APPENDIX C
Chemical Analytical Program

APPENDIX C
CHEMICAL ANALYTICAL PROGRAM

Analytical Methods

Chain-of-custody procedures were followed during the transport of the field samples to the analytical laboratory. The samples were held in cold storage pending extraction and/or analysis. The analytical results, analytical methods reference and laboratory quality control records are included in this appendix. The analytical results are also summarized in the text and tables of this report.

Analytical Data Review

The laboratory maintains an internal quality assurance program as documented in its laboratory quality assurance manual. The laboratory uses a combination of blanks, surrogate recoveries, duplicates, matrix spike recoveries, matrix spike duplicate recoveries, blank spike recoveries and blank spike duplicate recoveries to evaluate the validity of the analytical results. The laboratory also uses data quality goals for individual chemicals or groups of chemicals based on the long-term performance of the test methods. The data quality goals were included in the laboratory reports. The laboratory compared each group of samples with the existing data quality goals and noted any exceptions in the laboratory report.

Analytical Data Review Summary

Laboratory quality control exceptions were noted by Fremont Analytical for select soil samples in the attached laboratory reports. It is our opinion that the analytical data are of acceptable quality for their intended use in this report.

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GeoEngineers
Jessica Smith
600 Stewart Street, Suite 1700
Seattle, Washington 98101

RE: New Zealand
Lab ID: 1203073

March 14, 2012

Attention Jessica Smith:

Fremont Analytical, Inc. received 9 sample(s) on 2/27/2012 for the analyses presented in the following report.

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.
Hexavalent Chromium by EPA Method 7196
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)
Sample Moisture (Percent Moisture)
Total Metals by EPA Method 6020

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Michael Dee
Sr. Chemist / Principal

Date: *03/14/2012*

CLIENT: GeoEngineers
Project: New Zealand
Lab Order: 1203073

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1203073-001	B20-3-22.5	02/27/2012 8:46 AM	02/27/2012 6:30 PM
1203073-002	B20-3-25.0	02/27/2012 8:57 AM	02/27/2012 6:30 PM
1203073-003	MW20-3-2.5	02/27/2012 8:05 AM	02/27/2012 1:30 PM
1203073-004	MW20-3-7.5	02/27/2012 8:19 AM	02/27/2012 1:30 PM
1203073-005	MW20-1-5.0	02/27/2012 4:32 PM	02/28/2012 10:36 AM
1203073-006	MW19-1-7.5	02/20/2012 8:50 AM	02/21/2012 1:40 PM
1203073-007	B20-3-7.5	02/27/2012 8:06 AM	02/27/2012 6:30 PM
1203073-008	B20-3-12.5	02/27/2012 8:18 AM	02/27/2012 6:30 PM
1203073-009	B20-3-15.0	02/27/2012 8:25 AM	02/27/2012 6:30 PM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

Case Narrative

WO#: **1203073**
Date: **3/14/2012**

CLIENT: GeoEngineers
Project: New Zealand

I. SAMPLE RECEIPT:
All samples were received intact.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Analytical Report

WO#: **1203073**
Date Reported: **3/14/2012**

Client: GeoEngineers
Collection Date: 2/27/2012 8:46:00 AM
Project: New Zealand
Lab ID: 1203073-001
Matrix: Soil
Client Sample ID: B20-3-22.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 2047		Analyst: EM
Diesel (Fuel Oil)	ND	20.2	H	mg/Kg-dry	1	3/13/2012 9:14:00 PM
Heavy Oil	85.4	50.5	H	mg/Kg-dry	1	3/13/2012 9:14:00 PM
Surr: 2-Fluorobiphenyl	94.0	84.2-137	H	%REC	1	3/13/2012 9:14:00 PM
Surr: o-Terphenyl	126	87.1-138	H	%REC	1	3/13/2012 9:14:00 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 2046		Analyst: SG
Naphthalene	ND	65.3	H	µg/Kg-dry	1	3/13/2012 6:47:00 PM
2-Methylnaphthalene	ND	65.3	H	µg/Kg-dry	1	3/13/2012 6:47:00 PM
1-Methylnaphthalene	ND	65.3	H	µg/Kg-dry	1	3/13/2012 6:47:00 PM
Acenaphthylene	ND	65.3	H	µg/Kg-dry	1	3/13/2012 6:47:00 PM
Acenaphthene	ND	65.3	H	µg/Kg-dry	1	3/13/2012 6:47:00 PM
Fluorene	ND	65.3	H	µg/Kg-dry	1	3/13/2012 6:47:00 PM
Phenanthrene	ND	65.3	H	µg/Kg-dry	1	3/13/2012 6:47:00 PM
Anthracene	ND	65.3	H	µg/Kg-dry	1	3/13/2012 6:47:00 PM
Fluoranthene	ND	65.3	H	µg/Kg-dry	1	3/13/2012 6:47:00 PM
Pyrene	ND	65.3	H	µg/Kg-dry	1	3/13/2012 6:47:00 PM
Benz(a)anthracene	ND	65.3	H	µg/Kg-dry	1	3/13/2012 6:47:00 PM
Chrysene	ND	65.3	H	µg/Kg-dry	1	3/13/2012 6:47:00 PM
Benzo(b)fluoranthene	ND	65.3	H	µg/Kg-dry	1	3/13/2012 6:47:00 PM
Benzo(k)fluoranthene	ND	65.3	H	µg/Kg-dry	1	3/13/2012 6:47:00 PM
Benzo(a)pyrene	ND	65.3	H	µg/Kg-dry	1	3/13/2012 6:47:00 PM
Indeno(1,2,3-cd)pyrene	ND	65.3	H	µg/Kg-dry	1	3/13/2012 6:47:00 PM
Dibenz(a,h)anthracene	ND	65.3	H	µg/Kg-dry	1	3/13/2012 6:47:00 PM
Benzo(g,h,i)perylene	ND	65.3	H	µg/Kg-dry	1	3/13/2012 6:47:00 PM
Surr: 2-Fluorobiphenyl	82.4	53.5-148	H	%REC	1	3/13/2012 6:47:00 PM
Surr: Terphenyl-d14 (surr)	96.4	67.2-149	H	%REC	1	3/13/2012 6:47:00 PM
Sample Moisture (Percent Moisture)				Batch ID: R3634		Analyst: CF
Percent Moisture	17.9			wt%	1	3/14/2012 9:44:54 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1203073**
Date Reported: **3/14/2012**

Client: GeoEngineers
Collection Date: 2/27/2012 8:57:00 AM
Project: New Zealand
Lab ID: 1203073-002
Matrix: Soil
Client Sample ID: B20-3-25.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 2047		Analyst: EM
Diesel (Fuel Oil)	ND	17.9	H	mg/Kg-dry	1	3/13/2012 9:42:00 PM
Heavy Oil	ND	44.8	H	mg/Kg-dry	1	3/13/2012 9:42:00 PM
Surr: 2-Fluorobiphenyl	92.5	84.2-137	H	%REC	1	3/13/2012 9:42:00 PM
Surr: o-Terphenyl	125	87.1-138	H	%REC	1	3/13/2012 9:42:00 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 2046		Analyst: SG
Naphthalene	ND	60.1	H	µg/Kg-dry	1	3/13/2012 7:12:00 PM
2-Methylnaphthalene	ND	60.1	H	µg/Kg-dry	1	3/13/2012 7:12:00 PM
1-Methylnaphthalene	ND	60.1	H	µg/Kg-dry	1	3/13/2012 7:12:00 PM
Acenaphthylene	ND	60.1	H	µg/Kg-dry	1	3/13/2012 7:12:00 PM
Acenaphthene	ND	60.1	H	µg/Kg-dry	1	3/13/2012 7:12:00 PM
Fluorene	ND	60.1	H	µg/Kg-dry	1	3/13/2012 7:12:00 PM
Phenanthrene	ND	60.1	H	µg/Kg-dry	1	3/13/2012 7:12:00 PM
Anthracene	ND	60.1	H	µg/Kg-dry	1	3/13/2012 7:12:00 PM
Fluoranthene	ND	60.1	H	µg/Kg-dry	1	3/13/2012 7:12:00 PM
Pyrene	ND	60.1	H	µg/Kg-dry	1	3/13/2012 7:12:00 PM
Benz(a)anthracene	ND	60.1	H	µg/Kg-dry	1	3/13/2012 7:12:00 PM
Chrysene	ND	60.1	H	µg/Kg-dry	1	3/13/2012 7:12:00 PM
Benzo(b)fluoranthene	ND	60.1	H	µg/Kg-dry	1	3/13/2012 7:12:00 PM
Benzo(k)fluoranthene	ND	60.1	H	µg/Kg-dry	1	3/13/2012 7:12:00 PM
Benzo(a)pyrene	ND	60.1	H	µg/Kg-dry	1	3/13/2012 7:12:00 PM
Indeno(1,2,3-cd)pyrene	ND	60.1	H	µg/Kg-dry	1	3/13/2012 7:12:00 PM
Dibenz(a,h)anthracene	ND	60.1	H	µg/Kg-dry	1	3/13/2012 7:12:00 PM
Benzo(g,h,i)perylene	ND	60.1	H	µg/Kg-dry	1	3/13/2012 7:12:00 PM
Surr: 2-Fluorobiphenyl	84.0	53.5-148	H	%REC	1	3/13/2012 7:12:00 PM
Surr: Terphenyl-d14 (surr)	108	67.2-149	H	%REC	1	3/13/2012 7:12:00 PM
Sample Moisture (Percent Moisture)				Batch ID: R3634		Analyst: CF
Percent Moisture	9.98			wt%	1	3/14/2012 9:44:54 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1203073**
Date Reported: **3/14/2012**

Client: GeoEngineers
Collection Date: 2/27/2012 8:05:00 AM
Project: New Zealand
Lab ID: 1203073-003
Matrix: Soil
Client Sample ID: MW20-3-2.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 2047		Analyst: EM
Diesel (Fuel Oil)	ND	19.5	H	mg/Kg-dry	1	3/14/2012 10:17:00 AM
Heavy Oil	74.5	48.9	H	mg/Kg-dry	1	3/14/2012 10:17:00 AM
Surr: 2-Fluorobiphenyl	98.1	84.2-137	H	%REC	1	3/14/2012 10:17:00 AM
Surr: o-Terphenyl	124	87.1-138	H	%REC	1	3/14/2012 10:17:00 AM
Sample Moisture (Percent Moisture)				Batch ID: R3634		Analyst: CF
Percent Moisture	12.8			wt%	1	3/14/2012 9:44:54 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1203073**
Date Reported: **3/14/2012**

Client: GeoEngineers
Collection Date: 2/27/2012 8:19:00 AM
Project: New Zealand
Lab ID: 1203073-004
Matrix: Soil
Client Sample ID: MW20-3-7.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 2047		Analyst: EM
Diesel (Fuel Oil)	ND	18.5	H	mg/Kg-dry	1	3/13/2012 10:09:00 PM
Heavy Oil	ND	46.2	H	mg/Kg-dry	1	3/13/2012 10:09:00 PM
Surr: 2-Fluorobiphenyl	94.6	84.2-137	H	%REC	1	3/13/2012 10:09:00 PM
Surr: o-Terphenyl	125	87.1-138	H	%REC	1	3/13/2012 10:09:00 PM
Sample Moisture (Percent Moisture)				Batch ID: R3634		Analyst: CF
Percent Moisture	10.6			wt%	1	3/14/2012 9:44:54 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1203073**
Date Reported: **3/14/2012**

Client: GeoEngineers
Collection Date: 2/27/2012 4:32:00 PM
Project: New Zealand
Lab ID: 1203073-005
Matrix: Soil
Client Sample ID: MW20-1-5.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 2051		Analyst: EM
Diesel (Fuel Oil)	ND	18.9	H	mg/Kg-dry	1	3/14/2012 2:24:00 PM
Heavy Oil	ND	47.2	H	mg/Kg-dry	1	3/14/2012 2:24:00 PM
Surr: 2-Fluorobiphenyl	95.9	84.2-137	H	%REC	1	3/14/2012 2:24:00 PM
Surr: o-Terphenyl	122	87.1-138	H	%REC	1	3/14/2012 2:24:00 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 2046		Analyst: SG
Naphthalene	ND	52.4	H	µg/Kg-dry	1	3/13/2012 9:14:00 PM
2-Methylnaphthalene	ND	52.4	H	µg/Kg-dry	1	3/13/2012 9:14:00 PM
1-Methylnaphthalene	ND	52.4	H	µg/Kg-dry	1	3/13/2012 9:14:00 PM
Acenaphthylene	ND	52.4	H	µg/Kg-dry	1	3/13/2012 9:14:00 PM
Acenaphthene	ND	52.4	H	µg/Kg-dry	1	3/13/2012 9:14:00 PM
Fluorene	ND	52.4	H	µg/Kg-dry	1	3/13/2012 9:14:00 PM
Phenanthrene	ND	52.4	H	µg/Kg-dry	1	3/13/2012 9:14:00 PM
Anthracene	ND	52.4	H	µg/Kg-dry	1	3/13/2012 9:14:00 PM
Fluoranthene	ND	52.4	H	µg/Kg-dry	1	3/13/2012 9:14:00 PM
Pyrene	ND	52.4	H	µg/Kg-dry	1	3/13/2012 9:14:00 PM
Benz(a)anthracene	ND	52.4	H	µg/Kg-dry	1	3/13/2012 9:14:00 PM
Chrysene	ND	52.4	H	µg/Kg-dry	1	3/13/2012 9:14:00 PM
Benzo(b)fluoranthene	ND	52.4	H	µg/Kg-dry	1	3/13/2012 9:14:00 PM
Benzo(k)fluoranthene	ND	52.4	H	µg/Kg-dry	1	3/13/2012 9:14:00 PM
Benzo(a)pyrene	ND	52.4	H	µg/Kg-dry	1	3/13/2012 9:14:00 PM
Indeno(1,2,3-cd)pyrene	ND	52.4	H	µg/Kg-dry	1	3/13/2012 9:14:00 PM
Dibenz(a,h)anthracene	ND	52.4	H	µg/Kg-dry	1	3/13/2012 9:14:00 PM
Benzo(g,h,i)perylene	ND	52.4	H	µg/Kg-dry	1	3/13/2012 9:14:00 PM
Surr: 2-Fluorobiphenyl	85.8	53.5-148	H	%REC	1	3/13/2012 9:14:00 PM
Surr: Terphenyl-d14 (surr)	179	67.2-149	SH	%REC	1	3/13/2012 9:14:00 PM

NOTES:
S - Outlying surrogate recovery observed - High Bias. The sample was non-detect.

Sample Moisture (Percent Moisture)				Batch ID: R3634	Analyst: CF
Percent Moisture	9.71			wt%	1	3/14/2012 9:44:54 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1203073**
Date Reported: **3/14/2012**

Client: GeoEngineers
Collection Date: 2/20/2012 8:50:00 AM
Project: New Zealand
Lab ID: 1203073-006
Matrix: Soil
Client Sample ID: MW19-1-7.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R3634		Analyst: CF
Percent Moisture	27.0			wt%	1	3/14/2012 9:44:54 AM
Hexavalent Chromium by EPA Method 7196				Batch ID: 2042		Analyst: BR
Chromium, Hexavalent	ND	0.680		mg/Kg-dry	1	3/14/2012 10:45:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1203073**
Date Reported: **3/14/2012**

Client: GeoEngineers
Collection Date: 2/27/2012 8:06:00 AM
Project: New Zealand
Lab ID: 1203073-007
Matrix: Soil
Client Sample ID: B20-3-7.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 2047		Analyst: EM
Diesel (Fuel Oil)	ND	21.1	H	mg/Kg-dry	1	3/14/2012 12:25:00 AM
Heavy Oil	1,570	52.7	H	mg/Kg-dry	1	3/14/2012 12:25:00 AM
Surr: 2-Fluorobiphenyl	97.5	84.2-137	H	%REC	1	3/14/2012 12:25:00 AM
Surr: o-Terphenyl	123	87.1-138	H	%REC	1	3/14/2012 12:25:00 AM
Sample Moisture (Percent Moisture)				Batch ID: R3634		Analyst: CF
Percent Moisture	10.9			wt%	1	3/14/2012 9:44:54 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1203073**
Date Reported: **3/14/2012**

Client: GeoEngineers
Collection Date: 2/27/2012 8:18:00 AM
Project: New Zealand
Lab ID: 1203073-008
Matrix: Soil
Client Sample ID: B20-3-12.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 2047		Analyst: EM
Diesel (Fuel Oil)	ND	24.1	H	mg/Kg-dry	1	3/14/2012 1:47:00 AM
Diesel Range Organics (C12-C24)	39.5	24.1	H	mg/Kg-dry	1	3/14/2012 1:47:00 AM
Heavy Oil	305	60.3	H	mg/Kg-dry	1	3/14/2012 9:50:00 AM
Surr: 2-Fluorobiphenyl	102	84.2-137	H	%REC	1	3/14/2012 1:47:00 AM
Surr: o-Terphenyl	129	87.1-138	H	%REC	1	3/14/2012 1:47:00 AM
Sample Moisture (Percent Moisture)				Batch ID: R3634		Analyst: CF
Percent Moisture	25.3			wt%	1	3/14/2012 9:44:54 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1203073**
Date Reported: **3/14/2012**

Client: GeoEngineers
Collection Date: 2/27/2012 8:25:00 AM
Project: New Zealand
Lab ID: 1203073-009
Matrix: Soil
Client Sample ID: B20-3-15.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 2047		Analyst: EM
Diesel (Fuel Oil)	ND	23.8	H	mg/Kg-dry	1	3/14/2012 2:15:00 AM
Heavy Oil	1,610	59.4	H	mg/Kg-dry	1	3/14/2012 2:15:00 AM
Surr: 2-Fluorobiphenyl	102	84.2-137	H	%REC	1	3/14/2012 2:15:00 AM
Surr: o-Terphenyl	128	87.1-138	H	%REC	1	3/14/2012 2:15:00 AM
Sample Moisture (Percent Moisture)				Batch ID: R3634		Analyst: CF
Percent Moisture	20.6			wt%	1	3/14/2012 9:44:54 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Date: *3/14/2012*

Work Order: 1203073
CLIENT: GeoEngineers
Project: New Zealand

QC SUMMARY REPORT

Hexavalent Chromium by EPA Method 7196

Sample ID: **MB-2042B** SampType: **MBLK** Units: **mg/Kg** Prep Date: **3/13/2012** RunNo: **3639**
Client ID: **MBLKS** Batch ID: **2042** Analysis Date: **3/14/2012** SeqNo: **65345**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	ND	0.500									

Sample ID: **LCS-2042B** SampType: **LCS** Units: **mg/Kg** Prep Date: **3/13/2012** RunNo: **3639**
Client ID: **LCSS** Batch ID: **2042** Analysis Date: **3/14/2012** SeqNo: **65346**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	2.55	0.500	2.500	0	102	65	135				

Sample ID: **1202091-022BMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **3/13/2012** RunNo: **3639**
Client ID: **BATCH** Batch ID: **2042** Analysis Date: **3/14/2012** SeqNo: **65351**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	3.19	0.625	3.125	0	102	65	135				

Sample ID: **1202091-022BMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **3/13/2012** RunNo: **3639**
Client ID: **BATCH** Batch ID: **2042** Analysis Date: **3/14/2012** SeqNo: **65352**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	3.19	0.625	3.125	0	102	65	135	3.187	0	30	

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Date: *3/14/2012*

Work Order: 1203073
CLIENT: GeoEngineers
Project: New Zealand

QC SUMMARY REPORT

Hexavalent Chromium by EPA Method 7196

Sample ID: **1203073-006ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **3/13/2012** RunNo: **3639**
Client ID: **MW19-1-7.5** Batch ID: **2042** Analysis Date: **3/14/2012** SeqNo: **65356**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	ND	0.680						0	0	30	

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1203073
CLIENT: GeoEngineers
Project: New Zealand

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID: **1203079-001ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **3/13/2012** RunNo: **3640**
Client ID: **BATCH** Batch ID: **2047** Analysis Date: **3/14/2012** SeqNo: **65378**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	21.9						0	0	30	
Heavy Oil	ND	54.7						0	0	30	
Surr: 2-Fluorobiphenyl	21.5		21.86		98.6	84.2	137		0		
Surr: o-Terphenyl	27.6		21.86		126	87.1	138		0		

Sample ID: **LCS-2047** SampType: **LCS** Units: **mg/Kg** Prep Date: **3/13/2012** RunNo: **3640**
Client ID: **LCSS** Batch ID: **2047** Analysis Date: **3/13/2012** SeqNo: **65387**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	577	20.0	500.0	0	115	65	135				
Surr: 2-Fluorobiphenyl	21.0		20.00		105	84.2	137				
Surr: o-Terphenyl	25.5		20.00		128	87.1	138				

Sample ID: **MB-2047** SampType: **MBLK** Units: **mg/Kg** Prep Date: **3/13/2012** RunNo: **3640**
Client ID: **MBLKS** Batch ID: **2047** Analysis Date: **3/13/2012** SeqNo: **65388**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	20.0									
Heavy Oil	ND	50.0									
Surr: 2-Fluorobiphenyl	18.6		20.00		93.2	84.2	137				
Surr: o-Terphenyl	25.0		20.00		125	87.1	138				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1203073
CLIENT: GeoEngineers
Project: New Zealand

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID: **LCS-2051A** SampType: **LCS** Units: **mg/Kg** Prep Date: **3/14/2012** RunNo: **3647**
Client ID: **LCSS** Batch ID: **2051** Analysis Date: **3/14/2012** SeqNo: **65429**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	568	20.0	500.0	0	114	65	135				
Surr: 2-Fluorobiphenyl	20.6		20.00		103	84.2	137				
Surr: o-Terphenyl	24.4		20.00		122	87.1	138				

Sample ID: **MB-2051** SampType: **MBLK** Units: **mg/Kg** Prep Date: **3/14/2012** RunNo: **3647**
Client ID: **MBLKS** Batch ID: **2051** Analysis Date: **3/14/2012** SeqNo: **65430**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	20.0									
Heavy Oil	ND	50.0									
Surr: 2-Fluorobiphenyl	19.7		20.00		98.3	84.2	137				
Surr: o-Terphenyl	24.6		20.00		123	87.1	138				

Sample ID: **1203073-005ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **3/14/2012** RunNo: **3647**
Client ID: **MW20-1-5.0** Batch ID: **2051** Analysis Date: **3/14/2012** SeqNo: **65483**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	18.8						0	0	30	H
Heavy Oil	ND	47.1						0	0	30	H
Surr: 2-Fluorobiphenyl	18.2		18.84		96.6	84.2	137		0		H
Surr: o-Terphenyl	22.5		18.84		120	87.1	138		0		H

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Date: *3/14/2012*

Work Order: 1203073
CLIENT: GeoEngineers
Project: New Zealand

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: **LCS-2046**	SampType: **LCS**	Units: **µg/Kg**	Prep Date: **3/13/2012**	RunNo: **3633**
Client ID: **LCSS**	Batch ID: **2046**		Analysis Date: **3/13/2012**	SeqNo: **65268**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acenaphthene	390	50.0	500.0	0	77.9	50.4	130				
Pyrene	402	50.0	500.0	0	80.3	50.3	141				
Surr: 2-Fluorobiphenyl	416		500.0		83.1	53.5	148				
Surr: Terphenyl-d14 (surr)	464		500.0		92.8	67.2	149				

Sample ID: **MB-2046**	SampType: **MBLK**	Units: **µg/Kg**	Prep Date: **3/13/2012**	RunNo: **3633**
Client ID: **MBLKS**	Batch ID: **2046**		Analysis Date: **3/13/2012**	SeqNo: **65269**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	50.0									
2-Methylnaphthalene	ND	50.0									
1-Methylnaphthalene	ND	50.0									
Acenaphthylene	ND	50.0									
Acenaphthene	ND	50.0									
Fluorene	ND	50.0									
Phenanthrene	ND	50.0									
Anthracene	ND	50.0									
Fluoranthene	ND	50.0									
Pyrene	ND	50.0									
Benz(a)anthracene	ND	50.0									
Chrysene	ND	50.0									
Benzo(b)fluoranthene	ND	50.0									
Benzo(k)fluoranthene	ND	50.0									
Benzo(a)pyrene	ND	50.0									
Indeno(1,2,3-cd)pyrene	ND	50.0									

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1203073
CLIENT: GeoEngineers
Project: New Zealand

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: **MB-2046** SampType: **MBLK** Units: **µg/Kg** Prep Date: **3/13/2012** RunNo: **3633**
Client ID: **MBLKS** Batch ID: **2046** Analysis Date: **3/13/2012** SeqNo: **65269**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dibenz(a,h)anthracene	ND	50.0									
Benzo(g,h,i)perylene	ND	50.0									
Surr: 2-Fluorobiphenyl	416		500.0		83.2	53.5	148				
Surr: Terphenyl-d14 (surr)	502		500.0		100	67.2	149				

Sample ID: **1203091-001ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **3/13/2012** RunNo: **3633**
Client ID: **BATCH** Batch ID: **2046** Analysis Date: **3/13/2012** SeqNo: **65485**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	59.3						0	0	30	
2-Methylnaphthalene	ND	59.3						0	0	30	
1-Methylnaphthalene	ND	59.3						0	0	30	
Acenaphthylene	ND	59.3						0	0	30	
Acenaphthene	ND	59.3						0	0	30	
Fluorene	ND	59.3						0	0	30	
Phenanthrene	ND	59.3						0	0	30	
Anthracene	ND	59.3						0	0	30	
Fluoranthene	ND	59.3						0	0	30	
Pyrene	ND	59.3						0	0	30	
Benz(a)anthracene	ND	59.3						0	0	30	
Chrysene	ND	59.3						0	0	30	
Benzo(b)fluoranthene	ND	59.3						0	0	30	
Benzo(k)fluoranthene	ND	59.3						0	0	30	
Benzo(a)pyrene	ND	59.3						0	0	30	
Indeno(1,2,3-cd)pyrene	ND	59.3						0	0	30	

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1203073
CLIENT: GeoEngineers
Project: New Zealand

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: **1203091-001ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **3/13/2012** RunNo: **3633**
Client ID: **BATCH** Batch ID: **2046** Analysis Date: **3/13/2012** SeqNo: **65485**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dibenz(a,h)anthracene	ND	59.3						0	0	30	
Benzo(g,h,i)perylene	ND	59.3						0	0	30	
Surr: 2-Fluorobiphenyl	492		593.2		82.9	53.5	148		0		
Surr: Terphenyl-d14 (surr)	543		593.2		91.5	67.2	149		0		

Sample ID: **1203091-001AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **3/13/2012** RunNo: **3633**
Client ID: **BATCH** Batch ID: **2046** Analysis Date: **3/13/2012** SeqNo: **65486**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acenaphthene	416	52.7	527.3	0	78.9	50.6	126				
Pyrene	509	52.7	527.3	0	96.6	50.4	139				
Surr: 2-Fluorobiphenyl	428		527.3		81.2	53.5	148				
Surr: Terphenyl-d14 (surr)	562		527.3		107	67.2	149				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Fremont Analytical

Chain of Custody Record

1311 N. 35th Street
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Laboratory Project No (internal): 1202121

Date: 2/27/12

Page: 3 of: 5

Client: GeoEngineers, Inc.
Address: Plaza 600 Building, Suite 1700
City, State, Zip: Seattle, WA, 98101 Tel: 206-728-2674

Project Name: New Zealand
Location: Denny Triangle
Collected by: Theo Leonard/Chris Brown

Reports To (PM): Jessica Smith Fax: 425-861-6050 Email: jasmith@geoengineers.com Project No: 20434-001-02

Sample Name:	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	BTEX: EPA 8021b	Gasoline Range Organics	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics	SEMI VOL (EPA 8270)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals* (6020 / 200.8)	Total (T) / Dissolved (D)	Anions (IC)**	RCRA 8 Metals by EPA 6000/7000	Hold	Comments/Depth
B20-3-2.5	2/27/12	755	S															X	
B20-3-5.0	2/ /12	801	S																
B20-3-7.5	2/ /12	806	S																
B20-3-10.0	2/ /12	812	S	X	X		X		X	X		X							
B20-3-12.5	2/ /12	818	S																
B20-3-15.0	2/ /12	825	S																
B20-3-17.5	2/ /12	879	S																
B20-3-20.0	2/ /12	839	S	X	X		X		X	X		X							
B20-3-22.5	2/ /12	846	S				X		X										added 03.13.12 @ 11:40am
B20-3-25.0	2/ /12	857	S				X		X										

*Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: Return to Client Disposal by Lab (fee may be assessed if samples are retained after 30 days.)

Special Remarks: 02-28-12 12:50

Relinquished	Date/Time	Received	Date/Time
x [signature]	2/27/12 1830	x [signature]	2/27/12 18:30
Relinquished	Date/Time	Received	Date/Time
x		x	

TAT -> Next Day 2 Day 3 Day STD

x

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Distribution: White - Lab, Yellow - File, Pink - Originator

Fremont Analytical

Chain of Custody Record

1311 N. 35th Street
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Laboratory Project No (Internal): 120212

Date: 2/27/12

Page: 1 of: 3

Client:	GeoEngineers, Inc.			Project Name:	New Zealand
Address:	Plaza 600 Building, Suite 1700			Location:	Denny Triangle
City, State, Zip	Seattle, WA, 98101	Tel:	206-728-2674	Collected by:	Theo Leonard/Greg Brown
Reports To (PM):	Jessica Smith	Fax:	425-861-6050	Email:	jasmith@geoengineers.com

Project No: 10434-001-02

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	BTEX: EPA 8260	Gasoline Range Organics (NWTPH-Gx)	Hydrocarbon Identification (HCID): Diesel/Heavy Oil Range Organics (NWTPH-Dx)	SEMI VOL (EPA 8270 - SIM)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals* (6020) / 200.8) Total (T)	Metals* (6020) / 200.8) Dissolved (D)	Asbestos**	RCRA 8 Metals by EPA 6000/7000	Comments/Depth
MW20-3-2.5	2/27/12	0805	S				X										X = added 03.13.12 @ 11:45 next day TAT
MW20-3-5.0	2/27/12	0811	S	X	X	X	X	X			X						
MW20-3-7.5	2/27/12	0819	S				X										
MW20-3-10.0	2/27/12	0826	S														
MW20-3-12.5	2/27/12	0834	S														
MW20-3-15.0	2/27/12	0842	S	X	X	X	X	X			X						
MW20-3-17.5	2/27/12	0852	S														
MW20-3-20.0	2/27/12	0903	S														
MW20-3-22.5	2/27/12	0913	S														
MW20-3-25.0	2/27/12	0921	S														

*Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Si Sn Ti Tl U V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab (A fee may be assessed if samples are retained after 30 days)

Special Remarks: X 02.28.12 @ 9:34

Relinquished:	Date/Time	Received:	Date/Time
	2/27/12 1316	Tony Gehr	2/27/12 13:16
Relinquished:	Date/Time	Received:	Date/Time

TAT -> Next Day 2 Day 3 Day STD

Distribution: White - Lab, Yellow - File, Pink - Originator

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Chain of Custody Record

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Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Laboratory Project No (internal): _____

Date: 2/28/12

Page: 1 of: 3

Client:	GeoEngineers, Inc.			Project Name:	New Zealand
Address:	Plaza 600 Building, Suite 1700			Location:	Denny Triangle
City, State, Zip	Seattle, WA, 98101	Tel:	206-728-2674	Collected by:	Theo Leonard/Chris Brown
Reports To (PM):	Jessica Smith	Fax:	425-861-6050	Email:	jasmith@geoengineers.com

Project No: 20434-001-02

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	BTEX: EPA 8260	Gasoline Range Organics EPA 8021b	Hydrocarbon Identification (HCID) Diesel/Heavy Oil Range Organics	SEMI VOL (EPA 8270)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals* (6020 / 200.8) Total (T) | Dissolved (D)	Anions (IC)**	RCRA 8 Metals by EPA 6000/7000	Comments/Depth
MW20-1- 2.5	2/27/12	1611	S	X	X		X	X	X			X				
MW20-1- 5.0	2/27/12	1602	S				X	X	X							added 03-13-12 @ 11:45
MW20-1- 7.5	2/27/12	1651	S													
MW20-1- 10.0	2/27/12	1700	S													
MW20-1- 12.5	2/27/12	1715	S		X		X					X				
MW20-1- 15.0	2/27/12	1716	S													
MW20-1- 17.5	2/27/12	1725	S													
MW20-1- 20.0	2/27/12	1732	S													
MW20-1- 22.5	2/27/12	1740	S													
MW20-1- 25.0	2/27/12	1752	S	NS	Retained											

*Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutant: TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☒ Disposal by Lab (A fee may be assessed if samples are retained after 30 days.)

Relinquished	Date/Time	Received	Date/Time
x	2/28/12 1357	x	2/28/12 1435
Relinquished	Date/Time	Received	Date/Time
x		x	

Special Remarks: 02-28-12 @ 1:01pm

TAT --> Next Day 2 Day 3 Day STD

Distribution: White - Lab, Yellow - File, Pink - Originator

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Chain of Custody Record

1311 N. 35th Street
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Laboratory/Project No (internal): _____

Date: 2/20/12

Page: 1 of: 3

Client: GeoEngineers, Inc.

Address: Plaza 600 Building, Suite 1700

City, State, Zip: Seattle, WA, 98101 Tel: 206-728-2674

Project Name: New Zealand

Location: Denny Triangle

Collected by: Theo Leonard/Chris Brown

Reports To (PM): Jessica Smith Fax: 425-861-6050 Email: jasmith@geoengineers.com

Project No: 20434-001-02

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	BTEX - EPA 8260	Gasoline Range Organics - EPA 8260	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics	SEMI VOL (EPA 8270) - SIM	PAH (EPA 8270) - SIM	PCBs (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals* (6020 / 200.8)	Total (T) / Dissolved (D)	Anions (IC)**	RCRA 8 Metals by EPA 6000/7000	TCLP	Separate Cr Result	Comments/Depth
MW19-1-	2/20/12		S														X			OB
MW19-1-2.5	2/20/12	930	S														X			
MW19-1-5.0	2/ /12	840	S														X			
MW19-1-7.5	2/ /12	850	S		(X)		(X)					(X)					X		X	x=added Sn 03.13.12 @ 11:40am
MW19-1-10.0	2/ /12	900	S														X			
MW19-1-12.5	2/ /12	910	S														X			
MW19-1-15.0	2/ /12	920	S		(X)		(X)					(X)					X			
MW19-1-17.5	2/ /12	925	S														X			
MW19-1-20.0	2/ /12	935	S														X			
MW19-1-22.5	2/ /12	945	S														X			

MW19-1

*Metals Analysis (Circle): MTCA-5 (RCRA-8) Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☒ Disposal by Lab (A fee may be assessed if samples are retained after 30 days.)

Relinquished	Date/Time	Received	Date/Time
x		x	
Relinquished	Date/Time	Received	Date/Time
x		x	

Special Remarks:
(X) = added Sn 02.21.12 @ 12:30pm

TAT--> (Next Day) 2 Day (3 Day) STD

Distribution: White - Lab, Yellow - File, Pink - Originator

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Michael C. Ridgeway

From: Jessica A. Smith [jasmith@geoengineers.com]
Sent: Tuesday, March 13, 2012 3:40 PM
To: Michael C. Ridgeway
Subject: RE: New Zealand Data

I'd also like to add Diesel/Heavy Oil range organics to the following soil samples:

- B20-3-7.5
- B20-3-12.5
- B20-3-15.0

Let me know if you have any questions.

Also, I did a little bit more digging into that 20' sample with the high heavy oil hit and, based on the boring log, that sample was wet, which corresponds to the percent moisture in your report. So I'm feeling better about that sample actually being the 20' sample and the jars not being switched since 1) there is a pathway for the contamination to get there (the perched groundwater) and 2) the percent moisture for that sample was really high in the 20' sample and not in the 10' sample indicating that the jars weren't switched. I'm sure that's way too much information than you care about, but just thought I'd let you know. ☺

Thanks!
Jess

Jessica Smith, LG
Environmental Geologist | GeoEngineers, Inc.
T: 425.861.6070
F: 425.861.6050
M: 206.423.8289
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From: Michael C. Ridgeway [mailto:mridgeway@fremontanalytical.com]
Sent: Tuesday, March 13, 2012 12:09 PM
To: Jessica A. Smith
Cc: Chris T. Brown
Subject: RE: New Zealand Data

Got it. I'll have a team shoot for tomorrow and give you and update if we move into Thurs.

Thank you!

1311 N. 35th St.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

GeoEngineers, Inc. - Redmond
Jessica Smith
8410 154th Ave. NE
Redmond, Washington 98052

RE: Rufus 2.0
Lab ID: 1204024

April 19, 2012

Attention Jessica Smith:

Fremont Analytical, Inc. received 110 sample(s) on 4/10/2012 for the analyses presented in the following report.

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.
Gasoline by NWTPH-Gx
Mercury by EPA Method 7471
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)
Sample Moisture (Percent Moisture)
Total Metals by EPA Method 6020
Volatile Organic Compounds by EPA Method 8260

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Michael Dee
Sr. Chemist / Principal

Date: *04/19/2012*

CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0
Lab Order: 1204024

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1204024-001	B20-4-2.5	04/15/2012 7:35 AM	04/16/2012 9:50 AM
1204024-002	B20-4-5.0	04/15/2012 7:40 AM	04/16/2012 9:50 AM
1204024-004	B20-4-10.0	04/15/2012 7:49 AM	04/16/2012 9:50 AM
1204024-005	B20-4-12.5	04/15/2012 7:55 AM	04/16/2012 9:50 AM
1204024-006	B20-4-15.0	04/15/2012 8:00 AM	04/16/2012 9:50 AM
1204024-008	B20-4-20.0	04/15/2012 8:11 AM	04/16/2012 9:50 AM
1204024-013	B20-5-2.5	04/15/2012 8:25 AM	04/16/2012 9:50 AM
1204024-014	B20-5-5.0	04/15/2012 8:30 AM	04/16/2012 9:50 AM
1204024-015	B20-5-7.5	04/15/2012 8:40 AM	04/16/2012 9:50 AM
1204024-016	B20-5-10.0	04/15/2012 8:47 AM	04/16/2012 9:50 AM
1204024-017	B20-5-12.5	04/15/2012 8:58 AM	04/16/2012 9:50 AM
1204024-018	B20-5-15.0	04/15/2012 9:05 AM	04/16/2012 9:50 AM
1204024-019	B20-5-17.5	04/15/2012 9:13 AM	04/16/2012 9:50 AM
1204024-020	B20-5-20.0	04/15/2012 9:18 AM	04/16/2012 9:50 AM
1204024-025	B20-6-2.5	04/15/2012 9:30 AM	04/16/2012 9:50 AM
1204024-026	B20-6-5.0	04/15/2012 9:40 AM	04/16/2012 9:50 AM
1204024-027	B20-6-7.5	04/15/2012 9:45 AM	04/16/2012 9:50 AM
1204024-028	B20-6-10.0	04/15/2012 9:51 AM	04/16/2012 9:50 AM
1204024-029	B20-6-12.5	04/15/2012 9:57 AM	04/16/2012 9:50 AM
1204024-030	B20-6-15.0	04/15/2012 10:03 AM	04/16/2012 9:50 AM
1204024-031	B20-6-17.5	04/15/2012 10:11 AM	04/16/2012 9:50 AM
1204024-032	B20-6-20.0	04/15/2012 10:17 AM	04/16/2012 9:50 AM
1204024-037	B20-7-2.5	04/15/2012 12:08 PM	04/16/2012 9:50 AM
1204024-038	B20-7-5.0	04/15/2012 12:14 PM	04/16/2012 9:50 AM
1204024-039	B20-7-7.5	04/15/2012 12:21 PM	04/16/2012 9:50 AM
1204024-040	B20-7-10.0	04/15/2012 12:28 PM	04/16/2012 9:50 AM
1204024-041	B20-7-12.5	04/15/2012 12:35 PM	04/16/2012 9:50 AM
1204024-042	B20-7-15.0	04/15/2012 12:40 PM	04/16/2012 9:50 AM
1204024-043	B20-7-17.5	04/15/2012 12:48 PM	04/16/2012 9:50 AM
1204024-044	B20-7-20.0	04/15/2012 12:55 PM	04/16/2012 9:50 AM
1204024-049	B20-8-2.5	04/15/2012 10:46 AM	04/16/2012 9:50 AM
1204024-050	B20-8-5.0	04/15/2012 11:00 AM	04/16/2012 9:50 AM
1204024-051	B20-8-7.5	04/15/2012 11:08 AM	04/16/2012 9:50 AM
1204024-052	B20-8-10.0	04/15/2012 11:13 AM	04/16/2012 9:50 AM
1204024-053	B20-8-12.5	04/15/2012 11:20 AM	04/16/2012 9:50 AM
1204024-054	B20-8-15.0	04/15/2012 11:26 AM	04/16/2012 9:50 AM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0
Lab Order: 1204024

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1204024-055	B20-8-17.5	04/15/2012 11:35 AM	04/16/2012 9:50 AM
1204024-056	B20-8-20.0	04/15/2012 11:44 AM	04/16/2012 9:50 AM
1204024-061	B20-9-2.5	04/09/2012 7:25 AM	04/10/2012 12:00 AM
1204024-062	B20-9-5.0	04/09/2012 7:30 AM	04/10/2012 12:00 AM
1204024-063	B20-9-7.5	04/09/2012 7:40 AM	04/10/2012 12:00 AM
1204024-064	B20-9-10.0	04/09/2012 7:50 AM	04/10/2012 12:00 AM
1204024-065	B20-9-12.5	04/09/2012 8:00 AM	04/10/2012 12:00 AM
1204024-066	B20-9-15.0	04/09/2012 8:06 AM	04/10/2012 12:00 AM
1204024-067	B20-9-17.5	04/09/2012 8:13 AM	04/10/2012 12:00 AM
1204024-068	B20-9-20.0	04/09/2012 8:20 AM	04/10/2012 12:00 AM
1204024-069	B20-9-22.5	04/09/2012 8:27 AM	04/10/2012 12:00 AM
1204024-070	B20-9-25.0	04/09/2012 8:33 AM	04/10/2012 12:00 AM
1204024-073	B20-10-2.5	04/09/2012 9:25 AM	04/10/2012 12:00 AM
1204024-074	B20-10-5.0	04/09/2012 9:32 AM	04/10/2012 12:00 AM
1204024-075	B20-10-7.5	04/09/2012 9:40 AM	04/10/2012 12:00 AM
1204024-076	B20-10-10.0	04/09/2012 9:51 AM	04/10/2012 12:00 AM
1204024-077	B20-10-12.5	04/09/2012 9:57 AM	04/10/2012 12:00 AM
1204024-078	B20-10-15.0	04/09/2012 10:05 AM	04/10/2012 12:00 AM
1204024-079	B20-10-17.5	04/09/2012 10:12 AM	04/10/2012 12:00 AM
1204024-080	B20-10-20.0	04/09/2012 10:20 AM	04/10/2012 12:00 AM
1204024-085	B20-11-2.5	04/09/2012 10:55 AM	04/10/2012 12:00 AM
1204024-086	B20-11-5.0	04/09/2012 11:02 AM	04/10/2012 12:00 AM
1204024-087	B20-11-7.5	04/09/2012 11:08 AM	04/10/2012 12:00 AM
1204024-088	B20-11-10.0	04/09/2012 11:15 AM	04/10/2012 12:00 AM
1204024-089	B20-11-12.5	04/09/2012 11:23 AM	04/10/2012 12:00 AM
1204024-090	B20-11-15.0	04/09/2012 11:29 AM	04/10/2012 12:00 AM
1204024-091	B20-11-17.5	04/09/2012 11:40 AM	04/10/2012 12:00 AM
1204024-092	B20-11-20.0	04/09/2012 11:47 AM	04/10/2012 12:00 AM
1204024-097	B20-12-2.5	04/09/2012 12:25 PM	04/10/2012 12:00 AM
1204024-098	B20-12-5.0	04/09/2012 12:30 PM	04/10/2012 12:00 AM
1204024-099	B20-12-7.5	04/09/2012 12:36 PM	04/10/2012 12:00 AM
1204024-100	B20-12-10.0	04/09/2012 12:43 PM	04/10/2012 12:00 AM
1204024-101	B20-12-12.5	04/09/2012 12:51 PM	04/10/2012 12:00 AM
1204024-102	B20-12-15.0	04/09/2012 12:56 PM	04/10/2012 12:00 AM
1204024-103	B20-12-17.5	04/09/2012 1:04 PM	04/10/2012 12:00 AM
1204024-104	B20-12-20.0	04/09/2012 1:11 PM	04/10/2012 12:00 AM
1204024-109	B20-13-2.5	04/09/2012 2:02 PM	04/10/2012 12:00 AM
1204024-110	B20-13-5.0	04/09/2012 2:08 PM	04/10/2012 12:00 AM
1204024-111	B20-13-7.5	04/09/2012 2:15 PM	04/10/2012 12:00 AM
1204024-112	B20-13-10.0	04/09/2012 2:22 PM	04/10/2012 12:00 AM
1204024-113	B20-13-12.5	04/09/2012 2:30 PM	04/10/2012 12:00 AM
1204024-114	B20-13-15.0	04/09/2012 2:35 PM	04/10/2012 12:00 AM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

CLIENT:	GeoEngineers, Inc. - Redmond	**Work Order Sample Summary**	
Project:	Rufus 2.0		
Lab Order:	1204024		

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1204024-115	B20-13-17.5	04/09/2012 2:42 PM	04/10/2012 12:00 AM
1204024-116	B20-13-20.0	04/09/2012 2:50 PM	04/10/2012 12:00 AM
1204024-121	MW20-4-2.5	04/11/2012 3:12 PM	04/12/2012 4:35 PM
1204024-122	MW20-4-5.0	04/11/2012 3:15 PM	04/12/2012 4:35 PM
1204024-123	MW20-4-7.5	04/11/2012 3:17 PM	04/12/2012 4:35 PM
1204024-124	MW20-4-10.0	04/11/2012 3:20 PM	04/12/2012 4:35 PM
1204024-125	MW20-4-12.5	04/11/2012 3:25 PM	04/12/2012 4:35 PM
1204024-126	MW20-4-15.0	04/11/2012 3:27 PM	04/12/2012 4:35 PM
1204024-127	MW20-4-17.5	04/11/2012 3:30 PM	04/12/2012 4:35 PM
1204024-128	MW20-4-20.0	04/11/2012 3:35 PM	04/12/2012 4:35 PM
1204024-129	MW20-4-22.5	04/11/2012 3:40 PM	04/12/2012 4:35 PM
1204024-130	MW20-4-25.0	04/11/2012 3:45 PM	04/12/2012 4:35 PM
1204024-131	MW20-4-27.5	04/11/2012 3:50 PM	04/12/2012 4:35 PM
1204024-133	MW20-5-2.5	04/15/2012 1:11 PM	04/16/2012 9:50 AM
1204024-134	MW20-5-5.0	04/15/2012 1:18 PM	04/16/2012 9:50 AM
1204024-135	MW20-5-7.5	04/15/2012 1:26 PM	04/16/2012 9:50 AM
1204024-136	MW20-5-10.0	04/15/2012 1:34 PM	04/16/2012 9:50 AM
1204024-137	MW20-5-12.5	04/15/2012 1:42 PM	04/16/2012 9:50 AM
1204024-138	MW20-5-15.0	04/15/2012 1:46 PM	04/16/2012 9:50 AM
1204024-139	MW20-5-17.5	04/15/2012 1:55 PM	04/16/2012 9:50 AM
1204024-140	MW20-5-20.0	04/15/2012 2:03 PM	04/16/2012 9:50 AM
1204024-145	MW20-6-2.5	04/09/2012 3:22 PM	04/10/2012 12:00 AM
1204024-146	MW20-6-5.0	04/09/2012 3:30 PM	04/10/2012 12:00 AM
1204024-147	MW20-6-7.5	04/09/2012 3:36 PM	04/10/2012 12:00 AM
1204024-148	MW20-6-10.0	04/09/2012 3:42 PM	04/10/2012 12:00 AM
1204024-149	MW20-6-12.5	04/09/2012 3:50 PM	04/10/2012 12:00 AM
1204024-150	MW20-6-15.0	04/09/2012 3:57 PM	04/10/2012 12:00 AM
1204024-151	MW20-6-17.5	04/09/2012 4:03 PM	04/10/2012 12:00 AM
1204024-152	MW20-6-20.0	04/09/2012 4:09 PM	04/10/2012 12:00 AM
1204024-154	MW20-6-25.0	04/09/2012 4:40 PM	04/10/2012 12:00 AM
1204024-156	MW20-6-30.0	04/09/2012 4:50 PM	04/10/2012 12:00 AM
1204024-157	Trip Blank MEOH	04/06/2012 11:59 AM	04/16/2012 9:50 AM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

Case Narrative

WO#: **1204024**
Date: **4/19/2012**

CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0

I. SAMPLE RECEIPT:
All samples were received intact. The internal ice chest temperatures were measured on receipt and are recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Analytical Report

WO#: **1204024**
Date Reported: **4/19/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 4/15/2012 7:40:00 AM
Project: Rufus 2.0
Lab ID: 1204024-002
Matrix: Soil
Client Sample ID: B20-4-5.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 2241		Analyst: EM
Diesel (Fuel Oil)	ND	18.6		mg/Kg-dry	1	4/18/2012 10:26:00 AM
Heavy Oil	ND	46.4		mg/Kg-dry	1	4/18/2012 10:26:00 AM
Surr: 2-Fluorobiphenyl	117	50-150		%REC	1	4/18/2012 10:26:00 AM
Surr: o-Terphenyl	118	50-150		%REC	1	4/18/2012 10:26:00 AM
Gasoline by NWTPH-Gx				Batch ID: 2247		Analyst: PH
Gasoline	ND	4.66		mg/Kg-dry	1	4/18/2012 10:36:00 AM
Surr: 1,4-Difluorobenzene	94.3	65-135		%REC	1	4/18/2012 10:36:00 AM
Surr: 4-Bromofluorobenzene	103	65-135		%REC	1	4/18/2012 10:36:00 AM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 2240		Analyst: SG
Naphthalene	ND	54.1		µg/Kg-dry	1	4/18/2012 11:07:00 AM
2-Methylnaphthalene	ND	54.1		µg/Kg-dry	1	4/18/2012 11:07:00 AM
1-Methylnaphthalene	ND	54.1		µg/Kg-dry	1	4/18/2012 11:07:00 AM
Acenaphthylene	ND	54.1		µg/Kg-dry	1	4/18/2012 11:07:00 AM
Acenaphthene	ND	54.1		µg/Kg-dry	1	4/18/2012 11:07:00 AM
Fluorene	ND	54.1		µg/Kg-dry	1	4/18/2012 11:07:00 AM
Phenanthrene	ND	54.1		µg/Kg-dry	1	4/18/2012 11:07:00 AM
Anthracene	ND	54.1		µg/Kg-dry	1	4/18/2012 11:07:00 AM
Fluoranthene	ND	54.1		µg/Kg-dry	1	4/18/2012 11:07:00 AM
Pyrene	ND	54.1		µg/Kg-dry	1	4/18/2012 11:07:00 AM
Benz(a)anthracene	ND	54.1		µg/Kg-dry	1	4/18/2012 11:07:00 AM
Chrysene	ND	54.1		µg/Kg-dry	1	4/18/2012 11:07:00 AM
Benzo(b)fluoranthene	59.4	54.1		µg/Kg-dry	1	4/18/2012 11:07:00 AM
Benzo(k)fluoranthene	ND	54.1		µg/Kg-dry	1	4/18/2012 11:07:00 AM
Benzo(a)pyrene	64.9	54.1		µg/Kg-dry	1	4/18/2012 11:07:00 AM
Indeno(1,2,3-cd)pyrene	63.3	54.1		µg/Kg-dry	1	4/18/2012 11:07:00 AM
Dibenz(a,h)anthracene	58.6	54.1		µg/Kg-dry	1	4/18/2012 11:07:00 AM
Benzo(g,h,i)perylene	62.5	54.1		µg/Kg-dry	1	4/18/2012 11:07:00 AM
Surr: 2-Fluorobiphenyl	104	53.5-148		%REC	1	4/18/2012 11:07:00 AM
Surr: Terphenyl-d14 (surr)	110	67.2-149		%REC	1	4/18/2012 11:07:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1204024**
Date Reported: **4/19/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 4/15/2012 7:40:00 AM
Project: Rufus 2.0
Lab ID: 1204024-002
Matrix: Soil
Client Sample ID: B20-4-5.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 2244		Analyst: BR
Arsenic	2.39	0.0819		mg/Kg-dry	1	4/18/2012 2:15:20 PM
Barium	70.9	0.410		mg/Kg-dry	1	4/18/2012 2:15:20 PM
Cadmium	0.172	0.164		mg/Kg-dry	1	4/18/2012 2:15:20 PM
Chromium	32.6	0.0819		mg/Kg-dry	1	4/18/2012 2:15:20 PM
Lead	3.11	0.164		mg/Kg-dry	1	4/18/2012 2:15:20 PM
Selenium	ND	0.410		mg/Kg-dry	1	4/18/2012 2:15:20 PM
Silver	ND	0.0819		mg/Kg-dry	1	4/18/2012 2:15:20 PM
Mercury by EPA Method 7471				Batch ID: 2243		Analyst: MC
Mercury	ND	0.230		mg/Kg-dry	1	4/18/2012 2:37:53 PM
Sample Moisture (Percent Moisture)				Batch ID: R3991		Analyst: EM
Percent Moisture	9.61			wt%	1	4/18/2012 1:37:51 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1204024**
Date Reported: **4/19/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 4/15/2012 7:55:00 AM
Project: Rufus 2.0
Lab ID: 1204024-005
Matrix: Soil
Client Sample ID: B20-4-12.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 2241		Analyst: EM
Diesel (Fuel Oil)	ND	13.7		mg/Kg-dry	1	4/18/2012 7:37:00 PM
Heavy Oil	103	34.3		mg/Kg-dry	1	4/18/2012 7:37:00 PM
Surr: 2-Fluorobiphenyl	113	50-150		%REC	1	4/18/2012 7:37:00 PM
Surr: o-Terphenyl	116	50-150		%REC	1	4/18/2012 7:37:00 PM
Gasoline by NWTPH-Gx				Batch ID: 2247		Analyst: PH
Gasoline	ND	4.89		mg/Kg-dry	1	4/18/2012 11:06:00 AM
Surr: 1,4-Difluorobenzene	92.7	65-135		%REC	1	4/18/2012 11:06:00 AM
Surr: 4-Bromofluorobenzene	109	65-135		%REC	1	4/18/2012 11:06:00 AM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 2240		Analyst: SG
Naphthalene	ND	58.4		µg/Kg-dry	1	4/18/2012 11:32:00 AM
2-Methylnaphthalene	ND	58.4		µg/Kg-dry	1	4/18/2012 11:32:00 AM
1-Methylnaphthalene	ND	58.4		µg/Kg-dry	1	4/18/2012 11:32:00 AM
Acenaphthylene	ND	58.4		µg/Kg-dry	1	4/18/2012 11:32:00 AM
Acenaphthene	ND	58.4		µg/Kg-dry	1	4/18/2012 11:32:00 AM
Fluorene	ND	58.4		µg/Kg-dry	1	4/18/2012 11:32:00 AM
Phenanthrene	78.0	58.4		µg/Kg-dry	1	4/18/2012 11:32:00 AM
Anthracene	ND	58.4		µg/Kg-dry	1	4/18/2012 11:32:00 AM
Fluoranthene	60.8	58.4		µg/Kg-dry	1	4/18/2012 11:32:00 AM
Pyrene	59.3	58.4		µg/Kg-dry	1	4/18/2012 11:32:00 AM
Benz(a)anthracene	ND	58.4		µg/Kg-dry	1	4/18/2012 11:32:00 AM
Chrysene	ND	58.4		µg/Kg-dry	1	4/18/2012 11:32:00 AM
Benzo(b)fluoranthene	ND	58.4		µg/Kg-dry	1	4/18/2012 11:32:00 AM
Benzo(k)fluoranthene	ND	58.4		µg/Kg-dry	1	4/18/2012 11:32:00 AM
Benzo(a)pyrene	ND	58.4		µg/Kg-dry	1	4/18/2012 11:32:00 AM
Indeno(1,2,3-cd)pyrene	ND	58.4		µg/Kg-dry	1	4/18/2012 11:32:00 AM
Dibenz(a,h)anthracene	ND	58.4		µg/Kg-dry	1	4/18/2012 11:32:00 AM
Benzo(g,h,i)perylene	ND	58.4		µg/Kg-dry	1	4/18/2012 11:32:00 AM
Surr: 2-Fluorobiphenyl	83.3	53.5-148		%REC	1	4/18/2012 11:32:00 AM
Surr: Terphenyl-d14 (surr)	89.3	67.2-149		%REC	1	4/18/2012 11:32:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1204024**
Date Reported: **4/19/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 4/15/2012 7:55:00 AM
Project: Rufus 2.0
Lab ID: 1204024-005
Matrix: Soil
Client Sample ID: B20-4-12.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 2244		Analyst: BR
Arsenic	4.06	0.0812		mg/Kg-dry	1	4/18/2012 3:01:37 PM
Barium	114	0.406		mg/Kg-dry	1	4/18/2012 3:01:37 PM
Cadmium	0.303	0.162		mg/Kg-dry	1	4/18/2012 3:01:37 PM
Chromium	39.3	0.0812		mg/Kg-dry	1	4/18/2012 3:01:37 PM
Lead	73.3	0.162		mg/Kg-dry	1	4/18/2012 3:01:37 PM
Selenium	ND	0.406		mg/Kg-dry	1	4/18/2012 3:01:37 PM
Silver	0.0917	0.0812		mg/Kg-dry	1	4/18/2012 3:01:37 PM
Mercury by EPA Method 7471				Batch ID: 2243		Analyst: MC
Mercury	ND	0.273		mg/Kg-dry	1	4/18/2012 2:50:18 PM
Sample Moisture (Percent Moisture)				Batch ID: R3991		Analyst: EM
Percent Moisture	15.1			wt%	1	4/18/2012 1:37:51 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1204024**
Date Reported: **4/19/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 4/15/2012 8:47:00 AM
Project: Rufus 2.0
Lab ID: 1204024-016
Matrix: Soil
Client Sample ID: B20-5-10.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 2241		Analyst: EM
Diesel (Fuel Oil)	ND	19.3		mg/Kg-dry	1	4/18/2012 10:53:00 AM
Heavy Oil	ND	48.2		mg/Kg-dry	1	4/18/2012 10:53:00 AM
Surr: 2-Fluorobiphenyl	117	50-150		%REC	1	4/18/2012 10:53:00 AM
Surr: o-Terphenyl	118	50-150		%REC	1	4/18/2012 10:53:00 AM
Gasoline by NWTPH-Gx				Batch ID: 2247		Analyst: PH
Gasoline	ND	4.37		mg/Kg-dry	1	4/18/2012 11:36:00 AM
Surr: 1,4-Difluorobenzene	91.3	65-135		%REC	1	4/18/2012 11:36:00 AM
Surr: 4-Bromofluorobenzene	107	65-135		%REC	1	4/18/2012 11:36:00 AM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 2240		Analyst: SG
Naphthalene	ND	54.6		µg/Kg-dry	1	4/18/2012 11:58:00 AM
2-Methylnaphthalene	ND	54.6		µg/Kg-dry	1	4/18/2012 11:58:00 AM
1-Methylnaphthalene	ND	54.6		µg/Kg-dry	1	4/18/2012 11:58:00 AM
Acenaphthylene	ND	54.6		µg/Kg-dry	1	4/18/2012 11:58:00 AM
Acenaphthene	ND	54.6		µg/Kg-dry	1	4/18/2012 11:58:00 AM
Fluorene	ND	54.6		µg/Kg-dry	1	4/18/2012 11:58:00 AM
Phenanthrene	ND	54.6		µg/Kg-dry	1	4/18/2012 11:58:00 AM
Anthracene	ND	54.6		µg/Kg-dry	1	4/18/2012 11:58:00 AM
Fluoranthene	ND	54.6		µg/Kg-dry	1	4/18/2012 11:58:00 AM
Pyrene	ND	54.6		µg/Kg-dry	1	4/18/2012 11:58:00 AM
Benz(a)anthracene	ND	54.6		µg/Kg-dry	1	4/18/2012 11:58:00 AM
Chrysene	ND	54.6		µg/Kg-dry	1	4/18/2012 11:58:00 AM
Benzo(b)fluoranthene	ND	54.6		µg/Kg-dry	1	4/18/2012 11:58:00 AM
Benzo(k)fluoranthene	ND	54.6		µg/Kg-dry	1	4/18/2012 11:58:00 AM
Benzo(a)pyrene	ND	54.6		µg/Kg-dry	1	4/18/2012 11:58:00 AM
Indeno(1,2,3-cd)pyrene	ND	54.6		µg/Kg-dry	1	4/18/2012 11:58:00 AM
Dibenz(a,h)anthracene	ND	54.6		µg/Kg-dry	1	4/18/2012 11:58:00 AM
Benzo(g,h,i)perylene	ND	54.6		µg/Kg-dry	1	4/18/2012 11:58:00 AM
Surr: 2-Fluorobiphenyl	76.2	53.5-148		%REC	1	4/18/2012 11:58:00 AM
Surr: Terphenyl-d14 (surr)	81.6	67.2-149		%REC	1	4/18/2012 11:58:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1204024**
Date Reported: **4/19/2012**

Client: GeoEngineers, Inc. - Redmond **Collection Date:** 4/15/2012 8:47:00 AM
Project: Rufus 2.0
Lab ID: 1204024-016 **Matrix:** Soil
Client Sample ID: B20-5-10.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 2244		Analyst: BR
Arsenic	4.49	0.0751		mg/Kg-dry	1	4/18/2012 3:10:53 PM
Barium	108	0.375		mg/Kg-dry	1	4/18/2012 3:10:53 PM
Cadmium	0.251	0.150		mg/Kg-dry	1	4/18/2012 3:10:53 PM
Chromium	48.5	0.0751		mg/Kg-dry	1	4/18/2012 3:10:53 PM
Lead	18.4	0.150		mg/Kg-dry	1	4/18/2012 3:10:53 PM
Selenium	ND	0.375		mg/Kg-dry	1	4/18/2012 3:10:53 PM
Silver	ND	0.0751		mg/Kg-dry	1	4/18/2012 3:10:53 PM
Mercury by EPA Method 7471				Batch ID: 2243		Analyst: MC
Mercury	ND	0.226		mg/Kg-dry	1	4/18/2012 2:53:22 PM
Sample Moisture (Percent Moisture)				Batch ID: R3991		Analyst: EM
Percent Moisture	9.38			wt%	1	4/18/2012 1:37:51 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1204024**
Date Reported: **4/19/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 4/15/2012 9:18:00 AM
Project: Rufus 2.0
Lab ID: 1204024-020
Matrix: Soil
Client Sample ID: B20-5-20.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 2241		Analyst: EM
Diesel (Fuel Oil)	ND	18.6		mg/Kg-dry	1	4/18/2012 11:21:00 AM
Heavy Oil	ND	46.4		mg/Kg-dry	1	4/18/2012 11:21:00 AM
Surr: 2-Fluorobiphenyl	118	50-150		%REC	1	4/18/2012 11:21:00 AM
Surr: o-Terphenyl	118	50-150		%REC	1	4/18/2012 11:21:00 AM
Gasoline by NWTPH-Gx				Batch ID: 2247		Analyst: PH
Gasoline	ND	5.65		mg/Kg-dry	1	4/18/2012 12:07:00 PM
Surr: 1,4-Difluorobenzene	97.9	65-135		%REC	1	4/18/2012 12:07:00 PM
Surr: 4-Bromofluorobenzene	110	65-135		%REC	1	4/18/2012 12:07:00 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 2240		Analyst: SG
Naphthalene	ND	58.8		µg/Kg-dry	1	4/18/2012 12:23:00 PM
2-Methylnaphthalene	ND	58.8		µg/Kg-dry	1	4/18/2012 12:23:00 PM
1-Methylnaphthalene	ND	58.8		µg/Kg-dry	1	4/18/2012 12:23:00 PM
Acenaphthylene	ND	58.8		µg/Kg-dry	1	4/18/2012 12:23:00 PM
Acenaphthene	ND	58.8		µg/Kg-dry	1	4/18/2012 12:23:00 PM
Fluorene	ND	58.8		µg/Kg-dry	1	4/18/2012 12:23:00 PM
Phenanthrene	ND	58.8		µg/Kg-dry	1	4/18/2012 12:23:00 PM
Anthracene	ND	58.8		µg/Kg-dry	1	4/18/2012 12:23:00 PM
Fluoranthene	ND	58.8		µg/Kg-dry	1	4/18/2012 12:23:00 PM
Pyrene	ND	58.8		µg/Kg-dry	1	4/18/2012 12:23:00 PM
Benz(a)anthracene	ND	58.8		µg/Kg-dry	1	4/18/2012 12:23:00 PM
Chrysene	ND	58.8		µg/Kg-dry	1	4/18/2012 12:23:00 PM
Benzo(b)fluoranthene	ND	58.8		µg/Kg-dry	1	4/18/2012 12:23:00 PM
Benzo(k)fluoranthene	ND	58.8		µg/Kg-dry	1	4/18/2012 12:23:00 PM
Benzo(a)pyrene	ND	58.8		µg/Kg-dry	1	4/18/2012 12:23:00 PM
Indeno(1,2,3-cd)pyrene	ND	58.8		µg/Kg-dry	1	4/18/2012 12:23:00 PM
Dibenz(a,h)anthracene	ND	58.8		µg/Kg-dry	1	4/18/2012 12:23:00 PM
Benzo(g,h,i)perylene	ND	58.8		µg/Kg-dry	1	4/18/2012 12:23:00 PM
Surr: 2-Fluorobiphenyl	79.4	53.5-148		%REC	1	4/18/2012 12:23:00 PM
Surr: Terphenyl-d14 (surr)	84.5	67.2-149		%REC	1	4/18/2012 12:23:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1204024**
Date Reported: **4/19/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 4/15/2012 9:18:00 AM
Project: Rufus 2.0
Lab ID: 1204024-020
Matrix: Soil
Client Sample ID: B20-5-20.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R3991		Analyst: EM
Percent Moisture	16.5			wt%	1	4/18/2012 1:37:51 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1204024**
Date Reported: **4/19/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 4/15/2012 9:51:00 AM
Project: Rufus 2.0
Lab ID: 1204024-028
Matrix: Soil
Client Sample ID: B20-6-10.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 2241		Analyst: EM
Diesel (Fuel Oil)	ND	23.0		mg/Kg-dry	1	4/18/2012 11:48:00 AM
Heavy Oil	ND	57.5		mg/Kg-dry	1	4/18/2012 11:48:00 AM
Surr: 2-Fluorobiphenyl	117	50-150		%REC	1	4/18/2012 11:48:00 AM
Surr: o-Terphenyl	118	50-150		%REC	1	4/18/2012 11:48:00 AM
Gasoline by NWTPH-Gx				Batch ID: 2247		Analyst: PH
Gasoline	ND	6.95		mg/Kg-dry	1	4/18/2012 12:37:00 PM
Surr: 1,4-Difluorobenzene	90.0	65-135		%REC	1	4/18/2012 12:37:00 PM
Surr: 4-Bromofluorobenzene	107	65-135		%REC	1	4/18/2012 12:37:00 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 2240		Analyst: SG
Naphthalene	ND	75.0		µg/Kg-dry	1	4/18/2012 12:48:00 PM
2-Methylnaphthalene	ND	75.0		µg/Kg-dry	1	4/18/2012 12:48:00 PM
1-Methylnaphthalene	ND	75.0		µg/Kg-dry	1	4/18/2012 12:48:00 PM
Acenaphthylene	ND	75.0		µg/Kg-dry	1	4/18/2012 12:48:00 PM
Acenaphthene	ND	75.0		µg/Kg-dry	1	4/18/2012 12:48:00 PM
Fluorene	ND	75.0		µg/Kg-dry	1	4/18/2012 12:48:00 PM
Phenanthrene	91.2	75.0		µg/Kg-dry	1	4/18/2012 12:48:00 PM
Anthracene	ND	75.0		µg/Kg-dry	1	4/18/2012 12:48:00 PM
Fluoranthene	111	75.0		µg/Kg-dry	1	4/18/2012 12:48:00 PM
Pyrene	111	75.0		µg/Kg-dry	1	4/18/2012 12:48:00 PM
Benz(a)anthracene	ND	75.0		µg/Kg-dry	1	4/18/2012 12:48:00 PM
Chrysene	ND	75.0		µg/Kg-dry	1	4/18/2012 12:48:00 PM
Benzo(b)fluoranthene	ND	75.0		µg/Kg-dry	1	4/18/2012 12:48:00 PM
Benzo(k)fluoranthene	ND	75.0		µg/Kg-dry	1	4/18/2012 12:48:00 PM
Benzo(a)pyrene	ND	75.0		µg/Kg-dry	1	4/18/2012 12:48:00 PM
Indeno(1,2,3-cd)pyrene	ND	75.0		µg/Kg-dry	1	4/18/2012 12:48:00 PM
Dibenz(a,h)anthracene	ND	75.0		µg/Kg-dry	1	4/18/2012 12:48:00 PM
Benzo(g,h,i)perylene	ND	75.0		µg/Kg-dry	1	4/18/2012 12:48:00 PM
Surr: 2-Fluorobiphenyl	66.9	53.5-148		%REC	1	4/18/2012 12:48:00 PM
Surr: Terphenyl-d14 (surr)	79.2	67.2-149		%REC	1	4/18/2012 12:48:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1204024**
Date Reported: **4/19/2012**

Client: GeoEngineers, Inc. - Redmond **Collection Date:** 4/15/2012 9:51:00 AM
Project: Rufus 2.0
Lab ID: 1204024-028 **Matrix:** Soil
Client Sample ID: B20-6-10.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 2244		Analyst: BR
Arsenic	8.50	0.105		mg/Kg-dry	1	4/18/2012 3:20:09 PM
Barium	291	0.527		mg/Kg-dry	1	4/18/2012 3:20:09 PM
Cadmium	0.359	0.211		mg/Kg-dry	1	4/18/2012 3:20:09 PM
Chromium	94.5	0.105		mg/Kg-dry	1	4/18/2012 3:20:09 PM
Lead	191	0.211		mg/Kg-dry	1	4/18/2012 3:20:09 PM
Selenium	ND	0.527		mg/Kg-dry	1	4/18/2012 3:20:09 PM
Silver	ND	0.105		mg/Kg-dry	1	4/18/2012 3:20:09 PM
Mercury by EPA Method 7471				Batch ID: 2243		Analyst: MC
Mercury	1.86	1.47	D	mg/Kg-dry	5	4/18/2012 4:08:57 PM
Sample Moisture (Percent Moisture)				Batch ID: R3991		Analyst: EM
Percent Moisture	31.3			wt%	1	4/18/2012 1:37:51 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1204024**
Date Reported: **4/19/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 4/15/2012 10:17:00 AM
Project: Rufus 2.0
Lab ID: 1204024-032
Matrix: Soil
Client Sample ID: B20-6-20.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 2241		Analyst: EM
Diesel (Fuel Oil)	ND	14.6		mg/Kg-dry	1	4/18/2012 12:16:00 PM
Heavy Oil	ND	36.5		mg/Kg-dry	1	4/18/2012 12:16:00 PM
Surr: 2-Fluorobiphenyl	116	50-150		%REC	1	4/18/2012 12:16:00 PM
Surr: o-Terphenyl	117	50-150		%REC	1	4/18/2012 12:16:00 PM
Gasoline by NWTPH-Gx				Batch ID: 2247		Analyst: PH
Gasoline	ND	5.22		mg/Kg-dry	1	4/18/2012 1:07:00 PM
Surr: 1,4-Difluorobenzene	92.2	65-135		%REC	1	4/18/2012 1:07:00 PM
Surr: 4-Bromofluorobenzene	110	65-135		%REC	1	4/18/2012 1:07:00 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 2240		Analyst: SG
Naphthalene	ND	58.2		µg/Kg-dry	1	4/18/2012 1:13:00 PM
2-Methylnaphthalene	ND	58.2		µg/Kg-dry	1	4/18/2012 1:13:00 PM
1-Methylnaphthalene	ND	58.2		µg/Kg-dry	1	4/18/2012 1:13:00 PM
Acenaphthylene	ND	58.2		µg/Kg-dry	1	4/18/2012 1:13:00 PM
Acenaphthene	ND	58.2		µg/Kg-dry	1	4/18/2012 1:13:00 PM
Fluorene	ND	58.2		µg/Kg-dry	1	4/18/2012 1:13:00 PM
Phenanthrene	ND	58.2		µg/Kg-dry	1	4/18/2012 1:13:00 PM
Anthracene	ND	58.2		µg/Kg-dry	1	4/18/2012 1:13:00 PM
Fluoranthene	ND	58.2		µg/Kg-dry	1	4/18/2012 1:13:00 PM
Pyrene	ND	58.2		µg/Kg-dry	1	4/18/2012 1:13:00 PM
Benz(a)anthracene	ND	58.2		µg/Kg-dry	1	4/18/2012 1:13:00 PM
Chrysene	ND	58.2		µg/Kg-dry	1	4/18/2012 1:13:00 PM
Benzo(b)fluoranthene	ND	58.2		µg/Kg-dry	1	4/18/2012 1:13:00 PM
Benzo(k)fluoranthene	ND	58.2		µg/Kg-dry	1	4/18/2012 1:13:00 PM
Benzo(a)pyrene	ND	58.2		µg/Kg-dry	1	4/18/2012 1:13:00 PM
Indeno(1,2,3-cd)pyrene	ND	58.2		µg/Kg-dry	1	4/18/2012 1:13:00 PM
Dibenz(a,h)anthracene	ND	58.2		µg/Kg-dry	1	4/18/2012 1:13:00 PM
Benzo(g,h,i)perylene	ND	58.2		µg/Kg-dry	1	4/18/2012 1:13:00 PM
Surr: 2-Fluorobiphenyl	77.6	53.5-148		%REC	1	4/18/2012 1:13:00 PM
Surr: Terphenyl-d14 (surr)	78.1	67.2-149		%REC	1	4/18/2012 1:13:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1204024**
Date Reported: **4/19/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 4/15/2012 10:17:00 AM
Project: Rufus 2.0
Lab ID: 1204024-032
Matrix: Soil
Client Sample ID: B20-6-20.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R3991		Analyst: EM
Percent Moisture	10.7			wt%	1	4/18/2012 1:37:51 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1204024**
Date Reported: **4/19/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 4/15/2012 12:21:00 PM
Project: Rufus 2.0
Lab ID: 1204024-039
Matrix: Soil
Client Sample ID: B20-7-7.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 2241		Analyst: EM
Diesel (Fuel Oil)	ND	21.4		mg/Kg-dry	1	4/18/2012 1:11:00 PM
Heavy Oil	ND	53.6		mg/Kg-dry	1	4/18/2012 1:11:00 PM
Surr: 2-Fluorobiphenyl	117	50-150		%REC	1	4/18/2012 1:11:00 PM
Surr: o-Terphenyl	118	50-150		%REC	1	4/18/2012 1:11:00 PM
Gasoline by NWTPH-Gx				Batch ID: 2247		Analyst: PH
Gasoline	ND	6.19		mg/Kg-dry	1	4/18/2012 1:38:00 PM
Surr: 1,4-Difluorobenzene	97.2	65-135		%REC	1	4/18/2012 1:38:00 PM
Surr: 4-Bromofluorobenzene	108	65-135		%REC	1	4/18/2012 1:38:00 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 2240		Analyst: SG
Naphthalene	ND	60.4		µg/Kg-dry	1	4/18/2012 2:03:00 PM
2-Methylnaphthalene	ND	60.4		µg/Kg-dry	1	4/18/2012 2:03:00 PM
1-Methylnaphthalene	ND	60.4		µg/Kg-dry	1	4/18/2012 2:03:00 PM
Acenaphthylene	ND	60.4		µg/Kg-dry	1	4/18/2012 2:03:00 PM
Acenaphthene	ND	60.4		µg/Kg-dry	1	4/18/2012 2:03:00 PM
Fluorene	ND	60.4		µg/Kg-dry	1	4/18/2012 2:03:00 PM
Phenanthrene	ND	60.4		µg/Kg-dry	1	4/18/2012 2:03:00 PM
Anthracene	ND	60.4		µg/Kg-dry	1	4/18/2012 2:03:00 PM
Fluoranthene	ND	60.4		µg/Kg-dry	1	4/18/2012 2:03:00 PM
Pyrene	ND	60.4		µg/Kg-dry	1	4/18/2012 2:03:00 PM
Benz(a)anthracene	ND	60.4		µg/Kg-dry	1	4/18/2012 2:03:00 PM
Chrysene	ND	60.4		µg/Kg-dry	1	4/18/2012 2:03:00 PM
Benzo(b)fluoranthene	ND	60.4		µg/Kg-dry	1	4/18/2012 2:03:00 PM
Benzo(k)fluoranthene	ND	60.4		µg/Kg-dry	1	4/18/2012 2:03:00 PM
Benzo(a)pyrene	ND	60.4		µg/Kg-dry	1	4/18/2012 2:03:00 PM
Indeno(1,2,3-cd)pyrene	ND	60.4		µg/Kg-dry	1	4/18/2012 2:03:00 PM
Dibenz(a,h)anthracene	ND	60.4		µg/Kg-dry	1	4/18/2012 2:03:00 PM
Benzo(g,h,i)perylene	ND	60.4		µg/Kg-dry	1	4/18/2012 2:03:00 PM
Surr: 2-Fluorobiphenyl	82.9	53.5-148		%REC	1	4/18/2012 2:03:00 PM
Surr: Terphenyl-d14 (surr)	85.9	67.2-149		%REC	1	4/18/2012 2:03:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1204024**
Date Reported: **4/19/2012**

Client: GeoEngineers, Inc. - Redmond **Collection Date:** 4/15/2012 12:21:00 PM
Project: Rufus 2.0
Lab ID: 1204024-039 **Matrix:** Soil
Client Sample ID: B20-7-7.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 2244		Analyst: BR
Arsenic	6.32	0.0931		mg/Kg-dry	1	4/18/2012 3:29:25 PM
Barium	122	0.465		mg/Kg-dry	1	4/18/2012 3:29:25 PM
Cadmium	0.201	0.186		mg/Kg-dry	1	4/18/2012 3:29:25 PM
Chromium	54.9	0.0931		mg/Kg-dry	1	4/18/2012 3:29:25 PM
Lead	4.48	0.186		mg/Kg-dry	1	4/18/2012 3:29:25 PM
Selenium	ND	0.465		mg/Kg-dry	1	4/18/2012 3:29:25 PM
Silver	ND	0.0931		mg/Kg-dry	1	4/18/2012 3:29:25 PM
Mercury by EPA Method 7471				Batch ID: 2243		Analyst: MC
Mercury	ND	0.248		mg/Kg-dry	1	4/18/2012 3:00:53 PM
Sample Moisture (Percent Moisture)				Batch ID: R3991		Analyst: EM
Percent Moisture	19.8			wt%	1	4/18/2012 1:37:51 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1204024**
Date Reported: **4/19/2012**

Client: GeoEngineers, Inc. - Redmond **Collection Date:** 4/15/2012 12:40:00 PM
Project: Rufus 2.0
Lab ID: 1204024-042 **Matrix:** Soil
Client Sample ID: B20-7-15.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 2241		Analyst: EM
Diesel (Fuel Oil)	ND	15.2		mg/Kg-dry	1	4/18/2012 1:38:00 PM
Heavy Oil	ND	38.1		mg/Kg-dry	1	4/18/2012 1:38:00 PM
Surr: 2-Fluorobiphenyl	116	50-150		%REC	1	4/18/2012 1:38:00 PM
Surr: o-Terphenyl	116	50-150		%REC	1	4/18/2012 1:38:00 PM
Gasoline by NWTPH-Gx				Batch ID: 2247		Analyst: PH
Gasoline	ND	5.16		mg/Kg-dry	1	4/18/2012 2:09:00 PM
Surr: 1,4-Difluorobenzene	98.1	65-135		%REC	1	4/18/2012 2:09:00 PM
Surr: 4-Bromofluorobenzene	110	65-135		%REC	1	4/18/2012 2:09:00 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 2240		Analyst: SG
Naphthalene	ND	57.3		µg/Kg-dry	1	4/18/2012 2:29:00 PM
2-Methylnaphthalene	ND	57.3		µg/Kg-dry	1	4/18/2012 2:29:00 PM
1-Methylnaphthalene	ND	57.3		µg/Kg-dry	1	4/18/2012 2:29:00 PM
Acenaphthylene	ND	57.3		µg/Kg-dry	1	4/18/2012 2:29:00 PM
Acenaphthene	ND	57.3		µg/Kg-dry	1	4/18/2012 2:29:00 PM
Fluorene	ND	57.3		µg/Kg-dry	1	4/18/2012 2:29:00 PM
Phenanthrene	ND	57.3		µg/Kg-dry	1	4/18/2012 2:29:00 PM
Anthracene	ND	57.3		µg/Kg-dry	1	4/18/2012 2:29:00 PM
Fluoranthene	ND	57.3		µg/Kg-dry	1	4/18/2012 2:29:00 PM
Pyrene	ND	57.3		µg/Kg-dry	1	4/18/2012 2:29:00 PM
Benz(a)anthracene	ND	57.3		µg/Kg-dry	1	4/18/2012 2:29:00 PM
Chrysene	ND	57.3		µg/Kg-dry	1	4/18/2012 2:29:00 PM
Benzo(b)fluoranthene	ND	57.3		µg/Kg-dry	1	4/18/2012 2:29:00 PM
Benzo(k)fluoranthene	ND	57.3		µg/Kg-dry	1	4/18/2012 2:29:00 PM
Benzo(a)pyrene	ND	57.3		µg/Kg-dry	1	4/18/2012 2:29:00 PM
Indeno(1,2,3-cd)pyrene	ND	57.3		µg/Kg-dry	1	4/18/2012 2:29:00 PM
Dibenz(a,h)anthracene	ND	57.3		µg/Kg-dry	1	4/18/2012 2:29:00 PM
Benzo(g,h,i)perylene	ND	57.3		µg/Kg-dry	1	4/18/2012 2:29:00 PM
Surr: 2-Fluorobiphenyl	76.0	53.5-148		%REC	1	4/18/2012 2:29:00 PM
Surr: Terphenyl-d14 (surr)	81.1	67.2-149		%REC	1	4/18/2012 2:29:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1204024**
Date Reported: **4/19/2012**

Client: GeoEngineers, Inc. - Redmond **Collection Date:** 4/15/2012 12:40:00 PM
Project: Rufus 2.0
Lab ID: 1204024-042 **Matrix:** Soil
Client Sample ID: B20-7-15.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 2244		Analyst: BR
Arsenic	2.78	0.0805		mg/Kg-dry	1	4/18/2012 3:38:42 PM
Barium	64.5	0.402		mg/Kg-dry	1	4/18/2012 3:38:42 PM
Cadmium	ND	0.161		mg/Kg-dry	1	4/18/2012 3:38:42 PM
Chromium	44.1	0.0805		mg/Kg-dry	1	4/18/2012 3:38:42 PM
Lead	2.31	0.161		mg/Kg-dry	1	4/18/2012 3:38:42 PM
Selenium	ND	0.402		mg/Kg-dry	1	4/18/2012 3:38:42 PM
Silver	ND	0.0805		mg/Kg-dry	1	4/18/2012 3:38:42 PM
Mercury by EPA Method 7471				Batch ID: 2243		Analyst: MC
Mercury	ND	0.207		mg/Kg-dry	1	4/18/2012 3:03:59 PM
Sample Moisture (Percent Moisture)				Batch ID: R3991		Analyst: EM
Percent Moisture	12.5			wt%	1	4/18/2012 1:37:51 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1204024**
Date Reported: **4/19/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 4/15/2012 11:00:00 AM
Project: Rufus 2.0
Lab ID: 1204024-050
Matrix: Soil
Client Sample ID: B20-8-5.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 2241		Analyst: EM
Diesel (Fuel Oil)	ND	15.1		mg/Kg-dry	1	4/18/2012 2:06:00 PM
Heavy Oil	ND	37.9		mg/Kg-dry	1	4/18/2012 2:06:00 PM
Surr: 2-Fluorobiphenyl	117	50-150		%REC	1	4/18/2012 2:06:00 PM
Surr: o-Terphenyl	117	50-150		%REC	1	4/18/2012 2:06:00 PM
Gasoline by NWTPH-Gx				Batch ID: 2247		Analyst: PH
Gasoline	ND	4.25		mg/Kg-dry	1	4/18/2012 2:40:00 PM
Surr: 1,4-Difluorobenzene	101	65-135		%REC	1	4/18/2012 2:40:00 PM
Surr: 4-Bromofluorobenzene	110	65-135		%REC	1	4/18/2012 2:40:00 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 2240		Analyst: SG
Naphthalene	ND	52.5		µg/Kg-dry	1	4/18/2012 2:54:00 PM
2-Methylnaphthalene	ND	52.5		µg/Kg-dry	1	4/18/2012 2:54:00 PM
1-Methylnaphthalene	ND	52.5		µg/Kg-dry	1	4/18/2012 2:54:00 PM
Acenaphthylene	ND	52.5		µg/Kg-dry	1	4/18/2012 2:54:00 PM
Acenaphthene	ND	52.5		µg/Kg-dry	1	4/18/2012 2:54:00 PM
Fluorene	ND	52.5		µg/Kg-dry	1	4/18/2012 2:54:00 PM
Phenanthrene	140	52.5		µg/Kg-dry	1	4/18/2012 2:54:00 PM
Anthracene	ND	52.5		µg/Kg-dry	1	4/18/2012 2:54:00 PM
Fluoranthene	210	52.5		µg/Kg-dry	1	4/18/2012 2:54:00 PM
Pyrene	238	52.5		µg/Kg-dry	1	4/18/2012 2:54:00 PM
Benz(a)anthracene	92.8	52.5		µg/Kg-dry	1	4/18/2012 2:54:00 PM
Chrysene	114	52.5		µg/Kg-dry	1	4/18/2012 2:54:00 PM
Benzo(b)fluoranthene	135	52.5		µg/Kg-dry	1	4/18/2012 2:54:00 PM
Benzo(k)fluoranthene	66.0	52.5		µg/Kg-dry	1	4/18/2012 2:54:00 PM
Benzo(a)pyrene	112	52.5		µg/Kg-dry	1	4/18/2012 2:54:00 PM
Indeno(1,2,3-cd)pyrene	87.3	52.5		µg/Kg-dry	1	4/18/2012 2:54:00 PM
Dibenz(a,h)anthracene	ND	52.5		µg/Kg-dry	1	4/18/2012 2:54:00 PM
Benzo(g,h,i)perylene	121	52.5		µg/Kg-dry	1	4/18/2012 2:54:00 PM
Surr: 2-Fluorobiphenyl	78.1	53.5-148		%REC	1	4/18/2012 2:54:00 PM
Surr: Terphenyl-d14 (surr)	86.2	67.2-149		%REC	1	4/18/2012 2:54:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1204024**
Date Reported: **4/19/2012**

Client: GeoEngineers, Inc. - Redmond **Collection Date:** 4/15/2012 11:00:00 AM
Project: Rufus 2.0
Lab ID: 1204024-050 **Matrix:** Soil
Client Sample ID: B20-8-5.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 2244		Analyst: BR
Arsenic	3.08	0.0755		mg/Kg-dry	1	4/18/2012 3:47:58 PM
Barium	70.0	0.377		mg/Kg-dry	1	4/18/2012 3:47:58 PM
Cadmium	0.285	0.151		mg/Kg-dry	1	4/18/2012 3:47:58 PM
Chromium	28.0	0.0755		mg/Kg-dry	1	4/18/2012 3:47:58 PM
Lead	83.3	0.151		mg/Kg-dry	1	4/18/2012 3:47:58 PM
Selenium	ND	0.377		mg/Kg-dry	1	4/18/2012 3:47:58 PM
Silver	ND	0.0755		mg/Kg-dry	1	4/18/2012 3:47:58 PM
Mercury by EPA Method 7471				Batch ID: 2243		Analyst: MC
Mercury	ND	0.204		mg/Kg-dry	1	4/18/2012 3:07:06 PM
Sample Moisture (Percent Moisture)				Batch ID: R3991		Analyst: EM
Percent Moisture	7.37			wt%	1	4/18/2012 1:37:51 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1204024**
Date Reported: **4/19/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 4/15/2012 11:26:00 AM
Project: Rufus 2.0
Lab ID: 1204024-054
Matrix: Soil
Client Sample ID: B20-8-15.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 2241		Analyst: EM
Diesel (Fuel Oil)	ND	15.8		mg/Kg-dry	1	4/19/2012 8:25:00 AM
Heavy Oil	771	39.4		mg/Kg-dry	1	4/19/2012 8:25:00 AM
Surr: 2-Fluorobiphenyl	110	50-150		%REC	1	4/19/2012 8:25:00 AM
Surr: o-Terphenyl	113	50-150		%REC	1	4/19/2012 8:25:00 AM
Gasoline by NWTPH-Gx				Batch ID: 2247		Analyst: PH
Gasoline	ND	4.59		mg/Kg-dry	1	4/18/2012 3:11:00 PM
Surr: 1,4-Difluorobenzene	98.9	65-135		%REC	1	4/18/2012 3:11:00 PM
Surr: 4-Bromofluorobenzene	107	65-135		%REC	1	4/18/2012 3:11:00 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 2240		Analyst: SG
Naphthalene	ND	55.3		µg/Kg-dry	1	4/19/2012 8:48:00 AM
2-Methylnaphthalene	ND	55.3		µg/Kg-dry	1	4/19/2012 8:48:00 AM
1-Methylnaphthalene	ND	55.3		µg/Kg-dry	1	4/19/2012 8:48:00 AM
Acenaphthylene	ND	55.3		µg/Kg-dry	1	4/19/2012 8:48:00 AM
Acenaphthene	ND	55.3		µg/Kg-dry	1	4/19/2012 8:48:00 AM
Fluorene	ND	55.3		µg/Kg-dry	1	4/19/2012 8:48:00 AM
Phenanthrene	69.7	55.3		µg/Kg-dry	1	4/19/2012 8:48:00 AM
Anthracene	ND	55.3		µg/Kg-dry	1	4/19/2012 8:48:00 AM
Fluoranthene	82.5	55.3		µg/Kg-dry	1	4/19/2012 8:48:00 AM
Pyrene	119	55.3		µg/Kg-dry	1	4/19/2012 8:48:00 AM
Benz(a)anthracene	73.6	55.3		µg/Kg-dry	1	4/19/2012 8:48:00 AM
Chrysene	114	55.3		µg/Kg-dry	1	4/19/2012 8:48:00 AM
Benzo(b)fluoranthene	136	55.3		µg/Kg-dry	1	4/19/2012 8:48:00 AM
Benzo(k)fluoranthene	57.8	55.3		µg/Kg-dry	1	4/19/2012 8:48:00 AM
Benzo(a)pyrene	128	55.3		µg/Kg-dry	1	4/19/2012 8:48:00 AM
Indeno(1,2,3-cd)pyrene	129	55.3		µg/Kg-dry	1	4/19/2012 8:48:00 AM
Dibenz(a,h)anthracene	107	55.3		µg/Kg-dry	1	4/19/2012 8:48:00 AM
Benzo(g,h,i)perylene	196	55.3		µg/Kg-dry	1	4/19/2012 8:48:00 AM
Surr: 2-Fluorobiphenyl	68.8	53.5-148		%REC	1	4/19/2012 8:48:00 AM
Surr: Terphenyl-d14 (surr)	77.1	67.2-149		%REC	1	4/19/2012 8:48:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1204024**
Date Reported: **4/19/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 4/15/2012 11:26:00 AM
Project: Rufus 2.0
Lab ID: 1204024-054
Matrix: Soil
Client Sample ID: B20-8-15.0

Volatile Organic Compounds by EPA Method 8260

Batch ID: 2238 Analyst: PH

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane (CFC-12)	ND	0.0665		mg/Kg-dry	1	4/18/2012 10:54:00 AM
Chloromethane	ND	0.0665		mg/Kg-dry	1	4/18/2012 10:54:00 AM
Vinyl chloride	ND	0.00222		mg/Kg-dry	1	4/18/2012 10:54:00 AM
Bromomethane	ND	0.0997		mg/Kg-dry	1	4/18/2012 10:54:00 AM
Trichlorofluoromethane (CFC-11)	ND	0.0554		mg/Kg-dry	1	4/18/2012 10:54:00 AM
Chloroethane	ND	0.0665		mg/Kg-dry	1	4/18/2012 10:54:00 AM
1,1-Dichloroethene	ND	0.0554		mg/Kg-dry	1	4/18/2012 10:54:00 AM
Methylene chloride	ND	0.0222		mg/Kg-dry	1	4/18/2012 10:54:00 AM
trans-1,2-Dichloroethene	ND	0.0222		mg/Kg-dry	1	4/18/2012 10:54:00 AM
Methyl tert-butyl ether (MTBE)	ND	0.0554		mg/Kg-dry	1	4/18/2012 10:54:00 AM
1,1-Dichloroethane	ND	0.0222		mg/Kg-dry	1	4/18/2012 10:54:00 AM
2,2-Dichloropropane	ND	0.0554		mg/Kg-dry	1	4/18/2012 10:54:00 AM
cis-1,2-Dichloroethene	ND	0.0222		mg/Kg-dry	1	4/18/2012 10:54:00 AM
Chloroform	ND	0.0222		mg/Kg-dry	1	4/18/2012 10:54:00 AM
1,1,1-Trichloroethane (TCA)	ND	0.0222		mg/Kg-dry	1	4/18/2012 10:54:00 AM
1,1-Dichloropropene	ND	0.0222		mg/Kg-dry	1	4/18/2012 10:54:00 AM
Carbon tetrachloride	ND	0.0222		mg/Kg-dry	1	4/18/2012 10:54:00 AM
1,2-Dichloroethane	ND	0.0332		mg/Kg-dry	1	4/18/2012 10:54:00 AM
Benzene	ND	0.0222		mg/Kg-dry	1	4/18/2012 10:54:00 AM
Trichloroethene (TCE)	ND	0.0332		mg/Kg-dry	1	4/18/2012 10:54:00 AM
1,2-Dichloropropane	ND	0.0222		mg/Kg-dry	1	4/18/2012 10:54:00 AM
Bromodichloromethane	ND	0.0222		mg/Kg-dry	1	4/18/2012 10:54:00 AM
Dibromomethane	ND	0.0443		mg/Kg-dry	1	4/18/2012 10:54:00 AM
cis-1,3-Dichloropropene	ND	0.0222		mg/Kg-dry	1	4/18/2012 10:54:00 AM
Toluene	ND	0.0222		mg/Kg-dry	1	4/18/2012 10:54:00 AM
trans-1,3-Dichloropropene	ND	0.0332		mg/Kg-dry	1	4/18/2012 10:54:00 AM
1,1,2-Trichloroethane	ND	0.0332		mg/Kg-dry	1	4/18/2012 10:54:00 AM
1,3-Dichloropropane	ND	0.0554		mg/Kg-dry	1	4/18/2012 10:54:00 AM
Tetrachloroethene (PCE)	ND	0.0222		mg/Kg-dry	1	4/18/2012 10:54:00 AM
Dibromochloromethane	ND	0.0332		mg/Kg-dry	1	4/18/2012 10:54:00 AM
1,2-Dibromoethane (EDB)	ND	0.00554		mg/Kg-dry	1	4/18/2012 10:54:00 AM
Chlorobenzene	ND	0.0222		mg/Kg-dry	1	4/18/2012 10:54:00 AM
1,1,1,2-Tetrachloroethane	ND	0.0332		mg/Kg-dry	1	4/18/2012 10:54:00 AM
Ethylbenzene	ND	0.0332		mg/Kg-dry	1	4/18/2012 10:54:00 AM
m,p-Xylene	ND	0.0222		mg/Kg-dry	1	4/18/2012 10:54:00 AM

Qualifiers:

- B Analyte detected in the associated Method Blank
- D Dilution was required
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not detected at the Reporting Limit
- RL Reporting Limit
- S Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1204024**
Date Reported: **4/19/2012**

Client: GeoEngineers, Inc. - Redmond **Collection Date:** 4/15/2012 11:26:00 AM
Project: Rufus 2.0
Lab ID: 1204024-054 **Matrix:** Soil
Client Sample ID: B20-8-15.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: 2238		Analyst: PH
o-Xylene	ND	0.0222		mg/Kg-dry	1	4/18/2012 10:54:00 AM
Styrene	ND	0.0222		mg/Kg-dry	1	4/18/2012 10:54:00 AM
Isopropylbenzene	ND	0.0886		mg/Kg-dry	1	4/18/2012 10:54:00 AM
Bromoform	ND	0.0222		mg/Kg-dry	1	4/18/2012 10:54:00 AM
1,1,2,2-Tetrachloroethane	ND	0.0222		mg/Kg-dry	1	4/18/2012 10:54:00 AM
n-Propylbenzene	ND	0.0222		mg/Kg-dry	1	4/18/2012 10:54:00 AM
Bromobenzene	ND	0.0332		mg/Kg-dry	1	4/18/2012 10:54:00 AM
1,3,5-Trimethylbenzene	ND	0.0222		mg/Kg-dry	1	4/18/2012 10:54:00 AM
2-Chlorotoluene	ND	0.0222		mg/Kg-dry	1	4/18/2012 10:54:00 AM
4-Chlorotoluene	ND	0.0222		mg/Kg-dry	1	4/18/2012 10:54:00 AM
tert-Butylbenzene	ND	0.0222		mg/Kg-dry	1	4/18/2012 10:54:00 AM
1,2,3-Trichloropropane	ND	0.0222		mg/Kg-dry	1	4/18/2012 10:54:00 AM
1,2,4-Trichlorobenzene	ND	0.0554		mg/Kg-dry	1	4/18/2012 10:54:00 AM
sec-Butylbenzene	ND	0.0222		mg/Kg-dry	1	4/18/2012 10:54:00 AM
4-Isopropyltoluene	ND	0.0222		mg/Kg-dry	1	4/18/2012 10:54:00 AM
1,3-Dichlorobenzene	ND	0.0222		mg/Kg-dry	1	4/18/2012 10:54:00 AM
1,4-Dichlorobenzene	ND	0.0222		mg/Kg-dry	1	4/18/2012 10:54:00 AM
n-Butylbenzene	ND	0.0222		mg/Kg-dry	1	4/18/2012 10:54:00 AM
1,2-Dichlorobenzene	ND	0.0222		mg/Kg-dry	1	4/18/2012 10:54:00 AM
1,2-Dibromo-3-chloropropane	ND	0.0332		mg/Kg-dry	1	4/18/2012 10:54:00 AM
1,2,4-Trimethylbenzene	ND	0.0222		mg/Kg-dry	1	4/18/2012 10:54:00 AM
Hexachlorobutadiene	ND	0.111		mg/Kg-dry	1	4/18/2012 10:54:00 AM
Naphthalene	ND	0.0332		mg/Kg-dry	1	4/18/2012 10:54:00 AM
1,2,3-Trichlorobenzene	ND	0.0222		mg/Kg-dry	1	4/18/2012 10:54:00 AM
Surr: 1-Bromo-4-fluorobenzene	78.6	63.1-141		%REC	1	4/18/2012 10:54:00 AM
Surr: Dibromofluoromethane	102	67.6-119		%REC	1	4/18/2012 10:54:00 AM
Surr: Toluene-d8	94.2	78.5-126		%REC	1	4/18/2012 10:54:00 AM
Total Metals by EPA Method 6020				Batch ID: 2244		Analyst: BR
Arsenic	3.88	0.0848		mg/Kg-dry	1	4/18/2012 3:57:14 PM
Barium	51.5	0.424		mg/Kg-dry	1	4/18/2012 3:57:14 PM
Cadmium	0.191	0.170		mg/Kg-dry	1	4/18/2012 3:57:14 PM
Chromium	19.5	0.0848		mg/Kg-dry	1	4/18/2012 3:57:14 PM
Lead	29.4	0.170		mg/Kg-dry	1	4/18/2012 3:57:14 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1204024**
Date Reported: **4/19/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 4/15/2012 11:26:00 AM
Project: Rufus 2.0
Lab ID: 1204024-054
Matrix: Soil
Client Sample ID: B20-8-15.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 2244		Analyst: BR
Selenium	ND	0.424		mg/Kg-dry	1	4/18/2012 3:57:14 PM
Silver	ND	0.0848		mg/Kg-dry	1	4/18/2012 3:57:14 PM
Mercury by EPA Method 7471				Batch ID: 2243		Analyst: MC
Mercury	ND	0.259		mg/Kg-dry	1	4/18/2012 3:16:22 PM
Sample Moisture (Percent Moisture)				Batch ID: R3991		Analyst: EM
Percent Moisture	10.6			wt%	1	4/18/2012 1:37:51 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1204024**
Date Reported: **4/19/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 4/9/2012 7:30:00 AM
Project: Rufus 2.0
Lab ID: 1204024-062
Matrix: Soil
Client Sample ID: B20-9-5.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 2208		Analyst: EM
Diesel (Fuel Oil)	ND	18.9		mg/Kg-dry	1	4/11/2012 8:38:00 PM
Heavy Oil	ND	47.2		mg/Kg-dry	1	4/11/2012 8:38:00 PM
Surr: 2-Fluorobiphenyl	106	50-150		%REC	1	4/11/2012 8:38:00 PM
Surr: o-Terphenyl	106	50-150		%REC	1	4/11/2012 8:38:00 PM
Gasoline by NWTPH-Gx				Batch ID: 2211		Analyst: PH
Gasoline	ND	4.49		mg/Kg-dry	1	4/13/2012 10:58:00 AM
Surr: 1,4-Difluorobenzene	94.1	65-135		%REC	1	4/13/2012 10:58:00 AM
Surr: 4-Bromofluorobenzene	106	65-135		%REC	1	4/13/2012 10:58:00 AM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 2209		Analyst: SG
Naphthalene	ND	53.6		µg/Kg-dry	1	4/13/2012 4:45:00 PM
2-Methylnaphthalene	ND	53.6		µg/Kg-dry	1	4/13/2012 4:45:00 PM
1-Methylnaphthalene	ND	53.6		µg/Kg-dry	1	4/13/2012 4:45:00 PM
Acenaphthylene	ND	53.6		µg/Kg-dry	1	4/13/2012 4:45:00 PM
Acenaphthene	ND	53.6		µg/Kg-dry	1	4/13/2012 4:45:00 PM
Fluorene	ND	53.6		µg/Kg-dry	1	4/13/2012 4:45:00 PM
Phenanthrene	ND	53.6		µg/Kg-dry	1	4/13/2012 4:45:00 PM
Anthracene	ND	53.6		µg/Kg-dry	1	4/13/2012 4:45:00 PM
Fluoranthene	ND	53.6		µg/Kg-dry	1	4/13/2012 4:45:00 PM
Pyrene	ND	53.6		µg/Kg-dry	1	4/13/2012 4:45:00 PM
Benz(a)anthracene	ND	53.6		µg/Kg-dry	1	4/13/2012 4:45:00 PM
Chrysene	ND	53.6		µg/Kg-dry	1	4/13/2012 4:45:00 PM
Benzo(b)fluoranthene	ND	53.6		µg/Kg-dry	1	4/13/2012 4:45:00 PM
Benzo(k)fluoranthene	ND	53.6		µg/Kg-dry	1	4/13/2012 4:45:00 PM
Benzo(a)pyrene	ND	53.6		µg/Kg-dry	1	4/13/2012 4:45:00 PM
Indeno(1,2,3-cd)pyrene	ND	53.6		µg/Kg-dry	1	4/13/2012 4:45:00 PM
Dibenz(a,h)anthracene	ND	53.6		µg/Kg-dry	1	4/13/2012 4:45:00 PM
Benzo(g,h,i)perylene	ND	53.6		µg/Kg-dry	1	4/13/2012 4:45:00 PM
Surr: 2-Fluorobiphenyl	82.4	53.5-148		%REC	1	4/13/2012 4:45:00 PM
Surr: Terphenyl-d14 (surr)	79.6	67.2-149		%REC	1	4/13/2012 4:45:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1204024**
Date Reported: **4/19/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 4/9/2012 7:30:00 AM
Project: Rufus 2.0
Lab ID: 1204024-062
Matrix: Soil
Client Sample ID: B20-9-5.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 2216		Analyst: BR
Arsenic	2.66	0.0698		mg/Kg-dry	1	4/12/2012 10:10:37 PM
Barium	53.4	0.349		mg/Kg-dry	1	4/12/2012 10:10:37 PM
Cadmium	0.154	0.140		mg/Kg-dry	1	4/12/2012 10:10:37 PM
Chromium	22.1	0.0698		mg/Kg-dry	1	4/12/2012 10:10:37 PM
Lead	4.76	0.140		mg/Kg-dry	1	4/12/2012 10:10:37 PM
Selenium	ND	0.349		mg/Kg-dry	1	4/12/2012 10:10:37 PM
Silver	ND	0.0698		mg/Kg-dry	1	4/12/2012 10:10:37 PM
Mercury by EPA Method 7471				Batch ID: 2217		Analyst: BR
Mercury	ND	0.234		mg/Kg-dry	1	4/12/2012 3:27:10 PM
Sample Moisture (Percent Moisture)				Batch ID: R3912		Analyst: EM
Percent Moisture	9.36			wt%	1	4/11/2012 9:59:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1204024**
Date Reported: **4/19/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 4/9/2012 9:40:00 AM
Project: Rufus 2.0
Lab ID: 1204024-075
Matrix: Soil
Client Sample ID: B20-10-7.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 2208		Analyst: EM
Diesel (Fuel Oil)	ND	22.1		mg/Kg-dry	1	4/11/2012 9:05:00 PM
Heavy Oil	ND	55.1		mg/Kg-dry	1	4/11/2012 9:05:00 PM
Surr: 2-Fluorobiphenyl	107	50-150		%REC	1	4/11/2012 9:05:00 PM
Surr: o-Terphenyl	107	50-150		%REC	1	4/11/2012 9:05:00 PM
Gasoline by NWTPH-Gx				Batch ID: 2211		Analyst: PH
Gasoline	ND	5.19		mg/Kg-dry	1	4/13/2012 3:47:00 PM
Surr: 1,4-Difluorobenzene	96.2	65-135		%REC	1	4/13/2012 3:47:00 PM
Surr: 4-Bromofluorobenzene	108	65-135		%REC	1	4/13/2012 3:47:00 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 2209		Analyst: SG
Naphthalene	ND	57.5		µg/Kg-dry	1	4/13/2012 1:03:00 PM
2-Methylnaphthalene	ND	57.5		µg/Kg-dry	1	4/13/2012 1:03:00 PM
1-Methylnaphthalene	ND	57.5		µg/Kg-dry	1	4/13/2012 1:03:00 PM
Acenaphthylene	ND	57.5		µg/Kg-dry	1	4/13/2012 1:03:00 PM
Acenaphthene	ND	57.5		µg/Kg-dry	1	4/13/2012 1:03:00 PM
Fluorene	ND	57.5		µg/Kg-dry	1	4/13/2012 1:03:00 PM
Phenanthrene	ND	57.5		µg/Kg-dry	1	4/13/2012 1:03:00 PM
Anthracene	ND	57.5		µg/Kg-dry	1	4/13/2012 1:03:00 PM
Fluoranthene	ND	57.5		µg/Kg-dry	1	4/13/2012 1:03:00 PM
Pyrene	ND	57.5		µg/Kg-dry	1	4/13/2012 1:03:00 PM
Benz(a)anthracene	ND	57.5		µg/Kg-dry	1	4/13/2012 1:03:00 PM
Chrysene	ND	57.5		µg/Kg-dry	1	4/13/2012 1:03:00 PM
Benzo(b)fluoranthene	ND	57.5		µg/Kg-dry	1	4/13/2012 1:03:00 PM
Benzo(k)fluoranthene	ND	57.5		µg/Kg-dry	1	4/13/2012 1:03:00 PM
Benzo(a)pyrene	ND	57.5		µg/Kg-dry	1	4/13/2012 1:03:00 PM
Indeno(1,2,3-cd)pyrene	ND	57.5		µg/Kg-dry	1	4/13/2012 1:03:00 PM
Dibenz(a,h)anthracene	ND	57.5		µg/Kg-dry	1	4/13/2012 1:03:00 PM
Benzo(g,h,i)perylene	ND	57.5		µg/Kg-dry	1	4/13/2012 1:03:00 PM
Surr: 2-Fluorobiphenyl	81.8	53.5-148		%REC	1	4/13/2012 1:03:00 PM
Surr: Terphenyl-d14 (surr)	77.0	67.2-149		%REC	1	4/13/2012 1:03:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1204024**
Date Reported: **4/19/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 4/9/2012 9:40:00 AM
Project: Rufus 2.0
Lab ID: 1204024-075
Matrix: Soil
Client Sample ID: B20-10-7.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 2216		Analyst: BR
Arsenic	13.0	0.0868		mg/Kg-dry	1	4/12/2012 10:19:53 PM
Barium	147	0.434		mg/Kg-dry	1	4/12/2012 10:19:53 PM
Cadmium	0.209	0.174		mg/Kg-dry	1	4/12/2012 10:19:53 PM
Chromium	38.4	0.0868		mg/Kg-dry	1	4/12/2012 10:19:53 PM
Lead	4.99	0.174		mg/Kg-dry	1	4/12/2012 10:19:53 PM
Selenium	ND	0.434		mg/Kg-dry	1	4/12/2012 10:19:53 PM
Silver	ND	0.0868		mg/Kg-dry	1	4/12/2012 10:19:53 PM
Mercury by EPA Method 7471				Batch ID: 2217		Analyst: BR
Mercury	ND	0.242		mg/Kg-dry	1	4/12/2012 3:39:14 PM
Sample Moisture (Percent Moisture)				Batch ID: R3912		Analyst: EM
Percent Moisture	15.3			wt%	1	4/11/2012 9:59:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1204024**
Date Reported: **4/19/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 4/9/2012 11:02:00 AM
Project: Rufus 2.0
Lab ID: 1204024-086
Matrix: Soil
Client Sample ID: B20-11-5.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 2208		Analyst: EM
Diesel (Fuel Oil)	ND	22.3		mg/Kg-dry	1	4/11/2012 9:33:00 PM
Heavy Oil	ND	55.7		mg/Kg-dry	1	4/11/2012 9:33:00 PM
Surr: 2-Fluorobiphenyl	108	50-150		%REC	1	4/11/2012 9:33:00 PM
Surr: o-Terphenyl	107	50-150		%REC	1	4/11/2012 9:33:00 PM
Gasoline by NWTPH-Gx				Batch ID: 2211		Analyst: PH
Gasoline	ND	5.00		mg/Kg-dry	1	4/13/2012 4:19:00 PM
Surr: 1,4-Difluorobenzene	92.4	65-135		%REC	1	4/13/2012 4:19:00 PM
Surr: 4-Bromofluorobenzene	109	65-135		%REC	1	4/13/2012 4:19:00 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 2209		Analyst: SG
Naphthalene	ND	57.9		µg/Kg-dry	1	4/13/2012 1:28:00 PM
2-Methylnaphthalene	ND	57.9		µg/Kg-dry	1	4/13/2012 1:28:00 PM
1-Methylnaphthalene	ND	57.9		µg/Kg-dry	1	4/13/2012 1:28:00 PM
Acenaphthylene	ND	57.9		µg/Kg-dry	1	4/13/2012 1:28:00 PM
Acenaphthene	ND	57.9		µg/Kg-dry	1	4/13/2012 1:28:00 PM
Fluorene	ND	57.9		µg/Kg-dry	1	4/13/2012 1:28:00 PM
Phenanthrene	ND	57.9		µg/Kg-dry	1	4/13/2012 1:28:00 PM
Anthracene	ND	57.9		µg/Kg-dry	1	4/13/2012 1:28:00 PM
Fluoranthene	ND	57.9		µg/Kg-dry	1	4/13/2012 1:28:00 PM
Pyrene	ND	57.9		µg/Kg-dry	1	4/13/2012 1:28:00 PM
Benz(a)anthracene	ND	57.9		µg/Kg-dry	1	4/13/2012 1:28:00 PM
Chrysene	ND	57.9		µg/Kg-dry	1	4/13/2012 1:28:00 PM
Benzo(b)fluoranthene	ND	57.9		µg/Kg-dry	1	4/13/2012 1:28:00 PM
Benzo(k)fluoranthene	ND	57.9		µg/Kg-dry	1	4/13/2012 1:28:00 PM
Benzo(a)pyrene	ND	57.9		µg/Kg-dry	1	4/13/2012 1:28:00 PM
Indeno(1,2,3-cd)pyrene	ND	57.9		µg/Kg-dry	1	4/13/2012 1:28:00 PM
Dibenz(a,h)anthracene	ND	57.9		µg/Kg-dry	1	4/13/2012 1:28:00 PM
Benzo(g,h,i)perylene	ND	57.9		µg/Kg-dry	1	4/13/2012 1:28:00 PM
Surr: 2-Fluorobiphenyl	67.4	53.5-148		%REC	1	4/13/2012 1:28:00 PM
Surr: Terphenyl-d14 (surr)	68.4	67.2-149		%REC	1	4/13/2012 1:28:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1204024**
Date Reported: **4/19/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 4/9/2012 11:02:00 AM
Project: Rufus 2.0
Lab ID: 1204024-086
Matrix: Soil
Client Sample ID: B20-11-5.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 2216		Analyst: BR
Arsenic	7.74	0.0746		mg/Kg-dry	1	4/12/2012 10:53:06 PM
Barium	129	0.373		mg/Kg-dry	1	4/12/2012 10:53:06 PM
Cadmium	0.454	0.149		mg/Kg-dry	1	4/12/2012 10:53:06 PM
Chromium	29.2	0.0746		mg/Kg-dry	1	4/12/2012 10:53:06 PM
Lead	46.8	0.149		mg/Kg-dry	1	4/12/2012 10:53:06 PM
Selenium	ND	0.373		mg/Kg-dry	1	4/12/2012 10:53:06 PM
Silver	ND	0.0746		mg/Kg-dry	1	4/12/2012 10:53:06 PM
Mercury by EPA Method 7471				Batch ID: 2217		Analyst: BR
Mercury	ND	0.211		mg/Kg-dry	1	4/12/2012 3:42:13 PM
Sample Moisture (Percent Moisture)				Batch ID: R3912		Analyst: EM
Percent Moisture	14.0			wt%	1	4/11/2012 9:59:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1204024**
Date Reported: **4/19/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 4/9/2012 12:36:00 PM
Project: Rufus 2.0
Lab ID: 1204024-099
Matrix: Soil
Client Sample ID: B20-12-7.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 2208		Analyst: EM
Diesel (Fuel Oil)	ND	21.4		mg/Kg-dry	1	4/11/2012 10:00:00 PM
Heavy Oil	ND	53.6		mg/Kg-dry	1	4/11/2012 10:00:00 PM
Surr: 2-Fluorobiphenyl	107	50-150		%REC	1	4/11/2012 10:00:00 PM
Surr: o-Terphenyl	106	50-150		%REC	1	4/11/2012 10:00:00 PM
Gasoline by NWTPH-Gx				Batch ID: 2211		Analyst: PH
Gasoline	ND	4.50		mg/Kg-dry	1	4/13/2012 4:50:00 PM
Surr: 1,4-Difluorobenzene	96.1	65-135		%REC	1	4/13/2012 4:50:00 PM
Surr: 4-Bromofluorobenzene	108	65-135		%REC	1	4/13/2012 4:50:00 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 2209		Analyst: SG
Naphthalene	ND	55.9		µg/Kg-dry	1	4/13/2012 1:52:00 PM
2-Methylnaphthalene	ND	55.9		µg/Kg-dry	1	4/13/2012 1:52:00 PM
1-Methylnaphthalene	ND	55.9		µg/Kg-dry	1	4/13/2012 1:52:00 PM
Acenaphthylene	ND	55.9		µg/Kg-dry	1	4/13/2012 1:52:00 PM
Acenaphthene	ND	55.9		µg/Kg-dry	1	4/13/2012 1:52:00 PM
Fluorene	ND	55.9		µg/Kg-dry	1	4/13/2012 1:52:00 PM
Phenanthrene	ND	55.9		µg/Kg-dry	1	4/13/2012 1:52:00 PM
Anthracene	ND	55.9		µg/Kg-dry	1	4/13/2012 1:52:00 PM
Fluoranthene	ND	55.9		µg/Kg-dry	1	4/13/2012 1:52:00 PM
Pyrene	ND	55.9		µg/Kg-dry	1	4/13/2012 1:52:00 PM
Benz(a)anthracene	ND	55.9		µg/Kg-dry	1	4/13/2012 1:52:00 PM
Chrysene	ND	55.9		µg/Kg-dry	1	4/13/2012 1:52:00 PM
Benzo(b)fluoranthene	ND	55.9		µg/Kg-dry	1	4/13/2012 1:52:00 PM
Benzo(k)fluoranthene	ND	55.9		µg/Kg-dry	1	4/13/2012 1:52:00 PM
Benzo(a)pyrene	ND	55.9		µg/Kg-dry	1	4/13/2012 1:52:00 PM
Indeno(1,2,3-cd)pyrene	ND	55.9		µg/Kg-dry	1	4/13/2012 1:52:00 PM
Dibenz(a,h)anthracene	ND	55.9		µg/Kg-dry	1	4/13/2012 1:52:00 PM
Benzo(g,h,i)perylene	ND	55.9		µg/Kg-dry	1	4/13/2012 1:52:00 PM
Surr: 2-Fluorobiphenyl	72.7	53.5-148		%REC	1	4/13/2012 1:52:00 PM
Surr: Terphenyl-d14 (surr)	75.2	67.2-149		%REC	1	4/13/2012 1:52:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1204024**
Date Reported: **4/19/2012**

Client: GeoEngineers, Inc. - Redmond **Collection Date:** 4/9/2012 12:36:00 PM
Project: Rufus 2.0
Lab ID: 1204024-099 **Matrix:** Soil
Client Sample ID: B20-12-7.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 2216		Analyst: BR
Arsenic	4.03	0.0837		mg/Kg-dry	1	4/12/2012 11:02:22 PM
Barium	76.1	0.418		mg/Kg-dry	1	4/12/2012 11:02:22 PM
Cadmium	0.262	0.167		mg/Kg-dry	1	4/12/2012 11:02:22 PM
Chromium	22.7	0.0837		mg/Kg-dry	1	4/12/2012 11:02:22 PM
Lead	21.9	0.167		mg/Kg-dry	1	4/12/2012 11:02:22 PM
Selenium	ND	0.418		mg/Kg-dry	1	4/12/2012 11:02:22 PM
Silver	ND	0.0837		mg/Kg-dry	1	4/12/2012 11:02:22 PM
Mercury by EPA Method 7471				Batch ID: 2217		Analyst: BR
Mercury	ND	0.206		mg/Kg-dry	1	4/12/2012 3:45:13 PM
Sample Moisture (Percent Moisture)				Batch ID: R3912		Analyst: EM
Percent Moisture	12.1			wt%	1	4/11/2012 9:59:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1204024**
Date Reported: **4/19/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 4/9/2012 2:15:00 PM
Project: Rufus 2.0
Lab ID: 1204024-111
Matrix: Soil
Client Sample ID: B20-13-7.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 2208		Analyst: EM
Diesel (Fuel Oil)	ND	18.8		mg/Kg-dry	1	4/11/2012 10:55:00 PM
Heavy Oil	195	47.1		mg/Kg-dry	1	4/11/2012 10:55:00 PM
Surr: 2-Fluorobiphenyl	107	50-150		%REC	1	4/11/2012 10:55:00 PM
Surr: o-Terphenyl	108	50-150		%REC	1	4/11/2012 10:55:00 PM
Gasoline by NWTPH-Gx				Batch ID: 2211		Analyst: PH
Gasoline	ND	5.28		mg/Kg-dry	1	4/13/2012 5:21:00 PM
Surr: 1,4-Difluorobenzene	93.8	65-135		%REC	1	4/13/2012 5:21:00 PM
Surr: 4-Bromofluorobenzene	103	65-135		%REC	1	4/13/2012 5:21:00 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 2209		Analyst: SG
Naphthalene	ND	60.1		µg/Kg-dry	1	4/13/2012 5:10:00 PM
2-Methylnaphthalene	ND	60.1		µg/Kg-dry	1	4/13/2012 5:10:00 PM
1-Methylnaphthalene	ND	60.1		µg/Kg-dry	1	4/13/2012 5:10:00 PM
Acenaphthylene	ND	60.1		µg/Kg-dry	1	4/13/2012 5:10:00 PM
Acenaphthene	ND	60.1		µg/Kg-dry	1	4/13/2012 5:10:00 PM
Fluorene	ND	60.1		µg/Kg-dry	1	4/13/2012 5:10:00 PM
Phenanthrene	118	60.1		µg/Kg-dry	1	4/13/2012 5:10:00 PM
Anthracene	ND	60.1		µg/Kg-dry	1	4/13/2012 5:10:00 PM
Fluoranthene	163	60.1		µg/Kg-dry	1	4/13/2012 5:10:00 PM
Pyrene	187	60.1		µg/Kg-dry	1	4/13/2012 5:10:00 PM
Benz(a)anthracene	ND	60.1		µg/Kg-dry	1	4/13/2012 5:10:00 PM
Chrysene	112	60.1		µg/Kg-dry	1	4/13/2012 5:10:00 PM
Benzo(b)fluoranthene	ND	60.1		µg/Kg-dry	1	4/13/2012 5:10:00 PM
Benzo(k)fluoranthene	60.7	60.1		µg/Kg-dry	1	4/13/2012 5:10:00 PM
Benzo(a)pyrene	ND	60.1		µg/Kg-dry	1	4/13/2012 5:10:00 PM
Indeno(1,2,3-cd)pyrene	ND	60.1		µg/Kg-dry	1	4/13/2012 5:10:00 PM
Dibenz(a,h)anthracene	ND	60.1		µg/Kg-dry	1	4/13/2012 5:10:00 PM
Benzo(g,h,i)perylene	111	60.1		µg/Kg-dry	1	4/13/2012 5:10:00 PM
Surr: 2-Fluorobiphenyl	76.4	53.5-148		%REC	1	4/13/2012 5:10:00 PM
Surr: Terphenyl-d14 (surr)	83.2	67.2-149		%REC	1	4/13/2012 5:10:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1204024**
Date Reported: **4/19/2012**

Client: GeoEngineers, Inc. - Redmond **Collection Date:** 4/9/2012 2:15:00 PM
Project: Rufus 2.0
Lab ID: 1204024-111 **Matrix:** Soil
Client Sample ID: B20-13-7.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 2216		Analyst: BR
Arsenic	5.84	0.0801		mg/Kg-dry	1	4/12/2012 11:11:38 PM
Barium	294	0.401		mg/Kg-dry	1	4/12/2012 11:11:38 PM
Cadmium	1.22	0.160		mg/Kg-dry	1	4/12/2012 11:11:38 PM
Chromium	31.1	0.0801		mg/Kg-dry	1	4/12/2012 11:11:38 PM
Lead	421	0.160		mg/Kg-dry	1	4/12/2012 11:11:38 PM
Selenium	ND	0.401		mg/Kg-dry	1	4/12/2012 11:11:38 PM
Silver	0.161	0.0801		mg/Kg-dry	1	4/12/2012 11:11:38 PM
Mercury by EPA Method 7471				Batch ID: 2217		Analyst: BR
Mercury	0.355	0.212		mg/Kg-dry	1	4/12/2012 3:48:13 PM
Sample Moisture (Percent Moisture)				Batch ID: R3912		Analyst: EM
Percent Moisture	13.3			wt%	1	4/11/2012 9:59:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1204024**
Date Reported: **4/19/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 4/11/2012 3:17:00 PM
Project: Rufus 2.0
Lab ID: 1204024-123
Matrix: Soil
Client Sample ID: MW20-4-7.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 2232		Analyst: EM
Diesel (Fuel Oil)	ND	20.1		mg/Kg-dry	1	4/16/2012 8:46:00 PM
Heavy Oil	127	50.2		mg/Kg-dry	1	4/16/2012 8:46:00 PM
Surr: 2-Fluorobiphenyl	114	50-150		%REC	1	4/16/2012 8:46:00 PM
Surr: o-Terphenyl	113	50-150		%REC	1	4/16/2012 8:46:00 PM
Gasoline by NWTPH-Gx				Batch ID: 2237		Analyst: PH
Gasoline	ND	4.18		mg/Kg-dry	1	4/16/2012 6:31:00 PM
Surr: 1,4-Difluorobenzene	90.4	65-135		%REC	1	4/16/2012 6:31:00 PM
Surr: 4-Bromofluorobenzene	101	65-135		%REC	1	4/16/2012 6:31:00 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 2235		Analyst: SG
Naphthalene	ND	53.4		µg/Kg-dry	1	4/17/2012 5:01:00 PM
2-Methylnaphthalene	ND	53.4		µg/Kg-dry	1	4/17/2012 5:01:00 PM
1-Methylnaphthalene	ND	53.4		µg/Kg-dry	1	4/17/2012 5:01:00 PM
Acenaphthylene	ND	53.4		µg/Kg-dry	1	4/17/2012 5:01:00 PM
Acenaphthene	ND	53.4		µg/Kg-dry	1	4/17/2012 5:01:00 PM
Fluorene	ND	53.4		µg/Kg-dry	1	4/17/2012 5:01:00 PM
Phenanthrene	80.2	53.4		µg/Kg-dry	1	4/17/2012 5:01:00 PM
Anthracene	ND	53.4		µg/Kg-dry	1	4/17/2012 5:01:00 PM
Fluoranthene	146	53.4		µg/Kg-dry	1	4/17/2012 5:01:00 PM
Pyrene	159	53.4		µg/Kg-dry	1	4/17/2012 5:01:00 PM
Benz(a)anthracene	71.5	53.4		µg/Kg-dry	1	4/17/2012 5:01:00 PM
Chrysene	71.0	53.4		µg/Kg-dry	1	4/17/2012 5:01:00 PM
Benzo(b)fluoranthene	78.2	53.4		µg/Kg-dry	1	4/17/2012 5:01:00 PM
Benzo(k)fluoranthene	ND	53.4		µg/Kg-dry	1	4/17/2012 5:01:00 PM
Benzo(a)pyrene	68.3	53.4		µg/Kg-dry	1	4/17/2012 5:01:00 PM
Indeno(1,2,3-cd)pyrene	ND	53.4		µg/Kg-dry	1	4/17/2012 5:01:00 PM
Dibenz(a,h)anthracene	ND	53.4		µg/Kg-dry	1	4/17/2012 5:01:00 PM
Benzo(g,h,i)perylene	61.6	53.4		µg/Kg-dry	1	4/17/2012 5:01:00 PM
Surr: 2-Fluorobiphenyl	76.2	53.5-148		%REC	1	4/17/2012 5:01:00 PM
Surr: Terphenyl-d14 (surr)	80.3	67.2-149		%REC	1	4/17/2012 5:01:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1204024**
Date Reported: **4/19/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 4/11/2012 3:17:00 PM
Project: Rufus 2.0
Lab ID: 1204024-123
Matrix: Soil
Client Sample ID: MW20-4-7.5

Volatile Organic Compounds by EPA Method 8260

Batch ID: 2238 Analyst: PH

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane (CFC-12)	ND	0.0517		mg/Kg-dry	1	4/18/2012 6:13:00 AM
Chloromethane	ND	0.0517		mg/Kg-dry	1	4/18/2012 6:13:00 AM
Vinyl chloride	ND	0.00172		mg/Kg-dry	1	4/18/2012 6:13:00 AM
Bromomethane	ND	0.0775		mg/Kg-dry	1	4/18/2012 6:13:00 AM
Trichlorofluoromethane (CFC-11)	ND	0.0431		mg/Kg-dry	1	4/18/2012 6:13:00 AM
Chloroethane	ND	0.0517		mg/Kg-dry	1	4/18/2012 6:13:00 AM
1,1-Dichloroethene	ND	0.0431		mg/Kg-dry	1	4/18/2012 6:13:00 AM
Methylene chloride	ND	0.0172		mg/Kg-dry	1	4/18/2012 6:13:00 AM
trans-1,2-Dichloroethene	ND	0.0172		mg/Kg-dry	1	4/18/2012 6:13:00 AM
Methyl tert-butyl ether (MTBE)	ND	0.0431		mg/Kg-dry	1	4/18/2012 6:13:00 AM
1,1-Dichloroethane	ND	0.0172		mg/Kg-dry	1	4/18/2012 6:13:00 AM
2,2-Dichloropropane	ND	0.0431		mg/Kg-dry	1	4/18/2012 6:13:00 AM
cis-1,2-Dichloroethene	ND	0.0172		mg/Kg-dry	1	4/18/2012 6:13:00 AM
Chloroform	ND	0.0172		mg/Kg-dry	1	4/18/2012 6:13:00 AM
1,1,1-Trichloroethane (TCA)	ND	0.0172		mg/Kg-dry	1	4/18/2012 6:13:00 AM
1,1-Dichloropropene	ND	0.0172		mg/Kg-dry	1	4/18/2012 6:13:00 AM
Carbon tetrachloride	ND	0.0172		mg/Kg-dry	1	4/18/2012 6:13:00 AM
1,2-Dichloroethane	ND	0.0258		mg/Kg-dry	1	4/18/2012 6:13:00 AM
Benzene	ND	0.0172		mg/Kg-dry	1	4/18/2012 6:13:00 AM
Trichloroethene (TCE)	ND	0.0258		mg/Kg-dry	1	4/18/2012 6:13:00 AM
1,2-Dichloropropane	ND	0.0172		mg/Kg-dry	1	4/18/2012 6:13:00 AM
Bromodichloromethane	ND	0.0172		mg/Kg-dry	1	4/18/2012 6:13:00 AM
Dibromomethane	ND	0.0344		mg/Kg-dry	1	4/18/2012 6:13:00 AM
cis-1,3-Dichloropropene	ND	0.0172		mg/Kg-dry	1	4/18/2012 6:13:00 AM
Toluene	ND	0.0172		mg/Kg-dry	1	4/18/2012 6:13:00 AM
trans-1,3-Dichloropropene	ND	0.0258		mg/Kg-dry	1	4/18/2012 6:13:00 AM
1,1,2-Trichloroethane	ND	0.0258		mg/Kg-dry	1	4/18/2012 6:13:00 AM
1,3-Dichloropropane	ND	0.0431		mg/Kg-dry	1	4/18/2012 6:13:00 AM
Tetrachloroethene (PCE)	ND	0.0172		mg/Kg-dry	1	4/18/2012 6:13:00 AM
Dibromochloromethane	ND	0.0258		mg/Kg-dry	1	4/18/2012 6:13:00 AM
1,2-Dibromoethane (EDB)	ND	0.00431		mg/Kg-dry	1	4/18/2012 6:13:00 AM
Chlorobenzene	ND	0.0172		mg/Kg-dry	1	4/18/2012 6:13:00 AM
1,1,1,2-Tetrachloroethane	ND	0.0258		mg/Kg-dry	1	4/18/2012 6:13:00 AM
Ethylbenzene	ND	0.0258		mg/Kg-dry	1	4/18/2012 6:13:00 AM
m,p-Xylene	ND	0.0172		mg/Kg-dry	1	4/18/2012 6:13:00 AM

Qualifiers:

- B Analyte detected in the associated Method Blank
- D Dilution was required
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not detected at the Reporting Limit
- RL Reporting Limit
- S Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1204024**
Date Reported: **4/19/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 4/11/2012 3:17:00 PM
Project: Rufus 2.0
Lab ID: 1204024-123
Matrix: Soil
Client Sample ID: MW20-4-7.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: 2238		Analyst: PH
o-Xylene	ND	0.0172		mg/Kg-dry	1	4/18/2012 6:13:00 AM
Styrene	ND	0.0172		mg/Kg-dry	1	4/18/2012 6:13:00 AM
Isopropylbenzene	ND	0.0689		mg/Kg-dry	1	4/18/2012 6:13:00 AM
Bromoform	ND	0.0172		mg/Kg-dry	1	4/18/2012 6:13:00 AM
1,1,2,2-Tetrachloroethane	ND	0.0172		mg/Kg-dry	1	4/18/2012 6:13:00 AM
n-Propylbenzene	ND	0.0172		mg/Kg-dry	1	4/18/2012 6:13:00 AM
Bromobenzene	ND	0.0258		mg/Kg-dry	1	4/18/2012 6:13:00 AM
1,3,5-Trimethylbenzene	ND	0.0172		mg/Kg-dry	1	4/18/2012 6:13:00 AM
2-Chlorotoluene	ND	0.0172		mg/Kg-dry	1	4/18/2012 6:13:00 AM
4-Chlorotoluene	ND	0.0172		mg/Kg-dry	1	4/18/2012 6:13:00 AM
tert-Butylbenzene	ND	0.0172		mg/Kg-dry	1	4/18/2012 6:13:00 AM
1,2,3-Trichloropropane	ND	0.0172		mg/Kg-dry	1	4/18/2012 6:13:00 AM
1,2,4-Trichlorobenzene	ND	0.0431		mg/Kg-dry	1	4/18/2012 6:13:00 AM
sec-Butylbenzene	ND	0.0172		mg/Kg-dry	1	4/18/2012 6:13:00 AM
4-Isopropyltoluene	ND	0.0172		mg/Kg-dry	1	4/18/2012 6:13:00 AM
1,3-Dichlorobenzene	ND	0.0172		mg/Kg-dry	1	4/18/2012 6:13:00 AM
1,4-Dichlorobenzene	ND	0.0172		mg/Kg-dry	1	4/18/2012 6:13:00 AM
n-Butylbenzene	ND	0.0172		mg/Kg-dry	1	4/18/2012 6:13:00 AM
1,2-Dichlorobenzene	ND	0.0172		mg/Kg-dry	1	4/18/2012 6:13:00 AM
1,2-Dibromo-3-chloropropane	ND	0.0258		mg/Kg-dry	1	4/18/2012 6:13:00 AM
1,2,4-Trimethylbenzene	ND	0.0172		mg/Kg-dry	1	4/18/2012 6:13:00 AM
Hexachlorobutadiene	ND	0.0861		mg/Kg-dry	1	4/18/2012 6:13:00 AM
Naphthalene	ND	0.0258		mg/Kg-dry	1	4/18/2012 6:13:00 AM
1,2,3-Trichlorobenzene	ND	0.0172		mg/Kg-dry	1	4/18/2012 6:13:00 AM
Surr: 1-Bromo-4-fluorobenzene	87.2	63.1-141		%REC	1	4/18/2012 6:13:00 AM
Surr: Dibromofluoromethane	104	67.6-119		%REC	1	4/18/2012 6:13:00 AM
Surr: Toluene-d8	97.0	78.5-126		%REC	1	4/18/2012 6:13:00 AM
Total Metals by EPA Method 6020				Batch ID: 2233		Analyst: BR
Arsenic	2.44	0.0893	B	mg/Kg-dry	1	4/16/2012 10:04:32 PM
Barium	49.2	0.447		mg/Kg-dry	1	4/16/2012 10:04:32 PM
Cadmium	ND	0.179		mg/Kg-dry	1	4/16/2012 10:04:32 PM
Chromium	23.6	0.0893		mg/Kg-dry	1	4/16/2012 10:04:32 PM
Lead	34.6	0.179		mg/Kg-dry	1	4/16/2012 10:04:32 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1204024**
Date Reported: **4/19/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 4/11/2012 3:17:00 PM
Project: Rufus 2.0
Lab ID: 1204024-123
Matrix: Soil
Client Sample ID: MW20-4-7.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 2233		Analyst: BR
Selenium	ND	0.447		mg/Kg-dry	1	4/16/2012 10:04:32 PM
Silver	ND	0.0893		mg/Kg-dry	1	4/16/2012 10:04:32 PM
Mercury by EPA Method 7471				Batch ID: 2234		Analyst: BR
Mercury	ND	0.230		mg/Kg-dry	1	4/17/2012 4:42:42 PM
Sample Moisture (Percent Moisture)				Batch ID: R3962		Analyst: EM
Percent Moisture	13.9			wt%	1	4/16/2012 5:25:18 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1204024**
Date Reported: **4/19/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 4/11/2012 3:25:00 PM
Project: Rufus 2.0
Lab ID: 1204024-125
Matrix: Soil
Client Sample ID: MW20-4-12.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 2232		Analyst: EM
Diesel (Fuel Oil)	ND	21.5		mg/Kg-dry	1	4/16/2012 10:36:00 PM
Heavy Oil	ND	53.8		mg/Kg-dry	1	4/16/2012 10:36:00 PM
Surr: 2-Fluorobiphenyl	114	50-150		%REC	1	4/16/2012 10:36:00 PM
Surr: o-Terphenyl	113	50-150		%REC	1	4/16/2012 10:36:00 PM
Gasoline by NWTPH-Gx				Batch ID: 2237		Analyst: PH
Gasoline	ND	3.64		mg/Kg-dry	1	4/16/2012 7:01:00 PM
Surr: 1,4-Difluorobenzene	83.1	65-135		%REC	1	4/16/2012 7:01:00 PM
Surr: 4-Bromofluorobenzene	102	65-135		%REC	1	4/16/2012 7:01:00 PM
Sample Moisture (Percent Moisture)				Batch ID: R3962		Analyst: EM
Percent Moisture	14.7			wt%	1	4/16/2012 5:25:18 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1204024**
Date Reported: **4/19/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 4/11/2012 3:30:00 PM
Project: Rufus 2.0
Lab ID: 1204024-127
Matrix: Soil
Client Sample ID: MW20-4-17.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 2232		Analyst: EM
Diesel (Fuel Oil)	ND	22.7		mg/Kg-dry	1	4/16/2012 11:04:00 PM
Heavy Oil	ND	56.9		mg/Kg-dry	1	4/16/2012 11:04:00 PM
Surr: 2-Fluorobiphenyl	114	50-150		%REC	1	4/16/2012 11:04:00 PM
Surr: o-Terphenyl	113	50-150		%REC	1	4/16/2012 11:04:00 PM
Gasoline by NWTPH-Gx				Batch ID: 2237		Analyst: PH
Gasoline	ND	4.83		mg/Kg-dry	1	4/16/2012 7:31:00 PM
Surr: 1,4-Difluorobenzene	85.9	65-135		%REC	1	4/16/2012 7:31:00 PM
Surr: 4-Bromofluorobenzene	102	65-135		%REC	1	4/16/2012 7:31:00 PM
Total Metals by EPA Method 6020				Batch ID: 2233		Analyst: BR
Arsenic	5.85	0.102	B	mg/Kg-dry	1	4/16/2012 9:22:01 PM
Barium	114	0.510		mg/Kg-dry	1	4/16/2012 9:22:01 PM
Cadmium	ND	0.204		mg/Kg-dry	1	4/16/2012 9:22:01 PM
Chromium	49.1	0.102		mg/Kg-dry	1	4/16/2012 9:22:01 PM
Lead	4.33	0.204		mg/Kg-dry	1	4/16/2012 9:22:01 PM
Selenium	ND	0.510		mg/Kg-dry	1	4/16/2012 9:22:01 PM
Silver	ND	0.102		mg/Kg-dry	1	4/16/2012 9:22:01 PM
Mercury by EPA Method 7471				Batch ID: 2234		Analyst: BR
Mercury	ND	0.297		mg/Kg-dry	1	4/17/2012 4:30:38 PM
Sample Moisture (Percent Moisture)				Batch ID: R3962		Analyst: EM
Percent Moisture	23.4			wt%	1	4/16/2012 5:25:18 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1204024**
Date Reported: **4/19/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 4/11/2012 3:40:00 PM
Project: Rufus 2.0
Lab ID: 1204024-129
Matrix: Soil
Client Sample ID: MW20-4-22.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 2232		Analyst: EM
Diesel (Fuel Oil)	ND	21.7		mg/Kg-dry	1	4/16/2012 11:31:00 PM
Heavy Oil	196	54.3		mg/Kg-dry	1	4/16/2012 11:31:00 PM
Surr: 2-Fluorobiphenyl	111	50-150		%REC	1	4/16/2012 11:31:00 PM
Surr: o-Terphenyl	113	50-150		%REC	1	4/16/2012 11:31:00 PM
Gasoline by NWTPH-Gx				Batch ID: 2237		Analyst: PH
Gasoline	ND	5.45		mg/Kg-dry	1	4/17/2012 12:28:00 PM
Surr: 1,4-Difluorobenzene	86.9	65-135		%REC	1	4/17/2012 12:28:00 PM
Surr: 4-Bromofluorobenzene	102	65-135		%REC	1	4/17/2012 12:28:00 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 2235		Analyst: SG
Naphthalene	ND	64.4		µg/Kg-dry	1	4/17/2012 5:27:00 PM
2-Methylnaphthalene	ND	64.4		µg/Kg-dry	1	4/17/2012 5:27:00 PM
1-Methylnaphthalene	ND	64.4		µg/Kg-dry	1	4/17/2012 5:27:00 PM
Acenaphthylene	ND	64.4		µg/Kg-dry	1	4/17/2012 5:27:00 PM
Acenaphthene	ND	64.4		µg/Kg-dry	1	4/17/2012 5:27:00 PM
Fluorene	ND	64.4		µg/Kg-dry	1	4/17/2012 5:27:00 PM
Phenanthrene	ND	64.4		µg/Kg-dry	1	4/17/2012 5:27:00 PM
Anthracene	ND	64.4		µg/Kg-dry	1	4/17/2012 5:27:00 PM
Fluoranthene	ND	64.4		µg/Kg-dry	1	4/17/2012 5:27:00 PM
Pyrene	ND	64.4		µg/Kg-dry	1	4/17/2012 5:27:00 PM
Benz(a)anthracene	ND	64.4		µg/Kg-dry	1	4/17/2012 5:27:00 PM
Chrysene	ND	64.4		µg/Kg-dry	1	4/17/2012 5:27:00 PM
Benzo(b)fluoranthene	ND	64.4		µg/Kg-dry	1	4/17/2012 5:27:00 PM
Benzo(k)fluoranthene	ND	64.4		µg/Kg-dry	1	4/17/2012 5:27:00 PM
Benzo(a)pyrene	ND	64.4		µg/Kg-dry	1	4/17/2012 5:27:00 PM
Indeno(1,2,3-cd)pyrene	ND	64.4		µg/Kg-dry	1	4/17/2012 5:27:00 PM
Dibenz(a,h)anthracene	ND	64.4		µg/Kg-dry	1	4/17/2012 5:27:00 PM
Benzo(g,h,i)perylene	ND	64.4		µg/Kg-dry	1	4/17/2012 5:27:00 PM
Surr: 2-Fluorobiphenyl	72.4	53.5-148		%REC	1	4/17/2012 5:27:00 PM
Surr: Terphenyl-d14 (surr)	87.7	67.2-149		%REC	1	4/17/2012 5:27:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Client: GeoEngineers, Inc. - Redmond **Collection Date:** 4/11/2012 3:40:00 PM
Project: Rufus 2.0
Lab ID: 1204024-129 **Matrix:** Soil
Client Sample ID: MW20-4-22.5

Volatile Organic Compounds by EPA Method 8260

Batch ID: 2238 Analyst: PH

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane (CFC-12)	ND	0.0652		mg/Kg-dry	1	4/18/2012 7:47:00 AM
Chloromethane	ND	0.0652		mg/Kg-dry	1	4/18/2012 7:47:00 AM
Vinyl chloride	ND	0.00217		mg/Kg-dry	1	4/18/2012 7:47:00 AM
Bromomethane	ND	0.0978		mg/Kg-dry	1	4/18/2012 7:47:00 AM
Trichlorofluoromethane (CFC-11)	ND	0.0543		mg/Kg-dry	1	4/18/2012 7:47:00 AM
Chloroethane	ND	0.0652		mg/Kg-dry	1	4/18/2012 7:47:00 AM
1,1-Dichloroethene	ND	0.0543		mg/Kg-dry	1	4/18/2012 7:47:00 AM
Methylene chloride	ND	0.0217		mg/Kg-dry	1	4/18/2012 7:47:00 AM
trans-1,2-Dichloroethene	ND	0.0217		mg/Kg-dry	1	4/18/2012 7:47:00 AM
Methyl tert-butyl ether (MTBE)	ND	0.0543		mg/Kg-dry	1	4/18/2012 7:47:00 AM
1,1-Dichloroethane	ND	0.0217		mg/Kg-dry	1	4/18/2012 7:47:00 AM
2,2-Dichloropropane	ND	0.0543		mg/Kg-dry	1	4/18/2012 7:47:00 AM
cis-1,2-Dichloroethene	ND	0.0217		mg/Kg-dry	1	4/18/2012 7:47:00 AM
Chloroform	ND	0.0217		mg/Kg-dry	1	4/18/2012 7:47:00 AM
1,1,1-Trichloroethane (TCA)	ND	0.0217		mg/Kg-dry	1	4/18/2012 7:47:00 AM
1,1-Dichloropropene	ND	0.0217		mg/Kg-dry	1	4/18/2012 7:47:00 AM
Carbon tetrachloride	ND	0.0217		mg/Kg-dry	1	4/18/2012 7:47:00 AM
1,2-Dichloroethane	ND	0.0326		mg/Kg-dry	1	4/18/2012 7:47:00 AM
Benzene	ND	0.0217		mg/Kg-dry	1	4/18/2012 7:47:00 AM
Trichloroethene (TCE)	ND	0.0326		mg/Kg-dry	1	4/18/2012 7:47:00 AM
1,2-Dichloropropane	ND	0.0217		mg/Kg-dry	1	4/18/2012 7:47:00 AM
Bromodichloromethane	ND	0.0217		mg/Kg-dry	1	4/18/2012 7:47:00 AM
Dibromomethane	ND	0.0435		mg/Kg-dry	1	4/18/2012 7:47:00 AM
cis-1,3-Dichloropropene	ND	0.0217		mg/Kg-dry	1	4/18/2012 7:47:00 AM
Toluene	ND	0.0217		mg/Kg-dry	1	4/18/2012 7:47:00 AM
trans-1,3-Dichloropropene	ND	0.0326		mg/Kg-dry	1	4/18/2012 7:47:00 AM
1,1,2-Trichloroethane	ND	0.0326		mg/Kg-dry	1	4/18/2012 7:47:00 AM
1,3-Dichloropropane	ND	0.0543		mg/Kg-dry	1	4/18/2012 7:47:00 AM
Tetrachloroethene (PCE)	ND	0.0217		mg/Kg-dry	1	4/18/2012 7:47:00 AM
Dibromochloromethane	ND	0.0326		mg/Kg-dry	1	4/18/2012 7:47:00 AM
1,2-Dibromoethane (EDB)	ND	0.00543		mg/Kg-dry	1	4/18/2012 7:47:00 AM
Chlorobenzene	ND	0.0217		mg/Kg-dry	1	4/18/2012 7:47:00 AM
1,1,1,2-Tetrachloroethane	ND	0.0326		mg/Kg-dry	1	4/18/2012 7:47:00 AM
Ethylbenzene	ND	0.0326		mg/Kg-dry	1	4/18/2012 7:47:00 AM
m,p-Xylene	ND	0.0217		mg/Kg-dry	1	4/18/2012 7:47:00 AM

Qualifiers:

- B Analyte detected in the associated Method Blank
- D Dilution was required
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not detected at the Reporting Limit
- RL Reporting Limit
- S Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1204024**
Date Reported: **4/19/2012**

Client: GeoEngineers, Inc. - Redmond **Collection Date:** 4/11/2012 3:40:00 PM
Project: Rufus 2.0
Lab ID: 1204024-129 **Matrix:** Soil
Client Sample ID: MW20-4-22.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: 2238		Analyst: PH
o-Xylene	ND	0.0217		mg/Kg-dry	1	4/18/2012 7:47:00 AM
Styrene	ND	0.0217		mg/Kg-dry	1	4/18/2012 7:47:00 AM
Isopropylbenzene	ND	0.0869		mg/Kg-dry	1	4/18/2012 7:47:00 AM
Bromoform	ND	0.0217		mg/Kg-dry	1	4/18/2012 7:47:00 AM
1,1,2,2-Tetrachloroethane	ND	0.0217		mg/Kg-dry	1	4/18/2012 7:47:00 AM
n-Propylbenzene	ND	0.0217		mg/Kg-dry	1	4/18/2012 7:47:00 AM
Bromobenzene	ND	0.0326		mg/Kg-dry	1	4/18/2012 7:47:00 AM
1,3,5-Trimethylbenzene	ND	0.0217		mg/Kg-dry	1	4/18/2012 7:47:00 AM
2-Chlorotoluene	ND	0.0217		mg/Kg-dry	1	4/18/2012 7:47:00 AM
4-Chlorotoluene	ND	0.0217		mg/Kg-dry	1	4/18/2012 7:47:00 AM
tert-Butylbenzene	ND	0.0217		mg/Kg-dry	1	4/18/2012 7:47:00 AM
1,2,3-Trichloropropane	ND	0.0217		mg/Kg-dry	1	4/18/2012 7:47:00 AM
1,2,4-Trichlorobenzene	ND	0.0543		mg/Kg-dry	1	4/18/2012 7:47:00 AM
sec-Butylbenzene	ND	0.0217		mg/Kg-dry	1	4/18/2012 7:47:00 AM
4-Isopropyltoluene	ND	0.0217		mg/Kg-dry	1	4/18/2012 7:47:00 AM
1,3-Dichlorobenzene	ND	0.0217		mg/Kg-dry	1	4/18/2012 7:47:00 AM
1,4-Dichlorobenzene	ND	0.0217		mg/Kg-dry	1	4/18/2012 7:47:00 AM
n-Butylbenzene	ND	0.0217		mg/Kg-dry	1	4/18/2012 7:47:00 AM
1,2-Dichlorobenzene	ND	0.0217		mg/Kg-dry	1	4/18/2012 7:47:00 AM
1,2-Dibromo-3-chloropropane	ND	0.0326		mg/Kg-dry	1	4/18/2012 7:47:00 AM
1,2,4-Trimethylbenzene	ND	0.0217		mg/Kg-dry	1	4/18/2012 7:47:00 AM
Hexachlorobutadiene	ND	0.109		mg/Kg-dry	1	4/18/2012 7:47:00 AM
Naphthalene	ND	0.0326		mg/Kg-dry	1	4/18/2012 7:47:00 AM
1,2,3-Trichlorobenzene	ND	0.0217		mg/Kg-dry	1	4/18/2012 7:47:00 AM
Surr: 1-Bromo-4-fluorobenzene	101	63.1-141		%REC	1	4/18/2012 7:47:00 AM
Surr: Dibromofluoromethane	102	67.6-119		%REC	1	4/18/2012 7:47:00 AM
Surr: Toluene-d8	101	78.5-126		%REC	1	4/18/2012 7:47:00 AM
Sample Moisture (Percent Moisture)				Batch ID: R3962		Analyst: EM
Percent Moisture	18.4			wt%	1	4/16/2012 5:25:18 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1204024**
Date Reported: **4/19/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 4/15/2012 1:18:00 PM
Project: Rufus 2.0
Lab ID: 1204024-134
Matrix: Soil
Client Sample ID: MW20-5-5.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 2241		Analyst: EM
Diesel (Fuel Oil)	ND	20.9		mg/Kg-dry	1	4/18/2012 3:01:00 PM
Diesel Range Organics (C12-C24)	75.5	20.9		mg/Kg-dry	1	4/18/2012 3:01:00 PM
Heavy Oil	ND	52.2		mg/Kg-dry	1	4/18/2012 3:01:00 PM
Surr: 2-Fluorobiphenyl	117	50-150		%REC	1	4/18/2012 3:01:00 PM
Surr: o-Terphenyl	118	50-150		%REC	1	4/18/2012 3:01:00 PM

NOTES:
DRO - Indicates the presence of unresolved compounds eluting from dodecane through tetracosane (C12-C24). Chromatography has PAH characteristics.

Gasoline by NWTPH-Gx				Batch ID: 2247		Analyst: PH
Gasoline	ND	6.57		mg/Kg-dry	1	4/18/2012 3:42:00 PM
Surr: 1,4-Difluorobenzene	107	65-135		%REC	1	4/18/2012 3:42:00 PM
Surr: 4-Bromofluorobenzene	108	65-135		%REC	1	4/18/2012 3:42:00 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 2240		Analyst: SG
Naphthalene	223	63.8		µg/Kg-dry	1	4/18/2012 3:21:00 PM
2-Methylnaphthalene	141	63.8		µg/Kg-dry	1	4/18/2012 3:21:00 PM
1-Methylnaphthalene	125	63.8		µg/Kg-dry	1	4/18/2012 3:21:00 PM
Acenaphthylene	114	63.8		µg/Kg-dry	1	4/18/2012 3:21:00 PM
Acenaphthene	390	63.8		µg/Kg-dry	1	4/18/2012 3:21:00 PM
Fluorene	325	63.8		µg/Kg-dry	1	4/18/2012 3:21:00 PM
Phenanthrene	4,250	638	D	µg/Kg-dry	10	4/18/2012 3:46:00 PM
Anthracene	908	63.8		µg/Kg-dry	1	4/18/2012 3:21:00 PM
Fluoranthene	4,550	638	D	µg/Kg-dry	10	4/18/2012 3:46:00 PM
Pyrene	5,050	638	D	µg/Kg-dry	10	4/18/2012 3:46:00 PM
Benz(a)anthracene	2,090	63.8		µg/Kg-dry	1	4/18/2012 3:21:00 PM
Chrysene	2,000	63.8		µg/Kg-dry	1	4/18/2012 3:21:00 PM
Benzo(b)fluoranthene	2,330	63.8		µg/Kg-dry	1	4/18/2012 3:21:00 PM
Benzo(k)fluoranthene	962	63.8		µg/Kg-dry	1	4/18/2012 3:21:00 PM
Benzo(a)pyrene	2,140	63.8		µg/Kg-dry	1	4/18/2012 3:21:00 PM
Indeno(1,2,3-cd)pyrene	1,160	63.8		µg/Kg-dry	1	4/18/2012 3:21:00 PM
Dibenz(a,h)anthracene	295	63.8		µg/Kg-dry	1	4/18/2012 3:21:00 PM
Benzo(g,h,i)perylene	1,350	63.8		µg/Kg-dry	1	4/18/2012 3:21:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1204024**
Date Reported: **4/19/2012**

Client: GeoEngineers, Inc. - Redmond **Collection Date:** 4/15/2012 1:18:00 PM
Project: Rufus 2.0
Lab ID: 1204024-134 **Matrix:** Soil
Client Sample ID: MW20-5-5.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 2240		Analyst: SG
Surr: 2-Fluorobiphenyl	71.0	53.5-148		%REC	1	4/18/2012 3:21:00 PM
Surr: Terphenyl-d14 (surr)	86.0	67.2-149		%REC	1	4/18/2012 3:21:00 PM
Total Metals by EPA Method 6020				Batch ID: 2244		Analyst: BR
Arsenic	9.28	0.0974		mg/Kg-dry	1	4/18/2012 4:30:27 PM
Barium	469	0.487		mg/Kg-dry	1	4/18/2012 4:30:27 PM
Cadmium	1.01	0.195		mg/Kg-dry	1	4/18/2012 4:30:27 PM
Chromium	35.1	0.0974		mg/Kg-dry	1	4/18/2012 4:30:27 PM
Lead	524	0.195		mg/Kg-dry	1	4/18/2012 4:30:27 PM
Selenium	ND	0.487		mg/Kg-dry	1	4/18/2012 4:30:27 PM
Silver	0.492	0.0974		mg/Kg-dry	1	4/18/2012 4:30:27 PM
Mercury by EPA Method 7471				Batch ID: 2243		Analyst: MC
Mercury	1.65	1.40	D	mg/Kg-dry	5	4/18/2012 4:12:04 PM
Sample Moisture (Percent Moisture)				Batch ID: R3991		Analyst: EM
Percent Moisture	21.6			wt%	1	4/18/2012 1:37:51 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1204024**
Date Reported: **4/19/2012**

Client: GeoEngineers, Inc. - Redmond **Collection Date:** 4/15/2012 1:46:00 PM
Project: Rufus 2.0
Lab ID: 1204024-138 **Matrix:** Soil
Client Sample ID: MW20-5-15.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 2241		Analyst: EM
Diesel (Fuel Oil)	ND	20.9		mg/Kg-dry	1	4/18/2012 3:56:00 PM
Heavy Oil	ND	52.2		mg/Kg-dry	1	4/18/2012 3:56:00 PM
Surr: 2-Fluorobiphenyl	119	50-150		%REC	1	4/18/2012 3:56:00 PM
Surr: o-Terphenyl	119	50-150		%REC	1	4/18/2012 3:56:00 PM
Gasoline by NWTPH-Gx				Batch ID: 2247		Analyst: PH
Gasoline	ND	5.20		mg/Kg-dry	1	4/18/2012 4:15:00 PM
Surr: 1,4-Difluorobenzene	93.7	65-135		%REC	1	4/18/2012 4:15:00 PM
Surr: 4-Bromofluorobenzene	101	65-135		%REC	1	4/18/2012 4:15:00 PM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 2238		Analyst: PH
Dichlorodifluoromethane (CFC-12)	ND	0.0633		mg/Kg-dry	1	4/18/2012 11:57:00 AM
Chloromethane	ND	0.0633		mg/Kg-dry	1	4/18/2012 11:57:00 AM
Vinyl chloride	ND	0.00211		mg/Kg-dry	1	4/18/2012 11:57:00 AM
Bromomethane	ND	0.0949		mg/Kg-dry	1	4/18/2012 11:57:00 AM
Trichlorofluoromethane (CFC-11)	ND	0.0527		mg/Kg-dry	1	4/18/2012 11:57:00 AM
Chloroethane	ND	0.0633		mg/Kg-dry	1	4/18/2012 11:57:00 AM
1,1-Dichloroethene	ND	0.0527		mg/Kg-dry	1	4/18/2012 11:57:00 AM
Methylene chloride	ND	0.0211		mg/Kg-dry	1	4/18/2012 11:57:00 AM
trans-1,2-Dichloroethene	ND	0.0211		mg/Kg-dry	1	4/18/2012 11:57:00 AM
Methyl tert-butyl ether (MTBE)	ND	0.0527		mg/Kg-dry	1	4/18/2012 11:57:00 AM
1,1-Dichloroethane	ND	0.0211		mg/Kg-dry	1	4/18/2012 11:57:00 AM
2,2-Dichloropropane	ND	0.0527		mg/Kg-dry	1	4/18/2012 11:57:00 AM
cis-1,2-Dichloroethene	ND	0.0211		mg/Kg-dry	1	4/18/2012 11:57:00 AM
Chloroform	ND	0.0211		mg/Kg-dry	1	4/18/2012 11:57:00 AM
1,1,1-Trichloroethane (TCA)	ND	0.0211		mg/Kg-dry	1	4/18/2012 11:57:00 AM
1,1-Dichloropropene	ND	0.0211		mg/Kg-dry	1	4/18/2012 11:57:00 AM
Carbon tetrachloride	ND	0.0211		mg/Kg-dry	1	4/18/2012 11:57:00 AM
1,2-Dichloroethane	ND	0.0316		mg/Kg-dry	1	4/18/2012 11:57:00 AM
Benzene	ND	0.0211		mg/Kg-dry	1	4/18/2012 11:57:00 AM
Trichloroethene (TCE)	ND	0.0316		mg/Kg-dry	1	4/18/2012 11:57:00 AM
1,2-Dichloropropane	ND	0.0211		mg/Kg-dry	1	4/18/2012 11:57:00 AM
Bromodichloromethane	ND	0.0211		mg/Kg-dry	1	4/18/2012 11:57:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1204024**
Date Reported: **4/19/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 4/15/2012 1:46:00 PM
Project: Rufus 2.0
Lab ID: 1204024-138
Matrix: Soil
Client Sample ID: MW20-5-15.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: 2238		Analyst: PH
Dibromomethane	ND	0.0422		mg/Kg-dry	1	4/18/2012 11:57:00 AM
cis-1,3-Dichloropropene	ND	0.0211		mg/Kg-dry	1	4/18/2012 11:57:00 AM
Toluene	ND	0.0211		mg/Kg-dry	1	4/18/2012 11:57:00 AM
trans-1,3-Dichloropropene	ND	0.0316		mg/Kg-dry	1	4/18/2012 11:57:00 AM
1,1,2-Trichloroethane	ND	0.0316		mg/Kg-dry	1	4/18/2012 11:57:00 AM
1,3-Dichloropropane	ND	0.0527		mg/Kg-dry	1	4/18/2012 11:57:00 AM
Tetrachloroethene (PCE)	ND	0.0211		mg/Kg-dry	1	4/18/2012 11:57:00 AM
Dibromochloromethane	ND	0.0316		mg/Kg-dry	1	4/18/2012 11:57:00 AM
1,2-Dibromoethane (EDB)	ND	0.00527		mg/Kg-dry	1	4/18/2012 11:57:00 AM
Chlorobenzene	ND	0.0211		mg/Kg-dry	1	4/18/2012 11:57:00 AM
1,1,1,2-Tetrachloroethane	ND	0.0316		mg/Kg-dry	1	4/18/2012 11:57:00 AM
Ethylbenzene	ND	0.0316		mg/Kg-dry	1	4/18/2012 11:57:00 AM
m,p-Xylene	ND	0.0211		mg/Kg-dry	1	4/18/2012 11:57:00 AM
o-Xylene	ND	0.0211		mg/Kg-dry	1	4/18/2012 11:57:00 AM
Styrene	ND	0.0211		mg/Kg-dry	1	4/18/2012 11:57:00 AM
Isopropylbenzene	ND	0.0844		mg/Kg-dry	1	4/18/2012 11:57:00 AM
Bromoform	ND	0.0211		mg/Kg-dry	1	4/18/2012 11:57:00 AM
1,1,2,2-Tetrachloroethane	ND	0.0211		mg/Kg-dry	1	4/18/2012 11:57:00 AM
n-Propylbenzene	ND	0.0211		mg/Kg-dry	1	4/18/2012 11:57:00 AM
Bromobenzene	ND	0.0316		mg/Kg-dry	1	4/18/2012 11:57:00 AM
1,3,5-Trimethylbenzene	ND	0.0211		mg/Kg-dry	1	4/18/2012 11:57:00 AM
2-Chlorotoluene	ND	0.0211		mg/Kg-dry	1	4/18/2012 11:57:00 AM
4-Chlorotoluene	ND	0.0211		mg/Kg-dry	1	4/18/2012 11:57:00 AM
tert-Butylbenzene	ND	0.0211		mg/Kg-dry	1	4/18/2012 11:57:00 AM
1,2,3-Trichloropropane	ND	0.0211		mg/Kg-dry	1	4/18/2012 11:57:00 AM
1,2,4-Trichlorobenzene	ND	0.0527		mg/Kg-dry	1	4/18/2012 11:57:00 AM
sec-Butylbenzene	ND	0.0211		mg/Kg-dry	1	4/18/2012 11:57:00 AM
4-Isopropyltoluene	ND	0.0211		mg/Kg-dry	1	4/18/2012 11:57:00 AM
1,3-Dichlorobenzene	ND	0.0211		mg/Kg-dry	1	4/18/2012 11:57:00 AM
1,4-Dichlorobenzene	ND	0.0211		mg/Kg-dry	1	4/18/2012 11:57:00 AM
n-Butylbenzene	ND	0.0211		mg/Kg-dry	1	4/18/2012 11:57:00 AM
1,2-Dichlorobenzene	ND	0.0211		mg/Kg-dry	1	4/18/2012 11:57:00 AM
1,2-Dibromo-3-chloropropane	ND	0.0316		mg/Kg-dry	1	4/18/2012 11:57:00 AM
1,2,4-Trimethylbenzene	ND	0.0211		mg/Kg-dry	1	4/18/2012 11:57:00 AM
Hexachlorobutadiene	ND	0.105		mg/Kg-dry	1	4/18/2012 11:57:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1204024**
Date Reported: **4/19/2012**

Client: GeoEngineers, Inc. - Redmond **Collection Date:** 4/15/2012 1:46:00 PM
Project: Rufus 2.0
Lab ID: 1204024-138 **Matrix:** Soil
Client Sample ID: MW20-5-15.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: 2238		Analyst: PH
Naphthalene	ND	0.0316		mg/Kg-dry	1	4/18/2012 11:57:00 AM
1,2,3-Trichlorobenzene	ND	0.0211		mg/Kg-dry	1	4/18/2012 11:57:00 AM
Surr: 1-Bromo-4-fluorobenzene	97.7	63.1-141		%REC	1	4/18/2012 11:57:00 AM
Surr: Dibromofluoromethane	102	67.6-119		%REC	1	4/18/2012 11:57:00 AM
Surr: Toluene-d8	105	78.5-126		%REC	1	4/18/2012 11:57:00 AM
Sample Moisture (Percent Moisture)				Batch ID: R3991		Analyst: EM
Percent Moisture	14.4			wt%	1	4/18/2012 1:37:51 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1204024**
Date Reported: **4/19/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 4/9/2012 3:30:00 PM
Project: Rufus 2.0
Lab ID: 1204024-146
Matrix: Soil
Client Sample ID: MW20-6-5.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 2208		Analyst: EM
Diesel (Fuel Oil)	ND	18.2		mg/Kg-dry	1	4/11/2012 11:50:00 PM
Heavy Oil	ND	45.5		mg/Kg-dry	1	4/11/2012 11:50:00 PM
Surr: 2-Fluorobiphenyl	106	50-150		%REC	1	4/11/2012 11:50:00 PM
Surr: o-Terphenyl	106	50-150		%REC	1	4/11/2012 11:50:00 PM
Gasoline by NWTPH-Gx				Batch ID: 2211		Analyst: PH
Gasoline	ND	4.55		mg/Kg-dry	1	4/13/2012 5:52:00 PM
Surr: 1,4-Difluorobenzene	95.4	65-135		%REC	1	4/13/2012 5:52:00 PM
Surr: 4-Bromofluorobenzene	106	65-135		%REC	1	4/13/2012 5:52:00 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 2209		Analyst: SG
Naphthalene	ND	53.9		µg/Kg-dry	1	4/13/2012 2:42:00 PM
2-Methylnaphthalene	ND	53.9		µg/Kg-dry	1	4/13/2012 2:42:00 PM
1-Methylnaphthalene	ND	53.9		µg/Kg-dry	1	4/13/2012 2:42:00 PM
Acenaphthylene	ND	53.9		µg/Kg-dry	1	4/13/2012 2:42:00 PM
Acenaphthene	ND	53.9		µg/Kg-dry	1	4/13/2012 2:42:00 PM
Fluorene	ND	53.9		µg/Kg-dry	1	4/13/2012 2:42:00 PM
Phenanthrene	ND	53.9		µg/Kg-dry	1	4/13/2012 2:42:00 PM
Anthracene	ND	53.9		µg/Kg-dry	1	4/13/2012 2:42:00 PM
Fluoranthene	ND	53.9		µg/Kg-dry	1	4/13/2012 2:42:00 PM
Pyrene	57.7	53.9		µg/Kg-dry	1	4/13/2012 2:42:00 PM
Benz(a)anthracene	ND	53.9		µg/Kg-dry	1	4/13/2012 2:42:00 PM
Chrysene	ND	53.9		µg/Kg-dry	1	4/13/2012 2:42:00 PM
Benzo(b)fluoranthene	ND	53.9		µg/Kg-dry	1	4/13/2012 2:42:00 PM
Benzo(k)fluoranthene	ND	53.9		µg/Kg-dry	1	4/13/2012 2:42:00 PM
Benzo(a)pyrene	ND	53.9		µg/Kg-dry	1	4/13/2012 2:42:00 PM
Indeno(1,2,3-cd)pyrene	ND	53.9		µg/Kg-dry	1	4/13/2012 2:42:00 PM
Dibenz(a,h)anthracene	ND	53.9		µg/Kg-dry	1	4/13/2012 2:42:00 PM
Benzo(g,h,i)perylene	ND	53.9		µg/Kg-dry	1	4/13/2012 2:42:00 PM
Surr: 2-Fluorobiphenyl	75.7	53.5-148		%REC	1	4/13/2012 2:42:00 PM
Surr: Terphenyl-d14 (surr)	78.3	67.2-149		%REC	1	4/13/2012 2:42:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1204024**
Date Reported: **4/19/2012**

Client: GeoEngineers, Inc. - Redmond **Collection Date:** 4/9/2012 3:30:00 PM
Project: Rufus 2.0
Lab ID: 1204024-146 **Matrix:** Soil
Client Sample ID: MW20-6-5.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 2216		Analyst: BR
Arsenic	2.34	0.0698		mg/Kg-dry	1	4/12/2012 11:20:54 PM
Barium	49.4	0.349		mg/Kg-dry	1	4/12/2012 11:20:54 PM
Cadmium	0.159	0.140		mg/Kg-dry	1	4/12/2012 11:20:54 PM
Chromium	19.1	0.0698		mg/Kg-dry	1	4/12/2012 11:20:54 PM
Lead	10.8	0.140		mg/Kg-dry	1	4/12/2012 11:20:54 PM
Selenium	ND	0.349		mg/Kg-dry	1	4/12/2012 11:20:54 PM
Silver	0.246	0.0698		mg/Kg-dry	1	4/12/2012 11:20:54 PM
Mercury by EPA Method 7471				Batch ID: 2217		Analyst: BR
Mercury	ND	0.243		mg/Kg-dry	1	4/12/2012 3:51:14 PM
Sample Moisture (Percent Moisture)				Batch ID: R3912		Analyst: EM
Percent Moisture	8.11			wt%	1	4/11/2012 9:59:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1204024
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID: **MB-2216**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **4/12/2012**	RunNo: **3938**
Client ID: **MBLKS**	Batch ID: **2216**		Analysis Date: **4/12/2012**	SeqNo: **71101**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.100									
Barium	ND	0.500									
Cadmium	ND	0.200									
Chromium	ND	0.100									
Lead	ND	0.200									
Selenium	ND	0.500									
Silver	ND	0.100									

Sample ID: **LCS-2216**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **4/12/2012**	RunNo: **3938**
Client ID: **LCSS**	Batch ID: **2216**		Analysis Date: **4/12/2012**	SeqNo: **71102**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	62.0	0.100	62.50	0	99.2	80	120				
Barium	64.6	0.500	62.50	0	103	80	120				
Cadmium	3.27	0.200	3.125	0	104	80	120				
Chromium	62.6	0.100	62.50	0	100	80	120				
Lead	32.8	0.200	31.25	0	105	80	120				
Selenium	6.33	0.500	6.250	0	101	80	120				
Silver	5.71	0.100	5.625	0	102	80	120				

Sample ID: **1204024-146ADUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **4/12/2012**	RunNo: **3938**
Client ID: **MW20-6-5.0**	Batch ID: **2216**		Analysis Date: **4/12/2012**	SeqNo: **71112**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	2.46	0.0721						2.344	4.99	30	

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1204024
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID: **1204024-146ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **4/12/2012** RunNo: **3938**
Client ID: **MW20-6-5.0** Batch ID: **2216** Analysis Date: **4/12/2012** SeqNo: **71112**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	47.8	0.360						49.43	3.44	30	
Cadmium	0.166	0.144						0.1586	4.72	30	
Chromium	21.4	0.0721						19.13	11.4	30	
Lead	12.3	0.144						10.82	13.2	30	
Selenium	ND	0.360						0	0	30	
Silver	0.358	0.0721						0.2462	36.9	30	R

Sample ID: **1204024-146AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **4/12/2012** RunNo: **3938**
Client ID: **MW20-6-5.0** Batch ID: **2216** Analysis Date: **4/12/2012** SeqNo: **71113**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	47.2	0.0676	42.25	2.344	106	75	125				
Barium	93.6	0.338	42.25	49.43	104	75	125				
Cadmium	2.43	0.135	2.112	0.1586	107	75	125				
Chromium	54.5	0.0676	42.25	19.13	83.7	75	125				
Lead	33.7	0.135	21.12	10.82	108	75	125				
Selenium	4.07	0.338	4.225	0	96.4	75	125				
Silver	2.88	0.0676	3.802	0.2462	69.2	75	125				S

Sample ID: **1204024-146AMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **4/12/2012** RunNo: **3938**
Client ID: **MW20-6-5.0** Batch ID: **2216** Analysis Date: **4/12/2012** SeqNo: **71114**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	48.3	0.0698	43.60	2.344	105	75	125	47.20	2.33	30	
Barium	100	0.349	43.60	49.43	117	75	125	93.58	7.10	30	

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1204024
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID: **1204024-146AMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **4/12/2012** RunNo: **3938**
Client ID: **MW20-6-5.0** Batch ID: **2216** Analysis Date: **4/12/2012** SeqNo: **71114**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	2.50	0.140	2.180	0.1586	107	75	125	2.427	2.84	30	
Chromium	56.0	0.0698	43.60	19.13	84.5	75	125	54.47	2.68	30	
Lead	34.6	0.140	21.80	10.82	109	75	125	33.71	2.47	30	
Selenium	4.27	0.349	4.360	0	98.0	75	125	4.071	4.85	30	
Silver	3.25	0.0698	3.924	0.2462	76.6	75	125	2.879	12.1	30	

Sample ID: **MB-2233** SampType: **MBLK** Units: **mg/Kg** Prep Date: **4/16/2012** RunNo: **3986**
Client ID: **MBLKS** Batch ID: **2233** Analysis Date: **4/16/2012** SeqNo: **71740**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.102	0.100									
Barium	ND	0.500									
Cadmium	ND	0.200									
Chromium	ND	0.100									
Lead	ND	0.200									
Selenium	ND	0.500									
Silver	ND	0.100									

Sample ID: **LCS-2233** SampType: **LCS** Units: **mg/Kg** Prep Date: **4/16/2012** RunNo: **3986**
Client ID: **LCSS** Batch ID: **2233** Analysis Date: **4/16/2012** SeqNo: **71741**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	49.1	0.100	50.00	0	98.2	80	120				B
Barium	49.7	0.500	50.00	0	99.5	80	120				
Cadmium	2.45	0.200	2.500	0	98.2	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1204024
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID: **LCS-2233** SampType: **LCS** Units: **mg/Kg** Prep Date: **4/16/2012** RunNo: **3986**
Client ID: **LCSS** Batch ID: **2233** Analysis Date: **4/16/2012** SeqNo: **71741**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	51.6	0.100	50.00	0	103	80	120				
Lead	26.0	0.200	25.00	0	104	80	120				
Selenium	4.66	0.500	5.000	0	93.2	80	120				
Silver	5.24	0.100	5.000	0	105	80	120				

Sample ID: **1204024-127ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **4/16/2012** RunNo: **3986**
Client ID: **MW20-4-17.5** Batch ID: **2233** Analysis Date: **4/16/2012** SeqNo: **71743**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	5.88	0.0989						5.854	0.403	30	B
Barium	101	0.495						113.8	12.3	30	
Cadmium	ND	0.198						0	0	30	
Chromium	44.7	0.0989						49.12	9.41	30	
Lead	3.87	0.198						4.334	11.4	30	
Selenium	ND	0.495						0	0	30	
Silver	ND	0.0989						0	0	30	

Sample ID: **1204024-127AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **4/16/2012** RunNo: **3986**
Client ID: **MW20-4-17.5** Batch ID: **2233** Analysis Date: **4/16/2012** SeqNo: **71744**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	54.9	0.0946	47.31	5.854	104	75	125				B
Barium	150	0.473	47.31	113.8	76.9	75	125				
Cadmium	2.60	0.189	2.365	0.1352	104	75	125				
Chromium	95.8	0.0946	47.31	49.12	98.7	75	125				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1204024
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID: **1204024-127AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **4/16/2012** RunNo: **3986**
Client ID: **MW20-4-17.5** Batch ID: **2233** Analysis Date: **4/16/2012** SeqNo: **71744**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	27.6	0.189	23.65	4.334	98.5	75	125				
Selenium	3.72	0.473	4.731	0	78.7	75	125				
Silver	3.08	0.0946	4.731	0.05993	63.8	75	125				S

Sample ID: **1204024-127AMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **4/16/2012** RunNo: **3986**
Client ID: **MW20-4-17.5** Batch ID: **2233** Analysis Date: **4/16/2012** SeqNo: **71745**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	56.5	0.0953	47.65	5.854	106	75	125	54.89	2.84	30	B
Barium	173	0.477	47.65	113.8	125	75	125	150.2	14.2	30	
Cadmium	2.72	0.191	2.383	0.1352	109	75	125	2.601	4.57	30	
Chromium	107	0.0953	47.65	49.12	122	75	125	95.80	11.1	30	
Lead	29.8	0.191	23.83	4.334	107	75	125	27.64	7.58	30	
Selenium	3.66	0.477	4.765	0	76.7	75	125	3.725	1.85	30	
Silver	3.27	0.0953	4.765	0.05993	67.4	75	125	3.079	6.10	30	S

Sample ID: **MB-2244** SampType: **MBLK** Units: **mg/Kg** Prep Date: **4/18/2012** RunNo: **4000**
Client ID: **MBLKS** Batch ID: **2244** Analysis Date: **4/18/2012** SeqNo: **72067**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.100									
Barium	ND	0.500									
Cadmium	ND	0.200									
Chromium	ND	0.100									
Lead	ND	0.200									

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1204024
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID: **MB-2244** SampType: **MBLK** Units: **mg/Kg** Prep Date: **4/18/2012** RunNo: **4000**
Client ID: **MBLKS** Batch ID: **2244** Analysis Date: **4/18/2012** SeqNo: **72067**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	ND	0.500									
Silver	ND	0.100									

Sample ID: **LCS-2244** SampType: **LCS** Units: **mg/Kg** Prep Date: **4/18/2012** RunNo: **4000**
Client ID: **LCSS** Batch ID: **2244** Analysis Date: **4/18/2012** SeqNo: **72068**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	52.0	0.100	50.00	0	104	80	120				
Barium	51.7	0.500	50.00	0	103	80	120				
Cadmium	2.54	0.200	2.500	0	102	80	120				
Chromium	50.5	0.100	50.00	0	101	80	120				
Lead	26.0	0.200	25.00	0	104	80	120				
Selenium	4.81	0.500	5.000	0	96.2	80	120				
Silver	5.40	0.100	5.000	0	108	80	120				

Sample ID: **1204024-002ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **4/18/2012** RunNo: **4000**
Client ID: **B20-4-5.0** Batch ID: **2244** Analysis Date: **4/18/2012** SeqNo: **72070**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	2.22	0.0819						2.393	7.45	30	
Barium	73.3	0.410						70.85	3.35	30	
Cadmium	0.174	0.164						0.1722	1.21	30	
Chromium	35.7	0.0819						32.59	9.10	30	
Lead	3.31	0.164						3.105	6.38	30	
Selenium	ND	0.410						0	0	30	

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1204024
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID: **1204024-002ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **4/18/2012** RunNo: **4000**
Client ID: **B20-4-5.0** Batch ID: **2244** Analysis Date: **4/18/2012** SeqNo: **72070**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Silver	ND	0.0819						0	0	30	

Sample ID: **1204024-002AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **4/18/2012** RunNo: **4000**
Client ID: **B20-4-5.0** Batch ID: **2244** Analysis Date: **4/18/2012** SeqNo: **72071**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	45.1	0.0844	42.22	2.221	102	75	125				
Barium	124	0.422	42.22	73.27	121	75	125				
Cadmium	2.41	0.169	2.111	0.1743	106	75	125				
Chromium	83.0	0.0844	42.22	35.70	112	75	125				
Lead	24.8	0.169	21.11	3.310	102	75	125				
Selenium	3.64	0.422	4.222	0	86.3	75	125				
Silver	2.81	0.0844	4.222	0.04593	65.4	75	125				S

Sample ID: **1204024-002AMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **4/18/2012** RunNo: **4000**
Client ID: **B20-4-5.0** Batch ID: **2244** Analysis Date: **4/18/2012** SeqNo: **72072**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	46.1	0.0844	42.22	2.221	104	75	125	45.11	2.11	30	
Barium	124	0.422	42.22	73.27	119	75	125	124.4	0.584	30	
Cadmium	2.48	0.169	2.111	0.1743	109	75	125	2.409	3.09	30	
Chromium	83.8	0.0844	42.22	35.70	114	75	125	82.98	0.954	30	
Lead	25.0	0.169	21.11	3.310	103	75	125	24.77	0.907	30	
Selenium	3.85	0.422	4.222	0	91.1	75	125	3.644	5.44	30	
Silver	3.07	0.0844	4.222	0.04593	71.6	75	125	2.808	8.87	30	S

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Date: *4/19/2012*

Work Order: 1204024
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID: **1202024-002APDS** SampType: **PDS** Units: **mg/Kg** Prep Date: **4/18/2012** RunNo: **4000**
Client ID: **BATCH** Batch ID: **2244** Analysis Date: **4/18/2012** SeqNo: **72073**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	107	0.0741	50.0	5.84	101	75	125				
Barium	271	0.370	50.0	173	80.1	75	125				
Cadmium	5.39	0.148	2.50	0.420	98.4	75	125				
Chromium	189	0.0741	50.0	79.6	101	75	125				
Lead	53.7	0.148	25.0	7.58	90.7	75	125				
Selenium	9.12	0.370	5.00	-0.947	91.2	75	125				
Silver	5.36	0.0741	5.00	0.128	52.2	75	125				S

NOTES:

R - (Analytical Run = 3938) High RPD due to low analyte concentration. In this range, high RPD's may be expected.

