Natalie Gordon

From: Natalie Gordon

Sent: Monday, November 18, 2019 5:43 PM

To: Mike Bratcher (mike.bratcher@state.nm.us); Victoria Venegas

(Victoria.Venegas@state.nm.us); Robert Hamlet (Robert.Hamlet@state.nm.us)

Johnson, Misti M. (MRO); Isaac Castro (icastro@marathonoil.com); Dennis Williams

(DWilliams@vertex.ca); Dhugal Hanton (DHanton@vertex.ca)

Subject: 2RP-5499/2RP-5652: Trebuchet Fee 23 28 19 WXY # 010H 48-hr Sampling Notification -

Marathon Oil

All:

Cc:

Please accept this email as 48-hr notification that Vertex Resource Services Inc. has scheduled confirmation sampling to be conducted at Trebuchet Fee 23 28 19 WXY #010H for Incidents 2RP-5499 and 2RP-5652, DOR: 6/19/2019.

On November 21, 2019 beginning at 8:00 a.m., Vertex personnel will be onsite to complete remediation and collect confirmation samples for closure of the above referenced incidents. There is a chance that remediation and confirmation sampling may continue into November 22, 2019.

If you need assistance with directions to the site, or have any questions or concerns, please do not hesitate to contact me.

Thank you, Natalie



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

July 19, 2019

Isaac Castro Marathon Oil Company 4111 Tidwell Road Carlsbad, NM 88220

TEL: (575) 297-0956

FAX

RE: Trebuchet Fec 23 28 19 OrderNo.: 1907601

Dear Isaac Castro:

Hall Environmental Analysis Laboratory received 20 sample(s) on 7/12/2019 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

andy

4901 Hawkins NE

Albuquerque, NM 87109

Lab Order **1907601**

Date Reported: 7/19/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company Client Sample ID: TP19-01 2'

 Project:
 Trebuchet Fec 23 28 19
 Collection Date: 7/10/2019 9:00:00 AM

 Lab ID:
 1907601-001
 Matrix: SOIL
 Received Date: 7/12/2019 7:50:00 AM

Analyses	Result	RL Qua	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGA	Analyst: BRM				
Diesel Range Organics (DRO)	ND	9.8	mg/Kg	1	7/13/2019 3:49:20 PM
Motor Oil Range Organics (MRO)	ND	49	mg/Kg	1	7/13/2019 3:49:20 PM
Surr: DNOP	106	70-130	%Rec	1	7/13/2019 3:49:20 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	7/16/2019 12:35:49 AM
Surr: BFB	91.2	73.8-119	%Rec	1	7/16/2019 12:35:49 AM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	0.025	mg/Kg	1	7/16/2019 12:35:49 AM
Toluene	ND	0.049	mg/Kg	1	7/16/2019 12:35:49 AM
Ethylbenzene	ND	0.049	mg/Kg	1	7/16/2019 12:35:49 AM
Xylenes, Total	ND	0.099	mg/Kg	1	7/16/2019 12:35:49 AM
Surr: 4-Bromofluorobenzene	92.1	80-120	%Rec	1	7/16/2019 12:35:49 AM
EPA METHOD 300.0: ANIONS					Analyst: MRA
Chloride	2600	150	mg/Kg	50	7/17/2019 6:23:28 PM

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

- Value exceeds Maximum Contaminant 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

Lab Order 1907601

Date Reported: 7/19/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company

Client Sample ID: TP19-02 2'

Project: Trebuchet Fec 23 28 19 **Collection Date:** 7/10/2019 9:10:00 AM

Lab ID: 1907601-002 **Matrix:** SOIL **Received Date:** 7/12/2019 7:50:00 AM

Analyses	Result	RL Qu	ial Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE O	Analyst: BRM				
Diesel Range Organics (DRO)	ND	9.5	mg/Kg	1	7/13/2019 4:11:36 PM
Motor Oil Range Organics (MRO)	ND	48	mg/Kg	1	7/13/2019 4:11:36 PM
Surr: DNOP	108	70-130	%Rec	1	7/13/2019 4:11:36 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	7/16/2019 1:47:00 AM
Surr: BFB	95.3	73.8-119	%Rec	1	7/16/2019 1:47:00 AM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	0.025	mg/Kg	1	7/16/2019 1:47:00 AM
Toluene	ND	0.049	mg/Kg	1	7/16/2019 1:47:00 AM
Ethylbenzene	ND	0.049	mg/Kg	1	7/16/2019 1:47:00 AM
Xylenes, Total	ND	0.099	mg/Kg	1	7/16/2019 1:47:00 AM
Surr: 4-Bromofluorobenzene	96.8	80-120	%Rec	1	7/16/2019 1:47:00 AM
EPA METHOD 300.0: ANIONS					Analyst: MRA
Chloride	3800	150	mg/Kg	50	7/17/2019 6:35:53 PM

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

- Value exceeds Maximum Contaminant 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

Lab Order **1907601**

Date Reported: 7/19/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company

Trebuchet Fec 23 28 19

Project:

Client Sample ID: TP19-03 4'

Collection Date: 7/10/2019 9:15:00 AM

Lab ID: 1907601-003 **Matrix:** SOIL **Received Date:** 7/12/2019 7:50:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OR	RGANICS				Analyst: BRM
Diesel Range Organics (DRO)	ND	9.5	mg/Kg	1	7/13/2019 4:33:58 PM
Motor Oil Range Organics (MRO)	ND	47	mg/Kg	1	7/13/2019 4:33:58 PM
Surr: DNOP	95.3	70-130	%Rec	1	7/13/2019 4:33:58 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	7/16/2019 2:58:04 AM
Surr: BFB	97.1	73.8-119	%Rec	1	7/16/2019 2:58:04 AM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	0.024	mg/Kg	1	7/16/2019 2:58:04 AM
Toluene	ND	0.049	mg/Kg	1	7/16/2019 2:58:04 AM
Ethylbenzene	ND	0.049	mg/Kg	1	7/16/2019 2:58:04 AM
Xylenes, Total	ND	0.098	mg/Kg	1	7/16/2019 2:58:04 AM
Surr: 4-Bromofluorobenzene	98.4	80-120	%Rec	1	7/16/2019 2:58:04 AM
EPA METHOD 300.0: ANIONS					Analyst: MRA
Chloride	1900	60	mg/Kg	20	7/17/2019 12:52:52 AM

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit

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

Page 3 of 26

Lab Order **1907601**

Date Reported: 7/19/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company Client Sample ID: TP19-04 4'

 Project:
 Trebuchet Fec 23 28 19
 Collection Date: 7/10/2019 9:20:00 AM

 Lab ID:
 1907601-004
 Matrix: SOIL
 Received Date: 7/12/2019 7:50:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OR	Analyst: BRM				
Diesel Range Organics (DRO)	ND	10	mg/Kg	1	7/13/2019 4:56:24 PM
Motor Oil Range Organics (MRO)	ND	50	mg/Kg	1	7/13/2019 4:56:24 PM
Surr: DNOP	95.3	70-130	%Rec	1	7/13/2019 4:56:24 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	7/16/2019 3:21:39 AM
Surr: BFB	93.7	73.8-119	%Rec	1	7/16/2019 3:21:39 AM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	0.025	mg/Kg	1	7/16/2019 3:21:39 AM
Toluene	ND	0.049	mg/Kg	1	7/16/2019 3:21:39 AM
Ethylbenzene	ND	0.049	mg/Kg	1	7/16/2019 3:21:39 AM
Xylenes, Total	ND	0.099	mg/Kg	1	7/16/2019 3:21:39 AM
Surr: 4-Bromofluorobenzene	95.0	80-120	%Rec	1	7/16/2019 3:21:39 AM
EPA METHOD 300.0: ANIONS					Analyst: MRA
Chloride	2100	60	mg/Kg	20	7/17/2019 1:05:17 AM

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- 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

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

Page 4 of 26

Lab Order **1907601**

Date Reported: 7/19/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company Client Sample ID: TP19-05 4'

 Project:
 Trebuchet Fec 23 28 19
 Collection Date: 7/10/2019 9:30:00 AM

 Lab ID:
 1907601-005
 Matrix: SOIL
 Received Date: 7/12/2019 7:50:00 AM

Analyses	Result	RL Qua	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGA	Analyst: BRM				
Diesel Range Organics (DRO)	ND	10	mg/Kg	1	7/16/2019 3:45:03 AM
Motor Oil Range Organics (MRO)	ND	50	mg/Kg	1	7/16/2019 3:45:03 AM
Surr: DNOP	86.3	70-130	%Rec	1	7/16/2019 3:45:03 AM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	7/16/2019 3:45:18 AM
Surr: BFB	107	73.8-119	%Rec	1	7/16/2019 3:45:18 AM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	0.025	mg/Kg	1	7/16/2019 3:45:18 AM
Toluene	ND	0.049	mg/Kg	1	7/16/2019 3:45:18 AM
Ethylbenzene	ND	0.049	mg/Kg	1	7/16/2019 3:45:18 AM
Xylenes, Total	ND	0.098	mg/Kg	1	7/16/2019 3:45:18 AM
Surr: 4-Bromofluorobenzene	110	80-120	%Rec	1	7/16/2019 3:45:18 AM
EPA METHOD 300.0: ANIONS					Analyst: MRA
Chloride	1900	60	mg/Kg	20	7/17/2019 1:17:41 AM

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

Qualifiers:

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

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

Page 5 of 26

Lab Order **1907601**

Date Reported: 7/19/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company Client Sample ID: TP19-06 2'

Project: Trebuchet Fec 23 28 19 **Collection Date:** 7/10/2019 9:40:00 AM

Lab ID: 1907601-006 **Matrix:** SOIL **Received Date:** 7/12/2019 7:50:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORG	GANICS				Analyst: BRM
Diesel Range Organics (DRO)	ND	9.9	mg/Kg	1	7/16/2019 4:07:29 AM
Motor Oil Range Organics (MRO)	ND	49	mg/Kg	1	7/16/2019 4:07:29 AM
Surr: DNOP	90.4	70-130	%Rec	1	7/16/2019 4:07:29 AM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.0	mg/Kg	1	7/16/2019 4:09:04 AM
Surr: BFB	94.2	73.8-119	%Rec	1	7/16/2019 4:09:04 AM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	0.025	mg/Kg	1	7/16/2019 4:09:04 AM
Toluene	ND	0.050	mg/Kg	1	7/16/2019 4:09:04 AM
Ethylbenzene	ND	0.050	mg/Kg	1	7/16/2019 4:09:04 AM
Xylenes, Total	ND	0.099	mg/Kg	1	7/16/2019 4:09:04 AM
Surr: 4-Bromofluorobenzene	95.6	80-120	%Rec	1	7/16/2019 4:09:04 AM
EPA METHOD 300.0: ANIONS					Analyst: MRA
Chloride	290	60	mg/Kg	20	7/17/2019 1:30:06 AM

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

Qualifiers:

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

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

Page 6 of 26

Lab Order **1907601**

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 7/19/2019

CLIENT: Marathon Oil Company Client Sample ID: TP19-07 4'

 Project:
 Trebuchet Fec 23 28 19
 Collection Date: 7/10/2019 9:50:00 AM

 Lab ID:
 1907601-007
 Matrix: SOIL
 Received Date: 7/12/2019 7:50:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE O	Analyst: BRM				
Diesel Range Organics (DRO)	ND	10	mg/Kg	1	7/16/2019 4:29:38 AM
Motor Oil Range Organics (MRO)	ND	50	mg/Kg	1	7/16/2019 4:29:38 AM
Surr: DNOP	91.6	70-130	%Rec	1	7/16/2019 4:29:38 AM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	7/16/2019 4:32:47 AM
Surr: BFB	95.9	73.8-119	%Rec	1	7/16/2019 4:32:47 AM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	0.025	mg/Kg	1	7/16/2019 4:32:47 AM
Toluene	ND	0.049	mg/Kg	1	7/16/2019 4:32:47 AM
Ethylbenzene	ND	0.049	mg/Kg	1	7/16/2019 4:32:47 AM
Xylenes, Total	ND	0.099	mg/Kg	1	7/16/2019 4:32:47 AM
Surr: 4-Bromofluorobenzene	96.5	80-120	%Rec	1	7/16/2019 4:32:47 AM
EPA METHOD 300.0: ANIONS					Analyst: MRA
Chloride	1900	60	mg/Kg	20	7/17/2019 11:46:25 AM

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

Qualifiers:

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

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

Page 7 of 26

Lab Order **1907601**

Date Reported: 7/19/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company Client Sample ID: TP19-08 2'

 Project:
 Trebuchet Fec 23 28 19
 Collection Date: 7/10/2019 10:00:00 AM

 Lab ID:
 1907601-008
 Matrix: SOIL
 Received Date: 7/12/2019 7:50:00 AM

Analyses Result **RL Qual Units** DF **Date Analyzed EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** Analyst: BRM Diesel Range Organics (DRO) ND 10 mg/Kg 1 7/16/2019 4:51:48 AM Motor Oil Range Organics (MRO) 7/16/2019 4:51:48 AM ND 50 mg/Kg 1 Surr: DNOP 90.6 70-130 %Rec 1 7/16/2019 4:51:48 AM **EPA METHOD 8015D: GASOLINE RANGE** Analyst: NSB Gasoline Range Organics (GRO) ND 7/15/2019 3:28:35 PM 5.0 mg/Kg 1 Surr: BFB 108 73.8-119 %Rec 1 7/15/2019 3:28:35 PM **EPA METHOD 8021B: VOLATILES** Analyst: NSB Benzene ND 7/15/2019 3:28:35 PM 0.025 mg/Kg 1 Toluene 0.050 ND mg/Kg 1 7/15/2019 3:28:35 PM Ethylbenzene ND 0.050 mg/Kg 1 7/15/2019 3:28:35 PM Xylenes, Total ND 0.10 mg/Kg 1 7/15/2019 3:28:35 PM 7/15/2019 3:28:35 PM Surr: 4-Bromofluorobenzene 95.1 80-120 %Rec 1 Analyst: MRA **EPA METHOD 300.0: ANIONS** Chloride 62 60 7/17/2019 11:58:49 AM ma/Ka 20

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

- Value exceeds Maximum Contaminant 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
- Reporting Limit Page 8 of 26

Lab Order **1907601**

Date Reported: 7/19/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company

Client Sample ID: TP19-09 4'

 Project:
 Trebuchet Fec 23 28 19
 Collection Date: 7/10/2019 10:10:00 AM

 Lab ID:
 1907601-009
 Matrix: SOIL
 Received Date: 7/12/2019 7:50:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE O	Analyst: BRM				
Diesel Range Organics (DRO)	ND	8.8	mg/Kg	1	7/16/2019 5:13:49 AM
Motor Oil Range Organics (MRO)	ND	44	mg/Kg	1	7/16/2019 5:13:49 AM
Surr: DNOP	89.2	70-130	%Rec	1	7/16/2019 5:13:49 AM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.0	mg/Kg	1	7/15/2019 3:51:25 PM
Surr: BFB	106	73.8-119	%Rec	1	7/15/2019 3:51:25 PM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	0.025	mg/Kg	1	7/15/2019 3:51:25 PM
Toluene	ND	0.050	mg/Kg	1	7/15/2019 3:51:25 PM
Ethylbenzene	ND	0.050	mg/Kg	1	7/15/2019 3:51:25 PM
Xylenes, Total	ND	0.10	mg/Kg	1	7/15/2019 3:51:25 PM
Surr: 4-Bromofluorobenzene	95.2	80-120	%Rec	1	7/15/2019 3:51:25 PM
EPA METHOD 300.0: ANIONS					Analyst: MRA
Chloride	2600	150	mg/Kg	50	7/18/2019 2:53:24 PM

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

Qualifiers:

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

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

Page 9 of 26

Lab Order 1907601

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 7/19/2019

CLIENT: Marathon Oil Company Client Sample ID: TP19-10 4'

 Project:
 Trebuchet Fec 23 28 19
 Collection Date: 7/10/2019 10:20:00 AM

 Lab ID:
 1907601-010
 Matrix: SOIL
 Received Date: 7/12/2019 7:50:00 AM

Analyses	Result	RL Qua	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGA	Analyst: BRM				
Diesel Range Organics (DRO)	ND	8.2	mg/Kg	1	7/16/2019 5:35:57 AM
Motor Oil Range Organics (MRO)	ND	41	mg/Kg	1	7/16/2019 5:35:57 AM
Surr: DNOP	92.4	70-130	%Rec	1	7/16/2019 5:35:57 AM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	7/15/2019 4:14:16 PM
Surr: BFB	107	73.8-119	%Rec	1	7/15/2019 4:14:16 PM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	0.025	mg/Kg	1	7/15/2019 4:14:16 PM
Toluene	ND	0.049	mg/Kg	1	7/15/2019 4:14:16 PM
Ethylbenzene	ND	0.049	mg/Kg	1	7/15/2019 4:14:16 PM
Xylenes, Total	ND	0.098	mg/Kg	1	7/15/2019 4:14:16 PM
Surr: 4-Bromofluorobenzene	94.7	80-120	%Rec	1	7/15/2019 4:14:16 PM
EPA METHOD 300.0: ANIONS					Analyst: MRA
Chloride	1600	60	mg/Kg	20	7/17/2019 12:23:37 PM

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

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- $ND \qquad Not \ Detected \ at \ the \ Reporting \ Limit$
- 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

Lab Order 1907601

Date Reported: 7/19/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company Client Sample ID: TP19-11 4'

 Project:
 Trebuchet Fec 23 28 19
 Collection Date: 7/10/2019 10:30:00 AM

 Lab ID:
 1907601-011
 Matrix: SOIL
 Received Date: 7/12/2019 7:50:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORG	SANICS				Analyst: BRM
Diesel Range Organics (DRO)	ND	8.4	mg/Kg	1	7/16/2019 5:58:16 AM
Motor Oil Range Organics (MRO)	ND	42	mg/Kg	1	7/16/2019 5:58:16 AM
Surr: DNOP	101	70-130	%Rec	1	7/16/2019 5:58:16 AM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.0	mg/Kg	1	7/15/2019 4:37:06 PM
Surr: BFB	105	73.8-119	%Rec	1	7/15/2019 4:37:06 PM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	0.025	mg/Kg	1	7/15/2019 4:37:06 PM
Toluene	ND	0.050	mg/Kg	1	7/15/2019 4:37:06 PM
Ethylbenzene	ND	0.050	mg/Kg	1	7/15/2019 4:37:06 PM
Xylenes, Total	ND	0.10	mg/Kg	1	7/15/2019 4:37:06 PM
Surr: 4-Bromofluorobenzene	94.0	80-120	%Rec	1	7/15/2019 4:37:06 PM
EPA METHOD 300.0: ANIONS					Analyst: MRA
Chloride	1700	60	mg/Kg	20	7/17/2019 12:36:02 PM

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

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- $ND \qquad Not \ Detected \ at \ the \ Reporting \ Limit$
- PQL Practical Quanitative Limit

- 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

Lab Order **1907601**

Date Reported: 7/19/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company Client Sample ID: TP19-12 4'

 Project:
 Trebuchet Fec 23 28 19
 Collection Date: 7/10/2019 10:40:00 AM

 Lab ID:
 1907601-012
 Matrix: SOIL
 Received Date: 7/12/2019 7:50:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OR	Analyst: BRM				
Diesel Range Organics (DRO)	ND	8.2	mg/Kg	1	7/16/2019 6:20:29 AM
Motor Oil Range Organics (MRO)	ND	41	mg/Kg	1	7/16/2019 6:20:29 AM
Surr: DNOP	83.8	70-130	%Rec	1	7/16/2019 6:20:29 AM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	7/16/2019 7:55:29 PM
Surr: BFB	100	73.8-119	%Rec	1	7/16/2019 7:55:29 PM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	0.024	mg/Kg	1	7/16/2019 7:55:29 PM
Toluene	ND	0.049	mg/Kg	1	7/16/2019 7:55:29 PM
Ethylbenzene	ND	0.049	mg/Kg	1	7/16/2019 7:55:29 PM
Xylenes, Total	ND	0.098	mg/Kg	1	7/16/2019 7:55:29 PM
Surr: 4-Bromofluorobenzene	87.9	80-120	%Rec	1	7/16/2019 7:55:29 PM
EPA METHOD 300.0: ANIONS					Analyst: MRA
Chloride	1800	60	mg/Kg	20	7/18/2019 10:20:24 AM

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

Qualifiers:

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

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

Page 12 of 26

Lab Order **1907601**

Date Reported: 7/19/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company

Client Sample ID: TP19-13 4'

 Project:
 Trebuchet Fec 23 28 19
 Collection Date: 7/10/2019 11:00:00 AM

 Lab ID:
 1907601-014
 Matrix: SOIL
 Received Date: 7/12/2019 7:50:00 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 7/16/2019 6:42:32 AM Motor Oil Range Organics (MRO) 7/16/2019 6:42:32 AM ND 47 mg/Kg 1 Surr: DNOP 84.3 70-130 %Rec 1 7/16/2019 6:42:32 AM **EPA METHOD 8015D: GASOLINE RANGE** Analyst: NSB Gasoline Range Organics (GRO) ND 7/15/2019 4:59:55 PM 4.9 mg/Kg 1 Surr: BFB 104 73.8-119 %Rec 1 7/15/2019 4:59:55 PM **EPA METHOD 8021B: VOLATILES** Analyst: NSB Benzene ND 7/15/2019 4:59:55 PM 0.025 mg/Kg 1 Toluene 0.049 ND mg/Kg 1 7/15/2019 4:59:55 PM Ethylbenzene ND 0.049 mg/Kg 1 7/15/2019 4:59:55 PM Xylenes, Total ND 0.099 mg/Kg 1 7/15/2019 4:59:55 PM 7/15/2019 4:59:55 PM Surr: 4-Bromofluorobenzene 91.6 80-120 %Rec 1 **EPA METHOD 300.0: ANIONS** Analyst: MRA Chloride 1900 60 7/17/2019 12:48:26 PM ma/Ka 20

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

Qualifiers:

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

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

Page 13 of 26

Lab Order **1907601**

Date Reported: 7/19/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company Client Sample ID: TP19-14 4'

 Project:
 Trebuchet Fec 23 28 19
 Collection Date: 7/10/2019 11:10:00 AM

 Lab ID:
 1907601-015
 Matrix: SOIL
 Received Date: 7/12/2019 7:50:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OF	Analyst: BRM				
Diesel Range Organics (DRO)	ND	8.6	mg/Kg	1	7/16/2019 7:04:38 AM
Motor Oil Range Organics (MRO)	ND	43	mg/Kg	1	7/16/2019 7:04:38 AM
Surr: DNOP	84.5	70-130	%Rec	1	7/16/2019 7:04:38 AM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.0	mg/Kg	1	7/15/2019 5:22:43 PM
Surr: BFB	104	73.8-119	%Rec	1	7/15/2019 5:22:43 PM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	0.025	mg/Kg	1	7/15/2019 5:22:43 PM
Toluene	ND	0.050	mg/Kg	1	7/15/2019 5:22:43 PM
Ethylbenzene	ND	0.050	mg/Kg	1	7/15/2019 5:22:43 PM
Xylenes, Total	ND	0.099	mg/Kg	1	7/15/2019 5:22:43 PM
Surr: 4-Bromofluorobenzene	93.0	80-120	%Rec	1	7/15/2019 5:22:43 PM
EPA METHOD 300.0: ANIONS					Analyst: MRA
Chloride	2300	150	mg/Kg	50	7/18/2019 3:05:49 PM

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

Qualifiers:

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

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

Page 14 of 26

Lab Order **1907601**

Date Reported: 7/19/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company Client Sample ID: TP19-15 4'

 Project:
 Trebuchet Fec 23 28 19
 Collection Date: 7/10/2019 11:20:00 AM

 Lab ID:
 1907601-016
 Matrix: SOIL
 Received Date: 7/12/2019 7:50:00 AM

Analyses	Result	RL Q	ual Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OR	GANICS				Analyst: BRM
Diesel Range Organics (DRO)	ND	9.7	mg/Kg	1	7/16/2019 7:26:47 AM
Motor Oil Range Organics (MRO)	ND	48	mg/Kg	1	7/16/2019 7:26:47 AM
Surr: DNOP	84.9	70-130	%Rec	1	7/16/2019 7:26:47 AM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	7/15/2019 5:45:29 PM
Surr: BFB	106	73.8-119	%Rec	1	7/15/2019 5:45:29 PM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	0.025	mg/Kg	1	7/15/2019 5:45:29 PM
Toluene	ND	0.049	mg/Kg	1	7/15/2019 5:45:29 PM
Ethylbenzene	ND	0.049	mg/Kg	1	7/15/2019 5:45:29 PM
Xylenes, Total	ND	0.099	mg/Kg	1	7/15/2019 5:45:29 PM
Surr: 4-Bromofluorobenzene	92.8	80-120	%Rec	1	7/15/2019 5:45:29 PM
EPA METHOD 300.0: ANIONS					Analyst: MRA
Chloride	2000	60	mg/Kg	20	7/17/2019 1:38:03 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
- $ND \qquad Not \ Detected \ at \ the \ Reporting \ Limit$
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

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

Page 15 of 26

Lab Order **1907601**

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 7/19/2019

CLIENT: Marathon Oil Company Client Sample ID: TP19-16 4'

 Project:
 Trebuchet Fec 23 28 19
 Collection Date: 7/10/2019 11:30:00 AM

 Lab ID:
 1907601-017
 Matrix: SOIL
 Received Date: 7/12/2019 7:50:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OR	GANICS				Analyst: BRM
Diesel Range Organics (DRO)	ND	9.0	mg/Kg	1	7/16/2019 7:49:07 AM
Motor Oil Range Organics (MRO)	ND	45	mg/Kg	1	7/16/2019 7:49:07 AM
Surr: DNOP	84.2	70-130	%Rec	1	7/16/2019 7:49:07 AM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	7/15/2019 6:08:14 PM
Surr: BFB	107	73.8-119	%Rec	1	7/15/2019 6:08:14 PM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	0.025	mg/Kg	1	7/15/2019 6:08:14 PM
Toluene	ND	0.049	mg/Kg	1	7/15/2019 6:08:14 PM
Ethylbenzene	ND	0.049	mg/Kg	1	7/15/2019 6:08:14 PM
Xylenes, Total	ND	0.099	mg/Kg	1	7/15/2019 6:08:14 PM
Surr: 4-Bromofluorobenzene	94.3	80-120	%Rec	1	7/15/2019 6:08:14 PM
EPA METHOD 300.0: ANIONS					Analyst: MRA
Chloride	1800	60	mg/Kg	20	7/17/2019 1:50:27 PM

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

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- $ND \qquad Not \ Detected \ at \ the \ Reporting \ Limit$
- PQL Practical Quanitative Limit

- 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

Lab Order **1907601**

Date Reported: 7/19/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company Client Sample ID: SS19-17 0'

Project: Trebuchet Fec 23 28 19 **Collection Date:** 7/10/2019 11:40:00 AM

Lab ID: 1907601-018 **Matrix:** SOIL **Received Date:** 7/12/2019 7:50:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE C	RGANICS				Analyst: BRM
Diesel Range Organics (DRO)	ND	10	mg/Kg	1	7/16/2019 8:33:41 AM
Motor Oil Range Organics (MRO)	ND	50	mg/Kg	1	7/16/2019 8:33:41 AM
Surr: DNOP	93.9	70-130	%Rec	1	7/16/2019 8:33:41 AM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.0	mg/Kg	1	7/15/2019 6:30:58 PM
Surr: BFB	106	73.8-119	%Rec	1	7/15/2019 6:30:58 PM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	0.025	mg/Kg	1	7/15/2019 6:30:58 PM
Toluene	ND	0.050	mg/Kg	1	7/15/2019 6:30:58 PM
Ethylbenzene	ND	0.050	mg/Kg	1	7/15/2019 6:30:58 PM
Xylenes, Total	ND	0.099	mg/Kg	1	7/15/2019 6:30:58 PM
Surr: 4-Bromofluorobenzene	91.8	80-120	%Rec	1	7/15/2019 6:30:58 PM
EPA METHOD 300.0: ANIONS					Analyst: MRA
Chloride	130	60	mg/Kg	20	7/17/2019 2:02:52 PM

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

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- $ND \qquad Not \ Detected \ at \ the \ Reporting \ Limit$
- 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

Lab Order **1907601**

Date Reported: 7/19/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company Client Sample ID: SS19-18 0'

 Project:
 Trebuchet Fec 23 28 19
 Collection Date: 7/10/2019 11:50:00 AM

 Lab ID:
 1907601-019
 Matrix: SOIL
 Received Date: 7/12/2019 7:50:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE O	RGANICS				Analyst: BRM
Diesel Range Organics (DRO)	ND	9.4	mg/Kg	1	7/16/2019 8:55:53 AM
Motor Oil Range Organics (MRO)	ND	47	mg/Kg	1	7/16/2019 8:55:53 AM
Surr: DNOP	83.2	70-130	%Rec	1	7/16/2019 8:55:53 AM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.0	mg/Kg	1	7/15/2019 7:39:09 PM
Surr: BFB	107	73.8-119	%Rec	1	7/15/2019 7:39:09 PM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	0.025	mg/Kg	1	7/15/2019 7:39:09 PM
Toluene	ND	0.050	mg/Kg	1	7/15/2019 7:39:09 PM
Ethylbenzene	ND	0.050	mg/Kg	1	7/15/2019 7:39:09 PM
Xylenes, Total	ND	0.10	mg/Kg	1	7/15/2019 7:39:09 PM
Surr: 4-Bromofluorobenzene	96.3	80-120	%Rec	1	7/15/2019 7:39:09 PM
EPA METHOD 300.0: ANIONS					Analyst: MRA
Chloride	87	60	mg/Kg	20	7/17/2019 2:15:16 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
- $ND \qquad Not \ Detected \ at \ the \ Reporting \ Limit$
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

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

Page 18 of 26

Lab Order 1907601

Date Reported: 7/19/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company

Client Sample ID: SS19-19 0'

 Project:
 Trebuchet Fec 23 28 19
 Collection Date: 7/10/2019 12:00:00 PM

 Lab ID:
 1907601-020
 Matrix: SOIL
 Received Date: 7/12/2019 7:50:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORG	GANICS				Analyst: BRM
Diesel Range Organics (DRO)	ND	10	mg/Kg	1	7/16/2019 9:18:10 AM
Motor Oil Range Organics (MRO)	ND	50	mg/Kg	1	7/16/2019 9:18:10 AM
Surr: DNOP	89.6	70-130	%Rec	1	7/16/2019 9:18:10 AM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.0	mg/Kg	1	7/15/2019 8:01:50 PM
Surr: BFB	104	73.8-119	%Rec	1	7/15/2019 8:01:50 PM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	0.025	mg/Kg	1	7/15/2019 8:01:50 PM
Toluene	ND	0.050	mg/Kg	1	7/15/2019 8:01:50 PM
Ethylbenzene	ND	0.050	mg/Kg	1	7/15/2019 8:01:50 PM
Xylenes, Total	ND	0.099	mg/Kg	1	7/15/2019 8:01:50 PM
Surr: 4-Bromofluorobenzene	92.0	80-120	%Rec	1	7/15/2019 8:01:50 PM
EPA METHOD 300.0: ANIONS					Analyst: MRA
Chloride	290	60	mg/Kg	20	7/17/2019 2:27:40 PM

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

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- $ND \qquad Not \ Detected \ at \ the \ Reporting \ Limit$
- 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

Client:

Hall Environmental Analysis Laboratory, Inc.

Marathon Oil Company

WO#: **1907601**

19-Jul-19

	chet Fec 23 28 19			
Sample ID: MB-46214	SampType: mblk	TestCode: EPA Method	300.0: Anions	
Client ID: PBS	Batch ID: 46214	RunNo: 61409		
Prep Date: 7/16/2019	Analysis Date: 7/16/2019	SeqNo: 2082660	Units: mg/Kg	
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit	HighLimit %RPD	RPDLimit Qual
Chloride	ND 1.5			
Sample ID: LCS-46214	SampType: Ics	TestCode: EPA Method	300.0: Anions	
Client ID: LCSS	Batch ID: 46214	RunNo: 61409		
Prep Date: 7/16/2019	Analysis Date: 7/16/2019	SeqNo: 2082661	Units: mg/Kg	
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit	HighLimit %RPD	RPDLimit Qual
Chloride	14 1.5 15.00	0 93.8 90	110	
Sample ID: MB-46223	SampType: mblk	TestCode: EPA Method	300.0: Anions	
Client ID: PBS	Batch ID: 46223	RunNo: 61446		
Prep Date: 7/17/2019	Analysis Date: 7/17/2019	SeqNo: 2083563	Units: mg/Kg	
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit	HighLimit %RPD	RPDLimit Qual
Chloride	ND 1.5			
Sample ID: LCS-46223	SampType: Ics	TestCode: EPA Method	300.0: Anions	
Client ID: LCSS	Batch ID: 46223	RunNo: 61446		
Prep Date: 7/17/2019	Analysis Date: 7/17/2019	SeqNo: 2083564	Units: mg/Kg	
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit	HighLimit %RPD	RPDLimit Qual
Chloride	14 1.5 15.00	0 94.1 90	110	
Sample ID: MB-46246	SampType: mblk	TestCode: EPA Method	300.0: Anions	
Client ID: PBS	Batch ID: 46246	RunNo: 61473		
Prep Date: 7/18/2019	Analysis Date: 7/18/2019	SeqNo: 2084960	Units: mg/Kg	
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit	HighLimit %RPD	RPDLimit Qual
Chloride	ND 1.5			
Sample ID: LCS-46246	SampType: Ics	TestCode: EPA Method	300.0: Anions	
Client ID: LCSS	Batch ID: 46246	RunNo: 61473		
Prep Date: 7/18/2019	Analysis Date: 7/18/2019	SeqNo: 2084961	Units: mg/Kg	
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit	HighLimit %RPD	RPDLimit Qual
Chloride	14 1.5 15.00	0 93.1 90	110	

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

Page 20 of 26

Client:

Project:

Hall Environmental Analysis Laboratory, Inc.

Marathon Oil Company

Trebuchet Fec 23 28 19

WO#: **1907601**

19-Jul-19

Sample ID: LCS-46156 SampType: LCS TestCode: EPA Method 8015M/D: Diesel Range Organics
Prep Date: 7/12/2019 Analysis Date: 7/13/2019 SeqNo: 2080458 Units: mg/Kg Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Quality Diesel Range Organics (DRO) 57 10 50.00 0 115 63.9 124 Surr: DNOP 5.4 5.000 108 70 130 Sample ID: MB-46156 SampType: MBLK TestCode: EPA Method 8015M/D: Diesel Range Organics Client ID: PBS Batch ID: 46156 RunNo: 61377 Prep Date: 7/12/2019 Analysis Date: 7/13/2019 SeqNo: 2080459 Units: mg/Kg Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Quality Diesel Range Organics (DRO) ND 10 ND 10 ND 10 ND 10 ND 10 ND 10 ND 130 ND 10 N
Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Quality Diesel Range Organics (DRO) 57 10 50.00 0 115 63.9 124 Surr: DNOP 5.4 5.000 108 70 130 SampType: MBLK TestCode: EPA Method 8015M/D: Diesel Range Organics Client ID: PBS Batch ID: 46156 RunNo: 61377 Prep Date: 7/12/2019 Analysis Date: 7/13/2019 SeqNo: 2080459 Units: mg/Kg Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPDLimit Quality Diesel Range Organics (DRO) ND 10 ND 10 Surr: DNOP 13 10.00 127 70 130 SampType: LCS TestCode: EPA Method 8015M/D: Diesel Range Organics Client ID: LCSS<
Diesel Range Organics (DRO) 57 10 50.00 0 115 63.9 124 Surr: DNOP 5.4 5.000 108 70 130 Sample ID: MB-46156 SampType: MBLK TestCode: EPA Method 8015M/D: Diesel Range Organics Client ID: PBS Batch ID: 46156 RunNo: 61377 Prep Date: 7/12/2019 Analysis Date: 7/13/2019 SeqNo: 2080459 Units: mg/Kg Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Quality Diesel Range Organics (DRO) ND 10 Motor Oil Range Organics (MRO) ND 50 Surr: DNOP 13 10.00 127 70 130 Sample ID: LCS-46194 SampType: LCS TestCode: EPA Method 8015M/D: Diesel Range Organics Client ID: LCSS Batch ID: 46194 RunNo: 61390
Surr: DNOP 5.4 5.000 108 70 130 Sample ID: MB-46156 SampType: MBLK TestCode: EPA Method 8015M/D: Diesel Range Organics Client ID: PBS Batch ID: 46156 RunNo: 61377 Prep Date: 7/12/2019 Analysis Date: 7/13/2019 SeqNo: 2080459 Units: mg/Kg Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Quality Quality Diesel Range Organics (DRO) ND 10 Motor Oil Range Organics (MRO) ND 50 Surr: DNOP 13 10.00 127 70 130 Sample ID: LCS-46194 SampType: LCS TestCode: EPA Method 8015M/D: Diesel Range Organics Client ID: LCSS Batch ID: 46194 RunNo: 61390
Sample ID: MB-46156 SampType: MBLK TestCode: EPA Method 8015M/D: Diesel Range Organics Client ID: PBS Batch ID: 46156 RunNo: 61377 Prep Date: 7/12/2019 Analysis Date: 7/13/2019 SeqNo: 2080459 Units: mg/Kg Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Queblesel Range Organics (DRO) Motor Oil Range Organics (MRO) Surr: DNOP 13 10.00 127 70 130 Sample ID: LCS-46194 SampType: LCS TestCode: EPA Method 8015M/D: Diesel Range Organics Client ID: LCSS Batch ID: 46194 RunNo: 61390
Client ID: PBS Batch ID: 46156 RunNo: 61377 Prep Date: 7/12/2019 Analysis Date: 7/13/2019 SeqNo: 2080459 Units: mg/Kg Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Que Diesel Range Organics (DRO) ND 10 Motor Oil Range Organics (MRO) ND 50 Surr: DNOP 13 10.00 127 70 130 Sample ID: LCS-46194 SampType: LCS TestCode: EPA Method 8015M/D: Diesel Range Organics Client ID: LCSS Batch ID: 46194 RunNo: 61390
Prep Date: 7/12/2019 Analysis Date: 7/13/2019 SeqNo: 2080459 Units: mg/Kg Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Question Diesel Range Organics (DRO) ND 10 Motor Oil Range Organics (MRO) ND 50 Surr: DNOP 13 10.00 127 70 130 Sample ID: LCS-46194 SampType: LCS TestCode: EPA Method 8015M/D: Diesel Range Organics Client ID: LCSS Batch ID: 46194 RunNo: 61390
Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit QUE Diesel Range Organics (DRO) ND 10 Motor Oil Range Organics (MRO) ND 50 Surr: DNOP 13 10.00 127 70 130 Sample ID: LCS-46194 SampType: LCS TestCode: EPA Method 8015M/D: Diesel Range Organics Client ID: LCSS Batch ID: 46194 RunNo: 61390
Diesel Range Organics (DRO) Motor Oil Range Organics (MRO) Surr: DNOP Sample ID: LCS-46194 Client ID: LCSS Batch ID: 46194 ND 10 ND 10 ND 10 ND 127 70 130 TestCode: EPA Method 8015M/D: Diesel Range Organics RunNo: 61390
Motor Oil Range Organics (MRO) ND 50 Surr: DNOP 13 10.00 127 70 130 Sample ID: LCS-46194 SampType: LCS TestCode: EPA Method 8015M/D: Diesel Range Organics Client ID: LCSS Batch ID: 46194 RunNo: 61390
Surr: DNOP 13 10.00 127 70 130 Sample ID: LCS-46194 SampType: LCS TestCode: EPA Method 8015M/D: Diesel Range Organics Client ID: LCSS Batch ID: 46194 RunNo: 61390
Sample ID: LCS-46194 SampType: LCS TestCode: EPA Method 8015M/D: Diesel Range Organics Client ID: LCSS Batch ID: 46194 RunNo: 61390
Client ID: LCSS Batch ID: 46194 RunNo: 61390
Prep Date: 7/16/2019 Analysis Date: 7/16/2019 SeqNo: 2081502 Units: %Rec
Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qu
Surr: DNOP 4.6 5.000 92.0 70 130
Sample ID: MB-46194 SampType: MBLK TestCode: EPA Method 8015M/D: Diesel Range Organics
Client ID: PBS Batch ID: 46194 RunNo: 61390
Prep Date: 7/16/2019 Analysis Date: 7/16/2019 SeqNo: 2081503 Units: %Rec
Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qu
Surr: DNOP 9.8 10.00 97.7 70 130
Sample ID: 1907601-020AMS SampType: MS TestCode: EPA Method 8015M/D: Diesel Range Organics
Client ID: SS19-19 0' Batch ID: 46167 RunNo: 61384
Client ID: SS19-19 0' Batch ID: 46167 RunNo: 61384 Prep Date: 7/13/2019 Analysis Date: 7/16/2019 SeqNo: 2081604 Units: mg/Kg
Prep Date: 7/13/2019 Analysis Date: 7/16/2019 SeqNo: 2081604 Units: mg/Kg Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Quality Diesel Range Organics (DRO) 50 9.5 47.26 2.198 101 57 142
Prep Date: 7/13/2019 Analysis Date: 7/16/2019 SeqNo: 2081604 Units: mg/Kg Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qu
Prep Date: 7/13/2019 Analysis Date: 7/16/2019 SeqNo: 2081604 Units: mg/Kg Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Quality Diesel Range Organics (DRO) 50 9.5 47.26 2.198 101 57 142
Prep Date: 7/13/2019 Analysis Date: 7/16/2019 SeqNo: 2081604 Units: mg/Kg Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Quality Diesel Range Organics (DRO) 50 9.5 47.26 2.198 101 57 142 Surr: DNOP 3.8 4.726 80.3 70 130
Prep Date: 7/13/2019 Analysis Date: 7/16/2019 SeqNo: 2081604 Units: mg/Kg Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Quality Diesel Range Organics (DRO) 50 9.5 47.26 2.198 101 57 142 Surr: DNOP 3.8 4.726 80.3 70 130 Sample ID: 1907601-020AMSD SampType: MSD TestCode: EPA Method 8015M/D: Diesel Range Organics
Prep Date: 7/13/2019 Analysis Date: 7/16/2019 SeqNo: 2081604 Units: mg/Kg Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Quality Diesel Range Organics (DRO) 50 9.5 47.26 2.198 101 57 142 Surr: DNOP 3.8 4.726 80.3 70 130 Sample ID: 1907601-020AMSD SampType: MSD TestCode: EPA Method 8015M/D: Diesel Range Organics Client ID: SS19-19 0' Batch ID: 46167 RunNo: 61384

Qualifiers:

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

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

Page 21 of 26

Hall Environmental Analysis Laboratory, Inc.

4.2

WO#: **1907601**

19-Jul-19

Client: Marathon Oil Company
Project: Trebuchet Fec 23 28 19

Sample ID: 1907601-020AMSD SampType: MSD TestCode: EPA Method 8015M/D: Diesel Range Organics

Client ID: **\$\$19-19 0'** Batch ID: **46167** RunNo: **61384**

Prep Date: 7/13/2019 Analysis Date: 7/16/2019 SegNo: 2081605 Units: mg/Kg

5.000

SPK value SPK Ref Val %REC HighLimit %RPD **RPDLimit** Analyte Result LowLimit Qual Surr: DNOP 4.2 4.840 87.5 70 130 Λ Λ

Sample ID: LCS-46167 SampType: LCS TestCode: EPA Method 8015M/D: Diesel Range Organics Client ID: LCSS Batch ID: 46167 RunNo: 61384 Prep Date: 7/13/2019 Analysis Date: 7/16/2019 SeqNo: 2081606 Units: mg/Kg SPK value SPK Ref Val %REC HighLimit %RPD **RPDLimit** Analyte Result LowLimit Qual Diesel Range Organics (DRO) 53 10 50.00 0 106 63.9 124

84.4

70

130

Sample ID: MB-46167 SampType: MBLK TestCode: EPA Method 8015M/D: Diesel Range Organics Client ID: PBS Batch ID: 46167 RunNo: 61384 Prep Date: 7/13/2019 Analysis Date: 7/16/2019 SeqNo: 2081607 Units: mg/Kg Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual

Diesel Range Organics (DRO) ND 10
Motor Oil Range Organics (MRO) ND 50

Surr: DNOP 9.2 10.00 91.6 70 130

Qualifiers:

Surr: DNOP

Value exceeds Maximum Contaminant 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

Client:

Hall Environmental Analysis Laboratory, Inc.

Marathon Oil Company

WO#: **1907601**

19-Jul-19

Project:	Trebuche	t Fec 23 28	3 19								
Sample ID:	MB-46155	SampT	ype: Mi	BLK	Tes	tCode: EF	PA Method	8015D: Gaso	oline Rang	e	
Client ID:	PBS	Batch	ID: 46	155	F	RunNo: 6 ′	1374				
Prep Date:	7/12/2019	Analysis D	ate: 7 /	/16/2019	S	SeqNo: 20	080717	Units: mg/k	(g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Surr: BFB	ge Organics (GRO)	ND 940	5.0	1000		93.6	73.8	119			
Sample ID:	LCS-46155	SampT	ype: LC	s	Tes	tCode: EF	PA Method	8015D: Gaso	line Rang	e	
Client ID:	LCSS	Batch	ID: 46	155	F	RunNo: 6	1374				
Prep Date:	7/12/2019	Analysis D	ate: 7/	/15/2019	S	SeqNo: 20	080718	Units: mg/k	(g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Surr: BFB	ge Organics (GRO)	21 1200	5.0	25.00 1000	0	84.5 119	80.1 73.8	123 119			S
Sample ID:	1907601-001AMS	SampT	ype: M \$	S	Tes	tCode: EF	PA Method	8015D: Gaso	oline Rang	e	
Client ID:	TP19-01 2'	Batch	ID: 46	155	F	RunNo: 6	1374				
Prep Date:	7/12/2019	Analysis D	ate: 7 /	/16/2019	S	SeqNo: 20	080721	Units: mg/k	(g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Surr: BFB	ge Organics (GRO)	18 1000	4.9	24.44 977.5	0	74.0 104	69.1 73.8	142 119			
Sample ID:	1907601-001AMSE	SampT	ype: M \$	SD	Tes	tCode: EF	PA Method	8015D: Gaso	line Rang	e	
Client ID:	TP19-01 2'	Batch	ID: 46	155	F	RunNo: 6	1374				
Prep Date:	7/12/2019	Analysis D	ate: 7 /	/16/2019	S	SeqNo: 20	080722	Units: mg/k	(g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Surr: BFB	ge Organics (GRO)	19 1000	4.9	24.68 987.2	0	76.5 104	69.1 73.8	142 119	4.28 0	20 0	
Sample ID:	MB-46184	SampT	ype: MI	BLK	Tes	tCode: EF	PA Method	8015D: Gaso	line Rang	e	
Client ID:	PBS	Batch	ID: 46	184	F	RunNo: 6	1408				
Prep Date:	7/15/2019	Analysis D	ate: 7 /	/16/2019	S	SeqNo: 20	081931	Units: mg/k	(g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Rango Surr: BFB	ge Organics (GRO)	ND 1100	5.0	1000		106	73.8	119			
	LCS-46184	SampT	ype: LC	:s	Tes	tCode: EF	PA Method	8015D: Gaso	oline Rang	e	
Sample ID:											
Sample ID: Client ID:		Batch	ID: 46	184	F	RunNo: 6	1408				
Client ID:		Batch Analysis D				RunNo: 6 1 SeqNo: 2 (Units: mg/k	(g		

- Value exceeds Maximum Contaminant 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, Inc.

WO#: **1907601**

19-Jul-19

Client: Marathon Oil Company
Project: Trebuchet Fec 23 28 19

Sample ID: LCS-46184 SampType: LCS TestCode: EPA Method 8015D: Gasoline Range

Client ID: LCSS Batch ID: 46184 RunNo: 61408

Prep Date: 7/15/2019 Analysis Date: 7/16/2019 SeqNo: 2081932 Units: mg/Kg

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Gasoline Range Organics (GRO) 0 80.1 24 5.0 25.00 95.5 123 Surr: BFB 1200 1000 120 73.8 119 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

Hall Environmental Analysis Laboratory, Inc.

WO#: **1907601**

19-Jul-19

Client: Marathon Oil Company
Project: Trebuchet Fec 23 28 19

Sample ID: MB-46155 SampType: MBLK TestCode: EPA Method 8021B: Volatiles Client ID: PBS Batch ID: 46155 RunNo: 61374 Prep Date: 7/12/2019 Analysis Date: 7/16/2019 SeqNo: 2080750 Units: mq/Kq PQL SPK value SPK Ref Val %REC %RPD **RPDLimit** Analyte LowLimit HighLimit Qual Benzene ND 0.025 Toluene ND 0.050 0.050 Ethylbenzene ND Xylenes, Total ND 0.10 Surr: 4-Bromofluorobenzene 0.95 1.000 95.1 80 120

Sample ID: LCS-46155 SampType: LCS TestCode: EPA Method 8021B: Volatiles Client ID: LCSS Batch ID: 46155 RunNo: 61374 Analysis Date: 7/15/2019 SeqNo: 2080751 Prep Date: 7/12/2019 Units: mg/Kg PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual 1.000 0.99 0.025 n 98.8 80 120 Benzene Toluene 1.0 0.050 1.000 0 102 80 120 0 101 80 0.050 1.000 120 Ethylbenzene 1.0 0 100 Xylenes, Total 3.0 0.10 3.000 80 120 Surr: 4-Bromofluorobenzene 0.98 1.000 97.5 80 120

Sample ID: 1907601-002AMS SampType: MS TestCode: EPA Method 8021B: Volatiles Client ID: TP19-02 2' Batch ID: 46155 RunNo: 61374 Prep Date: 7/12/2019 Analysis Date: 7/16/2019 SeqNo: 2080754 Units: mg/Kg Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual 91.3 0.89 0.024 0.9785 n 63.9 127 Benzene Toluene 0.94 0.049 0.9785 0.009566 95.1 69.9 131 96.9 71 Ethylbenzene 0.95 0.049 0.9785 0 132 Xylenes, Total 2.8 0.098 2.935 0 96.6 71.8 131 Surr: 4-Bromofluorobenzene 98.5 0.96 0.9785 80 120

TestCode: EPA Method 8021B: Volatiles Sample ID: 1907601-002AMSD SampType: MSD Client ID: TP19-02 2' Batch ID: 46155 RunNo: 61374 Prep Date: 7/12/2019 Analysis Date: 7/16/2019 SeqNo: 2080755 Units: mg/Kg SPK value SPK Ref Val %REC HighLimit **RPDLimit** Analyte Result PQL LowLimit %RPD Qual 0.82 0.024 0.9766 0 84.0 63.9 127 8.44 20 Benzene Toluene 0.91 0.049 0.9766 0.009566 92.0 69.9 131 3.42 20 Ethylbenzene 0.92 0.049 0.9766 0 94 2 71 132 3.01 20 Xylenes, Total 2.7 0.098 2.930 0 93.7 71.8 131 3.21 20 Surr: 4-Bromofluorobenzene 0.97 0.9766 99.6 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

Page 25 of 26

Hall Environmental Analysis Laboratory, Inc.

WO#: **1907601**

19-Jul-19

Client: Marathon Oil Company
Project: Trebuchet Fec 23 28 19

Sample ID: MB-46184 SampType: MBLK TestCode: EPA Method 8021B: Volatiles Client ID: PBS Batch ID: 46184 RunNo: 61408 Prep Date: 7/15/2019 Analysis Date: 7/16/2019 SeqNo: 2081946 Units: mg/Kg Analyte PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Result Benzene ND 0.025 Toluene ND 0.050 Ethylbenzene ND 0.050 Xylenes, Total ND 0.10 0.92 1.000 92.3 80 120 Surr: 4-Bromofluorobenzene

Sample ID: LCS-46184	Samp	Гуре: LC	s	Tes	tCode: El	PA Method	8021B: Volat	tiles		
Client ID: LCSS	Batc	h ID: 46	184	F	RunNo: 6	1408				
Prep Date: 7/15/2019	Analysis [Date: 7/	16/2019	\$	SeqNo: 2	081947	Units: mg/K	(g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.98	0.025	1.000	0	97.6	80	120			
Toluene	1.0	0.050	1.000	0	99.6	80	120			
Ethylbenzene	0.97	0.050	1.000	0	97.2	80	120			
Xylenes, Total	2.9	0.10	3.000	0	97.6	80	120			
Surr: 4-Bromofluorobenzene	1.1		1.000		105	80	120			

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

Page 26 of 26



Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87109

Sample Log-In Check List

TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Client Name: MARATH	ION OIL COMPA	Work Order Number:	190	7601			RcptNo:	1
	Dominguez Dominguez	7/12/2019 7:50:00 AM 7/12/2019 9:37:44 AM			D D	2		
Chain of Custody 1. Is Chain of Custody con 2. How was the sample de			Yes <u>Cou</u>		No		Not Present 🗌	
Log In 3. Was an attempt made to	o cool the samples?		Yes	✓	No		NA 🗆	
4. Were all samples receiv	ed at a temperature o	of >0° C to 6.0°C	Yes	V	No		NA 🗆	
5. Sample(s) in proper con	tainer(s)?		Yes	✓	No			
Sufficient sample volume Are samples (except VO			Yes Yes	✓	No No			
8. Was preservative added	to bottles?		Yes		No	✓	NA 🗆	
9. VOA vials have zero hea	•	1?	Yes Yes		No No		No VOA Vials # of preserved	
11. Does paperwork match to (Note discrepancies on control of the			Yes	V	No		bottles checked for pH: (<2 op	12 unless noted)
12. Are matrices correctly id	- ·	custody?	Yes	✓	No		Adjusted?	
13. is it clear what analyses			Yes	✓	No			3 1 1 - 3 1 - 3 1 - 3
14. Were all holding times a (If no, notify customer fo			Yes	\checkmark	No		Checked by:	MM MAM
Special Handling (if a	oplicable)							
15. Was client notified of all	discrepancies with the	nis order?	Yes	$ \Delta' $	No		NA.	
Person Notified: By Whom: Regarding: Client Instructions	Dennis W Erin Helen I-Dizand-	vdrez Via:] eM	ail 🔀	Phone C) Fax	□ In Person 1. Soil Was Sub	mi HOJ,
16. Additional remarks:					-ENL	17/	17/61	I
17. Cooler Information Cooler No Temp* 1 5.1		al Intact Seal No S	Seal D	a. 1	Signed			

Chain-of-	ain-c	of-Cus	Chain-of-Custody Record	Turn-Around Time:	Time:	Solar			I	HALL ENVI ANALYSIS	E E		SZ	N N	HALL ENVIRONMENTAL ANALYSIS LABORATORY	TAL	. >
				Project Name:	e: Fec 23	bi 82				www.hallenvironmental.com	allenvi	ronme	intal.c	mo;			
g Ag	Mailing Address:	=======================================	S. Tibuell Road				•	1901 F	ławki	4901 Hawkins NE	- Alb	rdner	ue, δ	Albuquerque, NM 87109	60		
hodsly	لي الم	NM	18822	Project #: [4	E-02213			Tel. 5	05-34	Tel. 505-345-3975		ax 50	5-345	Fax 505-345-4107			
e #: *	375-	Phone #: 575 - 988-056	0561		ì						Analy	Analysis Request	sənbə	÷	,		
or Fa	1X#: i.G	Borteo	email or Fax#: i castro@narathonoil.com	Project Mana	Project Manager: Denns VIII Nems	Villams		(0		_	⁷ Ο		(ţu				
QA/QC Package:	kage:		Volidation)	Perminagy	ertex.c.	ferming vertex.cu Iscut Costro-icustro@inorathonoll.com	. (802)	CB. ²		SMIS	S ' [†] Od						
Accreditation:		7 Az Co	☐ Az Compliance	Sampler		trae.			()	072	O ^{s,} F		ļuəs		· <u>-</u>		
	<u>:</u>	Other		7	Modern Carter Company of the Company of the Carter Company of the	Laetra€ S □ No			.,₽05								
EDD (Type)	ype)			# of Coolers:					pc		ON						
				Cooler Temp(including cF);	5	5-0.4-5.1%			qje								
				Container	Preservative	# # #			M) 8	(d ≥H 8 АЯ		Λ) 02 Λ) 02	20 (Si				<u> </u>
Date Time		Matrix	Sample Name	Type and #	Type	# 60 - 60 F	_		ΕD		<u>(j.</u>						
7-10-Car 9:00	g	5	TP19-01 2']k,	re	-001	×	-			×χ						
7-10-Cay 9:10	0	5	TP19-02 2'	(Je-	أدو	-002	メ _.	-1			×						
7-16-209 9:	4:15	5	TP19-03 4'	1 Jm	نامي	-003	×				×						
7-10-20th 9:	g.3c	5	TP14-04 41	1 70-1	ice	-004	$\frac{\lambda}{\lambda}$				×						
7-6-70A 9:	4:50	2	7019-05 1.	- Tar	37:	-005	$\frac{\times}{\times}$. /			×						
7-10-2014 9:40	40	5	72 90-MAI	1 500	ž	- 00G	$\frac{\times}{\checkmark}$		_		×						
7-10-799 4:	4:50	5	7P19-07 4"	156)B.	-004	$\frac{\times}{\times}$			_	×						
7-6-201A (O:	(0:50	5	7819-08 S'	150	ia	- 008	×	,			×						
7-10-204 (0:	10: 10	5	17P14 - 09 4'	i Tar	نور	- 004	× ×				×						
7-10-Wy 10:50	3	~	TP19-10 4'	IJAN	ia	-010	×	メ			×						
7-10-04 10	8:0]	5	T819- 11 41	1561	ઝ!	110-	×	×			×						
7-102014 10	9	\sim	TO19- 12 4'	j Ja	ig	\	$\widehat{\prec}$	\times			×						
Time		Relinquished	ed by.	Received by:	Via:	Date Time	Remarks:	ks:									
7-11-224 7:45 AM	-			X	DOS	7(11/19 0752											
		Relipquished by	y O V	Received by:	<u>iā</u> :												
19 13	1300	11 D	III HOLDER	MA	The state of the s	2/11/11 1300				ļ							

If necessary, samples submitted by the subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report. 4:50 1900

Courier

Chain-of-Custody Record		Turn-Around Time:	ime:								1			į		
Client: Marathan (); (X Standard						ANALYSTS	ے با ج			AALL ENVIRONMENTAL ANALYSTS LABORATORY	Y E] C Z H	֓֞֝֝֓֞֝֓֞֝֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֡֝֝֓֓֓֓֓֝֡֡֝֝֡֡֝	
		O		94			1	WWW	haller	iviron		moo.) !		
Mailing Address: 4111 5. TI buell	inell Road	ころがあり	Fe 53 53 74	<u></u>		4901	Haw	4901 Hawkins NE		nbnqj	erque	- Albuquerque, NM 87109	7109			
Carlsbas, Nim 88220		Project #:	, ci c			Tel.	505-3	505-345-3975	5	Fax	505-3	505-345-4107	7			
Phone #: 575-988-0561		ાનું ા	19 = -0603						Ana	Analysis	Request	est	,			
email or Fax#: icastro @marathonall.com	honollien	Project Manag	ier: Dennis 1	Jill tums		(0			Ö			(ĵu				
QA/QC Package:		``	るなど				0.5	SIA	S 1			əsq				
☐ Standard ☐ Leve	□ Level 4 (Full Validation)	Isaac Castro	o icasho@	icastro@ Maathon oil.com				IIS0	Od			A\Jr				
			Abt	96	E	3082 		728	NO ⁵ '			ləsə.				
□ NELAC □ Other		On Ice:		ON								ld)				
□ EDD (Type)		# of Coolers: (IBE							w.c				
HUELDH	711719	Cooler Temp(maluangen: 5,5-0,4= <	oluding OF): S	5-0.455, Pe								olifc				
per Jase	Jason	Container	Preservative	FAL No.	€ X∃		B (M		3 AЯ 3 +∓	V) 08	s) 0,	al Co				
Date Time Matrix Sample	Sample Name	#	Type	1907-001					_	-~		ĵоТ 				
1-MAL S 05:01302-07-6		1 Fr	33,	-013)×	V)×							ll
7-6-200 11:00 5 TP1A-	13 4	1 Jer	ž	hIQ-	×	∥ _√			$ \times $							1
- bld S 01:11 4.7-01-6	- ול ל,	1 Jac	ž	-01S	×	×			×							
- PIST 2 05: 11 20-01-6	,h S1-	1 JW	ice	-016	シ	×			\times							l
2-10-20 11:30 5 TP14.	16 4	15w	ice	-017	$\overset{\star}{\times}$)			×							l
- 61 55 S Ob. 11 120-1	,0 (1	1 Jac	ice	21O-	X	メ			×							
- piss 8 0571 16-01-1	. 18 0	150	ોલ	- 019		×			\prec							
- P122 2 00:51 Moret	19 0.	1 Jac	131	-020	X	کر			\times							
									\times		i					
																l
																Ιİ
																i l
Date: Time: Relinquished by:/	-	1	Via: Obadl '	Date Time 7/11/19 0752	Remarks:	ırks:										
\ <u>~</u> —		Received by:	Via:	Date Time												
11/19 1300 MMKODI	osaen _	A CONTRACTOR OF THE PROPERTY O		1/1			[
if necessary, samples submitted to Hall Environmental may be subconfracted to other accredited laboratories.	all Environmental may be subco	intracted to other acc	redited laboratories.	-	possibil	ty. Any	sub-cor	itracted c	ata will	oe clear	y notate	d on the a	nalytical	report.		
(R(17 1700 X/V		5	Cour let	7/11/19 7:5Z	3											



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

August 23, 2019

Dennis Williams Vertex Resource Group Ltd. 213 S. Mesa St Carlsbad, NM 88220 TEL: FAX:

RE: Trebuchet Fee 23 28 19 OrderNo.: 1908977

Dear Dennis Williams:

Hall Environmental Analysis Laboratory received 49 sample(s) on 8/19/2019 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman

Laboratory Manager

andyl

4901 Hawkins NE

Albuquerque, NM 87109

Lab Order **1908977**

Date Reported: 8/23/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: Base 19-01 4'

 Project:
 Trebuchet Fee 23 28 19
 Collection Date: 8/18/2019 8:00:00 AM

 Lab ID:
 1908977-001
 Matrix: SOIL
 Received Date: 8/19/2019 8:35:00 AM

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analyst	MRA
Chloride	8600	300	mg/Kg	100	8/21/2019 9:51:16 PM	46925
EPA METHOD 8015M/D: DIESEL RANGE ORG	ANICS				Analyst	BRM
Diesel Range Organics (DRO)	ND	9.4	mg/Kg	1	8/20/2019 10:22:29 AM	46909
Motor Oil Range Organics (MRO)	ND	47	mg/Kg	1	8/20/2019 10:22:29 AM	46909
Surr: DNOP	98.1	70-130	%Rec	1	8/20/2019 10:22:29 AM	46909
EPA METHOD 8015D: GASOLINE RANGE					Analyst	NSB
Gasoline Range Organics (GRO)	ND	5.0	mg/Kg	1	8/20/2019 9:37:00 AM	46897
Surr: BFB	93.4	77.4-118	%Rec	1	8/20/2019 9:37:00 AM	46897
EPA METHOD 8021B: VOLATILES					Analyst	NSB
Benzene	ND	0.025	mg/Kg	1	8/20/2019 9:37:00 AM	46897
Toluene	ND	0.050	mg/Kg	1	8/20/2019 9:37:00 AM	46897
Ethylbenzene	ND	0.050	mg/Kg	1	8/20/2019 9:37:00 AM	46897
Xylenes, Total	ND	0.099	mg/Kg	1	8/20/2019 9:37:00 AM	46897
Surr: 4-Bromofluorobenzene	94.5	80-120	%Rec	1	8/20/2019 9:37:00 AM	46897

Refer to the QC Summary 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

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

Page 1 of 61

Lab Order **1908977**

Date Reported: 8/23/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: Base 19-02 4'

 Project:
 Trebuchet Fee 23 28 19
 Collection Date: 8/18/2019 8:05:00 AM

 Lab ID:
 1908977-002
 Matrix: SOIL
 Received Date: 8/19/2019 8:35:00 AM

Analyses	Result	RL (Qual Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analyst:	MRA
Chloride	5300	300	mg/Kg	100	8/21/2019 10:03:38 PM	46925
EPA METHOD 8015M/D: DIESEL RANGE ORG	ANICS				Analyst:	BRM
Diesel Range Organics (DRO)	ND	9.6	mg/Kg	1	8/20/2019 11:29:07 AM	46909
Motor Oil Range Organics (MRO)	ND	48	mg/Kg	1	8/20/2019 11:29:07 AM	46909
Surr: DNOP	95.8	70-130	%Rec	1	8/20/2019 11:29:07 AM	46909
EPA METHOD 8015D: GASOLINE RANGE					Analyst	NSB
Gasoline Range Organics (GRO)	ND	4.7	mg/Kg	1	8/20/2019 10:47:22 AM	46897
Surr: BFB	93.1	77.4-118	%Rec	1	8/20/2019 10:47:22 AM	46897
EPA METHOD 8021B: VOLATILES					Analyst:	NSB
Benzene	ND	0.024	mg/Kg	1	8/20/2019 10:47:22 AM	46897
Toluene	ND	0.047	mg/Kg	1	8/20/2019 10:47:22 AM	46897
Ethylbenzene	ND	0.047	mg/Kg	1	8/20/2019 10:47:22 AM	46897
Xylenes, Total	ND	0.094	mg/Kg	1	8/20/2019 10:47:22 AM	46897
Surr: 4-Bromofluorobenzene	95.8	80-120	%Rec	1	8/20/2019 10:47:22 AM	46897

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

Qualifiers:

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

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

Page 2 of 61

Lab Order **1908977**

Date Reported: 8/23/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: Base 19-03 4'

 Project:
 Trebuchet Fee 23 28 19
 Collection Date: 8/18/2019 8:10:00 AM

 Lab ID:
 1908977-003
 Matrix: SOIL
 Received Date: 8/19/2019 8:35:00 AM

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analyst:	MRA
Chloride	4900	300	mg/Kg	100	8/22/2019 6:29:39 AM	46925
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS Analy						BRM
Diesel Range Organics (DRO)	ND	9.8	mg/Kg	1	8/20/2019 11:51:03 AM	46909
Motor Oil Range Organics (MRO)	ND	49	mg/Kg	1	8/20/2019 11:51:03 AM	46909
Surr: DNOP	84.3	70-130	%Rec	1	8/20/2019 11:51:03 AM	46909
EPA METHOD 8015D: GASOLINE RANGE					Analyst:	NSB
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	8/20/2019 11:57:47 AM	46897
Surr: BFB	92.1	77.4-118	%Rec	1	8/20/2019 11:57:47 AM	46897
EPA METHOD 8021B: VOLATILES					Analyst:	NSB
Benzene	ND	0.025	mg/Kg	1	8/20/2019 11:57:47 AM	46897
Toluene	ND	0.049	mg/Kg	1	8/20/2019 11:57:47 AM	46897
Ethylbenzene	ND	0.049	mg/Kg	1	8/20/2019 11:57:47 AM	46897
Xylenes, Total	ND	0.098	mg/Kg	1	8/20/2019 11:57:47 AM	46897
Surr: 4-Bromofluorobenzene	93.5	80-120	%Rec	1	8/20/2019 11:57:47 AM	46897

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

Qualifiers:

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

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

Page 3 of 61

Lab Order **1908977**

Date Reported: 8/23/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: Base 19-04 4'

 Project:
 Trebuchet Fee 23 28 19
 Collection Date: 8/18/2019 8:15:00 AM

 Lab ID:
 1908977-004
 Matrix: SOIL
 Received Date: 8/19/2019 8:35:00 AM

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analyst:	MRA
Chloride	9700	300	mg/Kg	100	8/21/2019 10:40:39 PM	46925
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS Analys						BRM
Diesel Range Organics (DRO)	ND	9.1	mg/Kg	1	8/20/2019 12:13:22 PM	46909
Motor Oil Range Organics (MRO)	ND	46	mg/Kg	1	8/20/2019 12:13:22 PM	46909
Surr: DNOP	103	70-130	%Rec	1	8/20/2019 12:13:22 PM	46909
EPA METHOD 8015D: GASOLINE RANGE					Analyst:	NSB
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	8/20/2019 12:21:16 PM	46897
Surr: BFB	94.0	77.4-118	%Rec	1	8/20/2019 12:21:16 PM	46897
EPA METHOD 8021B: VOLATILES					Analyst:	NSB
Benzene	ND	0.024	mg/Kg	1	8/20/2019 12:21:16 PM	46897
Toluene	ND	0.048	mg/Kg	1	8/20/2019 12:21:16 PM	46897
Ethylbenzene	ND	0.048	mg/Kg	1	8/20/2019 12:21:16 PM	46897
Xylenes, Total	ND	0.096	mg/Kg	1	8/20/2019 12:21:16 PM	46897
Surr: 4-Bromofluorobenzene	95.9	80-120	%Rec	1	8/20/2019 12:21:16 PM	46897

Refer to the QC Summary 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

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

Page 4 of 61

Lab Order **1908977**

Date Reported: 8/23/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: Base 19-05 4'

 Project:
 Trebuchet Fee 23 28 19
 Collection Date: 8/18/2019 8:20:00 AM

 Lab ID:
 1908977-005
 Matrix: SOIL
 Received Date: 8/19/2019 8:35:00 AM

Result **RL Oual Units DF** Date Analyzed **Batch** Analyses **EPA METHOD 300.0: ANIONS** Analyst: MRA Chloride 5000 300 mg/Kg 100 8/21/2019 10:52:59 PM 46926 **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** Analyst: BRM Diesel Range Organics (DRO) ND 9.8 mg/Kg 8/20/2019 12:35:27 PM 46909 Motor Oil Range Organics (MRO) ND 8/20/2019 12:35:27 PM 46909 49 mg/Kg 1 Surr: DNOP 77.5 %Rec 8/20/2019 12:35:27 PM 46909 70-130 **EPA METHOD 8015D: GASOLINE RANGE** Analyst: NSB 8/20/2019 12:44:49 PM 46897 Gasoline Range Organics (GRO) ND 4.9 mg/Kg 1 Surr: BFB 94.1 77.4-118 %Rec 8/20/2019 12:44:49 PM 46897 Analyst: NSB **EPA METHOD 8021B: VOLATILES** ND 0.025 8/20/2019 12:44:49 PM 46897 Benzene mg/Kg Toluene ND 0.049 mg/Kg 8/20/2019 12:44:49 PM 46897 Ethylbenzene ND 0.049 mg/Kg 1 8/20/2019 12:44:49 PM 46897 Xylenes, Total ND 0.098 mg/Kg 8/20/2019 12:44:49 PM 46897 Surr: 4-Bromofluorobenzene 8/20/2019 12:44:49 PM 46897 96.3 80-120 %Rec

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

Qualifiers:

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

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

Page 5 of 61

Lab Order **1908977**

Date Reported: 8/23/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: Base 19-06 4'

 Project:
 Trebuchet Fee 23 28 19
 Collection Date: 8/18/2019 8:25:00 AM

 Lab ID:
 1908977-006
 Matrix: SOIL
 Received Date: 8/19/2019 8:35:00 AM

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analyst:	MRA
Chloride	5200	300	mg/Kg	100	8/21/2019 11:05:20 PM	46926
EPA METHOD 8015M/D: DIESEL RANGE ORG	GANICS				Analyst:	BRM
Diesel Range Organics (DRO)	ND	9.2	mg/Kg	1	8/20/2019 12:57:34 PM	46909
Motor Oil Range Organics (MRO)	ND	46	mg/Kg	1	8/20/2019 12:57:34 PM	46909
Surr: DNOP	82.3	70-130	%Rec	1	8/20/2019 12:57:34 PM	46909
EPA METHOD 8015D: GASOLINE RANGE					Analyst:	NSB
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	8/20/2019 1:08:22 PM	46897
Surr: BFB	101	77.4-118	%Rec	1	8/20/2019 1:08:22 PM	46897
EPA METHOD 8021B: VOLATILES					Analyst:	NSB
Benzene	ND	0.024	mg/Kg	1	8/20/2019 1:08:22 PM	46897
Toluene	ND	0.048	mg/Kg	1	8/20/2019 1:08:22 PM	46897
Ethylbenzene	ND	0.048	mg/Kg	1	8/20/2019 1:08:22 PM	46897
Xylenes, Total	ND	0.097	mg/Kg	1	8/20/2019 1:08:22 PM	46897
Surr: 4-Bromofluorobenzene	104	80-120	%Rec	1	8/20/2019 1:08:22 PM	46897

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

Qualifiers:

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

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

Page 6 of 61

Lab Order **1908977**

Date Reported: 8/23/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: Base 19-07 4'

