 9:27:37 PM	55150
Xylenes, Total	ND	0.098		mg/Kg	1	9/15/2020 9:27:37 PM	55150
Surr: 1,2-Dichloroethane-d4	93.2	70-130		%Rec	1	9/15/2020 9:27:37 PM	55150
Surr: 4-Bromofluorobenzene	102	70-130		%Rec	1	9/15/2020 9:27:37 PM	55150
Surr: Dibromofluoromethane	111	70-130		%Rec	1	9/15/2020 9:27:37 PM	55150
Surr: Toluene-d8	101	70-130		%Rec	1	9/15/2020 9:27:37 PM	55150

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

Qualifiers:

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

Analytical Report
Lab Order **2009697**
Date Reported: **9/18/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Eland State 123H
Lab ID: 2009697-003 **Matrix:** SOIL

Client Sample ID: SS20-01 7-13
Collection Date: 9/10/2020 3:00:00 PM
Received Date: 9/12/2020 8:08:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	ND	60		mg/Kg	20	9/17/2020 4:13:46 PM	55233
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	9/15/2020 9:56:02 PM	55150
Surr: BFB	103	70-130		%Rec	1	9/15/2020 9:56:02 PM	55150
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**	
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	9/16/2020 11:35:29 AM	55174
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	9/16/2020 11:35:29 AM	55174
Surr: DNOP	127	30.4-154		%Rec	1	9/16/2020 11:35:29 AM	55174
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**	
Benzene	ND	0.024		mg/Kg	1	9/15/2020 9:56:02 PM	55150
Toluene	ND	0.049		mg/Kg	1	9/15/2020 9:56:02 PM	55150
Ethylbenzene	ND	0.049		mg/Kg	1	9/15/2020 9:56:02 PM	55150
Xylenes, Total	ND	0.097		mg/Kg	1	9/15/2020 9:56:02 PM	55150
Surr: 1,2-Dichloroethane-d4	95.4	70-130		%Rec	1	9/15/2020 9:56:02 PM	55150
Surr: 4-Bromofluorobenzene	102	70-130		%Rec	1	9/15/2020 9:56:02 PM	55150
Surr: Dibromofluoromethane	108	70-130		%Rec	1	9/15/2020 9:56:02 PM	55150
Surr: Toluene-d8	97.9	70-130		%Rec	1	9/15/2020 9:56:02 PM	55150

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

Qualifiers:

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

Analytical Report
Lab Order **2009697**
Date Reported: **9/18/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Eland State 123H
Lab ID: 2009697-004 **Matrix:** SOIL

Client Sample ID: SS20-07 0-7
Collection Date: 9/10/2020 3:50:00 PM
Received Date: 9/12/2020 8:08:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	180	59		mg/Kg	20	9/17/2020 4:26:06 PM	55233
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	9/15/2020 10:24:29 PM	55150
Surr: BFB	104	70-130		%Rec	1	9/15/2020 10:24:29 PM	55150
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**	
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	9/16/2020 11:45:14 AM	55174
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	9/16/2020 11:45:14 AM	55174
Surr: DNOP	130	30.4-154		%Rec	1	9/16/2020 11:45:14 AM	55174
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**	
Benzene	ND	0.025		mg/Kg	1	9/15/2020 10:24:29 PM	55150
Toluene	ND	0.050		mg/Kg	1	9/15/2020 10:24:29 PM	55150
Ethylbenzene	ND	0.050		mg/Kg	1	9/15/2020 10:24:29 PM	55150
Xylenes, Total	ND	0.10		mg/Kg	1	9/15/2020 10:24:29 PM	55150
Surr: 1,2-Dichloroethane-d4	96.0	70-130		%Rec	1	9/15/2020 10:24:29 PM	55150
Surr: 4-Bromofluorobenzene	106	70-130		%Rec	1	9/15/2020 10:24:29 PM	55150
Surr: Dibromofluoromethane	109	70-130		%Rec	1	9/15/2020 10:24:29 PM	55150
Surr: Toluene-d8	99.9	70-130		%Rec	1	9/15/2020 10:24:29 PM	55150

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

Qualifiers:

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

Analytical Report
Lab Order **2009697**
Date Reported: **9/18/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: Eland State 123H
Lab ID: 2009697-005 **Matrix:** SOIL

Client Sample ID: SS20-07 7-13
Collection Date: 9/10/2020 3:50:00 PM
Received Date: 9/12/2020 8:08:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	ND	60		mg/Kg	20	9/17/2020 4:38:27 PM	55233
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**	
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	9/15/2020 10:53:00 PM	55150
Surr: BFB	100	70-130		%Rec	1	9/15/2020 10:53:00 PM	55150
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**	
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	9/16/2020 11:54:59 AM	55174
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	9/16/2020 11:54:59 AM	55174
Surr: DNOP	126	30.4-154		%Rec	1	9/16/2020 11:54:59 AM	55174
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**	
Benzene	ND	0.024		mg/Kg	1	9/15/2020 10:53:00 PM	55150
Toluene	ND	0.048		mg/Kg	1	9/15/2020 10:53:00 PM	55150
Ethylbenzene	ND	0.048		mg/Kg	1	9/15/2020 10:53:00 PM	55150
Xylenes, Total	ND	0.097		mg/Kg	1	9/15/2020 10:53:00 PM	55150
Surr: 1,2-Dichloroethane-d4	93.0	70-130		%Rec	1	9/15/2020 10:53:00 PM	55150
Surr: 4-Bromofluorobenzene	100	70-130		%Rec	1	9/15/2020 10:53:00 PM	55150
Surr: Dibromofluoromethane	103	70-130		%Rec	1	9/15/2020 10:53:00 PM	55150
Surr: Toluene-d8	101	70-130		%Rec	1	9/15/2020 10:53:00 PM	55150

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2009697**

18-Sep-20

Client: Vertex Resource Group Ltd.

Project: Eland State 123H

Sample ID: **MB-55233**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBS**	Batch ID: **55233**	RunNo: **71928**							
Prep Date: **9/17/2020**	Analysis Date: **9/17/2020**	SeqNo: **2518797**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-55233**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSS**	Batch ID: **55233**	RunNo: **71928**							
Prep Date: **9/17/2020**	Analysis Date: **9/17/2020**	SeqNo: **2518798**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	93.7	90	110			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2009697**

18-Sep-20

Client: Vertex Resource Group Ltd.

Project: Eland State 123H

Sample ID: **2009695-004AMS**	SampType: **MS**			TestCode: **EPA Method 8015M/D: Diesel Range Organics**					
Client ID: **BatchQC**	Batch ID: **55174**			RunNo: **71914**					
Prep Date: **9/15/2020**	Analysis Date: **9/16/2020**			SeqNo: **2517190**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	62	9.1	45.29	16.79	100	47.4	136			
Surr: DNOP	4.7		4.529		103	30.4	154			

Sample ID: **2009695-004AMSD**	SampType: **MSD**			TestCode: **EPA Method 8015M/D: Diesel Range Organics**					
Client ID: **BatchQC**	Batch ID: **55174**			RunNo: **71914**					
Prep Date: **9/15/2020**	Analysis Date: **9/16/2020**			SeqNo: **2517191**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	42	8.6	43.22	16.79	57.3	47.4	136	39.7	43.4	
Surr: DNOP	2.6		4.322		60.5	30.4	154	0	0	

Sample ID: **LCS-55174**	SampType: **LCS**			TestCode: **EPA Method 8015M/D: Diesel Range Organics**					
Client ID: **LCSS**	Batch ID: **55174**			RunNo: **71914**					
Prep Date: **9/15/2020**	Analysis Date: **9/16/2020**			SeqNo: **2517231**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	54	10	50.00	0	107	70	130			
Surr: DNOP	5.6		5.000		112	30.4	154			

Sample ID: **MB-55174**	SampType: **MBLK**			TestCode: **EPA Method 8015M/D: Diesel Range Organics**					
Client ID: **PBS**	Batch ID: **55174**			RunNo: **71914**					
Prep Date: **9/15/2020**	Analysis Date: **9/16/2020**			SeqNo: **2517233**		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	30.4	154			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2009697**
18-Sep-20

Client: Vertex Resource Group Ltd.
Project: Eland State 123H

Sample ID: **lcs-55150**	SampType: **LCS4**	TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **BatchQC**	Batch ID: **55150**	RunNo: **71876**
Prep Date: **9/14/2020**	Analysis Date: **9/15/2020**	SeqNo: **2515702** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.90	0.025	1.000	0	89.9	80	120			
Toluene	0.98	0.050	1.000	0	97.8	80	120			
Ethylbenzene	0.98	0.050	1.000	0	98.5	80	120			
Xylenes, Total	3.1	0.10	3.000	0	105	80	120			
Surr: 1,2-Dichloroethane-d4	0.47		0.5000		94.1	70	130			
Surr: 4-Bromofluorobenzene	0.53		0.5000		106	70	130			
Surr: Dibromofluoromethane	0.54		0.5000		109	70	130			
Surr: Toluene-d8	0.50		0.5000		101	70	130			

Sample ID: **mb-55150**	SampType: **MBLK**	TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **PBS**	Batch ID: **55150**	RunNo: **71876**
Prep Date: **9/14/2020**	Analysis Date: **9/15/2020**	SeqNo: **2515703** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 1,2-Dichloroethane-d4	0.46		0.5000		92.1	70	130			
Surr: 4-Bromofluorobenzene	0.52		0.5000		105	70	130			
Surr: Dibromofluoromethane	0.52		0.5000		105	70	130			
Surr: Toluene-d8	0.50		0.5000		100	70	130			

Sample ID: **2009696-001ams**	SampType: **MS4**	TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **BatchQC**	Batch ID: **55150**	RunNo: **71916**
Prep Date: **9/14/2020**	Analysis Date: **9/16/2020**	SeqNo: **2517240** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.85	0.024	0.9515	0	89.6	71.1	115			
Toluene	0.97	0.048	0.9515	0	102	79.6	132			
Ethylbenzene	1.0	0.048	0.9515	0	106	83.8	134			
Xylenes, Total	3.2	0.095	2.854	0	112	82.4	132			
Surr: 1,2-Dichloroethane-d4	0.43		0.4757		89.8	70	130			
Surr: 4-Bromofluorobenzene	0.51		0.4757		107	70	130			
Surr: Dibromofluoromethane	0.51		0.4757		106	70	130			
Surr: Toluene-d8	0.50		0.4757		105	70	130			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2009697**

18-Sep-20

Client: Vertex Resource Group Ltd.

Project: Eland State 123H

Sample ID: **2009696-001amsd**	SampType: **MSD4**	TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **BatchQC**	Batch ID: **55150**	RunNo: **71916**
Prep Date: **9/14/2020**	Analysis Date: **9/16/2020**	SeqNo: **2517241** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.86	0.024	0.9737	0	88.1	71.1	115	0.662	20	
Toluene	0.95	0.049	0.9737	0	97.8	79.6	132	2.22	20	
Ethylbenzene	0.96	0.049	0.9737	0	98.3	83.8	134	5.14	20	
Xylenes, Total	3.0	0.097	2.921	0	103	82.4	132	5.66	20	
Surr: 1,2-Dichloroethane-d4	0.45		0.4869		93.3	70	130	0	0	
Surr: 4-Bromofluorobenzene	0.50		0.4869		103	70	130	0	0	
Surr: Dibromofluoromethane	0.52		0.4869		106	70	130	0	0	
Surr: Toluene-d8	0.48		0.4869		97.9	70	130	0	0	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2009697**

18-Sep-20

Client: Vertex Resource Group Ltd.

Project: Eland State 123H

Sample ID: **lcs-55150** SampType: **LCS** TestCode: **EPA Method 8015D Mod: Gasoline Range**

Client ID: **LCSS** Batch ID: **55150** RunNo: **71876**

Prep Date: **9/14/2020** Analysis Date: **9/15/2020** SeqNo: **2515733** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22	5.0	25.00	0	88.0	70	130			
Surr: BFB	500		500.0		99.1	70	130			

Sample ID: **mb-55150** SampType: **MBLK** TestCode: **EPA Method 8015D Mod: Gasoline Range**

Client ID: **PBS** Batch ID: **55150** RunNo: **71876**

Prep Date: **9/14/2020** Analysis Date: **9/15/2020** SeqNo: **2515734** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	510		500.0		103	70	130			

Sample ID: **2009696-002ams** SampType: **MS** TestCode: **EPA Method 8015D Mod: Gasoline Range**

Client ID: **BatchQC** Batch ID: **55150** RunNo: **71916**

Prep Date: **9/14/2020** Analysis Date: **9/16/2020** SeqNo: **2517276** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22	5.0	24.80	0	89.6	49.2	122			
Surr: BFB	500		496.0		101	70	130			

Sample ID: **2009696-002amsd** SampType: **MSD** TestCode: **EPA Method 8015D Mod: Gasoline Range**

Client ID: **BatchQC** Batch ID: **55150** RunNo: **71916**

Prep Date: **9/14/2020** Analysis Date: **9/16/2020** SeqNo: **2517277** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22	4.8	24.22	0	90.0	49.2	122	1.91	20	
Surr: BFB	500		484.5		104	70	130	0	0	

Qualifiers:

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: **Vertex Resource Group Lt** Work Order Number: **2009697** RcptNo: 1

Received By: **Isaiah Ortiz** **9/12/2020 8:08:00 AM** I_OL

Completed By: **Isaiah Ortiz** **9/12/2020 8:52:39 AM** I_OL

Reviewed By: (R 9/12/20

Chain of Custody

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

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. Received at least 1 vial with headspace <1/4" for AQ VOA?	Yes ☐	No ☐	NA ☑
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	# of preserved bottles checked for pH: (<2 or >12 unless noted)
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted?
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	Checked by:

IO 9/12/20

Special Handling (if applicable)

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

Person Notified: _____ Date: _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

16. Additional remarks:

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.4	Good	Not Present			

Chain-of-Custody Record

Client: Vertex

Mailing Address:

Phone #:

email or Fax#:

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

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other
☐ EDD (Type)

Turn-Around Time: 5 Day
☑ Standard ☐ Rush

Project Name: Eland State #123H

Project #: 20E-00239

Project Manager: Natalie Gordon

Sampler:

On Ice: ☑ Yes ☐ No

# of Coolers: 1

Cooler Temp(including CF): 1.9 +0.1 = 1.4 (°C)

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

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2009697	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
9/10	1:00	Soil	BH20-04 20'	4oz	ice	001	X	X					X			
"	3:50	"	SS20-01 0-7	"	"	002										
"	3:50	"	SS20-01 7-13	"	"	003										
"	3:50	"	SS20-07 0-7	"	"	004										
"	3:50	"	SS20-07 7-13	"	"	005										

Date	Time	Relinquished by	Received by	Via	Date	Time
9/11/20	1115					
9/11/20	1900				9/12/20	0805

Remarks: CC: Natalie Gordon

Matador

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

December 21, 2020

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

RE: E land State 123H OrderNo.: 2012612

Dear Natalie Gordon:

Hall Environmental Analysis Laboratory received 65 sample(s) on 12/11/2020 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2012612**
Date Reported: **12/21/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: E land State 123H
Lab ID: 2012612-001 **Matrix:** SOIL

Client Sample ID: WS20-01 0-4
Collection Date: 12/9/2020 11:00:00 AM
Received Date: 12/11/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	12/14/2020 9:20:43 AM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	12/14/2020 9:20:43 AM
Surr: DNOP	103	30.4-154		%Rec	1	12/14/2020 9:20:43 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	12/15/2020 2:29:35 PM
Surr: BFB	92.4	75.3-105		%Rec	1	12/15/2020 2:29:35 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	12/15/2020 2:29:35 PM
Toluene	ND	0.049		mg/Kg	1	12/15/2020 2:29:35 PM
Ethylbenzene	ND	0.049		mg/Kg	1	12/15/2020 2:29:35 PM
Xylenes, Total	ND	0.099		mg/Kg	1	12/15/2020 2:29:35 PM
Surr: 4-Bromofluorobenzene	93.5	80-120		%Rec	1	12/15/2020 2:29:35 PM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	ND	60		mg/Kg	20	12/15/2020 9:42:29 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2012612**
Date Reported: **12/21/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: E land State 123H
Lab ID: 2012612-002 **Matrix:** SOIL

Client Sample ID: WS20-02 0-4
Collection Date: 12/9/2020 11:05:00 AM
Received Date: 12/11/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	12/14/2020 9:48:58 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/14/2020 9:48:58 AM
Surr: DNOP	136	30.4-154		%Rec	1	12/14/2020 9:48:58 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	12/15/2020 3:39:53 PM
Surr: BFB	91.3	75.3-105		%Rec	1	12/15/2020 3:39:53 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	12/15/2020 3:39:53 PM
Toluene	ND	0.049		mg/Kg	1	12/15/2020 3:39:53 PM
Ethylbenzene	ND	0.049		mg/Kg	1	12/15/2020 3:39:53 PM
Xylenes, Total	ND	0.099		mg/Kg	1	12/15/2020 3:39:53 PM
Surr: 4-Bromofluorobenzene	90.3	80-120		%Rec	1	12/15/2020 3:39:53 PM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	ND	59		mg/Kg	20	12/15/2020 10:19:43 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2012612**
Date Reported: **12/21/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: E land State 123H
Lab ID: 2012612-003 **Matrix:** SOIL