S - (Analytical Run = 3938) Spike recovery indicates a possible matrix effect. The method is in control as indicated by the Laboratory Control Sample (LCS). The MSD was within range.

S - (Analytical Run = 3986) Ag spike recovery indicates a possible matrix effect. The method is in control as indicated by the Laboratory Control Sample (LCS).

S - (Analytical Run = 4000) Ag spike recovery indicates a possible matrix effect. The method is in control as indicated by the Laboratory Control Sample (LCS). A Post-Digestion Spike (PDS) was conducted producing the same results.

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1204024
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0

QC SUMMARY REPORT

Mercury by EPA Method 7471

Sample ID: **MB-2217** SampType: **MBLK** Units: **mg/Kg** Prep Date: **4/12/2012** RunNo: **3941**
Client ID: **MBLKS** Batch ID: **2217** Analysis Date: **4/12/2012** SeqNo: **71172**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.250									

Sample ID: **LCS-2217** SampType: **LCS** Units: **mg/Kg** Prep Date: **4/12/2012** RunNo: **3941**
Client ID: **LCSS** Batch ID: **2217** Analysis Date: **4/12/2012** SeqNo: **71173**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.440	0.250	0.5000	0	88.0	85	115				

Sample ID: **1204024-062ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **4/12/2012** RunNo: **3941**
Client ID: **B20-9-5.0** Batch ID: **2217** Analysis Date: **4/12/2012** SeqNo: **71175**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.222						0	0	20	

Sample ID: **1204024-062AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **4/12/2012** RunNo: **3941**
Client ID: **B20-9-5.0** Batch ID: **2217** Analysis Date: **4/12/2012** SeqNo: **71176**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.510	0.260	0.5204	0.02440	93.3	70	130				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1204024
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0

QC SUMMARY REPORT

Mercury by EPA Method 7471

Sample ID: **1204024-062AMSD**	SampType: **MSD**	Units: **mg/Kg-dry**	Prep Date: **4/12/2012**	RunNo: **3941**
Client ID: **B20-9-5.0**	Batch ID: **2217**		Analysis Date: **4/12/2012**	SeqNo: **71177**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.426	0.219	0.4378	0.02440	91.6	70	130	0.5100	18.1	20	

Sample ID: **MB-2234**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **4/16/2012**	RunNo: **3990**
Client ID: **MBLKS**	Batch ID: **2234**		Analysis Date: **4/17/2012**	SeqNo: **71832**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.250									

Sample ID: **LCS-2234**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **4/16/2012**	RunNo: **3990**
Client ID: **LCSS**	Batch ID: **2234**		Analysis Date: **4/17/2012**	SeqNo: **71833**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.438	0.250	0.5000	0	87.6	85	115				

Sample ID: **1204024-127ADUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **4/16/2012**	RunNo: **3990**
Client ID: **MW20-4-17.5**	Batch ID: **2234**		Analysis Date: **4/17/2012**	SeqNo: **71835**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.259						0	0	20	R

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Date: *4/19/2012*

Work Order: 1204024
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0

QC SUMMARY REPORT

Mercury by EPA Method 7471

Sample ID: **1204024-127AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **4/16/2012** RunNo: **3990**
Client ID: **MW20-4-17.5** Batch ID: **2234** Analysis Date: **4/17/2012** SeqNo: **71836**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.542	0.308	0.6159	0.02979	83.2	70	130				

Sample ID: **1204024-127AMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **4/16/2012** RunNo: **3990**
Client ID: **MW20-4-17.5** Batch ID: **2234** Analysis Date: **4/17/2012** SeqNo: **71837**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.512	0.281	0.5628	0.02979	85.7	70	130	0.5420	5.66	20	

Sample ID: **MB-2243** SampType: **MBLK** Units: **mg/Kg** Prep Date: **4/18/2012** RunNo: **3998**
Client ID: **MBLKS** Batch ID: **2243** Analysis Date: **4/18/2012** SeqNo: **71979**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.250									

Sample ID: **LCS-2243** SampType: **LCS** Units: **mg/Kg** Prep Date: **4/18/2012** RunNo: **3998**
Client ID: **LCSS** Batch ID: **2243** Analysis Date: **4/18/2012** SeqNo: **71980**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.501	0.250	0.5000	0	100	85	115				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Date: *4/19/2012*

Work Order: 1204024
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0

QC SUMMARY REPORT

Mercury by EPA Method 7471

Sample ID: **1204024-002ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **4/18/2012** RunNo: **3998**
Client ID: **B20-4-5.0** Batch ID: **2243** Analysis Date: **4/18/2012** SeqNo: **71982**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.256						0	0	20	R

Sample ID: **1204024-002AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **4/18/2012** RunNo: **3998**
Client ID: **B20-4-5.0** Batch ID: **2243** Analysis Date: **4/18/2012** SeqNo: **71983**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.522	0.256	0.5122	0.02065	98.0	70	130				

Sample ID: **1204024-002AMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **4/18/2012** RunNo: **3998**
Client ID: **B20-4-5.0** Batch ID: **2243** Analysis Date: **4/18/2012** SeqNo: **71984**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.479	0.230	0.4609	0.02065	99.5	70	130	0.5224	8.59	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1204024
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID: **LCS-2208**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **4/11/2012**	RunNo: **3925**
Client ID: **LCSS**	Batch ID: **2208**		Analysis Date: **4/11/2012**	SeqNo: **70812**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	540	20.0	500.0	0	108	65	135				
Surr: 2-Fluorobiphenyl	22.2		20.00		111	68.7	131				
Surr: o-Terphenyl	20.9		20.00		104	55.1	158				

Sample ID: **MB-2208**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **4/11/2012**	RunNo: **3925**
Client ID: **MBLKS**	Batch ID: **2208**		Analysis Date: **4/11/2012**	SeqNo: **70813**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	20.0									
Heavy Oil	ND	50.0									
Surr: 2-Fluorobiphenyl	21.2		20.00		106	68.7	131				
Surr: o-Terphenyl	21.1		20.00		106	55.1	158				

Sample ID: **1204024-146ADUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **4/11/2012**	RunNo: **3925**
Client ID: **MW20-6-5.0**	Batch ID: **2208**		Analysis Date: **4/12/2012**	SeqNo: **71049**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	18.6						0	0	30	
Heavy Oil	ND	46.4						0	0	30	
Surr: 2-Fluorobiphenyl	19.8		18.57		106	50	150		0		
Surr: o-Terphenyl	19.8		18.57		107	50	150		0		

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1204024
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID: **1204024-123ADUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **4/16/2012**	RunNo: **3969**
Client ID: **MW20-4-7.5**	Batch ID: **2232**		Analysis Date: **4/16/2012**	SeqNo: **71589**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	20.0						0	0	30	
Heavy Oil	102	50.1						126.6	21.6	30	
Surr: 2-Fluorobiphenyl	22.7		20.02		113	50	150		0		
Surr: o-Terphenyl	22.6		20.02		113	50	150		0		

Sample ID: **LCS-2232**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **4/16/2012**	RunNo: **3969**
Client ID: **LCSS**	Batch ID: **2232**		Analysis Date: **4/16/2012**	SeqNo: **71592**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	539	20.0	500.0	0	108	65	135				
Surr: 2-Fluorobiphenyl	23.8		20.00		119	50	150				
Surr: o-Terphenyl	22.2		20.00		111	50	150				

Sample ID: **MB-2232**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **4/16/2012**	RunNo: **3969**
Client ID: **MBLKS**	Batch ID: **2232**		Analysis Date: **4/16/2012**	SeqNo: **71593**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	20.0									
Heavy Oil	ND	50.0									
Surr: 2-Fluorobiphenyl	23.2		20.00		116	50	150				
Surr: o-Terphenyl	22.9		20.00		115	50	150				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1204024
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID: **1204024-032ADUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **4/18/2012**	RunNo: **4003**
Client ID: **B20-6-20.0**	Batch ID: **2241**		Analysis Date: **4/18/2012**	SeqNo: **72140**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	19.5						0	0	30	
Heavy Oil	ND	48.8						0	0	30	
Surr: 2-Fluorobiphenyl	23.0		19.54		118	50	150		0		
Surr: o-Terphenyl	22.9		19.54		117	50	150		0		

Sample ID: **LCS-2241**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **4/18/2012**	RunNo: **4003**
Client ID: **LCSS**	Batch ID: **2241**		Analysis Date: **4/18/2012**	SeqNo: **72153**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	505	20.0	500.0	0	101	65	135				
Surr: 2-Fluorobiphenyl	24.7		20.00		123	50	150				
Surr: o-Terphenyl	22.8		20.00		114	50	150				

Sample ID: **MB-2241**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **4/18/2012**	RunNo: **4003**
Client ID: **MBLKS**	Batch ID: **2241**		Analysis Date: **4/18/2012**	SeqNo: **72154**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	20.0									
Heavy Oil	ND	50.0									
Surr: 2-Fluorobiphenyl	23.3		20.00		116	50	150				
Surr: o-Terphenyl	23.4		20.00		117	50	150				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1204024
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0

QC SUMMARY REPORT

Gasoline by NWTPH-Gx

Sample ID: **MB-2211**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **4/11/2012**	RunNo: **3944**
Client ID: **MBLKS**	Batch ID: **2211**		Analysis Date: **4/13/2012**	SeqNo: **71236**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	5.00									
Surr: 1,4-Difluorobenzene	0.419		0.5000		83.7	65	135				
Surr: 4-Bromofluorobenzene	0.464		0.5000		92.8	65	135				

Sample ID: **LCS-2211**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **4/11/2012**	RunNo: **3944**
Client ID: **LCSS**	Batch ID: **2211**		Analysis Date: **4/13/2012**	SeqNo: **71237**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	20.6	5.00	25.00	0	82.2	65	135				
Surr: 1,4-Difluorobenzene	0.475		0.5000		95.0	65	135				
Surr: 4-Bromofluorobenzene	0.394		0.5000		78.8	65	135				

Sample ID: **1204024-146BDUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **4/11/2012**	RunNo: **3944**
Client ID: **MW20-6-5.0**	Batch ID: **2211**		Analysis Date: **4/13/2012**	SeqNo: **71428**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	4.55						0	0	30	
Surr: 1,4-Difluorobenzene	0.438		0.4554		96.2	65	135		0	0	
Surr: 4-Bromofluorobenzene	0.490		0.4554		108	65	135		0	0	

Sample ID: **MB-2237**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **4/16/2012**	RunNo: **3987**
Client ID: **MBLKS**	Batch ID: **2237**		Analysis Date: **4/16/2012**	SeqNo: **71773**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	5.00									

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1204024
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0

QC SUMMARY REPORT

Gasoline by NWTPH-Gx

Sample ID: **MB-2237**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **4/16/2012**	RunNo: **3987**
Client ID: **MBLKS**	Batch ID: **2237**		Analysis Date: **4/16/2012**	SeqNo: **71773**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 1,4-Difluorobenzene	0.441		0.5000		88.2	65	135				
Surr: 4-Bromofluorobenzene	0.514		0.5000		103	65	135				

Sample ID: **LCS-2237**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **4/16/2012**	RunNo: **3987**
Client ID: **LCSS**	Batch ID: **2237**		Analysis Date: **4/16/2012**	SeqNo: **71774**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	26.1	5.00	25.00	0	104	65	135				
Surr: 1,4-Difluorobenzene	0.498		0.5000		99.5	65	135				
Surr: 4-Bromofluorobenzene	0.443		0.5000		88.6	65	135				

Sample ID: **1204024-129BDUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **4/16/2012**	RunNo: **3987**
Client ID: **MW20-4-22.5**	Batch ID: **2237**		Analysis Date: **4/17/2012**	SeqNo: **71780**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	5.45						0	0	30	
Surr: 1,4-Difluorobenzene	0.485		0.5446		89.1	65	135		0	0	
Surr: 4-Bromofluorobenzene	0.566		0.5446		104	65	135		0	0	

Sample ID: **1204024-138BDUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **4/18/2012**	RunNo: **4001**
Client ID: **MW20-5-15.0**	Batch ID: **2247**		Analysis Date: **4/18/2012**	SeqNo: **72102**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	5.20						0	0	30	
Surr: 1,4-Difluorobenzene	0.520		0.5196		100	65	135		0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Date: *4/19/2012*

Work Order: 1204024
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0

QC SUMMARY REPORT

Gasoline by NWTPH-Gx

Sample ID: **1204024-138BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **4/18/2012** RunNo: **4001**
Client ID: **MW20-5-15.0** Batch ID: **2247** Analysis Date: **4/18/2012** SeqNo: **72102**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.530		0.5196		102	65	135		0	0	

Sample ID: **MB-2247** SampType: **MBLK** Units: **mg/Kg** Prep Date: **4/18/2012** RunNo: **4001**
Client ID: **MBLKS** Batch ID: **2247** Analysis Date: **4/18/2012** SeqNo: **72158**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	5.00									
Surr: 1,4-Difluorobenzene	0.463		0.5000		92.5	65	135				
Surr: 4-Bromofluorobenzene	0.512		0.5000		102	65	135				

Sample ID: **LCS-2247** SampType: **LCS** Units: **mg/Kg** Prep Date: **4/18/2012** RunNo: **4001**
Client ID: **LCSS** Batch ID: **2247** Analysis Date: **4/18/2012** SeqNo: **72159**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	26.2	5.00	25.00	0	105	65	135				
Surr: 1,4-Difluorobenzene	0.547		0.5000		109	65	135				
Surr: 4-Bromofluorobenzene	0.570		0.5000		114	65	135				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1204024
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: **1204024-146ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **4/11/2012** RunNo: **3946**
Client ID: **MW20-6-5.0** Batch ID: **2209** Analysis Date: **4/13/2012** SeqNo: **71273**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	52.5						0	0	30	
2-Methylnaphthalene	ND	52.5						0	0	30	
1-Methylnaphthalene	ND	52.5						0	0	30	
Acenaphthylene	ND	52.5						0	0	30	
Acenaphthene	ND	52.5						0	0	30	
Fluorene	ND	52.5						0	0	30	
Phenanthrene	ND	52.5						0	0	30	
Anthracene	ND	52.5						0	0	30	
Fluoranthene	87.4	52.5						51.79	51.2	30	R
Pyrene	96.6	52.5						57.70	50.4	30	R
Benz(a)anthracene	ND	52.5						0	0	30	
Chrysene	ND	52.5						0	0	30	R
Benzo(b)fluoranthene	67.0	52.5						42.97	43.7	30	R
Benzo(k)fluoranthene	ND	52.5						0	0	30	R
Benzo(a)pyrene	58.1	52.5						34.86	50.1	30	R
Indeno(1,2,3-cd)pyrene	ND	52.5						0	0	30	R
Dibenz(a,h)anthracene	ND	52.5						0	0	30	
Benzo(g,h,i)perylene	ND	52.5						0	0	30	R
Surr: 2-Fluorobiphenyl	426		525.2		81.1	53.5	148		0		
Surr: Terphenyl-d14 (surr)	438		525.2		83.3	67.2	149		0		

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1204024
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: **1204024-146AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **4/11/2012** RunNo: **3946**
Client ID: **MW20-6-5.0** Batch ID: **2209** Analysis Date: **4/13/2012** SeqNo: **71274**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acenaphthene	490	54.5	545.2	0	89.9	50.6	126				
Pyrene	539	54.5	545.2	57.70	88.2	50.4	139				
Surr: 2-Fluorobiphenyl	437		545.2		80.1	53.5	148				
Surr: Terphenyl-d14 (surr)	427		545.2		78.4	67.2	149				

Sample ID: **MB-2209** SampType: **MBLK** Units: **µg/Kg** Prep Date: **4/11/2012** RunNo: **3946**
Client ID: **MBLKS** Batch ID: **2209** Analysis Date: **4/13/2012** SeqNo: **71277**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	50.0									
2-Methylnaphthalene	ND	50.0									
1-Methylnaphthalene	ND	50.0									
Acenaphthylene	ND	50.0									
Acenaphthene	ND	50.0									
Fluorene	ND	50.0									
Phenanthrene	ND	50.0									
Anthracene	ND	50.0									
Fluoranthene	ND	50.0									
Pyrene	ND	50.0									
Benz(a)anthracene	ND	50.0									
Chrysene	ND	50.0									
Benzo(b)fluoranthene	ND	50.0									
Benzo(k)fluoranthene	ND	50.0									
Benzo(a)pyrene	ND	50.0									
Indeno(1,2,3-cd)pyrene	ND	50.0									

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1204024
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: **MB-2209**	SampType: **MBLK**	Units: **µg/Kg**	Prep Date: **4/11/2012**	RunNo: **3946**
Client ID: **MBLKS**	Batch ID: **2209**		Analysis Date: **4/13/2012**	SeqNo: **71277**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dibenz(a,h)anthracene	ND	50.0									
Benzo(g,h,i)perylene	ND	50.0									
Surr: 2-Fluorobiphenyl	377		500.0		75.3	53.5	148				
Surr: Terphenyl-d14 (surr)	338		500.0		67.7	67.2	149				

Sample ID: **LCS-2209**	SampType: **LCS**	Units: **µg/Kg**	Prep Date: **4/11/2012**	RunNo: **3946**
Client ID: **LCSS**	Batch ID: **2209**		Analysis Date: **4/13/2012**	SeqNo: **71298**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acenaphthene	412	50.0	500.0	0	82.5	50.4	130				
Pyrene	385	50.0	500.0	0	77.0	50.3	141				
Surr: 2-Fluorobiphenyl	368		500.0		73.7	53.5	148				
Surr: Terphenyl-d14 (surr)	351		500.0		70.2	67.2	149				

Sample ID: **1204024-146AMSD**	SampType: **MSD**	Units: **µg/Kg-dry**	Prep Date: **4/11/2012**	RunNo: **3946**
Client ID: **MW20-6-5.0**	Batch ID: **2209**		Analysis Date: **4/13/2012**	SeqNo: **71307**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acenaphthene	461	51.7	517.3	0	89.2	50.6	126	490.2	6.06	30	
Pyrene	523	51.7	517.3	57.70	89.9	50.4	139	538.6	2.96	30	
Surr: 2-Fluorobiphenyl	388		517.3		75.1	53.5	148		0		
Surr: Terphenyl-d14 (surr)	395		517.3		76.4	67.2	149		0		

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1204024
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: **MB-2235** SampType: **MBLK** Units: **µg/Kg** Prep Date: **4/17/2012** RunNo: **3979**
Client ID: **MBLKS** Batch ID: **2235** Analysis Date: **4/17/2012** SeqNo: **71697**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	50.0									
2-Methylnaphthalene	ND	50.0									
1-Methylnaphthalene	ND	50.0									
Acenaphthylene	ND	50.0									
Acenaphthene	ND	50.0									
Fluorene	ND	50.0									
Phenanthrene	ND	50.0									
Anthracene	ND	50.0									
Fluoranthene	ND	50.0									
Pyrene	ND	50.0									
Benz(a)anthracene	ND	50.0									
Chrysene	ND	50.0									
Benzo(b)fluoranthene	ND	50.0									
Benzo(k)fluoranthene	ND	50.0									
Benzo(a)pyrene	ND	50.0									
Indeno(1,2,3-cd)pyrene	ND	50.0									
Dibenz(a,h)anthracene	ND	50.0									
Benzo(g,h,i)perylene	ND	50.0									
Surr: 2-Fluorobiphenyl	370		500.0		73.9	53.5	148				
Surr: Terphenyl-d14 (surr)	365		500.0		73.0	67.2	149				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1204024
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: **LCS-2235** SampType: **LCS** Units: **µg/Kg** Prep Date: **4/17/2012** RunNo: **3979**
Client ID: **LCSS** Batch ID: **2235** Analysis Date: **4/17/2012** SeqNo: **71717**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acenaphthene	992	50.0	1,000	0	99.2	50.4	130				
Pyrene	1,090	50.0	1,000	0	109	50.3	141				
Surr: 2-Fluorobiphenyl	363		500.0		72.7	53.5	148				
Surr: Terphenyl-d14 (surr)	375		500.0		75.0	67.2	149				

Sample ID: **1204024-129ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **4/17/2012** RunNo: **3979**
Client ID: **MW20-4-22.5** Batch ID: **2235** Analysis Date: **4/17/2012** SeqNo: **71768**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	61.8						0	0	30	
2-Methylnaphthalene	ND	61.8						0	0	30	
1-Methylnaphthalene	ND	61.8						0	0	30	
Acenaphthylene	ND	61.8						0	0	30	
Acenaphthene	ND	61.8						0	0	30	
Fluorene	ND	61.8						0	0	30	
Phenanthrene	ND	61.8						0	0	30	R
Anthracene	ND	61.8						0	0	30	
Fluoranthene	ND	61.8						0	0	30	R
Pyrene	ND	61.8						0	0	30	
Benz(a)anthracene	ND	61.8						0	0	30	
Chrysene	ND	61.8						0	0	30	
Benzo(b)fluoranthene	ND	61.8						0	0	30	
Benzo(k)fluoranthene	ND	61.8						0	0	30	
Benzo(a)pyrene	ND	61.8						0	0	30	R
Indeno(1,2,3-cd)pyrene	ND	61.8						0	0	30	

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1204024
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: **1204024-129ADUP**	SampType: **DUP**	Units: **µg/Kg-dry**	Prep Date: **4/17/2012**	RunNo: **3979**
Client ID: **MW20-4-22.5**	Batch ID: **2235**		Analysis Date: **4/17/2012**	SeqNo: **71768**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dibenz(a,h)anthracene	ND	61.8						0	0	30	
Benzo(g,h,i)perylene	ND	61.8						0	0	30	R
Surr: 2-Fluorobiphenyl	460		618.3		74.4	53.5	148		0		
Surr: Terphenyl-d14 (surr)	544		618.3		88.0	67.2	149		0		

Sample ID: **1204024-129AMSD**	SampType: **MSD**	Units: **µg/Kg-dry**	Prep Date: **4/17/2012**	RunNo: **3979**
Client ID: **MW20-4-22.5**	Batch ID: **2235**		Analysis Date: **4/17/2012**	SeqNo: **71770**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acenaphthene	494	58.5	584.9	0	84.5	50.6	126	501.5	1.47	30	
Pyrene	643	58.5	584.9	26.71	105	50.4	139	647.3	0.649	30	
Surr: 2-Fluorobiphenyl	465		584.9		79.5	53.5	148		0		
Surr: Terphenyl-d14 (surr)	554		584.9		94.7	67.2	149		0		

Sample ID: **1204024-129AMS**	SampType: **MS**	Units: **µg/Kg-dry**	Prep Date: **4/17/2012**	RunNo: **3979**
Client ID: **MW20-4-22.5**	Batch ID: **2235**		Analysis Date: **4/17/2012**	SeqNo: **71771**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acenaphthene	501	62.0	619.8	0	80.9	50.6	126				
Pyrene	647	62.0	619.8	26.71	100	50.4	139				
Surr: 2-Fluorobiphenyl	432		619.8		69.6	53.5	148				
Surr: Terphenyl-d14 (surr)	541		619.8		87.2	67.2	149				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1204024
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: **LCS-2240**	SampType: **LCS**	Units: **µg/Kg**	Prep Date: **4/18/2012**	RunNo: **3989**
Client ID: **LCSS**	Batch ID: **2240**		Analysis Date: **4/18/2012**	SeqNo: **71866**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acenaphthene	1,030	50.0	1,000	0	103	50.4	130				
Pyrene	1,070	50.0	1,000	0	107	50.3	141				
Surr: 2-Fluorobiphenyl	404		500.0		80.7	53.5	148				
Surr: Terphenyl-d14 (surr)	403		500.0		80.5	67.2	149				

Sample ID: **MB-2240**	SampType: **MBLK**	Units: **µg/Kg**	Prep Date: **4/18/2012**	RunNo: **3989**
Client ID: **MBLKS**	Batch ID: **2240**		Analysis Date: **4/18/2012**	SeqNo: **71867**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	50.0									
2-Methylnaphthalene	ND	50.0									
1-Methylnaphthalene	ND	50.0									
Acenaphthylene	ND	50.0									
Acenaphthene	ND	50.0									
Fluorene	ND	50.0									
Phenanthrene	ND	50.0									
Anthracene	ND	50.0									
Fluoranthene	ND	50.0									
Pyrene	ND	50.0									
Benz(a)anthracene	ND	50.0									
Chrysene	ND	50.0									
Benzo(b)fluoranthene	ND	50.0									
Benzo(k)fluoranthene	ND	50.0									
Benzo(a)pyrene	ND	50.0									
Indeno(1,2,3-cd)pyrene	ND	50.0									

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1204024
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: **MB-2240** SampType: **MBLK** Units: **µg/Kg** Prep Date: **4/18/2012** RunNo: **3989**
Client ID: **MBLKS** Batch ID: **2240** Analysis Date: **4/18/2012** SeqNo: **71867**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dibenz(a,h)anthracene	ND	50.0									
Benzo(g,h,i)perylene	ND	50.0									
Surr: 2-Fluorobiphenyl	385		500.0		77.1	53.5	148				
Surr: Terphenyl-d14 (surr)	377		500.0		75.4	67.2	149				

Sample ID: **1204024-032ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **4/18/2012** RunNo: **3989**
Client ID: **B20-6-20.0** Batch ID: **2240** Analysis Date: **4/18/2012** SeqNo: **71915**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	56.2						0	0	30	
2-Methylnaphthalene	ND	56.2						0	0	30	
1-Methylnaphthalene	ND	56.2						0	0	30	
Acenaphthylene	ND	56.2						0	0	30	
Acenaphthene	ND	56.2						0	0	30	
Fluorene	ND	56.2						0	0	30	
Phenanthrene	ND	56.2						0	0	30	
Anthracene	ND	56.2						0	0	30	
Fluoranthene	ND	56.2						0	0	30	
Pyrene	ND	56.2						0	0	30	
Benz(a)anthracene	ND	56.2						0	0	30	
Chrysene	ND	56.2						0	0	30	
Benzo(b)fluoranthene	ND	56.2						0	0	30	
Benzo(k)fluoranthene	ND	56.2						0	0	30	
Benzo(a)pyrene	ND	56.2						0	0	30	
Indeno(1,2,3-cd)pyrene	ND	56.2						0	0	30	

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1204024
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: **1204024-032ADUP**	SampType: **DUP**	Units: **µg/Kg-dry**	Prep Date: **4/18/2012**	RunNo: **3989**
Client ID: **B20-6-20.0**	Batch ID: **2240**		Analysis Date: **4/18/2012**	SeqNo: **71915**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dibenz(a,h)anthracene	ND	56.2						0	0	30	
Benzo(g,h,i)perylene	ND	56.2						0	0	30	
Surr: 2-Fluorobiphenyl	407		562.3		72.4	53.5	148		0		
Surr: Terphenyl-d14 (surr)	443		562.3		78.8	67.2	149		0		

Sample ID: **1204051-027AMS**	SampType: **MS**	Units: **µg/Kg-dry**	Prep Date: **4/18/2012**	RunNo: **3989**
Client ID: **BATCH**	Batch ID: **2240**		Analysis Date: **4/18/2012**	SeqNo: **72127**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acenaphthene	424	55.0	549.6	0	77.2	50.6	126				
Pyrene	478	55.0	549.6	0	87.0	50.4	139				
Surr: 2-Fluorobiphenyl	379		549.6		69.0	53.5	148				
Surr: Terphenyl-d14 (surr)	457		549.6		83.2	67.2	149				

Sample ID: **1204051-027AMSD**	SampType: **MSD**	Units: **µg/Kg-dry**	Prep Date: **4/18/2012**	RunNo: **3989**
Client ID: **BATCH**	Batch ID: **2240**		Analysis Date: **4/18/2012**	SeqNo: **72128**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acenaphthene	485	55.2	552.4	0	87.7	50.6	126	424.5	13.2	30	
Pyrene	506	55.2	552.4	0	91.6	50.4	139	478.3	5.62	30	
Surr: 2-Fluorobiphenyl	434		552.4		78.6	53.5	148		0		
Surr: Terphenyl-d14 (surr)	487		552.4		88.1	67.2	149		0		

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1204024
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: **CCV-2240 (C)** SampType: **CCV** Units: **µg/Kg** Prep Date: **4/18/2012** RunNo: **3989**
Client ID: **CCV** Batch ID: **2240** Analysis Date: **4/19/2012** SeqNo: **72156**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	978	50.0	1,000	0	97.8	80	120				
2-Methylnaphthalene	972	50.0	1,000	0	97.2	80	120				
1-Methylnaphthalene	958	50.0	1,000	0	95.8	80	120				
Acenaphthylene	988	50.0	1,000	0	98.8	80	120				
Acenaphthene	978	50.0	1,000	0	97.8	80	120				
Fluorene	1,010	50.0	1,000	0	101	80	120				
Phenanthrene	995	50.0	1,000	0	99.5	80	120				
Anthracene	1,050	50.0	1,000	0	105	80	120				
Fluoranthene	1,030	50.0	1,000	0	103	80	120				
Pyrene	1,010	50.0	1,000	0	101	80	120				
Benz(a)anthracene	1,010	50.0	1,000	0	101	80	120				
Chrysene	946	50.0	1,000	0	94.6	80	120				
Benzo(b)fluoranthene	1,020	50.0	1,000	0	102	80	120				
Benzo(k)fluoranthene	974	50.0	1,000	0	97.4	80	120				
Benzo(a)pyrene	1,040	50.0	1,000	0	104	80	120				
Indeno(1,2,3-cd)pyrene	976	50.0	1,000	0	97.6	80	120				
Dibenz(a,h)anthracene	963	50.0	1,000	0	96.3	80	120				
Benzo(g,h,i)perylene	928	50.0	1,000	0	92.8	80	120				
Surr: 2-Fluorobiphenyl	481		500.0		96.2	53.5	148				
Surr: Terphenyl-d14 (surr)	528		500.0		106	67.2	149				

NOTES:
R - High RPD due to low analyte concentration. In this range, high RPD's may be expected.

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1204024
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **MB-2238** SampType: **MBLK** Units: **mg/Kg** Prep Date: **4/17/2012** RunNo: **3995**
Client ID: **MBLKS** Batch ID: **2238** Analysis Date: **4/17/2012** SeqNo: **71944**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	ND	0.0600									
Chloromethane	ND	0.0600									
Vinyl chloride	ND	0.00200									
Bromomethane	ND	0.0900									
Trichlorofluoromethane (CFC-11)	ND	0.0500									
Chloroethane	ND	0.0600									
1,1-Dichloroethene	ND	0.0500									
Methylene chloride	ND	0.0200									
trans-1,2-Dichloroethene	ND	0.0200									
Methyl tert-butyl ether (MTBE)	ND	0.0500									
1,1-Dichloroethane	ND	0.0200									
2,2-Dichloropropane	ND	0.0500									
cis-1,2-Dichloroethene	ND	0.0200									
Chloroform	ND	0.0200									
1,1,1-Trichloroethane (TCA)	ND	0.0200									
1,1-Dichloropropene	ND	0.0200									
Carbon tetrachloride	ND	0.0200									
1,2-Dichloroethane	ND	0.0300									
Benzene	ND	0.0200									
Trichloroethene (TCE)	ND	0.0300									
1,2-Dichloropropane	ND	0.0200									
Bromodichloromethane	ND	0.0200									
Dibromomethane	ND	0.0400									
cis-1,3-Dichloropropene	ND	0.0200									
Toluene	ND	0.0200									

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1204024
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **MB-2238** SampType: **MBLK** Units: **mg/Kg** Prep Date: **4/17/2012** RunNo: **3995**
Client ID: **MBLKS** Batch ID: **2238** Analysis Date: **4/17/2012** SeqNo: **71944**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
trans-1,3-Dichloropropene	ND	0.0300									
1,1,2-Trichloroethane	ND	0.0300									
1,3-Dichloropropane	ND	0.0500									
Tetrachloroethene (PCE)	ND	0.0200									
Dibromochloromethane	ND	0.0300									
1,2-Dibromoethane (EDB)	ND	0.00500									
Chlorobenzene	ND	0.0200									
1,1,1,2-Tetrachloroethane	ND	0.0300									
Ethylbenzene	ND	0.0300									
m,p-Xylene	ND	0.0200									
o-Xylene	ND	0.0200									
Styrene	ND	0.0200									
Isopropylbenzene	ND	0.0800									
Bromoform	ND	0.0200									
1,1,2,2-Tetrachloroethane	ND	0.0200									
n-Propylbenzene	ND	0.0200									
Bromobenzene	ND	0.0300									
1,3,5-Trimethylbenzene	ND	0.0200									
2-Chlorotoluene	ND	0.0200									
4-Chlorotoluene	ND	0.0200									
tert-Butylbenzene	ND	0.0200									
1,2,3-Trichloropropane	ND	0.0200									
1,2,4-Trichlorobenzene	ND	0.0500									
sec-Butylbenzene	ND	0.0200									
4-Isopropyltoluene	ND	0.0200									

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1204024
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **MB-2238** SampType: **MBLK** Units: **mg/Kg** Prep Date: **4/17/2012** RunNo: **3995**
Client ID: **MBLKS** Batch ID: **2238** Analysis Date: **4/17/2012** SeqNo: **71944**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,3-Dichlorobenzene	ND	0.0200									
1,4-Dichlorobenzene	ND	0.0200									
n-Butylbenzene	ND	0.0200									
1,2-Dichlorobenzene	ND	0.0200									
1,2-Dibromo-3-chloropropane	ND	0.0300									
1,2,4-Trimethylbenzene	ND	0.0200									
Hexachlorobutadiene	ND	0.100									
Naphthalene	ND	0.0300									
1,2,3-Trichlorobenzene	ND	0.0200									
Surr: 1-Bromo-4-fluorobenzene	0.0201		0.02000		100	63.1	141				
Surr: Dibromofluoromethane	0.0201		0.02000		101	67.6	119				
Surr: Toluene-d8	0.0203		0.02000		102	78.5	126				

Sample ID: **1204051-093CDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **4/17/2012** RunNo: **3995**
Client ID: **BATCH** Batch ID: **2238** Analysis Date: **4/18/2012** SeqNo: **71947**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	ND	0.0710						0	0	30	*
Chloromethane	ND	0.0710						0	0	30	*
Vinyl chloride	ND	0.00237						0	0	30	*
Bromomethane	ND	0.106						0	0	30	*
Trichlorofluoromethane (CFC-11)	ND	0.0591						0	0	30	*
Chloroethane	ND	0.0710						0	0	30	*
1,1-Dichloroethene	ND	0.0591						0	0	30	*
Methylene chloride	ND	0.0237						0	0	30	*

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1204024
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **1204051-093CDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **4/17/2012** RunNo: **3995**
Client ID: **BATCH** Batch ID: **2238** Analysis Date: **4/18/2012** SeqNo: **71947**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
trans-1,2-Dichloroethene	ND	0.0237						0	0	30	*
Methyl tert-butyl ether (MTBE)	ND	0.0591						0	0	30	*
1,1-Dichloroethane	ND	0.0237						0	0	30	*
2,2-Dichloropropane	ND	0.0591						0	0	30	*
cis-1,2-Dichloroethene	ND	0.0237						0	0	30	*
Chloroform	ND	0.0237						0	0	30	*
1,1,1-Trichloroethane (TCA)	ND	0.0237						0	0	30	*
1,1-Dichloropropene	ND	0.0237						0	0	30	*
Carbon tetrachloride	ND	0.0237						0	0	30	*
1,2-Dichloroethane	ND	0.0355						0	0	30	*
Benzene	ND	0.0237						0	0	30	R*
Trichloroethene (TCE)	ND	0.0355						0	0	30	*
1,2-Dichloropropane	ND	0.0237						0	0	30	*
Bromodichloromethane	ND	0.0237						0	0	30	*
Dibromomethane	ND	0.0473						0	0	30	*
cis-1,3-Dichloropropene	ND	0.0237						0	0	30	*
Toluene	ND	0.0237						0	0	30	R*
trans-1,3-Dichloropropene	ND	0.0355						0	0	30	*
1,1,2-Trichloroethane	ND	0.0355						0	0	30	*
1,3-Dichloropropane	ND	0.0591						0	0	30	*
Tetrachloroethene (PCE)	ND	0.0237						0	0	30	*
Dibromochloromethane	ND	0.0355						0	0	30	*
1,2-Dibromoethane (EDB)	ND	0.00591						0	0	30	*
Chlorobenzene	ND	0.0237						0	0	30	*
1,1,1,2-Tetrachloroethane	ND	0.0355						0	0	30	*

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1204024
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **1204051-093CDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **4/17/2012** RunNo: **3995**
Client ID: **BATCH** Batch ID: **2238** Analysis Date: **4/18/2012** SeqNo: **71947**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Ethylbenzene	ND	0.0355						0	0	30	*
m,p-Xylene	ND	0.0237						0	0	30	*
o-Xylene	ND	0.0237						0	0	30	*
Styrene	ND	0.0237						0	0	30	*
Isopropylbenzene	ND	0.0946						0	0	30	*
Bromoform	ND	0.0237						0	0	30	*
1,1,2,2-Tetrachloroethane	ND	0.0237						0	0	30	*
n-Propylbenzene	ND	0.0237						0	0	30	*
Bromobenzene	ND	0.0355						0	0	30	*
1,3,5-Trimethylbenzene	ND	0.0237						0	0	30	*
2-Chlorotoluene	ND	0.0237						0	0	30	*
4-Chlorotoluene	ND	0.0237						0	0	30	*
tert-Butylbenzene	ND	0.0237						0	0	30	*
1,2,3-Trichloropropane	ND	0.0237						0	0	30	*
1,2,4-Trichlorobenzene	ND	0.0591						0	0	30	*
sec-Butylbenzene	ND	0.0237						0	0	30	*
4-Isopropyltoluene	ND	0.0237						0	0	30	*
1,3-Dichlorobenzene	ND	0.0237						0	0	30	*
1,4-Dichlorobenzene	ND	0.0237						0	0	30	*
n-Butylbenzene	ND	0.0237						0	0	30	*
1,2-Dichlorobenzene	ND	0.0237						0	0	30	*
1,2-Dibromo-3-chloropropane	ND	0.0355						0	0	30	*
1,2,4-Trimethylbenzene	ND	0.0237						0	0	30	R*
Hexachlorobutadiene	ND	0.118						0	0	30	*
Naphthalene	ND	0.0355						0	0	30	R*

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1204024
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **1204051-093CDUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **4/17/2012**	RunNo: **3995**
Client ID: **BATCH**	Batch ID: **2238**		Analysis Date: **4/18/2012**	SeqNo: **71947**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,3-Trichlorobenzene	ND	0.0237						0	0	30	*
Surr: 1-Bromo-4-fluorobenzene	0.0175		0.02366		73.8	63.1	141		0		*
Surr: Dibromofluoromethane	0.0253		0.02366		107	67.6	119		0		*
Surr: Toluene-d8	0.0215		0.02366		91.0	78.5	126		0		*

Sample ID: **1204051-113CMS**	SampType: **MS**	Units: **mg/Kg-dry**	Prep Date: **4/17/2012**	RunNo: **3995**
Client ID: **BATCH**	Batch ID: **2238**		Analysis Date: **4/18/2012**	SeqNo: **71954**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethene	0.153	0.0414	0.1657	0	92.4	57.9	143				
Benzene	0.147	0.0166	0.1657	0.001014	88.2	66.3	119				
Trichloroethene (TCE)	0.140	0.0249	0.1657	0	84.6	59.6	132				
Toluene	0.140	0.0166	0.1657	0.0005879	84.3	54.9	134				
Tetrachloroethene (PCE)	0.136	0.0166	0.1325	0	103	51.2	137				
Chlorobenzene	0.121	0.0166	0.1657	0	72.9	62.2	122				
Surr: 1-Bromo-4-fluorobenzene	0.0159		0.01657		95.7	63.1	141				
Surr: Dibromofluoromethane	0.0162		0.01657		97.7	67.6	119				
Surr: Toluene-d8	0.0162		0.01657		97.5	78.5	126				

Sample ID: **LCS-2238**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **4/17/2012**	RunNo: **3995**
Client ID: **LCSS**	Batch ID: **2238**		Analysis Date: **4/18/2012**	SeqNo: **71962**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethene	0.200	0.0500	0.2000	0	99.8	65.7	133				
Benzene	0.197	0.0200	0.2000	0	98.3	67.4	114				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Date: *4/19/2012*

Work Order: 1204024
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **LCS-2238** SampType: **LCS** Units: **mg/Kg** Prep Date: **4/17/2012** RunNo: **3995**
Client ID: **LCSS** Batch ID: **2238** Analysis Date: **4/18/2012** SeqNo: **71962**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Trichloroethene (TCE)	0.193	0.0300	0.2000	0	96.6	66.4	119				
Toluene	0.204	0.0200	0.2000	0	102	70	117				
Tetrachloroethene (PCE)	0.194	0.0200	0.1600	0	121	48	126				
Chlorobenzene	0.190	0.0200	0.2000	0	95.2	66.9	116				
Surr: 1-Bromo-4-fluorobenzene	0.0199		0.02000		99.5	63.1	141				
Surr: Dibromofluoromethane	0.0192		0.02000		96.0	67.6	119				
Surr: Toluene-d8	0.0200		0.02000		99.8	78.5	126				

NOTES:
* - Internal standard recoveries were low. Subsequent re-analysis yielded similar results. Possible matrix effect associated with sample. The laboratory will continue to investigate the sample.

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Sample Log-In Check List

Client Name: **GEI1**	Work Order Number: **1204024**
Logged by: **Caitlyn Frazier**	Date Received: **4/10/2012**

Chain of Custody

1.	Were custodial seals present?	Yes ☐	No ☐	Not Required ☑
2.	Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
3.	How was the sample delivered?	Client		

Log In

4.	Coolers are present?	Yes ☑	No ☐	NA ☐
5.	Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
6.	Were all coolers received at a temperature of >0° C to 10.0°C	Yes ☑	No ☐	NA ☐
7.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
8.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
9.	Are samples properly preserved?	Yes ☑	No ☐	
10.	Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
11.	Is there headspace present in VOA vials?	Yes ☐	No ☐	NA ☑
12.	Did all sample containers arrive in good condition?(unbroken)	Yes ☑	No ☐	
13.	Does paperwork match bottle labels?	Yes ☑	No ☐	
14.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
15.	Is it clear what analyses were requested?	Yes ☑	No ☐	
16.	Were all holding times able to be met?	Yes ☑	No ☐	

Special Handling (if applicable)

17. 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:			

18. Additional remarks/Disrepancies

Item Information

Item #	Temp ºC	Condition
Cooler 1	5.9	Good
Cooler 2	6.1	Good
Cooler 3	6.8	Good
Temp Blank 1	5.8	Good

Fremont Analytical

Chain of Custody Record

1311 N. 35th Street
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 9/9/12

Laboratory Project No (prework): 120924

Page: 1 of 1

Client: GeoEngineers, Inc.
Address: 8410 154th Ave. NE
City, State, Zip: Redmond, WA 98052 Tel: 425.861.6000
Reports To (PM): Jessica Smith Fax: 425.861.6050 Email: jasmith@geoengineers.com

Project Name: Rufus 2.0
Location:
Collected by: Chris T. Brown / Theo Leonard
Project No:

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	cVOC (EPA 8260)	BTEX by EPA 8021B	BTEX by 8260	Gasoline Range Organics	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics	SIM VOC (EPA 8270)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals* (6020 / 200.8)	Total (T) & Dissolved (D)	Anions (IC)**	RCRA-8 Metals			Comments/Depth
1 B20-9-2.5	9/9/12	0725	Soil																			
2 B20-9-5.0		0730	Soil																			
3 B20-9-7.5		0740	Soil																			
4 B20-9-10.0		0753	Soil																			
5 B20-9-12.5		0800	Soil																			
6 B20-9-15.0		0804	Soil																			
7 B20-9-17.5		0812	Soil																			
8 B20-9-20.0		0820	Soil																			
9 B20-9-22.5		0827	Soil																			
10 B20-9-25.0		0833	Soil																			

*Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab (A fee may be assessed if samples are retained after 30 days.)

Special Remarks:

Relinquished	Date/Time	Received	Date/Time
x	9/10/12 @ 0725	x	9/10/12 @ 730
Relinquished	Date/Time	Received	Date/Time
x		x	

TAT --> Next Day 2 Day 3 Day STD

Fremont Analytical

Chain of Custody Record

1317 N. 35th Street
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 4/9/12

Laboratory Project No (internal): 1204024

Page: 1 of: 1

Client: GeoEngineers, Inc.
Address: 8410 154th Ave. NE
City, State, Zip: Redmond, WA 98052
Tel: 425.284.7333

Project Name: Rufus 2.0
Location:
Collected by: Jing T. Brown / Theo Leonard

Reports To (PM): Jessica Smith
Fax: 425.861.6050
Email: jasmith@geoengineers.com

Project No:

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	SV (PAH) by SPA 8021b	BTEX by 8260	Gasoline Range Organics	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics	SEMI VOL (EPA 8270)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	*Metals* (6020 / 200.8)	Total (T) / Dissolved (D)	Anions (IC)**	RCRA Metals	Comments/Depth
1	B20-10-2.5	4/9/12	0925	Soil																
2	B20-10-5.0		0927	Soil																
3	B20-10-7.5		0940	Soil			\		\		\							\		
4	B20-10-10.0		0951	Soil																
5	B20-10-12.5		0957	Soil																
6	B20-10-15.0		1005	Soil																
7	B20-10-17.5		1012	Soil																
8	B20-10-20.0		1023	Soil																
9	B20-10-22.5			Soil																
10	B20-10-25.0			Soil																

*Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Tl Ti U V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab (A fee may be assessed if samples are retained after 30 days.)

Special Remarks:

Relinquished	Date/Time	Received	Date/Time
x	4/10/12 @ 0725	x	4/10/12 @ 730
Relinquished	Date/Time	Received	Date/Time
x		x	

TAT --> Next Day 2 Day 3 Day STD

Fremont Analytical

Chain of Custody Record

1311 N. 35th Street
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 4/9/12

Laboratory Project No (Internal): 1204024

Page: 1 of: 1

Client: GeoEngineers, Inc.
Address: 8410 154th Ave. NE
City, State, Zip: Redmond, WA 98052
Tel: 425.284.7223
Reports To (PM): Jessica Smith
Fax: 425.861.6050
Email: jasmith@geoengineers.com

Project Name: Kufel 2.0
Location:
Collected by: Chris T. Brown / Theo Leonard
Project No:

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	GX/BTEX by EPA 8021b	BTEX by 8260	Gasoline Range Organics	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics	SEMI VOC (EPA 8270)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals* 16020 / 200.8	Total (T) / Dissolved (D)	Anions (IC)**	RCRA-8 Metals	Comments/Depth
1 B20-11-2.5	4/9/12	1055	Soil																
2 B20-11-5.0	"	1102	Soil																
3 B20-11-7.5	"	1108	Soil																
4 B20-11-10.0	"	1115	Soil																
5 B20-11-12.5	"	1123	Soil																
6 B20-11-15.0	"	1129	Soil																
7 B20-11-17.5	"	1140	Soil																
8 B20-11-20.0	"	1147	Soil																
9 B20-11-22.5			Soil																
10 B20-11-25.0			Soil																

*Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate-Nitrite

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab (A fee may be assessed if samples are retained after 60 days)

Special Remarks:

Relinquished	Date/Time	Received	Date/Time
x	4/12/12 @ 1725	x	4/10/12 @ 730
Relinquished	Date/Time	Received	Date/Time
x			

TAT => Next Day 2 Day 3 Day STD

Fremont Analytical

Chain of Custody Record

1911 N. 35th Street
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Laboratory Project No (internal): 120424

Date: 4/9/12

Page: 1 of 1

Client:	GeoEngineers, Inc.			Project Name:	Rufus 2.0
Address:	9410 154th Ave. NE			Location	
City, State, Zip	Redmond, WA 98052	Tel:	425.861.6050	Collected by:	Chris T. Brown / Theo Leonard
Reports To (PM)	Jessica Smith	Fax:	425.861.6050	Email:	jsmith@geoengineers.com

Project No:

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	GX/BTEX by EPA 8021b	BTEX by 8260	Gasoline Range Organics	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics	SGMI VOL (EPA 8270)	PAH (EPA 8270 - SIM)	PCB (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals* (6020 / 200.8)	Total (T) / Dissolved (D)	Anions (IC)**	RCRA-8 Metals		Comments/Depth
1 B20-12-2.5	4/9/12	1225	Soil																	
2 B20-12-5.0	"	1230	Soil																	
3 B20-12-7.5	"	1236	Soil			\		\		\							\			
4 B20-12-10.0	"	1243	Soil																	
5 B20-12-12.5	"	1251	Soil																	
6 B20-12-15.0	"	1256	Soil																	
7 B20-12-17.5	"	1304	Soil																	
8 B20-12-20.0	"	1311	Soil																	
9 B20-12-22.5			Soil																	
10 B20-12-25.0			Soil																	

*Metal Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab (A fee may be assessed if samples are retained more than 30 days)

Special Remarks:

Relinquished	Date/Time	Received	Date/Time
x	4/10/12 @ 0725	x	4/10/12 @ 730
Relinquished	Date/Time	Received	Date/Time
x		x	

TAT--> Next Day 2 Day 3 Day STD

Fremont Analytical

Chain of Custody Record

3211 N. 35th Street
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 4/9/12

Laboratory Project No (internal): 1204024

Page: 1 of: 1

Client:	GeoEngineers, Inc.			Project Name:	Kulus 2.0
Address:	8410 154th Ave. NE			Location:	
City, State, Zip	Redmond, WA 98052	Tel:	425.284.7283	Collected by:	Chris T. Brown / Theo Leonard
Reports To (PM):	Jessica Smith	Fax:	425.861.6050	Email:	jasmith@geoengineers.com

Project No:

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	cVOC/BTEX by EPA 8021b	BTEX by 8260	Gasoline Range Organics	Hydrocarbon Identification #(GRO)	Diesel/Heavy Oil Range Organics	SEMI VOL (EPA 8270)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals* (6)(7) / 200.8	Total (T) / Dissolved (D)	Anions (5)**	RCRA-8 metals	Comments/Depth
1 B20-13-2.5	4/6/12	1402	Soil																
2 B20-13-5.0		1408	Soil																
3 B20-13-7.5		1415	Soil			\		\		\							\		
4 B20-13-10.0		1427	Soil																
5 B20-13-12.5		1430	Soil																
6 B20-13-15.0		1435	Soil																
7 B20-13-17.5	↓	1442	Soil																
8 B20-13-20.0		1450	Soil																
9 B20-13-22.5			Soil																
10 B20-13-25.0			Soil																

*Metals Analysis (Circle): NTCA-5 RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Ni Pb Sb Se Sr Sn Ti Tl V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate-Nitrite

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab (A fee may be assessed if samples are retained after 30 days)

Special Remarks:

Relinquished	Date/Time	Received	Date/Time
x	4/11/12 @ 0725	x	4/10/12 @ 730
Relinquished	Date/Time	Received	Date/Time
x		x	

TAT => Next Day 2 Day 3 Day STD

Fremont Analytical

Chain of Custody Record

1311 N. 35th Street
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Laboratory Project No (internal): 1204024

Date: 4/13/12

Page: 1 of 2

Client: GeoEngineers, Inc.
Address: 8410 154th Ave. NE
City, State, Zip: Redmond, WA 98052
Tel: 425.284.7225
Reports To (PM): Jessita Smith
Fax: 425.861.6050
Email: jasmin@geoengineers.com

Project Name: Rifle 2.0
Location:
Collected by: Chris T. Brown / Theo Leonard
Project No:

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	BTEX by EPA 8021b	8TEX by 8260	Gasoline Range Organics	Hydrocarbon Identification (NCID)	Diesel/heavy Oil Range Organics	SEMI VOL (EPA 8270)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals* (6020 / 200.8)	Total (T) / Dissolved (D)	Anions (IC)**	RCRA 8 Metals	Comments/Depth
1 MW20-6-2.5	4/9/12	1522	Soil																
2 MW20-6-5.0		1530	Soil				\		\		\						\		
3 MW20-6-7.5		1536	Soil																
4 MW20-6-10.0		1542	Soil																
5 MW20-6-12.5		1550	Soil																
6 MW20-6-15.0		1557	Soil																
7 MW20-6-17.5		1603	Soil																
8 MW20-6-20.0	4/9/12	1609	Soil																
~~9 MW20-6-22.5~~			Soil																
10 MW20-6-25.0	4/9/12	1640	Soil																

*Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Si Sn Ti Tl V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab (A fee may be assessed if samples are retained after 30 days.)

Special Remarks:

Relinquished	Date/Time	Received	Date/Time
x	4/10/12 @ 0725	x	4/10/12 @ 730
Relinquished	Date/Time	Received	Date/Time
x			

TAT — Next Day 2 Day 3 Day STD

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Fremont Analytical

Chain of Custody Record

1311 N. 35th Street
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 4/12/12

Laboratory Project No (internal): 1204024

Page: 2 of: 2

Client: GeoEngineers, Inc.
Address: 8410 154th Ave. NE
City, State, Zip: Redmond, WA 98052 Tel: 425.284.7223

Project Name: Rotus 2.0
Location:
Collected by: Chris T. Brown / Theo Leonard

Reports To (PM): Jessica Smith Fax: 425.861.6050 Email: jasmith@geoengineers.com Project No:

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	GX/BTEX by EPA 8021b	BTEX by 8260	Gasoline Range Organics	Hydrocarbon Identification (NWTPH)	Diesel/Heavy Oil Range Organics	SGMI VOL (EPA 8270)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals* (6020 / X00.0)	Total (T) ; Dissolved (D)	Anions (IC)**	Comments/Depth
1 ~~MW20-6-27.5~~			Soil															
2 MW20-6-30.0	4/6/12	1658	Soil															
3			Soil															
4			Soil															
5			Soil															
6			Soil															
7			Soil															
8			Soil															
9			Soil															
10			Soil															

*Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab (A fee may be assessed if samples are retained longer than 30 days.)

Special Remarks:

Relinquished	Date/Time	Received	Date/Time
x	4/12/12 @ 8:25	x	4/10/12 @ 730
Relinquished	Date/Time	Received	Date/Time
x		x	

TAT→ Next Day 2 Day 3 Day STD

Fremont Analytical

Chain of Custody Record

1311 N. 35th Street
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 4/16/12

Laboratory Project No (internal): _____

Page: 1 of: 1

Client: GeoEngineers, Inc.
Address: 8410 154th Ave. NE
City, State, Zip: Redmond, WA 98052
Tel: 425.284.7223
Reports To (PM): Jessica Smith
Fax: 4259861.8050
Email: jasmith@geoengineers.com

Project Name: Rufus 2.0
Location:
Collected by: Chas T. Brown / Tina Lommori
Project No:

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	GX/BTEX by EPA 8021B	BTEX by 8260	Gasoline Range Organics	Hydrocarbon Identification (NWTPH)	Diesel/Heavy Oil Range Organics	SEMI-VOC (EPA 8270)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals * (6020 / 200.8)	Total Fe	Lead (Pb)	Arsenic (As)**	Comments/Depth
1 B20-4-2.5	4/15/12	0725	Soil																
2 B20-4-5.0	4/15/12	0741	Soil				X		X		X				X				
3 ~~B20-4-7.5~~			Soil																
4 B20-4-10.0	4/15/12	0749	Soil																
5 B20-4-12.5	↓	0755	Soil				X		X		X				X				
6 B20-4-15.0	↓	0800	Soil																
7 ~~B20-4-17.5~~			Soil																
8 B20-4-20.0	4/15/12	0811	Soil																
9 ~~B20-4-22.5~~			Soil																
10 ~~B20-4-25.0~~			Soil																

*Metals Analysis (Circle): wETCA-5 RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Ni Se Pb Sb Sr Sn Ti Tl U V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☒ Disposal by Lab (A fee may be assessed if samples are retained after 30 days.)

Special Requests:

Relinquished	Date/Time	Received	Date/Time
x	4/16/12 @ 0950	x	4/16/12 9:50
Relinquished	Date/Time	Received	Date/Time
x		x	

TAT → Rush Day | 2 Day | 3 Day | STD

Distribution: White - Lab, Yellow - File, Pink - Originator

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Fremont Analytical

Chain of Custody Record

1311 N. 35th Street
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 4/16/12

Laboratory Project No (internal): _____

Page: 1 of: 1

Client: GeoEngineers, Inc.
Address: 8410 154th Ave. NE
City, State, Zip: Redmond, WA 98052
Tel: 425.284.7123
Reports To (PM): Jessica Smith
Fax: 425.861.6050
Email: jesmith@geoengineers.com

Project Name: Rules 2.0
Location:
Collected by: Chris T. Brown / Thea Leonard
Project No:

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	GX/BTEX by EPA SW846	BTEX by EPA 8260	Gasoline Range Organics	Hydrocarbon Identification (NWTPH)	Diesel/Heavy Oil Range Organics	SIM VOC (EPA 8270)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals* (6020 / 200.8)	Total (T) / Dissolved (D)	Anions (IC)**	Comments/Depth
1 B20-5-2.5	4/15/12	0825	Soil															
2 B20-5-5.0		0830	Soil															
3 B20-5-7.5		0840	Soil															
4 B20-5-10.0		0847	Soil			X		X		X				X				
5 B20-5-12.5		0858	Soil															
6 B20-5-15.0		0905	Soil															
7 B20-5-17.5		0913	Soil															
8 B20-5-20.0		0918	Soil			X		X		X								
~~9 B20-5-22.5~~			Soil															
~~10 B20-5-25.0~~			Soil															

*Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: Return to Client Disposal by Lab (fees may be assessed if samples are retained after 30 days)

Special Remarks:

Relinquished	Date/Time	Received	Date/Time
x [signature]	4/16/12 0953	x [signature]	4/16/12 9:50
Relinquished	Date/Time	Received	Date/Time
x		x	

TAT --> Next Day 2 Day 3 Day STD

Distribution: White - Lab, Yellow - File, Pink - Originator

www.fremontanalytical.com

Fremont Analytical

Chain of Custody Record

1311 N. 35th Street
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Laboratory Project No (internal): _____

Date: 4/16/12

Page: 1 of: 1

Client: GeoEngineers, Inc.
Address: 8410 154th Ave. NE
City, State, Zip: Redmond, WA 98052
Tel: 425.284.7225
Project Name: Rufus 20
Location:
Collected by: Chris T. Brown / Traci Leonard

Reports To (PM): Jessica Smith
Fax: 425.861.6050
Email: jesmith@geoengineers.com
Project No:

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	GX/BTEX by EPA 8021b	BTEX by 8260	Gasoline Range Organics	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics	SEMI VOC (EPA 8270)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals* (6020 / 200.8)	Total (T)	Dissolved (D)	Anions (IC)**	Comments/Depth
1 B20-6-2.5	4/15/12	0930	Soil																
2 B20-6-5.0		0940	Soil																
3 B20-6-7.5		0945	Soil																
4 B20-6-10.0		0951	Soil			X		X		X				X					
5 B20-6-12.5		0957	Soil																
6 B20-6-15.0		1003	Soil																
7 B20-6-17.5		1011	Soil																
8 B20-6-20.0		1017	Soil			X		X		X									
~~9 B20-6-22.5~~			Soil																
~~10 B20-6-25.0~~			Soil																

*Metals Analysis (Circle): HVCA-5 PCBA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Si Sn Ti Tl U V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☒ Disposal by Lab (A fee may be assessed if samples are retained after 30 days.)

Special Remarks:

Relinquished	Date/Time	Received	Date/Time
x	4/16/12 0950	x	4/16/12 9:50
Relinquished	Date/Time	Received	Date/Time
x		x	

TAT --> Next Day 2 Day 3 Day STD

Distribution: White - Lab; Yellow - File; Pink - Originator

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Date: 4/16/12

Laboratory Project No (Internal): _____

Page: 1 of 1

Client: GeoEngineers, Inc.
Address: 8410 154th Ave. NE
City, State, Zip: Redmond, WA 98052
Tel: 425.284.7221
Reports To (PM): Jessica Smith
Fax: 425.861.6050
Email: jasmith@geoengineers.com

Project Name: Rufus 2.0
Location: _____
Collected by: Chris T. Brown / Theo Leonard
Project No: _____

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	GX/BTEX (by EPA 8021b	BTEX by 8260	Gasoline Range Organics	Hydrocarbon Identification (NCID)	Diesel/Heavy Oil Range Organics	SEMI VOL (EPA 8270)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	CL Pesticides (EPA 8081)	CL Herbicides (EPA 8151A)	Metals* (6020 / 7000 s)	Total (T) / Dissolved (D)	Asbestos (ID)**	Comments/Depth
1 B20-7-2.5	4/01/12	1208	Soil															
2 B20-7-5.0		1214	Soil															
3 B20-7-7.5		1221	Soil				X		X		X				X			
4 B20-7-10.0		1228	Soil															
5 B20-7-12.5		1235	Soil															
6 B20-7-15.0		1240	Soil				X		X		X				X			
7 B20-7-17.5		1248	Soil															
8 B20-7-20.0		1255	Soil															
~~9 B20-7-22.5~~			Soil															
~~10 B20-7-25.0~~			Soil															

*Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Ni Se Pb Sb Sn Sr Tl Ti U V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☒ Disposal by Lab (A fee may be assessed if samples are retained after 60 days.)

Special Remarks:

Relinquished	Date/Time	Received	Date/Time
x [signature]	4/16/12 @ 0910	x [signature]	4/16/12 9:50
(Relinquished)	Date/Time	Received	Date/Time
x		x	

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Laboratory Project No (internal): _____

Page: 1 of: 1

Client: GeoEngineers, Inc.
Address: 8410 154th Ave. NE
City, State, Zip: Redmond, WA 98052
Tel: 425.284.7233
Reports To (PM): Jessica Smith
Fax: 425.861.6050
Email: jasmith@geoengineers.com

Project Name: Kufus 2.0
Location:
Collected by: Chris T. Brown / Thea Lassart
Project No:

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	Cl/BTEX by EPA 8021b	BTEX by 8260	Gasoline Range Organics	Hydrocarbon Identification (NWTPH)	Diesel/Heavy Oil Range Organics	SIM VOC (EPA 8270 - SIM)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals* (6020 / 200.8)	Total (T) ; Dissolved (D)	Anions (IC)**			Comments/Depth
1 MW20-5-2.5	4/15/12	1311	Soil																	
2 MW20-5-5.0		1318	Soil				X		X		X				X					
3 MW20-5-7.5		1326	Soil																	
4 MW20-5-10.0		1334	Soil																	
5 MW20-5-12.5		1342	Soil																	
6 MW20-5-15.0		1346	Soil	X			X		X											
7 MW20-5-17.5		1355	Soil																	
8 MW20-5-20.0		1403	Soil																	
~~9 MW20-5-22.5~~			Soil																	
~~10 MW20-5-25.0~~			Soil																	

*Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☒ Disposal by Lab (A fee may be assessed if samples are retained after 30 days.)

Special Remarks:

Relinquished	Date/Time	Received	Date/Time
x [signature]	4/16/12 @ 0950	x [signature]	4.16.12 9:52
Relinquished:	Date/Time	Received:	Date/Time
x		x	

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Date: 4/16/12

Page: 1 of: 1

Client: GeoEngineers, Inc.
Address: 8410 154th Ave. NE
City, State, Zip: Redmond, WA 98052
Tel: 425.284.7223
Reports To (PM): Jessica Smith
Fax: 425.882.6050
Email: jasmith@geoengineers.com

Project Name: Rulus 2.0
Location:
Collected by: Chris T. Brown / Theo Lesmana
Project No:

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	GX/BTEX by EPA 8021b	BTEX by 8260	Gasoline Range Organics	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics	SVOC VOL (EPA 8270)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals* (6020 / 200.8)	*total (T) / Dissolved (D)	Anions (IC)**	Comments/Depth
1 B20-8-2.5	4/15/12	1046	Soil															
2 B20-8-5.0		1100	Soil				X		X		X			X				
3 B20-8-7.5		1108	Soil															
4 B20-8-10.0		1113	Soil															
5 B20-8-12.5		1120	Soil															
6 B20-8-15.0		1126	Soil	X			X		X		X			X				
7 B20-8-17.5		1135	Soil															
8 B20-8-20.0		1144	Soil															
~~9 B20-8-22.5~~			Soil															
~~10 B20-8-25.0~~			Soil															

*Metals Analysis (Circle): VTCA-5 RCRA-8 Priority Pollutants TAL individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab (A fee may be assessed if samples are retained after 30 days.)

Special Remarks:

Relinquished	Date/Time	Received	Date/Time
x	4/16/12 0758	x	4/16/12 9:50
Relinquished	Date/Time	Received	Date/Time
x		x	

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Laboratory Project No (internal): _____

Page: 1 of: 2

Client: Geoengineers, Inc.
Address: 8410 154th Ave NE
City, State, Zip: Redmond, WA 98052 Tel: 425-861-6000

Project Name: Rufus 2.0
Location: Denny Triangle
Collected by: TMI

Reports To (PM): Jessica Smith Fax: 425-861-6050 Email: jasmith@geoengineers.com Project No: 20434-001-02

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	BTEX: EPA 8260 EPA 8021B	Gasoline Range Organics	Hydrocarbon Identification (NECs)	Diesel/Heavy Oil Range Organics	SVOC VOL (EPA 8270) - SIM	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals* (6020 / 200.8) Total (T) / Dissolved (D)	Anions (IC)**	RCRA 8 Metals	Comments/Depth
1 MW20-4-2.5	4/11/2012	1512	Soil														
2 MW20-4-5.0	4/11/2012	1515	Soil														
3 MW20-4-7.5	4/11/2012	1517	Soil	X		X		X		X						X	
4 MW20-4-10.0	4/11/2012	1520	Soil														
5 MW20-4-12.5	4/11/2012	1525	Soil	X		X		X								X	Cancel
6 MW20-4-15.0	4/11/2012	1527	Soil	X													
7 MW20-4-17.5	4/11/2012	1530	Soil	X		X		X								X	
8 MW20-4-20.0	4/11/2012	1535	Soil														
9 MW20-4-22.5	4/11/2012	1540	Soil	X		X		X		X							
10 MW20-4-25.0	4/11/2012	1545	Soil														

*Metals Analysis: (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab (A fee may be assessed if samples are retained after 30 days)

Special Remarks:

Relinquished	Date/Time	Received	Date/Time
x	4/12/12 1605	x	4/12/12 16:35
Relinquished	Date/Time	Received	Date/Time
x		x	

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Laboratory Project No (internal): _____

Page: 2 of: 2

Client: GeoEngineers, Inc.
Address: 8410 154th Ave NE
City, State, Zip: Redmond, WA 98052 Tel: 425-861-6000

Project Name: Rotha 2.0
Location: Denny Triangle
Collected by: TML

Reports To (PM): Jessica Smith Fax: 425-861-6050 Email: jasmith@geoengineers.com Project No: 20434-001-02

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 624.1)	BTEX: EPA 8260	EPA 8021b	Gasoline Range Organics	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics	SGM: VOA (EPA 8270)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals* (6020 / 200.8)	Total (T)	Dissolved (D)	Anions (IC)**					Comment/Dept
11 MW20-4-27.5	4/11/2012	1530	soil																				

*Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Si Sn Ti Tl U V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab (A fee may be assessed if samples are retained over 30 days)

Special Remarks:

Relinquished	Date/Time	Received	Date/Time
x [signature]	4/12/12 1635	x [signature]	4/12/12 16:35
Relinquished	Date/Time	Received	Date/Time
x		x	

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Page: 1 of 1

Client: GeoEngineers, Inc.
Address: 8410 154th Ave NE
City, State, Zip: Redmond, WA 98052
Tel: 425-861-6000

Project Name: Rufus 2.0
Location: Denny Triangle
Collected by: TML

Reports To (PM): Jessica Smith
Fax: 425-861-6050
Email: jsmith@geoengineers.com
Project No: 20434-001-02

Sample Name:	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	BTEX: EPA 8260	Gasoline Range Organics	EPA 8021B	Hydrocarbon Identification (NCID)	Diesel/Heavy Oil Range Organics	SEMI VOL (EPA 8270)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals* (6020 / 200.8)	Total (T) & Dissolved (D)	Anions (IC)**	NCRH & MCRLS				Comments/Depth
1 B14-S-2.5	4/11/2012	1305	Soil	X		X		X									X					
2 B14-S-5.0	4/11/2012	1309	Soil																			
3 B14-S-7.5	4/11/2012	1313	Soil																			
4 B14-S-10.0	4/11/2012	1317	Soil																			
5 B14-S-12.5	4/11/2012	1320	Soil																			
6 B14-S-15.0	4/11/2012	1324	Soil																			

*Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab (A fee may be assessed if samples are retained after 30 days.)

Special Instructions:

Relinquished	Date/Time	Received	Date/Time
x	4/12/12 1655	x	4/12/12 16:35
Relinquished	Date/Time	Received	Date/Time
x		x	

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Laboratory Project No (internal):

Page: 1 of: 1

Client: GeoEngineers, Inc.
Address: 8410 154th Ave NE
City, State, Zip: Redmond, WA 98052
Tel: 425-861-6000

Project Name: Rufus 2.0
Location: Denny Triangle
Collected by: TMI

Reports To (PM): Jessica Smith
Fax: 425-861-6050
Email: jsmith@geoengineers.com
Project No: 10434-001-02

Sample Name:	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	BTEX: EPA 8260	Gasoline Range Organics	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics	SGM VOL (EPA 8270 - SIM)	PAH (EPA 8270 - SIM)	PCB (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals* (6020 / 200.8)	Total (T) / Dissolved (D)	Anions (IC)**	RCRA 8 Metals				Comments/Depth
1 B14-S-2.5	4/11/2012	1150	Soil																		
2 B14-S-5.0	4/11/2012	1155	Soil																		
3 B14-S-7.5	4/11/2012	1200	Soil	X		X		X								X					
4 B14-S-10.0	4/11/2012	1204	Soil																		
5 B14-S-12.5	4/11/2012	1207	Soil																		
6 B14-S-15.0	4/11/2012	1210	Soil																		
7 B14-S-17.5	4/11/2012	1212	Soil																		
8 B14-S-20.0	4/11/2012	1215	Soil																		

*Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☐ Disposal by lab (A fee may be assessed if samples are retained after 30 days)

Special Remarks:

Relinquished	Date/Time	Received	Date/Time
x	4/12/12 @ 1635	x	4/12/12 16:35
Relinquished	Date/Time	Received	Date/Time
x		x	

TAT → Next Day 2 Day 3 Day STD

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Page: 1 of 1

Client: GeoEngineers, Inc.
Address: 8410 154th Ave NE
City, State, Zip: Redmond, WA 98052
Tel: 425-861-6000

Project Name: Rufus 2.0
Location: Denny Triangle
Collected by: TML

Reports To (PM): Jessica Smith
Fax: 425-861-6050
Email: jsmith@geoengineers.com
Project No: 20434-001-02

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	BTEX: EPA 8260	Gasoline Range Organics	Hydrocarbon Identification (NCID)	Diesel/Heavy Oil Range Organics	SEMI VOC (EPA 8270)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals* (6020 / 200.8)	Total (T) ; Dissolved (D)	Anions (NO3)**	RCRA Metals	Comments/Detail
1 B14-7-2.5	4/11/2012	0854	Soil															
2 B14-7-5.0	4/11/2012	0858	Soil	X		X		X									X	
3 B14-7-12.5	4/11/2012	0903	Soil															
4 B14-7-15.0	4/11/2012	0906	Soil															
5 B14-7-17.5	4/11/2012	0914	Soil															
6 B14-7-20.0	4/11/2012	0920	Soil															

*Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Tl Ti U V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client: ☐ Disposal by Lab (A fee may be assessed if samples are retained after 30 days)

Special Remarks:

Relinquished	Date/Time	Received	Date/Time
X	4/12/12 @ 1635	X	4/12/12 @ 16:35
Relinquished	Date/Time	Received	Date/Time
X		X	

TAT → Next Day 2 Day 3 Day STD

Distribution: White - Lab, Yellow - File, Pink - Originator

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Page: 1 of: 1

Client: SeaEngineers, Inc.
Address: 8410 154th Ave NE
City, State, Zip: Redmond, WA 98052
Tel: 425-861-6000

Project Name: Rainz 2.0
Location: Denny Triangle
Collected by: TME

Reports To (PM): Jessica Smith
Fax: 425-861-5050
Email: jasmith@seaengineers.com
Project No: 20434-001-02

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	BTEX	EPA 8260	EPA 8021b	Gasoline Range Organics	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics	SEMI VOC (EPA 8270)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals* (6020 / 200.8)	Total (T)	Dissolved (D)	Anions (IC)**	RCRA 8 Metals			Comments/Depth
1 B14-B-2.5	4/11/2012	0802	Soil																				
2 B14-B-7.5	4/11/2012	0807	Soil	X		X		X											X				
3 B14-B-10.0	4/11/2012	0813	Soil	X		X		X											X				
4 B14-B-12.5	4/11/2012	0815	Soil	X		X		X											X				Cancel
5 B14-B-20.0	4/11/2012	0825	Soil	X		X		X											X				
6 B14-B-25.0	4/11/2012	0835	Soil																				

*Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn T Ti U V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☐ Disposal by lab (A fee may be assessed if samples are retained after 30 days.)

Special Remarks:

Relinquished:	Date/Time:	Received:	Date/Time:
x	4/12/12 1635	x	4/12/12 16:35
Relinquished:	Date/Time:	Received:	Date/Time:
x		x	

TAT – Next Day 2 Day 3 Day STD

Distribution: White - Lab, Yellow - File, Pink - Originator

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Page: 1 of: 1

Client: GeoEngineers, Inc.
Address: 8410 154th Ave NE
City, State, Zip: Redmond, WA 98052 Tel: 425-861-6000

Project Name: Rallis 2.0
Location: Denny Triangle
Collected by: TMS

Reports To (PM): Jessica Smith Fax: 425-861-6050 Email: jasmith@geoengineers.com Project No: 20484-001-02

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	BTEX: EPA 8260	Gasoline Range Organics	EPA 8021B	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics	SIM VOC (EPA 8270)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals* (6020 / 200.8)	Total (T)	Dissolved (D)	Anions (IC)**	TCLP Semivolatiles				Comments/Depth
1 B14-S-2.5	4/11/2012	0722	Soil																				
2 B14-S-5.0	4/11/2012	0733	Soil																				
3 B14-S-7.5	4/11/2012	0743	Soil	X		X		X										X					
4 B14-S-10.0	4/11/2012	0746	Soil																				
5 B14-S-12.5	4/11/2012	0750	Soil																				
6 B14-S-15.0	4/11/2012	0755	Soil																				

*Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Si Sr Ti Tl U V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab (A fee may be assessed if samples are retained after 30 days.)

Special Remarks:

Relinquished	Date/Time	Received	Date/Time
x	4/12/12 1635	x	4/12/12 16 35
Relinquished	Date/Time	Received	Date/Time
x		x	

TAT — Next Day 2 Day 3 Day STD

Distribution: White - Lab; Yellow - File; Pink - Originator

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Fremont Analytical

Chain of Custody Record

1311 N. 35th Street
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 4/12/12

Laboratory Project No (internal): _____

Page: 1 of: 1

Client:	Soilogineers, Inc.	Project Name:	Burke 2.0
Address:	8410 154th Ave NE	Location:	Denny Triangle
City, State, Zip	Redmond, WA 98052	Collected by:	TML
Tel:	425-861-6000		
Reports To (PM):	Jessica Smith	Fax: 425-861-6050	Email: jasmith@soilogineers.com
Project No:	2048-P-001-02		

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	BTEX: EPA 8260	Gasoline Range Organics (EPA 8021b)	Hydrocarbon Identification (NCPH)	Diesel/Heavy Oil Range Organics	SEMI VOC (EPA 8270)	PAH (EPA 8270 - SIM)	PCB (EPA 8082)	Pesticides (EPA 8081)	Herbicides (EPA 8151A)	Metals* (6020 / 200.8)	Total (T) ; Dissolved (D)	Anions (IC)**	RCRA-8 Metals				Comments/Depth
1 B14-10-2.5	4/11/2012	1105	Soil	X		X		X								X					
2 B14-10-5.0	4/11/2012	1110	Soil	X		X		X								X					
3 B14-10-7.5	4/11/2012	1117	Soil																		
4 B14-10-10.0	4/11/2012	1125	Soil																		
5 B14-10-12.5	4/11/2012	1130	Soil																		
6 B14-10-15.0	4/11/2012	1135	Soil																		

*Metals Analysis (Circle): 6/10/CA-5 ECRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client: ☐ Disposal @ 120 (A fee may be assessed if samples are retained after 30 days)

Special Remarks:

Relinquished	Date/Time	Received	Date/Time
x	4/12/12 1435	x	4/12/12 16:35
Relinquished	Date/Time	Received	Date/Time
x		x	

TAT → Next Day 2 Day 3 Day STD

Distribution: White - Lab, Yellow - File, Pink - Originator

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Chain of Custody Record

1311 N. 35th Street
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 4/12/12

Laboratory Project No (internal): _____

Page: 1 of 1

Client: GeoEngineers, Inc.
Address: 8410 154th Ave NE
City, State, Zip: Redmond, WA 98052 Tel: 425-861-6000

Project Name: Rufus 2.0
Location: Denny Triangle
Collected by: T&L

Reports To (PM): Jessica Smith Fax: 425-861-6050 Email: jesmith@geoengineers.com Project No: 20434-001-02

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	BTEX (EPA 8260)	Gasoline Range Organics (EPA 8021b)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics	SVOC (GC/MS) (EPA 8270 - SIM)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals* (6010 / 200.8)	Total (T) / Dissolved (D)	Anions (IC)**	RCRA 8 Metals				Comments/Depth
1 MW14-2-2.5	4/11/2012	0937	Soil																		
2 MW14-2-5.0	4/11/2012	0947	Soil	X		X		X								X					
3 MW14-2-7.5	4/11/2012	0943	Soil																		
4 MW14-2-10.0	4/11/2012	0947	Soil																		
5 MW14-2-12.5	4/11/2012	0952	Soil																		
6 MW14-2-15.0	4/11/2012	0955	Soil																		

*Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Tl Ti U V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client: ☐ Disposal by Lab (A fee may be assessed if samples are retained after 30 days.)

Special Remarks:

Relinquished	Date/Time	Received	Date/Time
x [signature]	4/12/12 1635	x [signature]	4/12/12 16:35
Relinquished	Date/Time	Received	Date/Time
x		x	

TAT --> Next Day 2 Day 3 Day STD

Distribution: White= Lab, Yellow = File, Pink = Originator

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Fremont Analytical

Chain of Custody Record

1311 N. 35th Street
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 4/12/12

Laboratory Project No (internal): _____

Page: 1 of: 1

Client: GeoEngineers, Inc
Address: 8410 154th Ave NE
City, State, Zip: Redmond, WA 98052 Tel: 425-861-6000

Project Name: Rufus 2.0
Location: Denny Triangle
Collected by: TM

Reports To (PM): Jessica Smith Fax: 425-861-6050 Email: jasmith@geoengineers.com Project No: 20434-001-02

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	BTEX	EPA 8260	EPA 8021b	Gasoline Range Organics	Hydrocarbon Identification (NWTPH)	Diesel/Heavy Oil Range Organics	SIM VOC (EPA 8270)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals* (6020 / 200.8)	Total (T) / Dissolved (D)	Anions (IC)**	TCLP Metals			Comments/Depth
1 MW14-3-2.5	4/11/2012	1342	Soil																			
2 MW14-3-5.0	4/11/2012	1345	Soil	X		X		X										X				
3 MW14-3-7.5	4/11/2012	1348	Soil																			
4 MW14-3-10.0	4/11/2012	1353	Soil																			
5 MW14-3-12.5	4/11/2012	1352	Soil																			
6 MW14-3-15.0	4/11/2012	1357	Soil																			

*Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants 13 Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab (A fee may be assessed if samples are retained after 30 days.)

Special Remarks:

Relinquished	Date/Time	Received	Date/Time
1:	4/12/12 1635	1:	4/12/12 16:55
Relinquished	Date/Time	Received	Date/Time
2:		2:	

TAT — Next Day 2 Day 3 Day STD

Distribution: White - Lab, Yellow - File, Pink - Originator

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1311 N. 35th St.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

GeoEngineers
Jessica Smith
600 Stewart Street, Suite 1700
Seattle, Washington 98101

RE: New Zealand
Lab ID: 1202121

March 02, 2012

Attention Jessica Smith:

Fremont Analytical, Inc. received 126 sample(s) on 2/27/2012 for the analyses presented in the following report.

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.
Gasoline by NWTPH-Gx
Mercury by EPA Method 7471
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)
Polychlorinated Biphenyls (PCB) by EPA 8082
Sample Moisture (Percent Moisture)
Total Metals by EPA Method 6020
Volatile Organic Compounds by EPA Method 8260

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Michael Dee
Sr. Chemist / Principal

Date: *03/02/2012*

CLIENT: GeoEngineers
Project: New Zealand
Lab Order: 1202121

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1202121-001	B20-2-2.5	02/27/2012 12:45 PM	02/27/2012 6:30 PM
1202121-002	B20-2-5.0	02/27/2012 12:51 PM	02/27/2012 6:30 PM
1202121-003	B20-2-7.5	02/27/2012 12:57 PM	02/27/2012 6:30 PM
1202121-004	B20-2-10.5	02/27/2012 1:06 PM	02/27/2012 6:30 PM
1202121-005	B20-2-12.5	02/27/2012 1:14 PM	02/27/2012 6:30 PM
1202121-006	B20-2-15.0	02/27/2012 1:21 PM	02/27/2012 6:30 PM
1202121-007	B20-2-17.5	02/27/2012 1:27 PM	02/27/2012 6:30 PM
1202121-008	B20-2-20.0	02/27/2012 1:37 PM	02/27/2012 6:30 PM
1202121-009	B20-2-22.5	02/27/2012 1:44 PM	02/27/2012 6:30 PM
1202121-010	B20-2-25.0	02/27/2012 1:51 PM	02/27/2012 6:30 PM
1202121-012	B20-2-30.0	02/27/2012 2:08 PM	02/27/2012 6:30 PM
1202121-013	B20-2-35.0	02/27/2012 2:27 PM	02/27/2012 6:30 PM
1202121-014	B20-2-40.0	02/27/2012 2:30 PM	02/27/2012 6:30 PM
1202121-015	B20-2-45.0	02/27/2012 2:35 PM	02/27/2012 6:30 PM
1202121-016	B20-2-50.0	02/27/2012 2:45 PM	02/27/2012 6:30 PM
1202121-017	B20-2-55.0	02/27/2012 3:01 PM	02/27/2012 6:30 PM
1202121-018	B20-2-60.0	02/27/2012 3:18 PM	02/27/2012 6:30 PM
1202121-019	B20-2-65.0	02/27/2012 3:23 PM	02/27/2012 6:30 PM
1202121-020	B20-2-70.0	02/27/2012 3:35 PM	02/27/2012 6:30 PM
1202121-021	B20-2-75.0	02/27/2012 3:50 PM	02/27/2012 6:30 PM
1202121-024	B20-3-2.5	02/27/2012 7:55 AM	02/27/2012 6:30 PM
1202121-025	B20-3-5.0	02/27/2012 8:01 AM	02/27/2012 6:30 PM
1202121-026	B20-3-7.5	02/27/2012 8:06 AM	02/27/2012 6:30 PM
1202121-027	B20-3-10.0	02/27/2012 8:12 AM	02/27/2012 6:30 PM
1202121-028	B20-3-12.5	02/27/2012 8:18 AM	02/27/2012 6:30 PM
1202121-029	B20-3-15.0	02/27/2012 8:25 AM	02/27/2012 6:30 PM
1202121-030	B20-3-17.5	02/27/2012 8:29 AM	02/27/2012 6:30 PM
1202121-031	B20-3-20.0	02/27/2012 8:39 AM	02/27/2012 6:30 PM
1202121-032	B20-3-22.5	02/27/2012 8:46 AM	02/27/2012 6:30 PM
1202121-033	B20-3-25.0	02/27/2012 8:57 AM	02/27/2012 6:30 PM
1202121-034	B20-3-27.5	02/27/2012 9:04 AM	02/27/2012 6:30 PM
1202121-035	B20-3-30.0	02/27/2012 9:16 AM	02/27/2012 6:30 PM
1202121-036	B20-3-35.0	02/27/2012 9:30 AM	02/27/2012 6:30 PM
1202121-037	B20-3-40.0	02/27/2012 9:44 AM	02/27/2012 6:30 PM
1202121-038	B20-3-45.0	02/27/2012 10:00 AM	02/27/2012 6:30 PM
1202121-039	B20-3-50.0	02/27/2012 10:14 AM	02/27/2012 6:30 PM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

CLIENT: GeoEngineers
Project: New Zealand
Lab Order: 1202121

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1202121-040	B20-3-55.0	02/27/2012 10:29 AM	02/27/2012 6:30 PM
1202121-041	B20-3-60.0	02/27/2012 10:42 AM	02/27/2012 6:30 PM
1202121-042	B20-3-65.0	02/27/2012 10:54 AM	02/27/2012 6:30 PM
1202121-043	B20-3-70.0	02/27/2012 11:02 AM	02/27/2012 6:30 PM
1202121-044	B20-3-75.0	02/27/2012 11:17 AM	02/27/2012 6:30 PM
1202121-047	B20-1-2.5	02/28/2012 7:57 AM	02/29/2012 2:27 PM
1202121-048	B20-1-5.0	02/28/2012 8:02 AM	02/29/2012 2:27 PM
1202121-049	B20-1-7.5	02/28/2012 8:09 AM	02/29/2012 2:27 PM
1202121-050	B20-1-10.0	02/28/2012 8:17 AM	02/29/2012 2:27 PM
1202121-051	B20-1-12.5	02/28/2012 8:27 AM	02/29/2012 2:27 PM
1202121-052	B20-1-15.0	02/28/2012 8:36 AM	02/29/2012 2:27 PM
1202121-053	B20-1-17.5	02/28/2012 8:40 AM	02/29/2012 2:27 PM
1202121-054	B20-1-20.0	02/28/2012 8:48 AM	02/29/2012 2:27 PM
1202121-055	B20-1-22.5	02/28/2012 8:53 AM	02/29/2012 2:27 PM
1202121-056	B20-1-25.0	02/28/2012 9:00 AM	02/29/2012 2:27 PM
1202121-058	B20-1-30.0	02/28/2012 9:15 AM	02/29/2012 2:27 PM
1202121-059	B20-1-35.0	02/28/2012 9:29 AM	02/29/2012 2:27 PM
1202121-060	B20-1-40.0	02/28/2012 9:48 AM	02/29/2012 2:27 PM
1202121-061	B20-1-45.0	02/28/2012 10:07 AM	02/29/2012 2:27 PM
1202121-062	B20-1-50.0	02/28/2012 10:19 AM	02/29/2012 2:27 PM
1202121-063	B20-1-55.0	02/28/2012 10:30 AM	02/29/2012 2:27 PM
1202121-064	B20-1-60.0	02/28/2012 10:57 AM	02/29/2012 2:27 PM
1202121-065	B20-1-65.0	02/28/2012 11:16 AM	02/29/2012 2:27 PM
1202121-066	B20-1-70.0	02/28/2012 11:27 AM	02/29/2012 2:27 PM
1202121-067	B20-1-75.0	02/28/2012 11:33 AM	02/29/2012 2:27 PM
1202121-070	MW20-1-2.5	02/27/2012 4:19 PM	02/28/2012 10:36 AM
1202121-071	MW20-1-5.0	02/27/2012 4:32 PM	02/28/2012 10:36 AM
1202121-072	MW20-1-7.5	02/27/2012 4:51 PM	02/28/2012 10:36 AM
1202121-073	MW20-1-10.0	02/27/2012 5:00 PM	02/28/2012 10:36 AM
1202121-074	MW20-1-12.5	02/27/2012 5:05 PM	02/28/2012 10:36 AM
1202121-075	MW20-1-15.0	02/27/2012 5:16 PM	02/28/2012 10:36 AM
1202121-076	MW20-1-17.5	02/27/2012 5:25 PM	02/28/2012 10:36 AM
1202121-077	MW20-1-20.0	02/27/2012 5:32 PM	02/28/2012 10:36 AM
1202121-078	MW20-1-22.5	02/27/2012 5:40 PM	02/28/2012 10:36 AM
1202121-081	MW20-1-30.0	02/28/2012 7:35 AM	02/28/2012 10:36 AM
1202121-082	MW20-1-35.0	02/28/2012 7:54 AM	02/28/2012 10:36 AM
1202121-083	MW20-1-40.0	02/28/2012 8:04 AM	02/28/2012 10:36 AM
1202121-084	MW20-1-45.0	02/28/2012 8:15 AM	02/28/2012 10:36 AM
1202121-085	MW20-1-50.0	02/28/2012 8:32 AM	02/28/2012 10:36 AM
1202121-086	MW20-1-55.0	02/28/2012 8:45 AM	02/28/2012 10:36 AM
1202121-087	MW20-1-60.0	02/28/2012 8:55 AM	02/28/2012 10:36 AM
1202121-088	MW20-1-65.0	02/28/2012 9:12 AM	02/28/2012 10:36 AM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

CLIENT: GeoEngineers
Project: New Zealand
Lab Order: 1202121

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1202121-089	MW20-1-70.0	02/28/2012 9:25 AM	02/28/2012 10:36 AM
1202121-090	MW20-1-75.0	02/28/2012 9:50 AM	02/28/2012 10:36 AM
1202121-091	MW20-1-80.0	02/28/2012 10:07 AM	02/28/2012 10:36 AM
1202121-092	MW20-1-85.0	02/28/2012 10:25 AM	02/28/2012 10:36 AM
1202121-093	MW20-3-2.5	02/27/2012 8:05 AM	02/27/2012 1:36 PM
1202121-094	MW20-3-5.0	02/27/2012 8:11 AM	02/27/2012 1:36 PM
1202121-095	MW20-3-7.5	02/27/2012 8:19 AM	02/27/2012 1:36 PM
1202121-096	MW20-3-10.0	02/27/2012 8:26 AM	02/27/2012 1:36 PM
1202121-097	MW20-3-12.5	02/27/2012 8:34 AM	02/27/2012 1:36 PM
1202121-098	MW20-3-15.0	02/27/2012 8:42 AM	02/27/2012 1:36 PM
1202121-099	MW20-3-17.5	02/27/2012 8:52 AM	02/27/2012 1:36 PM
1202121-100	MW20-3-20.0	02/27/2012 9:00 AM	02/27/2012 1:36 PM
1202121-101	MW20-3-22.5	02/27/2012 9:13 AM	02/27/2012 1:36 PM
1202121-102	MW20-3-25.0	02/27/2012 9:21 AM	02/27/2012 1:36 PM
1202121-104	MW20-3-30.0	02/27/2012 9:35 AM	02/27/2012 1:36 PM
1202121-105	MW20-3-35.0	02/27/2012 9:48 AM	02/27/2012 1:36 PM
1202121-106	MW20-3-40.0	02/27/2012 10:07 AM	02/27/2012 1:36 PM
1202121-107	MW20-3-45.0	02/27/2012 10:20 AM	02/27/2012 1:36 PM
1202121-108	MW20-3-50.0	02/27/2012 10:30 AM	02/27/2012 1:36 PM
1202121-109	MW20-3-55.0	02/27/2012 10:40 AM	02/27/2012 1:36 PM
1202121-110	MW20-3-60.0	02/27/2012 10:47 AM	02/27/2012 1:36 PM
1202121-111	MW20-3-65.0	02/27/2012 11:05 AM	02/27/2012 1:36 PM
1202121-112	MW20-3-70.0	02/27/2012 11:20 AM	02/27/2012 1:36 PM
1202121-113	MW20-3-75.0	02/27/2012 11:35 AM	02/27/2012 1:36 PM
1202121-114	MW20-3-80.0	02/27/2012 11:46 AM	02/27/2012 1:36 PM
1202121-115	MW20-3-85.0	02/27/2012 12:05 PM	02/27/2012 1:36 PM
1202121-116	MW20-2-2.5	02/28/2012 3:17 PM	02/29/2012 2:27 PM
1202121-117	MW20-2-5.0	02/28/2012 3:28 PM	02/29/2012 2:27 PM
1202121-118	MW20-2-7.5	02/28/2012 3:38 PM	02/29/2012 2:27 PM
1202121-119	MW20-2-10.0	02/28/2012 3:45 PM	02/29/2012 2:27 PM
1202121-120	MW20-2-12.5	02/28/2012 3:53 PM	02/29/2012 2:27 PM
1202121-121	MW20-2-15.0	02/28/2012 4:00 PM	02/29/2012 2:27 PM
1202121-122	MW20-2-17.5	02/28/2012 4:07 PM	02/29/2012 2:27 PM
1202121-123	MW20-2-20.0	02/28/2012 4:16 PM	02/29/2012 2:27 PM
1202121-124	MW20-2-22.5	02/28/2012 4:26 PM	02/29/2012 2:27 PM
1202121-125	MW20-2-25.0	02/28/2012 4:34 PM	02/29/2012 2:27 PM
1202121-127	MW20-2-30.0	02/28/2012 4:42 PM	02/29/2012 2:27 PM
1202121-128	MW20-2-35.0	02/28/2012 4:52 PM	02/29/2012 2:27 PM
1202121-129	MW20-2-40.0	02/28/2012 5:18 PM	02/29/2012 2:27 PM
1202121-130	MW20-2-45.0	02/28/2012 5:42 PM	02/29/2012 2:27 PM
1202121-131	MW20-2-50.0	02/28/2012 5:47 PM	02/29/2012 2:27 PM
1202121-132	MW20-2-55.0	02/29/2012 7:40 AM	02/29/2012 2:27 PM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

CLIENT: GeoEngineers
Project: New Zealand
Lab Order: 1202121

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1202121-133	MW20-2-60.0	02/29/2012 7:50 AM	02/29/2012 2:27 PM
1202121-134	MW20-2-65.0	02/29/2012 8:05 AM	02/29/2012 2:27 PM
1202121-135	MW20-2-70.0	02/29/2012 8:32 AM	02/29/2012 2:27 PM
1202121-136	MW20-2-75.0	02/29/2012 8:47 AM	02/29/2012 2:27 PM
1202121-137	MW20-2-80.0	02/29/2012 9:00 AM	02/29/2012 2:27 PM
1202121-138	MW20-2-85.0	02/29/2012 9:15 AM	02/29/2012 2:27 PM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

Case Narrative

WO#: **1202121**
Date: **3/2/2012**

CLIENT: GeoEngineers
Project: New Zealand

I. SAMPLE RECEIPT:
All samples were received intact. The internal ice chest temperatures were measured on receipt and are recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Prep Comments for METHOD (PREP-PCB-S), SAMPLE (1202121-001A) required Cleanup Procedure.
Prep Comments for METHOD (PREP-PCB-S), SAMPLE (1202121-027A) required Cleanup Procedure.
Prep Comments for METHOD (PREP-PCB-S), SAMPLE (1202121-031A) required Cleanup Procedure.
Prep Comments for METHOD (PREP-PCB-S), SAMPLE (1202121-070A) required Cleanup Procedure.
Prep Comments for METHOD (PREP-PCB-S), SAMPLE (1202121-094A) required Cleanup Procedure.
Prep Comments for METHOD (PREP-PCB-S), SAMPLE (1202121-098A) required Cleanup Procedure.

Analytical Report

WO#: **1202121**
Date Reported: **3/2/2012**

Client: GeoEngineers
Collection Date: 2/27/2012 12:45:00 PM
Project: New Zealand
Lab ID: 1202121-001
Matrix: Soil
Client Sample ID: B20-2-2.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 1961		Analyst: EM
Diesel (Fuel Oil)	ND	18.4		mg/Kg-dry	1	2/28/2012 8:38:00 PM
Heavy Oil	ND	45.9		mg/Kg-dry	1	2/28/2012 8:38:00 PM
Surr: 2-Fluorobiphenyl	97.9	84.2-137		%REC	1	2/28/2012 8:38:00 PM
Surr: o-Terphenyl	110	87.1-138		%REC	1	2/28/2012 8:38:00 PM
Gasoline by NWTPH-Gx				Batch ID: 1963		Analyst: PH
Gasoline	ND	4.59		mg/Kg-dry	1	2/28/2012 5:32:00 PM
Surr: 1,4-Difluorobenzene	118	65-135		%REC	1	2/28/2012 5:32:00 PM
Surr: 4-Bromofluorobenzene	113	65-135		%REC	1	2/28/2012 5:32:00 PM
Polychlorinated Biphenyls (PCB) by EPA 8082				Batch ID: 1957		Analyst: SG
Aroclor 1016	ND	0.108		mg/Kg-dry	1	2/28/2012 10:45:00 PM
Aroclor 1221	ND	0.108		mg/Kg-dry	1	2/28/2012 10:45:00 PM
Aroclor 1232	ND	0.108		mg/Kg-dry	1	2/28/2012 10:45:00 PM
Aroclor 1242	ND	0.108		mg/Kg-dry	1	2/28/2012 10:45:00 PM
Aroclor 1248	ND	0.108		mg/Kg-dry	1	2/28/2012 10:45:00 PM
Aroclor 1254	ND	0.108		mg/Kg-dry	1	2/28/2012 10:45:00 PM
Aroclor 1260	ND	0.108		mg/Kg-dry	1	2/28/2012 10:45:00 PM
Aroclor 1262	ND	0.108		mg/Kg-dry	1	2/28/2012 10:45:00 PM
Aroclor 1268	ND	0.108		mg/Kg-dry	1	2/28/2012 10:45:00 PM
Total PCBs	ND	0.108		mg/Kg-dry	1	2/28/2012 10:45:00 PM
Surr: Decachlorobiphenyl	90.8	66.1-145		%REC	1	2/28/2012 10:45:00 PM
Surr: Tetrachloro-m-xylene	90.6	67.2-132		%REC	1	2/28/2012 10:45:00 PM

NOTES:
S - Outlying surrogate recovery observed (High bias). The samples are non-detect.

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 1956		Analyst: SG
Naphthalene	ND	57.0		µg/Kg-dry	1	3/1/2012 4:53:00 PM
2-Methylnaphthalene	ND	57.0		µg/Kg-dry	1	3/1/2012 4:53:00 PM
1-Methylnaphthalene	ND	57.0		µg/Kg-dry	1	3/1/2012 4:53:00 PM
Acenaphthylene	ND	57.0		µg/Kg-dry	1	3/1/2012 4:53:00 PM
Acenaphthene	ND	57.0		µg/Kg-dry	1	3/1/2012 4:53:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1202121**
Date Reported: **3/2/2012**

Client: GeoEngineers
Collection Date: 2/27/2012 12:45:00 PM
Project: New Zealand
Lab ID: 1202121-001
Matrix: Soil
Client Sample ID: B20-2-2.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 1956		Analyst: SG
Fluorene	ND	57.0		µg/Kg-dry	1	3/1/2012 4:53:00 PM
Phenanthrene	ND	57.0		µg/Kg-dry	1	3/1/2012 4:53:00 PM
Anthracene	ND	57.0		µg/Kg-dry	1	3/1/2012 4:53:00 PM
Fluoranthene	ND	57.0		µg/Kg-dry	1	3/1/2012 4:53:00 PM
Pyrene	ND	57.0		µg/Kg-dry	1	3/1/2012 4:53:00 PM
Benz(a)anthracene	ND	57.0		µg/Kg-dry	1	3/1/2012 4:53:00 PM
Chrysene	ND	57.0		µg/Kg-dry	1	3/1/2012 4:53:00 PM
Benzo(b)fluoranthene	ND	57.0		µg/Kg-dry	1	3/1/2012 4:53:00 PM
Benzo(k)fluoranthene	ND	57.0		µg/Kg-dry	1	3/1/2012 4:53:00 PM
Benzo(a)pyrene	ND	57.0		µg/Kg-dry	1	3/1/2012 4:53:00 PM
Indeno(1,2,3-cd)pyrene	ND	57.0		µg/Kg-dry	1	3/1/2012 4:53:00 PM
Dibenz(a,h)anthracene	ND	57.0		µg/Kg-dry	1	3/1/2012 4:53:00 PM
Benzo(g,h,i)perylene	ND	57.0		µg/Kg-dry	1	3/1/2012 4:53:00 PM
Surr: 2-Fluorobiphenyl	74.8	53.5-148		%REC	1	3/1/2012 4:53:00 PM
Surr: Terphenyl-d14 (surr)	114	67.2-149		%REC	1	3/1/2012 4:53:00 PM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 1953		Analyst: PH
Dichlorodifluoromethane (CFC-12)	ND	0.0576		mg/Kg-dry	1	2/29/2012 2:09:00 AM
Chloromethane	ND	0.0576		mg/Kg-dry	1	2/29/2012 2:09:00 AM
Vinyl chloride	ND	0.00192		mg/Kg-dry	1	2/29/2012 2:09:00 AM
Bromomethane	ND	0.0865		mg/Kg-dry	1	2/29/2012 2:09:00 AM
Trichlorofluoromethane (CFC-11)	ND	0.0480		mg/Kg-dry	1	2/29/2012 2:09:00 AM
Chloroethane	ND	0.0576		mg/Kg-dry	1	2/29/2012 2:09:00 AM
1,1-Dichloroethene	ND	0.0480		mg/Kg-dry	1	2/29/2012 2:09:00 AM
Methylene chloride	ND	0.0192		mg/Kg-dry	1	2/29/2012 2:09:00 AM
trans-1,2-Dichloroethene	ND	0.0192		mg/Kg-dry	1	2/29/2012 2:09:00 AM
Methyl tert-butyl ether (MTBE)	ND	0.0480		mg/Kg-dry	1	2/29/2012 2:09:00 AM
1,1-Dichloroethane	ND	0.0192		mg/Kg-dry	1	2/29/2012 2:09:00 AM
2,2-Dichloropropane	ND	0.0480		mg/Kg-dry	1	2/29/2012 2:09:00 AM
cis-1,2-Dichloroethene	ND	0.0192		mg/Kg-dry	1	2/29/2012 2:09:00 AM
Chloroform	ND	0.0192		mg/Kg-dry	1	2/29/2012 2:09:00 AM
1,1,1-Trichloroethane (TCA)	ND	0.0192		mg/Kg-dry	1	2/29/2012 2:09:00 AM
1,1-Dichloropropene	ND	0.0192		mg/Kg-dry	1	2/29/2012 2:09:00 AM
Carbon tetrachloride	ND	0.0192		mg/Kg-dry	1	2/29/2012 2:09:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1202121**
Date Reported: **3/2/2012**

Client: GeoEngineers
Collection Date: 2/27/2012 12:45:00 PM
Project: New Zealand
Lab ID: 1202121-001
Matrix: Soil
Client Sample ID: B20-2-2.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: 1953		Analyst: PH
1,2-Dichloroethane	ND	0.0288		mg/Kg-dry	1	2/29/2012 2:09:00 AM
Benzene	ND	0.0192		mg/Kg-dry	1	2/29/2012 2:09:00 AM
Trichloroethene (TCE)	ND	0.0288		mg/Kg-dry	1	2/29/2012 2:09:00 AM
1,2-Dichloropropane	ND	0.0192		mg/Kg-dry	1	2/29/2012 2:09:00 AM
Bromodichloromethane	ND	0.0192		mg/Kg-dry	1	2/29/2012 2:09:00 AM
Dibromomethane	ND	0.0384		mg/Kg-dry	1	2/29/2012 2:09:00 AM
cis-1,3-Dichloropropene	ND	0.0192		mg/Kg-dry	1	2/29/2012 2:09:00 AM
Toluene	ND	0.0192		mg/Kg-dry	1	2/29/2012 2:09:00 AM
trans-1,3-Dichloropropene	ND	0.0288		mg/Kg-dry	1	2/29/2012 2:09:00 AM
1,1,2-Trichloroethane	ND	0.0288		mg/Kg-dry	1	2/29/2012 2:09:00 AM
1,3-Dichloropropane	ND	0.0480		mg/Kg-dry	1	2/29/2012 2:09:00 AM
Tetrachloroethene (PCE)	ND	0.0192		mg/Kg-dry	1	2/29/2012 2:09:00 AM
Dibromochloromethane	ND	0.0288		mg/Kg-dry	1	2/29/2012 2:09:00 AM
1,2-Dibromoethane (EDB)	ND	0.00480		mg/Kg-dry	1	2/29/2012 2:09:00 AM
Chlorobenzene	ND	0.0192		mg/Kg-dry	1	2/29/2012 2:09:00 AM
1,1,1,2-Tetrachloroethane	ND	0.0288		mg/Kg-dry	1	2/29/2012 2:09:00 AM
Ethylbenzene	ND	0.0288		mg/Kg-dry	1	2/29/2012 2:09:00 AM
m,p-Xylene	ND	0.0192		mg/Kg-dry	1	2/29/2012 2:09:00 AM
o-Xylene	ND	0.0192		mg/Kg-dry	1	2/29/2012 2:09:00 AM
Styrene	ND	0.0192		mg/Kg-dry	1	2/29/2012 2:09:00 AM
Isopropylbenzene	ND	0.0768		mg/Kg-dry	1	2/29/2012 2:09:00 AM
Bromoform	ND	0.0192		mg/Kg-dry	1	2/29/2012 2:09:00 AM
1,1,2,2-Tetrachloroethane	ND	0.0192		mg/Kg-dry	1	2/29/2012 2:09:00 AM
n-Propylbenzene	ND	0.0192		mg/Kg-dry	1	2/29/2012 2:09:00 AM
Bromobenzene	ND	0.0288		mg/Kg-dry	1	2/29/2012 2:09:00 AM
1,3,5-Trimethylbenzene	ND	0.0192		mg/Kg-dry	1	2/29/2012 2:09:00 AM
2-Chlorotoluene	ND	0.0192		mg/Kg-dry	1	2/29/2012 2:09:00 AM
4-Chlorotoluene	ND	0.0192		mg/Kg-dry	1	2/29/2012 2:09:00 AM
tert-Butylbenzene	ND	0.0192		mg/Kg-dry	1	2/29/2012 2:09:00 AM
1,2,3-Trichloropropane	ND	0.0192		mg/Kg-dry	1	2/29/2012 2:09:00 AM
1,2,4-Trichlorobenzene	ND	0.0705	[RA]	mg/Kg-dry	1	3/1/2012 7:49:00 AM
sec-Butylbenzene	ND	0.0192		mg/Kg-dry	1	2/29/2012 2:09:00 AM
4-Isopropyltoluene	ND	0.0192		mg/Kg-dry	1	2/29/2012 2:09:00 AM
1,3-Dichlorobenzene	ND	0.0282	[RA]	mg/Kg-dry	1	3/1/2012 7:49:00 AM
1,4-Dichlorobenzene	ND	0.0282	[RA]	mg/Kg-dry	1	3/1/2012 7:49:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1202121**
Date Reported: **3/2/2012**

Client: GeoEngineers
Collection Date: 2/27/2012 12:45:00 PM
Project: New Zealand
Lab ID: 1202121-001
Matrix: Soil
Client Sample ID: B20-2-2.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: 1953		Analyst: PH
n-Butylbenzene	ND	0.0282	[RA]	mg/Kg-dry	1	3/1/2012 7:49:00 AM
1,2-Dichlorobenzene	ND	0.0282	[RA]	mg/Kg-dry	1	3/1/2012 7:49:00 AM
1,2-Dibromo-3-chloropropane	ND	0.0423	[RA]	mg/Kg-dry	1	3/1/2012 7:49:00 AM
1,2,4-Trimethylbenzene	ND	0.0192		mg/Kg-dry	1	2/29/2012 2:09:00 AM
Hexachlorobutadiene	ND	0.141	[RA]	mg/Kg-dry	1	3/1/2012 7:49:00 AM
Naphthalene	ND	0.0423	[RA]	mg/Kg-dry	1	3/1/2012 7:49:00 AM
1,2,3-Trichlorobenzene	ND	0.0282	[RA]	mg/Kg-dry	1	3/1/2012 7:49:00 AM
Surr: 1-Bromo-4-fluorobenzene	89.4	63.1-141		%REC	1	2/29/2012 2:09:00 AM
Surr: Dibromofluoromethane	110	67.6-119		%REC	1	2/29/2012 2:09:00 AM
Surr: Toluene-d8	102	78.5-126		%REC	1	2/29/2012 2:09:00 AM
Total Metals by EPA Method 6020				Batch ID: 1955		Analyst: BR
Arsenic	5.28	0.0773		mg/Kg-dry	1	2/29/2012 12:06:20 AM
Barium	103	0.386		mg/Kg-dry	1	2/29/2012 12:06:20 AM
Cadmium	0.337	0.155		mg/Kg-dry	1	2/29/2012 12:06:20 AM
Chromium	31.3	0.0773		mg/Kg-dry	1	2/29/2012 12:06:20 AM
Lead	113	0.155		mg/Kg-dry	1	2/29/2012 12:06:20 AM
Selenium	ND	0.386		mg/Kg-dry	1	2/29/2012 12:06:20 AM
Silver	0.126	0.0773		mg/Kg-dry	1	2/29/2012 12:06:20 AM
Mercury by EPA Method 7471				Batch ID: 1958		Analyst: MC
Mercury	ND	0.252		mg/Kg-dry	1	2/29/2012 3:18:34 PM
Sample Moisture (Percent Moisture)				Batch ID: R3490		Analyst: EM
Percent Moisture	13.1			wt%	1	2/29/2012 10:27:42 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1202121**
Date Reported: **3/2/2012**

Client: GeoEngineers **Collection Date:** 2/27/2012 1:21:00 PM
Project: New Zealand
Lab ID: 1202121-006 **Matrix:** Soil
Client Sample ID: B20-2-15.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 1961		Analyst: EM
Diesel (Fuel Oil)	ND	22.0		mg/Kg-dry	1	2/28/2012 9:33:00 PM
Heavy Oil	ND	55.0		mg/Kg-dry	1	2/28/2012 9:33:00 PM
Surr: 2-Fluorobiphenyl	98.6	84.2-137		%REC	1	2/28/2012 9:33:00 PM
Surr: o-Terphenyl	111	87.1-138		%REC	1	2/28/2012 9:33:00 PM
Gasoline by NWTPH-Gx				Batch ID: 1963		Analyst: PH
Gasoline	ND	6.74		mg/Kg-dry	1	2/28/2012 6:02:00 PM
Surr: 1,4-Difluorobenzene	118	65-135		%REC	1	2/28/2012 6:02:00 PM
Surr: 4-Bromofluorobenzene	112	65-135		%REC	1	2/28/2012 6:02:00 PM
Total Metals by EPA Method 6020				Batch ID: 1955		Analyst: BR
Arsenic	4.75	0.0982		mg/Kg-dry	1	2/29/2012 12:15:19 AM
Barium	132	0.491		mg/Kg-dry	1	2/29/2012 12:15:19 AM
Cadmium	0.302	0.196		mg/Kg-dry	1	2/29/2012 12:15:19 AM
Chromium	51.1	0.0982		mg/Kg-dry	1	2/29/2012 12:15:19 AM
Lead	5.63	0.196		mg/Kg-dry	1	2/29/2012 12:15:19 AM
Selenium	ND	0.491		mg/Kg-dry	1	2/29/2012 12:15:19 AM
Silver	ND	0.0982		mg/Kg-dry	1	2/29/2012 12:15:19 AM
Mercury by EPA Method 7471				Batch ID: 1958		Analyst: MC
Mercury	ND	0.291		mg/Kg-dry	1	2/29/2012 3:21:35 PM
Sample Moisture (Percent Moisture)				Batch ID: R3490		Analyst: EM
Percent Moisture	23.4			wt%	1	2/29/2012 10:27:42 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1202121**
Date Reported: **3/2/2012**

Client: GeoEngineers
Collection Date: 2/27/2012 2:30:00 PM
Project: New Zealand
Lab ID: 1202121-014
Matrix: Soil
Client Sample ID: B20-2-40.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 1961		Analyst: EM
Diesel (Fuel Oil)	ND	20.2		mg/Kg-dry	1	2/28/2012 10:01:00 PM
Heavy Oil	ND	50.6		mg/Kg-dry	1	2/28/2012 10:01:00 PM
Surr: 2-Fluorobiphenyl	92.4	84.2-137		%REC	1	2/28/2012 10:01:00 PM
Surr: o-Terphenyl	105	87.1-138		%REC	1	2/28/2012 10:01:00 PM
Gasoline by NWTPH-Gx				Batch ID: 1963		Analyst: PH
Gasoline	ND	4.76		mg/Kg-dry	1	2/28/2012 6:32:00 PM
Surr: 1,4-Difluorobenzene	113	65-135		%REC	1	2/28/2012 6:32:00 PM
Surr: 4-Bromofluorobenzene	113	65-135		%REC	1	2/28/2012 6:32:00 PM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 1953		Analyst: PH
Dichlorodifluoromethane (CFC-12)	ND	0.0582		mg/Kg-dry	1	2/29/2012 2:40:00 AM
Chloromethane	ND	0.0582		mg/Kg-dry	1	2/29/2012 2:40:00 AM
Vinyl chloride	ND	0.00194		mg/Kg-dry	1	2/29/2012 2:40:00 AM
Bromomethane	ND	0.0874		mg/Kg-dry	1	2/29/2012 2:40:00 AM
Trichlorofluoromethane (CFC-11)	ND	0.0485		mg/Kg-dry	1	2/29/2012 2:40:00 AM
Chloroethane	ND	0.0582		mg/Kg-dry	1	2/29/2012 2:40:00 AM
1,1-Dichloroethene	ND	0.0485		mg/Kg-dry	1	2/29/2012 2:40:00 AM
Methylene chloride	ND	0.0194		mg/Kg-dry	1	2/29/2012 2:40:00 AM
trans-1,2-Dichloroethene	ND	0.0194		mg/Kg-dry	1	2/29/2012 2:40:00 AM
Methyl tert-butyl ether (MTBE)	ND	0.0485		mg/Kg-dry	1	2/29/2012 2:40:00 AM
1,1-Dichloroethane	ND	0.0194		mg/Kg-dry	1	2/29/2012 2:40:00 AM
2,2-Dichloropropane	ND	0.0485		mg/Kg-dry	1	2/29/2012 2:40:00 AM
cis-1,2-Dichloroethene	ND	0.0194		mg/Kg-dry	1	2/29/2012 2:40:00 AM
Chloroform	ND	0.0194		mg/Kg-dry	1	2/29/2012 2:40:00 AM
1,1,1-Trichloroethane (TCA)	ND	0.0194		mg/Kg-dry	1	2/29/2012 2:40:00 AM
1,1-Dichloropropene	ND	0.0194		mg/Kg-dry	1	2/29/2012 2:40:00 AM
Carbon tetrachloride	ND	0.0194		mg/Kg-dry	1	2/29/2012 2:40:00 AM
1,2-Dichloroethane	ND	0.0291		mg/Kg-dry	1	2/29/2012 2:40:00 AM
Benzene	ND	0.0194		mg/Kg-dry	1	2/29/2012 2:40:00 AM
Trichloroethene (TCE)	ND	0.0291		mg/Kg-dry	1	2/29/2012 2:40:00 AM
1,2-Dichloropropane	ND	0.0194		mg/Kg-dry	1	2/29/2012 2:40:00 AM
Bromodichloromethane	ND	0.0194		mg/Kg-dry	1	2/29/2012 2:40:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Client: GeoEngineers **Collection Date:** 2/27/2012 2:30:00 PM
Project: New Zealand
Lab ID: 1202121-014 **Matrix:** Soil
Client Sample ID: B20-2-40.0

Volatile Organic Compounds by EPA Method 8260

Batch ID: 1953 Analyst: PH

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dibromomethane	ND	0.0388		mg/Kg-dry	1	2/29/2012 2:40:00 AM
cis-1,3-Dichloropropene	ND	0.0194		mg/Kg-dry	1	2/29/2012 2:40:00 AM
Toluene	ND	0.0194		mg/Kg-dry	1	2/29/2012 2:40:00 AM
trans-1,3-Dichloropropene	ND	0.0291		mg/Kg-dry	1	2/29/2012 2:40:00 AM
1,1,2-Trichloroethane	ND	0.0291		mg/Kg-dry	1	2/29/2012 2:40:00 AM
1,3-Dichloropropane	ND	0.0485		mg/Kg-dry	1	2/29/2012 2:40:00 AM
Tetrachloroethene (PCE)	ND	0.0194		mg/Kg-dry	1	2/29/2012 2:40:00 AM
Dibromochloromethane	ND	0.0291		mg/Kg-dry	1	2/29/2012 2:40:00 AM
1,2-Dibromoethane (EDB)	ND	0.00485		mg/Kg-dry	1	2/29/2012 2:40:00 AM
Chlorobenzene	ND	0.0194		mg/Kg-dry	1	2/29/2012 2:40:00 AM
1,1,1,2-Tetrachloroethane	ND	0.0291		mg/Kg-dry	1	2/29/2012 2:40:00 AM
Ethylbenzene	ND	0.0291		mg/Kg-dry	1	2/29/2012 2:40:00 AM
m,p-Xylene	ND	0.0194		mg/Kg-dry	1	2/29/2012 2:40:00 AM
o-Xylene	ND	0.0194		mg/Kg-dry	1	2/29/2012 2:40:00 AM
Styrene	ND	0.0194		mg/Kg-dry	1	2/29/2012 2:40:00 AM
Isopropylbenzene	ND	0.0777		mg/Kg-dry	1	2/29/2012 2:40:00 AM
Bromoform	ND	0.0194		mg/Kg-dry	1	2/29/2012 2:40:00 AM
1,1,2,2-Tetrachloroethane	ND	0.0194		mg/Kg-dry	1	2/29/2012 2:40:00 AM
n-Propylbenzene	ND	0.0194		mg/Kg-dry	1	2/29/2012 2:40:00 AM
Bromobenzene	ND	0.0291		mg/Kg-dry	1	2/29/2012 2:40:00 AM
1,3,5-Trimethylbenzene	ND	0.0194		mg/Kg-dry	1	2/29/2012 2:40:00 AM
2-Chlorotoluene	ND	0.0194		mg/Kg-dry	1	2/29/2012 2:40:00 AM
4-Chlorotoluene	ND	0.0194		mg/Kg-dry	1	2/29/2012 2:40:00 AM
tert-Butylbenzene	ND	0.0194		mg/Kg-dry	1	2/29/2012 2:40:00 AM
1,2,3-Trichloropropane	ND	0.0194		mg/Kg-dry	1	2/29/2012 2:40:00 AM
1,2,4-Trichlorobenzene	ND	0.0485		mg/Kg-dry	1	2/29/2012 2:40:00 AM
sec-Butylbenzene	ND	0.0194		mg/Kg-dry	1	2/29/2012 2:40:00 AM
4-Isopropyltoluene	ND	0.0194		mg/Kg-dry	1	2/29/2012 2:40:00 AM
1,3-Dichlorobenzene	ND	0.0194		mg/Kg-dry	1	2/29/2012 2:40:00 AM
1,4-Dichlorobenzene	ND	0.0194		mg/Kg-dry	1	2/29/2012 2:40:00 AM
n-Butylbenzene	ND	0.0194		mg/Kg-dry	1	2/29/2012 2:40:00 AM
1,2-Dichlorobenzene	ND	0.0194		mg/Kg-dry	1	2/29/2012 2:40:00 AM
1,2-Dibromo-3-chloropropane	ND	0.0291		mg/Kg-dry	1	2/29/2012 2:40:00 AM
1,2,4-Trimethylbenzene	ND	0.0194		mg/Kg-dry	1	2/29/2012 2:40:00 AM
Hexachlorobutadiene	ND	0.0971		mg/Kg-dry	1	2/29/2012 2:40:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1202121**
Date Reported: **3/2/2012**

Client: GeoEngineers **Collection Date:** 2/27/2012 2:30:00 PM
Project: New Zealand
Lab ID: 1202121-014 **Matrix:** Soil
Client Sample ID: B20-2-40.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: 1953		Analyst: PH
Naphthalene	ND	0.0291		mg/Kg-dry	1	2/29/2012 2:40:00 AM
1,2,3-Trichlorobenzene	ND	0.0194		mg/Kg-dry	1	2/29/2012 2:40:00 AM
Surr: 1-Bromo-4-fluorobenzene	99.9	63.1-141		%REC	1	2/29/2012 2:40:00 AM
Surr: Dibromofluoromethane	108	67.6-119		%REC	1	2/29/2012 2:40:00 AM
Surr: Toluene-d8	104	78.5-126		%REC	1	2/29/2012 2:40:00 AM
Sample Moisture (Percent Moisture)				Batch ID: R3490		Analyst: EM
Percent Moisture	11.6			wt%	1	2/29/2012 10:27:42 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1202121**
Date Reported: **3/2/2012**

Client: GeoEngineers
Collection Date: 2/27/2012 8:12:00 AM
Project: New Zealand
Lab ID: 1202121-027
Matrix: Soil
Client Sample ID: B20-3-10.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 1961		Analyst: EM
Diesel (Fuel Oil)	ND	21.7		mg/Kg-dry	1	2/28/2012 10:29:00 PM
Heavy Oil	266	54.3		mg/Kg-dry	1	2/28/2012 10:29:00 PM
Surr: 2-Fluorobiphenyl	97.1	84.2-137		%REC	1	2/28/2012 10:29:00 PM
Surr: o-Terphenyl	110	87.1-138		%REC	1	2/28/2012 10:29:00 PM
Gasoline by NWTPH-Gx				Batch ID: 1963		Analyst: PH
Gasoline	ND	7.16		mg/Kg-dry	1	2/28/2012 7:02:00 PM
Gasoline Range Organics	28.9	7.16		mg/Kg-dry	1	2/28/2012 7:02:00 PM
Surr: 1,4-Difluorobenzene	97.5	65-135		%REC	1	2/28/2012 7:02:00 PM
Surr: 4-Bromofluorobenzene	119	65-135		%REC	1	2/28/2012 7:02:00 PM
Polychlorinated Biphenyls (PCB) by EPA 8082				Batch ID: 1957		Analyst: SG
Aroclor 1016	ND	0.111		mg/Kg-dry	1	2/28/2012 11:07:00 PM
Aroclor 1221	ND	0.111		mg/Kg-dry	1	2/28/2012 11:07:00 PM
Aroclor 1232	ND	0.111		mg/Kg-dry	1	2/28/2012 11:07:00 PM
Aroclor 1242	ND	0.111		mg/Kg-dry	1	2/28/2012 11:07:00 PM
Aroclor 1248	ND	0.111		mg/Kg-dry	1	2/28/2012 11:07:00 PM
Aroclor 1254	ND	0.111		mg/Kg-dry	1	2/28/2012 11:07:00 PM
Aroclor 1260	ND	0.111		mg/Kg-dry	1	2/28/2012 11:07:00 PM
Aroclor 1262	ND	0.111		mg/Kg-dry	1	2/28/2012 11:07:00 PM
Aroclor 1268	ND	0.111		mg/Kg-dry	1	2/28/2012 11:07:00 PM
Total PCBs	ND	0.111		mg/Kg-dry	1	2/28/2012 11:07:00 PM
Surr: Decachlorobiphenyl	87.3	66.1-145		%REC	1	2/28/2012 11:07:00 PM
Surr: Tetrachloro-m-xylene	94.6	67.2-132		%REC	1	2/28/2012 11:07:00 PM

NOTES:
S - Outlying surrogate recovery observed (High bias). The samples are non-detect.

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 1956		Analyst: SG
Naphthalene	1,620	63.3		µg/Kg-dry	1	3/1/2012 5:18:00 PM
2-Methylnaphthalene	1,710	63.3		µg/Kg-dry	1	3/1/2012 5:18:00 PM
1-Methylnaphthalene	809	63.3		µg/Kg-dry	1	3/1/2012 5:18:00 PM
Acenaphthylene	ND	63.3		µg/Kg-dry	1	3/1/2012 5:18:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1202121**
Date Reported: **3/2/2012**

Client: GeoEngineers
Collection Date: 2/27/2012 8:12:00 AM
Project: New Zealand
Lab ID: 1202121-027
Matrix: Soil
Client Sample ID: B20-3-10.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 1956		Analyst: SG
Acenaphthene	ND	63.3		µg/Kg-dry	1	3/1/2012 5:18:00 PM
Fluorene	ND	63.3		µg/Kg-dry	1	3/1/2012 5:18:00 PM
Phenanthrene	214	63.3		µg/Kg-dry	1	3/1/2012 5:18:00 PM
Anthracene	ND	63.3		µg/Kg-dry	1	3/1/2012 5:18:00 PM
Fluoranthene	296	63.3		µg/Kg-dry	1	3/1/2012 5:18:00 PM
Pyrene	360	63.3		µg/Kg-dry	1	3/1/2012 5:18:00 PM
Benz(a)anthracene	241	63.3		µg/Kg-dry	1	3/1/2012 5:18:00 PM
Chrysene	135	63.3		µg/Kg-dry	1	3/1/2012 5:18:00 PM
Benzo(b)fluoranthene	135	63.3		µg/Kg-dry	1	3/1/2012 5:18:00 PM
Benzo(k)fluoranthene	81.6	63.3		µg/Kg-dry	1	3/1/2012 5:18:00 PM
Benzo(a)pyrene	159	63.3		µg/Kg-dry	1	3/1/2012 5:18:00 PM
Indeno(1,2,3-cd)pyrene	83.7	63.3		µg/Kg-dry	1	3/1/2012 5:18:00 PM
Dibenz(a,h)anthracene	ND	63.3		µg/Kg-dry	1	3/1/2012 5:18:00 PM
Benzo(g,h,i)perylene	195	63.3		µg/Kg-dry	1	3/1/2012 5:18:00 PM
Surr: 2-Fluorobiphenyl	83.1	53.5-148		%REC	1	3/1/2012 5:18:00 PM
Surr: Terphenyl-d14 (surr)	112	67.2-149		%REC	1	3/1/2012 5:18:00 PM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 1964		Analyst: PH
Dichlorodifluoromethane (CFC-12)	ND	0.0860		mg/Kg-dry	1	2/29/2012 8:58:00 PM
Chloromethane	ND	0.0860		mg/Kg-dry	1	2/29/2012 8:58:00 PM
Vinyl chloride	ND	0.00287		mg/Kg-dry	1	2/29/2012 8:58:00 PM
Bromomethane	ND	0.129		mg/Kg-dry	1	2/29/2012 8:58:00 PM
Trichlorofluoromethane (CFC-11)	ND	0.0717		mg/Kg-dry	1	2/29/2012 8:58:00 PM
Chloroethane	ND	0.0860		mg/Kg-dry	1	2/29/2012 8:58:00 PM
1,1-Dichloroethene	ND	0.0717		mg/Kg-dry	1	2/29/2012 8:58:00 PM
Methylene chloride	ND	0.0287		mg/Kg-dry	1	2/29/2012 8:58:00 PM
trans-1,2-Dichloroethene	ND	0.0287		mg/Kg-dry	1	2/29/2012 8:58:00 PM
Methyl tert-butyl ether (MTBE)	ND	0.0717		mg/Kg-dry	1	2/29/2012 8:58:00 PM
1,1-Dichloroethane	ND	0.0287		mg/Kg-dry	1	2/29/2012 8:58:00 PM
2,2-Dichloropropane	ND	0.0717		mg/Kg-dry	1	2/29/2012 8:58:00 PM
cis-1,2-Dichloroethene	ND	0.0287		mg/Kg-dry	1	2/29/2012 8:58:00 PM
Chloroform	ND	0.0287		mg/Kg-dry	1	2/29/2012 8:58:00 PM
1,1,1-Trichloroethane (TCA)	ND	0.0287		mg/Kg-dry	1	2/29/2012 8:58:00 PM
1,1-Dichloropropene	ND	0.0287		mg/Kg-dry	1	2/29/2012 8:58:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1202121**
Date Reported: **3/2/2012**

Client: GeoEngineers
Collection Date: 2/27/2012 8:12:00 AM
Project: New Zealand
Lab ID: 1202121-027
Matrix: Soil
Client Sample ID: B20-3-10.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: 1964		Analyst: PH
Carbon tetrachloride	ND	0.0287		mg/Kg-dry	1	2/29/2012 8:58:00 PM
1,2-Dichloroethane	ND	0.0430		mg/Kg-dry	1	2/29/2012 8:58:00 PM
Benzene	ND	0.0287		mg/Kg-dry	1	2/29/2012 8:58:00 PM
Trichloroethene (TCE)	ND	0.0430		mg/Kg-dry	1	2/29/2012 8:58:00 PM
1,2-Dichloropropane	ND	0.0287		mg/Kg-dry	1	2/29/2012 8:58:00 PM
Bromodichloromethane	ND	0.0287		mg/Kg-dry	1	2/29/2012 8:58:00 PM
Dibromomethane	ND	0.0573		mg/Kg-dry	1	2/29/2012 8:58:00 PM
cis-1,3-Dichloropropene	ND	0.0287		mg/Kg-dry	1	2/29/2012 8:58:00 PM
Toluene	0.0308	0.0287		mg/Kg-dry	1	2/29/2012 8:58:00 PM
trans-1,3-Dichloropropene	ND	0.0430		mg/Kg-dry	1	2/29/2012 8:58:00 PM
1,1,2-Trichloroethane	ND	0.0430		mg/Kg-dry	1	2/29/2012 8:58:00 PM
1,3-Dichloropropane	ND	0.0717		mg/Kg-dry	1	2/29/2012 8:58:00 PM
Tetrachloroethene (PCE)	ND	0.0287		mg/Kg-dry	1	2/29/2012 8:58:00 PM
Dibromochloromethane	ND	0.0430		mg/Kg-dry	1	2/29/2012 8:58:00 PM
1,2-Dibromoethane (EDB)	ND	0.00717		mg/Kg-dry	1	2/29/2012 8:58:00 PM
Chlorobenzene	ND	0.0287		mg/Kg-dry	1	2/29/2012 8:58:00 PM
1,1,1,2-Tetrachloroethane	ND	0.0430		mg/Kg-dry	1	2/29/2012 8:58:00 PM
Ethylbenzene	0.0631	0.0430		mg/Kg-dry	1	2/29/2012 8:58:00 PM
m,p-Xylene	1.13	0.0287		mg/Kg-dry	1	2/29/2012 8:58:00 PM
o-Xylene	0.160	0.0287		mg/Kg-dry	1	2/29/2012 8:58:00 PM
Styrene	ND	0.0287		mg/Kg-dry	1	2/29/2012 8:58:00 PM
Isopropylbenzene	ND	0.115		mg/Kg-dry	1	2/29/2012 8:58:00 PM
Bromoform	ND	0.0287		mg/Kg-dry	1	2/29/2012 8:58:00 PM
1,1,2,2-Tetrachloroethane	ND	0.0287		mg/Kg-dry	1	2/29/2012 8:58:00 PM
n-Propylbenzene	0.183	0.0287		mg/Kg-dry	1	2/29/2012 8:58:00 PM
Bromobenzene	ND	0.0430		mg/Kg-dry	1	2/29/2012 8:58:00 PM
1,3,5-Trimethylbenzene	0.603	0.0287		mg/Kg-dry	1	2/29/2012 8:58:00 PM
2-Chlorotoluene	ND	0.0287		mg/Kg-dry	1	2/29/2012 8:58:00 PM
4-Chlorotoluene	ND	0.0287		mg/Kg-dry	1	2/29/2012 8:58:00 PM
tert-Butylbenzene	ND	0.0287		mg/Kg-dry	1	2/29/2012 8:58:00 PM
1,2,3-Trichloropropane	ND	0.0287		mg/Kg-dry	1	2/29/2012 8:58:00 PM
1,2,4-Trichlorobenzene	ND	0.0717		mg/Kg-dry	1	2/29/2012 8:58:00 PM
sec-Butylbenzene	0.0351	0.0287		mg/Kg-dry	1	2/29/2012 8:58:00 PM
4-Isopropyltoluene	0.0380	0.0287		mg/Kg-dry	1	2/29/2012 8:58:00 PM
1,3-Dichlorobenzene	ND	0.0287		mg/Kg-dry	1	2/29/2012 8:58:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1202121**
Date Reported: **3/2/2012**

Client: GeoEngineers
Collection Date: 2/27/2012 8:12:00 AM
Project: New Zealand
Lab ID: 1202121-027
Matrix: Soil
Client Sample ID: B20-3-10.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: 1964		Analyst: PH
1,4-Dichlorobenzene	ND	0.0287		mg/Kg-dry	1	2/29/2012 8:58:00 PM
n-Butylbenzene	0.442	0.0287		mg/Kg-dry	1	2/29/2012 8:58:00 PM
1,2-Dichlorobenzene	0.0688	0.0287		mg/Kg-dry	1	2/29/2012 8:58:00 PM
1,2-Dibromo-3-chloropropane	ND	0.0430		mg/Kg-dry	1	2/29/2012 8:58:00 PM
1,2,4-Trimethylbenzene	2.80	0.0287		mg/Kg-dry	1	2/29/2012 8:58:00 PM
Hexachlorobutadiene	ND	0.143		mg/Kg-dry	1	2/29/2012 8:58:00 PM
Naphthalene	0.340	0.0430		mg/Kg-dry	1	2/29/2012 8:58:00 PM
1,2,3-Trichlorobenzene	ND	0.0287		mg/Kg-dry	1	2/29/2012 8:58:00 PM
Surr: 1-Bromo-4-fluorobenzene	88.6	63.1-141		%REC	1	2/29/2012 8:58:00 PM
Surr: Dibromofluoromethane	98.5	67.6-119		%REC	1	2/29/2012 8:58:00 PM
Surr: Toluene-d8	106	78.5-126		%REC	1	2/29/2012 8:58:00 PM
Total Metals by EPA Method 6020				Batch ID: 1955		Analyst: BR
Arsenic	5.79	0.0866		mg/Kg-dry	1	2/29/2012 12:24:18 AM
Barium	207	0.433		mg/Kg-dry	1	2/29/2012 12:24:18 AM
Cadmium	2.04	0.173		mg/Kg-dry	1	2/29/2012 12:24:18 AM
Chromium	33.3	0.0866		mg/Kg-dry	1	2/29/2012 12:24:18 AM
Lead	471	0.173		mg/Kg-dry	1	2/29/2012 12:24:18 AM
Selenium	ND	0.433		mg/Kg-dry	1	2/29/2012 12:24:18 AM
Silver	0.115	0.0866		mg/Kg-dry	1	2/29/2012 12:24:18 AM
Mercury by EPA Method 7471				Batch ID: 1958		Analyst: MC
Mercury	ND	0.242		mg/Kg-dry	1	2/29/2012 3:24:37 PM
Sample Moisture (Percent Moisture)				Batch ID: R3490		Analyst: EM
Percent Moisture	23.0			wt%	1	2/29/2012 10:27:42 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1202121**
Date Reported: **3/2/2012**

Client: GeoEngineers
Collection Date: 2/27/2012 8:39:00 AM
Project: New Zealand
Lab ID: 1202121-031
Matrix: Soil
Client Sample ID: B20-3-20.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 1961		Analyst: EM
Diesel (Fuel Oil)	ND	20.9		mg/Kg-dry	1	2/28/2012 10:57:00 PM
Diesel Range Organics (C12-C24)	74.4	20.9		mg/Kg-dry	1	2/28/2012 10:57:00 PM
Heavy Oil	2,780	523	D	mg/Kg-dry	10	3/1/2012 3:33:00 PM
Surr: 2-Fluorobiphenyl	97.8	84.2-137		%REC	1	2/28/2012 10:57:00 PM
Surr: o-Terphenyl	115	87.1-138		%REC	1	2/28/2012 10:57:00 PM
Gasoline by NWTPH-Gx				Batch ID: 1963		Analyst: PH
Gasoline	ND	5.10		mg/Kg-dry	1	2/28/2012 7:32:00 PM
Gasoline Range Organics	46.2	5.10		mg/Kg-dry	1	2/28/2012 7:32:00 PM
Surr: 1,4-Difluorobenzene	156	65-135	S	%REC	1	2/28/2012 7:32:00 PM
Surr: 4-Bromofluorobenzene	118	65-135		%REC	1	2/28/2012 7:32:00 PM

NOTES:
S - High surrogate recovery attributed to TPH interference. The method is in control as indicated by the Method Blank (MB) & Laboratory Contrc Sample (LCS).

Polychlorinated Biphenyls (PCB) by EPA 8082				Batch ID: 1957		Analyst: SG
Aroclor 1016	ND	0.102		mg/Kg-dry	1	2/28/2012 11:28:00 PM
Aroclor 1221	ND	0.102		mg/Kg-dry	1	2/28/2012 11:28:00 PM
Aroclor 1232	ND	0.102		mg/Kg-dry	1	2/28/2012 11:28:00 PM
Aroclor 1242	ND	0.102		mg/Kg-dry	1	2/28/2012 11:28:00 PM
Aroclor 1248	ND	0.102		mg/Kg-dry	1	2/28/2012 11:28:00 PM
Aroclor 1254	ND	0.102		mg/Kg-dry	1	2/28/2012 11:28:00 PM
Aroclor 1260	ND	0.102		mg/Kg-dry	1	2/28/2012 11:28:00 PM
Aroclor 1262	ND	0.102		mg/Kg-dry	1	2/28/2012 11:28:00 PM
Aroclor 1268	ND	0.102		mg/Kg-dry	1	2/28/2012 11:28:00 PM
Total PCBs	ND	0.102		mg/Kg-dry	1	2/28/2012 11:28:00 PM
Surr: Decachlorobiphenyl	82.9	66.1-145		%REC	1	2/28/2012 11:28:00 PM
Surr: Tetrachloro-m-xylene	91.4	67.2-132		%REC	1	2/28/2012 11:28:00 PM

NOTES:
S - Outlying surrogate recovery observed (High bias). The samples are non-detect.

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1202121**
Date Reported: **3/2/2012**

Client: GeoEngineers
Collection Date: 2/27/2012 8:39:00 AM
Project: New Zealand
Lab ID: 1202121-031
Matrix: Soil
Client Sample ID: B20-3-20.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 1956		Analyst: SG
Naphthalene	704	63.8		µg/Kg-dry	1	3/1/2012 6:07:00 PM
2-Methylnaphthalene	1,830	63.8		µg/Kg-dry	1	3/1/2012 6:07:00 PM
1-Methylnaphthalene	1,280	63.8		µg/Kg-dry	1	3/1/2012 6:07:00 PM
Acenaphthylene	ND	63.8		µg/Kg-dry	1	3/1/2012 6:07:00 PM
Acenaphthene	534	63.8		µg/Kg-dry	1	3/1/2012 6:07:00 PM
Fluorene	ND	63.8		µg/Kg-dry	1	3/1/2012 6:07:00 PM
Phenanthrene	111	63.8		µg/Kg-dry	1	3/1/2012 6:07:00 PM
Anthracene	ND	63.8		µg/Kg-dry	1	3/1/2012 6:07:00 PM
Fluoranthene	129	63.8		µg/Kg-dry	1	3/1/2012 6:07:00 PM
Pyrene	191	63.8		µg/Kg-dry	1	3/1/2012 6:07:00 PM
Benz(a)anthracene	214	63.8		µg/Kg-dry	1	3/1/2012 6:07:00 PM
Chrysene	118	63.8		µg/Kg-dry	1	3/1/2012 6:07:00 PM
Benzo(b)fluoranthene	186	63.8		µg/Kg-dry	1	3/1/2012 6:07:00 PM
Benzo(k)fluoranthene	66.4	63.8		µg/Kg-dry	1	3/1/2012 6:07:00 PM
Benzo(a)pyrene	147	63.8		µg/Kg-dry	1	3/1/2012 6:07:00 PM
Indeno(1,2,3-cd)pyrene	76.1	63.8		µg/Kg-dry	1	3/1/2012 6:07:00 PM
Dibenz(a,h)anthracene	ND	63.8		µg/Kg-dry	1	3/1/2012 6:07:00 PM
Benzo(g,h,i)perylene	117	63.8		µg/Kg-dry	1	3/1/2012 6:07:00 PM
Surr: 2-Fluorobiphenyl	91.2	53.5-148		%REC	1	3/1/2012 6:07:00 PM
Surr: Terphenyl-d14 (surr)	127	67.2-149		%REC	1	3/1/2012 6:07:00 PM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 1964		Analyst: PH
Dichlorodifluoromethane (CFC-12)	ND	0.0612		mg/Kg-dry	1	2/29/2012 9:29:00 PM
Chloromethane	ND	0.0612		mg/Kg-dry	1	2/29/2012 9:29:00 PM
Vinyl chloride	ND	0.00204		mg/Kg-dry	1	2/29/2012 9:29:00 PM
Bromomethane	ND	0.0918		mg/Kg-dry	1	2/29/2012 9:29:00 PM
Trichlorofluoromethane (CFC-11)	ND	0.0510		mg/Kg-dry	1	2/29/2012 9:29:00 PM
Chloroethane	ND	0.0612		mg/Kg-dry	1	2/29/2012 9:29:00 PM
1,1-Dichloroethene	ND	0.0510		mg/Kg-dry	1	2/29/2012 9:29:00 PM
Methylene chloride	ND	0.0204		mg/Kg-dry	1	2/29/2012 9:29:00 PM
trans-1,2-Dichloroethene	ND	0.0204		mg/Kg-dry	1	2/29/2012 9:29:00 PM
Methyl tert-butyl ether (MTBE)	ND	0.0510		mg/Kg-dry	1	2/29/2012 9:29:00 PM
1,1-Dichloroethane	ND	0.0204		mg/Kg-dry	1	2/29/2012 9:29:00 PM
2,2-Dichloropropane	ND	0.0510		mg/Kg-dry	1	2/29/2012 9:29:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1202121**
Date Reported: **3/2/2012**

Client: GeoEngineers
Collection Date: 2/27/2012 8:39:00 AM
Project: New Zealand
Lab ID: 1202121-031
Matrix: Soil
Client Sample ID: B20-3-20.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: 1964		Analyst: PH
cis-1,2-Dichloroethene	ND	0.0204		mg/Kg-dry	1	2/29/2012 9:29:00 PM
Chloroform	ND	0.0204		mg/Kg-dry	1	2/29/2012 9:29:00 PM
1,1,1-Trichloroethane (TCA)	ND	0.0204		mg/Kg-dry	1	2/29/2012 9:29:00 PM
1,1-Dichloropropene	ND	0.0204		mg/Kg-dry	1	2/29/2012 9:29:00 PM
Carbon tetrachloride	ND	0.0204		mg/Kg-dry	1	2/29/2012 9:29:00 PM
1,2-Dichloroethane	ND	0.0306		mg/Kg-dry	1	2/29/2012 9:29:00 PM
Benzene	ND	0.0204		mg/Kg-dry	1	2/29/2012 9:29:00 PM
Trichloroethene (TCE)	ND	0.0306		mg/Kg-dry	1	2/29/2012 9:29:00 PM
1,2-Dichloropropane	ND	0.0204		mg/Kg-dry	1	2/29/2012 9:29:00 PM
Bromodichloromethane	ND	0.0204		mg/Kg-dry	1	2/29/2012 9:29:00 PM
Dibromomethane	ND	0.0408		mg/Kg-dry	1	2/29/2012 9:29:00 PM
cis-1,3-Dichloropropene	ND	0.0204		mg/Kg-dry	1	2/29/2012 9:29:00 PM
Toluene	ND	0.0204		mg/Kg-dry	1	2/29/2012 9:29:00 PM
trans-1,3-Dichloropropene	ND	0.0306		mg/Kg-dry	1	2/29/2012 9:29:00 PM
1,1,2-Trichloroethane	ND	0.0306		mg/Kg-dry	1	2/29/2012 9:29:00 PM
1,3-Dichloropropane	ND	0.0510		mg/Kg-dry	1	2/29/2012 9:29:00 PM
Tetrachloroethene (PCE)	ND	0.0204		mg/Kg-dry	1	2/29/2012 9:29:00 PM
Dibromochloromethane	ND	0.0306		mg/Kg-dry	1	2/29/2012 9:29:00 PM
1,2-Dibromoethane (EDB)	ND	0.00510		mg/Kg-dry	1	2/29/2012 9:29:00 PM
Chlorobenzene	ND	0.0204		mg/Kg-dry	1	2/29/2012 9:29:00 PM
1,1,1,2-Tetrachloroethane	ND	0.0306		mg/Kg-dry	1	2/29/2012 9:29:00 PM
Ethylbenzene	ND	0.0306		mg/Kg-dry	1	2/29/2012 9:29:00 PM
m,p-Xylene	0.0250	0.0204		mg/Kg-dry	1	2/29/2012 9:29:00 PM
o-Xylene	0.0505	0.0204		mg/Kg-dry	1	2/29/2012 9:29:00 PM
Styrene	ND	0.0204		mg/Kg-dry	1	2/29/2012 9:29:00 PM
Isopropylbenzene	ND	0.0816		mg/Kg-dry	1	2/29/2012 9:29:00 PM
Bromoform	ND	0.0204		mg/Kg-dry	1	2/29/2012 9:29:00 PM
1,1,2,2-Tetrachloroethane	ND	0.0204		mg/Kg-dry	1	2/29/2012 9:29:00 PM
n-Propylbenzene	0.172	0.0204		mg/Kg-dry	1	2/29/2012 9:29:00 PM
Bromobenzene	ND	0.0306		mg/Kg-dry	1	2/29/2012 9:29:00 PM
1,3,5-Trimethylbenzene	0.187	0.0204		mg/Kg-dry	1	2/29/2012 9:29:00 PM
2-Chlorotoluene	ND	0.0204		mg/Kg-dry	1	2/29/2012 9:29:00 PM
4-Chlorotoluene	ND	0.0204		mg/Kg-dry	1	2/29/2012 9:29:00 PM
tert-Butylbenzene	ND	0.0204		mg/Kg-dry	1	2/29/2012 9:29:00 PM
1,2,3-Trichloropropane	ND	0.0204		mg/Kg-dry	1	2/29/2012 9:29:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1202121**
Date Reported: **3/2/2012**

Client: GeoEngineers
Collection Date: 2/27/2012 8:39:00 AM
Project: New Zealand
Lab ID: 1202121-031
Matrix: Soil
Client Sample ID: B20-3-20.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: 1964		Analyst: PH
1,2,4-Trichlorobenzene	ND	0.0510		mg/Kg-dry	1	2/29/2012 9:29:00 PM
sec-Butylbenzene	0.0867	0.0204		mg/Kg-dry	1	2/29/2012 9:29:00 PM
4-Isopropyltoluene	0.0291	0.0204		mg/Kg-dry	1	2/29/2012 9:29:00 PM
1,3-Dichlorobenzene	ND	0.0204		mg/Kg-dry	1	2/29/2012 9:29:00 PM
1,4-Dichlorobenzene	ND	0.0204		mg/Kg-dry	1	2/29/2012 9:29:00 PM
n-Butylbenzene	0.728	0.0204		mg/Kg-dry	1	2/29/2012 9:29:00 PM
1,2-Dichlorobenzene	0.0673	0.0204		mg/Kg-dry	1	2/29/2012 9:29:00 PM
1,2-Dibromo-3-chloropropane	ND	0.0306		mg/Kg-dry	1	2/29/2012 9:29:00 PM
1,2,4-Trimethylbenzene	1.61	0.0204		mg/Kg-dry	1	2/29/2012 9:29:00 PM
Hexachlorobutadiene	ND	0.102		mg/Kg-dry	1	2/29/2012 9:29:00 PM
Naphthalene	0.864	0.0306		mg/Kg-dry	1	2/29/2012 9:29:00 PM
1,2,3-Trichlorobenzene	ND	0.0204		mg/Kg-dry	1	2/29/2012 9:29:00 PM
Surr: 1-Bromo-4-fluorobenzene	91.6	63.1-141		%REC	1	2/29/2012 9:29:00 PM
Surr: Dibromofluoromethane	96.6	67.6-119		%REC	1	2/29/2012 9:29:00 PM
Surr: Toluene-d8	104	78.5-126		%REC	1	2/29/2012 9:29:00 PM
Total Metals by EPA Method 6020				Batch ID: 1955		Analyst: BR
Arsenic	2.67	0.0904		mg/Kg-dry	1	2/29/2012 12:33:18 AM
Barium	59.2	0.452		mg/Kg-dry	1	2/29/2012 12:33:18 AM
Cadmium	ND	0.181		mg/Kg-dry	1	2/29/2012 12:33:18 AM
Chromium	23.7	0.0904		mg/Kg-dry	1	2/29/2012 12:33:18 AM
Lead	6.01	0.181		mg/Kg-dry	1	2/29/2012 12:33:18 AM
Selenium	ND	0.452		mg/Kg-dry	1	2/29/2012 12:33:18 AM
Silver	ND	0.0904		mg/Kg-dry	1	2/29/2012 12:33:18 AM
Mercury by EPA Method 7471				Batch ID: 1958		Analyst: MC
Mercury	ND	0.281		mg/Kg-dry	1	2/29/2012 3:27:39 PM
Sample Moisture (Percent Moisture)				Batch ID: R3490		Analyst: EM
Percent Moisture	16.2			wt%	1	2/29/2012 10:27:42 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1202121**
Date Reported: **3/2/2012**

Client: GeoEngineers
Collection Date: 2/27/2012 10:14:00 AM
Project: New Zealand
Lab ID: 1202121-039
Matrix: Soil
Client Sample ID: B20-3-50.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 1961		Analyst: EM
Diesel (Fuel Oil)	ND	19.7		mg/Kg-dry	1	2/28/2012 11:24:00 PM
Heavy Oil	ND	49.1		mg/Kg-dry	1	2/28/2012 11:24:00 PM
Surr: 2-Fluorobiphenyl	98.1	84.2-137		%REC	1	2/28/2012 11:24:00 PM
Surr: o-Terphenyl	108	87.1-138		%REC	1	2/28/2012 11:24:00 PM
Gasoline by NWTPH-Gx				Batch ID: 1963		Analyst: PH
Gasoline	ND	5.00		mg/Kg-dry	1	2/28/2012 8:02:00 PM
Surr: 1,4-Difluorobenzene	118	65-135		%REC	1	2/28/2012 8:02:00 PM
Surr: 4-Bromofluorobenzene	111	65-135		%REC	1	2/28/2012 8:02:00 PM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 1953		Analyst: PH
Dichlorodifluoromethane (CFC-12)	ND	0.0474		mg/Kg-dry	1	2/29/2012 3:11:00 AM
Chloromethane	ND	0.0474		mg/Kg-dry	1	2/29/2012 3:11:00 AM
Vinyl chloride	ND	0.00158		mg/Kg-dry	1	2/29/2012 3:11:00 AM
Bromomethane	ND	0.0711		mg/Kg-dry	1	2/29/2012 3:11:00 AM
Trichlorofluoromethane (CFC-11)	ND	0.0395		mg/Kg-dry	1	2/29/2012 3:11:00 AM
Chloroethane	ND	0.0474		mg/Kg-dry	1	2/29/2012 3:11:00 AM
1,1-Dichloroethene	ND	0.0395		mg/Kg-dry	1	2/29/2012 3:11:00 AM
Methylene chloride	ND	0.0158		mg/Kg-dry	1	2/29/2012 3:11:00 AM
trans-1,2-Dichloroethene	ND	0.0158		mg/Kg-dry	1	2/29/2012 3:11:00 AM
Methyl tert-butyl ether (MTBE)	ND	0.0395		mg/Kg-dry	1	2/29/2012 3:11:00 AM
1,1-Dichloroethane	ND	0.0158		mg/Kg-dry	1	2/29/2012 3:11:00 AM
2,2-Dichloropropane	ND	0.0395		mg/Kg-dry	1	2/29/2012 3:11:00 AM
cis-1,2-Dichloroethene	ND	0.0158		mg/Kg-dry	1	2/29/2012 3:11:00 AM
Chloroform	ND	0.0158		mg/Kg-dry	1	2/29/2012 3:11:00 AM
1,1,1-Trichloroethane (TCA)	ND	0.0158		mg/Kg-dry	1	2/29/2012 3:11:00 AM
1,1-Dichloropropene	ND	0.0158		mg/Kg-dry	1	2/29/2012 3:11:00 AM
Carbon tetrachloride	ND	0.0158		mg/Kg-dry	1	2/29/2012 3:11:00 AM
1,2-Dichloroethane	ND	0.0237		mg/Kg-dry	1	2/29/2012 3:11:00 AM
Benzene	ND	0.0158		mg/Kg-dry	1	2/29/2012 3:11:00 AM
Trichloroethene (TCE)	ND	0.0237		mg/Kg-dry	1	2/29/2012 3:11:00 AM
1,2-Dichloropropane	ND	0.0158		mg/Kg-dry	1	2/29/2012 3:11:00 AM
Bromodichloromethane	ND	0.0158		mg/Kg-dry	1	2/29/2012 3:11:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1202121**
Date Reported: **3/2/2012**

Client: GeoEngineers
Collection Date: 2/27/2012 10:14:00 AM
Project: New Zealand
Lab ID: 1202121-039
Matrix: Soil
Client Sample ID: B20-3-50.0

Volatile Organic Compounds by EPA Method 8260

Batch ID: 1953 Analyst: PH

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dibromomethane	ND	0.0316		mg/Kg-dry	1	2/29/2012 3:11:00 AM
cis-1,3-Dichloropropene	ND	0.0158		mg/Kg-dry	1	2/29/2012 3:11:00 AM
Toluene	ND	0.0158		mg/Kg-dry	1	2/29/2012 3:11:00 AM
trans-1,3-Dichloropropene	ND	0.0237		mg/Kg-dry	1	2/29/2012 3:11:00 AM
1,1,2-Trichloroethane	ND	0.0237		mg/Kg-dry	1	2/29/2012 3:11:00 AM
1,3-Dichloropropane	ND	0.0395		mg/Kg-dry	1	2/29/2012 3:11:00 AM
Tetrachloroethene (PCE)	ND	0.0158		mg/Kg-dry	1	2/29/2012 3:11:00 AM
Dibromochloromethane	ND	0.0237		mg/Kg-dry	1	2/29/2012 3:11:00 AM
1,2-Dibromoethane (EDB)	ND	0.00395		mg/Kg-dry	1	2/29/2012 3:11:00 AM
Chlorobenzene	ND	0.0158		mg/Kg-dry	1	2/29/2012 3:11:00 AM
1,1,1,2-Tetrachloroethane	ND	0.0237		mg/Kg-dry	1	2/29/2012 3:11:00 AM
Ethylbenzene	ND	0.0237		mg/Kg-dry	1	2/29/2012 3:11:00 AM
m,p-Xylene	ND	0.0158		mg/Kg-dry	1	2/29/2012 3:11:00 AM
o-Xylene	ND	0.0158		mg/Kg-dry	1	2/29/2012 3:11:00 AM
Styrene	ND	0.0158		mg/Kg-dry	1	2/29/2012 3:11:00 AM
Isopropylbenzene	ND	0.0632		mg/Kg-dry	1	2/29/2012 3:11:00 AM
Bromoform	ND	0.0158		mg/Kg-dry	1	2/29/2012 3:11:00 AM
1,1,2,2-Tetrachloroethane	ND	0.0158		mg/Kg-dry	1	2/29/2012 3:11:00 AM
n-Propylbenzene	ND	0.0158		mg/Kg-dry	1	2/29/2012 3:11:00 AM
Bromobenzene	ND	0.0237		mg/Kg-dry	1	2/29/2012 3:11:00 AM
1,3,5-Trimethylbenzene	ND	0.0158		mg/Kg-dry	1	2/29/2012 3:11:00 AM
2-Chlorotoluene	ND	0.0158		mg/Kg-dry	1	2/29/2012 3:11:00 AM
4-Chlorotoluene	ND	0.0158		mg/Kg-dry	1	2/29/2012 3:11:00 AM
tert-Butylbenzene	ND	0.0158		mg/Kg-dry	1	2/29/2012 3:11:00 AM
1,2,3-Trichloropropane	ND	0.0158		mg/Kg-dry	1	2/29/2012 3:11:00 AM
1,2,4-Trichlorobenzene	ND	0.0376	[RA]	mg/Kg-dry	1	3/1/2012 8:20:00 AM
sec-Butylbenzene	ND	0.0158		mg/Kg-dry	1	2/29/2012 3:11:00 AM
4-Isopropyltoluene	ND	0.0158		mg/Kg-dry	1	2/29/2012 3:11:00 AM
1,3-Dichlorobenzene	ND	0.0151	[RA]	mg/Kg-dry	1	3/1/2012 8:20:00 AM
1,4-Dichlorobenzene	ND	0.0151	[RA]	mg/Kg-dry	1	3/1/2012 8:20:00 AM
n-Butylbenzene	ND	0.0151	[RA]	mg/Kg-dry	1	3/1/2012 8:20:00 AM
1,2-Dichlorobenzene	ND	0.0151	[RA]	mg/Kg-dry	1	3/1/2012 8:20:00 AM
1,2-Dibromo-3-chloropropane	ND	0.0226	[RA]	mg/Kg-dry	1	3/1/2012 8:20:00 AM
1,2,4-Trimethylbenzene	ND	0.0158		mg/Kg-dry	1	2/29/2012 3:11:00 AM
Hexachlorobutadiene	ND	0.0753	[RA]	mg/Kg-dry	1	3/1/2012 8:20:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1202121**
Date Reported: **3/2/2012**

Client: GeoEngineers
Collection Date: 2/27/2012 10:14:00 AM
Project: New Zealand
Lab ID: 1202121-039
Matrix: Soil
Client Sample ID: B20-3-50.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: 1953		Analyst: PH
Naphthalene	ND	0.0226	[RA]	mg/Kg-dry	1	3/1/2012 8:20:00 AM
1,2,3-Trichlorobenzene	ND	0.0151	[RA]	mg/Kg-dry	1	3/1/2012 8:20:00 AM
Surr: 1-Bromo-4-fluorobenzene	91.3	63.1-141		%REC	1	2/29/2012 3:11:00 AM
Surr: Dibromofluoromethane	107	67.6-119		%REC	1	2/29/2012 3:11:00 AM
Surr: Toluene-d8	100	78.5-126		%REC	1	2/29/2012 3:11:00 AM
Sample Moisture (Percent Moisture)				Batch ID: R3490		Analyst: EM
Percent Moisture	13.8			wt%	1	2/29/2012 10:27:42 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1202121**
Date Reported: **3/2/2012**

Client: GeoEngineers
Collection Date: 2/28/2012 8:02:00 AM
Project: New Zealand
Lab ID: 1202121-048
Matrix: Soil
Client Sample ID: B20-1-5.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 1972		Analyst: EM
Diesel (Fuel Oil)	ND	21.4		mg/Kg-dry	1	3/1/2012 8:39:00 PM
Heavy Oil	ND	53.4		mg/Kg-dry	1	3/1/2012 8:39:00 PM
Surr: 2-Fluorobiphenyl	95.0	84.2-137		%REC	1	3/1/2012 8:39:00 PM
Surr: o-Terphenyl	97.3	87.1-138		%REC	1	3/1/2012 8:39:00 PM
Gasoline by NWTPH-Gx				Batch ID: 1985		Analyst: PH
Gasoline	ND	4.38		mg/Kg-dry	1	3/1/2012 12:32:00 PM
Surr: 1,4-Difluorobenzene	115	65-135		%REC	1	3/1/2012 12:32:00 PM
Surr: 4-Bromofluorobenzene	114	65-135		%REC	1	3/1/2012 12:32:00 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 1976		Analyst: SG
Naphthalene	ND	51.5		µg/Kg-dry	1	3/2/2012 6:30:00 PM
2-Methylnaphthalene	ND	51.5		µg/Kg-dry	1	3/2/2012 6:30:00 PM
1-Methylnaphthalene	ND	51.5		µg/Kg-dry	1	3/2/2012 6:30:00 PM
Acenaphthylene	ND	51.5		µg/Kg-dry	1	3/2/2012 6:30:00 PM
Acenaphthene	ND	51.5		µg/Kg-dry	1	3/2/2012 6:30:00 PM
Fluorene	ND	51.5		µg/Kg-dry	1	3/2/2012 6:30:00 PM
Phenanthrene	ND	51.5		µg/Kg-dry	1	3/2/2012 6:30:00 PM
Anthracene	ND	51.5		µg/Kg-dry	1	3/2/2012 6:30:00 PM
Fluoranthene	ND	51.5		µg/Kg-dry	1	3/2/2012 6:30:00 PM
Pyrene	ND	51.5		µg/Kg-dry	1	3/2/2012 6:30:00 PM
Benz(a)anthracene	ND	51.5		µg/Kg-dry	1	3/2/2012 6:30:00 PM
Chrysene	ND	51.5		µg/Kg-dry	1	3/2/2012 6:30:00 PM
Benzo(b)fluoranthene	ND	51.5		µg/Kg-dry	1	3/2/2012 6:30:00 PM
Benzo(k)fluoranthene	ND	51.5		µg/Kg-dry	1	3/2/2012 6:30:00 PM
Benzo(a)pyrene	ND	51.5		µg/Kg-dry	1	3/2/2012 6:30:00 PM
Indeno(1,2,3-cd)pyrene	ND	51.5		µg/Kg-dry	1	3/2/2012 6:30:00 PM
Dibenz(a,h)anthracene	ND	51.5		µg/Kg-dry	1	3/2/2012 6:30:00 PM
Benzo(g,h,i)perylene	ND	51.5		µg/Kg-dry	1	3/2/2012 6:30:00 PM
Surr: 2-Fluorobiphenyl	86.8	53.5-148		%REC	1	3/2/2012 6:30:00 PM
Surr: Terphenyl-d14 (surr)	90.4	67.2-149		%REC	1	3/2/2012 6:30:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1202121**
Date Reported: **3/2/2012**

Client: GeoEngineers
Collection Date: 2/28/2012 8:02:00 AM
Project: New Zealand
Lab ID: 1202121-048
Matrix: Soil
Client Sample ID: B20-1-5.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: 1975		Analyst: PH
Dichlorodifluoromethane (CFC-12)	ND	0.0550		mg/Kg-dry	1	3/1/2012 5:18:00 PM
Chloromethane	ND	0.0550		mg/Kg-dry	1	3/1/2012 5:18:00 PM
Vinyl chloride	ND	0.00183		mg/Kg-dry	1	3/1/2012 5:18:00 PM
Bromomethane	ND	0.0825		mg/Kg-dry	1	3/1/2012 5:18:00 PM
Trichlorofluoromethane (CFC-11)	ND	0.0459		mg/Kg-dry	1	3/1/2012 5:18:00 PM
Chloroethane	ND	0.0550		mg/Kg-dry	1	3/1/2012 5:18:00 PM
1,1-Dichloroethene	ND	0.0459		mg/Kg-dry	1	3/1/2012 5:18:00 PM
Methylene chloride	ND	0.0183		mg/Kg-dry	1	3/1/2012 5:18:00 PM
trans-1,2-Dichloroethene	ND	0.0183		mg/Kg-dry	1	3/1/2012 5:18:00 PM
Methyl tert-butyl ether (MTBE)	ND	0.0459		mg/Kg-dry	1	3/1/2012 5:18:00 PM
1,1-Dichloroethane	ND	0.0183		mg/Kg-dry	1	3/1/2012 5:18:00 PM
2,2-Dichloropropane	ND	0.0459		mg/Kg-dry	1	3/1/2012 5:18:00 PM
cis-1,2-Dichloroethene	ND	0.0183		mg/Kg-dry	1	3/1/2012 5:18:00 PM
Chloroform	ND	0.0183		mg/Kg-dry	1	3/1/2012 5:18:00 PM
1,1,1-Trichloroethane (TCA)	ND	0.0183		mg/Kg-dry	1	3/1/2012 5:18:00 PM
1,1-Dichloropropene	ND	0.0183		mg/Kg-dry	1	3/1/2012 5:18:00 PM
Carbon tetrachloride	ND	0.0183		mg/Kg-dry	1	3/1/2012 5:18:00 PM
1,2-Dichloroethane	ND	0.0275		mg/Kg-dry	1	3/1/2012 5:18:00 PM
Benzene	ND	0.0183		mg/Kg-dry	1	3/1/2012 5:18:00 PM
Trichloroethene (TCE)	ND	0.0275		mg/Kg-dry	1	3/1/2012 5:18:00 PM
1,2-Dichloropropane	ND	0.0183		mg/Kg-dry	1	3/1/2012 5:18:00 PM
Bromodichloromethane	ND	0.0183		mg/Kg-dry	1	3/1/2012 5:18:00 PM
Dibromomethane	ND	0.0367		mg/Kg-dry	1	3/1/2012 5:18:00 PM
cis-1,3-Dichloropropene	ND	0.0183		mg/Kg-dry	1	3/1/2012 5:18:00 PM
Toluene	ND	0.0183		mg/Kg-dry	1	3/1/2012 5:18:00 PM
trans-1,3-Dichloropropene	ND	0.0275		mg/Kg-dry	1	3/1/2012 5:18:00 PM
1,1,2-Trichloroethane	ND	0.0275		mg/Kg-dry	1	3/1/2012 5:18:00 PM
1,3-Dichloropropane	ND	0.0459		mg/Kg-dry	1	3/1/2012 5:18:00 PM
Tetrachloroethene (PCE)	ND	0.0183		mg/Kg-dry	1	3/1/2012 5:18:00 PM
Dibromochloromethane	ND	0.0275		mg/Kg-dry	1	3/1/2012 5:18:00 PM
1,2-Dibromoethane (EDB)	ND	0.00459		mg/Kg-dry	1	3/1/2012 5:18:00 PM
Chlorobenzene	ND	0.0183		mg/Kg-dry	1	3/1/2012 5:18:00 PM
1,1,1,2-Tetrachloroethane	ND	0.0275		mg/Kg-dry	1	3/1/2012 5:18:00 PM
Ethylbenzene	ND	0.0275		mg/Kg-dry	1	3/1/2012 5:18:00 PM
m,p-Xylene	ND	0.0183		mg/Kg-dry	1	3/1/2012 5:18:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1202121**
Date Reported: **3/2/2012**

Client: GeoEngineers
Collection Date: 2/28/2012 8:02:00 AM
Project: New Zealand
Lab ID: 1202121-048
Matrix: Soil
Client Sample ID: B20-1-5.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: 1975		Analyst: PH
o-Xylene	ND	0.0183		mg/Kg-dry	1	3/1/2012 5:18:00 PM
Styrene	ND	0.0183		mg/Kg-dry	1	3/1/2012 5:18:00 PM
Isopropylbenzene	ND	0.0734		mg/Kg-dry	1	3/1/2012 5:18:00 PM
Bromoform	ND	0.0183		mg/Kg-dry	1	3/1/2012 5:18:00 PM
1,1,2,2-Tetrachloroethane	ND	0.0183		mg/Kg-dry	1	3/1/2012 5:18:00 PM
n-Propylbenzene	ND	0.0183		mg/Kg-dry	1	3/1/2012 5:18:00 PM
Bromobenzene	ND	0.0275		mg/Kg-dry	1	3/1/2012 5:18:00 PM
1,3,5-Trimethylbenzene	ND	0.0183		mg/Kg-dry	1	3/1/2012 5:18:00 PM
2-Chlorotoluene	ND	0.0183		mg/Kg-dry	1	3/1/2012 5:18:00 PM
4-Chlorotoluene	ND	0.0183		mg/Kg-dry	1	3/1/2012 5:18:00 PM
tert-Butylbenzene	ND	0.0183		mg/Kg-dry	1	3/1/2012 5:18:00 PM
1,2,3-Trichloropropane	ND	0.0183		mg/Kg-dry	1	3/1/2012 5:18:00 PM
1,2,4-Trichlorobenzene	ND	0.0459		mg/Kg-dry	1	3/1/2012 5:18:00 PM
sec-Butylbenzene	ND	0.0183		mg/Kg-dry	1	3/1/2012 5:18:00 PM
4-Isopropyltoluene	ND	0.0183		mg/Kg-dry	1	3/1/2012 5:18:00 PM
1,3-Dichlorobenzene	ND	0.0183		mg/Kg-dry	1	3/1/2012 5:18:00 PM
1,4-Dichlorobenzene	ND	0.0183		mg/Kg-dry	1	3/1/2012 5:18:00 PM
n-Butylbenzene	ND	0.0183		mg/Kg-dry	1	3/1/2012 5:18:00 PM
1,2-Dichlorobenzene	ND	0.0183		mg/Kg-dry	1	3/1/2012 5:18:00 PM
1,2-Dibromo-3-chloropropane	ND	0.0275		mg/Kg-dry	1	3/1/2012 5:18:00 PM
1,2,4-Trimethylbenzene	ND	0.0183		mg/Kg-dry	1	3/1/2012 5:18:00 PM
Hexachlorobutadiene	ND	0.0917		mg/Kg-dry	1	3/1/2012 5:18:00 PM
Naphthalene	ND	0.0275		mg/Kg-dry	1	3/1/2012 5:18:00 PM
1,2,3-Trichlorobenzene	ND	0.0183		mg/Kg-dry	1	3/1/2012 5:18:00 PM
Surr: 1-Bromo-4-fluorobenzene	109	63.1-141		%REC	1	3/1/2012 5:18:00 PM
Surr: Dibromofluoromethane	99.4	67.6-119		%REC	1	3/1/2012 5:18:00 PM
Surr: Toluene-d8	99.6	78.5-126		%REC	1	3/1/2012 5:18:00 PM
Total Metals by EPA Method 6020				Batch ID: 1971		Analyst: BR
Arsenic	2.26	0.0784		mg/Kg-dry	1	3/2/2012 12:44:47 AM
Barium	57.5	0.392		mg/Kg-dry	1	3/2/2012 12:44:47 AM
Cadmium	ND	0.157		mg/Kg-dry	1	3/2/2012 12:44:47 AM
Chromium	23.2	0.0784		mg/Kg-dry	1	3/2/2012 12:44:47 AM
Lead	3.82	0.157		mg/Kg-dry	1	3/2/2012 12:44:47 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1202121**
Date Reported: **3/2/2012**

Client: GeoEngineers
Collection Date: 2/28/2012 8:02:00 AM
Project: New Zealand
Lab ID: 1202121-048
Matrix: Soil
Client Sample ID: B20-1-5.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 1971		Analyst: BR
Selenium	ND	0.392		mg/Kg-dry	1	3/2/2012 12:44:47 AM
Silver	ND	0.0784		mg/Kg-dry	1	3/2/2012 12:44:47 AM
Mercury by EPA Method 7471				Batch ID: 1982		Analyst: MC
Mercury	ND	0.256		mg/Kg-dry	1	3/1/2012 4:49:56 PM
Sample Moisture (Percent Moisture)				Batch ID: R3522		Analyst: MC
Percent Moisture	9.49			wt%	1	3/2/2012 8:28:04 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1202121**
Date Reported: **3/2/2012**

Client: GeoEngineers
Collection Date: 2/28/2012 8:27:00 AM
Project: New Zealand
Lab ID: 1202121-051
Matrix: Soil
Client Sample ID: B20-1-12.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 1972		Analyst: EM
Diesel (Fuel Oil)	ND	21.9		mg/Kg-dry	1	3/1/2012 9:34:00 PM
Heavy Oil	ND	54.8		mg/Kg-dry	1	3/1/2012 9:34:00 PM
Surr: 2-Fluorobiphenyl	94.6	84.2-137		%REC	1	3/1/2012 9:34:00 PM
Surr: o-Terphenyl	97.3	87.1-138		%REC	1	3/1/2012 9:34:00 PM
Gasoline by NWTPH-Gx				Batch ID: 1985		Analyst: PH
Gasoline	ND	4.84		mg/Kg-dry	1	3/1/2012 1:02:00 PM
Surr: 1,4-Difluorobenzene	119	65-135		%REC	1	3/1/2012 1:02:00 PM
Surr: 4-Bromofluorobenzene	114	65-135		%REC	1	3/1/2012 1:02:00 PM
Total Metals by EPA Method 6020				Batch ID: 1971		Analyst: BR
Arsenic	4.37	0.0865		mg/Kg-dry	1	3/2/2012 1:24:03 AM
Barium	68.4	0.433		mg/Kg-dry	1	3/2/2012 1:24:03 AM
Cadmium	ND	0.173		mg/Kg-dry	1	3/2/2012 1:24:03 AM
Chromium	28.3	0.0865		mg/Kg-dry	1	3/2/2012 1:24:03 AM
Lead	3.10	0.173		mg/Kg-dry	1	3/2/2012 1:24:03 AM
Selenium	ND	0.433		mg/Kg-dry	1	3/2/2012 1:24:03 AM
Silver	ND	0.0865		mg/Kg-dry	1	3/2/2012 1:24:03 AM
Mercury by EPA Method 7471				Batch ID: 1982		Analyst: MC
Mercury	ND	0.258		mg/Kg-dry	1	3/1/2012 5:02:00 PM
Sample Moisture (Percent Moisture)				Batch ID: R3522		Analyst: MC
Percent Moisture	11.8			wt%	1	3/2/2012 8:28:04 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1202121**
Date Reported: **3/2/2012**

Client: GeoEngineers
Collection Date: 2/27/2012 4:19:00 PM
Project: New Zealand
Lab ID: 1202121-070
Matrix: Soil
Client Sample ID: MW20-1-2.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 1961		Analyst: EM
Diesel (Fuel Oil)	ND	17.9		mg/Kg-dry	1	2/28/2012 11:52:00 PM
Heavy Oil	130	44.7		mg/Kg-dry	1	2/28/2012 11:52:00 PM
Surr: 2-Fluorobiphenyl	98.5	84.2-137		%REC	1	2/28/2012 11:52:00 PM
Surr: o-Terphenyl	110	87.1-138		%REC	1	2/28/2012 11:52:00 PM
Gasoline by NWTPH-Gx				Batch ID: 1963		Analyst: PH
Gasoline	ND	4.23		mg/Kg-dry	1	2/28/2012 8:32:00 PM
Surr: 1,4-Difluorobenzene	109	65-135		%REC	1	2/28/2012 8:32:00 PM
Surr: 4-Bromofluorobenzene	111	65-135		%REC	1	2/28/2012 8:32:00 PM
Polychlorinated Biphenyls (PCB) by EPA 8082				Batch ID: 1957		Analyst: SG
Aroclor 1016	ND	0.102		mg/Kg-dry	1	2/29/2012 2:20:00 AM
Aroclor 1221	ND	0.102		mg/Kg-dry	1	2/29/2012 2:20:00 AM
Aroclor 1232	ND	0.102		mg/Kg-dry	1	2/29/2012 2:20:00 AM
Aroclor 1242	ND	0.102		mg/Kg-dry	1	2/29/2012 2:20:00 AM
Aroclor 1248	ND	0.102		mg/Kg-dry	1	2/29/2012 2:20:00 AM
Aroclor 1254	ND	0.102		mg/Kg-dry	1	2/29/2012 2:20:00 AM
Aroclor 1260	ND	0.102		mg/Kg-dry	1	2/29/2012 2:20:00 AM
Aroclor 1262	ND	0.102		mg/Kg-dry	1	2/29/2012 2:20:00 AM
Aroclor 1268	ND	0.102		mg/Kg-dry	1	2/29/2012 2:20:00 AM
Total PCBs	ND	0.102		mg/Kg-dry	1	2/29/2012 2:20:00 AM
Surr: Decachlorobiphenyl	84.2	66.1-145		%REC	1	2/29/2012 2:20:00 AM
Surr: Tetrachloro-m-xylene	98.0	67.2-132		%REC	1	2/29/2012 2:20:00 AM

NOTES:
S - Outlying surrogate recovery observed (High bias). The samples are non-detect.