 Project:
 Trebuchet Fee 23 28 19
 Collection Date: 8/18/2019 8:30:00 AM

 Lab ID:
 1908977-007
 Matrix: SOIL
 Received Date: 8/19/2019 8:35:00 AM

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analyst:	MRA
Chloride	6300	300	mg/Kg	100	8/21/2019 11:17:40 PM	46926
EPA METHOD 8015M/D: DIESEL RANGE ORG	SANICS				Analyst:	BRM
Diesel Range Organics (DRO)	ND	8.7	mg/Kg	1	8/20/2019 1:19:41 PM	46909
Motor Oil Range Organics (MRO)	ND	44	mg/Kg	1	8/20/2019 1:19:41 PM	46909
Surr: DNOP	80.7	70-130	%Rec	1	8/20/2019 1:19:41 PM	46909
EPA METHOD 8015D: GASOLINE RANGE					Analyst:	NSB
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	8/20/2019 1:31:56 PM	46897
Surr: BFB	97.4	77.4-118	%Rec	1	8/20/2019 1:31:56 PM	46897
EPA METHOD 8021B: VOLATILES					Analyst:	NSB
Benzene	ND	0.024	mg/Kg	1	8/20/2019 1:31:56 PM	46897
Toluene	ND	0.048	mg/Kg	1	8/20/2019 1:31:56 PM	46897
Ethylbenzene	ND	0.048	mg/Kg	1	8/20/2019 1:31:56 PM	46897
Xylenes, Total	ND	0.095	mg/Kg	1	8/20/2019 1:31:56 PM	46897
Surr: 4-Bromofluorobenzene	98.9	80-120	%Rec	1	8/20/2019 1:31:56 PM	46897

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

Qualifiers:

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

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

Page 7 of 61

Lab Order **1908977**

Date Reported: 8/23/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: Base 19-08 4'

 Project:
 Trebuchet Fee 23 28 19
 Collection Date: 8/18/2019 8:35:00 AM

 Lab ID:
 1908977-008
 Matrix: SOIL
 Received Date: 8/19/2019 8:35:00 AM

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analyst:	MRA
Chloride	5200	300	mg/Kg	100	8/21/2019 11:30:01 PM	46926
EPA METHOD 8015M/D: DIESEL RANGE ORG	SANICS				Analyst:	BRM
Diesel Range Organics (DRO)	ND	9.8	mg/Kg	1	8/20/2019 1:41:54 PM	46909
Motor Oil Range Organics (MRO)	ND	49	mg/Kg	1	8/20/2019 1:41:54 PM	46909
Surr: DNOP	84.6	70-130	%Rec	1	8/20/2019 1:41:54 PM	46909
EPA METHOD 8015D: GASOLINE RANGE					Analyst:	NSB
Gasoline Range Organics (GRO)	ND	4.7	mg/Kg	1	8/20/2019 1:55:34 PM	46897
Surr: BFB	95.2	77.4-118	%Rec	1	8/20/2019 1:55:34 PM	46897
EPA METHOD 8021B: VOLATILES					Analyst:	NSB
Benzene	ND	0.024	mg/Kg	1	8/20/2019 1:55:34 PM	46897
Toluene	ND	0.047	mg/Kg	1	8/20/2019 1:55:34 PM	46897
Ethylbenzene	ND	0.047	mg/Kg	1	8/20/2019 1:55:34 PM	46897
Xylenes, Total	ND	0.094	mg/Kg	1	8/20/2019 1:55:34 PM	46897
Surr: 4-Bromofluorobenzene	96.3	80-120	%Rec	1	8/20/2019 1:55:34 PM	46897

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

Qualifiers:

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

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

Page 8 of 61

Lab Order **1908977**

Date Reported: 8/23/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: Base 19-09 4'

 Project:
 Trebuchet Fee 23 28 19
 Collection Date: 8/18/2019 8:40:00 AM

 Lab ID:
 1908977-009
 Matrix: SOIL
 Received Date: 8/19/2019 8:35:00 AM

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analyst:	MRA
Chloride	4200	150	mg/Kg	50	8/21/2019 11:42:22 PM	46926
EPA METHOD 8015M/D: DIESEL RANGE ORG	ANICS				Analyst:	BRM
Diesel Range Organics (DRO)	ND	9.4	mg/Kg	1	8/20/2019 2:04:05 PM	46909
Motor Oil Range Organics (MRO)	ND	47	mg/Kg	1	8/20/2019 2:04:05 PM	46909
Surr: DNOP	89.9	70-130	%Rec	1	8/20/2019 2:04:05 PM	46909
EPA METHOD 8015D: GASOLINE RANGE					Analyst:	NSB
Gasoline Range Organics (GRO)	ND	4.7	mg/Kg	1	8/20/2019 2:19:08 PM	46897
Surr: BFB	94.4	77.4-118	%Rec	1	8/20/2019 2:19:08 PM	46897
EPA METHOD 8021B: VOLATILES					Analyst:	NSB
Benzene	ND	0.024	mg/Kg	1	8/20/2019 2:19:08 PM	46897
Toluene	ND	0.047	mg/Kg	1	8/20/2019 2:19:08 PM	46897
Ethylbenzene	ND	0.047	mg/Kg	1	8/20/2019 2:19:08 PM	46897
Xylenes, Total	ND	0.095	mg/Kg	1	8/20/2019 2:19:08 PM	46897
Surr: 4-Bromofluorobenzene	94.6	80-120	%Rec	1	8/20/2019 2:19:08 PM	46897

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

Qualifiers:

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

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

Page 9 of 61

Lab Order **1908977**

Date Reported: 8/23/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: Base 19-021 4'

 Project:
 Trebuchet Fee 23 28 19
 Collection Date: 8/18/2019 8:45:00 AM

 Lab ID:
 1908977-010
 Matrix: SOIL
 Received Date: 8/19/2019 8:35:00 AM

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analyst:	MRA
Chloride	4000	150	mg/Kg	50	8/21/2019 11:54:43 PM	46926
EPA METHOD 8015M/D: DIESEL RANGE ORG	SANICS				Analyst:	BRM
Diesel Range Organics (DRO)	19	8.8	mg/Kg	1	8/20/2019 2:26:19 PM	46909
Motor Oil Range Organics (MRO)	51	44	mg/Kg	1	8/20/2019 2:26:19 PM	46909
Surr: DNOP	94.6	70-130	%Rec	1	8/20/2019 2:26:19 PM	46909
EPA METHOD 8015D: GASOLINE RANGE					Analyst:	NSB
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	8/20/2019 2:42:43 PM	46897
Surr: BFB	94.7	77.4-118	%Rec	1	8/20/2019 2:42:43 PM	46897
EPA METHOD 8021B: VOLATILES					Analyst:	NSB
Benzene	ND	0.024	mg/Kg	1	8/20/2019 2:42:43 PM	46897
Toluene	ND	0.049	mg/Kg	1	8/20/2019 2:42:43 PM	46897
Ethylbenzene	ND	0.049	mg/Kg	1	8/20/2019 2:42:43 PM	46897
Xylenes, Total	ND	0.097	mg/Kg	1	8/20/2019 2:42:43 PM	46897
Surr: 4-Bromofluorobenzene	95.5	80-120	%Rec	1	8/20/2019 2:42:43 PM	46897

Refer to the QC Summary 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

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

Page 10 of 61

Lab Order **1908977**

Date Reported: 8/23/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: Base 19-022 4'

 Project:
 Trebuchet Fee 23 28 19
 Collection Date: 8/18/2019 8:50:00 AM

 Lab ID:
 1908977-011
 Matrix: SOIL
 Received Date: 8/19/2019 8:35:00 AM

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analyst:	MRA
Chloride	4300	150	mg/Kg	50	8/22/2019 12:07:03 AM	46926
EPA METHOD 8015M/D: DIESEL RANGE ORG	SANICS				Analyst:	BRM
Diesel Range Organics (DRO)	44	9.6	mg/Kg	1	8/20/2019 2:48:22 PM	46909
Motor Oil Range Organics (MRO)	86	48	mg/Kg	1	8/20/2019 2:48:22 PM	46909
Surr: DNOP	107	70-130	%Rec	1	8/20/2019 2:48:22 PM	46909
EPA METHOD 8015D: GASOLINE RANGE					Analyst:	NSB
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	8/20/2019 4:17:24 PM	46897
Surr: BFB	93.9	77.4-118	%Rec	1	8/20/2019 4:17:24 PM	46897
EPA METHOD 8021B: VOLATILES					Analyst:	NSB
Benzene	ND	0.024	mg/Kg	1	8/20/2019 4:17:24 PM	46897
Toluene	ND	0.048	mg/Kg	1	8/20/2019 4:17:24 PM	46897
Ethylbenzene	ND	0.048	mg/Kg	1	8/20/2019 4:17:24 PM	46897
Xylenes, Total	ND	0.096	mg/Kg	1	8/20/2019 4:17:24 PM	46897
Surr: 4-Bromofluorobenzene	94.4	80-120	%Rec	1	8/20/2019 4:17:24 PM	46897

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

Qualifiers:

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

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

Page 11 of 61

Lab Order **1908977**

Date Reported: 8/23/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. **Client Sample ID:** Base 19-023 4'

 Project:
 Trebuchet Fee 23 28 19
 Collection Date: 8/18/2019 8:55:00 AM

 Lab ID:
 1908977-012
 Matrix: SOIL
 Received Date: 8/19/2019 8:35:00 AM

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analyst:	MRA
Chloride	2400	150	mg/Kg	50	8/22/2019 12:19:24 AM	46926
EPA METHOD 8015M/D: DIESEL RANGE ORG	SANICS				Analyst:	BRM
Diesel Range Organics (DRO)	ND	9.4	mg/Kg	1	8/20/2019 3:10:38 PM	46909
Motor Oil Range Organics (MRO)	ND	47	mg/Kg	1	8/20/2019 3:10:38 PM	46909
Surr: DNOP	98.6	70-130	%Rec	1	8/20/2019 3:10:38 PM	46909
EPA METHOD 8015D: GASOLINE RANGE					Analyst:	NSB
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	8/20/2019 4:41:03 PM	46897
Surr: BFB	96.0	77.4-118	%Rec	1	8/20/2019 4:41:03 PM	46897
EPA METHOD 8021B: VOLATILES					Analyst:	NSB
Benzene	ND	0.024	mg/Kg	1	8/20/2019 4:41:03 PM	46897
Toluene	ND	0.048	mg/Kg	1	8/20/2019 4:41:03 PM	46897
Ethylbenzene	ND	0.048	mg/Kg	1	8/20/2019 4:41:03 PM	46897
Xylenes, Total	ND	0.095	mg/Kg	1	8/20/2019 4:41:03 PM	46897
Surr: 4-Bromofluorobenzene	97.4	80-120	%Rec	1	8/20/2019 4:41:03 PM	46897

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

Qualifiers:

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

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

Page 12 of 61

Lab Order **1908977**

Date Reported: 8/23/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: Base 19-024 4'

 Project:
 Trebuchet Fee 23 28 19
 Collection Date: 8/18/2019 9:00:00 AM

 Lab ID:
 1908977-013
 Matrix: SOIL
 Received Date: 8/19/2019 8:35:00 AM

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analyst:	MRA
Chloride	2600	150	mg/Kg	50	8/22/2019 12:31:45 AM	46926
EPA METHOD 8015M/D: DIESEL RANGE ORG	ANICS				Analyst:	BRM
Diesel Range Organics (DRO)	ND	10	mg/Kg	1	8/20/2019 3:32:47 PM	46909
Motor Oil Range Organics (MRO)	ND	50	mg/Kg	1	8/20/2019 3:32:47 PM	46909
Surr: DNOP	106	70-130	%Rec	1	8/20/2019 3:32:47 PM	46909
EPA METHOD 8015D: GASOLINE RANGE					Analyst:	NSB
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	8/20/2019 5:04:39 PM	46897
Surr: BFB	91.7	77.4-118	%Rec	1	8/20/2019 5:04:39 PM	46897
EPA METHOD 8021B: VOLATILES					Analyst:	NSB
Benzene	ND	0.024	mg/Kg	1	8/20/2019 5:04:39 PM	46897
Toluene	ND	0.049	mg/Kg	1	8/20/2019 5:04:39 PM	46897
Ethylbenzene	ND	0.049	mg/Kg	1	8/20/2019 5:04:39 PM	46897
Xylenes, Total	ND	0.098	mg/Kg	1	8/20/2019 5:04:39 PM	46897
Surr: 4-Bromofluorobenzene	93.0	80-120	%Rec	1	8/20/2019 5:04:39 PM	46897

Refer to the QC Summary 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

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

Page 13 of 61

Lab Order **1908977**

Date Reported: 8/23/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: Base 19-025 4'

 Project:
 Trebuchet Fee 23 28 19
 Collection Date: 8/18/2019 9:05:00 AM

 Lab ID:
 1908977-014
 Matrix: SOIL
 Received Date: 8/19/2019 8:35:00 AM

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analyst	MRA
Chloride	3300	150	mg/Kg	50	8/22/2019 1:08:46 AM	46926
EPA METHOD 8015M/D: DIESEL RANGE ORG	SANICS				Analyst	BRM
Diesel Range Organics (DRO)	20	9.2	mg/Kg	1	8/20/2019 3:55:06 PM	46909
Motor Oil Range Organics (MRO)	110	46	mg/Kg	1	8/20/2019 3:55:06 PM	46909
Surr: DNOP	109	70-130	%Rec	1	8/20/2019 3:55:06 PM	46909
EPA METHOD 8015D: GASOLINE RANGE					Analyst	NSB
Gasoline Range Organics (GRO)	ND	4.7	mg/Kg	1	8/20/2019 5:28:22 PM	46897
Surr: BFB	94.6	77.4-118	%Rec	1	8/20/2019 5:28:22 PM	46897
EPA METHOD 8021B: VOLATILES					Analyst	NSB
Benzene	ND	0.023	mg/Kg	1	8/20/2019 5:28:22 PM	46897
Toluene	ND	0.047	mg/Kg	1	8/20/2019 5:28:22 PM	46897
Ethylbenzene	ND	0.047	mg/Kg	1	8/20/2019 5:28:22 PM	46897
Xylenes, Total	ND	0.094	mg/Kg	1	8/20/2019 5:28:22 PM	46897
Surr: 4-Bromofluorobenzene	94.4	80-120	%Rec	1	8/20/2019 5:28:22 PM	46897

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

Qualifiers:

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

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

Page 14 of 61

Lab Order **1908977**

Date Reported: 8/23/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: Base 19-026 4'

 Project:
 Trebuchet Fee 23 28 19
 Collection Date: 8/18/2019 9:10:00 AM

 Lab ID:
 1908977-015
 Matrix: SOIL
 Received Date: 8/19/2019 8:35:00 AM

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analyst:	MRA
Chloride	3000	150	mg/Kg	50	8/22/2019 1:21:07 AM	46926
EPA METHOD 8015M/D: DIESEL RANGE ORG	SANICS				Analyst:	BRM
Diesel Range Organics (DRO)	19	9.6	mg/Kg	1	8/20/2019 4:17:11 PM	46909
Motor Oil Range Organics (MRO)	190	48	mg/Kg	1	8/20/2019 4:17:11 PM	46909
Surr: DNOP	109	70-130	%Rec	1	8/20/2019 4:17:11 PM	46909
EPA METHOD 8015D: GASOLINE RANGE					Analyst:	NSB
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	8/20/2019 5:52:03 PM	46897
Surr: BFB	92.8	77.4-118	%Rec	1	8/20/2019 5:52:03 PM	46897
EPA METHOD 8021B: VOLATILES					Analyst:	NSB
Benzene	ND	0.024	mg/Kg	1	8/20/2019 5:52:03 PM	46897
Toluene	ND	0.049	mg/Kg	1	8/20/2019 5:52:03 PM	46897
Ethylbenzene	ND	0.049	mg/Kg	1	8/20/2019 5:52:03 PM	46897
Xylenes, Total	ND	0.097	mg/Kg	1	8/20/2019 5:52:03 PM	46897
Surr: 4-Bromofluorobenzene	93.6	80-120	%Rec	1	8/20/2019 5:52:03 PM	46897

Refer to the QC Summary 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

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

Page 15 of 61

Lab Order **1908977**

Date Reported: 8/23/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: Base 19-027 4'

 Project:
 Trebuchet Fee 23 28 19
 Collection Date: 8/18/2019 9:15:00 AM

 Lab ID:
 1908977-016
 Matrix: SOIL
 Received Date: 8/19/2019 8:35:00 AM

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analyst	MRA
Chloride	3400	150	mg/Kg	50	8/22/2019 1:33:26 AM	46926
EPA METHOD 8015M/D: DIESEL RANGE ORG	SANICS				Analyst	BRM
Diesel Range Organics (DRO)	20	9.0	mg/Kg	1	8/20/2019 4:39:27 PM	46909
Motor Oil Range Organics (MRO)	93	45	mg/Kg	1	8/20/2019 4:39:27 PM	46909
Surr: DNOP	97.2	70-130	%Rec	1	8/20/2019 4:39:27 PM	46909
EPA METHOD 8015D: GASOLINE RANGE					Analyst	NSB
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	8/20/2019 6:15:40 PM	46897
Surr: BFB	93.0	77.4-118	%Rec	1	8/20/2019 6:15:40 PM	46897
EPA METHOD 8021B: VOLATILES					Analyst	NSB
Benzene	ND	0.024	mg/Kg	1	8/20/2019 6:15:40 PM	46897
Toluene	ND	0.049	mg/Kg	1	8/20/2019 6:15:40 PM	46897
Ethylbenzene	ND	0.049	mg/Kg	1	8/20/2019 6:15:40 PM	46897
Xylenes, Total	ND	0.098	mg/Kg	1	8/20/2019 6:15:40 PM	46897
Surr: 4-Bromofluorobenzene	93.5	80-120	%Rec	1	8/20/2019 6:15:40 PM	46897

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

Qualifiers:

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

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

Page 16 of 61

Lab Order **1908977**

Date Reported: 8/23/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: Base 19-028 4'

 Project:
 Trebuchet Fee 23 28 19
 Collection Date: 8/18/2019 9:20:00 AM

 Lab ID:
 1908977-017
 Matrix: SOIL
 Received Date: 8/19/2019 8:35:00 AM

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analyst:	MRA
Chloride	3100	150	mg/Kg	50	8/22/2019 1:45:48 AM	46926
EPA METHOD 8015M/D: DIESEL RANGE ORG	SANICS				Analyst:	BRM
Diesel Range Organics (DRO)	ND	9.8	mg/Kg	1	8/20/2019 5:01:31 PM	46909
Motor Oil Range Organics (MRO)	ND	49	mg/Kg	1	8/20/2019 5:01:31 PM	46909
Surr: DNOP	96.7	70-130	%Rec	1	8/20/2019 5:01:31 PM	46909
EPA METHOD 8015D: GASOLINE RANGE					Analyst:	NSB
Gasoline Range Organics (GRO)	ND	4.6	mg/Kg	1	8/20/2019 6:39:14 PM	46897
Surr: BFB	94.6	77.4-118	%Rec	1	8/20/2019 6:39:14 PM	46897
EPA METHOD 8021B: VOLATILES					Analyst:	NSB
Benzene	ND	0.023	mg/Kg	1	8/20/2019 6:39:14 PM	46897
Toluene	ND	0.046	mg/Kg	1	8/20/2019 6:39:14 PM	46897
Ethylbenzene	ND	0.046	mg/Kg	1	8/20/2019 6:39:14 PM	46897
Xylenes, Total	ND	0.092	mg/Kg	1	8/20/2019 6:39:14 PM	46897
Surr: 4-Bromofluorobenzene	94.8	80-120	%Rec	1	8/20/2019 6:39:14 PM	46897

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

Qualifiers:

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

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

Page 17 of 61

Lab Order **1908977**

Date Reported: 8/23/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: Base 19-029 4'

 Project:
 Trebuchet Fee 23 28 19
 Collection Date: 8/18/2019 9:25:00 AM

 Lab ID:
 1908977-018
 Matrix: SOIL
 Received Date: 8/19/2019 8:35:00 AM

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analyst:	MRA
Chloride	2400	150	mg/Kg	50	8/22/2019 1:58:08 AM	46926
EPA METHOD 8015M/D: DIESEL RANGE ORG	ANICS				Analyst:	BRM
Diesel Range Organics (DRO)	ND	8.9	mg/Kg	1	8/20/2019 5:23:56 PM	46909
Motor Oil Range Organics (MRO)	ND	45	mg/Kg	1	8/20/2019 5:23:56 PM	46909
Surr: DNOP	97.0	70-130	%Rec	1	8/20/2019 5:23:56 PM	46909
EPA METHOD 8015D: GASOLINE RANGE					Analyst:	NSB
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	8/20/2019 7:02:46 PM	46897
Surr: BFB	92.4	77.4-118	%Rec	1	8/20/2019 7:02:46 PM	46897
EPA METHOD 8021B: VOLATILES					Analyst:	NSB
Benzene	ND	0.024	mg/Kg	1	8/20/2019 7:02:46 PM	46897
Toluene	ND	0.048	mg/Kg	1	8/20/2019 7:02:46 PM	46897
Ethylbenzene	ND	0.048	mg/Kg	1	8/20/2019 7:02:46 PM	46897
Xylenes, Total	ND	0.095	mg/Kg	1	8/20/2019 7:02:46 PM	46897
Surr: 4-Bromofluorobenzene	93.6	80-120	%Rec	1	8/20/2019 7:02:46 PM	46897

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

Qualifiers:

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

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

Page 18 of 61

Lab Order **1908977**

Date Reported: 8/23/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: Base 19-030 4'

 Project:
 Trebuchet Fee 23 28 19
 Collection Date: 8/18/2019 9:30:00 AM

 Lab ID:
 1908977-019
 Matrix: SOIL
 Received Date: 8/19/2019 8:35:00 AM

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analyst	MRA
Chloride	2200	60	mg/Kg	20	8/22/2019 2:10:28 AM	46926
EPA METHOD 8015M/D: DIESEL RANGE ORG	ANICS				Analyst	BRM
Diesel Range Organics (DRO)	ND	9.6	mg/Kg	1	8/20/2019 5:46:16 PM	46909
Motor Oil Range Organics (MRO)	ND	48	mg/Kg	1	8/20/2019 5:46:16 PM	46909
Surr: DNOP	95.9	70-130	%Rec	1	8/20/2019 5:46:16 PM	46909
EPA METHOD 8015D: GASOLINE RANGE					Analyst	NSB
Gasoline Range Organics (GRO)	ND	5.0	mg/Kg	1	8/20/2019 7:26:14 PM	46897
Surr: BFB	90.7	77.4-118	%Rec	1	8/20/2019 7:26:14 PM	46897
EPA METHOD 8021B: VOLATILES					Analyst	NSB
Benzene	ND	0.025	mg/Kg	1	8/20/2019 7:26:14 PM	46897
Toluene	ND	0.050	mg/Kg	1	8/20/2019 7:26:14 PM	46897
Ethylbenzene	ND	0.050	mg/Kg	1	8/20/2019 7:26:14 PM	46897
Xylenes, Total	ND	0.099	mg/Kg	1	8/20/2019 7:26:14 PM	46897
Surr: 4-Bromofluorobenzene	92.0	80-120	%Rec	1	8/20/2019 7:26:14 PM	46897

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

Qualifiers:

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

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

Page 19 of 61

Lab Order 1908977

Date Reported: 8/23/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: Base 19-031 4'

 Project:
 Trebuchet Fee 23 28 19
 Collection Date: 8/18/2019 9:35:00 AM

 Lab ID:
 1908977-020
 Matrix: SOIL
 Received Date: 8/19/2019 8:35:00 AM

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analyst:	MRA
Chloride	3100	150	mg/Kg	50	8/22/2019 2:22:49 AM	46926
EPA METHOD 8015M/D: DIESEL RANGE ORG	SANICS				Analyst:	BRM
Diesel Range Organics (DRO)	ND	9.5	mg/Kg	1	8/20/2019 6:08:42 PM	46909
Motor Oil Range Organics (MRO)	ND	48	mg/Kg	1	8/20/2019 6:08:42 PM	46909
Surr: DNOP	91.6	70-130	%Rec	1	8/20/2019 6:08:42 PM	46909
EPA METHOD 8015D: GASOLINE RANGE					Analyst:	NSB
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	8/20/2019 7:49:44 PM	46897
Surr: BFB	98.8	77.4-118	%Rec	1	8/20/2019 7:49:44 PM	46897
EPA METHOD 8021B: VOLATILES					Analyst:	NSB
Benzene	ND	0.024	mg/Kg	1	8/20/2019 7:49:44 PM	46897
Toluene	ND	0.048	mg/Kg	1	8/20/2019 7:49:44 PM	46897
Ethylbenzene	ND	0.048	mg/Kg	1	8/20/2019 7:49:44 PM	46897
Xylenes, Total	ND	0.095	mg/Kg	1	8/20/2019 7:49:44 PM	46897
Surr: 4-Bromofluorobenzene	101	80-120	%Rec	1	8/20/2019 7:49:44 PM	46897

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

Qualifiers:

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

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

Page 20 of 61

Lab Order **1908977**

Date Reported: 8/23/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: Base 19-032 2'

 Project:
 Trebuchet Fee 23 28 19
 Collection Date: 8/18/2019 9:40:00 AM

 Lab ID:
 1908977-021
 Matrix: SOIL
 Received Date: 8/19/2019 8:35:00 AM

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analyst	CAS
Chloride	1700	60	mg/Kg	20	8/20/2019 10:06:15 PM	46926
EPA METHOD 8015M/D: DIESEL RANGE ORG	SANICS				Analyst	BRM
Diesel Range Organics (DRO)	ND	9.5	mg/Kg	1	8/20/2019 11:00:07 PM	46910
Motor Oil Range Organics (MRO)	ND	48	mg/Kg	1	8/20/2019 11:00:07 PM	46910
Surr: DNOP	84.9	70-130	%Rec	1	8/20/2019 11:00:07 PM	46910
EPA METHOD 8015D: GASOLINE RANGE					Analyst	NSB
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	8/20/2019 9:47:48 PM	46899
Surr: BFB	97.8	77.4-118	%Rec	1	8/20/2019 9:47:48 PM	46899
EPA METHOD 8021B: VOLATILES					Analyst	NSB
Benzene	ND	0.024	mg/Kg	1	8/20/2019 9:47:48 PM	46899
Toluene	ND	0.048	mg/Kg	1	8/20/2019 9:47:48 PM	46899
Ethylbenzene	ND	0.048	mg/Kg	1	8/20/2019 9:47:48 PM	46899
Xylenes, Total	ND	0.097	mg/Kg	1	8/20/2019 9:47:48 PM	46899
Surr: 4-Bromofluorobenzene	90.4	80-120	%Rec	1	8/20/2019 9:47:48 PM	46899

Refer to the QC Summary 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

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

Page 21 of 61

Lab Order **1908977**

Date Reported: 8/23/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: Base 19-033 2'

 Project:
 Trebuchet Fee 23 28 19
 Collection Date: 8/18/2019 9:45:00 AM

 Lab ID:
 1908977-022
 Matrix: SOIL
 Received Date: 8/19/2019 8:35:00 AM

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analyst:	MRA
Chloride	3400	150	mg/Kg	50	8/22/2019 2:35:09 AM	46926
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS Analyst						
Diesel Range Organics (DRO)	ND	9.8	mg/Kg	1	8/21/2019 12:07:14 AM	46910
Motor Oil Range Organics (MRO)	ND	49	mg/Kg	1	8/21/2019 12:07:14 AM	46910
Surr: DNOP	90.8	70-130	%Rec	1	8/21/2019 12:07:14 AM	46910
EPA METHOD 8015D: GASOLINE RANGE					Analyst:	NSB
Gasoline Range Organics (GRO)	ND	5.0	mg/Kg	1	8/20/2019 10:56:47 PM	46899
Surr: BFB	98.9	77.4-118	%Rec	1	8/20/2019 10:56:47 PM	46899
EPA METHOD 8021B: VOLATILES					Analyst:	NSB
Benzene	ND	0.025	mg/Kg	1	8/20/2019 10:56:47 PM	46899
Toluene	ND	0.050	mg/Kg	1	8/20/2019 10:56:47 PM	46899
Ethylbenzene	ND	0.050	mg/Kg	1	8/20/2019 10:56:47 PM	46899
Xylenes, Total	ND	0.099	mg/Kg	1	8/20/2019 10:56:47 PM	46899
Surr: 4-Bromofluorobenzene	92.9	80-120	%Rec	1	8/20/2019 10:56:47 PM	46899

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

Qualifiers:

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

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

Page 22 of 61

Lab Order **1908977**

Date Reported: 8/23/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: Base 19-034 4'

 Project:
 Trebuchet Fee 23 28 19
 Collection Date: 8/18/2019 9:50:00 AM

 Lab ID:
 1908977-023
 Matrix: SOIL
 Received Date: 8/19/2019 8:35:00 AM

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analyst:	MRA
Chloride	3200	150	mg/Kg	50	8/22/2019 2:47:30 AM	46926
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS Analyst						
Diesel Range Organics (DRO)	ND	9.8	mg/Kg	1	8/21/2019 12:29:48 AM	46910
Motor Oil Range Organics (MRO)	ND	49	mg/Kg	1	8/21/2019 12:29:48 AM	46910
Surr: DNOP	93.4	70-130	%Rec	1	8/21/2019 12:29:48 AM	46910
EPA METHOD 8015D: GASOLINE RANGE					Analyst:	NSB
Gasoline Range Organics (GRO)	ND	4.7	mg/Kg	1	8/21/2019 12:05:29 AM	46899
Surr: BFB	101	77.4-118	%Rec	1	8/21/2019 12:05:29 AM	46899
EPA METHOD 8021B: VOLATILES					Analyst:	NSB
Benzene	ND	0.023	mg/Kg	1	8/21/2019 12:05:29 AM	46899
Toluene	ND	0.047	mg/Kg	1	8/21/2019 12:05:29 AM	46899
Ethylbenzene	ND	0.047	mg/Kg	1	8/21/2019 12:05:29 AM	46899
Xylenes, Total	ND	0.093	mg/Kg	1	8/21/2019 12:05:29 AM	46899
Surr: 4-Bromofluorobenzene	93.9	80-120	%Rec	1	8/21/2019 12:05:29 AM	46899

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

Qualifiers:

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

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

Page 23 of 61

Lab Order **1908977**

Date Reported: 8/23/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: Base 19-035 4'

 Project:
 Trebuchet Fee 23 28 19
 Collection Date: 8/18/2019 9:55:00 AM

 Lab ID:
 1908977-024
 Matrix: SOIL
 Received Date: 8/19/2019 8:35:00 AM

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analyst:	MRA
Chloride	3500	150	mg/Kg	50	8/22/2019 2:59:51 AM	46926
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS Analyst						
Diesel Range Organics (DRO)	ND	9.7	mg/Kg	1	8/21/2019 12:52:08 AM	46910
Motor Oil Range Organics (MRO)	ND	48	mg/Kg	1	8/21/2019 12:52:08 AM	46910
Surr: DNOP	90.0	70-130	%Rec	1	8/21/2019 12:52:08 AM	46910
EPA METHOD 8015D: GASOLINE RANGE					Analyst:	NSB
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	8/21/2019 12:28:23 AM	46899
Surr: BFB	100	77.4-118	%Rec	1	8/21/2019 12:28:23 AM	46899
EPA METHOD 8021B: VOLATILES					Analyst:	NSB
Benzene	ND	0.024	mg/Kg	1	8/21/2019 12:28:23 AM	46899
Toluene	ND	0.048	mg/Kg	1	8/21/2019 12:28:23 AM	46899
Ethylbenzene	ND	0.048	mg/Kg	1	8/21/2019 12:28:23 AM	46899
Xylenes, Total	ND	0.096	mg/Kg	1	8/21/2019 12:28:23 AM	46899
Surr: 4-Bromofluorobenzene	92.0	80-120	%Rec	1	8/21/2019 12:28:23 AM	46899

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

Qualifiers:

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

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

Page 24 of 61

Lab Order **1908977**

Date Reported: 8/23/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: Base 19-036 4'

 Project:
 Trebuchet Fee 23 28 19
 Collection Date: 8/18/2019 10:00:00 AM

 Lab ID:
 1908977-025
 Matrix: SOIL
 Received Date: 8/19/2019 8:35:00 AM

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analyst:	MRA
Chloride	3000	150	mg/Kg	50	8/22/2019 3:36:52 AM	46934
EPA METHOD 8015M/D: DIESEL RANGE ORG	SANICS				Analyst:	BRM
Diesel Range Organics (DRO)	ND	9.5	mg/Kg	1	8/21/2019 1:14:21 AM	46910
Motor Oil Range Organics (MRO)	ND	47	mg/Kg	1	8/21/2019 1:14:21 AM	46910
Surr: DNOP	91.1	70-130	%Rec	1	8/21/2019 1:14:21 AM	46910
EPA METHOD 8015D: GASOLINE RANGE					Analyst:	NSB
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	8/21/2019 12:51:14 AM	46899
Surr: BFB	101	77.4-118	%Rec	1	8/21/2019 12:51:14 AM	46899
EPA METHOD 8021B: VOLATILES					Analyst:	NSB
Benzene	ND	0.025	mg/Kg	1	8/21/2019 12:51:14 AM	46899
Toluene	ND	0.049	mg/Kg	1	8/21/2019 12:51:14 AM	46899
Ethylbenzene	ND	0.049	mg/Kg	1	8/21/2019 12:51:14 AM	46899
Xylenes, Total	ND	0.098	mg/Kg	1	8/21/2019 12:51:14 AM	46899
Surr: 4-Bromofluorobenzene	92.2	80-120	%Rec	1	8/21/2019 12:51:14 AM	46899

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

Qualifiers:

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

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

Page 25 of 61

Lab Order **1908977**

Date Reported: 8/23/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: Base 19-037 4'

 Project:
 Trebuchet Fee 23 28 19
 Collection Date: 8/18/2019 10:05:00 AM

 Lab ID:
 1908977-026
 Matrix: SOIL
 Received Date: 8/19/2019 8:35:00 AM

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analyst	MRA
Chloride	2200	150	mg/Kg	50	8/22/2019 3:49:12 AM	46934
EPA METHOD 8015M/D: DIESEL RANGE OR	GANICS				Analyst	BRM
Diesel Range Organics (DRO)	ND	10	mg/Kg	1	8/21/2019 1:36:49 AM	46910
Motor Oil Range Organics (MRO)	ND	50	mg/Kg	1	8/21/2019 1:36:49 AM	46910
Surr: DNOP	89.8	70-130	%Rec	1	8/21/2019 1:36:49 AM	46910
EPA METHOD 8015D: GASOLINE RANGE					Analyst	NSB
Gasoline Range Organics (GRO)	ND	4.7	mg/Kg	1	8/21/2019 1:14:13 AM	46899
Surr: BFB	101	77.4-118	%Rec	1	8/21/2019 1:14:13 AM	46899
EPA METHOD 8021B: VOLATILES					Analyst	NSB
Benzene	ND	0.023	mg/Kg	1	8/21/2019 1:14:13 AM	46899
Toluene	ND	0.047	mg/Kg	1	8/21/2019 1:14:13 AM	46899
Ethylbenzene	ND	0.047	mg/Kg	1	8/21/2019 1:14:13 AM	46899
Xylenes, Total	ND	0.093	mg/Kg	1	8/21/2019 1:14:13 AM	46899
Surr: 4-Bromofluorobenzene	92.1	80-120	%Rec	1	8/21/2019 1:14:13 AM	46899

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

Qualifiers:

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

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

Page 26 of 61

Lab Order **1908977**

Date Reported: 8/23/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: Base 19-038 4'

 Project:
 Trebuchet Fee 23 28 19
 Collection Date: 8/18/2019 10:10:00 AM

 Lab ID:
 1908977-027
 Matrix: SOIL
 Received Date: 8/19/2019 8:35:00 AM

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analyst	CAS
Chloride	1700	61	mg/Kg	20	8/21/2019 12:35:10 AM	46934
EPA METHOD 8015M/D: DIESEL RANGE OR	GANICS				Analyst	BRM
Diesel Range Organics (DRO)	ND	10	mg/Kg	1	8/21/2019 1:59:10 AM	46910
Motor Oil Range Organics (MRO)	ND	50	mg/Kg	1	8/21/2019 1:59:10 AM	46910
Surr: DNOP	92.9	70-130	%Rec	1	8/21/2019 1:59:10 AM	46910
EPA METHOD 8015D: GASOLINE RANGE					Analyst	NSB
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	8/21/2019 1:37:17 AM	46899
Surr: BFB	98.1	77.4-118	%Rec	1	8/21/2019 1:37:17 AM	46899
EPA METHOD 8021B: VOLATILES					Analyst	NSB
Benzene	ND	0.025	mg/Kg	1	8/21/2019 1:37:17 AM	46899
Toluene	ND	0.049	mg/Kg	1	8/21/2019 1:37:17 AM	46899
Ethylbenzene	ND	0.049	mg/Kg	1	8/21/2019 1:37:17 AM	46899
Xylenes, Total	ND	0.099	mg/Kg	1	8/21/2019 1:37:17 AM	46899
Surr: 4-Bromofluorobenzene	89.6	80-120	%Rec	1	8/21/2019 1:37:17 AM	46899

Refer to the QC Summary 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

rting Limit Page 27 of 61

Lab Order **1908977**

Date Reported: 8/23/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: Base 19-039 4'

 Project:
 Trebuchet Fee 23 28 19
 Collection Date: 8/18/2019 10:15:00 AM

 Lab ID:
 1908977-028
 Matrix: SOIL
 Received Date: 8/19/2019 8:35:00 AM

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analyst	CAS
Chloride	1200	61	mg/Kg	20	8/21/2019 12:47:34 AM	46934
EPA METHOD 8015M/D: DIESEL RANGE ORG	ANICS				Analyst	BRM
Diesel Range Organics (DRO)	ND	9.7	mg/Kg	1	8/21/2019 2:21:35 AM	46910
Motor Oil Range Organics (MRO)	ND	48	mg/Kg	1	8/21/2019 2:21:35 AM	46910
Surr: DNOP	92.0	70-130	%Rec	1	8/21/2019 2:21:35 AM	46910
EPA METHOD 8015D: GASOLINE RANGE					Analyst	NSB
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	8/21/2019 2:00:13 AM	46899
Surr: BFB	105	77.4-118	%Rec	1	8/21/2019 2:00:13 AM	46899
EPA METHOD 8021B: VOLATILES					Analyst	NSB
Benzene	ND	0.024	mg/Kg	1	8/21/2019 2:00:13 AM	46899
Toluene	ND	0.048	mg/Kg	1	8/21/2019 2:00:13 AM	46899
Ethylbenzene	ND	0.048	mg/Kg	1	8/21/2019 2:00:13 AM	46899
Xylenes, Total	ND	0.097	mg/Kg	1	8/21/2019 2:00:13 AM	46899
Surr: 4-Bromofluorobenzene	95.4	80-120	%Rec	1	8/21/2019 2:00:13 AM	46899

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

Qualifiers:

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

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

Page 28 of 61

Lab Order **1908977**

Date Reported: 8/23/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: Base 19-040 4'

 Project:
 Trebuchet Fee 23 28 19
 Collection Date: 8/18/2019 10:20:00 AM

 Lab ID:
 1908977-029
 Matrix: SOIL
 Received Date: 8/19/2019 8:35:00 AM

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analyst:	CAS
Chloride	1800	61	mg/Kg	20	8/21/2019 12:59:59 AM	46934
EPA METHOD 8015M/D: DIESEL RANGE ORG	SANICS				Analyst:	BRM
Diesel Range Organics (DRO)	ND	10	mg/Kg	1	8/21/2019 2:43:55 AM	46910
Motor Oil Range Organics (MRO)	ND	50	mg/Kg	1	8/21/2019 2:43:55 AM	46910
Surr: DNOP	94.2	70-130	%Rec	1	8/21/2019 2:43:55 AM	46910
EPA METHOD 8015D: GASOLINE RANGE					Analyst:	NSB
Gasoline Range Organics (GRO)	ND	4.6	mg/Kg	1	8/21/2019 2:23:14 AM	46899
Surr: BFB	103	77.4-118	%Rec	1	8/21/2019 2:23:14 AM	46899
EPA METHOD 8021B: VOLATILES					Analyst:	NSB
Benzene	ND	0.023	mg/Kg	1	8/21/2019 2:23:14 AM	46899
Toluene	ND	0.046	mg/Kg	1	8/21/2019 2:23:14 AM	46899
Ethylbenzene	ND	0.046	mg/Kg	1	8/21/2019 2:23:14 AM	46899
Xylenes, Total	ND	0.092	mg/Kg	1	8/21/2019 2:23:14 AM	46899
Surr: 4-Bromofluorobenzene	94.3	80-120	%Rec	1	8/21/2019 2:23:14 AM	46899

Refer to the QC Summary 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

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

Page 29 of 61

Lab Order **1908977**

Date Reported: 8/23/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: Base 19-041 4'

 Project:
 Trebuchet Fee 23 28 19
 Collection Date: 8/18/2019 10:25:00 AM

 Lab ID:
 1908977-030
 Matrix: SOIL
 Received Date: 8/19/2019 8:35:00 AM

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analyst	CAS
Chloride	2400	61	mg/Kg	20	8/21/2019 1:12:23 AM	46934
EPA METHOD 8015M/D: DIESEL RANGE ORG	GANICS				Analyst	BRM
Diesel Range Organics (DRO)	ND	9.9	mg/Kg	1	8/21/2019 3:06:16 AM	46910
Motor Oil Range Organics (MRO)	ND	50	mg/Kg	1	8/21/2019 3:06:16 AM	46910
Surr: DNOP	96.5	70-130	%Rec	1	8/21/2019 3:06:16 AM	46910
EPA METHOD 8015D: GASOLINE RANGE					Analyst	: NSB
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	8/21/2019 2:46:19 AM	46899
Surr: BFB	101	77.4-118	%Rec	1	8/21/2019 2:46:19 AM	46899
EPA METHOD 8021B: VOLATILES					Analyst	: NSB
Benzene	ND	0.024	mg/Kg	1	8/21/2019 2:46:19 AM	46899
Toluene	ND	0.048	mg/Kg	1	8/21/2019 2:46:19 AM	46899
Ethylbenzene	ND	0.048	mg/Kg	1	8/21/2019 2:46:19 AM	46899
Xylenes, Total	ND	0.095	mg/Kg	1	8/21/2019 2:46:19 AM	46899
Surr: 4-Bromofluorobenzene	91.5	80-120	%Rec	1	8/21/2019 2:46:19 AM	46899

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

Qualifiers:

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

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

Page 30 of 61

Lab Order **1908977**

Date Reported: 8/23/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: Base 19-042 4'

 Project:
 Trebuchet Fee 23 28 19
 Collection Date: 8/18/2019 10:30:00 AM

 Lab ID:
 1908977-031
 Matrix: SOIL
 Received Date: 8/19/2019 8:35:00 AM

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analyst	CAS
Chloride	1900	60	mg/Kg	20	8/21/2019 1:24:48 AM	46934
EPA METHOD 8015M/D: DIESEL RANGE OR	GANICS				Analyst	BRM
Diesel Range Organics (DRO)	ND	10	mg/Kg	1	8/21/2019 3:28:28 AM	46910
Motor Oil Range Organics (MRO)	ND	50	mg/Kg	1	8/21/2019 3:28:28 AM	46910
Surr: DNOP	102	70-130	%Rec	1	8/21/2019 3:28:28 AM	46910
EPA METHOD 8015D: GASOLINE RANGE					Analyst	: NSB
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	8/20/2019 9:24:04 PM	46899
Surr: BFB	93.5	77.4-118	%Rec	1	8/20/2019 9:24:04 PM	46899
EPA METHOD 8021B: VOLATILES					Analyst	: NSB
Benzene	ND	0.024	mg/Kg	1	8/20/2019 9:24:04 PM	46899
Toluene	ND	0.048	mg/Kg	1	8/20/2019 9:24:04 PM	46899
Ethylbenzene	ND	0.048	mg/Kg	1	8/20/2019 9:24:04 PM	46899
Xylenes, Total	ND	0.096	mg/Kg	1	8/20/2019 9:24:04 PM	46899
Surr: 4-Bromofluorobenzene	95.7	80-120	%Rec	1	8/20/2019 9:24:04 PM	46899

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

Qualifiers:

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

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

Page 31 of 61

Lab Order **1908977**

Date Reported: 8/23/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: Base 19-043 4'

 Project:
 Trebuchet Fee 23 28 19
 Collection Date: 8/18/2019 10:35:00 AM

 Lab ID:
 1908977-032
 Matrix: SOIL
 Received Date: 8/19/2019 8:35:00 AM

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analyst:	MRA
Chloride	3000	150	mg/Kg	50	8/22/2019 4:01:33 AM	46934
EPA METHOD 8015M/D: DIESEL RANGE ORG	SANICS				Analyst:	BRM
Diesel Range Organics (DRO)	ND	9.5	mg/Kg	1	8/21/2019 3:50:44 AM	46910
Motor Oil Range Organics (MRO)	ND	47	mg/Kg	1	8/21/2019 3:50:44 AM	46910
Surr: DNOP	90.6	70-130	%Rec	1	8/21/2019 3:50:44 AM	46910
EPA METHOD 8015D: GASOLINE RANGE					Analyst:	NSB
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	8/20/2019 9:47:42 PM	46899
Surr: BFB	95.7	77.4-118	%Rec	1	8/20/2019 9:47:42 PM	46899
EPA METHOD 8021B: VOLATILES					Analyst:	NSB
Benzene	ND	0.024	mg/Kg	1	8/20/2019 9:47:42 PM	46899
Toluene	ND	0.048	mg/Kg	1	8/20/2019 9:47:42 PM	46899
Ethylbenzene	ND	0.048	mg/Kg	1	8/20/2019 9:47:42 PM	46899
Xylenes, Total	ND	0.096	mg/Kg	1	8/20/2019 9:47:42 PM	46899
Surr: 4-Bromofluorobenzene	97.8	80-120	%Rec	1	8/20/2019 9:47:42 PM	46899

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

Qualifiers:

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

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

Page 32 of 61

Lab Order **1908977**

Date Reported: 8/23/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: Base 19-044 4'

 Project:
 Trebuchet Fee 23 28 19
 Collection Date: 8/18/2019 10:40:00 AM

 Lab ID:
 1908977-033
 Matrix: SOIL
 Received Date: 8/19/2019 8:35:00 AM

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analyst:	MRA
Chloride	2600	150	mg/Kg	50	8/22/2019 4:13:53 AM	46934
EPA METHOD 8015M/D: DIESEL RANGE ORG	ANICS				Analyst:	BRM
Diesel Range Organics (DRO)	ND	9.8	mg/Kg	1	8/21/2019 4:13:00 AM	46910
Motor Oil Range Organics (MRO)	ND	49	mg/Kg	1	8/21/2019 4:13:00 AM	46910
Surr: DNOP	94.9	70-130	%Rec	1	8/21/2019 4:13:00 AM	46910
EPA METHOD 8015D: GASOLINE RANGE					Analyst:	NSB
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	8/20/2019 10:11:27 PM	46899
Surr: BFB	92.8	77.4-118	%Rec	1	8/20/2019 10:11:27 PM	46899
EPA METHOD 8021B: VOLATILES					Analyst:	NSB
Benzene	ND	0.024	mg/Kg	1	8/20/2019 10:11:27 PM	46899
Toluene	ND	0.049	mg/Kg	1	8/20/2019 10:11:27 PM	46899
Ethylbenzene	ND	0.049	mg/Kg	1	8/20/2019 10:11:27 PM	46899
Xylenes, Total	ND	0.097	mg/Kg	1	8/20/2019 10:11:27 PM	46899
Surr: 4-Bromofluorobenzene	93.7	80-120	%Rec	1	8/20/2019 10:11:27 PM	46899

Refer to the QC Summary 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

ple pH Not In Range
Page 33 of 61

Lab Order **1908977**

Date Reported: 8/23/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: Base 19-045 4'

 Project:
 Trebuchet Fee 23 28 19
 Collection Date: 8/18/2019 10:45:00 AM

 Lab ID:
 1908977-034
 Matrix: SOIL
 Received Date: 8/19/2019 8:35:00 AM

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analyst	CAS
Chloride	2400	60	mg/Kg	20	8/21/2019 2:26:50 AM	46934
EPA METHOD 8015M/D: DIESEL RANGE ORG	ANICS				Analyst	BRM
Diesel Range Organics (DRO)	ND	9.8	mg/Kg	1	8/21/2019 4:35:20 AM	46910
Motor Oil Range Organics (MRO)	ND	49	mg/Kg	1	8/21/2019 4:35:20 AM	46910
Surr: DNOP	93.4	70-130	%Rec	1	8/21/2019 4:35:20 AM	46910
EPA METHOD 8015D: GASOLINE RANGE					Analyst	NSB
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	8/20/2019 10:35:04 PM	46899
Surr: BFB	93.6	77.4-118	%Rec	1	8/20/2019 10:35:04 PM	46899
EPA METHOD 8021B: VOLATILES					Analyst	NSB
Benzene	ND	0.024	mg/Kg	1	8/20/2019 10:35:04 PM	46899
Toluene	ND	0.048	mg/Kg	1	8/20/2019 10:35:04 PM	46899
Ethylbenzene	ND	0.048	mg/Kg	1	8/20/2019 10:35:04 PM	46899
Xylenes, Total	ND	0.096	mg/Kg	1	8/20/2019 10:35:04 PM	46899
Surr: 4-Bromofluorobenzene	94.1	80-120	%Rec	1	8/20/2019 10:35:04 PM	46899

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

Qualifiers:

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

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

Page 34 of 61

Lab Order **1908977**

Date Reported: 8/23/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: Wall 19-01 3'

 Project:
 Trebuchet Fee 23 28 19
 Collection Date: 8/18/2019 10:50:00 AM

 Lab ID:
 1908977-035
 Matrix: SOIL
 Received Date: 8/19/2019 8:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst:	CAS
Chloride	610	60		mg/Kg	20	8/21/2019 3:04:03 AM	46934
EPA METHOD 8015M/D: DIESEL RANGE OR	GANICS					Analyst:	BRM
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	8/21/2019 5:19:38 AM	46910
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	8/21/2019 5:19:38 AM	46910
Surr: DNOP	68.4	70-130	S	%Rec	1	8/21/2019 5:19:38 AM	46910
EPA METHOD 8015D: GASOLINE RANGE						Analyst:	NSB
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	8/20/2019 10:58:39 PM	46899
Surr: BFB	90.6	77.4-118		%Rec	1	8/20/2019 10:58:39 PM	46899
EPA METHOD 8021B: VOLATILES						Analyst:	NSB
Benzene	ND	0.024		mg/Kg	1	8/20/2019 10:58:39 PM	46899
Toluene	ND	0.048		mg/Kg	1	8/20/2019 10:58:39 PM	46899
Ethylbenzene	ND	0.048		mg/Kg	1	8/20/2019 10:58:39 PM	46899
Xylenes, Total	ND	0.097		mg/Kg	1	8/20/2019 10:58:39 PM	46899
Surr: 4-Bromofluorobenzene	91.5	80-120		%Rec	1	8/20/2019 10:58:39 PM	46899

Refer to the QC Summary 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

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

Page 35 of 61

Lab Order **1908977**

Date Reported: 8/23/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: Wall 19-02 3'

 Project:
 Trebuchet Fee 23 28 19
 Collection Date: 8/18/2019 10:55:00 AM

 Lab ID:
 1908977-036
 Matrix: SOIL
 Received Date: 8/19/2019 8:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst	CAS
Chloride	440	60		mg/Kg	20	8/21/2019 3:16:27 AM	46934
EPA METHOD 8015M/D: DIESEL RANGE ORG	SANICS					Analyst	BRM
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	8/21/2019 5:41:50 AM	46910
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	8/21/2019 5:41:50 AM	46910
Surr: DNOP	49.5	70-130	S	%Rec	1	8/21/2019 5:41:50 AM	46910
EPA METHOD 8015D: GASOLINE RANGE						Analyst	NSB
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	8/20/2019 11:22:17 PM	46899
Surr: BFB	94.2	77.4-118		%Rec	1	8/20/2019 11:22:17 PM	46899
EPA METHOD 8021B: VOLATILES						Analyst	NSB
Benzene	ND	0.023		mg/Kg	1	8/20/2019 11:22:17 PM	46899
Toluene	ND	0.046		mg/Kg	1	8/20/2019 11:22:17 PM	46899
Ethylbenzene	ND	0.046		mg/Kg	1	8/20/2019 11:22:17 PM	46899
Xylenes, Total	ND	0.093		mg/Kg	1	8/20/2019 11:22:17 PM	46899
Surr: 4-Bromofluorobenzene	95.6	80-120		%Rec	1	8/20/2019 11:22:17 PM	46899

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

Qualifiers:

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

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

Page 36 of 61

Lab Order **1908977**

Date Reported: 8/23/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: Wall 19-03 3'

 Project:
 Trebuchet Fee 23 28 19
 Collection Date: 8/18/2019 11:00:00 AM

 Lab ID:
 1908977-037
 Matrix: SOIL
 Received Date: 8/19/2019 8:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst	MRA
Chloride	2300	150		mg/Kg	50	8/22/2019 4:26:13 AM	46934
EPA METHOD 8015M/D: DIESEL RANGE ORG	GANICS					Analyst	BRM
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	8/21/2019 6:04:07 AM	46910
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	8/21/2019 6:04:07 AM	46910
Surr: DNOP	47.1	70-130	S	%Rec	1	8/21/2019 6:04:07 AM	46910
EPA METHOD 8015D: GASOLINE RANGE						Analyst	NSB
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	8/20/2019 11:45:46 PM	46899
Surr: BFB	92.9	77.4-118		%Rec	1	8/20/2019 11:45:46 PM	46899
EPA METHOD 8021B: VOLATILES						Analyst	NSB
Benzene	ND	0.024		mg/Kg	1	8/20/2019 11:45:46 PM	46899
Toluene	ND	0.048		mg/Kg	1	8/20/2019 11:45:46 PM	46899
Ethylbenzene	ND	0.048		mg/Kg	1	8/20/2019 11:45:46 PM	46899
Xylenes, Total	ND	0.095		mg/Kg	1	8/20/2019 11:45:46 PM	46899
Surr: 4-Bromofluorobenzene	94.2	80-120		%Rec	1	8/20/2019 11:45:46 PM	46899

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

Qualifiers:

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

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

Page 37 of 61

Lab Order **1908977**

Date Reported: 8/23/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: Wall 19-04 3'

 Project:
 Trebuchet Fee 23 28 19
 Collection Date: 8/18/2019 11:05:00 AM

 Lab ID:
 1908977-038
 Matrix: SOIL
 Received Date: 8/19/2019 8:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst:	MRA
Chloride	3600	150		mg/Kg	50	8/22/2019 4:38:34 AM	46934
EPA METHOD 8015M/D: DIESEL RANGE OR	GANICS					Analyst:	BRM
Diesel Range Organics (DRO)	84	9.6		mg/Kg	1	8/21/2019 6:26:11 AM	46910
Motor Oil Range Organics (MRO)	93	48		mg/Kg	1	8/21/2019 6:26:11 AM	46910
Surr: DNOP	69.3	70-130	S	%Rec	1	8/21/2019 6:26:11 AM	46910
EPA METHOD 8015D: GASOLINE RANGE						Analyst:	NSB
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	8/21/2019 12:09:16 AM	46899
Surr: BFB	89.9	77.4-118		%Rec	1	8/21/2019 12:09:16 AM	46899
EPA METHOD 8021B: VOLATILES						Analyst:	NSB
Benzene	ND	0.024		mg/Kg	1	8/21/2019 12:09:16 AM	46899
Toluene	ND	0.047		mg/Kg	1	8/21/2019 12:09:16 AM	46899
Ethylbenzene	ND	0.047		mg/Kg	1	8/21/2019 12:09:16 AM	46899
Xylenes, Total	ND	0.095		mg/Kg	1	8/21/2019 12:09:16 AM	46899
Surr: 4-Bromofluorobenzene	91.9	80-120		%Rec	1	8/21/2019 12:09:16 AM	46899

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

Qualifiers:

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

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

Page 38 of 61

Lab Order **1908977**

Date Reported: 8/23/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: Wall 19-05 3'

 Project:
 Trebuchet Fee 23 28 19
 Collection Date: 8/18/2019 11:10:00 AM

 Lab ID:
 1908977-039
 Matrix: SOIL
 Received Date: 8/19/2019 8:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst	MRA
Chloride	6600	300		mg/Kg	100	8/22/2019 4:50:55 AM	46934
EPA METHOD 8015M/D: DIESEL RANGE ORG	GANICS					Analyst	BRM
Diesel Range Organics (DRO)	140	9.5		mg/Kg	1	8/21/2019 6:48:26 AM	46910
Motor Oil Range Organics (MRO)	120	48		mg/Kg	1	8/21/2019 6:48:26 AM	46910
Surr: DNOP	64.1	70-130	S	%Rec	1	8/21/2019 6:48:26 AM	46910
EPA METHOD 8015D: GASOLINE RANGE						Analyst	NSB
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	8/21/2019 12:32:47 AM	46899
Surr: BFB	90.9	77.4-118		%Rec	1	8/21/2019 12:32:47 AM	46899
EPA METHOD 8021B: VOLATILES						Analyst	NSB
Benzene	ND	0.025		mg/Kg	1	8/21/2019 12:32:47 AM	46899
Toluene	ND	0.049		mg/Kg	1	8/21/2019 12:32:47 AM	46899
Ethylbenzene	ND	0.049		mg/Kg	1	8/21/2019 12:32:47 AM	46899
Xylenes, Total	ND	0.098		mg/Kg	1	8/21/2019 12:32:47 AM	46899
Surr: 4-Bromofluorobenzene	92.1	80-120		%Rec	1	8/21/2019 12:32:47 AM	46899

Refer to the QC Summary 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

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

Page 39 of 61

Lab Order **1908977**

Date Reported: 8/23/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: Base 19-11 4'

 Project:
 Trebuchet Fee 23 28 19
 Collection Date: 8/16/2019 2:00:00 PM

 Lab ID:
 1908977-040
 Matrix: SOIL
 Received Date: 8/19/2019 8:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst	CAS
Chloride	2300	60		mg/Kg	20	8/21/2019 4:06:05 AM	46934
EPA METHOD 8015M/D: DIESEL RANGE OR	GANICS					Analyst	BRM
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	8/21/2019 7:10:30 AM	46910
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	8/21/2019 7:10:30 AM	46910
Surr: DNOP	49.5	70-130	S	%Rec	1	8/21/2019 7:10:30 AM	46910
EPA METHOD 8015D: GASOLINE RANGE						Analyst	NSB
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	8/21/2019 12:56:28 AM	46899
Surr: BFB	100	77.4-118		%Rec	1	8/21/2019 12:56:28 AM	46899
EPA METHOD 8021B: VOLATILES						Analyst	NSB
Benzene	ND	0.025		mg/Kg	1	8/21/2019 12:56:28 AM	46899
Toluene	ND	0.050		mg/Kg	1	8/21/2019 12:56:28 AM	46899
Ethylbenzene	ND	0.050		mg/Kg	1	8/21/2019 12:56:28 AM	46899
Xylenes, Total	ND	0.10		mg/Kg	1	8/21/2019 12:56:28 AM	46899
Surr: 4-Bromofluorobenzene	102	80-120		%Rec	1	8/21/2019 12:56:28 AM	46899

Refer to the QC Summary 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

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

Page 40 of 61

Lab Order **1908977**

Date Reported: 8/23/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: Base 19-12 4'

 Project:
 Trebuchet Fee 23 28 19
 Collection Date: 8/16/2019 2:05:00 PM

 Lab ID:
 1908977-041
 Matrix: SOIL
 Received Date: 8/19/2019 8:35:00 AM

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analyst	MRA
Chloride	2700	150	mg/Kg	50	8/22/2019 5:03:15 AM	46934
EPA METHOD 8015D MOD: GASOLINE RANGE	<u> </u>				Analyst	JMR
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	8/20/2019 4:47:54 PM	46903
Surr: BFB	91.8	70-130	%Rec	1	8/20/2019 4:47:54 PM	46903
EPA METHOD 8015M/D: DIESEL RANGE ORGA	ANICS				Analyst	BRM
Diesel Range Organics (DRO)	ND	9.4	mg/Kg	1	8/21/2019 6:41:53 PM	46911
Motor Oil Range Organics (MRO)	ND	47	mg/Kg	1	8/21/2019 6:41:53 PM	46911
Surr: DNOP	84.8	70-130	%Rec	1	8/21/2019 6:41:53 PM	46911
EPA METHOD 8260B: VOLATILES SHORT LIST	Γ				Analyst	JMR
Benzene	ND	0.024	mg/Kg	1	8/20/2019 4:47:54 PM	46903
Toluene	ND	0.048	mg/Kg	1	8/20/2019 4:47:54 PM	46903
Ethylbenzene	ND	0.048	mg/Kg	1	8/20/2019 4:47:54 PM	46903
Xylenes, Total	ND	0.096	mg/Kg	1	8/20/2019 4:47:54 PM	46903
Surr: 1,2-Dichloroethane-d4	97.7	70-130	%Rec	1	8/20/2019 4:47:54 PM	46903
Surr: 4-Bromofluorobenzene	95.7	70-130	%Rec	1	8/20/2019 4:47:54 PM	46903
Surr: Dibromofluoromethane	106	70-130	%Rec	1	8/20/2019 4:47:54 PM	46903
Surr: Toluene-d8	97.1	70-130	%Rec	1	8/20/2019 4:47:54 PM	46903

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

Qualifiers:

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

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

Page 41 of 61

Lab Order **1908977**

Date Reported: 8/23/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: Base 19-13 4'

 Project:
 Trebuchet Fee 23 28 19
 Collection Date: 8/16/2019 2:10:00 PM

 Lab ID:
 1908977-042
 Matrix: SOIL
 Received Date: 8/19/2019 8:35:00 AM

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analyst	CAS
Chloride	1800	60	mg/Kg	20	8/21/2019 4:30:54 AM	46934
EPA METHOD 8015D MOD: GASOLINE RANGE	İ				Analyst	JMR
Gasoline Range Organics (GRO)	ND	4.7	mg/Kg	1	8/20/2019 6:14:34 PM	46903
Surr: BFB	93.8	70-130	%Rec	1	8/20/2019 6:14:34 PM	46903
EPA METHOD 8015M/D: DIESEL RANGE ORGA	ANICS				Analyst	BRM
Diesel Range Organics (DRO)	ND	9.6	mg/Kg	1	8/21/2019 7:55:04 PM	46911
Motor Oil Range Organics (MRO)	ND	48	mg/Kg	1	8/21/2019 7:55:04 PM	46911
Surr: DNOP	84.4	70-130	%Rec	1	8/21/2019 7:55:04 PM	46911
EPA METHOD 8260B: VOLATILES SHORT LIST	Г				Analyst	JMR
Benzene	ND	0.024	mg/Kg	1	8/20/2019 6:14:34 PM	46903
Toluene	ND	0.047	mg/Kg	1	8/20/2019 6:14:34 PM	46903
Ethylbenzene	ND	0.047	mg/Kg	1	8/20/2019 6:14:34 PM	46903
Xylenes, Total	ND	0.094	mg/Kg	1	8/20/2019 6:14:34 PM	46903
Surr: 1,2-Dichloroethane-d4	93.2	70-130	%Rec	1	8/20/2019 6:14:34 PM	46903
Surr: 4-Bromofluorobenzene	98.8	70-130	%Rec	1	8/20/2019 6:14:34 PM	46903
Surr: Dibromofluoromethane	101	70-130	%Rec	1	8/20/2019 6:14:34 PM	46903
Surr: Toluene-d8	97.3	70-130	%Rec	1	8/20/2019 6:14:34 PM	46903

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

Qualifiers:

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

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

Page 42 of 61

Lab Order **1908977**

Date Reported: 8/23/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: Base 19-14 4'

 Project:
 Trebuchet Fee 23 28 19
 Collection Date: 8/16/2019 2:15:00 PM

 Lab ID:
 1908977-043
 Matrix: SOIL
 Received Date: 8/19/2019 8:35:00 AM

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analyst:	CAS
Chloride	1900	60	mg/Kg	20	8/21/2019 4:43:18 AM	46934
EPA METHOD 8015D MOD: GASOLINE RANGE					Analyst:	JMR
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	8/20/2019 7:40:59 PM	46903
Surr: BFB	90.8	70-130	%Rec	1	8/20/2019 7:40:59 PM	46903
EPA METHOD 8015M/D: DIESEL RANGE ORGA	NICS				Analyst	BRM
Diesel Range Organics (DRO)	ND	9.9	mg/Kg	1	8/21/2019 8:19:35 PM	46911
Motor Oil Range Organics (MRO)	ND	50	mg/Kg	1	8/21/2019 8:19:35 PM	46911
Surr: DNOP	86.2	70-130	%Rec	1	8/21/2019 8:19:35 PM	46911
EPA METHOD 8260B: VOLATILES SHORT LIST					Analyst:	JMR
Benzene	ND	0.024	mg/Kg	1	8/20/2019 7:40:59 PM	46903
Toluene	ND	0.048	mg/Kg	1	8/20/2019 7:40:59 PM	46903
Ethylbenzene	ND	0.048	mg/Kg	1	8/20/2019 7:40:59 PM	46903
Xylenes, Total	ND	0.095	mg/Kg	1	8/20/2019 7:40:59 PM	46903
Surr: 1,2-Dichloroethane-d4	95.4	70-130	%Rec	1	8/20/2019 7:40:59 PM	46903
Surr: 4-Bromofluorobenzene	96.4	70-130	%Rec	1	8/20/2019 7:40:59 PM	46903
Surr: Dibromofluoromethane	101	70-130	%Rec	1	8/20/2019 7:40:59 PM	46903
Surr: Toluene-d8	95.7	70-130	%Rec	1	8/20/2019 7:40:59 PM	46903

Refer to the QC Summary 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

popular Not In Range Page 43 of 61

Lab Order **1908977**

Date Reported: 8/23/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: Base 19-15 4'

 Project:
 Trebuchet Fee 23 28 19
 Collection Date: 8/16/2019 2:20:00 PM

 Lab ID:
 1908977-044
 Matrix: SOIL
 Received Date: 8/19/2019 8:35:00 AM

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analyst	CAS
Chloride	2100	60	mg/Kg	20	8/21/2019 4:55:42 AM	46934
EPA METHOD 8015D MOD: GASOLINE RANGE					Analyst	JMR
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	8/20/2019 8:09:44 PM	46903
Surr: BFB	94.0	70-130	%Rec	1	8/20/2019 8:09:44 PM	46903
EPA METHOD 8015M/D: DIESEL RANGE ORGA	NICS				Analyst	BRM
Diesel Range Organics (DRO)	ND	9.5	mg/Kg	1	8/21/2019 8:44:13 PM	46911
Motor Oil Range Organics (MRO)	ND	47	mg/Kg	1	8/21/2019 8:44:13 PM	46911
Surr: DNOP	86.1	70-130	%Rec	1	8/21/2019 8:44:13 PM	46911
EPA METHOD 8260B: VOLATILES SHORT LIST	-				Analyst	JMR
Benzene	ND	0.024	mg/Kg	1	8/20/2019 8:09:44 PM	46903
Toluene	ND	0.049	mg/Kg	1	8/20/2019 8:09:44 PM	46903
Ethylbenzene	ND	0.049	mg/Kg	1	8/20/2019 8:09:44 PM	46903
Xylenes, Total	ND	0.097	mg/Kg	1	8/20/2019 8:09:44 PM	46903
Surr: 1,2-Dichloroethane-d4	101	70-130	%Rec	1	8/20/2019 8:09:44 PM	46903
Surr: 4-Bromofluorobenzene	99.9	70-130	%Rec	1	8/20/2019 8:09:44 PM	46903
Surr: Dibromofluoromethane	102	70-130	%Rec	1	8/20/2019 8:09:44 PM	46903
Surr: Toluene-d8	97.7	70-130	%Rec	1	8/20/2019 8:09:44 PM	46903

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

Qualifiers:

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

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

Page 44 of 61

Lab Order **1908977**

Date Reported: 8/23/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: Base 19-16 4'

 Project:
 Trebuchet Fee 23 28 19
 Collection Date: 8/16/2019 2:25:00 PM

 Lab ID:
 1908977-045
 Matrix: SOIL
 Received Date: 8/19/2019 8:35:00 AM

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analyst	MRA
Chloride	2600	150	mg/Kg	50	8/22/2019 5:15:35 AM	46945
EPA METHOD 8015D MOD: GASOLINE RAN	GE				Analyst	JMR
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	8/20/2019 8:38:33 PM	46903
Surr: BFB	92.7	70-130	%Rec	1	8/20/2019 8:38:33 PM	46903
EPA METHOD 8015M/D: DIESEL RANGE OF	RGANICS				Analyst	BRM
Diesel Range Organics (DRO)	ND	9.9	mg/Kg	1	8/21/2019 9:09:02 PM	46911
Motor Oil Range Organics (MRO)	ND	49	mg/Kg	1	8/21/2019 9:09:02 PM	46911
Surr: DNOP	86.4	70-130	%Rec	1	8/21/2019 9:09:02 PM	46911
EPA METHOD 8260B: VOLATILES SHORT L	IST				Analyst	JMR
Benzene	ND	0.024	mg/Kg	1	8/20/2019 8:38:33 PM	46903
Toluene	ND	0.048	mg/Kg	1	8/20/2019 8:38:33 PM	46903
Ethylbenzene	ND	0.048	mg/Kg	1	8/20/2019 8:38:33 PM	46903
Xylenes, Total	ND	0.096	mg/Kg	1	8/20/2019 8:38:33 PM	46903
Surr: 1,2-Dichloroethane-d4	96.9	70-130	%Rec	1	8/20/2019 8:38:33 PM	46903
Surr: 4-Bromofluorobenzene	98.2	70-130	%Rec	1	8/20/2019 8:38:33 PM	46903
Surr: Dibromofluoromethane	101	70-130	%Rec	1	8/20/2019 8:38:33 PM	46903
Surr: Toluene-d8	98.3	70-130	%Rec	1	8/20/2019 8:38:33 PM	46903

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

Qualifiers:

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

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

Page 45 of 61

Lab Order **1908977**

Date Reported: 8/23/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: Base 19-17 2'

 Project:
 Trebuchet Fee 23 28 19
 Collection Date: 8/16/2019 2:30:00 PM

 Lab ID:
 1908977-046
 Matrix: SOIL
 Received Date: 8/19/2019 8:35:00 AM

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analyst:	CAS
Chloride	1200	60	mg/Kg	20	8/21/2019 10:37:28 AM	46945
EPA METHOD 8015D MOD: GASOLINE RANGE	≣				Analyst:	JMR
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	8/20/2019 9:07:19 PM	46903
Surr: BFB	90.8	70-130	%Rec	1	8/20/2019 9:07:19 PM	46903
EPA METHOD 8015M/D: DIESEL RANGE ORG	ANICS				Analyst:	BRM
Diesel Range Organics (DRO)	ND	9.9	mg/Kg	1	8/21/2019 9:33:42 PM	46911
Motor Oil Range Organics (MRO)	ND	49	mg/Kg	1	8/21/2019 9:33:42 PM	46911
Surr: DNOP	71.0	70-130	%Rec	1	8/21/2019 9:33:42 PM	46911
EPA METHOD 8260B: VOLATILES SHORT LIS	Т				Analyst:	JMR
Benzene	ND	0.024	mg/Kg	1	8/20/2019 9:07:19 PM	46903
Toluene	ND	0.048	mg/Kg	1	8/20/2019 9:07:19 PM	46903
Ethylbenzene	ND	0.048	mg/Kg	1	8/20/2019 9:07:19 PM	46903
Xylenes, Total	ND	0.095	mg/Kg	1	8/20/2019 9:07:19 PM	46903
Surr: 1,2-Dichloroethane-d4	96.2	70-130	%Rec	1	8/20/2019 9:07:19 PM	46903
Surr: 4-Bromofluorobenzene	96.3	70-130	%Rec	1	8/20/2019 9:07:19 PM	46903
Surr: Dibromofluoromethane	97.9	70-130	%Rec	1	8/20/2019 9:07:19 PM	46903
Surr: Toluene-d8	99.0	70-130	%Rec	1	8/20/2019 9:07:19 PM	46903

Refer to the QC Summary 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

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

Page 46 of 61

Lab Order **1908977**

Date Reported: 8/23/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: Base 19-18 4'

 Project:
 Trebuchet Fee 23 28 19
 Collection Date: 8/16/2019 2:35:00 PM

 Lab ID:
 1908977-047
 Matrix: SOIL
 Received Date: 8/19/2019 8:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst:	MRA
Chloride	4100	150		mg/Kg	50	8/22/2019 5:27:55 AM	46945
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst:	JMR
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	8/20/2019 9:36:04 PM	46903
Surr: BFB	91.7	70-130		%Rec	1	8/20/2019 9:36:04 PM	46903
EPA METHOD 8015M/D: DIESEL RANGE ORGA	NICS					Analyst:	BRM
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	8/21/2019 9:58:28 PM	46911
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	8/21/2019 9:58:28 PM	46911
Surr: DNOP	59.3	70-130	S	%Rec	1	8/21/2019 9:58:28 PM	46911
EPA METHOD 8260B: VOLATILES SHORT LIST	-					Analyst:	JMR
Benzene	ND	0.024		mg/Kg	1	8/20/2019 9:36:04 PM	46903
Toluene	ND	0.048		mg/Kg	1	8/20/2019 9:36:04 PM	46903
Ethylbenzene	ND	0.048		mg/Kg	1	8/20/2019 9:36:04 PM	46903
Xylenes, Total	ND	0.096		mg/Kg	1	8/20/2019 9:36:04 PM	46903
Surr: 1,2-Dichloroethane-d4	100	70-130		%Rec	1	8/20/2019 9:36:04 PM	46903
Surr: 4-Bromofluorobenzene	95.2	70-130		%Rec	1	8/20/2019 9:36:04 PM	46903
Surr: Dibromofluoromethane	102	70-130		%Rec	1	8/20/2019 9:36:04 PM	46903
Surr: Toluene-d8	99.4	70-130		%Rec	1	8/20/2019 9:36:04 PM	46903

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

Qualifiers:

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

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

Page 47 of 61

Lab Order **1908977**

Date Reported: 8/23/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: Base 19-19 4'

 Project:
 Trebuchet Fee 23 28 19
 Collection Date: 8/16/2019 2:40:00 PM

 Lab ID:
 1908977-048
 Matrix: SOIL
 Received Date: 8/19/2019 8:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst:	MRA
Chloride	3100	150		mg/Kg	50	8/22/2019 6:04:58 AM	46945
EPA METHOD 8015D MOD: GASOLINE RANGE	<u> </u>					Analyst:	DJF
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	8/22/2019 1:47:24 AM	46903
Surr: BFB	93.1	70-130		%Rec	1	8/22/2019 1:47:24 AM	46903
EPA METHOD 8015M/D: DIESEL RANGE ORGA	ANICS					Analyst:	BRM
Diesel Range Organics (DRO)	ND	9.1		mg/Kg	1	8/21/2019 10:23:08 PM	46911
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	8/21/2019 10:23:08 PM	46911
Surr: DNOP	63.0	70-130	S	%Rec	1	8/21/2019 10:23:08 PM	46911
EPA METHOD 8260B: VOLATILES SHORT LIST	Γ					Analyst:	DJF
Benzene	ND	0.023		mg/Kg	1	8/22/2019 1:47:24 AM	46903
Toluene	ND	0.047		mg/Kg	1	8/22/2019 1:47:24 AM	46903
Ethylbenzene	ND	0.047		mg/Kg	1	8/22/2019 1:47:24 AM	46903
Xylenes, Total	ND	0.093		mg/Kg	1	8/22/2019 1:47:24 AM	46903
Surr: 1,2-Dichloroethane-d4	116	70-130		%Rec	1	8/22/2019 1:47:24 AM	46903
Surr: 4-Bromofluorobenzene	87.2	70-130		%Rec	1	8/22/2019 1:47:24 AM	46903
Surr: Dibromofluoromethane	119	70-130		%Rec	1	8/22/2019 1:47:24 AM	46903
Surr: Toluene-d8	94.5	70-130		%Rec	1	8/22/2019 1:47:24 AM	46903

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

Qualifiers:

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

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

Page 48 of 61

Lab Order **1908977**

Date Reported: 8/23/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: Base 19-20 4'

 Project:
 Trebuchet Fee 23 28 19
 Collection Date: 8/16/2019 2:45:00 PM

 Lab ID:
 1908977-049
 Matrix: SOIL
 Received Date: 8/19/2019 8:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst:	MRA
Chloride	2600	150		mg/Kg	50	8/22/2019 6:17:18 AM	46945
EPA METHOD 8015D MOD: GASOLINE RANGE	<u> </u>					Analyst:	DJF
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	8/22/2019 2:17:16 AM	46903
Surr: BFB	95.5	70-130		%Rec	1	8/22/2019 2:17:16 AM	46903
EPA METHOD 8015M/D: DIESEL RANGE ORGA	ANICS					Analyst:	BRM
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	8/21/2019 10:47:57 PM	46911
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	8/21/2019 10:47:57 PM	46911
Surr: DNOP	53.4	70-130	S	%Rec	1	8/21/2019 10:47:57 PM	46911
EPA METHOD 8260B: VOLATILES SHORT LIST	Г					Analyst:	DJF
Benzene	ND	0.024		mg/Kg	1	8/22/2019 2:17:16 AM	46903
Toluene	ND	0.047		mg/Kg	1	8/22/2019 2:17:16 AM	46903
Ethylbenzene	ND	0.047		mg/Kg	1	8/22/2019 2:17:16 AM	46903
Xylenes, Total	ND	0.095		mg/Kg	1	8/22/2019 2:17:16 AM	46903
Surr: 1,2-Dichloroethane-d4	108	70-130		%Rec	1	8/22/2019 2:17:16 AM	46903
Surr: 4-Bromofluorobenzene	88.8	70-130		%Rec	1	8/22/2019 2:17:16 AM	46903
Surr: Dibromofluoromethane	112	70-130		%Rec	1	8/22/2019 2:17:16 AM	46903
Surr: Toluene-d8	99.2	70-130		%Rec	1	8/22/2019 2:17:16 AM	46903

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

Qualifiers:

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

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

Page 49 of 61

Hall Environmental Analysis Laboratory, Inc.