Client Sample ID: WS20-03 0-4
Collection Date: 12/9/2020 11:10:00 AM
Received Date: 12/11/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	12/14/2020 9:58:25 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/14/2020 9:58:25 AM
Surr: DNOP	106	30.4-154		%Rec	1	12/14/2020 9:58:25 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	12/16/2020 12:56:18 AM
Surr: BFB	85.7	75.3-105		%Rec	1	12/16/2020 12:56:18 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	12/16/2020 12:56:18 AM
Toluene	ND	0.049		mg/Kg	1	12/16/2020 12:56:18 AM
Ethylbenzene	ND	0.049		mg/Kg	1	12/16/2020 12:56:18 AM
Xylenes, Total	ND	0.098		mg/Kg	1	12/16/2020 12:56:18 AM
Surr: 4-Bromofluorobenzene	88.4	80-120		%Rec	1	12/16/2020 12:56:18 AM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	ND	60		mg/Kg	20	12/15/2020 10:32:08 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2012612**
Date Reported: **12/21/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: E land State 123H
Lab ID: 2012612-004 **Matrix:** SOIL

Client Sample ID: WS20-04 0-4
Collection Date: 12/9/2020 11:15:00 AM
Received Date: 12/11/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	12/14/2020 10:07:53 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	12/14/2020 10:07:53 AM
Surr: DNOP	99.6	30.4-154		%Rec	1	12/14/2020 10:07:53 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	12/16/2020 1:19:20 AM
Surr: BFB	84.3	75.3-105		%Rec	1	12/16/2020 1:19:20 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.023		mg/Kg	1	12/16/2020 1:19:20 AM
Toluene	ND	0.046		mg/Kg	1	12/16/2020 1:19:20 AM
Ethylbenzene	ND	0.046		mg/Kg	1	12/16/2020 1:19:20 AM
Xylenes, Total	ND	0.092		mg/Kg	1	12/16/2020 1:19:20 AM
Surr: 4-Bromofluorobenzene	86.6	80-120		%Rec	1	12/16/2020 1:19:20 AM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	ND	60		mg/Kg	20	12/15/2020 10:44:33 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2012612**
Date Reported: **12/21/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: E land State 123H
Lab ID: 2012612-005 **Matrix:** SOIL

Client Sample ID: WS20-05 0-4
Collection Date: 12/9/2020 11:20:00 AM
Received Date: 12/11/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	12/14/2020 10:17:22 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	12/14/2020 10:17:22 AM
Surr: DNOP	107	30.4-154		%Rec	1	12/14/2020 10:17:22 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	12/16/2020 1:42:18 AM
Surr: BFB	85.2	75.3-105		%Rec	1	12/16/2020 1:42:18 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	12/16/2020 1:42:18 AM
Toluene	ND	0.047		mg/Kg	1	12/16/2020 1:42:18 AM
Ethylbenzene	ND	0.047		mg/Kg	1	12/16/2020 1:42:18 AM
Xylenes, Total	ND	0.095		mg/Kg	1	12/16/2020 1:42:18 AM
Surr: 4-Bromofluorobenzene	88.3	80-120		%Rec	1	12/16/2020 1:42:18 AM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	ND	59		mg/Kg	20	12/15/2020 10:56:57 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2012612**
Date Reported: **12/21/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: E land State 123H
Lab ID: 2012612-006 **Matrix:** SOIL

Client Sample ID: WS20-06 0-4
Collection Date: 12/9/2020 11:25:00 AM
Received Date: 12/11/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	12/14/2020 10:26:52 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/14/2020 10:26:52 AM
Surr: DNOP	102	30.4-154		%Rec	1	12/14/2020 10:26:52 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/16/2020 2:05:12 AM
Surr: BFB	83.4	75.3-105		%Rec	1	12/16/2020 2:05:12 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	12/16/2020 2:05:12 AM
Toluene	ND	0.048		mg/Kg	1	12/16/2020 2:05:12 AM
Ethylbenzene	ND	0.048		mg/Kg	1	12/16/2020 2:05:12 AM
Xylenes, Total	ND	0.096		mg/Kg	1	12/16/2020 2:05:12 AM
Surr: 4-Bromofluorobenzene	86.1	80-120		%Rec	1	12/16/2020 2:05:12 AM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	79	60		mg/Kg	20	12/15/2020 11:09:22 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2012612**
Date Reported: **12/21/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: E land State 123H
Lab ID: 2012612-007 **Matrix:** SOIL

Client Sample ID: WS20-07 0-4
Collection Date: 12/9/2020 11:30:00 AM
Received Date: 12/11/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	12/14/2020 10:36:20 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	12/14/2020 10:36:20 AM
Surr: DNOP	112	30.4-154		%Rec	1	12/14/2020 10:36:20 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	12/16/2020 2:28:06 AM
Surr: BFB	84.1	75.3-105		%Rec	1	12/16/2020 2:28:06 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.023		mg/Kg	1	12/16/2020 2:28:06 AM
Toluene	ND	0.046		mg/Kg	1	12/16/2020 2:28:06 AM
Ethylbenzene	ND	0.046		mg/Kg	1	12/16/2020 2:28:06 AM
Xylenes, Total	ND	0.093		mg/Kg	1	12/16/2020 2:28:06 AM
Surr: 4-Bromofluorobenzene	86.5	80-120		%Rec	1	12/16/2020 2:28:06 AM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	ND	60		mg/Kg	20	12/15/2020 11:21:46 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2012612**
Date Reported: **12/21/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: E land State 123H
Lab ID: 2012612-008 **Matrix:** SOIL

Client Sample ID: WS20-08 0-4
Collection Date: 12/9/2020 11:35:00 AM
Received Date: 12/11/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	12/14/2020 10:45:53 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/14/2020 10:45:53 AM
Surr: DNOP	135	30.4-154		%Rec	1	12/14/2020 10:45:53 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	12/16/2020 2:51:02 AM
Surr: BFB	81.8	75.3-105		%Rec	1	12/16/2020 2:51:02 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	12/16/2020 2:51:02 AM
Toluene	ND	0.049		mg/Kg	1	12/16/2020 2:51:02 AM
Ethylbenzene	ND	0.049		mg/Kg	1	12/16/2020 2:51:02 AM
Xylenes, Total	ND	0.098		mg/Kg	1	12/16/2020 2:51:02 AM
Surr: 4-Bromofluorobenzene	85.0	80-120		%Rec	1	12/16/2020 2:51:02 AM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	190	60		mg/Kg	20	12/16/2020 1:51:36 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2012612**
Date Reported: **12/21/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: E land State 123H
Lab ID: 2012612-009 **Matrix:** SOIL

Client Sample ID: WS20-09 0-4
Collection Date: 12/9/2020 11:40:00 AM
Received Date: 12/11/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	12/14/2020 10:55:24 AM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	12/14/2020 10:55:24 AM
Surr: DNOP	104	30.4-154		%Rec	1	12/14/2020 10:55:24 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/16/2020 3:13:54 AM
Surr: BFB	80.5	75.3-105		%Rec	1	12/16/2020 3:13:54 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	12/16/2020 3:13:54 AM
Toluene	ND	0.048		mg/Kg	1	12/16/2020 3:13:54 AM
Ethylbenzene	ND	0.048		mg/Kg	1	12/16/2020 3:13:54 AM
Xylenes, Total	ND	0.096		mg/Kg	1	12/16/2020 3:13:54 AM
Surr: 4-Bromofluorobenzene	83.8	80-120		%Rec	1	12/16/2020 3:13:54 AM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	ND	60		mg/Kg	20	12/16/2020 2:04:01 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2012612**
Date Reported: **12/21/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: E land State 123H
Lab ID: 2012612-010 **Matrix:** SOIL

Client Sample ID: WS20-10 0-4
Collection Date: 12/9/2020 11:45:00 AM
Received Date: 12/11/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	12/14/2020 11:04:57 AM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	12/14/2020 11:04:57 AM
Surr: DNOP	105	30.4-154		%Rec	1	12/14/2020 11:04:57 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	12/16/2020 3:36:49 AM
Surr: BFB	83.1	75.3-105		%Rec	1	12/16/2020 3:36:49 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	12/16/2020 3:36:49 AM
Toluene	ND	0.047		mg/Kg	1	12/16/2020 3:36:49 AM
Ethylbenzene	ND	0.047		mg/Kg	1	12/16/2020 3:36:49 AM
Xylenes, Total	ND	0.095		mg/Kg	1	12/16/2020 3:36:49 AM
Surr: 4-Bromofluorobenzene	86.0	80-120		%Rec	1	12/16/2020 3:36:49 AM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	110	59		mg/Kg	20	12/16/2020 2:16:26 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2012612**
Date Reported: **12/21/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: E land State 123H
Lab ID: 2012612-011 **Matrix:** SOIL

Client Sample ID: WS20-11 0-4
Collection Date: 12/9/2020 11:50:00 AM
Received Date: 12/11/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	12/14/2020 11:14:36 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/14/2020 11:14:36 AM
Surr: DNOP	103	30.4-154		%Rec	1	12/14/2020 11:14:36 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	12/16/2020 4:45:33 AM
Surr: BFB	85.2	75.3-105		%Rec	1	12/16/2020 4:45:33 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	12/16/2020 4:45:33 AM
Toluene	ND	0.049		mg/Kg	1	12/16/2020 4:45:33 AM
Ethylbenzene	ND	0.049		mg/Kg	1	12/16/2020 4:45:33 AM
Xylenes, Total	ND	0.098		mg/Kg	1	12/16/2020 4:45:33 AM
Surr: 4-Bromofluorobenzene	86.7	80-120		%Rec	1	12/16/2020 4:45:33 AM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	140	60		mg/Kg	20	12/16/2020 2:28:51 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2012612**
Date Reported: **12/21/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: E land State 123H
Lab ID: 2012612-012 **Matrix:** SOIL

Client Sample ID: WS20-12 0-4
Collection Date: 12/9/2020 11:55:00 AM
Received Date: 12/11/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	12/14/2020 11:24:15 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	12/14/2020 11:24:15 AM
Surr: DNOP	103	30.4-154		%Rec	1	12/14/2020 11:24:15 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/16/2020 5:08:28 AM
Surr: BFB	84.9	75.3-105		%Rec	1	12/16/2020 5:08:28 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	12/16/2020 5:08:28 AM
Toluene	ND	0.048		mg/Kg	1	12/16/2020 5:08:28 AM
Ethylbenzene	ND	0.048		mg/Kg	1	12/16/2020 5:08:28 AM
Xylenes, Total	ND	0.095		mg/Kg	1	12/16/2020 5:08:28 AM
Surr: 4-Bromofluorobenzene	87.7	80-120		%Rec	1	12/16/2020 5:08:28 AM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	ND	60		mg/Kg	20	12/16/2020 2:41:15 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2012612**
Date Reported: **12/21/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: E land State 123H
Lab ID: 2012612-013 **Matrix:** SOIL

Client Sample ID: WS20-13 0-4
Collection Date: 12/9/2020 12:00:00 PM
Received Date: 12/11/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	12/14/2020 11:33:55 AM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	12/14/2020 11:33:55 AM
Surr: DNOP	101	30.4-154		%Rec	1	12/14/2020 11:33:55 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/16/2020 9:25:32 AM
Surr: BFB	89.5	75.3-105		%Rec	1	12/16/2020 9:25:32 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	12/16/2020 9:25:32 AM
Toluene	ND	0.048		mg/Kg	1	12/16/2020 9:25:32 AM
Ethylbenzene	ND	0.048		mg/Kg	1	12/16/2020 9:25:32 AM
Xylenes, Total	ND	0.097		mg/Kg	1	12/16/2020 9:25:32 AM
Surr: 4-Bromofluorobenzene	89.6	80-120		%Rec	1	12/16/2020 9:25:32 AM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	210	61		mg/Kg	20	12/16/2020 2:53:40 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2012612**
Date Reported: **12/21/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: E land State 123H
Lab ID: 2012612-014 **Matrix:** SOIL

Client Sample ID: WS20-14 0-4
Collection Date: 12/9/2020 12:05:00 PM
Received Date: 12/11/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	12/14/2020 11:43:36 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	12/14/2020 11:43:36 AM
Surr: DNOP	102	30.4-154		%Rec	1	12/14/2020 11:43:36 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	12/16/2020 9:49:18 AM
Surr: BFB	89.8	75.3-105		%Rec	1	12/16/2020 9:49:18 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	12/16/2020 9:49:18 AM
Toluene	ND	0.049		mg/Kg	1	12/16/2020 9:49:18 AM
Ethylbenzene	ND	0.049		mg/Kg	1	12/16/2020 9:49:18 AM
Xylenes, Total	ND	0.099		mg/Kg	1	12/16/2020 9:49:18 AM
Surr: 4-Bromofluorobenzene	89.6	80-120		%Rec	1	12/16/2020 9:49:18 AM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	ND	61		mg/Kg	20	12/16/2020 3:30:54 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2012612**
Date Reported: **12/21/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: E land State 123H
Lab ID: 2012612-015 **Matrix:** SOIL

Client Sample ID: WS20-15 0-4
Collection Date: 12/9/2020 12:10:00 PM
Received Date: 12/11/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	12/14/2020 11:53:15 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	12/14/2020 11:53:15 AM
Surr: DNOP	109	30.4-154		%Rec	1	12/14/2020 11:53:15 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	12/16/2020 10:12:56 AM
Surr: BFB	88.4	75.3-105		%Rec	1	12/16/2020 10:12:56 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.023		mg/Kg	1	12/16/2020 10:12:56 AM
Toluene	ND	0.046		mg/Kg	1	12/16/2020 10:12:56 AM
Ethylbenzene	ND	0.046		mg/Kg	1	12/16/2020 10:12:56 AM
Xylenes, Total	ND	0.093		mg/Kg	1	12/16/2020 10:12:56 AM
Surr: 4-Bromofluorobenzene	89.9	80-120		%Rec	1	12/16/2020 10:12:56 AM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	ND	60		mg/Kg	20	12/16/2020 3:43:19 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2012612**
Date Reported: **12/21/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: E land State 123H
Lab ID: 2012612-016 **Matrix:** SOIL

Client Sample ID: WS20-16 0-4
Collection Date: 12/9/2020 12:15:00 PM
Received Date: 12/11/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	12/14/2020 12:02:56 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/14/2020 12:02:56 PM
Surr: DNOP	104	30.4-154		%Rec	1	12/14/2020 12:02:56 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/16/2020 10:36:16 AM
Surr: BFB	86.0	75.3-105		%Rec	1	12/16/2020 10:36:16 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	12/16/2020 10:36:16 AM
Toluene	ND	0.048		mg/Kg	1	12/16/2020 10:36:16 AM
Ethylbenzene	ND	0.048		mg/Kg	1	12/16/2020 10:36:16 AM
Xylenes, Total	ND	0.096		mg/Kg	1	12/16/2020 10:36:16 AM
Surr: 4-Bromofluorobenzene	86.4	80-120		%Rec	1	12/16/2020 10:36:16 AM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	100	60		mg/Kg	20	12/16/2020 3:55:43 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2012612**
Date Reported: **12/21/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: E land State 123H
Lab ID: 2012612-017 **Matrix:** SOIL

Client Sample ID: WS20-17 0-4
Collection Date: 12/9/2020 12:20:00 PM
Received Date: 12/11/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	12/14/2020 12:12:44 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	12/14/2020 12:12:44 PM
Surr: DNOP	106	30.4-154		%Rec	1	12/14/2020 12:12:44 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/16/2020 10:59:34 AM
Surr: BFB	89.8	75.3-105		%Rec	1	12/16/2020 10:59:34 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	12/16/2020 10:59:34 AM
Toluene	ND	0.048		mg/Kg	1	12/16/2020 10:59:34 AM
Ethylbenzene	ND	0.048		mg/Kg	1	12/16/2020 10:59:34 AM
Xylenes, Total	ND	0.097		mg/Kg	1	12/16/2020 10:59:34 AM
Surr: 4-Bromofluorobenzene	89.5	80-120		%Rec	1	12/16/2020 10:59:34 AM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	360	60		mg/Kg	20	12/16/2020 4:08:08 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2012612**
Date Reported: **12/21/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: E land State 123H
Lab ID: 2012612-018 **Matrix:** SOIL

Client Sample ID: WS20-18 0-4
Collection Date: 12/9/2020 12:25:00 PM
Received Date: 12/11/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	12/14/2020 12:22:28 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	12/14/2020 12:22:28 PM
Surr: DNOP	123	30.4-154		%Rec	1	12/14/2020 12:22:28 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	12/16/2020 11:22:55 AM
Surr: BFB	90.2	75.3-105		%Rec	1	12/16/2020 11:22:55 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	12/16/2020 11:22:55 AM
Toluene	ND	0.049		mg/Kg	1	12/16/2020 11:22:55 AM
Ethylbenzene	ND	0.049		mg/Kg	1	12/16/2020 11:22:55 AM
Xylenes, Total	ND	0.098		mg/Kg	1	12/16/2020 11:22:55 AM
Surr: 4-Bromofluorobenzene	89.3	80-120		%Rec	1	12/16/2020 11:22:55 AM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	130	60		mg/Kg	20	12/16/2020 4:20:32 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2012612**
Date Reported: **12/21/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: E land State 123H
Lab ID: 2012612-019 **Matrix:** SOIL