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 1956		Analyst: SG
Naphthalene	ND	52.7		µg/Kg-dry	1	3/1/2012 6:31:00 PM
2-Methylnaphthalene	ND	52.7		µg/Kg-dry	1	3/1/2012 6:31:00 PM
1-Methylnaphthalene	ND	52.7		µg/Kg-dry	1	3/1/2012 6:31:00 PM
Acenaphthylene	ND	52.7		µg/Kg-dry	1	3/1/2012 6:31:00 PM
Acenaphthene	ND	52.7		µg/Kg-dry	1	3/1/2012 6:31:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1202121**
Date Reported: **3/2/2012**

Client: GeoEngineers
Collection Date: 2/27/2012 4:19:00 PM
Project: New Zealand
Lab ID: 1202121-070
Matrix: Soil
Client Sample ID: MW20-1-2.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 1956		Analyst: SG
Fluorene	ND	52.7		µg/Kg-dry	1	3/1/2012 6:31:00 PM
Phenanthrene	265	52.7		µg/Kg-dry	1	3/1/2012 6:31:00 PM
Anthracene	ND	52.7		µg/Kg-dry	1	3/1/2012 6:31:00 PM
Fluoranthene	195	52.7		µg/Kg-dry	1	3/1/2012 6:31:00 PM
Pyrene	258	52.7		µg/Kg-dry	1	3/1/2012 6:31:00 PM
Benz(a)anthracene	162	52.7		µg/Kg-dry	1	3/1/2012 6:31:00 PM
Chrysene	126	52.7		µg/Kg-dry	1	3/1/2012 6:31:00 PM
Benzo(b)fluoranthene	120	52.7		µg/Kg-dry	1	3/1/2012 6:31:00 PM
Benzo(k)fluoranthene	ND	52.7		µg/Kg-dry	1	3/1/2012 6:31:00 PM
Benzo(a)pyrene	82.8	52.7		µg/Kg-dry	1	3/1/2012 6:31:00 PM
Indeno(1,2,3-cd)pyrene	ND	52.7		µg/Kg-dry	1	3/1/2012 6:31:00 PM
Dibenz(a,h)anthracene	ND	52.7		µg/Kg-dry	1	3/1/2012 6:31:00 PM
Benzo(g,h,i)perylene	57.8	52.7		µg/Kg-dry	1	3/1/2012 6:31:00 PM
Surr: 2-Fluorobiphenyl	82.6	53.5-148		%REC	1	3/1/2012 6:31:00 PM
Surr: Terphenyl-d14 (surr)	106	67.2-149		%REC	1	3/1/2012 6:31:00 PM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 1953		Analyst: PH
Dichlorodifluoromethane (CFC-12)	ND	0.0519		mg/Kg-dry	1	2/29/2012 3:42:00 AM
Chloromethane	ND	0.0519		mg/Kg-dry	1	2/29/2012 3:42:00 AM
Vinyl chloride	ND	0.00173		mg/Kg-dry	1	2/29/2012 3:42:00 AM
Bromomethane	ND	0.0778		mg/Kg-dry	1	2/29/2012 3:42:00 AM
Trichlorofluoromethane (CFC-11)	ND	0.0432		mg/Kg-dry	1	2/29/2012 3:42:00 AM
Chloroethane	ND	0.0519		mg/Kg-dry	1	2/29/2012 3:42:00 AM
1,1-Dichloroethene	ND	0.0432		mg/Kg-dry	1	2/29/2012 3:42:00 AM
Methylene chloride	ND	0.0173		mg/Kg-dry	1	2/29/2012 3:42:00 AM
trans-1,2-Dichloroethene	ND	0.0173		mg/Kg-dry	1	2/29/2012 3:42:00 AM
Methyl tert-butyl ether (MTBE)	ND	0.0432		mg/Kg-dry	1	2/29/2012 3:42:00 AM
1,1-Dichloroethane	ND	0.0173		mg/Kg-dry	1	2/29/2012 3:42:00 AM
2,2-Dichloropropane	ND	0.0432		mg/Kg-dry	1	2/29/2012 3:42:00 AM
cis-1,2-Dichloroethene	ND	0.0173		mg/Kg-dry	1	2/29/2012 3:42:00 AM
Chloroform	ND	0.0173		mg/Kg-dry	1	2/29/2012 3:42:00 AM
1,1,1-Trichloroethane (TCA)	ND	0.0173		mg/Kg-dry	1	2/29/2012 3:42:00 AM
1,1-Dichloropropene	ND	0.0173		mg/Kg-dry	1	2/29/2012 3:42:00 AM
Carbon tetrachloride	ND	0.0173		mg/Kg-dry	1	2/29/2012 3:42:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1202121**
Date Reported: **3/2/2012**

Client: GeoEngineers
Collection Date: 2/27/2012 4:19:00 PM
Project: New Zealand
Lab ID: 1202121-070
Matrix: Soil
Client Sample ID: MW20-1-2.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: 1953		Analyst: PH
1,2-Dichloroethane	ND	0.0259		mg/Kg-dry	1	2/29/2012 3:42:00 AM
Benzene	ND	0.0173		mg/Kg-dry	1	2/29/2012 3:42:00 AM
Trichloroethene (TCE)	ND	0.0259		mg/Kg-dry	1	2/29/2012 3:42:00 AM
1,2-Dichloropropane	ND	0.0173		mg/Kg-dry	1	2/29/2012 3:42:00 AM
Bromodichloromethane	ND	0.0173		mg/Kg-dry	1	2/29/2012 3:42:00 AM
Dibromomethane	ND	0.0346		mg/Kg-dry	1	2/29/2012 3:42:00 AM
cis-1,3-Dichloropropene	ND	0.0173		mg/Kg-dry	1	2/29/2012 3:42:00 AM
Toluene	ND	0.0173		mg/Kg-dry	1	2/29/2012 3:42:00 AM
trans-1,3-Dichloropropene	ND	0.0259		mg/Kg-dry	1	2/29/2012 3:42:00 AM
1,1,2-Trichloroethane	ND	0.0259		mg/Kg-dry	1	2/29/2012 3:42:00 AM
1,3-Dichloropropane	ND	0.0432		mg/Kg-dry	1	2/29/2012 3:42:00 AM
Tetrachloroethene (PCE)	ND	0.0173		mg/Kg-dry	1	2/29/2012 3:42:00 AM
Dibromochloromethane	ND	0.0259		mg/Kg-dry	1	2/29/2012 3:42:00 AM
1,2-Dibromoethane (EDB)	ND	0.00432		mg/Kg-dry	1	2/29/2012 3:42:00 AM
Chlorobenzene	ND	0.0173		mg/Kg-dry	1	2/29/2012 3:42:00 AM
1,1,1,2-Tetrachloroethane	ND	0.0259		mg/Kg-dry	1	2/29/2012 3:42:00 AM
Ethylbenzene	ND	0.0259		mg/Kg-dry	1	2/29/2012 3:42:00 AM
m,p-Xylene	ND	0.0173		mg/Kg-dry	1	2/29/2012 3:42:00 AM
o-Xylene	ND	0.0173		mg/Kg-dry	1	2/29/2012 3:42:00 AM
Styrene	ND	0.0173		mg/Kg-dry	1	2/29/2012 3:42:00 AM
Isopropylbenzene	ND	0.0691		mg/Kg-dry	1	2/29/2012 3:42:00 AM
Bromoform	ND	0.0173		mg/Kg-dry	1	2/29/2012 3:42:00 AM
1,1,2,2-Tetrachloroethane	ND	0.0173		mg/Kg-dry	1	2/29/2012 3:42:00 AM
n-Propylbenzene	ND	0.0173		mg/Kg-dry	1	2/29/2012 3:42:00 AM
Bromobenzene	ND	0.0259		mg/Kg-dry	1	2/29/2012 3:42:00 AM
1,3,5-Trimethylbenzene	ND	0.0173		mg/Kg-dry	1	2/29/2012 3:42:00 AM
2-Chlorotoluene	ND	0.0173		mg/Kg-dry	1	2/29/2012 3:42:00 AM
4-Chlorotoluene	ND	0.0173		mg/Kg-dry	1	2/29/2012 3:42:00 AM
tert-Butylbenzene	ND	0.0173		mg/Kg-dry	1	2/29/2012 3:42:00 AM
1,2,3-Trichloropropane	ND	0.0173		mg/Kg-dry	1	2/29/2012 3:42:00 AM
1,2,4-Trichlorobenzene	ND	0.0421	[RA]	mg/Kg-dry	1	3/1/2012 9:20:00 AM
sec-Butylbenzene	ND	0.0173		mg/Kg-dry	1	2/29/2012 3:42:00 AM
4-Isopropyltoluene	ND	0.0173		mg/Kg-dry	1	2/29/2012 3:42:00 AM
1,3-Dichlorobenzene	ND	0.0168	[RA]	mg/Kg-dry	1	3/1/2012 9:20:00 AM
1,4-Dichlorobenzene	ND	0.0168	[RA]	mg/Kg-dry	1	3/1/2012 9:20:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1202121**
Date Reported: **3/2/2012**

Client: GeoEngineers
Collection Date: 2/27/2012 4:19:00 PM
Project: New Zealand
Lab ID: 1202121-070
Matrix: Soil
Client Sample ID: MW20-1-2.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: 1953		Analyst: PH
n-Butylbenzene	ND	0.0168	[RA]	mg/Kg-dry	1	3/1/2012 9:20:00 AM
1,2-Dichlorobenzene	ND	0.0168	[RA]	mg/Kg-dry	1	3/1/2012 9:20:00 AM
1,2-Dibromo-3-chloropropane	ND	0.0252	[RA]	mg/Kg-dry	1	3/1/2012 9:20:00 AM
1,2,4-Trimethylbenzene	ND	0.0173		mg/Kg-dry	1	2/29/2012 3:42:00 AM
Hexachlorobutadiene	ND	0.0841	[RA]	mg/Kg-dry	1	3/1/2012 9:20:00 AM
Naphthalene	ND	0.0252	[RA]	mg/Kg-dry	1	3/1/2012 9:20:00 AM
1,2,3-Trichlorobenzene	ND	0.0168	[RA]	mg/Kg-dry	1	3/1/2012 9:20:00 AM
Surr: 1-Bromo-4-fluorobenzene	77.9	63.1-141		%REC	1	2/29/2012 3:42:00 AM
Surr: Dibromofluoromethane	114	67.6-119		%REC	1	2/29/2012 3:42:00 AM
Surr: Toluene-d8	96.5	78.5-126		%REC	1	2/29/2012 3:42:00 AM
Total Metals by EPA Method 6020				Batch ID: 1955		Analyst: BR
Arsenic	4.28	0.0843		mg/Kg-dry	1	2/29/2012 12:42:17 AM
Barium	231	0.421		mg/Kg-dry	1	2/29/2012 12:42:17 AM
Cadmium	0.377	0.169		mg/Kg-dry	1	2/29/2012 12:42:17 AM
Chromium	25.5	0.0843		mg/Kg-dry	1	2/29/2012 12:42:17 AM
Lead	49.7	0.169		mg/Kg-dry	1	2/29/2012 12:42:17 AM
Selenium	ND	0.421		mg/Kg-dry	1	2/29/2012 12:42:17 AM
Silver	0.0998	0.0843		mg/Kg-dry	1	2/29/2012 12:42:17 AM
Mercury by EPA Method 7471				Batch ID: 1958		Analyst: MC
Mercury	ND	0.268		mg/Kg-dry	1	2/29/2012 3:30:42 PM
Sample Moisture (Percent Moisture)				Batch ID: R3490		Analyst: EM
Percent Moisture	12.1			wt%	1	2/29/2012 10:27:42 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1202121**
Date Reported: **3/2/2012**

Client: GeoEngineers
Collection Date: 2/27/2012 5:05:00 PM
Project: New Zealand
Lab ID: 1202121-074
Matrix: Soil
Client Sample ID: MW20-1-12.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 1961		Analyst: EM
Diesel (Fuel Oil)	ND	18.6		mg/Kg-dry	1	2/29/2012 12:47:00 AM
Heavy Oil	ND	46.5		mg/Kg-dry	1	2/29/2012 12:47:00 AM
Surr: 2-Fluorobiphenyl	98.3	84.2-137		%REC	1	2/29/2012 12:47:00 AM
Surr: o-Terphenyl	108	87.1-138		%REC	1	2/29/2012 12:47:00 AM
Gasoline by NWTPH-Gx				Batch ID: 1963		Analyst: PH
Gasoline	ND	4.47		mg/Kg-dry	1	2/28/2012 9:31:00 PM
Surr: 1,4-Difluorobenzene	108	65-135		%REC	1	2/28/2012 9:31:00 PM
Surr: 4-Bromofluorobenzene	113	65-135		%REC	1	2/28/2012 9:31:00 PM
Total Metals by EPA Method 6020				Batch ID: 1955		Analyst: BR
Arsenic	2.06	0.0815		mg/Kg-dry	1	2/29/2012 12:51:16 AM
Barium	45.7	0.408		mg/Kg-dry	1	2/29/2012 12:51:16 AM
Cadmium	ND	0.163		mg/Kg-dry	1	2/29/2012 12:51:16 AM
Chromium	25.8	0.0815		mg/Kg-dry	1	2/29/2012 12:51:16 AM
Lead	2.26	0.163		mg/Kg-dry	1	2/29/2012 12:51:16 AM
Selenium	ND	0.408		mg/Kg-dry	1	2/29/2012 12:51:16 AM
Silver	ND	0.0815		mg/Kg-dry	1	2/29/2012 12:51:16 AM
Mercury by EPA Method 7471				Batch ID: 1958		Analyst: MC
Mercury	ND	0.250		mg/Kg-dry	1	2/29/2012 3:39:51 PM
Sample Moisture (Percent Moisture)				Batch ID: R3490		Analyst: EM
Percent Moisture	9.15			wt%	1	2/29/2012 10:27:42 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1202121**
Date Reported: **3/2/2012**

Client: GeoEngineers
Collection Date: 2/28/2012 9:25:00 AM
Project: New Zealand
Lab ID: 1202121-089
Matrix: Soil
Client Sample ID: MW20-1-70.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 1961		Analyst: EM
Diesel (Fuel Oil)	ND	18.7		mg/Kg-dry	1	2/29/2012 1:15:00 AM
Heavy Oil	ND	46.8		mg/Kg-dry	1	2/29/2012 1:15:00 AM
Surr: 2-Fluorobiphenyl	97.2	84.2-137		%REC	1	2/29/2012 1:15:00 AM
Surr: o-Terphenyl	110	87.1-138		%REC	1	2/29/2012 1:15:00 AM
Gasoline by NWTPH-Gx				Batch ID: 1963		Analyst: PH
Gasoline	ND	5.27		mg/Kg-dry	1	2/28/2012 10:01:00 PM
Surr: 1,4-Difluorobenzene	109	65-135		%REC	1	2/28/2012 10:01:00 PM
Surr: 4-Bromofluorobenzene	111	65-135		%REC	1	2/28/2012 10:01:00 PM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 1953		Analyst: PH
Dichlorodifluoromethane (CFC-12)	ND	0.0563		mg/Kg-dry	1	2/29/2012 4:13:00 AM
Chloromethane	ND	0.0563		mg/Kg-dry	1	2/29/2012 4:13:00 AM
Vinyl chloride	ND	0.00188		mg/Kg-dry	1	2/29/2012 4:13:00 AM
Bromomethane	ND	0.0845		mg/Kg-dry	1	2/29/2012 4:13:00 AM
Trichlorofluoromethane (CFC-11)	ND	0.0469		mg/Kg-dry	1	2/29/2012 4:13:00 AM
Chloroethane	ND	0.0563		mg/Kg-dry	1	2/29/2012 4:13:00 AM
1,1-Dichloroethene	ND	0.0469		mg/Kg-dry	1	2/29/2012 4:13:00 AM
Methylene chloride	ND	0.0188		mg/Kg-dry	1	2/29/2012 4:13:00 AM
trans-1,2-Dichloroethene	ND	0.0188		mg/Kg-dry	1	2/29/2012 4:13:00 AM
Methyl tert-butyl ether (MTBE)	ND	0.0469		mg/Kg-dry	1	2/29/2012 4:13:00 AM
1,1-Dichloroethane	ND	0.0188		mg/Kg-dry	1	2/29/2012 4:13:00 AM
2,2-Dichloropropane	ND	0.0469		mg/Kg-dry	1	2/29/2012 4:13:00 AM
cis-1,2-Dichloroethene	ND	0.0188		mg/Kg-dry	1	2/29/2012 4:13:00 AM
Chloroform	ND	0.0188		mg/Kg-dry	1	2/29/2012 4:13:00 AM
1,1,1-Trichloroethane (TCA)	ND	0.0188		mg/Kg-dry	1	2/29/2012 4:13:00 AM
1,1-Dichloropropene	ND	0.0188		mg/Kg-dry	1	2/29/2012 4:13:00 AM
Carbon tetrachloride	ND	0.0188		mg/Kg-dry	1	2/29/2012 4:13:00 AM
1,2-Dichloroethane	ND	0.0282		mg/Kg-dry	1	2/29/2012 4:13:00 AM
Benzene	ND	0.0188		mg/Kg-dry	1	2/29/2012 4:13:00 AM
Trichloroethene (TCE)	ND	0.0282		mg/Kg-dry	1	2/29/2012 4:13:00 AM
1,2-Dichloropropane	ND	0.0188		mg/Kg-dry	1	2/29/2012 4:13:00 AM
Bromodichloromethane	ND	0.0188		mg/Kg-dry	1	2/29/2012 4:13:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1202121**
Date Reported: **3/2/2012**

Client: GeoEngineers
Collection Date: 2/28/2012 9:25:00 AM
Project: New Zealand
Lab ID: 1202121-089
Matrix: Soil
Client Sample ID: MW20-1-70.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: 1953		Analyst: PH
Dibromomethane	ND	0.0375		mg/Kg-dry	1	2/29/2012 4:13:00 AM
cis-1,3-Dichloropropene	ND	0.0188		mg/Kg-dry	1	2/29/2012 4:13:00 AM
Toluene	ND	0.0188		mg/Kg-dry	1	2/29/2012 4:13:00 AM
trans-1,3-Dichloropropene	ND	0.0282		mg/Kg-dry	1	2/29/2012 4:13:00 AM
1,1,2-Trichloroethane	ND	0.0282		mg/Kg-dry	1	2/29/2012 4:13:00 AM
1,3-Dichloropropane	ND	0.0469		mg/Kg-dry	1	2/29/2012 4:13:00 AM
Tetrachloroethene (PCE)	ND	0.0188		mg/Kg-dry	1	2/29/2012 4:13:00 AM
Dibromochloromethane	ND	0.0282		mg/Kg-dry	1	2/29/2012 4:13:00 AM
1,2-Dibromoethane (EDB)	ND	0.00469		mg/Kg-dry	1	2/29/2012 4:13:00 AM
Chlorobenzene	ND	0.0188		mg/Kg-dry	1	2/29/2012 4:13:00 AM
1,1,1,2-Tetrachloroethane	ND	0.0282		mg/Kg-dry	1	2/29/2012 4:13:00 AM
Ethylbenzene	ND	0.0282		mg/Kg-dry	1	2/29/2012 4:13:00 AM
m,p-Xylene	ND	0.0188		mg/Kg-dry	1	2/29/2012 4:13:00 AM
o-Xylene	ND	0.0188		mg/Kg-dry	1	2/29/2012 4:13:00 AM
Styrene	ND	0.0188		mg/Kg-dry	1	2/29/2012 4:13:00 AM
Isopropylbenzene	ND	0.0751		mg/Kg-dry	1	2/29/2012 4:13:00 AM
Bromoform	ND	0.0188		mg/Kg-dry	1	2/29/2012 4:13:00 AM
1,1,2,2-Tetrachloroethane	ND	0.0188		mg/Kg-dry	1	2/29/2012 4:13:00 AM
n-Propylbenzene	ND	0.0188		mg/Kg-dry	1	2/29/2012 4:13:00 AM
Bromobenzene	ND	0.0282		mg/Kg-dry	1	2/29/2012 4:13:00 AM
1,3,5-Trimethylbenzene	ND	0.0188		mg/Kg-dry	1	2/29/2012 4:13:00 AM
2-Chlorotoluene	ND	0.0188		mg/Kg-dry	1	2/29/2012 4:13:00 AM
4-Chlorotoluene	ND	0.0188		mg/Kg-dry	1	2/29/2012 4:13:00 AM
tert-Butylbenzene	ND	0.0188		mg/Kg-dry	1	2/29/2012 4:13:00 AM
1,2,3-Trichloropropane	ND	0.0188		mg/Kg-dry	1	2/29/2012 4:13:00 AM
1,2,4-Trichlorobenzene	ND	0.0469		mg/Kg-dry	1	2/29/2012 4:13:00 AM
sec-Butylbenzene	ND	0.0188		mg/Kg-dry	1	2/29/2012 4:13:00 AM
4-Isopropyltoluene	ND	0.0188		mg/Kg-dry	1	2/29/2012 4:13:00 AM
1,3-Dichlorobenzene	ND	0.0188		mg/Kg-dry	1	2/29/2012 4:13:00 AM
1,4-Dichlorobenzene	ND	0.0188		mg/Kg-dry	1	2/29/2012 4:13:00 AM
n-Butylbenzene	ND	0.0188		mg/Kg-dry	1	2/29/2012 4:13:00 AM
1,2-Dichlorobenzene	ND	0.0188		mg/Kg-dry	1	2/29/2012 4:13:00 AM
1,2-Dibromo-3-chloropropane	ND	0.0282		mg/Kg-dry	1	2/29/2012 4:13:00 AM
1,2,4-Trimethylbenzene	ND	0.0188		mg/Kg-dry	1	2/29/2012 4:13:00 AM
Hexachlorobutadiene	ND	0.0939		mg/Kg-dry	1	2/29/2012 4:13:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1202121**
Date Reported: **3/2/2012**

Client: GeoEngineers
Collection Date: 2/28/2012 9:25:00 AM
Project: New Zealand
Lab ID: 1202121-089
Matrix: Soil
Client Sample ID: MW20-1-70.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: 1953		Analyst: PH
Naphthalene	ND	0.0282		mg/Kg-dry	1	2/29/2012 4:13:00 AM
1,2,3-Trichlorobenzene	ND	0.0188		mg/Kg-dry	1	2/29/2012 4:13:00 AM
Surr: 1-Bromo-4-fluorobenzene	99.6	63.1-141		%REC	1	2/29/2012 4:13:00 AM
Surr: Dibromofluoromethane	108	67.6-119		%REC	1	2/29/2012 4:13:00 AM
Surr: Toluene-d8	103	78.5-126		%REC	1	2/29/2012 4:13:00 AM
Sample Moisture (Percent Moisture)				Batch ID: R3490		Analyst: EM
Percent Moisture	9.12			wt%	1	2/29/2012 10:27:42 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1202121**
Date Reported: **3/2/2012**

Client: GeoEngineers
Collection Date: 2/27/2012 8:11:00 AM
Project: New Zealand
Lab ID: 1202121-094
Matrix: Soil
Client Sample ID: MW20-3-5.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 1961		Analyst: EM
Diesel (Fuel Oil)	ND	17.7		mg/Kg-dry	1	2/29/2012 1:43:00 AM
Heavy Oil	346	44.2		mg/Kg-dry	1	2/29/2012 1:43:00 AM
Surr: 2-Fluorobiphenyl	98.7	84.2-137		%REC	1	2/29/2012 1:43:00 AM
Surr: o-Terphenyl	109	87.1-138		%REC	1	2/29/2012 1:43:00 AM
Gasoline by NWTPH-Gx				Batch ID: 1963		Analyst: PH
Gasoline	ND	3.86		mg/Kg-dry	1	2/28/2012 10:31:00 PM
Surr: 1,4-Difluorobenzene	106	65-135		%REC	1	2/28/2012 10:31:00 PM
Surr: 4-Bromofluorobenzene	111	65-135		%REC	1	2/28/2012 10:31:00 PM
Polychlorinated Biphenyls (PCB) by EPA 8082				Batch ID: 1957		Analyst: SG
Aroclor 1016	ND	0.107		mg/Kg-dry	1	2/29/2012 1:58:00 AM
Aroclor 1221	ND	0.107		mg/Kg-dry	1	2/29/2012 1:58:00 AM
Aroclor 1232	ND	0.107		mg/Kg-dry	1	2/29/2012 1:58:00 AM
Aroclor 1242	ND	0.107		mg/Kg-dry	1	2/29/2012 1:58:00 AM
Aroclor 1248	ND	0.107		mg/Kg-dry	1	2/29/2012 1:58:00 AM
Aroclor 1254	ND	0.107		mg/Kg-dry	1	2/29/2012 1:58:00 AM
Aroclor 1260	ND	0.107		mg/Kg-dry	1	2/29/2012 1:58:00 AM
Aroclor 1262	ND	0.107		mg/Kg-dry	1	2/29/2012 1:58:00 AM
Aroclor 1268	ND	0.107		mg/Kg-dry	1	2/29/2012 1:58:00 AM
Total PCBs	ND	0.107		mg/Kg-dry	1	2/29/2012 1:58:00 AM
Surr: Decachlorobiphenyl	84.3	66.1-145		%REC	1	2/29/2012 1:58:00 AM
Surr: Tetrachloro-m-xylene	90.9	67.2-132		%REC	1	2/29/2012 1:58:00 AM

NOTES:
S - Outlying surrogate recovery observed (High bias). The samples are non-detect.

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 1956		Analyst: SG
Naphthalene	ND	54.5		µg/Kg-dry	1	3/1/2012 6:56:00 PM
2-Methylnaphthalene	ND	54.5		µg/Kg-dry	1	3/1/2012 6:56:00 PM
1-Methylnaphthalene	ND	54.5		µg/Kg-dry	1	3/1/2012 6:56:00 PM
Acenaphthylene	ND	54.5		µg/Kg-dry	1	3/1/2012 6:56:00 PM
Acenaphthene	ND	54.5		µg/Kg-dry	1	3/1/2012 6:56:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1202121**
Date Reported: **3/2/2012**

Client: GeoEngineers
Collection Date: 2/27/2012 8:11:00 AM
Project: New Zealand
Lab ID: 1202121-094
Matrix: Soil
Client Sample ID: MW20-3-5.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 1956		Analyst: SG
Fluorene	ND	54.5		µg/Kg-dry	1	3/1/2012 6:56:00 PM
Phenanthrene	ND	54.5		µg/Kg-dry	1	3/1/2012 6:56:00 PM
Anthracene	ND	54.5		µg/Kg-dry	1	3/1/2012 6:56:00 PM
Fluoranthene	ND	54.5		µg/Kg-dry	1	3/1/2012 6:56:00 PM
Pyrene	76.0	54.5		µg/Kg-dry	1	3/1/2012 6:56:00 PM
Benz(a)anthracene	ND	54.5		µg/Kg-dry	1	3/1/2012 6:56:00 PM
Chrysene	ND	54.5		µg/Kg-dry	1	3/1/2012 6:56:00 PM
Benzo(b)fluoranthene	ND	54.5		µg/Kg-dry	1	3/1/2012 6:56:00 PM
Benzo(k)fluoranthene	ND	54.5		µg/Kg-dry	1	3/1/2012 6:56:00 PM
Benzo(a)pyrene	ND	54.5		µg/Kg-dry	1	3/1/2012 6:56:00 PM
Indeno(1,2,3-cd)pyrene	ND	54.5		µg/Kg-dry	1	3/1/2012 6:56:00 PM
Dibenz(a,h)anthracene	ND	54.5		µg/Kg-dry	1	3/1/2012 6:56:00 PM
Benzo(g,h,i)perylene	ND	54.5		µg/Kg-dry	1	3/1/2012 6:56:00 PM
Surr: 2-Fluorobiphenyl	85.5	53.5-148		%REC	1	3/1/2012 6:56:00 PM
Surr: Terphenyl-d14 (surr)	112	67.2-149		%REC	1	3/1/2012 6:56:00 PM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 1953		Analyst: PH
Dichlorodifluoromethane (CFC-12)	ND	0.0485		mg/Kg-dry	1	2/29/2012 12:35:00 AM
Chloromethane	ND	0.0485		mg/Kg-dry	1	2/29/2012 12:35:00 AM
Vinyl chloride	ND	0.00162		mg/Kg-dry	1	2/29/2012 12:35:00 AM
Bromomethane	ND	0.0727		mg/Kg-dry	1	2/29/2012 12:35:00 AM
Trichlorofluoromethane (CFC-11)	ND	0.0404		mg/Kg-dry	1	2/29/2012 12:35:00 AM
Chloroethane	ND	0.0485		mg/Kg-dry	1	2/29/2012 12:35:00 AM
1,1-Dichloroethene	ND	0.0404		mg/Kg-dry	1	2/29/2012 12:35:00 AM
Methylene chloride	ND	0.0162		mg/Kg-dry	1	2/29/2012 12:35:00 AM
trans-1,2-Dichloroethene	ND	0.0162		mg/Kg-dry	1	2/29/2012 12:35:00 AM
Methyl tert-butyl ether (MTBE)	ND	0.0404		mg/Kg-dry	1	2/29/2012 12:35:00 AM
1,1-Dichloroethane	ND	0.0162		mg/Kg-dry	1	2/29/2012 12:35:00 AM
2,2-Dichloropropane	ND	0.0404		mg/Kg-dry	1	2/29/2012 12:35:00 AM
cis-1,2-Dichloroethene	ND	0.0162		mg/Kg-dry	1	2/29/2012 12:35:00 AM
Chloroform	ND	0.0162		mg/Kg-dry	1	2/29/2012 12:35:00 AM
1,1,1-Trichloroethane (TCA)	ND	0.0162		mg/Kg-dry	1	2/29/2012 12:35:00 AM
1,1-Dichloropropene	ND	0.0162		mg/Kg-dry	1	2/29/2012 12:35:00 AM
Carbon tetrachloride	ND	0.0162		mg/Kg-dry	1	2/29/2012 12:35:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1202121**
Date Reported: **3/2/2012**

Client: GeoEngineers
Collection Date: 2/27/2012 8:11:00 AM
Project: New Zealand
Lab ID: 1202121-094
Matrix: Soil
Client Sample ID: MW20-3-5.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: 1953		Analyst: PH
1,2-Dichloroethane	ND	0.0242		mg/Kg-dry	1	2/29/2012 12:35:00 AM
Benzene	ND	0.0162		mg/Kg-dry	1	2/29/2012 12:35:00 AM
Trichloroethene (TCE)	ND	0.0242		mg/Kg-dry	1	2/29/2012 12:35:00 AM
1,2-Dichloropropane	ND	0.0162		mg/Kg-dry	1	2/29/2012 12:35:00 AM
Bromodichloromethane	ND	0.0162		mg/Kg-dry	1	2/29/2012 12:35:00 AM
Dibromomethane	ND	0.0323		mg/Kg-dry	1	2/29/2012 12:35:00 AM
cis-1,3-Dichloropropene	ND	0.0162		mg/Kg-dry	1	2/29/2012 12:35:00 AM
Toluene	ND	0.0162		mg/Kg-dry	1	2/29/2012 12:35:00 AM
trans-1,3-Dichloropropene	ND	0.0242		mg/Kg-dry	1	2/29/2012 12:35:00 AM
1,1,2-Trichloroethane	ND	0.0242		mg/Kg-dry	1	2/29/2012 12:35:00 AM
1,3-Dichloropropane	ND	0.0404		mg/Kg-dry	1	2/29/2012 12:35:00 AM
Tetrachloroethene (PCE)	ND	0.0162		mg/Kg-dry	1	2/29/2012 12:35:00 AM
Dibromochloromethane	ND	0.0242		mg/Kg-dry	1	2/29/2012 12:35:00 AM
1,2-Dibromoethane (EDB)	ND	0.00404		mg/Kg-dry	1	2/29/2012 12:35:00 AM
Chlorobenzene	ND	0.0162		mg/Kg-dry	1	2/29/2012 12:35:00 AM
1,1,1,2-Tetrachloroethane	ND	0.0242		mg/Kg-dry	1	2/29/2012 12:35:00 AM
Ethylbenzene	ND	0.0242		mg/Kg-dry	1	2/29/2012 12:35:00 AM
m,p-Xylene	ND	0.0162		mg/Kg-dry	1	2/29/2012 12:35:00 AM
o-Xylene	ND	0.0162		mg/Kg-dry	1	2/29/2012 12:35:00 AM
Styrene	ND	0.0162		mg/Kg-dry	1	2/29/2012 12:35:00 AM
Isopropylbenzene	ND	0.0646		mg/Kg-dry	1	2/29/2012 12:35:00 AM
Bromoform	ND	0.0162		mg/Kg-dry	1	2/29/2012 12:35:00 AM
1,1,2,2-Tetrachloroethane	ND	0.0162		mg/Kg-dry	1	2/29/2012 12:35:00 AM
n-Propylbenzene	ND	0.0162		mg/Kg-dry	1	2/29/2012 12:35:00 AM
Bromobenzene	ND	0.0242		mg/Kg-dry	1	2/29/2012 12:35:00 AM
1,3,5-Trimethylbenzene	ND	0.0162		mg/Kg-dry	1	2/29/2012 12:35:00 AM
2-Chlorotoluene	ND	0.0162		mg/Kg-dry	1	2/29/2012 12:35:00 AM
4-Chlorotoluene	ND	0.0162		mg/Kg-dry	1	2/29/2012 12:35:00 AM
tert-Butylbenzene	ND	0.0162		mg/Kg-dry	1	2/29/2012 12:35:00 AM
1,2,3-Trichloropropane	ND	0.0162		mg/Kg-dry	1	2/29/2012 12:35:00 AM
1,2,4-Trichlorobenzene	ND	0.0404	[RA]	mg/Kg-dry	1	3/1/2012 9:51:00 AM
sec-Butylbenzene	ND	0.0162		mg/Kg-dry	1	2/29/2012 12:35:00 AM
4-Isopropyltoluene	ND	0.0162		mg/Kg-dry	1	2/29/2012 12:35:00 AM
1,3-Dichlorobenzene	ND	0.0162	[RA]	mg/Kg-dry	1	3/1/2012 9:51:00 AM
1,4-Dichlorobenzene	ND	0.0162	[RA]	mg/Kg-dry	1	3/1/2012 9:51:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1202121**
Date Reported: **3/2/2012**

Client: GeoEngineers
Collection Date: 2/27/2012 8:11:00 AM
Project: New Zealand
Lab ID: 1202121-094
Matrix: Soil
Client Sample ID: MW20-3-5.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: 1953		Analyst: PH
n-Butylbenzene	ND	0.0162	[RA]	mg/Kg-dry	1	3/1/2012 9:51:00 AM
1,2-Dichlorobenzene	ND	0.0162	[RA]	mg/Kg-dry	1	3/1/2012 9:51:00 AM
1,2-Dibromo-3-chloropropane	ND	0.0243	[RA]	mg/Kg-dry	1	3/1/2012 9:51:00 AM
1,2,4-Trimethylbenzene	ND	0.0162		mg/Kg-dry	1	2/29/2012 12:35:00 AM
Hexachlorobutadiene	ND	0.0809	[RA]	mg/Kg-dry	1	3/1/2012 9:51:00 AM
Naphthalene	ND	0.0243	[RA]	mg/Kg-dry	1	3/1/2012 9:51:00 AM
1,2,3-Trichlorobenzene	ND	0.0162	[RA]	mg/Kg-dry	1	3/1/2012 9:51:00 AM
Surr: 1-Bromo-4-fluorobenzene	80.6	63.1-141		%REC	1	2/29/2012 12:35:00 AM
Surr: Dibromofluoromethane	112	67.6-119		%REC	1	2/29/2012 12:35:00 AM
Surr: Toluene-d8	99.8	78.5-126		%REC	1	2/29/2012 12:35:00 AM
Total Metals by EPA Method 6020				Batch ID: 1955		Analyst: BR
Arsenic	3.74	0.0769		mg/Kg-dry	1	2/28/2012 11:39:22 PM
Barium	70.0	0.385		mg/Kg-dry	1	2/28/2012 11:39:22 PM
Cadmium	0.220	0.154		mg/Kg-dry	1	2/28/2012 11:39:22 PM
Chromium	23.8	0.0769		mg/Kg-dry	1	2/28/2012 11:39:22 PM
Lead	27.9	0.154		mg/Kg-dry	1	2/28/2012 11:39:22 PM
Selenium	ND	0.385		mg/Kg-dry	1	2/28/2012 11:39:22 PM
Silver	ND	0.0769		mg/Kg-dry	1	2/28/2012 11:39:22 PM
Mercury by EPA Method 7471				Batch ID: 1958		Analyst: MC
Mercury	ND	0.225		mg/Kg-dry	1	2/29/2012 2:33:17 PM
Sample Moisture (Percent Moisture)				Batch ID: R3490		Analyst: EM
Percent Moisture	9.12			wt%	1	2/29/2012 10:27:42 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1202121**
Date Reported: **3/2/2012**

Client: GeoEngineers
Collection Date: 2/27/2012 8:42:00 AM
Project: New Zealand
Lab ID: 1202121-098
Matrix: Soil
Client Sample ID: MW20-3-15.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 1961		Analyst: EM
Diesel (Fuel Oil)	ND	18.1		mg/Kg-dry	1	2/29/2012 2:38:00 AM
Heavy Oil	ND	45.4		mg/Kg-dry	1	2/29/2012 2:38:00 AM
Surr: 2-Fluorobiphenyl	97.1	84.2-137		%REC	1	2/29/2012 2:38:00 AM
Surr: o-Terphenyl	110	87.1-138		%REC	1	2/29/2012 2:38:00 AM
Gasoline by NWTPH-Gx				Batch ID: 1963		Analyst: PH
Gasoline	ND	6.17		mg/Kg-dry	1	2/28/2012 11:31:00 PM
Surr: 1,4-Difluorobenzene	112	65-135		%REC	1	2/28/2012 11:31:00 PM
Surr: 4-Bromofluorobenzene	109	65-135		%REC	1	2/28/2012 11:31:00 PM
Polychlorinated Biphenyls (PCB) by EPA 8082				Batch ID: 1957		Analyst: SG
Aroclor 1016	ND	0.100		mg/Kg-dry	1	2/28/2012 11:50:00 PM
Aroclor 1221	ND	0.100		mg/Kg-dry	1	2/28/2012 11:50:00 PM
Aroclor 1232	ND	0.100		mg/Kg-dry	1	2/28/2012 11:50:00 PM
Aroclor 1242	ND	0.100		mg/Kg-dry	1	2/28/2012 11:50:00 PM
Aroclor 1248	ND	0.100		mg/Kg-dry	1	2/28/2012 11:50:00 PM
Aroclor 1254	ND	0.100		mg/Kg-dry	1	2/28/2012 11:50:00 PM
Aroclor 1260	ND	0.100		mg/Kg-dry	1	2/28/2012 11:50:00 PM
Aroclor 1262	ND	0.100		mg/Kg-dry	1	2/28/2012 11:50:00 PM
Aroclor 1268	ND	0.100		mg/Kg-dry	1	2/28/2012 11:50:00 PM
Total PCBs	ND	0.100		mg/Kg-dry	1	2/28/2012 11:50:00 PM
Surr: Decachlorobiphenyl	72.2	66.1-145		%REC	1	2/28/2012 11:50:00 PM
Surr: Tetrachloro-m-xylene	91.4	67.2-132		%REC	1	2/28/2012 11:50:00 PM

NOTES:
S - Outlying surrogate recovery observed (High bias). The samples are non-detect.

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 1956		Analyst: SG
Naphthalene	ND	52.3		µg/Kg-dry	1	3/1/2012 2:51:00 PM
2-Methylnaphthalene	ND	52.3		µg/Kg-dry	1	3/1/2012 2:51:00 PM
1-Methylnaphthalene	ND	52.3		µg/Kg-dry	1	3/1/2012 2:51:00 PM
Acenaphthylene	ND	52.3		µg/Kg-dry	1	3/1/2012 2:51:00 PM
Acenaphthene	ND	52.3		µg/Kg-dry	1	3/1/2012 2:51:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1202121**
Date Reported: **3/2/2012**

Client: GeoEngineers
Collection Date: 2/27/2012 8:42:00 AM
Project: New Zealand
Lab ID: 1202121-098
Matrix: Soil
Client Sample ID: MW20-3-15.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 1956		Analyst: SG
Fluorene	ND	52.3		µg/Kg-dry	1	3/1/2012 2:51:00 PM
Phenanthrene	ND	52.3		µg/Kg-dry	1	3/1/2012 2:51:00 PM
Anthracene	ND	52.3		µg/Kg-dry	1	3/1/2012 2:51:00 PM
Fluoranthene	ND	52.3		µg/Kg-dry	1	3/1/2012 2:51:00 PM
Pyrene	ND	52.3		µg/Kg-dry	1	3/1/2012 2:51:00 PM
Benz(a)anthracene	ND	52.3		µg/Kg-dry	1	3/1/2012 2:51:00 PM
Chrysene	ND	52.3		µg/Kg-dry	1	3/1/2012 2:51:00 PM
Benzo(b)fluoranthene	ND	52.3		µg/Kg-dry	1	3/1/2012 2:51:00 PM
Benzo(k)fluoranthene	ND	52.3		µg/Kg-dry	1	3/1/2012 2:51:00 PM
Benzo(a)pyrene	ND	52.3		µg/Kg-dry	1	3/1/2012 2:51:00 PM
Indeno(1,2,3-cd)pyrene	ND	52.3		µg/Kg-dry	1	3/1/2012 2:51:00 PM
Dibenz(a,h)anthracene	ND	52.3		µg/Kg-dry	1	3/1/2012 2:51:00 PM
Benzo(g,h,i)perylene	ND	52.3		µg/Kg-dry	1	3/1/2012 2:51:00 PM
Surr: 2-Fluorobiphenyl	85.1	53.5-148		%REC	1	3/1/2012 2:51:00 PM
Surr: Terphenyl-d14 (surr)	125	67.2-149		%REC	1	3/1/2012 2:51:00 PM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 1953		Analyst: PH
Dichlorodifluoromethane (CFC-12)	ND	0.0607		mg/Kg-dry	1	2/29/2012 1:06:00 AM
Chloromethane	ND	0.0607		mg/Kg-dry	1	2/29/2012 1:06:00 AM
Vinyl chloride	ND	0.00202		mg/Kg-dry	1	2/29/2012 1:06:00 AM
Bromomethane	ND	0.0910		mg/Kg-dry	1	2/29/2012 1:06:00 AM
Trichlorofluoromethane (CFC-11)	ND	0.0506		mg/Kg-dry	1	2/29/2012 1:06:00 AM
Chloroethane	ND	0.0607		mg/Kg-dry	1	2/29/2012 1:06:00 AM
1,1-Dichloroethene	ND	0.0506		mg/Kg-dry	1	2/29/2012 1:06:00 AM
Methylene chloride	ND	0.0202		mg/Kg-dry	1	2/29/2012 1:06:00 AM
trans-1,2-Dichloroethene	ND	0.0202		mg/Kg-dry	1	2/29/2012 1:06:00 AM
Methyl tert-butyl ether (MTBE)	ND	0.0506		mg/Kg-dry	1	2/29/2012 1:06:00 AM
1,1-Dichloroethane	ND	0.0202		mg/Kg-dry	1	2/29/2012 1:06:00 AM
2,2-Dichloropropane	ND	0.0506		mg/Kg-dry	1	2/29/2012 1:06:00 AM
cis-1,2-Dichloroethene	ND	0.0202		mg/Kg-dry	1	2/29/2012 1:06:00 AM
Chloroform	ND	0.0202		mg/Kg-dry	1	2/29/2012 1:06:00 AM
1,1,1-Trichloroethane (TCA)	ND	0.0202		mg/Kg-dry	1	2/29/2012 1:06:00 AM
1,1-Dichloropropene	ND	0.0202		mg/Kg-dry	1	2/29/2012 1:06:00 AM
Carbon tetrachloride	ND	0.0202		mg/Kg-dry	1	2/29/2012 1:06:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1202121**
Date Reported: **3/2/2012**

Client: GeoEngineers
Collection Date: 2/27/2012 8:42:00 AM
Project: New Zealand
Lab ID: 1202121-098
Matrix: Soil
Client Sample ID: MW20-3-15.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: 1953		Analyst: PH
1,2-Dichloroethane	ND	0.0303		mg/Kg-dry	1	2/29/2012 1:06:00 AM
Benzene	ND	0.0202		mg/Kg-dry	1	2/29/2012 1:06:00 AM
Trichloroethene (TCE)	ND	0.0303		mg/Kg-dry	1	2/29/2012 1:06:00 AM
1,2-Dichloropropane	ND	0.0202		mg/Kg-dry	1	2/29/2012 1:06:00 AM
Bromodichloromethane	ND	0.0202		mg/Kg-dry	1	2/29/2012 1:06:00 AM
Dibromomethane	ND	0.0405		mg/Kg-dry	1	2/29/2012 1:06:00 AM
cis-1,3-Dichloropropene	ND	0.0202		mg/Kg-dry	1	2/29/2012 1:06:00 AM
Toluene	ND	0.0202		mg/Kg-dry	1	2/29/2012 1:06:00 AM
trans-1,3-Dichloropropene	ND	0.0303		mg/Kg-dry	1	2/29/2012 1:06:00 AM
1,1,2-Trichloroethane	ND	0.0303		mg/Kg-dry	1	2/29/2012 1:06:00 AM
1,3-Dichloropropane	ND	0.0506		mg/Kg-dry	1	2/29/2012 1:06:00 AM
Tetrachloroethene (PCE)	ND	0.0202		mg/Kg-dry	1	2/29/2012 1:06:00 AM
Dibromochloromethane	ND	0.0303		mg/Kg-dry	1	2/29/2012 1:06:00 AM
1,2-Dibromoethane (EDB)	ND	0.00506		mg/Kg-dry	1	2/29/2012 1:06:00 AM
Chlorobenzene	ND	0.0202		mg/Kg-dry	1	2/29/2012 1:06:00 AM
1,1,1,2-Tetrachloroethane	ND	0.0303		mg/Kg-dry	1	2/29/2012 1:06:00 AM
Ethylbenzene	ND	0.0303		mg/Kg-dry	1	2/29/2012 1:06:00 AM
m,p-Xylene	ND	0.0202		mg/Kg-dry	1	2/29/2012 1:06:00 AM
o-Xylene	ND	0.0202		mg/Kg-dry	1	2/29/2012 1:06:00 AM
Styrene	ND	0.0202		mg/Kg-dry	1	2/29/2012 1:06:00 AM
Isopropylbenzene	ND	0.0809		mg/Kg-dry	1	2/29/2012 1:06:00 AM
Bromoform	ND	0.0202		mg/Kg-dry	1	2/29/2012 1:06:00 AM
1,1,2,2-Tetrachloroethane	ND	0.0202		mg/Kg-dry	1	2/29/2012 1:06:00 AM
n-Propylbenzene	ND	0.0202		mg/Kg-dry	1	2/29/2012 1:06:00 AM
Bromobenzene	ND	0.0303		mg/Kg-dry	1	2/29/2012 1:06:00 AM
1,3,5-Trimethylbenzene	ND	0.0202		mg/Kg-dry	1	2/29/2012 1:06:00 AM
2-Chlorotoluene	ND	0.0202		mg/Kg-dry	1	2/29/2012 1:06:00 AM
4-Chlorotoluene	ND	0.0202		mg/Kg-dry	1	2/29/2012 1:06:00 AM
tert-Butylbenzene	ND	0.0202		mg/Kg-dry	1	2/29/2012 1:06:00 AM
1,2,3-Trichloropropane	ND	0.0202		mg/Kg-dry	1	2/29/2012 1:06:00 AM
1,2,4-Trichlorobenzene	ND	0.0506		mg/Kg-dry	1	2/29/2012 1:06:00 AM
sec-Butylbenzene	ND	0.0202		mg/Kg-dry	1	2/29/2012 1:06:00 AM
4-Isopropyltoluene	ND	0.0202		mg/Kg-dry	1	2/29/2012 1:06:00 AM
1,3-Dichlorobenzene	ND	0.0202		mg/Kg-dry	1	2/29/2012 1:06:00 AM
1,4-Dichlorobenzene	ND	0.0202		mg/Kg-dry	1	2/29/2012 1:06:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1202121**
Date Reported: **3/2/2012**

Client: GeoEngineers
Collection Date: 2/27/2012 8:42:00 AM
Project: New Zealand
Lab ID: 1202121-098
Matrix: Soil
Client Sample ID: MW20-3-15.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: 1953		Analyst: PH
n-Butylbenzene	ND	0.0202		mg/Kg-dry	1	2/29/2012 1:06:00 AM
1,2-Dichlorobenzene	ND	0.0202		mg/Kg-dry	1	2/29/2012 1:06:00 AM
1,2-Dibromo-3-chloropropane	ND	0.0303		mg/Kg-dry	1	2/29/2012 1:06:00 AM
1,2,4-Trimethylbenzene	ND	0.0202		mg/Kg-dry	1	2/29/2012 1:06:00 AM
Hexachlorobutadiene	ND	0.101		mg/Kg-dry	1	2/29/2012 1:06:00 AM
Naphthalene	ND	0.0303		mg/Kg-dry	1	2/29/2012 1:06:00 AM
1,2,3-Trichlorobenzene	ND	0.0202		mg/Kg-dry	1	2/29/2012 1:06:00 AM
Surr: 1-Bromo-4-fluorobenzene	99.5	63.1-141		%REC	1	2/29/2012 1:06:00 AM
Surr: Dibromofluoromethane	111	67.6-119		%REC	1	2/29/2012 1:06:00 AM
Surr: Toluene-d8	102	78.5-126		%REC	1	2/29/2012 1:06:00 AM
Total Metals by EPA Method 6020				Batch ID: 1955		Analyst: BR
Arsenic	1.49	0.0819		mg/Kg-dry	1	2/28/2012 11:57:20 PM
Barium	56.7	0.410		mg/Kg-dry	1	2/28/2012 11:57:20 PM
Cadmium	ND	0.164		mg/Kg-dry	1	2/28/2012 11:57:20 PM
Chromium	22.5	0.0819		mg/Kg-dry	1	2/28/2012 11:57:20 PM
Lead	1.69	0.164		mg/Kg-dry	1	2/28/2012 11:57:20 PM
Selenium	ND	0.410		mg/Kg-dry	1	2/28/2012 11:57:20 PM
Silver	ND	0.0819		mg/Kg-dry	1	2/28/2012 11:57:20 PM
Mercury by EPA Method 7471				Batch ID: 1958		Analyst: MC
Mercury	ND	0.233		mg/Kg-dry	1	2/29/2012 2:45:21 PM
Sample Moisture (Percent Moisture)				Batch ID: R3490		Analyst: EM
Percent Moisture	8.91			wt%	1	2/29/2012 10:27:42 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1202121**
Date Reported: **3/2/2012**

Client: GeoEngineers
Collection Date: 2/28/2012 3:28:00 PM
Project: New Zealand
Lab ID: 1202121-117
Matrix: Soil
Client Sample ID: MW20-2-5.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 1972		Analyst: EM
Diesel (Fuel Oil)	ND	26.5		mg/Kg-dry	1	3/1/2012 10:02:00 PM
Heavy Oil	ND	66.3		mg/Kg-dry	1	3/1/2012 10:02:00 PM
Surr: 2-Fluorobiphenyl	93.4	84.2-137		%REC	1	3/1/2012 10:02:00 PM
Surr: o-Terphenyl	96.7	87.1-138		%REC	1	3/1/2012 10:02:00 PM
Gasoline by NWTPH-Gx				Batch ID: 1985		Analyst: PH
Gasoline	ND	6.33		mg/Kg-dry	1	3/1/2012 1:32:00 PM
Surr: 1,4-Difluorobenzene	116	65-135		%REC	1	3/1/2012 1:32:00 PM
Surr: 4-Bromofluorobenzene	111	65-135		%REC	1	3/1/2012 1:32:00 PM
Total Metals by EPA Method 6020				Batch ID: 1971		Analyst: BR
Arsenic	6.57	0.0959		mg/Kg-dry	1	3/2/2012 1:33:07 AM
Barium	218	0.480		mg/Kg-dry	1	3/2/2012 1:33:07 AM
Cadmium	ND	0.192		mg/Kg-dry	1	3/2/2012 1:33:07 AM
Chromium	67.4	0.0959		mg/Kg-dry	1	3/2/2012 1:33:07 AM
Lead	9.63	0.192		mg/Kg-dry	1	3/2/2012 1:33:07 AM
Selenium	ND	0.480		mg/Kg-dry	1	3/2/2012 1:33:07 AM
Silver	ND	0.0959		mg/Kg-dry	1	3/2/2012 1:33:07 AM
Mercury by EPA Method 7471				Batch ID: 1982		Analyst: MC
Mercury	ND	0.272		mg/Kg-dry	1	3/1/2012 5:04:59 PM
Sample Moisture (Percent Moisture)				Batch ID: R3522		Analyst: MC
Percent Moisture	27.1			wt%	1	3/2/2012 8:28:04 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1202121**
Date Reported: **3/2/2012**

Client: GeoEngineers
Collection Date: 2/28/2012 4:00:00 PM
Project: New Zealand
Lab ID: 1202121-121
Matrix: Soil
Client Sample ID: MW20-2-15.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 1972		Analyst: EM
Diesel (Fuel Oil)	ND	23.4		mg/Kg-dry	1	3/1/2012 10:29:00 PM
Heavy Oil	ND	58.5		mg/Kg-dry	1	3/1/2012 10:29:00 PM
Surr: 2-Fluorobiphenyl	92.7	84.2-137		%REC	1	3/1/2012 10:29:00 PM
Surr: o-Terphenyl	97.4	87.1-138		%REC	1	3/1/2012 10:29:00 PM
Gasoline by NWTPH-Gx				Batch ID: 1985		Analyst: PH
Gasoline	ND	6.85		mg/Kg-dry	1	3/1/2012 2:02:00 PM
Surr: 1,4-Difluorobenzene	118	65-135		%REC	1	3/1/2012 2:02:00 PM
Surr: 4-Bromofluorobenzene	109	65-135		%REC	1	3/1/2012 2:02:00 PM
Total Metals by EPA Method 6020				Batch ID: 1971		Analyst: BR
Arsenic	4.06	0.0970		mg/Kg-dry	1	3/2/2012 1:42:11 AM
Barium	134	0.485		mg/Kg-dry	1	3/2/2012 1:42:11 AM
Cadmium	0.238	0.194		mg/Kg-dry	1	3/2/2012 1:42:11 AM
Chromium	51.0	0.0970		mg/Kg-dry	1	3/2/2012 1:42:11 AM
Lead	5.89	0.194		mg/Kg-dry	1	3/2/2012 1:42:11 AM
Selenium	ND	0.485		mg/Kg-dry	1	3/2/2012 1:42:11 AM
Silver	ND	0.0970		mg/Kg-dry	1	3/2/2012 1:42:11 AM
Mercury by EPA Method 7471				Batch ID: 1982		Analyst: MC
Mercury	ND	0.272		mg/Kg-dry	1	3/1/2012 5:07:59 PM
Sample Moisture (Percent Moisture)				Batch ID: R3522		Analyst: MC
Percent Moisture	24.8			wt%	1	3/2/2012 8:28:04 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Date: *3/2/2012*

Work Order: 1202121
CLIENT: GeoEngineers
Project: New Zealand

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID: **MB-1955** SampType: **MBLK** Units: **mg/Kg** Prep Date: **2/28/2012** RunNo: **3492**
Client ID: **MBLKS** Batch ID: **1955** Analysis Date: **2/28/2012** SeqNo: **61811**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.100									
Barium	ND	0.500									
Cadmium	ND	0.200									
Chromium	ND	0.100									
Lead	ND	0.200									
Selenium	ND	0.500									
Silver	ND	0.100									

Sample ID: **LCS-1955** SampType: **LCS** Units: **mg/Kg** Prep Date: **2/28/2012** RunNo: **3492**
Client ID: **LCSS** Batch ID: **1955** Analysis Date: **2/28/2012** SeqNo: **61812**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	49.0	0.100	50.00	0	98.0	80	120				
Barium	52.3	0.500	50.00	0	105	80	120				
Cadmium	2.47	0.200	2.500	0	98.8	80	120				
Chromium	54.6	0.100	50.00	0	109	80	120				
Lead	25.3	0.200	25.00	0	101	80	120				
Selenium	4.57	0.500	5.000	0	91.3	80	120				
Silver	2.44	0.100	2.500	0	97.6	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1202121
CLIENT: GeoEngineers
Project: New Zealand

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID: **1202120-003AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **2/28/2012** RunNo: **3492**
Client ID: **BATCH** Batch ID: **1955** Analysis Date: **2/28/2012** SeqNo: **61816**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	48.5	0.0859	42.94	4.593	102	75	125				
Barium	135	0.429	42.94	89.54	107	75	125				
Cadmium	2.35	0.172	2.147	0.2091	99.5	75	125				
Chromium	75.6	0.0859	42.94	37.33	89.1	75	125				
Lead	24.9	0.172	21.47	3.562	99.4	75	125				
Selenium	3.65	0.429	4.294	0	85.1	75	125				
Silver	1.42	0.0859	2.147	0.05296	63.6	75	125				S

Sample ID: **1202120-003AMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **2/28/2012** RunNo: **3492**
Client ID: **BATCH** Batch ID: **1955** Analysis Date: **2/28/2012** SeqNo: **61817**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	48.0	0.0853	42.64	4.593	102	75	125	48.53	1.12	30	
Barium	134	0.426	42.64	89.54	105	75	125	135.3	0.730	30	
Cadmium	2.30	0.171	2.132	0.2091	98.3	75	125	2.346	1.79	30	
Chromium	74.8	0.0853	42.64	37.33	88.0	75	125	75.61	1.00	30	
Lead	24.3	0.171	21.32	3.562	97.4	75	125	24.90	2.32	30	
Selenium	3.48	0.426	4.264	0	81.6	75	125	3.653	4.83	30	
Silver	1.46	0.0853	2.132	0.05296	66.2	75	125	1.419	3.11	30	S

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Date: *3/2/2012*

Work Order: 1202121
CLIENT: GeoEngineers
Project: New Zealand

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID: **CCV-1955**	SampType: **CCV**	Units: **µg/L**	Prep Date: **2/28/2012**	RunNo: **3492**
Client ID: **CCV**	Batch ID: **1955**		Analysis Date: **2/28/2012**	SeqNo: **61823**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Silver	5.04	0.100	5.000	0	101	90	110				

Sample ID: **1202121-098ADUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **2/28/2012**	RunNo: **3492**
Client ID: **MW20-3-15.0**	Batch ID: **1955**		Analysis Date: **2/28/2012**	SeqNo: **61827**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	1.48	0.0819						1.488	0.815	30	
Barium	57.4	0.410						56.71	1.16	30	
Cadmium	ND	0.164						0	0	30	
Chromium	22.1	0.0819						22.55	2.17	30	
Lead	1.67	0.164						1.692	1.21	30	
Selenium	ND	0.410						0	0	30	
Silver	ND	0.0819						0	0	30	

Sample ID: **MB-1971**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **3/1/2012**	RunNo: **3529**
Client ID: **MBLKS**	Batch ID: **1971**		Analysis Date: **3/2/2012**	SeqNo: **62615**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.100									
Barium	ND	0.500									
Cadmium	ND	0.200									
Chromium	ND	0.100									
Lead	ND	0.200									
Selenium	ND	0.500									

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1202121
CLIENT: GeoEngineers
Project: New Zealand

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID: **MB-1971**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **3/1/2012**	RunNo: **3529**
Client ID: **MBLKS**	Batch ID: **1971**		Analysis Date: **3/2/2012**	SeqNo: **62615**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Silver	ND	0.100									

Sample ID: **LCS-1971**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **3/1/2012**	RunNo: **3529**
Client ID: **LCSS**	Batch ID: **1971**		Analysis Date: **3/2/2012**	SeqNo: **62616**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	48.5	0.100	50.00	0	97.1	80	120				
Barium	49.7	0.500	50.00	0	99.3	80	120				
Cadmium	2.65	0.200	2.500	0	106	80	120				
Chromium	53.9	0.100	50.00	0	108	80	120				
Lead	27.6	0.200	25.00	0	110	80	120				
Selenium	4.48	0.500	5.000	0	89.7	80	120				
Silver	4.27	0.100	5.000	0	85.3	80	120				

Sample ID: **1202121-048ADUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **3/1/2012**	RunNo: **3529**
Client ID: **B20-1-5.0**	Batch ID: **1971**		Analysis Date: **3/2/2012**	SeqNo: **62619**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	2.18	0.0762						2.259	3.75	30	
Barium	58.5	0.381						57.51	1.70	30	
Cadmium	ND	0.152						0	0	30	
Chromium	25.0	0.0762						23.21	7.58	30	
Lead	3.73	0.152						3.821	2.44	30	
Selenium	ND	0.381						0	0	30	

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1202121
CLIENT: GeoEngineers
Project: New Zealand

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID: **1202121-048ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **3/1/2012** RunNo: **3529**
Client ID: **B20-1-5.0** Batch ID: **1971** Analysis Date: **3/2/2012** SeqNo: **62619**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Silver	ND	0.0762						0	0	30	R

Sample ID: **1202121-048AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **3/1/2012** RunNo: **3529**
Client ID: **B20-1-5.0** Batch ID: **1971** Analysis Date: **3/2/2012** SeqNo: **62620**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	43.0	0.0789	39.46	2.259	103	75	125				
Barium	91.8	0.395	39.46	57.51	86.8	75	125				
Cadmium	2.25	0.158	1.973	0.1216	108	75	125				
Chromium	54.7	0.0789	39.46	23.21	79.7	75	125				
Lead	23.8	0.158	19.73	3.821	101	75	125				
Selenium	3.24	0.395	3.946	0	82.1	75	125				
Silver	3.11	0.0789	3.946	0.03248	77.9	75	125				

Sample ID: **1202121-048AMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **3/1/2012** RunNo: **3529**
Client ID: **B20-1-5.0** Batch ID: **1971** Analysis Date: **3/2/2012** SeqNo: **62621**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	43.2	0.0773	38.63	2.259	106	75	125	43.00	0.585	30	
Barium	97.0	0.386	38.63	57.51	102	75	125	91.75	5.56	30	
Cadmium	2.21	0.155	1.932	0.1216	108	75	125	2.245	1.42	30	
Chromium	54.5	0.0773	38.63	23.21	80.9	75	125	54.66	0.330	30	
Lead	24.0	0.155	19.32	3.821	105	75	125	23.83	0.756	30	
Selenium	3.14	0.386	3.863	0	81.4	75	125	3.239	3.00	30	

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Date: *3/2/2012*

Work Order: 1202121
CLIENT: GeoEngineers
Project: New Zealand

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID: **1202121-048AMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **3/1/2012** RunNo: **3529**
Client ID: **B20-1-5.0** Batch ID: **1971** Analysis Date: **3/2/2012** SeqNo: **62621**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Silver	3.25	0.0773	3.863	0.03248	83.3	75	125	3.106	4.56	30	

NOTES:
S - Ag MS/MSD spike recovery indicates a possible matrix effect. The method is in control as indicated by the Laboratory Control Sample (LCS).

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Date: *3/2/2012*

Work Order: 1202121
CLIENT: GeoEngineers
Project: New Zealand

QC SUMMARY REPORT
Mercury by EPA Method 7471

Sample ID: **MB-1958** SampType: **MBLK** Units: **mg/Kg** Prep Date: **2/28/2012** RunNo: **3501**
Client ID: **MBLKS** Batch ID: **1958** Analysis Date: **2/29/2012** SeqNo: **62090**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.250									

Sample ID: **LCS-1958** SampType: **LCS** Units: **mg/Kg** Prep Date: **2/28/2012** RunNo: **3501**
Client ID: **LCSS** Batch ID: **1958** Analysis Date: **2/29/2012** SeqNo: **62091**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.460	0.250	0.5000	0	92.0	85	115				

Sample ID: **1202121-094ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **2/28/2012** RunNo: **3501**
Client ID: **MW20-3-5.0** Batch ID: **1958** Analysis Date: **2/29/2012** SeqNo: **62093**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.233						0	0	20	R

Sample ID: **1202121-094AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **2/28/2012** RunNo: **3501**
Client ID: **MW20-3-5.0** Batch ID: **1958** Analysis Date: **2/29/2012** SeqNo: **62094**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.410	0.208	0.4168	0	98.4	70	130				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Date: *3/2/2012*

Work Order: 1202121
CLIENT: GeoEngineers
Project: New Zealand

QC SUMMARY REPORT
Mercury by EPA Method 7471

Sample ID: **1202121-094AMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **2/28/2012** RunNo: **3501**
Client ID: **MW20-3-5.0** Batch ID: **1958** Analysis Date: **2/29/2012** SeqNo: **62095**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.434	0.229	0.4585	0	94.6	70	130	0.4101	5.59	20	

Sample ID: **MB-1982** SampType: **MBLK** Units: **mg/Kg** Prep Date: **3/1/2012** RunNo: **3523**
Client ID: **MBLKS** Batch ID: **1982** Analysis Date: **3/1/2012** SeqNo: **62503**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.250									

Sample ID: **LCS-1982** SampType: **LCS** Units: **mg/Kg** Prep Date: **3/1/2012** RunNo: **3523**
Client ID: **LCSS** Batch ID: **1982** Analysis Date: **3/1/2012** SeqNo: **62504**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.493	0.250	0.5000	0	98.6	85	115				

Sample ID: **1202121-048ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **3/1/2012** RunNo: **3523**
Client ID: **B20-1-5.0** Batch ID: **1982** Analysis Date: **3/1/2012** SeqNo: **62506**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.261						0	0	20	R

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Date: *3/2/2012*

Work Order: 1202121
CLIENT: GeoEngineers
Project: New Zealand

QC SUMMARY REPORT

Mercury by EPA Method 7471

Sample ID: **1202121-048AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **3/1/2012** RunNo: **3523**
Client ID: **B20-1-5.0** Batch ID: **1982** Analysis Date: **3/1/2012** SeqNo: **62507**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.571	0.276	0.5525	0.02568	98.8	70	130				

Sample ID: **1202121-048AMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **3/1/2012** RunNo: **3523**
Client ID: **B20-1-5.0** Batch ID: **1982** Analysis Date: **3/1/2012** SeqNo: **62508**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.474	0.238	0.4763	0.02568	94.2	70	130	0.5712	18.5	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1202121
CLIENT: GeoEngineers
Project: New Zealand

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID: **1202121-001ADUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **2/28/2012**	RunNo: **3517**
Client ID: **B20-2-2.5**	Batch ID: **1961**		Analysis Date: **2/28/2012**	SeqNo: **62378**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	19.0						0	0	30	
Heavy Oil	ND	47.5						0	0	30	
Surr: 2-Fluorobiphenyl	18.5		19.00		97.4	84.2	137		0		
Surr: o-Terphenyl	20.8		19.00		109	87.1	138		0		

Sample ID: **LCS-1961**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **2/28/2012**	RunNo: **3517**
Client ID: **LCSS**	Batch ID: **1961**		Analysis Date: **2/28/2012**	SeqNo: **62391**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	481	20.0	500.0	0	96.2	65	135				
Surr: 2-Fluorobiphenyl	21.5		20.00		108	84.2	137				
Surr: o-Terphenyl	23.1		20.00		115	87.1	138				

Sample ID: **MB-1961**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **2/28/2012**	RunNo: **3517**
Client ID: **MBLKS**	Batch ID: **1961**		Analysis Date: **2/28/2012**	SeqNo: **62392**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	20.0									
Heavy Oil	ND	50.0									
Surr: 2-Fluorobiphenyl	19.1		20.00		95.5	84.2	137				
Surr: o-Terphenyl	22.0		20.00		110	87.1	138				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1202121
CLIENT: GeoEngineers
Project: New Zealand

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID: **1202121-048ADUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **3/1/2012**	RunNo: **3524**
Client ID: **B20-1-5.0**	Batch ID: **1972**		Analysis Date: **3/1/2012**	SeqNo: **62517**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	21.3						0	0	30	
Heavy Oil	ND	53.2						0	0	30	
Surr: 2-Fluorobiphenyl	19.9		21.29		93.7	84.2	137		0		
Surr: o-Terphenyl	20.5		21.29		96.2	87.1	138		0		

Sample ID: **LCS-1972**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **3/1/2012**	RunNo: **3524**
Client ID: **LCSS**	Batch ID: **1972**		Analysis Date: **3/1/2012**	SeqNo: **62521**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	450	20.0	500.0	0	89.9	65	135				
Surr: 2-Fluorobiphenyl	20.7		20.00		104	84.2	137				
Surr: o-Terphenyl	20.0		20.00		99.8	87.1	138				

Sample ID: **MB-1972**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **3/1/2012**	RunNo: **3524**
Client ID: **MBLKS**	Batch ID: **1972**		Analysis Date: **3/1/2012**	SeqNo: **62522**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	20.0									
Heavy Oil	ND	50.0									
Surr: 2-Fluorobiphenyl	18.8		20.00		94.2	84.2	137				
Surr: o-Terphenyl	19.5		20.00		97.5	87.1	138				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1202121
CLIENT: GeoEngineers
Project: New Zealand

QC SUMMARY REPORT

Gasoline by NWTPH-Gx

Sample ID: **MB-1963**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **2/28/2012**	RunNo: **3493**
Client ID: **MBLKS**	Batch ID: **1963**		Analysis Date: **2/28/2012**	SeqNo: **61889**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	5.00									
Surr: 1,4-Difluorobenzene	0.579		0.5000		116	65	135				
Surr: 4-Bromofluorobenzene	0.574		0.5000		115	65	135				

Sample ID: **LCS-1963**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **2/28/2012**	RunNo: **3493**
Client ID: **LCSS**	Batch ID: **1963**		Analysis Date: **2/28/2012**	SeqNo: **61890**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	25.6	5.00	25.00	0	102	65	135				
Surr: 1,4-Difluorobenzene	0.556		0.5000		111	65	135				
Surr: 4-Bromofluorobenzene	0.599		0.5000		120	65	135				

Sample ID: **1202121-070BDUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **2/28/2012**	RunNo: **3493**
Client ID: **MW20-1-2.5**	Batch ID: **1963**		Analysis Date: **2/28/2012**	SeqNo: **61898**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	4.23						0	0	30	
Surr: 1,4-Difluorobenzene	0.464		0.4231		110	65	135		0	0	
Surr: 4-Bromofluorobenzene	0.482		0.4231		114	65	135		0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Date: *3/2/2012*

Work Order: 1202121
CLIENT: GeoEngineers
Project: New Zealand

QC SUMMARY REPORT

Gasoline by NWTPH-Gx

Sample ID: **MB-1985**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **3/1/2012**	RunNo: **3518**
Client ID: **MBLKS**	Batch ID: **1985**		Analysis Date: **3/1/2012**	SeqNo: **62403**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	5.00									
Surr: 1,4-Difluorobenzene	0.570		0.5000		114	65	135				
Surr: 4-Bromofluorobenzene	0.571		0.5000		114	65	135				

Sample ID: **LCS-1985**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **3/1/2012**	RunNo: **3518**
Client ID: **LCSS**	Batch ID: **1985**		Analysis Date: **3/1/2012**	SeqNo: **62404**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	25.3	5.00	25.00	0	101	65	135				
Surr: 1,4-Difluorobenzene	0.571		0.5000		114	65	135				
Surr: 4-Bromofluorobenzene	0.596		0.5000		119	65	135				

Sample ID: **1202121-121BDUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **3/1/2012**	RunNo: **3518**
Client ID: **MW20-2-15.0**	Batch ID: **1985**		Analysis Date: **3/1/2012**	SeqNo: **62409**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	6.85						0	0	30	
Surr: 1,4-Difluorobenzene	0.833		0.6850		122	65	135		0	0	
Surr: 4-Bromofluorobenzene	0.778		0.6850		114	65	135		0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Date: *3/2/2012*

Work Order: 1202121
CLIENT: GeoEngineers
Project: New Zealand

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: **1202121-098ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **2/28/2012** RunNo: **3521**
Client ID: **MW20-3-15.0** Batch ID: **1956** Analysis Date: **3/1/2012** SeqNo: **62464**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	53.5						0	0	30	
2-Methylnaphthalene	ND	53.5						0	0	30	
1-Methylnaphthalene	ND	53.5						0	0	30	
Acenaphthylene	ND	53.5						0	0	30	
Acenaphthene	ND	53.5						0	0	30	
Fluorene	ND	53.5						0	0	30	
Phenanthrene	ND	53.5						0	0	30	
Anthracene	ND	53.5						0	0	30	
Fluoranthene	ND	53.5						0	0	30	
Pyrene	ND	53.5						0	0	30	
Benz(a)anthracene	ND	53.5						0	0	30	
Chrysene	ND	53.5						0	0	30	
Benzo(b)fluoranthene	ND	53.5						0	0	30	
Benzo(k)fluoranthene	ND	53.5						0	0	30	
Benzo(a)pyrene	ND	53.5						0	0	30	
Indeno(1,2,3-cd)pyrene	ND	53.5						0	0	30	
Dibenz(a,h)anthracene	ND	53.5						0	0	30	
Benzo(g,h,i)perylene	ND	53.5						0	0	30	
Surr: 2-Fluorobiphenyl	481		535.0		89.9	53.5	148		0		
Surr: Terphenyl-d14 (surr)	718		535.0		134	67.2	149		0		

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1202121
CLIENT: GeoEngineers
Project: New Zealand

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: **1202121-098AMS**	SampType: **MS**	Units: **µg/Kg-dry**	Prep Date: **2/28/2012**	RunNo: **3521**
Client ID: **MW20-3-15.0**	Batch ID: **1956**		Analysis Date: **3/1/2012**	SeqNo: **62465**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acenaphthene	498	55.5	554.8	0	89.7	50.6	126				
Pyrene	594	55.5	554.8	0	107	50.4	139				
Surr: 2-Fluorobiphenyl	491		554.8		88.4	53.5	148				
Surr: Terphenyl-d14 (surr)	701		554.8		126	67.2	149				

Sample ID: **1202121-098AMSD**	SampType: **MSD**	Units: **µg/Kg-dry**	Prep Date: **2/28/2012**	RunNo: **3521**
Client ID: **MW20-3-15.0**	Batch ID: **1956**		Analysis Date: **3/1/2012**	SeqNo: **62466**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acenaphthene	467	54.8	547.6	0	85.3	50.6	126	497.8	6.37	30	
Pyrene	591	54.8	547.6	0	108	50.4	139	593.9	0.429	30	
Surr: 2-Fluorobiphenyl	448		547.6		81.8	53.5	148		0		
Surr: Terphenyl-d14 (surr)	685		547.6		125	67.2	149		0		

Sample ID: **LCS-1956**	SampType: **LCS**	Units: **µg/Kg**	Prep Date: **2/28/2012**	RunNo: **3521**
Client ID: **LCSS**	Batch ID: **1956**		Analysis Date: **3/1/2012**	SeqNo: **62468**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acenaphthene	388	50.0	500.0	0	77.6	50.4	130				
Pyrene	452	50.0	500.0	0	90.3	50.3	141				
Surr: 2-Fluorobiphenyl	418		500.0		83.6	53.5	148				
Surr: Terphenyl-d14 (surr)	532		500.0		106	67.2	149				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Date: *3/2/2012*

Work Order: 1202121
CLIENT: GeoEngineers
Project: New Zealand

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: **MB-1956** SampType: **MBLK** Units: **µg/Kg** Prep Date: **2/28/2012** RunNo: **3521**
Client ID: **MBLKS** Batch ID: **1956** Analysis Date: **3/1/2012** SeqNo: **62469**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	50.0									
2-Methylnaphthalene	ND	50.0									
1-Methylnaphthalene	ND	50.0									
Acenaphthylene	ND	50.0									
Acenaphthene	ND	50.0									
Fluorene	ND	50.0									
Phenanthrene	ND	50.0									
Anthracene	ND	50.0									
Fluoranthene	ND	50.0									
Pyrene	ND	50.0									
Benz(a)anthracene	ND	50.0									
Chrysene	ND	50.0									
Benzo(b)fluoranthene	ND	50.0									
Benzo(k)fluoranthene	ND	50.0									
Benzo(a)pyrene	ND	50.0									
Indeno(1,2,3-cd)pyrene	ND	50.0									
Dibenz(a,h)anthracene	ND	50.0									
Benzo(g,h,i)perylene	ND	50.0									
Surr: 2-Fluorobiphenyl	448		500.0		89.6	53.5	148				
Surr: Terphenyl-d14 (surr)	495		500.0		99.0	67.2	149				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1202121
CLIENT: GeoEngineers
Project: New Zealand

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: **LCS-1976** SampType: **LCS** Units: **µg/Kg** Prep Date: **3/1/2012** RunNo: **3537**
Client ID: **LCSS** Batch ID: **1976** Analysis Date: **3/2/2012** SeqNo: **63063**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acenaphthene	411	50.0	500.0	0	82.2	50.4	130				
Pyrene	421	50.0	500.0	0	84.2	50.3	141				
Surr: 2-Fluorobiphenyl	469		500.0		93.8	53.5	148				
Surr: Terphenyl-d14 (surr)	470		500.0		93.9	67.2	149				

Sample ID: **MB-1976** SampType: **MBLK** Units: **µg/Kg** Prep Date: **3/1/2012** RunNo: **3537**
Client ID: **MBLKS** Batch ID: **1976** Analysis Date: **3/2/2012** SeqNo: **63065**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	50.0									
2-Methylnaphthalene	ND	50.0									
1-Methylnaphthalene	ND	50.0									
Acenaphthylene	ND	50.0									
Acenaphthene	ND	50.0									
Fluorene	ND	50.0									
Phenanthrene	ND	50.0									
Anthracene	ND	50.0									
Fluoranthene	ND	50.0									
Pyrene	ND	50.0									
Benz(a)anthracene	ND	50.0									
Chrysene	ND	50.0									
Benzo(b)fluoranthene	ND	50.0									
Benzo(k)fluoranthene	ND	50.0									
Benzo(a)pyrene	ND	50.0									
Indeno(1,2,3-cd)pyrene	ND	50.0									

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1202121
CLIENT: GeoEngineers
Project: New Zealand

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: **MB-1976** SampType: **MBLK** Units: **µg/Kg** Prep Date: **3/1/2012** RunNo: **3537**
Client ID: **MBLKS** Batch ID: **1976** Analysis Date: **3/2/2012** SeqNo: **63065**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dibenz(a,h)anthracene	ND	50.0									
Benzo(g,h,i)perylene	ND	50.0									
Surr: 2-Fluorobiphenyl	431		500.0		86.2	53.5	148				
Surr: Terphenyl-d14 (surr)	441		500.0		88.2	67.2	149				

Sample ID: **1202121-048ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **3/1/2012** RunNo: **3537**
Client ID: **B20-1-5.0** Batch ID: **1976** Analysis Date: **3/2/2012** SeqNo: **63066**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	54.0						0	0	30	
2-Methylnaphthalene	ND	54.0						0	0	30	
1-Methylnaphthalene	ND	54.0						0	0	30	
Acenaphthylene	ND	54.0						0	0	30	
Acenaphthene	ND	54.0						0	0	30	
Fluorene	ND	54.0						0	0	30	
Phenanthrene	ND	54.0						0	0	30	
Anthracene	ND	54.0						0	0	30	
Fluoranthene	ND	54.0						0	0	30	
Pyrene	ND	54.0						0	0	30	
Benz(a)anthracene	ND	54.0						0	0	30	
Chrysene	ND	54.0						0	0	30	
Benzo(b)fluoranthene	ND	54.0						0	0	30	
Benzo(k)fluoranthene	ND	54.0						0	0	30	
Benzo(a)pyrene	ND	54.0						0	0	30	
Indeno(1,2,3-cd)pyrene	ND	54.0						0	0	30	

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1202121
CLIENT: GeoEngineers
Project: New Zealand

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: **1202121-048ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **3/1/2012** RunNo: **3537**
Client ID: **B20-1-5.0** Batch ID: **1976** Analysis Date: **3/2/2012** SeqNo: **63066**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dibenz(a,h)anthracene	ND	54.0						0	0	30	
Benzo(g,h,i)perylene	ND	54.0						0	0	30	
Surr: 2-Fluorobiphenyl	471		539.8		87.3	53.5	148		0		
Surr: Terphenyl-d14 (surr)	481		539.8		89.0	67.2	149		0		

Sample ID: **1202121-048AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **3/1/2012** RunNo: **3537**
Client ID: **B20-1-5.0** Batch ID: **1976** Analysis Date: **3/2/2012** SeqNo: **63067**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acenaphthene	443	53.1	531.5	0	83.3	50.6	126				
Pyrene	449	53.1	531.5	24.45	80.0	50.4	139				
Surr: 2-Fluorobiphenyl	481		531.5		90.4	53.5	148				
Surr: Terphenyl-d14 (surr)	500		531.5		94.1	67.2	149				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Date: *3/2/2012*

Work Order: 1202121
CLIENT: GeoEngineers
Project: New Zealand

QC SUMMARY REPORT

Polychlorinated Biphenyls (PCB) by EPA 8082

Sample ID: **LCS-1957** SampType: **LCS** Units: **mg/Kg** Prep Date: **2/28/2012** RunNo: **3510**
Client ID: **LCSS** Batch ID: **1957** Analysis Date: **2/28/2012** SeqNo: **62226**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1254	1.07	0.100	1.000	0	107	70.7	118				
Surr: Decachlorobiphenyl	58.4		50.00		117	66.1	145				
Surr: Tetrachloro-m-xylene	47.6		50.00		95.1	67.2	132				

Sample ID: **MB-1957** SampType: **MBLK** Units: **mg/Kg** Prep Date: **2/28/2012** RunNo: **3510**
Client ID: **MBLKS** Batch ID: **1957** Analysis Date: **2/28/2012** SeqNo: **62227**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	ND	0.100									
Aroclor 1221	ND	0.100									
Aroclor 1232	ND	0.100									
Aroclor 1242	ND	0.100									
Aroclor 1248	ND	0.100									
Aroclor 1254	ND	0.100									
Aroclor 1260	ND	0.100									
Aroclor 1262	ND	0.100									
Aroclor 1268	ND	0.100									
Total PCBs	ND	0.100									
Surr: Decachlorobiphenyl	61.6		50.00		123	66.1	145				
Surr: Tetrachloro-m-xylene	43.5		50.00		87.0	67.2	132				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1202121
CLIENT: GeoEngineers
Project: New Zealand

QC SUMMARY REPORT

Polychlorinated Biphenyls (PCB) by EPA 8082

Sample ID: **1202121-098ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **2/28/2012** RunNo: **3510**
Client ID: **MW20-3-15.0** Batch ID: **1957** Analysis Date: **2/29/2012** SeqNo: **62244**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	ND	0.101						0	0	30	
Aroclor 1221	ND	0.101						0	0	30	
Aroclor 1232	ND	0.101						0	0	30	
Aroclor 1242	ND	0.101						0	0	30	
Aroclor 1248	ND	0.101						0	0	30	
Aroclor 1254	ND	0.101						0	0	30	R
Aroclor 1260	ND	0.101						0	0	30	
Aroclor 1262	ND	0.101						0	0	30	
Aroclor 1268	ND	0.101						0	0	30	
Total PCBs	ND	0.101						0	0	30	R
Surr: Decachlorobiphenyl	36.7		50.27		72.9	66.1	145		0		
Surr: Tetrachloro-m-xylene	45.0		50.27		89.5	67.2	132		0		

Sample ID: **1202121-098AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **2/28/2012** RunNo: **3510**
Client ID: **MW20-3-15.0** Batch ID: **1957** Analysis Date: **2/29/2012** SeqNo: **62245**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1254	1.00	0.101	1.015	0.05700	93.2	70.7	118				
Surr: Decachlorobiphenyl	38.1		50.73		75.1	66.1	145				
Surr: Tetrachloro-m-xylene	44.1		50.73		86.9	67.2	132				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Date: *3/2/2012*

Work Order: 1202121
CLIENT: GeoEngineers
Project: New Zealand

QC SUMMARY REPORT

Polychlorinated Biphenyls (PCB) by EPA 8082

Sample ID: **1202121-098AMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **2/28/2012** RunNo: **3510**
Client ID: **MW20-3-15.0** Batch ID: **1957** Analysis Date: **2/29/2012** SeqNo: **62246**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1254	0.873	0.104	1.040	0.05700	78.5	70.7	118	1.003	13.9	30	
Surr: Decachlorobiphenyl	39.3		51.98		75.6	66.1	145		0		
Surr: Tetrachloro-m-xylene	45.3		51.98		87.1	67.2	132		0		

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1202121
CLIENT: GeoEngineers
Project: New Zealand

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **MB-1953** SampType: **MBLK** Units: **mg/Kg** Prep Date: **2/28/2012** RunNo: **3499**
Client ID: **MBLKS** Batch ID: **1953** Analysis Date: **2/28/2012** SeqNo: **62045**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	ND	0.0600									
Chloromethane	ND	0.0600									
Vinyl chloride	ND	0.00200									
Bromomethane	ND	0.0900									
Trichlorofluoromethane (CFC-11)	ND	0.0500									
Chloroethane	ND	0.0600									
1,1-Dichloroethene	ND	0.0500									
Methylene chloride	ND	0.0200									
trans-1,2-Dichloroethene	ND	0.0200									
Methyl tert-butyl ether (MTBE)	ND	0.0500									
1,1-Dichloroethane	ND	0.0200									
2,2-Dichloropropane	ND	0.0500									
cis-1,2-Dichloroethene	ND	0.0200									
Chloroform	ND	0.0200									
1,1,1-Trichloroethane (TCA)	ND	0.0200									
1,1-Dichloropropene	ND	0.0200									
Carbon tetrachloride	ND	0.0200									
1,2-Dichloroethane	ND	0.0300									
Benzene	ND	0.0200									
Trichloroethene (TCE)	ND	0.0300									
1,2-Dichloropropane	ND	0.0200									
Bromodichloromethane	ND	0.0200									
Dibromomethane	ND	0.0400									
cis-1,3-Dichloropropene	ND	0.0200									
Toluene	ND	0.0200									

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1202121
CLIENT: GeoEngineers
Project: New Zealand

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **MB-1953** SampType: **MBLK** Units: **mg/Kg** Prep Date: **2/28/2012** RunNo: **3499**
Client ID: **MBLKS** Batch ID: **1953** Analysis Date: **2/28/2012** SeqNo: **62045**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
trans-1,3-Dichloropropene	ND	0.0300									
1,1,2-Trichloroethane	ND	0.0300									
1,3-Dichloropropane	ND	0.0500									
Tetrachloroethene (PCE)	ND	0.0200									
Dibromochloromethane	ND	0.0300									
1,2-Dibromoethane (EDB)	ND	0.00500									
Chlorobenzene	ND	0.0200									
1,1,1,2-Tetrachloroethane	ND	0.0300									
Ethylbenzene	ND	0.0300									
m,p-Xylene	ND	0.0200									
o-Xylene	ND	0.0200									
Styrene	ND	0.0200									
Isopropylbenzene	ND	0.0800									
Bromoform	ND	0.0200									
1,1,2,2-Tetrachloroethane	ND	0.0200									
n-Propylbenzene	ND	0.0200									
Bromobenzene	ND	0.0300									
1,3,5-Trimethylbenzene	ND	0.0200									
2-Chlorotoluene	ND	0.0200									
4-Chlorotoluene	ND	0.0200									
tert-Butylbenzene	ND	0.0200									
1,2,3-Trichloropropane	ND	0.0200									
1,2,4-Trichlorobenzene	ND	0.0500									
sec-Butylbenzene	ND	0.0200									
4-Isopropyltoluene	ND	0.0200									

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1202121
CLIENT: GeoEngineers
Project: New Zealand

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **MB-1953** SampType: **MBLK** Units: **mg/Kg** Prep Date: **2/28/2012** RunNo: **3499**
Client ID: **MBLKS** Batch ID: **1953** Analysis Date: **2/28/2012** SeqNo: **62045**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,3-Dichlorobenzene	ND	0.0200									
1,4-Dichlorobenzene	ND	0.0200									
n-Butylbenzene	ND	0.0200									
1,2-Dichlorobenzene	ND	0.0200									
1,2-Dibromo-3-chloropropane	ND	0.0300									
1,2,4-Trimethylbenzene	ND	0.0200									
Hexachlorobutadiene	ND	0.100									
Naphthalene	ND	0.0300									
1,2,3-Trichlorobenzene	ND	0.0200									
Surr: 1-Bromo-4-fluorobenzene	0.0201		0.02000		100	63.1	141				
Surr: Dibromofluoromethane	0.0216		0.02000		108	67.6	119				
Surr: Toluene-d8	0.0206		0.02000		103	78.5	126				

Sample ID: **LCS-1953** SampType: **LCS** Units: **mg/Kg** Prep Date: **2/28/2012** RunNo: **3499**
Client ID: **LCSS** Batch ID: **1953** Analysis Date: **2/28/2012** SeqNo: **62046**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethene	0.234	0.0500	0.2000	0	117	59	136				
Benzene	0.203	0.0200	0.2000	0	101	69.1	133				
Trichloroethene (TCE)	0.183	0.0300	0.2000	0	91.3	59.7	127				
Toluene	0.183	0.0200	0.2000	0	91.5	65.9	134				
Tetrachloroethene (PCE)	0.152	0.0200	0.1600	0	95.2	52.1	139				
Chlorobenzene	0.179	0.0200	0.2000	0	89.4	67.7	125				
Surr: 1-Bromo-4-fluorobenzene	0.0204		0.02000		102	63.1	141				
Surr: Dibromofluoromethane	0.0210		0.02000		105	67.6	119				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1202121
CLIENT: GeoEngineers
Project: New Zealand

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **LCS-1953**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **2/28/2012**	RunNo: **3499**
Client ID: **LCSS**	Batch ID: **1953**		Analysis Date: **2/28/2012**	SeqNo: **62046**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Toluene-d8	0.0205		0.02000		103	78.5	126				

Sample ID: **1202121-098CDUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **2/28/2012**	RunNo: **3499**
Client ID: **MW20-3-15.0**	Batch ID: **1953**		Analysis Date: **2/29/2012**	SeqNo: **62055**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	ND	0.0757						0	0	30	
Chloromethane	ND	0.0757						0	0	30	
Vinyl chloride	ND	0.00252						0	0	30	
Bromomethane	ND	0.114						0	0	30	
Trichlorofluoromethane (CFC-11)	ND	0.0631						0	0	30	
Chloroethane	ND	0.0757						0	0	30	
1,1-Dichloroethene	ND	0.0631						0	0	30	
Methylene chloride	ND	0.0252						0	0	30	
trans-1,2-Dichloroethene	ND	0.0252						0	0	30	
Methyl tert-butyl ether (MTBE)	ND	0.0631						0	0	30	
1,1-Dichloroethane	ND	0.0252						0	0	30	
2,2-Dichloropropane	ND	0.0631						0	0	30	
cis-1,2-Dichloroethene	ND	0.0252						0	0	30	
Chloroform	ND	0.0252						0	0	30	
1,1,1-Trichloroethane (TCA)	ND	0.0252						0	0	30	
1,1-Dichloropropene	ND	0.0252						0	0	30	
Carbon tetrachloride	ND	0.0252						0	0	30	
1,2-Dichloroethane	ND	0.0379						0	0	30	
Benzene	ND	0.0252						0	0	30	

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1202121
CLIENT: GeoEngineers
Project: New Zealand

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **1202121-098CDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **2/28/2012** RunNo: **3499**
Client ID: **MW20-3-15.0** Batch ID: **1953** Analysis Date: **2/29/2012** SeqNo: **62055**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Trichloroethene (TCE)	ND	0.0379						0	0	30	
1,2-Dichloropropane	ND	0.0252						0	0	30	
Bromodichloromethane	ND	0.0252						0	0	30	
Dibromomethane	ND	0.0505						0	0	30	
cis-1,3-Dichloropropene	ND	0.0252						0	0	30	
Toluene	ND	0.0252						0	0	30	
trans-1,3-Dichloropropene	ND	0.0379						0	0	30	
1,1,2-Trichloroethane	ND	0.0379						0	0	30	
1,3-Dichloropropane	ND	0.0631						0	0	30	
Tetrachloroethene (PCE)	ND	0.0252						0	0	30	
Dibromochloromethane	ND	0.0379						0	0	30	
1,2-Dibromoethane (EDB)	ND	0.00631						0	0	30	
Chlorobenzene	ND	0.0252						0	0	30	
1,1,1,2-Tetrachloroethane	ND	0.0379						0	0	30	
Ethylbenzene	ND	0.0379						0	0	30	
m,p-Xylene	ND	0.0252						0	0	30	
o-Xylene	ND	0.0252						0	0	30	
Styrene	ND	0.0252						0	0	30	
Isopropylbenzene	ND	0.101						0	0	30	
Bromoform	ND	0.0252						0	0	30	
1,1,2,2-Tetrachloroethane	ND	0.0252						0	0	30	
n-Propylbenzene	ND	0.0252						0	0	30	
Bromobenzene	ND	0.0379						0	0	30	
1,3,5-Trimethylbenzene	ND	0.0252						0	0	30	
2-Chlorotoluene	ND	0.0252						0	0	30	

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1202121
CLIENT: GeoEngineers
Project: New Zealand

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **1202121-098CDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **2/28/2012** RunNo: **3499**
Client ID: **MW20-3-15.0** Batch ID: **1953** Analysis Date: **2/29/2012** SeqNo: **62055**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4-Chlorotoluene	ND	0.0252						0	0	30	
tert-Butylbenzene	ND	0.0252						0	0	30	
1,2,3-Trichloropropane	ND	0.0252						0	0	30	
1,2,4-Trichlorobenzene	ND	0.0631						0	0	30	
sec-Butylbenzene	ND	0.0252						0	0	30	
4-Isopropyltoluene	ND	0.0252						0	0	30	
1,3-Dichlorobenzene	ND	0.0252						0	0	30	
1,4-Dichlorobenzene	ND	0.0252						0	0	30	
n-Butylbenzene	ND	0.0252						0	0	30	
1,2-Dichlorobenzene	ND	0.0252						0	0	30	
1,2-Dibromo-3-chloropropane	ND	0.0379						0	0	30	
1,2,4-Trimethylbenzene	ND	0.0252						0	0	30	
Hexachlorobutadiene	ND	0.126						0	0	30	
Naphthalene	ND	0.0379						0	0	30	
1,2,3-Trichlorobenzene	ND	0.0252						0	0	30	
Surr: 1-Bromo-4-fluorobenzene	0.0251		0.02524		99.6	63.1	141		0		
Surr: Dibromofluoromethane	0.0281		0.02524		111	67.6	119		0		
Surr: Toluene-d8	0.0261		0.02524		103	78.5	126		0		

Sample ID: **1202121-089CMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **2/28/2012** RunNo: **3499**
Client ID: **MW20-1-70.0** Batch ID: **1953** Analysis Date: **2/29/2012** SeqNo: **62063**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethene	0.220	0.0519	0.2075	0	106	52.6	134				
Benzene	0.198	0.0208	0.2075	0	95.2	67.3	125				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1202121
CLIENT: GeoEngineers
Project: New Zealand

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **1202121-089CMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **2/28/2012** RunNo: **3499**
Client ID: **MW20-1-70.0** Batch ID: **1953** Analysis Date: **2/29/2012** SeqNo: **62063**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Trichloroethene (TCE)	0.179	0.0311	0.2075	0	86.2	60.8	120				
Toluene	0.179	0.0208	0.2075	0	86.4	56.2	138				
Tetrachloroethene (PCE)	0.154	0.0208	0.1660	0	92.5	53.2	126				
Chlorobenzene	0.173	0.0208	0.2075	0	83.5	59.9	123				
Surr: 1-Bromo-4-fluorobenzene	0.0209		0.02075		101	63.1	141				
Surr: Dibromofluoromethane	0.0226		0.02075		109	67.6	119				
Surr: Toluene-d8	0.0217		0.02075		105	78.5	126				

Sample ID: **LCS-1964** SampType: **LCS** Units: **mg/Kg** Prep Date: **2/29/2012** RunNo: **3500**
Client ID: **LCSS** Batch ID: **1964** Analysis Date: **2/29/2012** SeqNo: **62070**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethene	0.486	0.0500	0.5000	0	97.1	59	136				
Benzene	0.425	0.0200	0.5000	0	84.9	69.1	133				
Trichloroethene (TCE)	0.507	0.0300	0.5000	0	101	59.7	127				
Toluene	0.436	0.0200	0.5000	0	87.1	65.9	134				
Tetrachloroethene (PCE)	0.380	0.0200	0.4000	0	95.0	52.1	139				
Chlorobenzene	0.487	0.0200	0.5000	0	97.4	67.7	125				
Surr: 1-Bromo-4-fluorobenzene	0.477		0.5000		95.4	63.1	141				
Surr: Dibromofluoromethane	0.498		0.5000		99.6	67.6	119				
Surr: Toluene-d8	0.511		0.5000		102	78.5	126				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1202121
CLIENT: GeoEngineers
Project: New Zealand

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **1202157-002AMS** SampType: **MS** Units: **mg/Kg** Prep Date: **2/29/2012** RunNo: **3500**
Client ID: **BATCH** Batch ID: **1964** Analysis Date: **2/29/2012** SeqNo: **62077**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethene	0.464	0.0493	0.4931	0	94.0	52.6	134				
Benzene	0.417	0.0197	0.4931	0	84.6	67.3	125				
Trichloroethene (TCE)	0.520	0.0296	0.4931	0	106	60.8	120				
Toluene	0.431	0.0197	0.4931	0	87.5	56.2	138				
Tetrachloroethene (PCE)	0.355	0.0197	0.3945	0	89.9	53.2	126				
Chlorobenzene	0.485	0.0197	0.4931	0	98.3	59.9	123				
Surr: 1-Bromo-4-fluorobenzene	0.412		0.4931		83.5	63.1	141				
Surr: Dibromofluoromethane	0.478		0.4931		96.9	67.6	119				
Surr: Toluene-d8	0.509		0.4931		103	78.5	126				

Sample ID: **1202166-001BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **2/29/2012** RunNo: **3500**
Client ID: **BATCH** Batch ID: **1964** Analysis Date: **2/29/2012** SeqNo: **62159**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	ND	0.0678						0	0	30	
Chloromethane	ND	0.0678						0	0	30	
Vinyl chloride	ND	0.00226						0	0	30	
Bromomethane	ND	0.102						0	0	30	
Trichlorofluoromethane (CFC-11)	ND	0.0565						0	0	30	
Chloroethane	ND	0.0678						0	0	30	
1,1-Dichloroethene	ND	0.0565						0	0	30	
Methylene chloride	ND	0.0226						0	0	30	
trans-1,2-Dichloroethene	ND	0.0226						0	0	30	
Methyl tert-butyl ether (MTBE)	ND	0.0565						0	0	30	
1,1-Dichloroethane	ND	0.0226						0	0	30	

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1202121
CLIENT: GeoEngineers
Project: New Zealand

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **1202166-001BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **2/29/2012** RunNo: **3500**
Client ID: **BATCH** Batch ID: **1964** Analysis Date: **2/29/2012** SeqNo: **62159**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2,2-Dichloropropane	ND	0.0565						0	0	30	
cis-1,2-Dichloroethene	ND	0.0226						0	0	30	
Chloroform	ND	0.0226						0	0	30	
1,1,1-Trichloroethane (TCA)	ND	0.0226						0	0	30	
1,1-Dichloropropene	ND	0.0226						0	0	30	
Carbon tetrachloride	ND	0.0226						0	0	30	
1,2-Dichloroethane	ND	0.0339						0	0	30	
Benzene	ND	0.0226						0	0	30	
Trichloroethene (TCE)	ND	0.0339						0	0	30	
1,2-Dichloropropane	ND	0.0226						0	0	30	
Bromodichloromethane	ND	0.0226						0	0	30	
Dibromomethane	ND	0.0452						0	0	30	
cis-1,3-Dichloropropene	ND	0.0226						0	0	30	
Toluene	ND	0.0226						0	0	30	
trans-1,3-Dichloropropene	ND	0.0339						0	0	30	
1,1,2-Trichloroethane	ND	0.0339						0	0	30	
1,3-Dichloropropane	ND	0.0565						0	0	30	
Tetrachloroethene (PCE)	ND	0.0226						0	0	30	
Dibromochloromethane	ND	0.0339						0	0	30	
1,2-Dibromoethane (EDB)	ND	0.00565						0	0	30	
Chlorobenzene	ND	0.0226						0	0	30	
1,1,1,2-Tetrachloroethane	ND	0.0339						0	0	30	
Ethylbenzene	ND	0.0339						0	0	30	
m,p-Xylene	ND	0.0226						0	0	30	
o-Xylene	ND	0.0226						0	0	30	

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1202121
CLIENT: GeoEngineers
Project: New Zealand

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **1202166-001BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **2/29/2012** RunNo: **3500**
Client ID: **BATCH** Batch ID: **1964** Analysis Date: **2/29/2012** SeqNo: **62159**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Styrene	ND	0.0226						0	0	30	
Isopropylbenzene	ND	0.0903						0	0	30	
Bromoform	ND	0.0226						0	0	30	
1,1,2,2-Tetrachloroethane	ND	0.0226						0	0	30	
n-Propylbenzene	ND	0.0226						0	0	30	
Bromobenzene	ND	0.0339						0	0	30	
1,3,5-Trimethylbenzene	ND	0.0226						0	0	30	
2-Chlorotoluene	ND	0.0226						0	0	30	
4-Chlorotoluene	ND	0.0226						0	0	30	
tert-Butylbenzene	ND	0.0226						0	0	30	
1,2,3-Trichloropropane	ND	0.0226						0	0	30	
1,2,4-Trichlorobenzene	ND	0.0565						0	0	30	
sec-Butylbenzene	ND	0.0226						0	0	30	
4-Isopropyltoluene	ND	0.0226						0	0	30	
1,3-Dichlorobenzene	ND	0.0226						0	0	30	
1,4-Dichlorobenzene	ND	0.0226						0	0	30	
n-Butylbenzene	ND	0.0226						0	0	30	
1,2-Dichlorobenzene	ND	0.0226						0	0	30	
1,2-Dibromo-3-chloropropane	ND	0.0339						0	0	30	
1,2,4-Trimethylbenzene	ND	0.0226						0	0	30	
Hexachlorobutadiene	ND	0.113						0	0	30	
Naphthalene	ND	0.0339						0	0	30	
1,2,3-Trichlorobenzene	ND	0.0226						0	0	30	
Surr: 1-Bromo-4-fluorobenzene	0.496		0.5646		87.9	63.1	141		0		
Surr: Dibromofluoromethane	0.562		0.5646		99.6	67.6	119		0		

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1202121
CLIENT: GeoEngineers
Project: New Zealand

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **1202166-001BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **2/29/2012** RunNo: **3500**
Client ID: **BATCH** Batch ID: **1964** Analysis Date: **2/29/2012** SeqNo: **62159**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Toluene-d8	0.587		0.5646		104	78.5	126		0		

Sample ID: **MB-1964B** SampType: **MBLK** Units: **mg/Kg** Prep Date: **2/29/2012** RunNo: **3500**
Client ID: **MBLKS** Batch ID: **1964** Analysis Date: **2/29/2012** SeqNo: **62163**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	ND	0.0600									
Chloromethane	ND	0.0600									
Vinyl chloride	ND	0.00200									
Bromomethane	ND	0.0900									
Trichlorofluoromethane (CFC-11)	ND	0.0500									
Chloroethane	ND	0.0600									
1,1-Dichloroethene	ND	0.0500									
Methylene chloride	ND	0.0200									
trans-1,2-Dichloroethene	ND	0.0200									
Methyl tert-butyl ether (MTBE)	ND	0.0500									
1,1-Dichloroethane	ND	0.0200									
2,2-Dichloropropane	ND	0.0500									
cis-1,2-Dichloroethene	ND	0.0200									
Chloroform	ND	0.0200									
1,1,1-Trichloroethane (TCA)	ND	0.0200									
1,1-Dichloropropene	ND	0.0200									
Carbon tetrachloride	ND	0.0200									
1,2-Dichloroethane	ND	0.0300									
Benzene	ND	0.0200									

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1202121
CLIENT: GeoEngineers
Project: New Zealand

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **MB-1964B** SampType: **MBLK** Units: **mg/Kg** Prep Date: **2/29/2012** RunNo: **3500**
Client ID: **MBLKS** Batch ID: **1964** Analysis Date: **2/29/2012** SeqNo: **62163**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Trichloroethene (TCE)	ND	0.0300									
1,2-Dichloropropane	ND	0.0200									
Bromodichloromethane	ND	0.0200									
Dibromomethane	ND	0.0400									
cis-1,3-Dichloropropene	ND	0.0200									
Toluene	ND	0.0200									
trans-1,3-Dichloropropene	ND	0.0300									
1,1,2-Trichloroethane	ND	0.0300									
1,3-Dichloropropane	ND	0.0500									
Tetrachloroethene (PCE)	ND	0.0200									
Dibromochloromethane	ND	0.0300									
1,2-Dibromoethane (EDB)	ND	0.00500									
Chlorobenzene	ND	0.0200									
1,1,1,2-Tetrachloroethane	ND	0.0300									
Ethylbenzene	ND	0.0300									
m,p-Xylene	ND	0.0200									
o-Xylene	ND	0.0200									
Styrene	ND	0.0200									
Isopropylbenzene	ND	0.0800									
Bromoform	ND	0.0200									
1,1,2,2-Tetrachloroethane	ND	0.0200									
n-Propylbenzene	ND	0.0200									
Bromobenzene	ND	0.0300									
1,3,5-Trimethylbenzene	ND	0.0200									
2-Chlorotoluene	ND	0.0200									

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1202121
CLIENT: GeoEngineers
Project: New Zealand

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **MB-1964B**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **2/29/2012**	RunNo: **3500**
Client ID: **MBLKS**	Batch ID: **1964**		Analysis Date: **2/29/2012**	SeqNo: **62163**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4-Chlorotoluene	ND	0.0200									
tert-Butylbenzene	ND	0.0200									
1,2,3-Trichloropropane	ND	0.0200									
1,2,4-Trichlorobenzene	ND	0.0500									
sec-Butylbenzene	ND	0.0200									
4-Isopropyltoluene	ND	0.0200									
1,3-Dichlorobenzene	ND	0.0200									
1,4-Dichlorobenzene	ND	0.0200									
n-Butylbenzene	ND	0.0200									
1,2-Dichlorobenzene	ND	0.0200									
1,2-Dibromo-3-chloropropane	ND	0.0300									
1,2,4-Trimethylbenzene	ND	0.0200									
Hexachlorobutadiene	ND	0.100									
Naphthalene	ND	0.0300									
1,2,3-Trichlorobenzene	ND	0.0200									
Surr: 1-Bromo-4-fluorobenzene	0.445		0.5000		89.0	63.1	141				
Surr: Dibromofluoromethane	0.488		0.5000		97.5	67.6	119				
Surr: Toluene-d8	0.519		0.5000		104	78.5	126				

Sample ID: **ICV-1975**	SampType: **ICV**	Units: **mg/Kg**	Prep Date: **2/29/2012**	RunNo: **3509**
Client ID: **ICV**	Batch ID: **1975**		Analysis Date: **3/1/2012**	SeqNo: **62215**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	11.7	0.0500	10.00	0	117	70	130				
1,3-Dichlorobenzene	9.70	0.0200	10.00	0	97.0	70	130				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1202121
CLIENT: GeoEngineers
Project: New Zealand

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **ICV-1975** SampType: **ICV** Units: **mg/Kg** Prep Date: **2/29/2012** RunNo: **3509**
Client ID: **ICV** Batch ID: **1975** Analysis Date: **3/1/2012** SeqNo: **62215**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,4-Dichlorobenzene	9.11	0.0200	10.00	0	91.1	70	130				
n-Butylbenzene	9.92	0.0200	10.00	0	99.2	70	130				
1,2-Dichlorobenzene	8.72	0.0200	10.00	0	87.2	70	130				
1,2-Dibromo-3-chloropropane	12.8	0.0300	10.00	0	128	70	130				
Hexachlorobutadiene	10.0	0.100	10.00	0	100	70	130				
Naphthalene	11.3	0.0300	10.00	0	113	70	130				
1,2,3-Trichlorobenzene	8.61	0.0200	10.00	0	86.1	70	130				
Surr: 1-Bromo-4-fluorobenzene	10.1		10.00		101	63.1	141				
Surr: Dibromofluoromethane	10.1		10.00		101	67.6	119				
Surr: Toluene-d8	10.1		10.00		101	78.5	126				

Sample ID: **MB-1975** SampType: **MBLK** Units: **mg/Kg** Prep Date: **2/29/2012** RunNo: **3509**
Client ID: **MBLKS** Batch ID: **1975** Analysis Date: **3/1/2012** SeqNo: **62223**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	ND	0.0600									
Chloromethane	ND	0.0600									
Vinyl chloride	ND	0.00200									
Bromomethane	ND	0.0900									
Trichlorofluoromethane (CFC-11)	ND	0.0500									
Chloroethane	ND	0.0600									
1,1-Dichloroethene	ND	0.0500									
Methylene chloride	ND	0.0200									
trans-1,2-Dichloroethene	ND	0.0200									
Methyl tert-butyl ether (MTBE)	ND	0.0500									

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1202121
CLIENT: GeoEngineers
Project: New Zealand

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **MB-1975** SampType: **MBLK** Units: **mg/Kg** Prep Date: **2/29/2012** RunNo: **3509**
Client ID: **MBLKS** Batch ID: **1975** Analysis Date: **3/1/2012** SeqNo: **62223**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethane	ND	0.0200									
2,2-Dichloropropane	ND	0.0500									
cis-1,2-Dichloroethene	ND	0.0200									
Chloroform	ND	0.0200									
1,1,1-Trichloroethane (TCA)	ND	0.0200									
1,1-Dichloropropene	ND	0.0200									
Carbon tetrachloride	ND	0.0200									
1,2-Dichloroethane	ND	0.0300									
Benzene	ND	0.0200									
Trichloroethene (TCE)	ND	0.0300									
1,2-Dichloropropane	ND	0.0200									
Bromodichloromethane	ND	0.0200									
Dibromomethane	ND	0.0400									
cis-1,3-Dichloropropene	ND	0.0200									
Toluene	ND	0.0200									
trans-1,3-Dichloropropene	ND	0.0300									
1,1,2-Trichloroethane	ND	0.0300									
1,3-Dichloropropane	ND	0.0500									
Tetrachloroethene (PCE)	ND	0.0200									
Dibromochloromethane	ND	0.0300									
1,2-Dibromoethane (EDB)	ND	0.00500									
Chlorobenzene	ND	0.0200									
1,1,1,2-Tetrachloroethane	ND	0.0300									
Ethylbenzene	ND	0.0300									
m,p-Xylene	ND	0.0200									

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1202121
CLIENT: GeoEngineers
Project: New Zealand

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **MB-1975** SampType: **MBLK** Units: **mg/Kg** Prep Date: **2/29/2012** RunNo: **3509**
Client ID: **MBLKS** Batch ID: **1975** Analysis Date: **3/1/2012** SeqNo: **62223**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
o-Xylene	ND	0.0200									
Styrene	ND	0.0200									
Isopropylbenzene	ND	0.0800									
Bromoform	ND	0.0200									
1,1,2,2-Tetrachloroethane	ND	0.0200									
n-Propylbenzene	ND	0.0200									
Bromobenzene	ND	0.0300									
1,3,5-Trimethylbenzene	ND	0.0200									
2-Chlorotoluene	ND	0.0200									
4-Chlorotoluene	ND	0.0200									
tert-Butylbenzene	ND	0.0200									
1,2,3-Trichloropropane	ND	0.0200									
1,2,4-Trichlorobenzene	ND	0.0500									
sec-Butylbenzene	ND	0.0200									
4-Isopropyltoluene	ND	0.0200									
1,3-Dichlorobenzene	ND	0.0200									
1,4-Dichlorobenzene	ND	0.0200									
n-Butylbenzene	ND	0.0200									
1,2-Dichlorobenzene	ND	0.0200									
1,2-Dibromo-3-chloropropane	ND	0.0300									
1,2,4-Trimethylbenzene	ND	0.0200									
Hexachlorobutadiene	ND	0.100									
Naphthalene	ND	0.0300									
1,2,3-Trichlorobenzene	ND	0.0200									
Surr: 1-Bromo-4-fluorobenzene	0.0217		0.02000		108	63.1	141				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1202121
CLIENT: GeoEngineers
Project: New Zealand

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **MB-1975**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **2/29/2012**	RunNo: **3509**
Client ID: **MBLKS**	Batch ID: **1975**		Analysis Date: **3/1/2012**	SeqNo: **62223**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Dibromofluoromethane	0.0197		0.02000		98.3	67.6	119				
Surr: Toluene-d8	0.0199		0.02000		99.7	78.5	126				

Sample ID: **LCS-1975**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **2/29/2012**	RunNo: **3509**
Client ID: **LCSS**	Batch ID: **1975**		Analysis Date: **3/1/2012**	SeqNo: **62224**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethene	0.170	0.0500	0.2000	0	85.0	59	136				
Benzene	0.178	0.0200	0.2000	0	88.8	69.1	133				
Trichloroethene (TCE)	0.177	0.0300	0.2000	0	88.6	59.7	127				
Toluene	0.180	0.0200	0.2000	0	89.8	65.9	134				
Tetrachloroethene (PCE)	0.184	0.0200	0.1600	0	115	52.1	139				
Chlorobenzene	0.182	0.0200	0.2000	0	90.9	67.7	125				
Surr: 1-Bromo-4-fluorobenzene	0.0224		0.02000		112	63.1	141				
Surr: Dibromofluoromethane	0.0194		0.02000		97.2	67.6	119				
Surr: Toluene-d8	0.0196		0.02000		97.9	78.5	126				

Sample ID: **1202148-003BDUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **2/29/2012**	RunNo: **3509**
Client ID: **BATCH**	Batch ID: **1975**		Analysis Date: **3/1/2012**	SeqNo: **62476**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	ND	0.0495						0	0	30	
Chloromethane	ND	0.0495						0	0	30	
Vinyl chloride	ND	0.00165						0	0	30	

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1202121
CLIENT: GeoEngineers
Project: New Zealand

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **1202148-003BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **2/29/2012** RunNo: **3509**
Client ID: **BATCH** Batch ID: **1975** Analysis Date: **3/1/2012** SeqNo: **62476**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromomethane	ND	0.0742						0	0	30	
Trichlorofluoromethane (CFC-11)	ND	0.0412						0	0	30	
Chloroethane	ND	0.0495						0	0	30	
1,1-Dichloroethene	ND	0.0412						0	0	30	
Methylene chloride	ND	0.0165						0	0	30	
trans-1,2-Dichloroethene	ND	0.0165						0	0	30	
Methyl tert-butyl ether (MTBE)	ND	0.0412						0	0	30	
1,1-Dichloroethane	ND	0.0165						0	0	30	
2,2-Dichloropropane	ND	0.0412						0	0	30	
cis-1,2-Dichloroethene	ND	0.0165						0	0	30	
Chloroform	ND	0.0165						0	0	30	
1,1,1-Trichloroethane (TCA)	ND	0.0165						0	0	30	
1,1-Dichloropropene	ND	0.0165						0	0	30	
Carbon tetrachloride	ND	0.0165						0	0	30	
1,2-Dichloroethane	ND	0.0247						0	0	30	
Benzene	ND	0.0165						0	0	30	
Trichloroethene (TCE)	ND	0.0247						0	0	30	
1,2-Dichloropropane	ND	0.0165						0	0	30	
Bromodichloromethane	ND	0.0165						0	0	30	
Dibromomethane	ND	0.0330						0	0	30	
cis-1,3-Dichloropropene	ND	0.0165						0	0	30	
Toluene	ND	0.0165						0	0	30	
trans-1,3-Dichloropropene	ND	0.0247						0	0	30	
1,1,2-Trichloroethane	ND	0.0247						0	0	30	
1,3-Dichloropropane	ND	0.0412						0	0	30	

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1202121
CLIENT: GeoEngineers
Project: New Zealand

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **1202148-003BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **2/29/2012** RunNo: **3509**
Client ID: **BATCH** Batch ID: **1975** Analysis Date: **3/1/2012** SeqNo: **62476**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Tetrachloroethene (PCE)	ND	0.0165						0	0	30	
Dibromochloromethane	ND	0.0247						0	0	30	
1,2-Dibromoethane (EDB)	ND	0.00412						0	0	30	
Chlorobenzene	ND	0.0165						0	0	30	
1,1,1,2-Tetrachloroethane	ND	0.0247						0	0	30	
Ethylbenzene	ND	0.0247						0	0	30	
m,p-Xylene	ND	0.0165						0	0	30	
o-Xylene	ND	0.0165						0	0	30	
Styrene	ND	0.0165						0	0	30	
Isopropylbenzene	ND	0.0660						0	0	30	
Bromoform	ND	0.0165						0	0	30	
1,1,2,2-Tetrachloroethane	ND	0.0165						0	0	30	
n-Propylbenzene	ND	0.0165						0	0	30	
Bromobenzene	ND	0.0247						0	0	30	
1,3,5-Trimethylbenzene	ND	0.0165						0	0	30	
2-Chlorotoluene	ND	0.0165						0	0	30	
4-Chlorotoluene	ND	0.0165						0	0	30	
tert-Butylbenzene	ND	0.0165						0	0	30	
1,2,3-Trichloropropane	ND	0.0165						0	0	30	
1,2,4-Trichlorobenzene	ND	0.0412						0	0	30	
sec-Butylbenzene	ND	0.0165						0	0	30	
4-Isopropyltoluene	ND	0.0165						0	0	30	
1,3-Dichlorobenzene	ND	0.0165						0	0	30	
1,4-Dichlorobenzene	ND	0.0165						0	0	30	
n-Butylbenzene	ND	0.0165						0	0	30	

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1202121
CLIENT: GeoEngineers
Project: New Zealand

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **1202148-003BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **2/29/2012** RunNo: **3509**
Client ID: **BATCH** Batch ID: **1975** Analysis Date: **3/1/2012** SeqNo: **62476**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2-Dichlorobenzene	ND	0.0165						0	0	30	
1,2-Dibromo-3-chloropropane	ND	0.0247						0	0	30	
1,2,4-Trimethylbenzene	ND	0.0165						0	0	30	
Hexachlorobutadiene	ND	0.0825						0	0	30	
Naphthalene	ND	0.0247						0	0	30	
1,2,3-Trichlorobenzene	ND	0.0165						0	0	30	
Surr: 1-Bromo-4-fluorobenzene	0.0185		0.01650		112	63.1	141		0		
Surr: Dibromofluoromethane	0.0164		0.01650		99.7	67.6	119		0		
Surr: Toluene-d8	0.0171		0.01650		103	78.5	126		0		

Sample ID: **1202148-016BMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **2/29/2012** RunNo: **3509**
Client ID: **BATCH** Batch ID: **1975** Analysis Date: **3/1/2012** SeqNo: **62481**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethene	0.139	0.0404	0.1614	0	86.0	52.6	134				
Benzene	0.136	0.0161	0.1614	0	84.4	67.3	125				
Trichloroethene (TCE)	0.118	0.0242	0.1614	0	73.0	60.8	120				
Toluene	0.118	0.0161	0.1614	0	73.2	56.2	138				
Tetrachloroethene (PCE)	0.125	0.0161	0.1291	0	96.8	53.2	126				
Chlorobenzene	0.112	0.0161	0.1614	0	69.2	59.9	123				
Surr: 1-Bromo-4-fluorobenzene	0.0192		0.01614		119	63.1	141				
Surr: Dibromofluoromethane	0.0158		0.01614		98.1	67.6	119				
Surr: Toluene-d8	0.0165		0.01614		102	78.5	126				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Sample Log-In Check List

Client Name: **GEI**	Work Order Number: **1202121**
Logged by: **Caitlyn Frazier**	Date Received: **2/27/2012 1:30:00 PM**

Chain of Custody

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

Log In

4.	Coolers are present?	Yes	☑	No	☐	NA	☐
5.	Was an attempt made to cool the samples?	Yes	☑	No	☐	NA	☐
6.	Were all coolers received at a temperature of >0° C to 10.0°C	Yes	☑	No	☐	NA	☐
7.	Sample(s) in proper container(s)?	Yes	☑	No	☐		
8.	Sufficient sample volume for indicated test(s)?	Yes	☑	No	☐		
9.	Are samples properly preserved?	Yes	☑	No	☐		
10.	Was preservative added to bottles?	Yes	☐	No	☑	NA	☐
11.	Is there headspace present in VOA vials?	Yes	☐	No	☐	NA	☑
12.	Did all sample containers arrive in good condition?(unbroken)	Yes	☑	No	☐		
13.	Does paperwork match bottle labels?	Yes	☑	No	☐		
14.	Are matrices correctly identified on Chain of Custody?	Yes	☑	No	☐		
15.	Is it clear what analyses were requested?	Yes	☑	No	☐		
16.	Were all holding times able to be met?	Yes	☑	No	☐		

Special Handling (if applicable)

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

Person Notified:	Jessica Smith	Date:	2/29/2012
By Whom:	Mike Ridgeway	Via:	☑ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:	Samples MW20-2-2.5 and MW20-2-7.5 missing sample.		
Client Instructions:			

18. Additional remarks/Disrepancies

Samples MW20-2-2.5 and MW20-2-7.5 are missing sample in the 8oz jar and VOAs. MW20-2-2.5 was delivered with one SOBI VOA, and MW20-2-7.5 was delivered with two SOBI VOAS.

Item Information

Item #	Temp ºC	Condition
Cooler 1	6.6	Good
Cooler 2	3.4	Good
Cooler 3	7.6	Good
Cooler 4	6.5	Good
Cooler 5	2.5	Good

Item #	Temp ºC	Condition
Sample 1	6.5	Good
Sample 2	2.9	Good
Sample 3	9.0	Good
Sample 4	6.4	Good
Sample 5	2.2	Good
Temp Blank 1	6.4	Good
Temp Blank 2	3.8	Good

Fremont Analytical

Chain of Custody Record

1311 N. 35th Street
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Laboratory Project# (Internal): 120212

Date: 2/27/12

Page: 1 of: 3

Client: GeoEngineers, Inc.

Address: Plaza 600 Building, Suite L700

City, State, Zip: Seattle, WA, 98101 Tel: 206-728-2674

Project Name: New Zealand

Location: Denny Triangle

Collected by: Theo Leonard/Chris Brown

Reports To (PM): Jessica Smith Fax: 425-861-6050 Email: jasmith@geoengineers.com Project No: 20434-001-02

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	BTEX	EPA 8260	EPA 8021B	Gasoline Range Organics	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics	SEMI VOL (EPA 8270)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals* (6020 / 200.8)	Total (T) / Dissolved (D)	Anions (IC)**	RCRA 8 Metals by EPA 6020/7470	Comments/Depth
MW20-3-2.5	2/27/12	0805	S																	
MW20-3-5.0	2/27/12	0811	S																	
MW20-3-7.5	2/27/12	0819	S																	
MW20-3-10.0	2/27/12	0826	S																	
MW20-3-12.5	2/27/12	0834	S																	
MW20-3-15.0	2/27/12	0842	S																	
MW20-3-17.5	2/27/12	0852	S																	
MW20-3-20.0	2/27/12	0903	S																	
MW20-3-22.5	2/27/12	0913	S																	
MW20-3-25.0	2/27/12	0921	S																	

*Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab (A fee may be assessed if samples are retained after 30 days.)

Special Remarks:

Relinquished	Date/Time	Received	Date/Time
x	2/27/12 @ 1335	x	2/27/12 @ 1335
Relinquished	Date/Time	Received	Date/Time
x		x	

TAT — Next Day 2 Day 3 Day STD

Distribution: White - Lab, Yellow - File, Pink - Originator

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Chain of Custody Record

1311 N. 35th Street
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Laboratory Project No (internal): 120212

Date: 2/ /12

Page: 2 of: 3

Client: GeoEngineers, Inc
Address: Plaza 600 Building, Suite 1700
City, State, Zip: Seattle, WA 98101 Tel: 206-728-2674

Project Name: New Zealand
Location: Denny Triangle
Collected by: Theo Leonard/Chris Brown

Reports To (PM): Jessica Smith Fax: 425-861-6050 Email: jasmith@geoengineers.com Project No: 2043A-001-03

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	BTEX	EPA 8260	EPA 8021B	Gasoline Range Organics	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics	SemiVOL (EPA 8270)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals* (6020 / 200.8)	Total (T) / Dissolved (D)	Anions (IC)**	RCRA 8 Metals by EPA 6000/7000	Comments/Depth
MW20-3-38.8	2/27/12	0935	S																	
MW20-3-35.0	2/27/12	0948	S																	
MW20-3-40.0	2/27/12	1007	S																	
MW20-3-45.0	2/27/12	1020	S																	
MW20-3-50.0	2/27/12	1030	S																	
MW20-3-55.0	2/27/12	1040	S																	
MW20-3-60.0	2/27/12	1047	S																	
MW20-3-65.0	2/27/12	1105	S																	
MW20-3-70.0	2/27/12	1120	S																	
MW20-3-75.0	2/27/12	1135	S																	

*Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab (A fee may be assessed if samples are retained after 30 days.)

Special Remarks:

Relinquished:	Date/Time	Received	Date/Time
x	2/27/12 @ 1336	x	2/27/12 13 36
Relinquished:	Date/Time	Received	Date/Time
x		x	

TAT -> Next Day 2 Day 3 Day STD

Distribution: White - Lab, Yellow - File, Pink - Originator

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Chain of Custody Record

131 1 N. 35th Street
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Laboratory Project No (internal): 1202121

Date: 2/ /12

Page: 3 of: 3

Client: GeoEngineers, Inc
Address: Plaza 600 Building, Suite 1700
City, State, Zip: Seattle, WA, 98101 Tel: 206 728 2674

Project Name: New Zealand
Location: Denny Triangle
Collected by: Theo Leonard/Chris Brown

Reports To (PM): Jessica Smith Fax: 425-861-6050 Email: jsmith@geoengineers.com Project No: 20434-001-02

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	BTEX (EPA 8260)	Gasoline Range Organics (EPA 8260)	Hydrocarbon Identification (NCID)	Diesel/Heavy Oil Range Organics	SEMI VOL (EPA 8270 - SIM)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals* (6020) 200.8)	Total (T) & Dissolved (D)	Anions (IC)**	RCRA 8 Metals by EPA 6000/7000	Comments/Disposal
MW20-3-80.0	1/27/12	1146	S															
MW20-3-85.3	1/27/12	1205	S															
MW20-3-	2/ /12		S															
MW20-3-	2/ /12		S															
MW20-3-	2/ /12		S															
MW20-3-	2/ /12		S															
MW20-3-	2/ /12		S															
MW20-3-	2/ /12		S															
MW20-3-	2/ /12		S															
MW20-3-	2/ /12		S															

*Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Si Sr Sn Ti Tl U V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab (A fee may be assessed if samples are retained after 30 days.)

Special Remarks

Relinquished	Date/Time	Received	Date/Time
x [signature]	2/27/12 1535	x [signature]	2/27/12 1336
Relinquished	Date/Time	Received	Date/Time
x		x	

TAT — Next Day 2 Day 3 Day STD

Distribution: White - Lab, Yellow - File, Pink - Originator

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Chain of Custody Record

1311 N. 35th Street
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Laboratory Project No (internal): 1202121

Date: 2/27/12 Page: 1 of: 5

Client: GeoEngineers, Inc
Address: Plaza 600 Building, Suite 1700
City, State, Zip: Seattle, WA, 98101 Tel: 206-728-2674

Project Name: New Zealand
Location: Denny Triangle
Collected by: Thea Leonard/Clive Brown

Reports To (PM): Jessica Smith Fax: 425-861-6050 Email: jasmith@geoengineers.com Project No: 20434-001-02

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	BTEX (EPA 8260)	Gasoline Range Organics (NWTPH-Gx)	CR (8015B)	Hydrocarbon Identification (NWTPH-HCID)	Diesel/Heavy Oil Range Organics (NWTPH-Dx)	SCMS VOC (EPA 8270 - SIM)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals* (6020 / 200.8) total (T) / dissolved (D)	Anions (IC)**	RCRA 8 Metals (EPA 6000/7000)	Comments/Depth
B20-2-2.5	2/17/12	1245	S														X	Hold
B20-2-5.0	2/ /12	1251	S															
B20-2-7.5	2/ /12	1257	S															
B20-2-10.5	2/ /12	1306	S															
B20-2-12.5	2/ /12	1314	S															
B20-2-15.0	2/ /12	1321	S															
B20-2-17.5	2/ /12	1327	S															
B20-2-20.0	2/ /12	1337	S															
B20-2-22.5	2/ /12	1344	S															
B20-2-25.0	2/ /12	1351	S														V	

*Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individuals: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Sc Sr Sn Ti Tl U V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab (A fee may be assessed if samples are retained after 30 days.)

Special Remarks:

Relinquished: Date/Time: 2/27/12 1830 Received: Date/Time: 2/27/12 2030

Relinquished: Date/Time: Received: Date/Time:

TAT -> Next Day 2 Day 3 Day STD

Distribution: White - Lab, Yellow - File, Pink - Originator

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Chain of Custody Record

1311 N. 35th Street
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Tel: 206-352-3790
Fax: 206-352-7178

Laboratory Project No (internal): 1202121

Date: 2/27/12

Page: 2 of 5 CB

Client: GeoEngineers, Inc
Address: Plaza 600 Building, Suite 1700
City, State, Zip: Seattle, WA, 98101 Tel: 206-728-2674
Reports To (PM): Jessica Smith Fax: 425-861-6050 Email: jasmith@geoengineers.com

Project Name: New Zealand
Location: Denny Triangle
Collected by: Theo Leonard/Cindy Brown
Project No: 20434-001-02

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	BTEX	EPA 8260	EPA 8021b	Gasoline Range Organics	HydroCarbon Identification (HCID)	Diesel/Heavy Oil Range Organics	SEMI VOC (EPA 8270)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals* (6020 / 200.8)	Total (T) / Dissolved (D)	Anions (IC)**	RCRA 8 Metals by EPA 6020/7000	Comments/Lab#
B20-2-30.0	2/27/12	1408	S																X	
B20-2-35.0	2/ /12	1427	S																	
B20-2-40.0	2/ /12	1430	S																	
B20-2-45.0	2/ /12	1435	S																	
B20-2-50.0	2/ /12	1445	S																	
B20-2-55.0	2/ /12	1501	S																	
B20-2-60.0	2/ /12	1518	S																	
B20-2-65.0	2/ /12	1523	S																	
B20-2-70.0	2/ /12	1535	S																	
B20-2-75.0	2/ /12	1550	S																	

*Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Si Sn Ti Tl U V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab (A fee may be assessed if samples are retained after 10 days.)

Special Remarks:

Relinquished	Date/Time	Received	Date/Time
x Theo Bleore	2/27/12 1830	x Jay Zehr	2/27/12 18:30
x		x	

TAT --> Next Day 2 Day 3 Day STD

Distribution: White - Lab, Yellow - File, Pink - Originator

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Chain of Custody Record

1311 N. 35th Street
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 2/27/12

Laboratory Project No (internal): 1202121

Page: 3 of: 5

Client: GeoEngineers, Inc.
Address: Plaza 600 Building, Suite L700
City, State, Zip: Seattle, WA, 98101 Tel: 206-728-2674

Project Name: New Zealand
Location: Derby Triangle
Collected by: Theo Leoreare/Chris Brown

Reports To (PM): Jessica Smith Fax: 425-861-6050 Email: jasmith@geoengineers.com Project No: 20434-001-02

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	BTEX	EPA 8260	EPA 8021B	Gasoline Range Organics	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics	SGM VOL (EPA 8270)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals* (6010 / 200.8)	Total (T)	Dissolved (D)	Anions (IC)**	RCRA 8 Metals by EPA 6000/7000	Hold	Comments/Dept
B20-3-2.5	2/27/12	755	S																		X	
B20-3-5.0	2/ /12	801	S																			
B20-3-7.5	2/ /12	806	S																			
B20-3-10.0	2/ /12	812	S																			
B20-3-12.5	2/ /12	818	S																			
B20-3-15.0	2/ /12	825	S																			
B20-3-17.5	2/ /12	829	S																			
B20-3-20.0	2/ /12	839	S																			
B20-3-22.5	2/ /12	846	S																			
B20-3-25.0	2/ /12	857	S																		↓	

*Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide Ortho-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab (A fee may be assessed if samples are retained after 30 days)

Special Remarks

Relinquished*	Date/Time	Received	Date/Time
x Theo Leoreare	2/27/12 1830	x Jay Zeh	2/27/12 18:30
Relinquished	Date/Time	Received	Date/Time
x		x	

TAT --> Next Day 2 Day 3 Day STD

Distribution: White - Lab, Yellow - File, Pink - Originator

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Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Laboratory Project No (Internal): 1202121

Date: 2/27/12

Page: 4 of 5

Client: GeoEngineers, Inc.
Address: Plaza 600 Building, Suite 1700
City, State, Zip: Seattle, WA, 98101
Tel: 206-728-2674

Project Name: New Zealand
Location: Denny Triangle
Collected by: Theo Leonard/Chris Brown

Reports To (PM): Jessica Smith
Fax: 425-861-6050
Email: jesmith@geoengineers.com
Project No: 20434-001-02

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	BTEX (EPA 8260)	Gasoline Range Organics	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics	sGRO VOC (EPA 8270)	PAH (EPA 8270) - SIM	PCBs (EPA 8082)	Pesticides (EPA 8081)	Herbicides (EPA 8151A)	Metals* (6020 / 200.8)	Total (T) / Dissolved (D)	Anions (IC)**	RCRA 8 Metals (EPA 6010/7000)	Hold	Comments/Depth
B20-3-27.5	2/27/12	9:04	S														X		
B20-3-30.0	2/ /12	9:14	S																
B20-3-35.0	2/ /12	9:30	S																
B20-3-40.0	2/ /12	9:44	S																
B20-3-45.0	2/ /12	10:00	S																
B20-3-50.0	2/ /12	10:14	S																
B20-3-55.0	2/ /12	10:29	S																
B20-3-60.0	2/ /12	10:42	S																
B20-3-65.0	2/ /12	10:54	S																
B20-3-70.0	2/ /12	11:02	S																

*Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL (individual): Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni P Pb Sb Se Sr Sn Ti Tl U V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide Ortho-Phosphate Fluoride Nitrate-Nitrite

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab (A fee may be assessed if samples are retained after 30 days)

Special Remarks:

Relinquished	Date/Time	Received	Date/Time
x Theo Leonard	2/27/12 1830	x [signature]	2/27/12 18:30
Relinquished	Date/Time	Received	Date/Time
x		x	

TAT --> Next Day 2 Day 3 Day STD

Distribution: White - Lab, Yellow - File, Pink - Originator

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Tel: 206-352-3790
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Laboratory Project No (internal): 1202121

Date: 2/27/12

Page: 5 of: 5

Client:	GeoEngineers Inc			Project Name:	New Zealand
Address:	Plaza 600 Building, Suite 1700			Location:	Danny Triangle
City, State, Zip	Seattle, WA, 98101	Tel:	206 728-2674	Collected by:	Theo Leonard/Chris Brown
Reports To (PM):	Jessica Smith	Fax:	425-861-6050	Email:	jasmith@geoengineers.com

Project No: 20434-001-02

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	PPHC	EPA 8260	EPA 8270	Gasoline Range Organics	Hydrocarbon Identification (NWTH)	Diesel/Heavy Oil Range Organics	SEMI VOL (EPA 8270)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals* 6020 / 200.8	Total Cr, Hex Cr 3060A/7196 (D)	Anions (IC)**	RCRA 8 Metals (EPA 6020/7470)	TCLP	Comments/Depth
B2[illegible]-3-75.0	2/27/12	1117	S																	X	
B2[illegible]-3	2/ /12		S																		
B2[illegible]-3	2/ /12		S																		
B20-3	2/ /12		S																		
B20-3	2/ /12		S																		
B20-3	2/ /12		S																		
B20-3	2/ /12		S																		
B20-3	2/ /12		S																		
B20-3	2/ /12		S																		
B20-3	2/ /12		S																		

*Metals Analysis (Circle): RCRA-8 RCRA-13 Priority Pollutants TAL Individual Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate-Nitrite

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab (A fee may be assessed if samples are retained after 30 days)

Special Remarks:

Relinquished: Theo Leonard	Date/Time: 2/27/12 1830	Received: [illegible]	Date/Time: 2/27/12 18:30
Relinquished:	Date/Time:	Received:	Date/Time:

TAT --> Next Day 2 Day 3 Day STD

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Fax: 206-352-7178

Laboratory Project Nº (Internal): 120121

Date: 2/28/12 Page: 1 of: 3

Client:	SoilEngineers, Inc.			Project Name:	New Zealand
Address:	Plaza 600 Building, Suite 1700			Location:	Denny Triangle
City, State, Zip	Seattle, WA 98101	Tel:	206-728-2674	Collected by:	Theo Leonard/Chris Brown
Reports To (PM):	Jessica Smith	Fax:	425-861-6050	Email:	jsmith@soilengineers.com

Project No: 20434-001-02

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	BTEX: EPA 8260 EPA 80210	Gasoline Range Organics	Hydrocarbon Identification (HCID):	Diesel/Heavy Oil Range Organics	SEMI VOL (EPA 8270)	PAH (EPA 8270 SIM)	PCB's (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals* (6020 / 200.8)	Total (T) / Dissolved (D)	Anions (IC)**	RCRA 6 Metals by CPA 6020/7000	Comments/Depth
MW20-1 2.5	2/27/12	1619	S															
MW20-1 5.3	2/27/12	1602	S															
MW20-1 7.5	2/27/12	1651	S															
MW20-1 10.3	2/27/12	1707	S															
MW20-1 12.5	2/27/12	1715	S															
MW20-1 15.3	2/27/12	1716	S															
MW20-1 17.5	2/27/12	1725	S															
MW20-1 20.3	2/27/12	1732	S															
MW20-1 22.5	2/27/12	1740	S															
MW20-1 25.3	2/27/12	1759	S	NS	Recovery													

*Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Si Sn Ti Tl U V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab (A fee may be assessed if samples are retained after 30 days.)

Special Remarks:

Relinquished	Date/Time	Received	Date/Time
× [signature]	2/28/12 1557	× [signature]	2/28/12 15:32
Relinquished	Date/Time	Received	Date/Time
×		×	

TAT → Next Day 2 Day 3 Day STD

Distribution: White - Lab, Yellow - File Pink - Originator

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Laboratory Project No (internal): 120212

Date: 2/28/12

Page: 2 of 3

Client:	GeoEngineers, Inc.		**Project Name:**	New Zealand	
Address:	Plaza 600 Building, Suite 1700		**Location:**	Denny Triangle	
City, State, Zip	Seattle, WA, 98101	**Tel:**	206-728-2674	**Collected by:**	Theo Leonard/Chris Brown
Reports To (PM):	Jessica Smith	**Fax:**	425-861-6050	**Email:**	jasmith@geoengineers.com

Project No: 20438-001-02

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	BTEX	EPA 8260 - 4PA 80218	Gasoline Range Organics	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics	SEMI VOL (EPA 8270)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals* (6020 / 200.8)	Total (T) | Dissolved (D)	Anions (IC)**	RCRA 8 Metals by EPA 6000/7000	Comments/Depth
MW20-1- 30.0	2/25/12	0735	S																
MW20-1- 35.0	2/28/12	0754	S																
MW20-1- 40.0	2/28/12	0814	S																
MW20-1- 45.0	2/28/12	0815	S																
MW20-1- 50.0	2/28/12	0832	S																
MW20-1- 55.0	2/28/12	0845	S																
MW20-1- 60.0	2/28/12	0855	S																
MW20-1- 65.0	2/28/12	0912	S																
MW20-1- 70.0	2/28/12	0925	S																
MW20-1- 75.0	2/28/12	0950	S																

*Metals Analysis (Circle): MTCA-5 RCRA-8 PriorityPollutant TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Si Sn Ti Tl V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab (A fee may be assessed if samples are retained after 30 days.)

Special Remarks:

Relinquished	Date/Time	Received	Date/Time
x [signature]	2/28/12 1037	x [signature]	2/28/12 10:36
Relinquished	Date/Time	Received	Date/Time
x		x	

TAT --> Next Day 2 Day 3 Day STD

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Laboratory Project No (internal): 120121

Date: 2/28/12

Page: 3 of: 3

Client:	GeoEngineers, Inc		Project Name:	New Zealand	
Address	Plaza 600 Building, Suite 1700		Location:	Denny Triangle	
City, State, Zip	Seattle, WA, 98101	Tel:	(206-728-2674	Collected by:	Theo Leonard/Chris Brown
Reports To (PM):	Jessica Smith	Fax:	425-861-6050	Email:	jasmith@geoengineers.com

Project No: 20434-001-02

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	BTEX	EPA 8260	EPA 8021b	Gasoline Range Organics	Hydrocarbon Identification (NCID)	Diesel/Heavy Oil Range Organics	SEMI VOL (EPA 8270)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals* (EDXD / 200.8)	Total (T) + Dissolved (D)	Anions (IC)**	RCRA 8 Metals by EPA 6020/7000	Comments/Depth
MW20-1- 80.3	2/28/12	1007	S																	
MW20-1- 85.3	2/28/12	1025	S																	
MW20-1-	2/ /12		S																	
MW20-1-	2/ /12		S																	
MW20-1-	2/ /12		S																	
MW20-1-	2/ /12		S																	
MW20-1-	2/ /12		S																	
MW20-1-	2/ /12		S																	
MW20-1-	2/ /12		S																	
MW20-1-	2/ /12		S																	

*Metals Analysis (Circle): MTCA-5 RCRA-8 PriorityPollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Si Sn Ti Tl U V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab (A fee may be assessed if samples are retained after 30 days.)

Special Remarks:

Relinquished	Date/Time	Received	Date/Time
x [illegible]	2/28/12 1053	x [illegible]	2/28/12 1434
Relinquished	Date/Time	Received	Date/Time
x		x	

TAT -> Rest Day 2 Day 3 Day STD

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Laboratory Project No. (internal): 120121

Date: 2/29/12

Page: 1 of: 3

Client:	GeoEngineers, Inc.	**Project Name:**	New Zealand
Address:	Plaza 600 Building, Suite 1700	**Location:**	Denny Triangle
City, State, Zip	Seattle, WA, 98101	**Tel:** 206-728-2674	**Collected by:** Theo Leonard/Chris Brown
Reports To (PM):	Jessica Smith	**Fax:** 425-861-6050	**Email:** jasmith@geoengineers.com

Project No: 20434-003-02

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	STEX (EPA 8260)	Gasoline Range Organics (EPA 8260)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics	SEMI VOC (EPA 8270 - SIM)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals* (6020 / 7000s)	Total (T) / Dissolved (D)	Anions (IC)**	RCRA 8 Metals by EPA 6020/7000				Comments/Depth
MW20-2-2.5	2/28/12	1517	S																		
MW20-2-5.0	2/28/12	1528	S																		
MW20-2-7.5	2/28/12	1538	S																		
MW20-2-10.0	2/28/12	1545	S																		
MW20-2-12.5	2/28/12	1553	S																		
MW20-2-15.0	2/28/12	1600	S																		
MW20-2-17.5	2/28/12	1607	S																		
MW20-2-20.0	2/28/12	1616	S																		
MW20-2-22.5	2/28/12	1626	S																		
MW20-2-25.0	2/28/12	1634	S																		

*Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Si Sn Ti Tl U V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab (A fee may be assessed if samples are retained after 30 days.)

Special Remarks:

Relinquished	Date/Time	Received	Date/Time
x	2/29/12 @ 1423		2/29/12 1427
Relinquished	Date/Time	Received	Date/Time
x		x	

TAT --> Next Day 2 Day 3 Day STD

Distribution: White - Lab, Yellow - File, Pink - Originator

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Laboratory Project No (internal): 1202121

Date: 2/29/12

Page: 2 of: 3

Client: GeoEngineers, Inc.
Address: Plaza 600 Building, Suite 1200
City, State, Zip: Seattle, WA, 98101
Tel: 206-728-2674

Project Name: New Zealand
Location: Denny Triangle
Collected by: Theo Leogard/Chris Brown

Reports To (PM): Jessica Smith
Fax: 425-861-6050
Email: jsmith@geoengineers.com
Project No: 2043-001-02

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	BTEX	EPA 8260	Gasoline Range Organics	EPA 8021b	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics	SEMI VOL (EPA 8270 - SIM)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Cl. Pesticides (EPA 8081)	Cl. Herbicides (EPA 8151A)	Metals* (6020 / 200.8)	Total (T) / Dissolved (D)	Anions (IC)**	4 CRA-5 Metals by (EPA 6020/7000)				Comments/Depth
MW20-2-30.0	2/28/12	1842	S																				
MW20-2-35.0	2/28/12	1852	S																				
MW20-2-40.0	2/28/12	1718	S																				
MW20-2-45.0	2/28/12	1742	S																				
MW20-2-50.0	2/28/12	1747	S																				
MW20-2-55.0	2/29/12	0740	S																				
MW20-2-60.0	2/29/12	0750	S																				
MW20-2-65.0	2/29/12	0805	S																				
MW20-2-70.0	2/29/12	0832	S																				
MW20-2-75.0	2/29/12	0847	S																				

*Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Alkalinity

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab (a fee may be assessed if samples are retained longer than 60 days)

Special Remarks:

Relinquished	Date/Time	Received	Date/Time
x	2/29/12 1423		2/29/12 1429
Relinquished	Date/Time	Received	Date/Time
x			

TAT: Next Day 2 Day 3 Day STD

Distribution: White - Lab, Yellow - File, Pink - Originator

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Laboratory Project No (internal): 1202121

Date: 2/29/12

Page: 3 of: 3

Client:	GeoEngineers, Inc.	Project Name:	New Zealand
Address:	Plaza 600 Building, Suite 1700	Location:	Denny Triangle
City, State, Zip	Seattle, WA, 98101	Collected by:	Theo Leonard/Chris Brown
Report To (PM):	Jessica Smith	Fax: 425-861-3050	Email: jsmith@geoengineers.com
Tel: 206-728-2674		Project No:	20434-001-02

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	BTEX	EPA 8260 Gasoline Range Organics	EPA 8021b Hydrocarbon Identification (NCID)	Diesel/Heavy Oil Range Organics	SEMI VOC (EPA 8270) - SIM	PAH (EPA 8270) - SIM	PCBs (EPA 8082)	O Pesticides (EPA 8081)	O Herbicides (EPA 8151A)	Metals* (6020 / 200.8)	Lead (D)	Anions (IC)**	RCRA 8 Metals (by EPA 6020/7470)			Comments/Dispo
MW20 - 2 - 80.0	2/29/12	0900	S																	
MW20 - 2 - 85.0	2/29/12	0915	S																	
MW20 - 2 -	2/ /12		S																	
MW20 - 2 -	2/ /12		S																	
MW20 - 2 -	2/ /12		S																	
MW20 - 2 -	2/ /12		S																	
MW20 - 2 -	2/ /12		S																	
MW20 - 2 -	2/ /12		S																	
MW20 - 2 -	2/ /12		S																	
MW20 - 2 -	2/ /12		S																	

*Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn T Ti U V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab (A fee may be assessed if samples are retained after 30 days.)

Special Remarks

Relinquished	Date/Time	Received	Date/Time
1. [signature]	2/29/12 1420	1. [signature]	2/29/12 1427
2.		2.	

TAT: Next Day 2 Day 3 Day STD

Distribution: White - Lab, Yellow - File, Pink - Originator

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Laboratory Project No (internal): 120121

Date: 2/29/12

Page: 1 of 2

Client:	GeoEngineers, Inc			Project Name:	New Zealand
Address:	Plaza 600 Building, Suite 1200			Location:	Derry Triangle
City, State, Zip	Seattle, WA, 98101	Tel:	206-728-2674	Collected by:	Theo Leonard/Chris Brown
Reports To (PM):	Jessica Smith	Fax:	425-861-6050	Email:	jesmith@geoengineers.com

Project No: 20434-001-02

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	BTEX	EPA 8260	EPA 8021b	Gasoline Range Organics	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics	SEMI VOL (EPA 8270)	PAH (EPA 8270 SIM)	PCBs (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals* (6020 / 200.8)	Total (T) / Dissolved (D)	Anions (IC)**	RCRA 8 Metals by EPA (6010/7000)	Comments/Depth
B20-1-2.5	2/28/12	1517	S																	
B20-1-5.0	2/ /12	1532	S																	
B20-1-7.5	2/ /12	1539	S																	
B20-1-10.0	2/ /12	1547	S																	
B20-1-12.5	2/ /12	1627	S																	
B20-1-15.0	2/ /12	1636	S																	
B20-1-17.5	2/ /12	1640	S																	
B20-1-20.0	2/ /12	1648	S																	
B20-1-22.5	2/ /12	1653	S																	
B20-1-25.0	2/ /12	1700	S																	

*Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab (A fee may be assessed if samples are retained after 30 days.)

Special Remarks:

Relinquished	Date/Time	Received	Date/Time
x	2/29/12 1425		2/29/12 1427
Relinquished	Date/Time	Received	Date/Time
x			

TAT --> Next Day 2 Day 3 Day STD

Distribution: White - Lab, Yellow - File, Pink - Originator

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Fax: 206-352-7178

Laboratory Project No (internal): 1202121

Date: 2/29/12

Page: 2 of: 2

Client: GeoEngineers, Inc
Address: Plaza 600 Building, Suite 1700
City, State, Zip: Seattle, WA 98101 Tel: 206-728-2674

Project Name: New Zealand
Location: Denny Triangle
Collected by: Theo Leonard/Chris Brown

Reports To (PM): Jessica Smith Fax: 425-861-6050 Email: jasmith@geoengineers.com Project No: 20434-001-02

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	BTEX	EPA 8260	EPA 8021b	Gasoline Range Organics	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics	SEMI VOC (EPA 8270)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals* (6020 / 200.8)	Total (T) \ Dissolved (D)	Arsenic (IC)**	RCRA 8 Metals by CPA 6000/7000	Comments/Length
B20-1-30.0	2/24/12	9:15	S																	
B20-1-35.0	2/ /12	9:29	S																	
B20-1-40.0	2/ /12	9:48	S																	
B20-1-45.0	2/ /12	10:07	S																	
B20-1-50.0	2/ /12	10:19	S																	
B20-1-55.0	2/ /12	10:30	S																	
B20-1-60.0	2/ /12	10:57	S																	
B20-1-65.0	2/ /12	11:16	S																	
B20-1-70.0	2/ /12	11:27	S																	
B20-1-75.0	2/ /12	11:33	S																	

*Metals Analysis (Circle): MTCA 5 RCRA 8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab (A fee may be assessed if samples are retained after 30 days.)

Special Remarks:

Relinquished	Date/Time	Received	Date/Time
x	2/29/12 0:1425		
Relinquished	Date/Time	Received	Date/Time
x		x	2/29/12 1427

TAT—> Next Day 2 Day 3 Day STD

Distribution: White - Lab, Yellow - File, Pink - Originator

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Chain of Custody Record

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Tel: 206-352-3790
Fax: 206-352-7178

Date: 2/27/12

Laboratory Project No (internal): 1202121

Page: 1 of 3

Client:	GeoEngineers, Inc.	Project Name:	New Zealand
Address:	Pacific 600 Building, Suite 1700	Location:	Jenny Triangle
City, State, Zip	Seattle, WA, 98101	Tel: 206-728-2674	Collected by: Bob Leonard/Chris Brown
Reports To (PM):	Jessica Smith	Fax: 425-861-6050	Email: jasmith@geoengineers.com

Project No: 20434-001-02

Sample Name	Sample ID	Sample Time	Sample Type (Matrix)	TCLP (EPA 1320)	BTEX (EPA 8260)	Gasoline Range Organics (EPA 8260)	Hydrocarbon Identification (NWTPH-HCID)	Diesel Range Organics (EPA 8270)	SIM PAH (EPA 8270)	PCBs (EPA 8082)	Organochlorine Pesticides (EPA 8081)	Chlorinated Herbicides (EPA 8151A)	Metals* (6010) / 200.8	Lead (Pb)	Arsenic (As)**	RCRA 8 Metals (or EPA 6010/7000)	Comments/Digs
MW20-3- 2.5		2/27/12	0805	S													
MW20-3- 5.0		2/27/12	0911	S	X	X	X	X	X		X						
MW20-3- 7.5		2/27/12	0819	S													
MW20-3- 10.0		2/27/12	0826	S													
MW20-3- 12.5		2/27/12	0824	S													
MW20-3- 15.0		2/27/12	0842	S	X	X	X	X	X		X						
MW20-3- 17.5		2/27/12	0852	S													
MW20-3- 20.0		2/27/12	0900	S													
MW20-3- 22.5		2/27/12	0913	S													
MW20-3- 25.0		2/27/12	0921	S													

*Metal Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual: Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag Na Tl Sn V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Alkalinity/Hardness

Sample Disposal: ☐ Return to Client ☒ Disposal by Lab (A fee may be assessed if samples are retained after 30 days)

Special Remarks:
X 0228-12 @9:34

Relinquished	Date/Time	Received	Date/Time
X	2/27/12 1535	X	2/27/12 1542
Relinquished	Date/Time	Received	Date/Time
X		X	

TAT --> (Rush) 1 Day 2 Day 3 Day STD

Distribution: White - Lab, Yellow - File, Pink - Originator

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Fax: 206-352-7178

Date: 2/ /12

Laboratory Project No (internal): 120212

Page: 2 of 3

Client: GeoEngineers, Inc.
Address: Place 601 Building, Suite 1200
City, State, Zip: Seattle, WA 98103
Tel: 206-728-2674
Reports To (PM): Jessica Smith
Fax: 425-861-6050
Email: jsmith@geoengineers.com

Project Name: New Zealand
Location: Denny Triangle
Collected by: Theo Leonard/Chris Brown
Project No: 20684-001-02

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	BTEX (EPA 8260)	EPA 8270	Gasoline Range Organics	Diesel/Heavy Oil (NWTPH-Dx)	Dissolved Metals (EPA 6020)	SVOC (EPA 8270 - SIM)	Arsenic (EPA 6020)	PCBs (EPA 8082)	Cr Reduction (EPA 7196)	Cr Hexavalent (EPA 7196)	Metals* (6010B / 200.8)	Total (T) / Dissolved (D)	Action (C)**	RCRA 8 Metals by EPA 6020/7000		Comments/Depth
MW20-S-39.2	2/27/12	0915	S																	
MW20-S-35.0	2/27/12	0948	S																	
MW20-S-40.0	2/27/12	1027	S																	
MW20-S-45.0	2/27/12	1029	S																	
MW20-S-50.0	2/27/12	1033	S	X		X		X												
MW20-S-55.0	2/27/12	1043	S																	
MW20-S-60.0	2/27/12	1047	S																	
MW20-S-65.0	2/27/12	1105	S																	
MW20-S-70.0	2/27/12	1120	S																	
MW20-S-75.0	2/27/12	1135	S																	

*Metals Analysis: (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni P Pb Sb Se Sr Sn Ti Tl U V Zn

**Anion: (Circle): Nitrate Nitrite Chloride Sulfate Bromide Ortho-Phosphate Fluoride Nitrate+Nitrite

Sample disposal: Return to Client Disposal by Lab (Archive will be assessed if samples are retained for > 30 days)

Special Instructions: @ 2/28/12 @ 9:34am

Relinquished: [signature] Date/Time: 2/27/12 1306
Received: [signature] Date/Time: 2/27/12 18:36

Relinquished: Date/Time:
Received: Date/Time:

TAT: Next Day 2 Day 3 Day STD

Distribution: White - Lab, Yellow - File, Pink - Originator

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Seattle, WA 98103
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Fax: 206-352-7178

Laboratory Project No (internal): 1202121

Date: 2/ /12

Page 3 of 3

Client: Geoengineers, Inc.
Address: Plaza 600 Building, Suite 1700
City, State, Zip: Seattle, WA, 98101
Tel: 29[illegible]74

Project Name: New Zealand
Location: Denny Triangle
Collected by: Thor Iverson/Chris Brown

Re ports To (PM): Jessica Smith
Fax: 425-861-6050
Email: jsmith@geoengineers.com
Project No: 20484-001-02

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	NWTPH-Gx (EPA 8260)	BTEX (EPA 8260)	EPA 8260 (EPA 8021)	Gasoline Range Organics (NWTPH-Gx)	Hydrocarbon Identification (NWTPH-HCID)	Diesel/Heavy Oil Range Organics (NWTPH-Dx)	SGM SGC (EPA 8270)	PAH (EPA 8270 - SIM)	PCB's (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals* (6010 / 7000's)	Total (T) / Dissolved (D)	Arsenic (As)**	Total Petroleum Hydrocarbons (TPH) (WTPH-D)	Comments/Depth
MW20-3- 80.0	2/27/12	1154	S																
MW20-3- 85.0	2/27/12	1215	S																
MW20-3-	2/ /12		S																
MW20-3-	2/ /12		S																
MW20-3-	2/ /12		S																
MW20-3-	2/ /12		S																
MW20-3-	2/ /12		S																
MW20-3-	2/ /12		S																
MW20-3-	2/ /12		S																
MW20-3-	2/ /12		G																

*Metals Analysis (Circle): HWDA-5 RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl V Zn

**Anions (Circles): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Not quantitation

Sample Disposal: Return to Client: Disposal by Lab (A fee may be assessed if samples are retained longer than 30 days)

Relinquished: Date/Time: 2/27/12 1334
Received: Date/Time: 2/27/12 13:36

Relinquished: Date/Time:
Received: Date/Time:

Special Remarks:

TAT-> Next Day 2 Day 3 Day STD

Distribution: White - Lab, Yellow - File, Pink - Originator

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Fax: 206-352-7178

Laboratory Project No (internal): 120121

Date: 2/27/12

Page 1 of 3

Client:	GeoEngineers, Inc		Project Name:	New Zealand	
Address:	Pass 650 Building/Suite 1700		Location:	Denny Triangle	
City, State, Zip	Seattle, WA, 98101	Tel:	206 728 2674	Collected by:	Theo Leonard/Chris Brown
Report To (PM):	Jessica Smith	Fax:	425-861-6250	Email:	jasmith@geoengineers.com

Project No: 10881-003-01

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOCs (EPA 8260)	BTEX (EPA 8260)	Gasoline Range Organics (EPA 8260)	Diesel/Heavy Oil Range Organics (NWTPH-Dx)	Oil and Grease (EPA 1664)	Diesel/Heavy Oil (NWTPH-Dx)	PAH (EPA 8270)	HFS (EPA 8082)	cPAHs (EPA 8270)	Metals* (6020 / 200.8)	Total (T) / Dissolved (D)	Arsenic (D)**	RCRA 8 Metals (EPA 6000/7000)	Comments/Depth
MW20-3-2.5	2/27/12	0815	S														
MW20-3-5.0	2/27/12	0811	S	X		X		X	X	X		X					
MW20-3-7.5	2/27/12	0819	S														
MW20-3-10.0	2/27/12	0824	S														
MW20-3-12.5	2/27/12	0824	S														
MW20-3-15.0	2/27/12	0842	S	X		X		X	X	X		X					
MW20-3-17.5	2/27/12	0852	S														
MW20-3-20.0	2/27/12	0903	S														
MW20-3-22.5	2/27/12	0913	S														
MW20-3-25.0	2/27/12	0921	S														

*Metals Analysis (Circle): VTCA-5 RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Si Sn Ti Tl V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide Orthophosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☒ Disposal by Lab (Archive will be assessed if samples are held longer than 30 days)

Special Remarks: X 02.28.12 @9:34

Relinquished	Date/Time	Received	Date/Time
x	2/27/12 2115	x	2/27/12 2115
Relinquished	Date/Time	Received	Date/Time
x		x	

TAT: Next Day 2Day 3 Day STD

Distribution: White - Lab, Yellow - File, Pink - Originator

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Fax: 206-352-7178

Laboratory Project No (internal): 120212
Date: 2/ /12
Page: 2 of 3

Client: GeoEngineers, Inc.
Address: Plaza 600 Building, Suite 1200
City, State, Zip: Seattle, WA, 98101
Tel: 206-728-2674
Reports To (PM): Jessica Smith
Fax: 425-861-6250
Email: [illegible]

Project Name: New Zealand
Location: Denny Triangle
Collected by: Theo Leonard/Chris Brown
Project No: 20414-001-02

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	BTEX	Gasoline Range Organics	Diesel/Heavy Oil Range Organics	Dissolved/Total Metals (EPA 6010/7000)	SVOC (EPA 8270)	PAH (EPA 8270-SIM)	PCB (EPA 8082)	Organochlorine Pesticides (EPA 8081)	Organophosphorus Pesticides (EPA 8141A)	Metals* (6010 / 7000)	TCLP (1311) / Dissolved (a)	Anions (IC)**	RCRA 8 Metals by CVAA 7000/7470	Comments/Depth
MW20-3-33.8	2/27/12	0935	S															
MW20-3-35.3	2/27/12	0942	S															
MW20-3-40.0	2/27/12	1037	S															
MW20-3-45.3	2/27/12	1023	S															
MW20-3-50.0	2/27/12	1035	S	X	X	X												(X) Hold/STOP Analysis on MW20-3-50 per Jessica Smith 2/28/12 CH
MW20-3-55.0	2/27/12	1040	S															
MW20-3-60.0	2/27/12	1047	S															
MW20-3-65.0	2/27/12	1105	S															
MW20-3-70.0	2/27/12	1121	S															
MW20-3-75.0	2/27/12	1135	S															

*Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Tl Ti U V Zn

**Anions: (Circle): Fluoride Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: Return to Client Disposal by Lab (if samples received more than 30 days)

Special Remarks: (X) 02.28.12 @ 9:34am

Relinquished:	Date/Time:	Received:	Date/Time:
[signature]	2/27/12 13:36	[signature]	2/27/12 13:36
Relinquished:	Date/Time:	Received:	Date/Time:

TAT -> Next Day 2 Day 3 Day STD

Distribution: White- Lab, Yellow - File, Pink- Originator

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Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Laboratory Project No (internal): 120121

Date: 2/ /12

Page: 3 of: 3

Client:	Sea Engineers, Inc.	Project Name:	New Zealand
Address:	Plaza 600 Building, Suite 1700	Location:	Denny Triangle
City, State, Zip	Seattle, WA, 98101	Collected by:	Theo Leonard/Chris Brown
Tel:	206-728-8574		
Report To (PM):	Jessica Smith	Project No:	20448-OC-02
Fax:	425-883-3850	Email:	jsmith@seaengineers.com

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	BTEX (EPA 8260)	Gasoline Range Organics (EPA 8260)	Hydrocarbon Identification (NWTPH-HCID)	Diesel/Heavy Oil Range Organics (NWTPH-Dx)	SVOC (EPA 8270)	Bacteria (SM 9223 - IDEXX)	PCBs (EPA 8082)	CI Pesticides (EPA 8081)	CI Herbicides (EPA 8151A)	Metals* (6020) / (7000)	Total (T) / Dissolved (D)	Analysis Key*	RCRA (7470/71) for TCLP by EPA 1311/7470	Comments/Depth
MW20-3	2/27/12	1144	S															
MW20-3	2/27/12	1205	S															
MW20-3	2/ /12		S															
MW20-3	2/ /12		S															
MW20-3	2/ /12		S															
MW20-3	2/ /12		S															
MW20-3	2/ /12		S															
MW20-3	2/ /12		S															
MW20-3	2/ /12		S															
MW20-3	2/ /12		S															

*Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutant TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sn Sr Tl Ti U V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab (A fee may be assessed if samples are retained after 30 days)

Special Remarks:

Relinquished	Date/Time	Received	Date/Time
x	2/27/12 1334	x	2/27/12 13:36
Relinquished	Date/Time	Received	Date/Time
x		x	

TAT --> Next Day 2 Day 3 Day STD

Distribution: White - Lab, Yellow - File, Pink - Originator

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Fax: 206-352-7178

Date: 2/29/12

Laboratory Project No (internal): _____

Page: 1 of: 3

Client: GeoEngineers, Inc.
Address: Plaza 600 Building, Suite 1700
City, State, Zip: Seattle, WA, 98101 Tel: 206-728-2674

Project Name: New Zealand
Location: Denny Triangle
Collected by: Theo Leonard/Chris Brown

Report To (PM): Jessica Smith Fax: 425-861-6050 Email: jasmith@geoengineers.com

Project No: 20434-001-02

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	BTEX	EPA 8260	EPA 8021b	Gasoline Range Organics	Hydrocarbon Identification (NCID)	Diesel/Heavy Oil Range Organics	SEMI VOL (EPA 8270)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals* (6020 / 200.8)	Total (T) / Dissolved (D)	Anions (IC)**	RCRA 8 Metals: HT EPA 6400/7060	Comments/Depth
MW20-1- 2.5	2/27/12	1619	S	X		X			X		X	X			X					
MW20-1- 5.0	2/27/12	1602	S																	
MW20-1- 7.5	2/27/12	1651	S																	
MW20-1- 10.0	2/27/12	1700	S																	
MW20-1- 12.5	2/27/12	1715	S			X			X						X					
MW20-1- 15.0	2/27/12	1716	S																	
MW20-1- 17.5	2/27/12	1725	S																	
MW20-1- 20.0	2/27/12	1732	S																	
MW20-1- 22.5	2/27/12	1745	S																	
MW20-1- 25.0	2/27/12	1759	S																	

No Recovery

*Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☒ Disposal by Lab (A fee may be assessed if samples are retained after 30 days.)

Special Remarks: 02-28-12 @1:01pm

Relinquished	Date/Time	Received	Date/Time
x	2/28/12 1157	x Troy Zehn	2/28/12 12:35
Relinquished	Date/Time	Received	Date/Time
x		x	

TAT -> Next Day 2 Day 3 Day STD

Distribution: White - Lab, Yellow - File, Pink - Originator

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Laboratory Project No (internal): _____

Date: 2/28/12

Page: 2 of: 3

Client: GeoEngineers, Inc.
Address: Plaza 600 Building, Suite 1700
City, State, Zip: Seattle, WA, 98101 Tel: 206-728-2674

Project Name: New Zealand
Location: Denny Triangle
Collected by: Theo Leonard/Chris Browe

Reports To (PM): Jessica Smith Fax: 425-861-6050 Email: jasmith@geoengineers.com Project No: 20434-001-02

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	BTEX	EPA 8260	EPA 8021b	Gasoline Range Organics	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics	SEMI VOC (EPA 8270)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals* (6020 / 200.8)	Total (T)	Dissolved (D)	Anions (IC)**	RCRA 8 Metals by (EPA 6010/7000)	Comments/Details
MW20-1-30.0	2/28/12	0735	S																		
MW20-1-35.0	2/28/12	0754	S																		
MW20-1-40.0	2/28/12	0834	S																		
MW20-1-45.0	2/28/12	0815	S																		
MW20-1-50.0	2/28/12	0852	S																		
MW20-1-55.0	2/28/12	0845	S																		
MW20-1-60.0	2/28/12	0855	S																		
MW20-1-65.0	2/28/12	0912	S																		
MW20-1-70.0	2/28/12	0925	S	X		X										X					
MW20-1-75.0	2/28/12	0952	S																		

*Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab (A fee may be assessed if samples are retained after 30 days.)

Special Remarks:

Relinquished	Date/Time	Received	Date/Time
x [signature]	2/28/12 @ 1:07	x [signature]	2/28/12 16:36
Relinquished	Date/Time	Received	Date/Time
x		x	

TAT → Next Day 2 Day 3 Day STD

Distribution: White - Lab, Yellow - File, Pink - Originator

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Fax: 206-352-7178

Laboratory Project No (internal): _____

Date: 2/28/12

Page: 3 of 3

Client: GeoEngineers, Inc.
Address: Plaza 600 Building, Suite 1700
City, State, Zip: Seattle, WA, 98101 Tel: 206-728-2674

Project Name: New Zealand
Location: Denny Triangle
Collected by: Theo Leonard/Chris Brown

Reports To (PM): Jessica Smith Fax: 425-861-6050 Email: jasmith@geoengineers.com Project No: 20434-001-02

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	HOX (EPA 8260)	BTEX (EPA 8260)	Gasoline Range Organics (EPA 8021b)	Hydrocarbon Identification (NWTPH)	Diesel/Heavy Oil Range Organics	SEMI VOL (EPA 8270 - SIM)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals* (6020 / 200.8) Total (T)	Dissolved (D)	Anions (IC)**	RCRA 8 Metals by EPA 6000/7000				Comments/Depth
MW20-1- 80.3	2/28/12	1047	S																		
MW20-1- 85.0	2/28/12	1025	S																		
MW20-1-	2/ /12		S																		
MW20-1-	2/ /12		S																		
MW20-1-	2/ /12		S																		
MW20-1-	2/ /12		S																		
MW20-1-	2/ /12		S																		
MW20-1-	2/ /12		S																		
MW20-1-	2/ /12		S																		
MW20-1-	2/ /12		S																		

*Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Si Sn Ti Tl U V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab (A fee may be assessed if samples are retained after 30 days.)

Special Remarks:

Relinquished	Date/Time	Received	Date/Time
x [illegible]	2/28/12 1257	x Joey Behe	2/28/12 1436
Relinquished	Date/Time	Received	Date/Time
x		x	

TAT--> Next Day 2 Day 3 Day STD

Distribution: White - Lab, Yellow - File, Pink - Originator

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Tel: 206-352-3790
Fax: 206-352-7178

Laboratory Project No (internal): 120121

Date: 2/27/12

Page: 1 of: 5

Client:	GeoEngineers, Inc.	Project Name:	New Zealand
Address:	Plaza 600 Building, Suite 1700	Location:	Denny Triangle
City, State, Zip	Seattle, WA, 98101	Collected by:	Theo Leonard/Clara Brown
Tel:	206-728-2674		
Reports To (PM):	Jessica Smith	Project No:	20434-001-02
Fax:	425-861-6050		
Email:	jasmith@geoengineers.com		

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	BTEX: EPA 8260	Gasoline Range Organics	EPA 8021b	Hydrocarbon Identification (NWTPH)	Diesel/Heavy Oil Range Organics	SEMI VOL (EPA 8270)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals* (6020 / 200.8)	Total (T) / Dissolved (D)	Anions (IC)**	RCRA 8 Metals by EPA 6020/7000	Hold	Comments/Depth
B20-2-2.5	2/17/12	1245	S	X		X		X		X	X		X						T	
B20-2-5.0	2/ /12	1251	S				X													
B20-2-7.5	2/ /12	1257	S																	
B20-2-10.5	2/ /12	1306	S																	
B20-2-12.5	2/ /12	1316	S																	
B20-2-15.0	2/ /12	1321	S				X		X				X							
B20-2-17.5	2/ /12	1327	S																	
B20-2-20.0	2/ /12	1337	S																	
B20-2-22.5	2/ /12	1344	S																	
B20-2-25.0	2/ /12	1351	S																V	

*Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☒ Disposal by Lab (A fee may be assessed if samples are retained after 30 days.)