WO#: **1908977**

23-Aug-19

Client: Project:		x Resource Group Ltd. achet Fee 23 28 19								
Sample ID:	MB-46925	SampType: mbl	k	Tes	tCode: El	PA Method	300.0: Anion	s		
Client ID:	PBS	Batch ID: 4692	25	F	RunNo: 6	2282				
Prep Date:	8/20/2019	Analysis Date: 8/2	0/2019	5	SeqNo: 2	116108	Units: mg/K	g		
Analyte		Result PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride		ND 1.5								
Sample ID:	LCS-46925	SampType: Ics		Tes	tCode: El	PA Method	300.0: Anion	s		
Client ID:	LCSS	Batch ID: 4692	25	F	RunNo: 6	2282				
Prep Date:	8/20/2019	Analysis Date: 8/2	0/2019	9	SeqNo: 2	116109	Units: mg/K	g		
Analyte		Result PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride		15 1.5	15.00	0	96.9	90	110			
Sample ID:	MB-46926	SampType: MBI	_K	Tes	tCode: El	PA Method	300.0: Anion	s		
Client ID:	PBS	Batch ID: 4692	26	F	RunNo: 6	2288				
Prep Date:	8/20/2019	Analysis Date: 8/2	0/2019	S	SeqNo: 2	116492	Units: mg/K	g		
Analyte		Result PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride		ND 1.5								
Sample ID:	LCS-46926	SampType: LCS	;	Tes	tCode: El	PA Method	300.0: Anion	S		
Client ID:	LCSS	Batch ID: 4692	26	F	RunNo: 6	2288				
Prep Date:	8/20/2019	Analysis Date: 8/2	0/2019	9	SeqNo: 2	116493	Units: mg/K	g		
Analyte		Result PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride		14 1.5	15.00	0	95.0	90	110			
Sample ID:	MB-46934	SampType: MBI	_K	Tes	tCode: El	PA Method	300.0: Anion	s		
Client ID:	PBS	Batch ID: 469:	34	F	RunNo: 6	2288				
Prep Date:	8/20/2019	Analysis Date: 8/2	0/2019	5	SeqNo: 2	116524	Units: mg/K	g		
Analyte		Result PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride		ND 1.5								
Sample ID:	LCS-46934	SampType: LCS	;	Tes	tCode: El	PA Method	300.0: Anion	s		
Client ID:	LCSS	Batch ID: 469	34	F	RunNo: 6 2	2288				
Prep Date:	8/20/2019	Analysis Date: 8/2	0/2019	9	SeqNo: 2	116525	Units: mg/K	g		
Analyte Chloride		Result PQL	SPK value 15.00	SPK Ref Val	%REC 94.4	LowLimit 90	HighLimit	%RPD	RPDLimit	Qual

${\bf Qualifiers:}$

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quantitative Limit

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

Page 50 of 61

Hall Environmental Analysis Laboratory, Inc.

WO#: **1908977**

23-Aug-19

Client: Vertex Resource Group Ltd.

Project: Trebuchet Fee 23 28 19

Sample ID: MB-46945 SampType: MBLK TestCode: EPA Method 300.0: Anions

Client ID: PBS Batch ID: 46945 RunNo: 62333

Prep Date: 8/21/2019 Analysis Date: 8/21/2019 SeqNo: 2118232 Units: mg/Kg

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

Chloride ND 1.5

Sample ID: LCS-46945 SampType: LCS TestCode: EPA Method 300.0: Anions

Client ID: LCSS Batch ID: 46945 RunNo: 62333

Prep Date: 8/21/2019 Analysis Date: 8/21/2019 SeqNo: 2118233 Units: mg/Kg

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

Chloride 14 1.5 15.00 0 94.5 90 110

Qualifiers:

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

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

Page 51 of 61

Client:

Hall Environmental Analysis Laboratory, Inc.

Vertex Resource Group Ltd.

WO#: **1908977**

23-Aug-19

Project: Trebuche	t Fee 23 28 1	9							
Sample ID: LCS-46909	SampType	e: LCS	Tes	tCode: EPA Metho	od 8015M/D: Diesel	Range Organics			
Client ID: LCSS	Batch ID	: 46909	F	RunNo: 62249					
Prep Date: 8/20/2019	Analysis Date	8/20/2019	5	SeqNo: 2115158	Units: mg/Kg				
Analyte	Result P	QL SPK value	SPK Ref Val	%REC LowLim	it HighLimit %	RPD RPDLimit	Qual		
Diesel Range Organics (DRO) Surr: DNOP	53 4.8	10 50.00 5.000	0	105 63. 95.5 7	9 124 0 130				
Sample ID: MB-46909	SampType	e: MBLK	Tes	tCode: EPA Metho	od 8015M/D: Diesel	Range Organics			
Client ID: PBS	Batch ID	: 46909	F	RunNo: 62249					
Prep Date: 8/20/2019	Analysis Date	8/20/2019	S	SeqNo: 2115159	Units: mg/Kg				
Analyte	Result F	QL SPK value	SPK Ref Val	%REC LowLim	it HighLimit %	RPD RPDLimit	Qual		
Diesel Range Organics (DRO) Motor Oil Range Organics (MRO) Surr: DNOP	ND ND 10	10 50 10.00		101 7	0 130				
Sample ID: 1908977-001AMS	SampType	e: MS	TestCode: EPA Method 8015M/D: Diesel Range Organics						
Client ID: Base 19-01 4'	Batch ID	: 46909	F	RunNo: 62249					
Prep Date: 8/20/2019	Analysis Date	: 8/20/2019	5	SeqNo: 2115340	Units: mg/Kg				
Analyte	Result P	QL SPK value	SPK Ref Val	%REC LowLim	it HighLimit %	RPD RPDLimit	Qual		
Diesel Range Organics (DRO)	52	9.6 48.08	0	108 5	7 142				
Surr: DNOP	4.6	4.808		95.8 7	0 130				
Sample ID: 1908977-001AMSI	S ampType	e: MSD	Tes	tCode: EPA Metho	od 8015M/D: Diesel	Range Organics			
Client ID: Base 19-01 4'	Batch ID	: 46909	F	RunNo: 62249					
Prep Date: 8/20/2019	Analysis Date	8/20/2019	5	SeqNo: 2115341	Units: mg/Kg				
Analyte	Result P	QL SPK value	SPK Ref Val	%REC LowLim	it HighLimit %	RPD RPDLimit	Qual		
Diesel Range Organics (DRO)	48	9.2 46.04	0	105 5	7 142	7.19 20			
Surr: DNOP	4.4	4.604		94.6 7	0 130	0 0			
Sample ID: 1908977-021AMS	SampType	e: MS	Tes	tCode: EPA Metho	od 8015M/D: Diesel	Range Organics			
Client ID: Base 19-032 2'	Batch ID	: 46910	F	RunNo: 62249					
Prep Date: 8/20/2019	Analysis Date	: 8/20/2019	S	SeqNo: 2115993	Units: mg/Kg				
Analyte	Result P	QL SPK value	SPK Ref Val	%REC LowLim	it HighLimit %	RPD RPDLimit	Qual		
Diesel Range Organics (DRO)	51	9.9 49.41	0	103 5	7 142				
0 01100									

Qualifiers:

Surr: DNOP

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

3.9

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

B Analyte detected in the associated Method Blank

79.0

70

130

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

4.941

Client:

Project:

Hall Environmental Analysis Laboratory, Inc.

Vertex Resource Group Ltd.

Trebuchet Fee 23 28 19

WO#: **1908977**

23-Aug-19

Project:	et ree 23 28 19								
Sample ID: 1908977-021AMS	SD SampType:	MSD	Tes	tCode: EPA	Method	8015M/D: Die	sel Range	e Organics	
Client ID: Base 19-032 2'	Batch ID:	46910	F	RunNo: 6224	19				
Prep Date: 8/20/2019	Analysis Date:	8/20/2019	5	SeqNo: 2115	5994	Units: mg/K	g		
Analyte	Result PQ	SPK value	SPK Ref Val	%REC Lo	owLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)		.5 47.35		101	57	142	6.55	20	
Surr: DNOP	3.8	4.735		80.9	70	130	0	0	
Sample ID: LCS-46910	SampType:	LCS	Tes	tCode: EPA	Method	8015M/D: Die	sel Range	e Organics	
Client ID: LCSS	Batch ID:	46910	F	RunNo: 6224	19				
Prep Date: 8/20/2019	Analysis Date:	8/20/2019	5	SeqNo: 2116	6014	Units: mg/K	g		
Analyte	Result PQ	_ SPK value	SPK Ref Val	%REC Lo	owLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	_	0 50.00		108	63.9	124			
Surr: DNOP	4.5	5.000		90.5	70	130			
Sample ID: MB-46910	SampType:	MBLK	Tes	tCode: EPA	Method	8015M/D: Die	sel Range	e Organics	
Client ID: PBS	Batch ID:	46910	F	RunNo: 6224	19				
Prep Date: 8/20/2019	Analysis Date:	8/20/2019	9	SeqNo: 2116	016	Units: mg/K	g		
Analyte	Result PQ	SPK value	SPK Ref Val	%REC Lo	owLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)		0							
Motor Oil Range Organics (MRO)		50							
Surr: DNOP	9.7	10.00		96.6	70	130			
Sample ID: MB-46911	SampType:	LCS	Tes	tCode: EPA	Method	8015M/D: Die	sel Range	e Organics	
Client ID: LCSS	Batch ID:	46911	F	RunNo: 6224	19				
Prep Date: 8/20/2019	Analysis Date:	8/21/2019	Ş	SeqNo: 2117	7215	Units: mg/K	g		
Analyte	Result PQ	_ SPK value	SPK Ref Val	%REC Lo	owLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND 1	0 50.00	0	0	63.9	124			S
Surr: DNOP	9.7	5.000		193	70	130			S
Sample ID: LCS-46911	SampType:	MBLK	Tes	tCode: EPA	Method	8015M/D: Die	sel Range	e Organics	
Client ID: PBS	Batch ID:	46911	F	RunNo: 6224	19				
Prep Date: 8/20/2019	Analysis Date:	8/21/2019	S	SeqNo: 2117	7217	Units: mg/K	g		
Analyte	Result PQ	_ SPK value	SPK Ref Val	%REC Lo	owLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	60 1	0							
Motor Oil Range Organics (MRO)		50							_
Surr: DNOP	4.5	10.00		45.1	70	130			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

Page 53 of 61

Hall Environmental Analysis Laboratory, Inc.

WO#: **1908977**

23-Aug-19

Client: Vertex Resource Group Ltd.

Project: Trebuchet Fee 23 28 19

Sample ID: 1908977-041AMS SampType: MS TestCode: EPA Method 8015M/D: Diesel Range Organics

Client ID: Base 19-12 4' Batch ID: 46911 RunNo: 62286

Prep Date: 8/20/2019 Analysis Date: 8/21/2019 SeqNo: 2117582 Units: mg/Kg

PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Analyte Result Diesel Range Organics (DRO) 6.816 В 46 9.0 44.76 86.8 57 142 Surr: DNOP 3.4 4.476 76.3 70 130

Sample ID: 1908977-041AMSD SampType: MSD TestCode: EPA Method 8015M/D: Diesel Range Organics

Client ID: Base 19-12 4' Batch ID: 46911 RunNo: 62286

Prep Date: 8/20/2019 Analysis Date: 8/21/2019 SeqNo: 2117583 Units: mg/Kg

LowLimit Analyte Result PQL SPK value SPK Ref Val %REC HighLimit %RPD **RPDLimit** Qual Diesel Range Organics (DRO) 20 49 9.5 47.35 6.816 89.3 57 142 7.18 В Surr: DNOP 3.7 4.735 78.2 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

Page 54 of 61

Client:

Hall Environmental Analysis Laboratory, Inc.

Vertex Resource Group Ltd.

WO#: **1908977**

23-Aug-19

Project: Trebuche	et Fee 23 28	3 19								
Sample ID: MB-46897	SampT	уре: МЕ	BLK	Test	tCode: El	PA Method	8015D: Gaso	line Rang	е	
Client ID: PBS	Batch	ID: 46	897	R	RunNo: 6	2278				
Prep Date: 8/19/2019	Analysis D	ate: 8/	20/2019	S	SeqNo: 2	115678	Units: mg/K	(g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	930		1000		93.1	77.4	118			
Sample ID: LCS-46897	SampT	ype: LC	s	Test	tCode: El	PA Method	8015D: Gaso	line Rang	е	
Client ID: LCSS	Batch	ID: 46	897	R	RunNo: 6	2278				
Prep Date: 8/19/2019	Analysis D	ate: 8/	20/2019	S	SeqNo: 2	115679	Units: mg/k	ζg		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22	5.0	25.00	0	89.4	80	120			
Surr: BFB	1000		1000		104	77.4	118			
Sample ID: 1908977-001AMS	SampT	уре: М \$	3	Test	tCode: El	PA Method	8015D: Gaso	line Rang	е	
Client ID: Base 19-01 4'	Batch	ID: 46	897	R	RunNo: 6	2278				
Prep Date: 8/19/2019	Analysis D	ate: 8/	20/2019	S	SeqNo: 2	115681	Units: mg/K	ζg		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	4.8	24.15	0	105	69.1	142			
Surr: BFB	1000		966.2		107	77.4	118			
Sample ID: 1908977-001AMS	D SampT	уре: М \$	SD	Test	tCode: El	PA Method	8015D: Gaso	line Rang	е	
Client ID: Base 19-01 4'	Batch	ID: 46	897	R	RunNo: 6	2278				
Prep Date: 8/19/2019	Analysis D	ate: 8/	20/2019	S	SeqNo: 2	115682	Units: mg/k	ζg		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	26	4.9	24.53	0	105	69.1	142	1.75	20	
Surr: BFB	1100		981.4		108	77.4	118	0	0	
Sample ID: MB-46899	SampT	уре: МЕ	BLK	Test	tCode: El	PA Method	8015D: Gaso	line Rang	е	
Client ID: PBS	Batch	ID: 46	899	R	RunNo: 6	2279				
Prep Date: 8/19/2019	Analysis D	ate: 8/	20/2019	S	SeqNo: 2	115781	Units: mg/k	(g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	1000		1000		101	77.4	118			
Sample ID: LCS-46899	SampT	ype: LC	s	Test	tCode: El	PA Method	8015D: Gaso	line Rang	е	
Client ID: LCSS	Batch	ID: 46	899	R	RunNo: 6	2279				
Prep Date: 8/19/2019	Analysis D	ate· 8/	20/2019		SegNo: 2	115782	Units: mg/K	(a		
.,		uto. U	20/2010	•	cqivo. Z	110702	oo. mg/	.9		

Qualifiers:

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

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

Page 55 of 61

Hall Environmental Analysis Laboratory, Inc.

WO#: **1908977**

23-Aug-19

Client: Vertex Resource Group Ltd.

Project: Trebuchet Fee 23 28 19

Sample ID: LCS-46899 SampType: LCS TestCode: EPA Method 8015D: Gasoline Range

Client ID: LCSS Batch ID: 46899 RunNo: 62279

Prep Date: 8/19/2019 Analysis Date: 8/20/2019 SeqNo: 2115782 Units: mg/Kg

PQL SPK value SPK Ref Val %REC HighLimit %RPD **RPDLimit** Analyte Result LowLimit Qual 0 Gasoline Range Organics (GRO) 23 5.0 25.00 91.2 80 120 Surr: BFB 1200 1000 117 77.4 118

Sample ID: 1908977-021AMS SampType: MS TestCode: EPA Method 8015D: Gasoline Range

Client ID: Base 19-032 2' Batch ID: 46899 RunNo: 62279

Prep Date: 8/19/2019 Analysis Date: 8/20/2019 SeqNo: 2115784 Units: mg/Kg

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Gasoline Range Organics (GRO) 4.7 23.30 0 99.7 69.1 142

117

77.4

118

Sample ID: 1908977-021AMSD SampType: MSD TestCode: EPA Method 8015D: Gasoline Range

932.0

Client ID: Base 19-032 2' Batch ID: 46899 RunNo: 62279

1100

Prep Date: 8/19/2019 Analysis Date: 8/20/2019 SeqNo: 2115785 Units: mg/Kg

SPK value SPK Ref Val %REC %RPD **RPDLimit** Result PQL LowLimit HighLimit Qual Analyte Gasoline Range Organics (GRO) 24 4.9 24.32 0 96.8 69.1 142 1.27 20 Surr: BFB 1100 972.8 77.4 0 117 118 0

Qualifiers:

Surr: BFB

Value exceeds Maximum Contaminant Level

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quantitative Limit

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

Page 56 of 61

Hall Environmental Analysis Laboratory, Inc.

WO#: **1908977**

23-Aug-19

Client:	Vertex Resource Group Ltd.
Project:	Trebuchet Fee 23 28 19

Sample ID: MB-46897	SampType: MBLK			Tes	tCode: El							
Client ID: PBS	Batch	Batch ID: 46897			tunNo: 6	2278						
Prep Date: 8/19/2019	Analysis D	Analysis Date: 8/20/2019			SeqNo: 2115719 Unit				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	0.94		1.000		94.5	80	120					

Sample ID: LCS-46897	SampT	ype: LC	S	Tes						
Client ID: LCSS	Batch	Batch ID: 46897			RunNo: 6					
Prep Date: 8/19/2019	Analysis Date: 8/20/2019			SeqNo: 2115720 Units: mg/Kg						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.025	1.000	0	104	80	120			
Toluene	1.1	0.050	1.000	0	107	80	120			
Ethylbenzene	1.1	0.050	1.000	0	109	80	120			
Xylenes, Total	3.3	0.10	3.000	0	110	80	120			
Surr: 4-Bromofluorobenzene	1.0		1.000		101	80	120			

Sample ID: 1908977-002AMS	SampT	уре: М	3	TestCode: EPA Method 8021B: Volatiles						
Client ID: Base 19-02 4'	Batcl	n ID: 46	897	F	RunNo: 6					
Prep Date: 8/19/2019	Analysis D	Date: 8/	20/2019	S	SeqNo: 2	115723	Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.025	0.9843	0	107	76	123			
Toluene	1.1	0.049	0.9843	0	111	80.3	127			
Ethylbenzene	1.1	0.049	0.9843	0	114	80.2	131			
Xylenes, Total	3.4	0.098	2.953	0.01668	114	78	133			
Surr: 4-Bromofluorobenzene	0.96		0.9843		97.9	80	120			

Sample ID: 1908977-002AMSD) SampT	ype: MS	D	Tes	tCode: EF					
Client ID: Base 19-02 4'	Batch	n ID: 468	397	R	RunNo: 62					
Prep Date: 8/19/2019	Analysis D	ate: 8/2	20/2019	S	SeqNo: 2115724 Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.024	0.9671	0	118	76	123	7.87	20	
Toluene	1.2	0.048	0.9671	0	123	80.3	127	8.54	20	
Ethylbenzene	1.2	0.048	0.9671	0	125	80.2	131	7.60	20	
Xylenes, Total	3.6	0.097	2.901	0.01668	124	78	133	6.91	20	
Surr: 4-Bromofluorobenzene	0.93		0.9671		96.4	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

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

Page 57 of 61

Hall Environmental Analysis Laboratory, Inc.

WO#: **1908977**

23-Aug-19

Client:	Vertex Resource Group Ltd.
Project:	Trebuchet Fee 23 28 19

Sample ID: MB-46899	Sampl	SampType: MBLK			TestCode: EPA Method 8021B: Volatiles					
Client ID: PBS	Batc	Batch ID: 46899			RunNo: 62279					
Prep Date: 8/19/2019	Analysis D	Analysis Date: 8/20/2019			SeqNo: 2	115823	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	0.94		1.000		93.8	80	120			

Sample ID: LCS-46899	Samp1	Гуре: LC	S	Tes						
Client ID: LCSS	Batc	h ID: 46 8	899	F	RunNo: 6					
Prep Date: 8/19/2019	Analysis [Analysis Date: 8/20/2019			SeqNo: 2115824 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	94.7	80	120			
Toluene	0.97	0.050	1.000	0	96.5	80	120			
Ethylbenzene	0.98	0.050	1.000	0	98.0	80	120			
Xylenes, Total	2.9	0.10	3.000	0	98.2	80	120			
Surr: 4-Bromofluorobenzene	0.99		1.000		99.1	80	120			

Sample ID: 1908977-022AMS	Sampl	Гуре: МS	5	Tes						
Client ID: Base 19-033 2'	Batc	h ID: 46	899	F	RunNo: 6					
Prep Date: 8/19/2019	Analysis [Date: 8/	20/2019	SeqNo: 2115827 Units: mg/Kg						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.95	0.023	0.9337	0	102	76	123			
Toluene	1.0	0.047	0.9337	0	107	80.3	127			
Ethylbenzene	1.0	0.047	0.9337	0	112	80.2	131			
Xylenes, Total	3.1	0.093	2.801	0	112	78	133			
Surr: 4-Bromofluorobenzene	0.92		0.9337		98.5	80	120			

Sample ID: 1908977-022AMSI	S ampT	ype: MS	SD.	Tes						
Client ID: Base 19-033 2'	Batch	n ID: 468	399	F	RunNo: 6					
Prep Date: 8/19/2019	Analysis D	oate: 8/ 2	20/2019	SeqNo: 2115828 Units: mg/Kg						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.97	0.023	0.9285	0	105	76	123	2.16	20	
Toluene	1.0	0.046	0.9285	0	109	80.3	127	1.19	20	
Ethylbenzene	1.0	0.046	0.9285	0	113	80.2	131	0.251	20	
Xylenes, Total	3.1	0.093	2.786	0	112	78	133	0.395	20	
Surr: 4-Bromofluorobenzene	0.95		0.9285		102	80	120	0	0	

Qualifiers:

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

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

Page 58 of 61

Hall Environmental Analysis Laboratory, Inc.

WO#: **1908977**

23-Aug-19

Client: Vertex Resource Group Ltd.

Project: Trebuchet Fee 23 28 19

Sample ID: Ics-46903	Samp1	Гуре: LC	S	TestCode: EPA Method 8260B: Volatiles Short List						
Client ID: LCSS	Batc	h ID: 46 9	903	F	RunNo: 62292					
Prep Date: 8/19/2019	Analysis D	Date: 8/	20/2019	9	SeqNo: 2	116842	Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.93	0.025	1.000	0	92.5	68	135			
Toluene	0.99	0.050	1.000	0	99.3	70	130			
Ethylbenzene	1.0	0.050	1.000	0	100	70	130			
Xylenes, Total	3.1	0.10	3.000	0	104	70	130			
Surr: 1,2-Dichloroethane-d4	0.50		0.5000		99.5	70	130			
Surr: 4-Bromofluorobenzene	0.48		0.5000		96.8	70	130			
Surr: Dibromofluoromethane	0.53		0.5000		107	70	130			
Surr: Toluene-d8	0.49		0.5000		99.0	70	130			

Sample ID: mb-46903	Samp	Гуре: МЕ	BLK	Tes	tCode: El	PA Method	8260B: Volat	iles Short	List	•
Client ID: PBS	Batc	h ID: 46 9	903	F	RunNo: 6	2292				
Prep Date: 8/19/2019	Analysis [Date: 8/	20/2019	S	SeqNo: 2	116843	Units: mg/K	(g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 1,2-Dichloroethane-d4	0.50		0.5000		100	70	130			
Surr: 4-Bromofluorobenzene	0.51		0.5000		102	70	130			
Surr: Dibromofluoromethane	0.54		0.5000		107	70	130			
Surr: Toluene-d8	0.49		0.5000		98.3	70	130			

Sample ID: 1908977-042AMS	Sampl	Гуре: М S	3	Tes	tCode: El	PA Method	8260B: Volat	iles Short	List	
Client ID: Base 19-13 4'	Batc	h ID: 46 9	903	F	RunNo: 6	2292				
Prep Date: 8/19/2019	Analysis D	Date: 8/ 2	20/2019	\$	SeqNo: 2	116846	Units: mg/K	(g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.95	0.023	0.9363	0	102	57.1	141			
Toluene	1.1	0.047	0.9363	0	116	70	130			
Ethylbenzene	1.1	0.047	0.9363	0	119	70	130			
Xylenes, Total	3.4	0.094	2.809	0	123	70	130			
Surr: 1,2-Dichloroethane-d4	0.45		0.4682		96.1	70	130			
Surr: 4-Bromofluorobenzene	0.46		0.4682		97.2	70	130			
Surr: Dibromofluoromethane	0.47		0.4682		101	70	130			
Surr: Toluene-d8	0.46		0.4682		99.1	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

Page 59 of 61

Hall Environmental Analysis Laboratory, Inc.

WO#: **1908977**

23-Aug-19

Client: Vertex Resource Group Ltd.

Project: Trebuchet Fee 23 28 19

Sample ID: 1908977-042AM	SD Samp1	Гуре: М S	SD	Tes	tCode: El	PA Method	8260B: Volat	tiles Short	List	
Client ID: Base 19-13 4'	Batc	h ID: 46 9	903	F	RunNo: 6	2292				
Prep Date: 8/19/2019	Analysis [Date: 8/ 2	20/2019	5	SeqNo: 2	116847	Units: mg/K	(g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.025	0.9823	0	109	57.1	141	11.4	20	
Toluene	1.1	0.049	0.9823	0	116	70	130	4.37	20	
Ethylbenzene	1.2	0.049	0.9823	0	119	70	130	5.04	0	
Xylenes, Total	3.7	0.098	2.947	0	124	70	130	5.98	0	
Surr: 1,2-Dichloroethane-d4	0.51		0.4912		104	70	130	0	0	
Surr: 4-Bromofluorobenzene	0.49		0.4912		99.8	70	130	0	0	
Surr: Dibromofluoromethane	0.51		0.4912		104	70	130	0	0	
Surr: Toluene-d8	0.48		0.4912		98.7	70	130	0	0	

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit

- 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

Client:

Hall Environmental Analysis Laboratory, Inc.

Vertex Resource Group Ltd.

Analysis Date: 8/20/2019

PQL

4.9

24.51

490.2

Result

24

450

WO#: **1908977**

23-Aug-19

Project: Trebuche	et Fee 23 28	3 19								
Sample ID: Ics-46903	SampTy	pe: LC	s	Tes	tCode: El	PA Method	8015D Mod:	Gasoline	Range	
Client ID: LCSS	Batch	ID: 46	903	F	RunNo: 6	2292				
Prep Date: 8/19/2019	Analysis Da	ate: 8/	20/2019	5	SeqNo: 2	116854	Units: mg/k	(g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	20	5.0	25.00	0	81.0	70	130			
Surr: BFB	460		500.0		92.4	70	130			
Sample ID: mb-46903	SampTy	/pe: ME	BLK	Tes	tCode: El	PA Method	8015D Mod:	Gasoline	Range	
Client ID: PBS	Batch	ID: 46	903	F	RunNo: 6	2292				
Prep Date: 8/19/2019	Analysis Da	ate: 8/	20/2019	S	SeqNo: 2	116855	Units: mg/k	K g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	470		500.0		93.4	70	130			
Sample ID: 1908977-041ams	SampTy	/pe: M \$	3	Tes	tCode: El	PA Method	8015D Mod:	Gasoline	Range	
Client ID: Base 19-12 4'	Batch	ID: 46	903	F	RunNo: 6	2292				
Prep Date: 8/19/2019	Analysis Da	ate: 8/	20/2019	S	SeqNo: 2	116857	Units: mg/k	C g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	4.8	23.92	0	101	70	130			
Surr: BFB	460		478.5		95.8	70	130			
Sample ID: 1908977-041amsc	I SampTy	/pe: M \$	SD	Tes	tCode: El	PA Method	8015D Mod:	Gasoline	Range	
Client ID: Base 19-12 4'	Batch	ID: 46	903	F	RunNo: 6	2292				

SPK value SPK Ref Val %REC LowLimit

Qualifiers:

- Value exceeds Maximum Contaminant 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

Prep Date: 8/19/2019

Gasoline Range Organics (GRO)

Surr: BFB

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

SeqNo: 2116858

98.5

92.7

Units: mg/Kg

130

130

HighLimit

70

70

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

RPDLimit

20

0

Qual

%RPD

0.0542

0



Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87109

TEL: 505-345-3975 FAX: 505-345-4107 Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: **VERTEX CARLSBAD** Work Order Number: 1908977 RcptNo: 1 Received By: Erin Melendrez 8/19/2019 8:35:00 AM Completed By: Leah Baca 8/19/2019 9:58:54 AM 8/19/19 Reviewed By: Chain of Custody 1. Is Chain of Custody complete? Yes 🗹 No 🗆 Not Present 2. How was the sample delivered? Courier <u>Log</u> 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 No 🗌 Yes 🔽 NA 🗆 Sample(s) in proper container(s)? Yes 🔽 No \square 6. Sufficient sample volume for indicated test(s)? Yes 🗹 No 7. Are samples (except VOA and ONG) properly preserved? No 🗆 Yes 🗸 8. Was preservative added to bottles? Yes 🗌 No 🗸 NA 🗆 9. VOA vials have zero headspace? Yes No 🗌 No VOA Vials 🗹 Yes \square 10. Were any sample containers received broken? No 🗹 # of preserved bottles checked 11. Does paperwork match bottle labels? Yes 🔽 for pH: No 🗔 (Note discrepancies on chain of custody) (<2 or >1,2-tinless noted) 12. Are matrices correctly identified on Chain of Custody? Adjusted? Yes 🗸 No 🗌 13. Is it clear what analyses were requested? Yes 🗸 No 🗌 Checked by: DAD 8//9//9 14. Were all holding times able to be met? Yes 🗹 No 🗌 (If no, notify customer for authorization.) <u>Special Handling (if applicable)</u> 15. Was client notified of all discrepancies with this order? Yes 🗌 No 🗌 NA 🔽 Person Notified: Dennis Williams Date 1 By Whom: Balli Via: eMail M Phone Fax In Person Regarding: rample Norme discrepany between COC and sample laber sampu abel Was 16. Additional remarks: 17. Cooler Information Cooler No Temp °C Condition Seal Intact Seal No Seal Date Signed By 4.0 Good Yes

HALL ENVIRONMENTAL		www.hallenvironmental.com	4901 Hawkins NE - Albuquerque, NM 87109	Tel. 505-345-3975 Fax 505-345-4107	Analysis Request	(O)	SIMS SIMS SIMS) (0 1 1,s(308/868 504.1 504.1 50 or 82 3, NC	TBE cide of the ci	Sem Neth Neth by 8 M	781 F АНа С С ЭБО (8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	* * * *	×	X	X	××	X	*	***	X	×	×	KK KK KK KK KK KK KK KK KK KK KK KK KK	Remarks:		if necessary, sample 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.
Turn-Around Time:	□ Standard K.Rush	Project Name:	בווים ליבה אין הים	Project #:	175-00014	Project Manager: Dennis Williams			Sampler: On Ice: ★ Yes □ No		Cooler Temp(maluding CF): 3.8.4().7(6.5)	Preservative	Type and # Type 1902の子子	64ess tar 16c -00]	700-	-003	h00-	500-	900 -	₹NO-	200-	600-	010-	110- /	710-	l .	Réceive foy: Via COUR C'E bate Time 20835	contracted to other accredited laboratories. This serves as notice of the
dy Record	Client: Versek Resource group LTO	Marashon Oil	Mailing Address:	213 5 Mest Street, Lealsbed, NM, 3824,0 Project #.	Phone #: 575 361 1137	email or Fax#:	QA/QC Package:		Accreditation:	ype)_			Time Matrix Sample Name	8/14 5:00 Soil Besc 19-01 4'	04/14 6,05 Besc 19-02 4"	04/2 4:10 Besc 19-03 4'	08/4 6:15 Base 19-04 4	0918 5:20 Base 19-05 4	05/14 8:25 Base 19-06 4'	08/14 8:30 Basc 19-07 4"	14 80-81 Sest 18-08 4'	1 4 60-61 700 04:4 81/20	34 4:45 Base 19-121 4"	05:4	555 V Base 19-23	Date: Time: Relinquished by: of 12.00 Dean'S William S	Date: Time. Relinquished by:	If necessary, samples/submitted to Hall Environmental may be sub

	ANALYSIS LABORATORY	www.hallenvironmental.com	4901 Hawkins NE - Albuquerque, NM 87109	Tel. 505-345-3975 Fax 505-345-4107	Analysis Request		S 'Þ(Od '	^z ON	10 (103;	y 83 tr, <i>N</i> OA)	Hs by F, B 50 (V	PA BS8 828	×			X		X	K	X	×						This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.
			901 Ha	⁻ el. 505		1 -			Z808/	səpi	oite	94 F8	308								1		,	, ,	5 1	ks:		. Any sub
			4						O \ DE			#380± EX3	\cong	<u>×</u> ∡	× X	<u>▼</u>	$\kappa \kappa$	K κ	$ \mathcal{K} $	K	メス	メダ	X	×	R K	Remarks:		ossibility
		01 00 10	$\setminus \mid$	7/7	7.10	W. Higgs			Mianos		SHO-ZICHEH-ÜFON	HEAL No.		.013	h/0-	-015 N		+10-		-019	-020	-021	720-	1 570-	1 h20-	S1819 Time R	SK baté Time	
Time:	Rush	2,40		11700-101	.	ger: Oran	:		Anis Wi		ncluding CF). 중	Preservative	Type	(ce				-						/ /		Via:	/ Viadurie	scredited laboratorie
Turn-Around	□ Standard	Project Name:			`	Project Manager: Oc. 100	1		Sampler: D2	# of Coolers:	Cooler Tempo	Container	Type and #	glass Jur					-							Received by:	Received by:	ontracted to other as
Chain-of-Custody Record	Resource group LTD	1:0.		Street Carlsbad NM garaso #:	361 113		Permiss @ Vertex-Ca	☐ Level 4 (Full Validation)	☐ Az Compliance				Matrix Sample Name	Soil Base 19-24 4'	1 Base 19-25 4'	Basc 19-26 4	Besc 19-27 4"	Base 19-28 41	Best 19-29 4"	Base 19- 30 4	Base 19-31. 4"	Base 19-32 &	Basc 19-53 21	1) Besc 19-34 4"	Desc 19-35 41	Dearis Williams	Relinquished By:	If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories.
hain-	Verter	Narathon	Address:	Mesa	575	Fax#: Ø	ackage:	lard		(Type)			Time	4:00	9.05	07:6	9.15	9.20	9.25	9:30	9:35	9:40	134.6	4.50	9.56	Time: /2.30	Time:	Decessary
ิ	Client:	Ma	Mailing Address:	213 5 Mcsa	Phone #:	email or Fax#:	QA/QC Package:	Standard	Accreditation:	□ EDD (Type)			Date -	3/2	ŧ_											Date: 69/14	Date:	

HALL ENVIRONMENTAL ANALYSIS LABORATORY www.hallenvironmental.com 4901 Hawkins NE - Albuquerque, NM 87109 Tel. 505-345-3975 Fax 505-345-4107 Analysis Request	EDB (Method 504.1) PAHs by 8310 or 8270SIMS RCRA 8 Metals CI, F, Br, NO ₃ , NO ₂ , PO ₄ , SO ₄ 8260 (VOA) R270 (Semi-VOA) Total Coliform (Present/Absent)				Time: Relinquished by: 12 to Dun is William; Received by Via: Date Time Remarks:
4901 Tel. 5	TPH:8015D(GRO / DRO / MRO) 8081 Pesticides/8082 PCB's				Remarks:
23 28 19	Project Manager: Pendict Manager: Pendict Williams Sampler: Dendit Williams Sampler: Dendit Williams Sampler: Dendit Williams Sampler: Sampler: Williams Sampler: S	-020- -020-	-028 -029 -030 -031	-032 -033 -034 -035	Date Time Rem Company of the Company of the Company of the Company of the Company of the company of the contract of the possition of the contract of the contr
round Time: Indard Rush Name: Frbchchf 2 #:	lanager: Pennis Williams Dennis Williams Wyes © No ers: 1 Implineleding office & HEAL Preservative HEAL Type [4089]	1Ce			Via:
Turn-Around [™] Standard Project Name ###################################	Project Manager: Pend Pend Sampler: Dend On Ice: Summer Summer Pre Container Pre Type and # Type	Class Jar			Received by/ Regélved by:
Resource group LTD oil street certsbad NAM 361 (137	email or Fax#: alwillians @ vc.Pck, Ca. QA/QC Package: Pcrmian & vc.Pck, Ca. QA/QC Package: Pcrmian & Level 4 (Full Validation) Accreditation: Az Compliance Description: Az Compliance Description: Other EDD (Type) Date Time Matrix Sample Name	501 Buse 19-96 4' Buse 19-37 4' Buse 19-56 4'	Base 19-39 4' Base 19-40 4' Buse 19-41 4'	Basc 19-49 4' Basc 19-44 4' Basc 19-49 4'	Relinquished by: Punt's Williams Relinquished by: Resimples submitted to Hall Environmental may be submitted.
Client: yerrex Mailing Address: 213 5 mc3a Phone #: 575	email or Fax#: a QA/QC Package: Z Standard Accreditation: DEDD (Type)	10.00	10:15	10:45	Date: Time: Dafe: Time:

	ANALYSIS LABORATORY		4901 Hawkins NE - Albuquerque, NM 87109	Tel. 505-345-3975 Fax 505-345-4107	Analysis Request	*O9	8's MS MS ,,,) OS	NO ₂ 4.1) 4.2γ (Γ.1)	PO (18 50 50 50 50 50 50 50 50 50 50 50 50 50	TBE cide ood 31(C 0/O 0/I	V M752 Sestification of the Method by 8 Method Br, Br, Br, Br, Br, Br, Br, Br, Br, Br,	TEX 80 19 19 19 19 19 19 19 19 19 19 19 19 19	8 8 8 8								Remarks:	2	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.
Turn-Around Time:	□ Standard	; ;	Freduchet 23-LB19		196-00/14		Ocanis Williams		ar.Dannis Wa	On ice: ☑ Xes ☐ No		Cooler Temp(including cp: 3.8+1) VKE) =4.1(() C)	Container Preservative HEAL No.	I ype	9 lass Jan 1924 16c -037	1 -038	VEO- 7					Received by: Via: Date Time	Received Wis With Site Time Base Time Base	ontracted to other accredited laboratories. This serves as notice of the
Chain-of-Custody Record	Client: Vertex Resource group LTD		Mailing Address:	212 5 Mcsa 97 carlsbad NM	Phone #: 57536/ 1/37	rams 60 Vertex, ca	QA/QG Package: Permian@ Vcollerco	☑ Standard □ Level 4 (Full Validation)	☐ Az Compliance	□ NELAC □ Other			; ;	Matrix Sample Name	19-03 3	11:05 1. Wall 19-04 3"	V 11:10 J Well 19-05 3					Date: Time: Relinquished by:	Date: Time: Relinquished by:	If necessary, samples bigmitted to Hall Environmental may be subc

Chain-of-Custody Record	Turn-Around	Time:										
Client: Marchan Oit / 1000 Monthey oil	oi/ 🗆 Standard	E Rush					Z S	ZIZ.	HALL ENVIRONMENTAL		F (ر د ب
ו עין	144	er Kee	pi pc 20			www.hz	WWW.hallenvironmental.com	J. J. J. J. J. J. J. J. J. J. J. J. J. J	Www.hallenvironmental.com	Ž	5	-
Mailing Address:	•			490	Hawk	4901 Hawkins NF	Alhio		- Albuquerdue NM 87109	20		
213 5 Mesa Street, Carlsbad, NM SSDZ	Project #: /	41900-36	4	Ţel.	505-3	505-345-3975	Fax	505-2	505-345-4107	3		
Phone #: 575-361-1137							Anal	s Requ	est			
email or Fax#: Permian @ Vertexies, duilliams @	Project Manager:	ger: Deanis	is Williams				⁺C		(11			
OA/OC Package:	ر	,		MRC	s,e	SI)S ''		uəso			-
☑ Standard □ Level 4 (Full Validation)	ın)			1/0	PCF	VISC	'nОd		dA∖tı		_	_
Accreditation:	Sampler: D_{-A}	anis Willia	2003	AMT AQ\(2808 4.1))7 <u>S</u> 8 -	' ^z ON	(reser	<u> </u>		
(au)	# Of Collins	N les	ON I	SPC	_		, _E (AO'	ط) i	, <u> </u>		
	fooler Tamp	O COO III	NJON JAMES TO SERVICE OF THE SERVICE	D(C					ָסנוג			
			22	9108					Colif	•		
Date Time Matrix Sample Name	Container Type and #	Preservative Type	HEAL No.		EDB	HA9 ADA	3Se0	9270	Total			
08/16 2:00Pm Soil Base 19-11 4:	Gless Jar	37I	040-	>	!					-		
04/16 205 Pm 50:1 Base 17-12 4	/	11	70-	\ \ \			メ			<u> </u>	<u> </u>	
08/16 210 Pm Soil Base 19-13 41		"	240-	×		_	ㅗ					
		11	-043	×			×		<u> </u>	 	-	
220 Am go:1		H	nh0-	×			×					
225 PW	Sand Rich C	l	540	X			✓					
230 PM Soil Buse 19-17 W	2. C. M. M.	11	- 096	メメ			×					_
08/16 2.35 PM Soil Base 19-18 4		"	tho-	×			ىخ	_				
50il Base 19-19 4	î 📗	"	340-	X X			×			<u> </u> 		
03/16 2445 Pm Soil Base 19-20 4		"	- 0 49	メメ			×					
									-		_	
Date: Relinquished by: (1) 2.390 Dennis Williams	Received by	Kia:	Z Z	Remarks:								
Date: Time: Relinquished by:	Received by.	Via: Cour	the state of the s									
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.	subcontracted to other ac	credited laboratories	3. This serves as notice of this p	ossibility. Any	sub-cont	acted data	will be clea	ırly notate	d on the ang	alytical re	port.	



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

August 28, 2019

Dennis Williams
Vertex Resource Group Ltd.
213 S. Mesa St
Carlsbad, NM 88220
TEL:
FAX:

RE: Trebuchet 23 28 19 OrderNo.: 1908D34

Dear Dennis Williams:

Hall Environmental Analysis Laboratory received 22 sample(s) on 8/22/2019 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman

Laboratory Manager

andyl

4901 Hawkins NE

Albuquerque, NM 87109

Lab Order **1908D34**Date Reported: **8/28/2019**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Client Sample ID: BS 19-46

Project: Trebuchet 23 28 19

Collection Date: 8/20/2019

Lab ID: 1908D34-001 **Matrix:** SOIL **Received Date:** 8/22/2019 8:45:00 AM

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analyst	CAS
Chloride	1700	60	mg/Kg	20	8/23/2019 6:02:22 PM	47019
EPA METHOD 8015M/D: DIESEL RANGE ORG	SANICS				Analyst	BRM
Diesel Range Organics (DRO)	ND	9.4	mg/Kg	1	8/23/2019 11:47:39 AM	47011
Motor Oil Range Organics (MRO)	ND	47	mg/Kg	1	8/23/2019 11:47:39 AM	47011
Surr: DNOP	110	70-130	%Rec	1	8/23/2019 11:47:39 AM	47011
EPA METHOD 8015D: GASOLINE RANGE					Analyst	NSB
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	8/24/2019 11:33:37 AM	47004
Surr: BFB	92.8	77.4-118	%Rec	1	8/24/2019 11:33:37 AM	47004
EPA METHOD 8021B: VOLATILES					Analyst	NSB
Benzene	ND	0.024	mg/Kg	1	8/24/2019 11:33:37 AM	47004
Toluene	ND	0.048	mg/Kg	1	8/24/2019 11:33:37 AM	47004
Ethylbenzene	ND	0.048	mg/Kg	1	8/24/2019 11:33:37 AM	47004
Xylenes, Total	ND	0.096	mg/Kg	1	8/24/2019 11:33:37 AM	47004
Surr: 4-Bromofluorobenzene	93.3	80-120	%Rec	1	8/24/2019 11:33:37 AM	47004

Refer to the QC Summary 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

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

Page 1 of 29

Lab Order **1908D34**

Date Reported: 8/28/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Project:

Trebuchet 23 28 19

Client Sample ID: BS 19-47

Collection Date: 8/20/2019

Lab ID: 1908D34-002 **Matrix:** SOIL **Received Date:** 8/22/2019 8:45:00 AM

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analyst	CAS
Chloride	1500	60	mg/Kg	20	8/23/2019 6:14:46 PM	47019
EPA METHOD 8015M/D: DIESEL RANGE ORG	SANICS				Analyst	BRM
Diesel Range Organics (DRO)	ND	9.4	mg/Kg	1	8/23/2019 12:12:03 PM	47011
Motor Oil Range Organics (MRO)	ND	47	mg/Kg	1	8/23/2019 12:12:03 PM	47011
Surr: DNOP	109	70-130	%Rec	1	8/23/2019 12:12:03 PM	47011
EPA METHOD 8015D: GASOLINE RANGE					Analyst	NSB
Gasoline Range Organics (GRO)	ND	4.7	mg/Kg	1	8/24/2019 12:44:01 PM	47004
Surr: BFB	92.1	77.4-118	%Rec	1	8/24/2019 12:44:01 PM	47004
EPA METHOD 8021B: VOLATILES					Analyst	NSB
Benzene	ND	0.024	mg/Kg	1	8/24/2019 12:44:01 PM	47004
Toluene	ND	0.047	mg/Kg	1	8/24/2019 12:44:01 PM	47004
Ethylbenzene	ND	0.047	mg/Kg	1	8/24/2019 12:44:01 PM	47004
Xylenes, Total	ND	0.095	mg/Kg	1	8/24/2019 12:44:01 PM	47004
Surr: 4-Bromofluorobenzene	92.5	80-120	%Rec	1	8/24/2019 12:44:01 PM	47004

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

Qualifiers:

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

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

Page 2 of 29

Lab Order 1908D34

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 8/28/2019

CLIENT:Vertex Resource Group Ltd.Client Sample ID: BS 19-48Project:Trebuchet 23 28 19Collection Date: 8/20/2019

Lab ID: 1908D34-003 **Matrix:** SOIL **Received Date:** 8/22/2019 8:45:00 AM

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analyst	CAS
Chloride	1600	60	mg/Kg	20	8/23/2019 6:27:10 PM	47019
EPA METHOD 8015M/D: DIESEL RANGE ORG	SANICS				Analyst	BRM
Diesel Range Organics (DRO)	ND	9.3	mg/Kg	1	8/23/2019 12:36:29 PM	47011
Motor Oil Range Organics (MRO)	ND	47	mg/Kg	1	8/23/2019 12:36:29 PM	47011
Surr: DNOP	112	70-130	%Rec	1	8/23/2019 12:36:29 PM	47011
EPA METHOD 8015D: GASOLINE RANGE					Analyst	NSB
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	8/24/2019 1:54:20 PM	47004
Surr: BFB	94.3	77.4-118	%Rec	1	8/24/2019 1:54:20 PM	47004
EPA METHOD 8021B: VOLATILES					Analyst	: NSB
Benzene	ND	0.024	mg/Kg	1	8/24/2019 1:54:20 PM	47004
Toluene	ND	0.048	mg/Kg	1	8/24/2019 1:54:20 PM	47004
Ethylbenzene	ND	0.048	mg/Kg	1	8/24/2019 1:54:20 PM	47004
Xylenes, Total	ND	0.096	mg/Kg	1	8/24/2019 1:54:20 PM	47004
Surr: 4-Bromofluorobenzene	94.3	80-120	%Rec	1	8/24/2019 1:54:20 PM	47004

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

Qualifiers:

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

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

Page 3 of 29

Lab Order **1908D34**

Date Reported: 8/28/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Client Sample ID: BS 19-49

Project: Trebuchet 23 28 19 **Collection Date:** 8/20/2019

Lab ID: 1908D34-004 **Matrix:** SOIL **Received Date:** 8/22/2019 8:45:00 AM

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analyst	CAS
Chloride	2500	150	mg/Kg	50	8/26/2019 12:14:34 PM	47019
EPA METHOD 8015M/D: DIESEL RANGE OR	GANICS				Analyst	BRM
Diesel Range Organics (DRO)	ND	9.9	mg/Kg	1	8/23/2019 1:00:49 PM	47011
Motor Oil Range Organics (MRO)	ND	49	mg/Kg	1	8/23/2019 1:00:49 PM	47011
Surr: DNOP	111	70-130	%Rec	1	8/23/2019 1:00:49 PM	47011
EPA METHOD 8015D: GASOLINE RANGE					Analyst	: NSB
Gasoline Range Organics (GRO)	ND	4.7	mg/Kg	1	8/24/2019 3:04:53 PM	47004
Surr: BFB	102	77.4-118	%Rec	1	8/24/2019 3:04:53 PM	47004
EPA METHOD 8021B: VOLATILES					Analyst	: NSB
Benzene	ND	0.024	mg/Kg	1	8/24/2019 3:04:53 PM	47004
Toluene	ND	0.047	mg/Kg	1	8/24/2019 3:04:53 PM	47004
Ethylbenzene	ND	0.047	mg/Kg	1	8/24/2019 3:04:53 PM	47004
Xylenes, Total	ND	0.095	mg/Kg	1	8/24/2019 3:04:53 PM	47004
Surr: 4-Bromofluorobenzene	101	80-120	%Rec	1	8/24/2019 3:04:53 PM	47004

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

Qualifiers:

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

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

Page 4 of 29

Lab Order **1908D34**Date Reported: **8/28/2019**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Project:

Trebuchet 23 28 19

Client Sample ID: BS 19-50

Collection Date: 8/20/2019

Lab ID: 1908D34-005 **Matrix:** SOIL **Received Date:** 8/22/2019 8:45:00 AM

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analyst	CAS
Chloride	2400	60	mg/Kg	20	8/23/2019 8:06:26 PM	47019
EPA METHOD 8015M/D: DIESEL RANGE ORG	SANICS				Analyst	BRM
Diesel Range Organics (DRO)	ND	9.0	mg/Kg	1	8/23/2019 1:25:08 PM	47011
Motor Oil Range Organics (MRO)	ND	45	mg/Kg	1	8/23/2019 1:25:08 PM	47011
Surr: DNOP	114	70-130	%Rec	1	8/23/2019 1:25:08 PM	47011
EPA METHOD 8015D: GASOLINE RANGE					Analyst	NSB
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	8/24/2019 3:28:25 PM	47004
Surr: BFB	93.2	77.4-118	%Rec	1	8/24/2019 3:28:25 PM	47004
EPA METHOD 8021B: VOLATILES					Analyst	NSB
Benzene	ND	0.024	mg/Kg	1	8/24/2019 3:28:25 PM	47004
Toluene	ND	0.049	mg/Kg	1	8/24/2019 3:28:25 PM	47004
Ethylbenzene	ND	0.049	mg/Kg	1	8/24/2019 3:28:25 PM	47004
Xylenes, Total	ND	0.097	mg/Kg	1	8/24/2019 3:28:25 PM	47004
Surr: 4-Bromofluorobenzene	93.6	80-120	%Rec	1	8/24/2019 3:28:25 PM	47004

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

Qualifiers:

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

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

Page 5 of 29

Lab Order 1908D34

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 8/28/2019

CLIENT:Vertex Resource Group Ltd.Client Sample ID: BS 19-51Project:Trebuchet 23 28 19Collection Date: 8/20/2019

Lab ID: 1908D34-006 **Matrix:** SOIL **Received Date:** 8/22/2019 8:45:00 AM

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analyst	CAS
Chloride	1900	60	mg/Kg	20	8/23/2019 8:18:50 PM	47019
EPA METHOD 8015M/D: DIESEL RANGE ORG	ANICS				Analyst	BRM
Diesel Range Organics (DRO)	ND	9.1	mg/Kg	1	8/23/2019 1:49:30 PM	47011
Motor Oil Range Organics (MRO)	ND	46	mg/Kg	1	8/23/2019 1:49:30 PM	47011
Surr: DNOP	105	70-130	%Rec	1	8/23/2019 1:49:30 PM	47011
EPA METHOD 8015D: GASOLINE RANGE					Analyst	NSB
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	8/24/2019 3:51:59 PM	47004
Surr: BFB	92.3	77.4-118	%Rec	1	8/24/2019 3:51:59 PM	47004
EPA METHOD 8021B: VOLATILES					Analyst	NSB
Benzene	ND	0.024	mg/Kg	1	8/24/2019 3:51:59 PM	47004
Toluene	ND	0.049	mg/Kg	1	8/24/2019 3:51:59 PM	47004
Ethylbenzene	ND	0.049	mg/Kg	1	8/24/2019 3:51:59 PM	47004
Xylenes, Total	ND	0.097	mg/Kg	1	8/24/2019 3:51:59 PM	47004
Surr: 4-Bromofluorobenzene	92.4	80-120	%Rec	1	8/24/2019 3:51:59 PM	47004

Refer to the QC Summary 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

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

Page 6 of 29

Lab Order **1908D34**

Date Reported: 8/28/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Client Sample ID: BS 19-52

Project: Trebuchet 23 28 19 Collection Date: 8/20/2019

Lab ID: 1908D34-007 **Matrix:** SOIL **Received Date:** 8/22/2019 8:45:00 AM

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analyst	CAS
Chloride	660	60	mg/Kg	20	8/23/2019 8:31:15 PM	47019
EPA METHOD 8015M/D: DIESEL RANGE ORG	ANICS				Analyst	BRM
Diesel Range Organics (DRO)	ND	10	mg/Kg	1	8/23/2019 2:13:51 PM	47011
Motor Oil Range Organics (MRO)	ND	50	mg/Kg	1	8/23/2019 2:13:51 PM	47011
Surr: DNOP	106	70-130	%Rec	1	8/23/2019 2:13:51 PM	47011
EPA METHOD 8015D: GASOLINE RANGE					Analyst	: NSB
Gasoline Range Organics (GRO)	ND	5.0	mg/Kg	1	8/24/2019 4:15:32 PM	47004
Surr: BFB	93.4	77.4-118	%Rec	1	8/24/2019 4:15:32 PM	47004
EPA METHOD 8021B: VOLATILES					Analyst	: NSB
Benzene	ND	0.025	mg/Kg	1	8/24/2019 4:15:32 PM	47004
Toluene	ND	0.050	mg/Kg	1	8/24/2019 4:15:32 PM	47004
Ethylbenzene	ND	0.050	mg/Kg	1	8/24/2019 4:15:32 PM	47004
Xylenes, Total	ND	0.10	mg/Kg	1	8/24/2019 4:15:32 PM	47004
Surr: 4-Bromofluorobenzene	94.1	80-120	%Rec	1	8/24/2019 4:15:32 PM	47004

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

Qualifiers:

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

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

Page 7 of 29

Lab Order **1908D34**

Date Reported: 8/28/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Client Sample ID: BS 19-53

Project: Trebuchet 23 28 19 Collection Date: 8/20/2019

Lab ID: 1908D34-008 **Matrix:** SOIL **Received Date:** 8/22/2019 8:45:00 AM

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analyst	CAS
Chloride	770	61	mg/Kg	20	8/23/2019 8:43:40 PM	47019
EPA METHOD 8015M/D: DIESEL RANGE ORG	ANICS				Analyst	BRM
Diesel Range Organics (DRO)	11	9.4	mg/Kg	1	8/23/2019 2:38:10 PM	47011
Motor Oil Range Organics (MRO)	ND	47	mg/Kg	1	8/23/2019 2:38:10 PM	47011
Surr: DNOP	102	70-130	%Rec	1	8/23/2019 2:38:10 PM	47011
EPA METHOD 8015D: GASOLINE RANGE					Analyst	: NSB
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	8/24/2019 4:39:04 PM	47004
Surr: BFB	91.3	77.4-118	%Rec	1	8/24/2019 4:39:04 PM	47004
EPA METHOD 8021B: VOLATILES					Analyst	: NSB
Benzene	ND	0.024	mg/Kg	1	8/24/2019 4:39:04 PM	47004
Toluene	ND	0.049	mg/Kg	1	8/24/2019 4:39:04 PM	47004
Ethylbenzene	ND	0.049	mg/Kg	1	8/24/2019 4:39:04 PM	47004
Xylenes, Total	ND	0.098	mg/Kg	1	8/24/2019 4:39:04 PM	47004
Surr: 4-Bromofluorobenzene	90.5	80-120	%Rec	1	8/24/2019 4:39:04 PM	47004

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

Qualifiers:

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

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

Page 8 of 29

Lab Order **1908D34**Date Reported: **8/28/2019**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Client Sample ID: BS 19-54

Project: Trebuchet 23 28 19

Collection Date: 8/20/2019

Lab ID: 1908D34-009 **Matrix:** SOIL **Received Date:** 8/22/2019 8:45:00 AM

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analyst	CAS
Chloride	1800	60	mg/Kg	20	8/23/2019 8:56:05 PM	47019
EPA METHOD 8015M/D: DIESEL RANGE ORG	ANICS				Analyst	BRM
Diesel Range Organics (DRO)	ND	9.7	mg/Kg	1	8/23/2019 3:02:28 PM	47011
Motor Oil Range Organics (MRO)	ND	48	mg/Kg	1	8/23/2019 3:02:28 PM	47011
Surr: DNOP	103	70-130	%Rec	1	8/23/2019 3:02:28 PM	47011
EPA METHOD 8015D: GASOLINE RANGE					Analyst	: NSB
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	8/24/2019 5:02:36 PM	47004
Surr: BFB	92.3	77.4-118	%Rec	1	8/24/2019 5:02:36 PM	47004
EPA METHOD 8021B: VOLATILES					Analyst	: NSB
Benzene	ND	0.025	mg/Kg	1	8/24/2019 5:02:36 PM	47004
Toluene	ND	0.049	mg/Kg	1	8/24/2019 5:02:36 PM	47004
Ethylbenzene	ND	0.049	mg/Kg	1	8/24/2019 5:02:36 PM	47004
Xylenes, Total	ND	0.099	mg/Kg	1	8/24/2019 5:02:36 PM	47004
Surr: 4-Bromofluorobenzene	92.1	80-120	%Rec	1	8/24/2019 5:02:36 PM	47004

Refer to the QC Summary 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

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

Page 9 of 29

Lab Order 1908D34

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 8/28/2019

CLIENT:Vertex Resource Group Ltd.Client Sample ID: BS 19-55Project:Trebuchet 23 28 19Collection Date: 8/20/2019

Lab ID: 1908D34-010 **Matrix:** SOIL **Received Date:** 8/22/2019 8:45:00 AM

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analyst	CAS
Chloride	1600	60	mg/Kg	20	8/23/2019 9:33:19 PM	47019
EPA METHOD 8015M/D: DIESEL RANGE ORG	ANICS				Analyst	BRM
Diesel Range Organics (DRO)	ND	9.6	mg/Kg	1	8/23/2019 3:26:55 PM	47011
Motor Oil Range Organics (MRO)	ND	48	mg/Kg	1	8/23/2019 3:26:55 PM	47011
Surr: DNOP	103	70-130	%Rec	1	8/23/2019 3:26:55 PM	47011
EPA METHOD 8015D: GASOLINE RANGE					Analyst	NSB
Gasoline Range Organics (GRO)	ND	4.7	mg/Kg	1	8/24/2019 5:26:06 PM	47004
Surr: BFB	101	77.4-118	%Rec	1	8/24/2019 5:26:06 PM	47004
EPA METHOD 8021B: VOLATILES					Analyst	NSB
Benzene	ND	0.024	mg/Kg	1	8/24/2019 5:26:06 PM	47004
Toluene	ND	0.047	mg/Kg	1	8/24/2019 5:26:06 PM	47004
Ethylbenzene	ND	0.047	mg/Kg	1	8/24/2019 5:26:06 PM	47004
Xylenes, Total	ND	0.095	mg/Kg	1	8/24/2019 5:26:06 PM	47004
Surr: 4-Bromofluorobenzene	101	80-120	%Rec	1	8/24/2019 5:26:06 PM	47004

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

Qualifiers:

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

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

Page 10 of 29

Analytical Report Lab Order 1908D34

Date Reported: 8/28/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Client Sample ID: BS 19-01 1'

Project: Trebuchet 23 28 19

Collection Date: 8/20/2019

Lab ID: 1908D34-011 **Matrix:** SOIL **Received Date:** 8/22/2019 8:45:00 AM

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analyst	CAS
Chloride	1100	60	mg/Kg	20	8/23/2019 9:45:44 PM	47019
EPA METHOD 8015M/D: DIESEL RANGE ORG	SANICS				Analyst	BRM
Diesel Range Organics (DRO)	31	9.6	mg/Kg	1	8/23/2019 1:06:30 PM	47011
Motor Oil Range Organics (MRO)	ND	48	mg/Kg	1	8/23/2019 1:06:30 PM	47011
Surr: DNOP	103	70-130	%Rec	1	8/23/2019 1:06:30 PM	47011
EPA METHOD 8015D: GASOLINE RANGE					Analyst	NSB
Gasoline Range Organics (GRO)	ND	4.6	mg/Kg	1	8/24/2019 5:49:40 PM	47004
Surr: BFB	91.5	77.4-118	%Rec	1	8/24/2019 5:49:40 PM	47004
EPA METHOD 8021B: VOLATILES					Analyst	: NSB
Benzene	ND	0.023	mg/Kg	1	8/24/2019 5:49:40 PM	47004
Toluene	ND	0.046	mg/Kg	1	8/24/2019 5:49:40 PM	47004
Ethylbenzene	ND	0.046	mg/Kg	1	8/24/2019 5:49:40 PM	47004
Xylenes, Total	ND	0.092	mg/Kg	1	8/24/2019 5:49:40 PM	47004
Surr: 4-Bromofluorobenzene	90.9	80-120	%Rec	1	8/24/2019 5:49:40 PM	47004

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

Qualifiers:

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

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

Page 11 of 29

Lab Order **1908D34**

Date Reported: 8/28/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Client Sample ID: BS 19-02 1'

Project: Trebuchet 23 28 19

Collection Date: 8/20/2019

Lab ID: 1908D34-012 **Matrix:** SOIL **Received Date:** 8/22/2019 8:45:00 AM

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analyst	CAS
Chloride	540	59	mg/Kg	20	8/23/2019 9:58:08 PM	47019
EPA METHOD 8015M/D: DIESEL RANGE ORG	SANICS				Analyst	BRM
Diesel Range Organics (DRO)	ND	9.9	mg/Kg	1	8/23/2019 10:09:24 AM	47011
Motor Oil Range Organics (MRO)	ND	49	mg/Kg	1	8/23/2019 10:09:24 AM	47011
Surr: DNOP	104	70-130	%Rec	1	8/23/2019 10:09:24 AM	47011
EPA METHOD 8015D: GASOLINE RANGE					Analyst	NSB
Gasoline Range Organics (GRO)	ND	4.7	mg/Kg	1	8/24/2019 6:13:14 PM	47004
Surr: BFB	92.7	77.4-118	%Rec	1	8/24/2019 6:13:14 PM	47004
EPA METHOD 8021B: VOLATILES					Analyst	NSB
Benzene	ND	0.023	mg/Kg	1	8/24/2019 6:13:14 PM	47004
Toluene	ND	0.047	mg/Kg	1	8/24/2019 6:13:14 PM	47004
Ethylbenzene	ND	0.047	mg/Kg	1	8/24/2019 6:13:14 PM	47004
Xylenes, Total	ND	0.094	mg/Kg	1	8/24/2019 6:13:14 PM	47004
Surr: 4-Bromofluorobenzene	92.4	80-120	%Rec	1	8/24/2019 6:13:14 PM	47004

Refer to the QC Summary 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

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

Page 12 of 29

Lab Order **1908D34**

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 8/28/2019

CLIENT: Vertex Resource Group Ltd.