Client Sample ID: WS20-19 0-4
Collection Date: 12/9/2020 12:30:00 PM
Received Date: 12/11/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	12/14/2020 12:32:18 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/14/2020 12:32:18 PM
Surr: DNOP	123	30.4-154		%Rec	1	12/14/2020 12:32:18 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/16/2020 11:46:15 AM
Surr: BFB	92.4	75.3-105		%Rec	1	12/16/2020 11:46:15 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	12/16/2020 11:46:15 AM
Toluene	ND	0.048		mg/Kg	1	12/16/2020 11:46:15 AM
Ethylbenzene	ND	0.048		mg/Kg	1	12/16/2020 11:46:15 AM
Xylenes, Total	ND	0.096		mg/Kg	1	12/16/2020 11:46:15 AM
Surr: 4-Bromofluorobenzene	90.3	80-120		%Rec	1	12/16/2020 11:46:15 AM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	ND	60		mg/Kg	20	12/16/2020 4:32:56 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2012612**
Date Reported: **12/21/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: E land State 123H
Lab ID: 2012612-020 **Matrix:** SOIL

Client Sample ID: WS20-20 0-4
Collection Date: 12/9/2020 12:35:00 PM
Received Date: 12/11/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	12/14/2020 12:42:06 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	12/14/2020 12:42:06 PM
Surr: DNOP	109	30.4-154		%Rec	1	12/14/2020 12:42:06 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/16/2020 12:09:42 PM
Surr: BFB	89.1	75.3-105		%Rec	1	12/16/2020 12:09:42 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	12/16/2020 12:09:42 PM
Toluene	ND	0.048		mg/Kg	1	12/16/2020 12:09:42 PM
Ethylbenzene	ND	0.048		mg/Kg	1	12/16/2020 12:09:42 PM
Xylenes, Total	ND	0.096		mg/Kg	1	12/16/2020 12:09:42 PM
Surr: 4-Bromofluorobenzene	90.6	80-120		%Rec	1	12/16/2020 12:09:42 PM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	300	60		mg/Kg	20	12/16/2020 4:45:21 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

Analytical Report
Lab Order **2012612**
Date Reported: **12/21/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: E land State 123H
Lab ID: 2012612-021 **Matrix:** SOIL

Client Sample ID: WS20-21 0-4
Collection Date: 12/9/2020 12:40:00 PM
Received Date: 12/11/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	12/14/2020 9:17:49 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/14/2020 9:17:49 PM
Surr: DNOP	63.5	30.4-154		%Rec	1	12/14/2020 9:17:49 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	210	60		mg/Kg	20	12/16/2020 12:28:07 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**
Benzene	ND	0.024		mg/Kg	1	12/15/2020 5:13:16 PM
Toluene	ND	0.048		mg/Kg	1	12/15/2020 5:13:16 PM
Ethylbenzene	ND	0.048		mg/Kg	1	12/15/2020 5:13:16 PM
Xylenes, Total	ND	0.096		mg/Kg	1	12/15/2020 5:13:16 PM
Surr: 1,2-Dichloroethane-d4	124	70-130		%Rec	1	12/15/2020 5:13:16 PM
Surr: 4-Bromofluorobenzene	104	70-130		%Rec	1	12/15/2020 5:13:16 PM
Surr: Dibromofluoromethane	127	70-130		%Rec	1	12/15/2020 5:13:16 PM
Surr: Toluene-d8	93.4	70-130		%Rec	1	12/15/2020 5:13:16 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/15/2020 5:13:16 PM
Surr: BFB	102	70-130		%Rec	1	12/15/2020 5:13:16 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2012612**
Date Reported: **12/21/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: E land State 123H
Lab ID: 2012612-022 **Matrix:** SOIL

Client Sample ID: WS20-22 0-4
Collection Date: 12/9/2020 12:45:00 PM
Received Date: 12/11/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	12/14/2020 9:46:14 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	12/14/2020 9:46:14 PM
Surr: DNOP	66.8	30.4-154		%Rec	1	12/14/2020 9:46:14 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	310	60		mg/Kg	20	12/16/2020 12:40:32 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**
Benzene	ND	0.024		mg/Kg	1	12/15/2020 6:38:15 PM
Toluene	ND	0.048		mg/Kg	1	12/15/2020 6:38:15 PM
Ethylbenzene	ND	0.048		mg/Kg	1	12/15/2020 6:38:15 PM
Xylenes, Total	ND	0.095		mg/Kg	1	12/15/2020 6:38:15 PM
Surr: 1,2-Dichloroethane-d4	123	70-130		%Rec	1	12/15/2020 6:38:15 PM
Surr: 4-Bromofluorobenzene	105	70-130		%Rec	1	12/15/2020 6:38:15 PM
Surr: Dibromofluoromethane	123	70-130		%Rec	1	12/15/2020 6:38:15 PM
Surr: Toluene-d8	93.1	70-130		%Rec	1	12/15/2020 6:38:15 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/15/2020 6:38:15 PM
Surr: BFB	107	70-130		%Rec	1	12/15/2020 6:38:15 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2012612**
Date Reported: **12/21/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: E land State 123H
Lab ID: 2012612-023 **Matrix:** SOIL

Client Sample ID: WS20-01 4-8
Collection Date: 12/9/2020 11:00:00 AM
Received Date: 12/11/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	12/14/2020 9:55:40 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	12/14/2020 9:55:40 PM
Surr: DNOP	99.4	30.4-154		%Rec	1	12/14/2020 9:55:40 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	2900	150		mg/Kg	50	12/18/2020 1:41:05 AM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**
Benzene	ND	0.024		mg/Kg	1	12/15/2020 8:03:11 PM
Toluene	ND	0.048		mg/Kg	1	12/15/2020 8:03:11 PM
Ethylbenzene	ND	0.048		mg/Kg	1	12/15/2020 8:03:11 PM
Xylenes, Total	ND	0.097		mg/Kg	1	12/15/2020 8:03:11 PM
Surr: 1,2-Dichloroethane-d4	121	70-130		%Rec	1	12/15/2020 8:03:11 PM
Surr: 4-Bromofluorobenzene	102	70-130		%Rec	1	12/15/2020 8:03:11 PM
Surr: Dibromofluoromethane	125	70-130		%Rec	1	12/15/2020 8:03:11 PM
Surr: Toluene-d8	90.0	70-130		%Rec	1	12/15/2020 8:03:11 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/15/2020 8:03:11 PM
Surr: BFB	100	70-130		%Rec	1	12/15/2020 8:03:11 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2012612**
Date Reported: **12/21/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: E land State 123H
Lab ID: 2012612-024 **Matrix:** SOIL

Client Sample ID: WS20-02 4-8
Collection Date: 12/9/2020 11:05:00 AM
Received Date: 12/11/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	12/14/2020 10:05:05 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	12/14/2020 10:05:05 PM
Surr: DNOP	88.0	30.4-154		%Rec	1	12/14/2020 10:05:05 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	4200	150		mg/Kg	50	12/18/2020 1:53:30 AM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**
Benzene	ND	0.023		mg/Kg	1	12/15/2020 8:31:28 PM
Toluene	ND	0.047		mg/Kg	1	12/15/2020 8:31:28 PM
Ethylbenzene	ND	0.047		mg/Kg	1	12/15/2020 8:31:28 PM
Xylenes, Total	ND	0.094		mg/Kg	1	12/15/2020 8:31:28 PM
Surr: 1,2-Dichloroethane-d4	122	70-130		%Rec	1	12/15/2020 8:31:28 PM
Surr: 4-Bromofluorobenzene	103	70-130		%Rec	1	12/15/2020 8:31:28 PM
Surr: Dibromofluoromethane	125	70-130		%Rec	1	12/15/2020 8:31:28 PM
Surr: Toluene-d8	93.8	70-130		%Rec	1	12/15/2020 8:31:28 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	12/15/2020 8:31:28 PM
Surr: BFB	104	70-130		%Rec	1	12/15/2020 8:31:28 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2012612**
Date Reported: **12/21/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: E land State 123H
Lab ID: 2012612-025 **Matrix:** SOIL

Client Sample ID: WS20-03 4-8
Collection Date: 12/9/2020 11:10:00 AM
Received Date: 12/11/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	12/14/2020 10:14:27 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	12/14/2020 10:14:27 PM
Surr: DNOP	93.0	30.4-154		%Rec	1	12/14/2020 10:14:27 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	1200	61		mg/Kg	20	12/16/2020 1:17:46 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**
Benzene	ND	0.025		mg/Kg	1	12/15/2020 8:59:42 PM
Toluene	ND	0.050		mg/Kg	1	12/15/2020 8:59:42 PM
Ethylbenzene	ND	0.050		mg/Kg	1	12/15/2020 8:59:42 PM
Xylenes, Total	ND	0.10		mg/Kg	1	12/15/2020 8:59:42 PM
Surr: 1,2-Dichloroethane-d4	122	70-130		%Rec	1	12/15/2020 8:59:42 PM
Surr: 4-Bromofluorobenzene	102	70-130		%Rec	1	12/15/2020 8:59:42 PM
Surr: Dibromofluoromethane	126	70-130		%Rec	1	12/15/2020 8:59:42 PM
Surr: Toluene-d8	92.7	70-130		%Rec	1	12/15/2020 8:59:42 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	12/15/2020 8:59:42 PM
Surr: BFB	104	70-130		%Rec	1	12/15/2020 8:59:42 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2012612**
Date Reported: **12/21/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: E land State 123H
Lab ID: 2012612-026 **Matrix:** SOIL

Client Sample ID: WS20-04 4-8
Collection Date: 12/9/2020 11:15:00 AM
Received Date: 12/11/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	12/14/2020 10:23:47 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/14/2020 10:23:47 PM
Surr: DNOP	65.2	30.4-154		%Rec	1	12/14/2020 10:23:47 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	ND	60		mg/Kg	20	12/16/2020 1:30:10 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**
Benzene	ND	0.024		mg/Kg	1	12/15/2020 9:27:58 PM
Toluene	ND	0.049		mg/Kg	1	12/15/2020 9:27:58 PM
Ethylbenzene	ND	0.049		mg/Kg	1	12/15/2020 9:27:58 PM
Xylenes, Total	ND	0.098		mg/Kg	1	12/15/2020 9:27:58 PM
Surr: 1,2-Dichloroethane-d4	125	70-130		%Rec	1	12/15/2020 9:27:58 PM
Surr: 4-Bromofluorobenzene	106	70-130		%Rec	1	12/15/2020 9:27:58 PM
Surr: Dibromofluoromethane	127	70-130		%Rec	1	12/15/2020 9:27:58 PM
Surr: Toluene-d8	92.7	70-130		%Rec	1	12/15/2020 9:27:58 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	12/15/2020 9:27:58 PM
Surr: BFB	105	70-130		%Rec	1	12/15/2020 9:27:58 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2012612**
Date Reported: **12/21/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: E land State 123H
Lab ID: 2012612-027 **Matrix:** SOIL

Client Sample ID: WS20-05 4-8
Collection Date: 12/9/2020 11:20:00 AM
Received Date: 12/11/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	12/14/2020 10:33:05 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	12/14/2020 10:33:05 PM
Surr: DNOP	71.1	30.4-154		%Rec	1	12/14/2020 10:33:05 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	180	60		mg/Kg	20	12/16/2020 1:42:35 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**
Benzene	ND	0.023		mg/Kg	1	12/16/2020 2:00:08 PM
Toluene	ND	0.046		mg/Kg	1	12/16/2020 2:00:08 PM
Ethylbenzene	ND	0.046		mg/Kg	1	12/16/2020 2:00:08 PM
Xylenes, Total	ND	0.093		mg/Kg	1	12/16/2020 2:00:08 PM
Surr: 1,2-Dichloroethane-d4	103	70-130		%Rec	1	12/16/2020 2:00:08 PM
Surr: 4-Bromofluorobenzene	99.9	70-130		%Rec	1	12/16/2020 2:00:08 PM
Surr: Dibromofluoromethane	108	70-130		%Rec	1	12/16/2020 2:00:08 PM
Surr: Toluene-d8	99.3	70-130		%Rec	1	12/16/2020 2:00:08 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	12/15/2020 11:48:50 PM
Surr: BFB	102	70-130		%Rec	1	12/15/2020 11:48:50 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2012612**
Date Reported: **12/21/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: E land State 123H
Lab ID: 2012612-028 **Matrix:** SOIL

Client Sample ID: WS20-06 4-8
Collection Date: 12/9/2020 11:25:00 AM
Received Date: 12/11/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	9.0		mg/Kg	1	12/14/2020 10:42:23 PM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	12/14/2020 10:42:23 PM
Surr: DNOP	74.0	30.4-154		%Rec	1	12/14/2020 10:42:23 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	580	60		mg/Kg	20	12/16/2020 1:55:00 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**
Benzene	ND	0.024		mg/Kg	1	12/16/2020 2:28:39 PM
Toluene	ND	0.048		mg/Kg	1	12/16/2020 2:28:39 PM
Ethylbenzene	ND	0.048		mg/Kg	1	12/16/2020 2:28:39 PM
Xylenes, Total	ND	0.097		mg/Kg	1	12/16/2020 2:28:39 PM
Surr: 1,2-Dichloroethane-d4	105	70-130		%Rec	1	12/16/2020 2:28:39 PM
Surr: 4-Bromofluorobenzene	97.2	70-130		%Rec	1	12/16/2020 2:28:39 PM
Surr: Dibromofluoromethane	111	70-130		%Rec	1	12/16/2020 2:28:39 PM
Surr: Toluene-d8	98.9	70-130		%Rec	1	12/16/2020 2:28:39 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/16/2020 12:16:58 AM
Surr: BFB	103	70-130		%Rec	1	12/16/2020 12:16:58 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2012612**
Date Reported: **12/21/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: E land State 123H
Lab ID: 2012612-029 **Matrix:** SOIL

Client Sample ID: WS20-07 4-8
Collection Date: 12/9/2020 11:30:00 AM
Received Date: 12/11/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	8.8		mg/Kg	1	12/14/2020 10:51:42 PM
Motor Oil Range Organics (MRO)	ND	44		mg/Kg	1	12/14/2020 10:51:42 PM
Surr: DNOP	97.9	30.4-154		%Rec	1	12/14/2020 10:51:42 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	490	59		mg/Kg	20	12/16/2020 2:32:12 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**
Benzene	ND	0.025		mg/Kg	1	12/16/2020 2:57:12 PM
Toluene	ND	0.049		mg/Kg	1	12/16/2020 2:57:12 PM
Ethylbenzene	ND	0.049		mg/Kg	1	12/16/2020 2:57:12 PM
Xylenes, Total	ND	0.099		mg/Kg	1	12/16/2020 2:57:12 PM
Surr: 1,2-Dichloroethane-d4	102	70-130		%Rec	1	12/16/2020 2:57:12 PM
Surr: 4-Bromofluorobenzene	103	70-130		%Rec	1	12/16/2020 2:57:12 PM
Surr: Dibromofluoromethane	112	70-130		%Rec	1	12/16/2020 2:57:12 PM
Surr: Toluene-d8	98.3	70-130		%Rec	1	12/16/2020 2:57:12 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	12/16/2020 12:45:05 AM
Surr: BFB	104	70-130		%Rec	1	12/16/2020 12:45:05 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2012612**
Date Reported: **12/21/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: E land State 123H
Lab ID: 2012612-030 **Matrix:** SOIL

Client Sample ID: WS20-08 4-8
Collection Date: 12/9/2020 11:35:00 AM
Received Date: 12/11/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	12/14/2020 11:01:03 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	12/14/2020 11:01:03 PM
Surr: DNOP	98.3	30.4-154		%Rec	1	12/14/2020 11:01:03 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	860	60		mg/Kg	20	12/16/2020 2:44:37 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**
Benzene	ND	0.024		mg/Kg	1	12/16/2020 3:25:33 PM
Toluene	ND	0.048		mg/Kg	1	12/16/2020 3:25:33 PM
Ethylbenzene	ND	0.048		mg/Kg	1	12/16/2020 3:25:33 PM
Xylenes, Total	ND	0.096		mg/Kg	1	12/16/2020 3:25:33 PM
Surr: 1,2-Dichloroethane-d4	103	70-130		%Rec	1	12/16/2020 3:25:33 PM
Surr: 4-Bromofluorobenzene	96.6	70-130		%Rec	1	12/16/2020 3:25:33 PM
Surr: Dibromofluoromethane	104	70-130		%Rec	1	12/16/2020 3:25:33 PM
Surr: Toluene-d8	97.3	70-130		%Rec	1	12/16/2020 3:25:33 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/16/2020 1:13:12 AM
Surr: BFB	102	70-130		%Rec	1	12/16/2020 1:13:12 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

Analytical Report
Lab Order **2012612**
Date Reported: **12/21/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: E land State 123H
Lab ID: 2012612-031 **Matrix:** SOIL

Client Sample ID: WS20-09 4-8
Collection Date: 12/9/2020 11:40:00 AM
Received Date: 12/11/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	12/14/2020 11:10:24 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/14/2020 11:10:24 PM
Surr: DNOP	76.8	30.4-154		%Rec	1	12/14/2020 11:10:24 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	1700	60		mg/Kg	20	12/16/2020 3:21:51 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**
Benzene	ND	0.024		mg/Kg	1	12/16/2020 3:54:04 PM
Toluene	ND	0.048		mg/Kg	1	12/16/2020 3:54:04 PM
Ethylbenzene	ND	0.048		mg/Kg	1	12/16/2020 3:54:04 PM
Xylenes, Total	ND	0.095		mg/Kg	1	12/16/2020 3:54:04 PM
Surr: 1,2-Dichloroethane-d4	107	70-130		%Rec	1	12/16/2020 3:54:04 PM
Surr: 4-Bromofluorobenzene	99.1	70-130		%Rec	1	12/16/2020 3:54:04 PM
Surr: Dibromofluoromethane	112	70-130		%Rec	1	12/16/2020 3:54:04 PM
Surr: Toluene-d8	99.6	70-130		%Rec	1	12/16/2020 3:54:04 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/16/2020 1:41:19 AM
Surr: BFB	107	70-130		%Rec	1	12/16/2020 1:41:19 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2012612**
Date Reported: **12/21/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: E land State 123H
Lab ID: 2012612-032 **Matrix:** SOIL