Special Remarks: X Sb 02128 @ 11:22

Relinquished	Date/Time	Received	Date/Time
x	2/27/12 1830		2/27/12 1830
Relinquished	Date/Time	Received	Date/Time
x		x	

TAT -> Next Day (2 Day) 3 Day STD

Distribution: White - Lab, Yellow - File, Pink - Originator

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Chain of Custody Record

Fremont Analytical

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Seattle, WA 98103

Tel: 206-352-3790
Fax: 206-352-7178

Laboratory Project No (internal): 1202121

Date: 2/27/12

Page: 2 of: 5

Client:	GeoEngineers, Inc.			Project Name:	New Zealand
Address:	Plaza 600 Building, Suite 1700			Location:	Denny Triangle
City, State, Zip	Seattle, WA, 98101	Tel:	206-728-2674	Collected by:	Theo Leonard/Chris Brower
Reports To (PM):	Jessica Smith	Fax:	425-861-6050	Email:	jasmith@geoengineers.com

Project No: 20434-001-02

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	BTEX: EPA 8260	EPA 8021B	Gasoline Range Organics	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics	SGMI VOC (EPA 8270)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals* (6020 / 200.8)	Total (T)	Dissolved (D)	Anions (IC)**	NCBA 9 Metals by EPA 6020/7000	TAL	Comments/Depth
B20-2-30.0	2/27/12	1408	S																X		
B20-2-35.0	2/ /12	1427	S																		
B20-2-40.0	2/ /12	1430	S	X		X		X													
B20-2-45.0	2/ /12	1435	S																		
B20-2-50.0	2/ /12	1445	S																		
B20-2-55.0	2/ /12	1501	S																		
B20-2-60.0	2/ /12	1518	S																		
B20-2-65.0	2/ /12	1523	S																		
B20-2-70.0	2/ /12	1535	S																		
B20-2-75.0	2/ /12	1550	S																		

*Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab (A fee may be assessed if samples are retained after 30 days.)

Special Remarks:

Relinquished	Date/Time	Received	Date/Time
x Theo Brower	2/27/12 1830	x Jay Zehr	2/27/12 18:30
Relinquished	Date/Time	Received	Date/Time
x		x	

TAT -> Next Day 2 Day 3 Day STD

Distribution: White - Lab, Yellow - File, Pink - Originator

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Fax: 206-352-7178

Laboratory Project No (internal): 120212

Date: 2/27/12

Page: 3 of 5

Client: GeoEngineers, Inc.
Address: Plaza 600 Building, Suite 1700
City, State, Zip: Seattle, WA, 98101
Tel: 206-728-2674

Project Name: New Zealand
Location: Denny Triangle
Collected by: Theo Leonard/Chris Brown

Reports To (PM): Jessica Smith
Fax: 425-861-6050
Email: jasmith@geoengineers.com
Project No: 20434-001-02

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	BTEX: EPA 8260	Gasoline Range Organics EPA 8021b	Hydrocarbon Identification (NCID)	Diesel/Heavy Oil Range Organics	SEMI VOL (EPA 8270)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals* (6020 / 200.8) Total (T) / Dissolved (D)	Anions (IC)**	NORA 8 Metals by EPA 6020/7000	Hold	Comments/Depth
B20-3-2.5	2/27/12	755	S													X		
B20-3-5.0	2/ /12	801	S															
B20-3-7.5	2/ /12	806	S															
B20-3-10.0	2/ /12	812	S	X	X	X			X	X		X						
B20-3-12.5	2/ /12	818	S															
B20-3-15.0	2/ /12	825	S															
B20-3-17.5	2/ /12	829	S															
B20-3-20.0	2/ /12	839	S	X	X	X			X	X		X						
B20-3-22.5	2/ /12	846	S															
B20-3-25.0	2/ V /12	857	S															

*Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: Return to Client Disposal by Lab (A fee may be assessed if samples are retained after 30 days.)

Relinquished: x [signature] Date/Time: 2/27/12 1830
Received: x [signature] Date/Time: 2/27/12 1830

Relinquished: x Date/Time:
Received: x Date/Time:

Special Remarks: 8260 02-28-12 12:50

TAT --> Next Day 2 Day 3 Day STD

Distribution: White - Lab, Yellow - File, Pink - Originator

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Fax: 206-352-7178

Laboratory Project No (Internal): 120121
Date: 2/27/12
Page: 4 of 5

Client: GeoEngineers, Inc.
Address: Plaza 600 Building, Suite 1700
City, State, Zip: Seattle, WA, 98101 Tel: 206-728-2674
Reports To (PM): Jessica Smith Fax: 425-861-6050 Email: jesmith@geoengineers.com

Project Name: New Zealand
Location: Denny Triangle
Collected by: Theo Leonard/Chris Brown
Project No: 20434-001-02

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	BTEX	EPA 8260	Gasoline Range Organics	EPA 8021B	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics	SEMI VOC (EPA 8270)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals* (6020 / 200.8)	Total (T) | Dissolved (D)	Anions (IC)**	RCRA 8 Metals by EPA 6020B/7000	HOLD	Comments/Dep
B20-3-27.5	2/27/12	9:24	S																X		
B20-3-30.0	2/ /12	9:19	S																		
B20-3-35.0	2/ /12	9:30	S																		
B20-3-40.0	2/ /12	9:44	S																		
B20-3-45.0	2/ /12	10:00	S																		
B20-3-50.0	2/ /12	10:14	S	X		X		X													
B20-3-55.0	2/ /12	10:29	S																		
B20-3-60.0	2/ /12	10:42	S																		
B20-3-65.0	2/ /12	10:54	S																		
B20-3-70.0	2/ /12	11:02	S																↓		

*Metals Analysis (Circle): MTCA 5 RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab (A fee may be assessed if samples are retained after 30 days.)

Special Remarks:

Relinquished: x Chris Brown Date/Time: 2/27/12 1830
Received: x Jay Zeha Date/Time: 2/27/12 18 30
Relinquished: x Date/Time:
Received: x Date/Time:

TAT -> Next Day 2 Day 3 Day STD

Distribution: White= Lab, Yellow = File, Pink = Originator

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Fax: 206-352-7178

Laboratory Project No (internal): 1202121

Date: 2/27/12

Page: 5 of 5

Client: GeoEngineers, Inc.
Address: Plaza 600 Building, Suite 1700
City, State, Zip: Seattle, WA, 98121 Tel: 206-728-2674

Project Name: New Zealand
Location: Denny Triangle
Collected by: Thea Leonard/Chris Brown

Report To (PM): Jessica Smith Fax: 425-861-6050 Email: jasmith@geoengineers.com Project No: 20434-001-02

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	BTEX (EPA 8260)	Gasoline Range Organics (EPA 8015)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics	SEMI VOL (EPA 8270)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals* (6020 / 200.8)	Total (T) \ Dissolved (D)	Anions (IC)**	RCRA 8 Metals by EPA 6010/7000	TCLP	Comments/Depth
B20-3-15.0	2/27/12	1117	S															X	
B20-3-	2/ /12		S																
B20-3-	2/ /12		S																
B20-3-	2/ /12		S																
B20-3-	2/ /12		S																
B20-3-	2/ /12		S																
B20-3-	2/ /12		S																
B20-3-	2/ /12		S																
B20-3-	2/ /12		S																
B20-3-	2/ /12		S																

*Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Tl Ti U V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab (A fee may be assessed if samples are retained after 30 days.)

Special Remarks:

Relinquished: Date/Time 1/27/12 1830 Received: Date/Time 2/27/12 0830

Relinquished: Date/Time Received: Date/Time

TAT --> Next Day 2 Day 3 Day STD

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Fax: 206-352-7178

Date: 2/29/12

Laboratory Project No (internal): _____

Page: 1 of 3

Client: GeoEngineers, Inc.
Address: Place 600 Building, Suite 1700
City, State, Zip: Seattle, WA, 98101
Tel: 206-728-2674

Project Name: New Zealand
Location: Denny Triangle
Collected by: Theo Loonam/Chris Brown

Reports To (PM): Jessica Smith
Fax: 425-861-6050
Email: jsmith@geoengineers.com
Project No: 20424-001-02

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260) (BTEX)	SVOC (EPA 8270)	Halogenated Volatile Organics (HVOC)	Gasoline Range Organics (GRO) - NWTPH-Gx	Diesel/Heavy Oil Range Organics (DRO/HRO) - NWTPH-Dx	Total Petroleum Hydrocarbons (TPH)	PCBs (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals* (6020) / 200.8)	Total (T) / Dissolved (D)	Anions (IC)**	Total Metals by EPA 6020 (200.8)	Comments/Depth
MW20-2-2.5	2/28/12	1517	S														
MW20-2-5.0	2/28/12	1528	S														
MW20-2-7.5	2/28/12	1538	S				X		X				X				
MW20-2-10.0	2/28/12	1545	S														
MW20-2-12.5	2/28/12	1553	S														
MW20-2-15.0	2/28/12	1600	S				X		X				X				
MW20-2-17.5	2/28/12	1607	S														
MW20-2-20.0	2/28/12	1616	S														
MW20-2-22.5	2/28/12	1626	S														
MW20-2-25.0	2/28/12	1634	S														

*Metals Analysis: (Circle): MTCA-5 (CRA-8) Priority Pollutants TAL Individual Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Ni Pb Sb Se Sr Sn Ti Tl U V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide Orthophosphate Fluoride Nitrate-Nitrite

Sample Disposal: ☐ Return to Client ☑ Disposal by Lab (A fee may be assessed if samples are retained longer than 30 days)

Special Remarks: X added 03-01-12 @ 9:15 am

Relinquished	Date/Time	Received	Date/Time
1.	2/29/12 1423	1.	2/29/12 1423
Relinquished	Date/Time	Received	Date/Time
2.		2.	

TAT — Rush Day 2 Day 3 Day STD

Distribution: White - Lab, Yellow - File, Pink - Originator

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Tel: 206-352-3790
Fax: 206-352-7178

Laboratory Project No (internal): _____

Date: 2/29/12 Page: 2 of: 3

Client: GeoEngineers, Inc.
Address: Plaza 600 Building, Suite 1700
City, State, Zip: Seattle, WA, 98101 Tel: 206-728-2674

Project Name: New Zealand
Location: Denny Triangle
Collected by: Theo Leonard/Chris Brown

Reports To (PM): Jessica Smith Fax: 425-861-6050 Email: jsmith@geoengineers.com Project No: 20434-001-02

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	BTEX	EPA 8260	EPA 8021	Gasoline Range Organics	Hydrocarbon Identification (NWTPH)	Diesel/Heavy Oil Range Organics	PAH VOC (EPA 8270)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Pesticides (EPA 8081)	Herbicides (EPA 8151A)	Metals* (6020 / 200.8)	Total (T) / Dissolved (D)	Arsenic (As)**	RCRA 8 Metals by EPA 6010C/7000		Comments/Details
MW20-1-30.0	2/28/12	1642	S																		
MW20-1-35.0	2/28/12	1652	S																		
MW20-1-40.0	2/28/12	1718	S																		
MW20-1-45.0	2/28/12	1742	S																		
MW20-1-50.0	2/28/12	1747	S																		
MW20-1-55.0	2/29/12	0740	S																		
MW20-1-60.0	2/29/12	0750	S																		
MW20-1-65.0	2/29/12	0805	S	X	X	X															Cancel
MW20-1-70.0	2/29/12	0832	S																		
MW20-1-75.0	2/29/12	0847	S																		

*Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutant TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr tCu Fe Hg K Mg Mn Mo Na Ni PS Sb Se Si Sn Ti Tl U V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide Orthophosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab (A fee may be assessed if samples are retained after 30 days)

Special Remarks:

Relinquished	Date/Time	Received	Date/Time
x [signature]	2/29/12 1423	x [signature]	2/29/12 1429
Relinquished	Date/Time	Received	Date/Time
x		x	

TAT --> Next Day 2 Day 3 Day STD

Distribution: White - Lab, Yellow - File, Pink - Originator

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Fax: 206-352-7178

Date: 2/29/12

Laboratory Project No (internal): _____

Page: 3 of 3

Client:	GeoEngineers, Inc.			Project Name:	New Zealand
Address:	Plaza 600 Building, Suite 1200			Location:	Denny Triangle
City, State, Zip:	Seattle, WA, 98101	Tel:	206-728-3574	Collected by:	Theo Leonard/Chris Brown
Report To (PM):	Jessica Smith	Fax:	425-861-6050	Email:	jasmith@geoengineers.com

Project No: 20484-001-02

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	BTEX (EPA 8260)	Benzene, Petrogr. Organics	EPA 8082	Hydrocarbon Identification (NWTPH)	Diesel/Heavy Oil Range Organics	HFM VOCs (EPA 8270)	PAH (EPA 8270 SIM)	Phenols (EPA 8041)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals* (RCRA / 200.8)	Total (T) / Dissolved (D)	Anions (IC)**	RCRA 8 Metals (EPA 6000/7000)				Comments/Depth
MW20-2-80.0	2/29/12	0900	S																			
MW20-2-85.0	2/29/12	0915	S																			
MW20-2-	2/ /12		S																			
MW20-2-	2/ /12		S																			
MW20-2-	2/ /12		S																			
MW20-2-	2/ /12		S																			
MW20-2-	2/ /12		S																			
MW20-2-	2/ /12		S																			
MW20-2-	2/ /12		S																			
MW20-2-	2/ /12		S																			

*Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sn Tl Ti U V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab (A fee may be assessed if samples are retained after 30 days.)

Special Remarks:

Relinquished	Date/Time	Received	Date/Time
1	2/29/12 1423	1	2/29/12 1427
2		2	

TAT --> Next Day 2 Day 3 Day STD

Distribution: White - Lab, Yellow - File, Pink - Originator

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Tel: 206-352-3790
Fax: 206-352-7178

Laboratory Project No (internal): _____

Date: 2/29/12 Page: 1 of 2

Client: SecEngineers, Inc.
Address: Nasa 600 Building, Suite 1701
City, State, Zip: Seattle, WA, 98101 Tel: 206-733-2674
Reports To (PM): Jessica Smith Fax: 425-861-6050 Email: jasmith@secengineers.com

Project Name: New Zealand
Location: Denny Triangle
Collected by: Theo Leonard/Cheli Brown
Project No: 20434-001-02

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	BTEX (EPA 8260)	Gasoline Range Organics (EPA 8260)	Hydrocarbon Identification (NWTPH)	Diesel/Heavy Oil Range Organics (NWTPH-Dx)	SIM VOC (EPA 8270)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Pesticides (EPA 8081)	Herbicides (EPA 8151A)	Metals* (6010 / 200.8)	Lead (TCLP)	Asbestos (Y/N)**	RCRA 8 Metals by EPA 6010/7000					Comments/Depth
B20-1-2.5	2/28/12	1521	S																			
B20-1-5.0	2/28/12	0852	S	X		X		X		X			X									
B20-1-7.5	2/28/12	859	S																			
B20-1-10.0	2/28/12	917	S																			
B20-1-12.5	2/28/12	927	S			X		X					X									
B20-1-15.0	2/28/12	936	S																			
B20-1-17.5	2/28/12	940	S																			
B20-1-20.0	2/28/12	948	S																			
B20-1-22.5	2/28/12	953	S																			
B20-1-25.0	2/28/12	900	S																			

*Metals Analysis (Circle): MTCA-5 RCRA 8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide Ortho-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: Return to Client Disposal by Lab (A fee may be assessed if samples are retained after 30 days.)

Special Remarks: X added 03.01.12 @ 9:20

Relinquished	Date/Time	Received	Date/Time
x	2/29/12 @ 1425		2/29/12 1427
Relinquished	Date/Time	Received	Date/Time
x		x	

TAT → Next Day 2 Day 3 Day STD

Distribution: White - Lab, Yellow - File, Pink - Originator

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Tel: 206-352-3790
Fax: 206-352-7178

Date: 2/29/12

Laboratory Project No (internal): _____

Page: 2 of 2

Client: SeaEngineers, Inc.
Address: Plaza 600 Building, Suite 1700
City, State, Zip: Seattle, WA, 98101 Tel: 206-788-9504
Reports To (PM): Jessica Smith Fax: 425-861-6050 Email: jsmith@seaengineers.com

Project Name: New Zealand
Location: Denny Triangle
Collected by: Theo Leonard/Chris Brown
Project No: 20434-001-02

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	HFID:	TPH-G (EPA 8015)	TPH-D (EPA 8015m)	Gasoline Range Organics	Petroleum Identification (HCID)	Diesel/Heavy Oil Range Organics	SVOC (EPA 8270) - SIM)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals* (6020 / 200.8)	Total [ ] Dissolved [ ]	Anions (4)**	RCRA 8 Metals by EPA 6020/7470	Comments/Depth
B20-1-30.0	2/24/12	9:15	S																	
B20-1-35.0	2/ /12	9:29	S																	
B20-1-40.0	2/ /12	9:48	S																	
B20-1-45.0	2/ /12	10:07	S																	
B20-1-50.0	2/ /12	10:19	S																	
B20-1-55.0	2/ /12	10:30	S																	
B20-1-60.0	2/ /12	10:57	S																	
B20-1-65.0	2/ /12	11:16	S																	
B20-1-70.0	2/ /12	11:27	S																	
B20-1-75.0	2/ /12	11:33	S																	

*Metals Analysis (Circle): RCRA-5 RCRA-8 Priority Pollutant TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Si Sn Sr Ti Tl V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab (A fee may be assessed if samples are retained longer than 30 days.)

Special Remarks:

Relinquished	Date/Time	Received	Date/Time
x	2/29/12 1427		2/29/12 1427
Relinquished	Date/Time	Received	Date/Time
x		x	

TAT: 4 Hour Day 2 Day 3 Day STD

Distribution: White - Lab, Yellow - File, Pink - Originator

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Chain of Custody Record

3211 N. 35th Street
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Laboratory Project No (internal): _____

Date: 2/29/12

Page: 1 of 3

Client: GeoEngineers, Inc.
Address: Plaza 600 Building, Suite 1700
City, State, Zip: Seattle, WA, 98101
Tel: 206-728-2674

Project Name: New Zealand
Location: Denny Triangle
Collected by: Theo Leonard/Chris Brown

Reports To (PM): Jessica Smith
Fax: 425-861-6050
Email: jasmith@geoengineers.com
Project No: 20404-001-02

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	BTEX (EPA 8260)	Gasoline Range Organics (EPA 8021B)	Hydrocarbon Identification (NWTPH-HCID)	Diesel/Heavy Oil Range Organics (EPA 8270)	SIM VOC (EPA 8270)	PAH (EPA 8270 - SIM)	PCB's (EPA 8082)	Pesticides (EPA 8081)	Herbicides (EPA 8151A)	Metals* (6020) / 200.8)	Total (T) / Dissolved (D)	Anions (IC)**	RCRA 8 Metals by EPA 6000/7000	Comments/Depth
MW20-2-2.5	2/28/12	1517	S															
MW20-2-5.0	2/28/12	1528	S			X		X						X				(X) Analyze MW20-2-5.0 instead of MW20-2-7.5 Per Jessica Smith 3/1/12 GH
MW20-2-7.5	2/28/12	1538	S			X		X						X				
MW20-2-10.0	2/28/12	1545	S															
MW20-2-12.5	2/28/12	1553	S															
MW20-2-15.0	2/28/12	1608	S			X		X						X				
MW20-2-17.5	2/28/12	1607	S															
MW20-2-20.0	2/28/12	1616	S															
MW20-2-22.5	2/28/12	1626	S															
MW20-2-25.0	2/28/12	1634	S															

*Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutant TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☑ Disposal by Lab (A fee may be assessed if samples are retained after 30 days.)

Special Remarks: (X) added 03-01-12 @ 9:15 am

Relinquished	Date/Time	Received	Date/Time
1	2/29/12 1423		2/29/12 1423
Relinquished	Date/Time	Received	Date/Time
2		2	

TAT --> (Next Day) 2 Day 3 Day STD

Distribution: White - Lab, Yellow - File, Pink - Originator

www.fremontanalytical.com

From: Jessica A. Smith [mailto:jasmith@geoengineers.com]
Sent: Thursday, March 01, 2012 9:44 AM
To: Michael C. Ridgeway
Subject: RE: Last one!

Oh, sorry. I did see that in your email. Let's run those tests on the 5' sample instead.

Thanks!
Jessica

Jessica Smith, LG
Environmental Geologist | GeoEngineers, Inc.
T: 425.861.6070
F: 425.861.6050
M: 206.423.8280
E: jasmith@geoengineers.com

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From: Michael C. Ridgeway [mailto:mridgeway@fremontanalytical.com]
Sent: Thursday, March 01, 2012 9:44 AM
To: Jessica A. Smith
Subject: RE: Last one!

Jessica:

We only have a SOBI VOA for MW20-2-7.5 and MW20-2-2.5. You checked in GX, Dx, RCRA on MW20-2-7.5. Unless, the guys can come up with a soil jar, then we can't do those tests.

Please instruct.

Thanks!

Mike Ridgeway

Fremont Analytical, Inc.
1311 N. 35th Street
Seattle, WA 98103

Tel: 206.352.3790
Fax: 206.352.7178
mridgeway@fremontanalytical.com

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1311 N. 35th St.
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info@fremontanalytical.com

GeoEngineers
Jessica Smith
600 Stewart Street, Suite 1700
Seattle, Washington 98101

RE: New Zealand
Lab ID: 1203094

March 16, 2012

Attention Jessica Smith:

Fremont Analytical, Inc. received 2 sample(s) on 2/27/2012 for the analyses presented in the following report.

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.
Gasoline by NWTPH-Gx
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)
Sample Moisture (Percent Moisture)
Volatile Organic Compounds by EPA Method 8260

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Michael Dee
Sr. Chemist / Principal

Date: *03/16/2012*

CLIENT: GeoEngineers
Project: New Zealand
Lab Order: 1203094

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1203094-001	B20-3-5.0	02/27/2012 8:01 AM	02/27/2012 6:30 PM
1203094-002	B20-3-25.0	02/27/2012 8:57 AM	02/27/2012 6:30 PM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

Case Narrative

WO#: **1203094**
Date: **3/16/2012**

CLIENT: GeoEngineers
Project: New Zealand

I. SAMPLE RECEIPT:
All samples were received intact.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Analytical Report

WO#: **1203094**
Date Reported: **3/16/2012**

Client: GeoEngineers
Collection Date: 2/27/2012 8:01:00 AM
Project: New Zealand
Lab ID: 1203094-001
Matrix: Soil
Client Sample ID: B20-3-5.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 2057		Analyst: EM
Diesel (Fuel Oil)	ND	24.8	H	mg/Kg-dry	1	3/15/2012 12:45:00 PM
Heavy Oil	1,190	61.9	H	mg/Kg-dry	1	3/15/2012 12:45:00 PM
Surr: 2-Fluorobiphenyl	96.7	84.2-137	H	%REC	1	3/15/2012 12:45:00 PM
Surr: o-Terphenyl	121	87.1-138	H	%REC	1	3/15/2012 12:45:00 PM
Gasoline by NWTPH-Gx				Batch ID: 2068		Analyst: MD
Gasoline	ND	7.57	H	mg/Kg-dry	1	3/15/2012 1:28:00 PM
Surr: 1,4-Difluorobenzene	115	65-135	H	%REC	1	3/15/2012 1:28:00 PM
Surr: 4-Bromofluorobenzene	101	65-135	H	%REC	1	3/15/2012 1:28:00 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 2056		Analyst: SG
Naphthalene	ND	69.3	H	µg/Kg-dry	1	3/15/2012 3:07:00 PM
2-Methylnaphthalene	ND	69.3	H	µg/Kg-dry	1	3/15/2012 3:07:00 PM
1-Methylnaphthalene	ND	69.3	H	µg/Kg-dry	1	3/15/2012 3:07:00 PM
Acenaphthylene	ND	69.3	H	µg/Kg-dry	1	3/15/2012 3:07:00 PM
Acenaphthene	ND	69.3	H	µg/Kg-dry	1	3/15/2012 3:07:00 PM
Fluorene	ND	69.3	H	µg/Kg-dry	1	3/15/2012 3:07:00 PM
Phenanthrene	ND	69.3	H	µg/Kg-dry	1	3/15/2012 3:07:00 PM
Anthracene	ND	69.3	H	µg/Kg-dry	1	3/15/2012 3:07:00 PM
Fluoranthene	ND	69.3	H	µg/Kg-dry	1	3/15/2012 3:07:00 PM
Pyrene	ND	69.3	H	µg/Kg-dry	1	3/15/2012 3:07:00 PM
Benz(a)anthracene	ND	69.3	H	µg/Kg-dry	1	3/15/2012 3:07:00 PM
Chrysene	ND	69.3	H	µg/Kg-dry	1	3/15/2012 3:07:00 PM
Benzo(b)fluoranthene	ND	69.3	H	µg/Kg-dry	1	3/15/2012 3:07:00 PM
Benzo(k)fluoranthene	ND	69.3	H	µg/Kg-dry	1	3/15/2012 3:07:00 PM
Benzo(a)pyrene	ND	69.3	H	µg/Kg-dry	1	3/15/2012 3:07:00 PM
Indeno(1,2,3-cd)pyrene	ND	69.3	H	µg/Kg-dry	1	3/15/2012 3:07:00 PM
Dibenz(a,h)anthracene	ND	69.3	H	µg/Kg-dry	1	3/15/2012 3:07:00 PM
Benzo(g,h,i)perylene	ND	69.3	H	µg/Kg-dry	1	3/15/2012 3:07:00 PM
Surr: 2-Fluorobiphenyl	111	53.5-148	H	%REC	1	3/15/2012 3:07:00 PM
Surr: Terphenyl-d14 (surr)	106	67.2-149	H	%REC	1	3/15/2012 3:07:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1203094**

Date Reported: **3/16/2012**

Client: GeoEngineers **Collection Date:** 2/27/2012 8:01:00 AM

Project: New Zealand

Lab ID: 1203094-001 **Matrix:** Soil

Client Sample ID: B20-3-5.0

Volatile Organic Compounds by EPA Method 8260

Batch ID: 2063 Analyst: MD

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane (CFC-12)	ND	0.0869	H	mg/Kg-dry	1	3/15/2012 5:16:00 PM
Chloromethane	ND	0.0869	H	mg/Kg-dry	1	3/15/2012 5:16:00 PM
Vinyl chloride	ND	0.00290	H	mg/Kg-dry	1	3/15/2012 5:16:00 PM
Bromomethane	ND	0.130	H	mg/Kg-dry	1	3/15/2012 5:16:00 PM
Trichlorofluoromethane (CFC-11)	ND	0.0724	H	mg/Kg-dry	1	3/15/2012 5:16:00 PM
Chloroethane	ND	0.0869	H	mg/Kg-dry	1	3/15/2012 5:16:00 PM
1,1-Dichloroethene	ND	0.0724	H	mg/Kg-dry	1	3/15/2012 5:16:00 PM
Methylene chloride	0.0342	0.0290	H	mg/Kg-dry	1	3/15/2012 5:16:00 PM
trans-1,2-Dichloroethene	ND	0.0290	H	mg/Kg-dry	1	3/15/2012 5:16:00 PM
Methyl tert-butyl ether (MTBE)	ND	0.0724	H	mg/Kg-dry	1	3/15/2012 5:16:00 PM
1,1-Dichloroethane	ND	0.0290	H	mg/Kg-dry	1	3/15/2012 5:16:00 PM
2,2-Dichloropropane	ND	0.0724	H	mg/Kg-dry	1	3/15/2012 5:16:00 PM
cis-1,2-Dichloroethene	ND	0.0290	H	mg/Kg-dry	1	3/15/2012 5:16:00 PM
Chloroform	ND	0.0290	H	mg/Kg-dry	1	3/15/2012 5:16:00 PM
1,1,1-Trichloroethane (TCA)	ND	0.0290	H	mg/Kg-dry	1	3/15/2012 5:16:00 PM
1,1-Dichloropropene	ND	0.0290	H	mg/Kg-dry	1	3/15/2012 5:16:00 PM
Carbon tetrachloride	ND	0.0290	H	mg/Kg-dry	1	3/15/2012 5:16:00 PM
1,2-Dichloroethane	ND	0.0434	H	mg/Kg-dry	1	3/15/2012 5:16:00 PM
Benzene	ND	0.0290	H	mg/Kg-dry	1	3/15/2012 5:16:00 PM
Trichloroethene (TCE)	ND	0.0434	H	mg/Kg-dry	1	3/15/2012 5:16:00 PM
1,2-Dichloropropane	ND	0.0290	H	mg/Kg-dry	1	3/15/2012 5:16:00 PM
Bromodichloromethane	ND	0.0290	H	mg/Kg-dry	1	3/15/2012 5:16:00 PM
Dibromomethane	ND	0.0579	H	mg/Kg-dry	1	3/15/2012 5:16:00 PM
cis-1,3-Dichloropropene	ND	0.0290	H	mg/Kg-dry	1	3/15/2012 5:16:00 PM
Toluene	ND	0.0290	H	mg/Kg-dry	1	3/15/2012 5:16:00 PM
trans-1,3-Dichloropropene	ND	0.0434	H	mg/Kg-dry	1	3/15/2012 5:16:00 PM
1,1,2-Trichloroethane	ND	0.0434	H	mg/Kg-dry	1	3/15/2012 5:16:00 PM
1,3-Dichloropropane	ND	0.0724	H	mg/Kg-dry	1	3/15/2012 5:16:00 PM
Tetrachloroethene (PCE)	ND	0.0290	H	mg/Kg-dry	1	3/15/2012 5:16:00 PM
Dibromochloromethane	ND	0.0434	H	mg/Kg-dry	1	3/15/2012 5:16:00 PM
1,2-Dibromoethane (EDB)	ND	0.00724	H	mg/Kg-dry	1	3/15/2012 5:16:00 PM
Chlorobenzene	ND	0.0290	H	mg/Kg-dry	1	3/15/2012 5:16:00 PM
1,1,1,2-Tetrachloroethane	ND	0.0434	H	mg/Kg-dry	1	3/15/2012 5:16:00 PM
Ethylbenzene	ND	0.0434	H	mg/Kg-dry	1	3/15/2012 5:16:00 PM
m,p-Xylene	ND	0.0290	H	mg/Kg-dry	1	3/15/2012 5:16:00 PM

Qualifiers:

- B Analyte detected in the associated Method Blank
- D Dilution was required
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not detected at the Reporting Limit
- RL Reporting Limit
- S Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1203094**
Date Reported: **3/16/2012**

Client: GeoEngineers
Collection Date: 2/27/2012 8:01:00 AM
Project: New Zealand
Lab ID: 1203094-001
Matrix: Soil
Client Sample ID: B20-3-5.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: 2063		Analyst: MD
o-Xylene	ND	0.0290	H	mg/Kg-dry	1	3/15/2012 5:16:00 PM
Styrene	ND	0.0290	H	mg/Kg-dry	1	3/15/2012 5:16:00 PM
Isopropylbenzene	ND	0.116	H	mg/Kg-dry	1	3/15/2012 5:16:00 PM
Bromoform	ND	0.0290	H	mg/Kg-dry	1	3/15/2012 5:16:00 PM
1,1,2,2-Tetrachloroethane	ND	0.0290	H	mg/Kg-dry	1	3/15/2012 5:16:00 PM
n-Propylbenzene	ND	0.0290	H	mg/Kg-dry	1	3/15/2012 5:16:00 PM
Bromobenzene	ND	0.0434	H	mg/Kg-dry	1	3/15/2012 5:16:00 PM
1,3,5-Trimethylbenzene	ND	0.0290	H	mg/Kg-dry	1	3/15/2012 5:16:00 PM
2-Chlorotoluene	ND	0.0290	H	mg/Kg-dry	1	3/15/2012 5:16:00 PM
4-Chlorotoluene	ND	0.0290	H	mg/Kg-dry	1	3/15/2012 5:16:00 PM
tert-Butylbenzene	ND	0.0290	H	mg/Kg-dry	1	3/15/2012 5:16:00 PM
1,2,3-Trichloropropane	ND	0.0290	H	mg/Kg-dry	1	3/15/2012 5:16:00 PM
1,2,4-Trichlorobenzene	ND	0.0724	H	mg/Kg-dry	1	3/15/2012 5:16:00 PM
sec-Butylbenzene	ND	0.0290	H	mg/Kg-dry	1	3/15/2012 5:16:00 PM
4-Isopropyltoluene	ND	0.0290	H	mg/Kg-dry	1	3/15/2012 5:16:00 PM
1,3-Dichlorobenzene	ND	0.0290	H	mg/Kg-dry	1	3/15/2012 5:16:00 PM
1,4-Dichlorobenzene	ND	0.0290	H	mg/Kg-dry	1	3/15/2012 5:16:00 PM
n-Butylbenzene	ND	0.0290	H	mg/Kg-dry	1	3/15/2012 5:16:00 PM
1,2-Dichlorobenzene	ND	0.0290	H	mg/Kg-dry	1	3/15/2012 5:16:00 PM
1,2-Dibromo-3-chloropropane	ND	0.0434	H	mg/Kg-dry	1	3/15/2012 5:16:00 PM
1,2,4-Trimethylbenzene	ND	0.0290	H	mg/Kg-dry	1	3/15/2012 5:16:00 PM
Hexachlorobutadiene	ND	0.145	H	mg/Kg-dry	1	3/15/2012 5:16:00 PM
Naphthalene	ND	0.0434	H	mg/Kg-dry	1	3/15/2012 5:16:00 PM
1,2,3-Trichlorobenzene	ND	0.0290	H	mg/Kg-dry	1	3/15/2012 5:16:00 PM
Surr: 1-Bromo-4-fluorobenzene	93.2	63.1-141	H	%REC	1	3/15/2012 5:16:00 PM
Surr: Dibromofluoromethane	89.7	67.6-119	H	%REC	1	3/15/2012 5:16:00 PM
Surr: Toluene-d8	79.9	78.5-126	H	%REC	1	3/15/2012 5:16:00 PM

NOTES:
Methylene Chloride is a common laboratory solvent.

Sample Moisture (Percent Moisture)				Batch ID: R3656		Analyst: EM
Percent Moisture	32.5			wt%	1	3/15/2012 10:36:57 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1203094**
Date Reported: **3/16/2012**

Client: GeoEngineers
Collection Date: 2/27/2012 8:57:00 AM
Project: New Zealand
Lab ID: 1203094-002
Matrix: Soil
Client Sample ID: B20-3-25.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Gasoline by NWTPH-Gx				Batch ID: 2068		Analyst: MD
Gasoline	ND	5.37	H	mg/Kg-dry	1	3/15/2012 2:28:00 PM
Surr: 1,4-Difluorobenzene	106	65-135	H	%REC	1	3/15/2012 2:28:00 PM
Surr: 4-Bromofluorobenzene	114	65-135	H	%REC	1	3/15/2012 2:28:00 PM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 2063		Analyst: MD
Dichlorodifluoromethane (CFC-12)	ND	0.0616	H	mg/Kg-dry	1	3/15/2012 6:12:00 PM
Chloromethane	ND	0.0616	H	mg/Kg-dry	1	3/15/2012 6:12:00 PM
Vinyl chloride	ND	0.00205	H	mg/Kg-dry	1	3/15/2012 6:12:00 PM
Bromomethane	ND	0.0924	H	mg/Kg-dry	1	3/15/2012 6:12:00 PM
Trichlorofluoromethane (CFC-11)	ND	0.0513	H	mg/Kg-dry	1	3/15/2012 6:12:00 PM
Chloroethane	ND	0.0616	H	mg/Kg-dry	1	3/15/2012 6:12:00 PM
1,1-Dichloroethene	ND	0.0513	H	mg/Kg-dry	1	3/15/2012 6:12:00 PM
Methylene chloride	0.0251	0.0205	H	mg/Kg-dry	1	3/15/2012 6:12:00 PM
trans-1,2-Dichloroethene	ND	0.0205	H	mg/Kg-dry	1	3/15/2012 6:12:00 PM
Methyl tert-butyl ether (MTBE)	ND	0.0513	H	mg/Kg-dry	1	3/15/2012 6:12:00 PM
1,1-Dichloroethane	ND	0.0205	H	mg/Kg-dry	1	3/15/2012 6:12:00 PM
2,2-Dichloropropane	ND	0.0513	H	mg/Kg-dry	1	3/15/2012 6:12:00 PM
cis-1,2-Dichloroethene	ND	0.0205	H	mg/Kg-dry	1	3/15/2012 6:12:00 PM
Chloroform	ND	0.0205	H	mg/Kg-dry	1	3/15/2012 6:12:00 PM
1,1,1-Trichloroethane (TCA)	ND	0.0205	H	mg/Kg-dry	1	3/15/2012 6:12:00 PM
1,1-Dichloropropene	ND	0.0205	H	mg/Kg-dry	1	3/15/2012 6:12:00 PM
Carbon tetrachloride	ND	0.0205	H	mg/Kg-dry	1	3/15/2012 6:12:00 PM
1,2-Dichloroethane	ND	0.0308	H	mg/Kg-dry	1	3/15/2012 6:12:00 PM
Benzene	ND	0.0205	H	mg/Kg-dry	1	3/15/2012 6:12:00 PM
Trichloroethene (TCE)	ND	0.0308	H	mg/Kg-dry	1	3/15/2012 6:12:00 PM
1,2-Dichloropropane	ND	0.0205	H	mg/Kg-dry	1	3/15/2012 6:12:00 PM
Bromodichloromethane	ND	0.0205	H	mg/Kg-dry	1	3/15/2012 6:12:00 PM
Dibromomethane	ND	0.0411	H	mg/Kg-dry	1	3/15/2012 6:12:00 PM
cis-1,3-Dichloropropene	ND	0.0205	H	mg/Kg-dry	1	3/15/2012 6:12:00 PM
Toluene	ND	0.0205	H	mg/Kg-dry	1	3/15/2012 6:12:00 PM
trans-1,3-Dichloropropene	ND	0.0308	H	mg/Kg-dry	1	3/15/2012 6:12:00 PM
1,1,2-Trichloroethane	ND	0.0308	H	mg/Kg-dry	1	3/15/2012 6:12:00 PM
1,3-Dichloropropane	ND	0.0513	H	mg/Kg-dry	1	3/15/2012 6:12:00 PM
Tetrachloroethene (PCE)	ND	0.0205	H	mg/Kg-dry	1	3/15/2012 6:12:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1203094**
Date Reported: **3/16/2012**

Client: GeoEngineers
Collection Date: 2/27/2012 8:57:00 AM
Project: New Zealand
Lab ID: 1203094-002
Matrix: Soil
Client Sample ID: B20-3-25.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: 2063		Analyst: MD
Dibromochloromethane	ND	0.0308	H	mg/Kg-dry	1	3/15/2012 6:12:00 PM
1,2-Dibromoethane (EDB)	ND	0.00513	H	mg/Kg-dry	1	3/15/2012 6:12:00 PM
Chlorobenzene	ND	0.0205	H	mg/Kg-dry	1	3/15/2012 6:12:00 PM
1,1,1,2-Tetrachloroethane	ND	0.0308	H	mg/Kg-dry	1	3/15/2012 6:12:00 PM
Ethylbenzene	ND	0.0308	H	mg/Kg-dry	1	3/15/2012 6:12:00 PM
m,p-Xylene	ND	0.0205	H	mg/Kg-dry	1	3/15/2012 6:12:00 PM
o-Xylene	ND	0.0205	H	mg/Kg-dry	1	3/15/2012 6:12:00 PM
Styrene	ND	0.0205	H	mg/Kg-dry	1	3/15/2012 6:12:00 PM
Isopropylbenzene	ND	0.0821	H	mg/Kg-dry	1	3/15/2012 6:12:00 PM
Bromoform	ND	0.0205	H	mg/Kg-dry	1	3/15/2012 6:12:00 PM
1,1,2,2-Tetrachloroethane	ND	0.0205	H	mg/Kg-dry	1	3/15/2012 6:12:00 PM
n-Propylbenzene	ND	0.0205	H	mg/Kg-dry	1	3/15/2012 6:12:00 PM
Bromobenzene	ND	0.0308	H	mg/Kg-dry	1	3/15/2012 6:12:00 PM
1,3,5-Trimethylbenzene	ND	0.0205	H	mg/Kg-dry	1	3/15/2012 6:12:00 PM
2-Chlorotoluene	ND	0.0205	H	mg/Kg-dry	1	3/15/2012 6:12:00 PM
4-Chlorotoluene	ND	0.0205	H	mg/Kg-dry	1	3/15/2012 6:12:00 PM
tert-Butylbenzene	ND	0.0205	H	mg/Kg-dry	1	3/15/2012 6:12:00 PM
1,2,3-Trichloropropane	ND	0.0205	H	mg/Kg-dry	1	3/15/2012 6:12:00 PM
1,2,4-Trichlorobenzene	ND	0.0513	H	mg/Kg-dry	1	3/15/2012 6:12:00 PM
sec-Butylbenzene	ND	0.0205	H	mg/Kg-dry	1	3/15/2012 6:12:00 PM
4-Isopropyltoluene	ND	0.0205	H	mg/Kg-dry	1	3/15/2012 6:12:00 PM
1,3-Dichlorobenzene	ND	0.0205	H	mg/Kg-dry	1	3/15/2012 6:12:00 PM
1,4-Dichlorobenzene	ND	0.0205	H	mg/Kg-dry	1	3/15/2012 6:12:00 PM
n-Butylbenzene	ND	0.0205	H	mg/Kg-dry	1	3/15/2012 6:12:00 PM
1,2-Dichlorobenzene	ND	0.0205	H	mg/Kg-dry	1	3/15/2012 6:12:00 PM
1,2-Dibromo-3-chloropropane	ND	0.0308	H	mg/Kg-dry	1	3/15/2012 6:12:00 PM
1,2,4-Trimethylbenzene	ND	0.0205	H	mg/Kg-dry	1	3/15/2012 6:12:00 PM
Hexachlorobutadiene	ND	0.103	H	mg/Kg-dry	1	3/15/2012 6:12:00 PM
Naphthalene	ND	0.0308	H	mg/Kg-dry	1	3/15/2012 6:12:00 PM
1,2,3-Trichlorobenzene	ND	0.0205	H	mg/Kg-dry	1	3/15/2012 6:12:00 PM
Surr: 1-Bromo-4-fluorobenzene	92.2	63.1-141	H	%REC	1	3/15/2012 6:12:00 PM
Surr: Dibromofluoromethane	88.1	67.6-119	H	%REC	1	3/15/2012 6:12:00 PM
Surr: Toluene-d8	83.0	78.5-126	H	%REC	1	3/15/2012 6:12:00 PM

NOTES:
Methylene Chloride is a common laboratory solvent.

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1203094**
Date Reported: **3/16/2012**

Client: GeoEngineers
Collection Date: 2/27/2012 8:57:00 AM
Project: New Zealand
Lab ID: 1203094-002
Matrix: Soil
Client Sample ID: B20-3-25.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R3656		Analyst: EM
Percent Moisture	9.98			wt%	1	3/15/2012 10:36:57 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Date: *3/16/2012*

Work Order: 1203094
CLIENT: GeoEngineers
Project: New Zealand

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID: **1203094-001ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **3/15/2012** RunNo: **3658**
Client ID: **B20-3-5.0** Batch ID: **2057** Analysis Date: **3/15/2012** SeqNo: **65564**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	25.2						0	0	30	H
Heavy Oil	1,110	63.1						1,193	7.05	30	H
Surr: 2-Fluorobiphenyl	24.9		25.22		98.9	84.2	137		0		H
Surr: o-Terphenyl	31.0		25.22		123	87.1	138		0		H

Sample ID: **LCS-2057** SampType: **LCS** Units: **mg/Kg** Prep Date: **3/15/2012** RunNo: **3658**
Client ID: **LCSS** Batch ID: **2057** Analysis Date: **3/15/2012** SeqNo: **65566**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	557	20.0	500.0	0	111	65	135				
Surr: 2-Fluorobiphenyl	20.8		20.00		104	84.2	137				
Surr: o-Terphenyl	24.8		20.00		124	87.1	138				

Sample ID: **MB-2057** SampType: **MBLK** Units: **mg/Kg** Prep Date: **3/15/2012** RunNo: **3658**
Client ID: **MBLKS** Batch ID: **2057** Analysis Date: **3/15/2012** SeqNo: **65567**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	20.0									
Heavy Oil	ND	50.0									
Surr: 2-Fluorobiphenyl	19.4		20.00		97.1	84.2	137				
Surr: o-Terphenyl	25.0		20.00		125	87.1	138				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Date: *3/16/2012*

Work Order: 1203094
CLIENT: GeoEngineers
Project: New Zealand

QC SUMMARY REPORT

Gasoline by NWTPH-Gx

Sample ID: **MBLK-R3664**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **3/16/2012**	RunNo: **3664**
Client ID: **MBLKS**	Batch ID: **2068**		Analysis Date: **3/15/2012**	SeqNo: **65630**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	5.00									
Surr: 1,4-Difluorobenzene	0.612		0.5000		122	65	135				
Surr: 4-Bromofluorobenzene	0.537		0.5000		107	65	135				

Sample ID: **LCS-R3664**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **3/16/2012**	RunNo: **3664**
Client ID: **LCSS**	Batch ID: **2068**		Analysis Date: **3/15/2012**	SeqNo: **65631**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	24.2	5.00	25.00	0	96.8	65	135				
Surr: 1,4-Difluorobenzene	0.582		0.5000		116	65	135				
Surr: 4-Bromofluorobenzene	0.552		0.5000		110	65	135				

Sample ID: **1203094-001BDUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **3/16/2012**	RunNo: **3664**
Client ID: **B20-3-5.0**	Batch ID: **2068**		Analysis Date: **3/15/2012**	SeqNo: **65633**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	7.57						0	0	30	H
Surr: 1,4-Difluorobenzene	0.895		0.7566		118	65	135		0	0	H
Surr: 4-Bromofluorobenzene	0.797		0.7566		105	65	135		0	0	H

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1203094
CLIENT: GeoEngineers
Project: New Zealand

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: **1203094-001AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **3/15/2012** RunNo: **3662**
Client ID: **B20-3-5.0** Batch ID: **2056** Analysis Date: **3/15/2012** SeqNo: **65592**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acenaphthene	619	71.5	715.2	0	86.5	50.6	126				H
Pyrene	638	71.5	715.2	41.30	83.4	50.4	139				H
Surr: 2-Fluorobiphenyl	811		715.2		113	53.5	148				H
Surr: Terphenyl-d14 (surr)	757		715.2		106	67.2	149				H

Sample ID: **1203094-001AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **3/15/2012** RunNo: **3662**
Client ID: **B20-3-5.0** Batch ID: **2056** Analysis Date: **3/15/2012** SeqNo: **65593**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acenaphthene	621	73.8	738.0	0	84.2	50.6	126	618.7	0.417	30	H
Pyrene	670	73.8	738.0	41.30	85.2	50.4	139	637.7	4.95	30	H
Surr: 2-Fluorobiphenyl	823		738.0		112	53.5	148		0		H
Surr: Terphenyl-d14 (surr)	758		738.0		103	67.2	149		0		H

Sample ID: **LCS-2056** SampType: **LCS** Units: **µg/Kg** Prep Date: **3/15/2012** RunNo: **3662**
Client ID: **LCSS** Batch ID: **2056** Analysis Date: **3/15/2012** SeqNo: **65595**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acenaphthene	435	50.0	500.0	0	87.0	50.4	130				
Pyrene	412	50.0	500.0	0	82.4	50.3	141				
Surr: 2-Fluorobiphenyl	528		500.0		106	53.5	148				
Surr: Terphenyl-d14 (surr)	488		500.0		97.6	67.2	149				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Date: *3/16/2012*

Work Order: 1203094
CLIENT: GeoEngineers
Project: New Zealand

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: **MB-2056** SampType: **MBLK** Units: **µg/Kg** Prep Date: **3/15/2012** RunNo: **3662**
Client ID: **MBLKS** Batch ID: **2056** Analysis Date: **3/15/2012** SeqNo: **65596**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	50.0									
2-Methylnaphthalene	ND	50.0									
1-Methylnaphthalene	ND	50.0									
Acenaphthylene	ND	50.0									
Acenaphthene	ND	50.0									
Fluorene	ND	50.0									
Phenanthrene	ND	50.0									
Anthracene	ND	50.0									
Fluoranthene	ND	50.0									
Pyrene	ND	50.0									
Benz(a)anthracene	ND	50.0									
Chrysene	ND	50.0									
Benzo(b)fluoranthene	ND	50.0									
Benzo(k)fluoranthene	ND	50.0									
Benzo(a)pyrene	ND	50.0									
Indeno(1,2,3-cd)pyrene	ND	50.0									
Dibenz(a,h)anthracene	ND	50.0									
Benzo(g,h,i)perylene	ND	50.0									
Surr: 2-Fluorobiphenyl	530		500.0		106	53.5	148				
Surr: Terphenyl-d14 (surr)	490		500.0		98.0	67.2	149				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1203094
CLIENT: GeoEngineers
Project: New Zealand

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: **1203102-004ADUP** SampType: **DUP** Units: **µg/Kg** Prep Date: **3/15/2012** RunNo: **3662**
Client ID: **BATCH** Batch ID: **2056** Analysis Date: **3/15/2012** SeqNo: **65604**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	47.2						0	0	30	
2-Methylnaphthalene	ND	47.2						0	0	30	
1-Methylnaphthalene	ND	47.2						0	0	30	
Acenaphthylene	ND	47.2						0	0	30	
Acenaphthene	ND	47.2						0	0	30	
Fluorene	ND	47.2						0	0	30	
Phenanthrene	ND	47.2						0	0	30	
Anthracene	ND	47.2						0	0	30	
Fluoranthene	ND	47.2						0	0	30	
Pyrene	ND	47.2						0	0	30	
Benz(a)anthracene	ND	47.2						0	0	30	
Chrysene	ND	47.2						0	0	30	
Benzo(b)fluoranthene	ND	47.2						0	0	30	
Benzo(k)fluoranthene	ND	47.2						0	0	30	
Benzo(a)pyrene	ND	47.2						0	0	30	
Indeno(1,2,3-cd)pyrene	ND	47.2						0	0	30	
Dibenz(a,h)anthracene	ND	47.2						0	0	30	
Benzo(g,h,i)perylene	ND	47.2						0	0	30	
Surr: 2-Fluorobiphenyl	522		471.7		111	53.5	148		0		
Surr: Terphenyl-d14 (surr)	505		471.7		107	67.2	149		0		

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1203094
CLIENT: GeoEngineers
Project: New Zealand

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **MBLK-2063** SampType: **MBLK** Units: **mg/Kg** Prep Date: **3/16/2012** RunNo: **3663**
Client ID: **MBLKS** Batch ID: **2063** Analysis Date: **3/15/2012** SeqNo: **65607**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	ND	0.0600									
Chloromethane	ND	0.0600									
Vinyl chloride	ND	0.00200									
Bromomethane	ND	0.0900									
Trichlorofluoromethane (CFC-11)	ND	0.0500									
Chloroethane	ND	0.0600									
1,1-Dichloroethene	ND	0.0500									
Methylene chloride	0.019 J	0.0200									
trans-1,2-Dichloroethene	ND	0.0200									
Methyl tert-butyl ether (MTBE)	ND	0.0500									
1,1-Dichloroethane	ND	0.0200									
2,2-Dichloropropane	ND	0.0500									
cis-1,2-Dichloroethene	ND	0.0200									
Chloroform	ND	0.0200									
1,1,1-Trichloroethane (TCA)	ND	0.0200									
1,1-Dichloropropene	ND	0.0200									
Carbon tetrachloride	ND	0.0200									
1,2-Dichloroethane	ND	0.0300									
Benzene	ND	0.0200									
Trichloroethene (TCE)	ND	0.0300									
1,2-Dichloropropane	ND	0.0200									
Bromodichloromethane	ND	0.0200									
Dibromomethane	ND	0.0400									
cis-1,3-Dichloropropene	ND	0.0200									
Toluene	ND	0.0200									

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1203094
CLIENT: GeoEngineers
Project: New Zealand

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **MBLK-2063** SampType: **MBLK** Units: **mg/Kg** Prep Date: **3/16/2012** RunNo: **3663**
Client ID: **MBLKS** Batch ID: **2063** Analysis Date: **3/15/2012** SeqNo: **65607**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
trans-1,3-Dichloropropene	ND	0.0300									
1,1,2-Trichloroethane	ND	0.0300									
1,3-Dichloropropane	ND	0.0500									
Tetrachloroethene (PCE)	ND	0.0200									
Dibromochloromethane	ND	0.0300									
1,2-Dibromoethane (EDB)	ND	0.00500									
Chlorobenzene	ND	0.0200									
1,1,1,2-Tetrachloroethane	ND	0.0300									
Ethylbenzene	ND	0.0300									
m,p-Xylene	ND	0.0200									
o-Xylene	ND	0.0200									
Styrene	ND	0.0200									
Isopropylbenzene	ND	0.0800									
Bromoform	ND	0.0200									
1,1,2,2-Tetrachloroethane	ND	0.0200									
n-Propylbenzene	ND	0.0200									
Bromobenzene	ND	0.0300									
1,3,5-Trimethylbenzene	ND	0.0200									
2-Chlorotoluene	ND	0.0200									
4-Chlorotoluene	ND	0.0200									
tert-Butylbenzene	ND	0.0200									
1,2,3-Trichloropropane	ND	0.0200									
1,2,4-Trichlorobenzene	ND	0.0500									
sec-Butylbenzene	ND	0.0200									
4-Isopropyltoluene	ND	0.0200									

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Date: *3/16/2012*

Work Order: 1203094
CLIENT: GeoEngineers
Project: New Zealand

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **MBLK-2063** SampType: **MBLK** Units: **mg/Kg** Prep Date: **3/16/2012** RunNo: **3663**
Client ID: **MBLKS** Batch ID: **2063** Analysis Date: **3/15/2012** SeqNo: **65607**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,3-Dichlorobenzene	ND	0.0200									
1,4-Dichlorobenzene	ND	0.0200									
n-Butylbenzene	ND	0.0200									
1,2-Dichlorobenzene	ND	0.0200									
1,2-Dibromo-3-chloropropane	ND	0.0300									
1,2,4-Trimethylbenzene	ND	0.0200									
Hexachlorobutadiene	ND	0.100									
Naphthalene	ND	0.0300									
1,2,3-Trichlorobenzene	ND	0.0200									
Surr: 1-Bromo-4-fluorobenzene	0.434		0.5000		86.7	63.1	141				
Surr: Dibromofluoromethane	0.422		0.5000		84.5	67.6	119				
Surr: Toluene-d8	0.402		0.5000		80.4	78.5	126				

Sample ID: **LCS-2063** SampType: **LCS** Units: **mg/Kg** Prep Date: **3/16/2012** RunNo: **3663**
Client ID: **LCSS** Batch ID: **2063** Analysis Date: **3/15/2012** SeqNo: **65608**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethene	0.189	0.0500	0.2000	0	94.6	59	136				
Benzene	0.172	0.0200	0.2000	0	86.0	69.1	133				
Trichloroethene (TCE)	0.195	0.0300	0.2000	0	97.6	59.7	127				
Toluene	0.172	0.0200	0.2000	0	85.8	65.9	134				
Tetrachloroethene (PCE)	0.169	0.0200	0.1600	0	106	52.1	139				
Chlorobenzene	0.184	0.0200	0.2000	0	91.8	67.7	125				
Surr: 1-Bromo-4-fluorobenzene	0.440		0.5000		88.1	63.1	141				
Surr: Dibromofluoromethane	0.440		0.5000		87.9	67.6	119				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1203094
CLIENT: GeoEngineers
Project: New Zealand

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **LCS-2063** SampType: **LCS** Units: **mg/Kg** Prep Date: **3/16/2012** RunNo: **3663**
Client ID: **LCSS** Batch ID: **2063** Analysis Date: **3/15/2012** SeqNo: **65608**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Toluene-d8	0.401		0.5000		80.2	78.5	126				

Sample ID: **1203094-001CDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **3/16/2012** RunNo: **3663**
Client ID: **B20-3-5.0** Batch ID: **2063** Analysis Date: **3/15/2012** SeqNo: **65610**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	ND	0.0871						0	0	30	H
Chloromethane	ND	0.0871						0	0	30	H
Vinyl chloride	ND	0.00290						0	0	30	H
Bromomethane	ND	0.131						0	0	30	H
Trichlorofluoromethane (CFC-11)	ND	0.0726						0	0	30	H
Chloroethane	ND	0.0871						0	0	30	H
1,1-Dichloroethene	ND	0.0726						0	0	30	H
Methylene chloride	0.0319	0.0290						0.03417	6.76	30	H
trans-1,2-Dichloroethene	ND	0.0290						0	0	30	H
Methyl tert-butyl ether (MTBE)	ND	0.0726						0	0	30	H
1,1-Dichloroethane	ND	0.0290						0	0	30	H
2,2-Dichloropropane	ND	0.0726						0	0	30	H
cis-1,2-Dichloroethene	ND	0.0290						0	0	30	H
Chloroform	ND	0.0290						0	0	30	H
1,1,1-Trichloroethane (TCA)	ND	0.0290						0	0	30	H
1,1-Dichloropropene	ND	0.0290						0	0	30	H
Carbon tetrachloride	ND	0.0290						0	0	30	H
1,2-Dichloroethane	ND	0.0435						0	0	30	H
Benzene	ND	0.0290						0	0	30	H

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1203094
CLIENT: GeoEngineers
Project: New Zealand

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **1203094-001CDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **3/16/2012** RunNo: **3663**
Client ID: **B20-3-5.0** Batch ID: **2063** Analysis Date: **3/15/2012** SeqNo: **65610**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Trichloroethene (TCE)	ND	0.0435						0	0	30	H
1,2-Dichloropropane	ND	0.0290						0	0	30	H
Bromodichloromethane	ND	0.0290						0	0	30	H
Dibromomethane	ND	0.0581						0	0	30	H
cis-1,3-Dichloropropene	ND	0.0290						0	0	30	H
Toluene	ND	0.0290						0	0	30	H
trans-1,3-Dichloropropene	ND	0.0435						0	0	30	H
1,1,2-Trichloroethane	ND	0.0435						0	0	30	H
1,3-Dichloropropane	ND	0.0726						0	0	30	H
Tetrachloroethene (PCE)	ND	0.0290						0	0	30	H
Dibromochloromethane	ND	0.0435						0	0	30	H
1,2-Dibromoethane (EDB)	ND	0.00726						0	0	30	H
Chlorobenzene	ND	0.0290						0	0	30	H
1,1,1,2-Tetrachloroethane	ND	0.0435						0	0	30	H
Ethylbenzene	ND	0.0435						0	0	30	H
m,p-Xylene	ND	0.0290						0	0	30	H
o-Xylene	ND	0.0290						0	0	30	H
Styrene	ND	0.0290						0	0	30	H
Isopropylbenzene	ND	0.116						0	0	30	H
Bromoform	ND	0.0290						0	0	30	H
1,1,2,2-Tetrachloroethane	ND	0.0290						0	0	30	H
n-Propylbenzene	ND	0.0290						0	0	30	H
Bromobenzene	ND	0.0435						0	0	30	H
1,3,5-Trimethylbenzene	ND	0.0290						0	0	30	H
2-Chlorotoluene	ND	0.0290						0	0	30	H

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1203094
CLIENT: GeoEngineers
Project: New Zealand

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **1203094-001CDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **3/16/2012** RunNo: **3663**
Client ID: **B20-3-5.0** Batch ID: **2063** Analysis Date: **3/15/2012** SeqNo: **65610**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4-Chlorotoluene	ND	0.0290						0	0	30	H
tert-Butylbenzene	ND	0.0290						0	0	30	H
1,2,3-Trichloropropane	ND	0.0290						0	0	30	H
1,2,4-Trichlorobenzene	ND	0.0726						0	0	30	H
sec-Butylbenzene	ND	0.0290						0	0	30	H
4-Isopropyltoluene	ND	0.0290						0	0	30	H
1,3-Dichlorobenzene	ND	0.0290						0	0	30	H
1,4-Dichlorobenzene	ND	0.0290						0	0	30	H
n-Butylbenzene	ND	0.0290						0	0	30	H
1,2-Dichlorobenzene	ND	0.0290						0	0	30	H
1,2-Dibromo-3-chloropropane	ND	0.0435						0	0	30	H
1,2,4-Trimethylbenzene	ND	0.0290						0	0	30	H
Hexachlorobutadiene	ND	0.145						0	0	30	H
Naphthalene	ND	0.0435						0	0	30	H
1,2,3-Trichlorobenzene	ND	0.0290						0	0	30	H
Surr: 1-Bromo-4-fluorobenzene	0.660		0.7257		90.9	63.1	141		0		H
Surr: Dibromofluoromethane	0.652		0.7257		89.8	67.6	119		0		H
Surr: Toluene-d8	0.591		0.7257		81.4	78.5	126		0		H

Sample ID: **1203094-002CMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **3/16/2012** RunNo: **3663**
Client ID: **B20-3-25.0** Batch ID: **2063** Analysis Date: **3/15/2012** SeqNo: **65612**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethene	0.222	0.0498	0.1990	0	111	52.6	134				H
Benzene	0.200	0.0199	0.1990	0	101	67.3	125				H

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Date: *3/16/2012*

Work Order: 1203094
CLIENT: GeoEngineers
Project: New Zealand

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **1203094-002CMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **3/16/2012** RunNo: **3663**
Client ID: **B20-3-25.0** Batch ID: **2063** Analysis Date: **3/15/2012** SeqNo: **65612**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Trichloroethene (TCE)	0.224	0.0299	0.1990	0	112	60.8	120				H
Toluene	0.198	0.0199	0.1990	0	99.6	56.2	138				H
Tetrachloroethene (PCE)	0.173	0.0199	0.1592	0	108	53.2	126				H
Chlorobenzene	0.195	0.0199	0.1990	0	98.0	59.9	123				H
Surr: 1-Bromo-4-fluorobenzene	0.450		0.4975		90.5	63.1	141				H
Surr: Dibromofluoromethane	0.452		0.4975		90.9	67.6	119				H
Surr: Toluene-d8	0.406		0.4975		81.5	78.5	126				H

NOTES:
Methylene Chloride is a common laboratory solvent.

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Michael C. Ridgeway 1203094

From: Jessica A. Smith [jasmith@geoengineers.com]
Sent: Thursday, March 15, 2012 9:55 AM
To: Michael C. Ridgeway
Subject: New Zealand

Hey Mike. Can you please run the following:

PAHs, Gx, VOCs and Dx on sample B20-3-5.0

VOCs and Gx on B20-3-25

Any chance you can have results back today or tomorrow morning?

Jess

Sent from my iPhone

Confidentiality: This message is confidential and intended solely for use of the individual or entity to whom it is addressed. If you are not the person for whom this message is intended, please delete it and notify me immediately, and please do not copy or send this message to anyone else.

1311 N. 35th St.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

GeoEngineers
Jessica Smith
600 Stewart Street, Suite 1700
Seattle, Washington 98101

RE: New Zealand
Lab ID: 1203024

March 06, 2012

Attention Jessica Smith:

Fremont Analytical, Inc. received 4 sample(s) on 3/5/2012 for the analyses presented in the following report.

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.
Dissolved Mercury by EPA Method 245.1
Dissolved Metals by EPA Method 200.8
Gasoline by NWTPH-Gx
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)
Volatile Organic Compounds by EPA Method 8260

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Michael Dee
Sr. Chemist / Principal

Date: *03/12/2012*

CLIENT: GeoEngineers
Project: New Zealand
Lab Order: 1203024

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1203024-001	MW14-1	03/05/2012 12:45 PM	03/05/2012 4:50 PM
1203024-002	MW20-1	03/05/2012 3:00 PM	03/05/2012 4:50 PM
1203024-003	MW20-2	03/05/2012 10:30 AM	03/05/2012 4:50 PM
1203024-004	MW20-3	03/05/2012 9:30 AM	03/05/2012 4:50 PM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

Case Narrative

WO#: **1203024**
Date: **3/6/2012**

CLIENT: GeoEngineers
Project: New Zealand

I. SAMPLE RECEIPT:
All samples were received intact. The internal ice chest temperatures were measured on receipt and are recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Analytical Report

WO#: **1203024**
Date Reported: **3/6/2012**

Client: GeoEngineers
Collection Date: 3/5/2012 12:45:00 PM
Project: New Zealand
Lab ID: 1203024-001
Matrix: Water
Client Sample ID: MW14-1

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 2001		Analyst: EM
Diesel (Fuel Oil)	ND	50.0		µg/L	1	3/5/2012 11:40:00 PM
Heavy Oil	ND	100		µg/L	1	3/5/2012 11:40:00 PM
Surr: 2-Fluorobiphenyl	96.8	59-137		%REC	1	3/5/2012 11:40:00 PM
Surr: o-Terphenyl	92.3	55.5-139		%REC	1	3/5/2012 11:40:00 PM
Gasoline by NWTPH-Gx				Batch ID: R3557		Analyst: PH
Gasoline	ND	50.0		µg/L	1	3/5/2012 7:09:00 PM
Surr: 1,4-Difluorobenzene	119	65-135		%REC	1	3/5/2012 7:09:00 PM
Surr: 4-Bromofluorobenzene	108	65-135		%REC	1	3/5/2012 7:09:00 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 1993		Analyst: SG
Naphthalene	ND	0.100	[RA]	µg/L	1	3/6/2012 9:45:00 AM
2-Methylnaphthalene	ND	0.100	[RA]	µg/L	1	3/6/2012 9:45:00 AM
1-Methylnaphthalene	ND	0.100	[RA]	µg/L	1	3/6/2012 9:45:00 AM
Acenaphthylene	ND	0.100	[RA]	µg/L	1	3/6/2012 9:45:00 AM
Acenaphthene	ND	0.100	[RA]	µg/L	1	3/6/2012 9:45:00 AM
Fluorene	ND	0.100	[RA]	µg/L	1	3/6/2012 9:45:00 AM
Phenanthrene	ND	0.100	[RA]	µg/L	1	3/6/2012 9:45:00 AM
Anthracene	ND	0.100	[RA]	µg/L	1	3/6/2012 9:45:00 AM
Fluoranthene	ND	0.100	[RA]	µg/L	1	3/6/2012 9:45:00 AM
Pyrene	ND	0.100	[RA]	µg/L	1	3/6/2012 9:45:00 AM
Benz(a)anthracene	ND	0.100	[RA]	µg/L	1	3/6/2012 9:45:00 AM
Chrysene	ND	0.100	[RA]	µg/L	1	3/6/2012 9:45:00 AM
Benzo(b)fluoranthene	ND	0.100	[RA]	µg/L	1	3/6/2012 9:45:00 AM
Benzo(k)fluoranthene	ND	0.100	[RA]	µg/L	1	3/6/2012 9:45:00 AM
Benzo(a)pyrene	ND	0.100	[RA]	µg/L	1	3/6/2012 9:45:00 AM
Indeno(1,2,3-cd)pyrene	ND	0.100	[RA]	µg/L	1	3/6/2012 9:45:00 AM
Dibenz(a,h)anthracene	ND	0.100	[RA]	µg/L	1	3/6/2012 9:45:00 AM
Benzo(g,h,i)perylene	ND	0.100	[RA]	µg/L	1	3/6/2012 9:45:00 AM
Surr: 2-Fluorobiphenyl	108	50.1-148	[RA]	%REC	1	3/6/2012 9:45:00 AM
Surr: Terphenyl-d14 (surr)	153	79.9-155	[RA]	%REC	1	3/6/2012 9:45:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1203024**
Date Reported: **3/6/2012**

Client: GeoEngineers
Project: New Zealand
Lab ID: 1203024-001
Client Sample ID: MW14-1

Collection Date: 3/5/2012 12:45:00 PM
Matrix: Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: R3562		Analyst: PH
Dichlorodifluoromethane (CFC-12)	ND	1.00		µg/L	1	3/5/2012 8:44:00 PM
Chloromethane	ND	1.00		µg/L	1	3/5/2012 8:44:00 PM
Vinyl chloride	ND	0.200		µg/L	1	3/5/2012 8:44:00 PM
Bromomethane	ND	1.00		µg/L	1	3/5/2012 8:44:00 PM
Trichlorofluoromethane (CFC-11)	ND	1.00		µg/L	1	3/5/2012 8:44:00 PM
Chloroethane	ND	1.00		µg/L	1	3/5/2012 8:44:00 PM
1,1-Dichloroethene	ND	1.00		µg/L	1	3/5/2012 8:44:00 PM
Methylene chloride	ND	1.00		µg/L	1	3/5/2012 8:44:00 PM
trans-1,2-Dichloroethene	ND	1.00		µg/L	1	3/5/2012 8:44:00 PM
Methyl tert-butyl ether (MTBE)	ND	1.00		µg/L	1	3/5/2012 8:44:00 PM
1,1-Dichloroethane	ND	1.00		µg/L	1	3/5/2012 8:44:00 PM
2,2-Dichloropropane	ND	2.00		µg/L	1	3/5/2012 8:44:00 PM
cis-1,2-Dichloroethene	ND	1.00		µg/L	1	3/5/2012 8:44:00 PM
Chloroform	ND	1.00		µg/L	1	3/5/2012 8:44:00 PM
1,1,1-Trichloroethane (TCA)	ND	1.00		µg/L	1	3/5/2012 8:44:00 PM
1,1-Dichloropropene	ND	1.00		µg/L	1	3/5/2012 8:44:00 PM
Carbon tetrachloride	ND	1.00		µg/L	1	3/5/2012 8:44:00 PM
1,2-Dichloroethane	ND	1.00		µg/L	1	3/5/2012 8:44:00 PM
Benzene	ND	1.00		µg/L	1	3/5/2012 8:44:00 PM
Trichloroethene (TCE)	ND	1.00		µg/L	1	3/5/2012 8:44:00 PM
1,2-Dichloropropane	ND	1.00		µg/L	1	3/5/2012 8:44:00 PM
Bromodichloromethane	ND	1.00		µg/L	1	3/5/2012 8:44:00 PM
Dibromomethane	ND	1.00		µg/L	1	3/5/2012 8:44:00 PM
cis-1,3-Dichloropropene	ND	1.00		µg/L	1	3/5/2012 8:44:00 PM
Toluene	ND	1.00		µg/L	1	3/5/2012 8:44:00 PM
trans-1,3-Dichloropropene	ND	1.00		µg/L	1	3/5/2012 8:44:00 PM
1,1,2-Trichloroethane	ND	1.00		µg/L	1	3/5/2012 8:44:00 PM
1,3-Dichloropropane	ND	1.00		µg/L	1	3/5/2012 8:44:00 PM
Tetrachloroethene (PCE)	ND	1.00		µg/L	1	3/5/2012 8:44:00 PM
Dibromochloromethane	ND	1.00		µg/L	1	3/5/2012 8:44:00 PM
1,2-Dibromoethane (EDB)	ND	0.0100		µg/L	1	3/5/2012 8:44:00 PM
Chlorobenzene	ND	1.00		µg/L	1	3/5/2012 8:44:00 PM
1,1,1,2-Tetrachloroethane	ND	1.00		µg/L	1	3/5/2012 8:44:00 PM
Ethylbenzene	ND	1.00		µg/L	1	3/5/2012 8:44:00 PM
m,p-Xylene	ND	1.00		µg/L	1	3/5/2012 8:44:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1203024**
Date Reported: **3/6/2012**

Client: GeoEngineers
Project: New Zealand
Lab ID: 1203024-001
Client Sample ID: MW14-1

Collection Date: 3/5/2012 12:45:00 PM
Matrix: Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: R3562		Analyst: PH
o-Xylene	ND	1.00		µg/L	1	3/5/2012 8:44:00 PM
Styrene	ND	1.00		µg/L	1	3/5/2012 8:44:00 PM
Isopropylbenzene	ND	1.00		µg/L	1	3/5/2012 8:44:00 PM
Bromoform	ND	1.00		µg/L	1	3/5/2012 8:44:00 PM
1,1,2,2-Tetrachloroethane	ND	1.00		µg/L	1	3/5/2012 8:44:00 PM
n-Propylbenzene	ND	1.00		µg/L	1	3/5/2012 8:44:00 PM
Bromobenzene	ND	1.00		µg/L	1	3/5/2012 8:44:00 PM
1,3,5-Trimethylbenzene	ND	1.00		µg/L	1	3/5/2012 8:44:00 PM
2-Chlorotoluene	ND	1.00		µg/L	1	3/5/2012 8:44:00 PM
4-Chlorotoluene	ND	1.00		µg/L	1	3/5/2012 8:44:00 PM
tert-Butylbenzene	ND	1.00		µg/L	1	3/5/2012 8:44:00 PM
1,2,3-Trichloropropane	ND	1.00		µg/L	1	3/5/2012 8:44:00 PM
1,2,4-Trichlorobenzene	ND	2.00		µg/L	1	3/5/2012 8:44:00 PM
sec-Butylbenzene	ND	1.00		µg/L	1	3/5/2012 8:44:00 PM
4-Isopropyltoluene	ND	1.00		µg/L	1	3/5/2012 8:44:00 PM
1,3-Dichlorobenzene	ND	1.00		µg/L	1	3/5/2012 8:44:00 PM
1,4-Dichlorobenzene	ND	1.00		µg/L	1	3/5/2012 8:44:00 PM
n-Butylbenzene	ND	1.00		µg/L	1	3/5/2012 8:44:00 PM
1,2-Dichlorobenzene	ND	1.00		µg/L	1	3/5/2012 8:44:00 PM
1,2-Dibromo-3-chloropropane	ND	1.00		µg/L	1	3/5/2012 8:44:00 PM
1,2,4-Trimethylbenzene	ND	1.00		µg/L	1	3/5/2012 8:44:00 PM
Hexachlorobutadiene	ND	4.00		µg/L	1	3/5/2012 8:44:00 PM
Naphthalene	ND	1.00		µg/L	1	3/5/2012 8:44:00 PM
1,2,3-Trichlorobenzene	ND	4.00		µg/L	1	3/5/2012 8:44:00 PM
Surr: 1-Bromo-4-fluorobenzene	96.8	79.2-120		%REC	1	3/5/2012 8:44:00 PM
Surr: Dibromofluoromethane	93.4	76-114		%REC	1	3/5/2012 8:44:00 PM
Surr: Toluene-d8	106	86.8-119		%REC	1	3/5/2012 8:44:00 PM
Dissolved Metals by EPA Method 200.8				Batch ID: 1997		Analyst: MC
Arsenic	10.1	1.00		µg/L	1	3/5/2012 6:10:34 PM
Barium	131	0.500		µg/L	1	3/5/2012 6:10:34 PM
Cadmium	ND	0.200		µg/L	1	3/5/2012 6:10:34 PM
Chromium	9.59	0.500		µg/L	1	3/5/2012 6:10:34 PM
Lead	ND	1.00		µg/L	1	3/5/2012 6:10:34 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1203024**
Date Reported: **3/6/2012**

Client: GeoEngineers
Collection Date: 3/5/2012 12:45:00 PM
Project: New Zealand
Lab ID: 1203024-001
Matrix: Water
Client Sample ID: MW14-1

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dissolved Metals by EPA Method 200.8				Batch ID: 1997		Analyst: MC
Selenium	3.50	1.00		µg/L	1	3/5/2012 6:10:34 PM
Silver	ND	0.200		µg/L	1	3/5/2012 6:10:34 PM
Dissolved Mercury by EPA Method 245.1				Batch ID: 2004		Analyst: MC
Mercury	ND	0.100		µg/L	1	3/6/2012 2:28:16 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1203024**
Date Reported: **3/6/2012**

Client: GeoEngineers
Collection Date: 3/5/2012 3:00:00 PM
Project: New Zealand
Lab ID: 1203024-002
Matrix: Water
Client Sample ID: MW20-1

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 2001		Analyst: EM
Diesel (Fuel Oil)	ND	50.0		µg/L	1	3/6/2012 12:35:00 AM
Heavy Oil	ND	100		µg/L	1	3/6/2012 12:35:00 AM
Surr: 2-Fluorobiphenyl	97.2	59-137		%REC	1	3/6/2012 12:35:00 AM
Surr: o-Terphenyl	93.5	55.5-139		%REC	1	3/6/2012 12:35:00 AM
Gasoline by NWTPH-Gx				Batch ID: R3557		Analyst: PH
Gasoline	ND	50.0		µg/L	1	3/5/2012 7:39:00 PM
Surr: 1,4-Difluorobenzene	114	65-135		%REC	1	3/5/2012 7:39:00 PM
Surr: 4-Bromofluorobenzene	103	65-135		%REC	1	3/5/2012 7:39:00 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 1993		Analyst: SG
Naphthalene	ND	0.100		µg/L	1	3/5/2012 7:47:00 PM
2-Methylnaphthalene	ND	0.100		µg/L	1	3/5/2012 7:47:00 PM
1-Methylnaphthalene	ND	0.100		µg/L	1	3/5/2012 7:47:00 PM
Acenaphthylene	ND	0.100		µg/L	1	3/5/2012 7:47:00 PM
Acenaphthene	ND	0.100		µg/L	1	3/5/2012 7:47:00 PM
Fluorene	ND	0.100		µg/L	1	3/5/2012 7:47:00 PM
Phenanthrene	ND	0.100		µg/L	1	3/5/2012 7:47:00 PM
Anthracene	ND	0.100		µg/L	1	3/5/2012 7:47:00 PM
Fluoranthene	ND	0.100		µg/L	1	3/5/2012 7:47:00 PM
Pyrene	ND	0.100		µg/L	1	3/5/2012 7:47:00 PM
Benz(a)anthracene	ND	0.100		µg/L	1	3/5/2012 7:47:00 PM
Chrysene	ND	0.100		µg/L	1	3/5/2012 7:47:00 PM
Benzo(b)fluoranthene	ND	0.100		µg/L	1	3/5/2012 7:47:00 PM
Benzo(k)fluoranthene	ND	0.100		µg/L	1	3/5/2012 7:47:00 PM
Benzo(a)pyrene	ND	0.100		µg/L	1	3/5/2012 7:47:00 PM
Indeno(1,2,3-cd)pyrene	ND	0.100		µg/L	1	3/5/2012 7:47:00 PM
Dibenz(a,h)anthracene	ND	0.100		µg/L	1	3/5/2012 7:47:00 PM
Benzo(g,h,i)perylene	ND	0.100		µg/L	1	3/5/2012 7:47:00 PM
Surr: 2-Fluorobiphenyl	134	50.1-148	[RA]	%REC	1	3/6/2012 1:47:00 PM
Surr: Terphenyl-d14 (surr)	136	79.9-155		%REC	1	3/5/2012 7:47:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1203024**
Date Reported: **3/6/2012**

Client: GeoEngineers
Project: New Zealand
Lab ID: 1203024-002
Client Sample ID: MW20-1

Collection Date: 3/5/2012 3:00:00 PM
Matrix: Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: R3562		Analyst: PH
Dichlorodifluoromethane (CFC-12)	ND	1.00		µg/L	1	3/5/2012 9:46:00 PM
Chloromethane	ND	1.00		µg/L	1	3/5/2012 9:46:00 PM
Vinyl chloride	ND	0.200		µg/L	1	3/5/2012 9:46:00 PM
Bromomethane	ND	1.00		µg/L	1	3/5/2012 9:46:00 PM
Trichlorofluoromethane (CFC-11)	ND	1.00		µg/L	1	3/5/2012 9:46:00 PM
Chloroethane	ND	1.00		µg/L	1	3/5/2012 9:46:00 PM
1,1-Dichloroethene	ND	1.00		µg/L	1	3/5/2012 9:46:00 PM
Methylene chloride	ND	1.00		µg/L	1	3/5/2012 9:46:00 PM
trans-1,2-Dichloroethene	ND	1.00		µg/L	1	3/5/2012 9:46:00 PM
Methyl tert-butyl ether (MTBE)	ND	1.00		µg/L	1	3/5/2012 9:46:00 PM
1,1-Dichloroethane	ND	1.00		µg/L	1	3/5/2012 9:46:00 PM
2,2-Dichloropropane	ND	2.00		µg/L	1	3/5/2012 9:46:00 PM
cis-1,2-Dichloroethene	ND	1.00		µg/L	1	3/5/2012 9:46:00 PM
Chloroform	ND	1.00		µg/L	1	3/5/2012 9:46:00 PM
1,1,1-Trichloroethane (TCA)	ND	1.00		µg/L	1	3/5/2012 9:46:00 PM
1,1-Dichloropropene	ND	1.00		µg/L	1	3/5/2012 9:46:00 PM
Carbon tetrachloride	ND	1.00		µg/L	1	3/5/2012 9:46:00 PM
1,2-Dichloroethane	ND	1.00		µg/L	1	3/5/2012 9:46:00 PM
Benzene	ND	1.00		µg/L	1	3/5/2012 9:46:00 PM
Trichloroethene (TCE)	ND	1.00		µg/L	1	3/5/2012 9:46:00 PM
1,2-Dichloropropane	ND	1.00		µg/L	1	3/5/2012 9:46:00 PM
Bromodichloromethane	ND	1.00		µg/L	1	3/5/2012 9:46:00 PM
Dibromomethane	ND	1.00		µg/L	1	3/5/2012 9:46:00 PM
cis-1,3-Dichloropropene	ND	1.00		µg/L	1	3/5/2012 9:46:00 PM
Toluene	ND	1.00		µg/L	1	3/5/2012 9:46:00 PM
trans-1,3-Dichloropropene	ND	1.00		µg/L	1	3/5/2012 9:46:00 PM
1,1,2-Trichloroethane	ND	1.00		µg/L	1	3/5/2012 9:46:00 PM
1,3-Dichloropropane	ND	1.00		µg/L	1	3/5/2012 9:46:00 PM
Tetrachloroethene (PCE)	ND	1.00		µg/L	1	3/5/2012 9:46:00 PM
Dibromochloromethane	ND	1.00		µg/L	1	3/5/2012 9:46:00 PM
1,2-Dibromoethane (EDB)	ND	0.0100		µg/L	1	3/5/2012 9:46:00 PM
Chlorobenzene	ND	1.00		µg/L	1	3/5/2012 9:46:00 PM
1,1,1,2-Tetrachloroethane	ND	1.00		µg/L	1	3/5/2012 9:46:00 PM
Ethylbenzene	ND	1.00		µg/L	1	3/5/2012 9:46:00 PM
m,p-Xylene	ND	1.00		µg/L	1	3/5/2012 9:46:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1203024**
Date Reported: **3/6/2012**

Client: GeoEngineers
Project: New Zealand
Lab ID: 1203024-002
Client Sample ID: MW20-1

Collection Date: 3/5/2012 3:00:00 PM
Matrix: Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: R3562		Analyst: PH
o-Xylene	ND	1.00		µg/L	1	3/5/2012 9:46:00 PM
Styrene	ND	1.00		µg/L	1	3/5/2012 9:46:00 PM
Isopropylbenzene	ND	1.00		µg/L	1	3/5/2012 9:46:00 PM
Bromoform	ND	1.00		µg/L	1	3/5/2012 9:46:00 PM
1,1,2,2-Tetrachloroethane	ND	1.00		µg/L	1	3/5/2012 9:46:00 PM
n-Propylbenzene	ND	1.00		µg/L	1	3/5/2012 9:46:00 PM
Bromobenzene	ND	1.00		µg/L	1	3/5/2012 9:46:00 PM
1,3,5-Trimethylbenzene	ND	1.00		µg/L	1	3/5/2012 9:46:00 PM
2-Chlorotoluene	ND	1.00		µg/L	1	3/5/2012 9:46:00 PM
4-Chlorotoluene	ND	1.00		µg/L	1	3/5/2012 9:46:00 PM
tert-Butylbenzene	ND	1.00		µg/L	1	3/5/2012 9:46:00 PM
1,2,3-Trichloropropane	ND	1.00		µg/L	1	3/5/2012 9:46:00 PM
1,2,4-Trichlorobenzene	ND	2.00		µg/L	1	3/5/2012 9:46:00 PM
sec-Butylbenzene	ND	1.00		µg/L	1	3/5/2012 9:46:00 PM
4-Isopropyltoluene	ND	1.00		µg/L	1	3/5/2012 9:46:00 PM
1,3-Dichlorobenzene	ND	1.00		µg/L	1	3/5/2012 9:46:00 PM
1,4-Dichlorobenzene	ND	1.00		µg/L	1	3/5/2012 9:46:00 PM
n-Butylbenzene	ND	1.00		µg/L	1	3/5/2012 9:46:00 PM
1,2-Dichlorobenzene	ND	1.00		µg/L	1	3/5/2012 9:46:00 PM
1,2-Dibromo-3-chloropropane	ND	1.00		µg/L	1	3/5/2012 9:46:00 PM
1,2,4-Trimethylbenzene	ND	1.00		µg/L	1	3/5/2012 9:46:00 PM
Hexachlorobutadiene	ND	4.00		µg/L	1	3/5/2012 9:46:00 PM
Naphthalene	ND	1.00		µg/L	1	3/5/2012 9:46:00 PM
1,2,3-Trichlorobenzene	ND	4.00		µg/L	1	3/5/2012 9:46:00 PM
Surr: 1-Bromo-4-fluorobenzene	100	79.2-120		%REC	1	3/5/2012 9:46:00 PM
Surr: Dibromofluoromethane	95.3	76-114		%REC	1	3/5/2012 9:46:00 PM
Surr: Toluene-d8	104	86.8-119		%REC	1	3/5/2012 9:46:00 PM
Dissolved Metals by EPA Method 200.8				Batch ID: 1997		Analyst: MC
Arsenic	2.66	1.00		µg/L	1	3/5/2012 6:46:34 PM
Barium	58.9	0.500		µg/L	1	3/5/2012 6:46:34 PM
Cadmium	0.204	0.200		µg/L	1	3/5/2012 6:46:34 PM
Chromium	7.27	0.500		µg/L	1	3/5/2012 6:46:34 PM
Lead	ND	1.00		µg/L	1	3/5/2012 6:46:34 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1203024**
Date Reported: **3/6/2012**

Client: GeoEngineers
Collection Date: 3/5/2012 3:00:00 PM
Project: New Zealand
Lab ID: 1203024-002
Matrix: Water
Client Sample ID: MW20-1

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dissolved Metals by EPA Method 200.8				Batch ID: 1997		Analyst: MC
Selenium	3.44	1.00		µg/L	1	3/5/2012 6:46:34 PM
Silver	2.40	0.200		µg/L	1	3/5/2012 6:46:34 PM
Dissolved Mercury by EPA Method 245.1				Batch ID: 2004		Analyst: MC
Mercury	ND	0.100		µg/L	1	3/6/2012 2:40:02 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1203024**
Date Reported: **3/6/2012**

Client: GeoEngineers
Collection Date: 3/5/2012 10:30:00 AM
Project: New Zealand
Lab ID: 1203024-003
Matrix: Water
Client Sample ID: MW20-2

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 2001		Analyst: EM
Diesel (Fuel Oil)	ND	50.0		µg/L	1	3/6/2012 1:02:00 AM
Heavy Oil	ND	100		µg/L	1	3/6/2012 1:02:00 AM
Surr: 2-Fluorobiphenyl	102	59-137		%REC	1	3/6/2012 1:02:00 AM
Surr: o-Terphenyl	96.6	55.5-139		%REC	1	3/6/2012 1:02:00 AM
Gasoline by NWTPH-Gx				Batch ID: R3557		Analyst: PH
Gasoline	ND	50.0		µg/L	1	3/5/2012 8:09:00 PM
Surr: 1,4-Difluorobenzene	120	65-135		%REC	1	3/5/2012 8:09:00 PM
Surr: 4-Bromofluorobenzene	104	65-135		%REC	1	3/5/2012 8:09:00 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 1993		Analyst: SG
Naphthalene	ND	0.100		µg/L	1	3/5/2012 8:12:00 PM
2-Methylnaphthalene	ND	0.100		µg/L	1	3/5/2012 8:12:00 PM
1-Methylnaphthalene	ND	0.100		µg/L	1	3/5/2012 8:12:00 PM
Acenaphthylene	ND	0.100		µg/L	1	3/5/2012 8:12:00 PM
Acenaphthene	ND	0.100		µg/L	1	3/5/2012 8:12:00 PM
Fluorene	ND	0.100		µg/L	1	3/5/2012 8:12:00 PM
Phenanthrene	ND	0.100		µg/L	1	3/5/2012 8:12:00 PM
Anthracene	ND	0.100		µg/L	1	3/5/2012 8:12:00 PM
Fluoranthene	ND	0.100		µg/L	1	3/5/2012 8:12:00 PM
Pyrene	ND	0.100		µg/L	1	3/5/2012 8:12:00 PM
Benz(a)anthracene	ND	0.100		µg/L	1	3/5/2012 8:12:00 PM
Chrysene	ND	0.100		µg/L	1	3/5/2012 8:12:00 PM
Benzo(b)fluoranthene	ND	0.100		µg/L	1	3/5/2012 8:12:00 PM
Benzo(k)fluoranthene	ND	0.100		µg/L	1	3/5/2012 8:12:00 PM
Benzo(a)pyrene	ND	0.100		µg/L	1	3/5/2012 8:12:00 PM
Indeno(1,2,3-cd)pyrene	ND	0.100		µg/L	1	3/5/2012 8:12:00 PM
Dibenz(a,h)anthracene	ND	0.100		µg/L	1	3/5/2012 8:12:00 PM
Benzo(g,h,i)perylene	ND	0.100		µg/L	1	3/5/2012 8:12:00 PM
Surr: 2-Fluorobiphenyl	82.9	50.1-148	[RA]	%REC	1	3/6/2012 12:47:00 PM
Surr: Terphenyl-d14 (surr)	132	79.9-155		%REC	1	3/5/2012 8:12:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1203024**
Date Reported: **3/6/2012**

Client: GeoEngineers
Project: New Zealand
Lab ID: 1203024-003
Client Sample ID: MW20-2

Collection Date: 3/5/2012 10:30:00 AM
Matrix: Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: R3562		Analyst: PH
Dichlorodifluoromethane (CFC-12)	ND	1.00		µg/L	1	3/5/2012 10:17:00 PM
Chloromethane	ND	1.00		µg/L	1	3/5/2012 10:17:00 PM
Vinyl chloride	ND	0.200		µg/L	1	3/5/2012 10:17:00 PM
Bromomethane	ND	1.00		µg/L	1	3/5/2012 10:17:00 PM
Trichlorofluoromethane (CFC-11)	ND	1.00		µg/L	1	3/5/2012 10:17:00 PM
Chloroethane	ND	1.00		µg/L	1	3/5/2012 10:17:00 PM
1,1-Dichloroethene	ND	1.00		µg/L	1	3/5/2012 10:17:00 PM
Methylene chloride	ND	1.00		µg/L	1	3/5/2012 10:17:00 PM
trans-1,2-Dichloroethene	ND	1.00		µg/L	1	3/5/2012 10:17:00 PM
Methyl tert-butyl ether (MTBE)	ND	1.00		µg/L	1	3/5/2012 10:17:00 PM
1,1-Dichloroethane	ND	1.00		µg/L	1	3/5/2012 10:17:00 PM
2,2-Dichloropropane	ND	2.00		µg/L	1	3/5/2012 10:17:00 PM
cis-1,2-Dichloroethene	ND	1.00		µg/L	1	3/5/2012 10:17:00 PM
Chloroform	ND	1.00		µg/L	1	3/5/2012 10:17:00 PM
1,1,1-Trichloroethane (TCA)	ND	1.00		µg/L	1	3/5/2012 10:17:00 PM
1,1-Dichloropropene	ND	1.00		µg/L	1	3/5/2012 10:17:00 PM
Carbon tetrachloride	ND	1.00		µg/L	1	3/5/2012 10:17:00 PM
1,2-Dichloroethane	ND	1.00		µg/L	1	3/5/2012 10:17:00 PM
Benzene	ND	1.00		µg/L	1	3/5/2012 10:17:00 PM
Trichloroethene (TCE)	ND	1.00		µg/L	1	3/5/2012 10:17:00 PM
1,2-Dichloropropane	ND	1.00		µg/L	1	3/5/2012 10:17:00 PM
Bromodichloromethane	ND	1.00		µg/L	1	3/5/2012 10:17:00 PM
Dibromomethane	ND	1.00		µg/L	1	3/5/2012 10:17:00 PM
cis-1,3-Dichloropropene	ND	1.00		µg/L	1	3/5/2012 10:17:00 PM
Toluene	ND	1.00		µg/L	1	3/5/2012 10:17:00 PM
trans-1,3-Dichloropropene	ND	1.00		µg/L	1	3/5/2012 10:17:00 PM
1,1,2-Trichloroethane	ND	1.00		µg/L	1	3/5/2012 10:17:00 PM
1,3-Dichloropropane	ND	1.00		µg/L	1	3/5/2012 10:17:00 PM
Tetrachloroethene (PCE)	ND	1.00		µg/L	1	3/5/2012 10:17:00 PM
Dibromochloromethane	ND	1.00		µg/L	1	3/5/2012 10:17:00 PM
1,2-Dibromoethane (EDB)	ND	0.0100		µg/L	1	3/5/2012 10:17:00 PM
Chlorobenzene	ND	1.00		µg/L	1	3/5/2012 10:17:00 PM
1,1,1,2-Tetrachloroethane	ND	1.00		µg/L	1	3/5/2012 10:17:00 PM
Ethylbenzene	ND	1.00		µg/L	1	3/5/2012 10:17:00 PM
m,p-Xylene	ND	1.00		µg/L	1	3/5/2012 10:17:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1203024**
Date Reported: **3/6/2012**

Client: GeoEngineers
Collection Date: 3/5/2012 10:30:00 AM
Project: New Zealand
Lab ID: 1203024-003
Matrix: Water
Client Sample ID: MW20-2

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: R3562		Analyst: PH
o-Xylene	ND	1.00		µg/L	1	3/5/2012 10:17:00 PM
Styrene	ND	1.00		µg/L	1	3/5/2012 10:17:00 PM
Isopropylbenzene	ND	1.00		µg/L	1	3/5/2012 10:17:00 PM
Bromoform	ND	1.00		µg/L	1	3/5/2012 10:17:00 PM
1,1,2,2-Tetrachloroethane	ND	1.00		µg/L	1	3/5/2012 10:17:00 PM
n-Propylbenzene	ND	1.00		µg/L	1	3/5/2012 10:17:00 PM
Bromobenzene	ND	1.00		µg/L	1	3/5/2012 10:17:00 PM
1,3,5-Trimethylbenzene	ND	1.00		µg/L	1	3/5/2012 10:17:00 PM
2-Chlorotoluene	ND	1.00		µg/L	1	3/5/2012 10:17:00 PM
4-Chlorotoluene	ND	1.00		µg/L	1	3/5/2012 10:17:00 PM
tert-Butylbenzene	ND	1.00		µg/L	1	3/5/2012 10:17:00 PM
1,2,3-Trichloropropane	ND	1.00		µg/L	1	3/5/2012 10:17:00 PM
1,2,4-Trichlorobenzene	ND	2.00		µg/L	1	3/5/2012 10:17:00 PM
sec-Butylbenzene	ND	1.00		µg/L	1	3/5/2012 10:17:00 PM
4-Isopropyltoluene	ND	1.00		µg/L	1	3/5/2012 10:17:00 PM
1,3-Dichlorobenzene	ND	1.00		µg/L	1	3/5/2012 10:17:00 PM
1,4-Dichlorobenzene	ND	1.00		µg/L	1	3/5/2012 10:17:00 PM
n-Butylbenzene	ND	1.00		µg/L	1	3/5/2012 10:17:00 PM
1,2-Dichlorobenzene	ND	1.00		µg/L	1	3/5/2012 10:17:00 PM
1,2-Dibromo-3-chloropropane	ND	1.00		µg/L	1	3/5/2012 10:17:00 PM
1,2,4-Trimethylbenzene	ND	1.00		µg/L	1	3/5/2012 10:17:00 PM
Hexachlorobutadiene	ND	4.00		µg/L	1	3/5/2012 10:17:00 PM
Naphthalene	ND	1.00		µg/L	1	3/5/2012 10:17:00 PM
1,2,3-Trichlorobenzene	ND	4.00		µg/L	1	3/5/2012 10:17:00 PM
Surr: 1-Bromo-4-fluorobenzene	96.3	79.2-120		%REC	1	3/5/2012 10:17:00 PM
Surr: Dibromofluoromethane	94.5	76-114		%REC	1	3/5/2012 10:17:00 PM
Surr: Toluene-d8	108	86.8-119		%REC	1	3/5/2012 10:17:00 PM
Dissolved Metals by EPA Method 200.8				Batch ID: 1997		Analyst: MC
Arsenic	3.80	1.00		µg/L	1	3/5/2012 6:55:33 PM
Barium	140	0.500		µg/L	1	3/5/2012 6:55:33 PM
Cadmium	0.252	0.200		µg/L	1	3/5/2012 6:55:33 PM
Chromium	13.6	0.500		µg/L	1	3/5/2012 6:55:33 PM
Lead	ND	1.00		µg/L	1	3/5/2012 6:55:33 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1203024**
Date Reported: **3/6/2012**

Client: GeoEngineers
Collection Date: 3/5/2012 10:30:00 AM
Project: New Zealand
Lab ID: 1203024-003
Matrix: Water
Client Sample ID: MW20-2

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dissolved Metals by EPA Method 200.8				Batch ID: 1997		Analyst: MC
Selenium	9.47	1.00		µg/L	1	3/5/2012 6:55:33 PM
Silver	0.482	0.200		µg/L	1	3/5/2012 6:55:33 PM
Dissolved Mercury by EPA Method 245.1				Batch ID: 2004		Analyst: MC
Mercury	ND	0.100		µg/L	1	3/6/2012 2:42:57 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1203024**
Date Reported: **3/6/2012**

Client: GeoEngineers
Project: New Zealand
Lab ID: 1203024-004
Client Sample ID: MW20-3

Collection Date: 3/5/2012 9:30:00 AM
Matrix: Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 2001		Analyst: EM
Diesel (Fuel Oil)	ND	50.0		µg/L	1	3/6/2012 1:30:00 AM
Heavy Oil	ND	100		µg/L	1	3/6/2012 1:30:00 AM
Surr: 2-Fluorobiphenyl	93.9	59-137		%REC	1	3/6/2012 1:30:00 AM
Surr: o-Terphenyl	89.0	55.5-139		%REC	1	3/6/2012 1:30:00 AM
Gasoline by NWTPH-Gx				Batch ID: R3557		Analyst: PH
Gasoline	ND	50.0		µg/L	1	3/5/2012 8:39:00 PM
Surr: 1,4-Difluorobenzene	109	65-135		%REC	1	3/5/2012 8:39:00 PM
Surr: 4-Bromofluorobenzene	104	65-135		%REC	1	3/5/2012 8:39:00 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 1993		Analyst: SG
Naphthalene	ND	0.100		µg/L	1	3/5/2012 8:36:00 PM
2-Methylnaphthalene	ND	0.100		µg/L	1	3/5/2012 8:36:00 PM
1-Methylnaphthalene	ND	0.100		µg/L	1	3/5/2012 8:36:00 PM
Acenaphthylene	ND	0.100		µg/L	1	3/5/2012 8:36:00 PM
Acenaphthene	ND	0.100		µg/L	1	3/5/2012 8:36:00 PM
Fluorene	ND	0.100		µg/L	1	3/5/2012 8:36:00 PM
Phenanthrene	ND	0.100		µg/L	1	3/5/2012 8:36:00 PM
Anthracene	ND	0.100		µg/L	1	3/5/2012 8:36:00 PM
Fluoranthene	ND	0.100		µg/L	1	3/5/2012 8:36:00 PM
Pyrene	ND	0.100		µg/L	1	3/5/2012 8:36:00 PM
Benz(a)anthracene	ND	0.100		µg/L	1	3/5/2012 8:36:00 PM
Chrysene	ND	0.100		µg/L	1	3/5/2012 8:36:00 PM
Benzo(b)fluoranthene	ND	0.100		µg/L	1	3/5/2012 8:36:00 PM
Benzo(k)fluoranthene	ND	0.100		µg/L	1	3/5/2012 8:36:00 PM
Benzo(a)pyrene	ND	0.100		µg/L	1	3/5/2012 8:36:00 PM
Indeno(1,2,3-cd)pyrene	ND	0.100		µg/L	1	3/5/2012 8:36:00 PM
Dibenz(a,h)anthracene	ND	0.100		µg/L	1	3/5/2012 8:36:00 PM
Benzo(g,h,i)perylene	ND	0.100		µg/L	1	3/5/2012 8:36:00 PM
Surr: 2-Fluorobiphenyl	144	50.1-148		%REC	1	3/5/2012 8:36:00 PM
Surr: Terphenyl-d14 (surr)	139	79.9-155		%REC	1	3/5/2012 8:36:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1203024**
Date Reported: **3/6/2012**

Client: GeoEngineers
Project: New Zealand
Lab ID: 1203024-004
Client Sample ID: MW20-3

Collection Date: 3/5/2012 9:30:00 AM
Matrix: Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: R3562		Analyst: PH
Dichlorodifluoromethane (CFC-12)	ND	1.00		µg/L	1	3/5/2012 10:48:00 PM
Chloromethane	ND	1.00		µg/L	1	3/5/2012 10:48:00 PM
Vinyl chloride	ND	0.200		µg/L	1	3/5/2012 10:48:00 PM
Bromomethane	ND	1.00		µg/L	1	3/5/2012 10:48:00 PM
Trichlorofluoromethane (CFC-11)	ND	1.00		µg/L	1	3/5/2012 10:48:00 PM
Chloroethane	ND	1.00		µg/L	1	3/5/2012 10:48:00 PM
1,1-Dichloroethene	ND	1.00		µg/L	1	3/5/2012 10:48:00 PM
Methylene chloride	ND	1.00		µg/L	1	3/5/2012 10:48:00 PM
trans-1,2-Dichloroethene	ND	1.00		µg/L	1	3/5/2012 10:48:00 PM
Methyl tert-butyl ether (MTBE)	ND	1.00		µg/L	1	3/5/2012 10:48:00 PM
1,1-Dichloroethane	ND	1.00		µg/L	1	3/5/2012 10:48:00 PM
2,2-Dichloropropane	ND	2.00		µg/L	1	3/5/2012 10:48:00 PM
cis-1,2-Dichloroethene	ND	1.00		µg/L	1	3/5/2012 10:48:00 PM
Chloroform	ND	1.00		µg/L	1	3/5/2012 10:48:00 PM
1,1,1-Trichloroethane (TCA)	ND	1.00		µg/L	1	3/5/2012 10:48:00 PM
1,1-Dichloropropene	ND	1.00		µg/L	1	3/5/2012 10:48:00 PM
Carbon tetrachloride	ND	1.00		µg/L	1	3/5/2012 10:48:00 PM
1,2-Dichloroethane	ND	1.00		µg/L	1	3/5/2012 10:48:00 PM
Benzene	ND	1.00		µg/L	1	3/5/2012 10:48:00 PM
Trichloroethene (TCE)	ND	1.00		µg/L	1	3/5/2012 10:48:00 PM
1,2-Dichloropropane	ND	1.00		µg/L	1	3/5/2012 10:48:00 PM
Bromodichloromethane	ND	1.00		µg/L	1	3/5/2012 10:48:00 PM
Dibromomethane	ND	1.00		µg/L	1	3/5/2012 10:48:00 PM
cis-1,3-Dichloropropene	ND	1.00		µg/L	1	3/5/2012 10:48:00 PM
Toluene	ND	1.00		µg/L	1	3/5/2012 10:48:00 PM
trans-1,3-Dichloropropene	ND	1.00		µg/L	1	3/5/2012 10:48:00 PM
1,1,2-Trichloroethane	ND	1.00		µg/L	1	3/5/2012 10:48:00 PM
1,3-Dichloropropane	ND	1.00		µg/L	1	3/5/2012 10:48:00 PM
Tetrachloroethene (PCE)	ND	1.00		µg/L	1	3/5/2012 10:48:00 PM
Dibromochloromethane	ND	1.00		µg/L	1	3/5/2012 10:48:00 PM
1,2-Dibromoethane (EDB)	ND	0.0100		µg/L	1	3/5/2012 10:48:00 PM
Chlorobenzene	ND	1.00		µg/L	1	3/5/2012 10:48:00 PM
1,1,1,2-Tetrachloroethane	ND	1.00		µg/L	1	3/5/2012 10:48:00 PM
Ethylbenzene	ND	1.00		µg/L	1	3/5/2012 10:48:00 PM
m,p-Xylene	ND	1.00		µg/L	1	3/5/2012 10:48:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1203024**
Date Reported: **3/6/2012**

Client: GeoEngineers
Collection Date: 3/5/2012 9:30:00 AM
Project: New Zealand
Lab ID: 1203024-004
Matrix: Water
Client Sample ID: MW20-3

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: R3562		Analyst: PH
o-Xylene	ND	1.00		µg/L	1	3/5/2012 10:48:00 PM
Styrene	ND	1.00		µg/L	1	3/5/2012 10:48:00 PM
Isopropylbenzene	ND	1.00		µg/L	1	3/5/2012 10:48:00 PM
Bromoform	ND	1.00		µg/L	1	3/5/2012 10:48:00 PM
1,1,2,2-Tetrachloroethane	ND	1.00		µg/L	1	3/5/2012 10:48:00 PM
n-Propylbenzene	ND	1.00		µg/L	1	3/5/2012 10:48:00 PM
Bromobenzene	ND	1.00		µg/L	1	3/5/2012 10:48:00 PM
1,3,5-Trimethylbenzene	ND	1.00		µg/L	1	3/5/2012 10:48:00 PM
2-Chlorotoluene	ND	1.00		µg/L	1	3/5/2012 10:48:00 PM
4-Chlorotoluene	ND	1.00		µg/L	1	3/5/2012 10:48:00 PM
tert-Butylbenzene	ND	1.00		µg/L	1	3/5/2012 10:48:00 PM
1,2,3-Trichloropropane	ND	1.00		µg/L	1	3/5/2012 10:48:00 PM
1,2,4-Trichlorobenzene	ND	2.00		µg/L	1	3/5/2012 10:48:00 PM
sec-Butylbenzene	ND	1.00		µg/L	1	3/5/2012 10:48:00 PM
4-Isopropyltoluene	ND	1.00		µg/L	1	3/5/2012 10:48:00 PM
1,3-Dichlorobenzene	ND	1.00		µg/L	1	3/5/2012 10:48:00 PM
1,4-Dichlorobenzene	ND	1.00		µg/L	1	3/5/2012 10:48:00 PM
n-Butylbenzene	ND	1.00		µg/L	1	3/5/2012 10:48:00 PM
1,2-Dichlorobenzene	ND	1.00		µg/L	1	3/5/2012 10:48:00 PM
1,2-Dibromo-3-chloropropane	ND	1.00		µg/L	1	3/5/2012 10:48:00 PM
1,2,4-Trimethylbenzene	ND	1.00		µg/L	1	3/5/2012 10:48:00 PM
Hexachlorobutadiene	ND	4.00		µg/L	1	3/5/2012 10:48:00 PM
Naphthalene	ND	1.00		µg/L	1	3/5/2012 10:48:00 PM
1,2,3-Trichlorobenzene	ND	4.00		µg/L	1	3/5/2012 10:48:00 PM
Surr: 1-Bromo-4-fluorobenzene	98.5	79.2-120		%REC	1	3/5/2012 10:48:00 PM
Surr: Dibromofluoromethane	94.0	76-114		%REC	1	3/5/2012 10:48:00 PM
Surr: Toluene-d8	105	86.8-119		%REC	1	3/5/2012 10:48:00 PM
Dissolved Metals by EPA Method 200.8				Batch ID: 1997		Analyst: MC
Arsenic	2.25	1.00		µg/L	1	3/5/2012 7:04:33 PM
Barium	132	0.500		µg/L	1	3/5/2012 7:04:33 PM
Cadmium	0.223	0.200		µg/L	1	3/5/2012 7:04:33 PM
Chromium	9.22	0.500		µg/L	1	3/5/2012 7:04:33 PM
Lead	ND	1.00		µg/L	1	3/5/2012 7:04:33 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1203024**
Date Reported: **3/6/2012**

Client: GeoEngineers
Collection Date: 3/5/2012 9:30:00 AM
Project: New Zealand
Lab ID: 1203024-004
Matrix: Water
Client Sample ID: MW20-3

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dissolved Metals by EPA Method 200.8				Batch ID: 1997		Analyst: MC
Selenium	3.31	1.00		µg/L	1	3/5/2012 7:04:33 PM
Silver	0.244	0.200		µg/L	1	3/5/2012 7:04:33 PM
Dissolved Mercury by EPA Method 245.1				Batch ID: 2004		Analyst: MC
Mercury	ND	0.100		µg/L	1	3/6/2012 2:45:52 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Date: *3/6/2012*

Work Order: 1203024
CLIENT: GeoEngineers
Project: New Zealand

QC SUMMARY REPORT

Dissolved Metals by EPA Method 200.8

Sample ID: **MB-1997** SampType: **MBLK** Units: **µg/L** Prep Date: **3/5/2012** RunNo: **3555**
Client ID: **MBLKW** Batch ID: **1997** Analysis Date: **3/5/2012** SeqNo: **63421**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	1.00									
Barium	ND	0.500									
Cadmium	ND	0.200									
Chromium	ND	0.500									
Lead	ND	1.00									
Selenium	ND	1.00									
Silver	ND	0.200									

Sample ID: **LCS-1997** SampType: **LCS** Units: **µg/L** Prep Date: **3/5/2012** RunNo: **3555**
Client ID: **LCSW** Batch ID: **1997** Analysis Date: **3/5/2012** SeqNo: **63424**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	111	1.00	100.0	0	111	85	115				
Barium	106	0.500	100.0	0	106	85	115				
Cadmium	4.82	0.200	5.000	0	96.5	85	115				
Chromium	99.6	0.500	100.0	0	99.6	85	115				
Lead	52.9	1.00	50.00	0	106	85	115				
Selenium	9.72	1.00	10.00	0	97.2	85	115				
Silver	9.99	0.200	10.00	0	99.9	85	115				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1203024
CLIENT: GeoEngineers
Project: New Zealand

QC SUMMARY REPORT

Dissolved Metals by EPA Method 200.8

Sample ID: **1203024-001DDUP** SampType: **DUP** Units: **µg/L** Prep Date: **3/5/2012** RunNo: **3555**
Client ID: **MW14-1** Batch ID: **1997** Analysis Date: **3/5/2012** SeqNo: **63435**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	9.94	1.00						10.10	1.62	30	
Barium	125	0.500						130.6	4.24	30	
Cadmium	ND	0.200						0	0	30	
Chromium	9.50	0.500						9.590	0.901	30	
Lead	ND	1.00						0	0	30	R
Selenium	3.61	1.00						3.502	3.06	30	
Silver	ND	0.200						0	0	30	

Sample ID: **1203024-001DMS** SampType: **MS** Units: **µg/L** Prep Date: **3/5/2012** RunNo: **3555**
Client ID: **MW14-1** Batch ID: **1997** Analysis Date: **3/5/2012** SeqNo: **63436**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	603	1.00	500.0	10.10	119	70	130				
Cadmium	24.1	0.200	25.00	0.1990	95.6	70	130				
Chromium	501	0.500	500.0	9.590	98.3	70	130				
Lead	252	1.00	250.0	0.1305	101	70	130				
Selenium	56.8	1.00	50.00	3.502	107	70	130				
Silver	19.8	0.200	25.00	0	79.3	70	130				

Sample ID: **1203024-001DMSD** SampType: **MSD** Units: **µg/L** Prep Date: **3/5/2012** RunNo: **3555**
Client ID: **MW14-1** Batch ID: **1997** Analysis Date: **3/5/2012** SeqNo: **63437**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	598	1.00	500.0	10.10	118	70	130	602.6	0.716	30	

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Date: *3/6/2012*

Work Order: 1203024
CLIENT: GeoEngineers
Project: New Zealand

QC SUMMARY REPORT

Dissolved Metals by EPA Method 200.8

Sample ID: **1203024-001DMSD** SampType: **MSD** Units: **µg/L** Prep Date: **3/5/2012** RunNo: **3555**
Client ID: **MW14-1** Batch ID: **1997** Analysis Date: **3/5/2012** SeqNo: **63437**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	24.0	0.200	25.00	0.1990	95.4	70	130	24.09	0.195	30	
Chromium	505	0.500	500.0	9.590	99.0	70	130	501.2	0.694	30	
Lead	249	1.00	250.0	0.1305	99.4	70	130	251.7	1.18	30	
Selenium	57.3	1.00	50.00	3.502	108	70	130	56.83	0.867	30	
Silver	19.8	0.200	25.00	0	79.1	70	130	19.82	0.212	30	

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Date: *3/6/2012*

Work Order: 1203024
CLIENT: GeoEngineers
Project: New Zealand

QC SUMMARY REPORT

Dissolved Mercury by EPA Method 245.1

Sample ID: **MB-2004** SampType: **MBLK** Units: **µg/L** Prep Date: **3/6/2012** RunNo: **3566**
Client ID: **MBLKW** Batch ID: **2004** Analysis Date: **3/6/2012** SeqNo: **63798**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.100									

Sample ID: **LCS-2004** SampType: **LCS** Units: **µg/L** Prep Date: **3/6/2012** RunNo: **3566**
Client ID: **LCSW** Batch ID: **2004** Analysis Date: **3/6/2012** SeqNo: **63799**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	4.76	0.100	5.000	0	95.2	85	115				

Sample ID: **1203024-001DDUP** SampType: **DUP** Units: **µg/L** Prep Date: **3/6/2012** RunNo: **3566**
Client ID: **MW14-1** Batch ID: **2004** Analysis Date: **3/6/2012** SeqNo: **63801**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.100						0	0	20	R

Sample ID: **1203024-001DMS** SampType: **MS** Units: **µg/L** Prep Date: **3/6/2012** RunNo: **3566**
Client ID: **MW14-1** Batch ID: **2004** Analysis Date: **3/6/2012** SeqNo: **63802**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	4.92	0.100	5.000	0.02990	97.8	85	115				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Date: *3/6/2012*

Work Order: 1203024
CLIENT: GeoEngineers
Project: New Zealand

QC SUMMARY REPORT

Dissolved Mercury by EPA Method 245.1

Sample ID: **1203024-001DMSD** SampType: **MSD** Units: **µg/L** Prep Date: **3/6/2012** RunNo: **3566**
Client ID: **MW14-1** Batch ID: **2004** Analysis Date: **3/6/2012** SeqNo: **63803**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	5.02	0.100	5.000	0.02990	99.8	85	115	4.920	2.01	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Fremont Analytical

Date: *3/6/2012*

Work Order: 1203024
CLIENT: GeoEngineers
Project: New Zealand

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID: **1203024-001BDUP** SampType: **DUP** Units: **µg/L** Prep Date: **3/5/2012** RunNo: **3558**
Client ID: **MW14-1** Batch ID: **2001** Analysis Date: **3/6/2012** SeqNo: **63557**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	50.0						0	0	30	
Heavy Oil	ND	100						0	0	30	
Surr: 2-Fluorobiphenyl	72.8		80.00		91.0	59	137		0		
Surr: o-Terphenyl	69.3		80.00		86.6	55.5	139		0		

Sample ID: **LCS-2001** SampType: **LCS** Units: **µg/L** Prep Date: **3/5/2012** RunNo: **3558**
Client ID: **LCSW** Batch ID: **2001** Analysis Date: **3/5/2012** SeqNo: **63563**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	1,920	50.0	2,000	0	96.0	65	135				
Surr: 2-Fluorobiphenyl	63.9		80.00		79.8	59	137				
Surr: o-Terphenyl	79.8		80.00		99.8	55.5	139				

Sample ID: **MB-2001** SampType: **MBLK** Units: **µg/L** Prep Date: **3/5/2012** RunNo: **3558**
Client ID: **MBLKW** Batch ID: **2001** Analysis Date: **3/5/2012** SeqNo: **63564**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	50.0									
Heavy Oil	ND	100									
Surr: 2-Fluorobiphenyl	55.5		80.00		69.4	59	137				
Surr: o-Terphenyl	67.7		80.00		84.6	55.5	139				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Date: *3/6/2012*

Work Order: 1203024
CLIENT: GeoEngineers
Project: New Zealand

QC SUMMARY REPORT

Gasoline by NWTPH-Gx

Sample ID: **MB-R3557**	SampType: **MBLK**	Units: **µg/L**	Prep Date: **3/5/2012**	RunNo: **3557**
Client ID: **MBLKW**	Batch ID: **R3557**		Analysis Date: **3/5/2012**	SeqNo: **63827**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	50.0									
Surr: 1,4-Difluorobenzene	12.0		10.00		120	65	135				
Surr: 4-Bromofluorobenzene	10.6		10.00		106	65	135				

Sample ID: **LCS-R3557**	SampType: **LCS**	Units: **µg/L**	Prep Date: **3/5/2012**	RunNo: **3557**
Client ID: **LCSW**	Batch ID: **R3557**		Analysis Date: **3/5/2012**	SeqNo: **63828**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	511	50.0	500.0	0	102	65	135				
Surr: 1,4-Difluorobenzene	12.0		10.00		120	65	135				
Surr: 4-Bromofluorobenzene	11.9		10.00		119	65	135				

Sample ID: **1203024-004ADUP**	SampType: **DUP**	Units: **µg/L**	Prep Date: **3/5/2012**	RunNo: **3557**
Client ID: **MW20-3**	Batch ID: **R3557**		Analysis Date: **3/5/2012**	SeqNo: **63833**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	50.0						0	0	30	
Surr: 1,4-Difluorobenzene	10.9		10.00		109	65	135		0	0	
Surr: 4-Bromofluorobenzene	10.4		10.00		104	65	135		0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1203024
CLIENT: GeoEngineers
Project: New Zealand

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: **1202160-001CMS** SampType: **MS** Units: **µg/L** Prep Date: **3/5/2012** RunNo: **3553**
Client ID: **BATCH** Batch ID: **1993** Analysis Date: **3/5/2012** SeqNo: **63347**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acenaphthene	1.86	0.100	2.000	0	93.2	46.4	131				
Pyrene	2.40	0.100	2.000	0	120	41.9	150				
Surr: 2-Fluorobiphenyl	2.05		2.000		102	50.1	148				
Surr: Terphenyl-d14 (surr)	2.83		2.000		141	79.9	155				

Sample ID: **LCS-1993** SampType: **LCS** Units: **µg/L** Prep Date: **3/5/2012** RunNo: **3553**
Client ID: **LCSW** Batch ID: **1993** Analysis Date: **3/5/2012** SeqNo: **63350**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acenaphthene	1.74	0.100	2.000	0	87.2	51	135				
Pyrene	2.37	0.100	2.000	0	118	50.5	143				
Surr: 2-Fluorobiphenyl	1.92		2.000		96.2	50.1	148				
Surr: Terphenyl-d14 (surr)	2.68		2.000		134	79.9	155				

Sample ID: **MB-1993** SampType: **MBLK** Units: **µg/L** Prep Date: **3/5/2012** RunNo: **3553**
Client ID: **MBLKW** Batch ID: **1993** Analysis Date: **3/5/2012** SeqNo: **63351**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	0.100									
2-Methylnaphthalene	ND	0.100									
1-Methylnaphthalene	ND	0.100									
Acenaphthylene	ND	0.100									
Acenaphthene	ND	0.100									
Fluorene	ND	0.100									

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Date: *3/6/2012*

Work Order: 1203024
CLIENT: GeoEngineers
Project: New Zealand

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: **MB-1993** SampType: **MBLK** Units: **µg/L** Prep Date: **3/5/2012** RunNo: **3553**
Client ID: **MBLKW** Batch ID: **1993** Analysis Date: **3/5/2012** SeqNo: **63351**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenanthrene	ND	0.100									
Anthracene	ND	0.100									
Fluoranthene	ND	0.100									
Pyrene	ND	0.100									
Benz(a)anthracene	ND	0.100									
Chrysene	ND	0.100									
Benzo(b)fluoranthene	ND	0.100									
Benzo(k)fluoranthene	ND	0.100									
Benzo(a)pyrene	ND	0.100									
Indeno(1,2,3-cd)pyrene	ND	0.100									
Dibenz(a,h)anthracene	ND	0.100									
Benzo(g,h,i)perylene	ND	0.100									
Surr: 2-Fluorobiphenyl	1.92		2.000		95.9	50.1	148				
Surr: Terphenyl-d14 (surr)	2.74		2.000		137	79.9	155				

Sample ID: **1203024-001CDUP** SampType: **DUP** Units: **µg/L** Prep Date: **3/5/2012** RunNo: **3553**
Client ID: **MW14-1** Batch ID: **1993** Analysis Date: **3/5/2012** SeqNo: **63369**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	0.100						0	0	30	
2-Methylnaphthalene	ND	0.100						0	0	30	
1-Methylnaphthalene	ND	0.100						0	0	30	
Acenaphthylene	ND	0.100						0	0	30	
Acenaphthene	ND	0.100						0	0	30	
Fluorene	ND	0.100						0	0	30	R

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Date: *3/6/2012*

Work Order: 1203024
CLIENT: GeoEngineers
Project: New Zealand

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: **1203024-001CDUP** SampType: **DUP** Units: **µg/L** Prep Date: **3/5/2012** RunNo: **3553**
Client ID: **MW14-1** Batch ID: **1993** Analysis Date: **3/5/2012** SeqNo: **63369**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenanthrene	ND	0.100						0	0	30	R
Anthracene	ND	0.100						0	0	30	R
Fluoranthene	ND	0.100						0	0	30	
Pyrene	ND	0.100						0	0	30	
Benz(a)anthracene	ND	0.100						0	0	30	R
Chrysene	ND	0.100						0	0	30	
Benzo(b)fluoranthene	ND	0.100						0	0	30	
Benzo(k)fluoranthene	ND	0.100						0	0	30	
Benzo(a)pyrene	ND	0.100						0	0	30	
Indeno(1,2,3-cd)pyrene	ND	0.100						0	0	30	
Dibenz(a,h)anthracene	ND	0.100						0	0	30	R
Benzo(g,h,i)perylene	ND	0.100						0	0	30	
Surr: 2-Fluorobiphenyl	2.35		2.000		117	50.1	148		0		
Surr: Terphenyl-d14 (surr)	2.63		2.000		131	79.9	155		0		

Sample ID: **CCV-1993C** SampType: **CCV** Units: **µg/L** Prep Date: **3/5/2012** RunNo: **3553**
Client ID: **CCV** Batch ID: **1993** Analysis Date: **3/6/2012** SeqNo: **63458**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	1,130	0.100	1,000	0	113	80	120				
2-Methylnaphthalene	1,050	0.100	1,000	0	105	80	120				
1-Methylnaphthalene	1,020	0.100	1,000	0	102	80	120				
Acenaphthylene	1,170	0.100	1,000	0	117	80	120				
Acenaphthene	1,070	0.100	1,000	0	107	80	120				
Fluorene	1,070	0.100	1,000	0	107	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Date: *3/6/2012*

Work Order: 1203024
CLIENT: GeoEngineers
Project: New Zealand

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: **CCV-1993C** SampType: **CCV** Units: **µg/L** Prep Date: **3/5/2012** RunNo: **3553**
Client ID: **CCV** Batch ID: **1993** Analysis Date: **3/6/2012** SeqNo: **63458**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenanthrene	1,100	0.100	1,000	0	110	80	120				
Anthracene	1,090	0.100	1,000	0	109	80	120				
Fluoranthene	1,120	0.100	1,000	0	112	80	120				
Pyrene	1,130	0.100	1,000	0	113	80	120				
Benz(a)anthracene	1,310	0.100	1,000	0	131	80	120				S
Chrysene	1,000	0.100	1,000	0	100	80	120				
Benzo(b)fluoranthene	951	0.100	1,000	0	95.1	80	120				
Benzo(k)fluoranthene	849	0.100	1,000	0	84.9	80	120				
Benzo(a)pyrene	925	0.100	1,000	0	92.5	80	120				
Indeno(1,2,3-cd)pyrene	948	0.100	1,000	0	94.8	80	120				
Dibenz(a,h)anthracene	951	0.100	1,000	0	95.1	80	120				
Benzo(g,h,i)perylene	994	0.100	1,000	0	99.4	80	120				
Surr: 2-Fluorobiphenyl	566		500.0		113	50.1	148				
Surr: Terphenyl-d14 (surr)	637		500.0		127	79.9	155				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1203024
CLIENT: GeoEngineers
Project: New Zealand

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **LCS-R3562** SampType: **LCS** Units: **µg/L** Prep Date: **3/5/2012** RunNo: **3562**
Client ID: **LCSW** Batch ID: **R3562** Analysis Date: **3/5/2012** SeqNo: **63647**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethene	11.7	1.00	10.00	0	117	62.3	136				
Benzene	10.2	1.00	10.00	0	102	73.9	125				
Trichloroethene (TCE)	11.8	1.00	10.00	0	118	59.7	125				
Toluene	10.4	1.00	10.00	0	104	73	126				
Tetrachloroethene (PCE)	8.42	1.00	8.000	0	105	50	116				
Chlorobenzene	11.1	1.00	10.00	0	111	75.1	121				
Surr: 1-Bromo-4-fluorobenzene	9.71		10.00		97.1	79.2	120				
Surr: Dibromofluoromethane	9.84		10.00		98.4	76	114				
Surr: Toluene-d8	10.5		10.00		105	86.8	119				

Sample ID: **1203024-001ADUP** SampType: **DUP** Units: **µg/L** Prep Date: **3/5/2012** RunNo: **3562**
Client ID: **MW14-1** Batch ID: **R3562** Analysis Date: **3/5/2012** SeqNo: **63660**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	ND	1.00						0	0	30	
Chloromethane	ND	1.00						0	0	30	
Vinyl chloride	ND	0.200						0	0	30	
Bromomethane	ND	1.00						0	0	30	
Trichlorofluoromethane (CFC-11)	ND	1.00						0	0	30	
Chloroethane	ND	1.00						0	0	30	
1,1-Dichloroethene	ND	1.00						0	0	30	
Methylene chloride	ND	1.00						0	0	30	
trans-1,2-Dichloroethene	ND	1.00						0	0	30	
Methyl tert-butyl ether (MTBE)	ND	1.00						0	0	30	
1,1-Dichloroethane	ND	1.00						0	0	30	

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1203024
CLIENT: GeoEngineers
Project: New Zealand

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **1203024-001ADUP** SampType: **DUP** Units: **µg/L** Prep Date: **3/5/2012** RunNo: **3562**
Client ID: **MW14-1** Batch ID: **R3562** Analysis Date: **3/5/2012** SeqNo: **63660**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2,2-Dichloropropane	ND	2.00						0	0	30	
cis-1,2-Dichloroethene	ND	1.00						0	0	30	
Chloroform	ND	1.00						0	0	30	
1,1,1-Trichloroethane (TCA)	ND	1.00						0	0	30	
1,1-Dichloropropene	ND	1.00						0	0	30	
Carbon tetrachloride	ND	1.00						0	0	30	
1,2-Dichloroethane	ND	1.00						0	0	30	
Benzene	ND	1.00						0	0	30	
Trichloroethene (TCE)	ND	1.00						0	0	30	
1,2-Dichloropropane	ND	1.00						0	0	30	
Bromodichloromethane	ND	1.00						0	0	30	
Dibromomethane	ND	1.00						0	0	30	
cis-1,3-Dichloropropene	ND	1.00						0	0	30	
Toluene	ND	1.00						0	0	30	
trans-1,3-Dichloropropene	ND	1.00						0	0	30	
1,1,2-Trichloroethane	ND	1.00						0	0	30	
1,3-Dichloropropane	ND	1.00						0	0	30	
Tetrachloroethene (PCE)	ND	1.00						0	0	30	
Dibromochloromethane	ND	1.00						0	0	30	
1,2-Dibromoethane (EDB)	ND	0.0100						0	0	30	
Chlorobenzene	ND	1.00						0	0	30	
1,1,1,2-Tetrachloroethane	ND	1.00						0	0	30	
Ethylbenzene	ND	1.00						0	0	30	
m,p-Xylene	ND	1.00						0	0	30	
o-Xylene	ND	1.00						0	0	30	

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1203024
CLIENT: GeoEngineers
Project: New Zealand

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **1203024-001ADUP** SampType: **DUP** Units: **µg/L** Prep Date: **3/5/2012** RunNo: **3562**
Client ID: **MW14-1** Batch ID: **R3562** Analysis Date: **3/5/2012** SeqNo: **63660**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Styrene	ND	1.00						0	0	30	
Isopropylbenzene	ND	1.00						0	0	30	
Bromoform	ND	1.00						0	0	30	
1,1,2,2-Tetrachloroethane	ND	1.00						0	0	30	
n-Propylbenzene	ND	1.00						0	0	30	
Bromobenzene	ND	1.00						0	0	30	
1,3,5-Trimethylbenzene	ND	1.00						0	0	30	
2-Chlorotoluene	ND	1.00						0	0	30	
4-Chlorotoluene	ND	1.00						0	0	30	
tert-Butylbenzene	ND	1.00						0	0	30	
1,2,3-Trichloropropane	ND	1.00						0	0	30	
1,2,4-Trichlorobenzene	ND	2.00						0	0	30	
sec-Butylbenzene	ND	1.00						0	0	30	
4-Isopropyltoluene	ND	1.00						0	0	30	
1,3-Dichlorobenzene	ND	1.00						0	0	30	
1,4-Dichlorobenzene	ND	1.00						0	0	30	
n-Butylbenzene	ND	1.00						0	0	30	
1,2-Dichlorobenzene	ND	1.00						0	0	30	
1,2-Dibromo-3-chloropropane	ND	1.00						0	0	30	
1,2,4-Trimethylbenzene	ND	1.00						0	0	30	
Hexachlorobutadiene	ND	4.00						0	0	30	
Naphthalene	ND	1.00						0	0	30	
1,2,3-Trichlorobenzene	ND	4.00						0	0	30	
Surr: 1-Bromo-4-fluorobenzene	9.77		10.00		97.7	79.2	120		0		
Surr: Dibromofluoromethane	9.33		10.00		93.3	76	114		0		

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1203024
CLIENT: GeoEngineers
Project: New Zealand

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **1203024-001ADUP** SampType: **DUP** Units: **µg/L** Prep Date: **3/5/2012** RunNo: **3562**
Client ID: **MW14-1** Batch ID: **R3562** Analysis Date: **3/5/2012** SeqNo: **63660**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Toluene-d8	10.6		10.00		106	86.8	119		0		

Sample ID: **MB-R3562** SampType: **MBLK** Units: **µg/L** Prep Date: **3/5/2012** RunNo: **3562**
Client ID: **MBLKW** Batch ID: **R3562** Analysis Date: **3/5/2012** SeqNo: **63714**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	ND	1.00									
Chloromethane	ND	1.00									
Vinyl chloride	ND	0.200									
Bromomethane	ND	1.00									
Trichlorofluoromethane (CFC-11)	ND	1.00									
Chloroethane	ND	1.00									
1,1-Dichloroethene	ND	1.00									
Methylene chloride	ND	1.00									
trans-1,2-Dichloroethene	ND	1.00									
Methyl tert-butyl ether (MTBE)	ND	1.00									
1,1-Dichloroethane	ND	1.00									
2,2-Dichloropropane	ND	2.00									
cis-1,2-Dichloroethene	ND	1.00									
Chloroform	ND	1.00									
1,1,1-Trichloroethane (TCA)	ND	1.00									
1,1-Dichloropropene	ND	1.00									
Carbon tetrachloride	ND	1.00									
1,2-Dichloroethane	ND	1.00									
Benzene	ND	1.00									

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1203024
CLIENT: GeoEngineers
Project: New Zealand

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **MB-R3562** SampType: **MBLK** Units: **µg/L** Prep Date: **3/5/2012** RunNo: **3562**
Client ID: **MBLKW** Batch ID: **R3562** Analysis Date: **3/5/2012** SeqNo: **63714**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Trichloroethene (TCE)	ND	1.00									
1,2-Dichloropropane	ND	1.00									
Bromodichloromethane	ND	1.00									
Dibromomethane	ND	1.00									
cis-1,3-Dichloropropene	ND	1.00									
Toluene	ND	1.00									
trans-1,3-Dichloropropene	ND	1.00									
1,1,2-Trichloroethane	ND	1.00									
1,3-Dichloropropane	ND	1.00									
Tetrachloroethene (PCE)	ND	1.00									
Dibromochloromethane	ND	1.00									
1,2-Dibromoethane (EDB)	ND	0.0100									
Chlorobenzene	ND	1.00									
1,1,1,2-Tetrachloroethane	ND	1.00									
Ethylbenzene	ND	1.00									
m,p-Xylene	ND	1.00									
o-Xylene	ND	1.00									
Styrene	ND	1.00									
Isopropylbenzene	ND	1.00									
Bromoform	ND	1.00									
1,1,2,2-Tetrachloroethane	ND	1.00									
n-Propylbenzene	ND	1.00									
Bromobenzene	ND	1.00									
1,3,5-Trimethylbenzene	ND	1.00									
2-Chlorotoluene	ND	1.00									

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1203024
CLIENT: GeoEngineers
Project: New Zealand

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **MB-R3562** SampType: **MBLK** Units: **µg/L** Prep Date: **3/5/2012** RunNo: **3562**
Client ID: **MBLKW** Batch ID: **R3562** Analysis Date: **3/5/2012** SeqNo: **63714**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4-Chlorotoluene	ND	1.00									
tert-Butylbenzene	ND	1.00									
1,2,3-Trichloropropane	ND	1.00									
1,2,4-Trichlorobenzene	ND	2.00									
sec-Butylbenzene	ND	1.00									
4-Isopropyltoluene	ND	1.00									
1,3-Dichlorobenzene	ND	1.00									
1,4-Dichlorobenzene	ND	1.00									
n-Butylbenzene	ND	1.00									
1,2-Dichlorobenzene	ND	1.00									
1,2-Dibromo-3-chloropropane	ND	1.00									
1,2,4-Trimethylbenzene	ND	1.00									
Hexachlorobutadiene	ND	4.00									
Naphthalene	ND	1.00									
1,2,3-Trichlorobenzene	ND	4.00									
Surr: 1-Bromo-4-fluorobenzene	9.71		10.00		97.1	79.2	120				
Surr: Dibromofluoromethane	9.95		10.00		99.5	76	114				
Surr: Toluene-d8	10.4		10.00		104	86.8	119				

Sample ID: **1202161-012AMS** SampType: **MS** Units: **µg/L** Prep Date: **3/6/2012** RunNo: **3562**
Client ID: **BATCH** Batch ID: **R3562** Analysis Date: **3/6/2012** SeqNo: **63773**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethene	12.1	1.00	10.00	0	121	54.9	139				
Benzene	10.0	1.00	10.00	0	100	70.7	126				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Date: *3/6/2012*

Work Order: 1203024
CLIENT: GeoEngineers
Project: New Zealand

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **1202161-012AMS** SampType: **MS** Units: **µg/L** Prep Date: **3/6/2012** RunNo: **3562**
Client ID: **BATCH** Batch ID: **R3562** Analysis Date: **3/6/2012** SeqNo: **63773**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Trichloroethene (TCE)	11.9	1.00	10.00	0	119	51.8	131				
Toluene	10.3	1.00	10.00	0	103	72.4	122				
Tetrachloroethene (PCE)	19.5	1.00	8.000	10.33	114	50	121				
Chlorobenzene	11.1	1.00	10.00	0	111	68.3	123				
Surr: 1-Bromo-4-fluorobenzene	10.0		10.00		101	79.2	120				
Surr: Dibromofluoromethane	10.4		10.00		104	76	114				
Surr: Toluene-d8	10.7		10.00		107	86.8	119				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Sample Log-In Check List

Client Name: **GEI**	Work Order Number: **1203024**
Logged by: **Troy Zehr**	Date Received: **3/5/2012 4:50:00 PM**

Chain of Custody

1.	Were custodial seals present?	Yes	☐	No	☐	Not Required	☑
2.	Is Chain of Custody complete?	Yes	☑	No	☐	Not Present	☐
3.	How was the sample delivered?	Client					

Log In

4.	Coolers are present?	Yes	☑	No	☐	NA	☐
5.	Was an attempt made to cool the samples?	Yes	☑	No	☐	NA	☐
6.	Were all coolers received at a temperature of >0° C to 10.0°C	Yes	☑	No	☐	NA	☐
7.	Sample(s) in proper container(s)?	Yes	☑	No	☐		
8.	Sufficient sample volume for indicated test(s)?	Yes	☑	No	☐		
9.	Are samples properly preserved?	Yes	☑	No	☐		
10.	Was preservative added to bottles?	Yes	☐	No	☑	NA	☐
11.	Is there headspace present in VOA vials?	Yes	☐	No	☑	NA	☐
12.	Did all sample containers arrive in good condition?(unbroken)	Yes	☑	No	☐		
13.	Does paperwork match bottle labels?	Yes	☑	No	☐		
14.	Are matrices correctly identified on Chain of Custody?	Yes	☑	No	☐		
15.	Is it clear what analyses were requested?	Yes	☑	No	☐		
16.	Were all holding times able to be met?	Yes	☑	No	☐		

Special Handling (if applicable)

17.	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: _____

18. Additional remarks/Disrepancies

Item Information

Item #	Temp ºC	Condition
Cooler 1	1.1	Good
Cooler 2	3.3	Good
Temp Blank 1	5.3	Good
Temp Blank 2	4.8	Good

Fremont Analytical

Chain of Custody Record

1311 N. 35th Street
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Laboratory Project No (internal): 1203024

Date: 3-5-12

Page: 1 of: 1

Client: GEOENGINEERS
Address:
City, State, Zip: REDMOND, WA Tel: 425-861-6000
Reports To (PM): JESSICA SMITH Fax: Email:

Project Name: NEW ZEALAND / #20434-001-02
Location: SEATTLE, WA
Collected by: BRIAN ANDERSON

Project No:

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA #8260B)	GRO (EPA NWTPH-Gx)	BTEX by EPA 8021B	Gasoline Range Organics	Hydrocarbon identification (HCID: NWTPH-Dx)	Diesel/Heavy Oil Range Organics (NWTPH-Dx)	SEMI VOC (EPA 8270)	PAH (EPA 8270 - SIM)	cPCB (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals* (6020/200.8) EPA 6000/7000	Total (T) + Dissolved (D)	Anions (IC)**	Comments/Depth
1 MW-14-1	3-5-12	1245	W	X	X			X	X	X				X				7 BOTTLES
2 MW-20-1	3-5-12	1500	W	X	X			X	X	X				X				7 BOTTLES
3 MW-20-2	3-5-12	1030	W	X	X			X	X	X				X				7 BOTTLES
4 MW-20-3	3-5-12	0950	W	X	X			X	X	X				X				12 BOTTLES
5																		
6																		-NOT FIELD FILTERED
7																		
8																		
9																		
10																		

*Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutant: TAL Individual Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: Return to Client Disposal by Lab (A fee may be assessed if samples are returned after 30 days)

Special Remarks: METALS SAMPLES ARE NOT FILTERED.

Relinquished	Date/Time	Received	Date/Time
x Brian Anderson	3-5-12	x	3/5/12 1650
Relinquished	Date/Time	Received	Date/Time
x		x	

TAT --> Next Day 2 Day 3 Day STD

Distribution: White - Lab, Yellow - File, Pink - Originator

www.fremontanalytical.com

1311 N. 35th St.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

GeoEngineers, Inc. - Redmond
Jessica Smith
8410 154th Ave. NE
Redmond, Washington 98052

RE: Rufus 2.0
Lab ID: 1204110

April 25, 2012

Attention Jessica Smith:

Fremont Analytical, Inc. received 4 sample(s) on 4/19/2012 for the analyses presented in the following report.

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.
Dissolved Mercury by EPA Method 245.1
Dissolved Metals by EPA Method 200.8
Gasoline by NWTPH-Gx
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)
Volatile Organic Compounds by EPA Method 8260

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Michael Dee
Sr. Chemist / Principal

Date: *04/25/2012*

CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0
Lab Order: 1204110

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1204110-001	MW-14-2	04/19/2012 12:10 PM	04/19/2012 4:15 PM
1204110-002	MW-14-3	04/19/2012 12:46 PM	04/19/2012 4:15 PM
1204110-003	MW-20-5	04/19/2012 10:42 AM	04/19/2012 4:15 PM
1204110-004	Trip Blank	04/18/2012 3:35 PM	04/19/2012 4:15 PM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

Case Narrative

WO#: **1204110**
Date: **4/25/2012**

CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0

I. SAMPLE RECEIPT:
All samples were received intact. The internal ice chest temperatures were measured on receipt and are recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Analytical Report

WO#: **1204110**
Date Reported: **4/25/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 4/19/2012 12:10:00 PM
Project: Rufus 2.0
Lab ID: 1204110-001
Matrix: Water
Client Sample ID: MW-14-2

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 2271		Analyst: EM
Diesel (Fuel Oil)	ND	50.0		µg/L	1	4/24/2012 7:07:00 AM
Heavy Oil	ND	100		µg/L	1	4/24/2012 7:07:00 AM
Surr: 2-Fluorobiphenyl	59.7	50-150		%REC	1	4/24/2012 7:07:00 AM
Surr: o-Terphenyl	83.4	50-150		%REC	1	4/24/2012 7:07:00 AM
Gasoline by NWTPH-Gx				Batch ID: R4037		Analyst: PH
Gasoline	ND	50.0		µg/L	1	4/21/2012 12:21:00 AM
Surr: 1,4-Difluorobenzene	91.7	65-135		%REC	1	4/21/2012 12:21:00 AM
Surr: 4-Bromofluorobenzene	115	65-135		%REC	1	4/21/2012 12:21:00 AM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 2282		Analyst: SG
Naphthalene	ND	0.100		µg/L	1	4/24/2012 6:40:00 PM
2-Methylnaphthalene	ND	0.100		µg/L	1	4/24/2012 6:40:00 PM
1-Methylnaphthalene	ND	0.100		µg/L	1	4/24/2012 6:40:00 PM
Acenaphthylene	ND	0.100		µg/L	1	4/24/2012 6:40:00 PM
Acenaphthene	ND	0.100		µg/L	1	4/24/2012 6:40:00 PM
Fluorene	ND	0.100		µg/L	1	4/24/2012 6:40:00 PM
Phenanthrene	ND	0.100		µg/L	1	4/24/2012 6:40:00 PM
Anthracene	ND	0.100		µg/L	1	4/24/2012 6:40:00 PM
Fluoranthene	ND	0.100		µg/L	1	4/24/2012 6:40:00 PM
Pyrene	ND	0.100		µg/L	1	4/24/2012 6:40:00 PM
Benz(a)anthracene	ND	0.100		µg/L	1	4/24/2012 6:40:00 PM
Chrysene	ND	0.100		µg/L	1	4/24/2012 6:40:00 PM
Benzo(b)fluoranthene	ND	0.100		µg/L	1	4/24/2012 6:40:00 PM
Benzo(k)fluoranthene	ND	0.100		µg/L	1	4/24/2012 6:40:00 PM
Benzo(a)pyrene	ND	0.100		µg/L	1	4/24/2012 6:40:00 PM
Indeno(1,2,3-cd)pyrene	ND	0.100		µg/L	1	4/24/2012 6:40:00 PM
Dibenz(a,h)anthracene	ND	0.100		µg/L	1	4/24/2012 6:40:00 PM
Benzo(g,h,i)perylene	ND	0.100		µg/L	1	4/24/2012 6:40:00 PM
Surr: 2-Fluorobiphenyl	61.1	50.1-148		%REC	1	4/24/2012 6:40:00 PM
Surr: Terphenyl-d14 (surr)	87.1	68.7-130		%REC	1	4/24/2012 6:40:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1204110**
Date Reported: **4/25/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 4/19/2012 12:10:00 PM
Project: Rufus 2.0
Lab ID: 1204110-001
Matrix: Water
Client Sample ID: MW-14-2

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: R4043		Analyst: PH
Dichlorodifluoromethane (CFC-12)	ND	1.00		µg/L	1	4/21/2012 1:24:00 PM
Chloromethane	ND	1.00		µg/L	1	4/21/2012 1:24:00 PM
Vinyl chloride	ND	0.200		µg/L	1	4/21/2012 1:24:00 PM
Bromomethane	ND	1.00		µg/L	1	4/21/2012 1:24:00 PM
Trichlorofluoromethane (CFC-11)	ND	1.00		µg/L	1	4/21/2012 1:24:00 PM
Chloroethane	ND	1.00		µg/L	1	4/21/2012 1:24:00 PM
1,1-Dichloroethene	ND	1.00		µg/L	1	4/21/2012 1:24:00 PM
Methylene chloride	ND	1.00		µg/L	1	4/21/2012 1:24:00 PM
trans-1,2-Dichloroethene	ND	1.00		µg/L	1	4/21/2012 1:24:00 PM
Methyl tert-butyl ether (MTBE)	1.26	1.00		µg/L	1	4/21/2012 1:24:00 PM
1,1-Dichloroethane	ND	1.00		µg/L	1	4/21/2012 1:24:00 PM
2,2-Dichloropropane	ND	2.00		µg/L	1	4/21/2012 1:24:00 PM
cis-1,2-Dichloroethene	ND	1.00		µg/L	1	4/21/2012 1:24:00 PM
Chloroform	ND	1.00		µg/L	1	4/21/2012 1:24:00 PM
1,1,1-Trichloroethane (TCA)	ND	1.00		µg/L	1	4/21/2012 1:24:00 PM
1,1-Dichloropropene	ND	1.00		µg/L	1	4/21/2012 1:24:00 PM
Carbon tetrachloride	ND	1.00		µg/L	1	4/21/2012 1:24:00 PM
1,2-Dichloroethane	ND	1.00		µg/L	1	4/21/2012 1:24:00 PM
Benzene	ND	1.00		µg/L	1	4/21/2012 1:24:00 PM
Trichloroethene (TCE)	ND	1.00		µg/L	1	4/21/2012 1:24:00 PM
1,2-Dichloropropane	ND	1.00		µg/L	1	4/21/2012 1:24:00 PM
Bromodichloromethane	ND	1.00		µg/L	1	4/21/2012 1:24:00 PM
Dibromomethane	ND	1.00		µg/L	1	4/21/2012 1:24:00 PM
cis-1,3-Dichloropropene	ND	1.00		µg/L	1	4/21/2012 1:24:00 PM
Toluene	ND	1.00		µg/L	1	4/21/2012 1:24:00 PM
trans-1,3-Dichloropropene	ND	1.00		µg/L	1	4/21/2012 1:24:00 PM
1,1,2-Trichloroethane	ND	1.00		µg/L	1	4/21/2012 1:24:00 PM
1,3-Dichloropropane	ND	1.00		µg/L	1	4/21/2012 1:24:00 PM
Tetrachloroethene (PCE)	ND	1.00		µg/L	1	4/21/2012 1:24:00 PM
Dibromochloromethane	ND	1.00		µg/L	1	4/21/2012 1:24:00 PM
1,2-Dibromoethane (EDB)	ND	0.0100		µg/L	1	4/21/2012 1:24:00 PM
Chlorobenzene	ND	1.00		µg/L	1	4/21/2012 1:24:00 PM
1,1,1,2-Tetrachloroethane	ND	1.00		µg/L	1	4/21/2012 1:24:00 PM
Ethylbenzene	ND	1.00		µg/L	1	4/21/2012 1:24:00 PM
m,p-Xylene	ND	1.00		µg/L	1	4/21/2012 1:24:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1204110**
Date Reported: **4/25/2012**

Client: GeoEngineers, Inc. - Redmond **Collection Date:** 4/19/2012 12:10:00 PM
Project: Rufus 2.0
Lab ID: 1204110-001 **Matrix:** Water
Client Sample ID: MW-14-2

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: R4043		Analyst: PH
o-Xylene	ND	1.00		µg/L	1	4/21/2012 1:24:00 PM
Styrene	ND	1.00		µg/L	1	4/21/2012 1:24:00 PM
Isopropylbenzene	ND	1.00		µg/L	1	4/21/2012 1:24:00 PM
Bromoform	ND	1.00		µg/L	1	4/21/2012 1:24:00 PM
1,1,2,2-Tetrachloroethane	ND	1.00		µg/L	1	4/21/2012 1:24:00 PM
n-Propylbenzene	ND	1.00		µg/L	1	4/21/2012 1:24:00 PM
Bromobenzene	ND	1.00		µg/L	1	4/21/2012 1:24:00 PM
1,3,5-Trimethylbenzene	ND	1.00		µg/L	1	4/21/2012 1:24:00 PM
2-Chlorotoluene	ND	1.00		µg/L	1	4/21/2012 1:24:00 PM
4-Chlorotoluene	ND	1.00		µg/L	1	4/21/2012 1:24:00 PM
tert-Butylbenzene	ND	1.00		µg/L	1	4/21/2012 1:24:00 PM
1,2,3-Trichloropropane	ND	1.00		µg/L	1	4/21/2012 1:24:00 PM
1,2,4-Trichlorobenzene	ND	2.00		µg/L	1	4/21/2012 1:24:00 PM
sec-Butylbenzene	ND	1.00		µg/L	1	4/21/2012 1:24:00 PM
4-Isopropyltoluene	ND	1.00		µg/L	1	4/21/2012 1:24:00 PM
1,3-Dichlorobenzene	ND	1.00		µg/L	1	4/21/2012 1:24:00 PM
1,4-Dichlorobenzene	ND	1.00		µg/L	1	4/21/2012 1:24:00 PM
n-Butylbenzene	ND	1.00		µg/L	1	4/21/2012 1:24:00 PM
1,2-Dichlorobenzene	ND	1.00		µg/L	1	4/21/2012 1:24:00 PM
1,2-Dibromo-3-chloropropane	ND	1.00		µg/L	1	4/21/2012 1:24:00 PM
1,2,4-Trimethylbenzene	ND	1.00		µg/L	1	4/21/2012 1:24:00 PM
Hexachlorobutadiene	ND	4.00		µg/L	1	4/21/2012 1:24:00 PM
Naphthalene	ND	1.00		µg/L	1	4/21/2012 1:24:00 PM
1,2,3-Trichlorobenzene	ND	4.00		µg/L	1	4/21/2012 1:24:00 PM
Surr: 1-Bromo-4-fluorobenzene	97.4	79.2-120		%REC	1	4/21/2012 1:24:00 PM
Surr: Dibromofluoromethane	102	76-114		%REC	1	4/21/2012 1:24:00 PM
Surr: Toluene-d8	98.7	86.8-119		%REC	1	4/21/2012 1:24:00 PM
Dissolved Metals by EPA Method 200.8				Batch ID: 2270		Analyst: BR
Arsenic	1.95	1.00		µg/L	1	4/20/2012 3:47:07 PM
Barium	86.6	0.500		µg/L	1	4/20/2012 3:47:07 PM
Cadmium	ND	0.200		µg/L	1	4/20/2012 3:47:07 PM
Chromium	7.42	0.500		µg/L	1	4/20/2012 3:47:07 PM
Lead	ND	1.00		µg/L	1	4/20/2012 3:47:07 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1204110**
Date Reported: **4/25/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 4/19/2012 12:10:00 PM
Project: Rufus 2.0
Lab ID: 1204110-001
Matrix: Water
Client Sample ID: MW-14-2

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dissolved Metals by EPA Method 200.8				Batch ID: 2270		Analyst: BR
Selenium	1.48	1.00		µg/L	1	4/20/2012 3:47:07 PM
Silver	ND	0.200		µg/L	1	4/20/2012 3:47:07 PM
Dissolved Mercury by EPA Method 245.1				Batch ID: 2274		Analyst: MC
Mercury	ND	0.100		µg/L	1	4/23/2012 3:04:54 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1204110**
Date Reported: **4/25/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 4/19/2012 12:46:00 PM
Project: Rufus 2.0
Lab ID: 1204110-002
Matrix: Water
Client Sample ID: MW-14-3

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 2271		Analyst: EM
Diesel (Fuel Oil)	ND	50.0		µg/L	1	4/24/2012 7:35:00 AM
Heavy Oil	ND	100		µg/L	1	4/24/2012 7:35:00 AM
Surr: 2-Fluorobiphenyl	69.8	50-150		%REC	1	4/24/2012 7:35:00 AM
Surr: o-Terphenyl	92.7	50-150		%REC	1	4/24/2012 7:35:00 AM
Gasoline by NWTPH-Gx				Batch ID: R4037		Analyst: PH
Gasoline	ND	50.0		µg/L	1	4/21/2012 12:51:00 AM
Surr: 1,4-Difluorobenzene	88.7	65-135		%REC	1	4/21/2012 12:51:00 AM
Surr: 4-Bromofluorobenzene	111	65-135		%REC	1	4/21/2012 12:51:00 AM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 2282		Analyst: SG
Naphthalene	ND	0.100		µg/L	1	4/24/2012 7:05:00 PM
2-Methylnaphthalene	0.263	0.100		µg/L	1	4/24/2012 7:05:00 PM
1-Methylnaphthalene	0.197	0.100		µg/L	1	4/24/2012 7:05:00 PM
Acenaphthylene	ND	0.100		µg/L	1	4/24/2012 7:05:00 PM
Acenaphthene	ND	0.100		µg/L	1	4/24/2012 7:05:00 PM
Fluorene	ND	0.100		µg/L	1	4/24/2012 7:05:00 PM
Phenanthrene	0.160	0.100	B	µg/L	1	4/24/2012 7:05:00 PM
Anthracene	ND	0.100		µg/L	1	4/24/2012 7:05:00 PM
Fluoranthene	ND	0.100		µg/L	1	4/24/2012 7:05:00 PM
Pyrene	ND	0.100		µg/L	1	4/24/2012 7:05:00 PM
Benz(a)anthracene	ND	0.100		µg/L	1	4/24/2012 7:05:00 PM
Chrysene	ND	0.100		µg/L	1	4/24/2012 7:05:00 PM
Benzo(b)fluoranthene	ND	0.100		µg/L	1	4/24/2012 7:05:00 PM
Benzo(k)fluoranthene	ND	0.100		µg/L	1	4/24/2012 7:05:00 PM
Benzo(a)pyrene	ND	0.100		µg/L	1	4/24/2012 7:05:00 PM
Indeno(1,2,3-cd)pyrene	ND	0.100		µg/L	1	4/24/2012 7:05:00 PM
Dibenz(a,h)anthracene	ND	0.100		µg/L	1	4/24/2012 7:05:00 PM
Benzo(g,h,i)perylene	ND	0.100		µg/L	1	4/24/2012 7:05:00 PM
Surr: 2-Fluorobiphenyl	58.3	50.1-148		%REC	1	4/24/2012 7:05:00 PM
Surr: Terphenyl-d14 (surr)	69.2	68.7-130		%REC	1	4/24/2012 7:05:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1204110**
Date Reported: **4/25/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 4/19/2012 12:46:00 PM
Project: Rufus 2.0
Lab ID: 1204110-002
Matrix: Water
Client Sample ID: MW-14-3

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: R4043		Analyst: PH
Dichlorodifluoromethane (CFC-12)	ND	1.00		µg/L	1	4/21/2012 1:55:00 PM
Chloromethane	ND	1.00		µg/L	1	4/21/2012 1:55:00 PM
Vinyl chloride	ND	0.200		µg/L	1	4/21/2012 1:55:00 PM
Bromomethane	ND	1.00		µg/L	1	4/21/2012 1:55:00 PM
Trichlorofluoromethane (CFC-11)	ND	1.00		µg/L	1	4/21/2012 1:55:00 PM
Chloroethane	ND	1.00		µg/L	1	4/21/2012 1:55:00 PM
1,1-Dichloroethene	ND	1.00		µg/L	1	4/21/2012 1:55:00 PM
Methylene chloride	ND	1.00		µg/L	1	4/21/2012 1:55:00 PM
trans-1,2-Dichloroethene	ND	1.00		µg/L	1	4/21/2012 1:55:00 PM
Methyl tert-butyl ether (MTBE)	1.55	1.00		µg/L	1	4/21/2012 1:55:00 PM
1,1-Dichloroethane	1.52	1.00		µg/L	1	4/21/2012 1:55:00 PM
2,2-Dichloropropane	ND	2.00		µg/L	1	4/21/2012 1:55:00 PM
cis-1,2-Dichloroethene	ND	1.00		µg/L	1	4/21/2012 1:55:00 PM
Chloroform	ND	1.00		µg/L	1	4/21/2012 1:55:00 PM
1,1,1-Trichloroethane (TCA)	ND	1.00		µg/L	1	4/21/2012 1:55:00 PM
1,1-Dichloropropene	ND	1.00		µg/L	1	4/21/2012 1:55:00 PM
Carbon tetrachloride	ND	1.00		µg/L	1	4/21/2012 1:55:00 PM
1,2-Dichloroethane	ND	1.00		µg/L	1	4/21/2012 1:55:00 PM
Benzene	ND	1.00		µg/L	1	4/21/2012 1:55:00 PM
Trichloroethene (TCE)	ND	1.00		µg/L	1	4/21/2012 1:55:00 PM
1,2-Dichloropropane	ND	1.00		µg/L	1	4/21/2012 1:55:00 PM
Bromodichloromethane	ND	1.00		µg/L	1	4/21/2012 1:55:00 PM
Dibromomethane	ND	1.00		µg/L	1	4/21/2012 1:55:00 PM
cis-1,3-Dichloropropene	ND	1.00		µg/L	1	4/21/2012 1:55:00 PM
Toluene	ND	1.00		µg/L	1	4/21/2012 1:55:00 PM
trans-1,3-Dichloropropene	ND	1.00		µg/L	1	4/21/2012 1:55:00 PM
1,1,2-Trichloroethane	ND	1.00		µg/L	1	4/21/2012 1:55:00 PM
1,3-Dichloropropane	ND	1.00		µg/L	1	4/21/2012 1:55:00 PM
Tetrachloroethene (PCE)	ND	1.00		µg/L	1	4/21/2012 1:55:00 PM
Dibromochloromethane	ND	1.00		µg/L	1	4/21/2012 1:55:00 PM
1,2-Dibromoethane (EDB)	ND	0.0100		µg/L	1	4/21/2012 1:55:00 PM
Chlorobenzene	ND	1.00		µg/L	1	4/21/2012 1:55:00 PM
1,1,1,2-Tetrachloroethane	ND	1.00		µg/L	1	4/21/2012 1:55:00 PM
Ethylbenzene	ND	1.00		µg/L	1	4/21/2012 1:55:00 PM
m,p-Xylene	ND	1.00		µg/L	1	4/21/2012 1:55:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1204110**
Date Reported: **4/25/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 4/19/2012 12:46:00 PM
Project: Rufus 2.0
Lab ID: 1204110-002
Matrix: Water
Client Sample ID: MW-14-3

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: R4043		Analyst: PH
o-Xylene	ND	1.00		µg/L	1	4/21/2012 1:55:00 PM
Styrene	ND	1.00		µg/L	1	4/21/2012 1:55:00 PM
Isopropylbenzene	ND	1.00		µg/L	1	4/21/2012 1:55:00 PM
Bromoform	ND	1.00		µg/L	1	4/21/2012 1:55:00 PM
1,1,2,2-Tetrachloroethane	ND	1.00		µg/L	1	4/21/2012 1:55:00 PM
n-Propylbenzene	ND	1.00		µg/L	1	4/21/2012 1:55:00 PM
Bromobenzene	ND	1.00		µg/L	1	4/21/2012 1:55:00 PM
1,3,5-Trimethylbenzene	ND	1.00		µg/L	1	4/21/2012 1:55:00 PM
2-Chlorotoluene	ND	1.00		µg/L	1	4/21/2012 1:55:00 PM
4-Chlorotoluene	ND	1.00		µg/L	1	4/21/2012 1:55:00 PM
tert-Butylbenzene	ND	1.00		µg/L	1	4/21/2012 1:55:00 PM
1,2,3-Trichloropropane	ND	1.00		µg/L	1	4/21/2012 1:55:00 PM
1,2,4-Trichlorobenzene	ND	2.00		µg/L	1	4/21/2012 1:55:00 PM
sec-Butylbenzene	ND	1.00		µg/L	1	4/21/2012 1:55:00 PM
4-Isopropyltoluene	ND	1.00		µg/L	1	4/21/2012 1:55:00 PM
1,3-Dichlorobenzene	ND	1.00		µg/L	1	4/21/2012 1:55:00 PM
1,4-Dichlorobenzene	ND	1.00		µg/L	1	4/21/2012 1:55:00 PM
n-Butylbenzene	ND	1.00		µg/L	1	4/21/2012 1:55:00 PM
1,2-Dichlorobenzene	ND	1.00		µg/L	1	4/21/2012 1:55:00 PM
1,2-Dibromo-3-chloropropane	ND	1.00		µg/L	1	4/21/2012 1:55:00 PM
1,2,4-Trimethylbenzene	ND	1.00		µg/L	1	4/21/2012 1:55:00 PM
Hexachlorobutadiene	ND	4.00		µg/L	1	4/21/2012 1:55:00 PM
Naphthalene	ND	1.00		µg/L	1	4/21/2012 1:55:00 PM
1,2,3-Trichlorobenzene	ND	4.00		µg/L	1	4/21/2012 1:55:00 PM
Surr: 1-Bromo-4-fluorobenzene	97.0	79.2-120		%REC	1	4/21/2012 1:55:00 PM
Surr: Dibromofluoromethane	103	76-114		%REC	1	4/21/2012 1:55:00 PM
Surr: Toluene-d8	97.4	86.8-119		%REC	1	4/21/2012 1:55:00 PM
Dissolved Metals by EPA Method 200.8				Batch ID: 2270		Analyst: BR
Arsenic	ND	1.00		µg/L	1	4/20/2012 3:56:22 PM
Barium	184	0.500		µg/L	1	4/20/2012 3:56:22 PM
Cadmium	ND	0.200		µg/L	1	4/20/2012 3:56:22 PM
Chromium	11.7	0.500		µg/L	1	4/20/2012 3:56:22 PM
Lead	ND	1.00		µg/L	1	4/20/2012 3:56:22 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1204110**
Date Reported: **4/25/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 4/19/2012 12:46:00 PM
Project: Rufus 2.0
Lab ID: 1204110-002
Matrix: Water
Client Sample ID: MW-14-3

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dissolved Metals by EPA Method 200.8				Batch ID: 2270		Analyst: BR
Selenium	ND	1.00		µg/L	1	4/20/2012 3:56:22 PM
Silver	ND	0.200		µg/L	1	4/20/2012 3:56:22 PM
Dissolved Mercury by EPA Method 245.1				Batch ID: 2274		Analyst: MC
Mercury	ND	0.100		µg/L	1	4/23/2012 3:27:50 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1204110**
Date Reported: **4/25/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 4/19/2012 10:42:00 AM
Project: Rufus 2.0
Lab ID: 1204110-003
Matrix: Water
Client Sample ID: MW-20-5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 2271		Analyst: EM
Diesel (Fuel Oil)	ND	50.0		µg/L	1	4/24/2012 8:02:00 AM
Heavy Oil	ND	100		µg/L	1	4/24/2012 8:02:00 AM
Surr: 2-Fluorobiphenyl	69.6	50-150		%REC	1	4/24/2012 8:02:00 AM
Surr: o-Terphenyl	98.9	50-150		%REC	1	4/24/2012 8:02:00 AM
Gasoline by NWTPH-Gx				Batch ID: R4037		Analyst: PH
Gasoline	ND	50.0		µg/L	1	4/21/2012 1:51:00 AM
Surr: 1,4-Difluorobenzene	94.2	65-135		%REC	1	4/21/2012 1:51:00 AM
Surr: 4-Bromofluorobenzene	109	65-135		%REC	1	4/21/2012 1:51:00 AM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 2282		Analyst: SG
Naphthalene	ND	0.100		µg/L	1	4/24/2012 7:31:00 PM
2-Methylnaphthalene	ND	0.100		µg/L	1	4/24/2012 7:31:00 PM
1-Methylnaphthalene	ND	0.100		µg/L	1	4/24/2012 7:31:00 PM
Acenaphthylene	ND	0.100		µg/L	1	4/24/2012 7:31:00 PM
Acenaphthene	ND	0.100		µg/L	1	4/24/2012 7:31:00 PM
Fluorene	ND	0.100		µg/L	1	4/24/2012 7:31:00 PM
Phenanthrene	ND	0.100		µg/L	1	4/24/2012 7:31:00 PM
Anthracene	ND	0.100		µg/L	1	4/24/2012 7:31:00 PM
Fluoranthene	ND	0.100		µg/L	1	4/24/2012 7:31:00 PM
Pyrene	ND	0.100		µg/L	1	4/24/2012 7:31:00 PM
Benz(a)anthracene	ND	0.100		µg/L	1	4/24/2012 7:31:00 PM
Chrysene	ND	0.100		µg/L	1	4/24/2012 7:31:00 PM
Benzo(b)fluoranthene	ND	0.100		µg/L	1	4/24/2012 7:31:00 PM
Benzo(k)fluoranthene	ND	0.100		µg/L	1	4/24/2012 7:31:00 PM
Benzo(a)pyrene	ND	0.100		µg/L	1	4/24/2012 7:31:00 PM
Indeno(1,2,3-cd)pyrene	ND	0.100		µg/L	1	4/24/2012 7:31:00 PM
Dibenz(a,h)anthracene	ND	0.100		µg/L	1	4/24/2012 7:31:00 PM
Benzo(g,h,i)perylene	ND	0.100		µg/L	1	4/24/2012 7:31:00 PM
Surr: 2-Fluorobiphenyl	58.7	50.1-148		%REC	1	4/24/2012 7:31:00 PM
Surr: Terphenyl-d14 (surr)	82.4	68.7-130		%REC	1	4/24/2012 7:31:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Client: GeoEngineers, Inc. - Redmond **Collection Date:** 4/19/2012 10:42:00 AM
Project: Rufus 2.0
Lab ID: 1204110-003 **Matrix:** Water
Client Sample ID: MW-20-5

Volatile Organic Compounds by EPA Method 8260

Batch ID: R4043 Analyst: PH

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane (CFC-12)	ND	1.00		µg/L	1	4/21/2012 2:56:00 PM
Chloromethane	ND	1.00		µg/L	1	4/21/2012 2:56:00 PM
Vinyl chloride	ND	0.200		µg/L	1	4/21/2012 2:56:00 PM
Bromomethane	ND	1.00		µg/L	1	4/21/2012 2:56:00 PM
Trichlorofluoromethane (CFC-11)	ND	1.00		µg/L	1	4/21/2012 2:56:00 PM
Chloroethane	ND	1.00		µg/L	1	4/21/2012 2:56:00 PM
1,1-Dichloroethene	ND	1.00		µg/L	1	4/21/2012 2:56:00 PM
Methylene chloride	ND	1.00		µg/L	1	4/21/2012 2:56:00 PM
trans-1,2-Dichloroethene	ND	1.00		µg/L	1	4/21/2012 2:56:00 PM
Methyl tert-butyl ether (MTBE)	ND	1.00		µg/L	1	4/21/2012 2:56:00 PM
1,1-Dichloroethane	ND	1.00		µg/L	1	4/21/2012 2:56:00 PM
2,2-Dichloropropane	ND	2.00		µg/L	1	4/21/2012 2:56:00 PM
cis-1,2-Dichloroethene	ND	1.00		µg/L	1	4/21/2012 2:56:00 PM
Chloroform	ND	1.00		µg/L	1	4/21/2012 2:56:00 PM
1,1,1-Trichloroethane (TCA)	ND	1.00		µg/L	1	4/21/2012 2:56:00 PM
1,1-Dichloropropene	ND	1.00		µg/L	1	4/21/2012 2:56:00 PM
Carbon tetrachloride	ND	1.00		µg/L	1	4/21/2012 2:56:00 PM
1,2-Dichloroethane	ND	1.00		µg/L	1	4/21/2012 2:56:00 PM
Benzene	ND	1.00		µg/L	1	4/21/2012 2:56:00 PM
Trichloroethene (TCE)	ND	1.00		µg/L	1	4/21/2012 2:56:00 PM
1,2-Dichloropropane	ND	1.00		µg/L	1	4/21/2012 2:56:00 PM
Bromodichloromethane	ND	1.00		µg/L	1	4/21/2012 2:56:00 PM
Dibromomethane	ND	1.00		µg/L	1	4/21/2012 2:56:00 PM
cis-1,3-Dichloropropene	ND	1.00		µg/L	1	4/21/2012 2:56:00 PM
Toluene	ND	1.00		µg/L	1	4/21/2012 2:56:00 PM
trans-1,3-Dichloropropene	ND	1.00		µg/L	1	4/21/2012 2:56:00 PM
1,1,2-Trichloroethane	ND	1.00		µg/L	1	4/21/2012 2:56:00 PM
1,3-Dichloropropane	ND	1.00		µg/L	1	4/21/2012 2:56:00 PM
Tetrachloroethene (PCE)	ND	1.00		µg/L	1	4/21/2012 2:56:00 PM
Dibromochloromethane	ND	1.00		µg/L	1	4/21/2012 2:56:00 PM
1,2-Dibromoethane (EDB)	ND	0.0100		µg/L	1	4/21/2012 2:56:00 PM
Chlorobenzene	ND	1.00		µg/L	1	4/21/2012 2:56:00 PM
1,1,1,2-Tetrachloroethane	ND	1.00		µg/L	1	4/21/2012 2:56:00 PM
Ethylbenzene	ND	1.00		µg/L	1	4/21/2012 2:56:00 PM
m,p-Xylene	ND	1.00		µg/L	1	4/21/2012 2:56:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1204110**
Date Reported: **4/25/2012**

Client: GeoEngineers, Inc. - Redmond **Collection Date:** 4/19/2012 10:42:00 AM
Project: Rufus 2.0
Lab ID: 1204110-003 **Matrix:** Water
Client Sample ID: MW-20-5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: R4043		Analyst: PH
o-Xylene	ND	1.00		µg/L	1	4/21/2012 2:56:00 PM
Styrene	ND	1.00		µg/L	1	4/21/2012 2:56:00 PM
Isopropylbenzene	ND	1.00		µg/L	1	4/21/2012 2:56:00 PM
Bromoform	ND	1.00		µg/L	1	4/21/2012 2:56:00 PM
1,1,2,2-Tetrachloroethane	ND	1.00		µg/L	1	4/21/2012 2:56:00 PM
n-Propylbenzene	ND	1.00		µg/L	1	4/21/2012 2:56:00 PM
Bromobenzene	ND	1.00		µg/L	1	4/21/2012 2:56:00 PM
1,3,5-Trimethylbenzene	ND	1.00		µg/L	1	4/21/2012 2:56:00 PM
2-Chlorotoluene	ND	1.00		µg/L	1	4/21/2012 2:56:00 PM
4-Chlorotoluene	ND	1.00		µg/L	1	4/21/2012 2:56:00 PM
tert-Butylbenzene	ND	1.00		µg/L	1	4/21/2012 2:56:00 PM
1,2,3-Trichloropropane	ND	1.00		µg/L	1	4/21/2012 2:56:00 PM
1,2,4-Trichlorobenzene	ND	2.00		µg/L	1	4/21/2012 2:56:00 PM
sec-Butylbenzene	ND	1.00		µg/L	1	4/21/2012 2:56:00 PM
4-Isopropyltoluene	ND	1.00		µg/L	1	4/21/2012 2:56:00 PM
1,3-Dichlorobenzene	ND	1.00		µg/L	1	4/21/2012 2:56:00 PM
1,4-Dichlorobenzene	ND	1.00		µg/L	1	4/21/2012 2:56:00 PM
n-Butylbenzene	ND	1.00		µg/L	1	4/21/2012 2:56:00 PM
1,2-Dichlorobenzene	ND	1.00		µg/L	1	4/21/2012 2:56:00 PM
1,2-Dibromo-3-chloropropane	ND	1.00		µg/L	1	4/21/2012 2:56:00 PM
1,2,4-Trimethylbenzene	ND	1.00		µg/L	1	4/21/2012 2:56:00 PM
Hexachlorobutadiene	ND	4.00		µg/L	1	4/21/2012 2:56:00 PM
Naphthalene	ND	1.00		µg/L	1	4/21/2012 2:56:00 PM
1,2,3-Trichlorobenzene	ND	4.00		µg/L	1	4/21/2012 2:56:00 PM
Surr: 1-Bromo-4-fluorobenzene	99.8	79.2-120		%REC	1	4/21/2012 2:56:00 PM
Surr: Dibromofluoromethane	103	76-114		%REC	1	4/21/2012 2:56:00 PM
Surr: Toluene-d8	97.9	86.8-119		%REC	1	4/21/2012 2:56:00 PM
Dissolved Metals by EPA Method 200.8				Batch ID: 2270		Analyst: BR
Arsenic	ND	1.00		µg/L	1	4/20/2012 4:05:37 PM
Barium	80.3	0.500		µg/L	1	4/20/2012 4:05:37 PM
Cadmium	ND	0.200		µg/L	1	4/20/2012 4:05:37 PM
Chromium	6.62	0.500		µg/L	1	4/20/2012 4:05:37 PM
Lead	ND	1.00		µg/L	1	4/20/2012 4:05:37 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1204110**
Date Reported: **4/25/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 4/19/2012 10:42:00 AM
Project: Rufus 2.0
Lab ID: 1204110-003
Matrix: Water
Client Sample ID: MW-20-5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dissolved Metals by EPA Method 200.8				Batch ID: 2270		Analyst: BR
Selenium	ND	1.00		µg/L	1	4/20/2012 4:05:37 PM
Silver	ND	0.200		µg/L	1	4/20/2012 4:05:37 PM
Dissolved Mercury by EPA Method 245.1				Batch ID: 2274		Analyst: MC
Mercury	0.238	0.100		µg/L	1	4/23/2012 3:35:30 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Date: *4/25/2012*

Work Order: 1204110
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0

QC SUMMARY REPORT

Dissolved Metals by EPA Method 200.8

Sample ID: **MB-2270** SampType: **MBLK** Units: **µg/L** Prep Date: **4/20/2012** RunNo: **4032**
Client ID: **MBLKW** Batch ID: **2270** Analysis Date: **4/20/2012** SeqNo: **72557**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	1.00									
Barium	ND	0.500									
Cadmium	ND	0.200									
Chromium	ND	0.500									
Lead	ND	1.00									
Selenium	ND	1.00									
Silver	ND	0.200									

Sample ID: **LCS-2270** SampType: **LCS** Units: **µg/L** Prep Date: **4/20/2012** RunNo: **4032**
Client ID: **LCSW** Batch ID: **2270** Analysis Date: **4/20/2012** SeqNo: **72558**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	106	1.00	100.0	0	106	85	115				
Barium	98.2	0.500	100.0	0	98.2	85	115				
Cadmium	4.91	0.200	5.000	0	98.1	85	115				
Chromium	97.5	0.500	100.0	0	97.5	85	115				
Lead	46.5	1.00	50.00	0	93.0	85	115				
Selenium	11.0	1.00	10.00	0	110	85	115				
Silver	4.82	0.200	5.000	0	96.3	85	115				

Sample ID: **1204110-003EDUP** SampType: **DUP** Units: **µg/L** Prep Date: **4/20/2012** RunNo: **4032**
Client ID: **MW-20-5** Batch ID: **2270** Analysis Date: **4/20/2012** SeqNo: **72562**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	1.00						0	0	30	

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1204110
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0

QC SUMMARY REPORT

Dissolved Metals by EPA Method 200.8

Sample ID: **1204110-003EDUP** SampType: **DUP** Units: **µg/L** Prep Date: **4/20/2012** RunNo: **4032**
Client ID: **MW-20-5** Batch ID: **2270** Analysis Date: **4/20/2012** SeqNo: **72562**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	79.3	0.500						80.28	1.18	30	
Cadmium	ND	0.200						0	0	30	
Chromium	6.39	0.500						6.625	3.66	30	
Lead	ND	1.00						0	0	30	
Selenium	ND	1.00						0	0	30	
Silver	ND	0.200						0	0	30	

Sample ID: **1204110-003EMS** SampType: **MS** Units: **µg/L** Prep Date: **4/20/2012** RunNo: **4032**
Client ID: **MW-20-5** Batch ID: **2270** Analysis Date: **4/20/2012** SeqNo: **72563**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	572	1.00	500.0	0.3030	114	70	130				
Barium	581	0.500	500.0	80.28	100	70	130				
Cadmium	24.8	0.200	25.00	0.1100	98.9	70	130				
Chromium	524	0.500	500.0	6.625	103	70	130				
Lead	249	1.00	250.0	0.1865	99.7	70	130				
Selenium	53.0	1.00	50.00	0	106	70	130				
Silver	22.2	0.200	25.00	0	88.9	70	130				

Sample ID: **1204110-003EMSD** SampType: **MSD** Units: **µg/L** Prep Date: **4/20/2012** RunNo: **4032**
Client ID: **MW-20-5** Batch ID: **2270** Analysis Date: **4/20/2012** SeqNo: **72564**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	576	1.00	500.0	0.3030	115	70	130	572.1	0.755	30	
Barium	578	0.500	500.0	80.28	99.5	70	130	580.6	0.453	30	

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Date: *4/25/2012*

Work Order: 1204110
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0

QC SUMMARY REPORT

Dissolved Metals by EPA Method 200.8

Sample ID: **1204110-003EMSD** SampType: **MSD** Units: **µg/L** Prep Date: **4/20/2012** RunNo: **4032**
Client ID: **MW-20-5** Batch ID: **2270** Analysis Date: **4/20/2012** SeqNo: **72564**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	24.6	0.200	25.00	0.1100	97.9	70	130	24.83	1.01	30	
Chromium	517	0.500	500.0	6.625	102	70	130	523.8	1.26	30	
Lead	251	1.00	250.0	0.1865	100	70	130	249.3	0.508	30	
Selenium	54.9	1.00	50.00	0	110	70	130	52.98	3.54	30	
Silver	22.9	0.200	25.00	0	91.4	70	130	22.22	2.83	30	

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1204110
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0

QC SUMMARY REPORT

Dissolved Mercury by EPA Method 245.1

Sample ID: **MB-2274** SampType: **MBLK** Units: **µg/L** Prep Date: **4/23/2012** RunNo: **4050**
Client ID: **MBLKW** Batch ID: **2274** Analysis Date: **4/23/2012** SeqNo: **72925**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.100									

Sample ID: **LCS-2274** SampType: **LCS** Units: **µg/L** Prep Date: **4/23/2012** RunNo: **4050**
Client ID: **LCSW** Batch ID: **2274** Analysis Date: **4/23/2012** SeqNo: **72942**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	5.50	0.100	5.000	0	110	85	115				

Sample ID: **1204110-001EDUP** SampType: **DUP** Units: **µg/L** Prep Date: **4/23/2012** RunNo: **4050**
Client ID: **MW-14-2** Batch ID: **2274** Analysis Date: **4/23/2012** SeqNo: **72943**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.100						0	0	20	R

Sample ID: **1204110-001EMS** SampType: **MS** Units: **µg/L** Prep Date: **4/23/2012** RunNo: **4050**
Client ID: **MW-14-2** Batch ID: **2274** Analysis Date: **4/23/2012** SeqNo: **72953**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.915	0.100	1.000	0.05100	86.4	85	115				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Date: *4/25/2012*

Work Order: 1204110
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0

QC SUMMARY REPORT

Dissolved Mercury by EPA Method 245.1

Sample ID: **1204110-001EMSD** SampType: **MSD** Units: **µg/L** Prep Date: **4/23/2012** RunNo: **4050**
Client ID: **MW-14-2** Batch ID: **2274** Analysis Date: **4/23/2012** SeqNo: **72954**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	1.05	0.100	1.000	0.05100	99.9	85	115	0.9150	13.7	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1204110
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID: **1204110-003CDUP** SampType: **DUP** Units: **µg/L** Prep Date: **4/23/2012** RunNo: **4057**
Client ID: **MW-20-5** Batch ID: **2271** Analysis Date: **4/24/2012** SeqNo: **73013**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	50.0						0	0	30	
Heavy Oil	ND	100						0	0	30	
Surr: 2-Fluorobiphenyl	104		160.0		64.9	50	150		0		
Surr: o-Terphenyl	142		160.0		88.8	50	150		0		

Sample ID: **LCS-2271** SampType: **LCS** Units: **µg/L** Prep Date: **4/23/2012** RunNo: **4057**
Client ID: **LCSW** Batch ID: **2271** Analysis Date: **4/24/2012** SeqNo: **73018**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	1,590	50.0	2,000	0	79.6	65	135				
Surr: 2-Fluorobiphenyl	112		160.0		69.7	50	150				
Surr: o-Terphenyl	158		160.0		98.7	50	150				

Sample ID: **MB-2271** SampType: **MBLK** Units: **µg/L** Prep Date: **4/23/2012** RunNo: **4057**
Client ID: **MBLKW** Batch ID: **2271** Analysis Date: **4/24/2012** SeqNo: **73019**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	50.0									
Heavy Oil	ND	100									
Surr: 2-Fluorobiphenyl	95.0		160.0		59.4	50	150				
Surr: o-Terphenyl	137		160.0		85.7	50	150				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1204110
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0

QC SUMMARY REPORT

Gasoline by NWTPH-Gx

Sample ID: **MB-R4037** SampType: **MBLK** Units: **µg/L** Prep Date: **4/20/2012** RunNo: **4037**
Client ID: **MBLKW** Batch ID: **R4037** Analysis Date: **4/20/2012** SeqNo: **72623**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	50.0									
Surr: 1,4-Difluorobenzene	9.08		10.00		90.8	65	135				
Surr: 4-Bromofluorobenzene	11.2		10.00		112	65	135				

Sample ID: **LCS-R4037** SampType: **LCS** Units: **µg/L** Prep Date: **4/20/2012** RunNo: **4037**
Client ID: **LCSW** Batch ID: **R4037** Analysis Date: **4/20/2012** SeqNo: **72624**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	458	50.0	500.0	0	91.6	65	135				
Surr: 1,4-Difluorobenzene	9.28		10.00		92.8	65	135				
Surr: 4-Bromofluorobenzene	8.62		10.00		86.2	65	135				

Sample ID: **LCSD-R4037** SampType: **LCSD** Units: **µg/L** Prep Date: **4/20/2012** RunNo: **4037**
Client ID: **LCSW02** Batch ID: **R4037** Analysis Date: **4/20/2012** SeqNo: **72625**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	471	50.0	500.0	0	94.3	65	135	457.9	2.89	30	
Surr: 1,4-Difluorobenzene	9.46		10.00		94.6	65	135		0	0	
Surr: 4-Bromofluorobenzene	8.76		10.00		87.6	65	135		0	0	

Sample ID: **1204110-002BDUP** SampType: **DUP** Units: **µg/L** Prep Date: **4/20/2012** RunNo: **4037**
Client ID: **MW-14-3** Batch ID: **R4037** Analysis Date: **4/21/2012** SeqNo: **72632**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	50.0						0	0	30	

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Date: *4/25/2012*

Work Order: 1204110
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0

QC SUMMARY REPORT

Gasoline by NWTPH-Gx

Sample ID: **1204110-002BDUP** SampType: **DUP** Units: **µg/L** Prep Date: **4/20/2012** RunNo: **4037**
Client ID: **MW-14-3** Batch ID: **R4037** Analysis Date: **4/21/2012** SeqNo: **72632**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 1,4-Difluorobenzene	9.82		10.00		98.2	65	135		0	0	
Surr: 4-Bromofluorobenzene	10.7		10.00		107	65	135		0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1204110
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: **1204115-001BDUP** SampType: **DUP** Units: **µg/L** Prep Date: **4/24/2012** RunNo: **4066**
Client ID: **BATCH** Batch ID: **2282** Analysis Date: **4/24/2012** SeqNo: **73130**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	0.100						0	0	30	
2-Methylnaphthalene	ND	0.100						0	0	30	
1-Methylnaphthalene	ND	0.100						0	0	30	
Acenaphthylene	ND	0.100						0	0	30	
Acenaphthene	ND	0.100						0	0	30	
Fluorene	ND	0.100						0	0	30	
Phenanthrene	ND	0.100						0	0	30	
Anthracene	ND	0.100						0	0	30	
Fluoranthene	ND	0.100						0	0	30	
Pyrene	ND	0.100						0	0	30	
Benz(a)anthracene	ND	0.100						0	0	30	
Chrysene	ND	0.100						0	0	30	
Benzo(b)fluoranthene	ND	0.100						0	0	30	
Benzo(k)fluoranthene	ND	0.100						0	0	30	
Benzo(a)pyrene	ND	0.100						0	0	30	
Indeno(1,2,3-cd)pyrene	ND	0.100						0	0	30	
Dibenz(a,h)anthracene	ND	0.100						0	0	30	
Benzo(g,h,i)perylene	ND	0.100						0	0	30	
Surr: 2-Fluorobiphenyl	1.24		2.000		61.8	50.1	148		0		
Surr: Terphenyl-d14 (surr)	1.59		2.000		79.5	68.7	130		0		

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1204110
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: **1204115-001BMS** SampType: **MS** Units: **µg/L** Prep Date: **4/24/2012** RunNo: **4066**
Client ID: **BATCH** Batch ID: **2282** Analysis Date: **4/24/2012** SeqNo: **73131**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acenaphthene	2.29	0.100	4.000	0	57.1	46.4	131				
Pyrene	3.34	0.100	4.000	0	83.5	41.9	150				
Surr: 2-Fluorobiphenyl	1.17		2.000		58.7	50.1	148				
Surr: Terphenyl-d14 (surr)	1.77		2.000		88.3	68.7	130				

Sample ID: **LCS-2282** SampType: **LCS** Units: **µg/L** Prep Date: **4/24/2012** RunNo: **4066**
Client ID: **LCSW** Batch ID: **2282** Analysis Date: **4/24/2012** SeqNo: **73133**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acenaphthene	2.47	0.100	4.000	0	61.6	51	135				
Pyrene	3.31	0.100	4.000	0	82.8	50.5	143				
Surr: 2-Fluorobiphenyl	1.23		2.000		61.7	50.1	148				
Surr: Terphenyl-d14 (surr)	1.67		2.000		83.7	68.7	130				

Sample ID: **MB-2282** SampType: **MBLK** Units: **µg/L** Prep Date: **4/24/2012** RunNo: **4066**
Client ID: **MBLKW** Batch ID: **2282** Analysis Date: **4/24/2012** SeqNo: **73134**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	0.100									
2-Methylnaphthalene	ND	0.100									
1-Methylnaphthalene	ND	0.100									
Acenaphthylene	ND	0.100									
Acenaphthene	ND	0.100									
Fluorene	ND	0.100									
Phenanthrene	0.133	0.100									

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1204110
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: **MB-2282** SampType: **MBLK** Units: **µg/L** Prep Date: **4/24/2012** RunNo: **4066**
Client ID: **MBLKW** Batch ID: **2282** Analysis Date: **4/24/2012** SeqNo: **73134**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Anthracene	ND	0.100									
Fluoranthene	ND	0.100									
Pyrene	ND	0.100									
Benz(a)anthracene	ND	0.100									
Chrysene	ND	0.100									
Benzo(b)fluoranthene	ND	0.100									
Benzo(k)fluoranthene	ND	0.100									
Benzo(a)pyrene	ND	0.100									
Indeno(1,2,3-cd)pyrene	ND	0.100									
Dibenz(a,h)anthracene	ND	0.100									
Benzo(g,h,i)perylene	ND	0.100									
Surr: 2-Fluorobiphenyl	1.15		2.000		57.5	50.1	148				
Surr: Terphenyl-d14 (surr)	1.54		2.000		77.0	68.7	130				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1204110
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **MB-R4043** SampType: **MBLK** Units: **µg/L** Prep Date: **4/21/2012** RunNo: **4043**
Client ID: **MBLKW** Batch ID: **R4043** Analysis Date: **4/21/2012** SeqNo: **72787**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	ND	1.00									
Chloromethane	ND	1.00									
Vinyl chloride	ND	0.200									
Bromomethane	ND	1.00									
Trichlorofluoromethane (CFC-11)	ND	1.00									
Chloroethane	ND	1.00									
1,1-Dichloroethene	ND	1.00									
Methylene chloride	ND	1.00									
trans-1,2-Dichloroethene	ND	1.00									
Methyl tert-butyl ether (MTBE)	ND	1.00									
1,1-Dichloroethane	ND	1.00									
2,2-Dichloropropane	ND	2.00									
cis-1,2-Dichloroethene	ND	1.00									
Chloroform	ND	1.00									
1,1,1-Trichloroethane (TCA)	ND	1.00									
1,1-Dichloropropene	ND	1.00									
Carbon tetrachloride	ND	1.00									
1,2-Dichloroethane	ND	1.00									
Benzene	ND	1.00									
Trichloroethene (TCE)	ND	1.00									
1,2-Dichloropropane	ND	1.00									
Bromodichloromethane	ND	1.00									
Dibromomethane	ND	1.00									
cis-1,3-Dichloropropene	ND	1.00									
Toluene	ND	1.00									

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1204110
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **MB-R4043** SampType: **MBLK** Units: **µg/L** Prep Date: **4/21/2012** RunNo: **4043**
Client ID: **MBLKW** Batch ID: **R4043** Analysis Date: **4/21/2012** SeqNo: **72787**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
trans-1,3-Dichloropropene	ND	1.00									
1,1,2-Trichloroethane	ND	1.00									
1,3-Dichloropropane	ND	1.00									
Tetrachloroethene (PCE)	ND	1.00									
Dibromochloromethane	ND	1.00									
1,2-Dibromoethane (EDB)	ND	0.0100									
Chlorobenzene	ND	1.00									
1,1,1,2-Tetrachloroethane	ND	1.00									
Ethylbenzene	ND	1.00									
m,p-Xylene	ND	1.00									
o-Xylene	ND	1.00									
Styrene	ND	1.00									
Isopropylbenzene	ND	1.00									
Bromoform	ND	1.00									
1,1,2,2-Tetrachloroethane	ND	1.00									
n-Propylbenzene	ND	1.00									
Bromobenzene	ND	1.00									
1,3,5-Trimethylbenzene	ND	1.00									
2-Chlorotoluene	ND	1.00									
4-Chlorotoluene	ND	1.00									
tert-Butylbenzene	ND	1.00									
1,2,3-Trichloropropane	ND	1.00									
1,2,4-Trichlorobenzene	ND	2.00									
sec-Butylbenzene	ND	1.00									
4-Isopropyltoluene	ND	1.00									

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1204110
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **MB-R4043**	SampType: **MBLK**	Units: **µg/L**	Prep Date: **4/21/2012**	RunNo: **4043**
Client ID: **MBLKW**	Batch ID: **R4043**		Analysis Date: **4/21/2012**	SeqNo: **72787**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,3-Dichlorobenzene	ND	1.00									
1,4-Dichlorobenzene	ND	1.00									
n-Butylbenzene	ND	1.00									
1,2-Dichlorobenzene	ND	1.00									
1,2-Dibromo-3-chloropropane	ND	1.00									
1,2,4-Trimethylbenzene	ND	1.00									
Hexachlorobutadiene	ND	4.00									
Naphthalene	ND	1.00									
1,2,3-Trichlorobenzene	ND	4.00									
Surr: 1-Bromo-4-fluorobenzene	9.34		10.00		93.4	79.2	120				
Surr: Dibromofluoromethane	9.73		10.00		97.3	76	114				
Surr: Toluene-d8	9.72		10.00		97.2	86.8	119				

Sample ID: **LCS-R4043**	SampType: **LCS**	Units: **µg/L**	Prep Date: **4/21/2012**	RunNo: **4043**
Client ID: **LCSW**	Batch ID: **R4043**		Analysis Date: **4/21/2012**	SeqNo: **72788**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethene	10.3	1.00	10.00	0	103	62.3	136				
Benzene	9.50	1.00	10.00	0	95.0	73.9	125				
Trichloroethene (TCE)	9.60	1.00	10.00	0	96.0	59.7	125				
Toluene	9.74	1.00	10.00	0	97.4	73	126				
Tetrachloroethene (PCE)	6.71	1.00	8.000	0	83.9	50	116				
Chlorobenzene	9.88	1.00	10.00	0	98.8	75.1	121				
Surr: 1-Bromo-4-fluorobenzene	9.55		10.00		95.5	79.2	120				
Surr: Dibromofluoromethane	9.63		10.00		96.3	76	114				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1204110
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **LCS-R4043**	SampType: **LCS**	Units: **µg/L**	Prep Date: **4/21/2012**	RunNo: **4043**
Client ID: **LCSW**	Batch ID: **R4043**		Analysis Date: **4/21/2012**	SeqNo: **72788**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Toluene-d8	9.71		10.00		97.1	86.8	119				

Sample ID: **1204110-002AMS**	SampType: **MS**	Units: **µg/L**	Prep Date: **4/21/2012**	RunNo: **4043**
Client ID: **MW-14-3**	Batch ID: **R4043**		Analysis Date: **4/21/2012**	SeqNo: **72798**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethene	10.0	1.00	10.00	0	100	54.9	139				
Benzene	9.91	1.00	10.00	0	99.1	70.7	126				
Trichloroethene (TCE)	9.78	1.00	10.00	0	97.8	51.8	131				
Toluene	9.82	1.00	10.00	0	98.2	72.4	122				
Tetrachloroethene (PCE)	6.65	1.00	8.000	0	83.1	50	121				
Chlorobenzene	9.81	1.00	10.00	0	98.1	68.3	123				
Surr: 1-Bromo-4-fluorobenzene	9.97		10.00		99.7	79.2	120				
Surr: Dibromofluoromethane	10.2		10.00		103	76	114				
Surr: Toluene-d8	9.81		10.00		98.1	86.8	119				

Sample ID: **1204110-003ADUP**	SampType: **DUP**	Units: **µg/L**	Prep Date: **4/21/2012**	RunNo: **4043**
Client ID: **MW-20-5**	Batch ID: **R4043**		Analysis Date: **4/21/2012**	SeqNo: **72800**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	ND	1.00						0	0	30	
Chloromethane	ND	1.00						0	0	30	
Vinyl chloride	ND	0.200						0	0	30	
Bromomethane	ND	1.00						0	0	30	
Trichlorofluoromethane (CFC-11)	ND	1.00						0	0	30	

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1204110
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **1204110-003ADUP** SampType: **DUP** Units: **µg/L** Prep Date: **4/21/2012** RunNo: **4043**
Client ID: **MW-20-5** Batch ID: **R4043** Analysis Date: **4/21/2012** SeqNo: **72800**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloroethane	ND	1.00						0	0	30	
1,1-Dichloroethene	ND	1.00						0	0	30	
Methylene chloride	ND	1.00						0	0	30	
trans-1,2-Dichloroethene	ND	1.00						0	0	30	
Methyl tert-butyl ether (MTBE)	ND	1.00						0	0	30	
1,1-Dichloroethane	ND	1.00						0	0	30	
2,2-Dichloropropane	ND	2.00						0	0	30	
cis-1,2-Dichloroethene	ND	1.00						0	0	30	
Chloroform	ND	1.00						0	0	30	
1,1,1-Trichloroethane (TCA)	ND	1.00						0	0	30	
1,1-Dichloropropene	ND	1.00						0	0	30	
Carbon tetrachloride	ND	1.00						0	0	30	
1,2-Dichloroethane	ND	1.00						0	0	30	
Benzene	ND	1.00						0	0	30	
Trichloroethene (TCE)	ND	1.00						0	0	30	
1,2-Dichloropropane	ND	1.00						0	0	30	
Bromodichloromethane	ND	1.00						0	0	30	
Dibromomethane	ND	1.00						0	0	30	
cis-1,3-Dichloropropene	ND	1.00						0	0	30	
Toluene	ND	1.00						0	0	30	
trans-1,3-Dichloropropene	ND	1.00						0	0	30	
1,1,2-Trichloroethane	ND	1.00						0	0	30	
1,3-Dichloropropane	ND	1.00						0	0	30	
Tetrachloroethene (PCE)	ND	1.00						0	0	30	
Dibromochloromethane	ND	1.00						0	0	30	

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1204110
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **1204110-003ADUP** SampType: **DUP** Units: **µg/L** Prep Date: **4/21/2012** RunNo: **4043**
Client ID: **MW-20-5** Batch ID: **R4043** Analysis Date: **4/21/2012** SeqNo: **72800**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2-Dibromoethane (EDB)	ND	0.0100						0	0	30	
Chlorobenzene	ND	1.00						0	0	30	
1,1,1,2-Tetrachloroethane	ND	1.00						0	0	30	
Ethylbenzene	ND	1.00						0	0	30	
m,p-Xylene	ND	1.00						0	0	30	
o-Xylene	ND	1.00						0	0	30	
Styrene	ND	1.00						0	0	30	
Isopropylbenzene	ND	1.00						0	0	30	
Bromoform	ND	1.00						0	0	30	
1,1,2,2-Tetrachloroethane	ND	1.00						0	0	30	
n-Propylbenzene	ND	1.00						0	0	30	
Bromobenzene	ND	1.00						0	0	30	
1,3,5-Trimethylbenzene	ND	1.00						0	0	30	
2-Chlorotoluene	ND	1.00						0	0	30	
4-Chlorotoluene	ND	1.00						0	0	30	
tert-Butylbenzene	ND	1.00						0	0	30	
1,2,3-Trichloropropane	ND	1.00						0	0	30	
1,2,4-Trichlorobenzene	ND	2.00						0	0	30	
sec-Butylbenzene	ND	1.00						0	0	30	
4-Isopropyltoluene	ND	1.00						0	0	30	
1,3-Dichlorobenzene	ND	1.00						0	0	30	
1,4-Dichlorobenzene	ND	1.00						0	0	30	
n-Butylbenzene	ND	1.00						0	0	30	
1,2-Dichlorobenzene	ND	1.00						0	0	30	
1,2-Dibromo-3-chloropropane	ND	1.00						0	0	30	

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Date: *4/25/2012*

Work Order: 1204110
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **1204110-003ADUP** SampType: **DUP** Units: **µg/L** Prep Date: **4/21/2012** RunNo: **4043**
Client ID: **MW-20-5** Batch ID: **R4043** Analysis Date: **4/21/2012** SeqNo: **72800**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trimethylbenzene	ND	1.00						0	0	30	
Hexachlorobutadiene	ND	4.00						0	0	30	
Naphthalene	ND	1.00						0	0	30	
1,2,3-Trichlorobenzene	ND	4.00						0	0	30	
Surr: 1-Bromo-4-fluorobenzene	10.2		10.00		102	79.2	120		0		
Surr: Dibromofluoromethane	10.4		10.00		104	76	114		0		
Surr: Toluene-d8	9.78		10.00		97.8	86.8	119		0		

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Sample Log-In Check List

Client Name: **GEI1**	Work Order Number: **1204110**
Logged by: **Troy Zehr**	Date Received: **4/19/2012 4:15:00 PM**

Chain of Custody

1.	Were custodial seals present?	Yes ☐	No ☐	Not Required ☑
2.	Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
3.	How was the sample delivered?	Client		

Log In

4.	Coolers are present?	Yes ☑	No ☐	NA ☐
5.	Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
6.	Were all coolers received at a temperature of >0° C to 10.0°C	Yes ☑	No ☐	NA ☐
7.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
8.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
9.	Are samples properly preserved?	Yes ☑	No ☐	
10.	Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
11.	Is there headspace present in VOA vials?	Yes ☐	No ☑	NA ☐
12.	Did all sample containers arrive in good condition?(unbroken)	Yes ☑	No ☐	
13.	Does paperwork match bottle labels?	Yes ☑	No ☐	
14.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
15.	Is it clear what analyses were requested?	Yes ☑	No ☐	
16.	Were all holding times able to be met?	Yes ☑	No ☐	

Special Handling (if applicable)

17. 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:			

18. Additional remarks/Disrepancies

Item Information

Item #	Temp ºC	Condition
Cooler 1	2.6	Good
Cooler 2	3.4	Good

Fremont analytical

Chain of Custody Record

1313 N. 35th Street
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Laboratory Project No (internal): 120410
Date: 4-19-12
Page: 1 of 1

Client: GEOENGINEERS
Address:
City, State, Zip: REDMOND, WA Tel: 425-861-6000
Reports To (PM): JESSICA SMITH Fax: 425-861-6000 Email: JSMITH@GEOENGINEERS.COM

Project Name: RUFUS 2.0
Location: SEATTLE, WA
Collected by: BRIAN ANDERSON
Project No: 2043-001-02

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	GX/BTEX by EPA 8021b	BTEX by 8260	Gasoline Range Organics	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics	SVOC VOL (EPA 8270) SIM	PAH (EPA 8270) SIM	PCBs (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals* (6020 / 200.8) Total (T) / Dissolved (D)	Anions (IC)**	D:S RCRA 8 METALS 6020/7000 SERIES	Comments/Depth
1	~~MW-14-1~~	4-19																	
2	MW-14-2	4-19	1210	W	X	X				X							X		7 BOTTLES SOME 1/2 LITERS
3	MW-14-3	4-19	1256	W	X	X				X							X		8 BOTTLES SOME 1/2 LITERS
4	MW-20-5	4-19	1042	W	X	X				X							X		7 BOTTLES
5																			
6																			
7																			
8																			
9																			
10																			

*Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate-Nitrite

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab (A fee may be assessed if samples are retained more than 30 days)

Relinquished	Date/Time	Received	Date/Time
	4-19-12		4/19/12 1615
Relinquished	Date/Time	Received	Date/Time

Special Remarks: METALS NEED TO BE LAB FILTERED

TAT -> Next Day 2 Day 3 Day STD

1311 N. 35th St.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

GeoEngineers, Inc. - Redmond
Jessica Smith
8410 154th Ave. NE
Redmond, Washington 98052

RE: Rufus 2.0
Lab ID: 1204093

April 23, 2012

Attention Jessica Smith:

Fremont Analytical, Inc. received 30 sample(s) on 4/18/2012 for the analyses presented in the following report.