Client Sample ID: BS 19-03 1'

Project: Trebuchet 23 28 19

Collection Date: 8/20/2019

Lab ID: 1908D34-013 **Matrix:** SOIL **Received Date:** 8/22/2019 8:45:00 AM

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analyst	CAS
Chloride	1500	60	mg/Kg	20	8/23/2019 10:10:32 PM	47019
EPA METHOD 8015M/D: DIESEL RANGE ORG	SANICS				Analyst	BRM
Diesel Range Organics (DRO)	62	9.4	mg/Kg	1	8/23/2019 1:28:30 PM	47011
Motor Oil Range Organics (MRO)	120	47	mg/Kg	1	8/23/2019 1:28:30 PM	47011
Surr: DNOP	109	70-130	%Rec	1	8/23/2019 1:28:30 PM	47011
EPA METHOD 8015D: GASOLINE RANGE					Analyst	: NSB
Gasoline Range Organics (GRO)	ND	5.0	mg/Kg	1	8/23/2019 9:58:16 PM	47004
Surr: BFB	95.7	77.4-118	%Rec	1	8/23/2019 9:58:16 PM	47004
EPA METHOD 8021B: VOLATILES					Analyst	: NSB
Benzene	ND	0.025	mg/Kg	1	8/23/2019 9:58:16 PM	47004
Toluene	ND	0.050	mg/Kg	1	8/23/2019 9:58:16 PM	47004
Ethylbenzene	ND	0.050	mg/Kg	1	8/23/2019 9:58:16 PM	47004
Xylenes, Total	ND	0.099	mg/Kg	1	8/23/2019 9:58:16 PM	47004
Surr: 4-Bromofluorobenzene	89.3	80-120	%Rec	1	8/23/2019 9:58:16 PM	47004

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

Qualifiers:

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

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

Page 13 of 29

Analytical Report Lab Order 1908D34

Date Reported: 8/28/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Client Sample ID: BS 19-04 1'

Project: Trebuchet 23 28 19

Collection Date: 8/20/2019

Lab ID: 1908D34-014 **Matrix:** SOIL **Received Date:** 8/22/2019 8:45:00 AM

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analyst	CAS
Chloride	870	60	mg/Kg	20	8/23/2019 10:22:57 PM	47019
EPA METHOD 8015M/D: DIESEL RANGE ORG	ANICS				Analyst	BRM
Diesel Range Organics (DRO)	ND	9.4	mg/Kg	1	8/23/2019 1:50:45 PM	47011
Motor Oil Range Organics (MRO)	ND	47	mg/Kg	1	8/23/2019 1:50:45 PM	47011
Surr: DNOP	105	70-130	%Rec	1	8/23/2019 1:50:45 PM	47011
EPA METHOD 8015D: GASOLINE RANGE					Analyst	NSB
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	8/23/2019 10:21:23 PM	47004
Surr: BFB	104	77.4-118	%Rec	1	8/23/2019 10:21:23 PM	47004
EPA METHOD 8021B: VOLATILES					Analyst	NSB
Benzene	ND	0.024	mg/Kg	1	8/23/2019 10:21:23 PM	47004
Toluene	ND	0.048	mg/Kg	1	8/23/2019 10:21:23 PM	47004
Ethylbenzene	ND	0.048	mg/Kg	1	8/23/2019 10:21:23 PM	47004
Xylenes, Total	ND	0.095	mg/Kg	1	8/23/2019 10:21:23 PM	47004
Surr: 4-Bromofluorobenzene	94.2	80-120	%Rec	1	8/23/2019 10:21:23 PM	47004

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

Qualifiers:

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

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

Page 14 of 29

Lab Order 1908D34

Date Reported: 8/28/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BS 19-05 1' Trebuchet 23 28 19 **Project:** Collection Date: 8/20/2019

1908D34-015 Matrix: SOIL Lab ID: Received Date: 8/22/2019 8:45:00 AM

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analyst	CAS
Chloride	600	60	mg/Kg	20	8/23/2019 10:35:21 PM	47019
EPA METHOD 8015M/D: DIESEL RANGE ORG	SANICS				Analyst	BRM
Diesel Range Organics (DRO)	ND	9.2	mg/Kg	1	8/23/2019 2:12:51 PM	47011
Motor Oil Range Organics (MRO)	ND	46	mg/Kg	1	8/23/2019 2:12:51 PM	47011
Surr: DNOP	104	70-130	%Rec	1	8/23/2019 2:12:51 PM	47011
EPA METHOD 8015D: GASOLINE RANGE					Analyst	NSB
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	8/23/2019 10:44:20 PM	47004
Surr: BFB	101	77.4-118	%Rec	1	8/23/2019 10:44:20 PM	47004
EPA METHOD 8021B: VOLATILES					Analyst	NSB
Benzene	ND	0.025	mg/Kg	1	8/23/2019 10:44:20 PM	47004
Toluene	ND	0.049	mg/Kg	1	8/23/2019 10:44:20 PM	47004
Ethylbenzene	ND	0.049	mg/Kg	1	8/23/2019 10:44:20 PM	47004
Xylenes, Total	ND	0.098	mg/Kg	1	8/23/2019 10:44:20 PM	47004
Surr: 4-Bromofluorobenzene	92.6	80-120	%Rec	1	8/23/2019 10:44:20 PM	47004

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

Qualifiers:

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

- Analyte detected in the associated Method Blank
- Е Value above quantitation range
- Analyte detected below quantitation limits
- Sample pH Not In Range
- RL Reporting Limit
- Page 15 of 29

Lab Order **1908D34**Date Reported: **8/28/2019**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Client Sample ID: BS 19-06 1'

Project: Trebuchet 23 28 19

Collection Date: 8/20/2019

Lab ID: 1908D34-016 **Matrix:** SOIL **Received Date:** 8/22/2019 8:45:00 AM

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analyst	CAS
Chloride	1000	60	mg/Kg	20	8/23/2019 10:47:46 PM	47019
EPA METHOD 8015M/D: DIESEL RANGE ORG	GANICS				Analyst	BRM
Diesel Range Organics (DRO)	ND	9.7	mg/Kg	1	8/23/2019 10:31:33 AM	47011
Motor Oil Range Organics (MRO)	ND	48	mg/Kg	1	8/23/2019 10:31:33 AM	47011
Surr: DNOP	102	70-130	%Rec	1	8/23/2019 10:31:33 AM	47011
EPA METHOD 8015D: GASOLINE RANGE					Analyst	NSB
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	8/23/2019 11:07:12 PM	47004
Surr: BFB	99.1	77.4-118	%Rec	1	8/23/2019 11:07:12 PM	47004
EPA METHOD 8021B: VOLATILES					Analyst	NSB
Benzene	ND	0.025	mg/Kg	1	8/23/2019 11:07:12 PM	47004
Toluene	ND	0.049	mg/Kg	1	8/23/2019 11:07:12 PM	47004
Ethylbenzene	ND	0.049	mg/Kg	1	8/23/2019 11:07:12 PM	47004
Xylenes, Total	ND	0.099	mg/Kg	1	8/23/2019 11:07:12 PM	47004
Surr: 4-Bromofluorobenzene	90.0	80-120	%Rec	1	8/23/2019 11:07:12 PM	47004

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

Qualifiers:

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

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

Page 16 of 29

Analytical Report Lab Order 1908D34

Date Reported: 8/28/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Client Sample ID: BS 19-07 1'

Project: Trebuchet 23 28 19

Collection Date: 8/20/2019

Lab ID: 1908D34-017 **Matrix:** SOIL **Received Date:** 8/22/2019 8:45:00 AM

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analyst	CAS
Chloride	2100	60	mg/Kg	20	8/23/2019 11:00:10 PM	47019
EPA METHOD 8015M/D: DIESEL RANGE ORG	GANICS				Analyst	BRM
Diesel Range Organics (DRO)	ND	9.5	mg/Kg	1	8/23/2019 2:35:05 PM	47011
Motor Oil Range Organics (MRO)	ND	48	mg/Kg	1	8/23/2019 2:35:05 PM	47011
Surr: DNOP	105	70-130	%Rec	1	8/23/2019 2:35:05 PM	47011
EPA METHOD 8015D: GASOLINE RANGE					Analyst	NSB
Gasoline Range Organics (GRO)	ND	5.0	mg/Kg	1	8/23/2019 11:30:04 PM	47004
Surr: BFB	105	77.4-118	%Rec	1	8/23/2019 11:30:04 PM	47004
EPA METHOD 8021B: VOLATILES					Analyst	NSB
Benzene	ND	0.025	mg/Kg	1	8/23/2019 11:30:04 PM	47004
Toluene	ND	0.050	mg/Kg	1	8/23/2019 11:30:04 PM	47004
Ethylbenzene	ND	0.050	mg/Kg	1	8/23/2019 11:30:04 PM	47004
Xylenes, Total	ND	0.099	mg/Kg	1	8/23/2019 11:30:04 PM	47004
Surr: 4-Bromofluorobenzene	96.1	80-120	%Rec	1	8/23/2019 11:30:04 PM	47004

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

Qualifiers:

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

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

Page 17 of 29

Lab Order **1908D34**

Date Reported: 8/28/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Project:

Trebuchet 23 28 19

Client Sample ID: BS 19-08 1'

Collection Date: 8/20/2019

Lab ID: 1908D34-018 **Matrix:** SOIL **Received Date:** 8/22/2019 8:45:00 AM

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analyst	CAS
Chloride	1000	60	mg/Kg	20	8/23/2019 11:12:35 PM	47019
EPA METHOD 8015M/D: DIESEL RANGE ORG	SANICS				Analyst	BRM
Diesel Range Organics (DRO)	ND	9.3	mg/Kg	1	8/23/2019 2:57:13 PM	47011
Motor Oil Range Organics (MRO)	ND	46	mg/Kg	1	8/23/2019 2:57:13 PM	47011
Surr: DNOP	98.8	70-130	%Rec	1	8/23/2019 2:57:13 PM	47011
EPA METHOD 8015D: GASOLINE RANGE					Analyst	NSB
Gasoline Range Organics (GRO)	ND	4.7	mg/Kg	1	8/23/2019 11:52:57 PM	47004
Surr: BFB	105	77.4-118	%Rec	1	8/23/2019 11:52:57 PM	47004
EPA METHOD 8021B: VOLATILES					Analyst	NSB
Benzene	ND	0.024	mg/Kg	1	8/23/2019 11:52:57 PM	47004
Toluene	ND	0.047	mg/Kg	1	8/23/2019 11:52:57 PM	47004
Ethylbenzene	ND	0.047	mg/Kg	1	8/23/2019 11:52:57 PM	47004
Xylenes, Total	ND	0.094	mg/Kg	1	8/23/2019 11:52:57 PM	47004
Surr: 4-Bromofluorobenzene	94.9	80-120	%Rec	1	8/23/2019 11:52:57 PM	47004

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

Qualifiers:

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

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

Page 18 of 29

Lab Order 1908D34

Date Reported: 8/28/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BS 19-09 1' Trebuchet 23 28 19 **Project:** Collection Date: 8/20/2019

Lab ID: 1908D34-019 Matrix: SOIL Received Date: 8/22/2019 8:45:00 AM

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analyst	CAS
Chloride	770	60	mg/Kg	20	8/23/2019 11:25:00 PM	47019
EPA METHOD 8015M/D: DIESEL RANGE ORG	SANICS				Analyst	BRM
Diesel Range Organics (DRO)	ND	9.8	mg/Kg	1	8/23/2019 12:00:04 PM	47011
Motor Oil Range Organics (MRO)	ND	49	mg/Kg	1	8/23/2019 12:00:04 PM	47011
Surr: DNOP	108	70-130	%Rec	1	8/23/2019 12:00:04 PM	47011
EPA METHOD 8015D: GASOLINE RANGE					Analyst	NSB
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	8/24/2019 12:15:50 AM	47004
Surr: BFB	102	77.4-118	%Rec	1	8/24/2019 12:15:50 AM	47004
EPA METHOD 8021B: VOLATILES					Analyst	NSB
Benzene	ND	0.024	mg/Kg	1	8/24/2019 12:15:50 AM	47004
Toluene	ND	0.049	mg/Kg	1	8/24/2019 12:15:50 AM	47004
Ethylbenzene	ND	0.049	mg/Kg	1	8/24/2019 12:15:50 AM	47004
Xylenes, Total	ND	0.097	mg/Kg	1	8/24/2019 12:15:50 AM	47004
Surr: 4-Bromofluorobenzene	92.6	80-120	%Rec	1	8/24/2019 12:15:50 AM	47004

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

Qualifiers:

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

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

Page 19 of 29

Analytical Report Lab Order 1908D34

Date Reported: 8/28/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

1908D34-020

Lab ID:

Client Sample ID: WS 19-06

Received Date: 8/22/2019 8:45:00 AM

Project: Trebuchet 23 28 19 Collection Date: 8/20/2019

Matrix: SOIL

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analyst	CAS
Chloride	2300	60	mg/Kg	20	8/24/2019 12:02:13 AM	47019
EPA METHOD 8015M/D: DIESEL RANGE ORG	ANICS				Analyst	BRM
Diesel Range Organics (DRO)	ND	9.3	mg/Kg	1	8/23/2019 3:19:25 PM	47011
Motor Oil Range Organics (MRO)	ND	46	mg/Kg	1	8/23/2019 3:19:25 PM	47011
Surr: DNOP	106	70-130	%Rec	1	8/23/2019 3:19:25 PM	47011
EPA METHOD 8015D: GASOLINE RANGE					Analyst	: NSB
Gasoline Range Organics (GRO)	ND	4.7	mg/Kg	1	8/24/2019 12:38:51 AM	47004
Surr: BFB	101	77.4-118	%Rec	1	8/24/2019 12:38:51 AM	47004
EPA METHOD 8021B: VOLATILES					Analyst	: NSB
Benzene	ND	0.024	mg/Kg	1	8/24/2019 12:38:51 AM	47004
Toluene	ND	0.047	mg/Kg	1	8/24/2019 12:38:51 AM	47004
Ethylbenzene	ND	0.047	mg/Kg	1	8/24/2019 12:38:51 AM	47004
Xylenes, Total	ND	0.094	mg/Kg	1	8/24/2019 12:38:51 AM	47004
Surr: 4-Bromofluorobenzene	91.3	80-120	%Rec	1	8/24/2019 12:38:51 AM	47004

Refer to the QC Summary 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

Not In Range Page 20 of 29

Lab Order **1908D34**Date Reported: **8/28/2019**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Project:

Trebuchet 23 28 19

Client Sample ID: WS 19-07

Collection Date: 8/20/2019

Lab ID: 1908D34-021 **Matrix:** SOIL **Received Date:** 8/22/2019 8:45:00 AM

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analyst	CAS
Chloride	750	60	mg/Kg	20	8/24/2019 6:02:07 AM	47025
EPA METHOD 8015M/D: DIESEL RANGE ORG	ANICS				Analyst	BRM
Diesel Range Organics (DRO)	ND	9.3	mg/Kg	1	8/26/2019 9:12:45 AM	47012
Motor Oil Range Organics (MRO)	ND	47	mg/Kg	1	8/26/2019 9:12:45 AM	47012
Surr: DNOP	98.4	70-130	%Rec	1	8/26/2019 9:12:45 AM	47012
EPA METHOD 8015D: GASOLINE RANGE					Analyst	: NSB
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	8/24/2019 10:46:35 AM	46998
Surr: BFB	93.2	77.4-118	%Rec	1	8/24/2019 10:46:35 AM	46998
EPA METHOD 8021B: VOLATILES					Analyst	: NSB
Benzene	ND	0.025	mg/Kg	1	8/24/2019 10:46:35 AM	46998
Toluene	ND	0.049	mg/Kg	1	8/24/2019 10:46:35 AM	46998
Ethylbenzene	ND	0.049	mg/Kg	1	8/24/2019 10:46:35 AM	46998
Xylenes, Total	ND	0.098	mg/Kg	1	8/24/2019 10:46:35 AM	46998
Surr: 4-Bromofluorobenzene	94.0	80-120	%Rec	1	8/24/2019 10:46:35 AM	46998

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

Qualifiers:

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

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

Page 21 of 29

Analytical Report Lab Order 1908D34

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 8/28/2019

CLIENT: Vertex Resource Group Ltd.

Client Sample ID: WS 19-08

Project: Trebuchet 23 28 19

Collection Date: 8/20/2019

Lab ID: 1908D34-022 **Matrix:** SOIL **Received Date:** 8/22/2019 8:45:00 AM

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analyst	CAS
Chloride	2400	60	mg/Kg	20	8/24/2019 6:14:31 AM	47025
EPA METHOD 8015M/D: DIESEL RANGE ORG	SANICS				Analyst	BRM
Diesel Range Organics (DRO)	ND	9.7	mg/Kg	1	8/26/2019 9:37:05 AM	47012
Motor Oil Range Organics (MRO)	ND	48	mg/Kg	1	8/26/2019 9:37:05 AM	47012
Surr: DNOP	110	70-130	%Rec	1	8/26/2019 9:37:05 AM	47012
EPA METHOD 8015D: GASOLINE RANGE					Analyst	NSB
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	8/24/2019 11:10:07 AM	46998
Surr: BFB	91.3	77.4-118	%Rec	1	8/24/2019 11:10:07 AM	46998
EPA METHOD 8021B: VOLATILES					Analyst	NSB
Benzene	ND	0.024	mg/Kg	1	8/24/2019 11:10:07 AM	46998
Toluene	ND	0.048	mg/Kg	1	8/24/2019 11:10:07 AM	46998
Ethylbenzene	ND	0.048	mg/Kg	1	8/24/2019 11:10:07 AM	46998
Xylenes, Total	ND	0.096	mg/Kg	1	8/24/2019 11:10:07 AM	46998
Surr: 4-Bromofluorobenzene	91.7	80-120	%Rec	1	8/24/2019 11:10:07 AM	46998

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

Qualifiers:

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

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

Page 22 of 29

Hall Environmental Analysis Laboratory, Inc.

WO#: **1908D34**

28-Aug-19

Client: Vertex Resource Group Ltd.

Project: Trebuchet 23 28 19

Sample ID: MB-47019 SampType: mblk TestCode: EPA Method 300.0: Anions

Client ID: **PBS** Batch ID: **47019** RunNo: **62388**

Prep Date: 8/23/2019 Analysis Date: 8/23/2019 SeqNo: 2121517 Units: mg/Kg

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

Chloride ND 1.5

Sample ID: LCS-47019 SampType: Ics TestCode: EPA Method 300.0: Anions

Client ID: LCSS Batch ID: 47019 RunNo: 62388

Prep Date: 8/23/2019 Analysis Date: 8/23/2019 SeqNo: 2121519 Units: mg/Kg

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

Chloride 14 1.5 15.00 0 94.7 90 110

Sample ID: MB-47025 SampType: mblk TestCode: EPA Method 300.0: Anions

Client ID: **PBS** Batch ID: **47025** RunNo: **62388**

Prep Date: **8/23/2019** Analysis Date: **8/24/2019** SeqNo: **2121577** Units: **mg/Kg**

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

Chloride ND 1.5

Sample ID: LCS-47025 SampType: Ics TestCode: EPA Method 300.0: Anions

Client ID: LCSS Batch ID: 47025 RunNo: 62388

Prep Date: 8/23/2019 Analysis Date: 8/24/2019 SeqNo: 2121579 Units: mg/Kg

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

Chloride 14 1.5 15.00 0 95.8 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

Page 23 of 29

Hall Environmental Analysis Laboratory, Inc.

WO#: **1908D34**

28-Aug-19

Client:	Vertex Resource	Group Ltd.

Project: Trebuchet 23 28 19

Troject.	let 23 20 17									
Sample ID: MB-47011	SampT	уре: МЕ	BLK	Tes	tCode: EF	PA Method	8015M/D: Die	esel Range	e Organics	
Client ID: PBS	Batch	ID: 47	011	F	RunNo: 62	2327				
Prep Date: 8/23/2019	Analysis D	ate: 8/	23/2019	5	SeqNo: 2	119961	Units: mg/k	ζg		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	11		10.00		109	70	130			
Sample ID: LCS-47011	SampT	ype: LC	s	Tes	tCode: EF	PA Method	8015M/D: Die	esel Range	e Organics	
Client ID: LCSS	Batch	ID: 47	011	F	RunNo: 62	2327				
Prep Date: 8/23/2019	Analysis D	ate: 8/	23/2019	8	SeqNo: 2	120619	Units: mg/k	(g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	47	10	50.00	0	93.5	63.9	124			
Surr: DNOP	4.8		5.000		95.2	70	130			
Sample ID: 1908D34-001AM	S SampT	уре: М\$	 S	Tes	tCode: EF	PA Method	8015M/D: Die	esel Range	e Organics	
Client ID: BS 19-46	Batch	ID: 47	011	F	RunNo: 62	2327				
Prep Date: 8/23/2019	Analysis D	ate: 8/	23/2019	SeqNo: 2121050 Units: mg/Kg						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	47	9.7	48.45	0	97.8	57	142			
Surr: DNOP	5.0		4.845		102	70	130			
Sample ID: 1908D34-001AM	SD SampT	уре: М\$	SD	Tes	tCode: EF	PA Method	8015M/D: Die	esel Rango	e Organics	
Client ID: BS 19-46	Batch	ID: 47	011	F	RunNo: 62	2327				
Prep Date: 8/23/2019	Analysis D	ate: 8/	23/2019	9	SeqNo: 2	121051	Units: mg/k	(g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	46	9.6	47.89	0	96.8	57	142	2.17	20	
Surr: DNOP	4.8		4.789		100	70	130	0	0	
Sample ID: LCS-47012	SampT	ype: LC	s	Tes	tCode: EF	PA Method	8015M/D: Die	esel Range	e Organics	
Client ID: LCSS	Batch	ID: 47	012	F	RunNo: 62	2411				
Prep Date: 8/23/2019	Analysis D	ate: 8/	26/2019	S	SeqNo: 2	121721	Units: mg/K	(g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	51	10	50.00	0	101	63.9	124			
Surr: DNOP	4.7	10	5.000	U	94.3	70	130			

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

Page 24 of 29

Hall Environmental Analysis Laboratory, Inc.

WO#: **1908D34**

28-Aug-19

Client: Vertex Resource Group Ltd.

Project: Trebuchet 23 28 19

Sample ID: MB-47012 SampType: MBLK TestCode: EPA Method 8015M/D: Diesel Range Organics Client ID: PBS Batch ID: 47012 RunNo: 62411 Prep Date: 8/23/2019 Analysis Date: 8/26/2019 SeqNo: 2121724 Units: mg/Kg PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Analyte Result Qual Diesel Range Organics (DRO) ND 10 Motor Oil Range Organics (MRO) ND 50 Surr: DNOP 10.00 106 70 11 130

Sample ID: 1908D34-021AMS SampType: MS TestCode: EPA Method 8015M/D: Diesel Range Organics Client ID: WS 19-07 Batch ID: 47012 RunNo: 62411 Prep Date: 8/23/2019 Analysis Date: 8/26/2019 SeqNo: 2121967 Units: mg/Kg %REC Analyte PQL SPK value SPK Ref Val LowLimit HighLimit %RPD **RPDLimit** Qual Diesel Range Organics (DRO) 56 10 50.25 6.209 98.2 57 142 Surr: DNOP 3.8 5.025 76.6 70 130

Sample ID: 1908D34-021AMSD SampType: MSD TestCode: EPA Method 8015M/D: Diesel Range Organics Client ID: WS 19-07 Batch ID: 47012 RunNo: 62411 Prep Date: 8/23/2019 Analysis Date: 8/26/2019 SeqNo: 2121968 Units: mg/Kg Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Diesel Range Organics (DRO) 54 47.26 6.209 101 57 20 9.5 142 2.53 Surr: DNOP 3.8 4.726 81.0 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

Hall Environmental Analysis Laboratory, Inc.

WO#: **1908D34**

28-Aug-19

Client:	Ve	rtex	Re	source	Group	Ltd.

Sample ID: MB-46998	SampT	ype: ME	BLK	Tes	TestCode: EPA Method 8015D: Gasoline Range						
Client ID: PBS	Batch	ID: 46 9	998	F	RunNo: 62	2392					
Prep Date: 8/22/2019	Analysis D	ate: 8/	23/2019	S	SeqNo: 2	120740	Units: mg/k	(g			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Gasoline Range Organics (GRO) Surr: BFB	ND 960	5.0	1000		95.9	77.4	118				
Sample ID: LCS-46998	SampT	ype: LC	s	Tes	tCode: EF	PA Method	8015D: Gaso	line Rang	e		
Client ID: LCSS	Batch	ID: 46 9	998	F	RunNo: 62	2392					
Prep Date: 8/22/2019	Analysis D	ate: 8/	23/2019	S	SeqNo: 2	120741	Units: mg/k	ζg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Gasoline Range Organics (GRO) Surr: BFB	22 1100	5.0	25.00 1000	0	88.5 105	80 77.4	120 118				
Sample ID: MB-47004	SampT	ype: ME	BLK	Tes	tCode: EF	PA Method	8015D: Gaso	line Rang	e		
Client ID: PBS	Batch	ID: 47 0	004	F	RunNo: 62	2392					
Prep Date: 8/22/2019	Analysis D	ate: 8/	23/2019	S	SeqNo: 2	120755	Units: mg/K	(g			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Gasoline Range Organics (GRO) Surr: BFB	ND 940	5.0	1000		94.1	77.4	118				
Sample ID: LCS-47004	SampT	ype: LC	s	Tes	tCode: EF	PA Method	8015D: Gaso	line Rang	e		
Client ID: LCSS	Batch	ID: 47 0	004	F	RunNo: 62	2392					
Prep Date: 8/22/2019	Analysis D	ate: 8/	23/2019	S	SeqNo: 2	120756	Units: mg/k	ζg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Gasoline Range Organics (GRO)	24	5.0	25.00	0	94.2	80	120				
Surr: BFB	1000		1000		104	77.4	118				
Sample ID: 1908D34-001AMS	SampT	ype: MS	3	Tes	tCode: EF	PA Method	8015D: Gaso	line Rang	е		
Client ID: BS 19-46	Batch	ID: 47 0	004	F	RunNo: 62	2394					
Prep Date: 8/22/2019	Analysis D	ate: 8/	24/2019	S	SeqNo: 2	120894	Units: mg/k	(g			
Analyte	Result			SPK Ref Val			HighLimit	%RPD	RPDLimit	Qual	
Gasoline Range Organics (GRO) Surr: BFB	22 1100	5.0	25.00 1000	0	88.2 109	69.1 77.4	142 118				
Sample ID: 1908D34-001AMS	D SampT	ype: MS	SD	Tes	tCode: EF	PA Method	8015D: Gaso	line Rang	e		
Client ID: BS 19-46	Batch	ID: 47	004	F	RunNo: 62	2394					
Prep Date: 8/22/2019	Analysis D	ate: 8/	24/2019	S	SeqNo: 2	120895	Units: mg/K	(g			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	

Qualifiers:

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

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

Page 26 of 29

Hall Environmental Analysis Laboratory, Inc.

WO#: 1908D34

28-Aug-19

Client: Vertex Resource Group Ltd.

Project: Trebuchet 23 28 19

Sample ID: 1908D34-001AMSD SampType: MSD TestCode: EPA Method 8015D: Gasoline Range

Client ID: **BS 19-46** Batch ID: **47004** RunNo: **62394**

Prep Date: 8/22/2019 Analysis Date: 8/24/2019 SeqNo: 2120895 Units: mg/Kg

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Gasoline Range Organics (GRO) 0 90.4 69.1 0.146 20 22 4.9 24.44 142 Surr: BFB 1100 977.5 111 77.4 118 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

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

Page 27 of 29

Hall Environmental Analysis Laboratory, Inc.

WO#: **1908D34**

28-Aug-19

Client: Vertex Resource Group Ltd.

Project: Trebuchet 23 28 19

Sample ID: MB-46998	Sampl	Гуре: МЕ	BLK	Tes	tCode: El					
Client ID: PBS	Batc	h ID: 46 9	998	F	RunNo: 6	2392				
Prep Date: 8/22/2019	Analysis D	Date: 8/	23/2019	S	SeqNo: 2	120761	Units: mg/K	(g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.97		1.000		96.6	80	120			
Sample ID: 1 CS-46998	Samn	[vne: C	· S	Tas	tCode: El	PA Method	8021B: Volat	iles		

Sample ID: LCS-46998	Sampi	ype: LC	S	Tes	tCode: El	A Method	8021B: Volat	iles		
Client ID: LCSS	Batch	n ID: 46 9	998	F						
Prep Date: 8/22/2019	Analysis D	ate: 8/ 2	23/2019							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.98	0.025	1.000	0	98.3	80	120			
Toluene	1.0	0.050	1.000	0	102	80	120			
Ethylbenzene	1.0	0.050	1.000	0	102	80	120			
Xylenes, Total	3.1	0.10	3.000	0	102	80	120			
Surr: 4-Bromofluorobenzene	0.96		1.000		96.0	80	120			

Sample ID: MB-47004	SampT	ype: ME	BLK	Tes	tCode: El	8021B: Volat	iles			
Client ID: PBS	Batch	n ID: 47 (47004 RunNo: 62392							
Prep Date: 8/22/2019	Analysis D	ate: 8/ 2	23/2019	8	SeqNo: 2	120774	Units: mg/K	g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.95		1.000		95.2	80	120			

Sample ID: LCS-47004	SampT	ype: LC	S	Tes	TestCode: EPA Method 8021B: Volatiles						
Client ID: LCSS	Batcl	n ID: 47 0	004	F	RunNo: 6						
Prep Date: 8/22/2019	Analysis D	oate: 8/ 2	23/2019	S	SeqNo: 2120775 Units: mg/Kg						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Benzene	1.0	0.025	1.000	0	100	80	120				
Toluene	1.0	0.050	1.000	0	103	80	120				
Ethylbenzene	1.0	0.050	1.000	0	104	80	120				
Xylenes, Total	3.1	0.10	3.000	0	105	80	120				
Surr: 4-Bromofluorobenzene	0.96		1.000		96.1	80	120				

Qualifiers:

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

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

Page 28 of 29

Hall Environmental Analysis Laboratory, Inc.

WO#: **1908D34**

28-Aug-19

Client: Vertex Resource Group Ltd.

Project: Trebuchet 23 28 19

Sample ID: 1908D34-002AMS	SampT	уре: МS	3	Tes						
Client ID: BS 19-47	Batch	n ID: 47 0	004	F						
Prep Date: 8/22/2019	Analysis D	Date: 8/ 2	24/2019	SeqNo: 2120933 Units: mg/Kg						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.88	0.024	0.9524	0	92.2	76	123			
Toluene	0.92	0.048	0.9524	0.008807	95.7	80.3	127			
Ethylbenzene	0.93	0.048	0.9524	0	97.4	80.2	131			
Xylenes, Total	2.8	0.095	2.857	0	97.8	78	133			
Surr: 4-Bromofluorobenzene	0.89		0.9524		93.1	80	120			

Sample ID: 1908D34-002AM	SD SampT	уре: МS	SD	Tes	tCode: El	PA Method	8021B: Volat	iles		
Client ID: BS 19-47	Batch	n ID: 47 0	004	F	RunNo: 6	2394				
Prep Date: 8/22/2019	Analysis D	ate: 8/ 2	24/2019	\$	SeqNo: 2	120934	Units: mg/K	(g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.91	0.024	0.9785	0	92.6	76	123	3.12	20	
Toluene	0.95	0.049	0.9785	0.008807	95.9	80.3	127	2.97	20	
Ethylbenzene	0.96	0.049	0.9785	0	98.6	80.2	131	3.91	20	
Xylenes, Total	2.9	0.098	2.935	0	99.0	78	133	3.92	20	
Surr: 4-Bromofluorobenzene	0.93		0.9785		95.3	80	120	0	0	

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

Page 29 of 29



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

Sample Log-In Check List

Client Name:	VERTEX CARLSBAD	Work Order Nur	nber: 1908D34		ReptNo	: 1
Received By: Completed By: Reviewed By:	Daniel M Yazmine Garduno ENM	8/22/2019 8:45:00 8/22/2019 12:43:0		nfazmini lifferbasti	:	
Chain of Cus	<u>tody</u>					
1. Is Chain of Co	ustody complete?		Yes 🗹	No 🗌	Not Present	
2. How was the	sample delivered?		Courier			
Log In						
·	pt made to cool the samples	s?	Yes 🗸	No 🗌	NA □	•
4. Were all samp	oles received at a temperatur	re of >0° C to 6.0°C	Yes 🗹	No 🗌	NA 🗆	
5. Sample(s) in p	proper container(s)?		Yes 🗹	No 🗌		
6. Sufficient sam	ple volume for indicated test	(s)?	Yes 🗹	No 🗌		
	except VOA and ONG) prope		Yes 🗹	No 🗌		
8. Was preservat	tive added to bottles?		Yes 🗌	No 🗹	NA 🗆	
9. VOA vials have	e zero headspace?		Yes 🗌	No 🗌	No VOA V ials 🗹	
10. Were any sam	nple containers received brol	en?	Yes 🗆	No 🗹	# of	
	rk match bottle labels?		Yes 🗹	No 🗆	# of preserved bottles checked for pH:	
	ncies on chain of custody) orrectly identified on Chain o	of Cuetody?	Yes 🗹	No 🗆	(<2 or Adjusted?	12 unless noted)
	analyses were requested?	or Custody?	Yes 🗹	No 🗆	./-	1 10 - 10
14. Were all holdir	ng times able to be met? stomer for authorization.)		Yes 🗹	No 🗆	Checked by:	188211
	ing (if applicable)					
	tified of all discrepancies with	this order?	Yes	No 🗌	NA 🗹	
Person I	Notified:	Date]
By Who	m:	Via:	eMail Ph	one Fax	In Person	
Regardi	9					
	structions:					
16. Additional ren	narks:					
17. <u>Cooler Inforr</u> Cooler No	According to the second	Seal Intact Seal No	Seal Date \$	Signed By		

	(2) HALL ENVIRONMENTAL		4901 Hawkins NE - Albuquergue, NM 87109	Tel. 505-345-3975 Fax 505-345-4107	Analysis	POS	S '*Oc	0 / DR(2, 1) 4.1) 5.270 7.2270 7.2270	OSC Qesy qesy qesy	MTE SD(sticination) SS(sticination) Met Met Met		8 8 8	X X	* * * * * * * * * * * * * * * * * * *	8	×	***	\times \t	\times \t	<u>х</u>	\times \t	16.6724		ime Remarks:	
Turn-Around Time:	□ Standard K Rush 4 k hovr 5	Project Name: chef 23 29 19	The state of the s	#	PE 19E-00614	Project Manager:	Dennis Williams	Sampler. Brandon Schafer	#of Coolers. /	(including CF): 3.5 ± 0 $=3.3\%$	(I)		1 1	-003	h00-	\$00_	500-	1 -001	\$QU-	900- /	010-	9H168		Received W: Via: Date Time	
Record	Clienti Fersch Resource Group			213 & Mega ST Carts Bad	Phone #: 575 36/ 1/37		OA/OC Package: Perminand VerTell-CA E-Standard □ Level 4 (Full Validation)	1:	(Supplemental Cardon Ca		Matrix Complexity	1 20 1 90, 1 BS 19 - 46		84	64	50	15	52	53	h & 1	1		, , ,	Whole Time: Relinquished by:	うからころう

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	www.hallanvironmantal.com	4901 Hawkins NE - Albuquarana NM 87100		Analysis)S 'Þ	Od	10s,	10 8 1 , ₆	310 SON	y 83 3 Me ir, 1 AO	B (M) Hs b; F, B 50 (V 3l Cc	PAI		*	*	X	*	*	×	*	X			۶ (۱	Cape 7%	ub-contracted data will be clearly notated on the analytical report.
			1901	Tel 7.		(c							.08(⊦ કા ક€			- 1			×	Ķ	$\overline{\varkappa}$,			rks:		y. Any st
			,										(X)		X	X X	3	K	X	oxdot	$\frac{1}{\sqrt{2}}$	<u>ጻ</u> ヌ	KK			Remarks		ossibilit
	KRush 48 hours	ST*	r 25 28 19		71900		Himms		Schafer	LINO			, oN	L408D34	-011	200	-013	/ hlo-	10-	710-	110-	310-	M10-		(Date Time 4 16:44		d laboratories. This serves as notice of this p
Turn-Around Time:	_ Standard	Project Name:#A	Frebuche		Ü	Project Manager:	Dennis W	1	r. 180	On Ice.	# of Coolers:	Cooler Temp(including CF):	Container	#	3/ass Jar 16	/						()	>	100		7	red by:	contracted to other accredited
Chain-of-Custody Record	Client: Kesource Group	Marathan Oil		213 5 Mesa 69, 10019hand 100, 4422 Project #.	1137	email or Fax#: dwilliams @ vertex, Ca	ONOC Package: Permian & Verteuch	☑ Standard □ Level 4 (Full Validation)		□ NELAC □ Other	□ EDD (Type)		·	Date Time Matrix Sample Name	04/2013:44 5011 BS-19-01 1'	1 85-19-02 1	1 85-19-03 1	1, ho-b1-58	1 85-19-05 1	BS-19-06 1'	1 85-19-07 1	1 85-19-08 11	1 60-10-00			Date: Time: Mr Relinquished by: 8120 Jave (16:44 Branchon Shafer		· 1 -

Chai	Chain-of-Custody Record	Turn-Around	Time:				_	•	_		Ì			}	-	
Client: //cr7c	Client: Verter Resource group	□ Standard	r Rush	48 hours					₩	STS	Y	ANALYSTS LABORATORY	A E	- 0 Z -	₹ ¤	
Marchon		Project Name						ww.	haller	vironn	www.hallenvironmental.com	E03.) :		
Mailing Address:	ss:					4901	Hawk	4901 Hawkins NE	ı	enbnq	rque,	Albuquerque, NM 87109	7109			
on File	/<	Project #:				Tel.	505-3	Tel. 505-345-3975		Fax	. 205-34	Fax 505-345-4107	<u>_</u>			
Phone #: an	£1/2								Ana	ysis	Analysis Request	st				
email or Fax#:	ON F.16	Project Manager:	jer:			(0			°			hu				
QA/QC Package:	ä							SN	S '70			iesa Iesa				
□ Standard	☐ Level 4 (Full Validation)							IIS0	<u>D</u>		V/1-	₩⁄ĭU				
Accreditation:	☐ Az Compliance ☐ Other	Sampler: 3.	anden Sc	hafer	TME							- L 626				
□ EDD (Type)	<u> </u>	lers:										Y m				
		Cooler Temp(including CF):	ncluding CF).	(C)								j IOIIIC				
			Preservative	LL HEAL NO	(X3)	08.H9 9 180	M) 80	d sHA	S ARO. € , ∓ €	V) 09 <u>2</u>	S) 07S	otal Co				
08/6 fcc. 1	, 501/ L/5/9 - 0.6	9iass Ter	adk		ᠿ				<u> </u>							
117 6200		;)))),	0.60	-	<u> </u>			<u> </u>		\dashv	_		+	-	
*	10 /			-221	8	₹ 			8							
<i>></i> >>	80 7 7	>	>	-022	×	\checkmark			\times							
		•														
				,											<u> </u>	
					-											
														<u> </u>		
											-					
						•										
		/ /													_	
Date: Time: 9/13/9/19/9	Relinquished by: brandlon Schoki	Received by:	Via:	$\int_{\mathcal{U}}^{\text{dite}} \text{Time}$	Remarks: Pas	narks: Pasc		20102	~							
Date: Time: (22)	Σ.	Received b//	Via:	Date Time												
If necess	If The eessary, 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.	onfracted to other ac	のいんんん	ا حا ک ال ال ال ال ال ال ال ال ال ال ال ال ال	possibil	ty. Any	sub-con	tracted o	ata will 1	e clearly	notated	on the a	nalytical	report.		



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

August 28, 2019

Dennis Williams
Vertex Resource Group Ltd.
213 S. Mesa St
Carlsbad, NM 88220
TEL:
FAX:

RE: Trebuchet 23 28 19 OrderNo.: 1908E43

Dear Dennis Williams:

Hall Environmental Analysis Laboratory received 13 sample(s) on 8/23/2019 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman

Laboratory Manager

andyl

4901 Hawkins NE

Albuquerque, NM 87109

Lab Order 1908E43

Date Reported: 8/28/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Client Sample ID: BS19-56 4'

Project: Trebuchet 23 28 19

Collection Date: 8/21/2019

Lab ID: 1908E43-001 **Matrix:** MEOH (SOIL) **Received Date:** 8/23/2019 9:40:00 AM

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analyst	CAS
Chloride	2300	60	mg/Kg	20	8/26/2019 5:24:47 PM	47059
EPA METHOD 8015M/D: DIESEL RANGE OR	GANICS				Analyst	: TOM
Diesel Range Organics (DRO)	ND	10	mg/Kg	1	8/26/2019 11:50:39 AM	47044
Motor Oil Range Organics (MRO)	ND	50	mg/Kg	1	8/26/2019 11:50:39 AM	47044
Surr: DNOP	103	70-130	%Rec	1	8/26/2019 11:50:39 AM	47044
EPA METHOD 8015D: GASOLINE RANGE					Analyst	: NSB
Gasoline Range Organics (GRO)	ND	4.1	mg/Kg	1	8/26/2019 1:07:48 PM	A62419
Surr: BFB	93.2	77.4-118	%Rec	1	8/26/2019 1:07:48 PM	A62419
EPA METHOD 8021B: VOLATILES					Analyst	: NSB
Benzene	ND	0.020	mg/Kg	1	8/26/2019 1:07:48 PM	C62419
Toluene	ND	0.041	mg/Kg	1	8/26/2019 1:07:48 PM	C62419
Ethylbenzene	ND	0.041	mg/Kg	1	8/26/2019 1:07:48 PM	C62419
Xylenes, Total	ND	0.081	mg/Kg	1	8/26/2019 1:07:48 PM	C62419
Surr: 4-Bromofluorobenzene	93.6	80-120	%Rec	1	8/26/2019 1:07:48 PM	C62419

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

Qualifiers:

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

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

Page 1 of 17

Lab Order 1908E43

Date Reported: 8/28/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Client Sample ID: BS19-57 4'

Project: Trebuchet 23 28 19

Collection Date: 8/21/2019

Lab ID: 1908E43-002 **Matrix:** MEOH (SOIL) **Received Date:** 8/23/2019 9:40:00 AM

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analyst	CAS
Chloride	2300	150	mg/Kg	50	8/27/2019 11:31:04 AM	47059
EPA METHOD 8015M/D: DIESEL RANGE ORG	SANICS				Analyst	TOM
Diesel Range Organics (DRO)	ND	9.6	mg/Kg	1	8/26/2019 12:14:36 PM	47044
Motor Oil Range Organics (MRO)	ND	48	mg/Kg	1	8/26/2019 12:14:36 PM	47044
Surr: DNOP	104	70-130	%Rec	1	8/26/2019 12:14:36 PM	47044
EPA METHOD 8015D: GASOLINE RANGE					Analyst	NSB
Gasoline Range Organics (GRO)	ND	4.5	mg/Kg	1	8/26/2019 1:31:23 PM	A62419
Surr: BFB	92.3	77.4-118	%Rec	1	8/26/2019 1:31:23 PM	A62419
EPA METHOD 8021B: VOLATILES					Analyst	NSB
Benzene	ND	0.022	mg/Kg	1	8/26/2019 1:31:23 PM	C62419
Toluene	ND	0.045	mg/Kg	1	8/26/2019 1:31:23 PM	C62419
Ethylbenzene	ND	0.045	mg/Kg	1	8/26/2019 1:31:23 PM	C62419
Xylenes, Total	ND	0.089	mg/Kg	1	8/26/2019 1:31:23 PM	C62419
Surr: 4-Bromofluorobenzene	93.2	80-120	%Rec	1	8/26/2019 1:31:23 PM	C62419

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

Qualifiers:

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

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

Page 2 of 17

Lab Order **1908E43**Date Reported: **8/28/2019**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Client Sample ID: BS19-58 4'

Project: Trebuchet 23 28 19 **Collection Date:** 8/21/2019

Lab ID: 1908E43-003 **Matrix:** MEOH (SOIL) **Received Date:** 8/23/2019 9:40:00 AM

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analyst	CAS
Chloride	2400	150	mg/Kg	50	8/27/2019 2:37:14 PM	47059
EPA METHOD 8015M/D: DIESEL RANGE OR	GANICS				Analyst	TOM
Diesel Range Organics (DRO)	ND	9.5	mg/Kg	1	8/26/2019 12:38:36 PM	47044
Motor Oil Range Organics (MRO)	ND	47	mg/Kg	1	8/26/2019 12:38:36 PM	47044
Surr: DNOP	106	70-130	%Rec	1	8/26/2019 12:38:36 PM	47044
EPA METHOD 8015D: GASOLINE RANGE					Analyst	NSB
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	8/26/2019 1:55:06 PM	A62419
Surr: BFB	93.7	77.4-118	%Rec	1	8/26/2019 1:55:06 PM	A62419
EPA METHOD 8021B: VOLATILES					Analyst	NSB
Benzene	ND	0.024	mg/Kg	1	8/26/2019 1:55:06 PM	C62419
Toluene	ND	0.048	mg/Kg	1	8/26/2019 1:55:06 PM	C62419
Ethylbenzene	ND	0.048	mg/Kg	1	8/26/2019 1:55:06 PM	C62419
Xylenes, Total	ND	0.096	mg/Kg	1	8/26/2019 1:55:06 PM	C62419
Surr: 4-Bromofluorobenzene	94.8	80-120	%Rec	1	8/26/2019 1:55:06 PM	C62419

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

Qualifiers:

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

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit
- Page 3 of 17

Lab Order 1908E43

Date Reported: 8/28/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Client Sample ID: BS19-59 4'

Project: Trebuchet 23 28 19

Collection Date: 8/21/2019

Lab ID: 1908E43-004 **Matrix:** MEOH (SOIL) **Received Date:** 8/23/2019 9:40:00 AM

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analyst	CAS
Chloride	2300	60	mg/Kg	20	8/26/2019 6:26:49 PM	47059
EPA METHOD 8015M/D: DIESEL RANGE OR	GANICS				Analyst	: TOM
Diesel Range Organics (DRO)	ND	9.5	mg/Kg	1	8/26/2019 1:02:38 PM	47044
Motor Oil Range Organics (MRO)	ND	48	mg/Kg	1	8/26/2019 1:02:38 PM	47044
Surr: DNOP	105	70-130	%Rec	1	8/26/2019 1:02:38 PM	47044
EPA METHOD 8015D: GASOLINE RANGE					Analyst	: NSB
Gasoline Range Organics (GRO)	ND	4.5	mg/Kg	1	8/26/2019 2:18:53 PM	A62419
Surr: BFB	96.4	77.4-118	%Rec	1	8/26/2019 2:18:53 PM	A62419
EPA METHOD 8021B: VOLATILES					Analyst	: NSB
Benzene	ND	0.022	mg/Kg	1	8/26/2019 2:18:53 PM	C62419
Toluene	ND	0.045	mg/Kg	1	8/26/2019 2:18:53 PM	C62419
Ethylbenzene	ND	0.045	mg/Kg	1	8/26/2019 2:18:53 PM	C62419
Xylenes, Total	ND	0.090	mg/Kg	1	8/26/2019 2:18:53 PM	C62419
Surr: 4-Bromofluorobenzene	97.3	80-120	%Rec	1	8/26/2019 2:18:53 PM	C62419

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

Qualifiers:

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

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

Page 4 of 17

Lab Order **1908E43**Date Reported: **8/28/2019**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Client Sample ID: BS19-60 4'

Project: Trebuchet 23 28 19

Collection Date: 8/21/2019

Lab ID: 1908E43-005 **Matrix:** MEOH (SOIL) **Received Date:** 8/23/2019 9:40:00 AM

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analyst	CAS
Chloride	1600	60	mg/Kg	20	8/26/2019 6:39:14 PM	47059
EPA METHOD 8015M/D: DIESEL RANGE OR	GANICS				Analyst	TOM
Diesel Range Organics (DRO)	ND	9.7	mg/Kg	1	8/26/2019 1:26:44 PM	47044
Motor Oil Range Organics (MRO)	ND	48	mg/Kg	1	8/26/2019 1:26:44 PM	47044
Surr: DNOP	105	70-130	%Rec	1	8/26/2019 1:26:44 PM	47044
EPA METHOD 8015D: GASOLINE RANGE					Analyst	NSB
Gasoline Range Organics (GRO)	ND	4.6	mg/Kg	1	8/26/2019 2:42:46 PM	A62419
Surr: BFB	95.9	77.4-118	%Rec	1	8/26/2019 2:42:46 PM	A62419
EPA METHOD 8021B: VOLATILES					Analyst	NSB
Benzene	ND	0.023	mg/Kg	1	8/26/2019 2:42:46 PM	C62419
Toluene	ND	0.046	mg/Kg	1	8/26/2019 2:42:46 PM	C62419
Ethylbenzene	ND	0.046	mg/Kg	1	8/26/2019 2:42:46 PM	C62419
Xylenes, Total	ND	0.091	mg/Kg	1	8/26/2019 2:42:46 PM	C62419
Surr: 4-Bromofluorobenzene	96.2	80-120	%Rec	1	8/26/2019 2:42:46 PM	C62419

Refer to the QC Summary 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
- popular Not In Range Page 5 of 17

Lab Order 1908E43

Date Reported: 8/28/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Client Sample ID: BS19-61 4'

Project: Trebuchet 23 28 19

Collection Date: 8/21/2019

Lab ID: 1908E43-006 **Matrix:** MEOH (SOIL) **Received Date:** 8/23/2019 9:40:00 AM

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analyst	CAS
Chloride	2300	60	mg/Kg	20	8/26/2019 7:16:27 PM	47059
EPA METHOD 8015M/D: DIESEL RANGE OR	GANICS				Analyst	: TOM
Diesel Range Organics (DRO)	ND	9.9	mg/Kg	1	8/26/2019 2:15:04 PM	47044
Motor Oil Range Organics (MRO)	ND	50	mg/Kg	1	8/26/2019 2:15:04 PM	47044
Surr: DNOP	102	70-130	%Rec	1	8/26/2019 2:15:04 PM	47044
EPA METHOD 8015D: GASOLINE RANGE					Analyst	: NSB
Gasoline Range Organics (GRO)	ND	4.2	mg/Kg	1	8/26/2019 3:06:40 PM	A62419
Surr: BFB	93.1	77.4-118	%Rec	1	8/26/2019 3:06:40 PM	A62419
EPA METHOD 8021B: VOLATILES					Analyst	: NSB
Benzene	ND	0.021	mg/Kg	1	8/26/2019 3:06:40 PM	C62419
Toluene	ND	0.042	mg/Kg	1	8/26/2019 3:06:40 PM	C62419
Ethylbenzene	ND	0.042	mg/Kg	1	8/26/2019 3:06:40 PM	C62419
Xylenes, Total	ND	0.083	mg/Kg	1	8/26/2019 3:06:40 PM	C62419
Surr: 4-Bromofluorobenzene	93.6	80-120	%Rec	1	8/26/2019 3:06:40 PM	C62419

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

Qualifiers:

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

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

Page 6 of 17

Lab Order **1908E43**Date Reported: **8/28/2019**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Client Sample ID: BS19-62 4'

Project: Trebuchet 23 28 19

Collection Date: 8/21/2019

Lab ID: 1908E43-007 **Matrix:** MEOH (SOIL) **Received Date:** 8/23/2019 9:40:00 AM

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analyst	CAS
Chloride	1300	60	mg/Kg	20	8/26/2019 7:28:51 PM	47059
EPA METHOD 8015M/D: DIESEL RANGE ORG	SANICS				Analyst	: TOM
Diesel Range Organics (DRO)	ND	9.6	mg/Kg	1	8/26/2019 2:39:20 PM	47044
Motor Oil Range Organics (MRO)	ND	48	mg/Kg	1	8/26/2019 2:39:20 PM	47044
Surr: DNOP	105	70-130	%Rec	1	8/26/2019 2:39:20 PM	47044
EPA METHOD 8015D: GASOLINE RANGE					Analyst	: NSB
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	8/26/2019 3:30:29 PM	A62419
Surr: BFB	104	77.4-118	%Rec	1	8/26/2019 3:30:29 PM	A62419
EPA METHOD 8021B: VOLATILES					Analyst	: NSB
Benzene	ND	0.024	mg/Kg	1	8/26/2019 3:30:29 PM	C62419
Toluene	ND	0.049	mg/Kg	1	8/26/2019 3:30:29 PM	C62419
Ethylbenzene	ND	0.049	mg/Kg	1	8/26/2019 3:30:29 PM	C62419
Xylenes, Total	ND	0.097	mg/Kg	1	8/26/2019 3:30:29 PM	C62419
Surr: 4-Bromofluorobenzene	105	80-120	%Rec	1	8/26/2019 3:30:29 PM	C62419

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

Qualifiers:

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

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

Page 7 of 17

Lab Order 1908E43

Date Reported: 8/28/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BS19-63 4' Trebuchet 23 28 19 **Project:** Collection Date: 8/21/2019

1908E43-008 Lab ID: Matrix: MEOH (SOIL) Received Date: 8/23/2019 9:40:00 AM

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analyst	CAS
Chloride	1200	60	mg/Kg	20	8/26/2019 7:41:16 PM	47059
EPA METHOD 8015M/D: DIESEL RANGE ORG	SANICS				Analyst	: TOM
Diesel Range Organics (DRO)	ND	9.6	mg/Kg	1	8/26/2019 3:03:38 PM	47044
Motor Oil Range Organics (MRO)	ND	48	mg/Kg	1	8/26/2019 3:03:38 PM	47044
Surr: DNOP	97.8	70-130	%Rec	1	8/26/2019 3:03:38 PM	47044
EPA METHOD 8015D: GASOLINE RANGE					Analyst	: NSB
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	8/26/2019 3:54:20 PM	A62419
Surr: BFB	97.2	77.4-118	%Rec	1	8/26/2019 3:54:20 PM	A62419
EPA METHOD 8021B: VOLATILES					Analyst	: NSB
Benzene	ND	0.025	mg/Kg	1	8/26/2019 3:54:20 PM	C62419
Toluene	ND	0.049	mg/Kg	1	8/26/2019 3:54:20 PM	C62419
Ethylbenzene	ND	0.049	mg/Kg	1	8/26/2019 3:54:20 PM	C62419
Xylenes, Total	ND	0.099	mg/Kg	1	8/26/2019 3:54:20 PM	C62419
Surr: 4-Bromofluorobenzene	97.8	80-120	%Rec	1	8/26/2019 3:54:20 PM	C62419

Refer to the QC Summary 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
- % Recovery outside of range due to dilution or matrix

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

Page 8 of 17

Lab Order 1908E43

Date Reported: 8/28/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Client Sample ID: BS19-64 4'

Project: Trebuchet 23 28 19 **Collection Date:** 8/21/2019

Lab ID: 1908E43-009 **Matrix:** MEOH (SOIL) **Received Date:** 8/23/2019 9:40:00 AM

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analyst	CAS
Chloride	1200	60	mg/Kg	20	8/26/2019 7:53:40 PM	47059
EPA METHOD 8015M/D: DIESEL RANGE ORG	SANICS				Analyst	TOM
Diesel Range Organics (DRO)	ND	9.4	mg/Kg	1	8/26/2019 3:27:54 PM	47044
Motor Oil Range Organics (MRO)	ND	47	mg/Kg	1	8/26/2019 3:27:54 PM	47044
Surr: DNOP	94.7	70-130	%Rec	1	8/26/2019 3:27:54 PM	47044
EPA METHOD 8015D: GASOLINE RANGE					Analyst	NSB
Gasoline Range Organics (GRO)	ND	3.8	mg/Kg	1	8/26/2019 5:29:27 PM	A62419
Surr: BFB	97.8	77.4-118	%Rec	1	8/26/2019 5:29:27 PM	A62419
EPA METHOD 8021B: VOLATILES					Analyst	NSB
Benzene	ND	0.019	mg/Kg	1	8/26/2019 5:29:27 PM	C62419
Toluene	ND	0.038	mg/Kg	1	8/26/2019 5:29:27 PM	C62419
Ethylbenzene	ND	0.038	mg/Kg	1	8/26/2019 5:29:27 PM	C62419
Xylenes, Total	ND	0.077	mg/Kg	1	8/26/2019 5:29:27 PM	C62419
Surr: 4-Bromofluorobenzene	98.1	80-120	%Rec	1	8/26/2019 5:29:27 PM	C62419

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

Qualifiers:

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

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

Page 9 of 17

Lab Order 1908E43

Date Reported: 8/28/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Client Sample ID: BS19-65 4'

Project: Trebuchet 23 28 19

Collection Date: 8/21/2019

Lab ID: 1908E43-010 **Matrix:** MEOH (SOIL) **Received Date:** 8/23/2019 9:40:00 AM

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analyst	CAS
Chloride	2100	60	mg/Kg	20	8/26/2019 8:06:05 PM	47059
EPA METHOD 8015M/D: DIESEL RANGE ORG	ANICS				Analyst	TOM
Diesel Range Organics (DRO)	ND	9.1	mg/Kg	1	8/26/2019 3:52:16 PM	47044
Motor Oil Range Organics (MRO)	ND	45	mg/Kg	1	8/26/2019 3:52:16 PM	47044
Surr: DNOP	95.1	70-130	%Rec	1	8/26/2019 3:52:16 PM	47044
EPA METHOD 8015D: GASOLINE RANGE					Analyst	NSB
Gasoline Range Organics (GRO)	ND	3.3	mg/Kg	1	8/26/2019 5:53:14 PM	A62419
Surr: BFB	92.8	77.4-118	%Rec	1	8/26/2019 5:53:14 PM	A62419
EPA METHOD 8021B: VOLATILES					Analyst	NSB
Benzene	ND	0.016	mg/Kg	1	8/26/2019 5:53:14 PM	C62419
Toluene	ND	0.033	mg/Kg	1	8/26/2019 5:53:14 PM	C62419
Ethylbenzene	ND	0.033	mg/Kg	1	8/26/2019 5:53:14 PM	C62419
Xylenes, Total	ND	0.066	mg/Kg	1	8/26/2019 5:53:14 PM	C62419
Surr: 4-Bromofluorobenzene	92.3	80-120	%Rec	1	8/26/2019 5:53:14 PM	C62419

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

Qualifiers:

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

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

Page 10 of 17

Lab Order 1908E43

Date Reported: 8/28/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Client Sample ID: WS19-10 4'

Project: Trebuchet 23 28 19

Collection Date: 8/21/2019

Lab ID: 1908E43-011 **Matrix:** MEOH (SOIL) **Received Date:** 8/23/2019 9:40:00 AM

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analyst	CAS
Chloride	4500	150	mg/Kg	50	8/27/2019 2:49:39 PM	47059
EPA METHOD 8015M/D: DIESEL RANGE ORG	SANICS				Analyst	TOM
Diesel Range Organics (DRO)	ND	9.8	mg/Kg	1	8/26/2019 4:16:36 PM	47044
Motor Oil Range Organics (MRO)	ND	49	mg/Kg	1	8/26/2019 4:16:36 PM	47044
Surr: DNOP	95.1	70-130	%Rec	1	8/26/2019 4:16:36 PM	47044
EPA METHOD 8015D: GASOLINE RANGE					Analyst	NSB
Gasoline Range Organics (GRO)	ND	4.6	mg/Kg	1	8/26/2019 6:16:54 PM	A62419
Surr: BFB	94.7	77.4-118	%Rec	1	8/26/2019 6:16:54 PM	A62419
EPA METHOD 8021B: VOLATILES					Analyst	NSB
Benzene	ND	0.023	mg/Kg	1	8/26/2019 6:16:54 PM	C62419
Toluene	ND	0.046	mg/Kg	1	8/26/2019 6:16:54 PM	C62419
Ethylbenzene	ND	0.046	mg/Kg	1	8/26/2019 6:16:54 PM	C62419
Xylenes, Total	ND	0.093	mg/Kg	1	8/26/2019 6:16:54 PM	C62419
Surr: 4-Bromofluorobenzene	94.0	80-120	%Rec	1	8/26/2019 6:16:54 PM	C62419

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

Qualifiers:

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

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

Page 11 of 17

Lab Order 1908E43

Date Reported: 8/28/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Client Sample ID: WS19-11 4'

Project: Trebuchet 23 28 19

Collection Date: 8/21/2019

Lab ID: 1908E43-012 **Matrix:** MEOH (SOIL) **Received Date:** 8/23/2019 9:40:00 AM

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analyst	CAS
Chloride	2400	150	mg/Kg	50	8/27/2019 3:02:04 PM	47059
EPA METHOD 8015M/D: DIESEL RANGE ORG	GANICS				Analyst	: TOM
Diesel Range Organics (DRO)	ND	9.8	mg/Kg	1	8/26/2019 4:40:53 PM	47044
Motor Oil Range Organics (MRO)	ND	49	mg/Kg	1	8/26/2019 4:40:53 PM	47044
Surr: DNOP	94.1	70-130	%Rec	1	8/26/2019 4:40:53 PM	47044
EPA METHOD 8015D: GASOLINE RANGE					Analyst	: NSB
Gasoline Range Organics (GRO)	ND	4.4	mg/Kg	1	8/26/2019 6:40:40 PM	A62419
Surr: BFB	91.5	77.4-118	%Rec	1	8/26/2019 6:40:40 PM	A62419
EPA METHOD 8021B: VOLATILES					Analyst	: NSB
Benzene	ND	0.022	mg/Kg	1	8/26/2019 6:40:40 PM	C62419
Toluene	ND	0.044	mg/Kg	1	8/26/2019 6:40:40 PM	C62419
Ethylbenzene	ND	0.044	mg/Kg	1	8/26/2019 6:40:40 PM	C62419
Xylenes, Total	ND	0.088	mg/Kg	1	8/26/2019 6:40:40 PM	C62419
Surr: 4-Bromofluorobenzene	90.6	80-120	%Rec	1	8/26/2019 6:40:40 PM	C62419

Refer to the QC Summary 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

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

Page 12 of 17

Lab Order 1908E43

Date Reported: 8/28/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: WS19-09 4'

Trebuchet 23 28 19 **Project:** Collection Date: 8/21/2019 4:00:00 PM 1908E43-013 Lab ID: Matrix: MEOH (SOIL) Received Date: 8/23/2019 9:40:00 AM

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analyst	CAS
Chloride	4200	150	mg/Kg	50	8/27/2019 3:14:28 PM	47059
EPA METHOD 8015M/D: DIESEL RANGE ORG	ANICS				Analyst	TOM
Diesel Range Organics (DRO)	ND	9.5	mg/Kg	1	8/26/2019 5:05:03 PM	47044
Motor Oil Range Organics (MRO)	ND	48	mg/Kg	1	8/26/2019 5:05:03 PM	47044
Surr: DNOP	97.7	70-130	%Rec	1	8/26/2019 5:05:03 PM	47044
EPA METHOD 8015D: GASOLINE RANGE					Analyst	NSB
Gasoline Range Organics (GRO)	ND	5.6	mg/Kg	1	8/26/2019 7:04:22 PM	A62419
Surr: BFB	93.3	77.4-118	%Rec	1	8/26/2019 7:04:22 PM	A62419
EPA METHOD 8021B: VOLATILES					Analyst	NSB
Benzene	ND	0.028	mg/Kg	1	8/26/2019 7:04:22 PM	C62419
Toluene	ND	0.056	mg/Kg	1	8/26/2019 7:04:22 PM	C62419
Ethylbenzene	ND	0.056	mg/Kg	1	8/26/2019 7:04:22 PM	C62419
Xylenes, Total	ND	0.11	mg/Kg	1	8/26/2019 7:04:22 PM	C62419
Surr: 4-Bromofluorobenzene	92.7	80-120	%Rec	1	8/26/2019 7:04:22 PM	C62419

Refer to the QC Summary 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
- % Recovery outside of range due to dilution or matrix

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

Page 13 of 17

Hall Environmental Analysis Laboratory, Inc.

WO#: **1908E43**

28-Aug-19

Client: Vertex Resource Group Ltd.

Project: Trebuchet 23 28 19

Sample ID: MB-47059 SampType: MBLK TestCode: EPA Method 300.0: Anions

Client ID: PBS Batch ID: 47059 RunNo: 62418

Prep Date: 8/26/2019 Analysis Date: 8/26/2019 SeqNo: 2122942 Units: mg/Kg

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

Chloride ND 1.5

Sample ID: LCS-47059 SampType: LCS TestCode: EPA Method 300.0: Anions

Client ID: LCSS Batch ID: 47059 RunNo: 62418

Prep Date: 8/26/2019 Analysis Date: 8/26/2019 SeqNo: 2122943 Units: mg/Kg

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

Chloride 14 1.5 15.00 0 93.1 90 110

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

Page 14 of 17

Hall Environmental Analysis Laboratory, Inc.

Analysis Date: 8/26/2019

8.7

Result

39

4.1

WO#: **1908E43**

28-Aug-19

Client: Vertex Resource Group Ltd.

Project: Trebuchet 23 28 19

Sample ID: MB-47044	SampT	уре: МЕ	BLK	TestCode: EPA Method 8015M/D: Diesel Range Organics										
Client ID: PBS	Batch	1D: 47 0	044	F	RunNo: 6	2408								
Prep Date: 8/26/2019	Analysis D	ate: 8/	26/2019	5	SeqNo: 2	121954	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual				
Diesel Range Organics (DRO)	ND	10												
Motor Oil Range Organics (MRO)	ND	50												
Surr: DNOP	10		10.00		101	70	130							
Sample ID: LCS-47044	SampT	ype: LC	s	Tes	tCode: El	PA Method	8015M/D: Di	esel Rango	e Organics					
Client ID: LCSS	Batch	ID: 47 0	044	F	RunNo: 6	2408								
Prep Date: 8/26/2019	Analysis D	ate: 8/	26/2019	8	SeqNo: 2	121955	Units: mg/k	(g						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual				
Diesel Range Organics (DRO)	46	10	50.00	0	91.1	63.9	124							
Surr: DNOP	4.5		5.000		90.1	70	130							
Sample ID: 1908E43-001AMS	SampT	уре: МS	<u> </u>	Tes	tCode: El	PA Method	8015M/D: Di	esel Range	e Organics					
Client ID: BS19-56 4'	Batch	ID: 47 0	044	F	RunNo: 6	2408								
Prep Date: 8/26/2019	Analysis D	ate: 8/	26/2019	8	SeqNo: 2	122288	Units: mg/h	(g						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual				
Diesel Range Organics (DRO)	43	9.3	46.43	0	92.5	57	142							
Surr: DNOP	4.4		4.643		95.2	70	130							
Sample ID: 1908E43-001AMS	D SampT	уре: М S	SD	Tes	tCode: El	PA Method	8015M/D: Di	esel Range	e Organics					
Client ID: BS19-56 4'	Batch	1D: 47 0	044	F	RunNo: 6	2408								

SPK value SPK Ref Val %REC

43.71

4.371

Qualifiers:

- Value exceeds Maximum Contaminant 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

Prep Date: 8/26/2019

Diesel Range Organics (DRO)

Analyte

Surr: DNOP

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

SeqNo: 2122290

90.1

94.0

LowLimit

57

70

Units: mg/Kg

142

130

%RPD

8.57

0

RPDLimit

20

0

Qual

HighLimit

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

Hall Environmental Analysis Laboratory, Inc.

WO#: **1908E43**

28-Aug-19

Client: Vertex Resource Group Ltd.

Project: Trebuchet 23 28 19

Sample ID: RB SampType: MBLK TestCode: EPA Method 8015D: Gasoline Range

Client ID: PBS Batch ID: A62419 RunNo: 62419

Prep Date: Analysis Date: 8/26/2019 SeqNo: 2122213 Units: mg/Kg

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

Gasoline Range Organics (GRO) ND 5.0

Surr: BFB 1000 1000 101 77.4 118

Sample ID: 2.5UG GRO LCS SampType: LCS TestCode: EPA Method 8015D: Gasoline Range

Client ID: LCSS Batch ID: A62419 RunNo: 62419

Prep Date: Analysis Date: 8/26/2019 SeqNo: 2122214 Units: mg/Kg

LowLimit Analyte Result PQL SPK value SPK Ref Val %REC HighLimit %RPD **RPDLimit** Qual Gasoline Range Organics (GRO) 22 5.0 25.00 0 89.4 80 120 Surr: BFB 1100 1000 109 77.4 118

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

Page 16 of 17

Hall Environmental Analysis Laboratory, Inc.

0.97

WO#: 1908E43

28-Aug-19

Client: Vertex Resource Group Ltd.

Project: Trebuchet 23 28 19

Sample ID: RB SampType: MBLK TestCode: EPA Method 8021B: Volatiles Client ID: PBS Batch ID: C62419 RunNo: 62419 Prep Date: Analysis Date: 8/26/2019 SeqNo: 2122257 Units: mg/Kg Analyte PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Result Benzene ND 0.025 ND 0.050

 Toluene
 ND
 0.050

 Ethylbenzene
 ND
 0.050

 Xylenes, Total
 ND
 0.10

Surr: 4-Bromofluorobenzene 1.0 1.000 101 80 120

1.000

Sample ID: 100NG BTEX LCS SampType: LCS TestCode: EPA Method 8021B: Volatiles Client ID: LCSS Batch ID: C62419 RunNo: 62419 Units: mg/Kg Prep Date: Analysis Date: 8/26/2019 SeqNo: 2122258 Analyte PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual 0.97 0.025 1.000 0 97.2 80 120 Benzene Toluene 1.0 0.050 1.000 0 99.8 80 120 0.050 0 99.9 80 120 Ethylbenzene 1.0 1.000 3.0 0.10 3.000 0 101 80 120 Xylenes, Total

97.4

80

120

Qualifiers:

Value exceeds Maximum Contaminant Level

D Sample Diluted Due to Matrix

Surr: 4-Bromofluorobenzene

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

Page 17 of 17



Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87109 TEL: 505-345-3975 FAX: 505-345-4107

Website: www.hallenvironmental.com

Sample Log-In Check List

VERTEX CARLSBAD Client Name: Work Order Number: 1908E43 RcptNo: 1 Received By: Yazmine Garduno 8/23/2019 9:40:00 AM 8/24/2019 10:25;40 AM Completed By: Yazmine Garduno 8/26/A Reviewed By: Chain of Custody No 🗌 1. Is Chain of Custody complete? Yes 🔽 Not Present 2. How was the sample delivered? Courier Log In 3. Was an attempt made to cool the samples? No \square NA 🗌 Yes 🔽 No 🗌 4. Were all samples received at a temperature of >0° C to 6.0°C NA 🗌 Yes 🗹 No \square 5. Sample(s) in proper container(s)? Yes 🔽 Sufficient sample volume for indicated test(s)? Yes 🔽 No 🗌 7. Are samples (except VOA and ONG) properly preserved? Yes 🔽 No 🗌 No 🗹 NA 🗌 8. Was preservative added to bottles? Yes 🗌 No VOA Vials 🗹 9. VOA vials have zero headspace? Yes 🗌 No 🗌 Yes □ No 🗹 10. Were any sample containers received broken? # of preserved bottles checked 11. Does paperwork match bottle labels? Yes 🔽 No 🔲 for pH: (Note discrepancies on chain of custody) or >12 unless noted) No 🗌 12. Are matrices correctly identified on Chain of Custody? Yes 🔽 13. Is it clear what analyses were requested? Yes 🗸 No 🗌 14. Were all holding times able to be met? Yes 🗹 No 🗌 (If no, notify customer for authorization.) Special Handling (if applicable) Yes 🗌 No 🗌 15. Was client notified of all discrepancies with this order? NA 🗸 Person Notified: Date By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person Regarding: Client Instructions: 16. Additional remarks: 17. Cooler Information Temp °C Cooler No Condition Seal Intact | Seal No Seal Date Signed By 5.6 Good 2 5.9 Good 3 5.6 Good 5.3 Good

	HALL ENVIRONMENTAL ANALYSIS LABORATORY	www.hallenvironmental.com	4901 Hawkins NE - Albuquerque, NM 87109		Analysis	†O) OS	7 (1.4) 4.1) 7.28 7 1.0 2.1	O\\ 18 20 01)(C) 0q 0q 0l(C) 1:-\(\lambda\)	estic leth by 83 8 Me 3r, 1	08(H 64 18 60 (N) 원 75 4원 70 (S	908 ED9 PA9 PC S28	XX	K K	× ×	×××	K K	×	× × ×	X X X	× ×		X X	× ×	Remarks: $5.1 + 0.5 = 5.6c$	57.707.75	
Turn-Around Time:	□ Standard ■Rush 4 & hours	Project Name:	Frebucher 23 28 19		1960-361	Project Manager:	Dennis Williams		II. Brandan S.	Ou ce: Ne Ne No		Cooler Tempinavanger) [LAYY/V/IS] (°C	Container Preservative 1.7. HEAL No.	Type and # Type 1046 15	glass Jan 16c (-00)	1 -001	£00-	h00-	500-	100-	L00-	\$00-	V00- /	019- / /	110- 1	710- 1 1	Received Via: Date Time	 -	CILLY CONTROL OF THE CILLY
Chain-of-Custody Record	Client: Server Resource group	130	Mailing Address:	ON File	Phone #: 01 File	email or Fax#: 01 File	à:			□ NELAC □ Other	□ EDD (Type)			Time Matrix Sample Name	08/21 See 5011 BS19-56 4	1 1 1 1 57 1	54	65	09	19	79%	63	1.79	1 4 85	1 01-615M E 10 1	A 11-615M & 1 1 1 1 1	Date: Time: Relinquished by: OB/1 18:30 Grand on Schafer	Pate: Time: Relinquighed My:	123/9 19 m

	□ HALL ENVIKONMENIAL □ ANALYSIS LABORATORY	www.hallenvironmental.com	4901 Hawkins NE - Albuqueraue. NM 87109	I. 505-345-3975 Fax 505-345-4107	Analysis		SMIS0	04.1) or 827(, NO ₂ ,	5 bo	ethc y 83 hr, h OA)	8081 Pe PAHs b RCRA 8 8260 (V 8270 (S Total Co								5.1 +0.5ct.5.4	sc 2 of 2		4.8 TO SURE 5.30
Turn-Around Time:	□ Standard If Rush 4 & hours	6			1360-361		Winns 8081	5ch aFcr B	38	(including CF): (CBY (CK P) (°C)	Container Preservative MONE VI)	7 166 -013			, , , , , , , , , , , , , , , , , , , ,				⊢	2)/12/12	Via: Date lime	WW CONFIEN STANING A:40
Chain-of-Custody Record	Client: Vertek Resource Group	Marathen Oil	Mailing Address:	on File	Phone #: 01 File	email or Fax#: an File	OA/OC Package: Standard Level 4 (Full Validation)	Accreditation:	ype)_		Date Time Matrix Sample Name	60-615M 100 00.91 1750					, in the second		Date: Time: Relinquished by:	2/:0 1	Uate: Kelinduished by:	12/19 [90] H

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.