Client Sample ID: WS20-10 4-8
Collection Date: 12/9/2020 11:45:00 AM
Received Date: 12/11/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	12/14/2020 11:19:48 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/14/2020 11:19:48 PM
Surr: DNOP	78.0	30.4-154		%Rec	1	12/14/2020 11:19:48 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	690	61		mg/Kg	20	12/16/2020 3:34:16 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**
Benzene	ND	0.023		mg/Kg	1	12/16/2020 4:22:29 PM
Toluene	ND	0.047		mg/Kg	1	12/16/2020 4:22:29 PM
Ethylbenzene	ND	0.047		mg/Kg	1	12/16/2020 4:22:29 PM
Xylenes, Total	ND	0.094		mg/Kg	1	12/16/2020 4:22:29 PM
Surr: 1,2-Dichloroethane-d4	107	70-130		%Rec	1	12/16/2020 4:22:29 PM
Surr: 4-Bromofluorobenzene	99.5	70-130		%Rec	1	12/16/2020 4:22:29 PM
Surr: Dibromofluoromethane	111	70-130		%Rec	1	12/16/2020 4:22:29 PM
Surr: Toluene-d8	100	70-130		%Rec	1	12/16/2020 4:22:29 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	12/16/2020 2:09:23 AM
Surr: BFB	102	70-130		%Rec	1	12/16/2020 2:09:23 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2012612**
Date Reported: **12/21/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: E land State 123H
Lab ID: 2012612-033 **Matrix:** SOIL

Client Sample ID: WS20-11 4-8
Collection Date: 12/9/2020 11:50:00 AM
Received Date: 12/11/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	12/14/2020 11:29:12 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	12/14/2020 11:29:12 PM
Surr: DNOP	78.5	30.4-154		%Rec	1	12/14/2020 11:29:12 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	2600	150		mg/Kg	50	12/18/2020 2:05:55 AM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**
Benzene	ND	0.025		mg/Kg	1	12/16/2020 4:51:05 PM
Toluene	ND	0.050		mg/Kg	1	12/16/2020 4:51:05 PM
Ethylbenzene	ND	0.050		mg/Kg	1	12/16/2020 4:51:05 PM
Xylenes, Total	ND	0.10		mg/Kg	1	12/16/2020 4:51:05 PM
Surr: 1,2-Dichloroethane-d4	102	70-130		%Rec	1	12/16/2020 4:51:05 PM
Surr: 4-Bromofluorobenzene	98.8	70-130		%Rec	1	12/16/2020 4:51:05 PM
Surr: Dibromofluoromethane	109	70-130		%Rec	1	12/16/2020 4:51:05 PM
Surr: Toluene-d8	101	70-130		%Rec	1	12/16/2020 4:51:05 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	12/16/2020 2:37:26 AM
Surr: BFB	102	70-130		%Rec	1	12/16/2020 2:37:26 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2012612**
Date Reported: **12/21/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: E land State 123H
Lab ID: 2012612-034 **Matrix:** SOIL

Client Sample ID: WS20-12 4-8
Collection Date: 12/9/2020 11:55:00 AM
Received Date: 12/11/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	12/14/2020 11:38:39 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	12/14/2020 11:38:39 PM
Surr: DNOP	76.4	30.4-154		%Rec	1	12/14/2020 11:38:39 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	1300	60		mg/Kg	20	12/16/2020 3:59:05 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**
Benzene	ND	0.024		mg/Kg	1	12/16/2020 5:19:36 PM
Toluene	ND	0.048		mg/Kg	1	12/16/2020 5:19:36 PM
Ethylbenzene	ND	0.048		mg/Kg	1	12/16/2020 5:19:36 PM
Xylenes, Total	ND	0.096		mg/Kg	1	12/16/2020 5:19:36 PM
Surr: 1,2-Dichloroethane-d4	102	70-130		%Rec	1	12/16/2020 5:19:36 PM
Surr: 4-Bromofluorobenzene	100	70-130		%Rec	1	12/16/2020 5:19:36 PM
Surr: Dibromofluoromethane	107	70-130		%Rec	1	12/16/2020 5:19:36 PM
Surr: Toluene-d8	99.1	70-130		%Rec	1	12/16/2020 5:19:36 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/16/2020 3:05:28 AM
Surr: BFB	105	70-130		%Rec	1	12/16/2020 3:05:28 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2012612**
Date Reported: **12/21/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: E land State 123H
Lab ID: 2012612-035 **Matrix:** SOIL

Client Sample ID: WS20-13 4-8
Collection Date: 12/9/2020 12:00:00 PM
Received Date: 12/11/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	12/14/2020 11:48:06 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/14/2020 11:48:06 PM
Surr: DNOP	105	30.4-154		%Rec	1	12/14/2020 11:48:06 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	3000	150		mg/Kg	50	12/18/2020 2:18:19 AM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**
Benzene	ND	0.025		mg/Kg	1	12/16/2020 5:48:00 PM
Toluene	ND	0.049		mg/Kg	1	12/16/2020 5:48:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	12/16/2020 5:48:00 PM
Xylenes, Total	ND	0.099		mg/Kg	1	12/16/2020 5:48:00 PM
Surr: 1,2-Dichloroethane-d4	103	70-130		%Rec	1	12/16/2020 5:48:00 PM
Surr: 4-Bromofluorobenzene	106	70-130		%Rec	1	12/16/2020 5:48:00 PM
Surr: Dibromofluoromethane	109	70-130		%Rec	1	12/16/2020 5:48:00 PM
Surr: Toluene-d8	99.0	70-130		%Rec	1	12/16/2020 5:48:00 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	12/16/2020 3:33:30 AM
Surr: BFB	104	70-130		%Rec	1	12/16/2020 3:33:30 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2012612**
Date Reported: **12/21/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: E land State 123H
Lab ID: 2012612-036 **Matrix:** SOIL

Client Sample ID: WS20-14 4-8
Collection Date: 12/9/2020 12:05:00 PM
Received Date: 12/11/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	12/14/2020 11:57:34 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	12/14/2020 11:57:34 PM
Surr: DNOP	83.6	30.4-154		%Rec	1	12/14/2020 11:57:34 PM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	3100	150		mg/Kg	50	12/18/2020 1:51:34 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**
Benzene	ND	0.024		mg/Kg	1	12/16/2020 6:16:25 PM
Toluene	ND	0.048		mg/Kg	1	12/16/2020 6:16:25 PM
Ethylbenzene	ND	0.048		mg/Kg	1	12/16/2020 6:16:25 PM
Xylenes, Total	ND	0.097		mg/Kg	1	12/16/2020 6:16:25 PM
Surr: 1,2-Dichloroethane-d4	106	70-130		%Rec	1	12/16/2020 6:16:25 PM
Surr: 4-Bromofluorobenzene	99.2	70-130		%Rec	1	12/16/2020 6:16:25 PM
Surr: Dibromofluoromethane	106	70-130		%Rec	1	12/16/2020 6:16:25 PM
Surr: Toluene-d8	99.6	70-130		%Rec	1	12/16/2020 6:16:25 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/16/2020 4:01:33 AM
Surr: BFB	104	70-130		%Rec	1	12/16/2020 4:01:33 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2012612**
Date Reported: **12/21/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: E land State 123H
Lab ID: 2012612-037 **Matrix:** SOIL

Client Sample ID: WS20-15 4-8
Collection Date: 12/9/2020 12:10:00 PM
Received Date: 12/11/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	12/15/2020 12:07:12 AM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	12/15/2020 12:07:12 AM
Surr: DNOP	98.8	30.4-154		%Rec	1	12/15/2020 12:07:12 AM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	ND	60		mg/Kg	20	12/16/2020 5:01:08 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**
Benzene	ND	0.024		mg/Kg	1	12/16/2020 6:44:52 PM
Toluene	ND	0.048		mg/Kg	1	12/16/2020 6:44:52 PM
Ethylbenzene	ND	0.048		mg/Kg	1	12/16/2020 6:44:52 PM
Xylenes, Total	ND	0.096		mg/Kg	1	12/16/2020 6:44:52 PM
Surr: 1,2-Dichloroethane-d4	106	70-130		%Rec	1	12/16/2020 6:44:52 PM
Surr: 4-Bromofluorobenzene	100	70-130		%Rec	1	12/16/2020 6:44:52 PM
Surr: Dibromofluoromethane	111	70-130		%Rec	1	12/16/2020 6:44:52 PM
Surr: Toluene-d8	99.6	70-130		%Rec	1	12/16/2020 6:44:52 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/16/2020 4:29:35 AM
Surr: BFB	106	70-130		%Rec	1	12/16/2020 4:29:35 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2012612**
Date Reported: **12/21/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: E land State 123H
Lab ID: 2012612-038 **Matrix:** SOIL

Client Sample ID: WS20-16 4-8
Collection Date: 12/9/2020 12:15:00 PM
Received Date: 12/11/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	12/15/2020 12:16:49 AM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	12/15/2020 12:16:49 AM
Surr: DNOP	84.1	30.4-154		%Rec	1	12/15/2020 12:16:49 AM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	73	60		mg/Kg	20	12/16/2020 5:13:33 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**
Benzene	ND	0.023		mg/Kg	1	12/16/2020 7:13:21 PM
Toluene	ND	0.046		mg/Kg	1	12/16/2020 7:13:21 PM
Ethylbenzene	ND	0.046		mg/Kg	1	12/16/2020 7:13:21 PM
Xylenes, Total	ND	0.091		mg/Kg	1	12/16/2020 7:13:21 PM
Surr: 1,2-Dichloroethane-d4	102	70-130		%Rec	1	12/16/2020 7:13:21 PM
Surr: 4-Bromofluorobenzene	98.8	70-130		%Rec	1	12/16/2020 7:13:21 PM
Surr: Dibromofluoromethane	109	70-130		%Rec	1	12/16/2020 7:13:21 PM
Surr: Toluene-d8	96.6	70-130		%Rec	1	12/16/2020 7:13:21 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	12/16/2020 4:57:38 AM
Surr: BFB	98.6	70-130		%Rec	1	12/16/2020 4:57:38 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2012612**
Date Reported: **12/21/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: E land State 123H
Lab ID: 2012612-039 **Matrix:** SOIL

Client Sample ID: WS20-17 4-8
Collection Date: 12/9/2020 12:20:00 PM
Received Date: 12/11/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	12/15/2020 12:26:24 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	12/15/2020 12:26:24 AM
Surr: DNOP	116	30.4-154		%Rec	1	12/15/2020 12:26:24 AM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	320	60		mg/Kg	20	12/16/2020 5:25:58 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**
Benzene	ND	0.024		mg/Kg	1	12/16/2020 7:41:45 PM
Toluene	ND	0.048		mg/Kg	1	12/16/2020 7:41:45 PM
Ethylbenzene	ND	0.048		mg/Kg	1	12/16/2020 7:41:45 PM
Xylenes, Total	ND	0.095		mg/Kg	1	12/16/2020 7:41:45 PM
Surr: 1,2-Dichloroethane-d4	106	70-130		%Rec	1	12/16/2020 7:41:45 PM
Surr: 4-Bromofluorobenzene	102	70-130		%Rec	1	12/16/2020 7:41:45 PM
Surr: Dibromofluoromethane	105	70-130		%Rec	1	12/16/2020 7:41:45 PM
Surr: Toluene-d8	96.5	70-130		%Rec	1	12/16/2020 7:41:45 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/16/2020 5:25:42 AM
Surr: BFB	104	70-130		%Rec	1	12/16/2020 5:25:42 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2012612**
Date Reported: **12/21/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: E land State 123H
Lab ID: 2012612-040 **Matrix:** SOIL

Client Sample ID: WS20-18 4-8
Collection Date: 12/9/2020 12:25:00 PM
Received Date: 12/11/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	12/15/2020 12:36:13 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/15/2020 12:36:13 AM
Surr: DNOP	108	30.4-154		%Rec	1	12/15/2020 12:36:13 AM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	260	60		mg/Kg	20	12/16/2020 5:38:23 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**
Benzene	ND	0.025		mg/Kg	1	12/16/2020 8:10:07 PM
Toluene	ND	0.049		mg/Kg	1	12/16/2020 8:10:07 PM
Ethylbenzene	ND	0.049		mg/Kg	1	12/16/2020 8:10:07 PM
Xylenes, Total	ND	0.098		mg/Kg	1	12/16/2020 8:10:07 PM
Surr: 1,2-Dichloroethane-d4	103	70-130		%Rec	1	12/16/2020 8:10:07 PM
Surr: 4-Bromofluorobenzene	97.7	70-130		%Rec	1	12/16/2020 8:10:07 PM
Surr: Dibromofluoromethane	106	70-130		%Rec	1	12/16/2020 8:10:07 PM
Surr: Toluene-d8	99.2	70-130		%Rec	1	12/16/2020 8:10:07 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	12/16/2020 5:53:49 AM
Surr: BFB	101	70-130		%Rec	1	12/16/2020 5:53:49 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
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2012612**
Date Reported: **12/21/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: E land State 123H
Lab ID: 2012612-041 **Matrix:** SOIL

Client Sample ID: WS20-19 4-8
Collection Date: 12/9/2020 12:30:00 PM
Received Date: 12/11/2020 8:00:00 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	12/15/2020 10:55:54 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/15/2020 10:55:54 AM
Surr: DNOP	105	30.4-154		%Rec	1	12/15/2020 10:55:54 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	12/14/2020 1:00:47 PM
Surr: BFB	90.6	75.3-105		%Rec	1	12/14/2020 1:00:47 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.023		mg/Kg	1	12/14/2020 1:00:47 PM
Toluene	ND	0.046		mg/Kg	1	12/14/2020 1:00:47 PM
Ethylbenzene	ND	0.046		mg/Kg	1	12/14/2020 1:00:47 PM
Xylenes, Total	ND	0.092		mg/Kg	1	12/14/2020 1:00:47 PM
Surr: 4-Bromofluorobenzene	89.2	80-120		%Rec	1	12/14/2020 1:00:47 PM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	2800	150		mg/Kg	50	12/17/2020 4:59:14 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2012612**
Date Reported: **12/21/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: E land State 123H
Lab ID: 2012612-042 **Matrix:** SOIL

Client Sample ID: WS20-20 4-8
Collection Date: 12/9/2020 12:35:00 PM
Received Date: 12/11/2020 8:00:00 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	12/15/2020 11:24:34 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/15/2020 11:24:34 AM
Surr: DNOP	108	30.4-154		%Rec	1	12/15/2020 11:24:34 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/14/2020 2:10:26 PM
Surr: BFB	88.5	75.3-105		%Rec	1	12/14/2020 2:10:26 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	12/14/2020 2:10:26 PM
Toluene	ND	0.048		mg/Kg	1	12/14/2020 2:10:26 PM
Ethylbenzene	ND	0.048		mg/Kg	1	12/14/2020 2:10:26 PM
Xylenes, Total	ND	0.096		mg/Kg	1	12/14/2020 2:10:26 PM
Surr: 4-Bromofluorobenzene	88.9	80-120		%Rec	1	12/14/2020 2:10:26 PM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	8100	300		mg/Kg	100	12/17/2020 5:11:38 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2012612**
Date Reported: **12/21/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: E land State 123H
Lab ID: 2012612-043 **Matrix:** SOIL

Client Sample ID: WS20-21 4-8
Collection Date: 12/9/2020 12:40:00 PM
Received Date: 12/11/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	12/15/2020 11:34:08 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/15/2020 11:34:08 AM
Surr: DNOP	91.4	30.4-154		%Rec	1	12/15/2020 11:34:08 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	12/14/2020 11:26:39 PM
Surr: BFB	84.4	75.3-105		%Rec	1	12/14/2020 11:26:39 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	12/14/2020 11:26:39 PM
Toluene	ND	0.050		mg/Kg	1	12/14/2020 11:26:39 PM
Ethylbenzene	ND	0.050		mg/Kg	1	12/14/2020 11:26:39 PM
Xylenes, Total	ND	0.099		mg/Kg	1	12/14/2020 11:26:39 PM
Surr: 4-Bromofluorobenzene	85.9	80-120		%Rec	1	12/14/2020 11:26:39 PM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	4300	150		mg/Kg	50	12/17/2020 5:24:03 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2012612**
Date Reported: **12/21/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: E land State 123H
Lab ID: 2012612-044 **Matrix:** SOIL

Client Sample ID: WS20-22 4-8
Collection Date: 12/9/2020 12:45:00 PM
Received Date: 12/11/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	12/15/2020 11:43:43 AM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	12/15/2020 11:43:43 AM
Surr: DNOP	110	30.4-154		%Rec	1	12/15/2020 11:43:43 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	12/14/2020 11:49:42 PM
Surr: BFB	87.8	75.3-105		%Rec	1	12/14/2020 11:49:42 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	12/14/2020 11:49:42 PM
Toluene	ND	0.049		mg/Kg	1	12/14/2020 11:49:42 PM
Ethylbenzene	ND	0.049		mg/Kg	1	12/14/2020 11:49:42 PM
Xylenes, Total	ND	0.098		mg/Kg	1	12/14/2020 11:49:42 PM
Surr: 4-Bromofluorobenzene	87.3	80-120		%Rec	1	12/14/2020 11:49:42 PM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	4000	150		mg/Kg	50	12/17/2020 5:36:28 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2012612**
Date Reported: **12/21/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: E land State 123H
Lab ID: 2012612-045 **Matrix:** SOIL