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.
Gasoline by NWTPH-Gx
Mercury by EPA Method 7471
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)
Sample Moisture (Percent Moisture)
Total Metals by EPA Method 6020

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Michael Dee
Sr. Chemist / Principal

Date: *04/23/2012*

CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0
Lab Order: 1204093

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1204093-001	B20-14-2.5	04/19/2012 8:45 AM	04/19/2012 3:49 PM
1204093-002	B20-14-5	04/19/2012 9:00 AM	04/19/2012 3:49 PM
1204093-003	B20-14-7.5	04/19/2012 9:06 AM	04/19/2012 3:49 PM
1204093-004	B20-14-10	04/19/2012 9:15 AM	04/19/2012 3:49 PM
1204093-005	B20-14-12.5	04/19/2012 9:40 AM	04/19/2012 3:49 PM
1204093-006	B20-14-15	04/19/2012 9:55 AM	04/19/2012 3:49 PM
1204093-013	B20-15-2.5	04/19/2012 10:20 AM	04/19/2012 3:49 PM
1204093-014	B20-15-5	04/19/2012 10:30 AM	04/19/2012 3:49 PM
1204093-015	B20-15-7.5	04/19/2012 10:38 AM	04/19/2012 3:49 PM
1204093-016	B20-15-10	04/19/2012 10:49 AM	04/19/2012 3:49 PM
1204093-017	B20-15-12.5	04/19/2012 10:56 AM	04/19/2012 3:49 PM
1204093-018	B20-15-15	04/19/2012 11:12 AM	04/19/2012 3:49 PM
1204093-025	B20-16-2.5	04/19/2012 11:50 AM	04/19/2012 3:49 PM
1204093-026	B20-16-5	04/19/2012 12:04 PM	04/19/2012 3:49 PM
1204093-027	B20-16-7.5	04/19/2012 12:10 PM	04/19/2012 3:49 PM
1204093-028	B20-16-10	04/19/2012 12:20 PM	04/19/2012 3:49 PM
1204093-029	B20-16-12.5	04/19/2012 12:34 PM	04/19/2012 3:49 PM
1204093-030	B20-16-15	04/19/2012 12:42 PM	04/19/2012 3:49 PM
1204093-037	B20-17-2.5	04/19/2012 1:07 PM	04/19/2012 3:49 PM
1204093-038	B20-17-5	04/19/2012 1:14 PM	04/19/2012 3:49 PM
1204093-039	B20-17-7.5	04/19/2012 1:20 PM	04/19/2012 3:49 PM
1204093-040	B20-17-10	04/19/2012 1:30 PM	04/19/2012 3:49 PM
1204093-041	B20-17-12.5	04/19/2012 1:37 PM	04/19/2012 3:49 PM
1204093-042	B20-17-15	04/19/2012 1:45 PM	04/19/2012 3:49 PM
1204093-049	B20-18-2.5	04/19/2012 2:00 PM	04/19/2012 3:49 PM
1204093-050	B20-18-5	04/19/2012 2:07 PM	04/19/2012 3:49 PM
1204093-051	B20-18-7.5	04/19/2012 2:17 PM	04/19/2012 3:49 PM
1204093-052	B20-18-10	04/19/2012 2:27 PM	04/19/2012 3:49 PM
1204093-053	B20-18-12.5	04/19/2012 2:37 PM	04/19/2012 3:49 PM
1204093-054	B20-18-15	04/19/2012 2:47 PM	04/19/2012 3:49 PM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

Case Narrative

WO#: **1204093**
Date: **4/23/2012**

CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0

I. SAMPLE RECEIPT:
All samples were received intact. The internal ice chest temperatures were measured on receipt and are recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Analytical Report

WO#: **1204093**
Date Reported: **4/23/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 4/19/2012 9:06:00 AM
Project: Rufus 2.0
Lab ID: 1204093-003
Matrix: Soil
Client Sample ID: B20-14-7.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 2265		Analyst: EM
Diesel (Fuel Oil)	ND	23.4		mg/Kg-dry	1	4/20/2012 5:43:00 PM
Heavy Oil	ND	58.5		mg/Kg-dry	1	4/20/2012 5:43:00 PM
Surr: 2-Fluorobiphenyl	101	50-150		%REC	1	4/20/2012 5:43:00 PM
Surr: o-Terphenyl	99.3	50-150		%REC	1	4/20/2012 5:43:00 PM
Gasoline by NWTPH-Gx				Batch ID: 2266		Analyst: PH
Gasoline	ND	6.14		mg/Kg-dry	1	4/20/2012 1:14:00 PM
Surr: 1,4-Difluorobenzene	94.6	65-135		%REC	1	4/20/2012 1:14:00 PM
Surr: 4-Bromofluorobenzene	113	65-135		%REC	1	4/20/2012 1:14:00 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 2264		Analyst: MD
Naphthalene	ND	57.5		µg/Kg-dry	1	4/21/2012 2:48:00 PM
2-Methylnaphthalene	ND	57.5		µg/Kg-dry	1	4/21/2012 2:48:00 PM
1-Methylnaphthalene	ND	57.5		µg/Kg-dry	1	4/21/2012 2:48:00 PM
Acenaphthylene	ND	57.5		µg/Kg-dry	1	4/21/2012 2:48:00 PM
Acenaphthene	ND	57.5		µg/Kg-dry	1	4/21/2012 2:48:00 PM
Fluorene	ND	57.5		µg/Kg-dry	1	4/21/2012 2:48:00 PM
Phenanthrene	ND	57.5		µg/Kg-dry	1	4/21/2012 2:48:00 PM
Anthracene	ND	57.5		µg/Kg-dry	1	4/21/2012 2:48:00 PM
Fluoranthene	ND	57.5		µg/Kg-dry	1	4/21/2012 2:48:00 PM
Pyrene	ND	57.5		µg/Kg-dry	1	4/21/2012 2:48:00 PM
Benz(a)anthracene	ND	57.5		µg/Kg-dry	1	4/21/2012 2:48:00 PM
Chrysene	ND	57.5		µg/Kg-dry	1	4/21/2012 2:48:00 PM
Benzo(b)fluoranthene	ND	57.5		µg/Kg-dry	1	4/21/2012 2:48:00 PM
Benzo(k)fluoranthene	ND	57.5		µg/Kg-dry	1	4/21/2012 2:48:00 PM
Benzo(a)pyrene	ND	57.5		µg/Kg-dry	1	4/21/2012 2:48:00 PM
Indeno(1,2,3-cd)pyrene	ND	57.5		µg/Kg-dry	1	4/21/2012 2:48:00 PM
Dibenz(a,h)anthracene	ND	57.5		µg/Kg-dry	1	4/21/2012 2:48:00 PM
Benzo(g,h,i)perylene	ND	57.5		µg/Kg-dry	1	4/21/2012 2:48:00 PM
Surr: 2-Fluorobiphenyl	67.8	53.5-148		%REC	1	4/21/2012 2:48:00 PM
Surr: Terphenyl-d14 (surr)	53.4	50.4-111		%REC	1	4/21/2012 2:48:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1204093**
Date Reported: **4/23/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 4/19/2012 9:06:00 AM
Project: Rufus 2.0
Lab ID: 1204093-003
Matrix: Soil
Client Sample ID: B20-14-7.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 2263		Analyst: BR
Arsenic	4.20	0.0826		mg/Kg-dry	1	4/20/2012 6:19:46 PM
Barium	83.1	0.413		mg/Kg-dry	1	4/20/2012 6:19:46 PM
Cadmium	ND	0.165		mg/Kg-dry	1	4/20/2012 6:19:46 PM
Chromium	36.0	0.0826		mg/Kg-dry	1	4/20/2012 6:19:46 PM
Lead	4.35	0.165		mg/Kg-dry	1	4/20/2012 6:19:46 PM
Selenium	ND	0.413		mg/Kg-dry	1	4/20/2012 6:19:46 PM
Silver	ND	0.0826		mg/Kg-dry	1	4/20/2012 6:19:46 PM
Mercury by EPA Method 7471				Batch ID: 2268		Analyst: MC
Mercury	ND	0.282		mg/Kg-dry	1	4/20/2012 4:06:40 PM
Sample Moisture (Percent Moisture)				Batch ID: R4038		Analyst: EM
Percent Moisture	14.7			wt%	1	4/23/2012 10:02:49 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1204093**
Date Reported: **4/23/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 4/19/2012 9:40:00 AM
Project: Rufus 2.0
Lab ID: 1204093-005
Matrix: Soil
Client Sample ID: B20-14-12.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 2265		Analyst: EM
Diesel (Fuel Oil)	ND	22.2		mg/Kg-dry	1	4/20/2012 6:11:00 PM
Heavy Oil	ND	55.4		mg/Kg-dry	1	4/20/2012 6:11:00 PM
Surr: 2-Fluorobiphenyl	103	50-150		%REC	1	4/20/2012 6:11:00 PM
Surr: o-Terphenyl	99.4	50-150		%REC	1	4/20/2012 6:11:00 PM
Gasoline by NWTPH-Gx				Batch ID: 2266		Analyst: PH
Gasoline	ND	4.65		mg/Kg-dry	1	4/20/2012 2:14:00 PM
Surr: 1,4-Difluorobenzene	101	65-135		%REC	1	4/20/2012 2:14:00 PM
Surr: 4-Bromofluorobenzene	117	65-135		%REC	1	4/20/2012 2:14:00 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 2264		Analyst: MD
Naphthalene	ND	55.4		µg/Kg-dry	1	4/21/2012 3:13:00 PM
2-Methylnaphthalene	ND	55.4		µg/Kg-dry	1	4/21/2012 3:13:00 PM
1-Methylnaphthalene	ND	55.4		µg/Kg-dry	1	4/21/2012 3:13:00 PM
Acenaphthylene	ND	55.4		µg/Kg-dry	1	4/21/2012 3:13:00 PM
Acenaphthene	ND	55.4		µg/Kg-dry	1	4/21/2012 3:13:00 PM
Fluorene	ND	55.4		µg/Kg-dry	1	4/21/2012 3:13:00 PM
Phenanthrene	ND	55.4		µg/Kg-dry	1	4/21/2012 3:13:00 PM
Anthracene	ND	55.4		µg/Kg-dry	1	4/21/2012 3:13:00 PM
Fluoranthene	ND	55.4		µg/Kg-dry	1	4/21/2012 3:13:00 PM
Pyrene	ND	55.4		µg/Kg-dry	1	4/21/2012 3:13:00 PM
Benz(a)anthracene	ND	55.4		µg/Kg-dry	1	4/21/2012 3:13:00 PM
Chrysene	ND	55.4		µg/Kg-dry	1	4/21/2012 3:13:00 PM
Benzo(b)fluoranthene	ND	55.4		µg/Kg-dry	1	4/21/2012 3:13:00 PM
Benzo(k)fluoranthene	ND	55.4		µg/Kg-dry	1	4/21/2012 3:13:00 PM
Benzo(a)pyrene	ND	55.4		µg/Kg-dry	1	4/21/2012 3:13:00 PM
Indeno(1,2,3-cd)pyrene	ND	55.4		µg/Kg-dry	1	4/21/2012 3:13:00 PM
Dibenz(a,h)anthracene	ND	55.4		µg/Kg-dry	1	4/21/2012 3:13:00 PM
Benzo(g,h,i)perylene	ND	55.4		µg/Kg-dry	1	4/21/2012 3:13:00 PM
Surr: 2-Fluorobiphenyl	91.0	53.5-148		%REC	1	4/21/2012 3:13:00 PM
Surr: Terphenyl-d14 (surr)	67.2	50.4-111		%REC	1	4/21/2012 3:13:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1204093**
Date Reported: **4/23/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 4/19/2012 9:40:00 AM
Project: Rufus 2.0
Lab ID: 1204093-005
Matrix: Soil
Client Sample ID: B20-14-12.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 2263		Analyst: BR
Arsenic	1.34	0.0826		mg/Kg-dry	1	4/20/2012 6:29:02 PM
Barium	53.0	0.413		mg/Kg-dry	1	4/20/2012 6:29:02 PM
Cadmium	ND	0.165		mg/Kg-dry	1	4/20/2012 6:29:02 PM
Chromium	26.6	0.0826		mg/Kg-dry	1	4/20/2012 6:29:02 PM
Lead	2.02	0.165		mg/Kg-dry	1	4/20/2012 6:29:02 PM
Selenium	ND	0.413		mg/Kg-dry	1	4/20/2012 6:29:02 PM
Silver	ND	0.0826		mg/Kg-dry	1	4/20/2012 6:29:02 PM
Mercury by EPA Method 7471				Batch ID: 2268		Analyst: MC
Mercury	ND	0.275		mg/Kg-dry	1	4/20/2012 4:09:40 PM
Sample Moisture (Percent Moisture)				Batch ID: R4038		Analyst: EM
Percent Moisture	11.0			wt%	1	4/23/2012 10:02:49 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1204093**
Date Reported: **4/23/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 4/19/2012 10:30:00 AM
Project: Rufus 2.0
Lab ID: 1204093-014
Matrix: Soil
Client Sample ID: B20-15-5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 2265		Analyst: EM
Diesel (Fuel Oil)	ND	22.0		mg/Kg-dry	1	4/20/2012 7:06:00 PM
Heavy Oil	ND	55.0		mg/Kg-dry	1	4/20/2012 7:06:00 PM
Surr: 2-Fluorobiphenyl	103	50-150		%REC	1	4/20/2012 7:06:00 PM
Surr: o-Terphenyl	99.1	50-150		%REC	1	4/20/2012 7:06:00 PM
Gasoline by NWTPH-Gx				Batch ID: 2266		Analyst: PH
Gasoline	ND	4.83		mg/Kg-dry	1	4/20/2012 2:44:00 PM
Surr: 1,4-Difluorobenzene	93.7	65-135		%REC	1	4/20/2012 2:44:00 PM
Surr: 4-Bromofluorobenzene	109	65-135		%REC	1	4/20/2012 2:44:00 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 2264		Analyst: MD
Naphthalene	ND	55.3		µg/Kg-dry	1	4/21/2012 4:55:00 PM
2-Methylnaphthalene	ND	55.3		µg/Kg-dry	1	4/21/2012 4:55:00 PM
1-Methylnaphthalene	ND	55.3		µg/Kg-dry	1	4/21/2012 4:55:00 PM
Acenaphthylene	ND	55.3		µg/Kg-dry	1	4/21/2012 4:55:00 PM
Acenaphthene	ND	55.3		µg/Kg-dry	1	4/21/2012 4:55:00 PM
Fluorene	ND	55.3		µg/Kg-dry	1	4/21/2012 4:55:00 PM
Phenanthrene	ND	55.3		µg/Kg-dry	1	4/21/2012 4:55:00 PM
Anthracene	ND	55.3		µg/Kg-dry	1	4/21/2012 4:55:00 PM
Fluoranthene	ND	55.3		µg/Kg-dry	1	4/21/2012 4:55:00 PM
Pyrene	ND	55.3		µg/Kg-dry	1	4/21/2012 4:55:00 PM
Benz(a)anthracene	ND	55.3		µg/Kg-dry	1	4/21/2012 4:55:00 PM
Chrysene	ND	55.3		µg/Kg-dry	1	4/21/2012 4:55:00 PM
Benzo(b)fluoranthene	ND	55.3		µg/Kg-dry	1	4/21/2012 4:55:00 PM
Benzo(k)fluoranthene	ND	55.3		µg/Kg-dry	1	4/21/2012 4:55:00 PM
Benzo(a)pyrene	ND	55.3		µg/Kg-dry	1	4/21/2012 4:55:00 PM
Indeno(1,2,3-cd)pyrene	ND	55.3		µg/Kg-dry	1	4/21/2012 4:55:00 PM
Dibenz(a,h)anthracene	ND	55.3		µg/Kg-dry	1	4/21/2012 4:55:00 PM
Benzo(g,h,i)perylene	ND	55.3		µg/Kg-dry	1	4/21/2012 4:55:00 PM
Surr: 2-Fluorobiphenyl	78.9	53.5-148		%REC	1	4/21/2012 4:55:00 PM
Surr: Terphenyl-d14 (surr)	67.6	50.4-111		%REC	1	4/21/2012 4:55:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1204093**
Date Reported: **4/23/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 4/19/2012 10:30:00 AM
Project: Rufus 2.0
Lab ID: 1204093-014
Matrix: Soil
Client Sample ID: B20-15-5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 2263		Analyst: BR
Arsenic	3.47	0.0808		mg/Kg-dry	1	4/20/2012 9:08:30 PM
Barium	83.4	0.404		mg/Kg-dry	1	4/20/2012 9:08:30 PM
Cadmium	ND	0.162		mg/Kg-dry	1	4/20/2012 9:08:30 PM
Chromium	32.4	0.0808		mg/Kg-dry	1	4/20/2012 9:08:30 PM
Lead	3.11	0.162		mg/Kg-dry	1	4/20/2012 9:08:30 PM
Selenium	ND	0.404		mg/Kg-dry	1	4/20/2012 9:08:30 PM
Silver	ND	0.0808		mg/Kg-dry	1	4/20/2012 9:08:30 PM
Mercury by EPA Method 7471				Batch ID: 2268		Analyst: MC
Mercury	ND	0.281		mg/Kg-dry	1	4/20/2012 4:21:43 PM
Sample Moisture (Percent Moisture)				Batch ID: R4038		Analyst: EM
Percent Moisture	12.9			wt%	1	4/23/2012 10:02:49 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1204093**
Date Reported: **4/23/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 4/19/2012 11:12:00 AM
Project: Rufus 2.0
Lab ID: 1204093-018
Matrix: Soil
Client Sample ID: B20-15-15

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 2265		Analyst: EM
Diesel (Fuel Oil)	ND	21.2		mg/Kg-dry	1	4/20/2012 7:34:00 PM
Heavy Oil	ND	53.0		mg/Kg-dry	1	4/20/2012 7:34:00 PM
Surr: 2-Fluorobiphenyl	103	50-150		%REC	1	4/20/2012 7:34:00 PM
Surr: o-Terphenyl	99.8	50-150		%REC	1	4/20/2012 7:34:00 PM
Gasoline by NWTPH-Gx				Batch ID: 2266		Analyst: PH
Gasoline	ND	4.55		mg/Kg-dry	1	4/20/2012 3:12:00 PM
Surr: 1,4-Difluorobenzene	86.1	65-135		%REC	1	4/20/2012 3:12:00 PM
Surr: 4-Bromofluorobenzene	108	65-135		%REC	1	4/20/2012 3:12:00 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 2264		Analyst: MD
Naphthalene	ND	53.4		µg/Kg-dry	1	4/21/2012 5:21:00 PM
2-Methylnaphthalene	ND	53.4		µg/Kg-dry	1	4/21/2012 5:21:00 PM
1-Methylnaphthalene	ND	53.4		µg/Kg-dry	1	4/21/2012 5:21:00 PM
Acenaphthylene	ND	53.4		µg/Kg-dry	1	4/21/2012 5:21:00 PM
Acenaphthene	ND	53.4		µg/Kg-dry	1	4/21/2012 5:21:00 PM
Fluorene	ND	53.4		µg/Kg-dry	1	4/21/2012 5:21:00 PM
Phenanthrene	ND	53.4		µg/Kg-dry	1	4/21/2012 5:21:00 PM
Anthracene	ND	53.4		µg/Kg-dry	1	4/21/2012 5:21:00 PM
Fluoranthene	ND	53.4		µg/Kg-dry	1	4/21/2012 5:21:00 PM
Pyrene	ND	53.4		µg/Kg-dry	1	4/21/2012 5:21:00 PM
Benz(a)anthracene	ND	53.4		µg/Kg-dry	1	4/21/2012 5:21:00 PM
Chrysene	ND	53.4		µg/Kg-dry	1	4/21/2012 5:21:00 PM
Benzo(b)fluoranthene	ND	53.4		µg/Kg-dry	1	4/21/2012 5:21:00 PM
Benzo(k)fluoranthene	ND	53.4		µg/Kg-dry	1	4/21/2012 5:21:00 PM
Benzo(a)pyrene	ND	53.4		µg/Kg-dry	1	4/21/2012 5:21:00 PM
Indeno(1,2,3-cd)pyrene	ND	53.4		µg/Kg-dry	1	4/21/2012 5:21:00 PM
Dibenz(a,h)anthracene	ND	53.4		µg/Kg-dry	1	4/21/2012 5:21:00 PM
Benzo(g,h,i)perylene	ND	53.4		µg/Kg-dry	1	4/21/2012 5:21:00 PM
Surr: 2-Fluorobiphenyl	80.6	53.5-148		%REC	1	4/21/2012 5:21:00 PM
Surr: Terphenyl-d14 (surr)	71.5	50.4-111		%REC	1	4/21/2012 5:21:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1204093**
Date Reported: **4/23/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 4/19/2012 11:12:00 AM
Project: Rufus 2.0
Lab ID: 1204093-018
Matrix: Soil
Client Sample ID: B20-15-15

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 2263		Analyst: BR
Arsenic	2.84	0.0839		mg/Kg-dry	1	4/20/2012 9:17:46 PM
Barium	66.9	0.419		mg/Kg-dry	1	4/20/2012 9:17:46 PM
Cadmium	0.171	0.168		mg/Kg-dry	1	4/20/2012 9:17:46 PM
Chromium	38.8	0.0839		mg/Kg-dry	1	4/20/2012 9:17:46 PM
Lead	10.9	0.168		mg/Kg-dry	1	4/20/2012 9:17:46 PM
Selenium	ND	0.419		mg/Kg-dry	1	4/20/2012 9:17:46 PM
Silver	ND	0.0839		mg/Kg-dry	1	4/20/2012 9:17:46 PM
Mercury by EPA Method 7471				Batch ID: 2268		Analyst: MC
Mercury	ND	0.210		mg/Kg-dry	1	4/20/2012 4:24:43 PM
Sample Moisture (Percent Moisture)				Batch ID: R4038		Analyst: EM
Percent Moisture	11.0			wt%	1	4/23/2012 10:02:49 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1204093**
Date Reported: **4/23/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 4/19/2012 12:20:00 PM
Project: Rufus 2.0
Lab ID: 1204093-028
Matrix: Soil
Client Sample ID: B20-16-10

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 2265		Analyst: EM
Diesel (Fuel Oil)	ND	24.4		mg/Kg-dry	1	4/20/2012 8:01:00 PM
Heavy Oil	ND	61.0		mg/Kg-dry	1	4/20/2012 8:01:00 PM
Surr: 2-Fluorobiphenyl	104	50-150		%REC	1	4/20/2012 8:01:00 PM
Surr: o-Terphenyl	100	50-150		%REC	1	4/20/2012 8:01:00 PM
Gasoline by NWTPH-Gx				Batch ID: 2266		Analyst: PH
Gasoline	ND	5.93		mg/Kg-dry	1	4/20/2012 5:46:00 PM
Surr: 1,4-Difluorobenzene	97.9	65-135		%REC	1	4/20/2012 5:46:00 PM
Surr: 4-Bromofluorobenzene	114	65-135		%REC	1	4/20/2012 5:46:00 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 2264		Analyst: MD
Naphthalene	ND	65.7		µg/Kg-dry	1	4/21/2012 5:47:00 PM
2-Methylnaphthalene	ND	65.7		µg/Kg-dry	1	4/21/2012 5:47:00 PM
1-Methylnaphthalene	ND	65.7		µg/Kg-dry	1	4/21/2012 5:47:00 PM
Acenaphthylene	ND	65.7		µg/Kg-dry	1	4/21/2012 5:47:00 PM
Acenaphthene	ND	65.7		µg/Kg-dry	1	4/21/2012 5:47:00 PM
Fluorene	ND	65.7		µg/Kg-dry	1	4/21/2012 5:47:00 PM
Phenanthrene	ND	65.7		µg/Kg-dry	1	4/21/2012 5:47:00 PM
Anthracene	ND	65.7		µg/Kg-dry	1	4/21/2012 5:47:00 PM
Fluoranthene	ND	65.7		µg/Kg-dry	1	4/21/2012 5:47:00 PM
Pyrene	ND	65.7		µg/Kg-dry	1	4/21/2012 5:47:00 PM
Benz(a)anthracene	ND	65.7		µg/Kg-dry	1	4/21/2012 5:47:00 PM
Chrysene	ND	65.7		µg/Kg-dry	1	4/21/2012 5:47:00 PM
Benzo(b)fluoranthene	ND	65.7		µg/Kg-dry	1	4/21/2012 5:47:00 PM
Benzo(k)fluoranthene	ND	65.7		µg/Kg-dry	1	4/21/2012 5:47:00 PM
Benzo(a)pyrene	ND	65.7		µg/Kg-dry	1	4/21/2012 5:47:00 PM
Indeno(1,2,3-cd)pyrene	ND	65.7		µg/Kg-dry	1	4/21/2012 5:47:00 PM
Dibenz(a,h)anthracene	ND	65.7		µg/Kg-dry	1	4/21/2012 5:47:00 PM
Benzo(g,h,i)perylene	ND	65.7		µg/Kg-dry	1	4/21/2012 5:47:00 PM
Surr: 2-Fluorobiphenyl	74.8	53.5-148		%REC	1	4/21/2012 5:47:00 PM
Surr: Terphenyl-d14 (surr)	72.8	50.4-111		%REC	1	4/21/2012 5:47:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1204093**
Date Reported: **4/23/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 4/19/2012 12:20:00 PM
Project: Rufus 2.0
Lab ID: 1204093-028
Matrix: Soil
Client Sample ID: B20-16-10

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 2263		Analyst: BR
Arsenic	4.87	0.104		mg/Kg-dry	1	4/20/2012 9:27:02 PM
Barium	157	0.518		mg/Kg-dry	1	4/20/2012 9:27:02 PM
Cadmium	0.237	0.207		mg/Kg-dry	1	4/20/2012 9:27:02 PM
Chromium	50.7	0.104		mg/Kg-dry	1	4/20/2012 9:27:02 PM
Lead	6.62	0.207		mg/Kg-dry	1	4/20/2012 9:27:02 PM
Selenium	ND	0.518		mg/Kg-dry	1	4/20/2012 9:27:02 PM
Silver	ND	0.104		mg/Kg-dry	1	4/20/2012 9:27:02 PM
Mercury by EPA Method 7471				Batch ID: 2268		Analyst: MC
Mercury	ND	0.298		mg/Kg-dry	1	4/20/2012 4:27:43 PM
Sample Moisture (Percent Moisture)				Batch ID: R4038		Analyst: EM
Percent Moisture	25.2			wt%	1	4/23/2012 10:02:49 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1204093**
Date Reported: **4/23/2012**

Client: GeoEngineers, Inc. - Redmond **Collection Date:** 4/19/2012 12:42:00 PM
Project: Rufus 2.0
Lab ID: 1204093-030 **Matrix:** Soil
Client Sample ID: B20-16-15

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 2265		Analyst: EM
Diesel (Fuel Oil)	ND	22.7		mg/Kg-dry	1	4/20/2012 8:29:00 PM
Heavy Oil	ND	56.7		mg/Kg-dry	1	4/20/2012 8:29:00 PM
Surr: 2-Fluorobiphenyl	104	50-150		%REC	1	4/20/2012 8:29:00 PM
Surr: o-Terphenyl	99.7	50-150		%REC	1	4/20/2012 8:29:00 PM
Gasoline by NWTPH-Gx				Batch ID: 2266		Analyst: PH
Gasoline	ND	6.90		mg/Kg-dry	1	4/20/2012 4:12:00 PM
Surr: 1,4-Difluorobenzene	94.4	65-135		%REC	1	4/20/2012 4:12:00 PM
Surr: 4-Bromofluorobenzene	113	65-135		%REC	1	4/20/2012 4:12:00 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 2264		Analyst: MD
Naphthalene	ND	58.6		µg/Kg-dry	1	4/21/2012 6:12:00 PM
2-Methylnaphthalene	ND	58.6		µg/Kg-dry	1	4/21/2012 6:12:00 PM
1-Methylnaphthalene	ND	58.6		µg/Kg-dry	1	4/21/2012 6:12:00 PM
Acenaphthylene	ND	58.6		µg/Kg-dry	1	4/21/2012 6:12:00 PM
Acenaphthene	ND	58.6		µg/Kg-dry	1	4/21/2012 6:12:00 PM
Fluorene	ND	58.6		µg/Kg-dry	1	4/21/2012 6:12:00 PM
Phenanthrene	ND	58.6		µg/Kg-dry	1	4/21/2012 6:12:00 PM
Anthracene	ND	58.6		µg/Kg-dry	1	4/21/2012 6:12:00 PM
Fluoranthene	ND	58.6		µg/Kg-dry	1	4/21/2012 6:12:00 PM
Pyrene	ND	58.6		µg/Kg-dry	1	4/21/2012 6:12:00 PM
Benz(a)anthracene	ND	58.6		µg/Kg-dry	1	4/21/2012 6:12:00 PM
Chrysene	ND	58.6		µg/Kg-dry	1	4/21/2012 6:12:00 PM
Benzo(b)fluoranthene	ND	58.6		µg/Kg-dry	1	4/21/2012 6:12:00 PM
Benzo(k)fluoranthene	ND	58.6		µg/Kg-dry	1	4/21/2012 6:12:00 PM
Benzo(a)pyrene	ND	58.6		µg/Kg-dry	1	4/21/2012 6:12:00 PM
Indeno(1,2,3-cd)pyrene	ND	58.6		µg/Kg-dry	1	4/21/2012 6:12:00 PM
Dibenz(a,h)anthracene	ND	58.6		µg/Kg-dry	1	4/21/2012 6:12:00 PM
Benzo(g,h,i)perylene	ND	58.6		µg/Kg-dry	1	4/21/2012 6:12:00 PM
Surr: 2-Fluorobiphenyl	88.5	53.5-148		%REC	1	4/21/2012 6:12:00 PM
Surr: Terphenyl-d14 (surr)	79.9	50.4-111		%REC	1	4/21/2012 6:12:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1204093**
Date Reported: **4/23/2012**

Client: GeoEngineers, Inc. - Redmond **Collection Date:** 4/19/2012 12:42:00 PM
Project: Rufus 2.0
Lab ID: 1204093-030 **Matrix:** Soil
Client Sample ID: B20-16-15

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 2263		Analyst: BR
Arsenic	6.19	0.0894		mg/Kg-dry	1	4/20/2012 9:36:19 PM
Barium	95.2	0.447		mg/Kg-dry	1	4/20/2012 9:36:19 PM
Cadmium	ND	0.179		mg/Kg-dry	1	4/20/2012 9:36:19 PM
Chromium	38.3	0.0894		mg/Kg-dry	1	4/20/2012 9:36:19 PM
Lead	3.60	0.179		mg/Kg-dry	1	4/20/2012 9:36:19 PM
Selenium	ND	0.447		mg/Kg-dry	1	4/20/2012 9:36:19 PM
Silver	ND	0.0894		mg/Kg-dry	1	4/20/2012 9:36:19 PM
Mercury by EPA Method 7471				Batch ID: 2268		Analyst: MC
Mercury	ND	0.305		mg/Kg-dry	1	4/20/2012 4:36:43 PM
Sample Moisture (Percent Moisture)				Batch ID: R4038		Analyst: EM
Percent Moisture	21.2			wt%	1	4/23/2012 10:02:49 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1204093**
Date Reported: **4/23/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 4/19/2012 1:30:00 PM
Project: Rufus 2.0
Lab ID: 1204093-040
Matrix: Soil
Client Sample ID: B20-17-10

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 2265		Analyst: EM
Diesel (Fuel Oil)	ND	20.8		mg/Kg-dry	1	4/20/2012 8:56:00 PM
Heavy Oil	ND	51.9		mg/Kg-dry	1	4/20/2012 8:56:00 PM
Surr: 2-Fluorobiphenyl	104	50-150		%REC	1	4/20/2012 8:56:00 PM
Surr: o-Terphenyl	100	50-150		%REC	1	4/20/2012 8:56:00 PM
Gasoline by NWTPH-Gx				Batch ID: 2266		Analyst: PH
Gasoline	ND	6.22		mg/Kg-dry	1	4/20/2012 4:43:00 PM
Surr: 1,4-Difluorobenzene	91.7	65-135		%REC	1	4/20/2012 4:43:00 PM
Surr: 4-Bromofluorobenzene	109	65-135		%REC	1	4/20/2012 4:43:00 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 2264		Analyst: MD
Naphthalene	ND	57.0		µg/Kg-dry	1	4/21/2012 6:38:00 PM
2-Methylnaphthalene	ND	57.0		µg/Kg-dry	1	4/21/2012 6:38:00 PM
1-Methylnaphthalene	ND	57.0		µg/Kg-dry	1	4/21/2012 6:38:00 PM
Acenaphthylene	ND	57.0		µg/Kg-dry	1	4/21/2012 6:38:00 PM
Acenaphthene	ND	57.0		µg/Kg-dry	1	4/21/2012 6:38:00 PM
Fluorene	ND	57.0		µg/Kg-dry	1	4/21/2012 6:38:00 PM
Phenanthrene	ND	57.0		µg/Kg-dry	1	4/21/2012 6:38:00 PM
Anthracene	ND	57.0		µg/Kg-dry	1	4/21/2012 6:38:00 PM
Fluoranthene	ND	57.0		µg/Kg-dry	1	4/21/2012 6:38:00 PM
Pyrene	ND	57.0		µg/Kg-dry	1	4/21/2012 6:38:00 PM
Benz(a)anthracene	ND	57.0		µg/Kg-dry	1	4/21/2012 6:38:00 PM
Chrysene	ND	57.0		µg/Kg-dry	1	4/21/2012 6:38:00 PM
Benzo(b)fluoranthene	ND	57.0		µg/Kg-dry	1	4/21/2012 6:38:00 PM
Benzo(k)fluoranthene	ND	57.0		µg/Kg-dry	1	4/21/2012 6:38:00 PM
Benzo(a)pyrene	ND	57.0		µg/Kg-dry	1	4/21/2012 6:38:00 PM
Indeno(1,2,3-cd)pyrene	ND	57.0		µg/Kg-dry	1	4/21/2012 6:38:00 PM
Dibenz(a,h)anthracene	ND	57.0		µg/Kg-dry	1	4/21/2012 6:38:00 PM
Benzo(g,h,i)perylene	ND	57.0		µg/Kg-dry	1	4/21/2012 6:38:00 PM
Surr: 2-Fluorobiphenyl	87.0	53.5-148		%REC	1	4/21/2012 6:38:00 PM
Surr: Terphenyl-d14 (surr)	76.2	50.4-111		%REC	1	4/21/2012 6:38:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1204093**
Date Reported: **4/23/2012**

Client: GeoEngineers, Inc. - Redmond **Collection Date:** 4/19/2012 1:30:00 PM
Project: Rufus 2.0
Lab ID: 1204093-040 **Matrix:** Soil
Client Sample ID: B20-17-10

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 2263		Analyst: BR
Arsenic	4.08	0.0901		mg/Kg-dry	1	4/20/2012 9:45:36 PM
Barium	95.0	0.451		mg/Kg-dry	1	4/20/2012 9:45:36 PM
Cadmium	ND	0.180		mg/Kg-dry	1	4/20/2012 9:45:36 PM
Chromium	37.0	0.0901		mg/Kg-dry	1	4/20/2012 9:45:36 PM
Lead	6.74	0.180		mg/Kg-dry	1	4/20/2012 9:45:36 PM
Selenium	ND	0.451		mg/Kg-dry	1	4/20/2012 9:45:36 PM
Silver	ND	0.0901		mg/Kg-dry	1	4/20/2012 9:45:36 PM
Mercury by EPA Method 7471				Batch ID: 2268		Analyst: MC
Mercury	ND	0.232		mg/Kg-dry	1	4/20/2012 4:39:45 PM
Sample Moisture (Percent Moisture)				Batch ID: R4038		Analyst: EM
Percent Moisture	14.6			wt%	1	4/23/2012 10:02:49 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1204093**
Date Reported: **4/23/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 4/19/2012 1:45:00 PM
Project: Rufus 2.0
Lab ID: 1204093-042
Matrix: Soil
Client Sample ID: B20-17-15

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 2265		Analyst: EM
Diesel (Fuel Oil)	ND	22.3		mg/Kg-dry	1	4/20/2012 9:24:00 PM
Heavy Oil	ND	55.8		mg/Kg-dry	1	4/20/2012 9:24:00 PM
Surr: 2-Fluorobiphenyl	104	50-150		%REC	1	4/20/2012 9:24:00 PM
Surr: o-Terphenyl	100	50-150		%REC	1	4/20/2012 9:24:00 PM
Gasoline by NWTPH-Gx				Batch ID: 2266		Analyst: PH
Gasoline	ND	5.72		mg/Kg-dry	1	4/20/2012 5:13:00 PM
Surr: 1,4-Difluorobenzene	98.5	65-135		%REC	1	4/20/2012 5:13:00 PM
Surr: 4-Bromofluorobenzene	113	65-135		%REC	1	4/20/2012 5:13:00 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 2264		Analyst: MD
Naphthalene	ND	64.1		µg/Kg-dry	1	4/21/2012 7:03:00 PM
2-Methylnaphthalene	ND	64.1		µg/Kg-dry	1	4/21/2012 7:03:00 PM
1-Methylnaphthalene	ND	64.1		µg/Kg-dry	1	4/21/2012 7:03:00 PM
Acenaphthylene	ND	64.1		µg/Kg-dry	1	4/21/2012 7:03:00 PM
Acenaphthene	ND	64.1		µg/Kg-dry	1	4/21/2012 7:03:00 PM
Fluorene	ND	64.1		µg/Kg-dry	1	4/21/2012 7:03:00 PM
Phenanthrene	ND	64.1		µg/Kg-dry	1	4/21/2012 7:03:00 PM
Anthracene	ND	64.1		µg/Kg-dry	1	4/21/2012 7:03:00 PM
Fluoranthene	ND	64.1		µg/Kg-dry	1	4/21/2012 7:03:00 PM
Pyrene	ND	64.1		µg/Kg-dry	1	4/21/2012 7:03:00 PM
Benz(a)anthracene	ND	64.1		µg/Kg-dry	1	4/21/2012 7:03:00 PM
Chrysene	ND	64.1		µg/Kg-dry	1	4/21/2012 7:03:00 PM
Benzo(b)fluoranthene	ND	64.1		µg/Kg-dry	1	4/21/2012 7:03:00 PM
Benzo(k)fluoranthene	ND	64.1		µg/Kg-dry	1	4/21/2012 7:03:00 PM
Benzo(a)pyrene	ND	64.1		µg/Kg-dry	1	4/21/2012 7:03:00 PM
Indeno(1,2,3-cd)pyrene	ND	64.1		µg/Kg-dry	1	4/21/2012 7:03:00 PM
Dibenz(a,h)anthracene	ND	64.1		µg/Kg-dry	1	4/21/2012 7:03:00 PM
Benzo(g,h,i)perylene	ND	64.1		µg/Kg-dry	1	4/21/2012 7:03:00 PM
Surr: 2-Fluorobiphenyl	71.7	53.5-148		%REC	1	4/21/2012 7:03:00 PM
Surr: Terphenyl-d14 (surr)	60.0	50.4-111		%REC	1	4/21/2012 7:03:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1204093**
Date Reported: **4/23/2012**

Client: GeoEngineers, Inc. - Redmond **Collection Date:** 4/19/2012 1:45:00 PM
Project: Rufus 2.0
Lab ID: 1204093-042 **Matrix:** Soil
Client Sample ID: B20-17-15

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 2263		Analyst: BR
Arsenic	4.73	0.0883		mg/Kg-dry	1	4/20/2012 9:54:53 PM
Barium	121	0.442		mg/Kg-dry	1	4/20/2012 9:54:53 PM
Cadmium	ND	0.177		mg/Kg-dry	1	4/20/2012 9:54:53 PM
Chromium	51.5	0.0883		mg/Kg-dry	1	4/20/2012 9:54:53 PM
Lead	5.57	0.177		mg/Kg-dry	1	4/20/2012 9:54:53 PM
Selenium	ND	0.442		mg/Kg-dry	1	4/20/2012 9:54:53 PM
Silver	ND	0.0883		mg/Kg-dry	1	4/20/2012 9:54:53 PM
Mercury by EPA Method 7471				Batch ID: 2268		Analyst: MC
Mercury	ND	0.288		mg/Kg-dry	1	4/20/2012 4:42:47 PM
Sample Moisture (Percent Moisture)				Batch ID: R4038		Analyst: EM
Percent Moisture	22.5			wt%	1	4/23/2012 10:02:49 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1204093**
Date Reported: **4/23/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 4/19/2012 2:17:00 PM
Project: Rufus 2.0
Lab ID: 1204093-051
Matrix: Soil
Client Sample ID: B20-18-7.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 2265		Analyst: EM
Diesel (Fuel Oil)	ND	24.5		mg/Kg-dry	1	4/20/2012 9:51:00 PM
Heavy Oil	ND	61.3		mg/Kg-dry	1	4/20/2012 9:51:00 PM
Surr: 2-Fluorobiphenyl	105	50-150		%REC	1	4/20/2012 9:51:00 PM
Surr: o-Terphenyl	100	50-150		%REC	1	4/20/2012 9:51:00 PM
Gasoline by NWTPH-Gx				Batch ID: 2266		Analyst: PH
Gasoline	ND	7.11		mg/Kg-dry	1	4/20/2012 6:17:00 PM
Surr: 1,4-Difluorobenzene	96.5	65-135		%REC	1	4/20/2012 6:17:00 PM
Surr: 4-Bromofluorobenzene	113	65-135		%REC	1	4/20/2012 6:17:00 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 2264		Analyst: MD
Naphthalene	ND	64.3		µg/Kg-dry	1	4/21/2012 7:29:00 PM
2-Methylnaphthalene	ND	64.3		µg/Kg-dry	1	4/21/2012 7:29:00 PM
1-Methylnaphthalene	ND	64.3		µg/Kg-dry	1	4/21/2012 7:29:00 PM
Acenaphthylene	ND	64.3		µg/Kg-dry	1	4/21/2012 7:29:00 PM
Acenaphthene	ND	64.3		µg/Kg-dry	1	4/21/2012 7:29:00 PM
Fluorene	ND	64.3		µg/Kg-dry	1	4/21/2012 7:29:00 PM
Phenanthrene	ND	64.3		µg/Kg-dry	1	4/21/2012 7:29:00 PM
Anthracene	ND	64.3		µg/Kg-dry	1	4/21/2012 7:29:00 PM
Fluoranthene	ND	64.3		µg/Kg-dry	1	4/21/2012 7:29:00 PM
Pyrene	ND	64.3		µg/Kg-dry	1	4/21/2012 7:29:00 PM
Benz(a)anthracene	ND	64.3		µg/Kg-dry	1	4/21/2012 7:29:00 PM
Chrysene	ND	64.3		µg/Kg-dry	1	4/21/2012 7:29:00 PM
Benzo(b)fluoranthene	ND	64.3		µg/Kg-dry	1	4/21/2012 7:29:00 PM
Benzo(k)fluoranthene	ND	64.3		µg/Kg-dry	1	4/21/2012 7:29:00 PM
Benzo(a)pyrene	ND	64.3		µg/Kg-dry	1	4/21/2012 7:29:00 PM
Indeno(1,2,3-cd)pyrene	ND	64.3		µg/Kg-dry	1	4/21/2012 7:29:00 PM
Dibenz(a,h)anthracene	ND	64.3		µg/Kg-dry	1	4/21/2012 7:29:00 PM
Benzo(g,h,i)perylene	ND	64.3		µg/Kg-dry	1	4/21/2012 7:29:00 PM
Surr: 2-Fluorobiphenyl	76.3	53.5-148		%REC	1	4/21/2012 7:29:00 PM
Surr: Terphenyl-d14 (surr)	68.5	50.4-111		%REC	1	4/21/2012 7:29:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1204093**
Date Reported: **4/23/2012**

Client: GeoEngineers, Inc. - Redmond **Collection Date:** 4/19/2012 2:17:00 PM
Project: Rufus 2.0
Lab ID: 1204093-051 **Matrix:** Soil
Client Sample ID: B20-18-7.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 2263		Analyst: BR
Arsenic	6.68	0.0941		mg/Kg-dry	1	4/20/2012 10:04:09 PM
Barium	159	0.470		mg/Kg-dry	1	4/20/2012 10:04:09 PM
Cadmium	0.238	0.188		mg/Kg-dry	1	4/20/2012 10:04:09 PM
Chromium	50.7	0.0941		mg/Kg-dry	1	4/20/2012 10:04:09 PM
Lead	8.85	0.188		mg/Kg-dry	1	4/20/2012 10:04:09 PM
Selenium	ND	0.470		mg/Kg-dry	1	4/20/2012 10:04:09 PM
Silver	ND	0.0941		mg/Kg-dry	1	4/20/2012 10:04:09 PM
Mercury by EPA Method 7471				Batch ID: 2268		Analyst: MC
Mercury	ND	0.278		mg/Kg-dry	1	4/20/2012 4:45:50 PM
Sample Moisture (Percent Moisture)				Batch ID: R4038		Analyst: EM
Percent Moisture	25.2			wt%	1	4/23/2012 10:02:49 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1204093**
Date Reported: **4/23/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 4/19/2012 2:47:00 PM
Project: Rufus 2.0
Lab ID: 1204093-054
Matrix: Soil
Client Sample ID: B20-18-15

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 2265		Analyst: EM
Diesel (Fuel Oil)	ND	23.4		mg/Kg-dry	1	4/20/2012 10:18:00 PM
Heavy Oil	ND	58.5		mg/Kg-dry	1	4/20/2012 10:18:00 PM
Surr: 2-Fluorobiphenyl	104	50-150		%REC	1	4/20/2012 10:18:00 PM
Surr: o-Terphenyl	100	50-150		%REC	1	4/20/2012 10:18:00 PM
Gasoline by NWTPH-Gx				Batch ID: 2266		Analyst: PH
Gasoline	ND	6.26		mg/Kg-dry	1	4/20/2012 6:47:00 PM
Surr: 1,4-Difluorobenzene	93.7	65-135		%REC	1	4/20/2012 6:47:00 PM
Surr: 4-Bromofluorobenzene	114	65-135		%REC	1	4/20/2012 6:47:00 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 2264		Analyst: MD
Naphthalene	ND	64.7		µg/Kg-dry	1	4/21/2012 7:54:00 PM
2-Methylnaphthalene	ND	64.7		µg/Kg-dry	1	4/21/2012 7:54:00 PM
1-Methylnaphthalene	ND	64.7		µg/Kg-dry	1	4/21/2012 7:54:00 PM
Acenaphthylene	ND	64.7		µg/Kg-dry	1	4/21/2012 7:54:00 PM
Acenaphthene	ND	64.7		µg/Kg-dry	1	4/21/2012 7:54:00 PM
Fluorene	ND	64.7		µg/Kg-dry	1	4/21/2012 7:54:00 PM
Phenanthrene	ND	64.7		µg/Kg-dry	1	4/21/2012 7:54:00 PM
Anthracene	ND	64.7		µg/Kg-dry	1	4/21/2012 7:54:00 PM
Fluoranthene	ND	64.7		µg/Kg-dry	1	4/21/2012 7:54:00 PM
Pyrene	ND	64.7		µg/Kg-dry	1	4/21/2012 7:54:00 PM
Benz(a)anthracene	ND	64.7		µg/Kg-dry	1	4/21/2012 7:54:00 PM
Chrysene	ND	64.7		µg/Kg-dry	1	4/21/2012 7:54:00 PM
Benzo(b)fluoranthene	ND	64.7		µg/Kg-dry	1	4/21/2012 7:54:00 PM
Benzo(k)fluoranthene	ND	64.7		µg/Kg-dry	1	4/21/2012 7:54:00 PM
Benzo(a)pyrene	ND	64.7		µg/Kg-dry	1	4/21/2012 7:54:00 PM
Indeno(1,2,3-cd)pyrene	ND	64.7		µg/Kg-dry	1	4/21/2012 7:54:00 PM
Dibenz(a,h)anthracene	ND	64.7		µg/Kg-dry	1	4/21/2012 7:54:00 PM
Benzo(g,h,i)perylene	ND	64.7		µg/Kg-dry	1	4/21/2012 7:54:00 PM
Surr: 2-Fluorobiphenyl	73.9	53.5-148		%REC	1	4/21/2012 7:54:00 PM
Surr: Terphenyl-d14 (surr)	71.2	50.4-111		%REC	1	4/21/2012 7:54:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1204093**
Date Reported: **4/23/2012**

Client: GeoEngineers, Inc. - Redmond **Collection Date:** 4/19/2012 2:47:00 PM
Project: Rufus 2.0
Lab ID: 1204093-054 **Matrix:** Soil
Client Sample ID: B20-18-15

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 2263		Analyst: BR
Arsenic	8.00	0.0927		mg/Kg-dry	1	4/20/2012 10:13:26 PM
Barium	185	0.463		mg/Kg-dry	1	4/20/2012 10:13:26 PM
Cadmium	ND	0.185		mg/Kg-dry	1	4/20/2012 10:13:26 PM
Chromium	64.9	0.0927		mg/Kg-dry	1	4/20/2012 10:13:26 PM
Lead	8.51	0.185		mg/Kg-dry	1	4/20/2012 10:13:26 PM
Selenium	ND	0.463		mg/Kg-dry	1	4/20/2012 10:13:26 PM
Silver	ND	0.0927		mg/Kg-dry	1	4/20/2012 10:13:26 PM
Mercury by EPA Method 7471				Batch ID: 2268		Analyst: MC
Mercury	ND	0.288		mg/Kg-dry	1	4/20/2012 4:48:49 PM
Sample Moisture (Percent Moisture)				Batch ID: R4038		Analyst: EM
Percent Moisture	25.1			wt%	1	4/23/2012 10:02:49 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1204093
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID: **MB-2263** SampType: **MBLK** Units: **mg/Kg** Prep Date: **4/20/2012** RunNo: **4034**
Client ID: **MBLKS** Batch ID: **2263** Analysis Date: **4/20/2012** SeqNo: **72581**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.100									
Barium	ND	0.500									
Cadmium	ND	0.200									
Chromium	ND	0.100									
Lead	ND	0.200									
Selenium	ND	0.500									
Silver	ND	0.100									

Sample ID: **LCS-2263** SampType: **LCS** Units: **mg/Kg** Prep Date: **4/20/2012** RunNo: **4034**
Client ID: **LCSS** Batch ID: **2263** Analysis Date: **4/20/2012** SeqNo: **72582**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	53.6	0.100	50.00	0	107	80	120				
Barium	51.9	0.500	50.00	0	104	80	120				
Cadmium	2.51	0.200	2.500	0	100	80	120				
Chromium	55.4	0.100	50.00	0	111	80	120				
Lead	27.7	0.200	25.00	0	111	80	120				
Selenium	5.09	0.500	5.000	0	102	80	120				
Silver	4.95	0.100	5.000	0	98.9	80	120				

Sample ID: **1204093-005ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **4/20/2012** RunNo: **4034**
Client ID: **B20-14-12.5** Batch ID: **2263** Analysis Date: **4/20/2012** SeqNo: **72585**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	1.39	0.0851						1.341	3.61	30	

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1204093
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID: **1204093-005ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **4/20/2012** RunNo: **4034**
Client ID: **B20-14-12.5** Batch ID: **2263** Analysis Date: **4/20/2012** SeqNo: **72585**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	54.8	0.425						52.98	3.43	30	
Cadmium	ND	0.170						0	0	30	
Chromium	27.7	0.0851						26.59	3.94	30	
Lead	2.15	0.170						2.016	6.36	30	
Selenium	ND	0.425						0	0	30	
Silver	ND	0.0851						0	0	30	

Sample ID: **1204093-005AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **4/20/2012** RunNo: **4034**
Client ID: **B20-14-12.5** Batch ID: **2263** Analysis Date: **4/20/2012** SeqNo: **72588**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	45.2	0.0808	40.40	1.341	109	75	125				
Barium	97.2	0.404	40.40	52.98	110	75	125				
Cadmium	2.20	0.162	2.020	0.1296	103	75	125				
Chromium	62.7	0.0808	40.40	26.59	89.4	75	125				
Lead	21.5	0.162	20.20	2.016	96.5	75	125				
Selenium	3.55	0.404	4.040	0	87.9	75	125				
Silver	2.50	0.0808	4.040	0.02989	61.1	75	125				S

Sample ID: **1204093-005AMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **4/20/2012** RunNo: **4034**
Client ID: **B20-14-12.5** Batch ID: **2263** Analysis Date: **4/20/2012** SeqNo: **72589**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	45.7	0.0826	41.29	1.341	108	75	125	45.21	1.19	30	
Barium	97.2	0.413	41.29	52.98	107	75	125	97.22	0.0161	30	

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Date: *4/23/2012*

Work Order: 1204093
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID: **1204093-005AMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **4/20/2012** RunNo: **4034**
Client ID: **B20-14-12.5** Batch ID: **2263** Analysis Date: **4/20/2012** SeqNo: **72589**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	2.24	0.165	2.064	0.1296	102	75	125	2.202	1.61	30	
Chromium	63.5	0.0826	41.29	26.59	89.3	75	125	62.69	1.22	30	
Lead	21.8	0.165	20.64	2.016	95.7	75	125	21.50	1.24	30	
Selenium	3.73	0.413	4.129	0	90.3	75	125	3.549	4.97	30	
Silver	3.01	0.0826	4.129	0.02989	72.2	75	125	2.496	18.7	30	S

Sample ID: **CCV-2263** SampType: **CCV** Units: **µg/L** Prep Date: **4/20/2012** RunNo: **4034**
Client ID: **CCV** Batch ID: **2263** Analysis Date: **4/20/2012** SeqNo: **72599**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Silver	5.13	0.100	5.000	0	103	90	110				

NOTES:
S - Ag spike recovery indicates a possible matrix effect. The method is in control as indicated by the Laboratory Control Sample (LCS).

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Date: *4/23/2012*

Work Order: 1204093
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0

QC SUMMARY REPORT

Mercury by EPA Method 7471

Sample ID: **MB-2268** SampType: **MBLK** Units: **mg/Kg** Prep Date: **4/20/2012** RunNo: **4031**
Client ID: **MBLKS** Batch ID: **2268** Analysis Date: **4/20/2012** SeqNo: **72532**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.250									

Sample ID: **LCS-2268** SampType: **LCS** Units: **mg/Kg** Prep Date: **4/20/2012** RunNo: **4031**
Client ID: **LCSS** Batch ID: **2268** Analysis Date: **4/20/2012** SeqNo: **72533**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.456	0.250	0.5000	0	91.2	85	115				

Sample ID: **1204093-005ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **4/20/2012** RunNo: **4031**
Client ID: **B20-14-12.5** Batch ID: **2268** Analysis Date: **4/20/2012** SeqNo: **72536**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.230						0	0	20	

Sample ID: **1204093-005AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **4/20/2012** RunNo: **4031**
Client ID: **B20-14-12.5** Batch ID: **2268** Analysis Date: **4/20/2012** SeqNo: **72537**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.416	0.238	0.4759	0	87.4	70	130				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Date: *4/23/2012*

Work Order: 1204093
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0

QC SUMMARY REPORT

Mercury by EPA Method 7471

Sample ID: **1204093-005AMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **4/20/2012** RunNo: **4031**
Client ID: **B20-14-12.5** Batch ID: **2268** Analysis Date: **4/20/2012** SeqNo: **72538**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.374	0.251	0.5014	0	74.6	70	130	0.4159	10.6	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1204093
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID: **1204093-005ADUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **4/20/2012**	RunNo: **4036**
Client ID: **B20-14-12.5**	Batch ID: **2265**		Analysis Date: **4/20/2012**	SeqNo: **72637**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	20.4						0	0	30	
Heavy Oil	ND	51.0						0	0	30	
Surr: 2-Fluorobiphenyl	20.9		20.42		102	50	150		0		
Surr: o-Terphenyl	20.3		20.42		99.2	50	150		0		

Sample ID: **LCS-2265**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **4/20/2012**	RunNo: **4036**
Client ID: **LCSS**	Batch ID: **2265**		Analysis Date: **4/20/2012**	SeqNo: **72647**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	532	20.0	500.0	0	106	65	135				
Surr: 2-Fluorobiphenyl	21.7		20.00		109	50	150				
Surr: o-Terphenyl	19.7		20.00		98.4	50	150				

Sample ID: **MB-2265**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **4/20/2012**	RunNo: **4036**
Client ID: **MBLKS**	Batch ID: **2265**		Analysis Date: **4/20/2012**	SeqNo: **72648**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	20.0									
Heavy Oil	ND	50.0									
Surr: 2-Fluorobiphenyl	20.5		20.00		103	50	150				
Surr: o-Terphenyl	19.8		20.00		98.8	50	150				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1204093
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0

QC SUMMARY REPORT

Gasoline by NWTPH-Gx

Sample ID: **MB-2266**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **4/20/2012**	RunNo: **4035**
Client ID: **MBLKS**	Batch ID: **2266**		Analysis Date: **4/20/2012**	SeqNo: **72601**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	5.00									
Surr: 1,4-Difluorobenzene	0.480		0.5000		96.0	65	135				
Surr: 4-Bromofluorobenzene	0.555		0.5000		111	65	135				

Sample ID: **LCS-2266**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **4/20/2012**	RunNo: **4035**
Client ID: **LCSS**	Batch ID: **2266**		Analysis Date: **4/20/2012**	SeqNo: **72602**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	22.6	5.00	25.00	0	90.2	65	135				
Surr: 1,4-Difluorobenzene	0.513		0.5000		103	65	135				
Surr: 4-Bromofluorobenzene	0.467		0.5000		93.3	65	135				

Sample ID: **1204093-003BDUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **4/20/2012**	RunNo: **4035**
Client ID: **B20-14-7.5**	Batch ID: **2266**		Analysis Date: **4/20/2012**	SeqNo: **72604**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	6.14						0	0	30	
Surr: 1,4-Difluorobenzene	0.589		0.6141		95.9	65	135		0	0	
Surr: 4-Bromofluorobenzene	0.704		0.6141		115	65	135		0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1204093
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: **LCS-2264** SampType: **LCS** Units: **µg/Kg** Prep Date: **4/20/2012** RunNo: **4042**
Client ID: **LCSS** Batch ID: **2264** Analysis Date: **4/21/2012** SeqNo: **72733**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acenaphthene	1,040	50.0	1,000	0	104	50.4	130				
Pyrene	1,120	50.0	1,000	0	112	50.3	141				
Surr: 2-Fluorobiphenyl	429		500.0		85.8	53.5	148				
Surr: Terphenyl-d14 (surr)	341		500.0		68.1	50.4	111				

Sample ID: **1204093-005ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **4/20/2012** RunNo: **4042**
Client ID: **B20-14-12.5** Batch ID: **2264** Analysis Date: **4/21/2012** SeqNo: **72736**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	54.5						0	0	30	
2-Methylnaphthalene	ND	54.5						0	0	30	
1-Methylnaphthalene	ND	54.5						0	0	30	
Acenaphthylene	ND	54.5						0	0	30	
Acenaphthene	ND	54.5						0	0	30	
Fluorene	ND	54.5						0	0	30	
Phenanthrene	ND	54.5						0	0	30	
Anthracene	ND	54.5						0	0	30	
Fluoranthene	ND	54.5						0	0	30	
Pyrene	ND	54.5						0	0	30	
Benz(a)anthracene	ND	54.5						0	0	30	
Chrysene	ND	54.5						0	0	30	
Benzo(b)fluoranthene	ND	54.5						0	0	30	
Benzo(k)fluoranthene	ND	54.5						0	0	30	
Benzo(a)pyrene	ND	54.5						0	0	30	
Indeno(1,2,3-cd)pyrene	ND	54.5						0	0	30	

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1204093
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: **1204093-005ADUP**	SampType: **DUP**	Units: **µg/Kg-dry**	Prep Date: **4/20/2012**	RunNo: **4042**
Client ID: **B20-14-12.5**	Batch ID: **2264**		Analysis Date: **4/21/2012**	SeqNo: **72736**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dibenz(a,h)anthracene	ND	54.5						0	0	30	
Benzo(g,h,i)perylene	ND	54.5						0	0	30	
Surr: 2-Fluorobiphenyl	429		545.4		78.6	53.5	148		0		
Surr: Terphenyl-d14 (surr)	343		545.4		62.9	50.4	111		0		

Sample ID: **1204093-005AMS**	SampType: **MS**	Units: **µg/Kg-dry**	Prep Date: **4/20/2012**	RunNo: **4042**
Client ID: **B20-14-12.5**	Batch ID: **2264**		Analysis Date: **4/21/2012**	SeqNo: **72737**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acenaphthene	343	50.3	502.7	0	68.3	50.6	126				
Pyrene	359	50.3	502.7	0	71.5	50.4	139				
Surr: 2-Fluorobiphenyl	431		502.7		85.8	53.5	148				
Surr: Terphenyl-d14 (surr)	364		502.7		72.4	50.4	111				

Sample ID: **1204093-005AMSD**	SampType: **MSD**	Units: **µg/Kg-dry**	Prep Date: **4/20/2012**	RunNo: **4042**
Client ID: **B20-14-12.5**	Batch ID: **2264**		Analysis Date: **4/21/2012**	SeqNo: **72738**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acenaphthene	426	52.1	521.3	0	81.8	50.6	126	343.5	21.5	30	
Pyrene	423	52.1	521.3	0	81.1	50.4	139	359.3	16.3	30	
Surr: 2-Fluorobiphenyl	421		521.3		80.7	53.5	148		0		
Surr: Terphenyl-d14 (surr)	347		521.3		66.6	50.4	111		0		

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Date: *4/23/2012*

Work Order: 1204093
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: **MBLK-2264** SampType: **MBLK** Units: **µg/Kg** Prep Date: **4/20/2012** RunNo: **4042**
Client ID: **MBLKS** Batch ID: **2264** Analysis Date: **4/21/2012** SeqNo: **72748**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	50.0									
2-Methylnaphthalene	ND	50.0									
1-Methylnaphthalene	ND	50.0									
Acenaphthylene	ND	50.0									
Acenaphthene	ND	50.0									
Fluorene	ND	50.0									
Phenanthrene	ND	50.0									
Anthracene	ND	50.0									
Fluoranthene	ND	50.0									
Pyrene	ND	50.0									
Benz(a)anthracene	ND	50.0									
Chrysene	ND	50.0									
Benzo(b)fluoranthene	ND	50.0									
Benzo(k)fluoranthene	ND	50.0									
Benzo(a)pyrene	ND	50.0									
Indeno(1,2,3-cd)pyrene	ND	50.0									
Dibenz(a,h)anthracene	ND	50.0									
Benzo(g,h,i)perylene	ND	50.0									
Surr: 2-Fluorobiphenyl	617		500.0		123	53.5	148				
Surr: Terphenyl-d14 (surr)	490		500.0		98.1	50.4	111				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Sample Log-In Check List

Client Name: **GEI1**	Work Order Number: **1204093**
Logged by: **Troy Zehr**	Date Received: **4/18/2012**

Chain of Custody

1.	Were custodial seals present?	Yes ☐	No ☐	Not Required ☑
2.	Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
3.	How was the sample delivered?	Client		

Log In

4.	Coolers are present?	Yes ☑	No ☐	NA ☐
5.	Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
6.	Were all coolers received at a temperature of >0° C to 10.0°C	Yes ☑	No ☐	NA ☐
7.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
8.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
9.	Are samples properly preserved?	Yes ☑	No ☐	
10.	Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
11.	Is there headspace present in VOA vials?	Yes ☐	No ☐	NA ☑
12.	Did all sample containers arrive in good condition?(unbroken)	Yes ☑	No ☐	
13.	Does paperwork match bottle labels?	Yes ☑	No ☐	
14.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
15.	Is it clear what analyses were requested?	Yes ☑	No ☐	
16.	Were all holding times able to be met?	Yes ☑	No ☐	

Special Handling (if applicable)

17. 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:			

18. Additional remarks/Disrepancies

Item Information

Item #	Temp ºC	Condition
Cooler 1	5.1	Good
Cooler 2	6.0	Good
TempBlk 1	5.9	Good
TempBlk 2	4.9	Good

Fremont Analytical

Chain of Custody Record

1911 N. 35th Street
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Laboratory Project No (internal): 1204093
Date: 4/19/12
Page: 1 of: 6

Client: GeoEngineers, Inc
Address: 8410 154th Ave. NE
City, State, Zip: Redmond, WA 98052 Tel:
Reports To (PM): Jessica Smith Fax:

Project Name: Rufus 2.0
Location: Seattle, WA
Collected by: TML
Email: jasmith@geoengineers.com
Project No:

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	BTEX	EPA 8260	EPA 8021B Gasoline Range Organics	Diesel/Heavy Oil Range Organics	BAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Metals (6010 / 200.8) Total (T) / Dissolved (D)	Comments/Depth
B20-14-2.5	4/19/12	0845	Soil									
B20-14-5		0900	Soil									
B20-14-7.5		0906	Soil			X	X	X			X	
B20-14-10		0915	Soil									
B20-14-12.5		0940	Soil			X	X	X			X	
B20-14-15		0955	Soil									
~~B20-14-17.5~~			Soil									
~~B20-14-20~~			Soil									
~~B20-14-22.5~~			Soil									
~~B20-14-25~~			Soil									

*Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Si Sn Ti Tl U V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: Return to Client Disposal by Lab (A fee may be assessed if samples are retained after 30 days.)

Special Remarks:

Relinquished	Date/Time	Received	Date/Time
x [signature]	4/19/12 1350	x [signature]	4/19/12 15:49
Relinquished	Date/Time	Received	Date/Time
x		x	

TAT → Next Day 2 Day 3 Day STD

Distribution: White - Lab, Yellow - File, Pink - Originator

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Fremont Analytical

Chain of Custody Record

1311 N. 35th Street
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 4/19/12

Laboratory Project No (internal): _____

Page: 2 of 6

Client: GeoEngineers, Inc
Address: 8410 154th Ave. NE
City, State, Zip: Redmond, WA 98052
Tel: _____

Project Name: Rufus 2.0
Location: Seattle, WA
Collected by: TMC

Reports To (PM): Jessica Smith
Fax: _____
Email: jasmith@geoengineers.com
Project No: _____

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	BTEX (EPA 8260)	Gasoline Range Organics (EPA 8015D)	Diesel/Heavy Oil Range Organics (EPA 8270 - SIM)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Metals* (6020 / 200.8)	Total (T) / Dissolved (D)	Comments/Depth
~~B20-14-27.5~~			Soil									
~~B20-14-30~~			Soil									
B20-15-2.5	4/19/12	1020	Soil									
B20-15-5		1030	Soil			X	X	X			X	
B20-15-7.5		1038	Soil									
B20-15-10		1049	Soil									
B20-15-12.5		1056	Soil									
B20-15-15	4/19/12	1112	Soil			X	X	X			X	
~~B20-15-17.5~~			Soil									
~~B20-15-20~~			Soil									

*Metals Analysis (Circle): MTCA-5 (RCRA-8) Priority Pollutants TAL Individual Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide Ortho-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab (A fee may be assessed if samples are retained after 30 days)

Special Remarks:

Relinquished	Date/Time	Received	Date/Time
x [signature]	4/19/12 @ 1350	x [signature]	4/19/12 13:49
Relinquished	Date/Time	Received	Date/Time
x		x	

TAT--> (Next Day) 2 Day 3 Day STD

Distribution: White - Lab, Yellow - File, Pink - Originator

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Chain of Custody Record

1311 N. 35th Street
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Laboratory Project No (internal): _____

Date: 4/19/12 Page: 3 of: 6

Client: GeoEngineers, Inc
Address: 8410 154th Ave. NE
City, State, Zip: Redmond, WA 98052 Tel: _____

Project Name: Rufus 2.0
Location: Seattle, WA
Collected by: TMZ

Reports To (PM): Jessica Smith Fax: Email: jasmith@geoengineers.com Project No:

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	BTEX	GRO (EPA 8260)	DRO/Heavy Oil Range Organics (EPA 8015)	Gasoline Range Organics	Diesel/Heavy Oil Range Organics	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Metals* (6020 / 200.8) Total (T)	Dissolved (D)	Comments/Depth
~~B20-15-22.5~~			Soil											
~~B20-15-25~~			Soil											
~~B20-15-27.5~~			Soil											
~~B20-15-30~~			Soil											
B20-16-2.5	4/19/12	1150	Soil											
B20-16-5		1204	Soil											
B20-16-7.5		1218	Soil											
B20-16-10		1220	Soil			X	X	X				X		
B20-16-12.5		1234	Soil											
B20-16-15		1242	Soil			X	X	X				X		

*Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab (A fee may be assessed if samples are retained after 30 days)

Special Remarks:

Relinquished	Date/Time	Received	Date/Time
x	4/19/12 1353	x	4/19/12 1353
Relinquished	Date/Time	Received	Date/Time
x		x	

TAT -> (Next Day) 2 Day 3 Day STD

Distribution: White - Lab, Yellow - File, Pink - Originator

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Chain of Custody Record

1311 N. 35th Street
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 4/19/12

Laboratory Project No (Internal): _____

Page: 4 of: 6

Client: GeoEngineers, Inc
Address: 8410 154th Ave. NE
City, State, Zip: Redmond, WA 98052 Tel: _____

Project Name: Rules 1.0
Location: Seattle, WA
Collected by: TBE

Reports To (PM): Jessica Smith Fax: Email: jsmith@geoengineers.com Project No:

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	BTEX	EPA 8260 Gasoline Range Organics	EPA 8021b Diesel/Heavy Oil Range Organics	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Metals* (6020 / 200.8) Total (T) / Dissolved (D)	Comments/Depth
~~B20-16-17.5~~			Soil								
~~B20-16-20~~			Soil								
~~B20-16-22.5~~			Soil								
~~B20-16-25~~			Soil								
~~B20-16-27.5~~			Soil								
~~B20-16-30~~			Soil								
B20-17-2.5	4/18/12	1307	Soil								
B20-17-5		1314	Soil								
B20-17-7.5		1320	Soil								
B20-17-10		1338	Soil			X	X	X		X	

*Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Si Sn Ti Tl U V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab (After may be assessed if samples are retained after 30 days)

Special Remarks:

Relinquished	Date/Time	Received	Date/Time
1	4/19/12 @ 1350	1	4/19/12 15:49
Relinquished	Date/Time	Received	Date/Time
2		2	

TAT → Next Day 2 Day 3 Day STD

Fremont analytical

Chain of Custody Record

1311 N. 35th Street
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Laboratory Project No (internal): _____

Date: 4/19/12 Page: 5 of: 6

Client: GeoEngineers, Inc
Address: 8410 154th Ave. NE
City, State, Zip: Redmond, WA 98052 Tel: _____

Project Name: Rufus 2.0
Location: Seattle, WA
Collected by: TMI

Reports To (PM): Jessica Smith Fax: Email: jasmith@geoengineers.com Project No:

Sample Name:	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	BTEX	EPA 8260	Chlorinated Phenols (EPA 8041)	Chlorinated Phenols (EPA 8270)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Metals* (6010 / 200.8) Total (T) / Dissolved (D)	Comments/Depth
B20-17-12.5	4/19/12	1137	Soil									
B20-17-15	4/19/12	1345	Soil			X	X	X			X	
~~B20-17+17.5~~			Soil									
~~B20-17-20~~			Soil									
~~B20-17-22.5~~			Soil									
~~B20-17-25~~			Soil									
~~B20-17-27.5~~			Soil									
~~B20-17-30~~			Soil									
B20-18-2.5	4/19/12	1403	Soil									
B20-18-5	4/19/12	1407	Soil									

*Metals Analysis (Circle): HSTCA-S RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Si Sn Ti Tl U V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab (A fee may be assessed if samples are retained after 30 days.)

Special Remarks:

Relinquished	Date/Time	Received	Date/Time
1.	4/19/12 @ 1350	1.	4/19/12 1349
Relinquished	Date/Time	Received	Date/Time
2.		2.	

TAT: (Next Day) 2 Day 3 Day STD

Distribution: White - Lab, Yellow - File, Pink - Originator

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Chain of Custody Record

1321 N. 35th Street
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 4/19/12

Laboratory Project No (internal): _____

Page: 6 of: 6

Client: GeoEngineers, Inc
Address: 8410 154th Ave. NE
City, State, Zip: Redmond, WA 98052 Tel: _____

Project Name: Rufus 2.0
Location: Seattle, WA
Collected by: JAL

Reports To (PM): Jessica Smith Fax: Email: jsmith@geoengineers.com Project No:

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	BTEX	SPA 8260	SPA 8021b	Gasoline Range Organics	Diesel/Heavy Oil Range Organics	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Metals* (6020/ 200.8)	Total (T) / Dissolved (D)	Comments/Depth
B20-18-7.5	4/19/12	1417	Soil			X	X	X				X		
B20-18-10		1427	Soil											
B20-18-12.5		1437	Soil											
B20-18-15		1447	Soil			X	X	X				X		
~~B20-18-17.5~~			Soil											
~~B20-18-20~~			Soil											
~~B20-18-22.5~~			Soil											
~~B20-18-25~~			Soil											
~~B20-18-27.5~~			Soil											
~~B20-18-30~~			Soil											

*Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutant: TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab (A fee may be assessed if samples are retained after 30 days.)

Special Remarks:

Relinquished	Date/Time	Received	Date/Time
1	4/19/12 1520	1	4/19/12 15:49
Relinquished	Date/Time	Received	Date/Time
2		2	

TAT → Next Day 2 Day 3 Day STD

www.fremontanalytical.com

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

GeoEngineers
Jessica Smith
600 Stewart Street, Suite 1700
Seattle, WA 98101

RE: Block 20 Rufus 2.0
Lab ID: 1504151

April 30, 2015

Attention Jessica Smith:

Fremont Analytical, Inc. received 41 sample(s) on 4/16/2015 for the analyses presented in the following report.

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.
Gasoline by NWTPH-Gx
Mercury by EPA Method 7471
Metals (SW6020) with TCLP Extraction (EPA 1311)
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)
Sample Moisture (Percent Moisture)
Total Metals by EPA Method 6020
Volatile Organic Compounds by EPA Method 8260

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Mike Ridgeway
President

Date: *04/30/2015*

CLIENT: GeoEngineers
Project: Block 20 Rufus 2.0
Lab Order: 1504151

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1504151-001	B-20-32-1.0	04/16/2015 7:30 AM	04/16/2015 2:45 PM
1504151-002	B-20-32-3.5	04/16/2015 7:32 AM	04/16/2015 2:45 PM
1504151-003	B-20-32-6.0	04/16/2015 7:35 AM	04/16/2015 2:45 PM
1504151-004	B-20-32-8.5	04/16/2015 7:40 AM	04/16/2015 2:45 PM
1504151-005	B-20-32-11.0	04/16/2015 7:45 AM	04/16/2015 2:45 PM
1504151-006	B-20-32-13.5	04/16/2015 7:50 AM	04/16/2015 2:45 PM
1504151-007	B-20-28-1.0	04/16/2015 7:52 AM	04/16/2015 2:45 PM
1504151-008	B-20-28-3.5	04/16/2015 7:55 AM	04/16/2015 2:45 PM
1504151-009	B-20-28-6.0	04/16/2015 8:00 AM	04/16/2015 2:45 PM
1504151-010	B-20-28-8.5	04/16/2015 8:05 AM	04/16/2015 2:45 PM
1504151-011	B-20-28-11.0	04/16/2015 8:10 AM	04/16/2015 2:45 PM
1504151-012	B-20-28-13.5	04/16/2015 8:15 AM	04/16/2015 2:45 PM
1504151-013	B-20-30-1.0	04/16/2015 8:20 AM	04/16/2015 2:45 PM
1504151-014	B-20-30-3.5	04/16/2015 8:25 AM	04/16/2015 2:45 PM
1504151-015	B-20-30-6.0	04/16/2015 8:30 AM	04/16/2015 2:45 PM
1504151-016	B-20-30-8.5	04/16/2015 8:35 AM	04/16/2015 2:45 PM
1504151-017	B-20-30-11.0	04/16/2015 8:40 AM	04/16/2015 2:45 PM
1504151-018	B-20-30-13.5	04/16/2015 8:45 AM	04/16/2015 2:45 PM
1504151-019	B-20-31-1.5	04/16/2015 8:50 AM	04/16/2015 2:45 PM
1504151-020	B-20-31-3.0	04/16/2015 8:55 AM	04/16/2015 2:45 PM
1504151-021	B-20-31-5.5	04/16/2015 9:00 AM	04/16/2015 2:45 PM
1504151-022	B-20-31-8.0	04/16/2015 9:05 AM	04/16/2015 2:45 PM
1504151-023	B-20-31-10.5	04/16/2015 9:10 AM	04/16/2015 2:45 PM
1504151-024	B-20-31-13.0	04/16/2015 9:15 AM	04/16/2015 2:45 PM
1504151-025	B-20-29-1.0	04/16/2015 9:20 AM	04/16/2015 2:45 PM
1504151-026	B-20-29-3.5	04/16/2015 9:25 AM	04/16/2015 2:45 PM
1504151-027	B-20-29-6.0	04/16/2015 9:30 AM	04/16/2015 2:45 PM
1504151-028	B-20-29-8.5	04/16/2015 9:35 AM	04/16/2015 2:45 PM
1504151-029	B-20-29-11.0	04/16/2015 9:40 AM	04/16/2015 2:45 PM
1504151-030	B-20-29-13.5	04/16/2015 9:45 AM	04/16/2015 2:45 PM
1504151-031	B-20-26-1.0	04/16/2015 10:55 AM	04/16/2015 2:45 PM
1504151-032	B-20-26-3.5	04/16/2015 11:00 AM	04/16/2015 2:45 PM
1504151-033	B-20-26-6.0	04/16/2015 11:05 AM	04/16/2015 2:45 PM
1504151-034	B-20-26-7.5	04/16/2015 11:10 AM	04/16/2015 2:45 PM
1504151-035	B-20-20-1.5	04/16/2015 12:20 PM	04/16/2015 2:45 PM
1504151-036	B-20-24-1.0	04/16/2015 1:05 PM	04/16/2015 2:45 PM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

CLIENT: GeoEngineers
Project: Block 20 Rufus 2.0
Lab Order: 1504151

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1504151-037	B-20-24-3.5	04/16/2015 1:10 PM	04/16/2015 2:45 PM
1504151-038	B-20-24-5.0	04/16/2015 1:15 PM	04/16/2015 2:45 PM
1504151-039	B-20-24-7.5	04/16/2015 1:20 PM	04/16/2015 2:45 PM
1504151-040	B-20-24-8.5	04/16/2015 1:25 PM	04/16/2015 2:45 PM
1504151-041	Trip Blank_041615		04/16/2015 2:45 PM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

Case Narrative

WO#: **1504151**

Date: **4/30/2015**

CLIENT: GeoEngineers
Project: Block 20 Rufus 2.0

I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below LOQ
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Analytical Report

WO#: **1504151**
Date Reported: **4/30/2015**

Client: GeoEngineers
Collection Date: 4/16/2015 7:40:00 AM
Project: Block 20 Rufus 2.0
Lab ID: 1504151-004
Matrix: Soil
Client Sample ID: **B-20-32-8.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 10621		Analyst: TN
Lead	6.65	0.221		mg/Kg-dry	1	4/24/2015 4:42:00 PM
Sample Moisture (Percent Moisture)				Batch ID: R21985		Analyst: CG
Percent Moisture	25.8			wt%	1	4/24/2015 9:36:25 AM

Analytical Report

WO#: **1504151**

Date Reported: **4/30/2015**

Client: GeoEngineers **Collection Date:** 4/16/2015 8:00:00 AM

Project: Block 20 Rufus 2.0

Lab ID: 1504151-009 **Matrix:** Soil

Client Sample ID: **B-20-28-6.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 10621		Analyst: TN
Lead	94.5	0.173		mg/Kg-dry	1	4/24/2015 5:10:16 PM
Metals (SW6020) with TCLP Extraction (EPA 1311)				Batch ID: 10620		Analyst: TN
Lead	ND	0.500		mg/L	1	4/24/2015 6:31:35 PM
Sample Moisture (Percent Moisture)				Batch ID: R21985		Analyst: CG
Percent Moisture	8.87			wt%	1	4/24/2015 9:36:25 AM

Analytical Report

WO#: **1504151**
Date Reported: **4/30/2015**

Client: GeoEngineers
Collection Date: 4/16/2015 8:05:00 AM
Project: Block 20 Rufus 2.0
Lab ID: 1504151-010
Matrix: Soil
Client Sample ID: **B-20-28-8.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 10621		Analyst: TN
Lead	10.2	0.211		mg/Kg-dry	1	4/24/2015 5:13:48 PM
Metals (SW6020) with TCLP Extraction (EPA 1311)				Batch ID: 10620		Analyst: TN
Lead	ND	0.500		mg/L	1	4/24/2015 7:04:33 PM
Sample Moisture (Percent Moisture)				Batch ID: R21985		Analyst: CG
Percent Moisture	21.6			wt%	1	4/24/2015 9:36:25 AM

Analytical Report

WO#: **1504151**
Date Reported: **4/30/2015**

Client: GeoEngineers
Collection Date: 4/16/2015 8:35:00 AM
Project: Block 20 Rufus 2.0
Lab ID: 1504151-016
Matrix: Soil
Client Sample ID: **B-20-30-8.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 10621		Analyst: TN
Lead	5.71	0.184		mg/Kg-dry	1	4/24/2015 5:17:19 PM
Sample Moisture (Percent Moisture)				Batch ID: R21985		Analyst: CG
Percent Moisture	17.1			wt%	1	4/24/2015 9:36:25 AM

Analytical Report

WO#: **1504151**

Date Reported: **4/30/2015**

Client: GeoEngineers **Collection Date:** 4/16/2015 9:05:00 AM

Project: Block 20 Rufus 2.0

Lab ID: 1504151-022 **Matrix:** Soil

Client Sample ID: **B-20-31-8.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 10621		Analyst: TN
Lead	26.5	0.197		mg/Kg-dry	1	4/24/2015 5:20:51 PM
Sample Moisture (Percent Moisture)				Batch ID: R21985		Analyst: CG
Percent Moisture	17.5			wt%	1	4/24/2015 9:36:25 AM

Analytical Report

WO#: **1504151**

Date Reported: **4/30/2015**

Client: GeoEngineers **Collection Date:** 4/16/2015 9:35:00 AM

Project: Block 20 Rufus 2.0

Lab ID: 1504151-028 **Matrix:** Soil

Client Sample ID: **B-20-29-8.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 10621		Analyst: TN
Lead	8.32	0.199		mg/Kg-dry	1	4/24/2015 5:24:23 PM
Sample Moisture (Percent Moisture)				Batch ID: R21985		Analyst: CG
Percent Moisture	21.7			wt%	1	4/24/2015 9:36:25 AM

Analytical Report

WO#: **1504151**

Date Reported: **4/30/2015**

Client: GeoEngineers **Collection Date:** 4/16/2015 11:00:00 AM

Project: Block 20 Rufus 2.0

Lab ID: 1504151-032 **Matrix:** Soil

Client Sample ID: **B-20-26-3.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 10615		Analyst: EC
Diesel (Fuel Oil)	ND	22.2		mg/Kg-dry	1	4/23/2015 10:47:00 PM
Heavy Oil	ND	55.6		mg/Kg-dry	1	4/23/2015 10:47:00 PM
Surr: 2-Fluorobiphenyl	89.2	50-150		%REC	1	4/23/2015 10:47:00 PM
Surr: o-Terphenyl	90.5	50-150		%REC	1	4/23/2015 10:47:00 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 10614		Analyst: NG
Naphthalene	ND	54.9		µg/Kg-dry	1	4/27/2015 7:14:00 PM
2-Methylnaphthalene	ND	54.9		µg/Kg-dry	1	4/27/2015 7:14:00 PM
1-Methylnaphthalene	ND	54.9		µg/Kg-dry	1	4/27/2015 7:14:00 PM
Acenaphthylene	ND	54.9		µg/Kg-dry	1	4/27/2015 7:14:00 PM
Acenaphthene	ND	54.9		µg/Kg-dry	1	4/27/2015 7:14:00 PM
Fluorene	ND	54.9		µg/Kg-dry	1	4/27/2015 7:14:00 PM
Phenanthrene	ND	54.9		µg/Kg-dry	1	4/27/2015 7:14:00 PM
Anthracene	ND	54.9		µg/Kg-dry	1	4/27/2015 7:14:00 PM
Fluoranthene	ND	54.9		µg/Kg-dry	1	4/27/2015 7:14:00 PM
Pyrene	ND	54.9		µg/Kg-dry	1	4/27/2015 7:14:00 PM
Benz(a)anthracene	ND	54.9		µg/Kg-dry	1	4/27/2015 7:14:00 PM
Chrysene	ND	54.9		µg/Kg-dry	1	4/27/2015 7:14:00 PM
Benzo(b)fluoranthene	ND	54.9		µg/Kg-dry	1	4/27/2015 7:14:00 PM
Benzo(k)fluoranthene	ND	54.9		µg/Kg-dry	1	4/27/2015 7:14:00 PM
Benzo(a)pyrene	ND	54.9		µg/Kg-dry	1	4/27/2015 7:14:00 PM
Indeno(1,2,3-cd)pyrene	ND	54.9		µg/Kg-dry	1	4/27/2015 7:14:00 PM
Dibenz(a,h)anthracene	ND	54.9		µg/Kg-dry	1	4/27/2015 7:14:00 PM
Benzo(g,h,i)perylene	ND	54.9		µg/Kg-dry	1	4/27/2015 7:14:00 PM
Surr: 2-Fluorobiphenyl	82.6	42.7-132		%REC	1	4/27/2015 7:14:00 PM
Surr: Terphenyl-d14 (surr)	92.4	48.8-157		%REC	1	4/27/2015 7:14:00 PM
Gasoline by NWTPH-Gx				Batch ID: 10640		Analyst: BC
Gasoline	ND	2.46		mg/Kg-dry	1	4/28/2015 2:31:00 AM
Surr: Toluene-d8	92.1	65-135		%REC	1	4/28/2015 2:31:00 AM
Surr: 4-Bromofluorobenzene	107	65-135		%REC	1	4/28/2015 2:31:00 AM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 10640		Analyst: BC
Dichlorodifluoromethane (CFC-12)	ND	0.0296		mg/Kg-dry	1	4/28/2015 2:31:00 AM
Chloromethane	ND	0.0296		mg/Kg-dry	1	4/28/2015 2:31:00 AM
Vinyl chloride	ND	0.000985		mg/Kg-dry	1	4/28/2015 2:31:00 AM

Analytical Report

WO#: **1504151**

Date Reported: **4/30/2015**

Client: GeoEngineers

Collection Date: 4/16/2015 11:00:00 AM

Project: Block 20 Rufus 2.0

Lab ID: 1504151-032

Matrix: Soil

Client Sample ID: **B-20-26-3.5**

Volatile Organic Compounds by EPA Method 8260

Batch ID: 10640 Analyst: BC

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Bromomethane	ND	0.0443		mg/Kg-dry	1	4/28/2015 2:31:00 AM
Trichlorofluoromethane (CFC-11)	ND	0.0246		mg/Kg-dry	1	4/28/2015 2:31:00 AM
Chloroethane	ND	0.0296		mg/Kg-dry	1	4/28/2015 2:31:00 AM
1,1-Dichloroethene	ND	0.0246		mg/Kg-dry	1	4/28/2015 2:31:00 AM
Methylene chloride	ND	0.00985		mg/Kg-dry	1	4/28/2015 2:31:00 AM
trans-1,2-Dichloroethene	ND	0.00985		mg/Kg-dry	1	4/28/2015 2:31:00 AM
Methyl tert-butyl ether (MTBE)	ND	0.0246		mg/Kg-dry	1	4/28/2015 2:31:00 AM
1,1-Dichloroethane	ND	0.00985		mg/Kg-dry	1	4/28/2015 2:31:00 AM
2,2-Dichloropropane	ND	0.0246		mg/Kg-dry	1	4/28/2015 2:31:00 AM
cis-1,2-Dichloroethene	ND	0.00985		mg/Kg-dry	1	4/28/2015 2:31:00 AM
Chloroform	ND	0.00985		mg/Kg-dry	1	4/28/2015 2:31:00 AM
1,1,1-Trichloroethane (TCA)	ND	0.00985		mg/Kg-dry	1	4/28/2015 2:31:00 AM
1,1-Dichloropropene	ND	0.00985		mg/Kg-dry	1	4/28/2015 2:31:00 AM
Carbon tetrachloride	ND	0.00985		mg/Kg-dry	1	4/28/2015 2:31:00 AM
1,2-Dichloroethane (EDC)	ND	0.0148		mg/Kg-dry	1	4/28/2015 2:31:00 AM
Benzene	ND	0.00985		mg/Kg-dry	1	4/28/2015 2:31:00 AM
Trichloroethene (TCE)	ND	0.00985		mg/Kg-dry	1	4/28/2015 2:31:00 AM
1,2-Dichloropropane	ND	0.00985		mg/Kg-dry	1	4/28/2015 2:31:00 AM
Bromodichloromethane	ND	0.00985		mg/Kg-dry	1	4/28/2015 2:31:00 AM
Dibromomethane	ND	0.0197		mg/Kg-dry	1	4/28/2015 2:31:00 AM
cis-1,3-Dichloropropene	ND	0.00985		mg/Kg-dry	1	4/28/2015 2:31:00 AM
Toluene	ND	0.00985		mg/Kg-dry	1	4/28/2015 2:31:00 AM
trans-1,3-Dichloropropylene	ND	0.0148		mg/Kg-dry	1	4/28/2015 2:31:00 AM
1,1,2-Trichloroethane	ND	0.0148		mg/Kg-dry	1	4/28/2015 2:31:00 AM
1,3-Dichloropropane	ND	0.0246		mg/Kg-dry	1	4/28/2015 2:31:00 AM
Tetrachloroethene (PCE)	ND	0.00985		mg/Kg-dry	1	4/28/2015 2:31:00 AM
Dibromochloromethane	ND	0.0148		mg/Kg-dry	1	4/28/2015 2:31:00 AM
1,2-Dibromoethane (EDB)	ND	0.00246		mg/Kg-dry	1	4/28/2015 2:31:00 AM
Chlorobenzene	ND	0.00985		mg/Kg-dry	1	4/28/2015 2:31:00 AM
1,1,1,2-Tetrachloroethane	ND	0.0148		mg/Kg-dry	1	4/28/2015 2:31:00 AM
Ethylbenzene	ND	0.0148		mg/Kg-dry	1	4/28/2015 2:31:00 AM
m,p-Xylene	ND	0.00985		mg/Kg-dry	1	4/28/2015 2:31:00 AM
o-Xylene	ND	0.00985		mg/Kg-dry	1	4/28/2015 2:31:00 AM
Styrene	ND	0.00985		mg/Kg-dry	1	4/28/2015 2:31:00 AM
Isopropylbenzene	ND	0.0394		mg/Kg-dry	1	4/28/2015 2:31:00 AM
Bromoform	ND	0.00985		mg/Kg-dry	1	4/28/2015 2:31:00 AM
1,1,2,2-Tetrachloroethane	ND	0.00985		mg/Kg-dry	1	4/28/2015 2:31:00 AM
n-Propylbenzene	ND	0.00985		mg/Kg-dry	1	4/28/2015 2:31:00 AM
Bromobenzene	ND	0.0148		mg/Kg-dry	1	4/28/2015 2:31:00 AM

Analytical Report

WO#: **1504151**
Date Reported: **4/30/2015**

Client: GeoEngineers
Collection Date: 4/16/2015 11:00:00 AM
Project: Block 20 Rufus 2.0
Lab ID: 1504151-032
Matrix: Soil
Client Sample ID: **B-20-26-3.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: 10640		Analyst: BC
1,3,5-Trimethylbenzene	ND	0.00985		mg/Kg-dry	1	4/28/2015 2:31:00 AM
2-Chlorotoluene	ND	0.00985		mg/Kg-dry	1	4/28/2015 2:31:00 AM
4-Chlorotoluene	ND	0.00985		mg/Kg-dry	1	4/28/2015 2:31:00 AM
tert-Butylbenzene	ND	0.00985		mg/Kg-dry	1	4/28/2015 2:31:00 AM
1,2,3-Trichloropropane	ND	0.00985		mg/Kg-dry	1	4/28/2015 2:31:00 AM
1,2,4-Trichlorobenzene	ND	0.0246		mg/Kg-dry	1	4/28/2015 2:31:00 AM
sec-Butylbenzene	ND	0.00985		mg/Kg-dry	1	4/28/2015 2:31:00 AM
4-Isopropyltoluene	ND	0.00985		mg/Kg-dry	1	4/28/2015 2:31:00 AM
1,3-Dichlorobenzene	ND	0.00985		mg/Kg-dry	1	4/28/2015 2:31:00 AM
1,4-Dichlorobenzene	ND	0.00985		mg/Kg-dry	1	4/28/2015 2:31:00 AM
n-Butylbenzene	ND	0.00985		mg/Kg-dry	1	4/28/2015 2:31:00 AM
1,2-Dichlorobenzene	ND	0.00985		mg/Kg-dry	1	4/28/2015 2:31:00 AM
1,2-Dibromo-3-chloropropane	ND	0.246		mg/Kg-dry	1	4/28/2015 2:31:00 AM
1,2,4-Trimethylbenzene	ND	0.00985		mg/Kg-dry	1	4/28/2015 2:31:00 AM
Hexachlorobutadiene	ND	0.0493		mg/Kg-dry	1	4/28/2015 2:31:00 AM
Naphthalene	ND	0.0148		mg/Kg-dry	1	4/28/2015 2:31:00 AM
1,2,3-Trichlorobenzene	ND	0.00985		mg/Kg-dry	1	4/28/2015 2:31:00 AM
Surr: Dibromofluoromethane	92.6	63.7-129		%REC	1	4/28/2015 2:31:00 AM
Surr: Toluene-d8	94.2	64.3-131		%REC	1	4/28/2015 2:31:00 AM
Surr: 1-Bromo-4-fluorobenzene	101	63.1-141		%REC	1	4/28/2015 2:31:00 AM
Mercury by EPA Method 7471				Batch ID: 10632		Analyst: TN
Mercury	ND	0.277		mg/Kg-dry	1	4/27/2015 2:02:05 PM
Total Metals by EPA Method 6020				Batch ID: 10621		Analyst: TN
Arsenic	6.65	0.0903		mg/Kg-dry	1	4/24/2015 5:27:55 PM
Cadmium	ND	0.181		mg/Kg-dry	1	4/24/2015 5:27:55 PM
Chromium	44.4	0.0903		mg/Kg-dry	1	4/24/2015 5:27:55 PM
Lead	3.81	0.181		mg/Kg-dry	1	4/24/2015 5:27:55 PM
Sample Moisture (Percent Moisture)				Batch ID: R21985		Analyst: CG
Percent Moisture	11.4			wt%	1	4/24/2015 9:36:25 AM

Analytical Report

WO#: **1504151**

Date Reported: **4/30/2015**

Client: GeoEngineers **Collection Date:** 4/16/2015 1:10:00 PM

Project: Block 20 Rufus 2.0

Lab ID: 1504151-037 **Matrix:** Soil

Client Sample ID: **B-20-24-3.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 10615		Analyst: EC
Diesel (Fuel Oil)	ND	22.4		mg/Kg-dry	1	4/23/2015 11:50:00 PM
Heavy Oil	ND	55.9		mg/Kg-dry	1	4/23/2015 11:50:00 PM
Surr: 2-Fluorobiphenyl	88.2	50-150		%REC	1	4/23/2015 11:50:00 PM
Surr: o-Terphenyl	92.8	50-150		%REC	1	4/23/2015 11:50:00 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 10614		Analyst: NG
Naphthalene	95.4	60.2		µg/Kg-dry	1	4/27/2015 8:28:00 PM
2-Methylnaphthalene	112	60.2		µg/Kg-dry	1	4/27/2015 8:28:00 PM
1-Methylnaphthalene	96.3	60.2		µg/Kg-dry	1	4/27/2015 8:28:00 PM
Acenaphthylene	ND	60.2		µg/Kg-dry	1	4/27/2015 8:28:00 PM
Acenaphthene	109	60.2		µg/Kg-dry	1	4/27/2015 8:28:00 PM
Fluorene	94.4	60.2		µg/Kg-dry	1	4/27/2015 8:28:00 PM
Phenanthrene	1,860	60.2		µg/Kg-dry	1	4/27/2015 8:28:00 PM
Anthracene	511	60.2		µg/Kg-dry	1	4/27/2015 8:28:00 PM
Fluoranthene	24,000	3,010	D	µg/Kg-dry	50	4/28/2015 5:10:00 PM
Pyrene	29,900	3,010	D	µg/Kg-dry	50	4/28/2015 5:10:00 PM
Benz(a)anthracene	2,270	60.2		µg/Kg-dry	1	4/27/2015 8:28:00 PM
Chrysene	2,660	60.2		µg/Kg-dry	1	4/27/2015 8:28:00 PM
Benzo(b)fluoranthene	3,280	60.2		µg/Kg-dry	1	4/27/2015 8:28:00 PM
Benzo(k)fluoranthene	830	60.2		µg/Kg-dry	1	4/27/2015 8:28:00 PM
Benzo(a)pyrene	2,350	60.2		µg/Kg-dry	1	4/27/2015 8:28:00 PM
Indeno(1,2,3-cd)pyrene	1,650	60.2		µg/Kg-dry	1	4/27/2015 8:28:00 PM
Dibenz(a,h)anthracene	1,270	60.2		µg/Kg-dry	1	4/27/2015 8:28:00 PM
Benzo(g,h,i)perylene	2,110	60.2		µg/Kg-dry	1	4/27/2015 8:28:00 PM
Surr: 2-Fluorobiphenyl	78.1	42.7-132		%REC	1	4/27/2015 8:28:00 PM
Surr: Terphenyl-d14 (surr)	87.2	48.8-157		%REC	1	4/27/2015 8:28:00 PM
Gasoline by NWTPH-Gx				Batch ID: 10616		Analyst: BC
Gasoline	ND	5.21		mg/Kg-dry	1	4/27/2015 12:46:00 PM
Surr: Toluene-d8	93.4	65-135		%REC	1	4/24/2015 3:49:00 AM
Surr: 4-Bromofluorobenzene	94.4	65-135		%REC	1	4/24/2015 3:49:00 AM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 10616		Analyst: BC
Dichlorodifluoromethane (CFC-12)	ND	0.0625		mg/Kg-dry	1	4/24/2015 3:49:00 AM
Chloromethane	ND	0.0625		mg/Kg-dry	1	4/24/2015 3:49:00 AM
Vinyl chloride	ND	0.00208		mg/Kg-dry	1	4/24/2015 3:49:00 AM

Analytical Report

WO#: **1504151**

Date Reported: **4/30/2015**

Client: GeoEngineers **Collection Date:** 4/16/2015 1:10:00 PM

Project: Block 20 Rufus 2.0

Lab ID: 1504151-037 **Matrix:** Soil

Client Sample ID: **B-20-24-3.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: 10616		Analyst: BC
Bromomethane	ND	0.0938		mg/Kg-dry	1	4/24/2015 3:49:00 AM
Trichlorofluoromethane (CFC-11)	ND	0.0521		mg/Kg-dry	1	4/24/2015 3:49:00 AM
Chloroethane	ND	0.0625		mg/Kg-dry	1	4/24/2015 3:49:00 AM
1,1-Dichloroethene	ND	0.0521		mg/Kg-dry	1	4/24/2015 3:49:00 AM
Methylene chloride	ND	0.0208		mg/Kg-dry	1	4/24/2015 3:49:00 AM
trans-1,2-Dichloroethene	ND	0.0208		mg/Kg-dry	1	4/24/2015 3:49:00 AM
Methyl tert-butyl ether (MTBE)	ND	0.0521		mg/Kg-dry	1	4/24/2015 3:49:00 AM
1,1-Dichloroethane	ND	0.0208		mg/Kg-dry	1	4/24/2015 3:49:00 AM
2,2-Dichloropropane	ND	0.0521		mg/Kg-dry	1	4/24/2015 3:49:00 AM
cis-1,2-Dichloroethene	ND	0.0208		mg/Kg-dry	1	4/24/2015 3:49:00 AM
Chloroform	ND	0.0208		mg/Kg-dry	1	4/24/2015 3:49:00 AM
1,1,1-Trichloroethane (TCA)	0.0749	0.0208		mg/Kg-dry	1	4/24/2015 3:49:00 AM
1,1-Dichloropropene	ND	0.0208		mg/Kg-dry	1	4/24/2015 3:49:00 AM
Carbon tetrachloride	ND	0.0208		mg/Kg-dry	1	4/24/2015 3:49:00 AM
1,2-Dichloroethane (EDC)	ND	0.0313		mg/Kg-dry	1	4/24/2015 3:49:00 AM
Benzene	ND	0.0208		mg/Kg-dry	1	4/24/2015 3:49:00 AM
Trichloroethene (TCE)	ND	0.0208		mg/Kg-dry	1	4/24/2015 3:49:00 AM
1,2-Dichloropropane	ND	0.0208		mg/Kg-dry	1	4/24/2015 3:49:00 AM
Bromodichloromethane	ND	0.0208		mg/Kg-dry	1	4/24/2015 3:49:00 AM
Dibromomethane	ND	0.0417		mg/Kg-dry	1	4/24/2015 3:49:00 AM
cis-1,3-Dichloropropene	ND	0.0208		mg/Kg-dry	1	4/24/2015 3:49:00 AM
Toluene	0.0316	0.0208		mg/Kg-dry	1	4/24/2015 3:49:00 AM
trans-1,3-Dichloropropylene	ND	0.0313		mg/Kg-dry	1	4/24/2015 3:49:00 AM
1,1,2-Trichloroethane	ND	0.0313		mg/Kg-dry	1	4/24/2015 3:49:00 AM
1,3-Dichloropropane	ND	0.0521		mg/Kg-dry	1	4/24/2015 3:49:00 AM
Tetrachloroethene (PCE)	0.0569	0.0208		mg/Kg-dry	1	4/24/2015 3:49:00 AM
Dibromochloromethane	ND	0.0313		mg/Kg-dry	1	4/24/2015 3:49:00 AM
1,2-Dibromoethane (EDB)	ND	0.00521		mg/Kg-dry	1	4/24/2015 3:49:00 AM
Chlorobenzene	ND	0.0208		mg/Kg-dry	1	4/24/2015 3:49:00 AM
1,1,1,2-Tetrachloroethane	ND	0.0313		mg/Kg-dry	1	4/24/2015 3:49:00 AM
Ethylbenzene	ND	0.0313		mg/Kg-dry	1	4/24/2015 3:49:00 AM
m,p-Xylene	0.0406	0.0208		mg/Kg-dry	1	4/24/2015 3:49:00 AM
o-Xylene	0.0313	0.0208		mg/Kg-dry	1	4/24/2015 3:49:00 AM
Styrene	ND	0.0208		mg/Kg-dry	1	4/24/2015 3:49:00 AM
Isopropylbenzene	ND	0.0834		mg/Kg-dry	1	4/24/2015 3:49:00 AM
Bromoform	ND	0.0208		mg/Kg-dry	1	4/24/2015 3:49:00 AM
1,1,2,2-Tetrachloroethane	ND	0.0208		mg/Kg-dry	1	4/24/2015 3:49:00 AM
n-Propylbenzene	ND	0.0208		mg/Kg-dry	1	4/24/2015 3:49:00 AM
Bromobenzene	ND	0.0313		mg/Kg-dry	1	4/24/2015 3:49:00 AM

Analytical Report

WO#: **1504151**

Date Reported: **4/30/2015**

Client: GeoEngineers **Collection Date:** 4/16/2015 1:10:00 PM

Project: Block 20 Rufus 2.0

Lab ID: 1504151-037 **Matrix:** Soil

Client Sample ID: **B-20-24-3.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: 10616		Analyst: BC
1,3,5-Trimethylbenzene	ND	0.0208		mg/Kg-dry	1	4/24/2015 3:49:00 AM
2-Chlorotoluene	ND	0.0208		mg/Kg-dry	1	4/24/2015 3:49:00 AM
4-Chlorotoluene	ND	0.0208		mg/Kg-dry	1	4/24/2015 3:49:00 AM
tert-Butylbenzene	ND	0.0208		mg/Kg-dry	1	4/24/2015 3:49:00 AM
1,2,3-Trichloropropane	ND	0.0208		mg/Kg-dry	1	4/24/2015 3:49:00 AM
1,2,4-Trichlorobenzene	ND	0.0521		mg/Kg-dry	1	4/24/2015 3:49:00 AM
sec-Butylbenzene	ND	0.0208		mg/Kg-dry	1	4/24/2015 3:49:00 AM
4-Isopropyltoluene	ND	0.0208		mg/Kg-dry	1	4/24/2015 3:49:00 AM
1,3-Dichlorobenzene	ND	0.0208		mg/Kg-dry	1	4/24/2015 3:49:00 AM
1,4-Dichlorobenzene	ND	0.0208		mg/Kg-dry	1	4/24/2015 3:49:00 AM
n-Butylbenzene	ND	0.0208		mg/Kg-dry	1	4/24/2015 3:49:00 AM
1,2-Dichlorobenzene	ND	0.0208		mg/Kg-dry	1	4/24/2015 3:49:00 AM
1,2-Dibromo-3-chloropropane	ND	0.521		mg/Kg-dry	1	4/24/2015 3:49:00 AM
1,2,4-Trimethylbenzene	0.0248	0.0208		mg/Kg-dry	1	4/24/2015 3:49:00 AM
Hexachlorobutadiene	ND	0.104		mg/Kg-dry	1	4/24/2015 3:49:00 AM
Naphthalene	ND	0.0313		mg/Kg-dry	1	4/24/2015 3:49:00 AM
1,2,3-Trichlorobenzene	ND	0.0208		mg/Kg-dry	1	4/24/2015 3:49:00 AM
Surr: Dibromofluoromethane	97.6	63.7-129		%REC	1	4/24/2015 3:49:00 AM
Surr: Toluene-d8	106	64.3-131		%REC	1	4/24/2015 3:49:00 AM
Surr: 1-Bromo-4-fluorobenzene	102	63.1-141		%REC	1	4/24/2015 3:49:00 AM
Mercury by EPA Method 7471				Batch ID: 10632		Analyst: TN
Mercury	0.452	0.304		mg/Kg-dry	1	4/27/2015 2:03:41 PM
Total Metals by EPA Method 6020				Batch ID: 10621		Analyst: TN
Arsenic	14.7	0.103		mg/Kg-dry	1	4/24/2015 5:31:26 PM
Cadmium	0.853	0.205		mg/Kg-dry	1	4/24/2015 5:31:26 PM
Chromium	37.8	0.103		mg/Kg-dry	1	4/24/2015 5:31:26 PM
Lead	216	0.205		mg/Kg-dry	1	4/24/2015 5:31:26 PM
Sample Moisture (Percent Moisture)				Batch ID: R21985		Analyst: CG
Percent Moisture	19.4			wt%	1	4/24/2015 9:36:25 AM

Analytical Report

WO#: **1504151**

Date Reported: **4/30/2015**

Client: GeoEngineers **Collection Date:** 4/16/2015 1:25:00 PM

Project: Block 20 Rufus 2.0

Lab ID: 1504151-040 **Matrix:** Soil

Client Sample ID: **B-20-24-8.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 10615		Analyst: EC
Diesel (Fuel Oil)	ND	26.6		mg/Kg-dry	1	4/24/2015 12:21:00 AM
Heavy Oil	ND	66.6		mg/Kg-dry	1	4/24/2015 12:21:00 AM
Surr: 2-Fluorobiphenyl	74.8	50-150		%REC	1	4/24/2015 12:21:00 AM
Surr: o-Terphenyl	76.1	50-150		%REC	1	4/24/2015 12:21:00 AM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 10614		Analyst: NG
Naphthalene	ND	64.7		µg/Kg-dry	1	4/27/2015 8:52:00 PM
2-Methylnaphthalene	ND	64.7		µg/Kg-dry	1	4/27/2015 8:52:00 PM
1-Methylnaphthalene	ND	64.7		µg/Kg-dry	1	4/27/2015 8:52:00 PM
Acenaphthylene	ND	64.7		µg/Kg-dry	1	4/27/2015 8:52:00 PM
Acenaphthene	ND	64.7		µg/Kg-dry	1	4/27/2015 8:52:00 PM
Fluorene	ND	64.7		µg/Kg-dry	1	4/27/2015 8:52:00 PM
Phenanthrene	ND	64.7		µg/Kg-dry	1	4/27/2015 8:52:00 PM
Anthracene	ND	64.7		µg/Kg-dry	1	4/27/2015 8:52:00 PM
Fluoranthene	ND	64.7		µg/Kg-dry	1	4/27/2015 8:52:00 PM
Pyrene	ND	64.7		µg/Kg-dry	1	4/27/2015 8:52:00 PM
Benz(a)anthracene	ND	64.7		µg/Kg-dry	1	4/27/2015 8:52:00 PM
Chrysene	ND	64.7		µg/Kg-dry	1	4/27/2015 8:52:00 PM
Benzo(b)fluoranthene	ND	64.7		µg/Kg-dry	1	4/27/2015 8:52:00 PM
Benzo(k)fluoranthene	ND	64.7		µg/Kg-dry	1	4/27/2015 8:52:00 PM
Benzo(a)pyrene	ND	64.7		µg/Kg-dry	1	4/27/2015 8:52:00 PM
Indeno(1,2,3-cd)pyrene	ND	64.7		µg/Kg-dry	1	4/27/2015 8:52:00 PM
Dibenz(a,h)anthracene	ND	64.7		µg/Kg-dry	1	4/27/2015 8:52:00 PM
Benzo(g,h,i)perylene	ND	64.7		µg/Kg-dry	1	4/27/2015 8:52:00 PM
Surr: 2-Fluorobiphenyl	83.7	42.7-132		%REC	1	4/27/2015 8:52:00 PM
Surr: Terphenyl-d14 (surr)	97.5	48.8-157		%REC	1	4/27/2015 8:52:00 PM
Gasoline by NWTPH-Gx				Batch ID: 10616		Analyst: BC
Gasoline	ND	3.49		mg/Kg-dry	1	4/24/2015 4:18:00 AM
Surr: Toluene-d8	91.7	65-135		%REC	1	4/24/2015 4:18:00 AM
Surr: 4-Bromofluorobenzene	93.7	65-135		%REC	1	4/24/2015 4:18:00 AM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 10616		Analyst: BC
Dichlorodifluoromethane (CFC-12)	ND	0.0418		mg/Kg-dry	1	4/24/2015 4:18:00 AM
Chloromethane	ND	0.0418		mg/Kg-dry	1	4/24/2015 4:18:00 AM
Vinyl chloride	ND	0.00139		mg/Kg-dry	1	4/24/2015 4:18:00 AM

Analytical Report

WO#: **1504151**

Date Reported: **4/30/2015**

Client: GeoEngineers **Collection Date:** 4/16/2015 1:25:00 PM

Project: Block 20 Rufus 2.0

Lab ID: 1504151-040 **Matrix:** Soil

Client Sample ID: **B-20-24-8.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: 10616		Analyst: BC
Bromomethane	ND	0.0627		mg/Kg-dry	1	4/24/2015 4:18:00 AM
Trichlorofluoromethane (CFC-11)	ND	0.0349		mg/Kg-dry	1	4/24/2015 4:18:00 AM
Chloroethane	ND	0.0418		mg/Kg-dry	1	4/24/2015 4:18:00 AM
1,1-Dichloroethene	ND	0.0349		mg/Kg-dry	1	4/24/2015 4:18:00 AM
Methylene chloride	ND	0.0139		mg/Kg-dry	1	4/24/2015 4:18:00 AM
trans-1,2-Dichloroethene	ND	0.0139		mg/Kg-dry	1	4/24/2015 4:18:00 AM
Methyl tert-butyl ether (MTBE)	ND	0.0349		mg/Kg-dry	1	4/24/2015 4:18:00 AM
1,1-Dichloroethane	ND	0.0139		mg/Kg-dry	1	4/24/2015 4:18:00 AM
2,2-Dichloropropane	ND	0.0349		mg/Kg-dry	1	4/24/2015 4:18:00 AM
cis-1,2-Dichloroethene	ND	0.0139		mg/Kg-dry	1	4/24/2015 4:18:00 AM
Chloroform	ND	0.0139		mg/Kg-dry	1	4/24/2015 4:18:00 AM
1,1,1-Trichloroethane (TCA)	ND	0.0139		mg/Kg-dry	1	4/24/2015 4:18:00 AM
1,1-Dichloropropene	ND	0.0139		mg/Kg-dry	1	4/24/2015 4:18:00 AM
Carbon tetrachloride	ND	0.0139		mg/Kg-dry	1	4/24/2015 4:18:00 AM
1,2-Dichloroethane (EDC)	ND	0.0209		mg/Kg-dry	1	4/24/2015 4:18:00 AM
Benzene	ND	0.0139		mg/Kg-dry	1	4/24/2015 4:18:00 AM
Trichloroethene (TCE)	ND	0.0139		mg/Kg-dry	1	4/24/2015 4:18:00 AM
1,2-Dichloropropane	ND	0.0139		mg/Kg-dry	1	4/24/2015 4:18:00 AM
Bromodichloromethane	ND	0.0139		mg/Kg-dry	1	4/24/2015 4:18:00 AM
Dibromomethane	ND	0.0279		mg/Kg-dry	1	4/24/2015 4:18:00 AM
cis-1,3-Dichloropropene	ND	0.0139		mg/Kg-dry	1	4/24/2015 4:18:00 AM
Toluene	ND	0.0139		mg/Kg-dry	1	4/24/2015 4:18:00 AM
trans-1,3-Dichloropropylene	ND	0.0209		mg/Kg-dry	1	4/24/2015 4:18:00 AM
1,1,2-Trichloroethane	ND	0.0209		mg/Kg-dry	1	4/24/2015 4:18:00 AM
1,3-Dichloropropane	ND	0.0349		mg/Kg-dry	1	4/24/2015 4:18:00 AM
Tetrachloroethene (PCE)	ND	0.0139		mg/Kg-dry	1	4/24/2015 4:18:00 AM
Dibromochloromethane	ND	0.0209		mg/Kg-dry	1	4/24/2015 4:18:00 AM
1,2-Dibromoethane (EDB)	ND	0.00349		mg/Kg-dry	1	4/24/2015 4:18:00 AM
Chlorobenzene	ND	0.0139		mg/Kg-dry	1	4/24/2015 4:18:00 AM
1,1,1,2-Tetrachloroethane	ND	0.0209		mg/Kg-dry	1	4/24/2015 4:18:00 AM
Ethylbenzene	ND	0.0209		mg/Kg-dry	1	4/24/2015 4:18:00 AM
m,p-Xylene	ND	0.0139		mg/Kg-dry	1	4/24/2015 4:18:00 AM
o-Xylene	ND	0.0139		mg/Kg-dry	1	4/24/2015 4:18:00 AM
Styrene	ND	0.0139		mg/Kg-dry	1	4/24/2015 4:18:00 AM
Isopropylbenzene	ND	0.0558		mg/Kg-dry	1	4/24/2015 4:18:00 AM
Bromoform	ND	0.0139		mg/Kg-dry	1	4/24/2015 4:18:00 AM
1,1,2,2-Tetrachloroethane	ND	0.0139		mg/Kg-dry	1	4/24/2015 4:18:00 AM
n-Propylbenzene	ND	0.0139		mg/Kg-dry	1	4/24/2015 4:18:00 AM
Bromobenzene	ND	0.0209		mg/Kg-dry	1	4/24/2015 4:18:00 AM

Analytical Report

WO#: **1504151**

Date Reported: **4/30/2015**

Client: GeoEngineers **Collection Date:** 4/16/2015 1:25:00 PM

Project: Block 20 Rufus 2.0

Lab ID: 1504151-040 **Matrix:** Soil

Client Sample ID: **B-20-24-8.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: 10616		Analyst: BC
1,3,5-Trimethylbenzene	ND	0.0139		mg/Kg-dry	1	4/24/2015 4:18:00 AM
2-Chlorotoluene	ND	0.0139		mg/Kg-dry	1	4/24/2015 4:18:00 AM
4-Chlorotoluene	ND	0.0139		mg/Kg-dry	1	4/24/2015 4:18:00 AM
tert-Butylbenzene	ND	0.0139		mg/Kg-dry	1	4/24/2015 4:18:00 AM
1,2,3-Trichloropropane	ND	0.0139		mg/Kg-dry	1	4/24/2015 4:18:00 AM
1,2,4-Trichlorobenzene	ND	0.0349		mg/Kg-dry	1	4/24/2015 4:18:00 AM
sec-Butylbenzene	ND	0.0139		mg/Kg-dry	1	4/24/2015 4:18:00 AM
4-Isopropyltoluene	ND	0.0139		mg/Kg-dry	1	4/24/2015 4:18:00 AM
1,3-Dichlorobenzene	ND	0.0139		mg/Kg-dry	1	4/24/2015 4:18:00 AM
1,4-Dichlorobenzene	ND	0.0139		mg/Kg-dry	1	4/24/2015 4:18:00 AM
n-Butylbenzene	ND	0.0139		mg/Kg-dry	1	4/24/2015 4:18:00 AM
1,2-Dichlorobenzene	ND	0.0139		mg/Kg-dry	1	4/24/2015 4:18:00 AM
1,2-Dibromo-3-chloropropane	ND	0.349		mg/Kg-dry	1	4/24/2015 4:18:00 AM
1,2,4-Trimethylbenzene	ND	0.0139		mg/Kg-dry	1	4/24/2015 4:18:00 AM
Hexachlorobutadiene	ND	0.0697		mg/Kg-dry	1	4/24/2015 4:18:00 AM
Naphthalene	ND	0.0209		mg/Kg-dry	1	4/24/2015 4:18:00 AM
1,2,3-Trichlorobenzene	ND	0.0139		mg/Kg-dry	1	4/24/2015 4:18:00 AM
Surr: Dibromofluoromethane	94.6	63.7-129		%REC	1	4/24/2015 4:18:00 AM
Surr: Toluene-d8	95.6	64.3-131		%REC	1	4/24/2015 4:18:00 AM
Surr: 1-Bromo-4-fluorobenzene	101	63.1-141		%REC	1	4/24/2015 4:18:00 AM
Mercury by EPA Method 7471				Batch ID: 10632		Analyst: TN
Mercury	ND	0.333		mg/Kg-dry	1	4/27/2015 2:05:16 PM
Total Metals by EPA Method 6020				Batch ID: 10621		Analyst: TN
Arsenic	5.68	0.105		mg/Kg-dry	1	4/24/2015 5:34:58 PM
Cadmium	ND	0.210		mg/Kg-dry	1	4/24/2015 5:34:58 PM
Chromium	49.6	0.105		mg/Kg-dry	1	4/24/2015 5:34:58 PM
Lead	3.71	0.210		mg/Kg-dry	1	4/24/2015 5:34:58 PM
Sample Moisture (Percent Moisture)				Batch ID: R21985		Analyst: CG
Percent Moisture	24.9			wt%	1	4/24/2015 9:36:25 AM

Work Order: 1504151
CLIENT: GeoEngineers
Project: Block 20 Rufus 2.0

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID **MB-10621** SampType: **MBLK** Units: **mg/Kg** Prep Date: **4/24/2015** RunNo: **21995**
Client ID: **MBLKS** Batch ID: **10621** Analysis Date: **4/24/2015** SeqNo: **417496**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.100									
Cadmium	ND	0.200									
Chromium	ND	0.100									
Lead	ND	0.200									

Sample ID **LCS-10621** SampType: **LCS** Units: **mg/Kg** Prep Date: **4/24/2015** RunNo: **21995**
Client ID: **LCSS** Batch ID: **10621** Analysis Date: **4/24/2015** SeqNo: **417497**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	173	0.100	161.0	0	107	70.8	129.8				
Cadmium	199	0.200	190.0	0	105	73.2	126.3				
Chromium	108	0.100	87.90	0	123	69.1	130.8				
Lead	147	0.200	138.0	0	107	73.2	127.5				

Sample ID **1504151-004ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **4/24/2015** RunNo: **21995**
Client ID: **B-20-32-8.5** Batch ID: **10621** Analysis Date: **4/24/2015** SeqNo: **417499**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	5.46	0.110						7.840	35.8	20	R
Cadmium	ND	0.221						0		20	
Chromium	66.0	0.110						81.67	21.3	20	R
Lead	5.62	0.221						6.647	16.7	20	

NOTES:
R - High RPD observed. The method is in control as indicated by the laboratory control sample (LCS).

Sample ID **1504151-004AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **4/24/2015** RunNo: **21995**
Client ID: **B-20-32-8.5** Batch ID: **10621** Analysis Date: **4/24/2015** SeqNo: **417501**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	61.9	0.110	55.20	7.840	97.9	75	125				
Cadmium	2.86	0.221	2.760	0.02622	103	75	125				

Work Order: 1504151
CLIENT: GeoEngineers
Project: Block 20 Rufus 2.0

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID **1504151-004AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **4/24/2015** RunNo: **21995**
Client ID: **B-20-32-8.5** Batch ID: **10621** Analysis Date: **4/24/2015** SeqNo: **417501**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	154	0.110	55.20	81.67	132	75	125				S
Lead	37.5	0.221	27.60	6.647	112	75	125				

NOTES:
S - Outlying spike recovery observed. MSD recovered within specification.

Sample ID **1504151-004AMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **4/24/2015** RunNo: **21995**
Client ID: **B-20-32-8.5** Batch ID: **10621** Analysis Date: **4/24/2015** SeqNo: **417504**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	59.5	0.110	55.20	7.840	93.6	75	125	61.90	3.91	20	
Cadmium	2.69	0.221	2.760	0.02622	96.4	75	125	2.865	6.44	20	
Chromium	137	0.110	55.20	81.67	99.7	75	125	154.5	12.2	20	
Lead	34.8	0.221	27.60	6.647	102	75	125	37.50	7.41	20	

Work Order: 1504151
CLIENT: GeoEngineers
Project: Block 20 Rufus 2.0

QC SUMMARY REPORT

Mercury by EPA Method 7471

Sample ID **MB-10632** SampType: **MBLK** Units: **mg/Kg** Prep Date: **4/27/2015** RunNo: **22016**
Client ID: **MBLKS** Batch ID: **10632** Analysis Date: **4/27/2015** SeqNo: **417926**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.250									

Sample ID **LCS-10632** SampType: **LCS** Units: **mg/Kg** Prep Date: **4/27/2015** RunNo: **22016**
Client ID: **LCSS** Batch ID: **10632** Analysis Date: **4/27/2015** SeqNo: **417927**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	5.85	0.250	5.000	0	117	80	120				

Sample ID **1504228-001ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **4/27/2015** RunNo: **22016**
Client ID: **BATCH** Batch ID: **10632** Analysis Date: **4/27/2015** SeqNo: **417929**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.301						0		20	

Sample ID **1504228-001AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **4/27/2015** RunNo: **22016**
Client ID: **BATCH** Batch ID: **10632** Analysis Date: **4/27/2015** SeqNo: **417930**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.725	0.306	0.6127	0.03836	112	70	130				

Sample ID **1504228-001AMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **4/27/2015** RunNo: **22016**
Client ID: **BATCH** Batch ID: **10632** Analysis Date: **4/27/2015** SeqNo: **417950**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.733	0.306	0.6127	0.03836	113	70	130	0.7254	1.01	20	

Work Order: 1504151
CLIENT: GeoEngineers
Project: Block 20 Rufus 2.0

QC SUMMARY REPORT

Metals (SW6020) with TCLP Extraction (EPA 1311)

Sample ID	**MB-10620**	SampType: **MBLK**			Units: **mg/L**		Prep Date: **4/24/2015**		RunNo: **21998**	
Client ID:	**MBLKS**	Batch ID: **10620**					Analysis Date: **4/24/2015**		SeqNo: **417628**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	0.500									

Sample ID	**LCS-10620**	SampType: **LCS**			Units: **mg/L**		Prep Date: **4/24/2015**		RunNo: **21998**	
Client ID:	**LCSS**	Batch ID: **10620**					Analysis Date: **4/24/2015**		SeqNo: **417631**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	2.46	0.500	2.500	0	98.4	65	135				

Sample ID	**1504151-009ADUP**	SampType: **DUP**			Units: **mg/L**		Prep Date: **4/24/2015**		RunNo: **21998**	
Client ID:	**B-20-28-6.0**	Batch ID: **10620**					Analysis Date: **4/24/2015**		SeqNo: **417633**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	0.500						0		30	

Sample ID	**1504151-009AMS**	SampType: **MS**			Units: **mg/L**		Prep Date: **4/24/2015**		RunNo: **21998**	
Client ID:	**B-20-28-6.0**	Batch ID: **10620**					Analysis Date: **4/24/2015**		SeqNo: **417634**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	2.48	0.500	2.500	0.08627	95.7	65	135				

Sample ID	**1504151-009AMSD**	SampType: **MSD**			Units: **mg/L**		Prep Date: **4/24/2015**		RunNo: **21998**	
Client ID:	**B-20-28-6.0**	Batch ID: **10620**					Analysis Date: **4/24/2015**		SeqNo: **417640**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	2.45	0.500	2.500	0.08627	94.7	65	135	2.478	0.954	30	

Work Order: 1504151
CLIENT: GeoEngineers
Project: Block 20 Rufus 2.0

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID **1504151-032ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **4/23/2015** RunNo: **21984**
Client ID: **B-20-26-3.5** Batch ID: **10615** Analysis Date: **4/23/2015** SeqNo: **417289**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	21.8						0		30	
Heavy Oil	ND	54.6						0		30	
Surr: 2-Fluorobiphenyl	20.0		21.82		91.7	50	150		0		
Surr: o-Terphenyl	20.4		21.82		93.6	50	150		0		

Sample ID **LCS-10615** SampType: **LCS** Units: **mg/Kg** Prep Date: **4/23/2015** RunNo: **21984**
Client ID: **LCSS** Batch ID: **10615** Analysis Date: **4/23/2015** SeqNo: **417306**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	486	20.0	500.0	0	97.2	65	135				
Surr: 2-Fluorobiphenyl	19.5		20.00		97.5	50	150				
Surr: o-Terphenyl	23.5		20.00		118	50	150				

Sample ID **MB-10615** SampType: **MBLK** Units: **mg/Kg** Prep Date: **4/23/2015** RunNo: **21984**
Client ID: **MBLKS** Batch ID: **10615** Analysis Date: **4/23/2015** SeqNo: **417307**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	20.0									
Heavy Oil	ND	50.0									
Surr: 2-Fluorobiphenyl	19.3		20.00		96.6	50	150				
Surr: o-Terphenyl	19.2		20.00		96.0	50	150				

Work Order: 1504151
CLIENT: GeoEngineers
Project: Block 20 Rufus 2.0

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1504192-001ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **4/23/2015** RunNo: **22048**
Client ID: **BATCH** Batch ID: **10614** Analysis Date: **4/27/2015** SeqNo: **418547**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	55.1						0		30	
2-Methylnaphthalene	ND	55.1						0		30	
1-Methylnaphthalene	ND	55.1						0		30	
Acenaphthylene	ND	55.1						0		30	
Acenaphthene	ND	55.1						0		30	
Fluorene	ND	55.1						0		30	
Phenanthrene	ND	55.1						0		30	
Anthracene	ND	55.1						0		30	
Fluoranthene	ND	55.1						0		30	
Pyrene	ND	55.1						0		30	
Benz(a)anthracene	ND	55.1						0		30	
Chrysene	ND	55.1						0		30	
Benzo(b)fluoranthene	ND	55.1						0		30	
Benzo(k)fluoranthene	ND	55.1						0		30	
Benzo(a)pyrene	ND	55.1						0		30	
Indeno(1,2,3-cd)pyrene	ND	55.1						0		30	
Dibenz(a,h)anthracene	ND	55.1						0		30	
Benzo(g,h,i)perylene	ND	55.1						0		30	
Surr: 2-Fluorobiphenyl	484		550.9		87.9	42.7	132		0		
Surr: Terphenyl-d14 (surr)	545		550.9		99.0	48.8	157		0		

Sample ID **1504192-002AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **4/23/2015** RunNo: **22048**
Client ID: **BATCH** Batch ID: **10614** Analysis Date: **4/27/2015** SeqNo: **418549**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	1,070	56.9	1,139	0	93.9	42.9	138				
2-Methylnaphthalene	982	56.9	1,139	0	86.3	42.8	151				
1-Methylnaphthalene	862	56.9	1,139	0	75.7	41.6	148				
Acenaphthylene	1,010	56.9	1,139	0	88.8	32.6	160				
Acenaphthene	1,200	56.9	1,139	0	106	46.3	142				
Fluorene	1,210	56.9	1,139	0	106	43.4	153				

Work Order: 1504151
CLIENT: GeoEngineers
Project: Block 20 Rufus 2.0

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1504192-002AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **4/23/2015** RunNo: **22048**
Client ID: **BATCH** Batch ID: **10614** Analysis Date: **4/27/2015** SeqNo: **418549**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenanthrene	1,130	56.9	1,139	0	99.5	45.5	140				
Anthracene	1,090	56.9	1,139	0	96.0	32.6	160				
Fluoranthene	1,030	56.9	1,139	0	90.6	44.6	161				
Pyrene	1,010	56.9	1,139	0	88.7	48.3	158				
Benz(a)anthracene	1,080	56.9	1,139	0	95.2	57.5	169				
Chrysene	1,180	56.9	1,139	0	104	45.2	146				
Benzo(b)fluoranthene	1,540	56.9	1,139	0	135	42.2	168				
Benzo(k)fluoranthene	1,290	56.9	1,139	0	113	48	161				
Benzo(a)pyrene	1,190	56.9	1,139	0	105	34.4	179				
Indeno(1,2,3-cd)pyrene	1,320	56.9	1,139	0	116	41.1	165				
Dibenz(a,h)anthracene	1,420	56.9	1,139	0	125	38.1	166				
Benzo(g,h,i)perylene	1,280	56.9	1,139	0	112	45.6	157				
Surr: 2-Fluorobiphenyl	241		569.4		42.3	42.7	132				S
Surr: Terphenyl-d14 (surr)	506		569.4		88.9	48.8	157				

NOTES:
S - Outlying surrogate recovery observed. The method is in control as indicated by the LCS.

Sample ID **LCS-10614** SampType: **LCS** Units: **µg/Kg** Prep Date: **4/23/2015** RunNo: **22048**
Client ID: **LCSS** Batch ID: **10614** Analysis Date: **4/27/2015** SeqNo: **418559**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	962	50.0	1,000	0	96.2	61.6	125				
2-Methylnaphthalene	879	50.0	1,000	0	87.9	58.2	129				
1-Methylnaphthalene	933	50.0	1,000	0	93.3	56.4	132				
Acenaphthylene	883	50.0	1,000	0	88.3	52.2	133				
Acenaphthene	1,020	50.0	1,000	0	102	54	131				
Fluorene	1,000	50.0	1,000	0	100	53.4	131				
Phenanthrene	950	50.0	1,000	0	95.0	55.6	128				
Anthracene	914	50.0	1,000	0	91.4	51	132				
Fluoranthene	874	50.0	1,000	0	87.4	48.4	134				
Pyrene	864	50.0	1,000	0	86.4	48.6	135				
Benz(a)anthracene	906	50.0	1,000	0	90.6	41.9	136				

Work Order: 1504151
CLIENT: GeoEngineers
Project: Block 20 Rufus 2.0

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **LCS-10614** SampType: **LCS** Units: **µg/Kg** Prep Date: **4/23/2015** RunNo: **22048**
Client ID: **LCSS** Batch ID: **10614** Analysis Date: **4/27/2015** SeqNo: **418559**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chrysene	1,010	50.0	1,000	0	101	51.4	135				
Benzo(b)fluoranthene	1,320	50.0	1,000	0	132	39.7	137				
Benzo(k)fluoranthene	1,090	50.0	1,000	0	109	45.7	138				
Benzo(a)pyrene	1,050	50.0	1,000	0	105	40.9	141				
Indeno(1,2,3-cd)pyrene	1,160	50.0	1,000	0	116	41	140				
Dibenz(a,h)anthracene	1,240	50.0	1,000	0	124	37.6	140				
Benzo(g,h,i)perylene	1,140	50.0	1,000	0	114	45	134				
Surr: 2-Fluorobiphenyl	446		500.0		89.1	42.7	132				
Surr: Terphenyl-d14 (surr)	444		500.0		88.8	48.8	157				

Sample ID **MB-10614** SampType: **MBLK** Units: **µg/Kg** Prep Date: **4/23/2015** RunNo: **22048**
Client ID: **MBLKS** Batch ID: **10614** Analysis Date: **4/27/2015** SeqNo: **418560**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	50.0									
2-Methylnaphthalene	ND	50.0									
1-Methylnaphthalene	ND	50.0									
Acenaphthylene	ND	50.0									
Acenaphthene	ND	50.0									
Fluorene	ND	50.0									
Phenanthrene	ND	50.0									
Anthracene	ND	50.0									
Fluoranthene	ND	50.0									
Pyrene	ND	50.0									
Benz(a)anthracene	ND	50.0									
Chrysene	ND	50.0									
Benzo(b)fluoranthene	ND	50.0									
Benzo(k)fluoranthene	ND	50.0									
Benzo(a)pyrene	ND	50.0									
Indeno(1,2,3-cd)pyrene	ND	50.0									
Dibenz(a,h)anthracene	ND	50.0									

Date: *4/30/2015*

Work Order: 1504151
CLIENT: GeoEngineers
Project: Block 20 Rufus 2.0

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **MB-10614** SampType: **MBLK** Units: **µg/Kg** Prep Date: **4/23/2015** RunNo: **22048**
Client ID: **MBLKS** Batch ID: **10614** Analysis Date: **4/27/2015** SeqNo: **418560**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzo(g,h,i)perylene	ND	50.0									
Surr: 2-Fluorobiphenyl	439		500.0		87.7	42.7	132				
Surr: Terphenyl-d14 (surr)	474		500.0		94.8	48.8	157				

Sample ID **CCV-E-10614** SampType: **CCV** Units: **µg/L** Prep Date: **4/28/2015** RunNo: **22048**
Client ID: **CCV** Batch ID: **10614** Analysis Date: **4/28/2015** SeqNo: **418766**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	1,010	50.0	1,000	0	101	80	120				
2-Methylnaphthalene	1,050	50.0	1,000	0	105	80	120				
1-Methylnaphthalene	1,010	50.0	1,000	0	101	80	120				
Phenanthrene	948	50.0	1,000	0	94.8	80	120				
Fluoranthene	974	50.0	1,000	0	97.4	80	120				
Pyrene	976	50.0	1,000	0	97.6	80	120				
Benz(a)anthracene	1,000	50.0	1,000	0	100	80	120				
Chrysene	1,200	50.0	1,000	0	120	80	120				
Benzo(b)fluoranthene	1,190	50.0	1,000	0	119	80	120				
Surr: 2-Fluorobiphenyl	540		500.0		108	50.4	142				
Surr: Terphenyl-d14 (surr)	478		500.0		95.6	48.8	157				

Work Order: 1504151
CLIENT: GeoEngineers
Project: Block 20 Rufus 2.0

QC SUMMARY REPORT

Gasoline by NWTPH-Gx

Sample ID **1504152-013BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **4/23/2015** RunNo: **21988**
Client ID: **BATCH** Batch ID: **10616** Analysis Date: **4/23/2015** SeqNo: **417375**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	3.49						0		30	
Gasoline Range Organics (C6-C12)	62.6	3.49						60.71	3.03	30	
Surr: Toluene-d8	0.803		0.8734		91.9	65	135		0		
Surr: 4-Bromofluorobenzene	0.839		0.8734		96.1	65	135		0		

NOTES:
GRO - Indicates the presence of unresolved compounds eluting from toluene to dodecane (~C7->C12).

Sample ID **LCS-10616** SampType: **LCS** Units: **mg/Kg** Prep Date: **4/23/2015** RunNo: **21988**
Client ID: **LCSS** Batch ID: **10616** Analysis Date: **4/23/2015** SeqNo: **417384**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	23.7	5.00	25.00	0	94.9	65	135				
Surr: Toluene-d8	1.18		1.250		94.7	65	135				
Surr: 4-Bromofluorobenzene	1.18		1.250		94.1	65	135				

Sample ID **MB-10616** SampType: **MBLK** Units: **mg/Kg** Prep Date: **4/23/2015** RunNo: **21988**
Client ID: **MBLKS** Batch ID: **10616** Analysis Date: **4/23/2015** SeqNo: **417385**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	5.00									
Surr: Toluene-d8	1.15		1.250		92.1	65	135				
Surr: 4-Bromofluorobenzene	1.16		1.250		92.9	65	135				

Sample ID **CCV-D-10616** SampType: **CCV** Units: **mg/Kg** Prep Date: **4/27/2015** RunNo: **21988**
Client ID: **CCV** Batch ID: **10616** Analysis Date: **4/27/2015** SeqNo: **417901**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	468	5.00	500.0	0	93.6	80	120				
Surr: Toluene-d8	23.8		25.00		95.0	65	135				
Surr: 4-Bromofluorobenzene	28.0		25.00		112	65	135				

Work Order: 1504151
CLIENT: GeoEngineers
Project: Block 20 Rufus 2.0

QC SUMMARY REPORT

Gasoline by NWTPH-Gx

Sample ID	1504151-032BDUP	SampType:	DUP	Units:	mg/Kg-dry	Prep Date:	4/27/2015	RunNo:	22038
Client ID:	B-20-26-3.5	Batch ID:	10640			Analysis Date:	4/28/2015	SeqNo:	418383

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	2.46						0		30	
Surr: Toluene-d8	0.556		0.6159		90.2	65	135		0		
Surr: 4-Bromofluorobenzene	0.627		0.6159		102	65	135		0		

Sample ID	1504230-001BDUP	SampType:	DUP	Units:	mg/Kg	Prep Date:	4/27/2015	RunNo:	22038
Client ID:	BATCH	Batch ID:	10640			Analysis Date:	4/27/2015	SeqNo:	418391

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	4.53						0		30	
Surr: Toluene-d8	1.00		1.132		88.4	65	135		0		
Surr: 4-Bromofluorobenzene	1.25		1.132		110	65	135		0		

Sample ID	LCS-10640	SampType:	LCS	Units:	mg/Kg	Prep Date:	4/27/2015	RunNo:	22038
Client ID:	LCSS	Batch ID:	10640			Analysis Date:	4/27/2015	SeqNo:	418404

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	23.0	5.00	25.00	0	92.0	65	135				
Surr: Toluene-d8	1.13		1.250		90.4	65	135				
Surr: 4-Bromofluorobenzene	1.33		1.250		107	65	135				

Sample ID	MB-10640	SampType:	MBLK	Units:	mg/Kg	Prep Date:	4/27/2015	RunNo:	22038
Client ID:	MBLKS	Batch ID:	10640			Analysis Date:	4/27/2015	SeqNo:	418405

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	5.00									
Surr: Toluene-d8	1.15		1.250		92.2	65	135				
Surr: 4-Bromofluorobenzene	1.36		1.250		109	65	135				

Work Order: 1504151
CLIENT: GeoEngineers
Project: Block 20 Rufus 2.0

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID **1504152-013BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **4/23/2015** RunNo: **21987**
Client ID: **BATCH** Batch ID: **10616** Analysis Date: **4/23/2015** SeqNo: **417358**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	ND	0.0419						0		30	
Chloromethane	ND	0.0419						0		30	
Vinyl chloride	ND	0.00140						0		30	
Bromomethane	ND	0.0629						0		30	
Trichlorofluoromethane (CFC-11)	ND	0.0349						0		30	
Chloroethane	ND	0.0419						0		30	
1,1-Dichloroethene	ND	0.0349						0		30	
Methylene chloride	ND	0.0140						0		30	
trans-1,2-Dichloroethene	ND	0.0140						0		30	
Methyl tert-butyl ether (MTBE)	ND	0.0349						0		30	
1,1-Dichloroethane	ND	0.0140						0		30	
2,2-Dichloropropane	ND	0.0349						0		30	
cis-1,2-Dichloroethene	ND	0.0140						0		30	
Chloroform	ND	0.0140						0		30	
1,1,1-Trichloroethane (TCA)	ND	0.0140						0		30	
1,1-Dichloropropene	ND	0.0140						0		30	
Carbon tetrachloride	ND	0.0140						0		30	
1,2-Dichloroethane (EDC)	ND	0.0210						0		30	
Benzene	ND	0.0140						0		30	
Trichloroethene (TCE)	ND	0.0140						0		30	
1,2-Dichloropropane	ND	0.0140						0		30	
Bromodichloromethane	ND	0.0140						0		30	
Dibromomethane	ND	0.0279						0		30	
cis-1,3-Dichloropropene	ND	0.0140						0		30	
Toluene	ND	0.0140						0		30	
trans-1,3-Dichloropropylene	ND	0.0210						0		30	
1,1,2-Trichloroethane	ND	0.0210						0		30	
1,3-Dichloropropane	ND	0.0349						0		30	
Tetrachloroethene (PCE)	ND	0.0140						0		30	
Dibromochloromethane	ND	0.0210						0		30	
1,2-Dibromoethane (EDB)	ND	0.00349						0		30	

Work Order: 1504151
CLIENT: GeoEngineers
Project: Block 20 Rufus 2.0

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID **1504152-013BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **4/23/2015** RunNo: **21987**
Client ID: **BATCH** Batch ID: **10616** Analysis Date: **4/23/2015** SeqNo: **417358**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chlorobenzene	ND	0.0140						0		30	
1,1,1,2-Tetrachloroethane	ND	0.0210						0		30	
Ethylbenzene	ND	0.0210						0		30	
m,p-Xylene	0.0352	0.0140						0.03586	1.77	30	
o-Xylene	ND	0.0140						0		30	
Styrene	ND	0.0140						0		30	
Isopropylbenzene	ND	0.0559						0		30	
Bromoform	ND	0.0140						0		30	
1,1,2,2-Tetrachloroethane	ND	0.0140						0		30	
n-Propylbenzene	0.165	0.0140						0.1659	0.433	30	
Bromobenzene	ND	0.0210						0		30	
1,3,5-Trimethylbenzene	0.0199	0.0140						0.02100	5.29	30	
2-Chlorotoluene	ND	0.0140						0		30	
4-Chlorotoluene	ND	0.0140						0		30	
tert-Butylbenzene	ND	0.0140						0		30	
1,2,3-Trichloropropane	ND	0.0140						0		30	
1,2,4-Trichlorobenzene	0.0587	0.0349						0.06478	9.86	30	
sec-Butylbenzene	0.0599	0.0140						0.06051	0.934	30	
4-Isopropyltoluene	0.0651	0.0140						0.06578	1.05	30	
1,3-Dichlorobenzene	ND	0.0140						0		30	
1,4-Dichlorobenzene	ND	0.0140						0		30	
n-Butylbenzene	0.253	0.0140						0.2554	0.928	30	
1,2-Dichlorobenzene	0.0462	0.0140						0.04425	4.28	30	
1,2-Dibromo-3-chloropropane	ND	0.349						0		30	
1,2,4-Trimethylbenzene	0.107	0.0140						0.1092	1.87	30	
Hexachlorobutadiene	ND	0.0699						0		30	
Naphthalene	0.0753	0.0210						0.09049	18.3	30	
1,2,3-Trichlorobenzene	ND	0.0140						0		30	
Surr: Dibromofluoromethane	0.903		0.8734		103	63.7	129		0		
Surr: Toluene-d8	0.918		0.8734		105	64.3	131		0		
Surr: 1-Bromo-4-fluorobenzene	0.883		0.8734		101	63.1	141		0		

Work Order: 1504151
CLIENT: GeoEngineers
Project: Block 20 Rufus 2.0

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID **1504152-013BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **4/23/2015** RunNo: **21987**
Client ID: **BATCH** Batch ID: **10616** Analysis Date: **4/23/2015** SeqNo: **417358**

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

Sample ID **1504152-014BMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **4/23/2015** RunNo: **21987**
Client ID: **BATCH** Batch ID: **10616** Analysis Date: **4/24/2015** SeqNo: **417360**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	0.521	0.0368	0.6132	0	84.9	43.5	121				
Chloromethane	0.563	0.0368	0.6132	0.004719	91.1	45	130				
Vinyl chloride	0.695	0.00123	0.6132	0	113	51.2	146				
Bromomethane	1.36	0.0552	0.6132	0	222	21.3	120				S
Trichlorofluoromethane (CFC-11)	1.19	0.0307	0.6132	0	195	35	131				S
Chloroethane	0.790	0.0368	0.6132	0	129	43.8	117				S
1,1-Dichloroethene	0.752	0.0307	0.6132	0	123	61.9	141				
Methylene chloride	0.631	0.0123	0.6132	0	103	54.7	142				
trans-1,2-Dichloroethene	0.743	0.0123	0.6132	0	121	52	136				
Methyl tert-butyl ether (MTBE)	0.644	0.0307	0.6132	0	105	54.4	132				
1,1-Dichloroethane	0.754	0.0123	0.6132	0	123	51.8	141				
2,2-Dichloropropane	0.799	0.0307	0.6132	0	130	36	123				S
cis-1,2-Dichloroethene	0.775	0.0123	0.6132	0	126	58.6	136				
Chloroform	0.659	0.0123	0.6132	0	107	53.2	129				
1,1,1-Trichloroethane (TCA)	0.749	0.0123	0.6132	0	122	58.3	145				
1,1-Dichloropropene	0.631	0.0123	0.6132	0	103	55.1	138				
Carbon tetrachloride	0.728	0.0123	0.6132	0	119	53.3	144				
1,2-Dichloroethane (EDC)	0.544	0.0184	0.6132	0	88.7	51.3	139				
Benzene	0.602	0.0123	0.6132	0.008858	96.8	63.5	133				
Trichloroethene (TCE)	0.710	0.0123	0.6132	0	116	68.6	132				
1,2-Dichloropropane	0.660	0.0123	0.6132	0	108	59	136				
Bromodichloromethane	0.742	0.0123	0.6132	0	121	50.7	141				
Dibromomethane	0.772	0.0245	0.6132	0	126	50.6	137				
cis-1,3-Dichloropropene	0.690	0.0123	0.6132	0	112	50.4	138				
Toluene	0.679	0.0123	0.6132	0.002542	110	63.4	132				
trans-1,3-Dichloropropylene	0.699	0.0184	0.6132	0	114	44.1	147				

Work Order: 1504151
CLIENT: GeoEngineers
Project: Block 20 Rufus 2.0

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID **1504152-014BMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **4/23/2015** RunNo: **21987**
Client ID: **BATCH** Batch ID: **10616** Analysis Date: **4/24/2015** SeqNo: **417360**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,2-Trichloroethane	0.652	0.0184	0.6132	0	106	51.6	137				
1,3-Dichloropropane	0.622	0.0307	0.6132	0	101	53.1	134				
Tetrachloroethene (PCE)	0.715	0.0123	0.6132	0	117	35.6	158				
Dibromochloromethane	0.733	0.0184	0.6132	0	120	55.3	140				
1,2-Dibromoethane (EDB)	0.760	0.00307	0.6132	0	124	50.4	136				
Chlorobenzene	0.581	0.0123	0.6132	0	94.8	60	133				
1,1,1,2-Tetrachloroethane	0.619	0.0184	0.6132	0	101	53.1	142				
Ethylbenzene	0.604	0.0184	0.6132	0	98.6	54.5	134				
m,p-Xylene	1.19	0.0123	1.226	0.001962	96.6	53.1	132				
o-Xylene	0.593	0.0123	0.6132	0	96.8	53.3	139				
Styrene	0.628	0.0123	0.6132	0	102	51.1	132				
Isopropylbenzene	0.625	0.0491	0.6132	0.02286	98.2	58.9	138				
Bromoform	0.805	0.0123	0.6132	0	131	57.9	130				S
1,1,2,2-Tetrachloroethane	0.678	0.0123	0.6132	0	111	51.9	131				
n-Propylbenzene	0.692	0.0123	0.6132	0.08050	99.7	53.6	140				
Bromobenzene	0.627	0.0184	0.6132	0	102	54.2	140				
1,3,5-Trimethylbenzene	0.611	0.0123	0.6132	0	99.6	51.8	136				
2-Chlorotoluene	0.624	0.0123	0.6132	0	102	51.6	136				
4-Chlorotoluene	0.611	0.0123	0.6132	0	99.7	50.1	139				
tert-Butylbenzene	0.613	0.0123	0.6132	0	99.9	50.5	135				
1,2,3-Trichloropropane	0.568	0.0123	0.6132	0	92.6	50.5	131				
1,2,4-Trichlorobenzene	0.540	0.0307	0.6132	0	88.0	50.8	130				
sec-Butylbenzene	0.652	0.0123	0.6132	0.02361	102	52.6	141				
4-Isopropyltoluene	0.625	0.0123	0.6132	0.008858	100	52.9	134				
1,3-Dichlorobenzene	0.556	0.0123	0.6132	0	90.7	52.6	131				
1,4-Dichlorobenzene	0.556	0.0123	0.6132	0	90.7	52.9	129				
n-Butylbenzene	0.654	0.0123	0.6132	0.08020	93.5	52.6	130				
1,2-Dichlorobenzene	0.559	0.0123	0.6132	0.01566	88.6	55.8	129				
1,2-Dibromo-3-chloropropane	0.635	0.307	0.6132	0	104	40.5	131				
1,2,4-Trimethylbenzene	0.600	0.0123	0.6132	0	97.8	50.6	137				
Hexachlorobutadiene	0.624	0.0613	0.6132	0	102	40.6	158				

Work Order: 1504151
CLIENT: GeoEngineers
Project: Block 20 Rufus 2.0

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID **1504152-014BMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **4/23/2015** RunNo: **21987**
Client ID: **BATCH** Batch ID: **10616** Analysis Date: **4/24/2015** SeqNo: **417360**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	0.525	0.0184	0.6132	0	85.6	52.3	124				
1,2,3-Trichlorobenzene	0.522	0.0123	0.6132	0	85.2	54.4	124				
Surr: Dibromofluoromethane	0.814		0.7665		106	63.7	129				
Surr: Toluene-d8	0.855		0.7665		111	64.3	131				
Surr: 1-Bromo-4-fluorobenzene	0.807		0.7665		105	63.1	141				

NOTES:
S - Outlying QC recoveries were observed. The method is in control as indicated by the LCS.