Date Reported:

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BS19-66 4'

 Project:
 Trebuchet 23 28 19
 Collection Date: 8/22/2019 1:00:00 PM

 Lab ID:
 1908E44-001
 Matrix: MEOH (SOIL)
 Received Date: 8/24/2019 9:40:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORG	ANICS				Analyst: TOM
Diesel Range Organics (DRO)	ND	9.8	mg/Kg	1	8/26/2019 5:29:31 PM
Motor Oil Range Organics (MRO)	ND	49	mg/Kg	1	8/26/2019 5:29:31 PM
Surr: DNOP	96.1	70-130	%Rec	1	8/26/2019 5:29:31 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.5	mg/Kg	1	8/26/2019 7:28:06 PM
Surr: BFB	92.1	77.4-118	%Rec	1	8/26/2019 7:28:06 PM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	0.022	mg/Kg	1	8/26/2019 7:28:06 PM
Toluene	ND	0.045	mg/Kg	1	8/26/2019 7:28:06 PM
Ethylbenzene	ND	0.045	mg/Kg	1	8/26/2019 7:28:06 PM
Xylenes, Total	ND	0.090	mg/Kg	1	8/26/2019 7:28:06 PM
Surr: 4-Bromofluorobenzene	91.6	80-120	%Rec	1	8/26/2019 7:28:06 PM
EPA METHOD 300.0: ANIONS					Analyst: CAS
Chloride	1800	60	mg/Kg	20	8/26/2019 8:55:44 PM

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

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- $ND \qquad Not \ Detected \ at \ the \ Reporting \ Limit$
- 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

Date Reported:

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BS19-67 4'

 Project:
 Trebuchet 23 28 19
 Collection Date: 8/22/2019 1:05:00 PM

 Lab ID:
 1908E44-002
 Matrix: MEOH (SOIL)
 Received Date: 8/24/2019 9:40:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORG	ANICS				Analyst: TOM
Diesel Range Organics (DRO)	ND	9.9	mg/Kg	1	8/26/2019 5:53:52 PM
Motor Oil Range Organics (MRO)	ND	49	mg/Kg	1	8/26/2019 5:53:52 PM
Surr: DNOP	98.0	70-130	%Rec	1	8/26/2019 5:53:52 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.2	mg/Kg	1	8/26/2019 7:51:40 PM
Surr: BFB	91.0	77.4-118	%Rec	1	8/26/2019 7:51:40 PM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	0.021	mg/Kg	1	8/26/2019 7:51:40 PM
Toluene	ND	0.042	mg/Kg	1	8/26/2019 7:51:40 PM
Ethylbenzene	ND	0.042	mg/Kg	1	8/26/2019 7:51:40 PM
Xylenes, Total	ND	0.084	mg/Kg	1	8/26/2019 7:51:40 PM
Surr: 4-Bromofluorobenzene	91.1	80-120	%Rec	1	8/26/2019 7:51:40 PM
EPA METHOD 300.0: ANIONS					Analyst: CAS
Chloride	2300	60	mg/Kg	20	8/26/2019 9:08:08 PM

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

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- $ND \qquad Not \ Detected \ at \ the \ Reporting \ Limit$
- 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

Date Reported:

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BS19-68 4'

 Project:
 Trebuchet 23 28 19
 Collection Date: 8/22/2019 1:10:00 PM

 Lab ID:
 1908E44-003
 Matrix: MEOH (SOIL)
 Received Date: 8/24/2019 9:40:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORG	SANICS				Analyst: TOM
Diesel Range Organics (DRO)	ND	9.5	mg/Kg	1	8/26/2019 6:18:09 PM
Motor Oil Range Organics (MRO)	ND	47	mg/Kg	1	8/26/2019 6:18:09 PM
Surr: DNOP	97.3	70-130	%Rec	1	8/26/2019 6:18:09 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.2	mg/Kg	1	8/26/2019 8:15:14 PM
Surr: BFB	91.1	77.4-118	%Rec	1	8/26/2019 8:15:14 PM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	0.026	mg/Kg	1	8/26/2019 8:15:14 PM
Toluene	ND	0.052	mg/Kg	1	8/26/2019 8:15:14 PM
Ethylbenzene	ND	0.052	mg/Kg	1	8/26/2019 8:15:14 PM
Xylenes, Total	ND	0.10	mg/Kg	1	8/26/2019 8:15:14 PM
Surr: 4-Bromofluorobenzene	90.8	80-120	%Rec	1	8/26/2019 8:15:14 PM
EPA METHOD 300.0: ANIONS					Analyst: CAS
Chloride	2300	150	mg/Kg	50	8/27/2019 3:51:41 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
- $ND \qquad Not \ Detected \ at \ the \ Reporting \ Limit$
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

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

Page 3 of 0

Date Reported:

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BS19-69 4'

 Project:
 Trebuchet 23 28 19
 Collection Date: 8/22/2019 1:15:00 PM

 Lab ID:
 1908E44-004
 Matrix: MEOH (SOIL)
 Received Date: 8/24/2019 9:40:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORG	ANICS				Analyst: TOM
Diesel Range Organics (DRO)	ND	10	mg/Kg	1	8/26/2019 6:42:33 PM
Motor Oil Range Organics (MRO)	ND	50	mg/Kg	1	8/26/2019 6:42:33 PM
Surr: DNOP	97.7	70-130	%Rec	1	8/26/2019 6:42:33 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	8/26/2019 8:38:48 PM
Surr: BFB	90.7	77.4-118	%Rec	1	8/26/2019 8:38:48 PM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	0.025	mg/Kg	1	8/26/2019 8:38:48 PM
Toluene	ND	0.049	mg/Kg	1	8/26/2019 8:38:48 PM
Ethylbenzene	ND	0.049	mg/Kg	1	8/26/2019 8:38:48 PM
Xylenes, Total	ND	0.098	mg/Kg	1	8/26/2019 8:38:48 PM
Surr: 4-Bromofluorobenzene	90.1	80-120	%Rec	1	8/26/2019 8:38:48 PM
EPA METHOD 300.0: ANIONS					Analyst: CAS
Chloride	2200	60	mg/Kg	20	8/26/2019 10:22:35 PM

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

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- $ND \qquad Not \ Detected \ at \ the \ Reporting \ Limit$
- 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

Date Reported:

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BS19-70 4'

 Project:
 Trebuchet 23 28 19
 Collection Date: 8/22/2019 1:20:00 PM

 Lab ID:
 1908E44-005
 Matrix: MEOH (SOIL)
 Received Date: 8/24/2019 9:40:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OR	GANICS				Analyst: TOM
Diesel Range Organics (DRO)	ND	9.1	mg/Kg	1	8/26/2019 7:06:44 PM
Motor Oil Range Organics (MRO)	ND	46	mg/Kg	1	8/26/2019 7:06:44 PM
Surr: DNOP	98.3	70-130	%Rec	1	8/26/2019 7:06:44 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.3	mg/Kg	1	8/26/2019 9:02:19 PM
Surr: BFB	91.2	77.4-118	%Rec	1	8/26/2019 9:02:19 PM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	0.026	mg/Kg	1	8/26/2019 9:02:19 PM
Toluene	ND	0.053	mg/Kg	1	8/26/2019 9:02:19 PM
Ethylbenzene	ND	0.053	mg/Kg	1	8/26/2019 9:02:19 PM
Xylenes, Total	ND	0.11	mg/Kg	1	8/26/2019 9:02:19 PM
Surr: 4-Bromofluorobenzene	91.0	80-120	%Rec	1	8/26/2019 9:02:19 PM
EPA METHOD 300.0: ANIONS					Analyst: CAS
Chloride	2500	150	mg/Kg	50	8/27/2019 4:04:06 PM

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

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- $ND \qquad Not \ Detected \ at \ the \ Reporting \ Limit$
- 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

Date Reported:

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BS19-71 4'

 Project:
 Trebuchet 23 28 19
 Collection Date: 8/22/2019 1:25:00 PM

 Lab ID:
 1908E44-006
 Matrix: MEOH (SOIL)
 Received Date: 8/24/2019 9:40:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGA	ANICS				Analyst: TOM
Diesel Range Organics (DRO)	ND	9.5	mg/Kg	1	8/26/2019 7:30:51 PM
Motor Oil Range Organics (MRO)	ND	47	mg/Kg	1	8/26/2019 7:30:51 PM
Surr: DNOP	98.0	70-130	%Rec	1	8/26/2019 7:30:51 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: NSB
Gasoline Range Organics (GRO)	ND	3.7	mg/Kg	1	8/26/2019 10:13:03 PM
Surr: BFB	96.8	77.4-118	%Rec	1	8/26/2019 10:13:03 PM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	0.018	mg/Kg	1	8/26/2019 10:13:03 PM
Toluene	ND	0.037	mg/Kg	1	8/26/2019 10:13:03 PM
Ethylbenzene	ND	0.037	mg/Kg	1	8/26/2019 10:13:03 PM
Xylenes, Total	ND	0.074	mg/Kg	1	8/26/2019 10:13:03 PM
Surr: 4-Bromofluorobenzene	96.4	80-120	%Rec	1	8/26/2019 10:13:03 PM
EPA METHOD 300.0: ANIONS					Analyst: CAS
Chloride	2300	60	mg/Kg	20	8/26/2019 10:47:24 PM

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

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- $ND \qquad Not \ Detected \ at \ the \ Reporting \ Limit$
- 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

Date Reported:

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BS19-72 4'

 Project:
 Trebuchet 23 28 19
 Collection Date: 8/22/2019 1:30:00 PM

 Lab ID:
 1908E44-007
 Matrix: MEOH (SOIL)
 Received Date: 8/24/2019 9:40:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGA	ANICS				Analyst: TOM
Diesel Range Organics (DRO)	ND	9.8	mg/Kg	1	8/26/2019 7:55:04 PM
Motor Oil Range Organics (MRO)	ND	49	mg/Kg	1	8/26/2019 7:55:04 PM
Surr: DNOP	98.5	70-130	%Rec	1	8/26/2019 7:55:04 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: NSB
Gasoline Range Organics (GRO)	ND	3.7	mg/Kg	1	8/26/2019 11:23:28 PM
Surr: BFB	91.2	77.4-118	%Rec	1	8/26/2019 11:23:28 PM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	0.019	mg/Kg	1	8/26/2019 11:23:28 PM
Toluene	ND	0.037	mg/Kg	1	8/26/2019 11:23:28 PM
Ethylbenzene	ND	0.037	mg/Kg	1	8/26/2019 11:23:28 PM
Xylenes, Total	ND	0.075	mg/Kg	1	8/26/2019 11:23:28 PM
Surr: 4-Bromofluorobenzene	91.9	80-120	%Rec	1	8/26/2019 11:23:28 PM
EPA METHOD 300.0: ANIONS					Analyst: CAS
Chloride	1500	60	mg/Kg	20	8/26/2019 10:59:49 PM

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

Qualifiers:

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

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

Page 7 of 0

Date Reported:

CLIENT: Vertex Resource Group Ltd. Client Sample ID: WS19-12 3'

 Project:
 Trebuchet 23 28 19
 Collection Date: 8/22/2019 1:35:00 PM

 Lab ID:
 1908E44-008
 Matrix: MEOH (SOIL)
 Received Date: 8/24/2019 9:40:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORG	ANICS				Analyst: BRM
Diesel Range Organics (DRO)	ND	9.4	mg/Kg	1	8/27/2019 9:25:49 AM
Motor Oil Range Organics (MRO)	ND	47	mg/Kg	1	8/27/2019 9:25:49 AM
Surr: DNOP	89.5	70-130	%Rec	1	8/27/2019 9:25:49 AM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.5	mg/Kg	1	8/27/2019 12:33:58 AM
Surr: BFB	91.5	77.4-118	%Rec	1	8/27/2019 12:33:58 AM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	0.022	mg/Kg	1	8/27/2019 12:33:58 AM
Toluene	ND	0.045	mg/Kg	1	8/27/2019 12:33:58 AM
Ethylbenzene	ND	0.045	mg/Kg	1	8/27/2019 12:33:58 AM
Xylenes, Total	ND	0.090	mg/Kg	1	8/27/2019 12:33:58 AM
Surr: 4-Bromofluorobenzene	91.3	80-120	%Rec	1	8/27/2019 12:33:58 AM
EPA METHOD 300.0: ANIONS					Analyst: CAS
Chloride	150	60	mg/Kg	20	8/27/2019 6:26:27 AM

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

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- $ND \qquad Not \ Detected \ at \ the \ Reporting \ Limit$
- 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

Date Reported:

CLIENT: Vertex Resource Group Ltd. Client Sample ID: WS19-13 3'

 Project:
 Trebuchet 23 28 19
 Collection Date: 8/22/2019 1:40:00 PM

 Lab ID:
 1908E44-009
 Matrix: MEOH (SOIL)
 Received Date: 8/24/2019 9:40:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORG	GANICS				Analyst: BRM
Diesel Range Organics (DRO)	120	10	mg/Kg	1	8/27/2019 9:50:24 AM
Motor Oil Range Organics (MRO)	200	50	mg/Kg	1	8/27/2019 9:50:24 AM
Surr: DNOP	109	70-130	%Rec	1	8/27/2019 9:50:24 AM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.2	mg/Kg	1	8/27/2019 12:57:30 AM
Surr: BFB	87.4	77.4-118	%Rec	1	8/27/2019 12:57:30 AM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	0.026	mg/Kg	1	8/27/2019 12:57:30 AM
Toluene	ND	0.052	mg/Kg	1	8/27/2019 12:57:30 AM
Ethylbenzene	ND	0.052	mg/Kg	1	8/27/2019 12:57:30 AM
Xylenes, Total	ND	0.10	mg/Kg	1	8/27/2019 12:57:30 AM
Surr: 4-Bromofluorobenzene	87.5	80-120	%Rec	1	8/27/2019 12:57:30 AM
EPA METHOD 300.0: ANIONS					Analyst: CAS
Chloride	3300	150	mg/Kg	50	8/27/2019 4:16:30 PM

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

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- $ND \qquad Not \ Detected \ at \ the \ Reporting \ Limit$
- 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 4901 Hawkins NE Albuquerque, NM 87109 TEL: 505-345-3975 FAX: 505-345-4107 Website: www.hallenvironmental.com

July 30, 2019

Dennis Williams
Marathon Oil Company
4111 Tidwell Road
Carlsbad, NM 88220

TEL: (575) 297-0956

FAX

RE: Trebuchet 23 28 19 OrderNo.: 1907E19

Dear Dennis Williams:

Hall Environmental Analysis Laboratory received 4 sample(s) on 7/27/2019 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

andy

4901 Hawkins NE

Albuquerque, NM 87109

Lab Order **1907E19**

Date Reported: 7/30/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company

Client Sample ID: BG19-17 (0')

Project: Trebuchet 23 28 19
 Collection Date: 7/26/2019 9:30:00 AM

 Lab ID: 1907E19-001
 Matrix: MEOH (SOIL)
 Received Date: 7/27/2019 9:07:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORG	ANICS				Analyst: TOM
Diesel Range Organics (DRO)	ND	9.3	mg/Kg	1	7/29/2019 9:47:35 AM
Motor Oil Range Organics (MRO)	ND	46	mg/Kg	1	7/29/2019 9:47:35 AM
Surr: DNOP	72.8	70-130	%Rec	1	7/29/2019 9:47:35 AM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: NSB
Gasoline Range Organics (GRO)	ND	3.7	mg/Kg	1	7/29/2019 10:35:35 AM
Surr: BFB	101	73.8-119	%Rec	1	7/29/2019 10:35:35 AM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	0.019	mg/Kg	1	7/29/2019 10:35:35 AM
Toluene	ND	0.037	mg/Kg	1	7/29/2019 10:35:35 AM
Ethylbenzene	ND	0.037	mg/Kg	1	7/29/2019 10:35:35 AM
Xylenes, Total	ND	0.075	mg/Kg	1	7/29/2019 10:35:35 AM
Surr: 4-Bromofluorobenzene	92.0	80-120	%Rec	1	7/29/2019 10:35:35 AM
EPA METHOD 300.0: ANIONS					Analyst: CAS
Chloride	ND	60	mg/Kg	20	7/29/2019 12:52:51 PM

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

Qualifiers:

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

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

Page 1 of 8

Lab Order **1907E19**

Date Reported: 7/30/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company

Client Sample ID: BG19-17 (2')

Project: Trebuchet 23 28 19 **Collection Date:** 7/26/2019 9:40:00 AM

Lab ID: 1907E19-002 **Matrix:** MEOH (SOIL) **Received Date:** 7/27/2019 9:07:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORG	SANICS				Analyst: TOM
Diesel Range Organics (DRO)	ND	9.7	mg/Kg	1	7/29/2019 10:09:42 AM
Motor Oil Range Organics (MRO)	ND	48	mg/Kg	1	7/29/2019 10:09:42 AM
Surr: DNOP	76.7	70-130	%Rec	1	7/29/2019 10:09:42 AM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.2	mg/Kg	1	7/29/2019 10:58:59 AM
Surr: BFB	94.3	73.8-119	%Rec	1	7/29/2019 10:58:59 AM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	0.021	mg/Kg	1	7/29/2019 10:58:59 AM
Toluene	ND	0.042	mg/Kg	1	7/29/2019 10:58:59 AM
Ethylbenzene	ND	0.042	mg/Kg	1	7/29/2019 10:58:59 AM
Xylenes, Total	ND	0.084	mg/Kg	1	7/29/2019 10:58:59 AM
Surr: 4-Bromofluorobenzene	93.8	80-120	%Rec	1	7/29/2019 10:58:59 AM
EPA METHOD 300.0: ANIONS					Analyst: CAS
Chloride	4500	150	mg/Kg	50	7/29/2019 2:44:32 PM

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

- Value exceeds Maximum Contaminant 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

Lab Order **1907E19**

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 7/30/2019

CLIENT: Marathon Oil Company

Client Sample ID: BG19-17 (4')

 Project:
 Trebuchet 23 28 19
 Collection Date: 7/26/2019 10:00:00 AM

 Lab ID:
 1907E19-003
 Matrix: MEOH (SOIL)
 Received Date: 7/27/2019 9:07:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORG	ANICS				Analyst: TOM
Diesel Range Organics (DRO)	ND	8.9	mg/Kg	1	7/29/2019 10:31:54 AM
Motor Oil Range Organics (MRO)	ND	44	mg/Kg	1	7/29/2019 10:31:54 AM
Surr: DNOP	77.1	70-130	%Rec	1	7/29/2019 10:31:54 AM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: NSB
Gasoline Range Organics (GRO)	ND	3.1	mg/Kg	1	7/29/2019 11:22:25 AM
Surr: BFB	89.1	73.8-119	%Rec	1	7/29/2019 11:22:25 AM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	0.016	mg/Kg	1	7/29/2019 11:22:25 AM
Toluene	ND	0.031	mg/Kg	1	7/29/2019 11:22:25 AM
Ethylbenzene	ND	0.031	mg/Kg	1	7/29/2019 11:22:25 AM
Xylenes, Total	ND	0.062	mg/Kg	1	7/29/2019 11:22:25 AM
Surr: 4-Bromofluorobenzene	89.5	80-120	%Rec	1	7/29/2019 11:22:25 AM
EPA METHOD 300.0: ANIONS					Analyst: CAS
Chloride	1200	60	mg/Kg	20	7/29/2019 1:42:30 PM

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

- Value exceeds Maximum Contaminant 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

- 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

Lab Order **1907E19**

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 7/30/2019

CLIENT: Marathon Oil Company Client Sample ID: BG19-17 (6')

 Project:
 Trebuchet 23 28 19
 Collection Date: 7/26/2019 11:00:00 AM

 Lab ID:
 1907E19-004
 Matrix: MEOH (SOIL)
 Received Date: 7/27/2019 9:07:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORG	ANICS				Analyst: TOM
Diesel Range Organics (DRO)	ND	9.3	mg/Kg	1	7/29/2019 10:54:00 AM
Motor Oil Range Organics (MRO)	ND	47	mg/Kg	1	7/29/2019 10:54:00 AM
Surr: DNOP	81.1	70-130	%Rec	1	7/29/2019 10:54:00 AM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: NSB
Gasoline Range Organics (GRO)	ND	3.5	mg/Kg	1	7/29/2019 11:45:59 AM
Surr: BFB	89.0	73.8-119	%Rec	1	7/29/2019 11:45:59 AM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	0.018	mg/Kg	1	7/29/2019 11:45:59 AM
Toluene	ND	0.035	mg/Kg	1	7/29/2019 11:45:59 AM
Ethylbenzene	ND	0.035	mg/Kg	1	7/29/2019 11:45:59 AM
Xylenes, Total	ND	0.070	mg/Kg	1	7/29/2019 11:45:59 AM
Surr: 4-Bromofluorobenzene	90.2	80-120	%Rec	1	7/29/2019 11:45:59 AM
EPA METHOD 300.0: ANIONS					Analyst: CAS
Chloride	730	60	mg/Kg	20	7/29/2019 1:54:55 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

Page 4 of 8

Hall Environmental Analysis Laboratory, Inc.

WO#: **1907E19**

30-Jul-19

Client: Marathon Oil Company
Project: Trebuchet 23 28 19

Sample ID: MB-46441 SampType: mblk TestCode: EPA Method 300.0: Anions

Client ID: PBS Batch ID: 46441 RunNo: 61714

Prep Date: 7/29/2019 Analysis Date: 7/29/2019 SeqNo: 2092746 Units: mg/Kg

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

Chloride ND 1.5

Sample ID: LCS-46441 SampType: Ics TestCode: EPA Method 300.0: Anions

Client ID: LCSS Batch ID: 46441 RunNo: 61714

Prep Date: 7/29/2019 Analysis Date: 7/29/2019 SeqNo: 2092748 Units: mg/Kg

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

Chloride 14 1.5 15.00 0 93.4 90 110

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

WO#: **1907E19**

30-Jul-19

Client: Marathon Oil Company
Project: Trebuchet 23 28 19

Sample ID: LCS-46437	SampType:	SampType: LCS			TestCode: EPA Method 8015M/D: Diesel Range Organics				
Client ID: LCSS	Batch ID:	46437	RunNo: 61704						
Prep Date: 7/29/2019	Analysis Date:	7/29/2019	5	SeqNo: 2	091574	Units: mg/k	(g		
Analyte	Result PQ	L SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	47	10 50.00	0	94.0	63.9	124			
Surr: DNOP	4.2	5.000		84.3	70	130			
Sample ID: MB-46437	SampType: MBLK TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: PBS	Batch ID:	46437	F	RunNo: 6	1704				
Prep Date: 7/29/2019	Analysis Date:	7/29/2019	9	SeaNo: 2	091575	Units: ma/k	(a		

Prep Date: 7/29/2019	Analysis L	pate: 77	29/2019	3	seqivo: 2	091575	Units: mg/K	.g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	8.8		10.00		87.6	70	130			
Sample ID: LCS-46410	SampT	ype: LC	s	Tes	tCode: El	PA Method	8015M/D: Die	esel Rang	e Organics	
011 115 1000	5			_						

Sample ID: LCS-46410	SampType: LCS	Test	Code: EPA Method	8015M/D: Dies	sel Range	e Organics	
Client ID: LCSS	Batch ID: 46410	0 R	unNo: 61704				
Prep Date: 7/26/2019	Analysis Date: 7/29/	/2019 S	eqNo: 2092243	Units: %Rec			
Analyte	Result PQL S	PK value SPK Ref Val	%REC LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	5.9	5.000	118 70	130			

Sample ID: MB-46410	SampType: MBLK	TestCode: EPA Method 801	5M/D: Diesel Range Organics
Client ID: PBS	Batch ID: 46410	RunNo: 61704	
Prep Date: 7/26/2019	Analysis Date: 7/29/2019	SeqNo: 2092244 Uni	its: %Rec
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit Hi	ghLimit %RPD RPDLimit Qual
Surr: DNOP	12 10.00	123 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, Inc.

WO#: **1907E19**

30-Jul-19

Client: Marathon Oil Company
Project: Trebuchet 23 28 19

Sample ID: MB-46422 SampType: MBLK TestCode: EPA Method 8015D: Gasoline Range

Client ID: PBS Batch ID: 46422 RunNo: 61712

Prep Date: 7/26/2019 Analysis Date: 7/29/2019 SeqNo: 2092021 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 890 1000 89.3 73.8 119

Sample ID: LCS-46422 SampType: LCS TestCode: EPA Method 8015D: Gasoline Range

Client ID: LCSS Batch ID: 46422 RunNo: 61712

Prep Date: 7/26/2019 Analysis Date: 7/29/2019 SeqNo: 2092022 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 94.6 80.1 123 Surr: BFB 1000 1000 104 73.8 119

Sample ID: MB-46417 SampType: MBLK TestCode: EPA Method 8015D: Gasoline Range

Client ID: PBS Batch ID: 46417 RunNo: 61712

Prep Date: 7/26/2019 Analysis Date: 7/29/2019 SeqNo: 2092033 Units: %Rec

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

Surr: BFB 920 1000 92.0 73.8 119

Sample ID: LCS-46417 SampType: LCS TestCode: EPA Method 8015D: Gasoline Range

Client ID: LCSS Batch ID: 46417 RunNo: 61712

Prep Date: 7/26/2019 Analysis Date: 7/29/2019 SeqNo: 2092035 Units: %Rec

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

Surr: BFB 1000 1000 100 73.8 119

Qualifiers:

Value exceeds Maximum Contaminant Level

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

Page 7 of 8

Client:

Surr: 4-Bromofluorobenzene

Hall Environmental Analysis Laboratory, Inc.

0.89

Marathon Oil Company

WO#: **1907E19**

30-Jul-19

Project: Trebuchet 23 28 19 Sample ID: MB-46422 SampType: MBLK TestCode: EPA Method 8021B: Volatiles Client ID: PBS Batch ID: 46422 RunNo: 61712 Prep Date: 7/26/2019 Analysis Date: 7/29/2019 SeqNo: 2092074 Units: mg/Kg PQL SPK value SPK Ref Val %REC LowLimit %RPD **RPDLimit** Analyte Result HighLimit Qual Benzene ND 0.025 Toluene ND 0.050 0.050 Ethylbenzene ND Xylenes, Total ND 0.10

88.8

80

120

1.000

Sample ID: LCS-46422 SampType: LCS TestCode: EPA Method 8021B: Volatiles Client ID: LCSS Batch ID: 46422 RunNo: 61712 Analysis Date: 7/29/2019 Prep Date: 7/26/2019 SeqNo: 2092075 Units: mg/Kg PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual 1.000 O 0.96 0.025 96.2 80 120 Benzene Toluene 1.0 0.050 1.000 0 101 80 120 0 80 Ethylbenzene 0.050 1.000 101 120 1.0 0 101 Xylenes, Total 3.0 0.10 3.000 80 120 Surr: 4-Bromofluorobenzene 0.96 1.000 95.7 80 120

Sample ID: MB-46417 SampType: MBLK TestCode: EPA Method 8021B: Volatiles Client ID: PBS Batch ID: 46417 RunNo: 61712 Prep Date: 7/26/2019 Analysis Date: 7/29/2019 SeqNo: 2092081 Units: %Rec Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual 0.91 1.000 91.2 Surr: 4-Bromofluorobenzene 80 120

Sample ID: LCS-46417 SampType: LCS TestCode: EPA Method 8021B: Volatiles Client ID: LCSS Batch ID: 46417 RunNo: 61712 SeqNo: 2092082 Prep Date: 7/26/2019 Analysis Date: 7/29/2019 Units: %Rec PQL SPK value SPK Ref Val %REC HighLimit %RPD **RPDLimit** Analyte Result LowLimit Qual Surr: 4-Bromofluorobenzene 1.0 1.000 99.9 80 120

Qualifiers:

* Value exceeds Maximum Contaminant Level

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quantitative Limit

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

Page 8 of 8



Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87109 TEL: 505-345-3975 FAX: 505-345-4107

Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: MARATHON OIL COMPA Work Order Number: 1907E19 RcptNo: 1 Received By: Yazmine Garduno 7/27/2019 9:07:00 AM Magnin lighteute Completed By: Yazmine Garduno 7/27/2019 10:39:44 AM Reviewed By: DAD 7/29/19 Chain of Custody No 🗌 Not Present 1. Is Chain of Custody complete? Yes V 2. How was the sample delivered? Courier Log In No 🗌 3. Was an attempt made to cool the samples? Yes 🗸 NA 🗌 4. Were all samples received at a temperature of >0° C to 6.0°C Yes 🗸 No 🔲 NA 🗌 Yes 🗸 5. Sample(s) in proper container(s)? No 🗌 Yes 🗸 No 🗌 6. Sufficient sample volume for indicated test(s)? 7. Are samples (except VOA and ONG) properly preserved? Yes 🗸 No 🗌 8. Was preservative added to bottles? No V NA 🗌 Yes 9. VOA vials have zero headspace? No VOA Vials 🗸 Yes No 🗌 Yes No 🗸 10. Were any sample containers received broken? # of preserved bottles checked 11. Does paperwork match bottle labels? Yes 🗸 No 🗌 for pH: (<2 or (Note discrepancies on chain of custody) 12 unless noted) Adjusted? No 🗌 12. Are matrices correctly identified on Chain of Custody? Yes 🗸 Yes 🗸 No 🗌 13. Is it clear what analyses were requested? 14. Were all holding times able to be met? Yes 🗸 No 🗌 Checked by: (If no, notify customer for authorization.) Special Handling (if applicable) 15. Was client notified of all discrepancies with this order? Yes No 🗌 NA V Person Notified: Date | By Whom: Via: eMail Phone Fax In Person Regarding: Client Instructions: 16. Additional remarks: 17. Cooler Information Temp °C Seal Intact | Seal No Cooler No Condition Seal Date Signed By 1 4.9 Good Yes 2 2.5 Good Yes

HALL ENVIRONMENTAL ANALYSIS LABORATORY www.hallenvironmental.com 4901 Hawkins NE - Albuquerque, NM 87109 Tel. 505-345-3975 Fax 505-345-4107 Analysis Request	EDB (Method 504.1) PAHs by 8310 or 8270SIMS RCRA 8 Metals CI, F, Br, NO ₃ , NO ₂ , PO ₄ , SO ₄ B260 (VOA) Total Coliform (Present/Absent) Total Coliform (Present/Absent)	H	sub-contracted data will be clearly notated on the analytical report.
4901 Tel. t	TPH:8015D(GRO \ DRO \ MRO)		Remarks:
Turn-Around Time: Seme Day Standard Rush Project Name: Trebudet 23 28 19 Project #: 146-02213	Sampler: Rebyn Fisher On Ice: Yes INO Cooler Temp(including or Fig. 10 Sec.	16e -002 16e -002 16e -003	Time: Relinquished by: 3.28 Lobyn Fisher
Client: Meredhan oil Company Mailing Address: 414 5. Tidenell Rd. Calsbad, And Phone #: 575-297-0956	email or Fax#: permion@Verfex.co QA/QC Package: Standard	19:30 Soil 19:40 Soil 19:00 Soil 11:00 Soil	Date: Time: Relinquished by: 7/26/19 13:28 Cobyn F3her Date: Relinquished by: 7/26 M [19



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

September 12, 2019

Dennis Williams
Vertex Resource Group Ltd.
213 S. Mesa St
Carlsbad, NM 88220
TEL:
FAX

RE: Trebuchet Fee 23 28 19 WXY 010H OrderNo.: 1909316

Dear Dennis Williams:

Hall Environmental Analysis Laboratory received 1 sample(s) on 9/7/2019 for the analyses presented in the following report.

This report is a revised report and it replaces the original report issued September 11, 2019.

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. 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. All samples are reported as received unless otherwise indicated.

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

Sincerely,

Andy Freeman

Laboratory Manager

andyl

4901 Hawkins NE

Albuquerque, NM 87109

Lab Order 1909316

Date Reported: 9/12/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: SS15-01

 Project:
 Trebuchet Fee 23 28 19 WXY 010H
 Collection Date: 9/6/2019 8:00:00 AM

 Lab ID:
 1909316-001
 Matrix: MEOH (SOIL)
 Received Date: 9/7/2019 9:30:00 AM

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analyst	MRA
Chloride	47000	3000	mg/Kg	1E-	+ 9/9/2019 11:18:04 AM	47343
EPA METHOD 8015M/D: DIESEL RANGE ORGA	ANICS				Analyst	BRM
Diesel Range Organics (DRO)	ND	9.7	mg/Kg	1	9/9/2019 10:48:03 AM	47342
Motor Oil Range Organics (MRO)	ND	49	mg/Kg	1	9/9/2019 10:48:03 AM	47342
Surr: DNOP	95.3	70-130	%Rec	1	9/9/2019 10:48:03 AM	47342
EPA METHOD 8015D: GASOLINE RANGE					Analyst	NSB
Gasoline Range Organics (GRO)	ND	19	mg/Kg	5	9/9/2019 9:38:28 AM	G62762
Surr: BFB	95.7	77.4-118	%Rec	5	9/9/2019 9:38:28 AM	G62762
EPA METHOD 8021B: VOLATILES					Analyst	NSB
Benzene	ND	0.094	mg/Kg	5	9/9/2019 9:38:28 AM	B62762
Toluene	ND	0.19	mg/Kg	5	9/9/2019 9:38:28 AM	B62762
Ethylbenzene	ND	0.19	mg/Kg	5	9/9/2019 9:38:28 AM	B62762
Xylenes, Total	ND	0.38	mg/Kg	5	9/9/2019 9:38:28 AM	B62762
Surr: 4-Bromofluorobenzene	96.2	80-120	%Rec	5	9/9/2019 9:38:28 AM	B62762

Refer to the QC Summary 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

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

Page 1 of 5

Hall Environmental Analysis Laboratory, Inc.

WO#: **1909316**

12-Sep-19

Client: Vertex Resource Group Ltd.

Project: Trebuchet Fee 23 28 19 WXY 010H

Sample ID: MB-47343 SampType: MBLK TestCode: EPA Method 300.0: Anions

Client ID: PBS Batch ID: 47343 RunNo: 62754

Prep Date: 9/9/2019 Analysis Date: 9/9/2019 SeqNo: 2138648 Units: mg/Kg

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

Chloride ND 1.5

Sample ID: LCS-47343 SampType: LCS TestCode: EPA Method 300.0: Anions

Client ID: LCSS Batch ID: 47343 RunNo: 62754

Prep Date: 9/9/2019 Analysis Date: 9/9/2019 SeqNo: 2138649 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.

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, Inc.

WO#: **1909316**

12-Sep-19

Client:	Vertex	Resource Group Ltd.	
Project:	Trebuc	het Fee 23 28 19 WXY 010H	
Sample ID: LC	S-47342	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics
Client ID: LC	ss	Batch ID: 47342	RunNo: 62753

Prep Date: 9/9/2019	Analysis Da	ite: 9/ 9	9/2019	S	eqNo: 21	137494	Units: mg/K	g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	51	10	50.00	0	101	63.9	124			
Surr: DNOP	4.0		5.000		80.3	70	130			

Sample ID: MB-47342	SampType: MBLK			Tes	TestCode: EPA Method 8015M/D: Diesel Range Organics						
Client ID: PBS	Batch	ID: 473	342	F	RunNo: 6	2753					
Prep Date: 9/9/2019	Analysis D	ate: 9/ 9	9/2019	8	SeqNo: 2	137495	Units: mg/K	g			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Diesel Range Organics (DRO)	ND	10									
Motor Oil Range Organics (MRO)	ND	50									
Surr: DNOP	9.1		10.00		91.1	70	130				

Sample ID: 1909316-001AMS	Sample ID: 1909316-001AMS SampType: MS						TestCode: EPA Method 8015M/D: Diesel Range Organics						
Client ID: SS15-01	Batch	ID: 47 :	342	RunNo: 62753									
Prep Date: 9/9/2019	Analysis D	ate: 9/	9/2019	S	SeqNo: 2	137639	Units: mg/K	(g					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual			
Diesel Range Organics (DRO)	49	9.7	48.26	0	102	57	142						
Surr: DNOP	4.4		4.826		90.3	70	130						

Sample ID: 1909316-001AMSD	SampT	уре: М\$	SD	TestCode: EPA Method 8015M/D: Diesel Range Organics						
Client ID: SS15-01	Batch	ID: 47	342	R	tunNo: 6	2753				
Prep Date: 9/9/2019	Analysis D	ate: 9/	9/2019	SeqNo: 2137641			Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	50	9.7	48.64	0	103	57	142	1.49	20	
Surr: DNOP	4.4		4.864		89.9	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

Hall Environmental Analysis Laboratory, Inc.

WO#: **1909316**

12-Sep-19

Client: Vertex Resource Group Ltd.

Project: Trebuchet Fee 23 28 19 WXY 010H

Sample ID: **RB** SampType: **MBLK** TestCode: **EPA Method 8015D: Gasoline Range**

Client ID: PBS Batch ID: G62762 RunNo: 62762

Prep Date: Analysis Date: 9/9/2019 SeqNo: 2138121 Units: mq/Kq

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

Gasoline Range Organics (GRO) ND 5.0

Surr: BFB 930 1000 93.2 77.4 118

Sample ID: 2.5UG GRO LCS SampType: LCS TestCode: EPA Method 8015D: Gasoline Range

Client ID: LCSS Batch ID: G62762 RunNo: 62762

Prep Date: Analysis Date: 9/9/2019 SeqNo: 2138122 Units: mg/Kg

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Gasoline Range Organics (GRO) 80 25 5.0 25.00 O 101 120

Surr: BFB 1200 1000 116 77.4 118

Sample ID: 1909316-001AMS SampType: MS TestCode: EPA Method 8015D: Gasoline Range

Client ID: **SS15-01** Batch ID: **G62762** RunNo: **62762**

Prep Date: Analysis Date: 9/9/2019 SeqNo: 2138124 Units: mg/Kg

Result SPK value SPK Ref Val %REC HighLimit %RPD **RPDLimit** Analyte PQL LowLimit Qual Gasoline Range Organics (GRO) 91 19 93.99 0 97.2 69.1 142

Gasoline Range Organics (GRO) 91 19 93.99 0 97.2 69.1 142 Surr: BFB 4000 3760 108 77.4 118

Sample ID: 1909316-001AMSD SampType: MSD TestCode: EPA Method 8015D: Gasoline Range

Client ID: **SS15-01** Batch ID: **G62762** RunNo: **62762**

Prep Date: Analysis Date: 9/9/2019 SeqNo: 2138125 Units: mq/Kq

Result SPK value SPK Ref Val %REC HighLimit %RPD **RPDLimit** Analyte PQL LowLimit Qual Gasoline Range Organics (GRO) 90 19 93.99 96.0 69.1 142 1.20 20 Surr: BFB 3800 3760 101 77.4 118 0 0

Qualifiers:

* Value exceeds Maximum Contaminant Level

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

Page 4 of 5

Hall Environmental Analysis Laboratory, Inc.

WO#: **1909316**

12-Sep-19

Client:	Vertex Resource Group Ltd.
Project:	Trebuchet Fee 23 28 19 WXY 010H

Sample ID: RB	SampT	SampType: MBLK			TestCode: EPA Method 8021B: Volatiles						
Client ID: PBS	Batcl	Batch ID: B62762			RunNo: 6	2762					
Prep Date:	Analysis D	Analysis Date: 9/9/2019			SeqNo: 2	138138	Units: mg/K	(g			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Benzene	ND	0.025									
Toluene	ND	0.050									
Ethylbenzene	ND	0.050									
Xylenes, Total	ND	0.10									
Surr: 4-Bromofluorobenzene	0.93		1.000		93.2	80	120				

Sample ID: 100NG BTEX LCS	SampType: LCS TestCode: EPA Method 803							iles		
Client ID: LCSS	Batch	1D: B6	2762	F	RunNo: 6					
Prep Date:	Analysis D	ate: 9/	9/2019	5	SeqNo: 2138139 Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.97	0.025	1.000	0	97.3	80	120			
Toluene	0.97	0.050	1.000	0	96.7	80	120			
Ethylbenzene	0.95	0.050	1.000	0	95.1	80	120			
Xylenes, Total	2.9	0.10	3.000	0	95.4	80	120			
Surr: 4-Bromofluorobenzene	0.98		1.000		98.0	80	120			

Sample ID: 1909316-001AMS	Sampl	Гуре: М	3	Tes	8021B: Vola	tiles					
Client ID: SS15-01	Batcl	h ID: B6	2762	F	RunNo: 6						
Prep Date:	Analysis D	Date: 9/	9/2019	9	SeqNo: 2	Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Benzene	3.7	0.094	3.760	0.05151	98.0	76	123				
Toluene	3.9	0.19	3.760	0.04850	102	80.3	127				
Ethylbenzene	3.8	0.19	3.760	0	102	80.2	131				
Xylenes, Total	12	0.38	11.28	0.07669	103	78	133				
Surr: 4-Bromofluorobenzene	3.8		3.760		102	80	120				

Sample ID: 1909316-001AMS	D SampT	ype: MS	D	Tes	TestCode: EPA Method 8021B: Volatiles						
Client ID: SS15-01	Batch	n ID: B6	2762	F	RunNo: 6 2						
Prep Date:	Analysis D	ate: 9/	9/2019	8	SeqNo: 2	138142	Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Benzene	3.6	0.094	3.760	0.05151	95.4	76	123	2.69	20		
Toluene	3.8	0.19	3.760	0.04850	99.1	80.3	127	2.54	20		
Ethylbenzene	3.8	0.19	3.760	0	100	80.2	131	1.78	20		
Xylenes, Total	11	0.38	11.28	0.07669	101	78	133	2.11	20		
Surr: 4-Bromofluorobenzene	3.7		3.760		97.2	80	120	0	0		

- Value exceeds Maximum Contaminant 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 4901 Hawkins NE Albuquerque, NM 87109 TEL: 505-345-3975 FAX: 505-345-4107

Website: www.hallenvironmental.com

Sample Log-In Check List

VERTEX CARLSBAD Client Name: Work Order Number: 1909316 RcptNo: 1 Received By: Yazmine Garduno 9/7/2019 9:30:00 AM Completed By: Yazmine Garduno 9/7/2019 10:53:05 AM 9/7/19 Reviewed By: Chain of Custody No 🗌 1. Is Chain of Custody complete? Yes V Not Present 2. How was the sample delivered? Courier 3. Was an attempt made to cool the samples? No 🗌 NA 🗌 Yes 🗸 4. Were all samples received at a temperature of >0° C to 6.0°C No 🗌 Yes 🗸 NA 🗌 Yes 🗸 5. Sample(s) in proper container(s)? No 🗌 Yes 🗸 No 🗌 6. Sufficient sample volume for indicated test(s)? 7. Are samples (except VOA and ONG) properly preserved? Yes 🗸 No 🗌 Yes No 🗸 NA 🗌 8. Was preservative added to bottles? No 🗌 No VOA Vials 9. VOA vials have zero headspace? Yes Yes No 🗸 10. Were any sample containers received broken? # of preserved bottles checked Yes 🗸 11. Does paperwork match bottle labels? No 🗌 for pH: (Note discrepancies on chain of custody) (<2 or >12 unless noted) Adjusted? No 🗌 Yes 🗸 12. Are matrices correctly identified on Chain of Custody? Yes 🗸 No 🗌 13. Is it clear what analyses were requested? 14. Were all holding times able to be met? No 🗌 Checked by: Yes 🗸 (If no, notify customer for authorization.) 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 5.2 Good 2 3.1 Good 3 3.9 Good

HALL ENVIRONMENTAL ANALYSIS LABORATORY	www.hallenvironmental.com 4901 Hawkins NE - Albuquerque, NM 87109	505-345-3975 Fax 505-345-4107	Analysis Request	SMISO PO ₄ , SO ₄) or 827(s s NO ₂ ,	oneta NO NO N-im	EDB (Mei PAHs by RCRA 8 I 8260 (VO 8270 (Sei Total Coli	, x).3.5.26	0.3-5.7-3.1 16 9 1111 0.3-3.9 -contracted data will be clearly notated on the analytical report.
	01 Ha	Tel. 505			Z808/se	ticide	8081 Pes						s: + (2.5 + (3.5 + (5.
	1 64	ř		(8021) O / MRO)			BTEX N	A					Remarks:	W Ssibility.
Turn-Around Time: dola weeded Monday PM D Standard & Rush	Project Name: Trebucket Fee #010 H	Project #: 5 5 - 00 1 1	1 1000 011	Project Manager: Dennis Williams	harbne Hurvestar	Volvadele) (°C)	150. 1316	100-001					1 July 1 Date Time 4/6/19 128	Time: Relinquished by: Received by: Via: Date Time 2.5+0.3 = 5.1
Client: Veryez Resource Savices	1	(artsbad , NM 88220	Phone #: 575-36/-1137	email or Fax#: Perminana Martest CS QA/QC Package: □ Standard □ Level 4 (Full Validation)	Accreditation:	□ EDD (Type)	Date, Time Matrix Sample Name	9/16/9 65/10 Sal 55/5-01	16 9/1/19				Daye: Time: Relinquished by:	Date: Time: Relinquishedby:

Lab Order: 1909531

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Lab Order: 1909531

Project: Trebuchet Fee 23 28 19 WXY 10H

Lab ID: 1909531-001 **Collection Date:** 9/10/2019 12:50:00 PM

Client Sample ID: BG19-02 0' Matrix: SOIL

Analyses Result RL Qual Units DF Date Analyzed

EPA METHOD 300.0: ANIONS Analyst: SRM

Chloride ND 60 mg/Kg 20 9/12/2019 11:18:00 AM

Lab ID: 1909531-002 **Collection Date:** 9/10/2019 1:00:00 PM

Client Sample ID: BG19-02 2' Matrix: SOIL

Analyses Result RL Qual Units DF Date Analyzed

 EPA METHOD 300.0: ANIONS
 Analyst: SRM

 Chloride
 2400
 150
 mg/Kg
 50
 9/12/2019 12:32:00 PM

Lab ID: 1909531-003 **Collection Date:** 9/10/2019 1:10:00 PM

Client Sample ID: BG19-02 4' Matrix: SOIL

Analyses Result RL Qual Units DF Date Analyzed

EPA METHOD 300.0: ANIONS Analyst: SRM

Chloride 3400 150 mg/Kg 50 9/12/2019 12:45:00 PM

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

Qualifiers:

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

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

Page 1 of 0



Certificate of Analysis Summary 641285

Marathon Oil Company, Tulsa, OK

Project Name: Trebuchet Fee 23 28 19 WXY 3H

Date Received in Lab: Mon Oct-28-19 01:45 pm

Report Date: 30-OCT-19 **Project Manager:** Jessica Kramer

Project Id: 19E-03840
Contact: Isaac Castro

Project Location:

	Lab Id:	641285-0	001	641285-0	002	641285-0	003	641285-0	004	641285-	005	641285-	006
Analysis Paguastad	Field Id:	BG-19-0	02	BG-19-0	02	BG-19-0)2	BG-19-	02	BG-19-	02	BG-19-	02
Analysis Requested	Depth:	0- ft		2- ft		4- ft		6- ft		8- ft		10- ft	t
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL	,	SOIL	_
	Sampled:	Oct-26-19	10:00	Oct-26-19	10:10	Oct-26-19	10:20	Oct-26-19	10:30	Oct-26-19	10:40	Oct-26-19	10:50
BTEX by EPA 8021B	Extracted:	Oct-28-19	17:10	Oct-28-19	17:10	Oct-28-19	17:10	Oct-28-19	17:10	Oct-28-19	17:10	Oct-28-19	17:10
	Analyzed:	Oct-29-19	04:47	Oct-29-19 (05:07	Oct-29-19 ()5:28	Oct-29-19	05:48	Oct-29-19	06:08	Oct-29-19	07:24
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Benzene		< 0.00101	0.00101	< 0.00101	0.00101	< 0.000990	0.000990	< 0.000998	0.000998	< 0.00101	0.00101	< 0.000994	0.000994
Toluene		< 0.00101	0.00101	< 0.00101	0.00101	< 0.000990	0.000990	< 0.000998	0.000998	< 0.00101	0.00101	< 0.000994	0.000994
Ethylbenzene		< 0.00101	0.00101	< 0.00101	0.00101	< 0.000990	0.000990	< 0.000998	0.000998	< 0.00101	0.00101	< 0.000994	0.000994
m,p-Xylenes		< 0.00202	0.00202	< 0.00201	0.00201	< 0.00198	0.00198	< 0.00200	0.00200	< 0.00202	0.00202	< 0.00199	0.00199
o-Xylene		< 0.00101	0.00101	< 0.00101	0.00101	< 0.000990	0.000990	< 0.000998	0.000998	< 0.00101	0.00101	< 0.000994	0.000994
Total Xylenes		< 0.00101	0.00101	< 0.00101	0.00101	< 0.000990	0.000990	< 0.000998	0.000998	< 0.00101	0.00101	< 0.000994	0.000994
Total BTEX		< 0.00101	0.00101	< 0.00101	0.00101	< 0.000990	0.000990	< 0.000998	0.000998	< 0.00101	0.00101	< 0.000994	0.000994
Inorganic Anions by EPA 300	Extracted:	Oct-29-19	08:10	Oct-29-19	08:10	Oct-29-19 (08:10	Oct-29-19	08:10	Oct-29-19	08:10	Oct-29-19	08:10
	Analyzed:	Oct-29-19	08:34	Oct-29-19	08:54	Oct-29-19 (09:01	Oct-29-19	09:08	Oct-29-19	09:14	Oct-29-19	09:35
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		34.4	10.1	865	198	1530	198	1300	202	138 D	9.98	416	200
TPH by SW8015 Mod	Extracted:	Oct-28-19	16:00	Oct-28-19	16:00	Oct-28-19	16:00	Oct-28-19	16:00	Oct-28-19	16:00	Oct-28-19	16:00
	Analyzed:	Oct-28-19	19:27	Oct-28-19	19:46	Oct-28-19	19:46	Oct-28-19	20:06	Oct-28-19	20:06	Oct-28-19	20:26
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Gasoline Range Hydrocarbons (GRO)		< 50.1	50.1	< 50.3	50.3	< 50.3	50.3	< 50.3	50.3	< 50.0	50.0	< 50.0	50.0
Diesel Range Organics (DRO)		<50.1	50.1	<50.3	50.3	<50.3	50.3	< 50.3	50.3	< 50.0	50.0	< 50.0	50.0
Motor Oil Range Hydrocarbons (MRO)		<50.1	50.1	<50.3	50.3	<50.3	50.3	<50.3	50.3	< 50.0	50.0	< 50.0	50.0
Total TPH		< 50.1	50.1	< 50.3	50.3	< 50.3	50.3	< 50.3	50.3	< 50.0	50.0	< 50.0	50.0

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use. The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories. XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented. Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

Jessica Vramer



Certificate of Analysis Summary 641285

Marathon Oil Company, Tulsa, OK

Project Name: Trebuchet Fee 23 28 19 WXY 3H

Date Received in Lab: Mon Oct-28-19 01:45 pm

Report Date: 30-OCT-19 **Project Manager:** Jessica Kramer

Project Id: 19E-03840
Contact: Isaac Castro

Project Location:

	Lab Id:	641285-0	07	641285-0	008			
Analysis Requested	Field Id:	BG-19-0)2	BG-19-	02			
Anaiysis Kequesieu	Depth:	12- ft		14- ft				
	Matrix:	SOIL		SOIL	,			
	Sampled:	Oct-26-19 1	1:00	Oct-26-19	11:10			
BTEX by EPA 8021B	Extracted:	Oct-28-19 1	7:10	Oct-28-19	17:10			
	Analyzed:	Oct-29-19 0	7:44	Oct-29-19	08:05			
	Units/RL:	mg/kg	RL	mg/kg	RL			
Benzene		< 0.00100	0.00100	< 0.000998	0.000998			
uene		< 0.00100	0.00100	< 0.000998	0.000998			
ylbenzene		< 0.00100	0.00100	< 0.000998	0.000998			
p-Xylenes		< 0.00200	0.00200	< 0.00200	0.00200			
o-Xylene		< 0.00100	0.00100	< 0.000998	0.000998			
Total Xylenes		< 0.00100	0.00100	< 0.000998	0.000998			
Total BTEX		< 0.00100	0.00100	< 0.000998	0.000998			
Inorganic Anions by EPA 300	Extracted:	Oct-29-19 08:10		Oct-29-19 08:10				
	Analyzed:	Oct-29-19 0	9:41	Oct-29-19	09:48			
	Units/RL:	mg/kg	RL	mg/kg	RL			
Chloride		423	200	354	99.2			
TPH by SW8015 Mod	Extracted:	Oct-28-19 1	6:00	Oct-28-19	16:00			
	Analyzed:	Oct-28-19 2	20:26	Oct-28-19	20:46			
	Units/RL:	mg/kg	RL	mg/kg	RL			
Gasoline Range Hydrocarbons (GRO)	·	<50.3	50.3	< 50.0	50.0			
Diesel Range Organics (DRO)		<50.3	50.3	< 50.0	50.0			
Motor Oil Range Hydrocarbons (MRO)		<50.3	50.3	< 50.0	50.0			
Total TPH		<50.3	50.3	< 50.0	50.0			

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use. The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories. XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented. Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

Jessica Kramer Project Assistant

Jessica Kramer

for Marathon Oil Company

Project Manager: Isaac Castro
Trebuchet Fee 23 28 19 WXY 3H
19E-03840
30-OCT-19

Collected By: Client



1089 N Canal Street Carlsbad, NM 88220

Xenco-Houston (EPA Lab Code: TX00122): Texas (T104704215-19-30), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054) Oklahoma (2017-142), North Carolina (681)

> Xenco-Dallas (EPA Lab Code: TX01468): Texas (TX104704295-19-22), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-19-16)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-19-21)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-19)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-19-5)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Tampa: Florida (E87429), North Carolina (483)



30-OCT-19

Project Manager: Isaac Castro **Marathon Oil Company** P. O. Box 22164 Tulsa, OK 74121-2164

Reference: XENCO Report No(s): 641285

Trebuchet Fee 23 28 19 WXY 3H

Project Address:

Isaac Castro:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 641285. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 641285 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Jessica Kramer

Jessica Kramer

Project Assistant

Recipient of the Prestigious Small Business Administration Award of Excellence in 1994. Certified and approved by numerous States and Agencies.

A Small Business and Minority Status Company that delivers SERVICE and QUALITY

Houston - Dallas - Midland - San Antonio - Phoenix - Oklahoma - Latin America



Sample Cross Reference 641285

Marathon Oil Company, Tulsa, OK

Trebuchet Fee 23 28 19 WXY 3H

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
BG-19-02	S	10-26-19 10:00	0 ft	641285-001
BG-19-02	S	10-26-19 10:10	2 ft	641285-002
BG-19-02	S	10-26-19 10:20	4 ft	641285-003
BG-19-02	S	10-26-19 10:30	6 ft	641285-004
BG-19-02	S	10-26-19 10:40	8 ft	641285-005
BG-19-02	S	10-26-19 10:50	10 ft	641285-006
BG-19-02	S	10-26-19 11:00	12 ft	641285-007
BG-19-02	S	10-26-19 11:10	14 ft	641285-008



CASE NARRATIVE

Client Name: Marathon Oil Company

Project Name: Trebuchet Fee 23 28 19 WXY 3H

 Project ID:
 19E-03840
 Report Date:
 30-OCT-19

 Work Order Number(s):
 641285
 Date Received:
 10/28/2019

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3105680 BTEX by EPA 8021B

Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Batch: LBA-3105684 TPH by SW8015 Mod

Surrogate 1-Chlorooctane recovered above QC limits Data confirmed by re-analysis. Samples affected are:

7689068-1-BKS.



Marathon Oil Company, Tulsa, OK

Trebuchet Fee 23 28 19 WXY 3H

Sample Id: BG-19-02 Matrix: Soil Date Received:10.28.19 13.45

Lab Sample Id: 641285-001 Date Collected: 10.26.19 10.00 Sample Depth: 0 ft

Analytical Method: Inorganic Anions by EPA 300

Prep Method: E300P

% Moisture:

Tech: MAB % Moisture:

Analyst: MAB Date Prep: 10.29.19 08.10

Basis: Wet Weight

Seq Number: 3105764

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	34.4	10.1	mg/kg	10.29.19.08.34		1

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P

Tech: DTH

Analyst: DTH Date Prep: 10.28.19 16.00 Basis: Wet Weight

Parameter	Cas Number	Result	RL		Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.1	50.1		mg/kg	10.28.19 19.27	U	1
Diesel Range Organics (DRO)	C10C28DRO	< 50.1	50.1		mg/kg	10.28.19 19.27	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	< 50.1	50.1		mg/kg	10.28.19 19.27	U	1
Total TPH	PHC635	< 50.1	50.1		mg/kg	10.28.19 19.27	U	1
Surrogate		Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane		111-85-3	120	%	70-135	10.28.19 19.27		
o-Terphenyl		84-15-1	109	%	70-135	10.28.19 19.27		



Marathon Oil Company, Tulsa, OK

Trebuchet Fee 23 28 19 WXY 3H

Sample Id: BG-19-02 Matrix: Soil Date Received:10.28.19 13.45

Lab Sample Id: 641285-001 Date Collected: 10.26.19 10.00 Sample Depth: 0 ft

Analytical Method: BTEX by EPA 8021B Prep Method: SW5030B

Tech: MAB % Moisture:

Analyst: MAB Date Prep: 10.28.19 17.10 Basis: Wet Weight

Parameter	Cas Number	Result	RL		Units	Analysis Date	Flag	Dil
Benzene	71-43-2	< 0.00101	0.00101		mg/kg	10.29.19 04.47	U	1
Toluene	108-88-3	< 0.00101	0.00101		mg/kg	10.29.19 04.47	U	1
Ethylbenzene	100-41-4	< 0.00101	0.00101		mg/kg	10.29.19 04.47	U	1
m,p-Xylenes	179601-23-1	< 0.00202	0.00202		mg/kg	10.29.19 04.47	U	1
o-Xylene	95-47-6	< 0.00101	0.00101		mg/kg	10.29.19 04.47	U	1
Total Xylenes	1330-20-7	< 0.00101	0.00101		mg/kg	10.29.19 04.47	U	1
Total BTEX		< 0.00101	0.00101		mg/kg	10.29.19 04.47	U	1
Surrogate		Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene		460-00-4	122	%	70-130	10.29.19 04.47		
1,4-Difluorobenzene		540-36-3	103	%	70-130	10.29.19 04.47		



Marathon Oil Company, Tulsa, OK

Trebuchet Fee 23 28 19 WXY 3H

Sample Id: BG-19-02 Matrix: Soil Date Received:10.28.19 13.45

Lab Sample Id: 641285-002 Date Collected: 10.26.19 10.10 Sample Depth: 2 ft

Analytical Method: Inorganic Anions by EPA 300

Prep Method: E300P

Tech: MAB

% Moisture:

% Moisture:

Analyst: MAB Date Prep: 10.29.19 08.10 Basis: Wet Weight

Seq Number: 3105764

 Parameter
 Cas Number
 Result
 RL
 Units
 Analysis Date
 Flag
 Dil

 Chloride
 16887-00-6
 865
 198
 mg/kg
 10.29.19 08.54
 20

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P

Tech: DTH

Analyst: DTH Date Prep: 10.28.19 16.00 Basis: Wet Weight

Parameter	Cas Number	Result	RL		Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.3	50.3		mg/kg	10.28.19 19.46	U	1
Diesel Range Organics (DRO)	C10C28DRO	< 50.3	50.3		mg/kg	10.28.19 19.46	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	< 50.3	50.3		mg/kg	10.28.19 19.46	U	1
Total TPH	PHC635	< 50.3	50.3		mg/kg	10.28.19 19.46	U	1
Surrogate		Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane		111-85-3	110	%	70-135	10.28.19 19.46		
o-Terphenyl		84-15-1	111	%	70-135	10.28.19 19.46		



Marathon Oil Company, Tulsa, OK

Trebuchet Fee 23 28 19 WXY 3H

Sample Id: BG-19-02 Matrix: Soil Date Received:10.28.19 13.45

Lab Sample Id: 641285-002 Date Collected: 10.26.19 10.10 Sample Depth: 2 ft

Analytical Method: BTEX by EPA 8021B Prep Method: SW5030B

Tech: MAB % Moisture:

Analyst: MAB Date Prep: 10.28.19 17.10 Basis: Wet Weight

Parameter	Cas Number	Result	RL		Units	Analysis Date	Flag	Dil
Benzene	71-43-2	< 0.00101	0.00101		mg/kg	10.29.19 05.07	U	1
Toluene	108-88-3	< 0.00101	0.00101		mg/kg	10.29.19 05.07	U	1
Ethylbenzene	100-41-4	< 0.00101	0.00101		mg/kg	10.29.19 05.07	U	1
m,p-Xylenes	179601-23-1	< 0.00201	0.00201		mg/kg	10.29.19 05.07	U	1
o-Xylene	95-47-6	< 0.00101	0.00101		mg/kg	10.29.19 05.07	U	1
Total Xylenes	1330-20-7	< 0.00101	0.00101		mg/kg	10.29.19 05.07	U	1
Total BTEX		< 0.00101	0.00101		mg/kg	10.29.19 05.07	U	1
Surrogate		Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene		460-00-4	113	%	70-130	10.29.19 05.07		
1.4-Difluorobenzene		540-36-3	100	%	70-130	10.29.19 05.07		



Marathon Oil Company, Tulsa, OK

Trebuchet Fee 23 28 19 WXY 3H

Matrix: Date Received:10.28.19 13.45 Sample Id: **BG-19-02** Soil

Lab Sample Id: 641285-003 Date Collected: 10.26.19 10.20 Sample Depth: 4 ft

Analytical Method: Inorganic Anions by EPA 300

MAB

% Moisture:

Analyst: MAB Date Prep:

Basis: Wet Weight 10.29.19 08.10

Prep Method: E300P

% Moisture:

Seq Number: 3105764

Tech:

Parameter Cas Number Result RLUnits **Analysis Date** Flag Dil 16887-00-6 Chloride 198 10.29.19 09.01 20 1530 mg/kg

Prep Method: SW8015P Analytical Method: TPH by SW8015 Mod

DTH Tech:

DTH Analyst: 10.28.19 16.00 Basis: Wet Weight Date Prep:

Parameter	Cas Number	Result	RL		Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.3	50.3		mg/kg	10.28.19 19.46	U	1
Diesel Range Organics (DRO)	C10C28DRO	< 50.3	50.3		mg/kg	10.28.19 19.46	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	< 50.3	50.3		mg/kg	10.28.19 19.46	U	1
Total TPH	PHC635	< 50.3	50.3		mg/kg	10.28.19 19.46	U	1
Surrogate		Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane		111-85-3	102	%	70-135	10.28.19 19.46		
o-Terphenyl		84-15-1	106	%	70-135	10.28.19 19.46		



Marathon Oil Company, Tulsa, OK

Trebuchet Fee 23 28 19 WXY 3H

Sample Id: BG-19-02 Matrix: Soil Date Received:10.28.19 13.45

Lab Sample Id: 641285-003 Date Collected: 10.26.19 10.20 Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B Prep Method: SW5030B

Tech: MAB % Moisture:

Analyst: MAB Date Prep: 10.28.19 17.10 Basis: Wet Weight

Parameter	Cas Number	Result	RL		Units	Analysis Date	Flag	Dil
Benzene	71-43-2	< 0.000990	0.000990		mg/kg	10.29.19 05.28	U	1
Toluene	108-88-3	< 0.000990	0.000990		mg/kg	10.29.19 05.28	U	1
Ethylbenzene	100-41-4	< 0.000990	0.000990		mg/kg	10.29.19 05.28	U	1
m,p-Xylenes	179601-23-1	< 0.00198	0.00198		mg/kg	10.29.19 05.28	U	1
o-Xylene	95-47-6	< 0.000990	0.000990		mg/kg	10.29.19 05.28	U	1
Total Xylenes	1330-20-7	< 0.000990	0.000990		mg/kg	10.29.19 05.28	U	1
Total BTEX		< 0.000990	0.000990		mg/kg	10.29.19 05.28	U	1
Surrogate		Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene		460-00-4	114	%	70-130	10.29.19 05.28		
1,4-Difluorobenzene		540-36-3	100	%	70-130	10.29.19 05.28		



Marathon Oil Company, Tulsa, OK

Trebuchet Fee 23 28 19 WXY 3H

Date Received:10.28.19 13.45 Sample Id: **BG-19-02** Matrix: Soil

Lab Sample Id: 641285-004 Date Collected: 10.26.19 10.30 Sample Depth: 6 ft

Analytical Method: Inorganic Anions by EPA 300

Prep Method: E300P MAB

% Moisture:

% Moisture:

Analyst: MAB Basis: Wet Weight Date Prep: 10.29.19 08.10

Seq Number: 3105764

Tech:

Parameter Cas Number Result RLUnits **Analysis Date** Flag Dil 16887-00-6 Chloride 202 10.29.19 09.08 20 1300 mg/kg

Prep Method: SW8015P Analytical Method: TPH by SW8015 Mod

DTH Tech:

DTH Analyst: 10.28.19 16.00 Basis: Wet Weight Date Prep:

Parameter	Cas Number	Result	RL		Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.3	50.3		mg/kg	10.28.19 20.06	U	1
Diesel Range Organics (DRO)	C10C28DRO	< 50.3	50.3		mg/kg	10.28.19 20.06	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	< 50.3	50.3		mg/kg	10.28.19 20.06	U	1
Total TPH	PHC635	< 50.3	50.3		mg/kg	10.28.19 20.06	U	1
Surrogate		Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane		111-85-3	104	%	70-135	10.28.19 20.06		
o-Terphenyl		84-15-1	104	%	70-135	10.28.19 20.06		



Marathon Oil Company, Tulsa, OK

Trebuchet Fee 23 28 19 WXY 3H

Sample Id: BG-19-02 Matrix: Soil Date Received:10.28.19 13.45

Lab Sample Id: 641285-004 Date Collected: 10.26.19 10.30 Sample Depth: 6 ft

Analytical Method: BTEX by EPA 8021B Prep Method: SW5030B

Tech: MAB % Moisture:

Analyst: MAB Date Prep: 10.28.19 17.10 Basis: Wet Weight

Parameter	Cas Number	Result	RL		Units	Analysis Date	Flag	Dil
Benzene	71-43-2	< 0.000998	0.000998		mg/kg	10.29.19 05.48	U	1
Toluene	108-88-3	< 0.000998	0.000998		mg/kg	10.29.19 05.48	U	1
Ethylbenzene	100-41-4	< 0.000998	0.000998		mg/kg	10.29.19 05.48	U	1
m,p-Xylenes	179601-23-1	< 0.00200	0.00200		mg/kg	10.29.19 05.48	U	1
o-Xylene	95-47-6	< 0.000998	0.000998		mg/kg	10.29.19 05.48	U	1
Total Xylenes	1330-20-7	< 0.000998	0.000998		mg/kg	10.29.19 05.48	U	1
Total BTEX		< 0.000998	0.000998		mg/kg	10.29.19 05.48	U	1
Surrogate		Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene		460-00-4	113	%	70-130	10.29.19 05.48		
1,4-Difluorobenzene		540-36-3	100	%	70-130	10.29.19 05.48		



Marathon Oil Company, Tulsa, OK

Trebuchet Fee 23 28 19 WXY 3H

Sample Id: BG-19-02 Matrix: Soil Date Received:10.28.19 13.45

Lab Sample Id: 641285-005 Date Collected: 10.26.19 10.40 Sample Depth: 8 ft

Analytical Method: Inorganic Anions by EPA 300

Prep Method: E300P

% Moisture:

% Moisture:

Analyst: MAB Date Prep: 10.29.19 08.10 Basis: Wet Weight

Seq Number: 3105764

MAB

Tech:

Parameter Cas Number Result RLUnits **Analysis Date** Flag Dil 16887-00-6 D Chloride 10.29.19 19.57 138 9.98 mg/kg 1

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P

Tech: DTH

Analyst: DTH Date Prep: 10.28.19 16.00 Basis: Wet Weight

Parameter	Cas Number	Result	RL		Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0		mg/kg	10.28.19 20.06	U	1
Diesel Range Organics (DRO)	C10C28DRO	< 50.0	50.0		mg/kg	10.28.19 20.06	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	< 50.0	50.0		mg/kg	10.28.19 20.06	U	1
Total TPH	PHC635	< 50.0	50.0		mg/kg	10.28.19 20.06	U	1
Surrogate		Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane		111-85-3	108	%	70-135	10.28.19 20.06		
o-Terphenyl		84-15-1	112	%	70-135	10.28.19 20.06		



Marathon Oil Company, Tulsa, OK

Trebuchet Fee 23 28 19 WXY 3H

Sample Id: BG-19-02 Matrix: Soil Date Received:10.28.19 13.45

Lab Sample Id: 641285-005 Date Collected: 10.26.19 10.40 Sample Depth: 8 ft

Analytical Method: BTEX by EPA 8021B Prep Method: SW5030B

Tech: MAB % Moisture:

Analyst: MAB Date Prep: 10.28.19 17.10 Basis: Wet Weight

Parameter	Cas Number	Result	RL		Units	Analysis Date	Flag	Dil
Benzene	71-43-2	< 0.00101	0.00101		mg/kg	10.29.19 06.08	U	1
Toluene	108-88-3	< 0.00101	0.00101		mg/kg	10.29.19 06.08	U	1
Ethylbenzene	100-41-4	< 0.00101	0.00101		mg/kg	10.29.19 06.08	U	1
m,p-Xylenes	179601-23-1	< 0.00202	0.00202		mg/kg	10.29.19 06.08	U	1
o-Xylene	95-47-6	< 0.00101	0.00101		mg/kg	10.29.19 06.08	U	1
Total Xylenes	1330-20-7	< 0.00101	0.00101		mg/kg	10.29.19 06.08	U	1
Total BTEX		< 0.00101	0.00101		mg/kg	10.29.19 06.08	U	1
Surrogate		Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene		460-00-4	112	%	70-130	10.29.19 06.08		
1,4-Difluorobenzene		540-36-3	100	%	70-130	10.29.19 06.08		



Marathon Oil Company, Tulsa, OK

Trebuchet Fee 23 28 19 WXY 3H

Matrix: Date Received:10.28.19 13.45 Sample Id: **BG-19-02** Soil

Lab Sample Id: 641285-006 Date Collected: 10.26.19 10.50 Sample Depth: 10 ft

Analytical Method: Inorganic Anions by EPA 300

Prep Method: E300P

Tech: MAB % Moisture:

Basis:

Analyst: MAB

Date Prep: 10.29.19 08.10 Wet Weight

Seq Number: 3105764

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	416	200	mg/kg	10.29.19 09.35		20

Analytical Method: TPH by SW8015 Mod

DTH Tech:

% Moisture:

DTH Analyst:

10.28.19 16.00 Date Prep:

Basis: Wet Weight

Prep Method: SW8015P

Parameter	Cas Number	Result	RL		Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	< 50.0	50.0		mg/kg	10.28.19 20.26	U	1
Diesel Range Organics (DRO)	C10C28DRO	< 50.0	50.0		mg/kg	10.28.19 20.26	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	< 50.0	50.0		mg/kg	10.28.19 20.26	U	1
Total TPH	PHC635	< 50.0	50.0		mg/kg	10.28.19 20.26	U	1
Surrogate		Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane		111-85-3	107	%	70-135	10.28.19 20.26		
o-Terphenyl		84-15-1	106	%	70-135	10.28.19 20.26		



Marathon Oil Company, Tulsa, OK

Trebuchet Fee 23 28 19 WXY 3H

Sample Id: BG-19-02 Matrix: Soil Date Received:10.28.19 13.45

Lab Sample Id: 641285-006 Date Collected: 10.26.19 10.50 Sample Depth: 10 ft

Analytical Method: BTEX by EPA 8021B Prep Method: SW5030B

MAB % Moisture:

Analyst: MAB Date Prep: 10.28.19 17.10 Basis: Wet Weight

Seq Number: 3105680

Tech:

Parameter	Cas Number	Result	RL		Units	Analysis Date	Flag	Dil
Benzene	71-43-2	< 0.000994	0.000994		mg/kg	10.29.19 07.24	U	1
Toluene	108-88-3	< 0.000994	0.000994		mg/kg	10.29.19 07.24	U	1
Ethylbenzene	100-41-4	< 0.000994	0.000994		mg/kg	10.29.19 07.24	U	1
m,p-Xylenes	179601-23-1	< 0.00199	0.00199		mg/kg	10.29.19 07.24	U	1
o-Xylene	95-47-6	< 0.000994	0.000994		mg/kg	10.29.19 07.24	U	1
Total Xylenes	1330-20-7	< 0.000994	0.000994		mg/kg	10.29.19 07.24	U	1
Total BTEX		< 0.000994	0.000994		mg/kg	10.29.19 07.24	U	1
Surrogate		Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene		540-36-3	100	%	70-130	10.29.19 07.24		
4-Bromofluorobenzene		460-00-4	112	%	70-130	10.29.19 07.24		



Marathon Oil Company, Tulsa, OK

Trebuchet Fee 23 28 19 WXY 3H

Sample Id: BG-19-02 Matrix: Soil Date Received:10.28.19 13.45

Lab Sample Id: 641285-007 Date Collected: 10.26.19 11.00 Sample Depth: 12 ft

Analytical Method: Inorganic Anions by EPA 300

Prep Method: E300P

% Moisture:

% Moisture:

Analyst: MAB Date Prep: 10.29.19 08.10 Basis: Wet Weight

Seq Number: 3105764

MAB

Tech:

 Parameter
 Cas Number
 Result
 RL
 Units
 Analysis Date
 Flag
 Dil

 Chloride
 16887-00-6
 423
 200
 mg/kg
 10.29.19 09.41
 20

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P

Tech: DTH

Analyst: DTH Date Prep: 10.28.19 16.00 Basis: Wet Weight

Parameter	Cas Number	Result	RL		Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.3	50.3		mg/kg	10.28.19 20.26	U	1
Diesel Range Organics (DRO)	C10C28DRO	< 50.3	50.3		mg/kg	10.28.19 20.26	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	< 50.3	50.3		mg/kg	10.28.19 20.26	U	1
Total TPH	PHC635	< 50.3	50.3		mg/kg	10.28.19 20.26	U	1
Surrogate		Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane		111-85-3	107	%	70-135	10.28.19 20.26		
o-Terphenyl		84-15-1	108	%	70-135	10.28.19 20.26		



Marathon Oil Company, Tulsa, OK

Trebuchet Fee 23 28 19 WXY 3H

Sample Id: BG-19-02 Matrix: Soil Date Received:10.28.19 13.45

Lab Sample Id: 641285-007 Date Collected: 10.26.19 11.00 Sample Depth: 12 ft

Analytical Method: BTEX by EPA 8021B Prep Method: SW5030B

MAB % Moisture:

Analyst: MAB Date Prep: 10.28.19 17.10 Basis: Wet Weight

Seq Number: 3105680

Tech:

Parameter	Cas Number	Result	RL		Units	Analysis Date	Flag	Dil
Benzene	71-43-2	< 0.00100	0.00100		mg/kg	10.29.19 07.44	U	1
Toluene	108-88-3	< 0.00100	0.00100		mg/kg	10.29.19 07.44	U	1
Ethylbenzene	100-41-4	< 0.00100	0.00100		mg/kg	10.29.19 07.44	U	1
m,p-Xylenes	179601-23-1	< 0.00200	0.00200		mg/kg	10.29.19 07.44	U	1
o-Xylene	95-47-6	< 0.00100	0.00100		mg/kg	10.29.19 07.44	U	1
Total Xylenes	1330-20-7	< 0.00100	0.00100		mg/kg	10.29.19 07.44	U	1
Total BTEX		< 0.00100	0.00100		mg/kg	10.29.19 07.44	U	1
Surrogate		Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene		460-00-4	113	%	70-130	10.29.19 07.44		
1,4-Difluorobenzene		540-36-3	101	%	70-130	10.29.19 07.44		



Marathon Oil Company, Tulsa, OK

Trebuchet Fee 23 28 19 WXY 3H

Sample Id: BG-19-02 Matrix: Soil Date Received:10.28.19 13.45

Lab Sample Id: 641285-008 Date Collected: 10.26.19 11.10 Sample Depth: 14 ft

Analytical Method: Inorganic Anions by EPA 300

Prep Method: E300P

% Moisture:

% Moisture:

Analyst: MAB Date Prep: 10.29.19 08.10 Basis: Wet Weight

Seq Number: 3105764

MAB

Tech:

 Parameter
 Cas Number
 Result
 RL
 Units
 Analysis Date
 Flag
 Dil

 Chloride
 16887-00-6
 354
 99.2
 mg/kg
 10.29.19 09.48
 10

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P

Tech: DTH

Analyst: DTH Date Prep: 10.28.19 16.00 Basis: Wet Weight

Parameter	Cas Number	Result	RL		Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0		mg/kg	10.28.19 20.46	U	1
Diesel Range Organics (DRO)	C10C28DRO	< 50.0	50.0		mg/kg	10.28.19 20.46	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	< 50.0	50.0		mg/kg	10.28.19 20.46	U	1
Total TPH	PHC635	< 50.0	50.0		mg/kg	10.28.19 20.46	U	1
Surrogate		Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane		111-85-3	104	%	70-135	10.28.19 20.46		
o-Terphenyl		84-15-1	105	%	70-135	10.28.19 20.46		



Marathon Oil Company, Tulsa, OK

Trebuchet Fee 23 28 19 WXY 3H

Sample Id: BG-19-02 Matrix: Soil Date Received:10.28.19 13.45

Lab Sample Id: 641285-008 Date Collected: 10.26.19 11.10 Sample Depth: 14 ft

Analytical Method: BTEX by EPA 8021B Prep Method: SW5030B

MAB % Moisture:

Analyst: MAB Date Prep: 10.28.19 17.10 Basis: Wet Weight

Seq Number: 3105680

Tech:

Parameter	Cas Number	Result	RL		Units	Analysis Date	Flag	Dil
Benzene	71-43-2	< 0.000998	0.000998		mg/kg	10.29.19 08.05	U	1
Toluene	108-88-3	< 0.000998	0.000998		mg/kg	10.29.19 08.05	U	1
Ethylbenzene	100-41-4	< 0.000998	0.000998		mg/kg	10.29.19 08.05	U	1
m,p-Xylenes	179601-23-1	< 0.00200	0.00200		mg/kg	10.29.19 08.05	U	1
o-Xylene	95-47-6	< 0.000998	0.000998		mg/kg	10.29.19 08.05	U	1
Total Xylenes	1330-20-7	< 0.000998	0.000998		mg/kg	10.29.19 08.05	U	1
Total BTEX		< 0.000998	0.000998		mg/kg	10.29.19 08.05	U	1
Surrogate		Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene		460-00-4	114	%	70-130	10.29.19 08.05		
1,4-Difluorobenzene		540-36-3	102	%	70-130	10.29.19 08.05		



Flagging Criteria

- X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.
- **B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- **D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F RPD exceeded lab control limits.
- J The target analyte was positively identified below the quantitation limit and above the detection limit.
- U Analyte was not detected.
- L The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- **H** The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- **K** Sample analyzed outside of recommended hold time.
- **JN** A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

BRL Below Reporting Limit.