Client Sample ID: BS20-01 8'
Collection Date: 12/9/2020 9:15:00 AM
Received Date: 12/11/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	12/15/2020 11:53:15 AM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	12/15/2020 11:53:15 AM
Surr: DNOP	98.2	30.4-154		%Rec	1	12/15/2020 11:53:15 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	12/15/2020 12:12:40 AM
Surr: BFB	88.6	75.3-105		%Rec	1	12/15/2020 12:12:40 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	12/15/2020 12:12:40 AM
Toluene	ND	0.050		mg/Kg	1	12/15/2020 12:12:40 AM
Ethylbenzene	ND	0.050		mg/Kg	1	12/15/2020 12:12:40 AM
Xylenes, Total	ND	0.10		mg/Kg	1	12/15/2020 12:12:40 AM
Surr: 4-Bromofluorobenzene	88.8	80-120		%Rec	1	12/15/2020 12:12:40 AM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	1400	60		mg/Kg	20	12/16/2020 7:51:30 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2012612**
Date Reported: **12/21/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: E land State 123H
Lab ID: 2012612-046 **Matrix:** SOIL

Client Sample ID: BS20-02 8'
Collection Date: 12/9/2020 9:20:00 AM
Received Date: 12/11/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	8.9		mg/Kg	1	12/15/2020 12:02:47 PM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	12/15/2020 12:02:47 PM
Surr: DNOP	125	30.4-154		%Rec	1	12/15/2020 12:02:47 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	12/15/2020 12:35:41 AM
Surr: BFB	85.5	75.3-105		%Rec	1	12/15/2020 12:35:41 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	12/15/2020 12:35:41 AM
Toluene	ND	0.049		mg/Kg	1	12/15/2020 12:35:41 AM
Ethylbenzene	ND	0.049		mg/Kg	1	12/15/2020 12:35:41 AM
Xylenes, Total	ND	0.098		mg/Kg	1	12/15/2020 12:35:41 AM
Surr: 4-Bromofluorobenzene	86.8	80-120		%Rec	1	12/15/2020 12:35:41 AM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	2200	60		mg/Kg	20	12/16/2020 8:28:44 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2012612**
Date Reported: **12/21/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: E land State 123H
Lab ID: 2012612-047 **Matrix:** SOIL

Client Sample ID: BS20-03 8'
Collection Date: 12/9/2020 9:25:00 AM
Received Date: 12/11/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.0		mg/Kg	1	12/15/2020 12:12:21 PM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	12/15/2020 12:12:21 PM
Surr: DNOP	103	30.4-154		%Rec	1	12/15/2020 12:12:21 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	12/15/2020 12:58:41 AM
Surr: BFB	85.4	75.3-105		%Rec	1	12/15/2020 12:58:41 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	12/15/2020 12:58:41 AM
Toluene	ND	0.049		mg/Kg	1	12/15/2020 12:58:41 AM
Ethylbenzene	ND	0.049		mg/Kg	1	12/15/2020 12:58:41 AM
Xylenes, Total	ND	0.097		mg/Kg	1	12/15/2020 12:58:41 AM
Surr: 4-Bromofluorobenzene	86.0	80-120		%Rec	1	12/15/2020 12:58:41 AM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	430	60		mg/Kg	20	12/16/2020 8:41:09 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2012612**
Date Reported: **12/21/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: E land State 123H
Lab ID: 2012612-048 **Matrix:** SOIL

Client Sample ID: BS20-04 8'
Collection Date: 12/9/2020 9:30:00 AM
Received Date: 12/11/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	12/15/2020 12:21:56 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	12/15/2020 12:21:56 PM
Surr: DNOP	99.9	30.4-154		%Rec	1	12/15/2020 12:21:56 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	12/15/2020 1:21:41 AM
Surr: BFB	86.3	75.3-105		%Rec	1	12/15/2020 1:21:41 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	12/15/2020 1:21:41 AM
Toluene	ND	0.049		mg/Kg	1	12/15/2020 1:21:41 AM
Ethylbenzene	ND	0.049		mg/Kg	1	12/15/2020 1:21:41 AM
Xylenes, Total	ND	0.099		mg/Kg	1	12/15/2020 1:21:41 AM
Surr: 4-Bromofluorobenzene	87.5	80-120		%Rec	1	12/15/2020 1:21:41 AM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	180	60		mg/Kg	20	12/16/2020 8:53:33 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2012612**
Date Reported: **12/21/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: E land State 123H
Lab ID: 2012612-049 **Matrix:** SOIL

Client Sample ID: BS20-05 8'
Collection Date: 12/9/2020 9:35:00 AM
Received Date: 12/11/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	12/15/2020 12:31:33 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/15/2020 12:31:33 PM
Surr: DNOP	98.6	30.4-154		%Rec	1	12/15/2020 12:31:33 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	12/15/2020 1:44:39 AM
Surr: BFB	86.0	75.3-105		%Rec	1	12/15/2020 1:44:39 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	12/15/2020 1:44:39 AM
Toluene	ND	0.049		mg/Kg	1	12/15/2020 1:44:39 AM
Ethylbenzene	ND	0.049		mg/Kg	1	12/15/2020 1:44:39 AM
Xylenes, Total	ND	0.097		mg/Kg	1	12/15/2020 1:44:39 AM
Surr: 4-Bromofluorobenzene	87.5	80-120		%Rec	1	12/15/2020 1:44:39 AM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	1100	60		mg/Kg	20	12/16/2020 9:05:58 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2012612**
Date Reported: **12/21/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: E land State 123H
Lab ID: 2012612-050 **Matrix:** SOIL

Client Sample ID: BS20-06 8'
Collection Date: 12/9/2020 9:40:00 AM
Received Date: 12/11/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	12/15/2020 12:41:08 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/15/2020 12:41:08 PM
Surr: DNOP	101	30.4-154		%Rec	1	12/15/2020 12:41:08 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/15/2020 2:07:37 AM
Surr: BFB	84.3	75.3-105		%Rec	1	12/15/2020 2:07:37 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	12/15/2020 2:07:37 AM
Toluene	ND	0.048		mg/Kg	1	12/15/2020 2:07:37 AM
Ethylbenzene	ND	0.048		mg/Kg	1	12/15/2020 2:07:37 AM
Xylenes, Total	ND	0.097		mg/Kg	1	12/15/2020 2:07:37 AM
Surr: 4-Bromofluorobenzene	86.2	80-120		%Rec	1	12/15/2020 2:07:37 AM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	440	60		mg/Kg	20	12/16/2020 9:18:23 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2012612**
Date Reported: **12/21/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: E land State 123H
Lab ID: 2012612-051 **Matrix:** SOIL

Client Sample ID: BS20-07 8'
Collection Date: 12/9/2020 9:45:00 AM
Received Date: 12/11/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	12/15/2020 12:50:48 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/15/2020 12:50:48 PM
Surr: DNOP	99.1	30.4-154		%Rec	1	12/15/2020 12:50:48 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	12/15/2020 3:16:32 AM
Surr: BFB	84.8	75.3-105		%Rec	1	12/15/2020 3:16:32 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	12/15/2020 3:16:32 AM
Toluene	ND	0.047		mg/Kg	1	12/15/2020 3:16:32 AM
Ethylbenzene	ND	0.047		mg/Kg	1	12/15/2020 3:16:32 AM
Xylenes, Total	ND	0.095		mg/Kg	1	12/15/2020 3:16:32 AM
Surr: 4-Bromofluorobenzene	85.1	80-120		%Rec	1	12/15/2020 3:16:32 AM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	ND	60		mg/Kg	20	12/16/2020 9:55:38 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2012612**
Date Reported: **12/21/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: E land State 123H
Lab ID: 2012612-052 **Matrix:** SOIL

Client Sample ID: BS20-08 8'
Collection Date: 12/9/2020 9:50:00 AM
Received Date: 12/11/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	12/15/2020 1:00:35 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	12/15/2020 1:00:35 PM
Surr: DNOP	103	30.4-154		%Rec	1	12/15/2020 1:00:35 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	12/15/2020 3:39:32 AM
Surr: BFB	84.0	75.3-105		%Rec	1	12/15/2020 3:39:32 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.023		mg/Kg	1	12/15/2020 3:39:32 AM
Toluene	ND	0.046		mg/Kg	1	12/15/2020 3:39:32 AM
Ethylbenzene	ND	0.046		mg/Kg	1	12/15/2020 3:39:32 AM
Xylenes, Total	ND	0.093		mg/Kg	1	12/15/2020 3:39:32 AM
Surr: 4-Bromofluorobenzene	85.5	80-120		%Rec	1	12/15/2020 3:39:32 AM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	74	60		mg/Kg	20	12/16/2020 10:08:02 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2012612**
Date Reported: **12/21/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: E land State 123H
Lab ID: 2012612-053 **Matrix:** SOIL

Client Sample ID: BS20-09 8'
Collection Date: 12/9/2020 9:55:00 AM
Received Date: 12/11/2020 8:00:00 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	12/15/2020 1:10:18 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	12/15/2020 1:10:18 PM
Surr: DNOP	104	30.4-154		%Rec	1	12/15/2020 1:10:18 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	12/15/2020 4:02:33 AM
Surr: BFB	83.0	75.3-105		%Rec	1	12/15/2020 4:02:33 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.023		mg/Kg	1	12/15/2020 4:02:33 AM
Toluene	ND	0.046		mg/Kg	1	12/15/2020 4:02:33 AM
Ethylbenzene	ND	0.046		mg/Kg	1	12/15/2020 4:02:33 AM
Xylenes, Total	ND	0.091		mg/Kg	1	12/15/2020 4:02:33 AM
Surr: 4-Bromofluorobenzene	84.2	80-120		%Rec	1	12/15/2020 4:02:33 AM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	140	60		mg/Kg	20	12/16/2020 10:20:26 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2012612**
Date Reported: **12/21/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: E land State 123H
Lab ID: 2012612-054 **Matrix:** SOIL

Client Sample ID: BS20-10 8'
Collection Date: 12/9/2020 10:00:00 AM
Received Date: 12/11/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	12/15/2020 1:20:01 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/15/2020 1:20:01 PM
Surr: DNOP	123	30.4-154		%Rec	1	12/15/2020 1:20:01 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	12/15/2020 4:25:35 AM
Surr: BFB	83.9	75.3-105		%Rec	1	12/15/2020 4:25:35 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	12/15/2020 4:25:35 AM
Toluene	ND	0.049		mg/Kg	1	12/15/2020 4:25:35 AM
Ethylbenzene	ND	0.049		mg/Kg	1	12/15/2020 4:25:35 AM
Xylenes, Total	ND	0.097		mg/Kg	1	12/15/2020 4:25:35 AM
Surr: 4-Bromofluorobenzene	86.0	80-120		%Rec	1	12/15/2020 4:25:35 AM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	220	60		mg/Kg	20	12/16/2020 10:57:41 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2012612**
Date Reported: **12/21/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: E land State 123H
Lab ID: 2012612-055 **Matrix:** SOIL

Client Sample ID: BS20-11 8'
Collection Date: 12/9/2020 10:05:00 AM
Received Date: 12/11/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	8.8		mg/Kg	1	12/15/2020 1:29:43 PM
Motor Oil Range Organics (MRO)	ND	44		mg/Kg	1	12/15/2020 1:29:43 PM
Surr: DNOP	134	30.4-154		%Rec	1	12/15/2020 1:29:43 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	24	D	mg/Kg	5	12/15/2020 4:48:35 AM
Surr: BFB	86.4	75.3-105	D	%Rec	5	12/15/2020 4:48:35 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.12	D	mg/Kg	5	12/15/2020 4:48:35 AM
Toluene	ND	0.24	D	mg/Kg	5	12/15/2020 4:48:35 AM
Ethylbenzene	ND	0.24	D	mg/Kg	5	12/15/2020 4:48:35 AM
Xylenes, Total	ND	0.49	D	mg/Kg	5	12/15/2020 4:48:35 AM
Surr: 4-Bromofluorobenzene	87.5	80-120	D	%Rec	5	12/15/2020 4:48:35 AM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	1200	60		mg/Kg	20	12/16/2020 11:10:06 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

Analytical Report
Lab Order **2012612**
Date Reported: **12/21/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: E land State 123H
Lab ID: 2012612-056 **Matrix:** SOIL

Client Sample ID: BS20-12 8'
Collection Date: 12/9/2020 10:10:00 AM
Received Date: 12/11/2020 8:00:00 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	12/15/2020 1:39:17 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	12/15/2020 1:39:17 PM
Surr: DNOP	107	30.4-154		%Rec	1	12/15/2020 1:39:17 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	12/15/2020 5:11:38 AM
Surr: BFB	86.8	75.3-105		%Rec	1	12/15/2020 5:11:38 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	12/15/2020 5:11:38 AM
Toluene	ND	0.047		mg/Kg	1	12/15/2020 5:11:38 AM
Ethylbenzene	ND	0.047		mg/Kg	1	12/15/2020 5:11:38 AM
Xylenes, Total	ND	0.095		mg/Kg	1	12/15/2020 5:11:38 AM
Surr: 4-Bromofluorobenzene	87.2	80-120		%Rec	1	12/15/2020 5:11:38 AM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	66	60		mg/Kg	20	12/16/2020 11:22:31 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2012612**
Date Reported: **12/21/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: E land State 123H
Lab ID: 2012612-057 **Matrix:** SOIL

Client Sample ID: BS20-13 8'
Collection Date: 12/9/2020 10:15:00 AM
Received Date: 12/11/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	60	9.4		mg/Kg	1	12/14/2020 1:20:51 PM
Motor Oil Range Organics (MRO)	51	47		mg/Kg	1	12/14/2020 1:20:51 PM
Surr: DNOP	157	30.4-154	S	%Rec	1	12/14/2020 1:20:51 PM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	4800	150		mg/Kg	50	12/18/2020 2:03:58 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **DJF**
Benzene	ND	0.024		mg/Kg	1	12/16/2020 5:58:03 AM
Toluene	ND	0.048		mg/Kg	1	12/16/2020 5:58:03 AM
Ethylbenzene	ND	0.048		mg/Kg	1	12/16/2020 5:58:03 AM
Xylenes, Total	ND	0.096		mg/Kg	1	12/16/2020 5:58:03 AM
Surr: 1,2-Dichloroethane-d4	89.1	70-130		%Rec	1	12/16/2020 5:58:03 AM
Surr: 4-Bromofluorobenzene	104	70-130		%Rec	1	12/16/2020 5:58:03 AM
Surr: Dibromofluoromethane	112	70-130		%Rec	1	12/16/2020 5:58:03 AM
Surr: Toluene-d8	91.3	70-130		%Rec	1	12/16/2020 5:58:03 AM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **DJF**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/16/2020 5:58:03 AM
Surr: BFB	97.5	70-130		%Rec	1	12/16/2020 5:58:03 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2012612**
Date Reported: **12/21/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: E land State 123H
Lab ID: 2012612-058 **Matrix:** SOIL

Client Sample ID: BS20-14 8'
Collection Date: 12/9/2020 10:20:00 AM
Received Date: 12/11/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	22	9.8		mg/Kg	1	12/14/2020 1:50:02 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/14/2020 1:50:02 PM
Surr: DNOP	132	30.4-154		%Rec	1	12/14/2020 1:50:02 PM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	7100	300		mg/Kg	100	12/17/2020 6:26:06 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **DJF**
Benzene	ND	0.025		mg/Kg	1	12/16/2020 11:42:20 PM
Toluene	ND	0.050		mg/Kg	1	12/16/2020 11:42:20 PM
Ethylbenzene	ND	0.050		mg/Kg	1	12/16/2020 11:42:20 PM
Xylenes, Total	ND	0.099		mg/Kg	1	12/16/2020 11:42:20 PM
Surr: 1,2-Dichloroethane-d4	90.9	70-130		%Rec	1	12/16/2020 11:42:20 PM
Surr: 4-Bromofluorobenzene	99.2	70-130		%Rec	1	12/16/2020 11:42:20 PM
Surr: Dibromofluoromethane	109	70-130		%Rec	1	12/16/2020 11:42:20 PM
Surr: Toluene-d8	90.2	70-130		%Rec	1	12/16/2020 11:42:20 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **DJF**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	12/16/2020 11:42:20 PM
Surr: BFB	94.3	70-130		%Rec	1	12/16/2020 11:42:20 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2012612**
Date Reported: **12/21/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: E land State 123H
Lab ID: 2012612-059 **Matrix:** SOIL

Client Sample ID: BS20-15 8'
Collection Date: 12/9/2020 10:25:00 AM
Received Date: 12/11/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	12/14/2020 1:59:43 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	12/14/2020 1:59:43 PM
Surr: DNOP	143	30.4-154		%Rec	1	12/14/2020 1:59:43 PM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	140	60		mg/Kg	20	12/16/2020 11:59:45 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **DJF**
Benzene	ND	0.023		mg/Kg	1	12/17/2020 1:03:01 AM
Toluene	ND	0.047		mg/Kg	1	12/17/2020 1:03:01 AM
Ethylbenzene	ND	0.047		mg/Kg	1	12/17/2020 1:03:01 AM
Xylenes, Total	ND	0.094		mg/Kg	1	12/17/2020 1:03:01 AM
Surr: 1,2-Dichloroethane-d4	91.7	70-130		%Rec	1	12/17/2020 1:03:01 AM
Surr: 4-Bromofluorobenzene	101	70-130		%Rec	1	12/17/2020 1:03:01 AM
Surr: Dibromofluoromethane	114	70-130		%Rec	1	12/17/2020 1:03:01 AM
Surr: Toluene-d8	93.6	70-130		%Rec	1	12/17/2020 1:03:01 AM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **DJF**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	12/17/2020 1:03:01 AM
Surr: BFB	93.6	70-130		%Rec	1	12/17/2020 1:03:01 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2012612**
Date Reported: **12/21/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: E land State 123H
Lab ID: 2012612-060 **Matrix:** SOIL