Sample ID **LCS-10616** SampType: **LCS** Units: **mg/Kg** Prep Date: **4/23/2015** RunNo: **21987**
Client ID: **LCSS** Batch ID: **10616** Analysis Date: **4/23/2015** SeqNo: **417368**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	0.762	0.0600	1.000	0	76.2	37.2	139				
Chloromethane	0.813	0.0600	1.000	0	81.3	38.8	132				
Vinyl chloride	0.940	0.00200	1.000	0	94.0	56.1	130				
Bromomethane	1.86	0.0900	1.000	0	186	41.3	148				S
Trichlorofluoromethane (CFC-11)	1.22	0.0500	1.000	0	122	42.9	147				
Chloroethane	1.03	0.0600	1.000	0	103	37.1	144				
1,1-Dichloroethene	0.877	0.0500	1.000	0	87.7	49.7	142				
Methylene chloride	0.975	0.0200	1.000	0	97.5	46.3	140				
trans-1,2-Dichloroethene	1.10	0.0200	1.000	0	110	68	130				
Methyl tert-butyl ether (MTBE)	1.01	0.0500	1.000	0	101	59.1	138				
1,1-Dichloroethane	1.01	0.0200	1.000	0	101	65.5	132				
2,2-Dichloropropane	1.22	0.0500	1.000	0	122	28.1	149				
cis-1,2-Dichloroethene	1.07	0.0200	1.000	0	107	71.3	135				
Chloroform	0.984	0.0200	1.000	0	98.4	67.5	129				
1,1,1-Trichloroethane (TCA)	1.09	0.0200	1.000	0	109	69	132				
1,1-Dichloropropene	0.959	0.0200	1.000	0	95.9	72.7	131				
Carbon tetrachloride	1.02	0.0200	1.000	0	102	63.4	137				
1,2-Dichloroethane (EDC)	0.912	0.0300	1.000	0	91.2	61.9	136				
Benzene	0.946	0.0200	1.000	0	94.6	64.3	133				
Trichloroethene (TCE)	0.942	0.0200	1.000	0	94.2	65.5	137				

Work Order: 1504151
CLIENT: GeoEngineers
Project: Block 20 Rufus 2.0

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID **LCS-10616** SampType: **LCS** Units: **mg/Kg** Prep Date: **4/23/2015** RunNo: **21987**
Client ID: **LCSS** Batch ID: **10616** Analysis Date: **4/23/2015** SeqNo: **417368**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2-Dichloropropane	0.808	0.0200	1.000	0	80.8	63.2	142				
Bromodichloromethane	0.997	0.0200	1.000	0	99.7	73.2	131				
Dibromomethane	1.04	0.0400	1.000	0	104	70	130				
cis-1,3-Dichloropropene	0.977	0.0200	1.000	0	97.7	59.1	143				
Toluene	0.920	0.0200	1.000	0	92.0	67.3	138				
trans-1,3-Dichloropropylene	0.989	0.0300	1.000	0	98.9	49.2	149				
1,1,2-Trichloroethane	0.897	0.0300	1.000	0	89.7	74.5	129				
1,3-Dichloropropane	0.874	0.0500	1.000	0	87.4	70	130				
Tetrachloroethene (PCE)	0.916	0.0200	1.000	0	91.6	52.7	150				
Dibromochloromethane	0.990	0.0300	1.000	0	99.0	70.6	144				
1,2-Dibromoethane (EDB)	1.04	0.00500	1.000	0	104	70	130				
Chlorobenzene	0.936	0.0200	1.000	0	93.6	76.1	123				
1,1,1,2-Tetrachloroethane	0.971	0.0300	1.000	0	97.1	74.8	131				
Ethylbenzene	0.955	0.0300	1.000	0	95.5	74	129				
m,p-Xylene	1.91	0.0200	2.000	0	95.4	79.8	128				
o-Xylene	0.952	0.0200	1.000	0	95.2	72.7	124				
Styrene	1.01	0.0200	1.000	0	101	76.8	130				
Isopropylbenzene	0.948	0.0800	1.000	0	94.8	70	130				
Bromoform	1.21	0.0200	1.000	0	121	67	154				
1,1,2,2-Tetrachloroethane	1.12	0.0200	1.000	0	112	60	130				
n-Propylbenzene	0.971	0.0200	1.000	0	97.1	74.8	125				
Bromobenzene	1.00	0.0300	1.000	0	100	49.2	144				
1,3,5-Trimethylbenzene	0.968	0.0200	1.000	0	96.8	74.6	123				
2-Chlorotoluene	0.986	0.0200	1.000	0	98.6	76.7	129				
4-Chlorotoluene	0.972	0.0200	1.000	0	97.2	77.5	125				
tert-Butylbenzene	0.954	0.0200	1.000	0	95.4	66.2	130				
1,2,3-Trichloropropane	0.910	0.0200	1.000	0	91.0	67.9	136				
1,2,4-Trichlorobenzene	0.840	0.0500	1.000	0	84.0	65.6	137				
sec-Butylbenzene	0.981	0.0200	1.000	0	98.1	75.6	133				
4-Isopropyltoluene	0.949	0.0200	1.000	0	94.9	76.8	131				
1,3-Dichlorobenzene	0.896	0.0200	1.000	0	89.6	72.8	128				

Work Order: 1504151
CLIENT: GeoEngineers
Project: Block 20 Rufus 2.0

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID **LCS-10616** SampType: **LCS** Units: **mg/Kg** Prep Date: **4/23/2015** RunNo: **21987**
Client ID: **LCSS** Batch ID: **10616** Analysis Date: **4/23/2015** SeqNo: **417368**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,4-Dichlorobenzene	0.896	0.0200	1.000	0	89.6	72.6	126				
n-Butylbenzene	0.905	0.0200	1.000	0	90.5	65.3	136				
1,2-Dichlorobenzene	0.895	0.0200	1.000	0	89.5	72.8	126				
1,2-Dibromo-3-chloropropane	0.924	0.500	1.000	0	92.4	61.2	139				
1,2,4-Trimethylbenzene	0.950	0.0200	1.000	0	95.0	77.5	129				
Hexachlorobutadiene	0.998	0.100	1.000	0	99.8	42	151				
Naphthalene	0.806	0.0300	1.000	0	80.6	62.3	134				
1,2,3-Trichlorobenzene	0.806	0.0200	1.000	0	80.6	62.1	140				
Surr: Dibromofluoromethane	1.28		1.250		102	63.7	129				
Surr: Toluene-d8	1.19		1.250		95.5	64.3	131				
Surr: 1-Bromo-4-fluorobenzene	1.31		1.250		105	63.1	141				

NOTES:
S - Outlying QC recoveries were observed (Bromomethane; high bias). Samples are non-detect for this analyte, no further action required.

Sample ID **MB-10616** SampType: **MBLK** Units: **mg/Kg** Prep Date: **4/23/2015** RunNo: **21987**
Client ID: **MBLKS** Batch ID: **10616** Analysis Date: **4/23/2015** SeqNo: **417369**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	ND	0.0600									
Chloromethane	ND	0.0600									
Vinyl chloride	ND	0.00200									
Bromomethane	ND	0.0900									
Trichlorofluoromethane (CFC-11)	ND	0.0500									
Chloroethane	ND	0.0600									
1,1-Dichloroethene	ND	0.0500									
Methylene chloride	ND	0.0200									
trans-1,2-Dichloroethene	ND	0.0200									
Methyl tert-butyl ether (MTBE)	ND	0.0500									
1,1-Dichloroethane	ND	0.0200									
2,2-Dichloropropane	ND	0.0500									
cis-1,2-Dichloroethene	ND	0.0200									
Chloroform	ND	0.0200									

Work Order: 1504151
CLIENT: GeoEngineers
Project: Block 20 Rufus 2.0

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID **MB-10616** SampType: **MBLK** Units: **mg/Kg** Prep Date: **4/23/2015** RunNo: **21987**
Client ID: **MBLKS** Batch ID: **10616** Analysis Date: **4/23/2015** SeqNo: **417369**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1-Trichloroethane (TCA)	ND	0.0200									
1,1-Dichloropropene	ND	0.0200									
Carbon tetrachloride	ND	0.0200									
1,2-Dichloroethane (EDC)	ND	0.0300									
Benzene	ND	0.0200									
Trichloroethene (TCE)	ND	0.0200									
1,2-Dichloropropane	ND	0.0200									
Bromodichloromethane	ND	0.0200									
Dibromomethane	ND	0.0400									
cis-1,3-Dichloropropene	ND	0.0200									
Toluene	ND	0.0200									
trans-1,3-Dichloropropylene	ND	0.0300									
1,1,2-Trichloroethane	ND	0.0300									
1,3-Dichloropropane	ND	0.0500									
Tetrachloroethene (PCE)	ND	0.0200									
Dibromochloromethane	ND	0.0300									
1,2-Dibromoethane (EDB)	ND	0.00500									
Chlorobenzene	ND	0.0200									
1,1,1,2-Tetrachloroethane	ND	0.0300									
Ethylbenzene	ND	0.0300									
m,p-Xylene	ND	0.0200									
o-Xylene	ND	0.0200									
Styrene	ND	0.0200									
Isopropylbenzene	ND	0.0800									
Bromoform	ND	0.0200									
1,1,2,2-Tetrachloroethane	ND	0.0200									
n-Propylbenzene	ND	0.0200									
Bromobenzene	ND	0.0300									
1,3,5-Trimethylbenzene	ND	0.0200									
2-Chlorotoluene	ND	0.0200									
4-Chlorotoluene	ND	0.0200									

Work Order: 1504151
CLIENT: GeoEngineers
Project: Block 20 Rufus 2.0

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID **MB-10616** SampType: **MBLK** Units: **mg/Kg** Prep Date: **4/23/2015** RunNo: **21987**
Client ID: **MBLKS** Batch ID: **10616** Analysis Date: **4/23/2015** SeqNo: **417369**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
tert-Butylbenzene	ND	0.0200									
1,2,3-Trichloropropane	ND	0.0200									
1,2,4-Trichlorobenzene	ND	0.0500									
sec-Butylbenzene	ND	0.0200									
4-Isopropyltoluene	ND	0.0200									
1,3-Dichlorobenzene	ND	0.0200									
1,4-Dichlorobenzene	ND	0.0200									
n-Butylbenzene	ND	0.0200									
1,2-Dichlorobenzene	ND	0.0200									
1,2-Dibromo-3-chloropropane	ND	0.500									
1,2,4-Trimethylbenzene	ND	0.0200									
Hexachlorobutadiene	ND	0.100									
Naphthalene	ND	0.0300									
1,2,3-Trichlorobenzene	ND	0.0200									
Surr: Dibromofluoromethane	1.13		1.250		90.1	63.7	129				
Surr: Toluene-d8	1.18		1.250		94.7	64.3	131				
Surr: 1-Bromo-4-fluorobenzene	1.26		1.250		101	63.1	141				

Sample ID **1504151-032BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **4/27/2015** RunNo: **22037**
Client ID: **B-20-26-3.5** Batch ID: **10640** Analysis Date: **4/28/2015** SeqNo: **418356**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	ND	0.0296						0		30	
Chloromethane	ND	0.0296						0		30	
Vinyl chloride	ND	0.000985						0		30	
Bromomethane	ND	0.0443						0		30	
Trichlorofluoromethane (CFC-11)	ND	0.0246						0		30	
Chloroethane	ND	0.0296						0		30	
1,1-Dichloroethene	ND	0.0246						0		30	
Methylene chloride	ND	0.00985						0		30	
trans-1,2-Dichloroethene	ND	0.00985						0		30	

Work Order: 1504151
CLIENT: GeoEngineers
Project: Block 20 Rufus 2.0

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID **1504151-032BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **4/27/2015** RunNo: **22037**
Client ID: **B-20-26-3.5** Batch ID: **10640** Analysis Date: **4/28/2015** SeqNo: **418356**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	ND	0.0246						0		30	
1,1-Dichloroethane	ND	0.00985						0		30	
2,2-Dichloropropane	ND	0.0246						0		30	
cis-1,2-Dichloroethene	ND	0.00985						0		30	
Chloroform	ND	0.00985						0		30	
1,1,1-Trichloroethane (TCA)	ND	0.00985						0		30	
1,1-Dichloropropene	ND	0.00985						0		30	
Carbon tetrachloride	ND	0.00985						0		30	
1,2-Dichloroethane (EDC)	ND	0.0148						0		30	
Benzene	ND	0.00985						0		30	
Trichloroethene (TCE)	ND	0.00985						0		30	
1,2-Dichloropropane	ND	0.00985						0		30	
Bromodichloromethane	ND	0.00985						0		30	
Dibromomethane	ND	0.0197						0		30	
cis-1,3-Dichloropropene	ND	0.00985						0		30	
Toluene	ND	0.00985						0		30	
trans-1,3-Dichloropropylene	ND	0.0148						0		30	
1,1,2-Trichloroethane	ND	0.0148						0		30	
1,3-Dichloropropane	ND	0.0246						0		30	
Tetrachloroethene (PCE)	ND	0.00985						0		30	
Dibromochloromethane	ND	0.0148						0		30	
1,2-Dibromoethane (EDB)	ND	0.00246						0		30	
Chlorobenzene	ND	0.00985						0		30	
1,1,1,2-Tetrachloroethane	ND	0.0148						0		30	
Ethylbenzene	ND	0.0148						0		30	
m,p-Xylene	ND	0.00985						0		30	
o-Xylene	ND	0.00985						0		30	
Styrene	ND	0.00985						0		30	
Isopropylbenzene	ND	0.0394						0		30	
Bromoform	ND	0.00985						0		30	
1,1,2,2-Tetrachloroethane	ND	0.00985						0		30	

Work Order: 1504151
CLIENT: GeoEngineers
Project: Block 20 Rufus 2.0

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID **1504151-032BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **4/27/2015** RunNo: **22037**
Client ID: **B-20-26-3.5** Batch ID: **10640** Analysis Date: **4/28/2015** SeqNo: **418356**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
n-Propylbenzene	ND	0.00985						0		30	
Bromobenzene	ND	0.0148						0		30	
1,3,5-Trimethylbenzene	ND	0.00985						0		30	
2-Chlorotoluene	ND	0.00985						0		30	
4-Chlorotoluene	ND	0.00985						0		30	
tert-Butylbenzene	ND	0.00985						0		30	
1,2,3-Trichloropropane	ND	0.00985						0		30	
1,2,4-Trichlorobenzene	ND	0.0246						0		30	
sec-Butylbenzene	ND	0.00985						0		30	
4-Isopropyltoluene	ND	0.00985						0		30	
1,3-Dichlorobenzene	ND	0.00985						0		30	
1,4-Dichlorobenzene	ND	0.00985						0		30	
n-Butylbenzene	ND	0.00985						0		30	
1,2-Dichlorobenzene	ND	0.00985						0		30	
1,2-Dibromo-3-chloropropane	ND	0.246						0		30	
1,2,4-Trimethylbenzene	ND	0.00985						0		30	
Hexachlorobutadiene	ND	0.0493						0		30	
Naphthalene	ND	0.0148						0		30	
1,2,3-Trichlorobenzene	ND	0.00985						0		30	
Surr: Dibromofluoromethane	0.592		0.6159		96.2	63.7	129		0		
Surr: Toluene-d8	0.595		0.6159		96.6	64.3	131		0		
Surr: 1-Bromo-4-fluorobenzene	0.588		0.6159		95.4	63.1	141		0		

Sample ID **1504230-001BDUP** SampType: **DUP** Units: **mg/Kg** Prep Date: **4/27/2015** RunNo: **22037**
Client ID: **BATCH** Batch ID: **10640** Analysis Date: **4/27/2015** SeqNo: **418364**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	ND	0.0543						0		30	
Chloromethane	ND	0.0543						0		30	
Vinyl chloride	ND	0.00181						0		30	
Bromomethane	ND	0.0815						0		30	

Work Order: 1504151
CLIENT: GeoEngineers
Project: Block 20 Rufus 2.0

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID **1504230-001BDUP** SampType: **DUP** Units: **mg/Kg** Prep Date: **4/27/2015** RunNo: **22037**
Client ID: **BATCH** Batch ID: **10640** Analysis Date: **4/27/2015** SeqNo: **418364**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Trichlorofluoromethane (CFC-11)	ND	0.0453						0		30	
Chloroethane	ND	0.0543						0		30	
1,1-Dichloroethene	ND	0.0453						0		30	
Methylene chloride	ND	0.0181						0		30	
trans-1,2-Dichloroethene	ND	0.0181						0		30	
Methyl tert-butyl ether (MTBE)	ND	0.0453						0		30	
1,1-Dichloroethane	ND	0.0181						0		30	
2,2-Dichloropropane	ND	0.0453						0		30	
cis-1,2-Dichloroethene	ND	0.0181						0		30	
Chloroform	ND	0.0181						0		30	
1,1,1-Trichloroethane (TCA)	ND	0.0181						0		30	
1,1-Dichloropropene	ND	0.0181						0		30	
Carbon tetrachloride	ND	0.0181						0		30	
1,2-Dichloroethane (EDC)	ND	0.0272						0		30	
Benzene	ND	0.0181						0		30	
Trichloroethene (TCE)	ND	0.0181						0		30	
1,2-Dichloropropane	ND	0.0181						0		30	
Bromodichloromethane	ND	0.0181						0		30	
Dibromomethane	ND	0.0362						0		30	
cis-1,3-Dichloropropene	ND	0.0181						0		30	
Toluene	ND	0.0181						0		30	
trans-1,3-Dichloropropylene	ND	0.0272						0		30	
1,1,2-Trichloroethane	ND	0.0272						0		30	
1,3-Dichloropropane	ND	0.0453						0		30	
Tetrachloroethene (PCE)	ND	0.0181						0		30	
Dibromochloromethane	ND	0.0272						0		30	
1,2-Dibromoethane (EDB)	ND	0.00453						0		30	
Chlorobenzene	ND	0.0181						0		30	
1,1,1,2-Tetrachloroethane	ND	0.0272						0		30	
Ethylbenzene	ND	0.0272						0		30	
m,p-Xylene	ND	0.0181						0		30	

Work Order: 1504151
CLIENT: GeoEngineers
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QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID **1504230-001BDUP** SampType: **DUP** Units: **mg/Kg** Prep Date: **4/27/2015** RunNo: **22037**
Client ID: **BATCH** Batch ID: **10640** Analysis Date: **4/27/2015** SeqNo: **418364**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
o-Xylene	ND	0.0181						0		30	
Styrene	ND	0.0181						0		30	
Isopropylbenzene	ND	0.0725						0		30	
Bromoform	ND	0.0181						0		30	
1,1,2,2-Tetrachloroethane	ND	0.0181						0		30	
n-Propylbenzene	ND	0.0181						0		30	
Bromobenzene	ND	0.0272						0		30	
1,3,5-Trimethylbenzene	ND	0.0181						0		30	
2-Chlorotoluene	ND	0.0181						0		30	
4-Chlorotoluene	ND	0.0181						0		30	
tert-Butylbenzene	ND	0.0181						0		30	
1,2,3-Trichloropropane	ND	0.0181						0		30	
1,2,4-Trichlorobenzene	ND	0.0453						0		30	
sec-Butylbenzene	ND	0.0181						0		30	
4-Isopropyltoluene	ND	0.0181						0		30	
1,3-Dichlorobenzene	ND	0.0181						0		30	
1,4-Dichlorobenzene	ND	0.0181						0		30	
n-Butylbenzene	ND	0.0181						0		30	
1,2-Dichlorobenzene	ND	0.0181						0		30	
1,2-Dibromo-3-chloropropane	ND	0.453						0		30	
1,2,4-Trimethylbenzene	ND	0.0181						0		30	
Hexachlorobutadiene	ND	0.0906						0		30	
Naphthalene	ND	0.0272						0		30	
1,2,3-Trichlorobenzene	ND	0.0181						0		30	
Surr: Dibromofluoromethane	1.12		1.132		99.2	63.7	129		0		
Surr: Toluene-d8	1.11		1.132		97.7	64.3	131		0		
Surr: 1-Bromo-4-fluorobenzene	1.17		1.132		104	63.1	141		0		

Work Order: 1504151
CLIENT: GeoEngineers
Project: Block 20 Rufus 2.0

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID **1504230-002BMS** SampType: **MS** Units: **mg/Kg** Prep Date: **4/27/2015** RunNo: **22037**
Client ID: **BATCH** Batch ID: **10640** Analysis Date: **4/27/2015** SeqNo: **418366**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	1.29	0.0581	0.9690	0	133	43.5	121				S
Chloromethane	0.847	0.0581	0.9690	0	87.5	45	130				
Vinyl chloride	0.937	0.00194	0.9690	0	96.7	51.2	146				
Bromomethane	0.279	0.0872	0.9690	0	28.8	21.3	120				
Trichlorofluoromethane (CFC-11)	1.01	0.0484	0.9690	0	104	35	131				
Chloroethane	0.498	0.0581	0.9690	0	51.4	43.8	117				
1,1-Dichloroethene	0.865	0.0484	0.9690	0	89.3	61.9	141				
Methylene chloride	0.911	0.0194	0.9690	0	94.0	54.7	142				
trans-1,2-Dichloroethene	0.870	0.0194	0.9690	0	89.8	52	136				
Methyl tert-butyl ether (MTBE)	0.987	0.0484	0.9690	0	102	54.4	132				
1,1-Dichloroethane	0.827	0.0194	0.9690	0	85.4	51.8	141				
2,2-Dichloropropane	0.802	0.0484	0.9690	0	82.8	36	123				
cis-1,2-Dichloroethene	0.897	0.0194	0.9690	0	92.6	58.6	136				
Chloroform	0.906	0.0194	0.9690	0	93.5	53.2	129				
1,1,1-Trichloroethane (TCA)	1.04	0.0194	0.9690	0	107	58.3	145				
1,1-Dichloropropene	0.998	0.0194	0.9690	0	103	55.1	138				
Carbon tetrachloride	0.917	0.0194	0.9690	0	94.6	53.3	144				
1,2-Dichloroethane (EDC)	0.840	0.0291	0.9690	0	86.7	51.3	139				
Benzene	0.914	0.0194	0.9690	0	94.4	63.5	133				
Trichloroethene (TCE)	0.981	0.0194	0.9690	0	101	68.6	132				
1,2-Dichloropropane	0.901	0.0194	0.9690	0	93.0	59	136				
Bromodichloromethane	0.959	0.0194	0.9690	0	99.0	50.7	141				
Dibromomethane	0.927	0.0388	0.9690	0	95.7	50.6	137				
cis-1,3-Dichloropropene	0.965	0.0194	0.9690	0	99.6	50.4	138				
Toluene	0.911	0.0194	0.9690	0	94.0	63.4	132				
trans-1,3-Dichloropropylene	0.908	0.0291	0.9690	0	93.7	44.1	147				
1,1,2-Trichloroethane	0.963	0.0291	0.9690	0	99.4	51.6	137				
1,3-Dichloropropane	0.931	0.0484	0.9690	0	96.1	53.1	134				
Tetrachloroethene (PCE)	1.03	0.0194	0.9690	0	106	35.6	158				
Dibromochloromethane	0.910	0.0291	0.9690	0	94.0	55.3	140				
1,2-Dibromoethane (EDB)	0.909	0.00484	0.9690	0	93.8	50.4	136				

Work Order: 1504151
CLIENT: GeoEngineers
Project: Block 20 Rufus 2.0

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID **1504230-002BMS** SampType: **MS** Units: **mg/Kg** Prep Date: **4/27/2015** RunNo: **22037**
Client ID: **BATCH** Batch ID: **10640** Analysis Date: **4/27/2015** SeqNo: **418366**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chlorobenzene	1.02	0.0194	0.9690	0	106	60	133				
1,1,1,2-Tetrachloroethane	0.891	0.0291	0.9690	0	92.0	53.1	142				
Ethylbenzene	1.04	0.0291	0.9690	0	107	54.5	134				
m,p-Xylene	2.01	0.0194	1.938	0	104	53.1	132				
o-Xylene	1.00	0.0194	0.9690	0	103	53.3	139				
Styrene	0.990	0.0194	0.9690	0	102	51.1	132				
Isopropylbenzene	1.04	0.0775	0.9690	0	108	58.9	138				
Bromoform	0.898	0.0194	0.9690	0	92.7	57.9	130				
1,1,2,2-Tetrachloroethane	1.06	0.0194	0.9690	0	110	51.9	131				
n-Propylbenzene	1.04	0.0194	0.9690	0	108	53.6	140				
Bromobenzene	0.942	0.0291	0.9690	0	97.2	54.2	140				
1,3,5-Trimethylbenzene	1.04	0.0194	0.9690	0	107	51.8	136				
2-Chlorotoluene	1.02	0.0194	0.9690	0	105	51.6	136				
4-Chlorotoluene	1.04	0.0194	0.9690	0	107	50.1	139				
tert-Butylbenzene	1.01	0.0194	0.9690	0	104	50.5	135				
1,2,3-Trichloropropane	0.948	0.0194	0.9690	0	97.8	50.5	131				
1,2,4-Trichlorobenzene	1.13	0.0484	0.9690	0	117	50.8	130				
sec-Butylbenzene	1.08	0.0194	0.9690	0	111	52.6	141				
4-Isopropyltoluene	1.07	0.0194	0.9690	0	111	52.9	134				
1,3-Dichlorobenzene	0.982	0.0194	0.9690	0	101	52.6	131				
1,4-Dichlorobenzene	0.938	0.0194	0.9690	0	96.8	52.9	129				
n-Butylbenzene	1.03	0.0194	0.9690	0	107	52.6	130				
1,2-Dichlorobenzene	0.965	0.0194	0.9690	0	99.6	55.8	129				
1,2-Dibromo-3-chloropropane	0.784	0.484	0.9690	0	81.0	40.5	131				
1,2,4-Trimethylbenzene	1.05	0.0194	0.9690	0	108	50.6	137				
Hexachlorobutadiene	1.15	0.0969	0.9690	0	119	40.6	158				
Naphthalene	1.01	0.0291	0.9690	0	104	52.3	124				
1,2,3-Trichlorobenzene	1.14	0.0194	0.9690	0	117	54.4	124				
Surr: Dibromofluoromethane	1.12		1.211		92.5	63.7	129				
Surr: Toluene-d8	1.17		1.211		96.3	64.3	131				
Surr: 1-Bromo-4-fluorobenzene	1.24		1.211		103	63.1	141				

Work Order: 1504151
CLIENT: GeoEngineers
Project: Block 20 Rufus 2.0

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID **1504230-002BMS** SampType: **MS** Units: **mg/Kg** Prep Date: **4/27/2015** RunNo: **22037**
Client ID: **BATCH** Batch ID: **10640** Analysis Date: **4/27/2015** SeqNo: **418366**

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

NOTES:
S - Outlying QC recoveries were observed. The method is in control as indicated by the LCS.

Sample ID **LCS-10640** SampType: **LCS** Units: **mg/Kg** Prep Date: **4/27/2015** RunNo: **22037**
Client ID: **LCSS** Batch ID: **10640** Analysis Date: **4/27/2015** SeqNo: **418378**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	0.915	0.0600	1.000	0	91.5	37.2	139				
Chloromethane	0.779	0.0600	1.000	0	77.9	38.8	132				
Vinyl chloride	0.835	0.00200	1.000	0	83.5	56.1	130				
Bromomethane	0.630	0.0900	1.000	0	63.0	41.3	148				
Trichlorofluoromethane (CFC-11)	0.956	0.0500	1.000	0	95.6	42.9	147				
Chloroethane	0.985	0.0600	1.000	0	98.5	37.1	144				
1,1-Dichloroethene	0.872	0.0500	1.000	0	87.2	49.7	142				
Methylene chloride	0.890	0.0200	1.000	0	89.0	46.3	140				
trans-1,2-Dichloroethene	0.859	0.0200	1.000	0	85.9	68	130				
Methyl tert-butyl ether (MTBE)	1.08	0.0500	1.000	0	108	59.1	138				
1,1-Dichloroethane	0.862	0.0200	1.000	0	86.2	65.5	132				
2,2-Dichloropropane	0.964	0.0500	1.000	0	96.4	28.1	149				
cis-1,2-Dichloroethene	0.931	0.0200	1.000	0	93.1	71.3	135				
Chloroform	0.948	0.0200	1.000	0	94.8	67.5	129				
1,1,1-Trichloroethane (TCA)	1.07	0.0200	1.000	0	107	69	132				
1,1-Dichloropropene	0.972	0.0200	1.000	0	97.2	72.7	131				
Carbon tetrachloride	0.932	0.0200	1.000	0	93.2	63.4	137				
1,2-Dichloroethane (EDC)	0.984	0.0300	1.000	0	98.4	61.9	136				
Benzene	0.947	0.0200	1.000	0	94.7	64.3	133				
Trichloroethene (TCE)	1.01	0.0200	1.000	0	101	65.5	137				
1,2-Dichloropropane	0.930	0.0200	1.000	0	93.0	63.2	142				
Bromodichloromethane	1.01	0.0200	1.000	0	101	73.2	131				
Dibromomethane	0.959	0.0400	1.000	0	95.9	70	130				
cis-1,3-Dichloropropene	1.12	0.0200	1.000	0	112	59.1	143				
Toluene	0.976	0.0200	1.000	0	97.6	67.3	138				

Work Order: 1504151
CLIENT: GeoEngineers
Project: Block 20 Rufus 2.0

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID **LCS-10640** SampType: **LCS** Units: **mg/Kg** Prep Date: **4/27/2015** RunNo: **22037**
Client ID: **LCSS** Batch ID: **10640** Analysis Date: **4/27/2015** SeqNo: **418378**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
trans-1,3-Dichloropropylene	1.05	0.0300	1.000	0	105	49.2	149				
1,1,2-Trichloroethane	1.05	0.0300	1.000	0	105	74.5	129				
1,3-Dichloropropane	1.00	0.0500	1.000	0	100	70	130				
Tetrachloroethene (PCE)	1.07	0.0200	1.000	0	107	52.7	150				
Dibromochloromethane	0.962	0.0300	1.000	0	96.2	70.6	144				
1,2-Dibromoethane (EDB)	1.01	0.00500	1.000	0	101	70	130				
Chlorobenzene	0.980	0.0200	1.000	0	98.0	76.1	123				
1,1,1,2-Tetrachloroethane	0.875	0.0300	1.000	0	87.5	74.8	131				
Ethylbenzene	0.970	0.0300	1.000	0	97.0	74	129				
m,p-Xylene	2.01	0.0200	2.000	0	101	79.8	128				
o-Xylene	0.969	0.0200	1.000	0	96.9	72.7	124				
Styrene	0.978	0.0200	1.000	0	97.9	76.8	130				
Isopropylbenzene	0.996	0.0800	1.000	0	99.6	70	130				
Bromoform	1.00	0.0200	1.000	0	100	67	154				
1,1,2,2-Tetrachloroethane	1.06	0.0200	1.000	0	106	60	130				
n-Propylbenzene	1.01	0.0200	1.000	0	101	74.8	125				
Bromobenzene	0.920	0.0300	1.000	0	92.0	49.2	144				
1,3,5-Trimethylbenzene	0.999	0.0200	1.000	0	99.9	74.6	123				
2-Chlorotoluene	0.963	0.0200	1.000	0	96.3	76.7	129				
4-Chlorotoluene	0.990	0.0200	1.000	0	99.0	77.5	125				
tert-Butylbenzene	0.956	0.0200	1.000	0	95.6	66.2	130				
1,2,3-Trichloropropane	0.937	0.0200	1.000	0	93.6	67.9	136				
1,2,4-Trichlorobenzene	1.15	0.0500	1.000	0	115	65.6	137				
sec-Butylbenzene	0.980	0.0200	1.000	0	98.0	75.6	133				
4-Isopropyltoluene	0.982	0.0200	1.000	0	98.2	76.8	131				
1,3-Dichlorobenzene	0.992	0.0200	1.000	0	99.2	72.8	128				
1,4-Dichlorobenzene	0.938	0.0200	1.000	0	93.8	72.6	126				
n-Butylbenzene	1.00	0.0200	1.000	0	100	65.3	136				
1,2-Dichlorobenzene	0.993	0.0200	1.000	0	99.3	72.8	126				
1,2-Dibromo-3-chloropropane	1.07	0.500	1.000	0	107	61.2	139				
1,2,4-Trimethylbenzene	0.986	0.0200	1.000	0	98.6	77.5	129				

Work Order: 1504151
CLIENT: GeoEngineers
Project: Block 20 Rufus 2.0

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID **LCS-10640** SampType: **LCS** Units: **mg/Kg** Prep Date: **4/27/2015** RunNo: **22037**
Client ID: **LCSS** Batch ID: **10640** Analysis Date: **4/27/2015** SeqNo: **418378**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexachlorobutadiene	1.01	0.100	1.000	0	101	42	151				
Naphthalene	1.13	0.0300	1.000	0	113	62.3	134				
1,2,3-Trichlorobenzene	1.17	0.0200	1.000	0	117	62.1	140				
Surr: Dibromofluoromethane	1.22		1.250		97.9	63.7	129				
Surr: Toluene-d8	1.25		1.250		100	64.3	131				
Surr: 1-Bromo-4-fluorobenzene	1.22		1.250		97.9	63.1	141				

Sample ID **MB-10640** SampType: **MBLK** Units: **mg/Kg** Prep Date: **4/27/2015** RunNo: **22037**
Client ID: **MBLKS** Batch ID: **10640** Analysis Date: **4/27/2015** SeqNo: **418379**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	ND	0.0600									
Chloromethane	ND	0.0600									
Vinyl chloride	ND	0.00200									
Bromomethane	ND	0.0900									
Trichlorofluoromethane (CFC-11)	ND	0.0500									
Chloroethane	ND	0.0600									
1,1-Dichloroethene	ND	0.0500									
Methylene chloride	ND	0.0200									
trans-1,2-Dichloroethene	ND	0.0200									
Methyl tert-butyl ether (MTBE)	ND	0.0500									
1,1-Dichloroethane	ND	0.0200									
2,2-Dichloropropane	ND	0.0500									
cis-1,2-Dichloroethene	ND	0.0200									
Chloroform	ND	0.0200									
1,1,1-Trichloroethane (TCA)	ND	0.0200									
1,1-Dichloropropene	ND	0.0200									
Carbon tetrachloride	ND	0.0200									
1,2-Dichloroethane (EDC)	ND	0.0300									
Benzene	ND	0.0200									
Trichloroethene (TCE)	ND	0.0200									

Work Order: 1504151
CLIENT: GeoEngineers
Project: Block 20 Rufus 2.0

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID **MB-10640** SampType: **MBLK** Units: **mg/Kg** Prep Date: **4/27/2015** RunNo: **22037**
Client ID: **MBLKS** Batch ID: **10640** Analysis Date: **4/27/2015** SeqNo: **418379**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2-Dichloropropane	ND	0.0200									
Bromodichloromethane	ND	0.0200									
Dibromomethane	ND	0.0400									
cis-1,3-Dichloropropene	ND	0.0200									
Toluene	ND	0.0200									
trans-1,3-Dichloropropylene	ND	0.0300									
1,1,2-Trichloroethane	ND	0.0300									
1,3-Dichloropropane	ND	0.0500									
Tetrachloroethene (PCE)	ND	0.0200									
Dibromochloromethane	ND	0.0300									
1,2-Dibromoethane (EDB)	ND	0.00500									
Chlorobenzene	ND	0.0200									
1,1,1,2-Tetrachloroethane	ND	0.0300									
Ethylbenzene	ND	0.0300									
m,p-Xylene	ND	0.0200									
o-Xylene	ND	0.0200									
Styrene	ND	0.0200									
Isopropylbenzene	ND	0.0800									
Bromoform	ND	0.0200									
1,1,2,2-Tetrachloroethane	ND	0.0200									
n-Propylbenzene	ND	0.0200									
Bromobenzene	ND	0.0300									
1,3,5-Trimethylbenzene	ND	0.0200									
2-Chlorotoluene	ND	0.0200									
4-Chlorotoluene	ND	0.0200									
tert-Butylbenzene	ND	0.0200									
1,2,3-Trichloropropane	ND	0.0200									
1,2,4-Trichlorobenzene	ND	0.0500									
sec-Butylbenzene	ND	0.0200									
4-Isopropyltoluene	ND	0.0200									
1,3-Dichlorobenzene	ND	0.0200									

Date: *4/30/2015*

Work Order: 1504151
CLIENT: GeoEngineers
Project: Block 20 Rufus 2.0

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID **MB-10640** SampType: **MBLK** Units: **mg/Kg** Prep Date: **4/27/2015** RunNo: **22037**
Client ID: **MBLKS** Batch ID: **10640** Analysis Date: **4/27/2015** SeqNo: **418379**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,4-Dichlorobenzene	ND	0.0200									
n-Butylbenzene	ND	0.0200									
1,2-Dichlorobenzene	ND	0.0200									
1,2-Dibromo-3-chloropropane	ND	0.500									
1,2,4-Trimethylbenzene	ND	0.0200									
Hexachlorobutadiene	ND	0.100									
Naphthalene	ND	0.0300									
1,2,3-Trichlorobenzene	ND	0.0200									
Surr: Dibromofluoromethane	1.27		1.250		102	63.7	129				
Surr: Toluene-d8	1.24		1.250		99.3	64.3	131				
Surr: 1-Bromo-4-fluorobenzene	1.28		1.250		102	63.1	141				

Sample Log-In Check List

Client Name:	**GEI**	Work Order Number:	**1504151**
Logged by:	**Clare Griggs**	Date Received:	**4/16/2015 2:45:00 PM**

Chain of Custody

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

Log In

3.	Coolers are present?	Yes ☑	No ☐	NA ☐
4.	Shipping container/cooler in good condition?	Yes ☑	No ☐	
5.	Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Required ☑
6.	Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
7.	Were all coolers received at a temperature of >0°C to 10.0°C	Yes ☐	No ☑	NA ☐
	Please refer to item information.			
8.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
9.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
10.	Are samples properly preserved?	Yes ☑	No ☐	
11.	Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
12.	Is the headspace in the VOA vials?	Yes ☐	No ☐	NA ☑
13.	Did all samples containers arrive in good condition(unbroken)?	Yes ☑	No ☐	
14.	Does paperwork match bottle labels?	Yes ☑	No ☐	
15.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
16.	Is it clear what analyses were requested?	Yes ☑	No ☐	
17.	Were all holding times able to be met?	Yes ☑	No ☐	

Special Handling (if applicable)

18.	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:			

19. Additional remarks:

Item Information

Item #	Temp ºC	Condition
Cooler	13.8	
Sample	13.5	
Temp Blank	11.5	

Fremont Analytical

Chain of Custody Record

3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Laboratory Project No (internal): 1504151

Date: 4.16.15

Page: 1 of: 5

Client: GEOENGINEERS
Address: 6000 STEWARD ST
City, State, Zip: SEATTLE
Tel:
Reports To (PM): JESSICA SMITH
Fax:

Project Name: BLOCK 20 RUFUS 2.0
Location: SEATTLE WA
Collected by: NATHAN SOLOMON
Email: JSMITH@GEOENGINEERS.COM
Project No: 20434-001-24

*Matrix Codes: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, WW = Waste Water

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOC (EPA 8260)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SEMI VOL (EPA 8270)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Metals** (6020 / 200.8)	Total (T) | Dissolved (D)	Anions (IC)***	EDB (8011)	Lead	TCLP Lead	HOLD	Comments/Depth
1	B-20-32-1.0	4.16.15	730	SOIL																X	
2	B-20-32-3.5		732																	X	
3	B-20-32-4.0		735																	X	
4	B-20-32-8.5		740														X			X	
5	B-20-32-11.0		745																	X	
6	B-20-32-13.5		750																	X	
7	B-20-28-1.0		752																	X	
8	B-20-28-3.5		755																	X	
9	B-20-28-6.0		800														X	X		X	
10	B-20-28-8.5	↓	805	↓													X	X		X	

**Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Special Remarks:

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab (A fee may be assessed if samples are retained after 30 days)

Relinquished	Date/Time	Received	Date/Time
x [signature]	4.16.15 1445	x [signature]	04/16/15 14:45
Relinquished x	Date/Time	Received x	Date/Time

TAT -> SameDay^ NextDay^ 2 Day 3 Day STD

*Please coordinate with the lab in advance

Distribution: White - Lab, Yellow - File, Pink - Originator

www.fremontanalytical.com

Chain of Custody Record

Fremont Analytical

3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Laboratory Project No (internal): _____

Date: 4.16.15

Page: 2 of 5

Client: GEOENGINEERS
Address:
City, State, Zip
Tel:
Reports To (PM): JESSICA SMITH
Fax:

Project Name: BLOCK 20 RI/FS 2.0
Location: SEATTLE WA
Collected by: NATHAN SOLOMON
Email:
Project No: 20434-001-24

*Matrix Codes: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, WW = Waste Water

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOC (EPA 8260)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SSMI VOC (EPA 8270)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Metals** (6020 / 200.8)	Total (T) | Dissolved (D)	Anions (IC)***	EDB (8011)	Lead	HOLD	Comments/Depth
1	B-20-28-11.0	4.16.15	810	SOIL															K	
2	B-20-28-13.5		815																K	
3	B-20-30-1.0		820																K	
4	B-20-30-3.5		825																K	
5	B-20-30-6.0		830																K	
6	B-20-30-8.5		835															X	K	
7	B-20-30-11.0		840																K	
8	B-20-30-13.5		845																K	
9	B-20-31-1.5		850																K	
10	B-20-31-3.0	↓	855	↓															K	

**Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl Li V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Special Remarks:

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab (A fee may be assessed if samples are retained after 30 days.)

Relinquished x: Date/Time: 4.16.15 1445
Received x: Date/Time: 04/16/15 14:45

Relinquished x: Date/Time:
Received x: Date/Time:

TAT -> SameDay^ NextDay^ 2 Day 3 Day STD

^Please coordinate with the lab in advance

Distribution: White - Lab, Yellow - File, Pink - Originator

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Fremont Analytical

Chain of Custody Record

3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Laboratory Project No (internal): _____

Date: 4.16.15

Page: 3 of: 5

Client: GEOENGINEERS
Address: _____
City, State, Zip _____ Tel: _____
Reports To (PM): JESSICA SMITH Fax: _____

Project Name: BLOCK 20 RI FS 2.0
Location: SEATTLE WA
Collected by: NATHAN SOLOMON
Email: _____
Project No: 20434-001-24

*Matrix Codes: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, WW = Waste Water

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOC (EPA 8260)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SEMI VOC (EPA 8270)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Metals** 6020 / 200.8	Total (T)	Dissolved (D)	Anions (IC)***	EDB (8011)	Lead	HOLD	Comments/Depth
1	B-20-31-5.5	4.16.15	900	S																A	
2	B-20-31-8.0		905															X		A	
3	B-20-31-10.5		910																	A	
4	B-20-31-13.0		915																	A	
5	B-20-29-1.0		920																	A	
6	B-20-29-3.5		925																	A	
7	B-20-29-6.0		930																	A	
8	B-20-29-8.5		935															X		A	
9	B-20-29-11.0		940																	A	
10	B-20-29-13.5	↓	945	↓																A	

**Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl Li V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab (A fee may be assessed if samples are retained after 30 days.)

Special Remarks:

Relinquished	Date/Time	Received	Date/Time
x [signature]	4.16.15 1445	x [signature]	04/16/15 14:45
Relinquished x	Date/Time	Received x	Date/Time

TAT -> SameDay^ NextDay^ 2 Day 3 Day STD
*Please coordinate with the lab in advance

Distribution: White - Lab, Yellow - File, Pink - Originator

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Fremont Analytical

Chain of Custody Record

3600 Fremont Ave N. Tel: 206-352-3790
Seattle, WA 98103 Fax: 206-352-7178

Laboratory Project No (internal): _____

Date: 4.14.15 Page: 4 of: 5

Client: GEOENGINEERS Project Name: BLOCK 20 RUFUS 2.0
Address: _____ Location: SEATTLE WA
City, State, Zip _____ Tel: _____ Collected by: NATHAN SOLOMON
Reports To (PM): JESSICA SMITH Fax: Email: Project No: 20434-001-24

*Matrix Codes: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, WW = Waste Water

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOC (EPA 8260)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SCAN VOL (EPA 8270)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Metals** (6020 / 200.8) Total (T) | Dissolved (D)	Anions (IC)***	EDB (8011)	HOLD	Comments/Depth
1	B-20-26-1.0		1055	S														
2	B-20-26-3.5		1100		X		X		X		X		X					
3	B-20-26-6.0		1105															
4	B-20-26-7.5		110															
5	B-20-20-1.5		1220															
6	B-20-24-1.0		1305															
7	B-20-24-3.5		1310		X		X		X		X		X					
8	B-20-24-5.0		1315															
9	B-20-24-7.5		1320															
10	B-20-24-8.5		1325		X		X		X		X		X					

**Metals Analysis (Circle): (MTCA-5) RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Si Sn Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab (A fee may be assessed if samples are retained after 30 days)

Relinquished	Date/Time	Received	Date/Time
x [signature]	4.14.15 1445	x [signature]	04/16/15 14:45
Relinquished x	Date/Time	Received x	Date/Time

Special Remarks:

TAT -> SameDay^ NextDay^ 2 Day 3 Day (STD)

^Please coordinate with the lab in advance

Distribution: White - Lab, Yellow - File, Pink - Originator

www.fremontanalytical.com

Fremont Analytical

Chain of Custody Record

3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Laboratory Project No (internal): _____

Date: 4.16.15

Page: 5 of: 5

Client: GEO ENGINEERS
Address: _____
City, State, Zip _____ Tel: _____
Reports To (PM): JESSICA SMITH Fax: _____

Project Name: BLOCK 20 RI FS 2.0
Location: SEATTLE WA
Collected by: NATHAN SOLOMON
Email: _____
Project No: 20434-001-21

*Matrix Codes: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, WW = Waste Water

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOC (EPA 8260)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SEMI VOC (EPA 8270)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Metals** (6020 / 200.8)	Total (T) / Dissolved (D)	Anions (IC)***	EDB (8011)		HOLD	Comments/Depth
1 TRIPBLANK_041615	4/16/15	N/A	LIQUID																
2 TEMPBLANK_041615	4.16.15	N/A	LIQUID															1	
3																			
4																			
5																			
6																			
7																			
8																			
9																			
10																			

**Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab (A fee may be assessed if samples are retained after 30 days.)

Relinquished	Date/Time	Received	Date/Time
x [signature]	4.16.15 1445	x [signature]	04/16/15 16:45
Relinquished	Date/Time	Received	Date/Time
x		x	

Special Remarks:

TAT -> SameDay^ NextDay^ 2 Day 3 Day STD

^Please coordinate with the lab in advance

Distribution: White - Lab, Yellow - File, Pink - Originator

www.fremontanalytical.com

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Seattle, WA 98103
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F: (206) 352-7178
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GeoEngineers
Jessica Smith
600 Stewart Street, Suite 1700
Seattle, WA 98101

RE: Block 20 Rufus 2.0
Lab ID: 1504152

April 30, 2015

Attention Jessica Smith:

Fremont Analytical, Inc. received 33 sample(s) on 4/15/2015 for the analyses presented in the following report.

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.
Gasoline by NWTPH-Gx
Mercury (SW7470) with TCLP Extraction (EPA 1311)
Mercury by EPA Method 7471
Metals (SW6020) with TCLP Extraction (EPA 1311)
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)
Sample Moisture (Percent Moisture)
Total Metals by EPA Method 6020
Volatile Organic Compounds by EPA Method 8260

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Mike Ridgeway
President

Date: *04/30/2015*

CLIENT: GeoEngineers
Project: Block 20 Rufus 2.0
Lab Order: 1504152

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1504152-001	B-20-27-20.0	04/15/2015 10:45 AM	04/15/2015 4:40 PM
1504152-002	B-20-27-23.5	04/15/2015 10:40 AM	04/15/2015 4:40 PM
1504152-003	B-20-22-0.5	04/15/2015 11:15 AM	04/15/2015 4:40 PM
1504152-004	B-20-22-3.0	04/15/2015 11:20 AM	04/15/2015 4:40 PM
1504152-005	B-20-22-7.5	04/15/2015 11:30 AM	04/15/2015 4:40 PM
1504152-006	B-20-22-5.0	04/15/2015 11:25 AM	04/15/2015 4:40 PM
1504152-007	B-20-22-10.0	04/15/2015 11:35 AM	04/15/2015 4:40 PM
1504152-008	B-20-22-12.5	04/15/2015 11:40 AM	04/15/2015 4:40 PM
1504152-009	B-20-22-14.0	04/15/2015 11:45 AM	04/15/2015 4:40 PM
1504152-010	B-20-21-3.0	04/15/2015 12:40 PM	04/15/2015 4:40 PM
1504152-011	B-20-21-5.5	04/15/2015 12:45 PM	04/15/2015 4:40 PM
1504152-012	B-20-21-8.0	04/15/2015 12:50 PM	04/15/2015 4:40 PM
1504152-013	B-20-21-10.5	04/15/2015 12:55 PM	04/15/2015 4:40 PM
1504152-014	B-20-21-13.0	04/15/2015 1:00 PM	04/15/2015 4:40 PM
1504152-015	B-20-25-2.0	04/15/2015 1:45 PM	04/15/2015 4:40 PM
1504152-016	B-20-25-4.5	04/15/2015 1:50 PM	04/15/2015 4:40 PM
1504152-017	B-20-25-7.0	04/15/2015 1:55 PM	04/15/2015 4:40 PM
1504152-018	B-20-25-10.0	04/15/2015 2:00 PM	04/15/2015 4:40 PM
1504152-019	B-20-25-12.5	04/15/2015 2:05 PM	04/15/2015 4:40 PM
1504152-020	B-20-25-15.0	04/15/2015 2:10 PM	04/15/2015 4:40 PM
1504152-021	B-20-25-17.5	04/15/2015 2:15 PM	04/15/2015 4:40 PM
1504152-022	B-20-25-19.0	04/15/2015 2:20 PM	04/15/2015 4:40 PM
1504152-023	TRIPBLANK_041515		04/15/2015 4:40 PM
1504152-024	B-20-23-3.0	04/15/2015 8:50 AM	04/15/2015 4:40 PM
1504152-025	B-20-23-5.5	04/15/2015 9:10 AM	04/15/2015 4:40 PM
1504152-026	B-20-23-8.0	04/15/2015 9:20 AM	04/15/2015 4:40 PM
1504152-027	B-20-23-10.5	04/15/2015 9:40 AM	04/15/2015 4:40 PM
1504152-028	B-20-23-13.0	04/15/2015 10:00 AM	04/15/2015 4:40 PM
1504152-029	B-20-27-5.0	04/15/2015 10:15 AM	04/15/2015 4:40 PM
1504152-030	B-20-27-7.5	04/15/2015 10:20 AM	04/15/2015 4:40 PM
1504152-031	B-20-27-10.0	04/15/2015 10:25 AM	04/15/2015 4:40 PM
1504152-032	B-20-27-15.0	04/15/2015 10:30 AM	04/15/2015 4:40 PM
1504152-033	B-20-27-17.5	04/15/2015 10:35 AM	04/15/2015 4:40 PM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

Case Narrative

WO#: **1504152**

Date: **4/30/2015**

CLIENT: GeoEngineers
Project: Block 20 Rufus 2.0

I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below LOQ
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Analytical Report

WO#: **1504152**

Date Reported: **4/30/2015**

Client: GeoEngineers **Collection Date:** 4/15/2015 11:30:00 AM

Project: Block 20 Rufus 2.0

Lab ID: 1504152-005 **Matrix:** Soil

Client Sample ID: **B-20-22-7.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 10615		Analyst: EC
Diesel (Fuel Oil)	ND	22.3		mg/Kg-dry	1	4/24/2015 12:52:00 AM
Heavy Oil	ND	55.7		mg/Kg-dry	1	4/24/2015 12:52:00 AM
Surr: 2-Fluorobiphenyl	88.1	50-150		%REC	1	4/24/2015 12:52:00 AM
Surr: o-Terphenyl	88.2	50-150		%REC	1	4/24/2015 12:52:00 AM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 10614		Analyst: NG
Naphthalene	ND	55.3		µg/Kg-dry	1	4/27/2015 9:16:00 PM
2-Methylnaphthalene	ND	55.3		µg/Kg-dry	1	4/27/2015 9:16:00 PM
1-Methylnaphthalene	ND	55.3		µg/Kg-dry	1	4/27/2015 9:16:00 PM
Acenaphthylene	ND	55.3		µg/Kg-dry	1	4/27/2015 9:16:00 PM
Acenaphthene	ND	55.3		µg/Kg-dry	1	4/27/2015 9:16:00 PM
Fluorene	ND	55.3		µg/Kg-dry	1	4/27/2015 9:16:00 PM
Phenanthrene	94.3	55.3		µg/Kg-dry	1	4/27/2015 9:16:00 PM
Anthracene	ND	55.3		µg/Kg-dry	1	4/27/2015 9:16:00 PM
Fluoranthene	127	55.3		µg/Kg-dry	1	4/27/2015 9:16:00 PM
Pyrene	136	55.3		µg/Kg-dry	1	4/27/2015 9:16:00 PM
Benz(a)anthracene	ND	55.3		µg/Kg-dry	1	4/27/2015 9:16:00 PM
Chrysene	70.7	55.3		µg/Kg-dry	1	4/27/2015 9:16:00 PM
Benzo(b)fluoranthene	80.4	55.3		µg/Kg-dry	1	4/27/2015 9:16:00 PM
Benzo(k)fluoranthene	ND	55.3		µg/Kg-dry	1	4/27/2015 9:16:00 PM
Benzo(a)pyrene	74.7	55.3		µg/Kg-dry	1	4/27/2015 9:16:00 PM
Indeno(1,2,3-cd)pyrene	127	55.3		µg/Kg-dry	1	4/27/2015 9:16:00 PM
Dibenz(a,h)anthracene	96.9	55.3		µg/Kg-dry	1	4/27/2015 9:16:00 PM
Benzo(g,h,i)perylene	92.5	55.3		µg/Kg-dry	1	4/27/2015 9:16:00 PM
Surr: 2-Fluorobiphenyl	67.2	42.7-132		%REC	1	4/27/2015 9:16:00 PM
Surr: Terphenyl-d14 (surr)	84.7	48.8-157		%REC	1	4/27/2015 9:16:00 PM
Sample Moisture (Percent Moisture)				Batch ID: R21985		Analyst: CG
Percent Moisture	12.0			wt%	1	4/24/2015 9:36:25 AM

Analytical Report

WO#: **1504152**

Date Reported: **4/30/2015**

Client: GeoEngineers **Collection Date:** 4/15/2015 12:55:00 PM

Project: Block 20 Rufus 2.0

Lab ID: 1504152-013 **Matrix:** Soil

Client Sample ID: **B-20-21-10.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 10615		Analyst: EC
Diesel (Fuel Oil)	ND	26.3		mg/Kg-dry	1	4/24/2015 1:24:00 AM
Heavy Oil	8,120	658	D	mg/Kg-dry	10	4/24/2015 2:35:00 PM
Surr: 2-Fluorobiphenyl	93.1	50-150		%REC	1	4/24/2015 1:24:00 AM
Surr: o-Terphenyl	101	50-150		%REC	1	4/24/2015 1:24:00 AM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 10614		Analyst: NG
Naphthalene	35,800	3,220	D	µg/Kg-dry	50	4/28/2015 5:33:00 PM
2-Methylnaphthalene	48,600	3,220	D	µg/Kg-dry	50	4/28/2015 5:33:00 PM
1-Methylnaphthalene	25,600	3,220	D	µg/Kg-dry	50	4/28/2015 5:33:00 PM
Acenaphthylene	2,270	64.3		µg/Kg-dry	1	4/27/2015 9:41:00 PM
Acenaphthene	697	64.3		µg/Kg-dry	1	4/27/2015 9:41:00 PM
Fluorene	1,230	64.3		µg/Kg-dry	1	4/27/2015 9:41:00 PM
Phenanthrene	51,200	3,220	D	µg/Kg-dry	50	4/28/2015 5:33:00 PM
Anthracene	2,130	64.3		µg/Kg-dry	1	4/27/2015 9:41:00 PM
Fluoranthene	66,300	3,220	D	µg/Kg-dry	50	4/28/2015 5:33:00 PM
Pyrene	67,100	3,220	D	µg/Kg-dry	50	4/28/2015 5:33:00 PM
Benz(a)anthracene	37,200	3,220	D	µg/Kg-dry	50	4/28/2015 5:33:00 PM
Chrysene	34,000	3,220	D	µg/Kg-dry	50	4/28/2015 5:33:00 PM
Benzo(b)fluoranthene	65,000	3,220	D	µg/Kg-dry	50	4/28/2015 5:33:00 PM
Benzo(k)fluoranthene	1,310	64.3		µg/Kg-dry	1	4/27/2015 9:41:00 PM
Benzo(a)pyrene	2,240	64.3		µg/Kg-dry	1	4/27/2015 9:41:00 PM
Indeno(1,2,3-cd)pyrene	584	64.3		µg/Kg-dry	1	4/27/2015 9:41:00 PM
Dibenz(a,h)anthracene	234	64.3		µg/Kg-dry	1	4/27/2015 9:41:00 PM
Benzo(g,h,i)perylene	367	64.3		µg/Kg-dry	1	4/27/2015 9:41:00 PM
Surr: 2-Fluorobiphenyl	72.9	42.7-132		%REC	1	4/27/2015 9:41:00 PM
Surr: Terphenyl-d14 (surr)	122	48.8-157		%REC	1	4/27/2015 9:41:00 PM
Gasoline by NWTPH-Gx				Batch ID: 10616		Analyst: BC
Gasoline	ND	3.49		mg/Kg-dry	1	4/23/2015 10:59:00 PM
Gasoline Range Organics (C6-C12)	60.7	3.49		mg/Kg-dry	1	4/23/2015 10:59:00 PM
Surr: Toluene-d8	91.9	65-135		%REC	1	4/23/2015 10:59:00 PM
Surr: 4-Bromofluorobenzene	96.9	65-135		%REC	1	4/23/2015 10:59:00 PM

NOTES:

GRO - Indicates the presence of unresolved compounds eluting from toluene to dodecane (~C7->C12).

Analytical Report

WO#: **1504152**

Date Reported: **4/30/2015**

Client: GeoEngineers **Collection Date:** 4/15/2015 12:55:00 PM

Project: Block 20 Rufus 2.0

Lab ID: 1504152-013 **Matrix:** Soil

Client Sample ID: **B-20-21-10.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: 10616		Analyst: BC
Dichlorodifluoromethane (CFC-12)	ND	0.0419		mg/Kg-dry	1	4/23/2015 10:59:00 PM
Chloromethane	ND	0.0419		mg/Kg-dry	1	4/23/2015 10:59:00 PM
Vinyl chloride	ND	0.00140		mg/Kg-dry	1	4/23/2015 10:59:00 PM
Bromomethane	ND	0.0629		mg/Kg-dry	1	4/23/2015 10:59:00 PM
Trichlorofluoromethane (CFC-11)	ND	0.0349		mg/Kg-dry	1	4/23/2015 10:59:00 PM
Chloroethane	ND	0.0419		mg/Kg-dry	1	4/23/2015 10:59:00 PM
1,1-Dichloroethene	ND	0.0349		mg/Kg-dry	1	4/23/2015 10:59:00 PM
Methylene chloride	ND	0.0140		mg/Kg-dry	1	4/23/2015 10:59:00 PM
trans-1,2-Dichloroethene	ND	0.0140		mg/Kg-dry	1	4/23/2015 10:59:00 PM
Methyl tert-butyl ether (MTBE)	ND	0.0349		mg/Kg-dry	1	4/23/2015 10:59:00 PM
1,1-Dichloroethane	ND	0.0140		mg/Kg-dry	1	4/23/2015 10:59:00 PM
2,2-Dichloropropane	ND	0.0349		mg/Kg-dry	1	4/23/2015 10:59:00 PM
cis-1,2-Dichloroethene	ND	0.0140		mg/Kg-dry	1	4/23/2015 10:59:00 PM
Chloroform	ND	0.0140		mg/Kg-dry	1	4/23/2015 10:59:00 PM
1,1,1-Trichloroethane (TCA)	ND	0.0140		mg/Kg-dry	1	4/23/2015 10:59:00 PM
1,1-Dichloropropene	ND	0.0140		mg/Kg-dry	1	4/23/2015 10:59:00 PM
Carbon tetrachloride	ND	0.0140		mg/Kg-dry	1	4/23/2015 10:59:00 PM
1,2-Dichloroethane (EDC)	ND	0.0210		mg/Kg-dry	1	4/23/2015 10:59:00 PM
Benzene	ND	0.0140		mg/Kg-dry	1	4/23/2015 10:59:00 PM
Trichloroethene (TCE)	ND	0.0140		mg/Kg-dry	1	4/23/2015 10:59:00 PM
1,2-Dichloropropane	ND	0.0140		mg/Kg-dry	1	4/23/2015 10:59:00 PM
Bromodichloromethane	ND	0.0140		mg/Kg-dry	1	4/23/2015 10:59:00 PM
Dibromomethane	ND	0.0279		mg/Kg-dry	1	4/23/2015 10:59:00 PM
cis-1,3-Dichloropropene	ND	0.0140		mg/Kg-dry	1	4/23/2015 10:59:00 PM
Toluene	ND	0.0140		mg/Kg-dry	1	4/23/2015 10:59:00 PM
trans-1,3-Dichloropropylene	ND	0.0210		mg/Kg-dry	1	4/23/2015 10:59:00 PM
1,1,2-Trichloroethane	ND	0.0210		mg/Kg-dry	1	4/23/2015 10:59:00 PM
1,3-Dichloropropane	ND	0.0349		mg/Kg-dry	1	4/23/2015 10:59:00 PM
Tetrachloroethene (PCE)	ND	0.0140		mg/Kg-dry	1	4/23/2015 10:59:00 PM
Dibromochloromethane	ND	0.0210		mg/Kg-dry	1	4/23/2015 10:59:00 PM
1,2-Dibromoethane (EDB)	ND	0.00349		mg/Kg-dry	1	4/23/2015 10:59:00 PM
Chlorobenzene	ND	0.0140		mg/Kg-dry	1	4/23/2015 10:59:00 PM
1,1,1,2-Tetrachloroethane	ND	0.0210		mg/Kg-dry	1	4/23/2015 10:59:00 PM
Ethylbenzene	ND	0.0210		mg/Kg-dry	1	4/23/2015 10:59:00 PM
m,p-Xylene	0.0359	0.0140		mg/Kg-dry	1	4/23/2015 10:59:00 PM
o-Xylene	ND	0.0140		mg/Kg-dry	1	4/23/2015 10:59:00 PM
Styrene	ND	0.0140		mg/Kg-dry	1	4/23/2015 10:59:00 PM
Isopropylbenzene	ND	0.0559		mg/Kg-dry	1	4/23/2015 10:59:00 PM
Bromoform	ND	0.0140		mg/Kg-dry	1	4/23/2015 10:59:00 PM

Analytical Report

WO#: **1504152**

Date Reported: **4/30/2015**

Client: GeoEngineers **Collection Date:** 4/15/2015 12:55:00 PM

Project: Block 20 Rufus 2.0

Lab ID: 1504152-013 **Matrix:** Soil

Client Sample ID: **B-20-21-10.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: 10616		Analyst: BC
1,1,2,2-Tetrachloroethane	ND	0.0140		mg/Kg-dry	1	4/23/2015 10:59:00 PM
n-Propylbenzene	0.166	0.0140		mg/Kg-dry	1	4/23/2015 10:59:00 PM
Bromobenzene	ND	0.0210		mg/Kg-dry	1	4/23/2015 10:59:00 PM
1,3,5-Trimethylbenzene	0.0210	0.0140		mg/Kg-dry	1	4/23/2015 10:59:00 PM
2-Chlorotoluene	ND	0.0140		mg/Kg-dry	1	4/23/2015 10:59:00 PM
4-Chlorotoluene	ND	0.0140		mg/Kg-dry	1	4/23/2015 10:59:00 PM
tert-Butylbenzene	ND	0.0140		mg/Kg-dry	1	4/23/2015 10:59:00 PM
1,2,3-Trichloropropane	ND	0.0140		mg/Kg-dry	1	4/23/2015 10:59:00 PM
1,2,4-Trichlorobenzene	0.0648	0.0349		mg/Kg-dry	1	4/23/2015 10:59:00 PM
sec-Butylbenzene	0.0605	0.0140		mg/Kg-dry	1	4/23/2015 10:59:00 PM
4-Isopropyltoluene	0.0658	0.0140		mg/Kg-dry	1	4/23/2015 10:59:00 PM
1,3-Dichlorobenzene	ND	0.0140		mg/Kg-dry	1	4/23/2015 10:59:00 PM
1,4-Dichlorobenzene	ND	0.0140		mg/Kg-dry	1	4/23/2015 10:59:00 PM
n-Butylbenzene	0.255	0.0140		mg/Kg-dry	1	4/23/2015 10:59:00 PM
1,2-Dichlorobenzene	0.0443	0.0140		mg/Kg-dry	1	4/23/2015 10:59:00 PM
1,2-Dibromo-3-chloropropane	ND	0.349		mg/Kg-dry	1	4/23/2015 10:59:00 PM
1,2,4-Trimethylbenzene	0.109	0.0140		mg/Kg-dry	1	4/23/2015 10:59:00 PM
Hexachlorobutadiene	ND	0.0699		mg/Kg-dry	1	4/23/2015 10:59:00 PM
Naphthalene	0.0905	0.0210		mg/Kg-dry	1	4/23/2015 10:59:00 PM
1,2,3-Trichlorobenzene	ND	0.0140		mg/Kg-dry	1	4/23/2015 10:59:00 PM
Surr: Dibromofluoromethane	97.0	63.7-129		%REC	1	4/23/2015 10:59:00 PM
Surr: Toluene-d8	95.7	64.3-131		%REC	1	4/23/2015 10:59:00 PM
Surr: 1-Bromo-4-fluorobenzene	101	63.1-141		%REC	1	4/23/2015 10:59:00 PM
Mercury by EPA Method 7471				Batch ID: 10632		Analyst: TN
Mercury	ND	0.289		mg/Kg-dry	1	4/27/2015 2:06:52 PM
Mercury (SW7470) with TCLP Extraction (EPA 1311)				Batch ID: 10623		Analyst: TN
Mercury	ND	0.00200		mg/L	1	4/24/2015 5:25:12 PM
Total Metals by EPA Method 6020				Batch ID: 10621		Analyst: TN
Arsenic	4.85	0.103		mg/Kg-dry	1	4/24/2015 5:45:37 PM
Cadmium	0.603	0.206		mg/Kg-dry	1	4/24/2015 5:45:37 PM
Chromium	32.4	0.103		mg/Kg-dry	1	4/24/2015 5:45:37 PM
Lead	155	0.206		mg/Kg-dry	1	4/24/2015 5:45:37 PM

Analytical Report

WO#: **1504152**

Date Reported: **4/30/2015**

Client: GeoEngineers **Collection Date:** 4/15/2015 12:55:00 PM

Project: Block 20 Rufus 2.0

Lab ID: 1504152-013 **Matrix:** Soil

Client Sample ID: **B-20-21-10.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Metals (SW6020) with TCLP Extraction (EPA 1311)				Batch ID: 10620		Analyst: TN
Lead	ND	0.500		mg/L	1	4/24/2015 7:08:04 PM
Sample Moisture (Percent Moisture)				Batch ID: R21985		Analyst: CG
Percent Moisture	24.2			wt%	1	4/24/2015 9:36:25 AM

Analytical Report

WO#: **1504152**

Date Reported: **4/30/2015**

Client: GeoEngineers **Collection Date:** 4/15/2015 1:00:00 PM

Project: Block 20 Rufus 2.0

Lab ID: 1504152-014 **Matrix:** Soil

Client Sample ID: **B-20-21-13.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 10615		Analyst: EC
Diesel (Fuel Oil)	ND	25.1		mg/Kg-dry	1	4/24/2015 1:55:00 AM
Heavy Oil	1,170	62.8		mg/Kg-dry	1	4/24/2015 1:55:00 AM
Surr: 2-Fluorobiphenyl	86.5	50-150		%REC	1	4/24/2015 1:55:00 AM
Surr: o-Terphenyl	91.1	50-150		%REC	1	4/24/2015 1:55:00 AM
Gasoline by NWTPH-Gx				Batch ID: 10616		Analyst: BC
Gasoline	ND	3.07		mg/Kg-dry	1	4/24/2015 4:57:00 PM
Gasoline Range Organics (C6-C12)	9.36	3.07		mg/Kg-dry	1	4/24/2015 4:57:00 PM
Surr: Toluene-d8	94.5	65-135		%REC	1	4/24/2015 4:57:00 PM
Surr: 4-Bromofluorobenzene	96.1	65-135		%REC	1	4/24/2015 4:57:00 PM
Sample Moisture (Percent Moisture)				Batch ID: R21985		Analyst: CG
Percent Moisture	22.7			wt%	1	4/24/2015 9:36:25 AM

Analytical Report

WO#: **1504152**

Date Reported: **4/30/2015**

Client: GeoEngineers **Collection Date:** 4/15/2015 1:45:00 PM

Project: Block 20 Rufus 2.0

Lab ID: 1504152-015 **Matrix:** Soil

Client Sample ID: **B-20-25-2.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 10615		Analyst: EC
Diesel (Fuel Oil)	ND	20.8		mg/Kg-dry	1	4/24/2015 2:26:00 AM
Heavy Oil	1,510	52.0		mg/Kg-dry	1	4/24/2015 2:26:00 AM
Surr: 2-Fluorobiphenyl	101	50-150		%REC	1	4/24/2015 2:26:00 AM
Surr: o-Terphenyl	106	50-150		%REC	1	4/24/2015 2:26:00 AM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 10614		Analyst: NG
Naphthalene	ND	52.7		µg/Kg-dry	1	4/27/2015 10:06:00 PM
2-Methylnaphthalene	ND	52.7		µg/Kg-dry	1	4/27/2015 10:06:00 PM
1-Methylnaphthalene	ND	52.7		µg/Kg-dry	1	4/27/2015 10:06:00 PM
Acenaphthylene	ND	52.7		µg/Kg-dry	1	4/27/2015 10:06:00 PM
Acenaphthene	ND	52.7		µg/Kg-dry	1	4/27/2015 10:06:00 PM
Fluorene	ND	52.7		µg/Kg-dry	1	4/27/2015 10:06:00 PM
Phenanthrene	ND	52.7		µg/Kg-dry	1	4/27/2015 10:06:00 PM
Anthracene	ND	52.7		µg/Kg-dry	1	4/27/2015 10:06:00 PM
Fluoranthene	ND	52.7		µg/Kg-dry	1	4/27/2015 10:06:00 PM
Pyrene	ND	52.7		µg/Kg-dry	1	4/27/2015 10:06:00 PM
Benz(a)anthracene	ND	52.7		µg/Kg-dry	1	4/27/2015 10:06:00 PM
Chrysene	ND	52.7		µg/Kg-dry	1	4/27/2015 10:06:00 PM
Benzo(b)fluoranthene	ND	52.7		µg/Kg-dry	1	4/27/2015 10:06:00 PM
Benzo(k)fluoranthene	ND	52.7		µg/Kg-dry	1	4/27/2015 10:06:00 PM
Benzo(a)pyrene	ND	52.7		µg/Kg-dry	1	4/27/2015 10:06:00 PM
Indeno(1,2,3-cd)pyrene	ND	52.7		µg/Kg-dry	1	4/27/2015 10:06:00 PM
Dibenz(a,h)anthracene	ND	52.7		µg/Kg-dry	1	4/27/2015 10:06:00 PM
Benzo(g,h,i)perylene	64.3	52.7		µg/Kg-dry	1	4/27/2015 10:06:00 PM
Surr: 2-Fluorobiphenyl	81.8	42.7-132		%REC	1	4/27/2015 10:06:00 PM
Surr: Terphenyl-d14 (surr)	101	48.8-157		%REC	1	4/27/2015 10:06:00 PM
Gasoline by NWTPH-Gx				Batch ID: 10616		Analyst: BC
Gasoline	ND	2.76		mg/Kg-dry	1	4/24/2015 1:53:00 AM
Surr: Toluene-d8	94.0	65-135		%REC	1	4/24/2015 1:53:00 AM
Surr: 4-Bromofluorobenzene	94.6	65-135		%REC	1	4/24/2015 1:53:00 AM
Mercury by EPA Method 7471				Batch ID: 10632		Analyst: TN
Mercury	ND	0.253		mg/Kg-dry	1	4/27/2015 2:20:25 PM

Analytical Report

WO#: **1504152**

Date Reported: **4/30/2015**

Client: GeoEngineers **Collection Date:** 4/15/2015 1:45:00 PM

Project: Block 20 Rufus 2.0

Lab ID: 1504152-015 **Matrix:** Soil

Client Sample ID: **B-20-25-2.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 10621		Analyst: TN
Arsenic	2.34	0.0792		mg/Kg-dry	1	4/24/2015 5:49:09 PM
Cadmium	ND	0.158		mg/Kg-dry	1	4/24/2015 5:49:09 PM
Chromium	30.7	0.0792		mg/Kg-dry	1	4/24/2015 5:49:09 PM
Lead	7.94	0.158		mg/Kg-dry	1	4/24/2015 5:49:09 PM
Sample Moisture (Percent Moisture)				Batch ID: R21985		Analyst: CG
Percent Moisture	8.52			wt%	1	4/24/2015 9:36:25 AM

Analytical Report

WO#: **1504152**

Date Reported: **4/30/2015**

Client: GeoEngineers **Collection Date:** 4/15/2015 2:05:00 PM

Project: Block 20 Rufus 2.0

Lab ID: 1504152-019 **Matrix:** Soil

Client Sample ID: **B-20-25-12.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 10615		Analyst: EC
Diesel (Fuel Oil)	ND	20.3		mg/Kg-dry	1	4/24/2015 3:29:00 AM
Heavy Oil	ND	50.7		mg/Kg-dry	1	4/24/2015 3:29:00 AM
Surr: 2-Fluorobiphenyl	88.7	50-150		%REC	1	4/24/2015 3:29:00 AM
Surr: o-Terphenyl	91.9	50-150		%REC	1	4/24/2015 3:29:00 AM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 10614		Analyst: NG
Naphthalene	ND	53.9		µg/Kg-dry	1	4/27/2015 10:31:00 PM
2-Methylnaphthalene	ND	53.9		µg/Kg-dry	1	4/27/2015 10:31:00 PM
1-Methylnaphthalene	ND	53.9		µg/Kg-dry	1	4/27/2015 10:31:00 PM
Acenaphthylene	ND	53.9		µg/Kg-dry	1	4/27/2015 10:31:00 PM
Acenaphthene	ND	53.9		µg/Kg-dry	1	4/27/2015 10:31:00 PM
Fluorene	ND	53.9		µg/Kg-dry	1	4/27/2015 10:31:00 PM
Phenanthrene	ND	53.9		µg/Kg-dry	1	4/27/2015 10:31:00 PM
Anthracene	ND	53.9		µg/Kg-dry	1	4/27/2015 10:31:00 PM
Fluoranthene	ND	53.9		µg/Kg-dry	1	4/27/2015 10:31:00 PM
Pyrene	ND	53.9		µg/Kg-dry	1	4/27/2015 10:31:00 PM
Benz(a)anthracene	ND	53.9		µg/Kg-dry	1	4/27/2015 10:31:00 PM
Chrysene	ND	53.9		µg/Kg-dry	1	4/27/2015 10:31:00 PM
Benzo(b)fluoranthene	ND	53.9		µg/Kg-dry	1	4/27/2015 10:31:00 PM
Benzo(k)fluoranthene	ND	53.9		µg/Kg-dry	1	4/27/2015 10:31:00 PM
Benzo(a)pyrene	ND	53.9		µg/Kg-dry	1	4/27/2015 10:31:00 PM
Indeno(1,2,3-cd)pyrene	ND	53.9		µg/Kg-dry	1	4/27/2015 10:31:00 PM
Dibenz(a,h)anthracene	ND	53.9		µg/Kg-dry	1	4/27/2015 10:31:00 PM
Benzo(g,h,i)perylene	ND	53.9		µg/Kg-dry	1	4/27/2015 10:31:00 PM
Surr: 2-Fluorobiphenyl	65.3	42.7-132		%REC	1	4/27/2015 10:31:00 PM
Surr: Terphenyl-d14 (surr)	99.0	48.8-157		%REC	1	4/27/2015 10:31:00 PM
Sample Moisture (Percent Moisture)				Batch ID: R21985		Analyst: CG
Percent Moisture	10.8			wt%	1	4/24/2015 9:36:25 AM

Analytical Report

WO#: **1504152**

Date Reported: **4/30/2015**

Client: GeoEngineers **Collection Date:** 4/15/2015 8:50:00 AM

Project: Block 20 Rufus 2.0

Lab ID: 1504152-024 **Matrix:** Soil

Client Sample ID: **B-20-23-3.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 10615		Analyst: EC
Diesel (Fuel Oil)	ND	19.6		mg/Kg-dry	1	4/24/2015 4:00:00 AM
Heavy Oil	934	49.1		mg/Kg-dry	1	4/24/2015 4:00:00 AM
Surr: 2-Fluorobiphenyl	117	50-150		%REC	1	4/24/2015 4:00:00 AM
Surr: o-Terphenyl	126	50-150		%REC	1	4/24/2015 4:00:00 AM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 10614		Analyst: NG
Naphthalene	ND	57.7		µg/Kg-dry	1	4/27/2015 10:55:00 PM
2-Methylnaphthalene	ND	57.7		µg/Kg-dry	1	4/27/2015 10:55:00 PM
1-Methylnaphthalene	ND	57.7		µg/Kg-dry	1	4/27/2015 10:55:00 PM
Acenaphthylene	ND	57.7		µg/Kg-dry	1	4/27/2015 10:55:00 PM
Acenaphthene	ND	57.7		µg/Kg-dry	1	4/27/2015 10:55:00 PM
Fluorene	ND	57.7		µg/Kg-dry	1	4/27/2015 10:55:00 PM
Phenanthrene	ND	57.7		µg/Kg-dry	1	4/27/2015 10:55:00 PM
Anthracene	ND	57.7		µg/Kg-dry	1	4/27/2015 10:55:00 PM
Fluoranthene	ND	57.7		µg/Kg-dry	1	4/27/2015 10:55:00 PM
Pyrene	ND	57.7		µg/Kg-dry	1	4/27/2015 10:55:00 PM
Benz(a)anthracene	ND	57.7		µg/Kg-dry	1	4/27/2015 10:55:00 PM
Chrysene	ND	57.7		µg/Kg-dry	1	4/27/2015 10:55:00 PM
Benzo(b)fluoranthene	ND	57.7		µg/Kg-dry	1	4/27/2015 10:55:00 PM
Benzo(k)fluoranthene	ND	57.7		µg/Kg-dry	1	4/27/2015 10:55:00 PM
Benzo(a)pyrene	ND	57.7		µg/Kg-dry	1	4/27/2015 10:55:00 PM
Indeno(1,2,3-cd)pyrene	ND	57.7		µg/Kg-dry	1	4/27/2015 10:55:00 PM
Dibenz(a,h)anthracene	ND	57.7		µg/Kg-dry	1	4/27/2015 10:55:00 PM
Benzo(g,h,i)perylene	62.0	57.7		µg/Kg-dry	1	4/27/2015 10:55:00 PM
Surr: 2-Fluorobiphenyl	74.0	42.7-132		%REC	1	4/27/2015 10:55:00 PM
Surr: Terphenyl-d14 (surr)	103	48.8-157		%REC	1	4/27/2015 10:55:00 PM
Gasoline by NWTPH-Gx				Batch ID: 10616		Analyst: BC
Gasoline	ND	7.55		mg/Kg-dry	1	4/24/2015 2:22:00 AM
Stoddard Solvent/Mineral Spirits	610	377	D	mg/Kg-dry	50	4/24/2015 6:54:00 PM
Surr: Toluene-d8	91.2	65-135		%REC	1	4/24/2015 2:22:00 AM
Surr: 4-Bromofluorobenzene	91.8	65-135		%REC	1	4/24/2015 2:22:00 AM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 10616		Analyst: BC
Dichlorodifluoromethane (CFC-12)	ND	0.0906		mg/Kg-dry	1	4/24/2015 2:22:00 AM
Chloromethane	ND	0.0906		mg/Kg-dry	1	4/24/2015 2:22:00 AM

Analytical Report

WO#: **1504152**

Date Reported: **4/30/2015**

Client: GeoEngineers **Collection Date:** 4/15/2015 8:50:00 AM

Project: Block 20 Rufus 2.0

Lab ID: 1504152-024 **Matrix:** Soil

Client Sample ID: **B-20-23-3.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: 10616		Analyst: BC
Vinyl chloride	ND	0.00302		mg/Kg-dry	1	4/24/2015 2:22:00 AM
Bromomethane	ND	0.136		mg/Kg-dry	1	4/24/2015 2:22:00 AM
Trichlorofluoromethane (CFC-11)	ND	0.0755		mg/Kg-dry	1	4/24/2015 2:22:00 AM
Chloroethane	ND	0.0906		mg/Kg-dry	1	4/24/2015 2:22:00 AM
1,1-Dichloroethene	ND	0.0755		mg/Kg-dry	1	4/24/2015 2:22:00 AM
Methylene chloride	ND	0.0302		mg/Kg-dry	1	4/24/2015 2:22:00 AM
trans-1,2-Dichloroethene	ND	0.0302		mg/Kg-dry	1	4/24/2015 2:22:00 AM
Methyl tert-butyl ether (MTBE)	ND	0.0755		mg/Kg-dry	1	4/24/2015 2:22:00 AM
1,1-Dichloroethane	ND	0.0302		mg/Kg-dry	1	4/24/2015 2:22:00 AM
2,2-Dichloropropane	ND	0.0755		mg/Kg-dry	1	4/24/2015 2:22:00 AM
cis-1,2-Dichloroethene	ND	0.0302		mg/Kg-dry	1	4/24/2015 2:22:00 AM
Chloroform	ND	0.0302		mg/Kg-dry	1	4/24/2015 2:22:00 AM
1,1,1-Trichloroethane (TCA)	ND	0.0302		mg/Kg-dry	1	4/24/2015 2:22:00 AM
1,1-Dichloropropene	ND	0.0302		mg/Kg-dry	1	4/24/2015 2:22:00 AM
Carbon tetrachloride	ND	0.0302		mg/Kg-dry	1	4/24/2015 2:22:00 AM
1,2-Dichloroethane (EDC)	ND	0.0453		mg/Kg-dry	1	4/24/2015 2:22:00 AM
Benzene	ND	0.0302		mg/Kg-dry	1	4/24/2015 2:22:00 AM
Trichloroethene (TCE)	ND	0.0302		mg/Kg-dry	1	4/24/2015 2:22:00 AM
1,2-Dichloropropane	ND	0.0302		mg/Kg-dry	1	4/24/2015 2:22:00 AM
Bromodichloromethane	ND	0.0302		mg/Kg-dry	1	4/24/2015 2:22:00 AM
Dibromomethane	ND	0.0604		mg/Kg-dry	1	4/24/2015 2:22:00 AM
cis-1,3-Dichloropropene	ND	0.0302		mg/Kg-dry	1	4/24/2015 2:22:00 AM
Toluene	ND	0.0302		mg/Kg-dry	1	4/24/2015 2:22:00 AM
trans-1,3-Dichloropropylene	ND	0.0453		mg/Kg-dry	1	4/24/2015 2:22:00 AM
1,1,2-Trichloroethane	ND	0.0453		mg/Kg-dry	1	4/24/2015 2:22:00 AM
1,3-Dichloropropane	ND	0.0755		mg/Kg-dry	1	4/24/2015 2:22:00 AM
Tetrachloroethene (PCE)	ND	0.0302		mg/Kg-dry	1	4/24/2015 2:22:00 AM
Dibromochloromethane	ND	0.0453		mg/Kg-dry	1	4/24/2015 2:22:00 AM
1,2-Dibromoethane (EDB)	ND	0.00755		mg/Kg-dry	1	4/24/2015 2:22:00 AM
Chlorobenzene	ND	0.0302		mg/Kg-dry	1	4/24/2015 2:22:00 AM
1,1,1,2-Tetrachloroethane	ND	0.0453		mg/Kg-dry	1	4/24/2015 2:22:00 AM
Ethylbenzene	ND	0.0453		mg/Kg-dry	1	4/24/2015 2:22:00 AM
m,p-Xylene	ND	0.0302		mg/Kg-dry	1	4/24/2015 2:22:00 AM
o-Xylene	ND	0.0302		mg/Kg-dry	1	4/24/2015 2:22:00 AM
Styrene	ND	0.0302		mg/Kg-dry	1	4/24/2015 2:22:00 AM
Isopropylbenzene	ND	0.121		mg/Kg-dry	1	4/24/2015 2:22:00 AM
Bromoform	ND	0.0302		mg/Kg-dry	1	4/24/2015 2:22:00 AM
1,1,2,2-Tetrachloroethane	ND	0.0302		mg/Kg-dry	1	4/24/2015 2:22:00 AM
n-Propylbenzene	ND	0.0302		mg/Kg-dry	1	4/24/2015 2:22:00 AM

Analytical Report

WO#: **1504152**
Date Reported: **4/30/2015**

Client: GeoEngineers
Collection Date: 4/15/2015 8:50:00 AM
Project: Block 20 Rufus 2.0
Lab ID: 1504152-024
Matrix: Soil
Client Sample ID: **B-20-23-3.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: 10616		Analyst: BC
Bromobenzene	ND	0.0453		mg/Kg-dry	1	4/24/2015 2:22:00 AM
1,3,5-Trimethylbenzene	ND	0.0302		mg/Kg-dry	1	4/24/2015 2:22:00 AM
2-Chlorotoluene	ND	0.0302		mg/Kg-dry	1	4/24/2015 2:22:00 AM
4-Chlorotoluene	ND	0.0302		mg/Kg-dry	1	4/24/2015 2:22:00 AM
tert-Butylbenzene	ND	0.0302		mg/Kg-dry	1	4/24/2015 2:22:00 AM
1,2,3-Trichloropropane	ND	0.0302		mg/Kg-dry	1	4/24/2015 2:22:00 AM
1,2,4-Trichlorobenzene	ND	0.0755		mg/Kg-dry	1	4/24/2015 2:22:00 AM
sec-Butylbenzene	ND	0.0302		mg/Kg-dry	1	4/24/2015 2:22:00 AM
4-Isopropyltoluene	ND	0.0302		mg/Kg-dry	1	4/24/2015 2:22:00 AM
1,3-Dichlorobenzene	ND	0.0302		mg/Kg-dry	1	4/24/2015 2:22:00 AM
1,4-Dichlorobenzene	ND	0.0302		mg/Kg-dry	1	4/24/2015 2:22:00 AM
n-Butylbenzene	ND	0.0302		mg/Kg-dry	1	4/24/2015 2:22:00 AM
1,2-Dichlorobenzene	ND	0.0302		mg/Kg-dry	1	4/24/2015 2:22:00 AM
1,2-Dibromo-3-chloropropane	ND	0.755		mg/Kg-dry	1	4/24/2015 2:22:00 AM
1,2,4-Trimethylbenzene	ND	0.0302		mg/Kg-dry	1	4/24/2015 2:22:00 AM
Hexachlorobutadiene	ND	0.151		mg/Kg-dry	1	4/24/2015 2:22:00 AM
Naphthalene	ND	0.0453		mg/Kg-dry	1	4/24/2015 2:22:00 AM
1,2,3-Trichlorobenzene	ND	0.0302		mg/Kg-dry	1	4/24/2015 2:22:00 AM
Surr: Dibromofluoromethane	94.7	63.7-129		%REC	1	4/24/2015 2:22:00 AM
Surr: Toluene-d8	96.4	64.3-131		%REC	1	4/24/2015 2:22:00 AM
Surr: 1-Bromo-4-fluorobenzene	96.8	63.1-141		%REC	1	4/24/2015 2:22:00 AM
Mercury by EPA Method 7471				Batch ID: 10632		Analyst: TN
Mercury	ND	0.274		mg/Kg-dry	1	4/27/2015 2:22:02 PM
Total Metals by EPA Method 6020				Batch ID: 10621		Analyst: TN
Arsenic	3.67	0.0854		mg/Kg-dry	1	4/24/2015 5:52:40 PM
Cadmium	ND	0.171		mg/Kg-dry	1	4/24/2015 5:52:40 PM
Chromium	38.2	0.0854		mg/Kg-dry	1	4/24/2015 5:52:40 PM
Lead	9.82	0.171		mg/Kg-dry	1	4/24/2015 5:52:40 PM
Sample Moisture (Percent Moisture)				Batch ID: R21985		Analyst: CG
Percent Moisture	13.9			wt%	1	4/24/2015 9:36:25 AM

Analytical Report

WO#: **1504152**

Date Reported: **4/30/2015**

Client: GeoEngineers **Collection Date:** 4/15/2015 10:15:00 AM

Project: Block 20 Rufus 2.0

Lab ID: 1504152-029 **Matrix:** Soil

Client Sample ID: **B-20-27-5.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 10615		Analyst: EC
Diesel (Fuel Oil)	ND	20.5		mg/Kg-dry	1	4/24/2015 4:31:00 AM
Heavy Oil	226	51.4		mg/Kg-dry	1	4/24/2015 4:31:00 AM
Surr: 2-Fluorobiphenyl	95.2	50-150		%REC	1	4/24/2015 4:31:00 AM
Surr: o-Terphenyl	99.9	50-150		%REC	1	4/24/2015 4:31:00 AM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 10614		Analyst: NG
Naphthalene	ND	53.7		µg/Kg-dry	1	4/27/2015 11:19:00 PM
2-Methylnaphthalene	ND	53.7		µg/Kg-dry	1	4/27/2015 11:19:00 PM
1-Methylnaphthalene	ND	53.7		µg/Kg-dry	1	4/27/2015 11:19:00 PM
Acenaphthylene	ND	53.7		µg/Kg-dry	1	4/27/2015 11:19:00 PM
Acenaphthene	ND	53.7		µg/Kg-dry	1	4/27/2015 11:19:00 PM
Fluorene	ND	53.7		µg/Kg-dry	1	4/27/2015 11:19:00 PM
Phenanthrene	130	53.7		µg/Kg-dry	1	4/27/2015 11:19:00 PM
Anthracene	ND	53.7		µg/Kg-dry	1	4/27/2015 11:19:00 PM
Fluoranthene	204	53.7		µg/Kg-dry	1	4/27/2015 11:19:00 PM
Pyrene	213	53.7		µg/Kg-dry	1	4/27/2015 11:19:00 PM
Benz(a)anthracene	126	53.7		µg/Kg-dry	1	4/27/2015 11:19:00 PM
Chrysene	135	53.7		µg/Kg-dry	1	4/27/2015 11:19:00 PM
Benzo(b)fluoranthene	144	53.7		µg/Kg-dry	1	4/27/2015 11:19:00 PM
Benzo(k)fluoranthene	ND	53.7		µg/Kg-dry	1	4/27/2015 11:19:00 PM
Benzo(a)pyrene	107	53.7		µg/Kg-dry	1	4/27/2015 11:19:00 PM
Indeno(1,2,3-cd)pyrene	164	53.7		µg/Kg-dry	1	4/27/2015 11:19:00 PM
Dibenz(a,h)anthracene	98.2	53.7		µg/Kg-dry	1	4/27/2015 11:19:00 PM
Benzo(g,h,i)perylene	134	53.7		µg/Kg-dry	1	4/27/2015 11:19:00 PM
Surr: 2-Fluorobiphenyl	79.2	42.7-132		%REC	1	4/27/2015 11:19:00 PM
Surr: Terphenyl-d14 (surr)	95.7	48.8-157		%REC	1	4/27/2015 11:19:00 PM
Gasoline by NWTPH-Gx				Batch ID: 10616		Analyst: BC
Gasoline	ND	4.53		mg/Kg-dry	1	4/24/2015 5:26:00 PM
Surr: Toluene-d8	91.5	65-135		%REC	1	4/24/2015 2:51:00 AM
Surr: 4-Bromofluorobenzene	93.6	65-135		%REC	1	4/24/2015 2:51:00 AM
Sample Moisture (Percent Moisture)				Batch ID: R21985		Analyst: CG
Percent Moisture	8.59			wt%	1	4/24/2015 9:36:25 AM

Analytical Report

WO#: **1504152**

Date Reported: **4/30/2015**

Client: GeoEngineers **Collection Date:** 4/15/2015 10:35:00 AM

Project: Block 20 Rufus 2.0

Lab ID: 1504152-033 **Matrix:** Soil

Client Sample ID: **B-20-27-17.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 10615		Analyst: EC
Diesel (Fuel Oil)	ND	18.7		mg/Kg-dry	1	4/24/2015 5:02:00 AM
Heavy Oil	ND	46.6		mg/Kg-dry	1	4/24/2015 5:02:00 AM
Surr: 2-Fluorobiphenyl	89.5	50-150		%REC	1	4/24/2015 5:02:00 AM
Surr: o-Terphenyl	91.4	50-150		%REC	1	4/24/2015 5:02:00 AM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 10614		Analyst: NG
Naphthalene	ND	54.6		µg/Kg-dry	1	4/27/2015 11:44:00 PM
2-Methylnaphthalene	ND	54.6		µg/Kg-dry	1	4/27/2015 11:44:00 PM
1-Methylnaphthalene	ND	54.6		µg/Kg-dry	1	4/27/2015 11:44:00 PM
Acenaphthylene	ND	54.6		µg/Kg-dry	1	4/27/2015 11:44:00 PM
Acenaphthene	ND	54.6		µg/Kg-dry	1	4/27/2015 11:44:00 PM
Fluorene	ND	54.6		µg/Kg-dry	1	4/27/2015 11:44:00 PM
Phenanthrene	ND	54.6		µg/Kg-dry	1	4/27/2015 11:44:00 PM
Anthracene	ND	54.6		µg/Kg-dry	1	4/27/2015 11:44:00 PM
Fluoranthene	ND	54.6		µg/Kg-dry	1	4/27/2015 11:44:00 PM
Pyrene	ND	54.6		µg/Kg-dry	1	4/27/2015 11:44:00 PM
Benz(a)anthracene	ND	54.6		µg/Kg-dry	1	4/27/2015 11:44:00 PM
Chrysene	ND	54.6		µg/Kg-dry	1	4/27/2015 11:44:00 PM
Benzo(b)fluoranthene	ND	54.6		µg/Kg-dry	1	4/27/2015 11:44:00 PM
Benzo(k)fluoranthene	ND	54.6		µg/Kg-dry	1	4/27/2015 11:44:00 PM
Benzo(a)pyrene	ND	54.6		µg/Kg-dry	1	4/27/2015 11:44:00 PM
Indeno(1,2,3-cd)pyrene	ND	54.6		µg/Kg-dry	1	4/27/2015 11:44:00 PM
Dibenz(a,h)anthracene	ND	54.6		µg/Kg-dry	1	4/27/2015 11:44:00 PM
Benzo(g,h,i)perylene	ND	54.6		µg/Kg-dry	1	4/27/2015 11:44:00 PM
Surr: 2-Fluorobiphenyl	85.0	42.7-132		%REC	1	4/27/2015 11:44:00 PM
Surr: Terphenyl-d14 (surr)	110	48.8-157		%REC	1	4/27/2015 11:44:00 PM
Gasoline by NWTPH-Gx				Batch ID: 10616		Analyst: BC
Gasoline	ND	4.22		mg/Kg-dry	1	4/24/2015 5:56:00 PM
Surr: Toluene-d8	92.8	65-135		%REC	1	4/24/2015 3:20:00 AM
Surr: 4-Bromofluorobenzene	94.1	65-135		%REC	1	4/24/2015 3:20:00 AM
Sample Moisture (Percent Moisture)				Batch ID: R21985		Analyst: CG
Percent Moisture	8.66			wt%	1	4/24/2015 9:36:25 AM

Work Order: 1504152
CLIENT: GeoEngineers
Project: Block 20 Rufus 2.0

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID **MB-10621** SampType: **MBLK** Units: **mg/Kg** Prep Date: **4/24/2015** RunNo: **21995**
Client ID: **MBLKS** Batch ID: **10621** Analysis Date: **4/24/2015** SeqNo: **417496**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.100									
Cadmium	ND	0.200									
Chromium	ND	0.100									
Lead	ND	0.200									

Sample ID **LCS-10621** SampType: **LCS** Units: **mg/Kg** Prep Date: **4/24/2015** RunNo: **21995**
Client ID: **LCSS** Batch ID: **10621** Analysis Date: **4/24/2015** SeqNo: **417497**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	173	0.100	161.0	0	107	70.8	129.8				
Cadmium	199	0.200	190.0	0	105	73.2	126.3				
Chromium	108	0.100	87.90	0	123	69.1	130.8				
Lead	147	0.200	138.0	0	107	73.2	127.5				

Sample ID **1504151-004ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **4/24/2015** RunNo: **21995**
Client ID: **BATCH** Batch ID: **10621** Analysis Date: **4/24/2015** SeqNo: **417499**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	5.46	0.110						7.840	35.8	20	R
Cadmium	ND	0.221						0		20	
Chromium	66.0	0.110						81.67	21.3	20	R
Lead	5.62	0.221						6.647	16.7	20	

NOTES:
R - High RPD observed. The method is in control as indicated by the laboratory control sample (LCS).

Sample ID **1504151-004AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **4/24/2015** RunNo: **21995**
Client ID: **BATCH** Batch ID: **10621** Analysis Date: **4/24/2015** SeqNo: **417501**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	61.9	0.110	55.20	7.840	97.9	75	125				
Cadmium	2.86	0.221	2.760	0.02622	103	75	125				

Date: *4/30/2015*

Work Order: 1504152
CLIENT: GeoEngineers
Project: Block 20 Rufus 2.0

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID **1504151-004AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **4/24/2015** RunNo: **21995**
Client ID: **BATCH** Batch ID: **10621** Analysis Date: **4/24/2015** SeqNo: **417501**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	154	0.110	55.20	81.67	132	75	125				S
Lead	37.5	0.221	27.60	6.647	112	75	125				

NOTES:
S - Outlying spike recovery observed. MSD recovered within specification.

Sample ID **1504151-004AMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **4/24/2015** RunNo: **21995**
Client ID: **BATCH** Batch ID: **10621** Analysis Date: **4/24/2015** SeqNo: **417504**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	59.5	0.110	55.20	7.840	93.6	75	125	61.90	3.91	20	
Cadmium	2.69	0.221	2.760	0.02622	96.4	75	125	2.865	6.44	20	
Chromium	137	0.110	55.20	81.67	99.7	75	125	154.5	12.2	20	
Lead	34.8	0.221	27.60	6.647	102	75	125	37.50	7.41	20	

Work Order: 1504152
CLIENT: GeoEngineers
Project: Block 20 Rufus 2.0

QC SUMMARY REPORT

Mercury by EPA Method 7471

Sample ID	**MB-10632**	SampType:	**MBLK**			Units:	**mg/Kg**	Prep Date:	**4/27/2015**		RunNo:	**22016**	
Client ID:	**MBLKS**	Batch ID:	**10632**					Analysis Date:	**4/27/2015**		SeqNo:	**417926**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Mercury		ND	0.250										

Sample ID	**LCS-10632**	SampType:	**LCS**			Units:	**mg/Kg**	Prep Date:	**4/27/2015**		RunNo:	**22016**	
Client ID:	**LCSS**	Batch ID:	**10632**					Analysis Date:	**4/27/2015**		SeqNo:	**417927**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Mercury		5.85	0.250	5.000	0	117	80	120					

Sample ID	**1504228-001ADUP**	SampType:	**DUP**			Units:	**mg/Kg-dry**	Prep Date:	**4/27/2015**		RunNo:	**22016**	
Client ID:	**BATCH**	Batch ID:	**10632**					Analysis Date:	**4/27/2015**		SeqNo:	**417929**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Mercury		ND	0.301						0		20		

Sample ID	**1504228-001AMS**	SampType:	**MS**			Units:	**mg/Kg-dry**	Prep Date:	**4/27/2015**		RunNo:	**22016**	
Client ID:	**BATCH**	Batch ID:	**10632**					Analysis Date:	**4/27/2015**		SeqNo:	**417930**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Mercury		0.725	0.306	0.6127	0.03836	112	70	130					

Sample ID	**1504228-001AMSD**	SampType:	**MSD**			Units:	**mg/Kg-dry**	Prep Date:	**4/27/2015**		RunNo:	**22016**	
Client ID:	**BATCH**	Batch ID:	**10632**					Analysis Date:	**4/27/2015**		SeqNo:	**417950**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Mercury		0.733	0.306	0.6127	0.03836	113	70	130	0.7254	1.01	20		

Date: *4/30/2015*

Work Order: 1504152
CLIENT: GeoEngineers
Project: Block 20 Rufus 2.0

QC SUMMARY REPORT

Mercury (SW7470) with TCLP Extraction (EPA 1311)

Sample ID	**MB-10623**	SampType:	**MBLK**			Units:	**mg/L**	Prep Date:	**4/24/2015**	RunNo:	**21997**	
Client ID:	**MBLKS**	Batch ID:	**10623**					Analysis Date:	**4/24/2015**	SeqNo:	**417592**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		ND	0.00200									

Sample ID	**LCS-10623**	SampType:	**LCS**			Units:	**mg/L**	Prep Date:	**4/24/2015**	RunNo:	**21997**	
Client ID:	**LCSS**	Batch ID:	**10623**					Analysis Date:	**4/24/2015**	SeqNo:	**417593**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.00278	0.00200	0.002500	0	111	70	130				

Sample ID	**1504152-013ADUP**	SampType:	**DUP**			Units:	**mg/L**	Prep Date:	**4/24/2015**	RunNo:	**21997**	
Client ID:	**B-20-21-10.5**	Batch ID:	**10623**					Analysis Date:	**4/24/2015**	SeqNo:	**417597**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		ND	0.00200						0		20	

Sample ID	**1504152-013AMS**	SampType:	**MS**			Units:	**mg/L**	Prep Date:	**4/24/2015**	RunNo:	**21997**	
Client ID:	**B-20-21-10.5**	Batch ID:	**10623**					Analysis Date:	**4/24/2015**	SeqNo:	**417598**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.00234	0.00200	0.002500	0	93.6	70	130				

Sample ID	**1504152-013AMSD**	SampType:	**MSD**			Units:	**mg/L**	Prep Date:	**4/24/2015**	RunNo:	**21997**	
Client ID:	**B-20-21-10.5**	Batch ID:	**10623**					Analysis Date:	**4/24/2015**	SeqNo:	**417599**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.00259	0.00200	0.002500	0	104	70	130	0.002340	10.1	30	

Work Order: 1504152
CLIENT: GeoEngineers
Project: Block 20 Rufus 2.0

QC SUMMARY REPORT

Metals (SW6020) with TCLP Extraction (EPA 1311)

Sample ID	**MB-10620**	SampType:	**MBLK**			Units:	**mg/L**	Prep Date:	**4/24/2015**	RunNo:	**21998**	
Client ID:	**MBLKS**	Batch ID:	**10620**					Analysis Date:	**4/24/2015**	SeqNo:	**417628**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead		ND	0.500									

Sample ID	**LCS-10620**	SampType:	**LCS**			Units:	**mg/L**	Prep Date:	**4/24/2015**	RunNo:	**21998**	
Client ID:	**LCSS**	Batch ID:	**10620**					Analysis Date:	**4/24/2015**	SeqNo:	**417631**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead		2.46	0.500	2.500	0	98.4	65	135				

Sample ID	**1504151-009ADUP**	SampType:	**DUP**			Units:	**mg/L**	Prep Date:	**4/24/2015**	RunNo:	**21998**	
Client ID:	**BATCH**	Batch ID:	**10620**					Analysis Date:	**4/24/2015**	SeqNo:	**417633**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead		ND	0.500						0		30	

Sample ID	**1504151-009AMS**	SampType:	**MS**			Units:	**mg/L**	Prep Date:	**4/24/2015**	RunNo:	**21998**	
Client ID:	**BATCH**	Batch ID:	**10620**					Analysis Date:	**4/24/2015**	SeqNo:	**417634**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead		2.48	0.500	2.500	0.08627	95.7	65	135				

Sample ID	**1504151-009AMSD**	SampType:	**MSD**			Units:	**mg/L**	Prep Date:	**4/24/2015**	RunNo:	**21998**	
Client ID:	**BATCH**	Batch ID:	**10620**					Analysis Date:	**4/24/2015**	SeqNo:	**417640**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead		2.45	0.500	2.500	0.08627	94.7	65	135	2.478	0.954	30	

Work Order: 1504152
CLIENT: GeoEngineers
Project: Block 20 Rufus 2.0

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID **1504151-032ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **4/23/2015** RunNo: **21984**
Client ID: **BATCH** Batch ID: **10615** Analysis Date: **4/23/2015** SeqNo: **417289**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	21.8						0		30	
Heavy Oil	ND	54.6						0		30	
Surr: 2-Fluorobiphenyl	20.0		21.82		91.7	50	150		0		
Surr: o-Terphenyl	20.4		21.82		93.6	50	150		0		

Sample ID **LCS-10615** SampType: **LCS** Units: **mg/Kg** Prep Date: **4/23/2015** RunNo: **21984**
Client ID: **LCSS** Batch ID: **10615** Analysis Date: **4/23/2015** SeqNo: **417306**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	486	20.0	500.0	0	97.2	65	135				
Surr: 2-Fluorobiphenyl	19.5		20.00		97.5	50	150				
Surr: o-Terphenyl	23.5		20.00		118	50	150				

Sample ID **MB-10615** SampType: **MBLK** Units: **mg/Kg** Prep Date: **4/23/2015** RunNo: **21984**
Client ID: **MBLKS** Batch ID: **10615** Analysis Date: **4/23/2015** SeqNo: **417307**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	20.0									
Heavy Oil	ND	50.0									
Surr: 2-Fluorobiphenyl	19.3		20.00		96.6	50	150				
Surr: o-Terphenyl	19.2		20.00		96.0	50	150				

Work Order: 1504152
CLIENT: GeoEngineers
Project: Block 20 Rufus 2.0

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1504192-001ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **4/23/2015** RunNo: **22048**
Client ID: **BATCH** Batch ID: **10614** Analysis Date: **4/27/2015** SeqNo: **418547**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	55.1						0		30	
2-Methylnaphthalene	ND	55.1						0		30	
1-Methylnaphthalene	ND	55.1						0		30	
Acenaphthylene	ND	55.1						0		30	
Acenaphthene	ND	55.1						0		30	
Fluorene	ND	55.1						0		30	
Phenanthrene	ND	55.1						0		30	
Anthracene	ND	55.1						0		30	
Fluoranthene	ND	55.1						0		30	
Pyrene	ND	55.1						0		30	
Benz(a)anthracene	ND	55.1						0		30	
Chrysene	ND	55.1						0		30	
Benzo(b)fluoranthene	ND	55.1						0		30	
Benzo(k)fluoranthene	ND	55.1						0		30	
Benzo(a)pyrene	ND	55.1						0		30	
Indeno(1,2,3-cd)pyrene	ND	55.1						0		30	
Dibenz(a,h)anthracene	ND	55.1						0		30	
Benzo(g,h,i)perylene	ND	55.1						0		30	
Surr: 2-Fluorobiphenyl	484		550.9		87.9	42.7	132		0		
Surr: Terphenyl-d14 (surr)	545		550.9		99.0	48.8	157		0		

Sample ID **1504192-002AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **4/23/2015** RunNo: **22048**
Client ID: **BATCH** Batch ID: **10614** Analysis Date: **4/27/2015** SeqNo: **418549**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	1,070	56.9	1,139	0	93.9	42.9	138				
2-Methylnaphthalene	982	56.9	1,139	0	86.3	42.8	151				
1-Methylnaphthalene	862	56.9	1,139	0	75.7	41.6	148				
Acenaphthylene	1,010	56.9	1,139	0	88.8	32.6	160				
Acenaphthene	1,200	56.9	1,139	0	106	46.3	142				
Fluorene	1,210	56.9	1,139	0	106	43.4	153				

Work Order: 1504152
CLIENT: GeoEngineers
Project: Block 20 Rufus 2.0

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1504192-002AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **4/23/2015** RunNo: **22048**
Client ID: **BATCH** Batch ID: **10614** Analysis Date: **4/27/2015** SeqNo: **418549**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenanthrene	1,130	56.9	1,139	0	99.5	45.5	140				
Anthracene	1,090	56.9	1,139	0	96.0	32.6	160				
Fluoranthene	1,030	56.9	1,139	0	90.6	44.6	161				
Pyrene	1,010	56.9	1,139	0	88.7	48.3	158				
Benz(a)anthracene	1,080	56.9	1,139	0	95.2	57.5	169				
Chrysene	1,180	56.9	1,139	0	104	45.2	146				
Benzo(b)fluoranthene	1,540	56.9	1,139	0	135	42.2	168				
Benzo(k)fluoranthene	1,290	56.9	1,139	0	113	48	161				
Benzo(a)pyrene	1,190	56.9	1,139	0	105	34.4	179				
Indeno(1,2,3-cd)pyrene	1,320	56.9	1,139	0	116	41.1	165				
Dibenz(a,h)anthracene	1,420	56.9	1,139	0	125	38.1	166				
Benzo(g,h,i)perylene	1,280	56.9	1,139	0	112	45.6	157				
Surr: 2-Fluorobiphenyl	241		569.4		42.3	42.7	132				S
Surr: Terphenyl-d14 (surr)	506		569.4		88.9	48.8	157				

NOTES:
S - Outlying surrogate recovery observed. The method is in control as indicated by the LCS.

Sample ID **LCS-10614** SampType: **LCS** Units: **µg/Kg** Prep Date: **4/23/2015** RunNo: **22048**
Client ID: **LCSS** Batch ID: **10614** Analysis Date: **4/27/2015** SeqNo: **418559**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	962	50.0	1,000	0	96.2	61.6	125				
2-Methylnaphthalene	879	50.0	1,000	0	87.9	58.2	129				
1-Methylnaphthalene	933	50.0	1,000	0	93.3	56.4	132				
Acenaphthylene	883	50.0	1,000	0	88.3	52.2	133				
Acenaphthene	1,020	50.0	1,000	0	102	54	131				
Fluorene	1,000	50.0	1,000	0	100	53.4	131				
Phenanthrene	950	50.0	1,000	0	95.0	55.6	128				
Anthracene	914	50.0	1,000	0	91.4	51	132				
Fluoranthene	874	50.0	1,000	0	87.4	48.4	134				
Pyrene	864	50.0	1,000	0	86.4	48.6	135				
Benz(a)anthracene	906	50.0	1,000	0	90.6	41.9	136				

Work Order: 1504152
CLIENT: GeoEngineers
Project: Block 20 Rufus 2.0

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **LCS-10614** SampType: **LCS** Units: **µg/Kg** Prep Date: **4/23/2015** RunNo: **22048**
Client ID: **LCSS** Batch ID: **10614** Analysis Date: **4/27/2015** SeqNo: **418559**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chrysene	1,010	50.0	1,000	0	101	51.4	135				
Benzo(b)fluoranthene	1,320	50.0	1,000	0	132	39.7	137				
Benzo(k)fluoranthene	1,090	50.0	1,000	0	109	45.7	138				
Benzo(a)pyrene	1,050	50.0	1,000	0	105	40.9	141				
Indeno(1,2,3-cd)pyrene	1,160	50.0	1,000	0	116	41	140				
Dibenz(a,h)anthracene	1,240	50.0	1,000	0	124	37.6	140				
Benzo(g,h,i)perylene	1,140	50.0	1,000	0	114	45	134				
Surr: 2-Fluorobiphenyl	446		500.0		89.1	42.7	132				
Surr: Terphenyl-d14 (surr)	444		500.0		88.8	48.8	157				

Sample ID **MB-10614** SampType: **MBLK** Units: **µg/Kg** Prep Date: **4/23/2015** RunNo: **22048**
Client ID: **MBLKS** Batch ID: **10614** Analysis Date: **4/27/2015** SeqNo: **418560**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	50.0									
2-Methylnaphthalene	ND	50.0									
1-Methylnaphthalene	ND	50.0									
Acenaphthylene	ND	50.0									
Acenaphthene	ND	50.0									
Fluorene	ND	50.0									
Phenanthrene	ND	50.0									
Anthracene	ND	50.0									
Fluoranthene	ND	50.0									
Pyrene	ND	50.0									
Benz(a)anthracene	ND	50.0									
Chrysene	ND	50.0									
Benzo(b)fluoranthene	ND	50.0									
Benzo(k)fluoranthene	ND	50.0									
Benzo(a)pyrene	ND	50.0									
Indeno(1,2,3-cd)pyrene	ND	50.0									
Dibenz(a,h)anthracene	ND	50.0									

Date: *4/30/2015*

Work Order: 1504152
CLIENT: GeoEngineers
Project: Block 20 Rufus 2.0

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **MB-10614** SampType: **MBLK** Units: **µg/Kg** Prep Date: **4/23/2015** RunNo: **22048**
Client ID: **MBLKS** Batch ID: **10614** Analysis Date: **4/27/2015** SeqNo: **418560**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzo(g,h,i)perylene	ND	50.0									
Surr: 2-Fluorobiphenyl	439		500.0		87.7	42.7	132				
Surr: Terphenyl-d14 (surr)	474		500.0		94.8	48.8	157				

Sample ID **CCV-E-10614** SampType: **CCV** Units: **µg/L** Prep Date: **4/28/2015** RunNo: **22048**
Client ID: **CCV** Batch ID: **10614** Analysis Date: **4/28/2015** SeqNo: **418766**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	1,010	50.0	1,000	0	101	80	120				
2-Methylnaphthalene	1,050	50.0	1,000	0	105	80	120				
1-Methylnaphthalene	1,010	50.0	1,000	0	101	80	120				
Phenanthrene	948	50.0	1,000	0	94.8	80	120				
Fluoranthene	974	50.0	1,000	0	97.4	80	120				
Pyrene	976	50.0	1,000	0	97.6	80	120				
Benz(a)anthracene	1,000	50.0	1,000	0	100	80	120				
Chrysene	1,200	50.0	1,000	0	120	80	120				
Benzo(b)fluoranthene	1,190	50.0	1,000	0	119	80	120				
Surr: 2-Fluorobiphenyl	540		500.0		108	50.4	142				
Surr: Terphenyl-d14 (surr)	478		500.0		95.6	48.8	157				

Work Order: 1504152
CLIENT: GeoEngineers
Project: Block 20 Rufus 2.0

QC SUMMARY REPORT

Gasoline by NWTPH-Gx

Sample ID **1504152-013BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **4/23/2015** RunNo: **21988**
Client ID: **B-20-21-10.5** Batch ID: **10616** Analysis Date: **4/23/2015** SeqNo: **417375**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	3.49						0		30	
Gasoline Range Organics (C6-C12)	62.6	3.49						60.71	3.03	30	
Surr: Toluene-d8	0.803		0.8734		91.9	65	135		0		
Surr: 4-Bromofluorobenzene	0.839		0.8734		96.1	65	135		0		

NOTES:
GRO - Indicates the presence of unresolved compounds eluting from toluene to dodecane (~C7->C12).

Sample ID **LCS-10616** SampType: **LCS** Units: **mg/Kg** Prep Date: **4/23/2015** RunNo: **21988**
Client ID: **LCSS** Batch ID: **10616** Analysis Date: **4/23/2015** SeqNo: **417384**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	23.7	5.00	25.00	0	94.9	65	135				
Surr: Toluene-d8	1.18		1.250		94.7	65	135				
Surr: 4-Bromofluorobenzene	1.18		1.250		94.1	65	135				

Sample ID **MB-10616** SampType: **MBLK** Units: **mg/Kg** Prep Date: **4/23/2015** RunNo: **21988**
Client ID: **MBLKS** Batch ID: **10616** Analysis Date: **4/23/2015** SeqNo: **417385**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	5.00									
Surr: Toluene-d8	1.15		1.250		92.1	65	135				
Surr: 4-Bromofluorobenzene	1.16		1.250		92.9	65	135				

Work Order: 1504152
CLIENT: GeoEngineers
Project: Block 20 Rufus 2.0

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID **1504152-013BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **4/23/2015** RunNo: **21987**
Client ID: **B-20-21-10.5** Batch ID: **10616** Analysis Date: **4/23/2015** SeqNo: **417358**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	ND	0.0419						0		30	
Chloromethane	ND	0.0419						0		30	
Vinyl chloride	ND	0.00140						0		30	
Bromomethane	ND	0.0629						0		30	
Trichlorofluoromethane (CFC-11)	ND	0.0349						0		30	
Chloroethane	ND	0.0419						0		30	
1,1-Dichloroethene	ND	0.0349						0		30	
Methylene chloride	ND	0.0140						0		30	
trans-1,2-Dichloroethene	ND	0.0140						0		30	
Methyl tert-butyl ether (MTBE)	ND	0.0349						0		30	
1,1-Dichloroethane	ND	0.0140						0		30	
2,2-Dichloropropane	ND	0.0349						0		30	
cis-1,2-Dichloroethene	ND	0.0140						0		30	
Chloroform	ND	0.0140						0		30	
1,1,1-Trichloroethane (TCA)	ND	0.0140						0		30	
1,1-Dichloropropene	ND	0.0140						0		30	
Carbon tetrachloride	ND	0.0140						0		30	
1,2-Dichloroethane (EDC)	ND	0.0210						0		30	
Benzene	ND	0.0140						0		30	
Trichloroethene (TCE)	ND	0.0140						0		30	
1,2-Dichloropropane	ND	0.0140						0		30	
Bromodichloromethane	ND	0.0140						0		30	
Dibromomethane	ND	0.0279						0		30	
cis-1,3-Dichloropropene	ND	0.0140						0		30	
Toluene	ND	0.0140						0		30	
trans-1,3-Dichloropropylene	ND	0.0210						0		30	
1,1,2-Trichloroethane	ND	0.0210						0		30	
1,3-Dichloropropane	ND	0.0349						0		30	
Tetrachloroethene (PCE)	ND	0.0140						0		30	
Dibromochloromethane	ND	0.0210						0		30	
1,2-Dibromoethane (EDB)	ND	0.00349						0		30	

Work Order: 1504152
CLIENT: GeoEngineers
Project: Block 20 Rufus 2.0

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID **1504152-013BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **4/23/2015** RunNo: **21987**
Client ID: **B-20-21-10.5** Batch ID: **10616** Analysis Date: **4/23/2015** SeqNo: **417358**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chlorobenzene	ND	0.0140						0		30	
1,1,1,2-Tetrachloroethane	ND	0.0210						0		30	
Ethylbenzene	ND	0.0210						0		30	
m,p-Xylene	0.0352	0.0140						0.03586	1.77	30	
o-Xylene	ND	0.0140						0		30	
Styrene	ND	0.0140						0		30	
Isopropylbenzene	ND	0.0559						0		30	
Bromoform	ND	0.0140						0		30	
1,1,2,2-Tetrachloroethane	ND	0.0140						0		30	
n-Propylbenzene	0.165	0.0140						0.1659	0.433	30	
Bromobenzene	ND	0.0210						0		30	
1,3,5-Trimethylbenzene	0.0199	0.0140						0.02100	5.29	30	
2-Chlorotoluene	ND	0.0140						0		30	
4-Chlorotoluene	ND	0.0140						0		30	
tert-Butylbenzene	ND	0.0140						0		30	
1,2,3-Trichloropropane	ND	0.0140						0		30	
1,2,4-Trichlorobenzene	0.0587	0.0349						0.06478	9.86	30	
sec-Butylbenzene	0.0599	0.0140						0.06051	0.934	30	
4-Isopropyltoluene	0.0651	0.0140						0.06578	1.05	30	
1,3-Dichlorobenzene	ND	0.0140						0		30	
1,4-Dichlorobenzene	ND	0.0140						0		30	
n-Butylbenzene	0.253	0.0140						0.2554	0.928	30	
1,2-Dichlorobenzene	0.0462	0.0140						0.04425	4.28	30	
1,2-Dibromo-3-chloropropane	ND	0.349						0		30	
1,2,4-Trimethylbenzene	0.107	0.0140						0.1092	1.87	30	
Hexachlorobutadiene	ND	0.0699						0		30	
Naphthalene	0.0753	0.0210						0.09049	18.3	30	
1,2,3-Trichlorobenzene	ND	0.0140						0		30	
Surr: Dibromofluoromethane	0.903		0.8734		103	63.7	129		0		
Surr: Toluene-d8	0.918		0.8734		105	64.3	131		0		
Surr: 1-Bromo-4-fluorobenzene	0.883		0.8734		101	63.1	141		0		

Work Order: 1504152
CLIENT: GeoEngineers
Project: Block 20 Rufus 2.0

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID **1504152-013BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **4/23/2015** RunNo: **21987**
Client ID: **B-20-21-10.5** Batch ID: **10616** Analysis Date: **4/23/2015** SeqNo: **417358**

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

Sample ID **1504152-014BMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **4/23/2015** RunNo: **21987**
Client ID: **B-20-21-13.0** Batch ID: **10616** Analysis Date: **4/24/2015** SeqNo: **417360**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	0.521	0.0368	0.6132	0	84.9	43.5	121				
Chloromethane	0.563	0.0368	0.6132	0.004719	91.1	45	130				
Vinyl chloride	0.695	0.00123	0.6132	0	113	51.2	146				
Bromomethane	1.36	0.0552	0.6132	0	222	21.3	120				S
Trichlorofluoromethane (CFC-11)	1.19	0.0307	0.6132	0	195	35	131				S
Chloroethane	0.790	0.0368	0.6132	0	129	43.8	117				S
Ethyl Ethane	0.761	0.0307	0.6132	0	124	70	130				
Vinyl acetate	0.527	0.0123	0.6132	0	85.9	70	130				
1,1-Dichloroethene	0.752	0.0307	0.6132	0	123	61.9	141				
Acetone	1.53	0.153	1.533	0	99.5	44.8	134				
3-Chloropropene	0.825	0.0307	0.6132	0	135	70	130				S
Iodomethane	0.818	0.0123	0.6132	0	133	26	106				S
Methylene chloride	0.631	0.0123	0.6132	0	103	54.7	142				
Carbon disulfide	1.00	0.0123	0.6132	0	163	40.6	152				S
Acrylonitrile	0.822	0.0123	0.6132	0	134	51	124				S
trans-1,2-Dichloroethene	0.743	0.0123	0.6132	0	121	52	136				
Methyl tert-butyl ether (MTBE)	0.644	0.0307	0.6132	0	105	54.4	132				
1,1-Dichloroethane	0.754	0.0123	0.6132	0	123	51.8	141				
2,2-Dichloropropane	0.799	0.0307	0.6132	0	130	36	123				S
cis-1,2-Dichloroethene	0.775	0.0123	0.6132	0	126	58.6	136				
(MEK) 2-Butanone	1.37	0.153	1.533	0	89.6	31.4	135				
Methyl acrylate	0.643	0.0123	0.6132	0	105	70	130				
Tetrahydrofuran	0.582	0.0123	0.6132	0	94.8	45.7	123				
Chloroform	0.659	0.0123	0.6132	0	107	53.2	129				
Bromochloromethane	0.748	0.0123	0.6132	0	122	52.2	137				
Propionitrile	ND	0.200	0.6132	0	0	70	130				S

Work Order: 1504152
CLIENT: GeoEngineers
Project: Block 20 Rufus 2.0

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID **1504152-014BMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **4/23/2015** RunNo: **21987**
Client ID: **B-20-21-13.0** Batch ID: **10616** Analysis Date: **4/24/2015** SeqNo: **417360**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1-Trichloroethane (TCA)	0.749	0.0123	0.6132	0	122	58.3	145				
Methacrylonitrile	0.531	0.0307	0.6132	0	86.6	70	130				
1,1-Dichloropropene	0.631	0.0123	0.6132	0	103	55.1	138				
Carbon tetrachloride	0.728	0.0123	0.6132	0	119	53.3	144				
1,2-Dichloroethane (EDC)	0.544	0.0184	0.6132	0	88.7	51.3	139				
Benzene	0.602	0.0123	0.6132	0.008858	96.8	63.5	133				
Butyl Chloride	ND	0.0307	0.6132	0	0	70	130				S
Trichloroethene (TCE)	0.710	0.0123	0.6132	0	116	68.6	132				
1,2-Dichloropropane	0.660	0.0123	0.6132	0	108	59	136				
Methyl methacrylate	ND	0.0123	0.6132	0	0	70	130				S
Bromodichloromethane	0.742	0.0123	0.6132	0	121	50.7	141				
Dibromomethane	0.772	0.0245	0.6132	0	126	50.6	137				
cis-1,3-Dichloropropene	0.690	0.0123	0.6132	0	112	50.4	138				
2-Nitropropane	1.14	0.0307	0.6132	0	186	43.4	157				S
Chloroacetonitrile	ND	0.0307	0.6132	0	0	70	130				S
Toluene	0.679	0.0123	0.6132	0.002542	110	63.4	132				
trans-1,3-Dichloropropylene	0.699	0.0184	0.6132	0	114	44.1	147				
Ethyl methacrylate	0.663	0.0123	0.6132	0	108	70	130				
Methyl Isobutyl Ketone (MIBK)	1.82	0.153	1.533	0	119	47.7	142				
1,1,2-Trichloroethane	0.652	0.0184	0.6132	0	106	51.6	137				
1,3-Dichloropropane	0.622	0.0307	0.6132	0	101	53.1	134				
Tetrachloroethene (PCE)	0.715	0.0123	0.6132	0	117	35.6	158				
Dibromochloromethane	0.733	0.0184	0.6132	0	120	55.3	140				
1,2-Dibromoethane (EDB)	0.760	0.00307	0.6132	0	124	50.4	136				
methyl n-butyl ketone	1.51	0.153	1.533	0	98.4	24.9	130				
Chlorobenzene	0.581	0.0123	0.6132	0	94.8	60	133				
1,1,1,2-Tetrachloroethane	0.619	0.0184	0.6132	0	101	53.1	142				
Ethylbenzene	0.604	0.0184	0.6132	0	98.6	54.5	134				
m,p-Xylene	1.19	0.0123	1.226	0.001962	96.6	53.1	132				
o-Xylene	0.593	0.0123	0.6132	0	96.8	53.3	139				
Styrene	0.628	0.0123	0.6132	0	102	51.1	132				

Work Order: 1504152
CLIENT: GeoEngineers
Project: Block 20 Rufus 2.0

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID **1504152-014BMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **4/23/2015** RunNo: **21987**
Client ID: **B-20-21-13.0** Batch ID: **10616** Analysis Date: **4/24/2015** SeqNo: **417360**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Isopropylbenzene	0.625	0.0491	0.6132	0.02286	98.2	58.9	138				
Bromoform	0.805	0.0123	0.6132	0	131	57.9	130				S
1,1,2,2-Tetrachloroethane	0.678	0.0123	0.6132	0	111	51.9	131				
n-Propylbenzene	0.692	0.0123	0.6132	0.08050	99.7	53.6	140				
Bromobenzene	0.627	0.0184	0.6132	0	102	54.2	140				
trans-1,4-Dichloro-2-butene	0.518	0.0123	0.6132	0	84.5	70	130				
1,3,5-Trimethylbenzene	0.611	0.0123	0.6132	0	99.6	51.8	136				
2-Chlorotoluene	0.624	0.0123	0.6132	0	102	51.6	136				
4-Chlorotoluene	0.611	0.0123	0.6132	0	99.7	50.1	139				
tert-Butylbenzene	0.613	0.0123	0.6132	0	99.9	50.5	135				
1,2,3-Trichloropropane	0.568	0.0123	0.6132	0	92.6	50.5	131				
Pentachloroethane	ND	0.0123	0.6132	0	0	70	130				S
1,2,4-Trichlorobenzene	0.540	0.0307	0.6132	0	88.0	50.8	130				
sec-Butylbenzene	0.652	0.0123	0.6132	0.02361	102	52.6	141				
1,4-Dioxane	ND	0.0123	0.6132	0	0	70	130				S
Chloroprene	ND	0.0123	0.6132	0	0	70	130				S
4-Isopropyltoluene	0.625	0.0123	0.6132	0.008858	100	52.9	134				
Ethyl acetate	0.597	0.0307	0.6132	0	97.3	40.1	139				
Nitrobenzene	ND	0.0123	0.6132	0	0	70	130				S
Hexane	0.745	0.0123	0.6132	0.009403	120	43.3	118				S
1,3-Dichlorobenzene	0.556	0.0123	0.6132	0	90.7	52.6	131				
1,4-Dichlorobenzene	0.556	0.0123	0.6132	0	90.7	52.9	129				
n-Butylbenzene	0.654	0.0123	0.6132	0.08020	93.5	52.6	130				
1,2-Dichlorobenzene	0.559	0.0123	0.6132	0.01566	88.6	55.8	129				
1,2-Dibromo-3-chloropropane	0.635	0.307	0.6132	0	104	40.5	131				
Hexachloroethane	ND	0.0123	0.6132	0	0	70	130				S
1,2,4-Trimethylbenzene	0.600	0.0123	0.6132	0	97.8	50.6	137				
Hexachloro-1,3-butadiene	0.624	0.0613	0.6132	0	102	40.6	158				
Naphthalene	0.525	0.0184	0.6132	0	85.6	52.3	124				
1,2,3-Trichlorobenzene	0.522	0.0123	0.6132	0	85.2	54.4	124				
Surr: Dibromofluoromethane	0.814		0.7665		106	63.7	129				

Work Order: 1504152
CLIENT: GeoEngineers
Project: Block 20 Rufus 2.0

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID **1504152-014BMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **4/23/2015** RunNo: **21987**
Client ID: **B-20-21-13.0** Batch ID: **10616** Analysis Date: **4/24/2015** SeqNo: **417360**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Toluene-d8	0.855		0.7665		111	64.3	131				
Surr: 1-Bromo-4-fluorobenzene	0.807		0.7665		105	63.1	141				

NOTES:
S - Outlying QC recoveries were observed. The method is in control as indicated by the LCS.

Sample ID **LCS-10616** SampType: **LCS** Units: **mg/Kg** Prep Date: **4/23/2015** RunNo: **21987**
Client ID: **LCSS** Batch ID: **10616** Analysis Date: **4/23/2015** SeqNo: **417368**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	0.762	0.0600	1.000	0	76.2	37.2	139				
Chloromethane	0.813	0.0600	1.000	0	81.3	38.8	132				
Vinyl chloride	0.940	0.00200	1.000	0	94.0	56.1	130				
Bromomethane	1.86	0.0900	1.000	0	186	41.3	148				S
Trichlorofluoromethane (CFC-11)	1.22	0.0500	1.000	0	122	42.9	147				
Chloroethane	1.03	0.0600	1.000	0	103	37.1	144				
1,1-Dichloroethene	0.877	0.0500	1.000	0	87.7	49.7	142				
Methylene chloride	0.975	0.0200	1.000	0	97.5	46.3	140				
trans-1,2-Dichloroethene	1.10	0.0200	1.000	0	110	68	130				
Methyl tert-butyl ether (MTBE)	1.01	0.0500	1.000	0	101	59.1	138				
1,1-Dichloroethane	1.01	0.0200	1.000	0	101	65.5	132				
2,2-Dichloropropane	1.22	0.0500	1.000	0	122	28.1	149				
cis-1,2-Dichloroethene	1.07	0.0200	1.000	0	107	71.3	135				
Chloroform	0.984	0.0200	1.000	0	98.4	67.5	129				
1,1,1-Trichloroethane (TCA)	1.09	0.0200	1.000	0	109	69	132				
1,1-Dichloropropene	0.959	0.0200	1.000	0	95.9	72.7	131				
Carbon tetrachloride	1.02	0.0200	1.000	0	102	63.4	137				
1,2-Dichloroethane (EDC)	0.912	0.0300	1.000	0	91.2	61.9	136				
Benzene	0.946	0.0200	1.000	0	94.6	64.3	133				
Trichloroethene (TCE)	0.942	0.0200	1.000	0	94.2	65.5	137				
1,2-Dichloropropane	0.808	0.0200	1.000	0	80.8	63.2	142				
Bromodichloromethane	0.997	0.0200	1.000	0	99.7	73.2	131				
Dibromomethane	1.04	0.0400	1.000	0	104	70	130				

Work Order: 1504152
CLIENT: GeoEngineers
Project: Block 20 Rufus 2.0

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID **LCS-10616** SampType: **LCS** Units: **mg/Kg** Prep Date: **4/23/2015** RunNo: **21987**
Client ID: **LCSS** Batch ID: **10616** Analysis Date: **4/23/2015** SeqNo: **417368**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
cis-1,3-Dichloropropene	0.977	0.0200	1.000	0	97.7	59.1	143				
Toluene	0.920	0.0200	1.000	0	92.0	67.3	138				
trans-1,3-Dichloropropylene	0.989	0.0300	1.000	0	98.9	49.2	149				
1,1,2-Trichloroethane	0.897	0.0300	1.000	0	89.7	74.5	129				
1,3-Dichloropropane	0.874	0.0500	1.000	0	87.4	70	130				
Tetrachloroethene (PCE)	0.916	0.0200	1.000	0	91.6	52.7	150				
Dibromochloromethane	0.990	0.0300	1.000	0	99.0	70.6	144				
1,2-Dibromoethane (EDB)	1.04	0.00500	1.000	0	104	70	130				
Chlorobenzene	0.936	0.0200	1.000	0	93.6	76.1	123				
1,1,1,2-Tetrachloroethane	0.971	0.0300	1.000	0	97.1	74.8	131				
Ethylbenzene	0.955	0.0300	1.000	0	95.5	74	129				
m,p-Xylene	1.91	0.0200	2.000	0	95.4	79.8	128				
o-Xylene	0.952	0.0200	1.000	0	95.2	72.7	124				
Styrene	1.01	0.0200	1.000	0	101	76.8	130				
Isopropylbenzene	0.948	0.0800	1.000	0	94.8	70	130				
Bromoform	1.21	0.0200	1.000	0	121	67	154				
1,1,2,2-Tetrachloroethane	1.12	0.0200	1.000	0	112	60	130				
n-Propylbenzene	0.971	0.0200	1.000	0	97.1	74.8	125				
Bromobenzene	1.00	0.0300	1.000	0	100	49.2	144				
1,3,5-Trimethylbenzene	0.968	0.0200	1.000	0	96.8	74.6	123				
2-Chlorotoluene	0.986	0.0200	1.000	0	98.6	76.7	129				
4-Chlorotoluene	0.972	0.0200	1.000	0	97.2	77.5	125				
tert-Butylbenzene	0.954	0.0200	1.000	0	95.4	66.2	130				
1,2,3-Trichloropropane	0.910	0.0200	1.000	0	91.0	67.9	136				
1,2,4-Trichlorobenzene	0.840	0.0500	1.000	0	84.0	65.6	137				
sec-Butylbenzene	0.981	0.0200	1.000	0	98.1	75.6	133				
4-Isopropyltoluene	0.949	0.0200	1.000	0	94.9	76.8	131				
1,3-Dichlorobenzene	0.896	0.0200	1.000	0	89.6	72.8	128				
1,4-Dichlorobenzene	0.896	0.0200	1.000	0	89.6	72.6	126				
n-Butylbenzene	0.905	0.0200	1.000	0	90.5	65.3	136				
1,2-Dichlorobenzene	0.895	0.0200	1.000	0	89.5	72.8	126				

Work Order: 1504152
CLIENT: GeoEngineers
Project: Block 20 Rufus 2.0

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID **LCS-10616** SampType: **LCS** Units: **mg/Kg** Prep Date: **4/23/2015** RunNo: **21987**
Client ID: **LCSS** Batch ID: **10616** Analysis Date: **4/23/2015** SeqNo: **417368**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2-Dibromo-3-chloropropane	0.924	0.500	1.000	0	92.4	61.2	139				
1,2,4-Trimethylbenzene	0.950	0.0200	1.000	0	95.0	77.5	129				
Hexachlorobutadiene	0.998	0.100	1.000	0	99.8	42	151				
Naphthalene	0.806	0.0300	1.000	0	80.6	62.3	134				
1,2,3-Trichlorobenzene	0.806	0.0200	1.000	0	80.6	62.1	140				
Surr: Dibromofluoromethane	1.28		1.250		102	63.7	129				
Surr: Toluene-d8	1.19		1.250		95.5	64.3	131				
Surr: 1-Bromo-4-fluorobenzene	1.31		1.250		105	63.1	141				

NOTES:
S - Outlying QC recoveries were observed (Bromomethane; high bias). Samples are non-detect for this analyte, no further action required.

Sample ID **MB-10616** SampType: **MBLK** Units: **mg/Kg** Prep Date: **4/23/2015** RunNo: **21987**
Client ID: **MBLKS** Batch ID: **10616** Analysis Date: **4/23/2015** SeqNo: **417369**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	ND	0.0600									
Chloromethane	ND	0.0600									
Vinyl chloride	ND	0.00200									
Bromomethane	ND	0.0900									
Trichlorofluoromethane (CFC-11)	ND	0.0500									
Chloroethane	ND	0.0600									
1,1-Dichloroethene	ND	0.0500									
Methylene chloride	ND	0.0200									
trans-1,2-Dichloroethene	ND	0.0200									
Methyl tert-butyl ether (MTBE)	ND	0.0500									
1,1-Dichloroethane	ND	0.0200									
2,2-Dichloropropane	ND	0.0500									
cis-1,2-Dichloroethene	ND	0.0200									
Chloroform	ND	0.0200									
1,1,1-Trichloroethane (TCA)	ND	0.0200									
1,1-Dichloropropene	ND	0.0200									
Carbon tetrachloride	ND	0.0200									

Work Order: 1504152
CLIENT: GeoEngineers
Project: Block 20 Rufus 2.0

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID **MB-10616** SampType: **MBLK** Units: **mg/Kg** Prep Date: **4/23/2015** RunNo: **21987**
Client ID: **MBLKS** Batch ID: **10616** Analysis Date: **4/23/2015** SeqNo: **417369**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2-Dichloroethane (EDC)	ND	0.0300									
Benzene	ND	0.0200									
Trichloroethene (TCE)	ND	0.0200									
1,2-Dichloropropane	ND	0.0200									
Bromodichloromethane	ND	0.0200									
Dibromomethane	ND	0.0400									
cis-1,3-Dichloropropene	ND	0.0200									
Toluene	ND	0.0200									
trans-1,3-Dichloropropylene	ND	0.0300									
1,1,2-Trichloroethane	ND	0.0300									
1,3-Dichloropropane	ND	0.0500									
Tetrachloroethene (PCE)	ND	0.0200									
Dibromochloromethane	ND	0.0300									
1,2-Dibromoethane (EDB)	ND	0.00500									
Chlorobenzene	ND	0.0200									
1,1,1,2-Tetrachloroethane	ND	0.0300									
Ethylbenzene	ND	0.0300									
m,p-Xylene	ND	0.0200									
o-Xylene	ND	0.0200									
Styrene	ND	0.0200									
Isopropylbenzene	ND	0.0800									
Bromoform	ND	0.0200									
1,1,2,2-Tetrachloroethane	ND	0.0200									
n-Propylbenzene	ND	0.0200									
Bromobenzene	ND	0.0300									
1,3,5-Trimethylbenzene	ND	0.0200									
2-Chlorotoluene	ND	0.0200									
4-Chlorotoluene	ND	0.0200									
tert-Butylbenzene	ND	0.0200									
1,2,3-Trichloropropane	ND	0.0200									
1,2,4-Trichlorobenzene	ND	0.0500									

Work Order: 1504152
CLIENT: GeoEngineers
Project: Block 20 Rufus 2.0

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID **MB-10616** SampType: **MBLK** Units: **mg/Kg** Prep Date: **4/23/2015** RunNo: **21987**
Client ID: **MBLKS** Batch ID: **10616** Analysis Date: **4/23/2015** SeqNo: **417369**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
sec-Butylbenzene	ND	0.0200									
4-Isopropyltoluene	ND	0.0200									
1,3-Dichlorobenzene	ND	0.0200									
1,4-Dichlorobenzene	ND	0.0200									
n-Butylbenzene	ND	0.0200									
1,2-Dichlorobenzene	ND	0.0200									
1,2-Dibromo-3-chloropropane	ND	0.500									
1,2,4-Trimethylbenzene	ND	0.0200									
Hexachlorobutadiene	ND	0.100									
Naphthalene	ND	0.0300									
1,2,3-Trichlorobenzene	ND	0.0200									
Surr: Dibromofluoromethane	1.13		1.250		90.1	63.7	129				
Surr: Toluene-d8	1.18		1.250		94.7	64.3	131				
Surr: 1-Bromo-4-fluorobenzene	1.26		1.250		101	63.1	141				

Sample Log-In Check List

Client Name:	**GEI**	Work Order Number:	**1504152**
Logged by:	**Clare Griggs**	Date Received:	**4/15/2015 4:40:00 PM**

Chain of Custody

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

Log In

3.	Coolers are present?	Yes ☑	No ☐	NA ☐
4.	Shipping container/cooler in good condition?	Yes ☑	No ☐	
5.	Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Required ☑
6.	Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
7.	Were all coolers received at a temperature of >0°C to 10.0°C	Yes ☐	No ☑	NA ☐
	Please refer to item information.			
8.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
9.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
10.	Are samples properly preserved?	Yes ☑	No ☐	
11.	Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
12.	Is the headspace in the VOA vials?	Yes ☐	No ☐	NA ☑
13.	Did all samples containers arrive in good condition(unbroken)?	Yes ☑	No ☐	
14.	Does paperwork match bottle labels?	Yes ☑	No ☐	
15.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
16.	Is it clear what analyses were requested?	Yes ☑	No ☐	
17.	Were all holding times able to be met?	Yes ☑	No ☐	

Special Handling (if applicable)

18.	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:			

19. Additional remarks:

Item Information

Item #	Temp ºC	Condition
Cooler	12.9	
Sample	12.9	
Temp Blank	11.8	

Fremont Analytical

Chain of Custody Record

3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Laboratory Project No (internal): 1504152
Date: 4/15/2015
Page: 1 of 4

Client: GEOENGINEERS LLC
Address:
City, State, Zip: Tel:
Reports To (PM): JESSICA SMITH Fax:

Project Name: BLOCK 20 BOEING 2.0
Location: SEATTLE WA 98101
Collected by: NATHAN SOLOMON
Email: nsolomon@geoengineers.com Project No: 20434-001-24

*Matrix Codes: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, WW = Waste Water

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOC (EPA 8260)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SEMI VOC (EPA 8270)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Metals** (6020) / (SW 3)	Total Cr	Chromium VI (D)	Arsenic (6020)	CHR (8011)	HOLD	Comment/Length
1	B-20-27-20.0	4.15.15	1045	SOIL															X	
2	B-20-27-23.5		1040																X	
3	B-20-22-0.5		1115																X	
4	B-20-22-3.0		1120																X	
5	B-20-22-7.5		1130							X		X							X	
6	B-20-22-5.0		1125																X	
7	B-20-22-10.0		1135																X	
8	B-20-22-12.5		1140																X	
9	B-20-22-14.0		1145																X	
10	B-20-21-3.0	✓	1240	✓															X	

**Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sn Sr Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client: ☐ Disposal by Lab (A fee may be assessed if samples are retained after 30 days.)

Special Remarks: PLEASE CONTACT JESS FOR ANALYTICS

Relinquished	Date/Time	Received	Date/Time
X	4.15.15 / 1624	X	4/15/15 1640
Relinquished	Date/Time	Received	Date/Time
X		X	

TAT -> SameDay* NextDay* 2 Day 3 Day STD
*Please coordinate with the lab in advance

Distribution: White - Lab, Yellow - File, Pink - Originator

www.fremontanalytical.com

Fremont Analytical

Chain of Custody Record

3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Laboratory Project No (Internal): _____

Date: 4/15/2015 Page: 2 of 3 4

Client: GEOENGINEERS INC.
Address: _____
City, State, Zip _____ Tel: _____
Reports To (PM): JESSICA SMITH Fax: _____

Project Name: BLOCK 20 ROFS 2.0
Location: SEATTLE WA 98101
Collected by: NATHAN SOLOMON
Email: NSOLOMON@GEOENGINEERS No: 20434-001-24

*Matrix Codes: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, WW = Waste Water

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOC (EPA 8260)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SEMI VOL (EPA 8270)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Metals** (dissd / ICP 6)	Total (T) / Dissolved (D)	Anions (IC)***	ERE (8011)	TCLP Lead	HOLD	Comments/Depth
1 B-20-21-5.5	4/15/15	1245	SOIL															X	
2 B-20-21-8.0		1250																X	
3 B-20-21-10.5		1255		X			X		X	X	X	X				X		X	
4 B-20-21-13.0		1300					X		X									X	
5 B-20-25-2.0		1845					X		X	X	X	X						X	
6 B-20-25-4.5		1350																X	
7 B-20-25-7.0		1355																X	
8 B-20-25-10.0		1400																X	
9 B-20-25-12.5		1405							X		X							X	
10 B-20-25-15.0	✓	1410	✓															X	

**Metals Analysis (Circle): (MTCA-5) RCRA-8 Priority Pollutant TAL (individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab (A fee may be assessed if samples are retained over 30 days)

Special Remarks:
(X) added 04-23-15
BT

Relinquished	Date/Time	Received	Date/Time
x	4.15.15/1640	x	4/15/15 1640
Relinquished	Date/Time	Received	Date/Time
x		x	

TAT -> SameDay^ NextDay^ 2 Day 3 Day STD
^Please coordinate with the lab in advance

Distribution: White - Lab, Yellow - File, Pink - Originator

www.fremontanalytical.com

Fremont Analytical

Chain of Custody Record

3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Laboratory Project No (internal): _____

Date: _____

Page: 3 of 3 4

Client: GEOENGINEERS INC.
Address: _____
City, State, Zip _____ Tel: _____
Reports To (PM): JESSICA SMITH Fax:

Project Name: BLOCK 20 RUFUS 2.0
Location: SEATTLE WA 98101
Collected by: NATHAN SALAMON
Email: NSALOMON@GEOENGINEERS Project No: 20434-001-24

*Matrix Codes: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, WW = Waste Water

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOC (EPA 8260)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SEMI VOC (EPA 8270)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Metals** (6010B / 200.8)	Total (T) / Dissolved (D)	Anions (IC)***	EDB (8011)			HOLD	Comments/Depth
1	B-20-25-17.5	4.15.15	1415	SOIL																X	
2	B-20-25-19.0	"	1420	"																X	
3	TRIPBLANK_041515	4.15.15	N/A	LIQUID																X	
4	TEMPBLANK_041515	4.15.15	N/A	LIQUID																X	
5	B-20-23-3.0	4.15.15	850	Soil	X		X	X		X			X							X	
6	B-20-23-5.5	"	910	"																X	
7	B-20-23-8.0	"	920	"																X	
8	B-20-23-10.5	"	940	"																X	
9	B-20-23-13.0	"	1000	"																X	
10	B-20-27-5.0	"	1015	"			X	X		X										X	

**Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate-Nitrite

Special Remarks:

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab (A fee may be assessed if samples are retained after 60 days.)

Relinquished	Date/Time	Received	Date/Time
X	4.15.15 / 1644	X	4/15/15 1640
Relinquished	Date/Time	Received	Date/Time
X		X	

TAT -> SameDay^ NextDay^ 2 Day 3 Day STD

^Please coordinate with the lab in advance

Distribution: White - Lab, Yellow - File, Pink - Originator

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Chain of Custody Record

Fremont Analytical

3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Laboratory Project No (internal): _____

Date: 4/

Page: 4 of 4

Client: GEOENGINEERS INC.
Address: _____
City, State, Zip _____
Tel: _____ Fax: _____

Project Name: BLOCK 20 RUFUS 2.0
Project No: 20434-001-14 Collected by: Nathan Solomon
Location: Seattle
Reports To (PM): Jessica Smith
Email: _____

*Matrix Codes: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, WW = Waste Water, SW = Storm Water

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOC (EPA 8260)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SemiVOC (EPA 8270 - SIM)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Metals** (6020 / 200.8)	Total FE (Dissolved (D))	Anions (IC)***	TDS (SM2540)	HOLD	Comments/Depth
1	B-20-27-7.5	4-15-15	1020	Soil														X	
2	B-20-27-10.0	"	1025	"														X	
3	B-20-27-15.0	"	1030	"														X	
4	B-20-27-17.5	"	1035	"			X		X		X							X	
5																			
6																			
7																			
8																			
9																			
10																			

**Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL (individual): Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Tl Ti U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab (A fee may be assessed if samples are returned after 30 days)

Turn-around times for samples received after 4:00pm will begin on the following business day.

Special Remarks:

Relinquished	Date/Time	Received	Date/Time
X		X	
Relinquished	Date/Time	Received	Date/Time
X		X	

TAT-> SameDay^ NextDay^ 2 Day 3 Day STD

^Please coordinate with the lab in advance

Distribution: White - Lab, Yellow - File, Pink - Originator

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3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

GeoEngineers
Chris Brown
600 Stewart Street, Suite 1700
Seattle, WA 98101

RE: Rufus - Block 20
Work Order Number: 1610007

October 07, 2016

Attention Chris Brown:

Fremont Analytical, Inc. received 2 sample(s) on 9/30/2016 for the analyses presented in the following report.

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.
Gasoline by NWTPH-Gx
Mercury by EPA Method 7471
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)
Polychlorinated Biphenyls (PCB) by EPA 8082
Polychlorinated Biphenyls (PCB) by EPA 8270 (GCMS)
Sample Moisture (Percent Moisture)
Total Metals by EPA Method 6020
Volatile Organic Compounds by EPA Method 8260C

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Mike Ridgeway
Laboratory Director

DoD/ELAP Certification #L2371, ISO/IEC 17025:2005
ORELAP Certification: WA 100009-007 (NELAP Recognized)

Date: *10/07/2016*

CLIENT: GeoEngineers
Project: Rufus - Block 20
Work Order: 1610007

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1610007-001	SC-1-5.0	09/30/2016 11:20 AM	09/30/2016 4:30 PM
1610007-002	SC-2-15.0	09/30/2016 11:25 AM	09/30/2016 4:30 PM

Case Narrative

WO#: **1610007**
Date: **10/7/2016**

CLIENT: GeoEngineers
Project: Rufus - Block 20

I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Analytical Report

Work Order: **1610007**
Date Reported: **10/7/2016**

Client: GeoEngineers
Collection Date: 9/30/2016 11:20:00 AM
Project: Rufus - Block 20
Lab ID: 1610007-001
Matrix: Soil
Client Sample ID: **SC-1-5.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 15013		Analyst: WC
Diesel (Fuel Oil)	ND	22.6		mg/Kg-dry	1	10/4/2016 4:26:00 PM
Heavy Oil	ND	56.4		mg/Kg-dry	1	10/4/2016 4:26:00 PM
Surr: 2-Fluorobiphenyl	91.5	50-150		%Rec	1	10/4/2016 4:26:00 PM
Surr: o-Terphenyl	92.9	50-150		%Rec	1	10/4/2016 4:26:00 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 15014		Analyst: BT
Naphthalene	ND	41.7		µg/Kg-dry	1	10/5/2016 4:28:01 AM
2-Methylnaphthalene	ND	41.7		µg/Kg-dry	1	10/5/2016 4:28:01 AM
1-Methylnaphthalene	ND	41.7		µg/Kg-dry	1	10/5/2016 4:28:01 AM
Acenaphthylene	ND	41.7		µg/Kg-dry	1	10/5/2016 4:28:01 AM
Acenaphthene	ND	41.7		µg/Kg-dry	1	10/5/2016 4:28:01 AM
Fluorene	ND	41.7		µg/Kg-dry	1	10/5/2016 4:28:01 AM
Phenanthrene	ND	41.7		µg/Kg-dry	1	10/5/2016 4:28:01 AM
Anthracene	ND	41.7		µg/Kg-dry	1	10/5/2016 4:28:01 AM
Fluoranthene	ND	41.7		µg/Kg-dry	1	10/5/2016 4:28:01 AM
Pyrene	ND	41.7		µg/Kg-dry	1	10/5/2016 4:28:01 AM
Benz(a)anthracene	ND	41.7		µg/Kg-dry	1	10/5/2016 4:28:01 AM
Chrysene	ND	41.7		µg/Kg-dry	1	10/5/2016 4:28:01 AM
Benzo(b)fluoranthene	ND	41.7		µg/Kg-dry	1	10/5/2016 4:28:01 AM
Benzo(k)fluoranthene	ND	41.7		µg/Kg-dry	1	10/5/2016 4:28:01 AM
Benzo(a)pyrene	ND	41.7		µg/Kg-dry	1	10/5/2016 4:28:01 AM
Indeno(1,2,3-cd)pyrene	ND	41.7		µg/Kg-dry	1	10/5/2016 4:28:01 AM
Dibenz(a,h)anthracene	ND	41.7		µg/Kg-dry	1	10/5/2016 4:28:01 AM
Benzo(g,h,i)perylene	ND	41.7		µg/Kg-dry	1	10/5/2016 4:28:01 AM
Surr: 2-Fluorobiphenyl	64.6	32.2-123		%Rec	1	10/5/2016 4:28:01 AM
Surr: Terphenyl-d14 (surr)	82.8	42.2-152		%Rec	1	10/5/2016 4:28:01 AM
Polychlorinated Biphenyls (PCB) by EPA 8270 (GCMS)				Batch ID: 15066		Analyst: BT
Aroclor 1016	ND	0.111		mg/Kg-dry	1	10/7/2016 5:53:47 AM
Aroclor 1221	ND	0.111		mg/Kg-dry	1	10/7/2016 5:53:47 AM
Aroclor 1232	ND	0.111		mg/Kg-dry	1	10/7/2016 5:53:47 AM
Aroclor 1242	ND	0.111		mg/Kg-dry	1	10/7/2016 5:53:47 AM
Aroclor 1248	ND	0.111		mg/Kg-dry	1	10/7/2016 5:53:47 AM
Aroclor 1254	ND	0.111		mg/Kg-dry	1	10/7/2016 5:53:47 AM
Aroclor 1260	ND	0.111		mg/Kg-dry	1	10/7/2016 5:53:47 AM
Aroclor 1262	ND	0.111		mg/Kg-dry	1	10/7/2016 5:53:47 AM
Aroclor 1268	ND	0.111		mg/Kg-dry	1	10/7/2016 5:53:47 AM

Analytical Report

Work Order: **1610007**
Date Reported: **10/7/2016**

Client: GeoEngineers
Collection Date: 9/30/2016 11:20:00 AM
Project: Rufus - Block 20
Lab ID: 1610007-001
Matrix: Soil
Client Sample ID: **SC-1-5.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Polychlorinated Biphenyls (PCB) by EPA 8270 (GCMS)				Batch ID: 15066		Analyst: BT
Total PCBs	ND	0.111		mg/Kg-dry	1	10/7/2016 5:53:47 AM
Surr: Decachlorobiphenyl	58.2	40.7-166		%Rec	1	10/7/2016 5:53:47 AM
Surr: Tetrachloro-m-xylene	57.2	40-146		%Rec	1	10/7/2016 5:53:47 AM
Gasoline by NWTPH-Gx				Batch ID: 15016		Analyst: NG
Gasoline	ND	4.57		mg/Kg-dry	1	10/4/2016 10:08:20 PM
Surr: Toluene-d8	98.6	65-135		%Rec	1	10/4/2016 10:08:20 PM
Surr: 4-Bromofluorobenzene	98.9	65-135		%Rec	1	10/4/2016 10:08:20 PM
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15016		Analyst: NG
Dichlorodifluoromethane (CFC-12)	ND	0.0548	Q	mg/Kg-dry	1	10/4/2016 10:08:20 PM
Chloromethane	ND	0.0548		mg/Kg-dry	1	10/4/2016 10:08:20 PM
Vinyl chloride	ND	0.00183		mg/Kg-dry	1	10/4/2016 10:08:20 PM
Bromomethane	ND	0.0822		mg/Kg-dry	1	10/4/2016 10:08:20 PM
Trichlorofluoromethane (CFC-11)	ND	0.0457		mg/Kg-dry	1	10/4/2016 10:08:20 PM
Chloroethane	ND	0.0548		mg/Kg-dry	1	10/4/2016 10:08:20 PM
1,1-Dichloroethene	ND	0.0457		mg/Kg-dry	1	10/4/2016 10:08:20 PM
Methylene chloride	ND	0.0183		mg/Kg-dry	1	10/4/2016 10:08:20 PM
trans-1,2-Dichloroethene	ND	0.0183		mg/Kg-dry	1	10/4/2016 10:08:20 PM
Methyl tert-butyl ether (MTBE)	ND	0.0457		mg/Kg-dry	1	10/4/2016 10:08:20 PM
1,1-Dichloroethane	ND	0.0183		mg/Kg-dry	1	10/4/2016 10:08:20 PM
2,2-Dichloropropane	ND	0.0457	Q	mg/Kg-dry	1	10/4/2016 10:08:20 PM
cis-1,2-Dichloroethene	ND	0.0183		mg/Kg-dry	1	10/4/2016 10:08:20 PM
Chloroform	ND	0.0183		mg/Kg-dry	1	10/4/2016 10:08:20 PM
1,1,1-Trichloroethane (TCA)	ND	0.0183		mg/Kg-dry	1	10/4/2016 10:08:20 PM
1,1-Dichloropropene	ND	0.0183		mg/Kg-dry	1	10/4/2016 10:08:20 PM
Carbon tetrachloride	ND	0.0183		mg/Kg-dry	1	10/4/2016 10:08:20 PM
1,2-Dichloroethane (EDC)	ND	0.0274		mg/Kg-dry	1	10/4/2016 10:08:20 PM
Benzene	ND	0.0183		mg/Kg-dry	1	10/4/2016 10:08:20 PM
Trichloroethene (TCE)	ND	0.0183		mg/Kg-dry	1	10/4/2016 10:08:20 PM
1,2-Dichloropropane	ND	0.0183		mg/Kg-dry	1	10/4/2016 10:08:20 PM
Bromodichloromethane	ND	0.0183		mg/Kg-dry	1	10/4/2016 10:08:20 PM
Dibromomethane	ND	0.0365		mg/Kg-dry	1	10/4/2016 10:08:20 PM
cis-1,3-Dichloropropene	ND	0.0183		mg/Kg-dry	1	10/4/2016 10:08:20 PM
Toluene	ND	0.0183		mg/Kg-dry	1	10/4/2016 10:08:20 PM
trans-1,3-Dichloropropylene	ND	0.0274		mg/Kg-dry	1	10/4/2016 10:08:20 PM
1,1,2-Trichloroethane	ND	0.0274		mg/Kg-dry	1	10/4/2016 10:08:20 PM

Analytical Report

Work Order: **1610007**
Date Reported: **10/7/2016**

Client: GeoEngineers
Collection Date: 9/30/2016 11:20:00 AM
Project: Rufus - Block 20
Lab ID: 1610007-001
Matrix: Soil
Client Sample ID: **SC-1-5.0**

Volatile Organic Compounds by EPA Method 8260C

Batch ID: 15016 Analyst: NG

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
1,3-Dichloropropane	ND	0.0457		mg/Kg-dry	1	10/4/2016 10:08:20 PM
Tetrachloroethene (PCE)	ND	0.0183		mg/Kg-dry	1	10/4/2016 10:08:20 PM
Dibromochloromethane	ND	0.0274		mg/Kg-dry	1	10/4/2016 10:08:20 PM
1,2-Dibromoethane (EDB)	ND	0.00457		mg/Kg-dry	1	10/4/2016 10:08:20 PM
Chlorobenzene	ND	0.0183		mg/Kg-dry	1	10/4/2016 10:08:20 PM
1,1,1,2-Tetrachloroethane	ND	0.0274		mg/Kg-dry	1	10/4/2016 10:08:20 PM
Ethylbenzene	ND	0.0274		mg/Kg-dry	1	10/4/2016 10:08:20 PM
m,p-Xylene	ND	0.0183		mg/Kg-dry	1	10/4/2016 10:08:20 PM
o-Xylene	ND	0.0183		mg/Kg-dry	1	10/4/2016 10:08:20 PM
Styrene	ND	0.0183		mg/Kg-dry	1	10/4/2016 10:08:20 PM
Isopropylbenzene	ND	0.0731		mg/Kg-dry	1	10/4/2016 10:08:20 PM
Bromoform	ND	0.0183		mg/Kg-dry	1	10/4/2016 10:08:20 PM
1,1,2,2-Tetrachloroethane	ND	0.0183		mg/Kg-dry	1	10/4/2016 10:08:20 PM
n-Propylbenzene	ND	0.0183		mg/Kg-dry	1	10/4/2016 10:08:20 PM
Bromobenzene	ND	0.0274		mg/Kg-dry	1	10/4/2016 10:08:20 PM
1,3,5-Trimethylbenzene	ND	0.0183		mg/Kg-dry	1	10/4/2016 10:08:20 PM
2-Chlorotoluene	ND	0.0183		mg/Kg-dry	1	10/4/2016 10:08:20 PM
4-Chlorotoluene	ND	0.0183		mg/Kg-dry	1	10/4/2016 10:08:20 PM
tert-Butylbenzene	ND	0.0183		mg/Kg-dry	1	10/4/2016 10:08:20 PM
1,2,3-Trichloropropane	ND	0.0183		mg/Kg-dry	1	10/4/2016 10:08:20 PM
1,2,4-Trichlorobenzene	ND	0.0457		mg/Kg-dry	1	10/4/2016 10:08:20 PM
sec-Butylbenzene	ND	0.0183		mg/Kg-dry	1	10/4/2016 10:08:20 PM
4-Isopropyltoluene	ND	0.0183		mg/Kg-dry	1	10/4/2016 10:08:20 PM
1,3-Dichlorobenzene	ND	0.0183		mg/Kg-dry	1	10/4/2016 10:08:20 PM
1,4-Dichlorobenzene	ND	0.0183		mg/Kg-dry	1	10/4/2016 10:08:20 PM
n-Butylbenzene	ND	0.0183		mg/Kg-dry	1	10/4/2016 10:08:20 PM
1,2-Dichlorobenzene	ND	0.0183		mg/Kg-dry	1	10/4/2016 10:08:20 PM
1,2-Dibromo-3-chloropropane	ND	0.457		mg/Kg-dry	1	10/4/2016 10:08:20 PM
1,2,4-Trimethylbenzene	ND	0.0183		mg/Kg-dry	1	10/4/2016 10:08:20 PM
Hexachlorobutadiene	ND	0.0913		mg/Kg-dry	1	10/4/2016 10:08:20 PM
Naphthalene	ND	0.0274		mg/Kg-dry	1	10/4/2016 10:08:20 PM
1,2,3-Trichlorobenzene	ND	0.0183		mg/Kg-dry	1	10/4/2016 10:08:20 PM
Surr: Dibromofluoromethane	95.8	56.5-129		%Rec	1	10/4/2016 10:08:20 PM
Surr: Toluene-d8	103	64.3-131		%Rec	1	10/4/2016 10:08:20 PM
Surr: 1-Bromo-4-fluorobenzene	97.6	63.1-141		%Rec	1	10/4/2016 10:08:20 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Analytical Report

Work Order: **1610007**
Date Reported: **10/7/2016**

Client: GeoEngineers
Collection Date: 9/30/2016 11:20:00 AM
Project: Rufus - Block 20
Lab ID: 1610007-001
Matrix: Soil
Client Sample ID: **SC-1-5.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Mercury by EPA Method 7471				Batch ID: 14997		Analyst: MW
Mercury	ND	0.297		mg/Kg-dry	1	10/3/2016 5:15:13 PM
Total Metals by EPA Method 6020				Batch ID: 14995		Analyst: TN
Arsenic	10.4	0.0950		mg/Kg-dry	1	10/3/2016 3:31:54 PM
Barium	131	0.475		mg/Kg-dry	1	10/3/2016 3:31:54 PM
Cadmium	ND	0.190		mg/Kg-dry	1	10/3/2016 3:31:54 PM
Chromium	57.2	0.0950		mg/Kg-dry	1	10/3/2016 3:31:54 PM
Lead	19.4	0.190		mg/Kg-dry	1	10/3/2016 3:31:54 PM
Selenium	1.81	0.475		mg/Kg-dry	1	10/3/2016 3:31:54 PM
Silver	ND	0.0950		mg/Kg-dry	1	10/3/2016 3:31:54 PM
Sample Moisture (Percent Moisture)				Batch ID: R32082		Analyst: WF
Percent Moisture	15.8			wt%	1	10/3/2016 2:25:33 PM

Analytical Report

Work Order: **1610007**
Date Reported: **10/7/2016**

Client: GeoEngineers
Collection Date: 9/30/2016 11:25:00 AM
Project: Rufus - Block 20
Lab ID: 1610007-002
Matrix: Soil
Client Sample ID: **SC-2-15.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 15013		Analyst: WC
Diesel (Fuel Oil)	ND	26.4		mg/Kg-dry	1	10/4/2016 6:33:00 PM
Heavy Oil	525	66.0		mg/Kg-dry	1	10/4/2016 6:33:00 PM
Surr: 2-Fluorobiphenyl	92.3	50-150		%Rec	1	10/4/2016 6:33:00 PM
Surr: o-Terphenyl	92.5	50-150		%Rec	1	10/4/2016 6:33:00 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 15014		Analyst: BT
Naphthalene	ND	53.3		µg/Kg-dry	1	10/5/2016 4:49:04 AM
2-Methylnaphthalene	ND	53.3		µg/Kg-dry	1	10/5/2016 4:49:04 AM
1-Methylnaphthalene	ND	53.3		µg/Kg-dry	1	10/5/2016 4:49:04 AM
Acenaphthylene	ND	53.3		µg/Kg-dry	1	10/5/2016 4:49:04 AM
Acenaphthene	ND	53.3		µg/Kg-dry	1	10/5/2016 4:49:04 AM
Fluorene	ND	53.3		µg/Kg-dry	1	10/5/2016 4:49:04 AM
Phenanthrene	ND	53.3		µg/Kg-dry	1	10/5/2016 4:49:04 AM
Anthracene	ND	53.3		µg/Kg-dry	1	10/5/2016 4:49:04 AM
Fluoranthene	ND	53.3		µg/Kg-dry	1	10/5/2016 4:49:04 AM
Pyrene	ND	53.3		µg/Kg-dry	1	10/5/2016 4:49:04 AM
Benz(a)anthracene	ND	53.3		µg/Kg-dry	1	10/5/2016 4:49:04 AM
Chrysene	ND	53.3		µg/Kg-dry	1	10/5/2016 4:49:04 AM
Benzo(b)fluoranthene	ND	53.3		µg/Kg-dry	1	10/5/2016 4:49:04 AM
Benzo(k)fluoranthene	ND	53.3		µg/Kg-dry	1	10/5/2016 4:49:04 AM
Benzo(a)pyrene	ND	53.3		µg/Kg-dry	1	10/5/2016 4:49:04 AM
Indeno(1,2,3-cd)pyrene	ND	53.3		µg/Kg-dry	1	10/5/2016 4:49:04 AM
Dibenz(a,h)anthracene	ND	53.3		µg/Kg-dry	1	10/5/2016 4:49:04 AM
Benzo(g,h,i)perylene	ND	53.3		µg/Kg-dry	1	10/5/2016 4:49:04 AM
Surr: 2-Fluorobiphenyl	68.5	32.2-123		%Rec	1	10/5/2016 4:49:04 AM
Surr: Terphenyl-d14 (surr)	83.8	42.2-152		%Rec	1	10/5/2016 4:49:04 AM
Polychlorinated Biphenyls (PCB) by EPA 8270 (GCMS)				Batch ID: 15066		Analyst: BT
Aroclor 1016	ND	0.135		mg/Kg-dry	1	10/7/2016 8:31:40 AM
Aroclor 1221	ND	0.135		mg/Kg-dry	1	10/7/2016 8:31:40 AM
Aroclor 1232	ND	0.135		mg/Kg-dry	1	10/7/2016 8:31:40 AM
Aroclor 1242	ND	0.135		mg/Kg-dry	1	10/7/2016 8:31:40 AM
Aroclor 1248	ND	0.135		mg/Kg-dry	1	10/7/2016 8:31:40 AM
Aroclor 1254	ND	0.135		mg/Kg-dry	1	10/7/2016 8:31:40 AM
Aroclor 1260	ND	0.135		mg/Kg-dry	1	10/7/2016 8:31:40 AM
Aroclor 1262	ND	0.135		mg/Kg-dry	1	10/7/2016 8:31:40 AM
Aroclor 1268	ND	0.135		mg/Kg-dry	1	10/7/2016 8:31:40 AM

Analytical Report

Work Order: **1610007**
Date Reported: **10/7/2016**

Client: GeoEngineers
Collection Date: 9/30/2016 11:25:00 AM
Project: Rufus - Block 20
Lab ID: 1610007-002
Matrix: Soil
Client Sample ID: **SC-2-15.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Polychlorinated Biphenyls (PCB) by EPA 8270 (GCMS)				Batch ID: 15066		Analyst: BT
Total PCBs	ND	0.135		mg/Kg-dry	1	10/7/2016 8:31:40 AM
Surr: Decachlorobiphenyl	51.2	40.7-166		%Rec	1	10/7/2016 8:31:40 AM
Surr: Tetrachloro-m-xylene	43.3	40-146		%Rec	1	10/7/2016 8:31:40 AM
Gasoline by NWTPH-Gx				Batch ID: 15016		Analyst: NG
Gasoline	ND	5.82		mg/Kg-dry	1	10/4/2016 11:06:43 PM
Surr: Toluene-d8	98.9	65-135		%Rec	1	10/4/2016 11:06:43 PM
Surr: 4-Bromofluorobenzene	100	65-135		%Rec	1	10/4/2016 11:06:43 PM
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15016		Analyst: NG
Dichlorodifluoromethane (CFC-12)	ND	0.0698	Q	mg/Kg-dry	1	10/4/2016 11:06:43 PM
Chloromethane	ND	0.0698		mg/Kg-dry	1	10/4/2016 11:06:43 PM
Vinyl chloride	ND	0.00233		mg/Kg-dry	1	10/4/2016 11:06:43 PM
Bromomethane	ND	0.105		mg/Kg-dry	1	10/4/2016 11:06:43 PM
Trichlorofluoromethane (CFC-11)	ND	0.0582		mg/Kg-dry	1	10/4/2016 11:06:43 PM
Chloroethane	ND	0.0698		mg/Kg-dry	1	10/4/2016 11:06:43 PM
1,1-Dichloroethene	ND	0.0582		mg/Kg-dry	1	10/4/2016 11:06:43 PM
Methylene chloride	ND	0.0233		mg/Kg-dry	1	10/4/2016 11:06:43 PM
trans-1,2-Dichloroethene	ND	0.0233		mg/Kg-dry	1	10/4/2016 11:06:43 PM
Methyl tert-butyl ether (MTBE)	ND	0.0582		mg/Kg-dry	1	10/4/2016 11:06:43 PM
1,1-Dichloroethane	ND	0.0233		mg/Kg-dry	1	10/4/2016 11:06:43 PM
2,2-Dichloropropane	ND	0.0582	Q	mg/Kg-dry	1	10/4/2016 11:06:43 PM
cis-1,2-Dichloroethene	ND	0.0233		mg/Kg-dry	1	10/4/2016 11:06:43 PM
Chloroform	ND	0.0233		mg/Kg-dry	1	10/4/2016 11:06:43 PM
1,1,1-Trichloroethane (TCA)	ND	0.0233		mg/Kg-dry	1	10/4/2016 11:06:43 PM
1,1-Dichloropropene	ND	0.0233		mg/Kg-dry	1	10/4/2016 11:06:43 PM
Carbon tetrachloride	ND	0.0233		mg/Kg-dry	1	10/4/2016 11:06:43 PM
1,2-Dichloroethane (EDC)	ND	0.0349		mg/Kg-dry	1	10/4/2016 11:06:43 PM
Benzene	ND	0.0233		mg/Kg-dry	1	10/4/2016 11:06:43 PM
Trichloroethene (TCE)	ND	0.0233		mg/Kg-dry	1	10/4/2016 11:06:43 PM
1,2-Dichloropropane	ND	0.0233		mg/Kg-dry	1	10/4/2016 11:06:43 PM
Bromodichloromethane	ND	0.0233		mg/Kg-dry	1	10/4/2016 11:06:43 PM
Dibromomethane	ND	0.0466		mg/Kg-dry	1	10/4/2016 11:06:43 PM
cis-1,3-Dichloropropene	ND	0.0233		mg/Kg-dry	1	10/4/2016 11:06:43 PM
Toluene	ND	0.0233		mg/Kg-dry	1	10/4/2016 11:06:43 PM
trans-1,3-Dichloropropylene	ND	0.0349		mg/Kg-dry	1	10/4/2016 11:06:43 PM
1,1,2-Trichloroethane	ND	0.0349		mg/Kg-dry	1	10/4/2016 11:06:43 PM

Client: GeoEngineers
Project: Rufus - Block 20
Lab ID: 1610007-002
Client Sample ID: **SC-2-15.0**

Collection Date: 9/30/2016 11:25:00 AM
Matrix: Soil

Volatile Organic Compounds by EPA Method 8260C

Batch ID: 15016 Analyst: NG

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
1,3-Dichloropropane	ND	0.0582		mg/Kg-dry	1	10/4/2016 11:06:43 PM
Tetrachloroethene (PCE)	ND	0.0233		mg/Kg-dry	1	10/4/2016 11:06:43 PM
Dibromochloromethane	ND	0.0349		mg/Kg-dry	1	10/4/2016 11:06:43 PM
1,2-Dibromoethane (EDB)	ND	0.00582		mg/Kg-dry	1	10/4/2016 11:06:43 PM
Chlorobenzene	ND	0.0233		mg/Kg-dry	1	10/4/2016 11:06:43 PM
1,1,1,2-Tetrachloroethane	ND	0.0349		mg/Kg-dry	1	10/4/2016 11:06:43 PM
Ethylbenzene	ND	0.0349		mg/Kg-dry	1	10/4/2016 11:06:43 PM
m,p-Xylene	ND	0.0233		mg/Kg-dry	1	10/4/2016 11:06:43 PM
o-Xylene	ND	0.0233		mg/Kg-dry	1	10/4/2016 11:06:43 PM
Styrene	ND	0.0233		mg/Kg-dry	1	10/4/2016 11:06:43 PM
Isopropylbenzene	ND	0.0931		mg/Kg-dry	1	10/4/2016 11:06:43 PM
Bromoform	ND	0.0233		mg/Kg-dry	1	10/4/2016 11:06:43 PM
1,1,2,2-Tetrachloroethane	ND	0.0233		mg/Kg-dry	1	10/4/2016 11:06:43 PM
n-Propylbenzene	ND	0.0233		mg/Kg-dry	1	10/4/2016 11:06:43 PM
Bromobenzene	ND	0.0349		mg/Kg-dry	1	10/4/2016 11:06:43 PM
1,3,5-Trimethylbenzene	ND	0.0233		mg/Kg-dry	1	10/4/2016 11:06:43 PM
2-Chlorotoluene	ND	0.0233		mg/Kg-dry	1	10/4/2016 11:06:43 PM
4-Chlorotoluene	ND	0.0233		mg/Kg-dry	1	10/4/2016 11:06:43 PM
tert-Butylbenzene	ND	0.0233		mg/Kg-dry	1	10/4/2016 11:06:43 PM
1,2,3-Trichloropropane	ND	0.0233		mg/Kg-dry	1	10/4/2016 11:06:43 PM
1,2,4-Trichlorobenzene	ND	0.0582		mg/Kg-dry	1	10/4/2016 11:06:43 PM
sec-Butylbenzene	ND	0.0233		mg/Kg-dry	1	10/4/2016 11:06:43 PM
4-Isopropyltoluene	ND	0.0233		mg/Kg-dry	1	10/4/2016 11:06:43 PM
1,3-Dichlorobenzene	ND	0.0233		mg/Kg-dry	1	10/4/2016 11:06:43 PM
1,4-Dichlorobenzene	ND	0.0233		mg/Kg-dry	1	10/4/2016 11:06:43 PM
n-Butylbenzene	ND	0.0233		mg/Kg-dry	1	10/4/2016 11:06:43 PM
1,2-Dichlorobenzene	ND	0.0233		mg/Kg-dry	1	10/4/2016 11:06:43 PM
1,2-Dibromo-3-chloropropane	ND	0.582		mg/Kg-dry	1	10/4/2016 11:06:43 PM
1,2,4-Trimethylbenzene	ND	0.0233		mg/Kg-dry	1	10/4/2016 11:06:43 PM
Hexachlorobutadiene	ND	0.116		mg/Kg-dry	1	10/4/2016 11:06:43 PM
Naphthalene	ND	0.0349		mg/Kg-dry	1	10/4/2016 11:06:43 PM
1,2,3-Trichlorobenzene	ND	0.0233		mg/Kg-dry	1	10/4/2016 11:06:43 PM
Surr: Dibromofluoromethane	93.3	56.5-129		%Rec	1	10/4/2016 11:06:43 PM
Surr: Toluene-d8	103	64.3-131		%Rec	1	10/4/2016 11:06:43 PM
Surr: 1-Bromo-4-fluorobenzene	98.9	63.1-141		%Rec	1	10/4/2016 11:06:43 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Analytical Report

Work Order: **1610007**
Date Reported: **10/7/2016**

Client: GeoEngineers
Collection Date: 9/30/2016 11:25:00 AM
Project: Rufus - Block 20
Lab ID: 1610007-002
Matrix: Soil
Client Sample ID: **SC-2-15.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Mercury by EPA Method 7471				Batch ID: 14997		Analyst: MW
Mercury	ND	0.332		mg/Kg-dry	1	10/3/2016 5:20:07 PM
Total Metals by EPA Method 6020				Batch ID: 14995		Analyst: TN
Arsenic	6.05	0.106		mg/Kg-dry	1	10/3/2016 3:35:27 PM
Barium	134	0.528		mg/Kg-dry	1	10/3/2016 3:35:27 PM
Cadmium	ND	0.211		mg/Kg-dry	1	10/3/2016 3:35:27 PM
Chromium	79.5	0.106		mg/Kg-dry	1	10/3/2016 3:35:27 PM
Lead	6.08	0.211		mg/Kg-dry	1	10/3/2016 3:35:27 PM
Selenium	2.10	0.528		mg/Kg-dry	1	10/3/2016 3:35:27 PM
Silver	ND	0.106		mg/Kg-dry	1	10/3/2016 3:35:27 PM
Sample Moisture (Percent Moisture)				Batch ID: R32082		Analyst: WF
Percent Moisture	26.1			wt%	1	10/3/2016 2:25:33 PM

Work Order: 1610007
CLIENT: GeoEngineers
Project: Rufus - Block 20

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID **MB-15013** SampType: **MBLK** Units: **mg/Kg** Prep Date: **10/4/2016** RunNo: **32121**
Client ID: **MBLKS** Batch ID: **15013** Analysis Date: **10/4/2016** SeqNo: **607429**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	20.0									
Heavy Oil	ND	50.0									
Surr: 2-Fluorobiphenyl	18.9		20.00		94.7	50	150				
Surr: o-Terphenyl	18.7		20.00		93.6	50	150				

Sample ID **LCS-15013** SampType: **LCS** Units: **mg/Kg** Prep Date: **10/4/2016** RunNo: **32121**
Client ID: **LCSS** Batch ID: **15013** Analysis Date: **10/4/2016** SeqNo: **607428**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	501	20.0	500.0	0	100	65	135				
Surr: 2-Fluorobiphenyl	22.9		20.00		114	50	150				
Surr: o-Terphenyl	22.2		20.00		111	50	150				

Sample ID **1610007-001ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **10/4/2016** RunNo: **32121**
Client ID: **SC-1-5.0** Batch ID: **15013** Analysis Date: **10/4/2016** SeqNo: **607403**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	21.9						0		30	
Heavy Oil	119	54.9						36.35	107	30	R
Surr: 2-Fluorobiphenyl	19.7		21.94		89.7	50	150		0		
Surr: o-Terphenyl	19.6		21.94		89.4	50	150		0		

NOTES:
R - High RPD due to suspected sample inhomogeneity. The method is in control as indicated by the Laboratory Control Sample (LCS).