RL Reporting Limit

MDL Method Detection Limit SDL Sample Detection Limit LOD Limit of Detection

PQL Practical Quantitation Limit MQL Method Quantitation Limit LOQ Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample BLK Method Blank

BKS/LCS Blank Spike/Laboratory Control Sample **BKSD/LCSD** Blank Spike Duplicate/Laboratory Control Sample Duplicate

MD/SD Method Duplicate/Sample Duplicate MS Matrix Spike MSD: Matrix Spike Duplicate

- + NELAC certification not offered for this compound.
- * (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation

^{**} Surrogate recovered outside laboratory control limit.



QC Summary 641285

Marathon Oil Company

Trebuchet Fee 23 28 19 WXY 3H

Analytical Method:Inorganic Anions by EPA 300Prep Method:E300PSeq Number:3105764Matrix: SolidDate Prep:10.29.19

MB Sample Id: 7689120-1-BLK LCS Sample Id: 7689120-1-BKS LCSD Sample Id: 7689120-1-BSD

MR Spike LCS LCS Limits %RPD RPD Limit Units LCSD LCSD Analysis Flag **Parameter** Result Amount Result %Rec Date %Rec Result 10.29.19 08:20 Chloride <10.0 300 306 102 307 102 90-110 0 20 mg/kg

Analytical Method: Inorganic Anions by EPA 300 Prep Method: E300P

Seq Number: 3105764 Matrix: Soil Date Prep: 10.29.19

Parent Sample Id: 641285-001 MS Sample Id: 641285-001 S MSD Sample Id: 641285-001 SD

Spike MS MS %RPD RPD Limit Units Parent **MSD MSD** Limits Analysis Flag **Parameter** Result Date Result Amount %Rec Result %Rec

Analytical Method: Inorganic Anions by EPA 300 Prep Method:

Seq Number: 3105764 Matrix: Soil Date Prep: 10.29.19

Parent Sample Id: 641338-003 MS Sample Id: 641338-003 S MSD Sample Id: 641338-003 SD

MS %RPD RPD Limit Units Parent Spike MS **MSD MSD** Limits Analysis Flag **Parameter** Result Date Result %Rec Amount Result %Rec Chloride 130 252 405 109 402 108 90-110 20 10.29.19 13:09 mg/kg

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P

 Seq Number:
 3105684
 Matrix:
 Solid
 Date Prep:
 10.28.19

 MB Sample Id:
 7689068-1-BLK
 LCS Sample Id:
 7689068-1-BKS
 LCSD Sample Id:
 7689068-1-BSD

LCS %RPD RPD Limit Units MB Spike LCS Limits Analysis LCSD LCSD Flag **Parameter** Result %Rec Date Result Amount %Rec Result Gasoline Range Hydrocarbons (GRO) 911 91 904 70-135 10.28.19 17:08 < 50.0 1000 90 35 1 mg/kg 10.28.19 17:08 777 78 760 70-135 2 35 Diesel Range Organics (DRO) 1000 76 < 50.0 mg/kg

LCS LCSD MB MB LCS LCSD Limits Units Analysis **Surrogate** %Rec Flag %Rec Flag Flag Date %Rec ** 1-Chlorooctane 104 137 126 70-135 % 10.28.19 17:08 10.28.19 17:08 o-Terphenyl 104 119 119 70-135 %

Analytical Method:TPH by SW8015 ModPrep Method:SW8015PSeq Number:3105684Matrix: SolidDate Prep:10.28.19

MB Sample Id: 7689068-1-BLK

MS/MSD Percent Recovery Relative Percent Difference LCS/LCSD Recovery Log Difference
$$\begin{split} [D] &= 100*(\text{C-A}) \, / \, B \\ RPD &= 200* \mid (\text{C-E}) \, / \, (\text{C+E}) \mid \\ [D] &= 100*(\text{C}) \, / \, [\text{B}] \end{split}$$

Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample A = Parent Result

C = MS/LCS Result E = MSD/LCSD Result MS = Matrix Spike B = Spike Added D = MSD/LCSD % Rec

E300P



QC Summary 641285

Marathon Oil Company

Trebuchet Fee 23 28 19 WXY 3H

Analytical Method: TPH by SW8015 Mod

Seq Number: 3105684 Matrix: Soil Date Prep: 10.28.19 MS Sample Id: MSD Sample Id: 641213-006 SD 641213-006 S Parent Sample Id: 641213-006

Spike MS MS Limits %RPD RPD Limit Units Parent **MSD MSD** Analysis Flag **Parameter** Result Amount Result Date %Rec Result %Rec Gasoline Range Hydrocarbons (GRO) 10.28.19 17:48 < 50.3 1010 855 85 845 85 70-135 35 mg/kg 711 70 713 0 35 10.28.19 17:48 Diesel Range Organics (DRO) < 50.3 1010 71 70-135 mg/kg

MS MS **MSD MSD** Limits Units Analysis **Surrogate** Flag %Rec %Rec Flag Date 1-Chlorooctane 114 130 70-135 % 10 28 19 17:48 o-Terphenyl 111 112 70-135 % 10.28.19 17:48

Analytical Method: BTEX by EPA 8021B Prep Method: SW5030B

Seq Number: 3105680 Matrix: Solid Date Prep: 10.28.19 LCS Sample Id: 7689078-1-BKS LCSD Sample Id: 7689078-1-BSD 7689078-1-BLK MB Sample Id:

%RPD RPD Limit Units LCS LCS MB Spike Limits Analysis LCSD **LCSD Parameter** Date Result Amount Result %Rec Result %Rec 10.29.19 01:09 Benzene < 0.00100 0.100 0.0977 98 0.0916 70-130 6 35 mg/kg 0.0963 10.29.19 01:09 Toluene < 0.00100 0.100 96 0.0895 90 70-130 35 mg/kg 7 10.29.19 01:09 99 91 71-129 8 35 Ethylbenzene < 0.00100 0.100 0.0988 0.0911 mg/kg 99 10.29.19 01:09 m,p-Xylenes < 0.00200 0.200 0.198 0.183 92 70-135 8 35 mg/kg 0.0998 0.0936 94 71-133 35 10.29.19 01:09 o-Xylene < 0.00100 0.100 100 mg/kg

LCSD MB MB LCS LCSD Units Analysis **Surrogate** %Rec %Rec Flag Flag Flag Date %Rec 1.4-Difluorobenzene 100 101 100 70-130 % 10.29.19 01:09 10.29.19 01:09 4-Bromofluorobenzene 108 106 109 70-130 %

LCS

Analytical Method: BTEX by EPA 8021B Prep Method: SW5030B Seq Number: 3105680 Matrix: Soil Date Prep: 10.28.19

MS Sample Id: 641213-014 S MSD Sample Id: 641213-014 SD Parent Sample Id: 641213-014

MS %RPD RPD Limit Units Parent Spike MS MSD MSD Limits Analysis **Parameter** %Rec Result Amount Result %Rec Date Result < 0.000996 10.29.19 01:50 0.0996 0.0901 90 0.0802 70-130 Benzene 80 12 35 mg/kg Toluene < 0.000996 0.0996 0.0885 89 0.0783 78 70-130 12 35 10.29.19 01:50 mg/kg mg/kg 10.29.19 01:50 Ethylbenzene < 0.000996 0.0996 0.0903 91 0.0798 80 71-129 12 35 12 10.29.19 01:50 < 0.00199 0.199 0.181 91 0.160 80 70-135 35 m,p-Xylenes mg/kg 10.29.19 01:50 < 0.000996 0.0909 71-133 12 o-Xylene 0.0996 91 0.0805 81 35 mg/kg

MSD MS MS **MSD** Limits Units Analysis **Surrogate** %Rec Flag %Rec Flag Date 1,4-Difluorobenzene 103 101 70-130 % 10.29.19 01:50 4-Bromofluorobenzene 115 113 70-130 % 10.29.19 01:50

MS/MSD Percent Recovery Relative Percent Difference LCS/LCSD Recovery Log Difference

[D] = 100*(C-A) / BRPD = 200* | (C-E) / (C+E) |[D] = 100 * (C) / [B]

Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample

A = Parent Result = MS/LCS Result

= MSD/LCSD Result

MS = Matrix Spike B = Spike Added D = MSD/LCSD % Rec

SW8015P

Flag

Flag

Prep Method:

Limits

XENCO

Chain of Custody

Work Order No: 1441285

of

Houston,TX (281) 240-4200 Dallas,TX (214) 902-0300 San Antonio,TX (210) 509-3334
Midland,TX (432-704-5440) EL Paso,TX (915)585-3443 Lubbock,TX (806)794-1296 Carlsbad, NM (575)988-3199
Hobbs,NM (575-392-7550) Phoenix,AZ (480-355-0900) Atlanta,GA (770-449-8800) Tampa,FL (813-620-2000)

						1	1				
			13,45 2	19 13	18801		No C	(C)			7
Date	Received by: (Signature)	Relinquished by: (Signature)	ne	Date/Time	D	re)	Received by: (Signature)	Received I	e)	Relinquished by: (Signature)	elinquished
DatoTimo	previously negotiated.	e: Signature of this document and relinquisilinent of samples or some any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control vice. Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control vice. Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control vice. Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control vice.	ses incurred i	to Xence	y losses o	sponsibility for an for each sample	assume any red a charge of \$	les and shall not each project an	the cost of samp	be liable only for charge of \$75.00	vice. Xenco will co. A minimum
	dard terms and conditions	fit: description of relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions	Xenco, its a	mpany to	client co	rchase order from	tutes a valid pu	f samples consti	relinquishment o	is document and	
~ .	2	Cd Ca Cr Co Cu Fe Fb Mg Min Mo Ni Cr Co Cu Pb Mn Mo Ni Se Ag Ti U	As Ba Be B Co As Ba Be Cd	As Ba	Al Sb A	TCLP / SPLP 6010: 8RCRA	8RCRA 13PPM TCLP / SPLP	alyzed 8R0	200.8 / 6020: Metal(s) to be ar	otal 200.7 / 6010 200.8 / 6020: Circle Method(s) and Metal(s) to be analyzed	otal 200.7 / 6010
Sn U V Zn	N: K			1	ŀ						
				+							
			>	×		14 FT	11:10	10/26/2019	SOIL	BG19-02	BG1
			-		-	12 FT		10/26/2019	SOIL	BG19-02	BG1
			-			10 FT	10:50	10/26/2019	SOIL	BG19-02	BG1
				+	+	8FT	10:40	10/26/2019	SOIL	BG19-02	BG1
						6FT	10:30	10/26/2019	SOIL	BG19-02	BG1
			-	+	1	4 FT	10:20	10/26/2019	SOIL	BG19-02	BG1
			-	×	-	2 FT	10:10	10/26/2019	SOIL	BG19-02	BG1
			+			0FT	10:00	10/26/2019	SOIL	BG19-02	BG1
Sample Comments	Sa		-12		Num	Depth	Time Sampled	Date Sampled	Matrix	entification	Sample Identification
			ide l			×	Total Containers:	Total	(No) N/A	eals: Yes	ple Custody Seals
lab, if received by 4:30pm	lab,		E30	_	***	5 6	Collection Lactor	Collec	(No		er Custody Seals:
TAT starts the day recevied by the	TAT star		00_C	-	-		TNINO	0000	es		ived Intact:
					aine		Thermometer ID	TH	1,0°C	_	perature (°C):
					ers	Yes No	Wet Ice:	Yes) No	Temp Blank;	EIPT	MPLE RECEIPT
				-	_	ate:	Due Date:		Jason Crabtree	Jasor	oler's Name:
				-			Rush:				Number:
				-		ĭ⊠ ⊠	Routine		3840	19E-03840	ct Number:
OIN COURT ISSUED		ANALYSIS REQUEST				Turn Around	3H Tur	28 19 WXY	Trebuchet Fee 23	Trebu	ct Name:
Work Order Notes	<u>ַ</u>		ermian@	com; F	thonoil	lcastro@marathonoil.com; Permian@vertex.ca	Email:		561	(575) 988-0561	e:
Other:	Deliverables: EDD ADAPT				-	City, State ZIP:			M 88220	Carlsbad NM 88220	State ZIP:
RRP Level IV	Paradina level	Dog			+	Address:			well Rd.	4111 S. Tidwell Rd	ess:
ָ ק	State of Project:	Sta			S.	Company Name			Si.	Marathon Oil	pany Name:
RC Superfund	Brownfields RRC Superfund					Bill to: (if different)			0	Isaac Castro	ct Manager:
เกิ	Work Order Comments							1100000			

Revised Date 051418 Rev. 2018.1

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: Marathon Oil Company

Acceptable Temperature Range: 0 - 6 degC

Date/ Time Received: 10.28.2019 01.45.00 PM

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Work Order #: 641285 Temperature Measuring device used : T-NM-007

Sample Rece	eipt Checklist	Comments
#1 *Temperature of cooler(s)?	4	
#2 *Shipping container in good condition?	Yes	
#3 *Samples received on ice?	Yes	
#4 *Custody Seals intact on shipping container/ cooler?	Yes	
#5 Custody Seals intact on sample bottles?	Yes	
#6*Custody Seals Signed and dated?	Yes	
#7 *Chain of Custody present?	Yes	
#8 Any missing/extra samples?	No	
#9 Chain of Custody signed when relinquished/ received?	Yes	
#10 Chain of Custody agrees with sample labels/matrix?	Yes	
#11 Container label(s) legible and intact?	Yes	
#12 Samples in proper container/ bottle?	Yes	
#13 Samples properly preserved?	Yes	
#14 Sample container(s) intact?	Yes	
#15 Sufficient sample amount for indicated test(s)?	Yes	
#16 All samples received within hold time?	Yes	
#17 Subcontract of sample(s)?	No	
#18 Water VOC samples have zero headspace?	No	

* Must be completed for after-hours delivery of samples prior to placing in the refrigerator

Analyst:

Checklist completed by:	Jessica Warmer Jessica Kramer	Date: <u>10.29.2019</u>	
Observations of house	\mathcal{O}		

PH Device/Lot#:

Date: 10.29.2019



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

October 11, 2019

Dennis Williams
Vertex Resource Group Ltd.
213 S. Mesa St
Carlsbad, NM 88220
TEL:
FAX

RE: Trebuchet Fee 23 28 19 WXY OrderNo.: 1910367

Dear Dennis Williams:

Hall Environmental Analysis Laboratory received 22 sample(s) on 10/6/2019 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman

Laboratory Manager

andyl

4901 Hawkins NE

Albuquerque, NM 87109

Lab Order 1910367

Date Reported: 10/11/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BG19-31 0'

 Project:
 Trebuchet Fee 23 28 19 WXY
 Collection Date: 10/5/2019 9:10:00 AM

 Lab ID:
 1910367-001
 Matrix: SOIL
 Received Date: 10/6/2019 12:15:00 PM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORG	GANICS				Analyst: BRM
Diesel Range Organics (DRO)	ND	9.5	mg/Kg	1	10/9/2019 12:13:11 AM
Motor Oil Range Organics (MRO)	ND	48	mg/Kg	1	10/9/2019 12:13:11 AM
Surr: DNOP	96.3	70-130	%Rec	1	10/9/2019 12:13:11 AM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	10/8/2019 2:49:18 PM
Surr: BFB	97.5	77.4-118	%Rec	1	10/8/2019 2:49:18 PM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	0.024	mg/Kg	1	10/8/2019 2:49:18 PM
Toluene	ND	0.048	mg/Kg	1	10/8/2019 2:49:18 PM
Ethylbenzene	ND	0.048	mg/Kg	1	10/8/2019 2:49:18 PM
Xylenes, Total	ND	0.097	mg/Kg	1	10/8/2019 2:49:18 PM
Surr: 4-Bromofluorobenzene	95.2	80-120	%Rec	1	10/8/2019 2:49:18 PM
EPA METHOD 300.0: ANIONS					Analyst: CJS
Chloride	ND	59	mg/Kg	20	10/9/2019 2:51:27 PM

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

Qualifiers:

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

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

Page 1 of 27

Lab Order **1910367**

Date Reported: 10/11/2019

10/9/2019 3:03:52 PM

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BH19-31 2'

 Project:
 Trebuchet Fee 23 28 19 WXY
 Collection Date: 10/5/2019 9:20:00 AM

 Lab ID:
 1910367-002
 Matrix: SOIL
 Received Date: 10/6/2019 12:15:00 PM

Analyses Result RL Qual Units DF Date Analyzed

EPA METHOD 300.0: ANIONS

Analyses CJS

1800

60

mg/Kg

20

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

Qualifiers:

Chloride

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

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

Page 2 of 27

Lab Order **1910367**

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 10/11/2019

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BH19-31 4'

 Project:
 Trebuchet Fee 23 28 19 WXY
 Collection Date: 10/5/2019 9:30:00 AM

 Lab ID:
 1910367-003
 Matrix: SOIL
 Received Date: 10/6/2019 12:15:00 PM

Analyses	Result	RL Qua	ıl Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS					Analyst: CJS
Chloride	1400	59	mg/Kg	20	10/9/2019 3:16:17 PM

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

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

Page 3 of 27

Lab Order **1910367**

Date Reported: 10/11/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BH19-31 6'

 Project:
 Trebuchet Fee 23 28 19 WXY
 Collection Date: 10/5/2019 9:40:00 AM

 Lab ID:
 1910367-004
 Matrix: SOIL
 Received Date: 10/6/2019 12:15:00 PM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OR	GANICS				Analyst: BRM
Diesel Range Organics (DRO)	ND	8.9	mg/Kg	1	10/9/2019 10:39:43 AM
Motor Oil Range Organics (MRO)	ND	45	mg/Kg	1	10/9/2019 10:39:43 AM
Surr: DNOP	95.1	70-130	%Rec	1	10/9/2019 10:39:43 AM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	10/8/2019 4:20:28 PM
Surr: BFB	95.6	77.4-118	%Rec	1	10/8/2019 4:20:28 PM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	0.024	mg/Kg	1	10/8/2019 4:20:28 PM
Toluene	ND	0.048	mg/Kg	1	10/8/2019 4:20:28 PM
Ethylbenzene	ND	0.048	mg/Kg	1	10/8/2019 4:20:28 PM
Xylenes, Total	ND	0.097	mg/Kg	1	10/8/2019 4:20:28 PM
Surr: 4-Bromofluorobenzene	92.4	80-120	%Rec	1	10/8/2019 4:20:28 PM
EPA METHOD 300.0: ANIONS					Analyst: CJS
Chloride	980	60	mg/Kg	20	10/9/2019 3:28:41 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
- $ND \qquad Not \ Detected \ at \ the \ Reporting \ Limit$
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

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

Page 4 of 27

Lab Order **1910367**

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 10/11/2019

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BH19-28 4'

 Project:
 Trebuchet Fee 23 28 19 WXY
 Collection Date: 10/5/2019 10:15:00 AM

 Lab ID:
 1910367-005
 Matrix: SOIL
 Received Date: 10/6/2019 12:15:00 PM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS					Analyst: CAS
Chloride	1900	150	mg/Kg	50	10/10/2019 6:40:45 PM

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- $ND \qquad Not \ Detected \ at \ the \ Reporting \ Limit$
- PQL Practical Quanitative Limit

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

Page 5 of 27

Lab Order **1910367**

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 10/11/2019

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BH19-28 6'

 Project:
 Trebuchet Fee 23 28 19 WXY
 Collection Date: 10/5/2019 10:25:00 AM

 Lab ID:
 1910367-006
 Matrix: SOIL
 Received Date: 10/6/2019 12:15:00 PM

 Analyses
 Result
 RL Qual Units
 DF
 Date Analyzed

 EPA METHOD 300.0: ANIONS
 Analyst: CJS

 Chloride
 1200
 60
 mg/Kg
 20
 10/9/2019 4:18:19 PM

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

Qualifiers:

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

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

Page 6 of 27

Lab Order 1910367

Date Reported: 10/11/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BH19-28 8'

 Project:
 Trebuchet Fee 23 28 19 WXY
 Collection Date: 10/5/2019 10:35:00 AM

 Lab ID:
 1910367-007
 Matrix: SOIL
 Received Date: 10/6/2019 12:15:00 PM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OR	GANICS				Analyst: BRM
Diesel Range Organics (DRO)	ND	9.2	mg/Kg	1	10/9/2019 11:52:46 AM
Motor Oil Range Organics (MRO)	ND	46	mg/Kg	1	10/9/2019 11:52:46 AM
Surr: DNOP	92.6	70-130	%Rec	1	10/9/2019 11:52:46 AM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	10/8/2019 4:43:13 PM
Surr: BFB	96.9	77.4-118	%Rec	1	10/8/2019 4:43:13 PM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	0.024	mg/Kg	1	10/8/2019 4:43:13 PM
Toluene	ND	0.048	mg/Kg	1	10/8/2019 4:43:13 PM
Ethylbenzene	ND	0.048	mg/Kg	1	10/8/2019 4:43:13 PM
Xylenes, Total	ND	0.095	mg/Kg	1	10/8/2019 4:43:13 PM
Surr: 4-Bromofluorobenzene	94.1	80-120	%Rec	1	10/8/2019 4:43:13 PM
EPA METHOD 300.0: ANIONS					Analyst: CJS
Chloride	590	60	mg/Kg	20	10/9/2019 4:30:44 PM

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- $ND \qquad Not \ Detected \ at \ the \ Reporting \ Limit$
- 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

Lab Order **1910367**

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 10/11/2019

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BH19-30 8'

 Project:
 Trebuchet Fee 23 28 19 WXY
 Collection Date: 10/5/2019 11:30:00 AM

 Lab ID:
 1910367-008
 Matrix: SOIL
 Received Date: 10/6/2019 12:15:00 PM

Analyses	Result	RL Qua	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGA	ANICS				Analyst: BRM
Diesel Range Organics (DRO)	ND	9.4	mg/Kg	1	10/9/2019 12:17:08 PM
Motor Oil Range Organics (MRO)	ND	47	mg/Kg	1	10/9/2019 12:17:08 PM
Surr: DNOP	89.5	70-130	%Rec	1	10/9/2019 12:17:08 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.7	mg/Kg	1	10/8/2019 5:06:00 PM
Surr: BFB	95.2	77.4-118	%Rec	1	10/8/2019 5:06:00 PM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	0.023	mg/Kg	1	10/8/2019 5:06:00 PM
Toluene	ND	0.047	mg/Kg	1	10/8/2019 5:06:00 PM
Ethylbenzene	ND	0.047	mg/Kg	1	10/8/2019 5:06:00 PM
Xylenes, Total	ND	0.094	mg/Kg	1	10/8/2019 5:06:00 PM
Surr: 4-Bromofluorobenzene	92.1	80-120	%Rec	1	10/8/2019 5:06:00 PM
EPA METHOD 300.0: ANIONS					Analyst: CJS
Chloride	880	60	mg/Kg	20	10/9/2019 4:43:08 PM

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

Qualifiers:

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

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

Page 8 of 27

Lab Order **1910367**

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 10/11/2019

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BH19-32 0'

 Project:
 Trebuchet Fee 23 28 19 WXY
 Collection Date: 10/5/2019 12:00:00 PM

 Lab ID:
 1910367-009
 Matrix: SOIL
 Received Date: 10/6/2019 12:15:00 PM

Analyses	Result	RL Q	ual Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OR	RGANICS				Analyst: BRM
Diesel Range Organics (DRO)	ND	9.6	mg/Kg	1	10/9/2019 12:41:28 PM
Motor Oil Range Organics (MRO)	ND	48	mg/Kg	1	10/9/2019 12:41:28 PM
Surr: DNOP	117	70-130	%Rec	1	10/9/2019 12:41:28 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	10/8/2019 5:28:56 PM
Surr: BFB	92.1	77.4-118	%Rec	1	10/8/2019 5:28:56 PM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	0.025	mg/Kg	1	10/8/2019 5:28:56 PM
Toluene	ND	0.049	mg/Kg	1	10/8/2019 5:28:56 PM
Ethylbenzene	ND	0.049	mg/Kg	1	10/8/2019 5:28:56 PM
Xylenes, Total	ND	0.099	mg/Kg	1	10/8/2019 5:28:56 PM
Surr: 4-Bromofluorobenzene	88.4	80-120	%Rec	1	10/8/2019 5:28:56 PM
EPA METHOD 300.0: ANIONS					Analyst: CJS
Chloride	ND	60	mg/Kg	20	10/9/2019 4:55:33 PM

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

Qualifiers:

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

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

Page 9 of 27

Lab Order **1910367**

Date Reported: 10/11/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Client Sample ID: BH19-32 2'

Project: Trebuchet Fee 23 28 19 WXY **Collection Date:** 10/5/2019 12:10:00 PM

Lab ID: 1910367-010 **Matrix:** SOIL **Received Date:** 10/6/2019 12:15:00 PM

Analyses	Result	RL Qua	al Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS					Analyst: CJS
Chloride	510	60	mg/Kg	20	10/9/2019 5:57:36 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
- $ND \qquad Not \ Detected \ at \ the \ Reporting \ Limit$
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

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

Page 10 of 27

Lab Order **1910367**

Date Reported: 10/11/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Client Sample ID: BH19-32 4'

Project: Trebuchet Fee 23 28 19 WXY **Collection Date:** 10/5/2019 12:20:00 PM

Lab ID: 1910367-011 **Matrix:** SOIL **Received Date:** 10/6/2019 12:15:00 PM

Analyses	Result	RL Qua	al Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS					Analyst: CAS
Chloride	1200	60	mg/Kg	20	10/10/2019 7:17:58 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
- $ND \qquad Not \ Detected \ at \ the \ Reporting \ Limit$
- PQL Practical Quanitative Limit

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

Page 11 of 27

Lab Order **1910367**

Date Reported: 10/11/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Client Sample ID: BH19-32 6'

 Project:
 Trebuchet Fee 23 28 19 WXY
 Collection Date: 10/5/2019 12:30:00 PM

 Lab ID:
 1910367-012
 Matrix: SOIL
 Received Date: 10/6/2019 12:15:00 PM

Analyses	Result	RL Q	ual Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OR	RGANICS				Analyst: BRM
Diesel Range Organics (DRO)	ND	9.3	mg/Kg	1	10/9/2019 1:05:57 PM
Motor Oil Range Organics (MRO)	ND	47	mg/Kg	1	10/9/2019 1:05:57 PM
Surr: DNOP	82.0	70-130	%Rec	1	10/9/2019 1:05:57 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	10/8/2019 5:51:43 PM
Surr: BFB	94.4	77.4-118	%Rec	1	10/8/2019 5:51:43 PM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	0.024	mg/Kg	1	10/8/2019 5:51:43 PM
Toluene	ND	0.048	mg/Kg	1	10/8/2019 5:51:43 PM
Ethylbenzene	ND	0.048	mg/Kg	1	10/8/2019 5:51:43 PM
Xylenes, Total	ND	0.096	mg/Kg	1	10/8/2019 5:51:43 PM
Surr: 4-Bromofluorobenzene	90.5	80-120	%Rec	1	10/8/2019 5:51:43 PM
EPA METHOD 300.0: ANIONS					Analyst: CJS
Chloride	590	60	mg/Kg	20	10/9/2019 6:59:41 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
- $ND \qquad Not \ Detected \ at \ the \ Reporting \ Limit$
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

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

Page 12 of 27

Lab Order 1910367

Date Reported: 10/11/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BH19-33 8'

 Project:
 Trebuchet Fee 23 28 19 WXY
 Collection Date: 10/5/2019 1:10:00 PM

 Lab ID:
 1910367-013
 Matrix: SOIL
 Received Date: 10/6/2019 12:15:00 PM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORG	ANICS				Analyst: BRM
Diesel Range Organics (DRO)	ND	8.7	mg/Kg	1	10/9/2019 1:30:22 PM
Motor Oil Range Organics (MRO)	ND	43	mg/Kg	1	10/9/2019 1:30:22 PM
Surr: DNOP	83.6	70-130	%Rec	1	10/9/2019 1:30:22 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	10/8/2019 6:14:25 PM
Surr: BFB	94.6	77.4-118	%Rec	1	10/8/2019 6:14:25 PM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	0.024	mg/Kg	1	10/8/2019 6:14:25 PM
Toluene	ND	0.049	mg/Kg	1	10/8/2019 6:14:25 PM
Ethylbenzene	ND	0.049	mg/Kg	1	10/8/2019 6:14:25 PM
Xylenes, Total	ND	0.097	mg/Kg	1	10/8/2019 6:14:25 PM
Surr: 4-Bromofluorobenzene	90.0	80-120	%Rec	1	10/8/2019 6:14:25 PM
EPA METHOD 300.0: ANIONS					Analyst: CJS
Chloride	520	60	mg/Kg	20	10/9/2019 7:24:30 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
- $ND \qquad Not \ Detected \ at \ the \ Reporting \ Limit$
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

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

Page 13 of 27

Lab Order **1910367**

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 10/11/2019

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BH19-20 0'

 Project:
 Trebuchet Fee 23 28 19 WXY
 Collection Date: 10/5/2019 2:00:00 PM

 Lab ID:
 1910367-014
 Matrix: SOIL
 Received Date: 10/6/2019 12:15:00 PM

 Analyses
 Result
 RL Qual Units
 DF
 Date Analyzed

 EPA METHOD 300.0: ANIONS
 Analyst: CAS

 Chloride
 6700
 300
 mg/Kg
 100
 10/10/2019 7:30:23 PM

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

Qualifiers:

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

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

Page 14 of 27

Received Date: 10/6/2019 12:15:00 PM

50

mg/Kg

Lab Order 1910367

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 10/11/2019

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BH19-20 2'

Matrix: SOIL

Project: Trebuchet Fee 23 28 19 WXY **Collection Date:** 10/5/2019 2:10:00 PM

Analyses Result **RL Qual Units** DF **Date Analyzed EPA METHOD 300.0: ANIONS** Analyst: CAS Chloride 2300 150 10/10/2019 7:42:47 PM

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

Qualifiers:

Lab ID:

1910367-015

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

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

Page 15 of 27

Lab Order **1910367**

Date Reported: 10/11/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BH19-20 4'

 Project:
 Trebuchet Fee 23 28 19 WXY
 Collection Date: 10/5/2019 2:20:00 PM

 Lab ID:
 1910367-016
 Matrix: SOIL
 Received Date: 10/6/2019 12:15:00 PM

Analyses	Result	RL Qua	al Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS					Analyst: CJS
Chloride	1800	59	mg/Kg	20	10/9/2019 8:01:44 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
- $ND \qquad Not \ Detected \ at \ the \ Reporting \ Limit$
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

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

Page 16 of 27

Lab Order **1910367**

Date Reported: 10/11/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BH19-20 6'

 Project:
 Trebuchet Fee 23 28 19 WXY
 Collection Date: 10/5/2019 2:30:00 PM

 Lab ID:
 1910367-017
 Matrix: SOIL
 Received Date: 10/6/2019 12:15:00 PM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OR	GANICS				Analyst: BRM
Diesel Range Organics (DRO)	ND	8.9	mg/Kg	1	10/9/2019 1:54:49 PM
Motor Oil Range Organics (MRO)	ND	44	mg/Kg	1	10/9/2019 1:54:49 PM
Surr: DNOP	82.3	70-130	%Rec	1	10/9/2019 1:54:49 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	10/8/2019 6:37:06 PM
Surr: BFB	94.1	77.4-118	%Rec	1	10/8/2019 6:37:06 PM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	0.024	mg/Kg	1	10/8/2019 6:37:06 PM
Toluene	ND	0.048	mg/Kg	1	10/8/2019 6:37:06 PM
Ethylbenzene	ND	0.048	mg/Kg	1	10/8/2019 6:37:06 PM
Xylenes, Total	ND	0.096	mg/Kg	1	10/8/2019 6:37:06 PM
Surr: 4-Bromofluorobenzene	90.2	80-120	%Rec	1	10/8/2019 6:37:06 PM
EPA METHOD 300.0: ANIONS					Analyst: CJS
Chloride	760	60	mg/Kg	20	10/9/2019 8:14:08 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
- $ND \qquad Not \ Detected \ at \ the \ Reporting \ Limit$
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

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

Page 17 of 27

Lab Order **1910367**

Date Reported: 10/11/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Client Sample ID: BH19-21 0'

Project: Trebuchet Fee 23 28 19 WXY Collection Date: 10/5/2019 2:50:00 PM

Lab ID: 1910367-018 **Matrix:** SOIL **Received Date:** 10/6/2019 12:15:00 PM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS					Analyst: CAS
Chloride	8800	590	mg/Kg	200	10/10/2019 10:11:42 PM

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

Qualifiers:

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

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

Page 18 of 27

Lab Order **1910367**

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 10/11/2019

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BH19-21 2'

Project: Trebuchet Fee 23 28 19 WXY **Collection Date:** 10/5/2019 3:00:00 PM

Lab ID: 1910367-019 **Matrix:** SOIL **Received Date:** 10/6/2019 12:15:00 PM

Analyses	Result	RL Qua	al Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS					Analyst: CAS
Chloride	1900	150	mg/Kg	50	10/10/2019 10:24:06 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
- $ND \qquad Not \ Detected \ at \ the \ Reporting \ Limit$
- PQL Practical Quanitative Limit

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

Page 19 of 27

Lab Order **1910367**

Date Reported: 10/11/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BH19-21 4'

 Project:
 Trebuchet Fee 23 28 19 WXY
 Collection Date: 10/5/2019 3:10:00 PM

 Lab ID:
 1910367-020
 Matrix: SOIL
 Received Date: 10/6/2019 12:15:00 PM

 Analyses
 Result
 RL Qual Units
 DF
 Date Analyzed

 EPA METHOD 300.0: ANIONS
 Analyst: CAS

 Chloride
 3400
 150
 mg/Kg
 50
 10/10/2019 7:55:11 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
- $ND \qquad Not \ Detected \ at \ the \ Reporting \ Limit$
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

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

Page 20 of 27

Lab Order 1910367

Date Reported: 10/11/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BH19-21 6'

Matrix: SOIL

Project: Trebuchet Fee 23 28 19 WXY **Collection Date:** 10/5/2019 3:20:00 PM Received Date: 10/6/2019 12:15:00 PM

Analyses Result **RL Qual Units** DF **Date Analyzed EPA METHOD 300.0: ANIONS** Analyst: CJS Chloride 1200 60 10/9/2019 9:28:34 PM mg/Kg 20

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

Qualifiers:

Lab ID:

1910367-021

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

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

Page 21 of 27

Lab Order **1910367**

Date Reported: 10/11/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BH19-21 8'

 Project:
 Trebuchet Fee 23 28 19 WXY
 Collection Date: 10/5/2019 3:30:00 PM

 Lab ID:
 1910367-022
 Matrix: SOIL
 Received Date: 10/6/2019 12:15:00 PM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OR	GANICS				Analyst: BRM
Diesel Range Organics (DRO)	ND	8.8	mg/Kg	1	10/9/2019 2:19:12 PM
Motor Oil Range Organics (MRO)	ND	44	mg/Kg	1	10/9/2019 2:19:12 PM
Surr: DNOP	85.5	70-130	%Rec	1	10/9/2019 2:19:12 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	10/8/2019 6:59:51 PM
Surr: BFB	96.8	77.4-118	%Rec	1	10/8/2019 6:59:51 PM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	0.024	mg/Kg	1	10/8/2019 6:59:51 PM
Toluene	ND	0.049	mg/Kg	1	10/8/2019 6:59:51 PM
Ethylbenzene	ND	0.049	mg/Kg	1	10/8/2019 6:59:51 PM
Xylenes, Total	ND	0.098	mg/Kg	1	10/8/2019 6:59:51 PM
Surr: 4-Bromofluorobenzene	93.0	80-120	%Rec	1	10/8/2019 6:59:51 PM
EPA METHOD 300.0: ANIONS					Analyst: CJS
Chloride	450	60	mg/Kg	20	10/9/2019 9:40:58 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
- $ND \qquad Not \ Detected \ at \ the \ Reporting \ Limit$
- PQL Practical Quanitative Limit

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

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910367**

11-Oct-19

Client: Vertex Resource Group Ltd.

Project: Trebuchet Fee 23 28 19 WXY

Sample ID: MB-48035 SampType: mblk TestCode: EPA Method 300.0: Anions

Client ID: PBS Batch ID: 48035 RunNo: 63533

Prep Date: 10/9/2019 Analysis Date: 10/9/2019 SeqNo: 2171599 Units: mg/Kg

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

Chloride ND 1.5

Sample ID: LCS-48035 SampType: Ics TestCode: EPA Method 300.0: Anions

Client ID: **LCSS** Batch ID: **48035** RunNo: **63533**

Prep Date: 10/9/2019 Analysis Date: 10/9/2019 SeqNo: 2171600 Units: mg/Kg

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

Chloride 15 1.5 15.00 0 98.9 90 110

Sample ID: MB-48052 SampType: mblk TestCode: EPA Method 300.0: Anions

Client ID: PBS Batch ID: 48052 RunNo: 63533

Prep Date: 10/9/2019 Analysis Date: 10/9/2019 SeqNo: 2171632 Units: mg/Kg

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

Chloride ND 1.5

Sample ID: LCS-48052 SampType: Ics TestCode: EPA Method 300.0: Anions

Client ID: LCSS Batch ID: 48052 RunNo: 63533

Prep Date: 10/9/2019 Analysis Date: 10/9/2019 SeqNo: 2171633 Units: mg/Kg

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

Chloride 15 1.5 15.00 0 99.6 90 110

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

Page 23 of 27

Client:

Hall Environmental Analysis Laboratory, Inc.

Vertex Resource Group Ltd.

WO#: **1910367**

11-Oct-19

	t Fee 23 28	•								
Sample ID: LCS-47973	SampTyp	e: LCS	S	Tes	tCode: El	PA Method	8015M/D: Die	esel Range	e Organics	
Client ID: LCSS	Batch I	D: 479	73	F	RunNo: 6	3485				
Prep Date: 10/7/2019	Analysis Dat	e: 10 /	/8/2019	S	SeqNo: 2	170017	Units: mg/K	g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO) Surr: DNOP	45 4.9	10	50.00 5.000	0	90.8 98.6	63.9 70	124 130			
Sample ID: MB-47973	SampTyp	e: MB	LK	Tes	tCode: El	PA Method	8015M/D: Die	esel Range	e Organics	
Client ID: PBS	Batch I	D: 479	73	F	RunNo: 6	3485				
Prep Date: 10/7/2019	Analysis Dat	e: 10 /	/8/2019	\$	SeqNo: 2	170018	Units: mg/K	g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO) Motor Oil Range Organics (MRO) Surr: DNOP	ND ND 10	10 50	10.00		105	70	130			
Sample ID: LCS-48012	SampTyp						8015M/D: Die	esel Range	e Organics	
Client ID: LCSS	Batch I				RunNo: 6 :					
Prep Date: 10/8/2019	Analysis Dat	:e: 10 /	/9/2019	٤	SeqNo: 2	170483	Units: mg/K	g		
Analyte				SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO) Surr: DNOP	52 4.6	10	50.00 5.000	0	103 92.1	63.9 70	124 130			
Sample ID: MB-48012	SampTyp	e: MB	LK	Tes	tCode: El	PA Method	8015M/D: Die	esel Range	e Organics	
Client ID: PBS	Batch I	D: 480	12	F	RunNo: 6	3525				
Prep Date: 10/8/2019	Analysis Dat	e: 10 /	/9/2019	S	SeqNo: 2	170486	Units: mg/K	g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO) Surr: DNOP	ND 9.0	50	10.00		90.2	70	130			
Sample ID: 1910367-004AMS	SampTyp	e: MS		Tes	tCode: El	PA Method	8015M/D: Die	esel Range	e Organics	
Client ID: BH19-31 6'	Batch I	D: 480	12	F	RunNo: 6 :	3525				
Prep Date: 10/8/2019	Analysis Dat	te: 10 /	/9/2019	5	SeqNo: 2	170925	Units: mg/K	g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	45	8.7	43.48	0	104	57	142			
Surr: DNOP	4.0		4.348		91.0	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

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910367**

11-Oct-19

Client: Vertex Resource Group Ltd.

Project: Trebuchet Fee 23 28 19 WXY

Sample ID: 1910367-004AMSD SampType: MSD TestCode: EPA Method 8015M/D: Diesel Range Organics

Client ID: **BH19-31 6'** Batch ID: **48012** RunNo: **63525**

Prep Date: 10/8/2019 Analysis Date: 10/9/2019 SeqNo: 2170927 Units: mg/Kg

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qua
Diesel Range Organics (DRO)	44	9.5	47.53	0	93.2	57	142	1.97	20	
Surr: DNOP	3.8		4.753		79.5	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

Page 25 of 27

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910367**

11-Oct-19

Client: Vertex Resource Group Ltd.

Project: Trebuchet Fee 23 28 19 WXY

Sample ID: MB-47976 SampType: MBLK TestCode: EPA Method 8015D: Gasoline Range

Client ID: PBS Batch ID: 47976 RunNo: 63496

Prep Date: 10/7/2019 Analysis Date: 10/8/2019 SeqNo: 2169919 Units: mg/Kg

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

Gasoline Range Organics (GRO) ND 5.0

Surr: BFB 1000 1000 102 77.4 118

Sample ID: LCS-47976 SampType: LCS TestCode: EPA Method 8015D: Gasoline Range

Client ID: LCSS Batch ID: 47976 RunNo: 63496

1100

Prep Date: 10/7/2019 Analysis Date: 10/8/2019 SeqNo: 2169920 Units: mg/Kg

1000

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Gasoline Range Organics (GRO) 26 5.0 25.00 0 102 80 120

114

77.4

118

Qualifiers:

Surr: BFB

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

Page 26 of 27

Hall Environmental Analysis Laboratory, Inc.

WO#: 1910367

11-Oct-19

Client: Vertex Resource Group Ltd. **Project:** Trebuchet Fee 23 28 19 WXY

Sample ID: MB-47976 SampType: MBLK TestCode: EPA Method 8021B: Volatiles Client ID: PBS Batch ID: 47976 RunNo: 63496 Prep Date: 10/7/2019 Analysis Date: 10/8/2019 SeqNo: 2169939 Units: mg/Kg Analyte PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Result Benzene ND 0.025 ND 0.050 ND 0.050

Toluene Ethylbenzene Xylenes, Total ND 0.10

0.98 1.000 98.4 80 120 Surr: 4-Bromofluorobenzene

Sample ID: LCS-47976	s	TestCode: EPA Method 8021B: Volatiles								
Client ID: LCSS Batch ID: 47976 RunNo: 63496										
Prep Date: 10/7/2019	Analysis D	oate: 10)/8/2019	S	SeqNo: 2	169940	Units: mg/K	ίg		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.95	0.025	1.000	0	95.0	80	120			
Toluene	0.99	0.050	1.000	0	99.4	80	120			
Ethylbenzene	0.99	0.050	1.000	0	98.9	80	120			
Xylenes, Total	2.9	0.10	3.000	0	96.8	80	120			
Surr: 4-Bromofluorobenzene	1.0		1.000		102	80	120			

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

Н Holding times for preparation or analysis exceeded

Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

% Recovery outside of range due to dilution or matrix

Analyte detected in the associated Method Blank

Value above quantitation range

Analyte detected below quantitation limits

Sample pH Not In Range

RL Reporting Limit



Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87109 TEL: 505-345-3975 FAX: 505-345-4107

Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: **VERTEX CARLSBAD** Work Order Number: 1910367 RoptNo: 1 una, Received By: Erin Melendrez 10/6/2019 12:15:00 PM una-Completed By: Erin Melendrez 10/6/2019 1:41:21 PM 10/07/19 Reviewed By: Chain of Custody 1. Is Chain of Custody complete? Yes 🗹 No 🗌 Not Present 2. How was the sample delivered? Courier 3. Was an attempt made to cool the samples? No \square Yes 🔽 NA 🗌 No 🗌 NA 🗌 4. Were all samples received at a temperature of >0° C to 6.0°C Yes 🗸 5. Sample(s) in proper container(s)? Yes 🗹 No 🗌 Sufficient sample volume for indicated test(s)? Yes 🔽 No 🗌 7. Are samples (except VOA and ONG) properly preserved? Yes 🔽 No No 🗹 Yes 🗌 8. Was preservative added to bottles? NA 🔲 9. VOA vials have zero headspace? Yes 🗌 No VOA Vials 🗹 No 🗌 Yes 10. Were any sample containers received broken? No 🗹 # of preserved bottles checked for pH: 11. Does paperwork match bottle labels? Yes 🔽 No 🗌 (Note discrepancies on chain of custody) (<2 or >12 unless noted) 12. Are matrices correctly identified on Chain of Custody? Yes 🔽 No 🗌 No 🗆 13. Is it clear what analyses were requested? Yes 🗸 Checked by: DAD 10/4/19 14. Were all holding times able to be met? Yes 🗹 No 🗌 (If no, notify customer for authorization.) 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 4.8 Good Not Present 2 4.0 Good Not Present

	HALL ENVIRONMENTAL ANALYSTS LABODATODY	www.hallenviconmental.com	NE - Albuqueraue, NM 87109		Analysis)S ' [‡]	°Оd	' ^z Ol	N ,	otals 10 ³	Mė r, 1 (AO	8 ARD8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	3 3		X	X	X	X	X	X	X		X				Any sub-contracted data will be clearly notated on the analytical report.
			4901 Hawkins NE	Tel. 505-345-3975			NR(1/0	S80	/ OS	HĐ) ebi:	etpo etpo	108:Hq 3q 1808 M) BQ	3 L X			X	7		1X	2X	X			X	Remarks:		
Turn-Around Time:			8 a	l	J 600-HD002-361	Project Manager:	S WILLIAMS	DWILLIAMS@VERTEX.CA	Sampler: Sher Harvester	¥ Yes □ No	では、「一日の一日の一日の日の日の日の日の日の日の日の日の日の日の日の日の日の日の日の	Cooler Temp(including CF). 4. (6+1), 7. (CF)=4. §. (°C)	2 N O	100- 301	700-	200-	X 500-	F005	J00-	<	< 900-	X	0.04		210-1	Via: Date Time 1	Received by: Via: COURTING Date Time	f necessary, samples sybrifited to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility.
Chain-of-Custody Record	Client: VERTEX		Mailing Address: 213 S M ESA ST	PARLSBAD MM 88220	0 726	PERMIAND @ VERTEX. CA		☐ Standard ☐ Level 4 (Full Validation)	Accreditation: Az Compliance	□ NELAC □ Other	□ EDD (Type)		Date Time Matrix Sample Name	5 01:6	1 9:20 1 8419-31 21	9:30 BH19-31 41		10:15 BH19-28 4'	10:25 BH13-28 6'		11:30 8419-30 81	2 119-32	12:10 8119-32 21	12:20 BH15-52 41	12:30 BH19-32 61	Date: Time: Relifyquished by:	elije	If necessary, samples submitted to Hall Environmental may be subco

HALL ENVIRONMENTAL ANALYSIS LABORATORY	www.hallenvironmental.com	4901 Hawkins NE - Albuquerque, NM 87109	505-345-3975 Fax 505-345-4107	Analysis		SW	NISO Od	(1.1) 07S8 ,sOV	502 3, 01 3, 1	bod Stall	9 8 8 8 8 9 8 9 9 9 9 9 9 9 9 9 9 9 9 9	M) 8 d sH 3 AЯ	ED RC G 826 828	X	×		\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	, ×	X	X	×	×	X				edited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.
		4901	Tel. 5			ЯM	/ 0	7 DR	ОЯ	ອ)(12D	08:H	ΙДΤ	X				X			· 		X		Remarks:		ibility. Any s
9	- 0,				(1	-208	3) S,	amt	/言	.BE	ပ္ပ (၃)	/ X3	IT8	\bowtie				X			_		X		0	\ <u>\</u>	of this possi
Time: 5-dee trravoul	ET FEE 23 281	SX ON		- 000-H000 -	ager:	4113	ms@vertex.ca	1 Hr	प्र Yes ा No			3.8-0, 2(cf.)=4.0 Preservative	Type (410分67	100-013	1 -014	-015	<u> </u>		-018	PI0-	024-	120-	1 1-022		Via: Date Time	Via: COUNTY Date Time 1215	ccredited laboratories. This serves as notice of
Turn-Around Time: β	Project Name: TIZをBッCHをコ		Project #:	361	Project Mana	DENTI	of will rams (l ľ	On Ice:	# of Coolers:	Cooler Temp(including cn):L	Container	Type and #	Jax.	,									•	Received by:	Received by:	ontracted to other a
Ð.		st	:	10	SX.CA		idation)	,						60	, 0	2,	4,	9	,0	<i>2</i> 8	π'	(0)	00		7		may be subc
Chain-of-Custody Record		> Me8a	NR 88220	726 500	PERMIAN QVERTEX.CA Project Manager:		☐ Level 4 (Full Validation)	□ Az Compliance					Sample Name	8H19-33	BH19-20	BH19-20	BH19-20	BH19-20	BW19-21	BH13-21	BH19-21	BH18-21	RH19-21		of pr.	y y y	necessary, samples submitted to Hall Environmental may be subcontracted to other acor
Verzizx		213		575	PER			□ Az Cc	□ Other				Matrix	S						_	_				Relinquished by:	Relinquished by	samples sub
hain.	Address	Midming Audices. 213	juls bad		email or Fax#:	QA/QC Package:	dard	tation:	AC J	(Iype)			Time	13:10	09:1/	14:10	14:20	14:30	06:171	蒸 15.b	5:10	15:20	15.30		Time: 14:30	Time: 0930	f necessary,
Client:	Mailing		Š	Phone #:	email o	QA/QC	□ Standard	Accreditation:	D NELAC	□ EDD (1ype)			Date	1015											Date: 10/5	Date:	_

Hall Environmental Analysis Laboratory, Inc.

Date Reported:

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BH19-39 0'

 Project:
 Trebuchet Fee 23 28 18
 Collection Date: 9/30/2019 10:20:00 AM

 Lab ID:
 1910122-001
 Matrix: SOIL
 Received Date: 10/2/2019 9:30:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OF	RGANICS				Analyst: BRM
Diesel Range Organics (DRO)	27	8.7	mg/Kg	1	10/4/2019 11:59:01 AM
Motor Oil Range Organics (MRO)	120	44	mg/Kg	1	10/4/2019 11:59:01 AM
Surr: DNOP	107	70-130	%Rec	1	10/4/2019 11:59:01 AM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	10/3/2019 2:53:03 PM
Surr: BFB	94.1	77.4-118	%Rec	1	10/3/2019 2:53:03 PM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	0.024	mg/Kg	1	10/3/2019 2:53:03 PM
Toluene	ND	0.049	mg/Kg	1	10/3/2019 2:53:03 PM
Ethylbenzene	ND	0.049	mg/Kg	1	10/3/2019 2:53:03 PM
Xylenes, Total	ND	0.098	mg/Kg	1	10/3/2019 2:53:03 PM
Surr: 4-Bromofluorobenzene	95.0	80-120	%Rec	1	10/3/2019 2:53:03 PM
EPA METHOD 300.0: ANIONS					Analyst: CJS
Chloride	68	60	mg/Kg	20	10/6/2019 7:51:14 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
- $ND \qquad Not \ Detected \ at \ the \ Reporting \ Limit$
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

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

Page 1 of 0

Lab Order **1910122**

Analyst: CAS

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

EPA METHOD 300.0: ANIONS

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BH19-39 2'

 Project:
 Trebuchet Fee 23 28 18
 Collection Date: 9/30/2019 10:30:00 AM

 Lab ID:
 1910122-002
 Matrix: SOIL
 Received Date: 10/2/2019 9:30:00 AM

Analyses Result RL Qual Units DF Date Analyzed

Chloride 1100 59 mg/Kg 20 10/6/2019 9:13:19 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

Page 2 of 0

Lab Order **1910122**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Client Sample ID: BH19-39 4'

Project: Trebuchet Fee 23 28 18 Collection Date: 9/30/2019 10:40:00 AM

Lab ID: 1910122-003 **Matrix:** SOIL **Received Date:** 10/2/2019 9:30:00 AM

Analyses	Result	RL Qua	al Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS					Analyst: CJS
Chloride	2600	150	mg/Kg	50	10/8/2019 7:08:50 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
- $ND \qquad Not \ Detected \ at \ the \ Reporting \ Limit$
- PQL Practical Quanitative Limit
 S Recovery outside of range due to dilution or matrix

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

Page 3 of 0

Hall Environmental Analysis Laboratory, Inc.

Date Reported:

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BH19-39 6'

 Project:
 Trebuchet Fee 23 28 18
 Collection Date: 9/30/2019 10:50:00 AM

 Lab ID:
 1910122-004
 Matrix: SOIL
 Received Date: 10/2/2019 9:30:00 AM

Analyses	Result	RL Qu	ual Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OF	RGANICS				Analyst: BRM
Diesel Range Organics (DRO)	ND	9.4	mg/Kg	1	10/4/2019 1:04:51 PM
Motor Oil Range Organics (MRO)	ND	47	mg/Kg	1	10/4/2019 1:04:51 PM
Surr: DNOP	100	70-130	%Rec	1	10/4/2019 1:04:51 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.7	mg/Kg	1	10/3/2019 4:01:30 PM
Surr: BFB	92.9	77.4-118	%Rec	1	10/3/2019 4:01:30 PM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	0.023	mg/Kg	1	10/3/2019 4:01:30 PM
Toluene	ND	0.047	mg/Kg	1	10/3/2019 4:01:30 PM
Ethylbenzene	ND	0.047	mg/Kg	1	10/3/2019 4:01:30 PM
Xylenes, Total	ND	0.094	mg/Kg	1	10/3/2019 4:01:30 PM
Surr: 4-Bromofluorobenzene	94.4	80-120	%Rec	1	10/3/2019 4:01:30 PM
EPA METHOD 300.0: ANIONS					Analyst: CJS
Chloride	950	60	mg/Kg	20	10/6/2019 8:28:16 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
- $ND \qquad Not \ Detected \ at \ the \ Reporting \ Limit$
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

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

Page 4 of 0

Hall Environmental Analysis Laboratory, Inc.

Date Reported:

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BH19-33 0'

 Project:
 Trebuchet Fee 23 28 18
 Collection Date: 9/30/2019 10:12:00 AM

 Lab ID:
 1910122-005
 Matrix: SOIL
 Received Date: 10/2/2019 9:30:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE	ORGANICS				Analyst: BRM
Diesel Range Organics (DRO)	ND	9.6	mg/Kg	1	10/4/2019 1:26:49 PM
Motor Oil Range Organics (MRO)	ND	48	mg/Kg	1	10/4/2019 1:26:49 PM
Surr: DNOP	103	70-130	%Rec	1	10/4/2019 1:26:49 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.0	mg/Kg	1	10/3/2019 5:09:48 PM
Surr: BFB	93.7	77.4-118	%Rec	1	10/3/2019 5:09:48 PM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	0.025	mg/Kg	1	10/3/2019 5:09:48 PM
Toluene	ND	0.050	mg/Kg	1	10/3/2019 5:09:48 PM
Ethylbenzene	ND	0.050	mg/Kg	1	10/3/2019 5:09:48 PM
Xylenes, Total	ND	0.10	mg/Kg	1	10/3/2019 5:09:48 PM
Surr: 4-Bromofluorobenzene	93.7	80-120	%Rec	1	10/3/2019 5:09:48 PM
EPA METHOD 300.0: ANIONS					Analyst: CJS
Chloride	540	59	mg/Kg	20	10/6/2019 8:40:36 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
- $ND \qquad Not \ Detected \ at \ the \ Reporting \ Limit$
- 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

Lab Order **1910122**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BH19-33 2'

 Project:
 Trebuchet Fee 23 28 18
 Collection Date: 9/30/2019 10:22:00 AM

 Lab ID:
 1910122-006
 Matrix: SOIL
 Received Date: 10/2/2019 9:30:00 AM

Analyses Result RL Qual Units DF Date Analyzed

EPA METHOD 300.0: ANIONS

Analyses CJS

Chloride 5300 300 mg/Kg 100 10/8/2019 7:21:14 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

Page 6 of 0

Lab Order **1910122**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BH19-33 4'

 Project:
 Trebuchet Fee 23 28 18
 Collection Date: 9/30/2019 10:32:00 AM

 Lab ID:
 1910122-007
 Matrix: SOIL
 Received Date: 10/2/2019 9:30:00 AM

 Analyses
 Result
 RL
 Qual
 Units
 DF
 Date Analyzed

 EPA METHOD 300.0: ANIONS
 Analyst: CAS

 Chloride
 2300
 60
 mg/Kg
 20
 10/6/2019 11:05:02 PM

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

Qualifiers:

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

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

Page 7 of 0

Lab Order **1910122**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Client Sample ID: BH19-33 6'

 Project:
 Trebuchet Fee 23 28 18
 Collection Date: 9/30/2019 10:52:00 AM

 In the contract of the con

Lab ID: 1910122-008 **Matrix:** SOIL **Received Date:** 10/2/2019 9:30:00 AM

 Analyses
 Result
 RL
 Qual
 Units
 DF
 Date Analyzed

 EPA METHOD 300.0: ANIONS
 Analyst: CAS

 Chloride
 1700
 60
 mg/Kg
 20
 10/6/2019 11:17:26 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

Page 8 of 0

Hall Environmental Analysis Laboratory, Inc.

Date Reported:

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BH19-38 0'

 Project:
 Trebuchet Fee 23 28 18
 Collection Date: 9/30/2019 12:00:00 PM

 Lab ID:
 1910122-009
 Matrix: SOIL
 Received Date: 10/2/2019 9:30:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE O	ORGANICS				Analyst: BRM
Diesel Range Organics (DRO)	35	9.5	mg/Kg	1	10/4/2019 1:48:52 PM
Motor Oil Range Organics (MRO)	57	47	mg/Kg	1	10/4/2019 1:48:52 PM
Surr: DNOP	106	70-130	%Rec	1	10/4/2019 1:48:52 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	10/3/2019 5:32:36 PM
Surr: BFB	95.5	77.4-118	%Rec	1	10/3/2019 5:32:36 PM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	0.024	mg/Kg	1	10/3/2019 5:32:36 PM
Toluene	ND	0.048	mg/Kg	1	10/3/2019 5:32:36 PM
Ethylbenzene	ND	0.048	mg/Kg	1	10/3/2019 5:32:36 PM
Xylenes, Total	ND	0.096	mg/Kg	1	10/3/2019 5:32:36 PM
Surr: 4-Bromofluorobenzene	95.4	80-120	%Rec	1	10/3/2019 5:32:36 PM
EPA METHOD 300.0: ANIONS					Analyst: CJS
Chloride	ND	60	mg/Kg	20	10/6/2019 8:52:56 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
- $ND \qquad Not \ Detected \ at \ the \ Reporting \ Limit$
- 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

Lab Order **1910122**

Hall Environmental Analysis Laboratory, Inc.

Date Reported:

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BH19-38 2'

 Project:
 Trebuchet Fee 23 28 18
 Collection Date: 9/30/2019 12:10:00 PM

 Lab ID:
 1910122-010
 Matrix: SOIL
 Received Date: 10/2/2019 9:30:00 AM

 Analyses
 Result
 RL Qual Units
 DF
 Date Analyzed

 EPA METHOD 300.0: ANIONS
 Analyst: CAS

 Chloride
 620
 60
 mg/Kg
 20
 10/6/2019 11:29:50 PM

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

Qualifiers:

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

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

Page 10 of 0

Lab Order **1910122**

Hall Environmental Analysis Laboratory, Inc.

Date Reported:

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BH19-38 4'

 Project:
 Trebuchet Fee 23 28 18
 Collection Date: 9/30/2019 12:20:00 PM

 Lab ID:
 1910122-011
 Matrix: SOIL
 Received Date: 10/2/2019 9:30:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS					Analyst: CJS
Chloride	2900	150	mg/Kg	50	10/8/2019 7:33:39 PM

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

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

Page 11 of 0

Lab Order 1910122

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BH19-38 6'

Project: Trebuchet Fee 23 28 18 **Collection Date:** 9/30/2019 12:30:00 PM

Lab ID: 1910122-012 **Matrix:** SOIL **Received Date:** 10/2/2019 9:30:00 AM

Analyses	Result	RL Qua	al Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS					Analyst: CAS
Chloride	1800	60	mg/Kg	20	10/7/2019 12:19:30 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
- $ND \qquad Not \ Detected \ at \ the \ Reporting \ Limit$
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

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

Page 12 of 0

Date Reported:

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BH19-38 8'

 Project:
 Trebuchet Fee 23 28 18
 Collection Date: 9/30/2019 12:50:00 PM

 Lab ID:
 1910122-013
 Matrix: SOIL
 Received Date: 10/2/2019 9:30:00 AM

Analyses	Result	RL Qu	ial Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE C	RGANICS				Analyst: BRM
Diesel Range Organics (DRO)	ND	9.5	mg/Kg	1	10/4/2019 2:55:57 PM
Motor Oil Range Organics (MRO)	ND	48	mg/Kg	1	10/4/2019 2:55:57 PM
Surr: DNOP	102	70-130	%Rec	1	10/4/2019 2:55:57 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	10/3/2019 5:55:22 PM
Surr: BFB	96.8	77.4-118	%Rec	1	10/3/2019 5:55:22 PM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	0.025	mg/Kg	1	10/3/2019 5:55:22 PM
Toluene	ND	0.049	mg/Kg	1	10/3/2019 5:55:22 PM
Ethylbenzene	ND	0.049	mg/Kg	1	10/3/2019 5:55:22 PM
Xylenes, Total	ND	0.098	mg/Kg	1	10/3/2019 5:55:22 PM
Surr: 4-Bromofluorobenzene	96.3	80-120	%Rec	1	10/3/2019 5:55:22 PM
EPA METHOD 300.0: ANIONS					Analyst: CJS
Chloride	570	60	mg/Kg	20	10/6/2019 9:29:57 PM

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

Qualifiers:

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

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

Page 13 of 0

Date Reported:

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BH19-37 0'

 Project:
 Trebuchet Fee 23 28 18
 Collection Date: 9/30/2019 1:30:00 PM

 Lab ID:
 1910122-014
 Matrix: SOIL
 Received Date: 10/2/2019 9:30:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGA	ANICS				Analyst: BRM
Diesel Range Organics (DRO)	45	9.2	mg/Kg	1	10/4/2019 3:17:57 PM
Motor Oil Range Organics (MRO)	110	46	mg/Kg	1	10/4/2019 3:17:57 PM
Surr: DNOP	107	70-130	%Rec	1	10/4/2019 3:17:57 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	10/3/2019 6:18:03 PM
Surr: BFB	94.4	77.4-118	%Rec	1	10/3/2019 6:18:03 PM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	0.024	mg/Kg	1	10/3/2019 6:18:03 PM
Toluene	ND	0.048	mg/Kg	1	10/3/2019 6:18:03 PM
Ethylbenzene	ND	0.048	mg/Kg	1	10/3/2019 6:18:03 PM
Xylenes, Total	ND	0.097	mg/Kg	1	10/3/2019 6:18:03 PM
Surr: 4-Bromofluorobenzene	93.0	80-120	%Rec	1	10/3/2019 6:18:03 PM
EPA METHOD 300.0: ANIONS					Analyst: CJS
Chloride	140	60	mg/Kg	20	10/6/2019 9:42:17 PM

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

Qualifiers:

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

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

Page 14 of 0

Lab Order **1910122**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Client Sample ID: BH19-37 2'

Project: Trebuchet Fee 23 28 18 Collection Date: 9/30/2019 1:40:00 PM

Lab ID: 1910122-015 **Matrix:** SOIL **Received Date:** 10/2/2019 9:30:00 AM

Analyses	Result	RL Qua	al Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS					Analyst: CAS
Chloride	310	61	mg/Kg	20	10/7/2019 12:31:54 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
- $ND \qquad Not \ Detected \ at \ the \ Reporting \ Limit$
- 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
- Sample pH Not In Range
- RL Reporting Limit

Page 15 of 0

Lab Order 1910122

Hall Environmental Analysis Laboratory, Inc.

Date Reported:

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BH19-37 4'

 Project:
 Trebuchet Fee 23 28 18
 Collection Date: 9/30/2019 1:50:00 PM

 Lab ID:
 1910122-016
 Matrix: SOIL
 Received Date: 10/2/2019 9:30:00 AM

 Analyses
 Result
 RL Qual Units
 DF
 Date Analyzed

 EPA METHOD 300.0: ANIONS
 Analyst: CAS

 Chloride
 2300
 60
 mg/Kg
 20
 10/6/2019 10:15:23 PM

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

Qualifiers:

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

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

Page 16 of 0

Lab Order 1910122

Hall Environmental Analysis Laboratory, Inc.

Date Reported:

50

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BH19-37 6'

Project: Trebuchet Fee 23 28 18 **Collection Date:** 9/30/2019 2:00:00 PM Lab ID: 1910122-017 Matrix: SOIL Received Date: 10/2/2019 9:30:00 AM

Result **Analyses RL Qual Units** DF **Date Analyzed EPA METHOD 300.0: ANIONS** Analyst: CJS Chloride 3700 150 mg/Kg 10/8/2019 7:46:04 PM

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

Qualifiers:

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

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

Page 17 of 0

Date Reported:

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BH19-37 8'

 Project:
 Trebuchet Fee 23 28 18
 Collection Date: 9/30/2019 2:20:00 PM

 Lab ID:
 1910122-018
 Matrix: SOIL
 Received Date: 10/2/2019 9:30:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE C	RGANICS				Analyst: BRM
Diesel Range Organics (DRO)	ND	9.8	mg/Kg	1	10/4/2019 3:40:08 PM
Motor Oil Range Organics (MRO)	ND	49	mg/Kg	1	10/4/2019 3:40:08 PM
Surr: DNOP	102	70-130	%Rec	1	10/4/2019 3:40:08 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	10/3/2019 7:49:08 PM
Surr: BFB	97.7	77.4-118	%Rec	1	10/3/2019 7:49:08 PM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	0.024	mg/Kg	1	10/3/2019 7:49:08 PM
Toluene	ND	0.048	mg/Kg	1	10/3/2019 7:49:08 PM
Ethylbenzene	ND	0.048	mg/Kg	1	10/3/2019 7:49:08 PM
Xylenes, Total	ND	0.097	mg/Kg	1	10/3/2019 7:49:08 PM
Surr: 4-Bromofluorobenzene	97.7	80-120	%Rec	1	10/3/2019 7:49:08 PM
EPA METHOD 300.0: ANIONS					Analyst: CJS
Chloride	490	61	mg/Kg	20	10/6/2019 10:19:19 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
- $ND \qquad Not \ Detected \ at \ the \ Reporting \ Limit$
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

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

Page 18 of 0

Date Reported:

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BH19-30 0'

 Project:
 Trebuchet Fee 23 28 18
 Collection Date: 9/30/2019 1:10:00 PM

 Lab ID:
 1910122-019
 Matrix: SOIL
 Received Date: 10/2/2019 9:30:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE C	ORGANICS				Analyst: BRM
Diesel Range Organics (DRO)	ND	9.4	mg/Kg	1	10/4/2019 4:02:10 PM
Motor Oil Range Organics (MRO)	ND	47	mg/Kg	1	10/4/2019 4:02:10 PM
Surr: DNOP	89.9	70-130	%Rec	1	10/4/2019 4:02:10 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.7	mg/Kg	1	10/3/2019 8:11:52 PM
Surr: BFB	98.9	77.4-118	%Rec	1	10/3/2019 8:11:52 PM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	0.023	mg/Kg	1	10/3/2019 8:11:52 PM
Toluene	ND	0.047	mg/Kg	1	10/3/2019 8:11:52 PM
Ethylbenzene	ND	0.047	mg/Kg	1	10/3/2019 8:11:52 PM
Xylenes, Total	ND	0.093	mg/Kg	1	10/3/2019 8:11:52 PM
Surr: 4-Bromofluorobenzene	98.5	80-120	%Rec	1	10/3/2019 8:11:52 PM
EPA METHOD 300.0: ANIONS					Analyst: CJS
Chloride	500	60	mg/Kg	20	10/6/2019 10:31:39 PM

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

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

Page 19 of 0

Lab Order **1910122**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Client Sample ID: BH19-30 2'

 Project:
 Trebuchet Fee 23 28 18
 Collection Date: 9/30/2019 1:20:00 PM

 Lab ID:
 1910122-020
 Matrix: SOIL
 Received Date: 10/2/2019 9:30:00 AM

 Analyses
 Result
 RL Qual Units
 DF
 Date Analyzed

 EPA METHOD 300.0: ANIONS
 Analyst: CJS

 Chloride
 4300
 150
 mg/Kg
 50
 10/8/2019 7:58:28 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

Page 20 of 0

Lab Order **1910122**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BH19-30 4'

Project: Trebuchet Fee 23 28 18 **Collection Date:** 9/30/2019 1:30:00 PM

Lab ID: 1910122-021 **Matrix:** SOIL **Received Date:** 10/2/2019 9:30:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS					Analyst: CJS
Chloride	3600	150	mg/Kg	50	10/8/2019 8:10:54 PM

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

Qualifiers:

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

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

Page 21 of 0

Lab Order **1910122**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BH19-30 6'

Project: Trebuchet Fee 23 28 18 **Collection Date:** 9/30/2019 1:40:00 PM

Lab ID: 1910122-022 **Matrix:** SOIL **Received Date:** 10/2/2019 9:30:00 AM

Analyses	Result	RL Qua	ıl Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS					Analyst: CJS
Chloride	980	60	mg/Kg	20	10/5/2019 12:31:36 AM

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

Qualifiers:

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

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

Page 22 of 0

Date Reported:

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BH19-28 0'

 Project:
 Trebuchet Fee 23 28 18
 Collection Date: 9/30/2019 3:00:00 PM

 Lab ID:
 1910122-023
 Matrix: SOIL
 Received Date: 10/2/2019 9:30:00 AM

Analyses	Result	RL Qu	ual Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE C	RGANICS				Analyst: BRM
Diesel Range Organics (DRO)	ND	9.2	mg/Kg	1	10/4/2019 4:24:13 PM
Motor Oil Range Organics (MRO)	ND	46	mg/Kg	1	10/4/2019 4:24:13 PM
Surr: DNOP	110	70-130	%Rec	1	10/4/2019 4:24:13 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	10/3/2019 8:34:40 PM
Surr: BFB	93.8	77.4-118	%Rec	1	10/3/2019 8:34:40 PM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	0.025	mg/Kg	1	10/3/2019 8:34:40 PM
Toluene	ND	0.049	mg/Kg	1	10/3/2019 8:34:40 PM
Ethylbenzene	ND	0.049	mg/Kg	1	10/3/2019 8:34:40 PM
Xylenes, Total	ND	0.099	mg/Kg	1	10/3/2019 8:34:40 PM
Surr: 4-Bromofluorobenzene	92.0	80-120	%Rec	1	10/3/2019 8:34:40 PM
EPA METHOD 300.0: ANIONS					Analyst: CJS
Chloride	2400	150	mg/Kg	50	10/8/2019 8:23:18 PM

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

Qualifiers:

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

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

Page 23 of 0

Lab Order **1910122**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Client Sample ID: BH19-28 2'

Project: Trebuchet Fee 23 28 18 **Collection Date:** 9/30/2019 3:20:00 PM

Lab ID: 1910122-024 **Matrix:** SOIL **Received Date:** 10/2/2019 9:30:00 AM

Analyses	Result	RL Qua	al Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS					Analyst: CJS
Chloride	2700	150	mg/Kg	50	10/8/2019 8:35:43 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
- $ND \qquad Not \ Detected \ at \ the \ Reporting \ Limit$
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

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

Page 24 of 0

Date Reported:

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BH19-25 0'

 Project:
 Trebuchet Fee 23 28 18
 Collection Date: 9/27/2019 11:20:00 AM

 Lab ID:
 1910122-025
 Matrix: SOIL
 Received Date: 10/2/2019 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OF	RGANICS					Analyst: BRM
Diesel Range Organics (DRO)	12	9.9		mg/Kg	1	10/4/2019 4:46:21 PM
Motor Oil Range Organics (MRO)	63	50		mg/Kg	1	10/4/2019 4:46:21 PM
Surr: DNOP	131	70-130	S	%Rec	1	10/4/2019 4:46:21 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	10/3/2019 8:57:30 PM
Surr: BFB	93.9	77.4-118		%Rec	1	10/3/2019 8:57:30 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.025		mg/Kg	1	10/3/2019 8:57:30 PM
Toluene	ND	0.050		mg/Kg	1	10/3/2019 8:57:30 PM
Ethylbenzene	ND	0.050		mg/Kg	1	10/3/2019 8:57:30 PM
Xylenes, Total	ND	0.10		mg/Kg	1	10/3/2019 8:57:30 PM
Surr: 4-Bromofluorobenzene	92.0	80-120		%Rec	1	10/3/2019 8:57:30 PM
EPA METHOD 300.0: ANIONS						Analyst: CJS
Chloride	830	60		mg/Kg	20	10/6/2019 10:56:20 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
- $ND \qquad Not \ Detected \ at \ the \ Reporting \ Limit$
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

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

Page 25 of 0

Lab Order **1910122**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Client Sample ID: BH19-25 2'

 Project:
 Trebuchet Fee 23 28 18
 Collection Date: 9/27/2019 11:21:00 AM

 Lab ID:
 1910122-026
 Matrix: SOIL
 Received Date: 10/2/2019 9:30:00 AM

 Analyses
 Result
 RL
 Qual
 Units
 DF
 Date Analyzed

 EPA METHOD 300.0: ANIONS
 Analyst: CJS

 Chloride
 4100
 150
 mg/Kg
 50
 10/8/2019 9:12:58 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
- Sample pH Not In Range
- RL Reporting Limit

Page 26 of 0

Lab Order **1910122**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BH19-25 4'

Project: Trebuchet Fee 23 28 18 **Collection Date:** 9/27/2019 2:16:00 PM

Lab ID: 1910122-027 **Matrix:** SOIL **Received Date:** 10/2/2019 9:30:00 AM

Analyses	Result	RL Qua	al Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS					Analyst: CJS
Chloride	1500	60	mg/Kg	20	10/5/2019 1:58:02 AM

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

Qualifiers:

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

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

Page 27 of 0

Lab Order 1910122

Hall Environmental Analysis Laboratory, Inc.