Client Sample ID: BS20-16 8'
Collection Date: 12/9/2020 10:30:00 AM
Received Date: 12/11/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	12/14/2020 2:09:26 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	12/14/2020 2:09:26 PM
Surr: DNOP	134	30.4-154		%Rec	1	12/14/2020 2:09:26 PM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	2700	150		mg/Kg	50	12/17/2020 6:38:30 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **DJF**
Benzene	ND	0.024		mg/Kg	1	12/17/2020 1:29:53 AM
Toluene	ND	0.048		mg/Kg	1	12/17/2020 1:29:53 AM
Ethylbenzene	ND	0.048		mg/Kg	1	12/17/2020 1:29:53 AM
Xylenes, Total	ND	0.097		mg/Kg	1	12/17/2020 1:29:53 AM
Surr: 1,2-Dichloroethane-d4	91.6	70-130		%Rec	1	12/17/2020 1:29:53 AM
Surr: 4-Bromofluorobenzene	102	70-130		%Rec	1	12/17/2020 1:29:53 AM
Surr: Dibromofluoromethane	117	70-130		%Rec	1	12/17/2020 1:29:53 AM
Surr: Toluene-d8	91.4	70-130		%Rec	1	12/17/2020 1:29:53 AM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **DJF**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/17/2020 1:29:53 AM
Surr: BFB	96.5	70-130		%Rec	1	12/17/2020 1:29:53 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2012612**
Date Reported: **12/21/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: E land State 123H
Lab ID: 2012612-061 **Matrix:** SOIL

Client Sample ID: BS20-17 8'
Collection Date: 12/9/2020 10:35:00 AM
Received Date: 12/11/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	12/14/2020 2:19:05 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	12/14/2020 2:19:05 PM
Surr: DNOP	126	30.4-154		%Rec	1	12/14/2020 2:19:05 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	2500	150		mg/Kg	50	12/18/2020 2:43:08 AM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **DJF**
Benzene	ND	0.024		mg/Kg	1	12/17/2020 1:56:43 AM
Toluene	ND	0.048		mg/Kg	1	12/17/2020 1:56:43 AM
Ethylbenzene	ND	0.048		mg/Kg	1	12/17/2020 1:56:43 AM
Xylenes, Total	ND	0.096		mg/Kg	1	12/17/2020 1:56:43 AM
Surr: 1,2-Dichloroethane-d4	90.0	70-130		%Rec	1	12/17/2020 1:56:43 AM
Surr: 4-Bromofluorobenzene	104	70-130		%Rec	1	12/17/2020 1:56:43 AM
Surr: Dibromofluoromethane	111	70-130		%Rec	1	12/17/2020 1:56:43 AM
Surr: Toluene-d8	93.4	70-130		%Rec	1	12/17/2020 1:56:43 AM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **DJF**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/17/2020 1:56:43 AM
Surr: BFB	96.4	70-130		%Rec	1	12/17/2020 1:56:43 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2012612**
Date Reported: **12/21/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: E land State 123H
Lab ID: 2012612-062 **Matrix:** SOIL

Client Sample ID: BS20-18 8'
Collection Date: 12/9/2020 10:40:00 AM
Received Date: 12/11/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	12/14/2020 2:28:45 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	12/14/2020 2:28:45 PM
Surr: DNOP	115	30.4-154		%Rec	1	12/14/2020 2:28:45 PM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	64	60		mg/Kg	20	12/17/2020 12:38:35 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **DJF**
Benzene	ND	0.024		mg/Kg	1	12/17/2020 2:23:33 AM
Toluene	ND	0.047		mg/Kg	1	12/17/2020 2:23:33 AM
Ethylbenzene	ND	0.047		mg/Kg	1	12/17/2020 2:23:33 AM
Xylenes, Total	ND	0.094		mg/Kg	1	12/17/2020 2:23:33 AM
Surr: 1,2-Dichloroethane-d4	89.8	70-130		%Rec	1	12/17/2020 2:23:33 AM
Surr: 4-Bromofluorobenzene	101	70-130		%Rec	1	12/17/2020 2:23:33 AM
Surr: Dibromofluoromethane	114	70-130		%Rec	1	12/17/2020 2:23:33 AM
Surr: Toluene-d8	93.2	70-130		%Rec	1	12/17/2020 2:23:33 AM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **DJF**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	12/17/2020 2:23:33 AM
Surr: BFB	95.9	70-130		%Rec	1	12/17/2020 2:23:33 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2012612**
Date Reported: **12/21/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: E land State 123H
Lab ID: 2012612-063 **Matrix:** SOIL

Client Sample ID: BS20-19 8'
Collection Date: 12/9/2020 10:45:00 AM
Received Date: 12/11/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	12/14/2020 2:38:26 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/14/2020 2:38:26 PM
Surr: DNOP	121	30.4-154		%Rec	1	12/14/2020 2:38:26 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	4900	150		mg/Kg	50	12/18/2020 3:20:21 AM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **DJF**
Benzene	ND	0.024		mg/Kg	1	12/17/2020 2:50:21 AM
Toluene	ND	0.047		mg/Kg	1	12/17/2020 2:50:21 AM
Ethylbenzene	ND	0.047		mg/Kg	1	12/17/2020 2:50:21 AM
Xylenes, Total	ND	0.094		mg/Kg	1	12/17/2020 2:50:21 AM
Surr: 1,2-Dichloroethane-d4	94.2	70-130		%Rec	1	12/17/2020 2:50:21 AM
Surr: 4-Bromofluorobenzene	103	70-130		%Rec	1	12/17/2020 2:50:21 AM
Surr: Dibromofluoromethane	118	70-130		%Rec	1	12/17/2020 2:50:21 AM
Surr: Toluene-d8	96.5	70-130		%Rec	1	12/17/2020 2:50:21 AM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **DJF**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	12/17/2020 2:50:21 AM
Surr: BFB	96.7	70-130		%Rec	1	12/17/2020 2:50:21 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2012612**
Date Reported: **12/21/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: E land State 123H
Lab ID: 2012612-064 **Matrix:** SOIL

Client Sample ID: BS20-20 8'
Collection Date: 12/9/2020 10:50:00 AM
Received Date: 12/11/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	12/14/2020 2:48:06 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/14/2020 2:48:06 PM
Surr: DNOP	139	30.4-154		%Rec	1	12/14/2020 2:48:06 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	8000	300		mg/Kg	100	12/18/2020 3:32:46 AM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **DJF**
Benzene	ND	0.023		mg/Kg	1	12/17/2020 3:17:10 AM
Toluene	ND	0.047		mg/Kg	1	12/17/2020 3:17:10 AM
Ethylbenzene	ND	0.047		mg/Kg	1	12/17/2020 3:17:10 AM
Xylenes, Total	ND	0.093		mg/Kg	1	12/17/2020 3:17:10 AM
Surr: 1,2-Dichloroethane-d4	91.4	70-130		%Rec	1	12/17/2020 3:17:10 AM
Surr: 4-Bromofluorobenzene	102	70-130		%Rec	1	12/17/2020 3:17:10 AM
Surr: Dibromofluoromethane	111	70-130		%Rec	1	12/17/2020 3:17:10 AM
Surr: Toluene-d8	94.1	70-130		%Rec	1	12/17/2020 3:17:10 AM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **DJF**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	12/17/2020 3:17:10 AM
Surr: BFB	96.3	70-130		%Rec	1	12/17/2020 3:17:10 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2012612**
Date Reported: **12/21/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.
Project: E land State 123H
Lab ID: 2012612-065 **Matrix:** SOIL

Client Sample ID: BS20-21 8'
Collection Date: 12/9/2020 10:55:00 AM
Received Date: 12/11/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	12/14/2020 2:57:42 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	12/14/2020 2:57:42 PM
Surr: DNOP	128	30.4-154		%Rec	1	12/14/2020 2:57:42 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	8000	300		mg/Kg	100	12/18/2020 3:45:10 AM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **DJF**
Benzene	ND	0.024		mg/Kg	1	12/17/2020 3:43:56 AM
Toluene	ND	0.048		mg/Kg	1	12/17/2020 3:43:56 AM
Ethylbenzene	ND	0.048		mg/Kg	1	12/17/2020 3:43:56 AM
Xylenes, Total	ND	0.097		mg/Kg	1	12/17/2020 3:43:56 AM
Surr: 1,2-Dichloroethane-d4	88.1	70-130		%Rec	1	12/17/2020 3:43:56 AM
Surr: 4-Bromofluorobenzene	101	70-130		%Rec	1	12/17/2020 3:43:56 AM
Surr: Dibromofluoromethane	111	70-130		%Rec	1	12/17/2020 3:43:56 AM
Surr: Toluene-d8	94.7	70-130		%Rec	1	12/17/2020 3:43:56 AM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **DJF**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/17/2020 3:43:56 AM
Surr: BFB	97.9	70-130		%Rec	1	12/17/2020 3:43:56 AM

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2012612**

21-Dec-20

Client: Vertex Resource Group Ltd.

Project: E land State 123H

Sample ID: **MB-57009**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBS**	Batch ID: **57009**	RunNo: **74021**							
Prep Date: **12/15/2020**	Analysis Date: **12/15/2020**	SeqNo: **2611788**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-57009**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSS**	Batch ID: **57009**	RunNo: **74021**							
Prep Date: **12/15/2020**	Analysis Date: **12/15/2020**	SeqNo: **2611789**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	95.3	90	110			

Sample ID: **MB-57031**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBS**	Batch ID: **57031**	RunNo: **74032**							
Prep Date: **12/16/2020**	Analysis Date: **12/16/2020**	SeqNo: **2612979**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-57031**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSS**	Batch ID: **57031**	RunNo: **74032**							
Prep Date: **12/16/2020**	Analysis Date: **12/16/2020**	SeqNo: **2612980**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	96.1	90	110			

Sample ID: **MB-57058**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBS**	Batch ID: **57058**	RunNo: **74032**							
Prep Date: **12/16/2020**	Analysis Date: **12/16/2020**	SeqNo: **2613018**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-57058**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSS**	Batch ID: **57058**	RunNo: **74032**							
Prep Date: **12/16/2020**	Analysis Date: **12/16/2020**	SeqNo: **2613019**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	93.2	90	110			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2012612**

21-Dec-20

Client: Vertex Resource Group Ltd.

Project: E land State 123H

Sample ID: **MB-57039**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS**	Batch ID: **57039**	RunNo: **74070**
Prep Date: **12/16/2020**	Analysis Date: **12/16/2020**	SeqNo: **2613408** Units: **mg/Kg**

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

Sample ID: **LCS-57039**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS**	Batch ID: **57039**	RunNo: **74070**
Prep Date: **12/16/2020**	Analysis Date: **12/16/2020**	SeqNo: **2613409** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	93.9	90	110			

Sample ID: **MB-57069**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS**	Batch ID: **57069**	RunNo: **74079**
Prep Date: **12/17/2020**	Analysis Date: **12/17/2020**	SeqNo: **2614724** Units: **mg/Kg**

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

Sample ID: **LCS-57069**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS**	Batch ID: **57069**	RunNo: **74079**
Prep Date: **12/17/2020**	Analysis Date: **12/17/2020**	SeqNo: **2614725** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	15	1.5	15.00	0	97.7	90	110			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2012612**

21-Dec-20

Client: Vertex Resource Group Ltd.

Project: E land State 123H

Sample ID: **MB-56953**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **56953**	RunNo: **73991**
Prep Date: **12/12/2020**	Analysis Date: **12/14/2020**	SeqNo: **2610015** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	12		10.00		115	30.4	154			

Sample ID: **MB-56954**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **56954**	RunNo: **73991**
Prep Date: **12/12/2020**	Analysis Date: **12/14/2020**	SeqNo: **2610016** 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	4.2		10.00		42.2	30.4	154			

Sample ID: **MB-56960**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **56960**	RunNo: **73991**
Prep Date: **12/12/2020**	Analysis Date: **12/14/2020**	SeqNo: **2610017** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	12		10.00		119	30.4	154			

Sample ID: **MB-56963**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **56963**	RunNo: **73991**
Prep Date: **12/12/2020**	Analysis Date: **12/14/2020**	SeqNo: **2610018** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	12		10.00		122	30.4	154			

Sample ID: **LCS-56953**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **56953**	RunNo: **73991**
Prep Date: **12/12/2020**	Analysis Date: **12/14/2020**	SeqNo: **2610019** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	55	10	50.00	0	111	70	130			
Surr: DNOP	6.0		5.000		120	30.4	154			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2012612**

21-Dec-20

Client: Vertex Resource Group Ltd.

Project: E land State 123H

Sample ID: **LCS-56954**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**							
Client ID: **LCSS**	Batch ID: **56954**	RunNo: **73991**							
Prep Date: **12/12/2020**	Analysis Date: **12/14/2020**	SeqNo: **2610020**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	64	10	50.00	0	128	70	130			
Surr: DNOP	3.2		5.000		63.2	30.4	154			

Sample ID: **LCS-56960**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**							
Client ID: **LCSS**	Batch ID: **56960**	RunNo: **73991**							
Prep Date: **12/12/2020**	Analysis Date: **12/14/2020**	SeqNo: **2610021**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	64	10	50.00	0	128	70	130			
Surr: DNOP	6.5		5.000		129	30.4	154			

Sample ID: **LCS-56963**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**							
Client ID: **LCSS**	Batch ID: **56963**	RunNo: **73991**							
Prep Date: **12/12/2020**	Analysis Date: **12/14/2020**	SeqNo: **2610022**	Units: **%Rec**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	5.0		5.000		99.9	30.4	154			

Sample ID: **2012612-001AMS**	SampType: **MS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**							
Client ID: **WS20-01 0-4**	Batch ID: **56953**	RunNo: **73991**							
Prep Date: **12/12/2020**	Analysis Date: **12/14/2020**	SeqNo: **2610023**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	48	9.5	47.53	0	101	15	184			
Surr: DNOP	5.3		4.753		113	30.4	154			

Sample ID: **2012612-021AMS**	SampType: **MS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**							
Client ID: **WS20-21 0-4**	Batch ID: **56954**	RunNo: **73991**							
Prep Date: **12/12/2020**	Analysis Date: **12/14/2020**	SeqNo: **2610024**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	46	9.6	47.94	0	95.3	15	184			
Surr: DNOP	2.8		4.794		59.1	30.4	154			

Sample ID: **2012612-057AMS**	SampType: **MS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**							
Client ID: **BS20-13 8'**	Batch ID: **56960**	RunNo: **73991**							
Prep Date: **12/12/2020**	Analysis Date: **12/14/2020**	SeqNo: **2610025**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	110	9.9	49.60	60.48	106	15	184			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2012612**

21-Dec-20

Client: Vertex Resource Group Ltd.

Project: E land State 123H

Sample ID: **2012612-057AMS** SampType: **MS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BS20-13 8'** Batch ID: **56960** RunNo: **73991**
Prep Date: **12/12/2020** Analysis Date: **12/14/2020** SeqNo: **2610025** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	8.0		4.960		162	30.4	154			S

Sample ID: **2012612-001AMSD** SampType: **MSD** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **WS20-01 0-4** Batch ID: **56953** RunNo: **73991**
Prep Date: **12/12/2020** Analysis Date: **12/14/2020** SeqNo: **2610026** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	49	9.9	49.36	0	98.5	15	184	1.60	23.9	
Surr: DNOP	4.6		4.936		92.5	30.4	154	0	0	

Sample ID: **2012612-021AMSD** SampType: **MSD** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **WS20-21 0-4** Batch ID: **56954** RunNo: **73991**
Prep Date: **12/12/2020** Analysis Date: **12/14/2020** SeqNo: **2610027** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	49	9.8	49.21	0	98.9	15	184	6.33	23.9	
Surr: DNOP	3.1		4.921		62.7	30.4	154	0	0	

Sample ID: **2012612-057AMSD** SampType: **MSD** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BS20-13 8'** Batch ID: **56960** RunNo: **73991**
Prep Date: **12/12/2020** Analysis Date: **12/14/2020** SeqNo: **2610028** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	99	9.4	47.21	60.48	80.6	15	184	13.5	23.9	
Surr: DNOP	6.6		4.721		139	30.4	154	0	0	

Sample ID: **2012612-041AMS** SampType: **MS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **WS20-19 4-8** Batch ID: **56958** RunNo: **74004**
Prep Date: **12/12/2020** Analysis Date: **12/15/2020** SeqNo: **2611559** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	60	9.9	49.50	0	121	15	184			
Surr: DNOP	7.3		4.950		147	30.4	154			

Sample ID: **2012612-041AMSD** SampType: **MSD** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **WS20-19 4-8** Batch ID: **56958** RunNo: **74004**
Prep Date: **12/12/2020** Analysis Date: **12/15/2020** SeqNo: **2611560** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	47	9.9	49.26	0	95.8	15	184	23.7	23.9	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2012612**

21-Dec-20

Client: Vertex Resource Group Ltd.