Sample ID **1610007-001AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **10/4/2016** RunNo: **32121**
Client ID: **SC-1-5.0** Batch ID: **15013** Analysis Date: **10/4/2016** SeqNo: **607404**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	581	23.3	582.5	0	99.7	65	135				
Surr: 2-Fluorobiphenyl	24.2		23.30		104	50	150				

Work Order: 1610007
CLIENT: GeoEngineers
Project: Rufus - Block 20

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID **1610007-001AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **10/4/2016** RunNo: **32121**
Client ID: **SC-1-5.0** Batch ID: **15013** Analysis Date: **10/4/2016** SeqNo: **607404**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: o-Terphenyl	24.8		23.30		106	50	150				

Sample ID **1610007-001AMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **10/4/2016** RunNo: **32121**
Client ID: **SC-1-5.0** Batch ID: **15013** Analysis Date: **10/4/2016** SeqNo: **607405**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	509	21.1	528.1	0	96.4	65	135	580.7	13.1	30	
Surr: 2-Fluorobiphenyl	21.7		21.12		103	50	150		0		
Surr: o-Terphenyl	22.0		21.12		104	50	150		0		

Sample ID **1610041-006ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **10/4/2016** RunNo: **32121**
Client ID: **BATCH** Batch ID: **15013** Analysis Date: **10/5/2016** SeqNo: **607418**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	18.5						0		30	
Heavy Oil	ND	46.3						0		30	
Surr: 2-Fluorobiphenyl	18.6		18.50		100	50	150		0		
Surr: o-Terphenyl	18.4		18.50		99.4	50	150		0		

Work Order: 1610007
CLIENT: GeoEngineers
Project: Rufus - Block 20

QC SUMMARY REPORT

Gasoline by NWTPH-Gx

Sample ID	LCS-15016	SampType:	LCS	Units:	mg/Kg	Prep Date:	10/4/2016	RunNo:	32131
Client ID:	LCSS	Batch ID:	15016			Analysis Date:	10/4/2016	SeqNo:	607498

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	26.0	5.00	25.00	0	104	65	135				
Surr: Toluene-d8	1.25		1.250		99.9	65	135				
Surr: 4-Bromofluorobenzene	1.26		1.250		101	65	135				

Sample ID	MB-15016	SampType:	MBLK	Units:	mg/Kg	Prep Date:	10/4/2016	RunNo:	32131
Client ID:	MBLKS	Batch ID:	15016			Analysis Date:	10/4/2016	SeqNo:	607499

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	5.00									
Surr: Toluene-d8	1.26		1.250		101	65	135				
Surr: 4-Bromofluorobenzene	1.23		1.250		98.6	65	135				

Sample ID	1610007-001BDUP	SampType:	DUP	Units:	mg/Kg-dry	Prep Date:	10/4/2016	RunNo:	32131
Client ID:	SC-1-5.0	Batch ID:	15016			Analysis Date:	10/4/2016	SeqNo:	607491

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	4.57						0		30	
Surr: Toluene-d8	1.12		1.141		97.9	65	135		0		
Surr: 4-Bromofluorobenzene	1.14		1.141		99.5	65	135		0		

Sample ID	1610007-002BMS	SampType:	MS	Units:	mg/Kg-dry	Prep Date:	10/4/2016	RunNo:	32131
Client ID:	SC-2-15.0	Batch ID:	15016			Analysis Date:	10/5/2016	SeqNo:	607493

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	45.7	5.82	29.10	0	157	65	135				S
Surr: Toluene-d8	1.43		1.455		98.4	65	135				
Surr: 4-Bromofluorobenzene	1.55		1.455		106	65	135				

NOTES:
S - Outlying spike recovery(ies) observed. A duplicate analysis was performed with similar results indicating a possible matrix effect.

Work Order: 1610007
CLIENT: GeoEngineers
Project: Rufus - Block 20

QC SUMMARY REPORT

Gasoline by NWTPH-Gx

Sample ID **1610007-002BMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **10/4/2016** RunNo: **32131**
Client ID: **SC-2-15.0** Batch ID: **15016** Analysis Date: **10/5/2016** SeqNo: **607494**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	43.5	5.82	29.10	0	150	65	135	45.73	4.91	30	S
Surr: Toluene-d8	1.42		1.455		97.8	65	135		0		
Surr: 4-Bromofluorobenzene	1.56		1.455		107	65	135		0		

NOTES:
S - Outlying spike recovery(ies) observed. A duplicate analysis was performed with similar results indicating a possible matrix effect.

Work Order: 1610007
CLIENT: GeoEngineers
Project: Rufus - Block 20

QC SUMMARY REPORT

Mercury by EPA Method 7471

Sample ID **MB-14997** SampType: **MBLK** Units: **mg/Kg** Prep Date: **10/3/2016** RunNo: **32089**
Client ID: **MBLKS** Batch ID: **14997** Analysis Date: **10/3/2016** SeqNo: **606855**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.0245									

Sample ID **LCS-14997** SampType: **LCS** Units: **mg/Kg** Prep Date: **10/3/2016** RunNo: **32089**
Client ID: **LCSS** Batch ID: **14997** Analysis Date: **10/3/2016** SeqNo: **606856**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.500	0.0240	0.4808	0	104	80	120				

Sample ID **1609374-001ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **10/3/2016** RunNo: **32089**
Client ID: **BATCH** Batch ID: **14997** Analysis Date: **10/3/2016** SeqNo: **606858**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.259						0		20	

Sample ID **1609374-001AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **10/3/2016** RunNo: **32089**
Client ID: **BATCH** Batch ID: **14997** Analysis Date: **10/3/2016** SeqNo: **606859**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.567	0.264	0.5282	0.01128	105	70	130				

Sample ID **1609374-001AMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **10/3/2016** RunNo: **32089**
Client ID: **BATCH** Batch ID: **14997** Analysis Date: **10/3/2016** SeqNo: **606860**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.541	0.264	0.5282	0.01128	100	70	130	0.5673	4.77	20	

Work Order: 1610007
CLIENT: GeoEngineers
Project: Rufus - Block 20

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **MB-15014**	SampType: **MBLK**	Units: **µg/Kg**	Prep Date: **10/4/2016**	RunNo: **32139**
Client ID: **MBLKS**	Batch ID: **15014**		Analysis Date: **10/5/2016**	SeqNo: **607573**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	40.0									
2-Methylnaphthalene	ND	40.0									
1-Methylnaphthalene	ND	40.0									
Acenaphthylene	ND	40.0									
Acenaphthene	ND	40.0									
Fluorene	ND	40.0									
Phenanthrene	ND	40.0									
Anthracene	ND	40.0									
Fluoranthene	ND	40.0									
Pyrene	ND	40.0									
Benz(a)anthracene	ND	40.0									
Chrysene	ND	40.0									
Benzo(b)fluoranthene	ND	40.0									
Benzo(k)fluoranthene	ND	40.0									
Benzo(a)pyrene	ND	40.0									
Indeno(1,2,3-cd)pyrene	ND	40.0									
Dibenz(a,h)anthracene	ND	40.0									
Benzo(g,h,i)perylene	ND	40.0									
Surr: 2-Fluorobiphenyl	364		500.0		72.7	32.2	123				
Surr: Terphenyl-d14 (surr)	429		500.0		85.8	42.2	152				

Sample ID **LCS-15014**	SampType: **LCS**	Units: **µg/Kg**	Prep Date: **10/4/2016**	RunNo: **32139**
Client ID: **LCSS**	Batch ID: **15014**		Analysis Date: **10/5/2016**	SeqNo: **607574**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	799	40.0	1,000	0	79.9	51.6	136				
2-Methylnaphthalene	821	40.0	1,000	0	82.1	45.1	135				
1-Methylnaphthalene	812	40.0	1,000	0	81.2	46.2	133				
Acenaphthylene	769	40.0	1,000	0	76.9	32.8	136				
Acenaphthene	772	40.0	1,000	0	77.2	38.7	129				

Work Order: 1610007
CLIENT: GeoEngineers
Project: Rufus - Block 20

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **LCS-15014** SampType: **LCS** Units: **µg/Kg** Prep Date: **10/4/2016** RunNo: **32139**
Client ID: **LCSS** Batch ID: **15014** Analysis Date: **10/5/2016** SeqNo: **607574**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluorene	782	40.0	1,000	0	78.2	41.1	132				
Phenanthrene	729	40.0	1,000	0	72.9	43.9	133				
Anthracene	920	40.0	1,000	0	92.0	44.2	136				
Fluoranthene	775	40.0	1,000	0	77.5	45.9	137				
Pyrene	788	40.0	1,000	0	78.8	46.2	137				
Benz(a)anthracene	729	40.0	1,000	0	72.9	41.9	136				
Chrysene	745	40.0	1,000	0	74.5	46.9	138				
Benzo(b)fluoranthene	689	40.0	1,000	0	68.9	35.9	148				
Benzo(k)fluoranthene	772	40.0	1,000	0	77.2	43.9	144				
Benzo(a)pyrene	675	40.0	1,000	0	67.5	36.3	144				
Indeno(1,2,3-cd)pyrene	761	40.0	1,000	0	76.1	41	140				
Dibenz(a,h)anthracene	755	40.0	1,000	0	75.5	33.8	133				
Benzo(g,h,i)perylene	704	40.0	1,000	0	70.4	32.9	112				
Surr: 2-Fluorobiphenyl	324		500.0		64.8	32.2	123				
Surr: Terphenyl-d14 (surr)	389		500.0		77.8	42.2	152				

Sample ID **1609374-001ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **10/4/2016** RunNo: **32139**
Client ID: **BATCH** Batch ID: **15014** Analysis Date: **10/5/2016** SeqNo: **607576**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	41.1						0		30	
2-Methylnaphthalene	ND	41.1						0		30	
1-Methylnaphthalene	ND	41.1						0		30	
Acenaphthylene	ND	41.1						0		30	
Acenaphthene	ND	41.1						0		30	
Fluorene	ND	41.1						0		30	
Phenanthrene	ND	41.1						0		30	
Anthracene	ND	41.1						0		30	
Fluoranthene	ND	41.1						0		30	
Pyrene	ND	41.1						0		30	

Work Order: 1610007
CLIENT: GeoEngineers
Project: Rufus - Block 20

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1609374-001ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **10/4/2016** RunNo: **32139**
Client ID: **BATCH** Batch ID: **15014** Analysis Date: **10/5/2016** SeqNo: **607576**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	ND	41.1						0		30	
Chrysene	ND	41.1						0		30	
Benzo(b)fluoranthene	ND	41.1						0		30	
Benzo(k)fluoranthene	ND	41.1						0		30	
Benzo(a)pyrene	ND	41.1						0		30	
Indeno(1,2,3-cd)pyrene	ND	41.1						0		30	
Dibenz(a,h)anthracene	ND	41.1						0		30	
Benzo(g,h,i)perylene	ND	41.1						0		30	
Surr: 2-Fluorobiphenyl	361		513.4		70.2	32.2	123		0		
Surr: Terphenyl-d14 (surr)	415		513.4		80.7	42.2	152		0		

Sample ID **1609374-001AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **10/4/2016** RunNo: **32139**
Client ID: **BATCH** Batch ID: **15014** Analysis Date: **10/5/2016** SeqNo: **607577**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	721	36.3	907.6	0	79.5	42.9	138				
2-Methylnaphthalene	746	36.3	907.6	0	82.2	42.8	151				
1-Methylnaphthalene	749	36.3	907.6	0	82.5	41.6	148				
Acenaphthylene	703	36.3	907.6	0	77.4	32.6	160				
Acenaphthene	716	36.3	907.6	0	78.9	46.3	142				
Fluorene	728	36.3	907.6	0	80.2	43.4	153				
Phenanthrene	696	36.3	907.6	2.237	76.5	45.5	140				
Anthracene	860	36.3	907.6	0	94.7	32.6	160				
Fluoranthene	770	36.3	907.6	0	84.8	44.6	161				
Pyrene	775	36.3	907.6	2.828	85.1	48.3	158				
Benz(a)anthracene	728	36.3	907.6	5.790	79.6	57.5	169				
Chrysene	692	36.3	907.6	1.958	76.0	45.2	146				
Benzo(b)fluoranthene	786	36.3	907.6	11.90	85.2	42.2	168				
Benzo(k)fluoranthene	719	36.3	907.6	12.49	77.8	48	161				
Benzo(a)pyrene	720	36.3	907.6	13.05	77.9	34.4	179				

Work Order: 1610007
CLIENT: GeoEngineers
Project: Rufus - Block 20

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1609374-001AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **10/4/2016** RunNo: **32139**
Client ID: **BATCH** Batch ID: **15014** Analysis Date: **10/5/2016** SeqNo: **607577**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Indeno(1,2,3-cd)pyrene	805	36.3	907.6	11.22	87.5	41.1	165				
Dibenz(a,h)anthracene	785	36.3	907.6	12.33	85.2	38.1	166				
Benzo(g,h,i)perylene	730	36.3	907.6	9.643	79.4	45.6	157				
Surr: 2-Fluorobiphenyl	330		453.8		72.6	32.2	123				
Surr: Terphenyl-d14 (surr)	380		453.8		83.6	42.2	152				

Sample ID **1609374-001AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **10/4/2016** RunNo: **32139**
Client ID: **BATCH** Batch ID: **15014** Analysis Date: **10/5/2016** SeqNo: **607578**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	861	41.8	1,045	0	82.4	42.9	138	721.5	17.7	30	
2-Methylnaphthalene	936	41.8	1,045	0	89.5	42.8	151	746.1	22.5	30	
1-Methylnaphthalene	869	41.8	1,045	0	83.1	41.6	148	748.7	14.9	30	
Acenaphthylene	864	41.8	1,045	0	82.7	32.6	160	702.8	20.6	30	
Acenaphthene	870	41.8	1,045	0	83.2	46.3	142	716.4	19.3	30	
Fluorene	883	41.8	1,045	0	84.5	43.4	153	727.9	19.3	30	
Phenanthrene	844	41.8	1,045	2.237	80.5	45.5	140	696.2	19.2	30	
Anthracene	874	41.8	1,045	0	83.6	32.6	160	859.8	1.64	30	
Fluoranthene	922	41.8	1,045	0	88.2	44.6	161	769.8	18.0	30	
Pyrene	919	41.8	1,045	2.828	87.6	48.3	158	774.9	17.0	30	
Benz(a)anthracene	888	41.8	1,045	5.790	84.5	57.5	169	728.2	19.8	30	
Chrysene	830	41.8	1,045	1.958	79.3	45.2	146	691.9	18.2	30	
Benzo(b)fluoranthene	852	41.8	1,045	11.90	80.4	42.2	168	785.6	8.06	30	
Benzo(k)fluoranthene	912	41.8	1,045	12.49	86.1	48	161	718.6	23.8	30	
Benzo(a)pyrene	862	41.8	1,045	13.05	81.2	34.4	179	719.8	17.9	30	
Indeno(1,2,3-cd)pyrene	967	41.8	1,045	11.22	91.5	41.1	165	805.3	18.2	30	
Dibenz(a,h)anthracene	945	41.8	1,045	12.33	89.3	38.1	166	785.3	18.5	30	
Benzo(g,h,i)perylene	806	41.8	1,045	9.643	76.2	45.6	157	730.0	9.95	30	
Surr: 2-Fluorobiphenyl	384		522.5		73.6	32.2	123		0		
Surr: Terphenyl-d14 (surr)	449		522.5		85.9	42.2	152		0		

Work Order: 1610007
CLIENT: GeoEngineers
Project: Rufus - Block 20

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1609374-001AMSD**	SampType: **MSD**			Units: **µg/Kg-dry**	Prep Date: **10/4/2016**		RunNo: **32139**		
Client ID: **BATCH**	Batch ID: **15014**				Analysis Date: **10/5/2016**		SeqNo: **607578**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Work Order: 1610007
CLIENT: GeoEngineers
Project: Rufus - Block 20

QC SUMMARY REPORT

Polychlorinated Biphenyls (PCB) by EPA 8270 (GCMS)

Sample ID **MB-15066**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **10/5/2016**	RunNo: **32195**
Client ID: **MBLKS**	Batch ID: **15066**		Analysis Date: **10/7/2016**	SeqNo: **609013**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	ND	0.100									
Aroclor 1221	ND	0.100									
Aroclor 1232	ND	0.100									
Aroclor 1242	ND	0.100									
Aroclor 1248	ND	0.100									
Aroclor 1254	ND	0.100									
Aroclor 1260	ND	0.100									
Aroclor 1262	ND	0.100									
Aroclor 1268	ND	0.100									
Total PCBs	ND	0.100									
Surr: Decachlorobiphenyl	0.0483		0.05000		96.6	40.7	166				
Surr: Tetrachloro-m-xylene	0.0431		0.05000		86.2	40	146				

Sample ID **LCS-15066**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **10/5/2016**	RunNo: **32195**
Client ID: **LCSS**	Batch ID: **15066**		Analysis Date: **10/7/2016**	SeqNo: **609015**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	0.855	0.100	1.000	0	85.5	65	135				
Aroclor 1260	0.842	0.100	1.000	0	84.2	65	135				
Surr: Decachlorobiphenyl	0.0492		0.05000		98.4	40.7	166				
Surr: Tetrachloro-m-xylene	0.0443		0.05000		88.7	40	146				

Sample ID **LCS2-15066**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **10/5/2016**	RunNo: **32195**
Client ID: **LCSS**	Batch ID: **15066**		Analysis Date: **10/7/2016**	SeqNo: **609014**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1254	0.830	0.100	1.000	0	83.0	65	135				
Surr: Decachlorobiphenyl	0.0374		0.05000		74.8	40.7	166				
Surr: Tetrachloro-m-xylene	0.0350		0.05000		69.9	40	146				

Work Order: 1610007
CLIENT: GeoEngineers
Project: Rufus - Block 20

QC SUMMARY REPORT

Polychlorinated Biphenyls (PCB) by EPA 8270 (GCMS)

Sample ID **1610007-001ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **10/5/2016** RunNo: **32195**
Client ID: **SC-1-5.0** Batch ID: **15066** Analysis Date: **10/7/2016** SeqNo: **609003**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	ND	0.118						0		30	
Aroclor 1221	ND	0.118						0		30	
Aroclor 1232	ND	0.118						0		30	
Aroclor 1242	ND	0.118						0		30	
Aroclor 1248	ND	0.118						0		30	
Aroclor 1254	ND	0.118						0		30	
Aroclor 1260	ND	0.118						0		30	
Aroclor 1262	ND	0.118						0		30	
Aroclor 1268	ND	0.118						0		30	
Total PCBs	ND	0.118						0		30	
Surr: Decachlorobiphenyl	0.0375		0.05900		63.5	40.7	166		0		
Surr: Tetrachloro-m-xylene	0.0312		0.05900		53.0	40	146		0		

Sample ID **1610007-001AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **10/5/2016** RunNo: **32195**
Client ID: **SC-1-5.0** Batch ID: **15066** Analysis Date: **10/7/2016** SeqNo: **609004**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	1.02	0.118	1.185	0	85.9	65	135				
Aroclor 1260	1.01	0.118	1.185	0	85.6	65	135				
Surr: Decachlorobiphenyl	0.0435		0.05924		73.4	40.7	166				
Surr: Tetrachloro-m-xylene	0.0397		0.05924		67.1	40	146				

Sample ID **1610007-001AMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **10/5/2016** RunNo: **32195**
Client ID: **SC-1-5.0** Batch ID: **15066** Analysis Date: **10/7/2016** SeqNo: **609005**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	1.00	0.118	1.182	0	84.7	65	135	1.017	1.56	30	
Aroclor 1260	1.04	0.118	1.182	0	88.2	65	135	1.014	2.82	30	
Surr: Decachlorobiphenyl	0.0360		0.05912		60.8	40.7	166		0		
Surr: Tetrachloro-m-xylene	0.0334		0.05912		56.6	40	146		0		

Work Order: 1610007
CLIENT: GeoEngineers
Project: Rufus - Block 20

QC SUMMARY REPORT

Polychlorinated Biphenyls (PCB) by EPA 8270 (GCMS)

Sample ID **1610007-001AMSD**	SampType: **MSD**				Units: **mg/Kg-dry**		Prep Date: **10/5/2016**			RunNo: **32195**		
Client ID: **SC-1-5.0**	Batch ID: **15066**						Analysis Date: **10/7/2016**			SeqNo: **609005**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val		%RPD	RPDLimit	Qual

Work Order: 1610007
CLIENT: GeoEngineers
Project: Rufus - Block 20

QC SUMMARY REPORT

Sample Moisture (Percent Moisture)

Sample ID **1609369-001ADUP** SampType: **DUP** Units: **wt%** Prep Date: **10/3/2016** RunNo: **32082**
Client ID: **BATCH** Batch ID: **R32082** Analysis Date: **10/3/2016** SeqNo: **606660**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	3.96	0.500						4.059	2.47	20	

Work Order: 1610007
CLIENT: GeoEngineers
Project: Rufus - Block 20

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID	**MB-14995**	SampType: **MBLK**			Units: **mg/Kg**		Prep Date: **10/3/2016**		RunNo: **32085**	
Client ID:	**MBLKS**	Batch ID: **14995**					Analysis Date: **10/3/2016**		SeqNo: **606710**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.0763									
Barium	ND	0.382									
Cadmium	ND	0.153									
Chromium	ND	0.0763									
Lead	ND	0.153									
Selenium	ND	0.382									
Silver	ND	0.0763									

Sample ID	**LCS-14995**	SampType: **LCS**			Units: **mg/Kg**		Prep Date: **10/3/2016**		RunNo: **32085**	
Client ID:	**LCSS**	Batch ID: **14995**					Analysis Date: **10/3/2016**		SeqNo: **606711**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	41.1	0.0800	40.00	0	103	80	120				
Barium	39.5	0.400	40.00	0	98.8	80	120				
Cadmium	2.16	0.160	2.000	0	108	80	120				
Chromium	39.2	0.0800	40.00	0	98.1	80	120				
Lead	19.7	0.160	20.00	0	98.5	80	120				
Selenium	3.45	0.400	4.000	0	86.4	80	120				
Silver	1.80	0.0800	2.000	0	90.0	80	120				

Sample ID	**1609374-001ADUP**	SampType: **DUP**			Units: **mg/Kg-dry**		Prep Date: **10/3/2016**		RunNo: **32085**	
Client ID:	**BATCH**	Batch ID: **14995**					Analysis Date: **10/3/2016**		SeqNo: **606713**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	3.20	0.0825						2.951	8.20	20	
Barium	35.7	0.413						34.51	3.37	20	
Cadmium	ND	0.165						0		20	
Chromium	21.2	0.0825						18.92	11.2	20	
Lead	8.20	0.165						7.985	2.62	20	
Selenium	0.922	0.413						0.8605	6.90	20	

Work Order: 1610007
CLIENT: GeoEngineers
Project: Rufus - Block 20

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID **1609374-001ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **10/3/2016** RunNo: **32085**
Client ID: **BATCH** Batch ID: **14995** Analysis Date: **10/3/2016** SeqNo: **606713**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Silver	ND	0.0825						0		20	

NOTES:
R - High RPD observed. The method is in control as indicated by the LCS.

Sample ID **1609374-001AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **10/3/2016** RunNo: **32085**
Client ID: **BATCH** Batch ID: **14995** Analysis Date: **10/3/2016** SeqNo: **606715**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	45.5	0.0825	41.27	2.951	103	75	125				
Barium	88.8	0.413	41.27	34.51	132	75	125				S
Cadmium	2.08	0.165	2.063	0.08211	97.0	75	125				
Chromium	69.8	0.0825	41.27	18.92	123	75	125				
Lead	27.1	0.165	20.63	7.985	92.6	75	125				
Selenium	4.80	0.413	4.127	0.8605	95.5	75	125				
Silver	1.13	0.0825	2.063	0.01969	54.0	75	125				S

NOTES:
S - Outlying spike recovery(ies) observed (Ba, Ag). A duplicate analysis was performed with similar results indicating a possible matrix effect.

Sample ID **1609374-001AMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **10/3/2016** RunNo: **32085**
Client ID: **BATCH** Batch ID: **14995** Analysis Date: **10/3/2016** SeqNo: **606716**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	48.7	0.0845	42.26	2.951	108	75	125	45.51	6.77	20	
Barium	105	0.423	42.26	34.51	167	75	125	88.83	16.9	20	S
Cadmium	2.22	0.169	2.113	0.08211	101	75	125	2.084	6.39	20	
Chromium	77.3	0.0845	42.26	18.92	138	75	125	69.78	10.2	20	S
Lead	30.4	0.169	21.13	7.985	106	75	125	27.10	11.4	20	
Selenium	5.26	0.423	4.226	0.8605	104	75	125	4.803	9.10	20	
Silver	1.24	0.0845	2.113	0.01969	57.8	75	125	1.135	8.94	20	S

NOTES:
S - Outlying spike recovery(ies) observed (Ba, Ag). A duplicate analysis was performed with similar results indicating a possible matrix effect.
S - Outlying spike recovery(ies) observed. A duplicate analysis was performed and recovered within range.

Work Order: 1610007
CLIENT: GeoEngineers
Project: Rufus - Block 20

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID **1609374-001APDS** SampType: **PDS** Units: **mg/Kg-dry** Prep Date: **10/3/2016** RunNo: **32085**
Client ID: **BATCH** Batch ID: **14995** Analysis Date: **10/3/2016** SeqNo: **606717**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	78.7	0.423	42.3	34.5	105	80	120				
Silver	1.28	0.0845	2.11	0.0197	59.9	80	120				S

NOTES:
S - Spike recovery indicates a possible matrix effect. The method is in control as indicated by the Laboratory Control Sample (LCS).

Work Order: 1610007
CLIENT: GeoEngineers
Project: Rufus - Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-15016** SampType: **LCS** Units: **mg/Kg** Prep Date: **10/4/2016** RunNo: **32130**
Client ID: **LCSS** Batch ID: **15016** Analysis Date: **10/4/2016** SeqNo: **607479**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	0.430	0.0600	1.000	0	43.0	34.5	141				Q
Chloromethane	0.761	0.0600	1.000	0	76.1	38.8	132				
Vinyl chloride	0.754	0.00200	1.000	0	75.4	44	142				
Bromomethane	1.02	0.0900	1.000	0	102	40.9	157				
Trichlorofluoromethane (CFC-11)	0.844	0.0500	1.000	0	84.4	42.9	147				
Chloroethane	0.900	0.0600	1.000	0	90.0	37.1	144				
1,1-Dichloroethene	0.938	0.0500	1.000	0	93.8	49.7	142				
Methylene chloride	1.03	0.0200	1.000	0	103	46.3	140				
trans-1,2-Dichloroethene	1.01	0.0200	1.000	0	101	68	130				
Methyl tert-butyl ether (MTBE)	1.03	0.0500	1.000	0	103	59.1	138				
1,1-Dichloroethane	1.04	0.0200	1.000	0	104	61.9	137				
2,2-Dichloropropane	1.34	0.0500	1.000	0	134	28.1	149				Q
cis-1,2-Dichloroethene	1.06	0.0200	1.000	0	106	71.3	135				
Chloroform	1.04	0.0200	1.000	0	104	67.5	129				
1,1,1-Trichloroethane (TCA)	1.02	0.0200	1.000	0	102	69	132				
1,1-Dichloropropene	1.01	0.0200	1.000	0	101	72.7	131				
Carbon tetrachloride	1.07	0.0200	1.000	0	107	63.4	137				
1,2-Dichloroethane (EDC)	1.04	0.0300	1.000	0	104	61.9	136				
Benzene	1.07	0.0200	1.000	0	107	64.3	133				
Trichloroethene (TCE)	1.05	0.0200	1.000	0	105	65.5	137				
1,2-Dichloropropane	1.10	0.0200	1.000	0	110	63.2	142				
Bromodichloromethane	1.05	0.0200	1.000	0	105	73.2	131				
Dibromomethane	1.08	0.0400	1.000	0	108	70	130				
cis-1,3-Dichloropropene	1.11	0.0200	1.000	0	111	59.1	143				
Toluene	1.11	0.0200	1.000	0	111	67.3	138				
trans-1,3-Dichloropropylene	1.14	0.0300	1.000	0	114	49.2	149				
1,1,2-Trichloroethane	1.11	0.0300	1.000	0	111	74.5	129				
1,3-Dichloropropane	1.08	0.0500	1.000	0	108	70	130				
Tetrachloroethene (PCE)	1.07	0.0200	1.000	0	107	52.7	150				
Dibromochloromethane	1.08	0.0300	1.000	0	108	70.6	144				
1,2-Dibromoethane (EDB)	1.06	0.00500	1.000	0	106	70	130				

Work Order: 1610007
CLIENT: GeoEngineers
Project: Rufus - Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-15016** SampType: **LCS** Units: **mg/Kg** Prep Date: **10/4/2016** RunNo: **32130**
Client ID: **LCSS** Batch ID: **15016** Analysis Date: **10/4/2016** SeqNo: **607479**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chlorobenzene	1.09	0.0200	1.000	0	109	76.1	123				
1,1,1,2-Tetrachloroethane	1.08	0.0300	1.000	0	108	65.9	141				
Ethylbenzene	1.05	0.0300	1.000	0	105	74	129				
m,p-Xylene	2.12	0.0200	2.000	0	106	70	124				
o-Xylene	1.05	0.0200	1.000	0	105	72.7	124				
Styrene	1.06	0.0200	1.000	0	106	76.8	130				
Isopropylbenzene	1.05	0.0800	1.000	0	105	70	130				
Bromoform	1.10	0.0200	1.000	0	110	67	154				
1,1,2,2-Tetrachloroethane	1.07	0.0200	1.000	0	107	60	130				
n-Propylbenzene	1.06	0.0200	1.000	0	106	74.8	125				
Bromobenzene	1.10	0.0300	1.000	0	110	49.2	144				
1,3,5-Trimethylbenzene	1.06	0.0200	1.000	0	106	74.6	123				
2-Chlorotoluene	1.06	0.0200	1.000	0	106	76.7	129				
4-Chlorotoluene	1.05	0.0200	1.000	0	105	77.5	125				
tert-Butylbenzene	1.05	0.0200	1.000	0	105	66.2	130				
1,2,3-Trichloropropane	1.09	0.0200	1.000	0	109	67.9	136				
1,2,4-Trichlorobenzene	1.12	0.0500	1.000	0	112	62.6	143				
sec-Butylbenzene	1.05	0.0200	1.000	0	105	75.6	133				
4-Isopropyltoluene	1.06	0.0200	1.000	0	106	76.8	131				
1,3-Dichlorobenzene	1.09	0.0200	1.000	0	109	72.8	128				
1,4-Dichlorobenzene	1.06	0.0200	1.000	0	106	72.6	126				
n-Butylbenzene	1.10	0.0200	1.000	0	110	65.3	136				
1,2-Dichlorobenzene	1.10	0.0200	1.000	0	110	72.8	126				
1,2-Dibromo-3-chloropropane	1.14	0.500	1.000	0	114	61.2	139				
1,2,4-Trimethylbenzene	1.07	0.0200	1.000	0	107	77.5	129				
Hexachlorobutadiene	1.11	0.100	1.000	0	111	42	151				
Naphthalene	1.15	0.0300	1.000	0	115	62.3	134				
1,2,3-Trichlorobenzene	1.12	0.0200	1.000	0	112	54.8	143				
Surr: Dibromofluoromethane	1.28		1.250		103	56.5	129				
Surr: Toluene-d8	1.28		1.250		103	64.3	131				
Surr: 1-Bromo-4-fluorobenzene	1.31		1.250		104	63.1	141				

Work Order: 1610007
CLIENT: GeoEngineers
Project: Rufus - Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-15016** SampType: **LCS** Units: **mg/Kg** Prep Date: **10/4/2016** RunNo: **32130**
Client ID: **LCSS** Batch ID: **15016** Analysis Date: **10/4/2016** SeqNo: **607479**

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

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample ID **MB-15016** SampType: **MBLK** Units: **mg/Kg** Prep Date: **10/4/2016** RunNo: **32130**
Client ID: **MBLKS** Batch ID: **15016** Analysis Date: **10/4/2016** SeqNo: **607480**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	ND	0.0600									Q
Chloromethane	ND	0.0600									
Vinyl chloride	ND	0.00200									
Bromomethane	ND	0.0900									
Trichlorofluoromethane (CFC-11)	ND	0.0500									
Chloroethane	ND	0.0600									
1,1-Dichloroethene	ND	0.0500									
Methylene chloride	ND	0.0200									
trans-1,2-Dichloroethene	ND	0.0200									
Methyl tert-butyl ether (MTBE)	ND	0.0500									
1,1-Dichloroethane	ND	0.0200									
2,2-Dichloropropane	ND	0.0500									Q
cis-1,2-Dichloroethene	ND	0.0200									
Chloroform	ND	0.0200									
1,1,1-Trichloroethane (TCA)	ND	0.0200									
1,1-Dichloropropene	ND	0.0200									
Carbon tetrachloride	ND	0.0200									
1,2-Dichloroethane (EDC)	ND	0.0300									
Benzene	ND	0.0200									
Trichloroethene (TCE)	ND	0.0200									
1,2-Dichloropropane	ND	0.0200									
Bromodichloromethane	ND	0.0200									
Dibromomethane	ND	0.0400									
cis-1,3-Dichloropropene	ND	0.0200									

Work Order: 1610007
CLIENT: GeoEngineers
Project: Rufus - Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-15016** SampType: **MBLK** Units: **mg/Kg** Prep Date: **10/4/2016** RunNo: **32130**
Client ID: **MBLKS** Batch ID: **15016** Analysis Date: **10/4/2016** SeqNo: **607480**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Toluene	ND	0.0200									
trans-1,3-Dichloropropylene	ND	0.0300									
1,1,2-Trichloroethane	ND	0.0300									
1,3-Dichloropropane	ND	0.0500									
Tetrachloroethene (PCE)	ND	0.0200									
Dibromochloromethane	ND	0.0300									
1,2-Dibromoethane (EDB)	ND	0.00500									
Chlorobenzene	ND	0.0200									
1,1,1,2-Tetrachloroethane	ND	0.0300									
Ethylbenzene	ND	0.0300									
m,p-Xylene	ND	0.0200									
o-Xylene	ND	0.0200									
Styrene	ND	0.0200									
Isopropylbenzene	ND	0.0800									
Bromoform	ND	0.0200									
1,1,2,2-Tetrachloroethane	ND	0.0200									
n-Propylbenzene	ND	0.0200									
Bromobenzene	ND	0.0300									
1,3,5-Trimethylbenzene	ND	0.0200									
2-Chlorotoluene	ND	0.0200									
4-Chlorotoluene	ND	0.0200									
tert-Butylbenzene	ND	0.0200									
1,2,3-Trichloropropane	ND	0.0200									
1,2,4-Trichlorobenzene	ND	0.0500									
sec-Butylbenzene	ND	0.0200									
4-Isopropyltoluene	ND	0.0200									
1,3-Dichlorobenzene	ND	0.0200									
1,4-Dichlorobenzene	ND	0.0200									
n-Butylbenzene	ND	0.0200									
1,2-Dichlorobenzene	ND	0.0200									
1,2-Dibromo-3-chloropropane	ND	0.500									

Work Order: 1610007
CLIENT: GeoEngineers
Project: Rufus - Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-15016** SampType: **MBLK** Units: **mg/Kg** Prep Date: **10/4/2016** RunNo: **32130**
Client ID: **MBLKS** Batch ID: **15016** Analysis Date: **10/4/2016** SeqNo: **607480**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trimethylbenzene	ND	0.0200									
Hexachlorobutadiene	ND	0.100									
Naphthalene	ND	0.0300									
1,2,3-Trichlorobenzene	ND	0.0200									
Surr: Dibromofluoromethane	1.24		1.250		99.4	56.5	129				
Surr: Toluene-d8	1.25		1.250		100	64.3	131				
Surr: 1-Bromo-4-fluorobenzene	1.22		1.250		97.2	63.1	141				

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample ID **1610007-001BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **10/4/2016** RunNo: **32130**
Client ID: **SC-1-5.0** Batch ID: **15016** Analysis Date: **10/4/2016** SeqNo: **607470**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	ND	0.0548						0		30	Q
Chloromethane	ND	0.0548						0		30	
Vinyl chloride	ND	0.00183						0		30	
Bromomethane	ND	0.0822						0		30	
Trichlorofluoromethane (CFC-11)	ND	0.0457						0		30	
Chloroethane	ND	0.0548						0		30	
1,1-Dichloroethene	ND	0.0457						0		30	
Methylene chloride	ND	0.0183						0		30	
trans-1,2-Dichloroethene	ND	0.0183						0		30	
Methyl tert-butyl ether (MTBE)	ND	0.0457						0		30	
1,1-Dichloroethane	ND	0.0183						0		30	
2,2-Dichloropropane	ND	0.0457						0		30	Q
cis-1,2-Dichloroethene	ND	0.0183						0		30	
Chloroform	ND	0.0183						0		30	
1,1,1-Trichloroethane (TCA)	ND	0.0183						0		30	
1,1-Dichloropropene	ND	0.0183						0		30	
Carbon tetrachloride	ND	0.0183						0		30	

Work Order: 1610007
CLIENT: GeoEngineers
Project: Rufus - Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1610007-001BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **10/4/2016** RunNo: **32130**
Client ID: **SC-1-5.0** Batch ID: **15016** Analysis Date: **10/4/2016** SeqNo: **607470**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2-Dichloroethane (EDC)	ND	0.0274						0		30	
Benzene	ND	0.0183						0		30	
Trichloroethene (TCE)	ND	0.0183						0		30	
1,2-Dichloropropane	ND	0.0183						0		30	
Bromodichloromethane	ND	0.0183						0		30	
Dibromomethane	ND	0.0365						0		30	
cis-1,3-Dichloropropene	ND	0.0183						0		30	
Toluene	ND	0.0183						0		30	
trans-1,3-Dichloropropylene	ND	0.0274						0		30	
1,1,2-Trichloroethane	ND	0.0274						0		30	
1,3-Dichloropropane	ND	0.0457						0		30	
Tetrachloroethene (PCE)	ND	0.0183						0		30	
Dibromochloromethane	ND	0.0274						0		30	
1,2-Dibromoethane (EDB)	ND	0.00457						0		30	
Chlorobenzene	ND	0.0183						0		30	
1,1,1,2-Tetrachloroethane	ND	0.0274						0		30	
Ethylbenzene	ND	0.0274						0		30	
m,p-Xylene	ND	0.0183						0		30	
o-Xylene	ND	0.0183						0		30	
Styrene	ND	0.0183						0		30	
Isopropylbenzene	ND	0.0731						0		30	
Bromoform	ND	0.0183						0		30	
1,1,2,2-Tetrachloroethane	ND	0.0183						0		30	
n-Propylbenzene	ND	0.0183						0		30	
Bromobenzene	ND	0.0274						0		30	
1,3,5-Trimethylbenzene	ND	0.0183						0		30	
2-Chlorotoluene	ND	0.0183						0		30	
4-Chlorotoluene	ND	0.0183						0		30	
tert-Butylbenzene	ND	0.0183						0		30	
1,2,3-Trichloropropane	ND	0.0183						0		30	
1,2,4-Trichlorobenzene	ND	0.0457						0		30	

Work Order: 1610007
CLIENT: GeoEngineers
Project: Rufus - Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1610007-001BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **10/4/2016** RunNo: **32130**
Client ID: **SC-1-5.0** Batch ID: **15016** Analysis Date: **10/4/2016** SeqNo: **607470**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
sec-Butylbenzene	ND	0.0183						0		30	
4-Isopropyltoluene	ND	0.0183						0		30	
1,3-Dichlorobenzene	ND	0.0183						0		30	
1,4-Dichlorobenzene	ND	0.0183						0		30	
n-Butylbenzene	ND	0.0183						0		30	
1,2-Dichlorobenzene	ND	0.0183						0		30	
1,2-Dibromo-3-chloropropane	ND	0.457						0		30	
1,2,4-Trimethylbenzene	ND	0.0183						0		30	
Hexachlorobutadiene	ND	0.0913						0		30	
Naphthalene	ND	0.0274						0		30	
1,2,3-Trichlorobenzene	ND	0.0183						0		30	
Surr: Dibromofluoromethane	1.09		1.141		95.2	56.5	129		0		
Surr: Toluene-d8	1.18		1.141		103	64.3	131		0		
Surr: 1-Bromo-4-fluorobenzene	1.12		1.141		98.1	63.1	141		0		

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample ID **1610034-001BMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **10/4/2016** RunNo: **32130**
Client ID: **BATCH** Batch ID: **15016** Analysis Date: **10/5/2016** SeqNo: **607475**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	0.661	0.0670	1.117	0	59.2	43.5	121				Q
Chloromethane	1.17	0.0670	1.117	0	105	45	130				
Vinyl chloride	1.03	0.00223	1.117	0	92.5	51.2	146				
Bromomethane	0.962	0.101	1.117	0	86.1	21.3	120				
Trichlorofluoromethane (CFC-11)	0.648	0.0558	1.117	0	58.0	35	131				
Chloroethane	0.782	0.0670	1.117	0	70.0	43.8	117				
1,1-Dichloroethene	1.15	0.0558	1.117	0	103	61.9	141				
Methylene chloride	1.24	0.0223	1.117	0	111	54.7	142				
trans-1,2-Dichloroethene	1.20	0.0223	1.117	0	107	52	136				
Methyl tert-butyl ether (MTBE)	1.20	0.0558	1.117	0	108	54.4	132				

Work Order: 1610007
CLIENT: GeoEngineers
Project: Rufus - Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1610034-001BMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **10/4/2016** RunNo: **32130**
Client ID: **BATCH** Batch ID: **15016** Analysis Date: **10/5/2016** SeqNo: **607475**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethane	1.18	0.0223	1.117	0	105	51.8	141				
2,2-Dichloropropane	1.25	0.0558	1.117	0	112	36	123				Q
cis-1,2-Dichloroethene	1.25	0.0223	1.117	0	112	58.6	136				
Chloroform	1.16	0.0223	1.117	0	104	53.2	129				
1,1,1-Trichloroethane (TCA)	1.14	0.0223	1.117	0	102	58.3	145				
1,1-Dichloropropene	1.21	0.0223	1.117	0	109	55.1	138				
Carbon tetrachloride	1.24	0.0223	1.117	0	111	53.3	144				
1,2-Dichloroethane (EDC)	1.17	0.0335	1.117	0	104	51.3	139				
Benzene	1.25	0.0223	1.117	0	112	63.5	133				
Trichloroethene (TCE)	1.19	0.0223	1.117	0	107	68.6	132				
1,2-Dichloropropane	1.24	0.0223	1.117	0	111	59	136				
Bromodichloromethane	1.06	0.0223	1.117	0	94.8	50.7	141				
Dibromomethane	1.17	0.0447	1.117	0	105	50.6	137				
cis-1,3-Dichloropropene	1.14	0.0223	1.117	0	103	50.4	138				
Toluene	1.29	0.0223	1.117	0	115	63.4	132				
trans-1,3-Dichloropropylene	1.17	0.0335	1.117	0	104	44.1	147				
1,1,2-Trichloroethane	1.19	0.0335	1.117	0	106	51.6	137				
1,3-Dichloropropane	1.21	0.0558	1.117	0	108	53.1	134				
Tetrachloroethene (PCE)	1.24	0.0223	1.117	0	111	35.6	158				
Dibromochloromethane	1.06	0.0335	1.117	0	94.6	55.3	140				
1,2-Dibromoethane (EDB)	1.17	0.00558	1.117	0	105	50.4	136				
Chlorobenzene	1.23	0.0223	1.117	0	110	60	133				
1,1,1,2-Tetrachloroethane	1.12	0.0335	1.117	0	100	53.1	142				
Ethylbenzene	1.22	0.0335	1.117	0.01340	108	54.5	134				
m,p-Xylene	2.45	0.0223	2.234	0.02681	108	53.1	132				
o-Xylene	1.24	0.0223	1.117	0	111	53.3	139				
Styrene	1.24	0.0223	1.117	0	111	51.1	132				
Isopropylbenzene	1.28	0.0894	1.117	0.02178	112	58.9	138				
Bromoform	0.975	0.0223	1.117	0	87.3	57.9	130				
1,1,2,2-Tetrachloroethane	1.14	0.0223	1.117	0	102	51.9	131				
n-Propylbenzene	1.31	0.0223	1.117	0.04021	114	53.6	140				

Work Order: 1610007
CLIENT: GeoEngineers
Project: Rufus - Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1610034-001BMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **10/4/2016** RunNo: **32130**
Client ID: **BATCH** Batch ID: **15016** Analysis Date: **10/5/2016** SeqNo: **607475**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromobenzene	1.25	0.0335	1.117	0	112	54.2	140				
1,3,5-Trimethylbenzene	1.31	0.0223	1.117	0.03239	114	51.8	136				
2-Chlorotoluene	1.23	0.0223	1.117	0	110	51.6	136				
4-Chlorotoluene	1.24	0.0223	1.117	0	111	50.1	139				
tert-Butylbenzene	1.29	0.0223	1.117	0	115	50.5	135				
1,2,3-Trichloropropane	1.14	0.0223	1.117	0	102	50.5	131				
1,2,4-Trichlorobenzene	1.32	0.0558	1.117	0	118	50.8	130				
sec-Butylbenzene	1.35	0.0223	1.117	0.04691	117	52.6	141				
4-Isopropyltoluene	1.39	0.0223	1.117	0.04412	120	52.9	134				
1,3-Dichlorobenzene	1.25	0.0223	1.117	0	112	52.6	131				
1,4-Dichlorobenzene	1.21	0.0223	1.117	0	108	52.9	129				
n-Butylbenzene	1.49	0.0223	1.117	0.08489	126	52.6	130				
1,2-Dichlorobenzene	1.24	0.0223	1.117	0	111	55.8	129				
1,2-Dibromo-3-chloropropane	0.981	0.558	1.117	0	87.8	40.5	131				
1,2,4-Trimethylbenzene	1.44	0.0223	1.117	0.1312	117	50.6	137				
Hexachlorobutadiene	1.48	0.112	1.117	0	133	40.6	158				
Naphthalene	1.45	0.0335	1.117	0.1273	118	52.3	124				
1,2,3-Trichlorobenzene	1.29	0.0223	1.117	0	116	54.4	124				
Surr: Dibromofluoromethane	1.39		1.396		99.3	56.5	129				
Surr: Toluene-d8	1.44		1.396		103	64.3	131				
Surr: 1-Bromo-4-fluorobenzene	1.46		1.396		105	63.1	141				

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample ID **1610034-001BMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **10/4/2016** RunNo: **32130**
Client ID: **BATCH** Batch ID: **15016** Analysis Date: **10/5/2016** SeqNo: **607476**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	0.606	0.0670	1.117	0	54.2	43.5	121	0.6607	8.64	30	Q
Chloromethane	1.13	0.0670	1.117	0	101	45	130	1.173	3.73	30	
Vinyl chloride	0.979	0.00223	1.117	0	87.7	51.2	146	1.033	5.38	30	

Work Order: 1610007
CLIENT: GeoEngineers
Project: Rufus - Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1610034-001BMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **10/4/2016** RunNo: **32130**
Client ID: **BATCH** Batch ID: **15016** Analysis Date: **10/5/2016** SeqNo: **607476**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromomethane	0.910	0.101	1.117	0	81.4	21.3	120	0.9617	5.55	30	
Trichlorofluoromethane (CFC-11)	0.547	0.0558	1.117	0	49.0	35	131	0.6478	16.8	30	
Chloroethane	0.717	0.0670	1.117	0	64.2	43.8	117	0.7824	8.72	30	
1,1-Dichloroethene	1.07	0.0558	1.117	0	96.0	61.9	141	1.145	6.65	30	
Methylene chloride	1.16	0.0223	1.117	0	104	54.7	142	1.239	6.47	30	
trans-1,2-Dichloroethene	1.13	0.0223	1.117	0	102	52	136	1.197	5.37	30	
Methyl tert-butyl ether (MTBE)	1.23	0.0558	1.117	0	110	54.4	132	1.205	1.88	30	
1,1-Dichloroethane	1.13	0.0223	1.117	0	101	51.8	141	1.175	3.78	30	
2,2-Dichloropropane	1.22	0.0558	1.117	0	109	36	123	1.246	2.13	30	Q
cis-1,2-Dichloroethene	1.20	0.0223	1.117	0	107	58.6	136	1.248	4.25	30	
Chloroform	1.11	0.0223	1.117	0	99.5	53.2	129	1.164	4.66	30	
1,1,1-Trichloroethane (TCA)	1.08	0.0223	1.117	0	96.7	58.3	145	1.138	5.19	30	
1,1-Dichloropropene	1.19	0.0223	1.117	0	106	55.1	138	1.214	2.05	30	
Carbon tetrachloride	1.10	0.0223	1.117	0	98.5	53.3	144	1.240	12.0	30	
1,2-Dichloroethane (EDC)	1.13	0.0335	1.117	0	101	51.3	139	1.166	3.51	30	
Benzene	1.18	0.0223	1.117	0	106	63.5	133	1.246	5.06	30	
Trichloroethene (TCE)	1.15	0.0223	1.117	0	103	68.6	132	1.193	3.82	30	
1,2-Dichloropropane	1.20	0.0223	1.117	0	108	59	136	1.239	3.07	30	
Bromodichloromethane	1.02	0.0223	1.117	0	91.2	50.7	141	1.059	3.92	30	
Dibromomethane	1.14	0.0447	1.117	0	102	50.6	137	1.168	2.76	30	
cis-1,3-Dichloropropene	1.14	0.0223	1.117	0	102	50.4	138	1.145	0.587	30	
Toluene	1.25	0.0223	1.117	0	112	63.4	132	1.288	3.39	30	
trans-1,3-Dichloropropylene	1.17	0.0335	1.117	0	105	44.1	147	1.166	0.573	30	
1,1,2-Trichloroethane	1.16	0.0335	1.117	0	104	51.6	137	1.188	2.43	30	
1,3-Dichloropropane	1.19	0.0558	1.117	0	107	53.1	134	1.205	1.07	30	
Tetrachloroethene (PCE)	1.18	0.0223	1.117	0	106	35.6	158	1.242	4.79	30	
Dibromochloromethane	1.04	0.0335	1.117	0	92.9	55.3	140	1.057	1.87	30	
1,2-Dibromoethane (EDB)	1.15	0.00558	1.117	0	103	50.4	136	1.172	2.07	30	
Chlorobenzene	1.17	0.0223	1.117	0	105	60	133	1.231	4.97	30	
1,1,1,2-Tetrachloroethane	1.07	0.0335	1.117	0	95.6	53.1	142	1.116	4.45	30	
Ethylbenzene	1.16	0.0335	1.117	0.01340	102	54.5	134	1.221	5.40	30	

Work Order: 1610007
CLIENT: GeoEngineers
Project: Rufus - Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1610034-001BMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **10/4/2016** RunNo: **32130**
Client ID: **BATCH** Batch ID: **15016** Analysis Date: **10/5/2016** SeqNo: **607476**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
m,p-Xylene	2.33	0.0223	2.234	0.02681	103	53.1	132	2.451	5.12	30	
o-Xylene	1.18	0.0223	1.117	0	105	53.3	139	1.244	5.63	30	
Styrene	1.18	0.0223	1.117	0	106	51.1	132	1.240	4.79	30	
Isopropylbenzene	1.21	0.0894	1.117	0.02178	107	58.9	138	1.278	5.25	30	
Bromoform	0.967	0.0223	1.117	0	86.6	57.9	130	0.9751	0.863	30	
1,1,2,2-Tetrachloroethane	1.12	0.0223	1.117	0	99.9	51.9	131	1.136	1.79	30	
n-Propylbenzene	1.24	0.0223	1.117	0.04021	108	53.6	140	1.314	5.73	30	
Bromobenzene	1.20	0.0335	1.117	0	108	54.2	140	1.248	3.78	30	
1,3,5-Trimethylbenzene	1.25	0.0223	1.117	0.03239	109	51.8	136	1.309	4.36	30	
2-Chlorotoluene	1.17	0.0223	1.117	0	105	51.6	136	1.225	4.52	30	
4-Chlorotoluene	1.18	0.0223	1.117	0	106	50.1	139	1.238	4.95	30	
tert-Butylbenzene	1.23	0.0223	1.117	0	110	50.5	135	1.290	4.79	30	
1,2,3-Trichloropropane	1.12	0.0223	1.117	0	100	50.5	131	1.143	2.12	30	
1,2,4-Trichlorobenzene	1.32	0.0558	1.117	0	118	50.8	130	1.321	0.296	30	
sec-Butylbenzene	1.28	0.0223	1.117	0.04691	110	52.6	141	1.352	5.56	30	
4-Isopropyltoluene	1.32	0.0223	1.117	0.04412	114	52.9	134	1.386	5.08	30	
1,3-Dichlorobenzene	1.23	0.0223	1.117	0	110	52.6	131	1.249	1.81	30	
1,4-Dichlorobenzene	1.20	0.0223	1.117	0	107	52.9	129	1.207	0.883	30	
n-Butylbenzene	1.44	0.0223	1.117	0.08489	121	52.6	130	1.490	3.43	30	
1,2-Dichlorobenzene	1.23	0.0223	1.117	0	110	55.8	129	1.244	0.811	30	
1,2-Dibromo-3-chloropropane	1.04	0.558	1.117	0	93.4	40.5	131	0.9807	6.13	30	
1,2,4-Trimethylbenzene	1.39	0.0223	1.117	0.1312	112	50.6	137	1.438	3.68	30	
Hexachlorobutadiene	1.44	0.112	1.117	0	129	40.6	158	1.482	2.98	30	
Naphthalene	1.47	0.0335	1.117	0.1273	120	52.3	124	1.446	1.34	30	
1,2,3-Trichlorobenzene	1.28	0.0223	1.117	0	114	54.4	124	1.295	1.35	30	
Surr: Dibromofluoromethane	1.37		1.396		97.8	56.5	129		0		
Surr: Toluene-d8	1.44		1.396		103	64.3	131		0		
Surr: 1-Bromo-4-fluorobenzene	1.45		1.396		104	63.1	141		0		

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample Log-In Check List

Client Name:	**GEI**	Work Order Number:	**1610007**
Logged by:	**Erica Silva**	Date Received:	**9/30/2016 4:30:00 PM**

Chain of Custody

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

Log In

3.	Coolers are present?	Yes ☐	No ☑	NA ☐
		No cooler present		
4.	Shipping container/cooler in good condition?	Yes ☑	No ☐	
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes ☐	No ☐	Not Required ☑
6.	Was an attempt made to cool the samples?	Yes ☐	No ☑	NA ☐
		Unknown prior to receipt		
7.	Were all items received at a temperature of >0°C to 10.0°C*	Yes ☐	No ☑	NA ☐
		Please refer to Item Information		
8.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
9.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
10.	Are samples properly preserved?	Yes ☑	No ☐	
11.	Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
12.	Is there headspace in the VOA vials?	Yes ☐	No ☐	NA ☑
13.	Did all samples containers arrive in good condition(unbroken)?	Yes ☑	No ☐	
14.	Does paperwork match bottle labels?	Yes ☑	No ☐	
15.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
16.	Is it clear what analyses were requested?	Yes ☑	No ☐	
17.	Were all holding times able to be met?	Yes ☑	No ☐	

Special Handling (if applicable)

18.	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: _____

19. Additional remarks:

Item Information

Item #	Temp ºC
Sample	21.8

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Chain of Custody Record and Laboratory Services Agreement

Fremont Analytical
3600 Fremont Ave N. Tel: 206-352-3790
Seattle, WA 98103 Fax: 206-352-7178

Date: 9/30/16 Laboratory Project No (internal): 1610007

Page: 1 of: 1

Client: GeoEngineers
Address:
City, State, Zip:
Telephone: Fax:

Project Name: Rufus - Block 20
Project No: 20434-001-24 Collected by: Sydney Bronson
Location: Seattle
Report To (PM): Chris Brower
PM Email:

*Matrix Codes: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T) | Dissolved (D)	Anions (IC)***	EDB (8011)	Comments
1	SC-1-5.0	9/30/16	1120	S	X			X		X		X	X	X				
2	SC-2-15.0	9/30/16	1125	S	X			X		X		X	X	X				
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		

**Metals Analysis (Circle): MTCA-5 (RCRA-8) Priority Pollutants TAL *Individual:* Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☒ Disposal by Lab (Samples will be held for 30 days unless otherwise noted. A fee may be assessed if samples are retained after 30 days.)

Turn-around times for samples received after 4:00pm will begin on the following business day.

Special Remarks:

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above, that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x Mei Rose	9/30/16 1630	x Wayne	9/30/16 16:30
x		x	

TAT → SameDay^ NextDay^ 2 Day 3 Day (STD)

^Please coordinate with the lab in advance

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

GeoEngineers
Chris Brown
600 Stewart Street, Suite 1700
Seattle, WA 98101

RE: Rufus Block 20
Work Order Number: 1610034

October 11, 2016

Attention Chris Brown:

Fremont Analytical, Inc. received 1 sample(s) on 10/4/2016 for the analyses presented in the following report.

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.
Gasoline by NWTPH-Gx
Hexavalent Chromium by EPA Method 7196
Mercury by EPA Method 7471
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)
Sample Moisture (Percent Moisture)
Total Metals by EPA Method 6020
Volatile Organic Compounds by EPA Method 8260C

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Mike Ridgeway
Laboratory Director

Date: *10/11/2016*

CLIENT: GeoEngineers
Project: Rufus Block 20
Work Order: 1610034

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1610034-001	W9-SP-25	10/04/2016 11:30 AM	10/04/2016 12:05 PM

Case Narrative

WO#: **1610034**
Date: **10/11/2016**

CLIENT: GeoEngineers
Project: Rufus Block 20

I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Analytical Report

Work Order: **1610034**
Date Reported: **10/11/2016**

Client: GeoEngineers
Collection Date: 10/4/2016 11:30:00 AM
Project: Rufus Block 20
Lab ID: 1610034-001
Matrix: Soil
Client Sample ID: **W9-SP-25**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 15013		Analyst: WC
Diesel (Fuel Oil)	ND	22.9		mg/Kg-dry	1	10/4/2016 3:54:00 PM
Heavy Oil	ND	57.1		mg/Kg-dry	1	10/4/2016 3:54:00 PM
Heavy Oil Range Organics (C24-37)	135	57.1		mg/Kg-dry	1	10/4/2016 3:54:00 PM
Surr: 2-Fluorobiphenyl	94.4	50-150		%Rec	1	10/4/2016 3:54:00 PM
Surr: o-Terphenyl	96.3	50-150		%Rec	1	10/4/2016 3:54:00 PM

NOTES:
Heavy Oil Range Organics - Indicates the presence of unresolved compounds in the Lube+ Oil ranges.

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 15014		Analyst: BT
Naphthalene	ND	43.3		µg/Kg-dry	1	10/5/2016 5:52:14 AM
2-Methylnaphthalene	ND	43.3		µg/Kg-dry	1	10/5/2016 5:52:14 AM
1-Methylnaphthalene	ND	43.3		µg/Kg-dry	1	10/5/2016 5:52:14 AM
Acenaphthylene	ND	43.3		µg/Kg-dry	1	10/5/2016 5:52:14 AM
Acenaphthene	ND	43.3		µg/Kg-dry	1	10/5/2016 5:52:14 AM
Fluorene	ND	43.3		µg/Kg-dry	1	10/5/2016 5:52:14 AM
Phenanthrene	727	43.3		µg/Kg-dry	1	10/5/2016 5:52:14 AM
Anthracene	108	43.3		µg/Kg-dry	1	10/5/2016 5:52:14 AM
Fluoranthene	1,890	43.3		µg/Kg-dry	1	10/5/2016 5:52:14 AM
Pyrene	1,520	43.3		µg/Kg-dry	1	10/5/2016 5:52:14 AM
Benz(a)anthracene	776	43.3		µg/Kg-dry	1	10/5/2016 5:52:14 AM
Chrysene	666	43.3		µg/Kg-dry	1	10/5/2016 5:52:14 AM
Benzo(b)fluoranthene	1,220	43.3		µg/Kg-dry	1	10/5/2016 5:52:14 AM
Benzo(k)fluoranthene	383	43.3		µg/Kg-dry	1	10/5/2016 5:52:14 AM
Benzo(a)pyrene	827	43.3		µg/Kg-dry	1	10/5/2016 5:52:14 AM
Indeno(1,2,3-cd)pyrene	381	43.3		µg/Kg-dry	1	10/5/2016 5:52:14 AM
Dibenz(a,h)anthracene	140	43.3		µg/Kg-dry	1	10/5/2016 5:52:14 AM
Benzo(g,h,i)perylene	319	43.3		µg/Kg-dry	1	10/5/2016 5:52:14 AM
Surr: 2-Fluorobiphenyl	72.0	32.2-123		%Rec	1	10/5/2016 5:52:14 AM
Surr: Terphenyl-d14 (surr)	88.3	42.2-152		%Rec	1	10/5/2016 5:52:14 AM

Gasoline by NWTPH-Gx				Batch ID: 15016		Analyst: NG
Gasoline	ND	5.58		mg/Kg-dry	1	10/4/2016 11:35:55 PM
Gasoline Range Organics (C6-C12)	39.8	5.58		mg/Kg-dry	1	10/4/2016 11:35:55 PM
Surr: Toluene-d8	99.1	65-135		%Rec	1	10/4/2016 11:35:55 PM
Surr: 4-Bromofluorobenzene	102	65-135		%Rec	1	10/4/2016 11:35:55 PM

NOTES:
GRO - Indicates the presence of unresolved compounds eluting from toluene to dodecane (~C7->C12).

Client: GeoEngineers
Project: Rufus Block 20
Lab ID: 1610034-001
Client Sample ID: **W9-SP-25**

Collection Date: 10/4/2016 11:30:00 AM
Matrix: Soil

Volatile Organic Compounds by EPA Method 8260C Batch ID: 15016 Analyst: NG

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane (CFC-12)	ND	0.0670	Q	mg/Kg-dry	1	10/4/2016 11:35:55 PM
Chloromethane	ND	0.0670		mg/Kg-dry	1	10/4/2016 11:35:55 PM
Vinyl chloride	ND	0.00223		mg/Kg-dry	1	10/4/2016 11:35:55 PM
Bromomethane	ND	0.101		mg/Kg-dry	1	10/4/2016 11:35:55 PM
Trichlorofluoromethane (CFC-11)	ND	0.0558		mg/Kg-dry	1	10/4/2016 11:35:55 PM
Chloroethane	ND	0.0670		mg/Kg-dry	1	10/4/2016 11:35:55 PM
1,1-Dichloroethene	ND	0.0558		mg/Kg-dry	1	10/4/2016 11:35:55 PM
Methylene chloride	ND	0.0223		mg/Kg-dry	1	10/4/2016 11:35:55 PM
trans-1,2-Dichloroethene	ND	0.0223		mg/Kg-dry	1	10/4/2016 11:35:55 PM
Methyl tert-butyl ether (MTBE)	ND	0.0558		mg/Kg-dry	1	10/4/2016 11:35:55 PM
1,1-Dichloroethane	ND	0.0223		mg/Kg-dry	1	10/4/2016 11:35:55 PM
2,2-Dichloropropane	ND	0.0558	Q	mg/Kg-dry	1	10/4/2016 11:35:55 PM
cis-1,2-Dichloroethene	ND	0.0223		mg/Kg-dry	1	10/4/2016 11:35:55 PM
Chloroform	ND	0.0223		mg/Kg-dry	1	10/4/2016 11:35:55 PM
1,1,1-Trichloroethane (TCA)	ND	0.0223		mg/Kg-dry	1	10/4/2016 11:35:55 PM
1,1-Dichloropropene	ND	0.0223		mg/Kg-dry	1	10/4/2016 11:35:55 PM
Carbon tetrachloride	ND	0.0223		mg/Kg-dry	1	10/4/2016 11:35:55 PM
1,2-Dichloroethane (EDC)	ND	0.0335		mg/Kg-dry	1	10/4/2016 11:35:55 PM
Benzene	ND	0.0223		mg/Kg-dry	1	10/4/2016 11:35:55 PM
Trichloroethene (TCE)	ND	0.0223		mg/Kg-dry	1	10/4/2016 11:35:55 PM
1,2-Dichloropropane	ND	0.0223		mg/Kg-dry	1	10/4/2016 11:35:55 PM
Bromodichloromethane	ND	0.0223		mg/Kg-dry	1	10/4/2016 11:35:55 PM
Dibromomethane	ND	0.0447		mg/Kg-dry	1	10/4/2016 11:35:55 PM
cis-1,3-Dichloropropene	ND	0.0223		mg/Kg-dry	1	10/4/2016 11:35:55 PM
Toluene	ND	0.0223		mg/Kg-dry	1	10/4/2016 11:35:55 PM
trans-1,3-Dichloropropylene	ND	0.0335		mg/Kg-dry	1	10/4/2016 11:35:55 PM
1,1,2-Trichloroethane	ND	0.0335		mg/Kg-dry	1	10/4/2016 11:35:55 PM
1,3-Dichloropropane	ND	0.0558		mg/Kg-dry	1	10/4/2016 11:35:55 PM
Tetrachloroethene (PCE)	ND	0.0223		mg/Kg-dry	1	10/4/2016 11:35:55 PM
Dibromochloromethane	ND	0.0335		mg/Kg-dry	1	10/4/2016 11:35:55 PM
1,2-Dibromoethane (EDB)	ND	0.00558		mg/Kg-dry	1	10/4/2016 11:35:55 PM
Chlorobenzene	ND	0.0223		mg/Kg-dry	1	10/4/2016 11:35:55 PM
1,1,1,2-Tetrachloroethane	ND	0.0335		mg/Kg-dry	1	10/4/2016 11:35:55 PM
Ethylbenzene	ND	0.0335		mg/Kg-dry	1	10/4/2016 11:35:55 PM
m,p-Xylene	0.0268	0.0223		mg/Kg-dry	1	10/4/2016 11:35:55 PM
o-Xylene	ND	0.0223		mg/Kg-dry	1	10/4/2016 11:35:55 PM
Styrene	ND	0.0223		mg/Kg-dry	1	10/4/2016 11:35:55 PM
Isopropylbenzene	ND	0.0894		mg/Kg-dry	1	10/4/2016 11:35:55 PM
Bromoform	ND	0.0223		mg/Kg-dry	1	10/4/2016 11:35:55 PM

Client: GeoEngineers
Collection Date: 10/4/2016 11:30:00 AM
Project: Rufus Block 20
Lab ID: 1610034-001
Matrix: Soil
Client Sample ID: **W9-SP-25**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15016		Analyst: NG
1,1,2,2-Tetrachloroethane	ND	0.0223		mg/Kg-dry	1	10/4/2016 11:35:55 PM
n-Propylbenzene	0.0402	0.0223		mg/Kg-dry	1	10/4/2016 11:35:55 PM
Bromobenzene	ND	0.0335		mg/Kg-dry	1	10/4/2016 11:35:55 PM
1,3,5-Trimethylbenzene	0.0324	0.0223		mg/Kg-dry	1	10/4/2016 11:35:55 PM
2-Chlorotoluene	ND	0.0223		mg/Kg-dry	1	10/4/2016 11:35:55 PM
4-Chlorotoluene	ND	0.0223		mg/Kg-dry	1	10/4/2016 11:35:55 PM
tert-Butylbenzene	ND	0.0223		mg/Kg-dry	1	10/4/2016 11:35:55 PM
1,2,3-Trichloropropane	ND	0.0223		mg/Kg-dry	1	10/4/2016 11:35:55 PM
1,2,4-Trichlorobenzene	ND	0.0558		mg/Kg-dry	1	10/4/2016 11:35:55 PM
sec-Butylbenzene	0.0469	0.0223		mg/Kg-dry	1	10/4/2016 11:35:55 PM
4-Isopropyltoluene	0.0441	0.0223		mg/Kg-dry	1	10/4/2016 11:35:55 PM
1,3-Dichlorobenzene	ND	0.0223		mg/Kg-dry	1	10/4/2016 11:35:55 PM
1,4-Dichlorobenzene	ND	0.0223		mg/Kg-dry	1	10/4/2016 11:35:55 PM
n-Butylbenzene	0.0849	0.0223		mg/Kg-dry	1	10/4/2016 11:35:55 PM
1,2-Dichlorobenzene	ND	0.0223		mg/Kg-dry	1	10/4/2016 11:35:55 PM
1,2-Dibromo-3-chloropropane	ND	0.558		mg/Kg-dry	1	10/4/2016 11:35:55 PM
1,2,4-Trimethylbenzene	0.131	0.0223		mg/Kg-dry	1	10/4/2016 11:35:55 PM
Hexachlorobutadiene	ND	0.112		mg/Kg-dry	1	10/4/2016 11:35:55 PM
Naphthalene	0.127	0.0335		mg/Kg-dry	1	10/4/2016 11:35:55 PM
1,2,3-Trichlorobenzene	ND	0.0223		mg/Kg-dry	1	10/4/2016 11:35:55 PM
Surr: Dibromofluoromethane	94.7	56.5-129		%Rec	1	10/4/2016 11:35:55 PM
Surr: Toluene-d8	102	64.3-131		%Rec	1	10/4/2016 11:35:55 PM
Surr: 1-Bromo-4-fluorobenzene	100	63.1-141		%Rec	1	10/4/2016 11:35:55 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Mercury by EPA Method 7471				Batch ID: 15024		Analyst: MW
Mercury	ND	0.265		mg/Kg-dry	1	10/5/2016 12:00:21 PM
Total Metals by EPA Method 6020				Batch ID: 15015		Analyst: TN
Arsenic	3.64	0.0873		mg/Kg-dry	1	10/5/2016 11:10:36 AM
Cadmium	ND	0.175		mg/Kg-dry	1	10/5/2016 11:10:36 AM
Chromium	38.4	0.0873		mg/Kg-dry	1	10/5/2016 11:10:36 AM
Lead	8.08	0.175		mg/Kg-dry	1	10/5/2016 11:10:36 AM

Analytical Report

Work Order: **1610034**
Date Reported: **10/11/2016**

Client: GeoEngineers
Project: Rufus Block 20
Lab ID: 1610034-001
Client Sample ID: **W9-SP-25**

Collection Date: 10/4/2016 11:30:00 AM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R32111		Analyst: CG
Percent Moisture	12.6			wt%	1	10/4/2016 1:16:09 PM
Hexavalent Chromium by EPA Method 7196				Batch ID: 15060		Analyst: KT
Chromium, Hexavalent	ND	0.567		mg/Kg-dry	1	10/7/2016 2:05:00 PM

Work Order: 1610034
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID **MB-15013**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **10/4/2016**	RunNo: **32121**
Client ID: **MBLKS**	Batch ID: **15013**		Analysis Date: **10/4/2016**	SeqNo: **607429**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	20.0									
Heavy Oil	ND	50.0									
Surr: 2-Fluorobiphenyl	18.9		20.00		94.7	50	150				
Surr: o-Terphenyl	18.7		20.00		93.6	50	150				

Sample ID **LCS-15013**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **10/4/2016**	RunNo: **32121**
Client ID: **LCSS**	Batch ID: **15013**		Analysis Date: **10/4/2016**	SeqNo: **607428**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	501	20.0	500.0	0	100	65	135				
Surr: 2-Fluorobiphenyl	22.9		20.00		114	50	150				
Surr: o-Terphenyl	22.2		20.00		111	50	150				

Sample ID **1610007-001ADUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **10/4/2016**	RunNo: **32121**
Client ID: **BATCH**	Batch ID: **15013**		Analysis Date: **10/4/2016**	SeqNo: **607403**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	21.9						0		30	
Heavy Oil	119	54.9						36.35	107	30	R
Surr: 2-Fluorobiphenyl	19.7		21.94		89.7	50	150		0		
Surr: o-Terphenyl	19.6		21.94		89.4	50	150		0		

NOTES:
R - High RPD due to suspected sample inhomogeneity. The method is in control as indicated by the Laboratory Control Sample (LCS).

Sample ID **1610007-001AMS**	SampType: **MS**	Units: **mg/Kg-dry**	Prep Date: **10/4/2016**	RunNo: **32121**
Client ID: **BATCH**	Batch ID: **15013**		Analysis Date: **10/4/2016**	SeqNo: **607404**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	581	23.3	582.5	0	99.7	65	135				
Surr: 2-Fluorobiphenyl	24.2		23.30		104	50	150				

Work Order: 1610034
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID **1610007-001AMS**	SampType: **MS**			Units: **mg/Kg-dry**	Prep Date: **10/4/2016**			RunNo: **32121**		
Client ID: **BATCH**	Batch ID: **15013**				Analysis Date: **10/4/2016**			SeqNo: **607404**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: o-Terphenyl	24.8		23.30		106	50	150				

Sample ID **1610007-001AMSD**	SampType: **MSD**			Units: **mg/Kg-dry**	Prep Date: **10/4/2016**			RunNo: **32121**		
Client ID: **BATCH**	Batch ID: **15013**				Analysis Date: **10/4/2016**			SeqNo: **607405**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	509	21.1	528.1	0	96.4	65	135	580.7	13.1	30	
Surr: 2-Fluorobiphenyl	21.7		21.12		103	50	150		0		
Surr: o-Terphenyl	22.0		21.12		104	50	150		0		

Sample ID **1610041-006ADUP**	SampType: **DUP**			Units: **mg/Kg-dry**	Prep Date: **10/4/2016**			RunNo: **32121**		
Client ID: **BATCH**	Batch ID: **15013**				Analysis Date: **10/5/2016**			SeqNo: **607418**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	18.5						0		30	
Heavy Oil	ND	46.3						0		30	
Surr: 2-Fluorobiphenyl	18.6		18.50		100	50	150		0		
Surr: o-Terphenyl	18.4		18.50		99.4	50	150		0		

Work Order: 1610034
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Gasoline by NWTPH-Gx

Sample ID	LCS-15016	SampType:	LCS	Units:	mg/Kg	Prep Date:	10/4/2016	RunNo:	32131
Client ID:	LCSS	Batch ID:	15016			Analysis Date:	10/4/2016	SeqNo:	607498

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	26.0	5.00	25.00	0	104	65	135				
Surr: Toluene-d8	1.25		1.250		99.9	65	135				
Surr: 4-Bromofluorobenzene	1.26		1.250		101	65	135				

Sample ID	MB-15016	SampType:	MBLK	Units:	mg/Kg	Prep Date:	10/4/2016	RunNo:	32131
Client ID:	MBLKS	Batch ID:	15016			Analysis Date:	10/4/2016	SeqNo:	607499

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	5.00									
Surr: Toluene-d8	1.26		1.250		101	65	135				
Surr: 4-Bromofluorobenzene	1.23		1.250		98.6	65	135				

Sample ID	1610007-001BDUP	SampType:	DUP	Units:	mg/Kg-dry	Prep Date:	10/4/2016	RunNo:	32131
Client ID:	BATCH	Batch ID:	15016			Analysis Date:	10/4/2016	SeqNo:	607491

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	4.57						0		30	
Surr: Toluene-d8	1.12		1.141		97.9	65	135		0		
Surr: 4-Bromofluorobenzene	1.14		1.141		99.5	65	135		0		

Sample ID	1610007-002BMS	SampType:	MS	Units:	mg/Kg-dry	Prep Date:	10/4/2016	RunNo:	32131
Client ID:	BATCH	Batch ID:	15016			Analysis Date:	10/5/2016	SeqNo:	607493

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	45.7	5.82	29.10	0	157	65	135				S
Surr: Toluene-d8	1.43		1.455		98.4	65	135				
Surr: 4-Bromofluorobenzene	1.55		1.455		106	65	135				

NOTES:
S - Outlying spike recovery(ies) observed. A duplicate analysis was performed with similar results indicating a possible matrix effect.

Work Order: 1610034
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Gasoline by NWTPH-Gx

Sample ID **1610007-002BMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **10/4/2016** RunNo: **32131**
Client ID: **BATCH** Batch ID: **15016** Analysis Date: **10/5/2016** SeqNo: **607494**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	43.5	5.82	29.10	0	150	65	135	45.73	4.91	30	S
Surr: Toluene-d8	1.42		1.455		97.8	65	135		0		
Surr: 4-Bromofluorobenzene	1.56		1.455		107	65	135		0		

NOTES:
S - Outlying spike recovery(ies) observed. A duplicate analysis was performed with similar results indicating a possible matrix effect.

Work Order: 1610034
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Hexavalent Chromium by EPA Method 7196

Sample ID **MB-15060**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **10/7/2016**	RunNo: **32206**
Client ID: **MBLKS**	Batch ID: **15060**		Analysis Date: **10/7/2016**	SeqNo: **609077**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	ND	0.500									

Sample ID **LCS-15060**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **10/7/2016**	RunNo: **32206**
Client ID: **LCSS**	Batch ID: **15060**		Analysis Date: **10/7/2016**	SeqNo: **609078**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	2.34	0.500	2.500	0	93.4	65	135				

Sample ID **1610034-001ADUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **10/7/2016**	RunNo: **32206**
Client ID: **W9-SP-25**	Batch ID: **15060**		Analysis Date: **10/7/2016**	SeqNo: **609080**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	ND	0.564						0		30	

Sample ID **1610034-001AMS**	SampType: **MS**	Units: **mg/Kg-dry**	Prep Date: **10/7/2016**	RunNo: **32206**
Client ID: **W9-SP-25**	Batch ID: **15060**		Analysis Date: **10/7/2016**	SeqNo: **609081**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	ND	0.571	2.854	0.1248	0.986	65	135				S

NOTES:
S - Spike recovery indicates a possible matrix effect. The method is in control as indicated by the Laboratory Control Sample (LCS).

Sample ID **1610034-001AMSD**	SampType: **MSD**	Units: **mg/Kg-dry**	Prep Date: **10/7/2016**	RunNo: **32206**
Client ID: **W9-SP-25**	Batch ID: **15060**		Analysis Date: **10/7/2016**	SeqNo: **609082**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	ND	0.564	2.820	0.1248	2.01	65	135	0		30	S

NOTES:
S - Spike recovery indicates a possible matrix effect. The method is in control as indicated by the Laboratory Control Sample (LCS).

Work Order: 1610034
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Hexavalent Chromium by EPA Method 7196

Sample ID **1610034-001APDS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **10/7/2016** RunNo: **32206**
Client ID: **W9-SP-25** Batch ID: **15060** Analysis Date: **10/7/2016** SeqNo: **609083**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	3.39	0.567	2.837	0.1248	115	65	135				

Sample ID **1610064-005ADUP** SampType: **DUP** Units: **mg/Kg** Prep Date: **10/7/2016** RunNo: **32206**
Client ID: **BATCH** Batch ID: **15060** Analysis Date: **10/7/2016** SeqNo: **609085**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	62.0	14.8						69.20	10.9	30	D

Work Order: 1610034
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Mercury by EPA Method 7471

Sample ID	MB-15024	SampType:	MBLK			Units:	mg/Kg	Prep Date:	10/5/2016	RunNo:	32135	
Client ID:	MBLKS	Batch ID:	15024					Analysis Date:	10/5/2016	SeqNo:	607737	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		ND	0.227									

Sample ID	LCS-15024	SampType:	LCS			Units:	mg/Kg	Prep Date:	10/5/2016	RunNo:	32135	
Client ID:	LCSS	Batch ID:	15024					Analysis Date:	10/5/2016	SeqNo:	607759	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.526	0.240	0.4808	0	109	80	120				

Sample ID	1610034-001ADUP	SampType:	DUP			Units:	mg/Kg-dry	Prep Date:	10/5/2016	RunNo:	32135	
Client ID:	W9-SP-25	Batch ID:	15024					Analysis Date:	10/5/2016	SeqNo:	607741	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		ND	0.280						0		20	

Sample ID	1610034-001AMS	SampType:	MS			Units:	mg/Kg-dry	Prep Date:	10/5/2016	RunNo:	32135	
Client ID:	W9-SP-25	Batch ID:	15024					Analysis Date:	10/5/2016	SeqNo:	607742	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.633	0.275	0.5499	0.02637	110	70	130				

Sample ID	1610034-001AMSD	SampType:	MSD			Units:	mg/Kg-dry	Prep Date:	10/5/2016	RunNo:	32135	
Client ID:	W9-SP-25	Batch ID:	15024					Analysis Date:	10/5/2016	SeqNo:	607743	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.588	0.251	0.5017	0.02637	112	70	130	0.6335	7.46	20	

Work Order: 1610034
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **MB-15014**	SampType: **MBLK**	Units: **µg/Kg**	Prep Date: **10/4/2016**	RunNo: **32139**
Client ID: **MBLKS**	Batch ID: **15014**		Analysis Date: **10/5/2016**	SeqNo: **607573**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	40.0									
2-Methylnaphthalene	ND	40.0									
1-Methylnaphthalene	ND	40.0									
Acenaphthylene	ND	40.0									
Acenaphthene	ND	40.0									
Fluorene	ND	40.0									
Phenanthrene	ND	40.0									
Anthracene	ND	40.0									
Fluoranthene	ND	40.0									
Pyrene	ND	40.0									
Benz(a)anthracene	ND	40.0									
Chrysene	ND	40.0									
Benzo(b)fluoranthene	ND	40.0									
Benzo(k)fluoranthene	ND	40.0									
Benzo(a)pyrene	ND	40.0									
Indeno(1,2,3-cd)pyrene	ND	40.0									
Dibenz(a,h)anthracene	ND	40.0									
Benzo(g,h,i)perylene	ND	40.0									
Surr: 2-Fluorobiphenyl	364		500.0		72.7	32.2	123				
Surr: Terphenyl-d14 (surr)	429		500.0		85.8	42.2	152				

Sample ID **LCS-15014**	SampType: **LCS**	Units: **µg/Kg**	Prep Date: **10/4/2016**	RunNo: **32139**
Client ID: **LCSS**	Batch ID: **15014**		Analysis Date: **10/5/2016**	SeqNo: **607574**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	799	40.0	1,000	0	79.9	51.6	136				
2-Methylnaphthalene	821	40.0	1,000	0	82.1	45.1	135				
1-Methylnaphthalene	812	40.0	1,000	0	81.2	46.2	133				
Acenaphthylene	769	40.0	1,000	0	76.9	32.8	136				
Acenaphthene	772	40.0	1,000	0	77.2	38.7	129				

Work Order: 1610034
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **LCS-15014** SampType: **LCS** Units: **µg/Kg** Prep Date: **10/4/2016** RunNo: **32139**
Client ID: **LCSS** Batch ID: **15014** Analysis Date: **10/5/2016** SeqNo: **607574**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluorene	782	40.0	1,000	0	78.2	41.1	132				
Phenanthrene	729	40.0	1,000	0	72.9	43.9	133				
Anthracene	920	40.0	1,000	0	92.0	44.2	136				
Fluoranthene	775	40.0	1,000	0	77.5	45.9	137				
Pyrene	788	40.0	1,000	0	78.8	46.2	137				
Benz(a)anthracene	729	40.0	1,000	0	72.9	41.9	136				
Chrysene	745	40.0	1,000	0	74.5	46.9	138				
Benzo(b)fluoranthene	689	40.0	1,000	0	68.9	35.9	148				
Benzo(k)fluoranthene	772	40.0	1,000	0	77.2	43.9	144				
Benzo(a)pyrene	675	40.0	1,000	0	67.5	36.3	144				
Indeno(1,2,3-cd)pyrene	761	40.0	1,000	0	76.1	41	140				
Dibenz(a,h)anthracene	755	40.0	1,000	0	75.5	33.8	133				
Benzo(g,h,i)perylene	704	40.0	1,000	0	70.4	32.9	112				
Surr: 2-Fluorobiphenyl	324		500.0		64.8	32.2	123				
Surr: Terphenyl-d14 (surr)	389		500.0		77.8	42.2	152				

Sample ID **1609374-001ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **10/4/2016** RunNo: **32139**
Client ID: **BATCH** Batch ID: **15014** Analysis Date: **10/5/2016** SeqNo: **607576**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	41.1						0		30	
2-Methylnaphthalene	ND	41.1						0		30	
1-Methylnaphthalene	ND	41.1						0		30	
Acenaphthylene	ND	41.1						0		30	
Acenaphthene	ND	41.1						0		30	
Fluorene	ND	41.1						0		30	
Phenanthrene	ND	41.1						0		30	
Anthracene	ND	41.1						0		30	
Fluoranthene	ND	41.1						0		30	
Pyrene	ND	41.1						0		30	

Work Order: 1610034
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1609374-001ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **10/4/2016** RunNo: **32139**
Client ID: **BATCH** Batch ID: **15014** Analysis Date: **10/5/2016** SeqNo: **607576**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	ND	41.1						0		30	
Chrysene	ND	41.1						0		30	
Benzo(b)fluoranthene	ND	41.1						0		30	
Benzo(k)fluoranthene	ND	41.1						0		30	
Benzo(a)pyrene	ND	41.1						0		30	
Indeno(1,2,3-cd)pyrene	ND	41.1						0		30	
Dibenz(a,h)anthracene	ND	41.1						0		30	
Benzo(g,h,i)perylene	ND	41.1						0		30	
Surr: 2-Fluorobiphenyl	361		513.4		70.2	32.2	123		0		
Surr: Terphenyl-d14 (surr)	415		513.4		80.7	42.2	152		0		

Sample ID **1609374-001AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **10/4/2016** RunNo: **32139**
Client ID: **BATCH** Batch ID: **15014** Analysis Date: **10/5/2016** SeqNo: **607577**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	721	36.3	907.6	0	79.5	42.9	138				
2-Methylnaphthalene	746	36.3	907.6	0	82.2	42.8	151				
1-Methylnaphthalene	749	36.3	907.6	0	82.5	41.6	148				
Acenaphthylene	703	36.3	907.6	0	77.4	32.6	160				
Acenaphthene	716	36.3	907.6	0	78.9	46.3	142				
Fluorene	728	36.3	907.6	0	80.2	43.4	153				
Phenanthrene	696	36.3	907.6	2.237	76.5	45.5	140				
Anthracene	860	36.3	907.6	0	94.7	32.6	160				
Fluoranthene	770	36.3	907.6	0	84.8	44.6	161				
Pyrene	775	36.3	907.6	2.828	85.1	48.3	158				
Benz(a)anthracene	728	36.3	907.6	5.790	79.6	57.5	169				
Chrysene	692	36.3	907.6	1.958	76.0	45.2	146				
Benzo(b)fluoranthene	786	36.3	907.6	11.90	85.2	42.2	168				
Benzo(k)fluoranthene	719	36.3	907.6	12.49	77.8	48	161				
Benzo(a)pyrene	720	36.3	907.6	13.05	77.9	34.4	179				

Work Order: 1610034
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1609374-001AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **10/4/2016** RunNo: **32139**
Client ID: **BATCH** Batch ID: **15014** Analysis Date: **10/5/2016** SeqNo: **607577**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Indeno(1,2,3-cd)pyrene	805	36.3	907.6	11.22	87.5	41.1	165				
Dibenz(a,h)anthracene	785	36.3	907.6	12.33	85.2	38.1	166				
Benzo(g,h,i)perylene	730	36.3	907.6	9.643	79.4	45.6	157				
Surr: 2-Fluorobiphenyl	330		453.8		72.6	32.2	123				
Surr: Terphenyl-d14 (surr)	380		453.8		83.6	42.2	152				

Sample ID **1609374-001AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **10/4/2016** RunNo: **32139**
Client ID: **BATCH** Batch ID: **15014** Analysis Date: **10/5/2016** SeqNo: **607578**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	861	41.8	1,045	0	82.4	42.9	138	721.5	17.7	30	
2-Methylnaphthalene	936	41.8	1,045	0	89.5	42.8	151	746.1	22.5	30	
1-Methylnaphthalene	869	41.8	1,045	0	83.1	41.6	148	748.7	14.9	30	
Acenaphthylene	864	41.8	1,045	0	82.7	32.6	160	702.8	20.6	30	
Acenaphthene	870	41.8	1,045	0	83.2	46.3	142	716.4	19.3	30	
Fluorene	883	41.8	1,045	0	84.5	43.4	153	727.9	19.3	30	
Phenanthrene	844	41.8	1,045	2.237	80.5	45.5	140	696.2	19.2	30	
Anthracene	874	41.8	1,045	0	83.6	32.6	160	859.8	1.64	30	
Fluoranthene	922	41.8	1,045	0	88.2	44.6	161	769.8	18.0	30	
Pyrene	919	41.8	1,045	2.828	87.6	48.3	158	774.9	17.0	30	
Benz(a)anthracene	888	41.8	1,045	5.790	84.5	57.5	169	728.2	19.8	30	
Chrysene	830	41.8	1,045	1.958	79.3	45.2	146	691.9	18.2	30	
Benzo(b)fluoranthene	852	41.8	1,045	11.90	80.4	42.2	168	785.6	8.06	30	
Benzo(k)fluoranthene	912	41.8	1,045	12.49	86.1	48	161	718.6	23.8	30	
Benzo(a)pyrene	862	41.8	1,045	13.05	81.2	34.4	179	719.8	17.9	30	
Indeno(1,2,3-cd)pyrene	967	41.8	1,045	11.22	91.5	41.1	165	805.3	18.2	30	
Dibenz(a,h)anthracene	945	41.8	1,045	12.33	89.3	38.1	166	785.3	18.5	30	
Benzo(g,h,i)perylene	806	41.8	1,045	9.643	76.2	45.6	157	730.0	9.95	30	
Surr: 2-Fluorobiphenyl	384		522.5		73.6	32.2	123		0		
Surr: Terphenyl-d14 (surr)	449		522.5		85.9	42.2	152		0		

Work Order: 1610034
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1609374-001AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **10/4/2016** RunNo: **32139**
Client ID: **BATCH** Batch ID: **15014** Analysis Date: **10/5/2016** SeqNo: **607578**

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

Work Order: 1610034
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Sample Moisture (Percent Moisture)

Sample ID **1610034-001ADUP** SampType: **DUP** Units: **wt%** Prep Date: **10/4/2016** RunNo: **32111**
Client ID: **W9-SP-25** Batch ID: **R32111** Analysis Date: **10/4/2016** SeqNo: **607135**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	11.3	0.500						12.57	10.8	20	

Work Order: 1610034
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID	**MB-15015**	SampType:	**MBLK**	Units:	**mg/Kg**	Prep Date:	**10/4/2016**	RunNo:	**32133**
Client ID:	**MBLKS**	Batch ID:	**15015**			Analysis Date:	**10/5/2016**	SeqNo:	**607517**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.0752									
Cadmium	ND	0.150									
Chromium	ND	0.0752									
Lead	ND	0.150									

Sample ID	**LCS-15015**	SampType:	**LCS**	Units:	**mg/Kg**	Prep Date:	**10/4/2016**	RunNo:	**32133**
Client ID:	**LCSS**	Batch ID:	**15015**			Analysis Date:	**10/5/2016**	SeqNo:	**607518**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	37.8	0.0746	37.31	0	101	80	120				
Cadmium	1.94	0.149	1.866	0	104	80	120				
Chromium	39.8	0.0746	37.31	0	107	80	120				
Lead	19.7	0.149	18.66	0	105	80	120				

Sample ID	**1610009-001ADUP**	SampType:	**DUP**	Units:	**mg/Kg-dry**	Prep Date:	**10/4/2016**	RunNo:	**32133**
Client ID:	**BATCH**	Batch ID:	**15015**			Analysis Date:	**10/5/2016**	SeqNo:	**607520**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	4.58	0.0831						4.202	8.66	20	
Cadmium	ND	0.166						0		20	
Chromium	25.8	0.0831						39.88	43.0	20	R
Lead	10.0	0.166						12.35	20.8	20	R

NOTES:
R - High RPD observed. The method is in control as indicated by the LCS.

Sample ID	**1610009-001AMS**	SampType:	**MS**	Units:	**mg/Kg-dry**	Prep Date:	**10/4/2016**	RunNo:	**32133**
Client ID:	**BATCH**	Batch ID:	**15015**			Analysis Date:	**10/5/2016**	SeqNo:	**607524**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	47.9	0.0838	41.89	4.202	104	75	125				

Work Order: 1610034
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID **1610009-001AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **10/4/2016** RunNo: **32133**
Client ID: **BATCH** Batch ID: **15015** Analysis Date: **10/5/2016** SeqNo: **607524**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	2.21	0.168	2.094	0.1205	99.5	75	125				
Chromium	79.1	0.0838	41.89	39.88	93.6	75	125				
Lead	35.0	0.168	20.94	12.35	108	75	125				

Sample ID **1610009-001AMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **10/4/2016** RunNo: **32133**
Client ID: **BATCH** Batch ID: **15015** Analysis Date: **10/5/2016** SeqNo: **607525**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	50.2	0.0838	41.89	4.202	110	75	125	47.93	4.59	20	
Cadmium	2.25	0.168	2.094	0.1205	102	75	125	2.205	2.14	20	
Chromium	77.8	0.0838	41.89	39.88	90.6	75	125	79.10	1.62	20	
Lead	31.4	0.168	20.94	12.35	91.0	75	125	35.00	10.8	20	

Work Order: 1610034
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-15016** SampType: **LCS** Units: **mg/Kg** Prep Date: **10/4/2016** RunNo: **32130**
Client ID: **LCSS** Batch ID: **15016** Analysis Date: **10/4/2016** SeqNo: **607479**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	0.430	0.0600	1.000	0	43.0	34.5	141				Q
Chloromethane	0.761	0.0600	1.000	0	76.1	38.8	132				
Vinyl chloride	0.754	0.00200	1.000	0	75.4	44	142				
Bromomethane	1.02	0.0900	1.000	0	102	40.9	157				
Trichlorofluoromethane (CFC-11)	0.844	0.0500	1.000	0	84.4	42.9	147				
Chloroethane	0.900	0.0600	1.000	0	90.0	37.1	144				
1,1-Dichloroethene	0.938	0.0500	1.000	0	93.8	49.7	142				
Methylene chloride	1.03	0.0200	1.000	0	103	46.3	140				
trans-1,2-Dichloroethene	1.01	0.0200	1.000	0	101	68	130				
Methyl tert-butyl ether (MTBE)	1.03	0.0500	1.000	0	103	59.1	138				
1,1-Dichloroethane	1.04	0.0200	1.000	0	104	61.9	137				
2,2-Dichloropropane	1.34	0.0500	1.000	0	134	28.1	149				Q
cis-1,2-Dichloroethene	1.06	0.0200	1.000	0	106	71.3	135				
Chloroform	1.04	0.0200	1.000	0	104	67.5	129				
1,1,1-Trichloroethane (TCA)	1.02	0.0200	1.000	0	102	69	132				
1,1-Dichloropropene	1.01	0.0200	1.000	0	101	72.7	131				
Carbon tetrachloride	1.07	0.0200	1.000	0	107	63.4	137				
1,2-Dichloroethane (EDC)	1.04	0.0300	1.000	0	104	61.9	136				
Benzene	1.07	0.0200	1.000	0	107	64.3	133				
Trichloroethene (TCE)	1.05	0.0200	1.000	0	105	65.5	137				
1,2-Dichloropropane	1.10	0.0200	1.000	0	110	63.2	142				
Bromodichloromethane	1.05	0.0200	1.000	0	105	73.2	131				
Dibromomethane	1.08	0.0400	1.000	0	108	70	130				
cis-1,3-Dichloropropene	1.11	0.0200	1.000	0	111	59.1	143				
Toluene	1.11	0.0200	1.000	0	111	67.3	138				
trans-1,3-Dichloropropylene	1.14	0.0300	1.000	0	114	49.2	149				
1,1,2-Trichloroethane	1.11	0.0300	1.000	0	111	74.5	129				
1,3-Dichloropropane	1.08	0.0500	1.000	0	108	70	130				
Tetrachloroethene (PCE)	1.07	0.0200	1.000	0	107	52.7	150				
Dibromochloromethane	1.08	0.0300	1.000	0	108	70.6	144				
1,2-Dibromoethane (EDB)	1.06	0.00500	1.000	0	106	70	130				

Work Order: 1610034
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-15016** SampType: **LCS** Units: **mg/Kg** Prep Date: **10/4/2016** RunNo: **32130**
Client ID: **LCSS** Batch ID: **15016** Analysis Date: **10/4/2016** SeqNo: **607479**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chlorobenzene	1.09	0.0200	1.000	0	109	76.1	123				
1,1,1,2-Tetrachloroethane	1.08	0.0300	1.000	0	108	65.9	141				
Ethylbenzene	1.05	0.0300	1.000	0	105	74	129				
m,p-Xylene	2.12	0.0200	2.000	0	106	70	124				
o-Xylene	1.05	0.0200	1.000	0	105	72.7	124				
Styrene	1.06	0.0200	1.000	0	106	76.8	130				
Isopropylbenzene	1.05	0.0800	1.000	0	105	70	130				
Bromoform	1.10	0.0200	1.000	0	110	67	154				
1,1,2,2-Tetrachloroethane	1.07	0.0200	1.000	0	107	60	130				
n-Propylbenzene	1.06	0.0200	1.000	0	106	74.8	125				
Bromobenzene	1.10	0.0300	1.000	0	110	49.2	144				
1,3,5-Trimethylbenzene	1.06	0.0200	1.000	0	106	74.6	123				
2-Chlorotoluene	1.06	0.0200	1.000	0	106	76.7	129				
4-Chlorotoluene	1.05	0.0200	1.000	0	105	77.5	125				
tert-Butylbenzene	1.05	0.0200	1.000	0	105	66.2	130				
1,2,3-Trichloropropane	1.09	0.0200	1.000	0	109	67.9	136				
1,2,4-Trichlorobenzene	1.12	0.0500	1.000	0	112	62.6	143				
sec-Butylbenzene	1.05	0.0200	1.000	0	105	75.6	133				
4-Isopropyltoluene	1.06	0.0200	1.000	0	106	76.8	131				
1,3-Dichlorobenzene	1.09	0.0200	1.000	0	109	72.8	128				
1,4-Dichlorobenzene	1.06	0.0200	1.000	0	106	72.6	126				
n-Butylbenzene	1.10	0.0200	1.000	0	110	65.3	136				
1,2-Dichlorobenzene	1.10	0.0200	1.000	0	110	72.8	126				
1,2-Dibromo-3-chloropropane	1.14	0.500	1.000	0	114	61.2	139				
1,2,4-Trimethylbenzene	1.07	0.0200	1.000	0	107	77.5	129				
Hexachlorobutadiene	1.11	0.100	1.000	0	111	42	151				
Naphthalene	1.15	0.0300	1.000	0	115	62.3	134				
1,2,3-Trichlorobenzene	1.12	0.0200	1.000	0	112	54.8	143				
Surr: Dibromofluoromethane	1.28		1.250		103	56.5	129				
Surr: Toluene-d8	1.28		1.250		103	64.3	131				
Surr: 1-Bromo-4-fluorobenzene	1.31		1.250		104	63.1	141				

Work Order: 1610034
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-15016** SampType: **LCS** Units: **mg/Kg** Prep Date: **10/4/2016** RunNo: **32130**
Client ID: **LCSS** Batch ID: **15016** Analysis Date: **10/4/2016** SeqNo: **607479**

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

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample ID **MB-15016** SampType: **MBLK** Units: **mg/Kg** Prep Date: **10/4/2016** RunNo: **32130**
Client ID: **MBLKS** Batch ID: **15016** Analysis Date: **10/4/2016** SeqNo: **607480**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	ND	0.0600									Q
Chloromethane	ND	0.0600									
Vinyl chloride	ND	0.00200									
Bromomethane	ND	0.0900									
Trichlorofluoromethane (CFC-11)	ND	0.0500									
Chloroethane	ND	0.0600									
1,1-Dichloroethene	ND	0.0500									
Methylene chloride	ND	0.0200									
trans-1,2-Dichloroethene	ND	0.0200									
Methyl tert-butyl ether (MTBE)	ND	0.0500									
1,1-Dichloroethane	ND	0.0200									
2,2-Dichloropropane	ND	0.0500									Q
cis-1,2-Dichloroethene	ND	0.0200									
Chloroform	ND	0.0200									
1,1,1-Trichloroethane (TCA)	ND	0.0200									
1,1-Dichloropropene	ND	0.0200									
Carbon tetrachloride	ND	0.0200									
1,2-Dichloroethane (EDC)	ND	0.0300									
Benzene	ND	0.0200									
Trichloroethene (TCE)	ND	0.0200									
1,2-Dichloropropane	ND	0.0200									
Bromodichloromethane	ND	0.0200									
Dibromomethane	ND	0.0400									
cis-1,3-Dichloropropene	ND	0.0200									

Work Order: 1610034
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-15016** SampType: **MBLK** Units: **mg/Kg** Prep Date: **10/4/2016** RunNo: **32130**
Client ID: **MBLKS** Batch ID: **15016** Analysis Date: **10/4/2016** SeqNo: **607480**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Toluene	ND	0.0200									
trans-1,3-Dichloropropylene	ND	0.0300									
1,1,2-Trichloroethane	ND	0.0300									
1,3-Dichloropropane	ND	0.0500									
Tetrachloroethene (PCE)	ND	0.0200									
Dibromochloromethane	ND	0.0300									
1,2-Dibromoethane (EDB)	ND	0.00500									
Chlorobenzene	ND	0.0200									
1,1,1,2-Tetrachloroethane	ND	0.0300									
Ethylbenzene	ND	0.0300									
m,p-Xylene	ND	0.0200									
o-Xylene	ND	0.0200									
Styrene	ND	0.0200									
Isopropylbenzene	ND	0.0800									
Bromoform	ND	0.0200									
1,1,2,2-Tetrachloroethane	ND	0.0200									
n-Propylbenzene	ND	0.0200									
Bromobenzene	ND	0.0300									
1,3,5-Trimethylbenzene	ND	0.0200									
2-Chlorotoluene	ND	0.0200									
4-Chlorotoluene	ND	0.0200									
tert-Butylbenzene	ND	0.0200									
1,2,3-Trichloropropane	ND	0.0200									
1,2,4-Trichlorobenzene	ND	0.0500									
sec-Butylbenzene	ND	0.0200									
4-Isopropyltoluene	ND	0.0200									
1,3-Dichlorobenzene	ND	0.0200									
1,4-Dichlorobenzene	ND	0.0200									
n-Butylbenzene	ND	0.0200									
1,2-Dichlorobenzene	ND	0.0200									
1,2-Dibromo-3-chloropropane	ND	0.500									

Work Order: 1610034
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-15016** SampType: **MBLK** Units: **mg/Kg** Prep Date: **10/4/2016** RunNo: **32130**
Client ID: **MBLKS** Batch ID: **15016** Analysis Date: **10/4/2016** SeqNo: **607480**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trimethylbenzene	ND	0.0200									
Hexachlorobutadiene	ND	0.100									
Naphthalene	ND	0.0300									
1,2,3-Trichlorobenzene	ND	0.0200									
Surr: Dibromofluoromethane	1.24		1.250		99.4	56.5	129				
Surr: Toluene-d8	1.25		1.250		100	64.3	131				
Surr: 1-Bromo-4-fluorobenzene	1.22		1.250		97.2	63.1	141				

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample ID **1610007-001BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **10/4/2016** RunNo: **32130**
Client ID: **BATCH** Batch ID: **15016** Analysis Date: **10/4/2016** SeqNo: **607470**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	ND	0.0548						0		30	Q
Chloromethane	ND	0.0548						0		30	
Vinyl chloride	ND	0.00183						0		30	
Bromomethane	ND	0.0822						0		30	
Trichlorofluoromethane (CFC-11)	ND	0.0457						0		30	
Chloroethane	ND	0.0548						0		30	
1,1-Dichloroethene	ND	0.0457						0		30	
Methylene chloride	ND	0.0183						0		30	
trans-1,2-Dichloroethene	ND	0.0183						0		30	
Methyl tert-butyl ether (MTBE)	ND	0.0457						0		30	
1,1-Dichloroethane	ND	0.0183						0		30	
2,2-Dichloropropane	ND	0.0457						0		30	Q
cis-1,2-Dichloroethene	ND	0.0183						0		30	
Chloroform	ND	0.0183						0		30	
1,1,1-Trichloroethane (TCA)	ND	0.0183						0		30	
1,1-Dichloropropene	ND	0.0183						0		30	
Carbon tetrachloride	ND	0.0183						0		30	

Work Order: 1610034
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1610007-001BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **10/4/2016** RunNo: **32130**
Client ID: **BATCH** Batch ID: **15016** Analysis Date: **10/4/2016** SeqNo: **607470**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2-Dichloroethane (EDC)	ND	0.0274						0		30	
Benzene	ND	0.0183						0		30	
Trichloroethene (TCE)	ND	0.0183						0		30	
1,2-Dichloropropane	ND	0.0183						0		30	
Bromodichloromethane	ND	0.0183						0		30	
Dibromomethane	ND	0.0365						0		30	
cis-1,3-Dichloropropene	ND	0.0183						0		30	
Toluene	ND	0.0183						0		30	
trans-1,3-Dichloropropylene	ND	0.0274						0		30	
1,1,2-Trichloroethane	ND	0.0274						0		30	
1,3-Dichloropropane	ND	0.0457						0		30	
Tetrachloroethene (PCE)	ND	0.0183						0		30	
Dibromochloromethane	ND	0.0274						0		30	
1,2-Dibromoethane (EDB)	ND	0.00457						0		30	
Chlorobenzene	ND	0.0183						0		30	
1,1,1,2-Tetrachloroethane	ND	0.0274						0		30	
Ethylbenzene	ND	0.0274						0		30	
m,p-Xylene	ND	0.0183						0		30	
o-Xylene	ND	0.0183						0		30	
Styrene	ND	0.0183						0		30	
Isopropylbenzene	ND	0.0731						0		30	
Bromoform	ND	0.0183						0		30	
1,1,2,2-Tetrachloroethane	ND	0.0183						0		30	
n-Propylbenzene	ND	0.0183						0		30	
Bromobenzene	ND	0.0274						0		30	
1,3,5-Trimethylbenzene	ND	0.0183						0		30	
2-Chlorotoluene	ND	0.0183						0		30	
4-Chlorotoluene	ND	0.0183						0		30	
tert-Butylbenzene	ND	0.0183						0		30	
1,2,3-Trichloropropane	ND	0.0183						0		30	
1,2,4-Trichlorobenzene	ND	0.0457						0		30	

Work Order: 1610034
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1610007-001BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **10/4/2016** RunNo: **32130**
Client ID: **BATCH** Batch ID: **15016** Analysis Date: **10/4/2016** SeqNo: **607470**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
sec-Butylbenzene	ND	0.0183						0		30	
4-Isopropyltoluene	ND	0.0183						0		30	
1,3-Dichlorobenzene	ND	0.0183						0		30	
1,4-Dichlorobenzene	ND	0.0183						0		30	
n-Butylbenzene	ND	0.0183						0		30	
1,2-Dichlorobenzene	ND	0.0183						0		30	
1,2-Dibromo-3-chloropropane	ND	0.457						0		30	
1,2,4-Trimethylbenzene	ND	0.0183						0		30	
Hexachlorobutadiene	ND	0.0913						0		30	
Naphthalene	ND	0.0274						0		30	
1,2,3-Trichlorobenzene	ND	0.0183						0		30	
Surr: Dibromofluoromethane	1.09		1.141		95.2	56.5	129		0		
Surr: Toluene-d8	1.18		1.141		103	64.3	131		0		
Surr: 1-Bromo-4-fluorobenzene	1.12		1.141		98.1	63.1	141		0		

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample ID **1610034-001BMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **10/4/2016** RunNo: **32130**
Client ID: **W9-SP-25** Batch ID: **15016** Analysis Date: **10/5/2016** SeqNo: **607475**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	0.661	0.0670	1.117	0	59.2	43.5	121				Q
Chloromethane	1.17	0.0670	1.117	0	105	45	130				
Vinyl chloride	1.03	0.00223	1.117	0	92.5	51.2	146				
Bromomethane	0.962	0.101	1.117	0	86.1	21.3	120				
Trichlorofluoromethane (CFC-11)	0.648	0.0558	1.117	0	58.0	35	131				
Chloroethane	0.782	0.0670	1.117	0	70.0	43.8	117				
1,1-Dichloroethene	1.15	0.0558	1.117	0	103	61.9	141				
Methylene chloride	1.24	0.0223	1.117	0	111	54.7	142				
trans-1,2-Dichloroethene	1.20	0.0223	1.117	0	107	52	136				
Methyl tert-butyl ether (MTBE)	1.20	0.0558	1.117	0	108	54.4	132				

Work Order: 1610034
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1610034-001BMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **10/4/2016** RunNo: **32130**
Client ID: **W9-SP-25** Batch ID: **15016** Analysis Date: **10/5/2016** SeqNo: **607475**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethane	1.18	0.0223	1.117	0	105	51.8	141				
2,2-Dichloropropane	1.25	0.0558	1.117	0	112	36	123				Q
cis-1,2-Dichloroethene	1.25	0.0223	1.117	0	112	58.6	136				
Chloroform	1.16	0.0223	1.117	0	104	53.2	129				
1,1,1-Trichloroethane (TCA)	1.14	0.0223	1.117	0	102	58.3	145				
1,1-Dichloropropene	1.21	0.0223	1.117	0	109	55.1	138				
Carbon tetrachloride	1.24	0.0223	1.117	0	111	53.3	144				
1,2-Dichloroethane (EDC)	1.17	0.0335	1.117	0	104	51.3	139				
Benzene	1.25	0.0223	1.117	0	112	63.5	133				
Trichloroethene (TCE)	1.19	0.0223	1.117	0	107	68.6	132				
1,2-Dichloropropane	1.24	0.0223	1.117	0	111	59	136				
Bromodichloromethane	1.06	0.0223	1.117	0	94.8	50.7	141				
Dibromomethane	1.17	0.0447	1.117	0	105	50.6	137				
cis-1,3-Dichloropropene	1.14	0.0223	1.117	0	103	50.4	138				
Toluene	1.29	0.0223	1.117	0	115	63.4	132				
trans-1,3-Dichloropropylene	1.17	0.0335	1.117	0	104	44.1	147				
1,1,2-Trichloroethane	1.19	0.0335	1.117	0	106	51.6	137				
1,3-Dichloropropane	1.21	0.0558	1.117	0	108	53.1	134				
Tetrachloroethene (PCE)	1.24	0.0223	1.117	0	111	35.6	158				
Dibromochloromethane	1.06	0.0335	1.117	0	94.6	55.3	140				
1,2-Dibromoethane (EDB)	1.17	0.00558	1.117	0	105	50.4	136				
Chlorobenzene	1.23	0.0223	1.117	0	110	60	133				
1,1,1,2-Tetrachloroethane	1.12	0.0335	1.117	0	100	53.1	142				
Ethylbenzene	1.22	0.0335	1.117	0.01340	108	54.5	134				
m,p-Xylene	2.45	0.0223	2.234	0.02681	108	53.1	132				
o-Xylene	1.24	0.0223	1.117	0	111	53.3	139				
Styrene	1.24	0.0223	1.117	0	111	51.1	132				
Isopropylbenzene	1.28	0.0894	1.117	0.02178	112	58.9	138				
Bromoform	0.975	0.0223	1.117	0	87.3	57.9	130				
1,1,2,2-Tetrachloroethane	1.14	0.0223	1.117	0	102	51.9	131				
n-Propylbenzene	1.31	0.0223	1.117	0.04021	114	53.6	140				

Work Order: 1610034
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1610034-001BMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **10/4/2016** RunNo: **32130**
Client ID: **W9-SP-25** Batch ID: **15016** Analysis Date: **10/5/2016** SeqNo: **607475**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromobenzene	1.25	0.0335	1.117	0	112	54.2	140				
1,3,5-Trimethylbenzene	1.31	0.0223	1.117	0.03239	114	51.8	136				
2-Chlorotoluene	1.23	0.0223	1.117	0	110	51.6	136				
4-Chlorotoluene	1.24	0.0223	1.117	0	111	50.1	139				
tert-Butylbenzene	1.29	0.0223	1.117	0	115	50.5	135				
1,2,3-Trichloropropane	1.14	0.0223	1.117	0	102	50.5	131				
1,2,4-Trichlorobenzene	1.32	0.0558	1.117	0	118	50.8	130				
sec-Butylbenzene	1.35	0.0223	1.117	0.04691	117	52.6	141				
4-Isopropyltoluene	1.39	0.0223	1.117	0.04412	120	52.9	134				
1,3-Dichlorobenzene	1.25	0.0223	1.117	0	112	52.6	131				
1,4-Dichlorobenzene	1.21	0.0223	1.117	0	108	52.9	129				
n-Butylbenzene	1.49	0.0223	1.117	0.08489	126	52.6	130				
1,2-Dichlorobenzene	1.24	0.0223	1.117	0	111	55.8	129				
1,2-Dibromo-3-chloropropane	0.981	0.558	1.117	0	87.8	40.5	131				
1,2,4-Trimethylbenzene	1.44	0.0223	1.117	0.1312	117	50.6	137				
Hexachlorobutadiene	1.48	0.112	1.117	0	133	40.6	158				
Naphthalene	1.45	0.0335	1.117	0.1273	118	52.3	124				
1,2,3-Trichlorobenzene	1.29	0.0223	1.117	0	116	54.4	124				
Surr: Dibromofluoromethane	1.39		1.396		99.3	56.5	129				
Surr: Toluene-d8	1.44		1.396		103	64.3	131				
Surr: 1-Bromo-4-fluorobenzene	1.46		1.396		105	63.1	141				

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample ID **1610034-001BMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **10/4/2016** RunNo: **32130**
Client ID: **W9-SP-25** Batch ID: **15016** Analysis Date: **10/5/2016** SeqNo: **607476**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	0.606	0.0670	1.117	0	54.2	43.5	121	0.6607	8.64	30	Q
Chloromethane	1.13	0.0670	1.117	0	101	45	130	1.173	3.73	30	
Vinyl chloride	0.979	0.00223	1.117	0	87.7	51.2	146	1.033	5.38	30	

Work Order: 1610034
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1610034-001BMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **10/4/2016** RunNo: **32130**
Client ID: **W9-SP-25** Batch ID: **15016** Analysis Date: **10/5/2016** SeqNo: **607476**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromomethane	0.910	0.101	1.117	0	81.4	21.3	120	0.9617	5.55	30	
Trichlorofluoromethane (CFC-11)	0.547	0.0558	1.117	0	49.0	35	131	0.6478	16.8	30	
Chloroethane	0.717	0.0670	1.117	0	64.2	43.8	117	0.7824	8.72	30	
1,1-Dichloroethene	1.07	0.0558	1.117	0	96.0	61.9	141	1.145	6.65	30	
Methylene chloride	1.16	0.0223	1.117	0	104	54.7	142	1.239	6.47	30	
trans-1,2-Dichloroethene	1.13	0.0223	1.117	0	102	52	136	1.197	5.37	30	
Methyl tert-butyl ether (MTBE)	1.23	0.0558	1.117	0	110	54.4	132	1.205	1.88	30	
1,1-Dichloroethane	1.13	0.0223	1.117	0	101	51.8	141	1.175	3.78	30	
2,2-Dichloropropane	1.22	0.0558	1.117	0	109	36	123	1.246	2.13	30	Q
cis-1,2-Dichloroethene	1.20	0.0223	1.117	0	107	58.6	136	1.248	4.25	30	
Chloroform	1.11	0.0223	1.117	0	99.5	53.2	129	1.164	4.66	30	
1,1,1-Trichloroethane (TCA)	1.08	0.0223	1.117	0	96.7	58.3	145	1.138	5.19	30	
1,1-Dichloropropene	1.19	0.0223	1.117	0	106	55.1	138	1.214	2.05	30	
Carbon tetrachloride	1.10	0.0223	1.117	0	98.5	53.3	144	1.240	12.0	30	
1,2-Dichloroethane (EDC)	1.13	0.0335	1.117	0	101	51.3	139	1.166	3.51	30	
Benzene	1.18	0.0223	1.117	0	106	63.5	133	1.246	5.06	30	
Trichloroethene (TCE)	1.15	0.0223	1.117	0	103	68.6	132	1.193	3.82	30	
1,2-Dichloropropane	1.20	0.0223	1.117	0	108	59	136	1.239	3.07	30	
Bromodichloromethane	1.02	0.0223	1.117	0	91.2	50.7	141	1.059	3.92	30	
Dibromomethane	1.14	0.0447	1.117	0	102	50.6	137	1.168	2.76	30	
cis-1,3-Dichloropropene	1.14	0.0223	1.117	0	102	50.4	138	1.145	0.587	30	
Toluene	1.25	0.0223	1.117	0	112	63.4	132	1.288	3.39	30	
trans-1,3-Dichloropropylene	1.17	0.0335	1.117	0	105	44.1	147	1.166	0.573	30	
1,1,2-Trichloroethane	1.16	0.0335	1.117	0	104	51.6	137	1.188	2.43	30	
1,3-Dichloropropane	1.19	0.0558	1.117	0	107	53.1	134	1.205	1.07	30	
Tetrachloroethene (PCE)	1.18	0.0223	1.117	0	106	35.6	158	1.242	4.79	30	
Dibromochloromethane	1.04	0.0335	1.117	0	92.9	55.3	140	1.057	1.87	30	
1,2-Dibromoethane (EDB)	1.15	0.00558	1.117	0	103	50.4	136	1.172	2.07	30	
Chlorobenzene	1.17	0.0223	1.117	0	105	60	133	1.231	4.97	30	
1,1,1,2-Tetrachloroethane	1.07	0.0335	1.117	0	95.6	53.1	142	1.116	4.45	30	
Ethylbenzene	1.16	0.0335	1.117	0.01340	102	54.5	134	1.221	5.40	30	

Work Order: 1610034
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1610034-001BMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **10/4/2016** RunNo: **32130**
Client ID: **W9-SP-25** Batch ID: **15016** Analysis Date: **10/5/2016** SeqNo: **607476**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
m,p-Xylene	2.33	0.0223	2.234	0.02681	103	53.1	132	2.451	5.12	30	
o-Xylene	1.18	0.0223	1.117	0	105	53.3	139	1.244	5.63	30	
Styrene	1.18	0.0223	1.117	0	106	51.1	132	1.240	4.79	30	
Isopropylbenzene	1.21	0.0894	1.117	0.02178	107	58.9	138	1.278	5.25	30	
Bromoform	0.967	0.0223	1.117	0	86.6	57.9	130	0.9751	0.863	30	
1,1,2,2-Tetrachloroethane	1.12	0.0223	1.117	0	99.9	51.9	131	1.136	1.79	30	
n-Propylbenzene	1.24	0.0223	1.117	0.04021	108	53.6	140	1.314	5.73	30	
Bromobenzene	1.20	0.0335	1.117	0	108	54.2	140	1.248	3.78	30	
1,3,5-Trimethylbenzene	1.25	0.0223	1.117	0.03239	109	51.8	136	1.309	4.36	30	
2-Chlorotoluene	1.17	0.0223	1.117	0	105	51.6	136	1.225	4.52	30	
4-Chlorotoluene	1.18	0.0223	1.117	0	106	50.1	139	1.238	4.95	30	
tert-Butylbenzene	1.23	0.0223	1.117	0	110	50.5	135	1.290	4.79	30	
1,2,3-Trichloropropane	1.12	0.0223	1.117	0	100	50.5	131	1.143	2.12	30	
1,2,4-Trichlorobenzene	1.32	0.0558	1.117	0	118	50.8	130	1.321	0.296	30	
sec-Butylbenzene	1.28	0.0223	1.117	0.04691	110	52.6	141	1.352	5.56	30	
4-Isopropyltoluene	1.32	0.0223	1.117	0.04412	114	52.9	134	1.386	5.08	30	
1,3-Dichlorobenzene	1.23	0.0223	1.117	0	110	52.6	131	1.249	1.81	30	
1,4-Dichlorobenzene	1.20	0.0223	1.117	0	107	52.9	129	1.207	0.883	30	
n-Butylbenzene	1.44	0.0223	1.117	0.08489	121	52.6	130	1.490	3.43	30	
1,2-Dichlorobenzene	1.23	0.0223	1.117	0	110	55.8	129	1.244	0.811	30	
1,2-Dibromo-3-chloropropane	1.04	0.558	1.117	0	93.4	40.5	131	0.9807	6.13	30	
1,2,4-Trimethylbenzene	1.39	0.0223	1.117	0.1312	112	50.6	137	1.438	3.68	30	
Hexachlorobutadiene	1.44	0.112	1.117	0	129	40.6	158	1.482	2.98	30	
Naphthalene	1.47	0.0335	1.117	0.1273	120	52.3	124	1.446	1.34	30	
1,2,3-Trichlorobenzene	1.28	0.0223	1.117	0	114	54.4	124	1.295	1.35	30	
Surr: Dibromofluoromethane	1.37		1.396		97.8	56.5	129		0		
Surr: Toluene-d8	1.44		1.396		103	64.3	131		0		
Surr: 1-Bromo-4-fluorobenzene	1.45		1.396		104	63.1	141		0		

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample Log-In Check List

Client Name:	**GEI**	Work Order Number:	**1610034**
Logged by:	**Erica Silva**	Date Received:	**10/4/2016 12:05:00 PM**

Chain of Custody

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

Log In

3.	Coolers are present?	Yes ☐	No ☑	NA ☐
	Sample received straight from field			
4.	Shipping container/cooler in good condition?	Yes ☑	No ☐	
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes ☐	No ☐	Not Required ☑
6.	Was an attempt made to cool the samples?	Yes ☐	No ☐	NA ☑
7.	Were all items received at a temperature of >0°C to 10.0°C*	Yes ☐	No ☐	NA ☑
8.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
9.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
10.	Are samples properly preserved?	Yes ☑	No ☐	
11.	Was preservative added to bottles?	Yes ☑	No ☐	NA ☐ MeOH to 001B
12.	Is there headspace in the VOA vials?	Yes ☐	No ☐	NA ☑
13.	Did all samples containers arrive in good condition(unbroken)?	Yes ☑	No ☐	
14.	Does paperwork match bottle labels?	Yes ☑	No ☐	
15.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
16.	Is it clear what analyses were requested?	Yes ☑	No ☐	
17.	Were all holding times able to be met?	Yes ☑	No ☐	

Special Handling (if applicable)

18.	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: _____

19. Additional remarks:

Item Information

Item #	Temp ºC
Sample	18.8

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Chain of Custody Record and Laboratory Services Agreement

Fremont Analytical
3600 Fremont Ave N. Tel: 206-352-3790
Seattle, WA 98103 Fax: 206-352-7178

Date: 10-4-16 Laboratory Project No (internal): 1610034

Page: 1 of: 1

Client: GeoEngineers
Address: 1600 Stewart St, Suite 17
City, State, Zip: Seattle, WA
Telephone: Fax:

Project Name: Rufus Block 20
Project No: 20964-002-01 Collected by: Sydney Branson
Location: Seattle, WA
Report To (PM): Chris Brown
PM Email: cbrown@geoengineers.com

*Matrix Codes: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T) | Dissolved (D)	Anions (IC)***	EDB (8011)			# Bottles	Comments
1	WG-SP-25	10/4/16	1130	S	X			X		X		X		X						2	
2																					
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					

**Metals Analysis (Circle): (MTCA-5) RCRA-8 Priority Pollutants TAL *Individual:* Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☑ Disposal by Lab (Samples will be held for 30 days unless otherwise noted. A fee may be assessed if samples are retained after 30 days.)

Turn-around times for samples received after 4:00pm will begin on the following business day.

Special Remarks: TAT as soon as possible.

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above, that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x [signature]	10-4-16 1205	x [signature]	10/4/16 1205
x		x	

TAT → (SameDay^) NextDay^ 2 Day 3 Day STD

^Please coordinate with the lab in advance

Chain of Custody Record and Laboratory Services Agreement

Fremont Analytical
3600 Fremont Ave N. Tel: 206-352-3790
Seattle, WA 98103 Fax: 206-352-7178

Date: 10-4-16 Laboratory Project No (internal): 1610034

Page: 1 of: 1

Client: GeoEngineers
Address: 1600 Stewart St, Suite 17.
City, State, Zip: Seattle, WA
Telephone: Fax:

Project Name: Rufus Block 20
Project No: 20964-002-01 Collected by: Sydney Branson
Location: Seattle, WA
Report To (PM): Chris Brown
PM Email: CBrown@geoengineers.com

*Matrix Codes: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T)	Dissolved (D)	Anions (IC)**	EDB (8011)	Hex Cr	# Bottles	Comments
1	W9-SS-25	10/4/16	1130	S	X			X		X		X		X					X	2	8Mdd per CB 10/5/16 cg
2																					
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					

**Metals Analysis (Circle): (MTCA-5) RCRA-8 Priority Pollutants TAL *Individual:* Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☒ Disposal by Lab (Samples will be held for 30 days unless otherwise noted. A fee may be assessed if samples are retained after 30 days.)

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Relinquished	Date/Time	Received	Date/Time
x [signature]	10-4-16 1205	x [signature]	10/4/16 1205
x		x	

TAT → (SameDay^) NextDay^ 2 Day 3 Day STD

^Please coordinate with the lab in advance

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

GeoEngineers
Chris Brown
600 Stewart Street, Suite 1700
Seattle, WA 98101

RE: Rufus Block 20
Work Order Number: 1610174

October 13, 2016

Attention Chris Brown:

Fremont Analytical, Inc. received 11 sample(s) on 10/12/2016 for the analyses presented in the following report.

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.
Gasoline by NWTPH-Gx
Mercury by EPA Method 7471
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)
Sample Moisture (Percent Moisture)
Total Metals by EPA Method 6020
Volatile Organic Compounds by EPA Method 8260C

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Mike Ridgeway
Laboratory Director

Date: *10/13/2016*

CLIENT: GeoEngineers
Project: Rufus Block 20
Work Order: 1610174

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1610174-001	W6-15	10/10/2016 8:02 AM	10/12/2016 8:55 AM
1610174-002	W6-25	10/10/2016 8:08 AM	10/12/2016 8:55 AM
1610174-003	W6-35	10/10/2016 8:35 AM	10/12/2016 8:55 AM
1610174-004	W6-45	10/10/2016 8:43 AM	10/12/2016 8:55 AM
1610174-005	W6-60	10/10/2016 9:10 AM	10/12/2016 8:55 AM
1610174-006	W10-15	10/07/2016 4:22 PM	10/12/2016 8:55 AM
1610174-007	W10-25	10/07/2016 4:27 PM	10/12/2016 8:55 AM
1610174-008	W10-35	10/07/2016 4:33 PM	10/12/2016 8:55 AM
1610174-009	W10-45	10/07/2016 4:36 PM	10/12/2016 8:55 AM
1610174-010	W10-60	10/07/2016 4:48 PM	10/12/2016 8:55 AM
1610174-011	Trip Blank	10/07/2016 10:07 AM	10/12/2016 8:55 AM

Case Narrative

WO#: **1610174**
Date: **10/13/2016**

CLIENT: GeoEngineers
Project: Rufus Block 20

I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Analytical Report

Work Order: **1610174**

Date Reported: **10/13/2016**

Client: GeoEngineers **Collection Date:** 10/10/2016 8:02:00 AM

Project: Rufus Block 20

Lab ID: 1610174-001 **Matrix:** Soil

Client Sample ID: W6-15

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 15107		Analyst: WC
Diesel (Fuel Oil)	ND	23.0		mg/Kg-dry	1	10/13/2016 5:11:00 AM
Heavy Oil	ND	57.5		mg/Kg-dry	1	10/13/2016 5:11:00 AM
Surr: 2-Fluorobiphenyl	97.1	50-150		%Rec	1	10/13/2016 5:11:00 AM
Surr: o-Terphenyl	97.5	50-150		%Rec	1	10/13/2016 5:11:00 AM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 15106		Analyst: BT
Naphthalene	ND	46.4		µg/Kg-dry	1	10/13/2016 4:04:55 PM
2-Methylnaphthalene	ND	46.4		µg/Kg-dry	1	10/13/2016 4:04:55 PM
1-Methylnaphthalene	ND	46.4		µg/Kg-dry	1	10/13/2016 4:04:55 PM
Acenaphthylene	ND	46.4		µg/Kg-dry	1	10/13/2016 4:04:55 PM
Acenaphthene	ND	46.4		µg/Kg-dry	1	10/13/2016 4:04:55 PM
Fluorene	ND	46.4		µg/Kg-dry	1	10/13/2016 4:04:55 PM
Phenanthrene	ND	46.4		µg/Kg-dry	1	10/13/2016 4:04:55 PM
Anthracene	ND	46.4		µg/Kg-dry	1	10/13/2016 4:04:55 PM
Fluoranthene	53.1	46.4		µg/Kg-dry	1	10/13/2016 4:04:55 PM
Pyrene	ND	46.4		µg/Kg-dry	1	10/13/2016 4:04:55 PM
Benz(a)anthracene	ND	46.4		µg/Kg-dry	1	10/13/2016 4:04:55 PM
Chrysene	ND	46.4		µg/Kg-dry	1	10/13/2016 4:04:55 PM
Benzo(b)fluoranthene	ND	46.4		µg/Kg-dry	1	10/13/2016 4:04:55 PM
Benzo(k)fluoranthene	ND	46.4	Q	µg/Kg-dry	1	10/13/2016 4:04:55 PM
Benzo(a)pyrene	ND	46.4		µg/Kg-dry	1	10/13/2016 4:04:55 PM
Indeno(1,2,3-cd)pyrene	ND	46.4	Q	µg/Kg-dry	1	10/13/2016 4:04:55 PM
Dibenz(a,h)anthracene	ND	46.4	Q	µg/Kg-dry	1	10/13/2016 4:04:55 PM
Benzo(g,h,i)perylene	ND	46.4		µg/Kg-dry	1	10/13/2016 4:04:55 PM
Surr: 2-Fluorobiphenyl	59.0	32.2-123		%Rec	1	10/13/2016 4:04:55 PM
Surr: Terphenyl-d14 (surr)	72.0	42.2-152		%Rec	1	10/13/2016 4:04:55 PM

NOTES:

Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF). The LCS recovered within range.

Gasoline by NWTPH-Gx				Batch ID: 15111		Analyst: NG
Gasoline	ND	2.41		mg/Kg-dry	1	10/13/2016 7:41:00 AM
Surr: Toluene-d8	101	65-135		%Rec	1	10/13/2016 7:41:00 AM
Surr: 4-Bromofluorobenzene	97.6	65-135		%Rec	1	10/13/2016 7:41:00 AM

Analytical Report

Work Order: **1610174**

Date Reported: **10/13/2016**

Client: GeoEngineers

Collection Date: 10/10/2016 8:02:00 AM

Project: Rufus Block 20

Lab ID: 1610174-001

Matrix: Soil

Client Sample ID: W6-15

Volatile Organic Compounds by EPA Method 8260C

Batch ID: 15111 Analyst: NG

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane (CFC-12)	ND	0.0290		mg/Kg-dry	1	10/13/2016 7:41:00 AM
Chloromethane	ND	0.0290		mg/Kg-dry	1	10/13/2016 7:41:00 AM
Vinyl chloride	ND	0.000965		mg/Kg-dry	1	10/13/2016 7:41:00 AM
Bromomethane	ND	0.0434		mg/Kg-dry	1	10/13/2016 7:41:00 AM
Trichlorofluoromethane (CFC-11)	ND	0.0241		mg/Kg-dry	1	10/13/2016 7:41:00 AM
Chloroethane	ND	0.0290		mg/Kg-dry	1	10/13/2016 7:41:00 AM
1,1-Dichloroethene	ND	0.0241		mg/Kg-dry	1	10/13/2016 7:41:00 AM
Methylene chloride	ND	0.00965		mg/Kg-dry	1	10/13/2016 7:41:00 AM
trans-1,2-Dichloroethene	ND	0.00965		mg/Kg-dry	1	10/13/2016 7:41:00 AM
Methyl tert-butyl ether (MTBE)	ND	0.0241		mg/Kg-dry	1	10/13/2016 7:41:00 AM
1,1-Dichloroethane	ND	0.00965		mg/Kg-dry	1	10/13/2016 7:41:00 AM
2,2-Dichloropropane	ND	0.0241	Q	mg/Kg-dry	1	10/13/2016 7:41:00 AM
cis-1,2-Dichloroethene	ND	0.00965		mg/Kg-dry	1	10/13/2016 7:41:00 AM
Chloroform	ND	0.00965		mg/Kg-dry	1	10/13/2016 7:41:00 AM
1,1,1-Trichloroethane (TCA)	ND	0.00965		mg/Kg-dry	1	10/13/2016 7:41:00 AM
1,1-Dichloropropene	ND	0.00965		mg/Kg-dry	1	10/13/2016 7:41:00 AM
Carbon tetrachloride	ND	0.00965	Q	mg/Kg-dry	1	10/13/2016 7:41:00 AM
1,2-Dichloroethane (EDC)	ND	0.0145		mg/Kg-dry	1	10/13/2016 7:41:00 AM
Benzene	ND	0.00965		mg/Kg-dry	1	10/13/2016 7:41:00 AM
Trichloroethene (TCE)	ND	0.00965		mg/Kg-dry	1	10/13/2016 7:41:00 AM
1,2-Dichloropropane	ND	0.00965		mg/Kg-dry	1	10/13/2016 7:41:00 AM
Bromodichloromethane	ND	0.00965		mg/Kg-dry	1	10/13/2016 7:41:00 AM
Dibromomethane	ND	0.0193		mg/Kg-dry	1	10/13/2016 7:41:00 AM
cis-1,3-Dichloropropene	ND	0.00965		mg/Kg-dry	1	10/13/2016 7:41:00 AM
Toluene	ND	0.00965		mg/Kg-dry	1	10/13/2016 7:41:00 AM
trans-1,3-Dichloropropylene	ND	0.0145		mg/Kg-dry	1	10/13/2016 7:41:00 AM
1,1,2-Trichloroethane	ND	0.0145		mg/Kg-dry	1	10/13/2016 7:41:00 AM
1,3-Dichloropropane	ND	0.0241		mg/Kg-dry	1	10/13/2016 7:41:00 AM
Tetrachloroethene (PCE)	ND	0.00965		mg/Kg-dry	1	10/13/2016 7:41:00 AM
Dibromochloromethane	ND	0.0145		mg/Kg-dry	1	10/13/2016 7:41:00 AM
1,2-Dibromoethane (EDB)	ND	0.00241		mg/Kg-dry	1	10/13/2016 7:41:00 AM
Chlorobenzene	ND	0.00965		mg/Kg-dry	1	10/13/2016 7:41:00 AM
1,1,1,2-Tetrachloroethane	ND	0.0145		mg/Kg-dry	1	10/13/2016 7:41:00 AM
Ethylbenzene	ND	0.0145		mg/Kg-dry	1	10/13/2016 7:41:00 AM
m,p-Xylene	ND	0.00965		mg/Kg-dry	1	10/13/2016 7:41:00 AM
o-Xylene	ND	0.00965		mg/Kg-dry	1	10/13/2016 7:41:00 AM
Styrene	ND	0.00965		mg/Kg-dry	1	10/13/2016 7:41:00 AM
Isopropylbenzene	ND	0.0386		mg/Kg-dry	1	10/13/2016 7:41:00 AM
Bromoform	ND	0.00965	Q	mg/Kg-dry	1	10/13/2016 7:41:00 AM

Original

Analytical Report

Work Order: **1610174**

Date Reported: **10/13/2016**

Client: GeoEngineers
Collection Date: 10/10/2016 8:02:00 AM
Project: Rufus Block 20
Lab ID: 1610174-001
Matrix: Soil
Client Sample ID: **W6-15**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15111		Analyst: NG
1,1,2,2-Tetrachloroethane	ND	0.00965		mg/Kg-dry	1	10/13/2016 7:41:00 AM
n-Propylbenzene	ND	0.00965		mg/Kg-dry	1	10/13/2016 7:41:00 AM
Bromobenzene	ND	0.0145		mg/Kg-dry	1	10/13/2016 7:41:00 AM
1,3,5-Trimethylbenzene	ND	0.00965		mg/Kg-dry	1	10/13/2016 7:41:00 AM
2-Chlorotoluene	ND	0.00965		mg/Kg-dry	1	10/13/2016 7:41:00 AM
4-Chlorotoluene	ND	0.00965		mg/Kg-dry	1	10/13/2016 7:41:00 AM
tert-Butylbenzene	ND	0.00965		mg/Kg-dry	1	10/13/2016 7:41:00 AM
1,2,3-Trichloropropane	ND	0.00965		mg/Kg-dry	1	10/13/2016 7:41:00 AM
1,2,4-Trichlorobenzene	ND	0.0241		mg/Kg-dry	1	10/13/2016 7:41:00 AM
sec-Butylbenzene	ND	0.00965		mg/Kg-dry	1	10/13/2016 7:41:00 AM
4-Isopropyltoluene	ND	0.00965		mg/Kg-dry	1	10/13/2016 7:41:00 AM
1,3-Dichlorobenzene	ND	0.00965		mg/Kg-dry	1	10/13/2016 7:41:00 AM
1,4-Dichlorobenzene	ND	0.00965		mg/Kg-dry	1	10/13/2016 7:41:00 AM
n-Butylbenzene	ND	0.00965		mg/Kg-dry	1	10/13/2016 7:41:00 AM
1,2-Dichlorobenzene	ND	0.00965		mg/Kg-dry	1	10/13/2016 7:41:00 AM
1,2-Dibromo-3-chloropropane	ND	0.241		mg/Kg-dry	1	10/13/2016 7:41:00 AM
1,2,4-Trimethylbenzene	ND	0.00965		mg/Kg-dry	1	10/13/2016 7:41:00 AM
Hexachlorobutadiene	ND	0.0483		mg/Kg-dry	1	10/13/2016 7:41:00 AM
Naphthalene	ND	0.0145		mg/Kg-dry	1	10/13/2016 7:41:00 AM
1,2,3-Trichlorobenzene	ND	0.00965		mg/Kg-dry	1	10/13/2016 7:41:00 AM
Surr: Dibromofluoromethane	91.6	56.5-129		%Rec	1	10/13/2016 7:41:00 AM
Surr: Toluene-d8	100	64.3-131		%Rec	1	10/13/2016 7:41:00 AM
Surr: 1-Bromo-4-fluorobenzene	93.3	63.1-141		%Rec	1	10/13/2016 7:41:00 AM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Mercury by EPA Method 7471				Batch ID: 15120		Analyst: MW
Mercury	ND	0.300		mg/Kg-dry	1	10/13/2016 2:52:55 PM
Total Metals by EPA Method 6020				Batch ID: 15108		Analyst: TN
Arsenic	5.10	0.0899		mg/Kg-dry	1	10/13/2016 1:11:11 PM
Barium	84.3	0.450		mg/Kg-dry	1	10/13/2016 1:11:11 PM
Cadmium	ND	0.180		mg/Kg-dry	1	10/13/2016 1:11:11 PM
Chromium	35.8	0.0899		mg/Kg-dry	1	10/13/2016 1:11:11 PM
Lead	9.04	0.180		mg/Kg-dry	1	10/13/2016 1:11:11 PM
Selenium	1.38	0.450		mg/Kg-dry	1	10/13/2016 1:11:11 PM

Original

Analytical Report

Work Order: **1610174**
Date Reported: **10/13/2016**

Client: GeoEngineers
Collection Date: 10/10/2016 8:02:00 AM
Project: Rufus Block 20
Lab ID: 1610174-001
Matrix: Soil
Client Sample ID: **W6-15**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 15108		Analyst: TN
Silver	ND	0.0899		mg/Kg-dry	1	10/13/2016 1:11:11 PM
Sample Moisture (Percent Moisture)				Batch ID: R32275		Analyst: BB
Percent Moisture	18.2			wt%	1	10/12/2016 2:44:20 PM

Analytical Report

Work Order: **1610174**

Date Reported: **10/13/2016**

Client: GeoEngineers **Collection Date:** 10/10/2016 8:08:00 AM

Project: Rufus Block 20

Lab ID: 1610174-002 **Matrix:** Soil

Client Sample ID: W6-25

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 15107		Analyst: WC
Diesel (Fuel Oil)	ND	23.0		mg/Kg-dry	1	10/13/2016 5:42:00 AM
Heavy Oil	ND	57.6		mg/Kg-dry	1	10/13/2016 5:42:00 AM
Surr: 2-Fluorobiphenyl	103	50-150		%Rec	1	10/13/2016 5:42:00 AM
Surr: o-Terphenyl	102	50-150		%Rec	1	10/13/2016 5:42:00 AM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 15106		Analyst: BT
Naphthalene	ND	45.2		µg/Kg-dry	1	10/13/2016 4:39:50 PM
2-Methylnaphthalene	ND	45.2		µg/Kg-dry	1	10/13/2016 4:39:50 PM
1-Methylnaphthalene	ND	45.2		µg/Kg-dry	1	10/13/2016 4:39:50 PM
Acenaphthylene	ND	45.2		µg/Kg-dry	1	10/13/2016 4:39:50 PM
Acenaphthene	ND	45.2		µg/Kg-dry	1	10/13/2016 4:39:50 PM
Fluorene	ND	45.2		µg/Kg-dry	1	10/13/2016 4:39:50 PM
Phenanthrene	ND	45.2		µg/Kg-dry	1	10/13/2016 4:39:50 PM
Anthracene	ND	45.2		µg/Kg-dry	1	10/13/2016 4:39:50 PM
Fluoranthene	ND	45.2		µg/Kg-dry	1	10/13/2016 4:39:50 PM
Pyrene	ND	45.2		µg/Kg-dry	1	10/13/2016 4:39:50 PM
Benz(a)anthracene	ND	45.2		µg/Kg-dry	1	10/13/2016 4:39:50 PM
Chrysene	ND	45.2		µg/Kg-dry	1	10/13/2016 4:39:50 PM
Benzo(b)fluoranthene	ND	45.2		µg/Kg-dry	1	10/13/2016 4:39:50 PM
Benzo(k)fluoranthene	ND	45.2	Q	µg/Kg-dry	1	10/13/2016 4:39:50 PM
Benzo(a)pyrene	ND	45.2		µg/Kg-dry	1	10/13/2016 4:39:50 PM
Indeno(1,2,3-cd)pyrene	ND	45.2	Q	µg/Kg-dry	1	10/13/2016 4:39:50 PM
Dibenz(a,h)anthracene	ND	45.2	Q	µg/Kg-dry	1	10/13/2016 4:39:50 PM
Benzo(g,h,i)perylene	ND	45.2		µg/Kg-dry	1	10/13/2016 4:39:50 PM
Surr: 2-Fluorobiphenyl	68.6	32.2-123		%Rec	1	10/13/2016 4:39:50 PM
Surr: Terphenyl-d14 (surr)	77.5	42.2-152		%Rec	1	10/13/2016 4:39:50 PM

NOTES:

Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF). The LCS recovered within range.

Gasoline by NWTPH-Gx				Batch ID: 15111		Analyst: NG
Gasoline	ND	1.51		mg/Kg-dry	1	10/13/2016 8:11:18 AM
Surr: Toluene-d8	101	65-135		%Rec	1	10/13/2016 8:11:18 AM
Surr: 4-Bromofluorobenzene	94.6	65-135		%Rec	1	10/13/2016 8:11:18 AM

Analytical Report

Work Order: **1610174**
Date Reported: **10/13/2016**

Client: GeoEngineers
Collection Date: 10/10/2016 8:08:00 AM
Project: Rufus Block 20
Lab ID: 1610174-002
Matrix: Soil
Client Sample ID: **W6-25**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15111		Analyst: NG
Dichlorodifluoromethane (CFC-12)	ND	0.0181		mg/Kg-dry	1	10/13/2016 8:11:18 AM
Chloromethane	ND	0.0181		mg/Kg-dry	1	10/13/2016 8:11:18 AM
Vinyl chloride	ND	0.000602		mg/Kg-dry	1	10/13/2016 8:11:18 AM
Bromomethane	ND	0.0271		mg/Kg-dry	1	10/13/2016 8:11:18 AM
Trichlorofluoromethane (CFC-11)	ND	0.0151		mg/Kg-dry	1	10/13/2016 8:11:18 AM
Chloroethane	ND	0.0181		mg/Kg-dry	1	10/13/2016 8:11:18 AM
1,1-Dichloroethene	ND	0.0151		mg/Kg-dry	1	10/13/2016 8:11:18 AM
Methylene chloride	ND	0.00602		mg/Kg-dry	1	10/13/2016 8:11:18 AM
trans-1,2-Dichloroethene	ND	0.00602		mg/Kg-dry	1	10/13/2016 8:11:18 AM
Methyl tert-butyl ether (MTBE)	ND	0.0151		mg/Kg-dry	1	10/13/2016 8:11:18 AM
1,1-Dichloroethane	ND	0.00602		mg/Kg-dry	1	10/13/2016 8:11:18 AM
2,2-Dichloropropane	ND	0.0151	Q	mg/Kg-dry	1	10/13/2016 8:11:18 AM
cis-1,2-Dichloroethene	ND	0.00602		mg/Kg-dry	1	10/13/2016 8:11:18 AM
Chloroform	ND	0.00602		mg/Kg-dry	1	10/13/2016 8:11:18 AM
1,1,1-Trichloroethane (TCA)	ND	0.00602		mg/Kg-dry	1	10/13/2016 8:11:18 AM
1,1-Dichloropropene	ND	0.00602		mg/Kg-dry	1	10/13/2016 8:11:18 AM
Carbon tetrachloride	ND	0.00602	Q	mg/Kg-dry	1	10/13/2016 8:11:18 AM
1,2-Dichloroethane (EDC)	ND	0.00904		mg/Kg-dry	1	10/13/2016 8:11:18 AM
Benzene	ND	0.00602		mg/Kg-dry	1	10/13/2016 8:11:18 AM
Trichloroethene (TCE)	ND	0.00602		mg/Kg-dry	1	10/13/2016 8:11:18 AM
1,2-Dichloropropane	ND	0.00602		mg/Kg-dry	1	10/13/2016 8:11:18 AM
Bromodichloromethane	ND	0.00602		mg/Kg-dry	1	10/13/2016 8:11:18 AM
Dibromomethane	ND	0.0120		mg/Kg-dry	1	10/13/2016 8:11:18 AM
cis-1,3-Dichloropropene	ND	0.00602		mg/Kg-dry	1	10/13/2016 8:11:18 AM
Toluene	ND	0.00602		mg/Kg-dry	1	10/13/2016 8:11:18 AM
trans-1,3-Dichloropropylene	ND	0.00904		mg/Kg-dry	1	10/13/2016 8:11:18 AM
1,1,2-Trichloroethane	ND	0.00904		mg/Kg-dry	1	10/13/2016 8:11:18 AM
1,3-Dichloropropane	ND	0.0151		mg/Kg-dry	1	10/13/2016 8:11:18 AM
Tetrachloroethene (PCE)	ND	0.00602		mg/Kg-dry	1	10/13/2016 8:11:18 AM
Dibromochloromethane	ND	0.00904		mg/Kg-dry	1	10/13/2016 8:11:18 AM
1,2-Dibromoethane (EDB)	ND	0.00151		mg/Kg-dry	1	10/13/2016 8:11:18 AM
Chlorobenzene	ND	0.00602		mg/Kg-dry	1	10/13/2016 8:11:18 AM
1,1,1,2-Tetrachloroethane	ND	0.00904		mg/Kg-dry	1	10/13/2016 8:11:18 AM
Ethylbenzene	ND	0.00904		mg/Kg-dry	1	10/13/2016 8:11:18 AM
m,p-Xylene	ND	0.00602		mg/Kg-dry	1	10/13/2016 8:11:18 AM
o-Xylene	ND	0.00602		mg/Kg-dry	1	10/13/2016 8:11:18 AM
Styrene	ND	0.00602		mg/Kg-dry	1	10/13/2016 8:11:18 AM
Isopropylbenzene	ND	0.0241		mg/Kg-dry	1	10/13/2016 8:11:18 AM
Bromoform	ND	0.00602	Q	mg/Kg-dry	1	10/13/2016 8:11:18 AM

Original

Analytical Report

Work Order: **1610174**
Date Reported: **10/13/2016**

Client: GeoEngineers
Project: Rufus Block 20
Lab ID: 1610174-002
Client Sample ID: **W6-25**

Collection Date: 10/10/2016 8:08:00 AM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15111		Analyst: NG
1,1,2,2-Tetrachloroethane	ND	0.00602		mg/Kg-dry	1	10/13/2016 8:11:18 AM
n-Propylbenzene	ND	0.00602		mg/Kg-dry	1	10/13/2016 8:11:18 AM
Bromobenzene	ND	0.00904		mg/Kg-dry	1	10/13/2016 8:11:18 AM
1,3,5-Trimethylbenzene	ND	0.00602		mg/Kg-dry	1	10/13/2016 8:11:18 AM
2-Chlorotoluene	ND	0.00602		mg/Kg-dry	1	10/13/2016 8:11:18 AM
4-Chlorotoluene	ND	0.00602		mg/Kg-dry	1	10/13/2016 8:11:18 AM
tert-Butylbenzene	ND	0.00602		mg/Kg-dry	1	10/13/2016 8:11:18 AM
1,2,3-Trichloropropane	ND	0.00602		mg/Kg-dry	1	10/13/2016 8:11:18 AM
1,2,4-Trichlorobenzene	ND	0.0151		mg/Kg-dry	1	10/13/2016 8:11:18 AM
sec-Butylbenzene	ND	0.00602		mg/Kg-dry	1	10/13/2016 8:11:18 AM
4-Isopropyltoluene	ND	0.00602		mg/Kg-dry	1	10/13/2016 8:11:18 AM
1,3-Dichlorobenzene	ND	0.00602		mg/Kg-dry	1	10/13/2016 8:11:18 AM
1,4-Dichlorobenzene	ND	0.00602		mg/Kg-dry	1	10/13/2016 8:11:18 AM
n-Butylbenzene	ND	0.00602		mg/Kg-dry	1	10/13/2016 8:11:18 AM
1,2-Dichlorobenzene	ND	0.00602		mg/Kg-dry	1	10/13/2016 8:11:18 AM
1,2-Dibromo-3-chloropropane	ND	0.151		mg/Kg-dry	1	10/13/2016 8:11:18 AM
1,2,4-Trimethylbenzene	ND	0.00602		mg/Kg-dry	1	10/13/2016 8:11:18 AM
Hexachlorobutadiene	ND	0.0301		mg/Kg-dry	1	10/13/2016 8:11:18 AM
Naphthalene	ND	0.00904		mg/Kg-dry	1	10/13/2016 8:11:18 AM
1,2,3-Trichlorobenzene	ND	0.00602		mg/Kg-dry	1	10/13/2016 8:11:18 AM
Surr: Dibromofluoromethane	92.3	56.5-129		%Rec	1	10/13/2016 8:11:18 AM
Surr: Toluene-d8	102	64.3-131		%Rec	1	10/13/2016 8:11:18 AM
Surr: 1-Bromo-4-fluorobenzene	93.5	63.1-141		%Rec	1	10/13/2016 8:11:18 AM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Mercury by EPA Method 7471				Batch ID: 15120		Analyst: MW
Mercury	ND	0.298		mg/Kg-dry	1	10/13/2016 2:54:31 PM
Total Metals by EPA Method 6020				Batch ID: 15108		Analyst: TN
Arsenic	3.73	0.0964		mg/Kg-dry	1	10/13/2016 1:32:24 PM
Barium	108	0.482		mg/Kg-dry	1	10/13/2016 1:32:24 PM
Cadmium	ND	0.193		mg/Kg-dry	1	10/13/2016 1:32:24 PM
Chromium	51.7	0.0964		mg/Kg-dry	1	10/13/2016 1:32:24 PM
Lead	4.13	0.193		mg/Kg-dry	1	10/13/2016 1:32:24 PM
Selenium	1.69	0.482		mg/Kg-dry	1	10/13/2016 1:32:24 PM

Original

Analytical Report

Work Order: **1610174**
Date Reported: **10/13/2016**

Client: GeoEngineers
Project: Rufus Block 20
Lab ID: 1610174-002
Client Sample ID: **W6-25**

Collection Date: 10/10/2016 8:08:00 AM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 15108		Analyst: TN
Silver	ND	0.0964		mg/Kg-dry	1	10/13/2016 1:32:24 PM
Sample Moisture (Percent Moisture)				Batch ID: R32275		Analyst: BB
Percent Moisture	17.7			wt%	1	10/12/2016 2:44:20 PM

Analytical Report

Work Order: **1610174**

Date Reported: **10/13/2016**

Client: GeoEngineers **Collection Date:** 10/7/2016 4:27:00 PM

Project: Rufus Block 20

Lab ID: 1610174-007 **Matrix:** Soil

Client Sample ID: W10-25

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 15107		Analyst: WC
Diesel (Fuel Oil)	ND	23.4		mg/Kg-dry	1	10/13/2016 6:13:00 AM
Heavy Oil	ND	58.4		mg/Kg-dry	1	10/13/2016 6:13:00 AM
Surr: 2-Fluorobiphenyl	85.4	50-150		%Rec	1	10/13/2016 6:13:00 AM
Surr: o-Terphenyl	88.0	50-150		%Rec	1	10/13/2016 6:13:00 AM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 15106		Analyst: BT
Naphthalene	ND	44.7		µg/Kg-dry	1	10/13/2016 5:00:59 PM
2-Methylnaphthalene	ND	44.7		µg/Kg-dry	1	10/13/2016 5:00:59 PM
1-Methylnaphthalene	ND	44.7		µg/Kg-dry	1	10/13/2016 5:00:59 PM
Acenaphthylene	ND	44.7		µg/Kg-dry	1	10/13/2016 5:00:59 PM
Acenaphthene	ND	44.7		µg/Kg-dry	1	10/13/2016 5:00:59 PM
Fluorene	ND	44.7		µg/Kg-dry	1	10/13/2016 5:00:59 PM
Phenanthrene	ND	44.7		µg/Kg-dry	1	10/13/2016 5:00:59 PM
Anthracene	ND	44.7		µg/Kg-dry	1	10/13/2016 5:00:59 PM
Fluoranthene	ND	44.7		µg/Kg-dry	1	10/13/2016 5:00:59 PM
Pyrene	ND	44.7		µg/Kg-dry	1	10/13/2016 5:00:59 PM
Benz(a)anthracene	ND	44.7		µg/Kg-dry	1	10/13/2016 5:00:59 PM
Chrysene	ND	44.7		µg/Kg-dry	1	10/13/2016 5:00:59 PM
Benzo(b)fluoranthene	ND	44.7		µg/Kg-dry	1	10/13/2016 5:00:59 PM
Benzo(k)fluoranthene	ND	44.7	Q	µg/Kg-dry	1	10/13/2016 5:00:59 PM
Benzo(a)pyrene	ND	44.7		µg/Kg-dry	1	10/13/2016 5:00:59 PM
Indeno(1,2,3-cd)pyrene	ND	44.7	IQ	µg/Kg-dry	1	10/13/2016 5:00:59 PM
Dibenz(a,h)anthracene	ND	44.7	IQ	µg/Kg-dry	1	10/13/2016 5:00:59 PM
Benzo(g,h,i)perylene	ND	44.7	I	µg/Kg-dry	1	10/13/2016 5:00:59 PM
Surr: 2-Fluorobiphenyl	77.4	32.2-123		%Rec	1	10/13/2016 5:00:59 PM
Surr: Terphenyl-d14 (surr)	84.9	42.2-152		%Rec	1	10/13/2016 5:00:59 PM

NOTES:

I - Indicates an analyte with an internal standard that does not meet established acceptance criteria.

Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF). The LCS recovered within range.

Gasoline by NWTPH-Gx				Batch ID: 15111		Analyst: NG
Gasoline	ND	1.62		mg/Kg-dry	1	10/13/2016 8:41:40 AM
Surr: Toluene-d8	101	65-135		%Rec	1	10/13/2016 8:41:40 AM
Surr: 4-Bromofluorobenzene	95.5	65-135		%Rec	1	10/13/2016 8:41:40 AM

Analytical Report

Work Order: **1610174**
Date Reported: **10/13/2016**

Client: GeoEngineers
Collection Date: 10/7/2016 4:27:00 PM
Project: Rufus Block 20
Lab ID: 1610174-007
Matrix: Soil
Client Sample ID: **W10-25**

Volatile Organic Compounds by EPA Method 8260C

Batch ID: 15111 Analyst: NG

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane (CFC-12)	ND	0.0194		mg/Kg-dry	1	10/13/2016 8:41:40 AM
Chloromethane	ND	0.0194		mg/Kg-dry	1	10/13/2016 8:41:40 AM
Vinyl chloride	ND	0.000646		mg/Kg-dry	1	10/13/2016 8:41:40 AM
Bromomethane	ND	0.0291		mg/Kg-dry	1	10/13/2016 8:41:40 AM
Trichlorofluoromethane (CFC-11)	ND	0.0162		mg/Kg-dry	1	10/13/2016 8:41:40 AM
Chloroethane	ND	0.0194		mg/Kg-dry	1	10/13/2016 8:41:40 AM
1,1-Dichloroethene	ND	0.0162		mg/Kg-dry	1	10/13/2016 8:41:40 AM
Methylene chloride	ND	0.00646		mg/Kg-dry	1	10/13/2016 8:41:40 AM
trans-1,2-Dichloroethene	ND	0.00646		mg/Kg-dry	1	10/13/2016 8:41:40 AM
Methyl tert-butyl ether (MTBE)	ND	0.0162		mg/Kg-dry	1	10/13/2016 8:41:40 AM
1,1-Dichloroethane	ND	0.00646		mg/Kg-dry	1	10/13/2016 8:41:40 AM
2,2-Dichloropropane	ND	0.0162	Q	mg/Kg-dry	1	10/13/2016 8:41:40 AM
cis-1,2-Dichloroethene	ND	0.00646		mg/Kg-dry	1	10/13/2016 8:41:40 AM
Chloroform	ND	0.00646		mg/Kg-dry	1	10/13/2016 8:41:40 AM
1,1,1-Trichloroethane (TCA)	ND	0.00646		mg/Kg-dry	1	10/13/2016 8:41:40 AM
1,1-Dichloropropene	ND	0.00646		mg/Kg-dry	1	10/13/2016 8:41:40 AM
Carbon tetrachloride	ND	0.00646	Q	mg/Kg-dry	1	10/13/2016 8:41:40 AM
1,2-Dichloroethane (EDC)	ND	0.00970		mg/Kg-dry	1	10/13/2016 8:41:40 AM
Benzene	ND	0.00646		mg/Kg-dry	1	10/13/2016 8:41:40 AM
Trichloroethene (TCE)	ND	0.00646		mg/Kg-dry	1	10/13/2016 8:41:40 AM
1,2-Dichloropropane	ND	0.00646		mg/Kg-dry	1	10/13/2016 8:41:40 AM
Bromodichloromethane	ND	0.00646		mg/Kg-dry	1	10/13/2016 8:41:40 AM
Dibromomethane	ND	0.0129		mg/Kg-dry	1	10/13/2016 8:41:40 AM
cis-1,3-Dichloropropene	ND	0.00646		mg/Kg-dry	1	10/13/2016 8:41:40 AM
Toluene	ND	0.00646		mg/Kg-dry	1	10/13/2016 8:41:40 AM
trans-1,3-Dichloropropylene	ND	0.00970		mg/Kg-dry	1	10/13/2016 8:41:40 AM
1,1,2-Trichloroethane	ND	0.00970		mg/Kg-dry	1	10/13/2016 8:41:40 AM
1,3-Dichloropropane	ND	0.0162		mg/Kg-dry	1	10/13/2016 8:41:40 AM
Tetrachloroethene (PCE)	ND	0.00646		mg/Kg-dry	1	10/13/2016 8:41:40 AM
Dibromochloromethane	ND	0.00970		mg/Kg-dry	1	10/13/2016 8:41:40 AM
1,2-Dibromoethane (EDB)	ND	0.00162		mg/Kg-dry	1	10/13/2016 8:41:40 AM
Chlorobenzene	ND	0.00646		mg/Kg-dry	1	10/13/2016 8:41:40 AM
1,1,1,2-Tetrachloroethane	ND	0.00970		mg/Kg-dry	1	10/13/2016 8:41:40 AM
Ethylbenzene	ND	0.00970		mg/Kg-dry	1	10/13/2016 8:41:40 AM
m,p-Xylene	ND	0.00646		mg/Kg-dry	1	10/13/2016 8:41:40 AM
o-Xylene	ND	0.00646		mg/Kg-dry	1	10/13/2016 8:41:40 AM
Styrene	ND	0.00646		mg/Kg-dry	1	10/13/2016 8:41:40 AM
Isopropylbenzene	ND	0.0259		mg/Kg-dry	1	10/13/2016 8:41:40 AM
Bromoform	ND	0.00646	Q	mg/Kg-dry	1	10/13/2016 8:41:40 AM

Original

Analytical Report

Work Order: **1610174**

Date Reported: **10/13/2016**

Client: GeoEngineers **Collection Date:** 10/7/2016 4:27:00 PM

Project: Rufus Block 20

Lab ID: 1610174-007 **Matrix:** Soil

Client Sample ID: W10-25

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15111		Analyst: NG
1,1,2,2-Tetrachloroethane	ND	0.00646		mg/Kg-dry	1	10/13/2016 8:41:40 AM
n-Propylbenzene	ND	0.00646		mg/Kg-dry	1	10/13/2016 8:41:40 AM
Bromobenzene	ND	0.00970		mg/Kg-dry	1	10/13/2016 8:41:40 AM
1,3,5-Trimethylbenzene	ND	0.00646		mg/Kg-dry	1	10/13/2016 8:41:40 AM
2-Chlorotoluene	ND	0.00646		mg/Kg-dry	1	10/13/2016 8:41:40 AM
4-Chlorotoluene	ND	0.00646		mg/Kg-dry	1	10/13/2016 8:41:40 AM
tert-Butylbenzene	ND	0.00646		mg/Kg-dry	1	10/13/2016 8:41:40 AM
1,2,3-Trichloropropane	ND	0.00646		mg/Kg-dry	1	10/13/2016 8:41:40 AM
1,2,4-Trichlorobenzene	ND	0.0162		mg/Kg-dry	1	10/13/2016 8:41:40 AM
sec-Butylbenzene	ND	0.00646		mg/Kg-dry	1	10/13/2016 8:41:40 AM
4-Isopropyltoluene	ND	0.00646		mg/Kg-dry	1	10/13/2016 8:41:40 AM
1,3-Dichlorobenzene	ND	0.00646		mg/Kg-dry	1	10/13/2016 8:41:40 AM
1,4-Dichlorobenzene	ND	0.00646		mg/Kg-dry	1	10/13/2016 8:41:40 AM
n-Butylbenzene	ND	0.00646		mg/Kg-dry	1	10/13/2016 8:41:40 AM
1,2-Dichlorobenzene	ND	0.00646		mg/Kg-dry	1	10/13/2016 8:41:40 AM
1,2-Dibromo-3-chloropropane	ND	0.162		mg/Kg-dry	1	10/13/2016 8:41:40 AM
1,2,4-Trimethylbenzene	ND	0.00646		mg/Kg-dry	1	10/13/2016 8:41:40 AM
Hexachlorobutadiene	ND	0.0323		mg/Kg-dry	1	10/13/2016 8:41:40 AM
Naphthalene	ND	0.00970		mg/Kg-dry	1	10/13/2016 8:41:40 AM
1,2,3-Trichlorobenzene	ND	0.00646		mg/Kg-dry	1	10/13/2016 8:41:40 AM
Surr: Dibromofluoromethane	90.6	56.5-129		%Rec	1	10/13/2016 8:41:40 AM
Surr: Toluene-d8	101	64.3-131		%Rec	1	10/13/2016 8:41:40 AM
Surr: 1-Bromo-4-fluorobenzene	91.8	63.1-141		%Rec	1	10/13/2016 8:41:40 AM

NOTES:

Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Mercury by EPA Method 7471				Batch ID: 15120		Analyst: MW
Mercury	ND	0.276		mg/Kg-dry	1	10/13/2016 2:59:29 PM
Total Metals by EPA Method 6020				Batch ID: 15108		Analyst: TN
Arsenic	5.43	0.0914		mg/Kg-dry	1	10/13/2016 1:35:56 PM
Barium	100	0.457		mg/Kg-dry	1	10/13/2016 1:35:56 PM
Cadmium	ND	0.183		mg/Kg-dry	1	10/13/2016 1:35:56 PM
Chromium	50.9	0.0914		mg/Kg-dry	1	10/13/2016 1:35:56 PM
Lead	4.47	0.183		mg/Kg-dry	1	10/13/2016 1:35:56 PM
Selenium	1.86	0.457		mg/Kg-dry	1	10/13/2016 1:35:56 PM

Original

Analytical Report

Work Order: **1610174**
Date Reported: **10/13/2016**

Client: GeoEngineers
Collection Date: 10/7/2016 4:27:00 PM
Project: Rufus Block 20
Lab ID: 1610174-007
Matrix: Soil
Client Sample ID: **W10-25**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 15108		Analyst: TN
Silver	ND	0.0914		mg/Kg-dry	1	10/13/2016 1:35:56 PM
Sample Moisture (Percent Moisture)				Batch ID: R32275		Analyst: BB
Percent Moisture	14.6			wt%	1	10/12/2016 2:44:20 PM

Analytical Report

Work Order: **1610174**

Date Reported: **10/13/2016**

Client: GeoEngineers **Collection Date:** 10/7/2016 4:36:00 PM

Project: Rufus Block 20

Lab ID: 1610174-009 **Matrix:** Soil

Client Sample ID: W10-45

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 15107		Analyst: WC
Diesel (Fuel Oil)	ND	20.8		mg/Kg-dry	1	10/13/2016 6:44:00 AM
Heavy Oil	ND	52.0		mg/Kg-dry	1	10/13/2016 6:44:00 AM
Surr: 2-Fluorobiphenyl	102	50-150		%Rec	1	10/13/2016 6:44:00 AM
Surr: o-Terphenyl	101	50-150		%Rec	1	10/13/2016 6:44:00 AM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 15106		Analyst: BT
Naphthalene	ND	42.1		µg/Kg-dry	1	10/13/2016 5:22:07 PM
2-Methylnaphthalene	ND	42.1		µg/Kg-dry	1	10/13/2016 5:22:07 PM
1-Methylnaphthalene	ND	42.1		µg/Kg-dry	1	10/13/2016 5:22:07 PM
Acenaphthylene	ND	42.1		µg/Kg-dry	1	10/13/2016 5:22:07 PM
Acenaphthene	ND	42.1		µg/Kg-dry	1	10/13/2016 5:22:07 PM
Fluorene	ND	42.1		µg/Kg-dry	1	10/13/2016 5:22:07 PM
Phenanthrene	ND	42.1		µg/Kg-dry	1	10/13/2016 5:22:07 PM
Anthracene	ND	42.1		µg/Kg-dry	1	10/13/2016 5:22:07 PM
Fluoranthene	ND	42.1		µg/Kg-dry	1	10/13/2016 5:22:07 PM
Pyrene	ND	42.1		µg/Kg-dry	1	10/13/2016 5:22:07 PM
Benz(a)anthracene	ND	42.1		µg/Kg-dry	1	10/13/2016 5:22:07 PM
Chrysene	ND	42.1		µg/Kg-dry	1	10/13/2016 5:22:07 PM
Benzo(b)fluoranthene	ND	42.1		µg/Kg-dry	1	10/13/2016 5:22:07 PM
Benzo(k)fluoranthene	ND	42.1	Q	µg/Kg-dry	1	10/13/2016 5:22:07 PM
Benzo(a)pyrene	ND	42.1		µg/Kg-dry	1	10/13/2016 5:22:07 PM
Indeno(1,2,3-cd)pyrene	ND	42.1	Q	µg/Kg-dry	1	10/13/2016 5:22:07 PM
Dibenz(a,h)anthracene	ND	42.1	Q	µg/Kg-dry	1	10/13/2016 5:22:07 PM
Benzo(g,h,i)perylene	ND	42.1		µg/Kg-dry	1	10/13/2016 5:22:07 PM
Surr: 2-Fluorobiphenyl	59.4	32.2-123		%Rec	1	10/13/2016 5:22:07 PM
Surr: Terphenyl-d14 (surr)	78.5	42.2-152		%Rec	1	10/13/2016 5:22:07 PM

NOTES:

Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF). The LCS recovered within range.