Date Reported:

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BH19-25 6'

Project: Trebuchet Fee 23 28 18 **Collection Date:** 9/27/2019 2:30:00 PM Lab ID: 1910122-028 Matrix: SOIL Received Date: 10/2/2019 9:30:00 AM

Analyses Result **RL Qual Units** DF **Date Analyzed EPA METHOD 300.0: ANIONS** Analyst: CJS Chloride 1100 59 mg/Kg 10/5/2019 2:35:04 AM 20

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

Qualifiers:

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

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

Page 28 of 0

Date Reported:

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BH19-25 8'

 Project:
 Trebuchet Fee 23 28 18
 Collection Date: 9/27/2019 2:45:00 PM

 Lab ID:
 1910122-029
 Matrix: SOIL
 Received Date: 10/2/2019 9:30:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORG	ANICS				Analyst: BRM
Diesel Range Organics (DRO)	ND	9.4	mg/Kg	1	10/4/2019 5:30:30 PM
Motor Oil Range Organics (MRO)	ND	47	mg/Kg	1	10/4/2019 5:30:30 PM
Surr: DNOP	102	70-130	%Rec	1	10/4/2019 5:30:30 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.7	mg/Kg	1	10/3/2019 9:20:21 PM
Surr: BFB	93.9	77.4-118	%Rec	1	10/3/2019 9:20:21 PM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	0.023	mg/Kg	1	10/3/2019 9:20:21 PM
Toluene	ND	0.047	mg/Kg	1	10/3/2019 9:20:21 PM
Ethylbenzene	ND	0.047	mg/Kg	1	10/3/2019 9:20:21 PM
Xylenes, Total	ND	0.094	mg/Kg	1	10/3/2019 9:20:21 PM
Surr: 4-Bromofluorobenzene	92.6	80-120	%Rec	1	10/3/2019 9:20:21 PM
EPA METHOD 300.0: ANIONS					Analyst: CJS
Chloride	950	60	mg/Kg	20	10/6/2019 11:08:40 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
- $ND \qquad Not \ Detected \ at \ the \ Reporting \ Limit$
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

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

Page 29 of 0

Lab Order **1910122**

Hall Environmental Analysis Laboratory, Inc.

Date Reported:

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BH19-23 0'

 Project:
 Trebuchet Fee 23 28 18
 Collection Date: 9/27/2019 3:00:00 PM

 Lab ID:
 1910122-030
 Matrix: SOIL
 Received Date: 10/2/2019 9:30:00 AM

 Analyses
 Result
 RL Qual Units
 DF
 Date Analyzed

 EPA METHOD 300.0: ANIONS
 Analyst: CJS

 Chloride
 31000
 1500
 mg/Kg
 500
 10/8/2019 9:25:22 PM

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

Qualifiers:

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

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

Page 30 of 0

Lab Order **1910122**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BH19-23 2'

Project: Trebuchet Fee 23 28 18 **Collection Date:** 9/27/2019 3:15:00 PM

Lab ID: 1910122-031 **Matrix:** SOIL **Received Date:** 10/2/2019 9:30:00 AM

Analyses	Result	RL Qua	al Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS					Analyst: CJS
Chloride	4600	150	mg/Kg	50	10/8/2019 9:37:47 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
- $ND \qquad Not \ Detected \ at \ the \ Reporting \ Limit$
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

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

Page 31 of 0

Lab Order **1910122**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BH19-23 4'

Project: Trebuchet Fee 23 28 18 **Collection Date:** 9/27/2019 3:30:00 PM

Lab ID: 1910122-032 **Matrix:** SOIL **Received Date:** 10/2/2019 9:30:00 AM

Analyses	Result	RL Qua	al Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS					Analyst: CJS
Chloride	3400	150	mg/Kg	50	10/8/2019 9:50:12 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
- $ND \qquad Not \ Detected \ at \ the \ Reporting \ Limit$
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

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

Page 32 of 0

Date Reported:

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BH19-23 6'

 Project:
 Trebuchet Fee 23 28 18
 Collection Date: 9/27/2019 3:35:00 PM

 Lab ID:
 1910122-033
 Matrix: SOIL
 Received Date: 10/2/2019 9:30:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OR	RGANICS				Analyst: BRM
Diesel Range Organics (DRO)	ND	8.6	mg/Kg	1	10/4/2019 5:52:34 PM
Motor Oil Range Organics (MRO)	ND	43	mg/Kg	1	10/4/2019 5:52:34 PM
Surr: DNOP	103	70-130	%Rec	1	10/4/2019 5:52:34 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	10/3/2019 9:43:13 PM
Surr: BFB	94.3	77.4-118	%Rec	1	10/3/2019 9:43:13 PM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	0.024	mg/Kg	1	10/3/2019 9:43:13 PM
Toluene	ND	0.048	mg/Kg	1	10/3/2019 9:43:13 PM
Ethylbenzene	ND	0.048	mg/Kg	1	10/3/2019 9:43:13 PM
Xylenes, Total	ND	0.095	mg/Kg	1	10/3/2019 9:43:13 PM
Surr: 4-Bromofluorobenzene	92.5	80-120	%Rec	1	10/3/2019 9:43:13 PM
EPA METHOD 300.0: ANIONS					Analyst: CJS
Chloride	540	59	mg/Kg	20	10/6/2019 11:21:00 PM

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

Qualifiers:

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

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

Page 33 of 0

Lab Order **1910122**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BH19-22 0'

Project: Trebuchet Fee 23 28 18 **Collection Date:** 9/27/2019 4:00:00 PM

Lab ID: 1910122-034 **Matrix:** SOIL **Received Date:** 10/2/2019 9:30:00 AM

 Analyses
 Result
 RL
 Qual
 Units
 DF
 Date Analyzed

 EPA METHOD 300.0: ANIONS
 Analyst: CJS

 Chloride
 40000
 3000
 mg/Kg
 1000
 10/8/2019 10:02:36 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

Page 34 of 0

Lab Order 1910122

Hall Environmental Analysis Laboratory, Inc.

Date Reported:

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BH19-22 2'

 Project:
 Trebuchet Fee 23 28 18
 Collection Date: 9/27/2019 4:10:00 PM

 Lab ID:
 1910122-035
 Matrix: SOIL
 Received Date: 10/2/2019 9:30:00 AM

 Analyses
 Result
 RL Qual Units
 DF
 Date Analyzed

 EPA METHOD 300.0: ANIONS
 Analyst: CJS

 Chloride
 1800
 60
 mg/Kg
 20
 10/5/2019 4:01:27 AM

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

Qualifiers:

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

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

Page 35 of 0

Lab Order **1910122**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: BH19-22 4'

Project: Trebuchet Fee 23 28 18

CLIENT: Vertex Resource Group Ltd.

Collection Date: 9/27/2019 4:20:00 PM

Lab ID: 1910122-036

Matrix: SOIL Recei

Received Date: 10/2/2019 9:30:00 AM

Analyses	Result	RL Qua	al Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS					Analyst: CJS
Chloride	1700	60	mg/Kg	20	10/5/2019 4:13:48 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
- $ND \qquad Not \ Detected \ at \ the \ Reporting \ Limit$
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

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

Page 36 of 0

Lab Order **1910122**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: BH19-22 6'

Project: Trebuchet Fee 23 28 18

CLIENT: Vertex Resource Group Ltd.

1910122-037

Lab ID:

Collection Date: 9/27/2019 4:30:00 PM **Received Date:** 10/2/2019 9:30:00 AM

 Analyses
 Result
 RL Qual Units
 DF
 Date Analyzed

 EPA METHOD 300.0: ANIONS
 Analyst: CJS

 Chloride
 2000
 61
 mg/Kg
 20
 10/5/2019 4:26:10 AM

Matrix: SOIL

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

Qualifiers:

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

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

Page 37 of 0

Lab Order 1910122

Hall Environmental Analysis Laboratory, Inc.

Date Reported:

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BH19-22 8'

 Project:
 Trebuchet Fee 23 28 18
 Collection Date: 9/27/2019 4:40:00 PM

 Lab ID:
 1910122-038
 Matrix: SOIL
 Received Date: 10/2/2019 9:30:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS					Analyst: CJS
Chloride	1800	60	mg/Kg	20	10/5/2019 4:38:30 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
- $ND \qquad Not \ Detected \ at \ the \ Reporting \ Limit$
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

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

Page 38 of 0

Date Reported:

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BH19-22 10'

Project: Trebuchet Fee 23 28 18 **Collection Date:** 9/27/2019 5:00:00 PM

Lab ID: 1910122-039 Matrix: SOIL Received Date: 10/2/2019 9:30:00 AM

Analyses Result RL Qual Units DF Date Analyzed

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORG	SANICS				Analyst: BRM
Diesel Range Organics (DRO)	ND	9.9	mg/Kg	1	10/4/2019 11:31:58 AM
Motor Oil Range Organics (MRO)	ND	50	mg/Kg	1	10/4/2019 11:31:58 AM
Surr: DNOP	108	70-130	%Rec	1	10/4/2019 11:31:58 AM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	10/3/2019 10:06:09 PM
Surr: BFB	95.1	77.4-118	%Rec	1	10/3/2019 10:06:09 PM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	0.024	mg/Kg	1	10/3/2019 10:06:09 PM
Toluene	ND	0.048	mg/Kg	1	10/3/2019 10:06:09 PM
Ethylbenzene	ND	0.048	mg/Kg	1	10/3/2019 10:06:09 PM
Xylenes, Total	ND	0.097	mg/Kg	1	10/3/2019 10:06:09 PM
Surr: 4-Bromofluorobenzene	92.7	80-120	%Rec	1	10/3/2019 10:06:09 PM
EPA METHOD 300.0: ANIONS					Analyst: CJS
Chloride	1700	60	mg/Kg	20	10/6/2019 11:33:21 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
- $ND \qquad Not \ Detected \ at \ the \ Reporting \ Limit$
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

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

Page 39 of 0



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

October 09, 2019

Dennis Williams Vertex Resource Group Ltd. 213 S. Mesa St Carlsbad, NM 88220 TEL: FAX

RE: Trebuchet 23 28 19 OrderNo.: 1910129

Dear Dennis Williams:

Hall Environmental Analysis Laboratory received 32 sample(s) on 10/2/2019 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman

Laboratory Manager

andyl

4901 Hawkins NE

Albuquerque, NM 87109

Analytical ReportLab Order **1910129**

Hall Environmental Analysis Laboratory, Inc. Date Reported: 10/9/2019

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BH19-24 0'

 Project:
 Trebuchet 23 28 19
 Collection Date: 9/28/2019 8:25:00 AM

 Lab ID:
 1910129-001
 Matrix: SOIL
 Received Date: 10/2/2019 9:30:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORG	ANICS				Analyst: BRM
Diesel Range Organics (DRO)	ND	9.8	mg/Kg	1	10/4/2019 11:55:54 AM
Motor Oil Range Organics (MRO)	ND	49	mg/Kg	1	10/4/2019 11:55:54 AM
Surr: DNOP	107	70-130	%Rec	1	10/4/2019 11:55:54 AM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	10/3/2019 10:52:32 PM
Surr: BFB	105	77.4-118	%Rec	1	10/3/2019 10:52:32 PM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	0.025	mg/Kg	1	10/3/2019 10:52:32 PM
Toluene	ND	0.049	mg/Kg	1	10/3/2019 10:52:32 PM
Ethylbenzene	ND	0.049	mg/Kg	1	10/3/2019 10:52:32 PM
Xylenes, Total	ND	0.098	mg/Kg	1	10/3/2019 10:52:32 PM
Surr: 4-Bromofluorobenzene	101	80-120	%Rec	1	10/3/2019 10:52:32 PM
EPA METHOD 300.0: ANIONS					Analyst: SRM
Chloride	14000	600	mg/Kg	200	10/8/2019 1:23:08 AM

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- $ND \qquad Not \ Detected \ at \ the \ Reporting \ Limit$
- PQL Practical Quanitative Limit

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

Page 1 of 37

Lab Order 1910129

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 10/9/2019

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BH19-24 2'

 Project:
 Trebuchet 23 28 19
 Collection Date: 9/28/2019 8:40:00 AM

 Lab ID:
 1910129-002
 Matrix: SOIL
 Received Date: 10/2/2019 9:30:00 AM

 Analyses
 Result
 RL Qual Units
 DF
 Date Analyzed

 EPA METHOD 300.0: ANIONS
 Analyst: SRM

 Chloride
 4700
 150
 mg/Kg
 50
 10/8/2019 1:35:33 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
- $ND \qquad Not \ Detected \ at \ the \ Reporting \ Limit$
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

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

Page 2 of 37

Lab Order **1910129**

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 10/9/2019

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BH19-24 4'

 Project:
 Trebuchet 23 28 19
 Collection Date: 9/28/2019 8:55:00 AM

 Lab ID:
 1910129-003
 Matrix: SOIL
 Received Date: 10/2/2019 9:30:00 AM

 Analyses
 Result
 RL Qual Units
 DF
 Date Analyzed

 EPA METHOD 300.0: ANIONS
 Analyst: CJS

 Chloride
 840
 61
 mg/Kg
 20
 10/7/2019 12:10:23 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
- $ND \qquad Not \ Detected \ at \ the \ Reporting \ Limit$
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

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

Page 3 of 37

Analytical ReportLab Order **1910129**

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 10/9/2019

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BH19-24 8'

 Project:
 Trebuchet 23 28 19
 Collection Date: 9/28/2019 10:04:00 AM

 Lab ID:
 1910129-004
 Matrix: SOIL
 Received Date: 10/2/2019 9:30:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORG	ANICS				Analyst: BRM
Diesel Range Organics (DRO)	ND	8.9	mg/Kg	1	10/4/2019 12:19:57 PM
Motor Oil Range Organics (MRO)	ND	44	mg/Kg	1	10/4/2019 12:19:57 PM
Surr: DNOP	96.8	70-130	%Rec	1	10/4/2019 12:19:57 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	10/3/2019 11:15:34 PM
Surr: BFB	102	77.4-118	%Rec	1	10/3/2019 11:15:34 PM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	0.024	mg/Kg	1	10/3/2019 11:15:34 PM
Toluene	ND	0.048	mg/Kg	1	10/3/2019 11:15:34 PM
Ethylbenzene	ND	0.048	mg/Kg	1	10/3/2019 11:15:34 PM
Xylenes, Total	ND	0.097	mg/Kg	1	10/3/2019 11:15:34 PM
Surr: 4-Bromofluorobenzene	96.9	80-120	%Rec	1	10/3/2019 11:15:34 PM
EPA METHOD 300.0: ANIONS					Analyst: CJS
Chloride	460	60	mg/Kg	20	10/7/2019 12:47:24 AM

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

Qualifiers:

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

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

Page 4 of 37

Analytical ReportLab Order **1910129**

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 10/9/2019

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BH19-26 0'

 Project:
 Trebuchet 23 28 19
 Collection Date: 9/28/2019 10:21:00 AM

 Lab ID:
 1910129-005
 Matrix: SOIL
 Received Date: 10/2/2019 9:30:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORG	GANICS				Analyst: BRM
Diesel Range Organics (DRO)	ND	9.4	mg/Kg	1	10/4/2019 12:43:50 PM
Motor Oil Range Organics (MRO)	ND	47	mg/Kg	1	10/4/2019 12:43:50 PM
Surr: DNOP	98.2	70-130	%Rec	1	10/4/2019 12:43:50 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.0	mg/Kg	1	10/4/2019 12:47:39 AM
Surr: BFB	96.7	77.4-118	%Rec	1	10/4/2019 12:47:39 AM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	0.025	mg/Kg	1	10/4/2019 12:47:39 AM
Toluene	ND	0.050	mg/Kg	1	10/4/2019 12:47:39 AM
Ethylbenzene	ND	0.050	mg/Kg	1	10/4/2019 12:47:39 AM
Xylenes, Total	ND	0.099	mg/Kg	1	10/4/2019 12:47:39 AM
Surr: 4-Bromofluorobenzene	93.2	80-120	%Rec	1	10/4/2019 12:47:39 AM
EPA METHOD 300.0: ANIONS					Analyst: SRM
Chloride	24000	1500	mg/Kg	500	10/8/2019 1:47:58 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
- $ND \qquad Not \ Detected \ at \ the \ Reporting \ Limit$
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

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

Page 5 of 37

Lab Order **1910129**

Date Reported: 10/9/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BH19-26 2'

 Project:
 Trebuchet 23 28 19
 Collection Date: 9/28/2019 10:40:00 AM

 Lab ID:
 1910129-006
 Matrix: SOIL
 Received Date: 10/2/2019 9:30:00 AM

 Analyses
 Result
 RL Qual Units
 DF
 Date Analyzed

 EPA METHOD 300.0: ANIONS
 Analyst: SRM

 Chloride
 4600
 150
 mg/Kg
 50
 10/8/2019 2:00:23 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
- $ND \qquad Not \ Detected \ at \ the \ Reporting \ Limit$
- 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
- Sample pH Not In Range
- RL Reporting Limit

Page 6 of 37

Lab Order **1910129**

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 10/9/2019

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BH19-26 4'

 Project:
 Trebuchet 23 28 19
 Collection Date: 9/28/2019 11:02:00 AM

 Lab ID:
 1910129-007
 Matrix: SOIL
 Received Date: 10/2/2019 9:30:00 AM

 Analyses
 Result
 RL Qual Units
 DF
 Date Analyzed

 EPA METHOD 300.0: ANIONS
 Analyst: CJS

 Chloride
 1100
 60
 mg/Kg
 20
 10/7/2019 1:24:24 AM

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

Qualifiers:

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

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

Page 7 of 37

Lab Order **1910129**

Date Reported: 10/9/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Client Sample ID: BH19-26 6'

Project: Trebuchet 23 28 19 **Collection Date:** 9/28/2019 11:20:00 AM

Lab ID: 1910129-008 **Matrix:** SOIL **Received Date:** 10/2/2019 9:30:00 AM

Analyses	Result	RL Qua	ıl Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS					Analyst: CAS
Chloride	600	59	mg/Kg	20	10/6/2019 3:50:40 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
- $ND \qquad Not \ Detected \ at \ the \ Reporting \ Limit$
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

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

Page 8 of 37

Lab Order **1910129**

Date Reported: 10/9/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BH19-26 8'

 Project:
 Trebuchet 23 28 19
 Collection Date: 9/28/2019 11:48:00 AM

 Lab ID:
 1910129-009
 Matrix: SOIL
 Received Date: 10/2/2019 9:30:00 AM

Analyses	Result	RL Q	ual Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OR	GANICS				Analyst: BRM
Diesel Range Organics (DRO)	ND	9.5	mg/Kg	1	10/4/2019 1:08:01 PM
Motor Oil Range Organics (MRO)	ND	47	mg/Kg	1	10/4/2019 1:08:01 PM
Surr: DNOP	97.7	70-130	%Rec	1	10/4/2019 1:08:01 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.6	mg/Kg	1	10/4/2019 1:10:39 AM
Surr: BFB	96.4	77.4-118	%Rec	1	10/4/2019 1:10:39 AM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	0.023	mg/Kg	1	10/4/2019 1:10:39 AM
Toluene	ND	0.046	mg/Kg	1	10/4/2019 1:10:39 AM
Ethylbenzene	ND	0.046	mg/Kg	1	10/4/2019 1:10:39 AM
Xylenes, Total	ND	0.093	mg/Kg	1	10/4/2019 1:10:39 AM
Surr: 4-Bromofluorobenzene	92.2	80-120	%Rec	1	10/4/2019 1:10:39 AM
EPA METHOD 300.0: ANIONS					Analyst: CAS
Chloride	440	60	mg/Kg	20	10/6/2019 4:03:05 PM

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

Qualifiers:

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

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

Page 9 of 37

Lab Order 1910129

Date Reported: 10/9/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BH19-24 6'

 Project:
 Trebuchet 23 28 19
 Collection Date: 9/28/2019 9:10:00 AM

 Lab ID:
 1910129-010
 Matrix: SOIL
 Received Date: 10/2/2019 9:30:00 AM

Analyses	Result	RL Qua	al Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS					Analyst: CAS
Chloride	530	60	mg/Kg	20	10/6/2019 4:15:29 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
- $ND \qquad Not \ Detected \ at \ the \ Reporting \ Limit$
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

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

Page 10 of 37

Lab Order 1910129

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 10/9/2019

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BH19-27 0'

 Project:
 Trebuchet 23 28 19
 Collection Date: 9/28/2019 12:45:00 PM

 Lab ID:
 1910129-011
 Matrix: SOIL
 Received Date: 10/2/2019 9:30:00 AM

 Analyses
 Result
 RL Qual Units
 DF
 Date Analyzed

 EPA METHOD 300.0: ANIONS
 Analyst: CAS

 Chloride
 ND
 60
 mg/Kg
 20
 10/6/2019 4:52:43 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
- $ND \qquad Not \ Detected \ at \ the \ Reporting \ Limit$
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

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

Page 11 of 37

Lab Order 1910129

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 10/9/2019

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BH19-27 2'

 Project:
 Trebuchet 23 28 19
 Collection Date: 9/28/2019 12:52:00 PM

 Lab ID:
 1910129-012
 Matrix: SOIL
 Received Date: 10/2/2019 9:30:00 AM

 Analyses
 Result
 RL Qual Units
 DF
 Date Analyzed

 EPA METHOD 300.0: ANIONS
 Analyst: CJS

 Chloride
 2600
 150
 mg/Kg
 50
 10/8/2019 10:15:01 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
- $ND \qquad Not \ Detected \ at \ the \ Reporting \ Limit$
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

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

Page 12 of 37

Lab Order 1910129

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 10/9/2019

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BH19-27 4'

 Project:
 Trebuchet 23 28 19
 Collection Date: 9/28/2019 12:57:00 PM

 Lab ID:
 1910129-013
 Matrix: SOIL
 Received Date: 10/2/2019 9:30:00 AM

 Analyses
 Result
 RL Qual Units
 DF
 Date Analyzed

 EPA METHOD 300.0: ANIONS
 Analyst: CAS

 Chloride
 1300
 60
 mg/Kg
 20
 10/6/2019 5:42:22 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
- $ND \qquad Not \ Detected \ at \ the \ Reporting \ Limit$
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

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

Page 13 of 37

Analytical ReportLab Order **1910129**

Hall Environmental Analysis Laboratory, Inc. Date Reported: 10/9/2019

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BH19-27 6'

 Project:
 Trebuchet 23 28 19
 Collection Date: 9/28/2019 1:11:00 PM

 Lab ID:
 1910129-014
 Matrix: SOIL
 Received Date: 10/2/2019 9:30:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORG	ANICS				Analyst: BRM
Diesel Range Organics (DRO)	ND	9.0	mg/Kg	1	10/4/2019 1:32:11 PM
Motor Oil Range Organics (MRO)	ND	45	mg/Kg	1	10/4/2019 1:32:11 PM
Surr: DNOP	92.4	70-130	%Rec	1	10/4/2019 1:32:11 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	10/4/2019 1:33:32 AM
Surr: BFB	99.4	77.4-118	%Rec	1	10/4/2019 1:33:32 AM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	0.024	mg/Kg	1	10/4/2019 1:33:32 AM
Toluene	ND	0.049	mg/Kg	1	10/4/2019 1:33:32 AM
Ethylbenzene	ND	0.049	mg/Kg	1	10/4/2019 1:33:32 AM
Xylenes, Total	ND	0.097	mg/Kg	1	10/4/2019 1:33:32 AM
Surr: 4-Bromofluorobenzene	94.6	80-120	%Rec	1	10/4/2019 1:33:32 AM
EPA METHOD 300.0: ANIONS					Analyst: CAS
Chloride	930	60	mg/Kg	20	10/6/2019 5:54:47 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
- $ND \qquad Not \ Detected \ at \ the \ Reporting \ Limit$
- 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

Lab Order 1910129

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 10/9/2019

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BH19-36 0'

 Project:
 Trebuchet 23 28 19
 Collection Date: 9/28/2019 2:00:00 PM

 Lab ID:
 1910129-015
 Matrix: SOIL
 Received Date: 10/2/2019 9:30:00 AM

 Analyses
 Result
 RL
 Qual
 Units
 DF
 Date Analyzed

 EPA METHOD 300.0: ANIONS
 Analyst: SRM

 Chloride
 6400
 300
 mg/Kg
 100
 10/8/2019 2:12:48 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
- $ND \qquad Not \ Detected \ at \ the \ Reporting \ Limit$
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

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

Page 15 of 37

Lab Order 1910129

Date Reported: 10/9/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BH19-36 2'

 Project:
 Trebuchet 23 28 19
 Collection Date: 9/28/2019 2:05:00 PM

 Lab ID:
 1910129-016
 Matrix: SOIL
 Received Date: 10/2/2019 9:30:00 AM

 Analyses
 Result
 RL Qual Units
 DF
 Date Analyzed

 EPA METHOD 300.0: ANIONS
 Analyst: SRM

 Chloride
 2900
 150
 mg/Kg
 50
 10/8/2019 2:25:13 AM

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

Qualifiers:

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

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

Page 16 of 37

Lab Order 1910129

Date Reported: 10/9/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BH19-36 4'

 Project:
 Trebuchet 23 28 19
 Collection Date: 9/28/2019 2:09:00 PM

 Lab ID:
 1910129-017
 Matrix: SOIL
 Received Date: 10/2/2019 9:30:00 AM

Analyses	Result	RL Qua	al Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS					Analyst: CJS
Chloride	1800	60	mg/Kg	20	10/6/2019 1:41:00 PM

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

Qualifiers:

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

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

Page 17 of 37

Lab Order 1910129

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 10/9/2019

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BH19-36 6'

 Project:
 Trebuchet 23 28 19
 Collection Date: 9/28/2019 2:21:00 PM

 Lab ID:
 1910129-018
 Matrix: SOIL
 Received Date: 10/2/2019 9:30:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS					Analyst: CJS
Chloride	1100	60	mg/Kg	20	10/6/2019 1:53:21 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
- $ND \qquad Not \ Detected \ at \ the \ Reporting \ Limit$
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

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

Page 18 of 37

Analytical ReportLab Order **1910129**

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 10/9/2019

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BH19-35 0'

 Project:
 Trebuchet 23 28 19
 Collection Date: 9/28/2019 3:00:00 PM

 Lab ID:
 1910129-019
 Matrix: SOIL
 Received Date: 10/2/2019 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORG	ANICS					Analyst: BRM
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	10/4/2019 1:56:29 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	10/4/2019 1:56:29 PM
Surr: DNOP	49.5	70-130	S	%Rec	1	10/4/2019 1:56:29 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	10/4/2019 1:56:39 AM
Surr: BFB	96.1	77.4-118		%Rec	1	10/4/2019 1:56:39 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	10/4/2019 1:56:39 AM
Toluene	ND	0.048		mg/Kg	1	10/4/2019 1:56:39 AM
Ethylbenzene	ND	0.048		mg/Kg	1	10/4/2019 1:56:39 AM
Xylenes, Total	ND	0.096		mg/Kg	1	10/4/2019 1:56:39 AM
Surr: 4-Bromofluorobenzene	91.5	80-120		%Rec	1	10/4/2019 1:56:39 AM
EPA METHOD 300.0: ANIONS						Analyst: CJS
Chloride	1300	60		mg/Kg	20	10/6/2019 2:05:42 PM

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

Qualifiers:

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

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

Page 19 of 37

Lab Order **1910129**

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 10/9/2019

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BH19-35 2'

 Project:
 Trebuchet 23 28 19
 Collection Date: 9/28/2019 3:17:00 PM

 Lab ID:
 1910129-020
 Matrix: SOIL
 Received Date: 10/2/2019 9:30:00 AM

 Analyses
 Result
 RL Qual Units
 DF
 Date Analyzed

 EPA METHOD 300.0: ANIONS
 Analyst: SRM

 Chloride
 3700
 150
 mg/Kg
 50
 10/8/2019 2:37:38 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
- $ND \qquad Not \ Detected \ at \ the \ Reporting \ Limit$
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

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

Page 20 of 37

Lab Order **1910129**

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 10/9/2019

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BH19-35 4'

 Project:
 Trebuchet 23 28 19
 Collection Date: 9/28/2019 3:22:00 PM

 Lab ID:
 1910129-021
 Matrix: SOIL
 Received Date: 10/2/2019 9:30:00 AM

 Analyses
 Result
 RL Qual Units
 DF
 Date Analyzed

 EPA METHOD 300.0: ANIONS
 Analyst: SRM

 Chloride
 2700
 150
 mg/Kg
 50
 10/8/2019 2:50:02 AM

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

Qualifiers:

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

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

Page 21 of 37

Analytical ReportLab Order **1910129**

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 10/9/2019

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BH19-35 6'

 Project:
 Trebuchet 23 28 19
 Collection Date: 9/28/2019 3:34:00 PM

 Lab ID:
 1910129-022
 Matrix: SOIL
 Received Date: 10/2/2019 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORG	ANICS					Analyst: BRM
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	10/4/2019 2:20:44 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	10/4/2019 2:20:44 PM
Surr: DNOP	60.7	70-130	S	%Rec	1	10/4/2019 2:20:44 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	10/4/2019 12:11:20 PM
Surr: BFB	92.4	77.4-118		%Rec	1	10/4/2019 12:11:20 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.025		mg/Kg	1	10/4/2019 12:11:20 PM
Toluene	ND	0.050		mg/Kg	1	10/4/2019 12:11:20 PM
Ethylbenzene	ND	0.050		mg/Kg	1	10/4/2019 12:11:20 PM
Xylenes, Total	ND	0.10		mg/Kg	1	10/4/2019 12:11:20 PM
Surr: 4-Bromofluorobenzene	89.0	80-120		%Rec	1	10/4/2019 12:11:20 PM
EPA METHOD 300.0: ANIONS						Analyst: CJS
Chloride	1500	60		mg/Kg	20	10/6/2019 3:07:24 PM

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- $ND \qquad Not \ Detected \ at \ the \ Reporting \ Limit$
- 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 ReportLab Order **1910129**

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 10/9/2019

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BH19-34 0'

 Project:
 Trebuchet 23 28 19
 Collection Date: 9/28/2019 4:11:00 PM

 Lab ID:
 1910129-023
 Matrix: SOIL
 Received Date: 10/2/2019 9:30:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed	
EPA METHOD 8015M/D: DIESEL RANGE ORG	EPA METHOD 8015M/D: DIESEL RANGE ORGANICS					
Diesel Range Organics (DRO)	ND	9.7	mg/Kg	1	10/4/2019 2:44:57 PM	
Motor Oil Range Organics (MRO)	ND	49	mg/Kg	1	10/4/2019 2:44:57 PM	
Surr: DNOP	73.8	70-130	%Rec	1	10/4/2019 2:44:57 PM	
EPA METHOD 8015D: GASOLINE RANGE					Analyst: NSB	
Gasoline Range Organics (GRO)	ND	5.0	mg/Kg	1	10/4/2019 1:19:56 PM	
Surr: BFB	94.5	77.4-118	%Rec	1	10/4/2019 1:19:56 PM	
EPA METHOD 8021B: VOLATILES					Analyst: NSB	
Benzene	ND	0.025	mg/Kg	1	10/4/2019 1:19:56 PM	
Toluene	ND	0.050	mg/Kg	1	10/4/2019 1:19:56 PM	
Ethylbenzene	ND	0.050	mg/Kg	1	10/4/2019 1:19:56 PM	
Xylenes, Total	ND	0.099	mg/Kg	1	10/4/2019 1:19:56 PM	
Surr: 4-Bromofluorobenzene	92.2	80-120	%Rec	1	10/4/2019 1:19:56 PM	
EPA METHOD 300.0: ANIONS					Analyst: CJS	
Chloride	ND	60	mg/Kg	20	10/6/2019 3:19:45 PM	

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- $ND \qquad Not \ Detected \ at \ the \ Reporting \ Limit$
- PQL Practical Quanitative Limit

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

Page 23 of 37

Lab Order **1910129**

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 10/9/2019

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BH19-34 2'

 Project:
 Trebuchet 23 28 19
 Collection Date: 9/28/2019 4:16:00 PM

 Lab ID:
 1910129-024
 Matrix: SOIL
 Received Date: 10/2/2019 9:30:00 AM

 Analyses
 Result
 RL Qual Units
 DF
 Date Analyzed

 EPA METHOD 300.0: ANIONS
 Analyst: CJS

 Chloride
 2100
 61
 mg/Kg
 20
 10/6/2019 3:32:05 PM

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

Qualifiers:

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

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

Page 24 of 37

Lab Order **1910129**

Date Reported: 10/9/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BH19-34 4'

 Project:
 Trebuchet 23 28 19
 Collection Date: 9/28/2019 4:24:00 PM

 Lab ID:
 1910129-025
 Matrix: SOIL
 Received Date: 10/2/2019 9:30:00 AM

Analyses	Result	RL Qua	al Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS					Analyst: SRM
Chloride	2500	150	mg/Kg	50	10/8/2019 3:02:26 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
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

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

Page 25 of 37

Lab Order **1910129**

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 10/9/2019

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BH19-34 6'

 Project:
 Trebuchet 23 28 19
 Collection Date: 9/28/2019 4:31:00 PM

 Lab ID:
 1910129-026
 Matrix: SOIL
 Received Date: 10/2/2019 9:30:00 AM

 Analyses
 Result
 RL Qual Units
 DF
 Date Analyzed

 EPA METHOD 300.0: ANIONS
 Analyst: CJS

 Chloride
 1400
 60
 mg/Kg
 20
 10/6/2019 3:56:45 PM

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

Qualifiers:

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

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

Page 26 of 37

Analytical ReportLab Order **1910129**

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 10/9/2019

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BH19-34 8'

 Project:
 Trebuchet 23 28 19
 Collection Date: 9/28/2019 4:41:00 PM

 Lab ID:
 1910129-027
 Matrix: SOIL
 Received Date: 10/2/2019 9:30:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORG	SANICS				Analyst: BRM
Diesel Range Organics (DRO)	ND	9.3	mg/Kg	1	10/4/2019 3:09:08 PM
Motor Oil Range Organics (MRO)	ND	46	mg/Kg	1	10/4/2019 3:09:08 PM
Surr: DNOP	71.4	70-130	%Rec	1	10/4/2019 3:09:08 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.6	mg/Kg	1	10/4/2019 1:42:52 PM
Surr: BFB	95.1	77.4-118	%Rec	1	10/4/2019 1:42:52 PM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	0.023	mg/Kg	1	10/4/2019 1:42:52 PM
Toluene	ND	0.046	mg/Kg	1	10/4/2019 1:42:52 PM
Ethylbenzene	ND	0.046	mg/Kg	1	10/4/2019 1:42:52 PM
Xylenes, Total	ND	0.092	mg/Kg	1	10/4/2019 1:42:52 PM
Surr: 4-Bromofluorobenzene	92.2	80-120	%Rec	1	10/4/2019 1:42:52 PM
EPA METHOD 300.0: ANIONS					Analyst: CJS
Chloride	320	60	mg/Kg	20	10/6/2019 4:09:06 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
- $ND \qquad Not \ Detected \ at \ the \ Reporting \ Limit$
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

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

Page 27 of 37

Lab Order **1910129**

Date Reported: 10/9/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BH19-29 0'

 Project:
 Trebuchet 23 28 19
 Collection Date: 9/28/2019 5:10:00 PM

 Lab ID:
 1910129-028
 Matrix: SOIL
 Received Date: 10/2/2019 9:30:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORG	ANICS				Analyst: BRM
Diesel Range Organics (DRO)	ND	9.6	mg/Kg	1	10/4/2019 3:33:31 PM
Motor Oil Range Organics (MRO)	ND	48	mg/Kg	1	10/4/2019 3:33:31 PM
Surr: DNOP	74.0	70-130	%Rec	1	10/4/2019 3:33:31 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	10/4/2019 2:05:47 PM
Surr: BFB	93.2	77.4-118	%Rec	1	10/4/2019 2:05:47 PM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	0.024	mg/Kg	1	10/4/2019 2:05:47 PM
Toluene	ND	0.049	mg/Kg	1	10/4/2019 2:05:47 PM
Ethylbenzene	ND	0.049	mg/Kg	1	10/4/2019 2:05:47 PM
Xylenes, Total	ND	0.098	mg/Kg	1	10/4/2019 2:05:47 PM
Surr: 4-Bromofluorobenzene	89.4	80-120	%Rec	1	10/4/2019 2:05:47 PM
EPA METHOD 300.0: ANIONS					Analyst: CJS
Chloride	4500	150	mg/Kg	50	10/8/2019 10:27:25 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
- $ND \qquad Not \ Detected \ at \ the \ Reporting \ Limit$
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

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

Page 28 of 37

Lab Order **1910129**

Date Reported: 10/9/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Client Sample ID: BH19-29 2'

Project: Trebuchet 23 28 19 **Collection Date:** 9/28/2019 5:16:00 PM

Lab ID: 1910129-029 **Matrix:** SOIL **Received Date:** 10/2/2019 9:30:00 AM

Analyses	Result	RL Qua	al Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS					Analyst: CJS
Chloride	3500	150	mg/Kg	50	10/8/2019 10:39:49 PM

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

Qualifiers:

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

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

Page 29 of 37

Lab Order 1910129

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 10/9/2019

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BH19-29 4'

 Project:
 Trebuchet 23 28 19
 Collection Date: 9/28/2019 5:21:00 PM

 Lab ID:
 1910129-030
 Matrix: SOIL
 Received Date: 10/2/2019 9:30:00 AM

 Analyses
 Result
 RL Qual Units
 DF
 Date Analyzed

 EPA METHOD 300.0: ANIONS
 Analyst: CJS

 Chloride
 1200
 60
 mg/Kg
 20
 10/6/2019 4:46:09 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
- $ND \qquad Not \ Detected \ at \ the \ Reporting \ Limit$
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

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

Page 30 of 37

Lab Order **1910129**

Date Reported: 10/9/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BH19-29 6'

 Project:
 Trebuchet 23 28 19
 Collection Date: 9/28/2019 5:37:00 PM

 Lab ID:
 1910129-031
 Matrix: SOIL
 Received Date: 10/2/2019 9:30:00 AM

 Analyses
 Result
 RL Qual Units
 DF
 Date Analyzed

 EPA METHOD 300.0: ANIONS
 Analyst: CJS

 Chloride
 700
 60
 mg/Kg
 20
 10/6/2019 5:23:09 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
- $ND \qquad Not \ Detected \ at \ the \ Reporting \ Limit$
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

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

Page 31 of 37

Analytical ReportLab Order **1910129**

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 10/9/2019

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BH19-29 8'

 Project:
 Trebuchet 23 28 19
 Collection Date: 9/28/2019 5:40:00 PM

 Lab ID:
 1910129-032
 Matrix: SOIL
 Received Date: 10/2/2019 9:30:00 AM

Analyses	Result	RL Q	ual Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OR	GANICS				Analyst: BRM
Diesel Range Organics (DRO)	ND	8.6	mg/Kg	1	10/4/2019 3:57:50 PM
Motor Oil Range Organics (MRO)	ND	43	mg/Kg	1	10/4/2019 3:57:50 PM
Surr: DNOP	70.2	70-130	%Rec	1	10/4/2019 3:57:50 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	10/4/2019 2:28:41 PM
Surr: BFB	96.3	77.4-118	%Rec	1	10/4/2019 2:28:41 PM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	0.025	mg/Kg	1	10/4/2019 2:28:41 PM
Toluene	ND	0.049	mg/Kg	1	10/4/2019 2:28:41 PM
Ethylbenzene	ND	0.049	mg/Kg	1	10/4/2019 2:28:41 PM
Xylenes, Total	ND	0.098	mg/Kg	1	10/4/2019 2:28:41 PM
Surr: 4-Bromofluorobenzene	92.3	80-120	%Rec	1	10/4/2019 2:28:41 PM
EPA METHOD 300.0: ANIONS					Analyst: CJS
Chloride	380	60	mg/Kg	20	10/6/2019 5:35:29 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
- $ND \qquad Not \ Detected \ at \ the \ Reporting \ Limit$
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

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

Page 32 of 37

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910129**

09-Oct-19

Client: Vertex Resource Group Ltd.

Project: Trebuchet 23 28 19

Sample ID: MB-47966 SampType: mblk TestCode: EPA Method 300.0: Anions

Client ID: **PBS** Batch ID: **47966** RunNo: **63454**

Prep Date: 10/6/2019 Analysis Date: 10/6/2019 SeqNo: 2167361 Units: mg/Kg

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

Chloride ND 1.5

Sample ID: LCS-47966 SampType: Ics TestCode: EPA Method 300.0: Anions

Client ID: LCSS Batch ID: 47966 RunNo: 63454

Prep Date: 10/6/2019 Analysis Date: 10/6/2019 SeqNo: 2167362 Units: mq/Kq

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

Chloride 14 1.5 15.00 0 92.5 90 110

Sample ID: MB-47953 SampType: mblk TestCode: EPA Method 300.0: Anions

Client ID: **PBS** Batch ID: **47953** RunNo: **63454**

Prep Date: 10/4/2019 Analysis Date: 10/6/2019 SeqNo: 2167393 Units: mg/Kg

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

Chloride ND 1.5

Sample ID: LCS-47953 SampType: Ics TestCode: EPA Method 300.0: Anions

Client ID: LCSS Batch ID: 47953 RunNo: 63454

Prep Date: 10/4/2019 Analysis Date: 10/6/2019 SeqNo: 2167394 Units: mg/Kg

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

Chloride 14 1.5 15.00 0 93.6 90 110

Sample ID: MB-47964 SampType: MBLK TestCode: EPA Method 300.0: Anions

Client ID: PBS Batch ID: 47964 RunNo: 63456

Prep Date: 10/6/2019 Analysis Date: 10/6/2019 SeqNo: 2167522 Units: mg/Kg

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

Chloride ND 1.5

Sample ID: LCS-47964 SampType: LCS TestCode: EPA Method 300.0: Anions

Client ID: LCSS Batch ID: 47964 RunNo: 63456

Prep Date: 10/6/2019 Analysis Date: 10/6/2019 SeqNo: 2167523 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

Qualifiers:

Value exceeds Maximum Contaminant Level

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

Page 33 of 37

Hall Environmental Analysis Laboratory, Inc.

13

10.00

WO#: **1910129**

09-Oct-19

Client: Vertex Resource Group Ltd.

Project: Trebuchet 23 28 19

Project: Trebuch	net 23 28 19								
Sample ID: LCS-47935	SampType	e: LCS	Test	Code: EP	A Method	8015M/D: Die	esel Rang	e Organics	
Client ID: LCSS	Batch ID): 47935	R	unNo: 63	422				
Prep Date: 10/4/2019	Analysis Date	e: 10/4/2019	S	eqNo: 21	65732	Units: mg/K	(g		
Analyte	Result F	PQL SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	53	10 50.00	0	106	63.9	124			
Surr: DNOP	4.9	5.000		97.6	70	130			
Sample ID: MB-47935	SampType	e: MBLK	Test	Code: EP	A Method	8015M/D: Die	esel Rang	e Organics	
Client ID: PBS	Batch ID): 47935	R	unNo: 63	422				
Prep Date: 10/4/2019	Analysis Date	e: 10/4/2019	S	eqNo: 21	65733	Units: mg/K	(g		
Analyte	Result F	PQL SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10							
Motor Oil Range Organics (MRO)	ND	50							
Surr: DNOP	10	10.00		99.7	70	130			
Sample ID: LCS-47905	SampType	e: LCS	Test	Code: EP	A Method	8015M/D: Die	esel Rang	e Organics	
Client ID: LCSS	Batch ID): 47905	R	unNo: 63	422				
Prep Date: 10/3/2019	Analysis Date	e: 10/4/2019	S	eqNo: 21	66359	Units: mg/K	(g		
Analyte	Result F	PQL SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	50	10 50.00	0	99.4	63.9	124			
Surr: DNOP	4.8	5.000		96.1	70	130			
Sample ID: MB-47905	SampType	e: MBLK	Test	Code: EP	A Method	8015M/D: Die	esel Rang	e Organics	
Client ID: PBS	Batch ID): 47905	R	unNo: 63	422				
Prep Date: 10/3/2019	Analysis Date	e: 10/4/2019	S	eqNo: 21	66360	Units: mg/K	(g		
Analyte	Result F	PQL SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10							
Notor Oil Range Organics (MRO)	ND	50							

Qualifiers:

Surr: DNOP

- Value exceeds Maximum Contaminant 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

132

70

130

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

S

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910129**

09-Oct-19

Client: Vertex Resource Group Ltd.

Project: Trebuchet 23 28 19

Sample ID: MB-47891 SampType: MBLK TestCode: EPA Method 8015D: Gasoline Range

Client ID: **PBS** Batch ID: **47891** RunNo: **63411**

Prep Date: 10/2/2019 Analysis Date: 10/3/2019 SeqNo: 2165168 Units: mq/Kq

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

Gasoline Range Organics (GRO) ND 5.0

Surr: BFB 960 1000 96.3 77.4 118

Sample ID: LCS-47891 SampType: LCS TestCode: EPA Method 8015D: Gasoline Range

Client ID: LCSS Batch ID: 47891 RunNo: 63411

Prep Date: 10/2/2019 Analysis Date: 10/3/2019 SeqNo: 2165169 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 O 96.9 80 120

Surr: BFB 1100 1000 106 77.4 118

Sample ID: MB-47919 SampType: MBLK TestCode: EPA Method 8015D: Gasoline Range

Client ID: PBS Batch ID: 47919 RunNo: 63433

Prep Date: 10/3/2019 Analysis Date: 10/4/2019 SeqNo: 2166815 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
 980
 1000
 98.1
 77.4
 118

Sample ID: LCS-47919 SampType: LCS TestCode: EPA Method 8015D: Gasoline Range

Client ID: LCSS Batch ID: 47919 RunNo: 63433

Prep Date: 10/3/2019 Analysis Date: 10/4/2019 SeqNo: 2166816 Units: mg/Kg

Result PQL SPK value SPK Ref Val %REC HighLimit %RPD **RPDLimit** LowLimit Qual Gasoline Range Organics (GRO) 26 5.0 25.00 105 80 120 n

 Gasoline Range Organics (GRO)
 26
 5.0
 25.00
 0
 105
 80
 120

 Surr: BFB
 1100
 1000
 110
 77.4
 118

Qualifiers:

Value exceeds Maximum Contaminant Level

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

Page 35 of 37

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910129**

09-Oct-19

Client: Vertex Resource Group Ltd.

Project: Trebuchet 23 28 19

Sample ID: MB-47891	SampT	уре: МЕ	BLK	Tes	tCode: El	PA Method	8021B: Volat	iles		
Client ID: PBS	Batcl	n ID: 47 8	891	F	RunNo: 6	3411				
Prep Date: 10/2/2019	Analysis D	oate: 10)/3/2019	8	SeqNo: 2	165206	Units: mg/K	g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.95		1.000		95.5	80	120			

Sample ID: LCS-47891	Sampi	ype: LC	S	res	tCode: El	PA Method	8021B: Volat	iles		
Client ID: LCSS	Batcl	h ID: 47 8	391	F	RunNo: 6	3411				
Prep Date: 10/2/2019	Analysis [Date: 10	/3/2019	8	SeqNo: 2	165207	Units: mg/K	(g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.91	0.025	1.000	0	91.5	80	120			
Toluene	0.95	0.050	1.000	0	95.0	80	120			
Ethylbenzene	0.95	0.050	1.000	0	95.2	80	120			
Xylenes, Total	2.8	0.10	3.000	0	93.8	80	120			
Surr: 4-Bromofluorobenzene	0.94		1.000		93.8	80	120			

Sample ID: MB-47919	SampT	ype: ME	BLK	Tes	tCode: El	PA Method	8021B: Volat	iles		
Client ID: PBS	Batch	n ID: 47 9	919	F	RunNo: 6	3433				
Prep Date: 10/3/2019	Analysis D	oate: 10)/4/2019	8	SeqNo: 2	166837	Units: mg/K	(g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.96		1.000		95.5	80	120			

Sample ID: LCS-47919	SampT	ype: LC	s	Tes	tCode: El	PA Method	8021B: Volat	tiles		
Client ID: LCSS	Batch	n ID: 47 9	919	F	RunNo: 6	3433				
Prep Date: 10/3/2019	Analysis D	oate: 10	/4/2019	S	SeqNo: 2	166838	Units: mg/K	(g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.96	0.025	1.000	0	96.4	80	120			
Toluene	0.99	0.050	1.000	0	98.8	80	120			
Ethylbenzene	0.99	0.050	1.000	0	98.9	80	120			
Xylenes, Total	2.9	0.10	3.000	0	97.5	80	120			
Surr: 4-Bromofluorobenzene	1.0		1.000		101	80	120			

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

Page 36 of 37

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910129**

09-Oct-19

Client: Vertex Resource Group Ltd.

Project: Trebuchet 23 28 19

Sample ID: 1910129-022AMS SampType: MS TestCode: EPA Method 8021B: Volatiles Client ID: BH19-35 6' RunNo: 63433 Batch ID: 47919 Prep Date: 10/3/2019 Analysis Date: 10/4/2019 SeqNo: 2166840 Units: mg/Kg PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Analyte Result Benzene 0.79 0.023 0.9242 0.01022 84.6 76 123 Toluene 0.83 0.046 0.9242 0.007946 88.9 80.3 127 Ethylbenzene 0.046 0.9242 90.7 80.2 0.84 131 87.0 Xylenes, Total 2.4 0.092 2.773 0.02787 78 133 0.9242 93.6 Surr: 4-Bromofluorobenzene 0.86 80 120

Sample ID: 1910129-022AMS	D Samp1	уре: М \$	SD	Tes	tCode: El	PA Method	8021B: Volat	iles		
Client ID: BH19-35 6'	Batcl	h ID: 47 9	919	F	RunNo: 6	3433				
Prep Date: 10/3/2019	Analysis D	Date: 10)/4/2019	S	SeqNo: 2	166841	Units: mg/K	g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.91	0.025	0.9960	0.01022	90.6	76	123	14.2	20	
Toluene	0.96	0.050	0.9960	0.007946	95.4	80.3	127	14.4	20	
Ethylbenzene	0.97	0.050	0.9960	0	97.1	80.2	131	14.3	20	
Xylenes, Total	2.9	0.10	2.988	0.02787	94.9	78	133	16.0	20	
Surr: 4-Bromofluorobenzene	0.97		0.9960		97.7	80	120	0	0	

Qualifiers:

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

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



Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87109 TEL: 505-345-3975 FAX: 505-345-4107

Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: VERTEX CARLSBAD Work Order I	Number: 1910129		RcptNo: 1
Received By: JUM 2016) 10/2/2019 9:30	0:00 AM		
Completed By: Yazmine Garduno 10/2/2019 11:2	4:13 AM	Magnin lighteute	
Reviewed By: Dm 10/2/19			
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 \square
9. VOA vials have zero headspace?	Yes	No 🗌	No VOA Vials 🗹
0. Were any sample containers received broken?	Yes	No 🗹	# of preserved
Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes 🗹	No 🗆	for pH: (<2 of >12 unless noted)
2. Are matrices correctly identified on Chain of Custody?	Yes 🗸	No 🗌	Adjusted?
3. Is it clear what analyses were requested?	Yes 🗸	No 🗌	/ va whi
4. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes 🗸	No 🗆	Checked by: 10 10 12
Special Handling (if applicable)			/
15. Was client notified of all discrepancies with this order?	Yes	No 🗌	NA 🗹
Person Notified:	Date	-	
By Whom:	Via: 🗌 eMail 🗌 P	Phone Fax	☐ In Person
Regarding:	*************		
Client Instructions:			
16. Additional remarks:			
17. Cooler Information			
Cooler No Temp °C Condition Seal Intact Seal I	No Seal Date	Signed By	
1 1.4 Good		-	

Client: \\ \(\chi_c \) Client: \\ \\ \(\chi_c \) Phone #: email or Fax QA/QC Packs \(\text{X} \) Cand Carceditation \(\text{Date} \) \(\text{Time} \) \(\text{Carceditation} \) \(\text{Date} \) \(\text{Carceditation} \) \(\text{Date} \) \(\text{Carceditation}	Chain-of- Client: \langle \chi_2 \chi_2 \chi_3 \chi_3 \chi_2 \chi_2 \chi_3 \chi	-of-Custody Ex Maray Con Cile Compliance Con Cile C	Sample Norach Sa	Sample Name Sung - 24 CHE Sung - 24 CHE CHE Sung - 24 CHE CHE CHE CHE CHE CHE CHE CHE CHE CHE	Chain-of-Custody Record () () () () () () () () () () () () () (Turn-Around Time: Standard Rus Project Name: Trebuck + 23 Froject Manager: Vans Reman & E-OC(14 Reman & E-O		5 day 5 day 1, 28 19 1, con X X BTEX MTBE / TMB's (8021)	69 → (OAM \ OAO \ OAÐ) GB \ 1801 \ A \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	8081 Pesticides/8082 PCB's B B B B B B B B B B B B B B B B B B		S ive displaying the right (AOV) 0058	PAHs by 8310 or 8270SIMS	FOUR HOS, NOS, PO4, SO4 Albuquerque, NM 87109 Tax 505-345-4107 Tax 505-345-4107 Total Coliform (Present/Absent) Total Coliform (Present/Absent)	→ &	
, , ,,	84:10 84:10	50,1	" вна-		C, X,	1 1	: : :	200- 200- 210-	×	1		XXX				
Date: 7 4-78-19 Date: 7	12:47 12:52 Time:		844. 27 844. 27 84 by:	52,	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	Received by: Received by:	Via:	-011 -011 -011 -011 -011 -011/9 0900 Date Time	Remarks:	arks:		/ < <				

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.

	ANALYSTS LABORATORY	www hallenvironmental com	4901 Hawkins NE - Albuquerque, NM 87109		Analysis		SV	Od VISO	()	3 10 3 10 3 4 1 1 1 1 1 1 1 1	01, 10, 10, 10,3,	odfe V83 BM Ph (AC)	81 Pe hs b) hs b) fs b)	PA 826 826 826 826) X	×	×	×	X	×	×	×	×	×	~	× ×				sub-contracted data will be clearly notated on the analytical report.
			4901	Tel.			NRC	1/0	ВО	/ 0	ЯĐ)	2D(H:801	qT		メス					×			×	×	-	Remarks:			ssibility. Any
Turn-Around Time:	☐ Standard ☐ Rush		Trebuchet 25 28 19	Project #:	F1900 - 3 K1		Cests	icastro @ Marathonoil.com	shree	No.		(including CF): 1.6-0.2 = 1.4 (°C)	tive 1 0 HEAL No.	191012	-013	Shas sur -014	510-	\$10 -	10-	510-	× 9/0 -	-020	120-	x 220	200	×20-	ate Time	Description Williams	A Carrior 10/7/19	her accredited laboratories. This serves as notic
Chain-of-Custody Record	Client: Vertex Marathon		Mailing Address: Gn Ale		Phone #: On file	email or Fax#: らへ 中ルピ	QA/QC Package:	✓ Standard □ Level 4 (Full Validation)	Accreditation: Az Compliance	NELAC Other				Date Time Matrix Sample Name	4-52 HB 12:27 4'	,9 62 -848 11:11	15:00 BHM-36 0'	2:02 BHI4-36 2'	,h 98-1119 bo:2	, 9 98 - দাগ্ৰ / মি:2	3:00	3:17 844.35 2,	3:22 BHM.35 Y	,9 ST- WH8 KE.C	10 hc. MT18 11:24 0'	72 hg - 8414- 31 5,	Date: Time: Relinquished by:	Date: Time: Belindiishadhur.	96)	If necessary, samples submitted to Hall Environmental may be subc

LATI CNIVIDONIMENTAL		www.hallenvironmental.com	4901 Hawkins NE - Albuquerque, NM 87109		Inal		S '*	OSIN	(1,)7S8 , _s OI	\$ 10 8 8 9 9 1 1 1 1	od 5 110 103 103	etho y 83 sh Me r, h (AO)	B (M Hs b; RA 5 60 (V 70 (S	PAI RC 826 826 728	×	×	×	*	×	*	×	×			ia	
			49(Te									.08:⊦				メ	×				×	1	1	Remarks:	
Turn-Around Time:	□ Rush	Project Name:	•	Project #:		Project Manager: Denis Villams	Permind Vertex.cn; Isnac Castro		Sampler: Jason Crabtre	Ā	olers:	Cooler Temp(including CF): 1.6-0.7=1.4 (°C)	tive.	#	36x5 in 1ce (125	20 1	120	820	101	040	(60)	4 1			Received by: Via: Date Time	Received by: Via: Date Time
Chain-of-Custody Record	Client: Vetex Marthon		Mailing Address: on Gle		Phone #: on file	email or Fax#: on Ale	QA/QC Package:	☑Standard □ Level 4 (Full Validation)	Accreditation:	NELAC	□ EDD (Type)			Date Time Matrix Sample Name	4-28-4 4:24 Soil BHIA-34 4'	1 4:31 1 644-34 6,	14:41 BHM-37 8'	5:10 PHM-29 0,5	12:16 8414-24 2:16	75:21 BHM-29 4.	5:37	\$ 67.40 V 6419-29 8"			Date: Time: Relinquished by:	Date: Time: Reimquished by:



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

December 06, 2019

Natalie Gordon Vertex Resource Group Ltd. 213 S. Mesa St Carlsbad, NM 88220 TEL: FAX

RE: Trebuchet Fee 232819 WXY OrderNo.: 1911C59

Dear Natalie Gordon:

Hall Environmental Analysis Laboratory received 14 sample(s) on 11/27/2019 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman

Laboratory Manager

andyl

4901 Hawkins NE

Albuquerque, NM 87109

Lab Order 1911C59

Date Reported: 12/6/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Client Sample ID: BH19-37 4'

Project: Trebuchet Fee 232819 WXY

Collection Date: 11/21/2019

Lab ID: 1911C59-001 **Matrix:** SOIL **Received Date:** 11/27/2019 9:00:00 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	12/3/2019 11:05:39 AM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	12/3/2019 11:05:39 AM
Surr: DNOP	130	70-130	S	%Rec	1	12/3/2019 11:05:39 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	12/2/2019 8:27:55 PM
Surr: BFB	81.4	77.4-118		%Rec	1	12/2/2019 8:27:55 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	12/2/2019 8:27:55 PM
Toluene	ND	0.049		mg/Kg	1	12/2/2019 8:27:55 PM
Ethylbenzene	ND	0.049		mg/Kg	1	12/2/2019 8:27:55 PM
Xylenes, Total	ND	0.098		mg/Kg	1	12/2/2019 8:27:55 PM
Surr: 4-Bromofluorobenzene	99.3	80-120		%Rec	1	12/2/2019 8:27:55 PM
EPA METHOD 300.0: ANIONS						Analyst: MRA
Chloride	890	60		mg/Kg	20	12/4/2019 7:30:04 PM

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

Qualifiers:

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

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

Page 1 of 21

Lab Order 1911C59

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 12/6/2019

CLIENT: Vertex Resource Group Ltd.

Client Sample ID: BH19-38 2'

Project: Trebuchet Fee 232819 WXY

Collection Date: 11/21/2019

Lab ID: 1911C59-002 **Matrix:** SOIL **Received Date:** 11/27/2019 9:00:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE C	RGANICS				Analyst: BRM
Diesel Range Organics (DRO)	16	9.4	mg/Kg	1	12/3/2019 11:14:53 AM
Motor Oil Range Organics (MRO)	ND	47	mg/Kg	1	12/3/2019 11:14:53 AM
Surr: DNOP	94.4	70-130	%Rec	1	12/3/2019 11:14:53 AM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.7	mg/Kg	1	12/2/2019 8:50:45 PM
Surr: BFB	78.9	77.4-118	%Rec	1	12/2/2019 8:50:45 PM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	0.024	mg/Kg	1	12/2/2019 8:50:45 PM
Toluene	ND	0.047	mg/Kg	1	12/2/2019 8:50:45 PM
Ethylbenzene	ND	0.047	mg/Kg	1	12/2/2019 8:50:45 PM
Xylenes, Total	ND	0.095	mg/Kg	1	12/2/2019 8:50:45 PM
Surr: 4-Bromofluorobenzene	95.9	80-120	%Rec	1	12/2/2019 8:50:45 PM
EPA METHOD 300.0: ANIONS					Analyst: MRA
Chloride	1100	60	mg/Kg	20	12/4/2019 8:07:06 PM

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

Qualifiers:

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

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

Page 2 of 21

Lab Order 1911C59

Date Reported: 12/6/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Client Sample ID: BS19-03 2'

Project: Trebuchet Fee 232819 WXY

Collection Date: 11/21/2019

Lab ID: 1911C59-003 **Matrix:** SOIL **Received Date:** 11/27/2019 9:00:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE	ORGANICS				Analyst: BRM
Diesel Range Organics (DRO)	30	10	mg/Kg	1	12/3/2019 11:24:05 AM
Motor Oil Range Organics (MRO)	65	50	mg/Kg	1	12/3/2019 11:24:05 AM
Surr: DNOP	83.3	70-130	%Rec	1	12/3/2019 11:24:05 AM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	12/2/2019 9:13:35 PM
Surr: BFB	79.3	77.4-118	%Rec	1	12/2/2019 9:13:35 PM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	0.025	mg/Kg	1	12/2/2019 9:13:35 PM
Toluene	ND	0.049	mg/Kg	1	12/2/2019 9:13:35 PM
Ethylbenzene	ND	0.049	mg/Kg	1	12/2/2019 9:13:35 PM
Xylenes, Total	ND	0.099	mg/Kg	1	12/2/2019 9:13:35 PM
Surr: 4-Bromofluorobenzene	96.4	80-120	%Rec	1	12/2/2019 9:13:35 PM
EPA METHOD 300.0: ANIONS					Analyst: MRA
Chloride	890	60	mg/Kg	20	12/4/2019 8:19:27 PM

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

Qualifiers:

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

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

Page 3 of 21

Lab Order 1911C59

Date Reported: 12/6/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BH19-39 4'

 Project:
 Trebuchet Fee 232819 WXY
 Collection Date: 11/22/2019 11:35:00 AM

 Lab ID:
 1911C59-004
 Matrix: SOIL
 Received Date: 11/27/2019 9:00:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE (ORGANICS				Analyst: BRM
Diesel Range Organics (DRO)	ND	10	mg/Kg	1	12/3/2019 11:33:18 AM
Motor Oil Range Organics (MRO)	ND	50	mg/Kg	1	12/3/2019 11:33:18 AM
Surr: DNOP	94.0	70-130	%Rec	1	12/3/2019 11:33:18 AM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	12/2/2019 9:36:24 PM
Surr: BFB	79.3	77.4-118	%Rec	1	12/2/2019 9:36:24 PM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	0.024	mg/Kg	1	12/2/2019 9:36:24 PM
Toluene	ND	0.048	mg/Kg	1	12/2/2019 9:36:24 PM
Ethylbenzene	ND	0.048	mg/Kg	1	12/2/2019 9:36:24 PM
Xylenes, Total	ND	0.095	mg/Kg	1	12/2/2019 9:36:24 PM
Surr: 4-Bromofluorobenzene	96.2	80-120	%Rec	1	12/2/2019 9:36:24 PM
EPA METHOD 300.0: ANIONS					Analyst: MRA
Chloride	1500	60	mg/Kg	20	12/4/2019 8:31:48 PM

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

Qualifiers:

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

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

Page 4 of 21

Lab Order 1911C59

Date Reported: 12/6/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: WS19-04 4'

 Project:
 Trebuchet Fee 232819 WXY
 Collection Date: 11/22/2019 1:45:00 PM

 Lab ID:
 1911C59-005
 Matrix: SOIL
 Received Date: 11/27/2019 9:00:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE O	Analyst: BRM				
Diesel Range Organics (DRO)	ND	9.4	mg/Kg	1	12/3/2019 11:42:29 AM
Motor Oil Range Organics (MRO)	ND	47	mg/Kg	1	12/3/2019 11:42:29 AM
Surr: DNOP	90.8	70-130	%Rec	1	12/3/2019 11:42:29 AM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.0	mg/Kg	1	12/2/2019 9:59:10 PM
Surr: BFB	80.0	77.4-118	%Rec	1	12/2/2019 9:59:10 PM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	0.025	mg/Kg	1	12/2/2019 9:59:10 PM
Toluene	ND	0.050	mg/Kg	1	12/2/2019 9:59:10 PM
Ethylbenzene	ND	0.050	mg/Kg	1	12/2/2019 9:59:10 PM
Xylenes, Total	ND	0.099	mg/Kg	1	12/2/2019 9:59:10 PM
Surr: 4-Bromofluorobenzene	96.5	80-120	%Rec	1	12/2/2019 9:59:10 PM
EPA METHOD 300.0: ANIONS					Analyst: MRA
Chloride	2400	60	mg/Kg	20	12/4/2019 8:44:09 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

Page 5 of 21

Lab Order **1911C59**

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 12/6/2019

CLIENT: Vertex Resource Group Ltd. Client Sample ID: WS19-05 4'

 Project:
 Trebuchet Fee 232819 WXY
 Collection Date: 11/22/2019 2:00:00 PM

 Lab ID:
 1911C59-006
 Matrix: SOIL
 Received Date: 11/27/2019 9:00:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORG	Analyst: BRM				
Diesel Range Organics (DRO)	ND	9.8	mg/Kg	1	12/3/2019 12:37:31 PM
Motor Oil Range Organics (MRO)	ND	49	mg/Kg	1	12/3/2019 12:37:31 PM
Surr: DNOP	90.2	70-130	%Rec	1	12/3/2019 12:37:31 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.7	mg/Kg	1	12/2/2019 11:30:08 PM
Surr: BFB	79.4	77.4-118	%Rec	1	12/2/2019 11:30:08 PM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	0.023	mg/Kg	1	12/2/2019 11:30:08 PM
Toluene	ND	0.047	mg/Kg	1	12/2/2019 11:30:08 PM
Ethylbenzene	ND	0.047	mg/Kg	1	12/2/2019 11:30:08 PM
Xylenes, Total	ND	0.093	mg/Kg	1	12/2/2019 11:30:08 PM
Surr: 4-Bromofluorobenzene	98.3	80-120	%Rec	1	12/2/2019 11:30:08 PM
EPA METHOD 300.0: ANIONS					Analyst: MRA
Chloride	2200	60	mg/Kg	20	12/4/2019 8:56:30 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

Date Reported: 12/6/2019

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BH19-20 6'

 Project:
 Trebuchet Fee 232819 WXY
 Collection Date: 11/22/2019 2:50:00 PM

 Lab ID:
 1911C59-007
 Matrix: SOIL
 Received Date: 11/27/2019 9:00:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OR	GANICS				Analyst: BRM
Diesel Range Organics (DRO)	ND	9.2	mg/Kg	1	12/3/2019 1:05:03 PM
Motor Oil Range Organics (MRO)	ND	46	mg/Kg	1	12/3/2019 1:05:03 PM
Surr: DNOP	87.8	70-130	%Rec	1	12/3/2019 1:05:03 PM
EPA METHOD 300.0: ANIONS					Analyst: MRA
Chloride	1100	60	mg/Kg	20	12/4/2019 9:08:51 PM
EPA METHOD 8260B: VOLATILES SHORT L	IST				Analyst: JMR
Benzene	ND	0.024	mg/Kg	1	12/2/2019 2:39:57 PM
Toluene	ND	0.048	mg/Kg	1	12/2/2019 2:39:57 PM
Ethylbenzene	ND	0.048	mg/Kg	1	12/2/2019 2:39:57 PM
Xylenes, Total	ND	0.095	mg/Kg	1	12/2/2019 2:39:57 PM
Surr: 1,2-Dichloroethane-d4	98.7	70-130	%Rec	1	12/2/2019 2:39:57 PM
Surr: 4-Bromofluorobenzene	91.3	70-130	%Rec	1	12/2/2019 2:39:57 PM
Surr: Dibromofluoromethane	115	70-130	%Rec	1	12/2/2019 2:39:57 PM
Surr: Toluene-d8	102	70-130	%Rec	1	12/2/2019 2:39:57 PM
EPA METHOD 8015D MOD: GASOLINE RAN	GE				Analyst: JMR
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	12/2/2019 2:39:57 PM
Surr: BFB	94.9	70-130	%Rec	1	12/2/2019 2:39:57 PM

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

Qualifiers:

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

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

Page 7 of 21

Date Reported: 12/6/2019

CLIENT: Vertex Resource Group Ltd. Client Sample ID: WS19-10 4'

 Project:
 Trebuchet Fee 232819 WXY
 Collection Date: 11/22/2019 4:55:00 PM

 Lab ID:
 1911C59-008
 Matrix: SOIL
 Received Date: 11/27/2019 9:00:00 AM

Analyses	Result	RL (Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE C	RGANICS					Analyst: BRM
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	12/3/2019 1:14:15 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	12/3/2019 1:14:15 PM
Surr: DNOP	138	70-130	S	%Rec	1	12/3/2019 1:14:15 PM
EPA METHOD 300.0: ANIONS						Analyst: CJS
Chloride	2400	150		mg/Kg	50	12/6/2019 1:41:43 AM
EPA METHOD 8260B: VOLATILES SHORT	LIST					Analyst: JMR
Benzene	ND	0.024		mg/Kg	1	12/2/2019 4:06:03 PM
Toluene	ND	0.049		mg/Kg	1	12/2/2019 4:06:03 PM
Ethylbenzene	ND	0.049		mg/Kg	1	12/2/2019 4:06:03 PM
Xylenes, Total	ND	0.098		mg/Kg	1	12/2/2019 4:06:03 PM
Surr: 1,2-Dichloroethane-d4	98.3	70-130		%Rec	1	12/2/2019 4:06:03 PM
Surr: 4-Bromofluorobenzene	90.2	70-130		%Rec	1	12/2/2019 4:06:03 PM
Surr: Dibromofluoromethane	115	70-130		%Rec	1	12/2/2019 4:06:03 PM
Surr: Toluene-d8	101	70-130		%Rec	1	12/2/2019 4:06:03 PM
EPA METHOD 8015D MOD: GASOLINE RA	NGE					Analyst: JMR
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	12/2/2019 4:06:03 PM
Surr: BFB	93.7	70-130		%Rec	1	12/2/2019 4:06:03 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

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 12/6/2019

CLIENT: Vertex Resource Group Ltd. Client Sample ID: WS19-09 4'