Project: E land State 123H

Sample ID: **2012612-041AMSD**	SampType: **MSD**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **WS20-19 4-8**	Batch ID: **56958**	RunNo: **74004**
Prep Date: **12/12/2020**	Analysis Date: **12/15/2020**	SeqNo: **2611560** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	5.2		4.926		105	30.4	154	0	0	

Sample ID: **LCS-56958**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **56958**	RunNo: **74004**
Prep Date: **12/12/2020**	Analysis Date: **12/15/2020**	SeqNo: **2611599** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	48	10	50.00	0	96.8	70	130			
Surr: DNOP	5.3		5.000		106	30.4	154			

Sample ID: **MB-56958**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **56958**	RunNo: **74004**
Prep Date: **12/12/2020**	Analysis Date: **12/15/2020**	SeqNo: **2611603** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	12		10.00		116	30.4	154			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2012612

21-Dec-20

Client: Vertex Resource Group Ltd.

Project: E land State 123H

Sample ID: lcs-56955	SampType: LCS	TestCode: EPA Method 8015D: Gasoline Range							
Client ID: LCSS	Batch ID: 56955	RunNo: 73983							
Prep Date: 12/12/2020	Analysis Date: 12/13/2020	SeqNo: 2609789	Units: mg/Kg						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22	5.0	25.00	0	86.2	72.5	106			
Surr: BFB	960		1000		96.2	75.3	105			

Sample ID: mb-56955	SampType: MBLK	TestCode: EPA Method 8015D: Gasoline Range							
Client ID: PBS	Batch ID: 56955	RunNo: 73983							
Prep Date: 12/12/2020	Analysis Date: 12/13/2020	SeqNo: 2609791	Units: mg/Kg						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	880		1000		87.5	75.3	105			

Sample ID: 2012612-041ams	SampType: MS	TestCode: EPA Method 8015D: Gasoline Range							
Client ID: WS20-19 4-8	Batch ID: 56955	RunNo: 74001							
Prep Date: 12/12/2020	Analysis Date: 12/14/2020	SeqNo: 2610898	Units: mg/Kg						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	4.9	24.73	0	99.0	61.3	114			
Surr: BFB	1000		989.1		101	75.3	105			

Sample ID: 2012612-041amsd	SampType: MSD	TestCode: EPA Method 8015D: Gasoline Range							
Client ID: WS20-19 4-8	Batch ID: 56955	RunNo: 74001							
Prep Date: 12/12/2020	Analysis Date: 12/14/2020	SeqNo: 2610899	Units: mg/Kg						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	4.8	24.25	0	104	61.3	114	3.20	20	
Surr: BFB	990		969.9		102	75.3	105	0	0	

Sample ID: mb-56937	SampType: MBLK	TestCode: EPA Method 8015D: Gasoline Range							
Client ID: PBS	Batch ID: 56937	RunNo: 74001							
Prep Date: 12/11/2020	Analysis Date: 12/14/2020	SeqNo: 2610915	Units: %Rec						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	870		1000		87.3	75.3	105			

Sample ID: lcs-56937	SampType: LCS	TestCode: EPA Method 8015D: Gasoline Range							
Client ID: LCSS	Batch ID: 56937	RunNo: 74001							
Prep Date: 12/11/2020	Analysis Date: 12/14/2020	SeqNo: 2610916	Units: %Rec						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	990		1000		99.2	75.3	105			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2012612**

21-Dec-20

Client: Vertex Resource Group Ltd.

Project: E land State 123H

Sample ID: **mb-56943**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **56943**	RunNo: **74018**
Prep Date: **12/11/2020**	Analysis Date: **12/15/2020**	SeqNo: **2611606** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	870		1000		87.0	75.3	105			

Sample ID: **lcs-56943**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **56943**	RunNo: **74018**
Prep Date: **12/11/2020**	Analysis Date: **12/15/2020**	SeqNo: **2611607** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	990		1000		98.5	75.3	105			

Sample ID: **mb-56945**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **56945**	RunNo: **74018**
Prep Date: **12/11/2020**	Analysis Date: **12/15/2020**	SeqNo: **2611630** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	920		1000		92.4	75.3	105			

Sample ID: **lcs-56945**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **56945**	RunNo: **74018**
Prep Date: **12/11/2020**	Analysis Date: **12/15/2020**	SeqNo: **2611631** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	5.0	25.00	0	91.3	72.5	106			
Surr: BFB	1000		1000		103	75.3	105			

Sample ID: **2012612-001ams**	SampType: **MS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **WS20-01 0-4**	Batch ID: **56945**	RunNo: **74018**
Prep Date: **12/11/2020**	Analysis Date: **12/15/2020**	SeqNo: **2611633** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22	4.8	24.08	0	91.7	61.3	114			
Surr: BFB	960		963.4		99.7	75.3	105			

Sample ID: **2012612-001amsd**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **WS20-01 0-4**	Batch ID: **56945**	RunNo: **74018**
Prep Date: **12/11/2020**	Analysis Date: **12/15/2020**	SeqNo: **2611634** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22	4.9	24.63	0	91.3	61.3	114	1.80	20	
Surr: BFB	980		985.2		99.9	75.3	105	0	0	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2012612**

21-Dec-20

Client: Vertex Resource Group Ltd.

Project: E land State 123H

Sample ID: **LCS-56955**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **56955**	RunNo: **73983**
Prep Date: **12/12/2020**	Analysis Date: **12/13/2020**	SeqNo: **2609829** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.95	0.025	1.000	0	95.2	80	120			
Toluene	1.0	0.050	1.000	0	101	80	120			
Ethylbenzene	1.0	0.050	1.000	0	101	80	120			
Xylenes, Total	3.0	0.10	3.000	0	100	80	120			
Surr: 4-Bromofluorobenzene	0.90		1.000		90.0	80	120			

Sample ID: **mb-56955**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **56955**	RunNo: **73983**
Prep Date: **12/12/2020**	Analysis Date: **12/13/2020**	SeqNo: **2609831** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.89		1.000		89.4	80	120			

Sample ID: **2012612-042ams**	SampType: **MS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **WS20-20 4-8**	Batch ID: **56955**	RunNo: **74001**
Prep Date: **12/12/2020**	Analysis Date: **12/14/2020**	SeqNo: **2610946** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.92	0.025	0.9990	0	92.2	76.3	120			
Toluene	0.98	0.050	0.9990	0.01173	96.9	78.5	120			
Ethylbenzene	0.98	0.050	0.9990	0	98.6	78.1	124			
Xylenes, Total	3.0	0.10	2.997	0.01394	98.2	79.3	125			
Surr: 4-Bromofluorobenzene	0.92		0.9990		91.6	80	120			

Sample ID: **2012612-042amsd**	SampType: **MSD**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **WS20-20 4-8**	Batch ID: **56955**	RunNo: **74001**
Prep Date: **12/12/2020**	Analysis Date: **12/14/2020**	SeqNo: **2610947** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.97	0.025	0.9960	0	97.4	76.3	120	5.19	20	
Toluene	1.0	0.050	0.9960	0.01173	102	78.5	120	5.18	20	
Ethylbenzene	1.0	0.050	0.9960	0	105	78.1	124	6.11	20	
Xylenes, Total	3.1	0.10	2.988	0.01394	104	79.3	125	5.69	20	
Surr: 4-Bromofluorobenzene	0.90		0.9960		90.6	80	120	0	0	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2012612**
21-Dec-20

Client: Vertex Resource Group Ltd.
Project: E land State 123H

Sample ID: **mb-56937**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**							
Client ID: **PBS**	Batch ID: **56937**	RunNo: **74001**							
Prep Date: **12/11/2020**	Analysis Date: **12/14/2020**	SeqNo: **2610962**	Units: **%Rec**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.89		1.000		89.4	80	120			

Sample ID: **LCS-56937**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**							
Client ID: **LCSS**	Batch ID: **56937**	RunNo: **74001**							
Prep Date: **12/11/2020**	Analysis Date: **12/14/2020**	SeqNo: **2610963**	Units: **%Rec**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.89		1.000		88.6	80	120			

Sample ID: **mb-56943**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**							
Client ID: **PBS**	Batch ID: **56943**	RunNo: **74018**							
Prep Date: **12/11/2020**	Analysis Date: **12/15/2020**	SeqNo: **2611651**	Units: **%Rec**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.90		1.000		89.6	80	120			

Sample ID: **LCS-56943**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**							
Client ID: **LCSS**	Batch ID: **56943**	RunNo: **74018**							
Prep Date: **12/11/2020**	Analysis Date: **12/15/2020**	SeqNo: **2611652**	Units: **%Rec**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.90		1.000		89.7	80	120			

Sample ID: **mb-56945**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**							
Client ID: **PBS**	Batch ID: **56945**	RunNo: **74018**							
Prep Date: **12/11/2020**	Analysis Date: **12/15/2020**	SeqNo: **2611675**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.91		1.000		91.2	80	120			

Sample ID: **LCS-56945**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**							
Client ID: **LCSS**	Batch ID: **56945**	RunNo: **74018**							
Prep Date: **12/11/2020**	Analysis Date: **12/15/2020**	SeqNo: **2611676**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.96	0.025	1.000	0	96.2	80	120			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2012612**

21-Dec-20

Client: Vertex Resource Group Ltd.

Project: E land State 123H

Sample ID: **LCS-56945**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **56945**	RunNo: **74018**
Prep Date: **12/11/2020**	Analysis Date: **12/15/2020**	SeqNo: **2611676** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Toluene	1.0	0.050	1.000	0	99.7	80	120			
Ethylbenzene	1.0	0.050	1.000	0	99.8	80	120			
Xylenes, Total	3.0	0.10	3.000	0	99.5	80	120			
Surr: 4-Bromofluorobenzene	0.93		1.000		93.0	80	120			

Sample ID: **2012612-002ams**	SampType: **MS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **WS20-02 0-4**	Batch ID: **56945**	RunNo: **74018**
Prep Date: **12/11/2020**	Analysis Date: **12/15/2020**	SeqNo: **2611679** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.93	0.024	0.9766	0	95.6	76.3	120			
Toluene	0.97	0.049	0.9766	0.01055	98.5	78.5	120			
Ethylbenzene	0.97	0.049	0.9766	0	98.9	78.1	124			
Xylenes, Total	2.9	0.098	2.930	0	99.5	79.3	125			
Surr: 4-Bromofluorobenzene	0.88		0.9766		90.3	80	120			

Sample ID: **2012612-002amsd**	SampType: **MSD**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **WS20-02 0-4**	Batch ID: **56945**	RunNo: **74018**
Prep Date: **12/11/2020**	Analysis Date: **12/15/2020**	SeqNo: **2611680** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.91	0.024	0.9690	0	94.1	76.3	120	2.33	20	
Toluene	0.98	0.048	0.9690	0.01055	99.7	78.5	120	0.429	20	
Ethylbenzene	0.98	0.048	0.9690	0	101	78.1	124	1.64	20	
Xylenes, Total	2.9	0.097	2.907	0	101	79.3	125	0.886	20	
Surr: 4-Bromofluorobenzene	0.91		0.9690		93.5	80	120	0	0	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2012612**

21-Dec-20

Client: Vertex Resource Group Ltd.

Project: E land State 123H

Sample ID: **mb-56957**	SampType: **MBLK**	TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **PBS**	Batch ID: **56957**	RunNo: **74024**
Prep Date: **12/12/2020**	Analysis Date: **12/16/2020**	SeqNo: **2612043** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 1,2-Dichloroethane-d4	0.47		0.5000		93.4	70	130			
Surr: 4-Bromofluorobenzene	0.56		0.5000		112	70	130			
Surr: Dibromofluoromethane	0.57		0.5000		115	70	130			
Surr: Toluene-d8	0.46		0.5000		91.5	70	130			

Sample ID: **lcs-56957**	SampType: **LCS4**	TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **BatchQC**	Batch ID: **56957**	RunNo: **74024**
Prep Date: **12/12/2020**	Analysis Date: **12/16/2020**	SeqNo: **2612044** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.025	1.000	0	105	80	120			
Toluene	0.94	0.050	1.000	0	94.5	80	120			
Ethylbenzene	0.92	0.050	1.000	0	92.0	80	120			
Xylenes, Total	2.9	0.10	3.000	0	95.1	80	120			
Surr: 1,2-Dichloroethane-d4	0.45		0.5000		90.4	70	130			
Surr: 4-Bromofluorobenzene	0.52		0.5000		105	70	130			
Surr: Dibromofluoromethane	0.54		0.5000		109	70	130			
Surr: Toluene-d8	0.46		0.5000		92.1	70	130			

Sample ID: **lcs-56949**	SampType: **LCS**	TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **LCSS**	Batch ID: **56949**	RunNo: **74025**
Prep Date: **12/11/2020**	Analysis Date: **12/15/2020**	SeqNo: **2612069** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.2	0.025	1.000	0	124	70	130			
Toluene	1.1	0.050	1.000	0	111	70	130			
Ethylbenzene	1.1	0.050	1.000	0	113	70	130			
Xylenes, Total	3.6	0.10	3.000	0	120	70	130			
Surr: 1,2-Dichloroethane-d4	0.61		0.5000		123	70	130			
Surr: 4-Bromofluorobenzene	0.50		0.5000		101	70	130			
Surr: Dibromofluoromethane	0.59		0.5000		118	70	130			
Surr: Toluene-d8	0.47		0.5000		94.9	70	130			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2012612**

21-Dec-20

Client: Vertex Resource Group Ltd.

Project: E land State 123H

Sample ID: **mb-56949**	SampType: **MBLK**	TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **PBS**	Batch ID: **56949**	RunNo: **74025**
Prep Date: **12/11/2020**	Analysis Date: **12/15/2020**	SeqNo: **2612070** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 1,2-Dichloroethane-d4	0.59		0.5000		118	70	130			
Surr: 4-Bromofluorobenzene	0.52		0.5000		104	70	130			
Surr: Dibromofluoromethane	0.61		0.5000		121	70	130			
Surr: Toluene-d8	0.47		0.5000		93.3	70	130			

Sample ID: **2012612-022ams**	SampType: **MS4**	TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **WS20-22 0-4**	Batch ID: **56949**	RunNo: **74025**
Prep Date: **12/11/2020**	Analysis Date: **12/15/2020**	SeqNo: **2612080** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.3	0.024	0.9747	0	134	71.1	115			S
Toluene	1.1	0.049	0.9747	0	111	79.6	132			
Ethylbenzene	1.1	0.049	0.9747	0	108	83.8	134			
Xylenes, Total	3.4	0.097	2.924	0	118	82.4	132			
Surr: 1,2-Dichloroethane-d4	0.60		0.4873		123	70	130			
Surr: 4-Bromofluorobenzene	0.49		0.4873		101	70	130			
Surr: Dibromofluoromethane	0.59		0.4873		120	70	130			
Surr: Toluene-d8	0.43		0.4873		88.7	70	130			

Sample ID: **2012612-022amsd**	SampType: **MSD4**	TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **WS20-22 0-4**	Batch ID: **56949**	RunNo: **74025**
Prep Date: **12/11/2020**	Analysis Date: **12/15/2020**	SeqNo: **2612082** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.2	0.023	0.9285	0	131	71.1	115	6.52	20	S
Toluene	1.1	0.046	0.9285	0	115	79.6	132	0.962	20	
Ethylbenzene	1.0	0.046	0.9285	0	112	83.8	134	1.47	20	
Xylenes, Total	3.4	0.093	2.786	0	122	82.4	132	1.83	20	
Surr: 1,2-Dichloroethane-d4	0.56		0.4643		120	70	130	0	0	
Surr: 4-Bromofluorobenzene	0.50		0.4643		107	70	130	0	0	
Surr: Dibromofluoromethane	0.59		0.4643		126	70	130	0	0	
Surr: Toluene-d8	0.43		0.4643		92.4	70	130	0	0	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2012612**

21-Dec-20

Client: Vertex Resource Group Ltd.

Project: E land State 123H

Sample ID: **mb-57020**	SampType: **MBLK**	TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **PBS**	Batch ID: **57020**	RunNo: **74066**
Prep Date: **12/15/2020**	Analysis Date: **12/16/2020**	SeqNo: **2613346** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	0.45		0.5000		89.5	70	130			
Surr: 4-Bromofluorobenzene	0.50		0.5000		100	70	130			
Surr: Dibromofluoromethane	0.53		0.5000		106	70	130			
Surr: Toluene-d8	0.46		0.5000		91.7	70	130			

Sample ID: **lcs-57020**	SampType: **LCS4**	TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **BatchQC**	Batch ID: **57020**	RunNo: **74066**
Prep Date: **12/15/2020**	Analysis Date: **12/16/2020**	SeqNo: **2613352** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	0.45		0.5000		90.1	70	130			
Surr: 4-Bromofluorobenzene	0.48		0.5000		95.6	70	130			
Surr: Dibromofluoromethane	0.53		0.5000		106	70	130			
Surr: Toluene-d8	0.45		0.5000		89.8	70	130			

Sample ID: **2012612-058ams**	SampType: **MS4**	TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **BS20-14 8'**	Batch ID: **56957**	RunNo: **74066**
Prep Date: **12/12/2020**	Analysis Date: **12/17/2020**	SeqNo: **2613487** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.025	0.9852	0	108	71.1	115			
Toluene	0.95	0.049	0.9852	0	96.5	79.6	132			
Ethylbenzene	0.90	0.049	0.9852	0	91.6	83.8	134			
Xylenes, Total	2.8	0.099	2.956	0	95.5	82.4	132			
Surr: 1,2-Dichloroethane-d4	0.45		0.4926		92.2	70	130			
Surr: 4-Bromofluorobenzene	0.50		0.4926		102	70	130			
Surr: Dibromofluoromethane	0.55		0.4926		111	70	130			
Surr: Toluene-d8	0.46		0.4926		94.1	70	130			

Sample ID: **2012612-058amsd**	SampType: **MSD4**	TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **BS20-14 8'**	Batch ID: **56957**	RunNo: **74066**
Prep Date: **12/12/2020**	Analysis Date: **12/17/2020**	SeqNo: **2613520** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.025	0.9843	0	103	71.1	115	5.33	20	
Toluene	0.92	0.049	0.9843	0	93.1	79.6	132	3.76	20	
Ethylbenzene	0.89	0.049	0.9843	0	90.0	83.8	134	1.92	20	
Xylenes, Total	2.7	0.098	2.953	0	92.7	82.4	132	3.05	20	
Surr: 1,2-Dichloroethane-d4	0.44		0.4921		88.4	70	130	0	0	
Surr: 4-Bromofluorobenzene	0.51		0.4921		104	70	130	0	0	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2012612**

21-Dec-20

Client: Vertex Resource Group Ltd.

Project: E land State 123H

Sample ID: **2012612-058amsd** SampType: **MSD4** TestCode: **EPA Method 8260B: Volatiles Short List**

Client ID: **BS20-14 8'** Batch ID: **56957** RunNo: **74066**

Prep Date: **12/12/2020** Analysis Date: **12/17/2020** SeqNo: **2613520** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Dibromofluoromethane	0.54		0.4921		109	70	130	0	0	
Surr: Toluene-d8	0.46		0.4921		92.9	70	130	0	0	

Sample ID: **lcs-56961** SampType: **LCS** TestCode: **EPA Method 8260B: Volatiles Short List**

Client ID: **LCSS** Batch ID: **56961** RunNo: **74073**

Prep Date: **12/12/2020** Analysis Date: **12/16/2020** SeqNo: **2613600** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	0.54		0.5000		108	70	130			
Surr: 4-Bromofluorobenzene	0.51		0.5000		102	70	130			
Surr: Dibromofluoromethane	0.54		0.5000		109	70	130			
Surr: Toluene-d8	0.51		0.5000		103	70	130			

Sample ID: **mb-56961** SampType: **MBLK** TestCode: **EPA Method 8260B: Volatiles Short List**

Client ID: **PBS** Batch ID: **56961** RunNo: **74073**

Prep Date: **12/12/2020** Analysis Date: **12/16/2020** SeqNo: **2613601** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	0.53		0.5000		106	70	130			
Surr: 4-Bromofluorobenzene	0.52		0.5000		104	70	130			
Surr: Dibromofluoromethane	0.55		0.5000		111	70	130			
Surr: Toluene-d8	0.50		0.5000		100	70	130			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2012612**

21-Dec-20

Client: Vertex Resource Group Ltd.

Project: E land State 123H

Sample ID: **mb-56957**	SampType: **MBLK**	TestCode: **EPA Method 8015D Mod: Gasoline Range**							
Client ID: **PBS**	Batch ID: **56957**	RunNo: **74024**							
Prep Date: **12/12/2020**	Analysis Date: **12/16/2020**	SeqNo: **2612056**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	490		500.0		97.4	70	130			

Sample ID: **lcs-56957**	SampType: **LCS**	TestCode: **EPA Method 8015D Mod: Gasoline Range**							
Client ID: **LCSS**	Batch ID: **56957**	RunNo: **74024**							
Prep Date: **12/12/2020**	Analysis Date: **12/16/2020**	SeqNo: **2612057**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	20	5.0	25.00	0	78.2	70	130			
Surr: BFB	460		500.0		93.0	70	130			

Sample ID: **2012612-057ams**	SampType: **MS**	TestCode: **EPA Method 8015D Mod: Gasoline Range**							
Client ID: **BS20-13 8'**	Batch ID: **56957**	RunNo: **74024**							
Prep Date: **12/12/2020**	Analysis Date: **12/16/2020**	SeqNo: **2612059**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	19	4.7	23.56	0	81.7	49.2	122			
Surr: BFB	440		471.3		93.5	70	130			

Sample ID: **2012612-057amsd**	SampType: **MSD**	TestCode: **EPA Method 8015D Mod: Gasoline Range**							
Client ID: **BS20-13 8'**	Batch ID: **56957**	RunNo: **74024**							
Prep Date: **12/12/2020**	Analysis Date: **12/16/2020**	SeqNo: **2612060**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22	4.7	23.72	0	91.6	49.2	122	12.1	20	
Surr: BFB	490		474.4		103	70	130	0	0	

Sample ID: **lcs-56949**	SampType: **LCS**	TestCode: **EPA Method 8015D Mod: Gasoline Range**							
Client ID: **LCSS**	Batch ID: **56949**	RunNo: **74025**							
Prep Date: **12/11/2020**	Analysis Date: **12/15/2020**	SeqNo: **2612124**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	5.0	25.00	0	94.9	70	130			
Surr: BFB	520		500.0		104	70	130			

Sample ID: **mb-56949**	SampType: **MBLK**	TestCode: **EPA Method 8015D Mod: Gasoline Range**							
Client ID: **PBS**	Batch ID: **56949**	RunNo: **74025**							
Prep Date: **12/11/2020**	Analysis Date: **12/15/2020**	SeqNo: **2612125**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2012612**

21-Dec-20

Client: Vertex Resource Group Ltd.

Project: E land State 123H

Sample ID: **mb-56949**	SampType: **MBLK**	TestCode: **EPA Method 8015D Mod: Gasoline Range**							
Client ID: **PBS**	Batch ID: **56949**	RunNo: **74025**							
Prep Date: **12/11/2020**	Analysis Date: **12/15/2020**	SeqNo: **2612125**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	520		500.0		104	70	130			

Sample ID: **2012612-021ams**	SampType: **MS**	TestCode: **EPA Method 8015D Mod: Gasoline Range**							
Client ID: **WS20-21 0-4**	Batch ID: **56949**	RunNo: **74025**							
Prep Date: **12/11/2020**	Analysis Date: **12/15/2020**	SeqNo: **2612127**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	4.9	24.73	0	95.6	49.2	122			
Surr: BFB	510		494.6		102	70	130			

Sample ID: **2012612-021amsd**	SampType: **MSD**	TestCode: **EPA Method 8015D Mod: Gasoline Range**							
Client ID: **WS20-21 0-4**	Batch ID: **56949**	RunNo: **74025**							
Prep Date: **12/11/2020**	Analysis Date: **12/15/2020**	SeqNo: **2612128**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	4.9	24.41	0	96.8	49.2	122	0.0302	20	
Surr: BFB	520		488.3		106	70	130	0	0	

Sample ID: **mb-57020**	SampType: **MBLK**	TestCode: **EPA Method 8015D Mod: Gasoline Range**							
Client ID: **PBS**	Batch ID: **57020**	RunNo: **74066**							
Prep Date: **12/15/2020**	Analysis Date: **12/16/2020**	SeqNo: **2613558**	Units: **%Rec**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	480		500.0		95.6	70	130			

Sample ID: **lcs-57020**	SampType: **LCS**	TestCode: **EPA Method 8015D Mod: Gasoline Range**							
Client ID: **LCSS**	Batch ID: **57020**	RunNo: **74066**							
Prep Date: **12/15/2020**	Analysis Date: **12/16/2020**	SeqNo: **2613559**	Units: **%Rec**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	480		500.0		96.6	70	130			

Sample ID: **lcs-56961**	SampType: **LCS**	TestCode: **EPA Method 8015D Mod: Gasoline Range**							
Client ID: **LCSS**	Batch ID: **56961**	RunNo: **74073**							
Prep Date: **12/12/2020**	Analysis Date: **12/16/2020**	SeqNo: **2613640**	Units: **%Rec**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	530		500.0		105	70	130			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2012612**

21-Dec-20

Client: Vertex Resource Group Ltd.

Project: E land State 123H

Sample ID: **mb-56961**	SampType: **MBLK**	TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **PBS**	Batch ID: **56961**	RunNo: **74073**
Prep Date: **12/12/2020**	Analysis Date: **12/16/2020**	SeqNo: **2613641** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	540		500.0		108	70	130			

Qualifiers:

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: Vertex Resource Group Ltd. Work Order Number: 2012612 RcptNo: 1

Received By: Cheyenne Cason 12/11/2020 8:00:00 AM

Completed By: Erin Melendrez 12/11/2020 9:11:37 AM

Reviewed By: SCL 12/11/20

Chain of Custody

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

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. Received at least 1 vial with headspace <1/4" for AQ VOA?	Yes ☐	No ☐	NA ☑
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	# of preserved bottles checked for pH: (<2 or >12 unless noted)
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted?
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	Checked by: JR 12/11/20

Special Handling (if applicable)

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

Person Notified: _____ Date: _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

16. Additional remarks:

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	5.5	Good				
2	1.9	Good				
3	2.1	Good				
4	1.9	Good				

Chain-of-Custody Record

Client: Vertex

Mailing Address:

Phone #:

email or Fax#:

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

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time: 5 Day
☑ Standard ☐ Rush

Project Name: Eland State #123H

Project #: 20E-00239

Project Manager: Natalie Gordon

Sampler: MJP

On Ice: ☑ Yes ☐ No

# of Coolers: 4

Cooler Temp(including CF): See front page (°C)

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

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2012012	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
12/9	11:00	Soil	WS20-01 0-4	4 oz	ice	-001	✓	✓					✓			
	11:05		WS20-02 0-4			-002										
	11:10		WS20-03 0-4			-003										
	11:15		WS20-04 0-4			-004										
	11:20		WS20-05 0-4			-005										
	11:25		WS20-06 0-4			-006										
	11:30		WS20-07 0-4			-007										
	11:35		WS20-08 0-4			-008										
	11:40		WS20-09 0-4			-009										
	11:45		WS20-10 0-4			-010										
	11:54		WS20-11 0-4			-011										
↓	11:55	↓	WS20-12 0-4	↓	↓	-012	↓	↓					↓			

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
					12/10/20	1135
Date: 12/10	Time: 1410	Relinquished by:	Received by:	Via:	Date	Time
				Courier	12/11/20	0820

Remarks: CC: Natalie Gordon

Matador

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

Chain-of-Custody Record

Client: Vertex

Mailing Address:

Phone #:

email or Fax#:

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

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time: 5 Day
☑ Standard ☐ Rush

Project Name: Eland State #123H

Project #: 2OE-00239

Project Manager: Natalie Gordon

Sampler: MJP

On Ice: ☑ Yes ☐ No

# of Coolers: 4

Cooler Temp(including CF): (°C)

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

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2012617	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
12/9	12:00	Soil	WS20-13 0-4	4oz	ice	-013	✓	✓					✓			
↓	12:05	↓	WS20-14 0-4	↓	↓	-014	↓	↓					↓			
	12:10		WS20-15 0-4			-015										
	12:15		WS20-16 0-4			-016										
	12:20		WS20-17 0-4			-017										
	12:25		WS20-18 0-4			-018										
	12:30		WS20#19 0-4			-019										
	12:35		WS20-20 0-4			-020										
	12:40		WS20-21 0-4			-021										
✓	12:45	✓	WS20-22 0-4	↓	↓	-022	✓	✓					✓			
			~~WS20~~													
			~~WS20~~													

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
					12/10/20	1135
Date: 12/10	Time: 1900	Relinquished by:	Received by:	Via:	Date	Time
					12/11/20	0820

Remarks: cc: Natalie Gordon

Matador

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

Chain-of-Custody Record

Client: Vertex

Mailing Address:

Phone #:

email or Fax#:

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

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time: 5 Day
☑ Standard ☐ Rush

Project Name: Eland State #123H

Project #: 20E-00239

Project Manager: Natalie Gordon

Sampler: MJP

On Ice: ☒ Yes ☐ No

# of Coolers: 4

Cooler Temp(including CF): See Item (°C)

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

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2012612	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
12/9	11:00	Soil	WS20-01 4-8	4oz	ice	-023	✓	✓					✓			
	11:05		WS20-02 4-8			-024										
	11:10		WS20-03 4-8			-025										
	11:15		WS20-04 4-8			-026										
	11:20		WS20-05 4-8			-027										
	11:25		WS20-06 4-8			-028										
	11:30		WS20-07 4-8			-029										
	11:35		WS20-08 4-8			-030										
	11:40		WS20-09 4-8			-031										
	11:45		WS20-10 4-8			-032										
	11:50		WS20-11 4-8			-033										
	11:55		WS20-12 4-8			-034										

Analysis Request

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
					12/10/20	1135
12/10/20	1900					

Remarks:
5 5 20 25 S
1.9 50 = 19
2.1 50 = 21
1.9 50 = 1.9
Matador

CC: Natalie Gordon

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

Chain-of-Custody Record

Client: Vertex

Mailing Address:

Phone #:

email or Fax#:

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

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time: 5-day
☑ Standard ☐ Rush

Project Name: Eland State #123H

Project #: 20E-00239

Project Manager: Natalie Gordon

Sampler: MJP

On Ice: ☑ Yes ☐ No

# of Coolers: 4

Cooler Temp(including CF): 5.6 Room (°C)

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

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2012012	BTEX / MTBE / TMB's (8021)	TPH 8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
12-9	12:00		WS20-13 4-5'	4oz	ice	-035	✓	✓					✓			
	12:05		WS20-14 4-5'			-036										
	12:10		WS20-15 4-5'			-037										
	12:15		WS20-16 4-5'			-038										
	12:20		WS20-17 4-5'			-039										
	12:25		WS20-18 4-5'			-040										
	12:30		WS20-19 4-5'			-041										
	12:35		WS20-20 4-5'			-042										
	12:40		WS20-21 4-5'			-043										
	12:45		WS20-22 4-5'			-044										
			~~WS20~~													
			~~WS20~~													

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
			[signature]		12/10/20	1135
Date: 12/10	Time: 1900	Relinquished by: [signature]	Received by: [signature]	Via: COC Courier	12/11/20	0800

Remarks: CC: Natalie Gordon

Matador

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

Chain-of-Custody Record

Client: ~~[redacted]~~ Vertex

Mailing Address:

Phone #:

email or Fax#:

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance

☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time: 5-day

☒ Standard ☐ Rush

Project Name: Eland 123 H

Project #: 2RE-C10239

Project Manager: Natalie Gordon

Sampler: MJP

On Ice: ☒ Yes ☐ No

# of Coolers: 4

Cooler Temp(including CF): See first page (°C)

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2017617	BTEX / MTBE / TMB's (8021)	TPH 8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
12-9	9:15	soil	BS20-01 5'	4oz	ice	-045										
	9:20		BS20-02 5'			-046										
	9:25		BS20-03 8'			-047										
	9:30		BS20-04 8'			-048										
	9:35		BS20-05 8'			-049										
	9:40		BS20-06 8'			-050										
	9:45		BS20-07 8'			-051										
	9:50		BS20-08 8'			-052										
	9:55		BS20-09 8'			-053										
	10:00		BS20-10 8'			-054										
	10:05		BS20-11 8'			-055										
	10:10		BS20-12 8'			-056										

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
					12/10/20	1135
Date: 12/10	Time: 1900	Relinquished by:	Received by:	Via:	Date	Time
				Courier	12/11/20	0800

Remarks: CC: Natalie Gordon

Matador

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

Chain-of-Custody Record

Client: Vertex

Mailing Address:

Phone #:

email or Fax#:

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

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time: 5 Day
☑ Standard ☐ Rush

Project Name: Eland State #123H

Project #: 20E-00239

Project Manager: Natalie Gordon

Sampler:

On Ice: ☑ Yes ☐ No

# of Coolers: 4

Cooler Temp(including CF): 5.4 (°C)

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

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2012612	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
12/9	10:15	soil	BS20-13 5'	4oz	ice	-057										
	10:20		BS20-14 5'			-058										
	10:25		BS20-15 5'			-059										
	10:30		BS20-16 5'			-060										
	10:35		BS20-17 5'			-061										
	10:40		BS20-18 5'			-062										
	10:45		BS20-19 5'			-063										
	10:50		BS20-20 5'			-064										
	10:55		BS20-21 5'			-065										
			~~BS20~~													
			~~BS20~~													
			~~BS20~~													

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
				-	12/10/20	1135
Date: 12/10	Time: 1900	Relinquished by:	Received by:	Via:	Date	Time
				COUR	12/11/20	0800

Remarks: CC: Natalie Gordon

Matador

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

Form C-141
Page 6

State of New Mexico
Oil Conservation Division

Incident ID	NRM2026850554
District RP	
Facility ID	
Application ID	

Closure

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

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

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

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

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

[x] Description of remediation activities

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

Printed Name: John Hurt
Title: RES Specialist

Signature:
Date: 1/25/21

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

OCD Only

Received by: Robert Hamlet
Date: 6/4/2021

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: Robert Hamlet
Date: 6/4/2021

Printed Name: Robert Hamlet
Title: Environmental Specialist - Advanced

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

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

CONDITIONS

Action 15502

CONDITIONS

Operator: MATADOR PRODUCTION COMPANY One Lincoln Centre Dallas, TX 75240	OGRID: 228937
	Action Number: 15502
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
rhamlet	We have received your closure report and final C-141 for Incident #NRM2026850554 ELAND 32-18-33 RN STATE, thank you. This closure is approved.	6/4/2021