 Project:
 Trebuchet Fee 232819 WXY
 Collection Date: 11/22/2019 5:05:00 PM

 Lab ID:
 1911C59-009
 Matrix: SOIL
 Received Date: 11/27/2019 9:00:00 AM

Analyses	Result	RL Qua	l Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OF	Analyst: BRM				
Diesel Range Organics (DRO)	ND	9.9	mg/Kg	1	12/3/2019 1:23:25 PM
Motor Oil Range Organics (MRO)	ND	49	mg/Kg	1	12/3/2019 1:23:25 PM
Surr: DNOP	95.9	70-130	%Rec	1	12/3/2019 1:23:25 PM
EPA METHOD 300.0: ANIONS					Analyst: CJS
Chloride	2700	150	mg/Kg	50	12/6/2019 1:54:04 AM
EPA METHOD 8260B: VOLATILES SHORT L	.IST				Analyst: JMR
Benzene	ND	0.025	mg/Kg	1	12/2/2019 4:34:43 PM
Toluene	ND	0.050	mg/Kg	1	12/2/2019 4:34:43 PM
Ethylbenzene	ND	0.050	mg/Kg	1	12/2/2019 4:34:43 PM
Xylenes, Total	ND	0.099	mg/Kg	1	12/2/2019 4:34:43 PM
Surr: 1,2-Dichloroethane-d4	102	70-130	%Rec	1	12/2/2019 4:34:43 PM
Surr: 4-Bromofluorobenzene	91.1	70-130	%Rec	1	12/2/2019 4:34:43 PM
Surr: Dibromofluoromethane	117	70-130	%Rec	1	12/2/2019 4:34:43 PM
Surr: Toluene-d8	103	70-130	%Rec	1	12/2/2019 4:34:43 PM
EPA METHOD 8015D MOD: GASOLINE RAN	IGE				Analyst: JMR
Gasoline Range Organics (GRO)	ND	5.0	mg/Kg	1	12/2/2019 4:34:43 PM
Surr: BFB	95.1	70-130	%Rec	1	12/2/2019 4:34:43 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

Page 9 of 21

Date Reported: 12/6/2019

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BS19-25 5'

 Project:
 Trebuchet Fee 232819 WXY
 Collection Date: 11/25/2019 3:53:00 PM

 Lab ID:
 1911C59-010
 Matrix: SOIL
 Received Date: 11/27/2019 9:00:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORG	ANICS				Analyst: BRM
Diesel Range Organics (DRO)	ND	9.3	mg/Kg	1	12/3/2019 1:32:37 PM
Motor Oil Range Organics (MRO)	ND	46	mg/Kg	1	12/3/2019 1:32:37 PM
Surr: DNOP	120	70-130	%Rec	1	12/3/2019 1:32:37 PM
EPA METHOD 300.0: ANIONS					Analyst: MRA
Chloride	530	60	mg/Kg	20	12/4/2019 10:10:36 PM
EPA METHOD 8260B: VOLATILES SHORT LIS	ST.				Analyst: JMR
Benzene	ND	0.023	mg/Kg	1	12/2/2019 5:03:27 PM
Toluene	ND	0.047	mg/Kg	1	12/2/2019 5:03:27 PM
Ethylbenzene	ND	0.047	mg/Kg	1	12/2/2019 5:03:27 PM
Xylenes, Total	ND	0.093	mg/Kg	1	12/2/2019 5:03:27 PM
Surr: 1,2-Dichloroethane-d4	103	70-130	%Rec	1	12/2/2019 5:03:27 PM
Surr: 4-Bromofluorobenzene	90.3	70-130	%Rec	1	12/2/2019 5:03:27 PM
Surr: Dibromofluoromethane	118	70-130	%Rec	1	12/2/2019 5:03:27 PM
Surr: Toluene-d8	104	70-130	%Rec	1	12/2/2019 5:03:27 PM
EPA METHOD 8015D MOD: GASOLINE RANG	E				Analyst: JMR
Gasoline Range Organics (GRO)	ND	4.7	mg/Kg	1	12/2/2019 5:03:27 PM
Surr: BFB	94.0	70-130	%Rec	1	12/2/2019 5:03:27 PM

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit

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

Page 10 of 21

Date Reported: 12/6/2019

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BS19-26 5'

 Project:
 Trebuchet Fee 232819 WXY
 Collection Date: 11/25/2019 4:45:00 PM

 Lab ID:
 1911C59-011
 Matrix: SOIL
 Received Date: 11/27/2019 9:00:00 AM

Analyses	Result	RL Qu	ial Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORG	GANICS				Analyst: BRM
Diesel Range Organics (DRO)	ND	8.8	mg/Kg	1	12/3/2019 1:41:47 PM
Motor Oil Range Organics (MRO)	ND	44	mg/Kg	1	12/3/2019 1:41:47 PM
Surr: DNOP	96.0	70-130	%Rec	1	12/3/2019 1:41:47 PM
EPA METHOD 300.0: ANIONS					Analyst: MRA
Chloride	660	60	mg/Kg	20	12/4/2019 10:22:56 PM
EPA METHOD 8260B: VOLATILES SHORT LI	ST				Analyst: JMR
Benzene	ND	0.024	mg/Kg	1	12/2/2019 5:32:05 PM
Toluene	ND	0.048	mg/Kg	1	12/2/2019 5:32:05 PM
Ethylbenzene	ND	0.048	mg/Kg	1	12/2/2019 5:32:05 PM
Xylenes, Total	ND	0.096	mg/Kg	1	12/2/2019 5:32:05 PM
Surr: 1,2-Dichloroethane-d4	101	70-130	%Rec	1	12/2/2019 5:32:05 PM
Surr: 4-Bromofluorobenzene	89.7	70-130	%Rec	1	12/2/2019 5:32:05 PM
Surr: Dibromofluoromethane	119	70-130	%Rec	1	12/2/2019 5:32:05 PM
Surr: Toluene-d8	102	70-130	%Rec	1	12/2/2019 5:32:05 PM
EPA METHOD 8015D MOD: GASOLINE RANG	SE .				Analyst: JMR
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	12/2/2019 5:32:05 PM
Surr: BFB	95.2	70-130	%Rec	1	12/2/2019 5:32:05 PM

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

Qualifiers:

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

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

Page 11 of 21

Date Reported: 12/6/2019

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BS19-22 5'

 Project:
 Trebuchet Fee 232819 WXY
 Collection Date: 11/25/2019 4:50:00 PM

 Lab ID:
 1911C59-012
 Matrix: SOIL
 Received Date: 11/27/2019 9:00:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORG	SANICS				Analyst: BRM
Diesel Range Organics (DRO)	ND	8.3	mg/Kg	1	12/3/2019 1:50:59 PM
Motor Oil Range Organics (MRO)	ND	41	mg/Kg	1	12/3/2019 1:50:59 PM
Surr: DNOP	92.1	70-130	%Rec	1	12/3/2019 1:50:59 PM
EPA METHOD 300.0: ANIONS					Analyst: MRA
Chloride	410	60	mg/Kg	20	12/4/2019 10:35:17 PM
EPA METHOD 8260B: VOLATILES SHORT LIS	ST				Analyst: JMR
Benzene	ND	0.024	mg/Kg	1	12/2/2019 6:00:40 PM
Toluene	ND	0.048	mg/Kg	1	12/2/2019 6:00:40 PM
Ethylbenzene	ND	0.048	mg/Kg	1	12/2/2019 6:00:40 PM
Xylenes, Total	ND	0.095	mg/Kg	1	12/2/2019 6:00:40 PM
Surr: 1,2-Dichloroethane-d4	101	70-130	%Rec	1	12/2/2019 6:00:40 PM
Surr: 4-Bromofluorobenzene	87.5	70-130	%Rec	1	12/2/2019 6:00:40 PM
Surr: Dibromofluoromethane	120	70-130	%Rec	1	12/2/2019 6:00:40 PM
Surr: Toluene-d8	102	70-130	%Rec	1	12/2/2019 6:00:40 PM
EPA METHOD 8015D MOD: GASOLINE RANG	E				Analyst: JMR
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	12/2/2019 6:00:40 PM
Surr: BFB	92.3	70-130	%Rec	1	12/2/2019 6:00:40 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

Page 12 of 21

Date Reported: 12/6/2019

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BS19-34 5'

 Project:
 Trebuchet Fee 232819 WXY
 Collection Date: 11/25/2019 5:28:00 PM

 Lab ID:
 1911C59-013
 Matrix: SOIL
 Received Date: 11/27/2019 9:00:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OR	GANICS				Analyst: BRM
Diesel Range Organics (DRO)	ND	9.6	mg/Kg	1	12/3/2019 2:00:13 PM
Motor Oil Range Organics (MRO)	ND	48	mg/Kg	1	12/3/2019 2:00:13 PM
Surr: DNOP	96.3	70-130	%Rec	1	12/3/2019 2:00:13 PM
EPA METHOD 300.0: ANIONS					Analyst: MRA
Chloride	900	60	mg/Kg	20	12/4/2019 10:47:39 PM
EPA METHOD 8260B: VOLATILES SHORT L	IST				Analyst: JMR
Benzene	ND	0.023	mg/Kg	1	12/2/2019 6:29:17 PM
Toluene	ND	0.047	mg/Kg	1	12/2/2019 6:29:17 PM
Ethylbenzene	ND	0.047	mg/Kg	1	12/2/2019 6:29:17 PM
Xylenes, Total	ND	0.094	mg/Kg	1	12/2/2019 6:29:17 PM
Surr: 1,2-Dichloroethane-d4	103	70-130	%Rec	1	12/2/2019 6:29:17 PM
Surr: 4-Bromofluorobenzene	89.6	70-130	%Rec	1	12/2/2019 6:29:17 PM
Surr: Dibromofluoromethane	120	70-130	%Rec	1	12/2/2019 6:29:17 PM
Surr: Toluene-d8	103	70-130	%Rec	1	12/2/2019 6:29:17 PM
EPA METHOD 8015D MOD: GASOLINE RAN	GE				Analyst: JMR
Gasoline Range Organics (GRO)	ND	4.7	mg/Kg	1	12/2/2019 6:29:17 PM
Surr: BFB	96.8	70-130	%Rec	1	12/2/2019 6:29:17 PM

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit

- 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

Date Reported: 12/6/2019

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BS19-33 5'

 Project:
 Trebuchet Fee 232819 WXY
 Collection Date: 11/25/2019 5:35:00 PM

 Lab ID:
 1911C59-014
 Matrix: SOIL
 Received Date: 11/27/2019 9:00:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORG	ANICS				Analyst: BRM
Diesel Range Organics (DRO)	ND	9.8	mg/Kg	1	12/3/2019 2:09:27 PM
Motor Oil Range Organics (MRO)	ND	49	mg/Kg	1	12/3/2019 2:09:27 PM
Surr: DNOP	95.3	70-130	%Rec	1	12/3/2019 2:09:27 PM
EPA METHOD 300.0: ANIONS					Analyst: MRA
Chloride	600	60	mg/Kg	20	12/4/2019 11:00:00 PM
EPA METHOD 8260B: VOLATILES SHORT LIS	т				Analyst: JMR
Benzene	ND	0.024	mg/Kg	1	12/2/2019 6:57:51 PM
Toluene	ND	0.049	mg/Kg	1	12/2/2019 6:57:51 PM
Ethylbenzene	ND	0.049	mg/Kg	1	12/2/2019 6:57:51 PM
Xylenes, Total	ND	0.098	mg/Kg	1	12/2/2019 6:57:51 PM
Surr: 1,2-Dichloroethane-d4	102	70-130	%Rec	1	12/2/2019 6:57:51 PM
Surr: 4-Bromofluorobenzene	90.3	70-130	%Rec	1	12/2/2019 6:57:51 PM
Surr: Dibromofluoromethane	121	70-130	%Rec	1	12/2/2019 6:57:51 PM
Surr: Toluene-d8	102	70-130	%Rec	1	12/2/2019 6:57:51 PM
EPA METHOD 8015D MOD: GASOLINE RANG	E				Analyst: JMR
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	12/2/2019 6:57:51 PM
Surr: BFB	94.1	70-130	%Rec	1	12/2/2019 6:57:51 PM

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

Qualifiers:

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

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

Page 14 of 21

Hall Environmental Analysis Laboratory, Inc.

WO#: **1911C59**

06-Dec-19

Client: Vertex Resource Group Ltd.

Project: Trebuchet Fee 232819 WXY

Sample ID: MB-49160 SampType: mblk TestCode: EPA Method 300.0: Anions

Client ID: PBS Batch ID: 49160 RunNo: 64920

Prep Date: 12/4/2019 Analysis Date: 12/4/2019 SeqNo: 2227398 Units: mg/Kg

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

Chloride ND 1.5

Sample ID: LCS-49160 SampType: Ics TestCode: EPA Method 300.0: Anions

Client ID: LCSS Batch ID: 49160 RunNo: 64920

Prep Date: 12/4/2019 Analysis Date: 12/4/2019 SeqNo: 2227400 Units: mg/Kg

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

Chloride 14 1.5 15.00 0 95.4 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

Page 15 of 21

Client:

Hall Environmental Analysis Laboratory, Inc.

Vertex Resource Group Ltd.

WO#: **1911C59**

06-Dec-19

Project: Trebuche	t Fee 2328	19 WX	XY							
Sample ID: LCS-49070	SampT	ype: LC	s	Tes	tCode: El	PA Method	8015M/D: Die	esel Range	Organics	
Client ID: LCSS	Batch	ID: 49	070	F	RunNo: 6	4876				
Prep Date: 12/2/2019	Analysis D	ate: 12	2/3/2019	S	SeqNo: 2	224173	Units: mg/K	(g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	43	10	50.00	0	85.8	63.9	124			
Surr: DNOP	4.0		5.000		79.0	70	130			
Sample ID: MB-49070	SampT	ype: ME	BLK	Tes	tCode: El	PA Method	8015M/D: Die	esel Range	Organics	
Client ID: PBS	Batch	ID: 49	070	F	RunNo: 6	4876				
Prep Date: 12/2/2019	Analysis D	ate: 12	2/3/2019	5	SeqNo: 2	224174	Units: mg/K	(g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	10		10.00		105	70	130			
Sample ID: LCS-49089	SampT	ype: LC	s	Tes	tCode: El	PA Method	8015M/D: Die	esel Range	Organics	
Client ID: LCSS	Batch	ID: 49	089	F	RunNo: 6	4876				
Prep Date: 12/2/2019	Analysis D	ate: 12	2/3/2019	S	SeqNo: 2	224924	Units: mg/K	(g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	44	10	50.00	0	88.9	63.9	124			
Surr: DNOP	4.1		5.000		82.7	70	130			
Sample ID: MB-49089	SampT	ype: ME	BLK	Tes	tCode: El	PA Method	8015M/D: Die	esel Range	Organics	
Client ID: PBS	Batch	ID: 49	089	F	RunNo: 6	4876				
Prep Date: 12/2/2019	Analysis D	ate: 12	2/3/2019	9	SeqNo: 2	224925	Units: mg/K	(g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	8.5		10.00		85.3	70	130			
Sample ID: 1911C59-006AMS	SampT	ype: M \$	3	Tes	tCode: El	PA Method	8015M/D: Die	esel Range	Organics	
Client ID: WS19-05 4'	Batch	ID: 49	089	F	RunNo: 6	4876				
Prep Date: 12/2/2019	Analysis D	ate: 12	2/3/2019	\$	SeqNo: 2	225731	Units: mg/K	(g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	51	9.0	45.25	0	113	57	142			

Qualifiers:

Surr: DNOP

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

3.8

ND Not Detected at the Reporting Limit

PQL Practical Quantitative Limit

B Analyte detected in the associated Method Blank

84.1

70

130

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

4.525

Page 16 of 21

Hall Environmental Analysis Laboratory, Inc.

WO#: **1911C59**

06-Dec-19

Client: Vertex Resource Group Ltd.

Project: Trebuchet Fee 232819 WXY

Sample ID: 1911C59-006AMSD SampType: MSD TestCode: EPA Method 8015M/D: Diesel Range Organics

Client ID: WS19-05 4' Batch ID: 49089 RunNo: 64876

Prep Date: 12/2/2019 Analysis Date: 12/3/2019 SeqNo: 2225732 Units: mg/Kg

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qua
Diesel Range Organics (DRO)	45	10	50.40	0	88.9	57	142	12.9	20	
Surr: DNOP	4.1		5.040		80.6	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

Page 17 of 21

Hall Environmental Analysis Laboratory, Inc.

WO#: **1911C59**

06-Dec-19

Client: Vertex Resource Group Ltd.

Project: Trebuchet Fee 232819 WXY

Sample ID: MB-49063 SampType: MBLK TestCode: EPA Method 8015D: Gasoline Range

Client ID: PBS Batch ID: 49063 RunNo: 64862

Prep Date: 11/27/2019 Analysis Date: 12/2/2019 SeqNo: 2223698 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 840 1000 84.2 77.4 118

Sample ID: LCS-49063 SampType: LCS TestCode: EPA Method 8015D: Gasoline Range

Client ID: LCSS Batch ID: 49063 RunNo: 64862

Prep Date: 11/27/2019 Analysis Date: 12/2/2019 SeqNo: 2223699 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 92.6 80 120 Surr: BFB 920 1000 91.5 77.4 118

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

Page 18 of 21

Hall Environmental Analysis Laboratory, Inc.

2.9

1.0

0.10

WO#: **1911C59**

06-Dec-19

Client: Vertex Resource Group Ltd.

Project: Trebuchet Fee 232819 WXY

Sample ID: MB-49063 SampType: MBLK TestCode: EPA Method 8021B: Volatiles
Client ID: PBS Batch ID: 49063 RunNo: 64862

Prep Date: 11/27/2019 Analysis Date: 12/2/2019 SeqNo: 2223746 Units: mg/Kg

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

Benzene ND 0.025

 Toluene
 ND
 0.050

 Ethylbenzene
 ND
 0.050

 Xylenes, Total
 ND
 0.10

Surr: 4-Bromofluorobenzene 1.1 1.000 107 80 120

3.000

1.000

Sample ID: LCS-49063 SampType: LCS TestCode: EPA Method 8021B: Volatiles Client ID: LCSS Batch ID: 49063 RunNo: 64862 Units: mg/Kg Prep Date: 11/27/2019 Analysis Date: 12/2/2019 SeqNo: 2223747 PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual 0.025 1.000 0 96.5 80 120 0.96 Benzene Toluene 0.97 0.050 1.000 0 96.5 80 120 0.050 0 97.1 80 120 Ethylbenzene 0.97 1.000

0

96.7

104

80

80

120

120

Qualifiers:

Xylenes, Total

Surr: 4-Bromofluorobenzene

Value exceeds Maximum Contaminant 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, Inc.

WO#: **1911C59**

06-Dec-19

Client: Vertex Resource Group Ltd.

Project: Trebuchet Fee 232819 WXY

Sample ID: Ics-49064 Client ID: LCSS	·	ype: LC			8260B: Vola	iles Short	List						
Prep Date: 11/27/2019	Analysis D		2/2/2019	-	RunNo: 6 SeqNo: 2		Units: mg/Kg						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual			
Benzene	1.0	0.025	1.000	0	104	68	135						
Toluene	0.99	0.050	1.000	0	99.1	70	130						
Surr: 1,2-Dichloroethane-d4	0.50		0.5000		101	70	130						
Surr: 4-Bromofluorobenzene	0.43		0.5000		85.9	70	130						
Surr: Dibromofluoromethane	0.58		0.5000		116	70	130						
Surr: Toluene-d8	0.50		0.5000		99.5	70	130						

Sample ID: mb-49064	Samp	Гуре: МЕ	BLK	TestCode: EPA Method 8260B: Volatiles Short List								
Client ID: PBS	Batc	h ID: 49	064	F								
Prep Date: 11/27/2019	Analysis [Date: 12	2/2/2019	5	SeqNo: 2	224129	Units: mg/K	(g				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual		
Benzene	ND	0.025										
Toluene	ND	0.050										
Ethylbenzene	ND	0.050										
Xylenes, Total	ND	0.10										
Surr: 1,2-Dichloroethane-d4	0.49		0.5000		98.6	70	130					
Surr: 4-Bromofluorobenzene	0.45		0.5000		89.2	70	130					
Surr: Dibromofluoromethane	0.55		0.5000		110	70	130					
Surr: Toluene-d8	0.50		0.5000		99.4	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

Client:

Hall Environmental Analysis Laboratory, Inc.

Vertex Resource Group Ltd.

Analysis Date: 12/2/2019

PQL

5.0

500.0

Result

ND

470

WO#: **1911C59**

06-Dec-19

Project: Trebu	chet Fee 232819	WXY							
Sample ID: 1911c59-007ar	ns SampType	: MS	Tes	tCode: El	PA Method	8015D Mod:	Gasoline	Range	
Client ID: BH19-20 6'	Batch ID	: 49064	F	RunNo: 64	4875				
Prep Date: 11/27/2019	Analysis Date	12/2/2019	5	SeqNo: 2	224141	Units: mg/k	(g		
Analyte	Result P	QL SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22	4.6 22.91	0	95.7	70	130			
Surr: BFB	430	458.3		94.8	70	130			
Sample ID: 1911c59-007ar	nsd SampType	: MSD	Tes	tCode: El	PA Method	8015D Mod:	Gasoline	Range	
Client ID: BH19-20 6'	Batch ID	49064	F	RunNo: 64	4875				
Prep Date: 11/27/2019	Analysis Date	12/2/2019	8	SeqNo: 2	224143	Units: mg/h	(g		
Analyte	Result P	QL SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	5.0 24.95	0	99.2	70	130	12.1	20	
Surr: BFB	490	499.0		97.8	70	130	0	0	
Sample ID: Ics-49064	SampType	: LCS	Tes	tCode: El	PA Method	8015D Mod:	Gasoline	Range	
Client ID: LCSS	Batch ID	49064	F	RunNo: 64	4875				
Prep Date: 11/27/2019	Analysis Date	12/2/2019	8	SeqNo: 2	224171	Units: mg/h	(g		
Analyte	Result P	QL SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22	5.0 25.00	0	87.4	70	130			
Surr: BFB	470	500.0		94.5	70	130			
Sample ID: mb-49064	SampType	: MBLK	Tes	tCode: El	PA Method	8015D Mod:	Gasoline	Range	
Client ID: PBS	Batch ID	: 49064	F	RunNo: 6	4875				

SPK value SPK Ref Val %REC LowLimit

Qualifiers:

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

Prep Date: 11/27/2019

Gasoline Range Organics (GRO)

Surr: BFB

- 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

SeqNo: 2224172

93.0

Units: mg/Kg

130

%RPD

RPDLimit

Qual

HighLimit

70

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



Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87109

Sample Log-In Check List

TEL: 505-345-3975 FAX: 505-345-4107 Website: www.hallenvironmental.com Client Name: **VERTEX CARLSBAD** Work Order Number: 1911C59 RcptNo: 1

Received By: Juan Porces 11/27/2019 9:00:0	00 AM		
Completed By: Such Royals 11/27/2019 9:00:0 Leah Baca 11/27/2019 9:46:3	30 AM	Int Bace	
Reviewed By: 0 ~ 1 (/ 27 / 19		Load James	
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. VOA vials have zero headspace?	Yes 🗌	No 🗌	No VOA Vials ✓
0. Were any sample containers received broken?	Yes	No 🗹	# of preserved
1 December 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1			bottles checked
Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes 🗸	No 📙	for pH: (<2 or >12 unless noted)
2. Are matrices correctly identified on Chain of Custody?	Yes 🗸	No 🗆	Adjusted?
3. Is it clear what analyses were requested?	Yes 🗸	No 🗌	
4. Were all holding times able to be met?	Yes 🗸	No 🗆	Checked by: FL) W 11/7
(If no, notify customer for authorization.)			/
pecial Handling (if applicable)			
15. Was client notified of all discrepancies with this order?	Yes	No 🗌	NA 🗹
Person Notified: Date			
By Whom: Via:	,	Phone Fax	☐ In Person
Regarding:			
Client Instructions:			

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	0.2	Good				
2	1.7	Good		***************************************		

HALL ENVIRONMENTAL		www.hallenvironmental.com 4901 Hawkins NE - Albuquerque, NM 87109		Analysis Request		SMISC	(1.4(1)) 1028 1 1028,	d 50 (0 o	othe 83. 19M 19M (AC	8081 Pe PAHs by RCRA 8 Cl, F, Bi 8250 (VG 8270 (Se Total Co	X	X	3	X	X	X	X	×	· >		X		See the see that t	and satation ngordon@ Vertex.ca	This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.
		49	Tel.			's (802 'O / MR				ухэта 108:НЧТ	X	\Diamond	X	X	X	X	Q	3	X	X	8	X	Remarks:)	ssibility.
SDar		232819 Way		0-005/6		MALIE (JORIDON)			0.4-0.2=0.2 (°C)	1.1-0.2=1.7 HEAL NO.	100-	-601	- 0(S	000 -	-005	Ø 900-	< 003 ×	0 800-	000	010-	→ 110-	7110-	Pate Time Ri	Date Time	s. This serves as notice of this po
		ST FEE		-03840	iger:	LIE GOR	Sampler: SHAZ HAZUCATE	3 6	138	Preservative Type	100	1	1	106	-				_	156	1		N'ig.	Via:	ccredited laboratorie
Turn-Around Time:	Project Name:	TREBUC	Project #:	341	Project Manag	NATALIE	Sampler: S	# of Coolers:	Cooler Temp(including CF):	Container Type and #	JAR	1	1	JAR					-	JAK	-		Received by:	Received by:	ontracted to other a
g	3710					idation)					14	7	7	14,	14	14	0	141	141	'p	1	1	X	15	may be sub
Chain-of-Custody Record	VELTER LESOURCE SERVICES	FILE		3714	PILE	☐ Level 4 (Full Validation)	☐ Az Compliance			Sample Name	BH19-37	BH19-38	8519-03	BH19-39	40-612W	WS19-05	BM19-20	WS13-10	60-6/SM	- 35	BS19-265	8813-225		All The	f necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories.
of-C	多	8		AN F	200		□ Az Co			Matrix	>	_	_	5	-				-	S	-	_	Relinquished by	Relinguished by	samples sub
hain	331	Mailing Address:			Fax#:	QA/QC Package: □ Standard	tation:	EDD (Type)		Time				11:35	13:45	34.00	14:50	16:55	17:05	16:93	16/16	16:50		Time: [400	necessary,
S		Mailing		Phone #:	email or Fax#:	QA/QC Packa	Accreditation:	□ EDD (Ty		Date	11/21	-	_	1/22	-				-	11/25			S	Date:]=

Harter Resource Seas 104 Estandard Project Name: Address: Grap Plue Project His Project	Chain-of-Custody Record	Turn-Around Time: ろ)プック	
12 c & 23 28 19 woy 490 Project Name: 196 - 038 40 - 00 6 6 Tel 196 - 038 40 - 00 6 6 Tel 196 - 038 40 - 00 6 6 Tel 196 19	JIHON: VERTEX RESOURCE SORN 1001		ANALYSIS LABORATORY
Project #: 196-03840-006/6 Tell Validation Project Wanager: 196-03840-006/6 Tell Validation Project Manager: 196-03840-006/6 Tell Validation Project Manager: Proje		Project Name:	www.hallenvironmental.com
Project #: 196-03840-006/6 2000 2000 2000 3000	Mailing Address: 6N FILE	TREBUCART FEE 23 28 19 WXY	-
##		Project #:	
Package: Pac	B		Inal
Package: Level 4 (Full Validation) NHTAL 18 CONTROL Sampler SHARL MAILS LEAST LEAST No No No No No No No	8	Project Manager:	*O
Name Carried Application Dependence Carried Application Dependence Carried Application Dependence Carried Application		NATALIE CONTRON	B's AS (4, SC
Time Matrix Sample Name Sampler Strate Matrix Sample Name Type And Type Type And Type T		ngordon @ Vertex.ca	PO.
Time Matrix Sample Name Type and # Type Type		SHARE	S8082 (1.4.1) (1.4.27 (2.0) (4.0)
Time Matrix Sample Name Type and # Type 14-0-2=6-2 (***) 18 18 18 18 18 18 18 1	ype)	2	GRG d 50 10 c tals $ O_3,$
Time Matrix Sample Name Type and # Type 19-0-2-1-7 19-0-1-1-7 19-0-1-1-7 19-0-1-1-7 19-0-1-1-7 19-0-1-1-7 19-0-1-1-7 19-0-1-1-7 19-0-1-1-7 19-0-1-1-7 19-0-1-1-7 19-0-1-7 19		(including CF).	atic etho 7 83 Me 7, <i>N</i>
17:96 BS19-34 5 JA72 JC6 -013 KK 17:96 SS19-33 6 JA72 JC6 -013 KK 17:96 SS19-33 6 JA72 JC6 -013 KK SS19-33 6 JA72 JC6 -013 KK SS19-33 6 JA72 JC6 -013 KK SS19-33 6 JC6	Timo	Preservative HEAL No.	DB (Webs)
1 1 1 1 1 1 1 1 1 1	7:38 S 8519-34 S	1.ype	88 88 89
Time: Relinquished by CM/Williams Received by Via: CM/Williams Remarks: CM/Williams Received by Via: Date Time Received by Via: Date Time All Covices it 27/14 9/00	5 18519 - 33 6	Ce (C	
Time: Relinquished by A. Was: Date Time Remarks: Cov rev 11 271/9 400			
Time: Relinquished by Received by: Waise Remarks: CMM Washished by Man Manuarks: CMM Washished by Manuarks: CMM Ma			
Time: Relinquished by Received by: Wa: Date Time Remarks: CMM Cov riew II 27 I'v 900 MM Scott 1000 M			
Time: Relinquished by Asia Pate Time Received by Via: Date Time Remarks: 1400			
Time: Relinquished by Received by Wia: Relinquished by Time Received by: Via: Date Time Remarks: Relinquished by Stranger Covered by: Via: Date Time Remarks: Relinquished by Stranger Covered by Covered by Stranger Covered by Covere			
Time: Relinquished by Received by Wia: Relinquished by Time Received by: Via: Date Time Remarks: CMUM Street Time Received by: Via: Date Time And Street Time CAVIEW IT 27/19 9:00			
Time: Relinquished by Received by Via: Pate Time Remarks: CMUN Via: Date Time Remarks: Relinquished by Strange of Time Received by: Via: Date Time (1990)			
Time: Relinquished by/ Time:	<i>l</i> .		
1400 /a/K CAVIEW III Date Time Received by: Via: Date Time Remarks:	F		
Time: Relinquished My Serviced by: Via: Date Time 1900 (MW) Serviced by: Via: Date Time	114 1400	Mary Mary Time	
	Time:	. Via: Date T	Send results to permian @ Vertex.ca
		1000 CAVINEN 11/27/19 9:00	and ugoraen & verlex.ca



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

December 09, 2019

Natalie Gordon Vertex Resource Group Ltd. 213 S. Mesa St Carlsbad, NM 88220 TEL: FAX

RE: Trebuchet 23 28 19 Way 10H OrderNo.: 1911D07

Dear Natalie Gordon:

Hall Environmental Analysis Laboratory received 10 sample(s) on 11/30/2019 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman

Laboratory Manager

andyl

4901 Hawkins NE

Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc. Date Reported: 12/9/2019

CLIENT: Vertex Resource Group Ltd. Client Sample ID: WS19-13

 Project:
 Trebuchet 23 28 19 Way 10H
 Collection Date: 11/26/2019 2:50:00 PM

 Lab ID:
 1911D07-001
 Matrix: SOIL
 Received Date: 11/30/2019 11:10:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORG	ANICS				Analyst: BRM
Diesel Range Organics (DRO)	20	9.9	mg/Kg	1	12/3/2019 7:04:49 PM
Motor Oil Range Organics (MRO)	ND	50	mg/Kg	1	12/3/2019 7:04:49 PM
Surr: DNOP	88.1	70-130	%Rec	1	12/3/2019 7:04:49 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.0	mg/Kg	1	12/3/2019 6:35:00 PM
Surr: BFB	78.3	77.4-118	%Rec	1	12/3/2019 6:35:00 PM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	0.025	mg/Kg	1	12/3/2019 6:35:00 PM
Toluene	ND	0.050	mg/Kg	1	12/3/2019 6:35:00 PM
Ethylbenzene	ND	0.050	mg/Kg	1	12/3/2019 6:35:00 PM
Xylenes, Total	ND	0.10	mg/Kg	1	12/3/2019 6:35:00 PM
Surr: 4-Bromofluorobenzene	94.4	80-120	%Rec	1	12/3/2019 6:35:00 PM
EPA METHOD 300.0: ANIONS					Analyst: CJS
Chloride	1100	60	mg/Kg	20	12/5/2019 9:34:42 PM

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

Qualifiers:

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

Date Reported: 12/9/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BS19-04

 Project:
 Trebuchet 23 28 19 Way 10H
 Collection Date: 11/26/2019 3:55:00 PM

 Lab ID:
 1911D07-002
 Matrix: SOIL
 Received Date: 11/30/2019 11:10:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OR	GANICS				Analyst: BRM
Diesel Range Organics (DRO)	ND	9.7	mg/Kg	1	12/3/2019 7:13:58 PM
Motor Oil Range Organics (MRO)	ND	48	mg/Kg	1	12/3/2019 7:13:58 PM
Surr: DNOP	85.6	70-130	%Rec	1	12/3/2019 7:13:58 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	12/3/2019 6:57:55 PM
Surr: BFB	78.1	77.4-118	%Rec	1	12/3/2019 6:57:55 PM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	0.024	mg/Kg	1	12/3/2019 6:57:55 PM
Toluene	ND	0.048	mg/Kg	1	12/3/2019 6:57:55 PM
Ethylbenzene	ND	0.048	mg/Kg	1	12/3/2019 6:57:55 PM
Xylenes, Total	ND	0.097	mg/Kg	1	12/3/2019 6:57:55 PM
Surr: 4-Bromofluorobenzene	93.4	80-120	%Rec	1	12/3/2019 6:57:55 PM
EPA METHOD 300.0: ANIONS					Analyst: CJS
Chloride	440	60	mg/Kg	20	12/5/2019 9:47:02 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

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 12/9/2019

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BS19-07

 Project:
 Trebuchet 23 28 19 Way 10H
 Collection Date: 11/26/2019 4:00:00 PM

 Lab ID:
 1911D07-003
 Matrix: SOIL
 Received Date: 11/30/2019 11:10:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OF	RGANICS				Analyst: BRM
Diesel Range Organics (DRO)	ND	7.9	mg/Kg	1	12/3/2019 7:23:05 PM
Motor Oil Range Organics (MRO)	ND	40	mg/Kg	1	12/3/2019 7:23:05 PM
Surr: DNOP	123	70-130	%Rec	1	12/3/2019 7:23:05 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.7	mg/Kg	1	12/3/2019 7:20:37 PM
Surr: BFB	83.8	77.4-118	%Rec	1	12/3/2019 7:20:37 PM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	0.024	mg/Kg	1	12/3/2019 7:20:37 PM
Toluene	ND	0.047	mg/Kg	1	12/3/2019 7:20:37 PM
Ethylbenzene	ND	0.047	mg/Kg	1	12/3/2019 7:20:37 PM
Xylenes, Total	ND	0.095	mg/Kg	1	12/3/2019 7:20:37 PM
Surr: 4-Bromofluorobenzene	100	80-120	%Rec	1	12/3/2019 7:20:37 PM
EPA METHOD 300.0: ANIONS					Analyst: CJS
Chloride	830	60	mg/Kg	20	12/5/2019 9:59:23 PM

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

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

Page 3 of 17

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 12/9/2019

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BS19-08

 Project:
 Trebuchet 23 28 19 Way 10H
 Collection Date: 11/26/2019 4:05:00 PM

 Lab ID:
 1911D07-004
 Matrix: SOIL
 Received Date: 11/30/2019 11:10:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORG	ANICS				Analyst: BRM
Diesel Range Organics (DRO)	ND	8.2	mg/Kg	1	12/3/2019 7:32:09 PM
Motor Oil Range Organics (MRO)	ND	41	mg/Kg	1	12/3/2019 7:32:09 PM
Surr: DNOP	88.0	70-130	%Rec	1	12/3/2019 7:32:09 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	12/3/2019 7:43:31 PM
Surr: BFB	79.2	77.4-118	%Rec	1	12/3/2019 7:43:31 PM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	0.024	mg/Kg	1	12/3/2019 7:43:31 PM
Toluene	ND	0.049	mg/Kg	1	12/3/2019 7:43:31 PM
Ethylbenzene	ND	0.049	mg/Kg	1	12/3/2019 7:43:31 PM
Xylenes, Total	ND	0.098	mg/Kg	1	12/3/2019 7:43:31 PM
Surr: 4-Bromofluorobenzene	95.1	80-120	%Rec	1	12/3/2019 7:43:31 PM
EPA METHOD 300.0: ANIONS					Analyst: CJS
Chloride	740	60	mg/Kg	20	12/5/2019 10:11:44 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

Page 4 of 17

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 12/9/2019

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BS19-01

 Project:
 Trebuchet 23 28 19 Way 10H
 Collection Date: 11/26/2019 4:15:00 PM

 Lab ID:
 1911D07-005
 Matrix: SOIL
 Received Date: 11/30/2019 11:10:00 AM

Analyses Result **RL Qual Units** DF **Date Analyzed EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** Analyst: BRM Diesel Range Organics (DRO) ND 8.4 mg/Kg 1 12/3/2019 7:41:12 PM Motor Oil Range Organics (MRO) 12/3/2019 7:41:12 PM ND 42 mg/Kg 1 Surr: DNOP 76.5 70-130 %Rec 1 12/3/2019 7:41:12 PM **EPA METHOD 8015D: GASOLINE RANGE** Analyst: NSB Gasoline Range Organics (GRO) ND 12/3/2019 8:06:24 PM 4.9 mg/Kg 1 12/3/2019 8:06:24 PM Surr: BFB 79.3 77.4-118 %Rec 1 **EPA METHOD 8021B: VOLATILES** Analyst: NSB Benzene ND 12/3/2019 8:06:24 PM 0.024 mg/Kg 1 Toluene 12/3/2019 8:06:24 PM ND 0.049 mg/Kg 1 Ethylbenzene ND 0.049 mg/Kg 1 12/3/2019 8:06:24 PM Xylenes, Total ND 0.097 mg/Kg 1 12/3/2019 8:06:24 PM 12/3/2019 8:06:24 PM Surr: 4-Bromofluorobenzene 95.4 80-120 %Rec 1 Analyst: CJS **EPA METHOD 300.0: ANIONS** Chloride 680 60 12/5/2019 10:48:49 PM ma/Ka 20

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

Qualifiers:

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

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

Hall Environmental Analysis Laboratory, Inc. Date Reported: 12/9/2019

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BS19-03

 Project:
 Trebuchet 23 28 19 Way 10H
 Collection Date: 11/26/2019 4:20:00 PM

 Lab ID:
 1911D07-006
 Matrix: SOIL
 Received Date: 11/30/2019 11:10:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORG	ANICS				Analyst: BRM
Diesel Range Organics (DRO)	ND	9.1	mg/Kg	1	12/3/2019 7:50:14 PM
Motor Oil Range Organics (MRO)	ND	46	mg/Kg	1	12/3/2019 7:50:14 PM
Surr: DNOP	87.5	70-130	%Rec	1	12/3/2019 7:50:14 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.6	mg/Kg	1	12/3/2019 8:29:17 PM
Surr: BFB	82.1	77.4-118	%Rec	1	12/3/2019 8:29:17 PM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	0.023	mg/Kg	1	12/3/2019 8:29:17 PM
Toluene	ND	0.046	mg/Kg	1	12/3/2019 8:29:17 PM
Ethylbenzene	ND	0.046	mg/Kg	1	12/3/2019 8:29:17 PM
Xylenes, Total	ND	0.092	mg/Kg	1	12/3/2019 8:29:17 PM
Surr: 4-Bromofluorobenzene	97.6	80-120	%Rec	1	12/3/2019 8:29:17 PM
EPA METHOD 300.0: ANIONS					Analyst: CJS
Chloride	960	59	mg/Kg	20	12/5/2019 11:01:11 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

Page 6 of 17

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 12/9/2019

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BS19-05

 Project:
 Trebuchet 23 28 19 Way 10H
 Collection Date: 11/26/2019 4:25:00 PM

 Lab ID:
 1911D07-007
 Matrix: SOIL
 Received Date: 11/30/2019 11:10:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OR	GANICS				Analyst: BRM
Diesel Range Organics (DRO)	ND	9.9	mg/Kg	1	12/5/2019 7:46:42 AM
Motor Oil Range Organics (MRO)	ND	50	mg/Kg	1	12/5/2019 7:46:42 AM
Surr: DNOP	94.2	70-130	%Rec	1	12/5/2019 7:46:42 AM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	12/3/2019 12:11:34 PM
Surr: BFB	82.9	77.4-118	%Rec	1	12/3/2019 12:11:34 PM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	0.024	mg/Kg	1	12/3/2019 12:11:34 PM
Toluene	ND	0.048	mg/Kg	1	12/3/2019 12:11:34 PM
Ethylbenzene	ND	0.048	mg/Kg	1	12/3/2019 12:11:34 PM
Xylenes, Total	ND	0.096	mg/Kg	1	12/3/2019 12:11:34 PM
Surr: 4-Bromofluorobenzene	96.6	80-120	%Rec	1	12/3/2019 12:11:34 PM
EPA METHOD 300.0: ANIONS					Analyst: CJS
Chloride	790	60	mg/Kg	20	12/5/2019 11:13:32 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

Page 7 of 17

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 12/9/2019

12/3/2019 1:22:12 PM

12/3/2019 1:22:12 PM 12/3/2019 1:22:12 PM

12/5/2019 11:25:53 PM

Analyst: CJS

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BS19-02

 Project:
 Trebuchet 23 28 19 Way 10H
 Collection Date: 11/26/2019 4:40:00 PM

 Lab ID:
 1911D07-008
 Matrix: SOIL
 Received Date: 11/30/2019 11:10:00 AM

Analyses Result **RL Qual Units** DF **Date Analyzed EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** Analyst: BRM Diesel Range Organics (DRO) ND 8.7 mg/Kg 1 12/5/2019 8:14:12 AM Motor Oil Range Organics (MRO) ND 43 mg/Kg 1 12/5/2019 8:14:12 AM Surr: DNOP 93.6 70-130 %Rec 1 12/5/2019 8:14:12 AM **EPA METHOD 8015D: GASOLINE RANGE** Analyst: NSB Gasoline Range Organics (GRO) ND 12/3/2019 1:22:12 PM 4.9 mg/Kg 1 Surr: BFB 81.4 77.4-118 %Rec 1 12/3/2019 1:22:12 PM **EPA METHOD 8021B: VOLATILES** Analyst: NSB Benzene ND 12/3/2019 1:22:12 PM 0.024 mg/Kg 1 Toluene ND 0.049 mg/Kg 1 12/3/2019 1:22:12 PM

ND

ND

94.5

450

0.049

0.098

80-120

60

mg/Kg

mg/Kg

%Rec

ma/Ka

1

1

1

20

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

Qualifiers:

Ethylbenzene

Xylenes, Total

Chloride

Surr: 4-Bromofluorobenzene

EPA METHOD 300.0: ANIONS

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

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

Page 8 of 17

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 12/9/2019

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BH19-21a

 Project:
 Trebuchet 23 28 19 Way 10H
 Collection Date: 11/26/2019 4:45:00 PM

 Lab ID:
 1911D07-009
 Matrix: SOIL
 Received Date: 11/30/2019 11:10:00 AM

Analyses	Result	RL Qu	ual Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE O	RGANICS				Analyst: BRM
Diesel Range Organics (DRO)	ND	9.1	mg/Kg	1	12/5/2019 8:23:20 AM
Motor Oil Range Organics (MRO)	ND	46	mg/Kg	1	12/5/2019 8:23:20 AM
Surr: DNOP	91.6	70-130	%Rec	1	12/5/2019 8:23:20 AM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	12/3/2019 2:33:06 PM
Surr: BFB	88.5	77.4-118	%Rec	1	12/3/2019 2:33:06 PM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	0.024	mg/Kg	1	12/3/2019 2:33:06 PM
Toluene	ND	0.048	mg/Kg	1	12/3/2019 2:33:06 PM
Ethylbenzene	ND	0.048	mg/Kg	1	12/3/2019 2:33:06 PM
Xylenes, Total	ND	0.096	mg/Kg	1	12/3/2019 2:33:06 PM
Surr: 4-Bromofluorobenzene	104	80-120	%Rec	1	12/3/2019 2:33:06 PM
EPA METHOD 300.0: ANIONS					Analyst: MRA
Chloride	3000	150	mg/Kg	50	12/6/2019 3:39:26 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
- $ND \qquad Not \ Detected \ at \ the \ Reporting \ Limit$
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

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

Page 9 of 17

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 12/9/2019

CLIENT: Vertex Resource Group Ltd. Client Sample ID: BH19-21b

 Project:
 Trebuchet 23 28 19 Way 10H
 Collection Date: 11/26/2019 4:50:00 PM

 Lab ID:
 1911D07-010
 Matrix: SOIL
 Received Date: 11/30/2019 11:10:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORG	ANICS				Analyst: BRM
Diesel Range Organics (DRO)	ND	9.2	mg/Kg	1	12/5/2019 8:32:27 AM
Motor Oil Range Organics (MRO)	ND	46	mg/Kg	1	12/5/2019 8:32:27 AM
Surr: DNOP	91.1	70-130	%Rec	1	12/5/2019 8:32:27 AM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.7	mg/Kg	1	12/3/2019 2:56:30 PM
Surr: BFB	82.9	77.4-118	%Rec	1	12/3/2019 2:56:30 PM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	0.024	mg/Kg	1	12/3/2019 2:56:30 PM
Toluene	ND	0.047	mg/Kg	1	12/3/2019 2:56:30 PM
Ethylbenzene	ND	0.047	mg/Kg	1	12/3/2019 2:56:30 PM
Xylenes, Total	ND	0.095	mg/Kg	1	12/3/2019 2:56:30 PM
Surr: 4-Bromofluorobenzene	97.4	80-120	%Rec	1	12/3/2019 2:56:30 PM
EPA METHOD 300.0: ANIONS					Analyst: MRA
Chloride	2900	150	mg/Kg	50	12/6/2019 3:51:47 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
- $ND \qquad Not \ Detected \ at \ the \ Reporting \ Limit$
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

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

Page 10 of 17

Hall Environmental Analysis Laboratory, Inc.

WO#: **1911D07**

09-Dec-19

Client: Vertex Resource Group Ltd.

Project: Trebuchet 23 28 19 Way 10H

Sample ID: MB-49183 SampType: mblk TestCode: EPA Method 300.0: Anions

Client ID: PBS Batch ID: 49183 RunNo: 64987

Prep Date: 12/5/2019 Analysis Date: 12/5/2019 SeqNo: 2228990 Units: mg/Kg

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

Chloride ND 1.5

Sample ID: LCS-49183 SampType: Ics TestCode: EPA Method 300.0: Anions

Client ID: LCSS Batch ID: 49183 RunNo: 64987

Prep Date: 12/5/2019 Analysis Date: 12/5/2019 SeqNo: 2228991 Units: mg/Kg

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

Chloride 14 1.5 15.00 0 95.5 90 110

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

Page 11 of 17

Client:

Hall Environmental Analysis Laboratory, Inc.

Vertex Resource Group Ltd.

WO#: **1911D07**

09-Dec-19

	net 23 28 19 Wa	L					
Sample ID: LCS-49093	SampType	e: LCS	Tes	tCode: EPA Method	8015M/D: Diesel Ra	nge Organics	
Client ID: LCSS	Batch ID	: 49093	F	RunNo: 64876			
Prep Date: 12/2/2019	Analysis Date	12/3/2019	9	SeqNo: 2225772	Units: mg/Kg		
Analyte	Result P	QL SPK value	SPK Ref Val	%REC LowLimit	HighLimit %RP	D RPDLimit	Qual
Diesel Range Organics (DRO)	44	10 50.00	0	88.2 63.9	124		
Surr: DNOP	3.7	5.000		74.5 70	130		
Sample ID: MB-49093	SampType	: MBLK	Tes	tCode: EPA Method	8015M/D: Diesel Ra	nge Organics	
Client ID: PBS	Batch ID	: 49093	F	RunNo: 64876			
Prep Date: 12/2/2019	Analysis Date	12/3/2019	5	SeqNo: 2225773	Units: mg/Kg		
Analyte	Result P	QL SPK value	SPK Ref Val	%REC LowLimit	HighLimit %RP	D RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10					
Motor Oil Range Organics (MRO) Surr: DNOP	ND 7.9	50 10.00		79.3 70	130		
Suil. DNOF	1.9	10.00		19.5 10	130		
Sample ID: 1911D07-007AM	S SampType	e: MS	Tes	tCode: EPA Method	8015M/D: Diesel Ra	nge Organics	
Client ID: BS19-05	Batch ID	: 49112	F	RunNo: 64960			
Prep Date: 12/3/2019	Analysis Date	12/5/2019	9	SeqNo: 2227794	Units: mg/Kg		
Analyte	Result P	QL SPK value	SPK Ref Val	%REC LowLimit	HighLimit %RP	D RPDLimit	Qual
Diesel Range Organics (DRO)	51	9.7 48.69	0	105 57	142		
Surr: DNOP	5.2	4.869		106 70	130		
Sample ID: 1911D07-007AM	SD SampType	e: MSD	Tes	tCode: EPA Method	8015M/D: Diesel Ra	nge Organics	
Client ID: BS19-05	Batch ID	: 49112	F	RunNo: 64960			
Prep Date: 12/3/2019	Analysis Date	12/5/2019	Ş	SeqNo: 2227795	Units: mg/Kg		
Analyte	Result P	QL SPK value	SPK Ref Val	%REC LowLimit	HighLimit %RP	D RPDLimit	Qual
Diesel Range Organics (DRO)	53	9.3 46.25	0	115 57	142 4.3	_	
Surr: DNOP	5.8	4.625		125 70	130	0 0	
Sample ID: LCS-49112	SampType	: LCS	Tes	tCode: EPA Method	8015M/D: Diesel Ra	nge Organics	
Client ID: LCSS	Batch ID	: 49112	F	RunNo: 64960			
Prep Date: 12/3/2019	Analysis Date	: 12/5/2019	5	SeqNo: 2227817	Units: mg/Kg		
Analyte	Result P	QL SPK value	SPK Ref Val	%REC LowLimit	HighLimit %RP	D RPDLimit	Qual
Diesel Range Organics (DRO)	58	10 50.00	0	117 63.9	124		
Surr: DNOP	5.2	5.000		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

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

WO#: **1911D07**

09-Dec-19

Client: Vertex Resource Group Ltd.

Project: Trebuchet 23 28 19 Way 10H

Sample ID: MB-49112 SampType: MBLK TestCode: EPA Method 8015M/D: Diesel Range Organics

Client ID: PBS Batch ID: 49112 RunNo: 64960

Prep Date: 12/3/2019 Analysis Date: 12/5/2019 SeqNo: 2227818 Units: mg/Kg

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

Diesel Range Organics (DRO) ND 10
Motor Oil Range Organics (MRO) ND 50

Surr: DNOP 11 10.00 108 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

Page 13 of 17

Client:

Hall Environmental Analysis Laboratory, Inc.

Vertex Resource Group Ltd.

WO#: **1911D07**

09-Dec-19

Project: Trebuche	t 23 28 19	Way 1	0H							
Sample ID: mb-49082	SampT	уре: МЕ	BLK	Tes	tCode: El	PA Method	8015D: Gaso	oline Rang	e	
Client ID: PBS	Batch	h ID: 49	082	F	RunNo: 6	4903				
Prep Date: 12/2/2019	Analysis D	Date: 12	2/3/2019	S	SeqNo: 2	225312	Units: mg/k	〈 g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO) Surr: BFB	ND 880	5.0	1000		88.3	77.4	118			
Sample ID: Ics-49082	SampT	ype: LC	s	Tes	tCode: El	PA Method	8015D: Gaso	oline Rang	е	
Client ID: LCSS	Batch	h ID: 49	082	F	RunNo: 6	4903				
Prep Date: 12/2/2019	Analysis D	Date: 12	2/3/2019	8	SeqNo: 2	225313	Units: mg/h	(g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	5.0	25.00	0	97.2	80	120			
Surr: BFB	970		1000		96.8	77.4	118			
Sample ID: mb-49097	SampT	уре: МЕ	BLK	Tes	tCode: El	PA Method	8015D: Gaso	oline Rang	е	
Client ID: PBS	Batch	h ID: 49	097	F	RunNo: 6	4902				
Prep Date: 12/2/2019	Analysis D	Date: 12	2/3/2019	S	SeqNo: 2	225386	Units: mg/h	(g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	860	0.0	1000		86.4	77.4	118			
	860	Гуре: LC		Tes			118 8015D: Gas o	oline Rang	e	
Surr: BFB	860 SampT		:s			PA Method		oline Rang	e	
Surr: BFB Sample ID: Ics-49097	860 SampT	ype: LC	S 097	F	tCode: EI	PA Method 4902		-	e	
Surr: BFB Sample ID: Ics-49097 Client ID: LCSS	860 SampT Batch	Type: LC	S 097 2/3/2019	F	tCode: El RunNo: 6 SeqNo: 2	PA Method 4902	8015D: Gaso	-	e RPDLimit	Qual
Surr: BFB Sample ID: Ics-49097 Client ID: LCSS Prep Date: 12/2/2019 Analyte Gasoline Range Organics (GRO)	SampT Batch Analysis D Result	Type: LC h ID: 49 Date: 1 2	SPK value 25.00	F	tCode: El RunNo: 6 SeqNo: 2: %REC 86.3	PA Method 4902 225387 LowLimit 80	8015D: Gaso Units: mg/k HighLimit 120	√g		Qual
Surr: BFB Sample ID: Ics-49097 Client ID: LCSS Prep Date: 12/2/2019 Analyte	860 SampT Batch Analysis D Result	Type: LC h ID: 49 Date: 12 PQL	SPK value	SPK Ref Val	tCode: El RunNo: 6 GeqNo: 2 %REC	PA Method 4902 225387 LowLimit	8015D: Gaso Units: mg/k HighLimit	√g		Qual
Surr: BFB Sample ID: Ics-49097 Client ID: LCSS Prep Date: 12/2/2019 Analyte Gasoline Range Organics (GRO)	SampT Batch Analysis D Result 22 960	Type: LC h ID: 49 Date: 12 PQL	SPK value 25.00 1000	SPK Ref Val	RunNo: 6 SeqNo: 2 %REC 86.3 95.9	PA Method 4902 225387 LowLimit 80 77.4	8015D: Gaso Units: mg/k HighLimit 120	(g %RPD	RPDLimit	Qual
Surr: BFB Sample ID: Ics-49097 Client ID: LCSS Prep Date: 12/2/2019 Analyte Gasoline Range Organics (GRO) Surr: BFB	SampT Batch Analysis D Result 22 960 SampT	Fype: LC h ID: 49 Date: 12 PQL 5.0	SPK value 25.00 1000	SPK Ref Val 0	RunNo: 6 SeqNo: 2 %REC 86.3 95.9	PA Method 4902 225387 LowLimit 80 77.4	8015D: Gaso Units: mg/k HighLimit 120 118	(g %RPD	RPDLimit	Qual
Surr: BFB Sample ID: Ics-49097 Client ID: LCSS Prep Date: 12/2/2019 Analyte Gasoline Range Organics (GRO) Surr: BFB Sample ID: 1911d07-007ams	SampT Batch Analysis D Result 22 960 SampT	Fype: LC PQL 5.0 Fype: MS h ID: 49	SPK value 25.00 1000	SPK Ref Val 0	tCode: El RunNo: 6 SeqNo: 2 %REC 86.3 95.9	PA Method 4902 225387 LowLimit 80 77.4 PA Method 4902	8015D: Gaso Units: mg/k HighLimit 120 118	(g %RPD bline Rang	RPDLimit	Qual
Surr: BFB Sample ID: Ics-49097 Client ID: LCSS Prep Date: 12/2/2019 Analyte Gasoline Range Organics (GRO) Surr: BFB Sample ID: 1911d07-007ams Client ID: BS19-05	SampT Batch Analysis D Result 22 960 SampT Batch	Fype: LC PQL 5.0 Fype: MS h ID: 49	SPK value 25.00 1000 3 6 097 2/3/2019	SPK Ref Val 0	RunNo: 6- ReqNo: 2: **REC 86.3 95.9 **Code: El	PA Method 4902 225387 LowLimit 80 77.4 PA Method 4902	Units: mg/k HighLimit 120 118	(g %RPD bline Rang	RPDLimit	Qual
Surr: BFB Sample ID: Ics-49097 Client ID: LCSS Prep Date: 12/2/2019 Analyte Gasoline Range Organics (GRO) Surr: BFB Sample ID: 1911d07-007ams Client ID: BS19-05 Prep Date: 12/2/2019 Analyte Gasoline Range Organics (GRO)	SampT Batch Analysis D Result 22 960 SampT Batch Analysis D Result 24	Type: LC h ID: 49 Date: 12 PQL 5.0 Type: MS h ID: 49 Date: 12	SPK value 25.00 1000 SPK value 25.00 26.00 27.00	SPK Ref Val 0 Tes	RunNo: 6- 8eqNo: 2: %REC 86.3 95.9 tCode: El RunNo: 6- 8eqNo: 2: %REC 96.8	PA Method 4902 225387 LowLimit 80 77.4 PA Method 4902 225389 LowLimit 69.1	8015D: Gaso Units: mg/k HighLimit 120 118 8015D: Gaso Units: mg/k HighLimit 142	%RPD pline Rang	RPDLimit e	
Surr: BFB Sample ID: Ics-49097 Client ID: LCSS Prep Date: 12/2/2019 Analyte Gasoline Range Organics (GRO) Surr: BFB Sample ID: 1911d07-007ams Client ID: BS19-05 Prep Date: 12/2/2019 Analyte	SampT Batch Analysis D Result 22 960 SampT Batch Analysis D	Fype: LC PQL 5.0 Fype: MS Type: MS PQL PQL PQL PQL PQL PQL	SPK value 25.00 1000 3 097 2/3/2019 SPK value	SPK Ref Val 0 Tes F S SPK Ref Val	tCode: El RunNo: 6- SeqNo: 2: %REC 86.3 95.9 tCode: El RunNo: 6- SeqNo: 2: %REC	PA Method 4902 225387 LowLimit 80 77.4 PA Method 4902 225389 LowLimit	8015D: Gaso Units: mg/k HighLimit 120 118 8015D: Gaso Units: mg/k HighLimit	%RPD pline Rang	RPDLimit e	
Surr: BFB Sample ID: Ics-49097 Client ID: LCSS Prep Date: 12/2/2019 Analyte Gasoline Range Organics (GRO) Surr: BFB Sample ID: 1911d07-007ams Client ID: BS19-05 Prep Date: 12/2/2019 Analyte Gasoline Range Organics (GRO)	SampT Batch Analysis D Result 22 960 SampT Batch Analysis D Result 24 920	Fype: LC PQL 5.0 Fype: MS Type: MS PQL PQL PQL PQL PQL PQL	SPK value 2/3/2019 SPK value 25.00 1000 S 097 2/3/2019 SPK value 24.78 991.1	SPK Ref Val 0 Tes F S SPK Ref Val 0	tCode: EI RunNo: 6- GeqNo: 2: %REC 86.3 95.9 tCode: EI RunNo: 6- GeqNo: 2: %REC 96.8 92.9	PA Method 4902 225387 LowLimit 80 77.4 PA Method 4902 225389 LowLimit 69.1 77.4	8015D: Gaso Units: mg/k HighLimit 120 118 8015D: Gaso Units: mg/k HighLimit 142	(g %RPD bline Rang (g %RPD	RPDLimit e RPDLimit	
Surr: BFB Sample ID: Ics-49097 Client ID: LCSS Prep Date: 12/2/2019 Analyte Gasoline Range Organics (GRO) Surr: BFB Sample ID: 1911d07-007ams Client ID: BS19-05 Prep Date: 12/2/2019 Analyte Gasoline Range Organics (GRO) Surr: BFB	SampT Batch Analysis D Result 22 960 SampT Batch Analysis D Result 24 920 SampT	Fype: LC h ID: 49 Date: 12 FQL 5.0 Fype: MS h ID: 49 Date: 12 FQL 5.0	SPK value 25.00 1000 3 097 2/3/2019 SPK value 24.78 991.1	SPK Ref Val 0 Tes SPK Ref Val 0 Tes	tCode: EI RunNo: 6- GeqNo: 2: %REC 86.3 95.9 tCode: EI RunNo: 6- GeqNo: 2: %REC 96.8 92.9	PA Method 4902 225387 LowLimit 80 77.4 PA Method 4902 225389 LowLimit 69.1 77.4 PA Method	8015D: Gaso Units: mg/k HighLimit 120 118 8015D: Gaso Units: mg/k HighLimit 142 118	(g %RPD bline Rang (g %RPD	RPDLimit e RPDLimit	
Surr: BFB Sample ID: Ics-49097 Client ID: LCSS Prep Date: 12/2/2019 Analyte Gasoline Range Organics (GRO) Surr: BFB Sample ID: 1911d07-007ams Client ID: BS19-05 Prep Date: 12/2/2019 Analyte Gasoline Range Organics (GRO) Surr: BFB Sample ID: 1911d07-007ams	SampT Batch Analysis D Result 22 960 SampT Batch Analysis D Result 24 920 SampT	Fype: LC h ID: 490 Date: 12 FQL 5.0 Fype: MS h ID: 490 Fype: MS h ID: 490 Fype: MS	SPK value 25.00 1000 397 2/3/2019 SPK value 24.78 991.1	SPK Ref Val 0 Tes SPK Ref Val 0 Tes F SPK Ref Val 0	tCode: El RunNo: 6 SeqNo: 2 %REC 86.3 95.9 tCode: El RunNo: 6 SeqNo: 2 %REC 96.8 92.9 tCode: El	PA Method 4902 225387 LowLimit 80 77.4 PA Method 4902 225389 LowLimit 69.1 77.4 PA Method 4902	8015D: Gaso Units: mg/k HighLimit 120 118 8015D: Gaso Units: mg/k HighLimit 142 118	%RPD bline Rang %RPD bline Rang	RPDLimit e RPDLimit	

Qualifiers:

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

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

Page 14 of 17

Hall Environmental Analysis Laboratory, Inc.

WO#: **1911D07**

Qual

09-Dec-19

Client: Vertex Resource Group Ltd.

Project: Trebuchet 23 28 19 Way 10H

Sample ID: 1911d07-007amsd SampType: MSD TestCode: EPA Method 8015D: Gasoline Range

Client ID: **BS19-05** Batch ID: **49097** RunNo: **64902**

Prep Date: 12/2/2019 Analysis Date: 12/3/2019 SeqNo: 2225390 Units: mg/Kg

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Gasoline Range Organics (GRO) 0 2.08 20 24 5.0 24.83 98.6 69.1 142 Surr: BFB 930 993.0 93.6 77.4 118 0 0

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

Page 15 of 17

Client:

Project:

Hall Environmental Analysis Laboratory, Inc.

Vertex Resource Group Ltd.

Trebuchet 23 28 19 Way 10H

WO#: **1911D07**

09-Dec-19

Sample ID: mb-49082	SampT	уре: М	BLK	Tes	tCode: El	PA Method	8021B: Vola	tiles			
Client ID: PBS	Batcl	n ID: 49	082	F	RunNo: 6	4903					
Prep Date: 12/2/2019	Analysis D	Date: 12	2/3/2019	S	SeqNo: 2	225359	Units: mg/k	(g			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Benzene	ND	0.025									
Toluene	ND	0.050									
Ethe dhaaaaa	ND	0.050									

 Surr: 4-Bromofluorobenzene
 1.1
 1.000
 110
 80
 120

Sample ID: LCS-49082	SampT	ype: LC	s	8021B: Volat	iles								
Client ID: LCSS	Batcl	n ID: 49 0	082	F									
Prep Date: 12/2/2019	Analysis D	Date: 12/3/2019 SeqNo: 2225360 Units: mg							mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual			
Benzene	0.98	0.025	1.000	0	98.4	80	120						
Toluene	0.98	0.050	1.000	0	97.7	80	120						
Ethylbenzene	0.98	0.050	1.000	0	98.4	80	120						
Xylenes, Total	3.0	0.10	3.000	0	99.1	80	120						
Surr: 4-Bromofluorobenzene	1.1		1.000		110	80	120						

Sample ID: mb-49097 SampType: MBLK TestCode: EPA Method 8021B: Volatiles Client ID: PBS Batch ID: 49097 RunNo: 64902 Prep Date: 12/2/2019 Analysis Date: 12/3/2019 SeqNo: 2225412 Units: mg/Kg Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual ND 0.025 Benzene Toluene ND 0.050 Ethylbenzene ND 0.050 Xylenes, Total ND 0.10 Surr: 4-Bromofluorobenzene 1.0 1.000 101 80 120

Sample ID: LCS-49097	Sampl	ype: LC	s	8021B: Volat	tiles					
Client ID: LCSS	Batcl	Batch ID: 49097 RunNo: 64902								
Prep Date: 12/2/2019	Analysis D	alysis Date: 12/3/2019 SeqNo: 2225413 Units								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.93	0.025	1.000	0	93.0	80	120			
Toluene	0.95	0.050	1.000	0	94.8	80	120			
Ethylbenzene	0.95	0.050	1.000	0	94.5	80	120			
Xylenes, Total	2.9	0.10	3.000	0	95.1	80	120			
Surr: 4-Bromofluorobenzene	1.1		1.000		108	80	120			

Qualifiers:

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

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

Page 16 of 17

Hall Environmental Analysis Laboratory, Inc.

WO#: **1911D07**

09-Dec-19

Client: Vertex Resource Group Ltd.

Project: Trebuchet 23 28 19 Way 10H

Sample ID: 1911d07-008ams	SampT	SampType: MS TestCode: EPA Method 802								
Client ID: BS19-02	Batch	n ID: 49 0	097	F	RunNo: 6					
Prep Date: 12/2/2019	Analysis D	Date: 12	2/3/2019	8	SeqNo: 2	225416	Units: mg/K	(g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.025	0.9940	0	104	76	123			
Toluene	1.1	0.050	0.9940	0.01106	107	80.3	127			
Ethylbenzene	1.1	0.050	0.9940	0	110	80.2	131			
Xylenes, Total	3.3	0.099	2.982	0.01595	111	78	133			
Surr: 4-Bromofluorobenzene	0.99		0.9940		99.4	80	120			

Sample ID: 1911d07-008ams	d Samp	уре: М	SD	Tes	tCode: El	PA Method	8021B: Volat	iles		
Client ID: BS19-02	Batc	h ID: 49 0	097	F	RunNo: 6	4902				
Prep Date: 12/2/2019	Analysis [Date: 12	2/3/2019	8	SeqNo: 2	225417	Units: mg/K	(g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.99	0.025	0.9901	0	99.9	76	123	4.52	20	
Toluene	1.0	0.050	0.9901	0.01106	104	80.3	127	3.33	20	
Ethylbenzene	1.0	0.050	0.9901	0	106	80.2	131	4.12	20	
Xylenes, Total	3.2	0.099	2.970	0.01595	107	78	133	4.12	20	
Surr: 4-Bromofluorobenzene	0.95		0.9901		95.5	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

- 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 4901 Hawkins NE Albuquerque, NM 87109

Sample Log-In Check List

TEL: 505-345-3975 FAX: 505-345-4107 Website: www.hallenvironmental.com Client Name: VERTEX CARLSBAD Work Order Number: 1911D07 RcptNo: 1 una. Received By: Erin Melendrez 11/30/2019 11:10:00 AM una, Completed By: Erin Melendrez 11/30/2019 2:37:14 PM 12/2/19 Reviewed By: Chain of Custody 1. Is Chain of Custody complete? Yes 🗹 No 🗌 Not Present 2. How was the sample delivered? <u>FedEx</u> 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 No 🗌 NA 🗌 Yes 🔽 5. Sample(s) in proper container(s)? Yes 🗹 No \square 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? NA 🗆 Yes 🗌 No 🗹 9. VOA vials have zero headspace? Yes \square No . No VOA Vials 🗹 Yes 10. Were any sample containers received broken? No ✓ # of preserved bottles checked 11. Does paperwork match bottle labels? Yes 🗸 No 🗌 for pH: (Note discrepancies on chain of custody) (<2 or >12 unless noted) Adjusted 12. Are matrices correctly identified on Chain of Custody? Yes 🔽 No 🗔 No 🗆 13. Is it clear what analyses were requested? Yes 🔽 Checked by: <u>JR + 12/2</u> 14. Were all holding times able to be met? Yes 🗹 No 🗌 (If no, notify customer for authorization.) Special Handling (if applicable) 1

vas client notified of all	discrepancies with this order?	Yes ∐	No L	NA ₩
Person Notified:	and the second s	Date:		
By Whom:		Via: ☐ eMail ☐ F	Phone Fax	☐ In Person
Regarding:				
Client Instructions:				

16. Additional remarks:

17. Cooler Information

Cooler No	Temp ℃	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	3.0	Good	Yes			200
2	3.6	Good	Yes			

Project Name			i um-Around i me:	me.	の名。	77.3				4		2 U	Ş	C	2		ŀ	
Project Name: Project Name	VEROTON RENOVACE SER	- 1	Standard		sh		J L		- F	[2	1 -		, ,	L ENVIRONMEN	<u> </u>			į)
Project #: Pro			ect Name.	4 4										•		5	5	X
Project # Project # Project # Project # Project # Project # Project # Project # Project Manager:			35.8	公 る	28 Jan			4901	T S	vivi Since h			D (Ş		
1		Proj	sct #:					}	A CA		1 7			֓֞֞֝֟֝֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓	5 5	2		
Project Manager: Project Manager: Project Manager: Project Manager: Project Manager: Project Manager: Project Manager: Part	11-2 1/00		<u>چ</u>	65.9 1985	10 - 60	() ()		5	3	Š F	ري ⊈	Anelivete	6 6 0	rak dub-sas-410/ Vsis Remiest	4107			
Compliance Compliance Compliance Compliance Container	AN KAL	Proje	ect Manag	Lie			44.0	((7 C		0				
Cuther Compliance Continue	QC Package:		ラス	S L L	PESSON				0.5	SI	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	10 4		ues				
Other Compliance Sampler Sample Sampler Sample Sam									~ .	VIS(ر ا		dΑ\J	<u>.</u>		· · ·	
Matrix Sample Name Type and # Type Type		Sam	pler:		South	200			·			NO ⁵ '	(uəsə.				
Time Matrix Sample Name Type and # Type and		5 3 B	Toolers.		ON						<u> </u>	'Er	AO'		· .	***	× /// •	
Time Matrix Sample Name Type and # Type (Container Preservative Container Type and # Type (Container Type Art Container Type (Container Type Art Container Type (Container Type Art Container Type (Container Type Art Container Type (Container Type Art Container Type (Container Type Art Container Type (Container Type Art Container Type (Container Type Art Container Type (Container Type Art Container Type (Container Type Art Container Type (Container Type Art Container Type Art			Tomat a	2		Co. C						/) NC						
Fine Matrix Sample Name Type and # Type Preservative HEANO. Fig.		Action 1		3.6-0.0)=3.6°C							Βr, (VO)	uəs)			·		
H-20 S M519 - 13 Mn 10a -000 XX	Time Matrix	Type		reservativ voe							YCEY	590						
#\$19 - 04 #\$13 - 04 #\$13 - 05 #\$13 - 05 #\$13 - 08 #\$13 - 08 #\$13 - 01 #\$13 - 08 #\$13 - 08 #\$13 - 08 #\$13 - 08 #\$13 - 01 #\$13 - 05 #\$13 - 05 #\$13 - 05 #\$13 - 05 #\$13 - 05 #\$13 - 05 #\$13 - 05 #\$13 - 21a ##\$13 - 21a ##\$15	- 615111 5 185-14			399			Š			1	4			1	╁			-
8513 - 07 8513 - 07 8513 - 01 8513 - 01 8519 - 05 8519 - 05 8519 - 05 8519 - 05 8519 - 02 8519 - 02 8519 - 02 878 - 01 878 - 01 878 - 01 878 - 01 878 - 01 878 - 01 878 - 01 878 - 01 878 - 02 878 - 02 878 - 03	1 8518 -				1/2/2		赵		1		**	\downarrow		1	╫	-		1
	- 6/58				-05/3		À					\downarrow			╁			+
85/9 - 63 85/9 - 63 85/9 - 06 85/9 - 02 81/13 - 21 a 81/13 - 21 b Reinquighed by Via Remarks:	- 6158				- 00d		38				**	_			+	-		╁
8519 - 63 8519 - 05 8519 - 02 81113 - 21 a - 009 8713 - 21 b - 010 000 Relinquighed by Via: Daty Time Remarks:	RSIS				-00 5		X			1	Č			<u> </u>		-		+
RS19-05	88/8				-000 -000 -000 -000 -000 -000 -000 -00		粉				40			1	-	-		+
	8679				F0V1	7	8				¥Š			<u> </u>	+-	1		
					-008		X			\dagger	X			1	+			╁-
Relinquished by Via Time					FWJ		各				ΥX			+	+-	-		╁
Relinquished by Via Time					-VID		X				4 2			-		-		+
Relinquished by Via. Date Time								ļ <u></u>			1_	_				-		\vdash
Relinquished by Via. Daty Time	T		3							1 1	2							-
The Many and and the same of t	Q	Receiv C	1. M. 1.1	Via	Date	\$ Z	Remai	ξŞ:							-	-		-
Time: Remquished by: Via: FC/CX Date Time	Remark	Receiv	od by:	via: Peole	2 Date	O III (•. •							,		
if necessary, samples submitted to Hall Environmental may be subcontracted to other conventional private of the conventional private of the conventional private conventional pri	If necessary, samples submitted to Hall Fovironmental p	year he cultocated the		to the second of	ש' צב								٠	1	•			