Gasoline by NWTPH-Gx				Batch ID: 15111		Analyst: NG
Gasoline	ND	2.79		mg/Kg-dry	1	10/13/2016 9:12:01 AM
Surr: Toluene-d8	204	65-135	S	%Rec	1	10/13/2016 9:12:01 AM
Surr: 4-Bromofluorobenzene	195	65-135	S	%Rec	1	10/13/2016 9:12:01 AM

Analytical Report

Work Order: **1610174**

Date Reported: **10/13/2016**

Client: GeoEngineers **Collection Date:** 10/7/2016 4:36:00 PM

Project: Rufus Block 20

Lab ID: 1610174-009 **Matrix:** Soil

Client Sample ID: W10-45

Volatile Organic Compounds by EPA Method 8260C

Batch ID: 15111 Analyst: NG

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane (CFC-12)	ND	0.0335		mg/Kg-dry	1	10/13/2016 9:12:01 AM
Chloromethane	ND	0.0335		mg/Kg-dry	1	10/13/2016 9:12:01 AM
Vinyl chloride	ND	0.00112		mg/Kg-dry	1	10/13/2016 9:12:01 AM
Bromomethane	ND	0.0502		mg/Kg-dry	1	10/13/2016 9:12:01 AM
Trichlorofluoromethane (CFC-11)	ND	0.0279		mg/Kg-dry	1	10/13/2016 9:12:01 AM
Chloroethane	ND	0.0335		mg/Kg-dry	1	10/13/2016 9:12:01 AM
1,1-Dichloroethene	ND	0.0279		mg/Kg-dry	1	10/13/2016 9:12:01 AM
Methylene chloride	ND	0.0112		mg/Kg-dry	1	10/13/2016 9:12:01 AM
trans-1,2-Dichloroethene	ND	0.0112		mg/Kg-dry	1	10/13/2016 9:12:01 AM
Methyl tert-butyl ether (MTBE)	ND	0.0279		mg/Kg-dry	1	10/13/2016 9:12:01 AM
1,1-Dichloroethane	ND	0.0112		mg/Kg-dry	1	10/13/2016 9:12:01 AM
2,2-Dichloropropane	ND	0.0279	Q	mg/Kg-dry	1	10/13/2016 9:12:01 AM
cis-1,2-Dichloroethene	ND	0.0112		mg/Kg-dry	1	10/13/2016 9:12:01 AM
Chloroform	ND	0.0112		mg/Kg-dry	1	10/13/2016 9:12:01 AM
1,1,1-Trichloroethane (TCA)	ND	0.0112		mg/Kg-dry	1	10/13/2016 9:12:01 AM
1,1-Dichloropropene	ND	0.0112		mg/Kg-dry	1	10/13/2016 9:12:01 AM
Carbon tetrachloride	ND	0.0112	Q	mg/Kg-dry	1	10/13/2016 9:12:01 AM
1,2-Dichloroethane (EDC)	ND	0.0167		mg/Kg-dry	1	10/13/2016 9:12:01 AM
Benzene	ND	0.0112		mg/Kg-dry	1	10/13/2016 9:12:01 AM
Trichloroethene (TCE)	ND	0.0112		mg/Kg-dry	1	10/13/2016 9:12:01 AM
1,2-Dichloropropane	ND	0.0112		mg/Kg-dry	1	10/13/2016 9:12:01 AM
Bromodichloromethane	ND	0.0112		mg/Kg-dry	1	10/13/2016 9:12:01 AM
Dibromomethane	ND	0.0223		mg/Kg-dry	1	10/13/2016 9:12:01 AM
cis-1,3-Dichloropropene	ND	0.0112		mg/Kg-dry	1	10/13/2016 9:12:01 AM
Toluene	ND	0.0112		mg/Kg-dry	1	10/13/2016 9:12:01 AM
trans-1,3-Dichloropropylene	ND	0.0167		mg/Kg-dry	1	10/13/2016 9:12:01 AM
1,1,2-Trichloroethane	ND	0.0167		mg/Kg-dry	1	10/13/2016 9:12:01 AM
1,3-Dichloropropane	ND	0.0279		mg/Kg-dry	1	10/13/2016 9:12:01 AM
Tetrachloroethene (PCE)	ND	0.0112		mg/Kg-dry	1	10/13/2016 9:12:01 AM
Dibromochloromethane	ND	0.0167		mg/Kg-dry	1	10/13/2016 9:12:01 AM
1,2-Dibromoethane (EDB)	ND	0.00279		mg/Kg-dry	1	10/13/2016 9:12:01 AM
Chlorobenzene	ND	0.0112		mg/Kg-dry	1	10/13/2016 9:12:01 AM
1,1,1,2-Tetrachloroethane	ND	0.0167		mg/Kg-dry	1	10/13/2016 9:12:01 AM
Ethylbenzene	ND	0.0167		mg/Kg-dry	1	10/13/2016 9:12:01 AM
m,p-Xylene	ND	0.0112		mg/Kg-dry	1	10/13/2016 9:12:01 AM
o-Xylene	ND	0.0112		mg/Kg-dry	1	10/13/2016 9:12:01 AM
Styrene	ND	0.0112		mg/Kg-dry	1	10/13/2016 9:12:01 AM
Isopropylbenzene	ND	0.0446		mg/Kg-dry	1	10/13/2016 9:12:01 AM
Bromoform	ND	0.0112	Q	mg/Kg-dry	1	10/13/2016 9:12:01 AM

Original

Analytical Report

Work Order: **1610174**

Date Reported: **10/13/2016**

Client: GeoEngineers **Collection Date:** 10/7/2016 4:36:00 PM

Project: Rufus Block 20

Lab ID: 1610174-009 **Matrix:** Soil

Client Sample ID: W10-45

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15111		Analyst: NG
1,1,2,2-Tetrachloroethane	ND	0.0112		mg/Kg-dry	1	10/13/2016 9:12:01 AM
n-Propylbenzene	ND	0.0112		mg/Kg-dry	1	10/13/2016 9:12:01 AM
Bromobenzene	ND	0.0167		mg/Kg-dry	1	10/13/2016 9:12:01 AM
1,3,5-Trimethylbenzene	ND	0.0112		mg/Kg-dry	1	10/13/2016 9:12:01 AM
2-Chlorotoluene	ND	0.0112		mg/Kg-dry	1	10/13/2016 9:12:01 AM
4-Chlorotoluene	ND	0.0112		mg/Kg-dry	1	10/13/2016 9:12:01 AM
tert-Butylbenzene	ND	0.0112		mg/Kg-dry	1	10/13/2016 9:12:01 AM
1,2,3-Trichloropropane	ND	0.0112		mg/Kg-dry	1	10/13/2016 9:12:01 AM
1,2,4-Trichlorobenzene	ND	0.0279		mg/Kg-dry	1	10/13/2016 9:12:01 AM
sec-Butylbenzene	ND	0.0112		mg/Kg-dry	1	10/13/2016 9:12:01 AM
4-Isopropyltoluene	ND	0.0112		mg/Kg-dry	1	10/13/2016 9:12:01 AM
1,3-Dichlorobenzene	ND	0.0112		mg/Kg-dry	1	10/13/2016 9:12:01 AM
1,4-Dichlorobenzene	ND	0.0112		mg/Kg-dry	1	10/13/2016 9:12:01 AM
n-Butylbenzene	ND	0.0112		mg/Kg-dry	1	10/13/2016 9:12:01 AM
1,2-Dichlorobenzene	ND	0.0112		mg/Kg-dry	1	10/13/2016 9:12:01 AM
1,2-Dibromo-3-chloropropane	ND	0.279		mg/Kg-dry	1	10/13/2016 9:12:01 AM
1,2,4-Trimethylbenzene	ND	0.0112		mg/Kg-dry	1	10/13/2016 9:12:01 AM
Hexachlorobutadiene	ND	0.0558		mg/Kg-dry	1	10/13/2016 9:12:01 AM
Naphthalene	ND	0.0167		mg/Kg-dry	1	10/13/2016 9:12:01 AM
1,2,3-Trichlorobenzene	ND	0.0112		mg/Kg-dry	1	10/13/2016 9:12:01 AM
Surr: Dibromofluoromethane	90.6	56.5-129		%Rec	1	10/13/2016 9:12:01 AM
Surr: Toluene-d8	101	64.3-131		%Rec	1	10/13/2016 9:12:01 AM
Surr: 1-Bromo-4-fluorobenzene	97.6	63.1-141		%Rec	1	10/13/2016 9:12:01 AM

NOTES:

Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Mercury by EPA Method 7471				Batch ID: 15120		Analyst: MW
Mercury	ND	0.260		mg/Kg-dry	1	10/13/2016 3:01:06 PM
Total Metals by EPA Method 6020				Batch ID: 15108		Analyst: TN
Arsenic	1.78	0.0821		mg/Kg-dry	1	10/13/2016 1:46:37 PM
Barium	32.0	0.411		mg/Kg-dry	1	10/13/2016 1:46:37 PM
Cadmium	ND	0.164		mg/Kg-dry	1	10/13/2016 1:46:37 PM
Chromium	30.8	0.0821		mg/Kg-dry	1	10/13/2016 1:46:37 PM
Lead	1.38	0.164		mg/Kg-dry	1	10/13/2016 1:46:37 PM
Selenium	0.835	0.411		mg/Kg-dry	1	10/13/2016 1:46:37 PM

Original

Analytical Report

Work Order: **1610174**
Date Reported: **10/13/2016**

Client: GeoEngineers
Collection Date: 10/7/2016 4:36:00 PM
Project: Rufus Block 20
Lab ID: 1610174-009
Matrix: Soil
Client Sample ID: **W10-45**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 15108		Analyst: TN
Silver	ND	0.0821		mg/Kg-dry	1	10/13/2016 1:46:37 PM
Sample Moisture (Percent Moisture)				Batch ID: R32275		Analyst: BB
Percent Moisture	5.58			wt%	1	10/12/2016 2:44:20 PM

Work Order: 1610174
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID **MB-15107**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **10/12/2016**	RunNo: **32287**
Client ID: **MBLKS**	Batch ID: **15107**		Analysis Date: **10/13/2016**	SeqNo: **610595**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	20.0									
Heavy Oil	ND	50.0									
Surr: 2-Fluorobiphenyl	19.5		20.00		97.6	50	150				
Surr: o-Terphenyl	19.1		20.00		95.5	50	150				

Sample ID **LCS-15107**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **10/12/2016**	RunNo: **32287**
Client ID: **LCSS**	Batch ID: **15107**		Analysis Date: **10/13/2016**	SeqNo: **610594**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	483	20.0	500.0	0	96.7	65	135				
Surr: 2-Fluorobiphenyl	20.5		20.00		103	50	150				
Surr: o-Terphenyl	19.7		20.00		98.5	50	150				

Sample ID **1610175-003ADUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **10/12/2016**	RunNo: **32287**
Client ID: **BATCH**	Batch ID: **15107**		Analysis Date: **10/13/2016**	SeqNo: **610582**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	24.6						0		30	
Heavy Oil	ND	61.6						0		30	
Surr: 2-Fluorobiphenyl	24.5		24.64		99.3	50	150		0		
Surr: o-Terphenyl	24.5		24.64		99.2	50	150		0		

Sample ID **1610175-003AMS**	SampType: **MS**	Units: **mg/Kg-dry**	Prep Date: **10/12/2016**	RunNo: **32287**
Client ID: **BATCH**	Batch ID: **15107**		Analysis Date: **10/13/2016**	SeqNo: **610583**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	573	23.8	595.0	0	96.4	65	135				
Surr: 2-Fluorobiphenyl	22.9		23.80		96.1	50	150				
Surr: o-Terphenyl	23.3		23.80		97.8	50	150				

Work Order: 1610174
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID **1610175-003AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **10/12/2016** RunNo: **32287**
Client ID: **BATCH** Batch ID: **15107** Analysis Date: **10/13/2016** SeqNo: **610583**

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

Sample ID **1610175-003AMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **10/12/2016** RunNo: **32287**
Client ID: **BATCH** Batch ID: **15107** Analysis Date: **10/13/2016** SeqNo: **610584**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	577	22.7	566.9	0	102	65	135	573.4	0.683	30	
Surr: 2-Fluorobiphenyl	24.0		22.68		106	50	150		0		
Surr: o-Terphenyl	23.6		22.68		104	50	150		0		

Sample ID **1610179-007ADUP** SampType: **DUP** Units: **mg/Kg** Prep Date: **10/12/2016** RunNo: **32287**
Client ID: **BATCH** Batch ID: **15107** Analysis Date: **10/13/2016** SeqNo: **610826**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	19.3						0		30	
Heavy Oil	ND	48.3						0		30	
Surr: 2-Fluorobiphenyl	19.5		19.32		101	50	150		0		
Surr: o-Terphenyl	20.3		19.32		105	50	150		0		

Work Order: 1610174
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Gasoline by NWTPH-Gx

Sample ID **LCS-15111**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **10/12/2016**	RunNo: **32293**
Client ID: **LCSS**	Batch ID: **15111**		Analysis Date: **10/12/2016**	SeqNo: **610763**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	22.8	5.00	25.00	0	91.1	65	135				
Surr: Toluene-d8	1.28		1.250		102	65	135				
Surr: 4-Bromofluorobenzene	1.25		1.250		100	65	135				

Sample ID **MB-15111**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **10/12/2016**	RunNo: **32293**
Client ID: **MBLKS**	Batch ID: **15111**		Analysis Date: **10/12/2016**	SeqNo: **610764**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	5.00									
Surr: Toluene-d8	1.25		1.250		100	65	135				
Surr: 4-Bromofluorobenzene	1.20		1.250		95.8	65	135				

Sample ID **1610175-001BDUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **10/12/2016**	RunNo: **32293**
Client ID: **BATCH**	Batch ID: **15111**		Analysis Date: **10/13/2016**	SeqNo: **610758**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	3.66						0		30	
Surr: Toluene-d8	0.932		0.9157		102	65	135		0		
Surr: 4-Bromofluorobenzene	0.870		0.9157		95.1	65	135		0		

Sample ID **1610175-006BMS**	SampType: **MS**	Units: **mg/Kg-dry**	Prep Date: **10/12/2016**	RunNo: **32293**
Client ID: **BATCH**	Batch ID: **15111**		Analysis Date: **10/13/2016**	SeqNo: **610886**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	14.0	3.34	16.71	0	83.5	65	135				
Surr: Toluene-d8	0.819		0.8353		98.0	65	135				
Surr: 4-Bromofluorobenzene	0.845		0.8353		101	65	135				

Date: *10/13/2016*

Work Order: 1610174
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Gasoline by NWTPH-Gx

Sample ID	**1610175-006BMSD**	SampType: **MSD**		Units: **mg/Kg-dry**	Prep Date: **10/12/2016**	RunNo: **32293**
Client ID:	**BATCH**	Batch ID: **15111**			Analysis Date: **10/13/2016**	SeqNo: **610887**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	10.3	3.34	16.71	0	61.6	65	135	13.96	30.2	30	RS
Surr: Toluene-d8	0.846		0.8353		101	65	135		0		
Surr: 4-Bromofluorobenzene	0.867		0.8353		104	65	135		0		

NOTES:
S - Outlying spike recovery(ies) observed. A duplicate analysis was performed and recovered within range.
R - High RPD observed.

Work Order: 1610174
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Mercury by EPA Method 7471

Sample ID	**MB-15120**	SampType:	**MBLK**			Units:	**mg/Kg**	Prep Date:	**10/13/2016**	RunNo:	**32297**
Client ID:	**MBLKS**	Batch ID:	**15120**					Analysis Date:	**10/13/2016**	SeqNo:	**610922**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.250									

Sample ID	**LCS-15120**	SampType:	**LCS**			Units:	**mg/Kg**	Prep Date:	**10/13/2016**	RunNo:	**32297**
Client ID:	**LCSS**	Batch ID:	**15120**					Analysis Date:	**10/13/2016**	SeqNo:	**610923**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.539	0.250	0.5000	0	108	80	120				

Sample ID	**1610162-001ADUP**	SampType:	**DUP**			Units:	**mg/Kg-dry**	Prep Date:	**10/13/2016**	RunNo:	**32297**
Client ID:	**BATCH**	Batch ID:	**15120**					Analysis Date:	**10/13/2016**	SeqNo:	**610925**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.259						0		20	

Sample ID	**1610162-001AMS**	SampType:	**MS**			Units:	**mg/Kg-dry**	Prep Date:	**10/13/2016**	RunNo:	**32297**
Client ID:	**BATCH**	Batch ID:	**15120**					Analysis Date:	**10/13/2016**	SeqNo:	**610926**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.599	0.275	0.5491	0.01680	106	70	130				

Sample ID	**1610162-001AMSD**	SampType:	**MSD**			Units:	**mg/Kg-dry**	Prep Date:	**10/13/2016**	RunNo:	**32297**
Client ID:	**BATCH**	Batch ID:	**15120**					Analysis Date:	**10/13/2016**	SeqNo:	**610927**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.592	0.269	0.5384	0.01680	107	70	130	0.5986	1.07	20	

Work Order: 1610174
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **MB-15106**	SampType: **MBLK**	Units: **µg/Kg**	Prep Date: **10/12/2016**	RunNo: **32299**
Client ID: **MBLKS**	Batch ID: **15106**		Analysis Date: **10/13/2016**	SeqNo: **611006**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	40.0									
2-Methylnaphthalene	ND	40.0									
1-Methylnaphthalene	ND	40.0									
Acenaphthylene	ND	40.0									
Acenaphthene	ND	40.0									
Fluorene	ND	40.0									
Phenanthrene	ND	40.0									
Anthracene	ND	40.0									
Fluoranthene	ND	40.0									
Pyrene	ND	40.0									
Benz(a)anthracene	ND	40.0									
Chrysene	ND	40.0									
Benzo(b)fluoranthene	ND	40.0									
Benzo(k)fluoranthene	ND	40.0									Q
Benzo(a)pyrene	ND	40.0									
Indeno(1,2,3-cd)pyrene	ND	40.0									Q
Dibenz(a,h)anthracene	ND	40.0									Q
Benzo(g,h,i)perylene	ND	40.0									
Surr: 2-Fluorobiphenyl	424		500.0		84.8	32.2	123				
Surr: Terphenyl-d14 (surr)	451		500.0		90.2	42.2	152				

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF). The LCS recovered within range.

Sample ID **LCS-15106**	SampType: **LCS**	Units: **µg/Kg**	Prep Date: **10/12/2016**	RunNo: **32299**
Client ID: **LCSS**	Batch ID: **15106**		Analysis Date: **10/13/2016**	SeqNo: **611007**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	864	40.0	1,000	0	86.4	46.4	125				
2-Methylnaphthalene	890	40.0	1,000	0	89.0	45.1	135				
1-Methylnaphthalene	858	40.0	1,000	0	85.8	46.2	133				
Acenaphthylene	923	40.0	1,000	0	92.3	32.8	136				

Work Order: 1610174
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **LCS-15106** SampType: **LCS** Units: **µg/Kg** Prep Date: **10/12/2016** RunNo: **32299**
Client ID: **LCSS** Batch ID: **15106** Analysis Date: **10/13/2016** SeqNo: **611007**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acenaphthene	909	40.0	1,000	0	90.9	38.7	129				
Fluorene	864	40.0	1,000	0	86.4	41.1	132				
Phenanthrene	865	40.0	1,000	0	86.5	43.9	133				
Anthracene	922	40.0	1,000	0	92.2	44.2	136				
Fluoranthene	919	40.0	1,000	0	91.9	45.9	137				
Pyrene	913	40.0	1,000	0	91.3	46.2	137				
Benz(a)anthracene	808	40.0	1,000	0	80.8	41.9	136				
Chrysene	897	40.0	1,000	0	89.7	46.9	138				
Benzo(b)fluoranthene	818	40.0	1,000	0	81.8	35.9	148				
Benzo(k)fluoranthene	662	40.0	1,000	0	66.2	43.9	144				Q
Benzo(a)pyrene	652	40.0	1,000	0	65.2	36.3	144				
Indeno(1,2,3-cd)pyrene	509	40.0	1,000	0	50.9	41	140				Q
Dibenz(a,h)anthracene	391	40.0	1,000	0	39.1	33.8	133				Q
Benzo(g,h,i)perylene	655	40.0	1,000	0	65.5	32.9	112				
Surr: 2-Fluorobiphenyl	431		500.0		86.3	32.2	123				
Surr: Terphenyl-d14 (surr)	450		500.0		90.0	42.2	152				

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF). The LCS recovered within range.

Sample ID **1610175-001ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **10/12/2016** RunNo: **32299**
Client ID: **BATCH** Batch ID: **15106** Analysis Date: **10/13/2016** SeqNo: **611009**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	43.5						0		30	
2-Methylnaphthalene	ND	43.5						0		30	
1-Methylnaphthalene	ND	43.5						0		30	
Acenaphthylene	ND	43.5						0		30	
Acenaphthene	ND	43.5						0		30	
Fluorene	ND	43.5						0		30	
Phenanthrene	ND	43.5						0		30	
Anthracene	ND	43.5						0		30	

Work Order: 1610174
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1610175-001ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **10/12/2016** RunNo: **32299**
Client ID: **BATCH** Batch ID: **15106** Analysis Date: **10/13/2016** SeqNo: **611009**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoranthene	ND	43.5						0		30	
Pyrene	ND	43.5						0		30	
Benz(a)anthracene	ND	43.5						0		30	
Chrysene	ND	43.5						0		30	
Benzo(b)fluoranthene	ND	43.5						0		30	
Benzo(k)fluoranthene	ND	43.5						0		30	Q
Benzo(a)pyrene	ND	43.5						0		30	
Indeno(1,2,3-cd)pyrene	ND	43.5						0		30	IQ
Dibenz(a,h)anthracene	ND	43.5						0		30	IQ
Benzo(g,h,i)perylene	ND	43.5						0		30	I
Surr: 2-Fluorobiphenyl	324		544.0		59.6	32.2	123		0		
Surr: Terphenyl-d14 (surr)	471		544.0		86.6	42.2	152		0		

NOTES:
I - Indicates an analyte with an internal standard that does not meet established acceptance criteria.
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF). The LCS recovered within range.

Sample ID **1610175-001AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **10/12/2016** RunNo: **32299**
Client ID: **BATCH** Batch ID: **15106** Analysis Date: **10/13/2016** SeqNo: **611010**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	752	40.0	999.5	0	75.2	42.9	138				
2-Methylnaphthalene	779	40.0	999.5	0	77.9	42.8	151				
1-Methylnaphthalene	751	40.0	999.5	0	75.1	41.6	148				
Acenaphthylene	810	40.0	999.5	0	81.0	32.6	160				
Acenaphthene	800	40.0	999.5	0	80.0	46.3	142				
Fluorene	758	40.0	999.5	0	75.8	43.4	153				
Phenanthrene	762	40.0	999.5	0	76.2	45.5	140				
Anthracene	806	40.0	999.5	0	80.7	32.6	160				
Fluoranthene	792	40.0	999.5	0	79.2	44.6	161				
Pyrene	791	40.0	999.5	0	79.1	48.3	158				
Benz(a)anthracene	683	40.0	999.5	0	68.4	57.5	169				

Work Order: 1610174
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1610175-001AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **10/12/2016** RunNo: **32299**
Client ID: **BATCH** Batch ID: **15106** Analysis Date: **10/13/2016** SeqNo: **611010**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chrysene	784	40.0	999.5	0	78.5	45.2	146				
Benzo(b)fluoranthene	647	40.0	999.5	0	64.8	42.2	168				
Benzo(k)fluoranthene	613	40.0	999.5	0	61.3	48	161				Q
Benzo(a)pyrene	569	40.0	999.5	0	56.9	34.4	179				
Indeno(1,2,3-cd)pyrene	430	40.0	999.5	7.735	42.3	41.1	165				Q
Dibenz(a,h)anthracene	340	40.0	999.5	10.21	33.0	38.1	166				SQ
Benzo(g,h,i)perylene	542	40.0	999.5	4.379	53.8	45.6	157				
Surr: 2-Fluorobiphenyl	368		499.7		73.6	32.2	123				
Surr: Terphenyl-d14 (surr)	397		499.7		79.5	42.2	152				

NOTES:
S - Outlying spike recovery(ies) observed. A duplicate analysis was performed and recovered within range.
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF). The LCS recovered within range.

Sample ID **1610175-001AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **10/12/2016** RunNo: **32299**
Client ID: **BATCH** Batch ID: **15106** Analysis Date: **10/13/2016** SeqNo: **611011**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	893	46.7	1,168	0	76.5	42.9	138	751.7	17.2	30	
2-Methylnaphthalene	925	46.7	1,168	0	79.2	42.8	151	778.8	17.1	30	
1-Methylnaphthalene	890	46.7	1,168	0	76.2	41.6	148	750.6	17.1	30	
Acenaphthylene	960	46.7	1,168	0	82.2	32.6	160	809.9	16.9	30	
Acenaphthene	949	46.7	1,168	0	81.2	46.3	142	800.0	17.0	30	
Fluorene	895	46.7	1,168	0	76.7	43.4	153	757.5	16.7	30	
Phenanthrene	898	46.7	1,168	0	76.9	45.5	140	762.1	16.4	30	
Anthracene	954	46.7	1,168	0	81.7	32.6	160	806.4	16.8	30	
Fluoranthene	938	46.7	1,168	0	80.3	44.6	161	791.8	16.9	30	
Pyrene	932	46.7	1,168	0	79.8	48.3	158	790.7	16.4	30	
Benz(a)anthracene	819	46.7	1,168	0	70.1	57.5	169	683.4	18.0	30	
Chrysene	934	46.7	1,168	0	80.0	45.2	146	784.3	17.5	30	
Benzo(b)fluoranthene	827	46.7	1,168	0	70.9	42.2	168	647.3	24.4	30	
Benzo(k)fluoranthene	697	46.7	1,168	0	59.7	48	161	612.6	12.9	30	Q

Work Order: 1610174
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1610175-001AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **10/12/2016** RunNo: **32299**
Client ID: **BATCH** Batch ID: **15106** Analysis Date: **10/13/2016** SeqNo: **611011**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzo(a)pyrene	657	46.7	1,168	0	56.3	34.4	179	569.1	14.3	30	
Indeno(1,2,3-cd)pyrene	533	46.7	1,168	7.735	45.0	41.1	165	430.5	21.3	30	Q
Dibenz(a,h)anthracene	456	46.7	1,168	10.21	38.2	38.1	166	340.0	29.2	30	Q
Benzo(g,h,i)perylene	684	46.7	1,168	4.379	58.2	45.6	157	541.7	23.2	30	
Surr: 2-Fluorobiphenyl	417		583.9		71.4	32.2	123		0		
Surr: Terphenyl-d14 (surr)	467		583.9		80.0	42.2	152		0		

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF). The LCS recovered within range.

Work Order: 1610174
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Sample Moisture (Percent Moisture)

Sample ID **1610175-006ADUP** SampType: **DUP** Units: **wt%** Prep Date: **10/12/2016** RunNo: **32275**
Client ID: **BATCH** Batch ID: **R32275** Analysis Date: **10/12/2016** SeqNo: **610305**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	16.7	0.500						16.46	1.25	20	

Work Order: 1610174
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID	**MB-15108**	SampType:	**MBLK**	Units:	**mg/Kg**	Prep Date:	**10/12/2016**	RunNo:	**32296**
Client ID:	**MBLKS**	Batch ID:	**15108**			Analysis Date:	**10/13/2016**	SeqNo:	**610851**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.0781									
Barium	ND	0.391									
Cadmium	ND	0.156									
Chromium	ND	0.0781									
Lead	ND	0.156									
Selenium	ND	0.391									
Silver	ND	0.0781									

Sample ID	**LCS-15108**	SampType:	**LCS**	Units:	**mg/Kg**	Prep Date:	**10/12/2016**	RunNo:	**32296**
Client ID:	**LCSS**	Batch ID:	**15108**			Analysis Date:	**10/13/2016**	SeqNo:	**610852**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	36.8	0.0781	39.06	0	94.3	80	120				
Barium	39.1	0.391	39.06	0	100	80	120				
Cadmium	1.93	0.156	1.953	0	98.8	80	120				
Chromium	38.4	0.0781	39.06	0	98.3	80	120				
Lead	19.4	0.156	19.53	0	99.6	80	120				
Selenium	3.51	0.391	3.906	0	89.9	80	120				
Silver	1.59	0.0781	1.953	0	81.4	80	120				

Sample ID	**1610174-001ADUP**	SampType:	**DUP**	Units:	**mg/Kg-dry**	Prep Date:	**10/12/2016**	RunNo:	**32296**
Client ID:	**W6-15**	Batch ID:	**15108**			Analysis Date:	**10/13/2016**	SeqNo:	**610854**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	5.47	0.0893						5.100	7.05	20	
Barium	93.9	0.446						84.31	10.7	20	
Cadmium	ND	0.179						0		20	
Chromium	39.1	0.0893						35.82	8.87	20	
Lead	11.0	0.179						9.040	19.1	20	
Selenium	1.41	0.446						1.385	1.61	20	

Work Order: 1610174
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID **1610174-001ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **10/12/2016** RunNo: **32296**
Client ID: **W6-15** Batch ID: **15108** Analysis Date: **10/13/2016** SeqNo: **610854**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Silver	ND	0.0893						0		20	

Sample ID **1610174-001AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **10/12/2016** RunNo: **32296**
Client ID: **W6-15** Batch ID: **15108** Analysis Date: **10/13/2016** SeqNo: **610856**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	47.7	0.0886	44.32	5.100	96.2	75	125				
Barium	147	0.443	44.32	84.31	142	75	125				S
Cadmium	2.16	0.177	2.216	0.09826	93.0	75	125				
Chromium	89.5	0.0886	44.32	35.82	121	75	125				
Lead	36.5	0.177	22.16	9.040	124	75	125				
Selenium	5.22	0.443	4.432	1.385	86.5	75	125				
Silver	1.20	0.0886	2.216	0.04011	52.4	75	125				S

NOTES:
S - Outlying spike recovery(ies) observed for Barium and Silver. A duplicate analysis was performed with similar results indicating a possible matrix effect.

Sample ID **1610174-001AMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **10/12/2016** RunNo: **32296**
Client ID: **W6-15** Batch ID: **15108** Analysis Date: **10/13/2016** SeqNo: **610857**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	49.1	0.0886	44.32	5.100	99.3	75	125	47.74	2.80	20	
Barium	143	0.443	44.32	84.31	132	75	125	147.2	3.17	20	S
Cadmium	2.13	0.177	2.216	0.09826	91.6	75	125	2.158	1.45	20	
Chromium	90.2	0.0886	44.32	35.82	123	75	125	89.49	0.779	20	
Lead	40.7	0.177	22.16	9.040	143	75	125	36.50	10.9	20	S
Selenium	5.48	0.443	4.432	1.385	92.3	75	125	5.217	4.83	20	
Silver	1.20	0.0886	2.216	0.04011	52.5	75	125	1.201	0.184	20	S

NOTES:
S - Outlying spike recovery(ies) observed for Barium and Silver. A duplicate analysis was performed with similar results indicating a possible matrix effect.
S - Outlying spike recovery(ies) observed for Lead. A duplicate analysis was performed and recovered within range.

Date: *10/13/2016*

Work Order: 1610174
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID **1610174-001APDS** SampType: **PDS** Units: **mg/Kg-dry** Prep Date: **10/12/2016** RunNo: **32296**
Client ID: **W6-15** Batch ID: **15108** Analysis Date: **10/13/2016** SeqNo: **610858**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	286	0.450	50.0	187	98.7	80	120				
Silver	2.72	0.0899	2.50	0.0892	52.7	80	120				S

NOTES:
S - Spike recovery indicates a possible matrix effect. The method is in control as indicated by the Laboratory Control Sample (LCS).

Work Order: 1610174
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-15111** SampType: **LCS** Units: **mg/Kg** Prep Date: **10/12/2016** RunNo: **32292**
Client ID: **LCSS** Batch ID: **15111** Analysis Date: **10/12/2016** SeqNo: **610736**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	1.34	0.0600	1.000	0	134	34.5	141				
Chloromethane	0.993	0.0600	1.000	0	99.3	38.8	132				
Vinyl chloride	0.925	0.00200	1.000	0	92.5	44	142				
Bromomethane	0.910	0.0900	1.000	0	91.0	40.9	157				
Trichlorofluoromethane (CFC-11)	0.833	0.0500	1.000	0	83.3	42.9	147				
Chloroethane	0.876	0.0600	1.000	0	87.6	37.1	144				
1,1-Dichloroethene	0.939	0.0500	1.000	0	93.9	49.7	142				
Methylene chloride	1.05	0.0200	1.000	0	105	46.3	140				
trans-1,2-Dichloroethene	1.06	0.0200	1.000	0	106	68	130				
Methyl tert-butyl ether (MTBE)	1.02	0.0500	1.000	0	102	59.1	138				
1,1-Dichloroethane	0.977	0.0200	1.000	0	97.7	61.9	137				
2,2-Dichloropropane	0.798	0.0500	1.000	0	79.8	28.1	149				Q
cis-1,2-Dichloroethene	0.981	0.0200	1.000	0	98.1	71.3	135				
Chloroform	1.16	0.0200	1.000	0	116	67.5	129				
1,1,1-Trichloroethane (TCA)	0.982	0.0200	1.000	0	98.2	69	132				
1,1-Dichloropropene	0.963	0.0200	1.000	0	96.3	72.7	131				
Carbon tetrachloride	0.849	0.0200	1.000	0	84.9	63.4	137				Q
1,2-Dichloroethane (EDC)	1.00	0.0300	1.000	0	100	61.9	136				
Benzene	1.01	0.0200	1.000	0	101	64.3	133				
Trichloroethene (TCE)	1.01	0.0200	1.000	0	101	65.5	137				
1,2-Dichloropropane	1.02	0.0200	1.000	0	102	63.2	142				
Bromodichloromethane	0.970	0.0200	1.000	0	97.0	73.2	131				
Dibromomethane	0.990	0.0400	1.000	0	99.0	70	130				
cis-1,3-Dichloropropene	0.951	0.0200	1.000	0	95.1	59.1	143				
Toluene	0.992	0.0200	1.000	0	99.2	67.3	138				
trans-1,3-Dichloropropylene	0.921	0.0300	1.000	0	92.1	49.2	149				
1,1,2-Trichloroethane	0.985	0.0300	1.000	0	98.5	74.5	129				
1,3-Dichloropropane	0.973	0.0500	1.000	0	97.3	70	130				
Tetrachloroethene (PCE)	0.980	0.0200	1.000	0	98.0	52.7	150				
Dibromochloromethane	0.936	0.0300	1.000	0	93.6	70.6	144				
1,2-Dibromoethane (EDB)	0.979	0.00500	1.000	0	97.9	70	130				

Work Order: 1610174
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-15111** SampType: **LCS** Units: **mg/Kg** Prep Date: **10/12/2016** RunNo: **32292**
Client ID: **LCSS** Batch ID: **15111** Analysis Date: **10/12/2016** SeqNo: **610736**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chlorobenzene	0.924	0.0200	1.000	0	92.4	76.1	123				
1,1,1,2-Tetrachloroethane	0.968	0.0300	1.000	0	96.8	65.9	141				
Ethylbenzene	0.967	0.0300	1.000	0	96.7	74	129				
m,p-Xylene	1.96	0.0200	2.000	0	98.0	70	124				
o-Xylene	0.967	0.0200	1.000	0	96.7	72.7	124				
Styrene	0.971	0.0200	1.000	0	97.1	76.8	130				
Isopropylbenzene	0.958	0.0800	1.000	0	95.8	70	130				
Bromoform	0.909	0.0200	1.000	0	90.9	67	154				Q
1,1,2,2-Tetrachloroethane	0.924	0.0200	1.000	0	92.4	60	130				
n-Propylbenzene	0.973	0.0200	1.000	0	97.3	74.8	125				
Bromobenzene	0.993	0.0300	1.000	0	99.3	49.2	144				
1,3,5-Trimethylbenzene	0.975	0.0200	1.000	0	97.5	74.6	123				
2-Chlorotoluene	0.980	0.0200	1.000	0	98.0	76.7	129				
4-Chlorotoluene	0.963	0.0200	1.000	0	96.3	77.5	125				
tert-Butylbenzene	0.968	0.0200	1.000	0	96.8	66.2	130				
1,2,3-Trichloropropane	1.03	0.0200	1.000	0	103	67.9	136				
1,2,4-Trichlorobenzene	0.976	0.0500	1.000	0	97.6	62.6	143				
sec-Butylbenzene	0.951	0.0200	1.000	0	95.1	75.6	133				
4-Isopropyltoluene	0.970	0.0200	1.000	0	97.0	76.8	131				
1,3-Dichlorobenzene	1.02	0.0200	1.000	0	102	72.8	128				
1,4-Dichlorobenzene	1.07	0.0200	1.000	0	107	72.6	126				
n-Butylbenzene	0.972	0.0200	1.000	0	97.2	65.3	136				
1,2-Dichlorobenzene	1.03	0.0200	1.000	0	103	72.8	126				
1,2-Dibromo-3-chloropropane	0.953	0.500	1.000	0	95.3	61.2	139				
1,2,4-Trimethylbenzene	0.970	0.0200	1.000	0	97.0	77.5	129				
Hexachlorobutadiene	0.995	0.100	1.000	0	99.5	42	151				
Naphthalene	0.947	0.0300	1.000	0	94.7	62.3	134				
1,2,3-Trichlorobenzene	0.961	0.0200	1.000	0	96.1	54.8	143				
Surr: Dibromofluoromethane	1.28		1.250		102	56.5	129				
Surr: Toluene-d8	1.36		1.250		109	64.3	131				
Surr: 1-Bromo-4-fluorobenzene	1.31		1.250		105	63.1	141				

Work Order: 1610174
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID	**LCS-15111**	SampType:	**LCS**	Units:	**mg/Kg**	Prep Date:	**10/12/2016**	RunNo:	**32292**
Client ID:	**LCSS**	Batch ID:	**15111**			Analysis Date:	**10/12/2016**	SeqNo:	**610736**

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

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample ID	**MB-15111**	SampType:	**MBLK**	Units:	**mg/Kg**	Prep Date:	**10/12/2016**	RunNo:	**32292**
Client ID:	**MBLKS**	Batch ID:	**15111**			Analysis Date:	**10/12/2016**	SeqNo:	**610737**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	ND	0.0600									
Chloromethane	ND	0.0600									
Vinyl chloride	ND	0.00200									
Bromomethane	ND	0.0900									
Trichlorofluoromethane (CFC-11)	ND	0.0500									
Chloroethane	ND	0.0600									
1,1-Dichloroethene	ND	0.0500									
Methylene chloride	ND	0.0200									
trans-1,2-Dichloroethene	ND	0.0200									
Methyl tert-butyl ether (MTBE)	ND	0.0500									
1,1-Dichloroethane	ND	0.0200									
2,2-Dichloropropane	ND	0.0500									Q
cis-1,2-Dichloroethene	ND	0.0200									
Chloroform	ND	0.0200									
1,1,1-Trichloroethane (TCA)	ND	0.0200									
1,1-Dichloropropene	ND	0.0200									
Carbon tetrachloride	ND	0.0200									Q
1,2-Dichloroethane (EDC)	ND	0.0300									
Benzene	ND	0.0200									
Trichloroethene (TCE)	ND	0.0200									
1,2-Dichloropropane	ND	0.0200									
Bromodichloromethane	ND	0.0200									
Dibromomethane	ND	0.0400									
cis-1,3-Dichloropropene	ND	0.0200									

Work Order: 1610174
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-15111** SampType: **MBLK** Units: **mg/Kg** Prep Date: **10/12/2016** RunNo: **32292**
Client ID: **MBLKS** Batch ID: **15111** Analysis Date: **10/12/2016** SeqNo: **610737**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Toluene	ND	0.0200									
trans-1,3-Dichloropropylene	ND	0.0300									
1,1,2-Trichloroethane	ND	0.0300									
1,3-Dichloropropane	ND	0.0500									
Tetrachloroethene (PCE)	ND	0.0200									
Dibromochloromethane	ND	0.0300									
1,2-Dibromoethane (EDB)	ND	0.00500									
Chlorobenzene	ND	0.0200									
1,1,1,2-Tetrachloroethane	ND	0.0300									
Ethylbenzene	ND	0.0300									
m,p-Xylene	ND	0.0200									
o-Xylene	ND	0.0200									
Styrene	ND	0.0200									
Isopropylbenzene	ND	0.0800									
Bromoform	ND	0.0200									Q
1,1,2,2-Tetrachloroethane	ND	0.0200									
n-Propylbenzene	ND	0.0200									
Bromobenzene	ND	0.0300									
1,3,5-Trimethylbenzene	ND	0.0200									
2-Chlorotoluene	ND	0.0200									
4-Chlorotoluene	ND	0.0200									
tert-Butylbenzene	ND	0.0200									
1,2,3-Trichloropropane	ND	0.0200									
1,2,4-Trichlorobenzene	ND	0.0500									
sec-Butylbenzene	ND	0.0200									
4-Isopropyltoluene	ND	0.0200									
1,3-Dichlorobenzene	ND	0.0200									
1,4-Dichlorobenzene	ND	0.0200									
n-Butylbenzene	ND	0.0200									
1,2-Dichlorobenzene	ND	0.0200									
1,2-Dibromo-3-chloropropane	ND	0.500									

Work Order: 1610174
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-15111** SampType: **MBLK** Units: **mg/Kg** Prep Date: **10/12/2016** RunNo: **32292**
Client ID: **MBLKS** Batch ID: **15111** Analysis Date: **10/12/2016** SeqNo: **610737**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trimethylbenzene	ND	0.0200									
Hexachlorobutadiene	ND	0.100									
Naphthalene	ND	0.0300									
1,2,3-Trichlorobenzene	ND	0.0200									
Surr: Dibromofluoromethane	1.24		1.250		99.0	56.5	129				
Surr: Toluene-d8	1.23		1.250		98.7	64.3	131				
Surr: 1-Bromo-4-fluorobenzene	1.18		1.250		94.5	63.1	141				

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample ID **1610175-001BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **10/12/2016** RunNo: **32292**
Client ID: **BATCH** Batch ID: **15111** Analysis Date: **10/13/2016** SeqNo: **610730**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	ND	0.0440						0		30	
Chloromethane	ND	0.0440						0		30	
Vinyl chloride	ND	0.00147						0		30	
Bromomethane	ND	0.0659						0		30	
Trichlorofluoromethane (CFC-11)	ND	0.0366						0		30	
Chloroethane	ND	0.0440						0		30	
1,1-Dichloroethene	ND	0.0366						0		30	
Methylene chloride	ND	0.0147						0		30	
trans-1,2-Dichloroethene	ND	0.0147						0		30	
Methyl tert-butyl ether (MTBE)	ND	0.0366						0		30	
1,1-Dichloroethane	ND	0.0147						0		30	
2,2-Dichloropropane	ND	0.0366						0		30	Q
cis-1,2-Dichloroethene	ND	0.0147						0		30	
Chloroform	ND	0.0147						0		30	
1,1,1-Trichloroethane (TCA)	ND	0.0147						0		30	
1,1-Dichloropropene	ND	0.0147						0		30	
Carbon tetrachloride	ND	0.0147						0		30	Q

Work Order: 1610174
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1610175-001BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **10/12/2016** RunNo: **32292**
Client ID: **BATCH** Batch ID: **15111** Analysis Date: **10/13/2016** SeqNo: **610730**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2-Dichloroethane (EDC)	ND	0.0220						0		30	
Benzene	ND	0.0147						0		30	
Trichloroethene (TCE)	ND	0.0147						0		30	
1,2-Dichloropropane	ND	0.0147						0		30	
Bromodichloromethane	ND	0.0147						0		30	
Dibromomethane	ND	0.0293						0		30	
cis-1,3-Dichloropropene	ND	0.0147						0		30	
Toluene	ND	0.0147						0		30	
trans-1,3-Dichloropropylene	ND	0.0220						0		30	
1,1,2-Trichloroethane	ND	0.0220						0		30	
1,3-Dichloropropane	ND	0.0366						0		30	
Tetrachloroethene (PCE)	ND	0.0147						0		30	
Dibromochloromethane	ND	0.0220						0		30	
1,2-Dibromoethane (EDB)	ND	0.00366						0		30	
Chlorobenzene	ND	0.0147						0		30	
1,1,1,2-Tetrachloroethane	ND	0.0220						0		30	
Ethylbenzene	ND	0.0220						0		30	
m,p-Xylene	ND	0.0147						0		30	
o-Xylene	ND	0.0147						0		30	
Styrene	ND	0.0147						0		30	
Isopropylbenzene	ND	0.0586						0		30	
Bromoform	ND	0.0147						0		30	Q
1,1,2,2-Tetrachloroethane	ND	0.0147						0		30	
n-Propylbenzene	ND	0.0147						0		30	
Bromobenzene	ND	0.0220						0		30	
1,3,5-Trimethylbenzene	ND	0.0147						0		30	
2-Chlorotoluene	ND	0.0147						0		30	
4-Chlorotoluene	ND	0.0147						0		30	
tert-Butylbenzene	ND	0.0147						0		30	
1,2,3-Trichloropropane	ND	0.0147						0		30	
1,2,4-Trichlorobenzene	ND	0.0366						0		30	

Work Order: 1610174
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1610175-001BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **10/12/2016** RunNo: **32292**
Client ID: **BATCH** Batch ID: **15111** Analysis Date: **10/13/2016** SeqNo: **610730**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
sec-Butylbenzene	ND	0.0147						0		30	
4-Isopropyltoluene	ND	0.0147						0		30	
1,3-Dichlorobenzene	ND	0.0147						0		30	
1,4-Dichlorobenzene	ND	0.0147						0		30	
n-Butylbenzene	ND	0.0147						0		30	
1,2-Dichlorobenzene	ND	0.0147						0		30	
1,2-Dibromo-3-chloropropane	ND	0.366						0		30	
1,2,4-Trimethylbenzene	ND	0.0147						0		30	
Hexachlorobutadiene	ND	0.0733						0		30	
Naphthalene	ND	0.0220						0		30	
1,2,3-Trichlorobenzene	ND	0.0147						0		30	
Surr: Dibromofluoromethane	0.835		0.9157		91.2	56.5	129		0		
Surr: Toluene-d8	0.952		0.9157		104	64.3	131		0		
Surr: 1-Bromo-4-fluorobenzene	0.865		0.9157		94.4	63.1	141		0		

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample ID **1610175-003BMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **10/12/2016** RunNo: **32292**
Client ID: **BATCH** Batch ID: **15111** Analysis Date: **10/13/2016** SeqNo: **610732**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	0.406	0.0370	0.6161	0	65.9	43.5	121				
Chloromethane	0.704	0.0370	0.6161	0	114	45	130				
Vinyl chloride	0.599	0.00123	0.6161	0	97.2	51.2	146				
Bromomethane	0.756	0.0555	0.6161	0	123	21.3	120				S
Trichlorofluoromethane (CFC-11)	1.15	0.0308	0.6161	0	187	35	131				S
Chloroethane	0.825	0.0370	0.6161	0	134	43.8	117				S
1,1-Dichloroethene	0.765	0.0308	0.6161	0	124	61.9	141				
Methylene chloride	0.646	0.0123	0.6161	0	105	54.7	142				
trans-1,2-Dichloroethene	0.661	0.0123	0.6161	0	107	52	136				
Methyl tert-butyl ether (MTBE)	0.614	0.0308	0.6161	0	99.7	54.4	132				

Work Order: 1610174
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1610175-003BMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **10/12/2016** RunNo: **32292**
Client ID: **BATCH** Batch ID: **15111** Analysis Date: **10/13/2016** SeqNo: **610732**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethane	0.622	0.0123	0.6161	0	101	51.8	141				
2,2-Dichloropropane	0.312	0.0308	0.6161	0	50.7	36	123				Q
cis-1,2-Dichloroethene	0.615	0.0123	0.6161	0	99.8	58.6	136				
Chloroform	0.636	0.0123	0.6161	0.002069	103	53.2	129				
1,1,1-Trichloroethane (TCA)	0.611	0.0123	0.6161	0	99.2	58.3	145				
1,1-Dichloropropene	0.640	0.0123	0.6161	0	104	55.1	138				
Carbon tetrachloride	0.552	0.0123	0.6161	0	89.5	53.3	144				Q
1,2-Dichloroethane (EDC)	0.620	0.0185	0.6161	0	101	51.3	139				
Benzene	0.644	0.0123	0.6161	0	104	63.5	133				
Trichloroethene (TCE)	0.665	0.0123	0.6161	0	108	68.6	132				
1,2-Dichloropropane	0.644	0.0123	0.6161	0	104	59	136				
Bromodichloromethane	0.577	0.0123	0.6161	0	93.6	50.7	141				
Dibromomethane	0.644	0.0246	0.6161	0	105	50.6	137				
cis-1,3-Dichloropropene	0.546	0.0123	0.6161	0	88.7	50.4	138				
Toluene	0.653	0.0123	0.6161	0.007079	105	63.4	132				
trans-1,3-Dichloropropylene	0.532	0.0185	0.6161	0	86.4	44.1	147				
1,1,2-Trichloroethane	0.631	0.0185	0.6161	0	102	51.6	137				
1,3-Dichloropropane	0.639	0.0308	0.6161	0	104	53.1	134				
Tetrachloroethene (PCE)	0.671	0.0123	0.6161	0	109	35.6	158				
Dibromochloromethane	0.562	0.0185	0.6161	0	91.2	55.3	140				
1,2-Dibromoethane (EDB)	0.606	0.00308	0.6161	0	98.4	50.4	136				
Chlorobenzene	0.610	0.0123	0.6161	0	98.9	60	133				
1,1,1,2-Tetrachloroethane	0.599	0.0185	0.6161	0	97.2	53.1	142				
Ethylbenzene	0.629	0.0185	0.6161	0	102	54.5	134				
m,p-Xylene	1.25	0.0123	1.232	0	102	53.1	132				
o-Xylene	0.614	0.0123	0.6161	0	99.6	53.3	139				
Styrene	0.618	0.0123	0.6161	0	100	51.1	132				
Isopropylbenzene	0.627	0.0493	0.6161	0	102	58.9	138				
Bromoform	0.529	0.0123	0.6161	0	85.8	57.9	130				Q
1,1,2,2-Tetrachloroethane	0.563	0.0123	0.6161	0	91.4	51.9	131				
n-Propylbenzene	0.636	0.0123	0.6161	0	103	53.6	140				

Work Order: 1610174
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1610175-003BMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **10/12/2016** RunNo: **32292**
Client ID: **BATCH** Batch ID: **15111** Analysis Date: **10/13/2016** SeqNo: **610732**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromobenzene	0.632	0.0185	0.6161	0	102	54.2	140				
1,3,5-Trimethylbenzene	0.627	0.0123	0.6161	0	102	51.8	136				
2-Chlorotoluene	0.621	0.0123	0.6161	0	101	51.6	136				
4-Chlorotoluene	0.641	0.0123	0.6161	0	104	50.1	139				
tert-Butylbenzene	0.634	0.0123	0.6161	0	103	50.5	135				
1,2,3-Trichloropropane	0.592	0.0123	0.6161	0	96.0	50.5	131				
1,2,4-Trichlorobenzene	0.734	0.0308	0.6161	0	119	50.8	130				
sec-Butylbenzene	0.636	0.0123	0.6161	0	103	52.6	141				
4-Isopropyltoluene	0.631	0.0123	0.6161	0	102	52.9	134				
1,3-Dichlorobenzene	0.653	0.0123	0.6161	0	106	52.6	131				
1,4-Dichlorobenzene	0.661	0.0123	0.6161	0	107	52.9	129				
n-Butylbenzene	0.674	0.0123	0.6161	0	109	52.6	130				
1,2-Dichlorobenzene	0.651	0.0123	0.6161	0	106	55.8	129				
1,2-Dibromo-3-chloropropane	0.571	0.308	0.6161	0	92.7	40.5	131				
1,2,4-Trimethylbenzene	0.618	0.0123	0.6161	0	100	50.6	137				
Hexachlorobutadiene	0.685	0.0616	0.6161	0	111	40.6	158				
Naphthalene	0.710	0.0185	0.6161	0	115	52.3	124				
1,2,3-Trichlorobenzene	0.749	0.0123	0.6161	0	122	54.4	124				
Surr: Dibromofluoromethane	0.756		0.7702		98.2	56.5	129				
Surr: Toluene-d8	0.867		0.7702		113	64.3	131				
Surr: 1-Bromo-4-fluorobenzene	0.843		0.7702		109	63.1	141				

NOTES:
S - Outlying spike recovery(ies) observed. The method is in control as indicated by the Laboratory Control Sample (LCS).
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample ID **1610175-003BMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **10/12/2016** RunNo: **32292**
Client ID: **BATCH** Batch ID: **15111** Analysis Date: **10/13/2016** SeqNo: **610876**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	0.353	0.0370	0.6161	0	57.4	43.5	121	0.4062	13.9	30	
Chloromethane	0.760	0.0370	0.6161	0	123	45	130	0.7044	7.58	30	

Work Order: 1610174
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1610175-003BMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **10/12/2016** RunNo: **32292**
Client ID: **BATCH** Batch ID: **15111** Analysis Date: **10/13/2016** SeqNo: **610876**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Vinyl chloride	0.560	0.00123	0.6161	0	90.8	51.2	146	0.5990	6.80	30	
Bromomethane	0.713	0.0555	0.6161	0	116	21.3	120	0.7556	5.79	30	
Trichlorofluoromethane (CFC-11)	1.15	0.0308	0.6161	0	186	35	131	1.150	0.161	30	S
Chloroethane	0.711	0.0370	0.6161	0	115	43.8	117	0.8252	14.9	30	
1,1-Dichloroethene	0.786	0.0308	0.6161	0	128	61.9	141	0.7645	2.77	30	
Methylene chloride	0.715	0.0123	0.6161	0	116	54.7	142	0.6458	10.2	30	
trans-1,2-Dichloroethene	0.718	0.0123	0.6161	0	116	52	136	0.6609	8.24	30	
Methyl tert-butyl ether (MTBE)	0.694	0.0308	0.6161	0	113	54.4	132	0.6144	12.2	30	
1,1-Dichloroethane	0.574	0.0123	0.6161	0	93.2	51.8	141	0.6221	7.98	30	
2,2-Dichloropropane	0.292	0.0308	0.6161	0	47.3	36	123	0.3124	6.90	30	Q
cis-1,2-Dichloroethene	0.578	0.0123	0.6161	0	93.8	58.6	136	0.6146	6.14	30	
Chloroform	0.616	0.0123	0.6161	0.002069	99.7	53.2	129	0.6362	3.17	30	
1,1,1-Trichloroethane (TCA)	0.581	0.0123	0.6161	0	94.3	58.3	145	0.6114	5.05	30	
1,1-Dichloropropene	0.587	0.0123	0.6161	0	95.3	55.1	138	0.6397	8.54	30	
Carbon tetrachloride	0.540	0.0123	0.6161	0	87.7	53.3	144	0.5516	2.06	30	Q
1,2-Dichloroethane (EDC)	0.567	0.0185	0.6161	0	92.1	51.3	139	0.6197	8.85	30	
Benzene	0.616	0.0123	0.6161	0	100	63.5	133	0.6436	4.41	30	
Trichloroethene (TCE)	0.621	0.0123	0.6161	0	101	68.6	132	0.6649	6.81	30	
1,2-Dichloropropane	0.590	0.0123	0.6161	0	95.7	59	136	0.6438	8.76	30	
Bromodichloromethane	0.552	0.0123	0.6161	0	89.6	50.7	141	0.5765	4.33	30	
Dibromomethane	0.584	0.0246	0.6161	0	94.8	50.6	137	0.6444	9.84	30	
cis-1,3-Dichloropropene	0.499	0.0123	0.6161	0	81.1	50.4	138	0.5464	8.98	30	
Toluene	0.608	0.0123	0.6161	0.007079	97.5	63.4	132	0.6529	7.19	30	
trans-1,3-Dichloropropylene	0.529	0.0185	0.6161	0	85.9	44.1	147	0.5322	0.560	30	
1,1,2-Trichloroethane	0.584	0.0185	0.6161	0	94.7	51.6	137	0.6314	7.88	30	
1,3-Dichloropropane	0.606	0.0308	0.6161	0	98.4	53.1	134	0.6394	5.34	30	
Tetrachloroethene (PCE)	0.609	0.0123	0.6161	0	98.8	35.6	158	0.6707	9.64	30	
Dibromochloromethane	0.521	0.0185	0.6161	0	84.6	55.3	140	0.5617	7.52	30	
1,2-Dibromoethane (EDB)	0.603	0.00308	0.6161	0	97.9	50.4	136	0.6065	0.496	30	
Chlorobenzene	0.583	0.0123	0.6161	0	94.7	60	133	0.6095	4.40	30	
1,1,1,2-Tetrachloroethane	0.560	0.0185	0.6161	0	90.8	53.1	142	0.5990	6.82	30	

Work Order: 1610174
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1610175-003BMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **10/12/2016** RunNo: **32292**
Client ID: **BATCH** Batch ID: **15111** Analysis Date: **10/13/2016** SeqNo: **610876**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Ethylbenzene	0.596	0.0185	0.6161	0	96.8	54.5	134	0.6289	5.31	30	
m,p-Xylene	1.17	0.0123	1.232	0	94.7	53.1	132	1.254	7.20	30	
o-Xylene	0.600	0.0123	0.6161	0	97.4	53.3	139	0.6138	2.24	30	
Styrene	0.607	0.0123	0.6161	0	98.6	51.1	132	0.6177	1.72	30	
Isopropylbenzene	0.587	0.0493	0.6161	0	95.4	58.9	138	0.6271	6.52	30	
Bromoform	0.496	0.0123	0.6161	0	80.5	57.9	130	0.5287	6.38	30	Q
1,1,2,2-Tetrachloroethane	0.556	0.0123	0.6161	0	90.3	51.9	131	0.5634	1.27	30	
n-Propylbenzene	0.603	0.0123	0.6161	0	97.9	53.6	140	0.6364	5.34	30	
Bromobenzene	0.600	0.0185	0.6161	0	97.5	54.2	140	0.6315	5.04	30	
1,3,5-Trimethylbenzene	0.587	0.0123	0.6161	0	95.3	51.8	136	0.6273	6.60	30	
2-Chlorotoluene	0.588	0.0123	0.6161	0	95.5	51.6	136	0.6213	5.47	30	
4-Chlorotoluene	0.605	0.0123	0.6161	0	98.1	50.1	139	0.6409	5.83	30	
tert-Butylbenzene	0.599	0.0123	0.6161	0	97.1	50.5	135	0.6341	5.78	30	
1,2,3-Trichloropropane	0.563	0.0123	0.6161	0	91.5	50.5	131	0.5916	4.87	30	
1,2,4-Trichlorobenzene	0.780	0.0308	0.6161	0	127	50.8	130	0.7337	6.05	30	
sec-Butylbenzene	0.594	0.0123	0.6161	0	96.5	52.6	141	0.6362	6.79	30	
4-Isopropyltoluene	0.588	0.0123	0.6161	0	95.5	52.9	134	0.6313	7.08	30	
1,3-Dichlorobenzene	0.666	0.0123	0.6161	0	108	52.6	131	0.6526	2.01	30	
1,4-Dichlorobenzene	0.677	0.0123	0.6161	0	110	52.9	129	0.6614	2.32	30	
n-Butylbenzene	0.667	0.0123	0.6161	0	108	52.6	130	0.6738	1.05	30	
1,2-Dichlorobenzene	0.673	0.0123	0.6161	0	109	55.8	129	0.6515	3.20	30	
1,2-Dibromo-3-chloropropane	0.574	0.308	0.6161	0	93.2	40.5	131	0.5711	0.536	30	
1,2,4-Trimethylbenzene	0.593	0.0123	0.6161	0	96.3	50.6	137	0.6176	3.98	30	
Hexachlorobutadiene	0.730	0.0616	0.6161	0	118	40.6	158	0.6847	6.41	30	
Naphthalene	0.791	0.0185	0.6161	0	128	52.3	124	0.7096	10.9	30	S
1,2,3-Trichlorobenzene	0.815	0.0123	0.6161	0	132	54.4	124	0.7490	8.40	30	S
Surr: Dibromofluoromethane	0.715		0.7702		92.8	56.5	129		0		
Surr: Toluene-d8	0.823		0.7702		107	64.3	131		0		
Surr: 1-Bromo-4-fluorobenzene	0.820		0.7702		106	63.1	141		0		

Work Order: 1610174
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1610175-003BMSD**	SampType: **MSD**				Units: **mg/Kg-dry**		Prep Date: **10/12/2016**		RunNo: **32292**		
Client ID: **BATCH**	Batch ID: **15111**						Analysis Date: **10/13/2016**		SeqNo: **610876**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

NOTES:
S - Outlying spike recovery(ies) observed. The method is in control as indicated by the Laboratory Control Sample (LCS).
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample Log-In Check List

Client Name:	**GEI**	Work Order Number:	**1610174**
Logged by:	**Clare Griggs**	Date Received:	**10/12/2016 8:55:00 AM**

Chain of Custody

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

Log In

3.	Coolers are present?	Yes ☑	No ☐	NA ☐
4.	Shipping container/cooler in good condition?	Yes ☑	No ☐	
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes ☐	No ☐	Not Required ☑
6.	Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
7.	Were all items received at a temperature of >0°C to 10.0°C *	Yes ☑	No ☐	NA ☐
8.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
9.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
10.	Are samples properly preserved?	Yes ☑	No ☐	
11.	Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
12.	Is there headspace in the VOA vials?	Yes ☐	No ☐	NA ☑
13.	Did all samples containers arrive in good condition(unbroken)?	Yes ☑	No ☐	
14.	Does paperwork match bottle labels?	Yes ☑	No ☐	
15.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
16.	Is it clear what analyses were requested?	Yes ☑	No ☐	
17.	Were all holding times able to be met?	Yes ☑	No ☐	

Special Handling (if applicable)

18.	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: _____

19. Additional remarks:

Item Information

Item #	Temp ºC
Cooler	6.6
Sample	3.3

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Original

Fremont Analytical

Chain of Custody Record and Laboratory Services Agreement

3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 10-12-16
Laboratory Project No (internal): 1610174
Page: 1 of: 1

Client: GeoEngineers
Address: 600 Stewart St, Suite 1700
City, State, Zip: Seattle, WA
Telephone: Fax:

Project Name: Rufus Block 20
Project No: 20434-001-24
Collected by: Colton McInelly
Location: Seattle, WA
Report To (PM): Chris Brown
PM Email: cbrown@geoengineers.com

*Matrix Codes: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T)	Dissolved (D)	Anions (IC)***	EDB (8011)	# Containers	Held	Comments
1	WB-15	10/10/16	0802	S	X			X		X	X		X	T			3				
2	WB-25		0808		X			X		X	X		X	T							
3	WB-35		0835																		
4	WB-45		0843																		
5	WB-60		0910																		
6	WIO-15	10/7/16	1622																		
7	WIO-25		1627		X			X		X	X		X	T							
8	WIO-35		1633																		
9	WIO-45		1636		X			X		X	X		X	T							
10	WIO-60		1648																		

**Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: Return to Client: Disposal by Lab (Samples will be held for 30 days unless otherwise noted. A fee may be assessed if samples are retained after 30 days.)

Turn-around times for samples received after 4:00pm will begin on the following business day.

Special Remarks:

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above, that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
[signature]	10/12/16 855	[signature]	10/12/16 0855
Relinquished	Date/Time	Received	Date/Time
x		x	

TAT → SameDay^ NextDay^ 2 Day 3 Day STD

^Please coordinate with the lab in advance

Distribution: White - Lab, Yellow - File, Pink - Originator

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

GeoEngineers
Chris Brown
600 Stewart Street, Suite 1700
Seattle, WA 98101

RE: Rufus Block 20
Work Order Number: 1610175

October 13, 2016

Attention Chris Brown:

Fremont Analytical, Inc. received 6 sample(s) on 10/12/2016 for the analyses presented in the following report.

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.
Gasoline by NWTPH-Gx
Mercury by EPA Method 7471
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)
Sample Moisture (Percent Moisture)
Total Metals by EPA Method 6020
Volatile Organic Compounds by EPA Method 8260C

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Mike Ridgeway
Laboratory Director

Date: *10/13/2016*

CLIENT: GeoEngineers
Project: Rufus Block 20
Work Order: 1610175

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1610175-001	W6S46-15	10/11/2016 3:55 PM	10/12/2016 8:55 AM
1610175-002	W6S46-20	10/11/2016 4:00 PM	10/12/2016 8:55 AM
1610175-003	W6S46-30	10/11/2016 4:05 PM	10/12/2016 8:55 AM
1610175-004	W6S46-40	10/11/2016 4:10 PM	10/12/2016 8:55 AM
1610175-005	W6S46-50	10/11/2016 4:15 PM	10/12/2016 8:55 AM
1610175-006	W9S46-15	10/11/2016 4:50 PM	10/12/2016 8:55 AM

Case Narrative

WO#: **1610175**
Date: **10/13/2016**

CLIENT: GeoEngineers
Project: Rufus Block 20

I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Analytical Report

Work Order: **1610175**
Date Reported: **10/13/2016**

Client: GeoEngineers
Collection Date: 10/11/2016 3:55:00 PM
Project: Rufus Block 20
Lab ID: 1610175-001
Matrix: Soil
Client Sample ID: **W6S46-15**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 15107		Analyst: WC
Diesel (Fuel Oil)	ND	22.3		mg/Kg-dry	1	10/13/2016 4:10:00 AM
Heavy Oil	ND	55.7		mg/Kg-dry	1	10/13/2016 4:10:00 AM
Surr: 2-Fluorobiphenyl	92.1	50-150		%Rec	1	10/13/2016 4:10:00 AM
Surr: o-Terphenyl	91.4	50-150		%Rec	1	10/13/2016 4:10:00 AM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 15106		Analyst: BT
Naphthalene	ND	42.4		µg/Kg-dry	1	10/13/2016 1:58:01 PM
2-Methylnaphthalene	ND	42.4		µg/Kg-dry	1	10/13/2016 1:58:01 PM
1-Methylnaphthalene	ND	42.4		µg/Kg-dry	1	10/13/2016 1:58:01 PM
Acenaphthylene	ND	42.4		µg/Kg-dry	1	10/13/2016 1:58:01 PM
Acenaphthene	ND	42.4		µg/Kg-dry	1	10/13/2016 1:58:01 PM
Fluorene	ND	42.4		µg/Kg-dry	1	10/13/2016 1:58:01 PM
Phenanthrene	ND	42.4		µg/Kg-dry	1	10/13/2016 1:58:01 PM
Anthracene	ND	42.4		µg/Kg-dry	1	10/13/2016 1:58:01 PM
Fluoranthene	ND	42.4		µg/Kg-dry	1	10/13/2016 1:58:01 PM
Pyrene	ND	42.4		µg/Kg-dry	1	10/13/2016 1:58:01 PM
Benz(a)anthracene	ND	42.4		µg/Kg-dry	1	10/13/2016 1:58:01 PM
Chrysene	ND	42.4		µg/Kg-dry	1	10/13/2016 1:58:01 PM
Benzo(b)fluoranthene	ND	42.4		µg/Kg-dry	1	10/13/2016 1:58:01 PM
Benzo(k)fluoranthene	ND	42.4	Q	µg/Kg-dry	1	10/13/2016 1:58:01 PM
Benzo(a)pyrene	ND	42.4		µg/Kg-dry	1	10/13/2016 1:58:01 PM
Indeno(1,2,3-cd)pyrene	ND	42.4	IQ	µg/Kg-dry	1	10/13/2016 1:58:01 PM
Dibenz(a,h)anthracene	ND	42.4	IQ	µg/Kg-dry	1	10/13/2016 1:58:01 PM
Benzo(g,h,i)perylene	ND	42.4	I	µg/Kg-dry	1	10/13/2016 1:58:01 PM
Surr: 2-Fluorobiphenyl	52.3	32.2-123		%Rec	1	10/13/2016 1:58:01 PM
Surr: Terphenyl-d14 (surr)	79.1	42.2-152		%Rec	1	10/13/2016 1:58:01 PM

NOTES:
I - Indicates an analyte with an internal standard that does not meet established acceptance criteria.
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF). The LCS recovered within range.

Gasoline by NWTPH-Gx				Batch ID: 15111		Analyst: NG
Gasoline	ND	3.66		mg/Kg-dry	1	10/13/2016 9:42:27 AM
Surr: Toluene-d8	102	65-135		%Rec	1	10/13/2016 9:42:27 AM
Surr: 4-Bromofluorobenzene	94.2	65-135		%Rec	1	10/13/2016 9:42:27 AM

Client: GeoEngineers
Project: Rufus Block 20
Lab ID: 1610175-001
Client Sample ID: **W6S46-15**

Collection Date: 10/11/2016 3:55:00 PM
Matrix: Soil

Volatile Organic Compounds by EPA Method 8260C

Batch ID: 15111 Analyst: NG

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane (CFC-12)	ND	0.0440		mg/Kg-dry	1	10/13/2016 9:42:27 AM
Chloromethane	ND	0.0440		mg/Kg-dry	1	10/13/2016 9:42:27 AM
Vinyl chloride	ND	0.00147		mg/Kg-dry	1	10/13/2016 9:42:27 AM
Bromomethane	ND	0.0659		mg/Kg-dry	1	10/13/2016 9:42:27 AM
Trichlorofluoromethane (CFC-11)	ND	0.0366		mg/Kg-dry	1	10/13/2016 9:42:27 AM
Chloroethane	ND	0.0440		mg/Kg-dry	1	10/13/2016 9:42:27 AM
1,1-Dichloroethene	ND	0.0366		mg/Kg-dry	1	10/13/2016 9:42:27 AM
Methylene chloride	ND	0.0147		mg/Kg-dry	1	10/13/2016 9:42:27 AM
trans-1,2-Dichloroethene	ND	0.0147		mg/Kg-dry	1	10/13/2016 9:42:27 AM
Methyl tert-butyl ether (MTBE)	ND	0.0366		mg/Kg-dry	1	10/13/2016 9:42:27 AM
1,1-Dichloroethane	ND	0.0147		mg/Kg-dry	1	10/13/2016 9:42:27 AM
2,2-Dichloropropane	ND	0.0366	Q	mg/Kg-dry	1	10/13/2016 9:42:27 AM
cis-1,2-Dichloroethene	ND	0.0147		mg/Kg-dry	1	10/13/2016 9:42:27 AM
Chloroform	ND	0.0147		mg/Kg-dry	1	10/13/2016 9:42:27 AM
1,1,1-Trichloroethane (TCA)	ND	0.0147		mg/Kg-dry	1	10/13/2016 9:42:27 AM
1,1-Dichloropropene	ND	0.0147		mg/Kg-dry	1	10/13/2016 9:42:27 AM
Carbon tetrachloride	ND	0.0147	Q	mg/Kg-dry	1	10/13/2016 9:42:27 AM
1,2-Dichloroethane (EDC)	ND	0.0220		mg/Kg-dry	1	10/13/2016 9:42:27 AM
Benzene	ND	0.0147		mg/Kg-dry	1	10/13/2016 9:42:27 AM
Trichloroethene (TCE)	ND	0.0147		mg/Kg-dry	1	10/13/2016 9:42:27 AM
1,2-Dichloropropane	ND	0.0147		mg/Kg-dry	1	10/13/2016 9:42:27 AM
Bromodichloromethane	ND	0.0147		mg/Kg-dry	1	10/13/2016 9:42:27 AM
Dibromomethane	ND	0.0293		mg/Kg-dry	1	10/13/2016 9:42:27 AM
cis-1,3-Dichloropropene	ND	0.0147		mg/Kg-dry	1	10/13/2016 9:42:27 AM
Toluene	ND	0.0147		mg/Kg-dry	1	10/13/2016 9:42:27 AM
trans-1,3-Dichloropropylene	ND	0.0220		mg/Kg-dry	1	10/13/2016 9:42:27 AM
1,1,2-Trichloroethane	ND	0.0220		mg/Kg-dry	1	10/13/2016 9:42:27 AM
1,3-Dichloropropane	ND	0.0366		mg/Kg-dry	1	10/13/2016 9:42:27 AM
Tetrachloroethene (PCE)	ND	0.0147		mg/Kg-dry	1	10/13/2016 9:42:27 AM
Dibromochloromethane	ND	0.0220		mg/Kg-dry	1	10/13/2016 9:42:27 AM
1,2-Dibromoethane (EDB)	ND	0.00366		mg/Kg-dry	1	10/13/2016 9:42:27 AM
Chlorobenzene	ND	0.0147		mg/Kg-dry	1	10/13/2016 9:42:27 AM
1,1,1,2-Tetrachloroethane	ND	0.0220		mg/Kg-dry	1	10/13/2016 9:42:27 AM
Ethylbenzene	ND	0.0220		mg/Kg-dry	1	10/13/2016 9:42:27 AM
m,p-Xylene	ND	0.0147		mg/Kg-dry	1	10/13/2016 9:42:27 AM
o-Xylene	ND	0.0147		mg/Kg-dry	1	10/13/2016 9:42:27 AM
Styrene	ND	0.0147		mg/Kg-dry	1	10/13/2016 9:42:27 AM
Isopropylbenzene	ND	0.0586		mg/Kg-dry	1	10/13/2016 9:42:27 AM
Bromoform	ND	0.0147	Q	mg/Kg-dry	1	10/13/2016 9:42:27 AM

Client: GeoEngineers
Project: Rufus Block 20
Lab ID: 1610175-001
Client Sample ID: **W6S46-15**

Collection Date: 10/11/2016 3:55:00 PM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15111		Analyst: NG
1,1,2,2-Tetrachloroethane	ND	0.0147		mg/Kg-dry	1	10/13/2016 9:42:27 AM
n-Propylbenzene	ND	0.0147		mg/Kg-dry	1	10/13/2016 9:42:27 AM
Bromobenzene	ND	0.0220		mg/Kg-dry	1	10/13/2016 9:42:27 AM
1,3,5-Trimethylbenzene	ND	0.0147		mg/Kg-dry	1	10/13/2016 9:42:27 AM
2-Chlorotoluene	ND	0.0147		mg/Kg-dry	1	10/13/2016 9:42:27 AM
4-Chlorotoluene	ND	0.0147		mg/Kg-dry	1	10/13/2016 9:42:27 AM
tert-Butylbenzene	ND	0.0147		mg/Kg-dry	1	10/13/2016 9:42:27 AM
1,2,3-Trichloropropane	ND	0.0147		mg/Kg-dry	1	10/13/2016 9:42:27 AM
1,2,4-Trichlorobenzene	ND	0.0366		mg/Kg-dry	1	10/13/2016 9:42:27 AM
sec-Butylbenzene	ND	0.0147		mg/Kg-dry	1	10/13/2016 9:42:27 AM
4-Isopropyltoluene	ND	0.0147		mg/Kg-dry	1	10/13/2016 9:42:27 AM
1,3-Dichlorobenzene	ND	0.0147		mg/Kg-dry	1	10/13/2016 9:42:27 AM
1,4-Dichlorobenzene	ND	0.0147		mg/Kg-dry	1	10/13/2016 9:42:27 AM
n-Butylbenzene	ND	0.0147		mg/Kg-dry	1	10/13/2016 9:42:27 AM
1,2-Dichlorobenzene	ND	0.0147		mg/Kg-dry	1	10/13/2016 9:42:27 AM
1,2-Dibromo-3-chloropropane	ND	0.366		mg/Kg-dry	1	10/13/2016 9:42:27 AM
1,2,4-Trimethylbenzene	ND	0.0147		mg/Kg-dry	1	10/13/2016 9:42:27 AM
Hexachlorobutadiene	ND	0.0733		mg/Kg-dry	1	10/13/2016 9:42:27 AM
Naphthalene	ND	0.0220		mg/Kg-dry	1	10/13/2016 9:42:27 AM
1,2,3-Trichlorobenzene	ND	0.0147		mg/Kg-dry	1	10/13/2016 9:42:27 AM
Surr: Dibromofluoromethane	90.9	56.5-129		%Rec	1	10/13/2016 9:42:27 AM
Surr: Toluene-d8	101	64.3-131		%Rec	1	10/13/2016 9:42:27 AM
Surr: 1-Bromo-4-fluorobenzene	94.7	63.1-141		%Rec	1	10/13/2016 9:42:27 AM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Mercury by EPA Method 7471				Batch ID: 15120		Analyst: MW
Mercury	ND	0.292		mg/Kg-dry	1	10/13/2016 3:02:44 PM
Total Metals by EPA Method 6020				Batch ID: 15108		Analyst: TN
Arsenic	6.63	0.0917		mg/Kg-dry	1	10/13/2016 1:50:09 PM
Barium	93.4	0.459		mg/Kg-dry	1	10/13/2016 1:50:09 PM
Cadmium	ND	0.183		mg/Kg-dry	1	10/13/2016 1:50:09 PM
Chromium	43.2	0.0917		mg/Kg-dry	1	10/13/2016 1:50:09 PM
Lead	3.88	0.183		mg/Kg-dry	1	10/13/2016 1:50:09 PM
Selenium	1.51	0.459		mg/Kg-dry	1	10/13/2016 1:50:09 PM

Analytical Report

Work Order: **1610175**
Date Reported: **10/13/2016**

Client: GeoEngineers
Collection Date: 10/11/2016 3:55:00 PM
Project: Rufus Block 20
Lab ID: 1610175-001
Matrix: Soil
Client Sample ID: **W6S46-15**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 15108		Analyst: TN
Silver	ND	0.0917		mg/Kg-dry	1	10/13/2016 1:50:09 PM
Sample Moisture (Percent Moisture)				Batch ID: R32275		Analyst: BB
Percent Moisture	16.1			wt%	1	10/12/2016 2:44:20 PM

Analytical Report

Work Order: **1610175**
Date Reported: **10/13/2016**

Client: GeoEngineers
Collection Date: 10/11/2016 4:05:00 PM
Project: Rufus Block 20
Lab ID: 1610175-003
Matrix: Soil
Client Sample ID: **W6S46-30**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 15107		Analyst: WC
Diesel (Fuel Oil)	ND	24.7		mg/Kg-dry	1	10/13/2016 1:03:00 AM
Heavy Oil	ND	61.7		mg/Kg-dry	1	10/13/2016 1:03:00 AM
Surr: 2-Fluorobiphenyl	81.3	50-150		%Rec	1	10/13/2016 1:03:00 AM
Surr: o-Terphenyl	85.0	50-150		%Rec	1	10/13/2016 1:03:00 AM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 15106		Analyst: BT
Naphthalene	ND	45.2		µg/Kg-dry	1	10/13/2016 3:22:38 PM
2-Methylnaphthalene	ND	45.2		µg/Kg-dry	1	10/13/2016 3:22:38 PM
1-Methylnaphthalene	ND	45.2		µg/Kg-dry	1	10/13/2016 3:22:38 PM
Acenaphthylene	ND	45.2		µg/Kg-dry	1	10/13/2016 3:22:38 PM
Acenaphthene	ND	45.2		µg/Kg-dry	1	10/13/2016 3:22:38 PM
Fluorene	ND	45.2		µg/Kg-dry	1	10/13/2016 3:22:38 PM
Phenanthrene	ND	45.2		µg/Kg-dry	1	10/13/2016 3:22:38 PM
Anthracene	ND	45.2		µg/Kg-dry	1	10/13/2016 3:22:38 PM
Fluoranthene	ND	45.2		µg/Kg-dry	1	10/13/2016 3:22:38 PM
Pyrene	ND	45.2		µg/Kg-dry	1	10/13/2016 3:22:38 PM
Benz(a)anthracene	ND	45.2		µg/Kg-dry	1	10/13/2016 3:22:38 PM
Chrysene	ND	45.2		µg/Kg-dry	1	10/13/2016 3:22:38 PM
Benzo(b)fluoranthene	ND	45.2		µg/Kg-dry	1	10/13/2016 3:22:38 PM
Benzo(k)fluoranthene	ND	45.2	Q	µg/Kg-dry	1	10/13/2016 3:22:38 PM
Benzo(a)pyrene	ND	45.2		µg/Kg-dry	1	10/13/2016 3:22:38 PM
Indeno(1,2,3-cd)pyrene	ND	45.2	IQ	µg/Kg-dry	1	10/13/2016 3:22:38 PM
Dibenz(a,h)anthracene	ND	45.2	IQ	µg/Kg-dry	1	10/13/2016 3:22:38 PM
Benzo(g,h,i)perylene	ND	45.2	I	µg/Kg-dry	1	10/13/2016 3:22:38 PM
Surr: 2-Fluorobiphenyl	65.1	32.2-123		%Rec	1	10/13/2016 3:22:38 PM
Surr: Terphenyl-d14 (surr)	74.3	42.2-152		%Rec	1	10/13/2016 3:22:38 PM

NOTES:
I - Indicates an analyte with an internal standard that does not meet established acceptance criteria.
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF). The LCS recovered within range.

Gasoline by NWTPH-Gx				Batch ID: 15111		Analyst: NG
Gasoline	ND	3.08		mg/Kg-dry	1	10/13/2016 10:43:30 AM
Surr: Toluene-d8	100	65-135		%Rec	1	10/13/2016 10:43:30 AM
Surr: 4-Bromofluorobenzene	93.8	65-135		%Rec	1	10/13/2016 10:43:30 AM

Client: GeoEngineers
Project: Rufus Block 20
Lab ID: 1610175-003
Client Sample ID: **W6S46-30**

Collection Date: 10/11/2016 4:05:00 PM
Matrix: Soil

Volatile Organic Compounds by EPA Method 8260C

Batch ID: 15111 Analyst: NG

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane (CFC-12)	ND	0.0370		mg/Kg-dry	1	10/13/2016 10:43:30 AM
Chloromethane	ND	0.0370		mg/Kg-dry	1	10/13/2016 10:43:30 AM
Vinyl chloride	ND	0.00123		mg/Kg-dry	1	10/13/2016 10:43:30 AM
Bromomethane	ND	0.0555		mg/Kg-dry	1	10/13/2016 10:43:30 AM
Trichlorofluoromethane (CFC-11)	ND	0.0308		mg/Kg-dry	1	10/13/2016 10:43:30 AM
Chloroethane	ND	0.0370		mg/Kg-dry	1	10/13/2016 10:43:30 AM
1,1-Dichloroethene	ND	0.0308		mg/Kg-dry	1	10/13/2016 10:43:30 AM
Methylene chloride	ND	0.0123		mg/Kg-dry	1	10/13/2016 10:43:30 AM
trans-1,2-Dichloroethene	ND	0.0123		mg/Kg-dry	1	10/13/2016 10:43:30 AM
Methyl tert-butyl ether (MTBE)	ND	0.0308		mg/Kg-dry	1	10/13/2016 10:43:30 AM
1,1-Dichloroethane	ND	0.0123		mg/Kg-dry	1	10/13/2016 10:43:30 AM
2,2-Dichloropropane	ND	0.0308	Q	mg/Kg-dry	1	10/13/2016 10:43:30 AM
cis-1,2-Dichloroethene	ND	0.0123		mg/Kg-dry	1	10/13/2016 10:43:30 AM
Chloroform	ND	0.0123		mg/Kg-dry	1	10/13/2016 10:43:30 AM
1,1,1-Trichloroethane (TCA)	ND	0.0123		mg/Kg-dry	1	10/13/2016 10:43:30 AM
1,1-Dichloropropene	ND	0.0123		mg/Kg-dry	1	10/13/2016 10:43:30 AM
Carbon tetrachloride	ND	0.0123	Q	mg/Kg-dry	1	10/13/2016 10:43:30 AM
1,2-Dichloroethane (EDC)	ND	0.0185		mg/Kg-dry	1	10/13/2016 10:43:30 AM
Benzene	ND	0.0123		mg/Kg-dry	1	10/13/2016 10:43:30 AM
Trichloroethene (TCE)	ND	0.0123		mg/Kg-dry	1	10/13/2016 10:43:30 AM
1,2-Dichloropropane	ND	0.0123		mg/Kg-dry	1	10/13/2016 10:43:30 AM
Bromodichloromethane	ND	0.0123		mg/Kg-dry	1	10/13/2016 10:43:30 AM
Dibromomethane	ND	0.0246		mg/Kg-dry	1	10/13/2016 10:43:30 AM
cis-1,3-Dichloropropene	ND	0.0123		mg/Kg-dry	1	10/13/2016 10:43:30 AM
Toluene	ND	0.0123		mg/Kg-dry	1	10/13/2016 10:43:30 AM
trans-1,3-Dichloropropylene	ND	0.0185		mg/Kg-dry	1	10/13/2016 10:43:30 AM
1,1,2-Trichloroethane	ND	0.0185		mg/Kg-dry	1	10/13/2016 10:43:30 AM
1,3-Dichloropropane	ND	0.0308		mg/Kg-dry	1	10/13/2016 10:43:30 AM
Tetrachloroethene (PCE)	ND	0.0123		mg/Kg-dry	1	10/13/2016 10:43:30 AM
Dibromochloromethane	ND	0.0185		mg/Kg-dry	1	10/13/2016 10:43:30 AM
1,2-Dibromoethane (EDB)	ND	0.00308		mg/Kg-dry	1	10/13/2016 10:43:30 AM
Chlorobenzene	ND	0.0123		mg/Kg-dry	1	10/13/2016 10:43:30 AM
1,1,1,2-Tetrachloroethane	ND	0.0185		mg/Kg-dry	1	10/13/2016 10:43:30 AM
Ethylbenzene	ND	0.0185		mg/Kg-dry	1	10/13/2016 10:43:30 AM
m,p-Xylene	ND	0.0123		mg/Kg-dry	1	10/13/2016 10:43:30 AM
o-Xylene	ND	0.0123		mg/Kg-dry	1	10/13/2016 10:43:30 AM
Styrene	ND	0.0123		mg/Kg-dry	1	10/13/2016 10:43:30 AM
Isopropylbenzene	ND	0.0493		mg/Kg-dry	1	10/13/2016 10:43:30 AM
Bromoform	ND	0.0123	Q	mg/Kg-dry	1	10/13/2016 10:43:30 AM

Client: GeoEngineers
Project: Rufus Block 20
Lab ID: 1610175-003
Client Sample ID: **W6S46-30**

Collection Date: 10/11/2016 4:05:00 PM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15111		Analyst: NG
1,1,2,2-Tetrachloroethane	ND	0.0123		mg/Kg-dry	1	10/13/2016 10:43:30 AM
n-Propylbenzene	ND	0.0123		mg/Kg-dry	1	10/13/2016 10:43:30 AM
Bromobenzene	ND	0.0185		mg/Kg-dry	1	10/13/2016 10:43:30 AM
1,3,5-Trimethylbenzene	ND	0.0123		mg/Kg-dry	1	10/13/2016 10:43:30 AM
2-Chlorotoluene	ND	0.0123		mg/Kg-dry	1	10/13/2016 10:43:30 AM
4-Chlorotoluene	ND	0.0123		mg/Kg-dry	1	10/13/2016 10:43:30 AM
tert-Butylbenzene	ND	0.0123		mg/Kg-dry	1	10/13/2016 10:43:30 AM
1,2,3-Trichloropropane	ND	0.0123		mg/Kg-dry	1	10/13/2016 10:43:30 AM
1,2,4-Trichlorobenzene	ND	0.0308		mg/Kg-dry	1	10/13/2016 10:43:30 AM
sec-Butylbenzene	ND	0.0123		mg/Kg-dry	1	10/13/2016 10:43:30 AM
4-Isopropyltoluene	ND	0.0123		mg/Kg-dry	1	10/13/2016 10:43:30 AM
1,3-Dichlorobenzene	ND	0.0123		mg/Kg-dry	1	10/13/2016 10:43:30 AM
1,4-Dichlorobenzene	ND	0.0123		mg/Kg-dry	1	10/13/2016 10:43:30 AM
n-Butylbenzene	ND	0.0123		mg/Kg-dry	1	10/13/2016 10:43:30 AM
1,2-Dichlorobenzene	ND	0.0123		mg/Kg-dry	1	10/13/2016 10:43:30 AM
1,2-Dibromo-3-chloropropane	ND	0.308		mg/Kg-dry	1	10/13/2016 10:43:30 AM
1,2,4-Trimethylbenzene	ND	0.0123		mg/Kg-dry	1	10/13/2016 10:43:30 AM
Hexachlorobutadiene	ND	0.0616		mg/Kg-dry	1	10/13/2016 10:43:30 AM
Naphthalene	ND	0.0185		mg/Kg-dry	1	10/13/2016 10:43:30 AM
1,2,3-Trichlorobenzene	ND	0.0123		mg/Kg-dry	1	10/13/2016 10:43:30 AM
Surr: Dibromofluoromethane	91.0	56.5-129		%Rec	1	10/13/2016 10:43:30 AM
Surr: Toluene-d8	104	64.3-131		%Rec	1	10/13/2016 10:43:30 AM
Surr: 1-Bromo-4-fluorobenzene	92.7	63.1-141		%Rec	1	10/13/2016 10:43:30 AM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Mercury by EPA Method 7471				Batch ID: 15120		Analyst: MW
Mercury	ND	0.313		mg/Kg-dry	1	10/13/2016 3:04:22 PM
Total Metals by EPA Method 6020				Batch ID: 15108		Analyst: TN
Arsenic	2.51	0.0962		mg/Kg-dry	1	10/13/2016 1:53:42 PM
Barium	65.1	0.481		mg/Kg-dry	1	10/13/2016 1:53:42 PM
Cadmium	ND	0.192		mg/Kg-dry	1	10/13/2016 1:53:42 PM
Chromium	39.3	0.0962		mg/Kg-dry	1	10/13/2016 1:53:42 PM
Lead	2.44	0.192		mg/Kg-dry	1	10/13/2016 1:53:42 PM
Selenium	1.21	0.481		mg/Kg-dry	1	10/13/2016 1:53:42 PM

Analytical Report

Work Order: **1610175**
Date Reported: **10/13/2016**

Client: GeoEngineers
Collection Date: 10/11/2016 4:05:00 PM
Project: Rufus Block 20
Lab ID: 1610175-003
Matrix: Soil
Client Sample ID: **W6S46-30**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 15108		Analyst: TN
Silver	ND	0.0962		mg/Kg-dry	1	10/13/2016 1:53:42 PM
Sample Moisture (Percent Moisture)				Batch ID: R32275		Analyst: BB
Percent Moisture	20.0			wt%	1	10/12/2016 2:44:20 PM

Analytical Report

Work Order: **1610175**
Date Reported: **10/13/2016**

Client: GeoEngineers
Collection Date: 10/11/2016 4:50:00 PM
Project: Rufus Block 20
Lab ID: 1610175-006
Matrix: Soil
Client Sample ID: **W9S46-15**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 15107		Analyst: WC
Diesel (Fuel Oil)	ND	23.2		mg/Kg-dry	1	10/13/2016 4:41:00 AM
Heavy Oil	ND	58.1		mg/Kg-dry	1	10/13/2016 4:41:00 AM
Surr: 2-Fluorobiphenyl	92.7	50-150		%Rec	1	10/13/2016 4:41:00 AM
Surr: o-Terphenyl	93.8	50-150		%Rec	1	10/13/2016 4:41:00 AM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 15106		Analyst: BT
Naphthalene	ND	43.1		µg/Kg-dry	1	10/13/2016 3:43:53 PM
2-Methylnaphthalene	ND	43.1		µg/Kg-dry	1	10/13/2016 3:43:53 PM
1-Methylnaphthalene	ND	43.1		µg/Kg-dry	1	10/13/2016 3:43:53 PM
Acenaphthylene	ND	43.1		µg/Kg-dry	1	10/13/2016 3:43:53 PM
Acenaphthene	ND	43.1		µg/Kg-dry	1	10/13/2016 3:43:53 PM
Fluorene	ND	43.1		µg/Kg-dry	1	10/13/2016 3:43:53 PM
Phenanthrene	ND	43.1		µg/Kg-dry	1	10/13/2016 3:43:53 PM
Anthracene	ND	43.1		µg/Kg-dry	1	10/13/2016 3:43:53 PM
Fluoranthene	ND	43.1		µg/Kg-dry	1	10/13/2016 3:43:53 PM
Pyrene	ND	43.1		µg/Kg-dry	1	10/13/2016 3:43:53 PM
Benz(a)anthracene	ND	43.1		µg/Kg-dry	1	10/13/2016 3:43:53 PM
Chrysene	ND	43.1		µg/Kg-dry	1	10/13/2016 3:43:53 PM
Benzo(b)fluoranthene	ND	43.1		µg/Kg-dry	1	10/13/2016 3:43:53 PM
Benzo(k)fluoranthene	ND	43.1	Q	µg/Kg-dry	1	10/13/2016 3:43:53 PM
Benzo(a)pyrene	ND	43.1		µg/Kg-dry	1	10/13/2016 3:43:53 PM
Indeno(1,2,3-cd)pyrene	ND	43.1	IQ	µg/Kg-dry	1	10/13/2016 3:43:53 PM
Dibenz(a,h)anthracene	ND	43.1	IQ	µg/Kg-dry	1	10/13/2016 3:43:53 PM
Benzo(g,h,i)perylene	ND	43.1	I	µg/Kg-dry	1	10/13/2016 3:43:53 PM
Surr: 2-Fluorobiphenyl	60.8	32.2-123		%Rec	1	10/13/2016 3:43:53 PM
Surr: Terphenyl-d14 (surr)	73.8	42.2-152		%Rec	1	10/13/2016 3:43:53 PM

NOTES:
I - Indicates an analyte with an internal standard that does not meet established acceptance criteria.
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF). The LCS recovered within range.

Gasoline by NWTPH-Gx				Batch ID: 15111		Analyst: NG
Gasoline	ND	3.34		mg/Kg-dry	1	10/13/2016 11:14:07 AM
Surr: Toluene-d8	100	65-135		%Rec	1	10/13/2016 11:14:07 AM
Surr: 4-Bromofluorobenzene	97.7	65-135		%Rec	1	10/13/2016 11:14:07 AM

Client: GeoEngineers
Project: Rufus Block 20
Lab ID: 1610175-006
Client Sample ID: **W9S46-15**

Collection Date: 10/11/2016 4:50:00 PM
Matrix: Soil

Volatile Organic Compounds by EPA Method 8260C

Batch ID: 15111 Analyst: NG

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane (CFC-12)	ND	0.0401		mg/Kg-dry	1	10/13/2016 11:14:07 AM
Chloromethane	ND	0.0401		mg/Kg-dry	1	10/13/2016 11:14:07 AM
Vinyl chloride	ND	0.00134		mg/Kg-dry	1	10/13/2016 11:14:07 AM
Bromomethane	ND	0.0601		mg/Kg-dry	1	10/13/2016 11:14:07 AM
Trichlorofluoromethane (CFC-11)	ND	0.0334		mg/Kg-dry	1	10/13/2016 11:14:07 AM
Chloroethane	ND	0.0401		mg/Kg-dry	1	10/13/2016 11:14:07 AM
1,1-Dichloroethene	ND	0.0334		mg/Kg-dry	1	10/13/2016 11:14:07 AM
Methylene chloride	ND	0.0134		mg/Kg-dry	1	10/13/2016 11:14:07 AM
trans-1,2-Dichloroethene	ND	0.0134		mg/Kg-dry	1	10/13/2016 11:14:07 AM
Methyl tert-butyl ether (MTBE)	ND	0.0334		mg/Kg-dry	1	10/13/2016 11:14:07 AM
1,1-Dichloroethane	ND	0.0134		mg/Kg-dry	1	10/13/2016 11:14:07 AM
2,2-Dichloropropane	ND	0.0334	Q	mg/Kg-dry	1	10/13/2016 11:14:07 AM
cis-1,2-Dichloroethene	ND	0.0134		mg/Kg-dry	1	10/13/2016 11:14:07 AM
Chloroform	ND	0.0134		mg/Kg-dry	1	10/13/2016 11:14:07 AM
1,1,1-Trichloroethane (TCA)	ND	0.0134		mg/Kg-dry	1	10/13/2016 11:14:07 AM
1,1-Dichloropropene	ND	0.0134		mg/Kg-dry	1	10/13/2016 11:14:07 AM
Carbon tetrachloride	ND	0.0134	Q	mg/Kg-dry	1	10/13/2016 11:14:07 AM
1,2-Dichloroethane (EDC)	ND	0.0200		mg/Kg-dry	1	10/13/2016 11:14:07 AM
Benzene	ND	0.0134		mg/Kg-dry	1	10/13/2016 11:14:07 AM
Trichloroethene (TCE)	ND	0.0134		mg/Kg-dry	1	10/13/2016 11:14:07 AM
1,2-Dichloropropane	ND	0.0134		mg/Kg-dry	1	10/13/2016 11:14:07 AM
Bromodichloromethane	ND	0.0134		mg/Kg-dry	1	10/13/2016 11:14:07 AM
Dibromomethane	ND	0.0267		mg/Kg-dry	1	10/13/2016 11:14:07 AM
cis-1,3-Dichloropropene	ND	0.0134		mg/Kg-dry	1	10/13/2016 11:14:07 AM
Toluene	ND	0.0134		mg/Kg-dry	1	10/13/2016 11:14:07 AM
trans-1,3-Dichloropropylene	ND	0.0200		mg/Kg-dry	1	10/13/2016 11:14:07 AM
1,1,2-Trichloroethane	ND	0.0200		mg/Kg-dry	1	10/13/2016 11:14:07 AM
1,3-Dichloropropane	ND	0.0334		mg/Kg-dry	1	10/13/2016 11:14:07 AM
Tetrachloroethene (PCE)	ND	0.0134		mg/Kg-dry	1	10/13/2016 11:14:07 AM
Dibromochloromethane	ND	0.0200		mg/Kg-dry	1	10/13/2016 11:14:07 AM
1,2-Dibromoethane (EDB)	ND	0.00334		mg/Kg-dry	1	10/13/2016 11:14:07 AM
Chlorobenzene	ND	0.0134		mg/Kg-dry	1	10/13/2016 11:14:07 AM
1,1,1,2-Tetrachloroethane	ND	0.0200		mg/Kg-dry	1	10/13/2016 11:14:07 AM
Ethylbenzene	ND	0.0200		mg/Kg-dry	1	10/13/2016 11:14:07 AM
m,p-Xylene	ND	0.0134		mg/Kg-dry	1	10/13/2016 11:14:07 AM
o-Xylene	ND	0.0134		mg/Kg-dry	1	10/13/2016 11:14:07 AM
Styrene	ND	0.0134		mg/Kg-dry	1	10/13/2016 11:14:07 AM
Isopropylbenzene	ND	0.0535		mg/Kg-dry	1	10/13/2016 11:14:07 AM
Bromoform	ND	0.0134	Q	mg/Kg-dry	1	10/13/2016 11:14:07 AM

Client: GeoEngineers
Project: Rufus Block 20
Lab ID: 1610175-006
Client Sample ID: **W9S46-15**

Collection Date: 10/11/2016 4:50:00 PM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15111		Analyst: NG
1,1,2,2-Tetrachloroethane	ND	0.0134		mg/Kg-dry	1	10/13/2016 11:14:07 AM
n-Propylbenzene	ND	0.0134		mg/Kg-dry	1	10/13/2016 11:14:07 AM
Bromobenzene	ND	0.0200		mg/Kg-dry	1	10/13/2016 11:14:07 AM
1,3,5-Trimethylbenzene	ND	0.0134		mg/Kg-dry	1	10/13/2016 11:14:07 AM
2-Chlorotoluene	ND	0.0134		mg/Kg-dry	1	10/13/2016 11:14:07 AM
4-Chlorotoluene	ND	0.0134		mg/Kg-dry	1	10/13/2016 11:14:07 AM
tert-Butylbenzene	ND	0.0134		mg/Kg-dry	1	10/13/2016 11:14:07 AM
1,2,3-Trichloropropane	ND	0.0134		mg/Kg-dry	1	10/13/2016 11:14:07 AM
1,2,4-Trichlorobenzene	ND	0.0334		mg/Kg-dry	1	10/13/2016 11:14:07 AM
sec-Butylbenzene	ND	0.0134		mg/Kg-dry	1	10/13/2016 11:14:07 AM
4-Isopropyltoluene	ND	0.0134		mg/Kg-dry	1	10/13/2016 11:14:07 AM
1,3-Dichlorobenzene	ND	0.0134		mg/Kg-dry	1	10/13/2016 11:14:07 AM
1,4-Dichlorobenzene	ND	0.0134		mg/Kg-dry	1	10/13/2016 11:14:07 AM
n-Butylbenzene	ND	0.0134		mg/Kg-dry	1	10/13/2016 11:14:07 AM
1,2-Dichlorobenzene	ND	0.0134		mg/Kg-dry	1	10/13/2016 11:14:07 AM
1,2-Dibromo-3-chloropropane	ND	0.334		mg/Kg-dry	1	10/13/2016 11:14:07 AM
1,2,4-Trimethylbenzene	ND	0.0134		mg/Kg-dry	1	10/13/2016 11:14:07 AM
Hexachlorobutadiene	ND	0.0668		mg/Kg-dry	1	10/13/2016 11:14:07 AM
Naphthalene	ND	0.0200		mg/Kg-dry	1	10/13/2016 11:14:07 AM
1,2,3-Trichlorobenzene	ND	0.0134		mg/Kg-dry	1	10/13/2016 11:14:07 AM
Surr: Dibromofluoromethane	91.8	56.5-129		%Rec	1	10/13/2016 11:14:07 AM
Surr: Toluene-d8	99.6	64.3-131		%Rec	1	10/13/2016 11:14:07 AM
Surr: 1-Bromo-4-fluorobenzene	96.3	63.1-141		%Rec	1	10/13/2016 11:14:07 AM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Mercury by EPA Method 7471				Batch ID: 15120		Analyst: MW
Mercury	ND	0.282		mg/Kg-dry	1	10/13/2016 3:05:58 PM
Total Metals by EPA Method 6020				Batch ID: 15108		Analyst: TN
Arsenic	9.23	0.0958		mg/Kg-dry	1	10/13/2016 1:57:14 PM
Barium	135	0.479		mg/Kg-dry	1	10/13/2016 1:57:14 PM
Cadmium	ND	0.192		mg/Kg-dry	1	10/13/2016 1:57:14 PM
Chromium	88.5	0.0958		mg/Kg-dry	1	10/13/2016 1:57:14 PM
Lead	9.24	0.192		mg/Kg-dry	1	10/13/2016 1:57:14 PM
Selenium	1.82	0.479		mg/Kg-dry	1	10/13/2016 1:57:14 PM

Analytical Report

Work Order: **1610175**
Date Reported: **10/13/2016**

Client: GeoEngineers
Collection Date: 10/11/2016 4:50:00 PM
Project: Rufus Block 20
Lab ID: 1610175-006
Matrix: Soil
Client Sample ID: **W9S46-15**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 15108		Analyst: TN
Silver	ND	0.0958		mg/Kg-dry	1	10/13/2016 1:57:14 PM
Sample Moisture (Percent Moisture)				Batch ID: R32275		Analyst: BB
Percent Moisture	16.5			wt%	1	10/12/2016 2:44:20 PM

Work Order: 1610175
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID **MB-15107**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **10/12/2016**	RunNo: **32287**
Client ID: **MBLKS**	Batch ID: **15107**		Analysis Date: **10/13/2016**	SeqNo: **610595**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	20.0									
Heavy Oil	ND	50.0									
Surr: 2-Fluorobiphenyl	19.5		20.00		97.6	50	150				
Surr: o-Terphenyl	19.1		20.00		95.5	50	150				

Sample ID **LCS-15107**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **10/12/2016**	RunNo: **32287**
Client ID: **LCSS**	Batch ID: **15107**		Analysis Date: **10/13/2016**	SeqNo: **610594**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	483	20.0	500.0	0	96.7	65	135				
Surr: 2-Fluorobiphenyl	20.5		20.00		103	50	150				
Surr: o-Terphenyl	19.7		20.00		98.5	50	150				

Sample ID **1610175-003ADUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **10/12/2016**	RunNo: **32287**
Client ID: **W6S46-30**	Batch ID: **15107**		Analysis Date: **10/13/2016**	SeqNo: **610582**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	24.6						0		30	
Heavy Oil	ND	61.6						0		30	
Surr: 2-Fluorobiphenyl	24.5		24.64		99.3	50	150		0		
Surr: o-Terphenyl	24.5		24.64		99.2	50	150		0		

Sample ID **1610175-003AMS**	SampType: **MS**	Units: **mg/Kg-dry**	Prep Date: **10/12/2016**	RunNo: **32287**
Client ID: **W6S46-30**	Batch ID: **15107**		Analysis Date: **10/13/2016**	SeqNo: **610583**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	573	23.8	595.0	0	96.4	65	135				
Surr: 2-Fluorobiphenyl	22.9		23.80		96.1	50	150				
Surr: o-Terphenyl	23.3		23.80		97.8	50	150				

Work Order: 1610175
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID	**1610175-003AMS**	SampType:	**MS**	Units:	**mg/Kg-dry**	Prep Date:	**10/12/2016**	RunNo:	**32287**
Client ID:	**W6S46-30**	Batch ID:	**15107**			Analysis Date:	**10/13/2016**	SeqNo:	**610583**

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

Sample ID	**1610175-003AMSD**	SampType:	**MSD**	Units:	**mg/Kg-dry**	Prep Date:	**10/12/2016**	RunNo:	**32287**
Client ID:	**W6S46-30**	Batch ID:	**15107**			Analysis Date:	**10/13/2016**	SeqNo:	**610584**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	577	22.7	566.9	0	102	65	135	573.4	0.683	30	
Surr: 2-Fluorobiphenyl	24.0		22.68		106	50	150		0		
Surr: o-Terphenyl	23.6		22.68		104	50	150		0		

Sample ID	**1610179-007ADUP**	SampType:	**DUP**	Units:	**mg/Kg**	Prep Date:	**10/12/2016**	RunNo:	**32287**
Client ID:	**BATCH**	Batch ID:	**15107**			Analysis Date:	**10/13/2016**	SeqNo:	**610826**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	19.3						0		30	
Heavy Oil	ND	48.3						0		30	
Surr: 2-Fluorobiphenyl	19.5		19.32		101	50	150		0		
Surr: o-Terphenyl	20.3		19.32		105	50	150		0		

Work Order: 1610175
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Gasoline by NWTPH-Gx

Sample ID **LCS-15111**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **10/12/2016**	RunNo: **32293**
Client ID: **LCSS**	Batch ID: **15111**		Analysis Date: **10/12/2016**	SeqNo: **610763**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	22.8	5.00	25.00	0	91.1	65	135				
Surr: Toluene-d8	1.28		1.250		102	65	135				
Surr: 4-Bromofluorobenzene	1.25		1.250		100	65	135				

Sample ID **MB-15111**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **10/12/2016**	RunNo: **32293**
Client ID: **MBLKS**	Batch ID: **15111**		Analysis Date: **10/12/2016**	SeqNo: **610764**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	5.00									
Surr: Toluene-d8	1.25		1.250		100	65	135				
Surr: 4-Bromofluorobenzene	1.20		1.250		95.8	65	135				

Sample ID **1610175-001BDUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **10/12/2016**	RunNo: **32293**
Client ID: **W6S46-15**	Batch ID: **15111**		Analysis Date: **10/13/2016**	SeqNo: **610758**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	3.66						0		30	
Surr: Toluene-d8	0.932		0.9157		102	65	135		0		
Surr: 4-Bromofluorobenzene	0.870		0.9157		95.1	65	135		0		

Sample ID **1610175-006BMS**	SampType: **MS**	Units: **mg/Kg-dry**	Prep Date: **10/12/2016**	RunNo: **32293**
Client ID: **W9S46-15**	Batch ID: **15111**		Analysis Date: **10/13/2016**	SeqNo: **610886**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	14.0	3.34	16.71	0	83.5	65	135				
Surr: Toluene-d8	0.819		0.8353		98.0	65	135				
Surr: 4-Bromofluorobenzene	0.845		0.8353		101	65	135				

Work Order: 1610175
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Gasoline by NWTPH-Gx

Sample ID **1610175-006BMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **10/12/2016** RunNo: **32293**
Client ID: **W9S46-15** Batch ID: **15111** Analysis Date: **10/13/2016** SeqNo: **610887**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	10.3	3.34	16.71	0	61.6	65	135	13.96	30.2	30	RS
Surr: Toluene-d8	0.846		0.8353		101	65	135		0		
Surr: 4-Bromofluorobenzene	0.867		0.8353		104	65	135		0		

NOTES:
S - Outlying spike recovery(ies) observed. A duplicate analysis was performed and recovered within range.
R - High RPD observed.

Work Order: 1610175
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Mercury by EPA Method 7471

Sample ID	MB-15120	SampType:	MBLK			Units:	mg/Kg	Prep Date:	10/13/2016	RunNo:	32297
Client ID:	MBLKS	Batch ID:	15120					Analysis Date:	10/13/2016	SeqNo:	610922

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.250									

Sample ID	LCS-15120	SampType:	LCS			Units:	mg/Kg	Prep Date:	10/13/2016	RunNo:	32297
Client ID:	LCSS	Batch ID:	15120					Analysis Date:	10/13/2016	SeqNo:	610923

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.539	0.250	0.5000	0	108	80	120				

Sample ID	1610162-001ADUP	SampType:	DUP			Units:	mg/Kg-dry	Prep Date:	10/13/2016	RunNo:	32297
Client ID:	BATCH	Batch ID:	15120					Analysis Date:	10/13/2016	SeqNo:	610925

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.259						0		20	

Sample ID	1610162-001AMS	SampType:	MS			Units:	mg/Kg-dry	Prep Date:	10/13/2016	RunNo:	32297
Client ID:	BATCH	Batch ID:	15120					Analysis Date:	10/13/2016	SeqNo:	610926

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.599	0.275	0.5491	0.01680	106	70	130				

Sample ID	1610162-001AMSD	SampType:	MSD			Units:	mg/Kg-dry	Prep Date:	10/13/2016	RunNo:	32297
Client ID:	BATCH	Batch ID:	15120					Analysis Date:	10/13/2016	SeqNo:	610927

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.592	0.269	0.5384	0.01680	107	70	130	0.5986	1.07	20	

Work Order: 1610175
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **MB-15106**	SampType: **MBLK**	Units: **µg/Kg**	Prep Date: **10/12/2016**	RunNo: **32299**
Client ID: **MBLKS**	Batch ID: **15106**		Analysis Date: **10/13/2016**	SeqNo: **611006**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	40.0									
2-Methylnaphthalene	ND	40.0									
1-Methylnaphthalene	ND	40.0									
Acenaphthylene	ND	40.0									
Acenaphthene	ND	40.0									
Fluorene	ND	40.0									
Phenanthrene	ND	40.0									
Anthracene	ND	40.0									
Fluoranthene	ND	40.0									
Pyrene	ND	40.0									
Benz(a)anthracene	ND	40.0									
Chrysene	ND	40.0									
Benzo(b)fluoranthene	ND	40.0									
Benzo(k)fluoranthene	ND	40.0									Q
Benzo(a)pyrene	ND	40.0									
Indeno(1,2,3-cd)pyrene	ND	40.0									Q
Dibenz(a,h)anthracene	ND	40.0									Q
Benzo(g,h,i)perylene	ND	40.0									
Surr: 2-Fluorobiphenyl	424		500.0		84.8	32.2	123				
Surr: Terphenyl-d14 (surr)	451		500.0		90.2	42.2	152				

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF). The LCS recovered within range.

Sample ID **LCS-15106**	SampType: **LCS**	Units: **µg/Kg**	Prep Date: **10/12/2016**	RunNo: **32299**
Client ID: **LCSS**	Batch ID: **15106**		Analysis Date: **10/13/2016**	SeqNo: **611007**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	864	40.0	1,000	0	86.4	46.4	125				
2-Methylnaphthalene	890	40.0	1,000	0	89.0	45.1	135				
1-Methylnaphthalene	858	40.0	1,000	0	85.8	46.2	133				
Acenaphthylene	923	40.0	1,000	0	92.3	32.8	136				

Work Order: 1610175
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **LCS-15106** SampType: **LCS** Units: **µg/Kg** Prep Date: **10/12/2016** RunNo: **32299**
Client ID: **LCSS** Batch ID: **15106** Analysis Date: **10/13/2016** SeqNo: **611007**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acenaphthene	909	40.0	1,000	0	90.9	38.7	129				
Fluorene	864	40.0	1,000	0	86.4	41.1	132				
Phenanthrene	865	40.0	1,000	0	86.5	43.9	133				
Anthracene	922	40.0	1,000	0	92.2	44.2	136				
Fluoranthene	919	40.0	1,000	0	91.9	45.9	137				
Pyrene	913	40.0	1,000	0	91.3	46.2	137				
Benz(a)anthracene	808	40.0	1,000	0	80.8	41.9	136				
Chrysene	897	40.0	1,000	0	89.7	46.9	138				
Benzo(b)fluoranthene	818	40.0	1,000	0	81.8	35.9	148				
Benzo(k)fluoranthene	662	40.0	1,000	0	66.2	43.9	144				Q
Benzo(a)pyrene	652	40.0	1,000	0	65.2	36.3	144				
Indeno(1,2,3-cd)pyrene	509	40.0	1,000	0	50.9	41	140				Q
Dibenz(a,h)anthracene	391	40.0	1,000	0	39.1	33.8	133				Q
Benzo(g,h,i)perylene	655	40.0	1,000	0	65.5	32.9	112				
Surr: 2-Fluorobiphenyl	431		500.0		86.3	32.2	123				
Surr: Terphenyl-d14 (surr)	450		500.0		90.0	42.2	152				

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF). The LCS recovered within range.

Sample ID **1610175-001ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **10/12/2016** RunNo: **32299**
Client ID: **W6S46-15** Batch ID: **15106** Analysis Date: **10/13/2016** SeqNo: **611009**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	43.5						0		30	
2-Methylnaphthalene	ND	43.5						0		30	
1-Methylnaphthalene	ND	43.5						0		30	
Acenaphthylene	ND	43.5						0		30	
Acenaphthene	ND	43.5						0		30	
Fluorene	ND	43.5						0		30	
Phenanthrene	ND	43.5						0		30	
Anthracene	ND	43.5						0		30	

Work Order: 1610175
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1610175-001ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **10/12/2016** RunNo: **32299**
Client ID: **W6S46-15** Batch ID: **15106** Analysis Date: **10/13/2016** SeqNo: **611009**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoranthene	ND	43.5						0		30	
Pyrene	ND	43.5						0		30	
Benz(a)anthracene	ND	43.5						0		30	
Chrysene	ND	43.5						0		30	
Benzo(b)fluoranthene	ND	43.5						0		30	
Benzo(k)fluoranthene	ND	43.5						0		30	Q
Benzo(a)pyrene	ND	43.5						0		30	
Indeno(1,2,3-cd)pyrene	ND	43.5						0		30	IQ
Dibenz(a,h)anthracene	ND	43.5						0		30	IQ
Benzo(g,h,i)perylene	ND	43.5						0		30	I
Surr: 2-Fluorobiphenyl	324		544.0		59.6	32.2	123		0		
Surr: Terphenyl-d14 (surr)	471		544.0		86.6	42.2	152		0		

NOTES:
I - Indicates an analyte with an internal standard that does not meet established acceptance criteria.
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF). The LCS recovered within range.

Sample ID **1610175-001AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **10/12/2016** RunNo: **32299**
Client ID: **W6S46-15** Batch ID: **15106** Analysis Date: **10/13/2016** SeqNo: **611010**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	752	40.0	999.5	0	75.2	42.9	138				
2-Methylnaphthalene	779	40.0	999.5	0	77.9	42.8	151				
1-Methylnaphthalene	751	40.0	999.5	0	75.1	41.6	148				
Acenaphthylene	810	40.0	999.5	0	81.0	32.6	160				
Acenaphthene	800	40.0	999.5	0	80.0	46.3	142				
Fluorene	758	40.0	999.5	0	75.8	43.4	153				
Phenanthrene	762	40.0	999.5	0	76.2	45.5	140				
Anthracene	806	40.0	999.5	0	80.7	32.6	160				
Fluoranthene	792	40.0	999.5	0	79.2	44.6	161				
Pyrene	791	40.0	999.5	0	79.1	48.3	158				
Benz(a)anthracene	683	40.0	999.5	0	68.4	57.5	169				

Work Order: 1610175
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1610175-001AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **10/12/2016** RunNo: **32299**
Client ID: **W6S46-15** Batch ID: **15106** Analysis Date: **10/13/2016** SeqNo: **611010**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chrysene	784	40.0	999.5	0	78.5	45.2	146				
Benzo(b)fluoranthene	647	40.0	999.5	0	64.8	42.2	168				
Benzo(k)fluoranthene	613	40.0	999.5	0	61.3	48	161				Q
Benzo(a)pyrene	569	40.0	999.5	0	56.9	34.4	179				
Indeno(1,2,3-cd)pyrene	430	40.0	999.5	7.735	42.3	41.1	165				Q
Dibenz(a,h)anthracene	340	40.0	999.5	10.21	33.0	38.1	166				SQ
Benzo(g,h,i)perylene	542	40.0	999.5	4.379	53.8	45.6	157				
Surr: 2-Fluorobiphenyl	368		499.7		73.6	32.2	123				
Surr: Terphenyl-d14 (surr)	397		499.7		79.5	42.2	152				

NOTES:
S - Outlying spike recovery(ies) observed. A duplicate analysis was performed and recovered within range.
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF). The LCS recovered within range.

Sample ID **1610175-001AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **10/12/2016** RunNo: **32299**
Client ID: **W6S46-15** Batch ID: **15106** Analysis Date: **10/13/2016** SeqNo: **611011**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	893	46.7	1,168	0	76.5	42.9	138	751.7	17.2	30	
2-Methylnaphthalene	925	46.7	1,168	0	79.2	42.8	151	778.8	17.1	30	
1-Methylnaphthalene	890	46.7	1,168	0	76.2	41.6	148	750.6	17.1	30	
Acenaphthylene	960	46.7	1,168	0	82.2	32.6	160	809.9	16.9	30	
Acenaphthene	949	46.7	1,168	0	81.2	46.3	142	800.0	17.0	30	
Fluorene	895	46.7	1,168	0	76.7	43.4	153	757.5	16.7	30	
Phenanthrene	898	46.7	1,168	0	76.9	45.5	140	762.1	16.4	30	
Anthracene	954	46.7	1,168	0	81.7	32.6	160	806.4	16.8	30	
Fluoranthene	938	46.7	1,168	0	80.3	44.6	161	791.8	16.9	30	
Pyrene	932	46.7	1,168	0	79.8	48.3	158	790.7	16.4	30	
Benz(a)anthracene	819	46.7	1,168	0	70.1	57.5	169	683.4	18.0	30	
Chrysene	934	46.7	1,168	0	80.0	45.2	146	784.3	17.5	30	
Benzo(b)fluoranthene	827	46.7	1,168	0	70.9	42.2	168	647.3	24.4	30	
Benzo(k)fluoranthene	697	46.7	1,168	0	59.7	48	161	612.6	12.9	30	Q

Work Order: 1610175
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1610175-001AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **10/12/2016** RunNo: **32299**
Client ID: **W6S46-15** Batch ID: **15106** Analysis Date: **10/13/2016** SeqNo: **611011**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzo(a)pyrene	657	46.7	1,168	0	56.3	34.4	179	569.1	14.3	30	
Indeno(1,2,3-cd)pyrene	533	46.7	1,168	7.735	45.0	41.1	165	430.5	21.3	30	Q
Dibenz(a,h)anthracene	456	46.7	1,168	10.21	38.2	38.1	166	340.0	29.2	30	Q
Benzo(g,h,i)perylene	684	46.7	1,168	4.379	58.2	45.6	157	541.7	23.2	30	
Surr: 2-Fluorobiphenyl	417		583.9		71.4	32.2	123		0		
Surr: Terphenyl-d14 (surr)	467		583.9		80.0	42.2	152		0		

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF). The LCS recovered within range.

Work Order: 1610175
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Sample Moisture (Percent Moisture)

Sample ID	**1610175-006ADUP**	SampType:	**DUP**		Units:	**wt%**	Prep Date:	**10/12/2016**	RunNo:	**32275**	
Client ID:	**W9S46-15**	Batch ID:	**R32275**				Analysis Date:	**10/12/2016**	SeqNo:	**610305**	

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	16.7	0.500						16.46	1.25	20	

Work Order: 1610175
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID **MB-15108** SampType: **MBLK** Units: **mg/Kg** Prep Date: **10/12/2016** RunNo: **32296**
Client ID: **MBLKS** Batch ID: **15108** Analysis Date: **10/13/2016** SeqNo: **610851**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.0781									
Barium	ND	0.391									
Cadmium	ND	0.156									
Chromium	ND	0.0781									
Lead	ND	0.156									
Selenium	ND	0.391									
Silver	ND	0.0781									

Sample ID **LCS-15108** SampType: **LCS** Units: **mg/Kg** Prep Date: **10/12/2016** RunNo: **32296**
Client ID: **LCSS** Batch ID: **15108** Analysis Date: **10/13/2016** SeqNo: **610852**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	36.8	0.0781	39.06	0	94.3	80	120				
Barium	39.1	0.391	39.06	0	100	80	120				
Cadmium	1.93	0.156	1.953	0	98.8	80	120				
Chromium	38.4	0.0781	39.06	0	98.3	80	120				
Lead	19.4	0.156	19.53	0	99.6	80	120				
Selenium	3.51	0.391	3.906	0	89.9	80	120				
Silver	1.59	0.0781	1.953	0	81.4	80	120				

Sample ID **1610174-001ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **10/12/2016** RunNo: **32296**
Client ID: **BATCH** Batch ID: **15108** Analysis Date: **10/13/2016** SeqNo: **610854**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	5.47	0.0893						5.100	7.05	20	
Barium	93.9	0.446						84.31	10.7	20	
Cadmium	ND	0.179						0		20	
Chromium	39.1	0.0893						35.82	8.87	20	
Lead	11.0	0.179						9.040	19.1	20	
Selenium	1.41	0.446						1.385	1.61	20	

Work Order: 1610175
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID **1610174-001ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **10/12/2016** RunNo: **32296**
Client ID: **BATCH** Batch ID: **15108** Analysis Date: **10/13/2016** SeqNo: **610854**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Silver	ND	0.0893						0		20	

Sample ID **1610174-001AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **10/12/2016** RunNo: **32296**
Client ID: **BATCH** Batch ID: **15108** Analysis Date: **10/13/2016** SeqNo: **610856**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	47.7	0.0886	44.32	5.100	96.2	75	125				
Barium	147	0.443	44.32	84.31	142	75	125				S
Cadmium	2.16	0.177	2.216	0.09826	93.0	75	125				
Chromium	89.5	0.0886	44.32	35.82	121	75	125				
Lead	36.5	0.177	22.16	9.040	124	75	125				
Selenium	5.22	0.443	4.432	1.385	86.5	75	125				
Silver	1.20	0.0886	2.216	0.04011	52.4	75	125				S

NOTES:
S - Outlying spike recovery(ies) observed for Barium and Silver. A duplicate analysis was performed with similar results indicating a possible matrix effect.

Sample ID **1610174-001AMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **10/12/2016** RunNo: **32296**
Client ID: **BATCH** Batch ID: **15108** Analysis Date: **10/13/2016** SeqNo: **610857**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	49.1	0.0886	44.32	5.100	99.3	75	125	47.74	2.80	20	
Barium	143	0.443	44.32	84.31	132	75	125	147.2	3.17	20	S
Cadmium	2.13	0.177	2.216	0.09826	91.6	75	125	2.158	1.45	20	
Chromium	90.2	0.0886	44.32	35.82	123	75	125	89.49	0.779	20	
Lead	40.7	0.177	22.16	9.040	143	75	125	36.50	10.9	20	S
Selenium	5.48	0.443	4.432	1.385	92.3	75	125	5.217	4.83	20	
Silver	1.20	0.0886	2.216	0.04011	52.5	75	125	1.201	0.184	20	S

NOTES:
S - Outlying spike recovery(ies) observed for Barium and Silver. A duplicate analysis was performed with similar results indicating a possible matrix effect.
S - Outlying spike recovery(ies) observed for Lead. A duplicate analysis was performed and recovered within range.

Work Order: 1610175
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID **1610174-001APDS** SampType: **PDS** Units: **mg/Kg-dry** Prep Date: **10/12/2016** RunNo: **32296**
Client ID: **BATCH** Batch ID: **15108** Analysis Date: **10/13/2016** SeqNo: **610858**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	129	0.450	45.0	84.3	98.7	80	120				
Silver	1.22	0.0899	2.25	0.0401	52.7	80	120				S

NOTES:
S - Spike recovery indicates a possible matrix effect. The method is in control as indicated by the Laboratory Control Sample (LCS).

Work Order: 1610175
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-15111** SampType: **LCS** Units: **mg/Kg** Prep Date: **10/12/2016** RunNo: **32292**
Client ID: **LCSS** Batch ID: **15111** Analysis Date: **10/12/2016** SeqNo: **610736**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	1.34	0.0600	1.000	0	134	34.5	141				
Chloromethane	0.993	0.0600	1.000	0	99.3	38.8	132				
Vinyl chloride	0.925	0.00200	1.000	0	92.5	44	142				
Bromomethane	0.910	0.0900	1.000	0	91.0	40.9	157				
Trichlorofluoromethane (CFC-11)	0.833	0.0500	1.000	0	83.3	42.9	147				
Chloroethane	0.876	0.0600	1.000	0	87.6	37.1	144				
1,1-Dichloroethene	0.939	0.0500	1.000	0	93.9	49.7	142				
Methylene chloride	1.05	0.0200	1.000	0	105	46.3	140				
trans-1,2-Dichloroethene	1.06	0.0200	1.000	0	106	68	130				
Methyl tert-butyl ether (MTBE)	1.02	0.0500	1.000	0	102	59.1	138				
1,1-Dichloroethane	0.977	0.0200	1.000	0	97.7	61.9	137				
2,2-Dichloropropane	0.798	0.0500	1.000	0	79.8	28.1	149				Q
cis-1,2-Dichloroethene	0.981	0.0200	1.000	0	98.1	71.3	135				
Chloroform	1.16	0.0200	1.000	0	116	67.5	129				
1,1,1-Trichloroethane (TCA)	0.982	0.0200	1.000	0	98.2	69	132				
1,1-Dichloropropene	0.963	0.0200	1.000	0	96.3	72.7	131				
Carbon tetrachloride	0.849	0.0200	1.000	0	84.9	63.4	137				Q
1,2-Dichloroethane (EDC)	1.00	0.0300	1.000	0	100	61.9	136				
Benzene	1.01	0.0200	1.000	0	101	64.3	133				
Trichloroethene (TCE)	1.01	0.0200	1.000	0	101	65.5	137				
1,2-Dichloropropane	1.02	0.0200	1.000	0	102	63.2	142				
Bromodichloromethane	0.970	0.0200	1.000	0	97.0	73.2	131				
Dibromomethane	0.990	0.0400	1.000	0	99.0	70	130				
cis-1,3-Dichloropropene	0.951	0.0200	1.000	0	95.1	59.1	143				
Toluene	0.992	0.0200	1.000	0	99.2	67.3	138				
trans-1,3-Dichloropropylene	0.921	0.0300	1.000	0	92.1	49.2	149				
1,1,2-Trichloroethane	0.985	0.0300	1.000	0	98.5	74.5	129				
1,3-Dichloropropane	0.973	0.0500	1.000	0	97.3	70	130				
Tetrachloroethene (PCE)	0.980	0.0200	1.000	0	98.0	52.7	150				
Dibromochloromethane	0.936	0.0300	1.000	0	93.6	70.6	144				
1,2-Dibromoethane (EDB)	0.979	0.00500	1.000	0	97.9	70	130				

Work Order: 1610175
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-15111** SampType: **LCS** Units: **mg/Kg** Prep Date: **10/12/2016** RunNo: **32292**
Client ID: **LCSS** Batch ID: **15111** Analysis Date: **10/12/2016** SeqNo: **610736**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chlorobenzene	0.924	0.0200	1.000	0	92.4	76.1	123				
1,1,1,2-Tetrachloroethane	0.968	0.0300	1.000	0	96.8	65.9	141				
Ethylbenzene	0.967	0.0300	1.000	0	96.7	74	129				
m,p-Xylene	1.96	0.0200	2.000	0	98.0	70	124				
o-Xylene	0.967	0.0200	1.000	0	96.7	72.7	124				
Styrene	0.971	0.0200	1.000	0	97.1	76.8	130				
Isopropylbenzene	0.958	0.0800	1.000	0	95.8	70	130				
Bromoform	0.909	0.0200	1.000	0	90.9	67	154				Q
1,1,2,2-Tetrachloroethane	0.924	0.0200	1.000	0	92.4	60	130				
n-Propylbenzene	0.973	0.0200	1.000	0	97.3	74.8	125				
Bromobenzene	0.993	0.0300	1.000	0	99.3	49.2	144				
1,3,5-Trimethylbenzene	0.975	0.0200	1.000	0	97.5	74.6	123				
2-Chlorotoluene	0.980	0.0200	1.000	0	98.0	76.7	129				
4-Chlorotoluene	0.963	0.0200	1.000	0	96.3	77.5	125				
tert-Butylbenzene	0.968	0.0200	1.000	0	96.8	66.2	130				
1,2,3-Trichloropropane	1.03	0.0200	1.000	0	103	67.9	136				
1,2,4-Trichlorobenzene	0.976	0.0500	1.000	0	97.6	62.6	143				
sec-Butylbenzene	0.951	0.0200	1.000	0	95.1	75.6	133				
4-Isopropyltoluene	0.970	0.0200	1.000	0	97.0	76.8	131				
1,3-Dichlorobenzene	1.02	0.0200	1.000	0	102	72.8	128				
1,4-Dichlorobenzene	1.07	0.0200	1.000	0	107	72.6	126				
n-Butylbenzene	0.972	0.0200	1.000	0	97.2	65.3	136				
1,2-Dichlorobenzene	1.03	0.0200	1.000	0	103	72.8	126				
1,2-Dibromo-3-chloropropane	0.953	0.500	1.000	0	95.3	61.2	139				
1,2,4-Trimethylbenzene	0.970	0.0200	1.000	0	97.0	77.5	129				
Hexachlorobutadiene	0.995	0.100	1.000	0	99.5	42	151				
Naphthalene	0.947	0.0300	1.000	0	94.7	62.3	134				
1,2,3-Trichlorobenzene	0.961	0.0200	1.000	0	96.1	54.8	143				
Surr: Dibromofluoromethane	1.28		1.250		102	56.5	129				
Surr: Toluene-d8	1.36		1.250		109	64.3	131				
Surr: 1-Bromo-4-fluorobenzene	1.31		1.250		105	63.1	141				

Work Order: 1610175
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-15111** SampType: **LCS** Units: **mg/Kg** Prep Date: **10/12/2016** RunNo: **32292**
Client ID: **LCSS** Batch ID: **15111** Analysis Date: **10/12/2016** SeqNo: **610736**

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

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample ID **MB-15111** SampType: **MBLK** Units: **mg/Kg** Prep Date: **10/12/2016** RunNo: **32292**
Client ID: **MBLKS** Batch ID: **15111** Analysis Date: **10/12/2016** SeqNo: **610737**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	ND	0.0600									
Chloromethane	ND	0.0600									
Vinyl chloride	ND	0.00200									
Bromomethane	ND	0.0900									
Trichlorofluoromethane (CFC-11)	ND	0.0500									
Chloroethane	ND	0.0600									
1,1-Dichloroethene	ND	0.0500									
Methylene chloride	ND	0.0200									
trans-1,2-Dichloroethene	ND	0.0200									
Methyl tert-butyl ether (MTBE)	ND	0.0500									
1,1-Dichloroethane	ND	0.0200									
2,2-Dichloropropane	ND	0.0500									Q
cis-1,2-Dichloroethene	ND	0.0200									
Chloroform	ND	0.0200									
1,1,1-Trichloroethane (TCA)	ND	0.0200									
1,1-Dichloropropene	ND	0.0200									
Carbon tetrachloride	ND	0.0200									Q
1,2-Dichloroethane (EDC)	ND	0.0300									
Benzene	ND	0.0200									
Trichloroethene (TCE)	ND	0.0200									
1,2-Dichloropropane	ND	0.0200									
Bromodichloromethane	ND	0.0200									
Dibromomethane	ND	0.0400									
cis-1,3-Dichloropropene	ND	0.0200									

Work Order: 1610175
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-15111** SampType: **MBLK** Units: **mg/Kg** Prep Date: **10/12/2016** RunNo: **32292**
Client ID: **MBLKS** Batch ID: **15111** Analysis Date: **10/12/2016** SeqNo: **610737**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Toluene	ND	0.0200									
trans-1,3-Dichloropropylene	ND	0.0300									
1,1,2-Trichloroethane	ND	0.0300									
1,3-Dichloropropane	ND	0.0500									
Tetrachloroethene (PCE)	ND	0.0200									
Dibromochloromethane	ND	0.0300									
1,2-Dibromoethane (EDB)	ND	0.00500									
Chlorobenzene	ND	0.0200									
1,1,1,2-Tetrachloroethane	ND	0.0300									
Ethylbenzene	ND	0.0300									
m,p-Xylene	ND	0.0200									
o-Xylene	ND	0.0200									
Styrene	ND	0.0200									
Isopropylbenzene	ND	0.0800									
Bromoform	ND	0.0200									Q
1,1,2,2-Tetrachloroethane	ND	0.0200									
n-Propylbenzene	ND	0.0200									
Bromobenzene	ND	0.0300									
1,3,5-Trimethylbenzene	ND	0.0200									
2-Chlorotoluene	ND	0.0200									
4-Chlorotoluene	ND	0.0200									
tert-Butylbenzene	ND	0.0200									
1,2,3-Trichloropropane	ND	0.0200									
1,2,4-Trichlorobenzene	ND	0.0500									
sec-Butylbenzene	ND	0.0200									
4-Isopropyltoluene	ND	0.0200									
1,3-Dichlorobenzene	ND	0.0200									
1,4-Dichlorobenzene	ND	0.0200									
n-Butylbenzene	ND	0.0200									
1,2-Dichlorobenzene	ND	0.0200									
1,2-Dibromo-3-chloropropane	ND	0.500									

Work Order: 1610175
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-15111** SampType: **MBLK** Units: **mg/Kg** Prep Date: **10/12/2016** RunNo: **32292**
Client ID: **MBLKS** Batch ID: **15111** Analysis Date: **10/12/2016** SeqNo: **610737**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trimethylbenzene	ND	0.0200									
Hexachlorobutadiene	ND	0.100									
Naphthalene	ND	0.0300									
1,2,3-Trichlorobenzene	ND	0.0200									
Surr: Dibromofluoromethane	1.24		1.250		99.0	56.5	129				
Surr: Toluene-d8	1.23		1.250		98.7	64.3	131				
Surr: 1-Bromo-4-fluorobenzene	1.18		1.250		94.5	63.1	141				

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample ID **1610175-001BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **10/12/2016** RunNo: **32292**
Client ID: **W6S46-15** Batch ID: **15111** Analysis Date: **10/13/2016** SeqNo: **610730**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	ND	0.0440						0		30	
Chloromethane	ND	0.0440						0		30	
Vinyl chloride	ND	0.00147						0		30	
Bromomethane	ND	0.0659						0		30	
Trichlorofluoromethane (CFC-11)	ND	0.0366						0		30	
Chloroethane	ND	0.0440						0		30	
1,1-Dichloroethene	ND	0.0366						0		30	
Methylene chloride	ND	0.0147						0		30	
trans-1,2-Dichloroethene	ND	0.0147						0		30	
Methyl tert-butyl ether (MTBE)	ND	0.0366						0		30	
1,1-Dichloroethane	ND	0.0147						0		30	
2,2-Dichloropropane	ND	0.0366						0		30	Q
cis-1,2-Dichloroethene	ND	0.0147						0		30	
Chloroform	ND	0.0147						0		30	
1,1,1-Trichloroethane (TCA)	ND	0.0147						0		30	
1,1-Dichloropropene	ND	0.0147						0		30	
Carbon tetrachloride	ND	0.0147						0		30	Q

Work Order: 1610175
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1610175-001BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **10/12/2016** RunNo: **32292**
Client ID: **W6S46-15** Batch ID: **15111** Analysis Date: **10/13/2016** SeqNo: **610730**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2-Dichloroethane (EDC)	ND	0.0220						0		30	
Benzene	ND	0.0147						0		30	
Trichloroethene (TCE)	ND	0.0147						0		30	
1,2-Dichloropropane	ND	0.0147						0		30	
Bromodichloromethane	ND	0.0147						0		30	
Dibromomethane	ND	0.0293						0		30	
cis-1,3-Dichloropropene	ND	0.0147						0		30	
Toluene	ND	0.0147						0		30	
trans-1,3-Dichloropropylene	ND	0.0220						0		30	
1,1,2-Trichloroethane	ND	0.0220						0		30	
1,3-Dichloropropane	ND	0.0366						0		30	
Tetrachloroethene (PCE)	ND	0.0147						0		30	
Dibromochloromethane	ND	0.0220						0		30	
1,2-Dibromoethane (EDB)	ND	0.00366						0		30	
Chlorobenzene	ND	0.0147						0		30	
1,1,1,2-Tetrachloroethane	ND	0.0220						0		30	
Ethylbenzene	ND	0.0220						0		30	
m,p-Xylene	ND	0.0147						0		30	
o-Xylene	ND	0.0147						0		30	
Styrene	ND	0.0147						0		30	
Isopropylbenzene	ND	0.0586						0		30	
Bromoform	ND	0.0147						0		30	Q
1,1,2,2-Tetrachloroethane	ND	0.0147						0		30	
n-Propylbenzene	ND	0.0147						0		30	
Bromobenzene	ND	0.0220						0		30	
1,3,5-Trimethylbenzene	ND	0.0147						0		30	
2-Chlorotoluene	ND	0.0147						0		30	
4-Chlorotoluene	ND	0.0147						0		30	
tert-Butylbenzene	ND	0.0147						0		30	
1,2,3-Trichloropropane	ND	0.0147						0		30	
1,2,4-Trichlorobenzene	ND	0.0366						0		30	

Work Order: 1610175
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1610175-001BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **10/12/2016** RunNo: **32292**
Client ID: **W6S46-15** Batch ID: **15111** Analysis Date: **10/13/2016** SeqNo: **610730**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
sec-Butylbenzene	ND	0.0147						0		30	
4-Isopropyltoluene	ND	0.0147						0		30	
1,3-Dichlorobenzene	ND	0.0147						0		30	
1,4-Dichlorobenzene	ND	0.0147						0		30	
n-Butylbenzene	ND	0.0147						0		30	
1,2-Dichlorobenzene	ND	0.0147						0		30	
1,2-Dibromo-3-chloropropane	ND	0.366						0		30	
1,2,4-Trimethylbenzene	ND	0.0147						0		30	
Hexachlorobutadiene	ND	0.0733						0		30	
Naphthalene	ND	0.0220						0		30	
1,2,3-Trichlorobenzene	ND	0.0147						0		30	
Surr: Dibromofluoromethane	0.835		0.9157		91.2	56.5	129		0		
Surr: Toluene-d8	0.952		0.9157		104	64.3	131		0		
Surr: 1-Bromo-4-fluorobenzene	0.865		0.9157		94.4	63.1	141		0		

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample ID **1610175-003BMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **10/12/2016** RunNo: **32292**
Client ID: **W6S46-30** Batch ID: **15111** Analysis Date: **10/13/2016** SeqNo: **610732**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	0.406	0.0370	0.6161	0	65.9	43.5	121				
Chloromethane	0.704	0.0370	0.6161	0	114	45	130				
Vinyl chloride	0.599	0.00123	0.6161	0	97.2	51.2	146				
Bromomethane	0.756	0.0555	0.6161	0	123	21.3	120				S
Trichlorofluoromethane (CFC-11)	1.15	0.0308	0.6161	0	187	35	131				S
Chloroethane	0.825	0.0370	0.6161	0	134	43.8	117				S
1,1-Dichloroethene	0.765	0.0308	0.6161	0	124	61.9	141				
Methylene chloride	0.646	0.0123	0.6161	0	105	54.7	142				
trans-1,2-Dichloroethene	0.661	0.0123	0.6161	0	107	52	136				
Methyl tert-butyl ether (MTBE)	0.614	0.0308	0.6161	0	99.7	54.4	132				

Work Order: 1610175
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1610175-003BMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **10/12/2016** RunNo: **32292**
Client ID: **W6S46-30** Batch ID: **15111** Analysis Date: **10/13/2016** SeqNo: **610732**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethane	0.622	0.0123	0.6161	0	101	51.8	141				
2,2-Dichloropropane	0.312	0.0308	0.6161	0	50.7	36	123				Q
cis-1,2-Dichloroethene	0.615	0.0123	0.6161	0	99.8	58.6	136				
Chloroform	0.636	0.0123	0.6161	0.002069	103	53.2	129				
1,1,1-Trichloroethane (TCA)	0.611	0.0123	0.6161	0	99.2	58.3	145				
1,1-Dichloropropene	0.640	0.0123	0.6161	0	104	55.1	138				
Carbon tetrachloride	0.552	0.0123	0.6161	0	89.5	53.3	144				Q
1,2-Dichloroethane (EDC)	0.620	0.0185	0.6161	0	101	51.3	139				
Benzene	0.644	0.0123	0.6161	0	104	63.5	133				
Trichloroethene (TCE)	0.665	0.0123	0.6161	0	108	68.6	132				
1,2-Dichloropropane	0.644	0.0123	0.6161	0	104	59	136				
Bromodichloromethane	0.577	0.0123	0.6161	0	93.6	50.7	141				
Dibromomethane	0.644	0.0246	0.6161	0	105	50.6	137				
cis-1,3-Dichloropropene	0.546	0.0123	0.6161	0	88.7	50.4	138				
Toluene	0.653	0.0123	0.6161	0.007079	105	63.4	132				
trans-1,3-Dichloropropylene	0.532	0.0185	0.6161	0	86.4	44.1	147				
1,1,2-Trichloroethane	0.631	0.0185	0.6161	0	102	51.6	137				
1,3-Dichloropropane	0.639	0.0308	0.6161	0	104	53.1	134				
Tetrachloroethene (PCE)	0.671	0.0123	0.6161	0	109	35.6	158				
Dibromochloromethane	0.562	0.0185	0.6161	0	91.2	55.3	140				
1,2-Dibromoethane (EDB)	0.606	0.00308	0.6161	0	98.4	50.4	136				
Chlorobenzene	0.610	0.0123	0.6161	0	98.9	60	133				
1,1,1,2-Tetrachloroethane	0.599	0.0185	0.6161	0	97.2	53.1	142				
Ethylbenzene	0.629	0.0185	0.6161	0	102	54.5	134				
m,p-Xylene	1.25	0.0123	1.232	0	102	53.1	132				
o-Xylene	0.614	0.0123	0.6161	0	99.6	53.3	139				
Styrene	0.618	0.0123	0.6161	0	100	51.1	132				
Isopropylbenzene	0.627	0.0493	0.6161	0	102	58.9	138				
Bromoform	0.529	0.0123	0.6161	0	85.8	57.9	130				Q
1,1,2,2-Tetrachloroethane	0.563	0.0123	0.6161	0	91.4	51.9	131				
n-Propylbenzene	0.636	0.0123	0.6161	0	103	53.6	140				

Work Order: 1610175
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1610175-003BMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **10/12/2016** RunNo: **32292**
Client ID: **W6S46-30** Batch ID: **15111** Analysis Date: **10/13/2016** SeqNo: **610732**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromobenzene	0.632	0.0185	0.6161	0	102	54.2	140				
1,3,5-Trimethylbenzene	0.627	0.0123	0.6161	0	102	51.8	136				
2-Chlorotoluene	0.621	0.0123	0.6161	0	101	51.6	136				
4-Chlorotoluene	0.641	0.0123	0.6161	0	104	50.1	139				
tert-Butylbenzene	0.634	0.0123	0.6161	0	103	50.5	135				
1,2,3-Trichloropropane	0.592	0.0123	0.6161	0	96.0	50.5	131				
1,2,4-Trichlorobenzene	0.734	0.0308	0.6161	0	119	50.8	130				
sec-Butylbenzene	0.636	0.0123	0.6161	0	103	52.6	141				
4-Isopropyltoluene	0.631	0.0123	0.6161	0	102	52.9	134				
1,3-Dichlorobenzene	0.653	0.0123	0.6161	0	106	52.6	131				
1,4-Dichlorobenzene	0.661	0.0123	0.6161	0	107	52.9	129				
n-Butylbenzene	0.674	0.0123	0.6161	0	109	52.6	130				
1,2-Dichlorobenzene	0.651	0.0123	0.6161	0	106	55.8	129				
1,2-Dibromo-3-chloropropane	0.571	0.308	0.6161	0	92.7	40.5	131				
1,2,4-Trimethylbenzene	0.618	0.0123	0.6161	0	100	50.6	137				
Hexachlorobutadiene	0.685	0.0616	0.6161	0	111	40.6	158				
Naphthalene	0.710	0.0185	0.6161	0	115	52.3	124				
1,2,3-Trichlorobenzene	0.749	0.0123	0.6161	0	122	54.4	124				
Surr: Dibromofluoromethane	0.756		0.7702		98.2	56.5	129				
Surr: Toluene-d8	0.867		0.7702		113	64.3	131				
Surr: 1-Bromo-4-fluorobenzene	0.843		0.7702		109	63.1	141				

NOTES:
S - Outlying spike recovery(ies) observed. The method is in control as indicated by the Laboratory Control Sample (LCS).
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample ID **1610175-003BMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **10/12/2016** RunNo: **32292**
Client ID: **W6S46-30** Batch ID: **15111** Analysis Date: **10/13/2016** SeqNo: **610876**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	0.353	0.0370	0.6161	0	57.4	43.5	121	0.4062	13.9	30	
Chloromethane	0.760	0.0370	0.6161	0	123	45	130	0.7044	7.58	30	

Work Order: 1610175
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1610175-003BMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **10/12/2016** RunNo: **32292**
Client ID: **W6S46-30** Batch ID: **15111** Analysis Date: **10/13/2016** SeqNo: **610876**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Vinyl chloride	0.560	0.00123	0.6161	0	90.8	51.2	146	0.5990	6.80	30	
Bromomethane	0.713	0.0555	0.6161	0	116	21.3	120	0.7556	5.79	30	
Trichlorofluoromethane (CFC-11)	1.15	0.0308	0.6161	0	186	35	131	1.150	0.161	30	S
Chloroethane	0.711	0.0370	0.6161	0	115	43.8	117	0.8252	14.9	30	
1,1-Dichloroethene	0.786	0.0308	0.6161	0	128	61.9	141	0.7645	2.77	30	
Methylene chloride	0.715	0.0123	0.6161	0	116	54.7	142	0.6458	10.2	30	
trans-1,2-Dichloroethene	0.718	0.0123	0.6161	0	116	52	136	0.6609	8.24	30	
Methyl tert-butyl ether (MTBE)	0.694	0.0308	0.6161	0	113	54.4	132	0.6144	12.2	30	
1,1-Dichloroethane	0.574	0.0123	0.6161	0	93.2	51.8	141	0.6221	7.98	30	
2,2-Dichloropropane	0.292	0.0308	0.6161	0	47.3	36	123	0.3124	6.90	30	Q
cis-1,2-Dichloroethene	0.578	0.0123	0.6161	0	93.8	58.6	136	0.6146	6.14	30	
Chloroform	0.616	0.0123	0.6161	0.002069	99.7	53.2	129	0.6362	3.17	30	
1,1,1-Trichloroethane (TCA)	0.581	0.0123	0.6161	0	94.3	58.3	145	0.6114	5.05	30	
1,1-Dichloropropene	0.587	0.0123	0.6161	0	95.3	55.1	138	0.6397	8.54	30	
Carbon tetrachloride	0.540	0.0123	0.6161	0	87.7	53.3	144	0.5516	2.06	30	Q
1,2-Dichloroethane (EDC)	0.567	0.0185	0.6161	0	92.1	51.3	139	0.6197	8.85	30	
Benzene	0.616	0.0123	0.6161	0	100	63.5	133	0.6436	4.41	30	
Trichloroethene (TCE)	0.621	0.0123	0.6161	0	101	68.6	132	0.6649	6.81	30	
1,2-Dichloropropane	0.590	0.0123	0.6161	0	95.7	59	136	0.6438	8.76	30	
Bromodichloromethane	0.552	0.0123	0.6161	0	89.6	50.7	141	0.5765	4.33	30	
Dibromomethane	0.584	0.0246	0.6161	0	94.8	50.6	137	0.6444	9.84	30	
cis-1,3-Dichloropropene	0.499	0.0123	0.6161	0	81.1	50.4	138	0.5464	8.98	30	
Toluene	0.608	0.0123	0.6161	0.007079	97.5	63.4	132	0.6529	7.19	30	
trans-1,3-Dichloropropylene	0.529	0.0185	0.6161	0	85.9	44.1	147	0.5322	0.560	30	
1,1,2-Trichloroethane	0.584	0.0185	0.6161	0	94.7	51.6	137	0.6314	7.88	30	
1,3-Dichloropropane	0.606	0.0308	0.6161	0	98.4	53.1	134	0.6394	5.34	30	
Tetrachloroethene (PCE)	0.609	0.0123	0.6161	0	98.8	35.6	158	0.6707	9.64	30	
Dibromochloromethane	0.521	0.0185	0.6161	0	84.6	55.3	140	0.5617	7.52	30	
1,2-Dibromoethane (EDB)	0.603	0.00308	0.6161	0	97.9	50.4	136	0.6065	0.496	30	
Chlorobenzene	0.583	0.0123	0.6161	0	94.7	60	133	0.6095	4.40	30	
1,1,1,2-Tetrachloroethane	0.560	0.0185	0.6161	0	90.8	53.1	142	0.5990	6.82	30	

Work Order: 1610175
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1610175-003BMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **10/12/2016** RunNo: **32292**
Client ID: **W6S46-30** Batch ID: **15111** Analysis Date: **10/13/2016** SeqNo: **610876**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Ethylbenzene	0.596	0.0185	0.6161	0	96.8	54.5	134	0.6289	5.31	30	
m,p-Xylene	1.17	0.0123	1.232	0	94.7	53.1	132	1.254	7.20	30	
o-Xylene	0.600	0.0123	0.6161	0	97.4	53.3	139	0.6138	2.24	30	
Styrene	0.607	0.0123	0.6161	0	98.6	51.1	132	0.6177	1.72	30	
Isopropylbenzene	0.587	0.0493	0.6161	0	95.4	58.9	138	0.6271	6.52	30	
Bromoform	0.496	0.0123	0.6161	0	80.5	57.9	130	0.5287	6.38	30	Q
1,1,2,2-Tetrachloroethane	0.556	0.0123	0.6161	0	90.3	51.9	131	0.5634	1.27	30	
n-Propylbenzene	0.603	0.0123	0.6161	0	97.9	53.6	140	0.6364	5.34	30	
Bromobenzene	0.600	0.0185	0.6161	0	97.5	54.2	140	0.6315	5.04	30	
1,3,5-Trimethylbenzene	0.587	0.0123	0.6161	0	95.3	51.8	136	0.6273	6.60	30	
2-Chlorotoluene	0.588	0.0123	0.6161	0	95.5	51.6	136	0.6213	5.47	30	
4-Chlorotoluene	0.605	0.0123	0.6161	0	98.1	50.1	139	0.6409	5.83	30	
tert-Butylbenzene	0.599	0.0123	0.6161	0	97.1	50.5	135	0.6341	5.78	30	
1,2,3-Trichloropropane	0.563	0.0123	0.6161	0	91.5	50.5	131	0.5916	4.87	30	
1,2,4-Trichlorobenzene	0.780	0.0308	0.6161	0	127	50.8	130	0.7337	6.05	30	
sec-Butylbenzene	0.594	0.0123	0.6161	0	96.5	52.6	141	0.6362	6.79	30	
4-Isopropyltoluene	0.588	0.0123	0.6161	0	95.5	52.9	134	0.6313	7.08	30	
1,3-Dichlorobenzene	0.666	0.0123	0.6161	0	108	52.6	131	0.6526	2.01	30	
1,4-Dichlorobenzene	0.677	0.0123	0.6161	0	110	52.9	129	0.6614	2.32	30	
n-Butylbenzene	0.667	0.0123	0.6161	0	108	52.6	130	0.6738	1.05	30	
1,2-Dichlorobenzene	0.673	0.0123	0.6161	0	109	55.8	129	0.6515	3.20	30	
1,2-Dibromo-3-chloropropane	0.574	0.308	0.6161	0	93.2	40.5	131	0.5711	0.536	30	
1,2,4-Trimethylbenzene	0.593	0.0123	0.6161	0	96.3	50.6	137	0.6176	3.98	30	
Hexachlorobutadiene	0.730	0.0616	0.6161	0	118	40.6	158	0.6847	6.41	30	
Naphthalene	0.791	0.0185	0.6161	0	128	52.3	124	0.7096	10.9	30	S
1,2,3-Trichlorobenzene	0.815	0.0123	0.6161	0	132	54.4	124	0.7490	8.40	30	S
Surr: Dibromofluoromethane	0.715		0.7702		92.8	56.5	129		0		
Surr: Toluene-d8	0.823		0.7702		107	64.3	131		0		
Surr: 1-Bromo-4-fluorobenzene	0.820		0.7702		106	63.1	141		0		

Work Order: 1610175
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1610175-003BMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **10/12/2016** RunNo: **32292**
Client ID: **W6S46-30** Batch ID: **15111** Analysis Date: **10/13/2016** SeqNo: **610876**

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

NOTES:
S - Outlying spike recovery(ies) observed. The method is in control as indicated by the Laboratory Control Sample (LCS).
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample Log-In Check List

Client Name:	**GEI**	Work Order Number:	**1610175**
Logged by:	**Clare Griggs**	Date Received:	**10/12/2016 8:55:00 AM**

Chain of Custody

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

Log In

3.	Coolers are present?	Yes	☑	No ☐	NA	☐
4.	Shipping container/cooler in good condition?	Yes	☑	No ☐		
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes	☐	No ☐	Not Required	☑
6.	Was an attempt made to cool the samples?	Yes	☑	No ☐	NA	☐
7.	Were all items received at a temperature of >0°C to 10.0°C*	Yes	☑	No ☐	NA	☐
8.	Sample(s) in proper container(s)?	Yes	☑	No ☐		
9.	Sufficient sample volume for indicated test(s)?	Yes	☑	No ☐		
10.	Are samples properly preserved?	Yes	☑	No ☐		
11.	Was preservative added to bottles?	Yes	☐	No ☑	NA	☐
12.	Is there headspace in the VOA vials?	Yes	☐	No ☐	NA	☑
13.	Did all samples containers arrive in good condition(unbroken)?	Yes	☑	No ☐		
14.	Does paperwork match bottle labels?	Yes	☑	No ☐		
15.	Are matrices correctly identified on Chain of Custody?	Yes	☑	No ☐		
16.	Is it clear what analyses were requested?	Yes	☑	No ☐		
17.	Were all holding times able to be met?	Yes	☑	No ☐		

Special Handling (if applicable)

18.	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: _____

19. Additional remarks:

Item Information

Item #	Temp ºC
Cooler	6.6
Sample	3.3

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Fremont Analytical

Chain of Custody Record and Laboratory Services Agreement

3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 10-17-16

Laboratory Project No (internal): 1610175

Page: 1 of: 1

Client: GeoEngineers
Address: 600 Stewart St, Suite 1700
City, State, Zip: Seattle, WA
Telephone: _____ Fax: _____

Project Name: Rufus Block 20
Project No: 20434-001-24
Collected by: Sydney Bronson
Location: Seattle, WA
Report To (PM): Chris Brown
PM Email: cbrown@geoengineers.com

*Matrix Codes: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T) | Dissolved (D)	Anions (IC)***	EDB (8011)	# Containers Held			Comments
1	WB546-15	10/11/16	1555	S	X		X	X		X		X		X	T			3				
2	WB546-20	↓	1600	↓														↓				
3	WB546-30		1605		X		X	X		X		X		X	T							
4	WB546-40		1610																			
5	WB546-50		1615																			
6	W9546-15	↓	1650	↓	X			X		X		X		X	T			↓				
7																						
8																						
9																						
10																						

**Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL *Individual:* Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☒ Disposal by Lab (Samples will be held for 30 days unless otherwise noted. A fee may be assessed if samples are retained after 30 days.)

Turn-around times for samples received after 4:00pm will begin on the following business day.

Special Remarks:

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above, that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x [signature]	10/12/16 0855	x [signature]	10/12/16 0855
Relinquished	Date/Time	Received	Date/Time
x		x	

TAT → SameDay^ NextDay^ 2 Day 3 Day STD

^Please coordinate with the lab in advance

Distribution: White - Lab, Yellow - File, Pink - Originator

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

GeoEngineers
Chris Brown
600 Stewart Street, Suite 1700
Seattle, WA 98101

RE: Rufus - Block 20
Work Order Number: 1611158

December 12, 2016

Attention Chris Brown:

Fremont Analytical, Inc. received 9 sample(s) on 11/15/2016 for the analyses presented in the following report.

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)
Sample Moisture (Percent Moisture)
Total Metals by EPA Method 6020

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Mike Ridgeway
Laboratory Director

Date: *12/12/2016*

CLIENT: GeoEngineers
Project: Rufus - Block 20
Work Order: 1611158

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1611158-001	D-W3S30-4.5	11/15/2016 9:30 AM	11/15/2016 3:40 PM
1611158-002	D-W3S25-4.5	11/15/2016 9:35 AM	11/15/2016 3:40 PM
1611158-003	D-W3S30-4.5	11/15/2016 9:20 AM	11/15/2016 3:40 PM
1611158-004	D-S28-4.5	11/15/2016 9:40 AM	11/15/2016 3:40 PM
1611158-005	W2S10-10.0	11/15/2016 1:00 PM	11/15/2016 3:40 PM
1611158-006	W2S13-5.0	11/15/2016 1:05 PM	11/15/2016 3:40 PM
1611158-007	W4S10-5.0	11/15/2016 1:30 PM	11/15/2016 3:40 PM
1611158-008	S10-5.0	11/15/2016 12:55 PM	11/15/2016 3:40 PM
1611158-009	W2S7-5.0	11/15/2016 1:10 PM	11/15/2016 3:40 PM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

Case Narrative

WO#: **1611158**

Date: **12/12/2016**

CLIENT: GeoEngineers

Project: Rufus - Block 20

I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Analytical Report

Work Order: **1611158**
Date Reported: **12/12/2016**

Client: GeoEngineers
Collection Date: 11/15/2016 9:30:00 AM
Project: Rufus - Block 20
Lab ID: 1611158-001
Matrix: Soil
Client Sample ID: **D-W3S30-4.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 15464		Analyst: TN
Lead	57.0	0.178		mg/Kg-dry	1	11/16/2016 1:13:09 PM
Sample Moisture (Percent Moisture)				Batch ID: R32947		Analyst: BB
Percent Moisture	15.4	0.500		wt%	1	11/16/2016 9:13:02 AM

Analytical Report

Work Order: **1611158**
Date Reported: **12/12/2016**

Client: GeoEngineers
Collection Date: 11/15/2016 9:35:00 AM
Project: Rufus - Block 20
Lab ID: 1611158-002
Matrix: Soil
Client Sample ID: **D-W3S25-4.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 15464		Analyst: TN
Lead	59.6	0.186		mg/Kg-dry	1	11/16/2016 1:34:23 PM
Sample Moisture (Percent Moisture)				Batch ID: R32947		Analyst: BB
Percent Moisture	13.8	0.500		wt%	1	11/16/2016 9:13:02 AM

Analytical Report

Work Order: **1611158**
Date Reported: **12/12/2016**

Client: GeoEngineers
Collection Date: 11/15/2016 9:20:00 AM
Project: Rufus - Block 20
Lab ID: 1611158-003
Matrix: Soil
Client Sample ID: **D-W3S30-4.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 15464		Analyst: TN
Lead	42.4	0.181		mg/Kg-dry	1	11/16/2016 1:37:56 PM
Sample Moisture (Percent Moisture)				Batch ID: R32947		Analyst: BB
Percent Moisture	11.6	0.500		wt%	1	11/16/2016 9:13:02 AM

Analytical Report

Work Order: **1611158**
Date Reported: **12/12/2016**

Client: GeoEngineers
Collection Date: 11/15/2016 9:40:00 AM
Project: Rufus - Block 20
Lab ID: 1611158-004
Matrix: Soil
Client Sample ID: **D-S28-4.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 15464		Analyst: TN
Lead	3.79	0.177		mg/Kg-dry	1	11/16/2016 1:41:28 PM
Sample Moisture (Percent Moisture)				Batch ID: R32947		Analyst: BB
Percent Moisture	12.6	0.500		wt%	1	11/16/2016 9:13:02 AM

Analytical Report

Work Order: **1611158**

Date Reported: **12/12/2016**

Client: GeoEngineers **Collection Date:** 11/15/2016 1:00:00 PM

Project: Rufus - Block 20

Lab ID: 1611158-005 **Matrix:** Soil

Client Sample ID: W2S10-10.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 15457		Analyst: WC
Diesel (Fuel Oil)	ND	24.1		mg/Kg-dry	1	11/15/2016 9:53:25 PM
Heavy Oil	ND	60.3		mg/Kg-dry	1	11/15/2016 9:53:25 PM
Surr: 2-Fluorobiphenyl	87.9	50-150		%Rec	1	11/15/2016 9:53:25 PM
Surr: o-Terphenyl	86.5	50-150		%Rec	1	11/15/2016 9:53:25 PM
Sample Moisture (Percent Moisture)				Batch ID: R32947		Analyst: BB
Percent Moisture	18.5	0.500		wt%	1	11/16/2016 9:13:02 AM

Analytical Report

Work Order: **1611158**
Date Reported: **12/12/2016**

Client: GeoEngineers
Collection Date: 11/15/2016 1:05:00 PM
Project: Rufus - Block 20
Lab ID: 1611158-006
Matrix: Soil
Client Sample ID: **W2S13-5.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 15457		Analyst: WC
Diesel (Fuel Oil)	ND	22.2		mg/Kg-dry	1	11/15/2016 10:55:23 PM
Heavy Oil	ND	55.6		mg/Kg-dry	1	11/15/2016 10:55:23 PM
Surr: 2-Fluorobiphenyl	87.7	50-150		%Rec	1	11/15/2016 10:55:23 PM
Surr: o-Terphenyl	83.9	50-150		%Rec	1	11/15/2016 10:55:23 PM
Sample Moisture (Percent Moisture)				Batch ID: R32947		Analyst: BB
Percent Moisture	14.4	0.500		wt%	1	11/16/2016 9:13:02 AM

Analytical Report

Work Order: **1611158**
Date Reported: **12/12/2016**

Client: GeoEngineers
Collection Date: 11/15/2016 1:30:00 PM
Project: Rufus - Block 20
Lab ID: 1611158-007
Matrix: Soil
Client Sample ID: **W4S10-5.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 15457		Analyst: WC
Diesel (Fuel Oil)	ND	22.2		mg/Kg-dry	1	11/15/2016 11:26:19 PM
Heavy Oil	ND	55.4		mg/Kg-dry	1	11/15/2016 11:26:19 PM
Surr: 2-Fluorobiphenyl	88.5	50-150		%Rec	1	11/15/2016 11:26:19 PM
Surr: o-Terphenyl	86.8	50-150		%Rec	1	11/15/2016 11:26:19 PM
Sample Moisture (Percent Moisture)				Batch ID: R32947		Analyst: BB
Percent Moisture	15.2	0.500		wt%	1	11/16/2016 9:13:02 AM

Analytical Report

Work Order: **1611158**
Date Reported: **12/12/2016**

Client: GeoEngineers
Collection Date: 11/15/2016 12:55:00 PM
Project: Rufus - Block 20
Lab ID: 1611158-008
Matrix: Soil
Client Sample ID: **S10-5.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 15457		Analyst: WC
Diesel (Fuel Oil)	ND	23.0		mg/Kg-dry	1	11/16/2016 12:59:07 AM
Heavy Oil	ND	57.6		mg/Kg-dry	1	11/16/2016 12:59:07 AM
Surr: 2-Fluorobiphenyl	92.3	50-150		%Rec	1	11/16/2016 12:59:07 AM
Surr: o-Terphenyl	89.3	50-150		%Rec	1	11/16/2016 12:59:07 AM
Sample Moisture (Percent Moisture)				Batch ID: R32947		Analyst: BB
Percent Moisture	17.2	0.500		wt%	1	11/16/2016 9:13:02 AM

Analytical Report

Work Order: **1611158**
Date Reported: **12/12/2016**

Client: GeoEngineers
Collection Date: 11/15/2016 1:10:00 PM
Project: Rufus - Block 20
Lab ID: 1611158-009
Matrix: Soil
Client Sample ID: **W2S7-5.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 15457		Analyst: WC
Diesel (Fuel Oil)	ND	21.4		mg/Kg-dry	1	11/16/2016 1:30:03 AM
Heavy Oil	ND	53.4		mg/Kg-dry	1	11/16/2016 1:30:03 AM
Surr: 2-Fluorobiphenyl	90.8	50-150		%Rec	1	11/16/2016 1:30:03 AM
Surr: o-Terphenyl	87.1	50-150		%Rec	1	11/16/2016 1:30:03 AM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 15652		Analyst: BT
Benz(a)anthracene	ND	43.4	H	µg/Kg-dry	1	12/12/2016 6:15:00 PM
Chrysene	ND	43.4	H	µg/Kg-dry	1	12/12/2016 6:15:00 PM
Benzo(b)fluoranthene	ND	43.4	H	µg/Kg-dry	1	12/12/2016 6:15:00 PM
Benzo(k)fluoranthene	ND	43.4	H	µg/Kg-dry	1	12/12/2016 6:15:00 PM
Benzo(a)pyrene	ND	43.4	H	µg/Kg-dry	1	12/12/2016 6:15:00 PM
Indeno(1,2,3-cd)pyrene	ND	43.4	H	µg/Kg-dry	1	12/12/2016 6:15:00 PM
Dibenz(a,h)anthracene	ND	43.4	H	µg/Kg-dry	1	12/12/2016 6:15:00 PM
Surr: 2-Fluorobiphenyl	78.0	24.5-139	H	%Rec	1	12/12/2016 6:15:00 PM
Surr: Terphenyl-d14 (surr)	82.6	44.3-176	H	%Rec	1	12/12/2016 6:15:00 PM
Sample Moisture (Percent Moisture)				Batch ID: R32947		Analyst: BB
Percent Moisture	15.5	0.500		wt%	1	11/16/2016 9:13:02 AM

Work Order: 1611158
CLIENT: GeoEngineers
Project: Rufus - Block 20

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID **MB-15457**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **11/15/2016**	RunNo: **32942**
Client ID: **MBLKS**	Batch ID: **15457**		Analysis Date: **11/15/2016**	SeqNo: **624286**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	20.0									
Heavy Oil	ND	50.0									
Surr: 2-Fluorobiphenyl	21.2		20.00		106	50	150				
Surr: o-Terphenyl	19.5		20.00		97.7	50	150				

Sample ID **LCS-15457**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **11/15/2016**	RunNo: **32942**
Client ID: **LCSS**	Batch ID: **15457**		Analysis Date: **11/15/2016**	SeqNo: **624285**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	437	20.0	500.0	0	87.5	65	135				
Surr: 2-Fluorobiphenyl	23.1		20.00		116	50	150				
Surr: o-Terphenyl	21.5		20.00		107	50	150				

Sample ID **1611150-002ADUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **11/15/2016**	RunNo: **32942**
Client ID: **BATCH**	Batch ID: **15457**		Analysis Date: **11/15/2016**	SeqNo: **624554**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	22.4						0		30	
Heavy Oil	235	55.9						312.9	28.6	30	
Surr: 2-Fluorobiphenyl	27.0		22.37		120	50	150		0		
Surr: o-Terphenyl	24.3		22.37		109	50	150		0		

Sample ID **1611150-002AMS**	SampType: **MS**	Units: **mg/Kg-dry**	Prep Date: **11/15/2016**	RunNo: **32942**
Client ID: **BATCH**	Batch ID: **15457**		Analysis Date: **11/15/2016**	SeqNo: **624555**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	653	21.9	548.1	0	119	65	135				
Surr: 2-Fluorobiphenyl	38.6		21.92		176	50	150				S
Surr: o-Terphenyl	38.0		21.92		173	50	150				S

Work Order: 1611158
CLIENT: GeoEngineers
Project: Rufus - Block 20

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID **1611150-002AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **11/15/2016** RunNo: **32942**
Client ID: **BATCH** Batch ID: **15457** Analysis Date: **11/15/2016** SeqNo: **624555**

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

NOTES:
S - Outlying surrogate recovery(ies) observed. A duplicate analysis was performed with similar results indicating a possible matrix effect.

Sample ID **1611150-002AMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **11/15/2016** RunNo: **32942**
Client ID: **BATCH** Batch ID: **15457** Analysis Date: **11/15/2016** SeqNo: **624556**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	755	22.0	549.6	0	137	65	135	652.5	14.6	30	S
Surr: 2-Fluorobiphenyl	36.5		21.98		166	50	150		0		S
Surr: o-Terphenyl	35.3		21.98		160	50	150		0		S

NOTES:
S - Outlying spike recovery(ies) observed. A duplicate analysis was performed and recovered within range.
S - Outlying surrogate recovery(ies) observed. A duplicate analysis was performed with similar results indicating a possible matrix effect.

Sample ID **1611158-005ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **11/15/2016** RunNo: **32942**
Client ID: **W2S10-10.0** Batch ID: **15457** Analysis Date: **11/15/2016** SeqNo: **624558**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	24.2						0		30	
Heavy Oil	ND	60.5						0		30	
Surr: 2-Fluorobiphenyl	20.5		24.22		84.8	50	150		0		
Surr: o-Terphenyl	20.3		24.22		83.7	50	150		0		

Work Order: 1611158
CLIENT: GeoEngineers
Project: Rufus - Block 20

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **MB-15652** SampType: **MBLK** Units: **µg/Kg** Prep Date: **12/12/2016** RunNo: **33346**
Client ID: **MBLKS** Batch ID: **15652** Analysis Date: **12/12/2016** SeqNo: **632640**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	ND	40.0									
Chrysene	ND	40.0									
Benzo(b)fluoranthene	ND	40.0									
Benzo(k)fluoranthene	ND	40.0									
Benzo(a)pyrene	ND	40.0									
Indeno(1,2,3-cd)pyrene	ND	40.0									
Dibenz(a,h)anthracene	ND	40.0									
Surr: 2-Fluorobiphenyl	518		500.0		104	24.5	139				
Surr: Terphenyl-d14 (surr)	532		500.0		106	44.3	176				

Sample ID **LCS-15652** SampType: **LCS** Units: **µg/Kg** Prep Date: **12/12/2016** RunNo: **33346**
Client ID: **LCSS** Batch ID: **15652** Analysis Date: **12/12/2016** SeqNo: **632641**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	1,130	40.0	1,000	0	113	41.9	136				
Chrysene	1,340	40.0	1,000	0	134	46.9	138				
Benzo(b)fluoranthene	1,420	40.0	1,000	0	142	35.9	148				
Benzo(k)fluoranthene	1,490	40.0	1,000	0	149	43.9	144				S
Benzo(a)pyrene	1,580	40.0	1,000	0	158	36.3	144				S
Indeno(1,2,3-cd)pyrene	2,590	40.0	1,000	0	259	16.1	135				S
Dibenz(a,h)anthracene	3,000	40.0	1,000	0	300	17.2	136				S
Surr: 2-Fluorobiphenyl	564		500.0		113	24.5	139				
Surr: Terphenyl-d14 (surr)	576		500.0		115	44.3	176				

NOTES:
S - Outlying spike recovery observed (high bias). Samples are non-detect for this analyte; no further action required.

Work Order: 1611158
CLIENT: GeoEngineers
Project: Rufus - Block 20

QC SUMMARY REPORT

Sample Moisture (Percent Moisture)

Sample ID **1611158-009ADUP** SampType: **DUP** Units: **wt%** Prep Date: **11/16/2016** RunNo: **32947**
Client ID: **W2S7-5.0** Batch ID: **R32947** Analysis Date: **11/16/2016** SeqNo: **624516**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	16.4	0.500						15.54	5.37	20	

Work Order: 1611158
CLIENT: GeoEngineers
Project: Rufus - Block 20

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID	**MB-15464**	SampType: **MBLK**			Units: **mg/Kg**		Prep Date: **11/16/2016**		RunNo: **32958**		
Client ID:	**MBLKS**	Batch ID: **15464**					Analysis Date: **11/16/2016**		SeqNo: **624718**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	0.156									

Sample ID	**LCS-15464**	SampType: **LCS**			Units: **mg/Kg**		Prep Date: **11/16/2016**		RunNo: **32958**		
Client ID:	**LCSS**	Batch ID: **15464**					Analysis Date: **11/16/2016**		SeqNo: **624719**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	19.8	0.157	19.69	0	101	80	120				

Sample ID	**1611158-001ADUP**	SampType: **DUP**			Units: **mg/Kg-dry**		Prep Date: **11/16/2016**		RunNo: **32958**		
Client ID:	**D-W3S30-4.5**	Batch ID: **15464**					Analysis Date: **11/16/2016**		SeqNo: **624723**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	36.5	0.179						56.95	43.7	20	R

NOTES:
R - High RPD observed. The method is in control as indicated by the LCS.

Sample ID	**1611158-001AMS**	SampType: **MS**			Units: **mg/Kg-dry**		Prep Date: **11/16/2016**		RunNo: **32958**		
Client ID:	**D-W3S30-4.5**	Batch ID: **15464**					Analysis Date: **11/16/2016**		SeqNo: **624725**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	78.6	0.178	22.21	56.95	97.6	75	125				

Sample ID	**1611158-001AMSD**	SampType: **MSD**			Units: **mg/Kg-dry**		Prep Date: **11/16/2016**		RunNo: **32958**		
Client ID:	**D-W3S30-4.5**	Batch ID: **15464**					Analysis Date: **11/16/2016**		SeqNo: **624726**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	76.0	0.176	22.04	56.95	86.3	75	125	78.63	3.42	20	

Sample Log-In Check List

Client Name:	**GEI**	Work Order Number:	**1611158**
Logged by:	**Erica Silva**	Date Received:	**11/15/2016 3:40:00 PM**

Chain of Custody

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

Log In

3.	Coolers are present?	Yes ☑	No ☐	NA ☐
4.	Shipping container/cooler in good condition?	Yes ☑	No ☐	
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes ☐	No ☐	Not Required ☑
6.	Was an attempt made to cool the samples?	Yes ☐	No ☑	NA ☐
		Unknown prior to receipt		
7.	Were all items received at a temperature of >0°C to 10.0°C*	Yes ☐	No ☑	NA ☐
		Please refer to Item Information		
8.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
9.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
10.	Are samples properly preserved?	Yes ☑	No ☐	
11.	Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
12.	Is there headspace in the VOA vials?	Yes ☐	No ☐	NA ☑
13.	Did all samples containers arrive in good condition(unbroken)?	Yes ☑	No ☐	
14.	Does paperwork match bottle labels?	Yes ☑	No ☐	
15.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
16.	Is it clear what analyses were requested?	Yes ☑	No ☐	
17.	Were all holding times able to be met?	Yes ☑	No ☐	

Special Handling (if applicable)

18.	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: _____

19. Additional remarks:

Item Information

Item #	Temp ºC
Cooler	13.8
Sample	12.4

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Chain of Custody Record and Laboratory Services Agreement

Fremont Analytical

3600 Fremont Ave N. Tel: 206-352-3790
Seattle, WA 98103 Fax: 206-352-7178

Date: 11/15/16 Laboratory Project No (internal): 1611158

Page: 1 of: 1

Client: GeoEngineers
Address: 600 Stewart St, Suite 1700
City, State, Zip: Seattle, WA
Telephone: Fax:

Project Name: Rufus - Block 20
Project No: 20434-001-24 Collected by: Sydney Bronson
Location: Seattle, WA
Report To (PM): Chris Brown
PM Email: cbrown@geoengineers.com

*Matrix Codes: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T)	Dissolved (D)	Anions (IC)***	EDB (8011)	Total Metals - Lead only			Comments
1	D-W3530-4.5	11/15/16	0930	S														X				
2	D-W3525-4.5		0935															X				
3	D-W6527-4.5		0920															X				
4	D-528-4.5		0940															X				
5	W2510-10.0		1300							X												
6	W2513-5.0		1305							X												
7	W4510-5.0		1330							X												
8	510-5.0		1255							X												
9	W257-5.0	↓	1310	↓						X												
10																						

**Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL *Individual:* Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☒ Disposal by Lab (Samples will be held for 30 days unless otherwise noted. A fee may be assessed if samples are retained after 30 days.)

Turn-around times for samples received after 4:00pm will begin on the following business day.

Special Remarks:

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above, that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x Sydney Bronson	11/15/16 1540	x	11/15/16 1540
Relinquished	Date/Time	Received	Date/Time
x		x	

TAT → SameDay^ NextDay^ 2 Day 3 Day STD

^Please coordinate with the lab in advance

Chain of Custody Record and Laboratory Services Agreement

Fremont Analytical

3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 11/15/16
Laboratory Project No (internal): 16111158
Page: 1 of: 1

Client: GeoEngineers
Address: 600 Stewart St, Suite 1700
City, State, Zip: Seattle, WA
Telephone: Fax:

Project Name: Rufus - Block 20
Project No: 20434-001-24
Collected by: Sydney Bronson
Location: Seattle, WA
Report To (PM): Chris Brown
PM Email: cbrown@geoengineers.com

*Matrix Codes: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM) cPAH	PCBs (EPA 8082 / 608)	Metals - EPA-6020 / 200.8) Total Dissolved (D)	Anions (IC)**	EDB (8011)	TCLP Metals - Lead only	Comments
1 D-W3S30-4.5	11/15/16	0930	S												X		D-W3S30-4.5
2 D-W3S25-4.5		0935													X		D-W3S25-4.5
3 D-W6S27-4.5		0920													X		D-W3S30-4.5
4 D-S28-4.5		0940													X		D-S28-4.5
5 W2S10-10.0		1300						X									W2S10-10.0
6 W2S13-5.0		1305						X									W2S13-5.0
7 W4S10-5.0		1330						X									W4S10-5.0
8 S10-5.0		1255						X									S10-5.0
9 W2S7-5.0	↓	1310	↓					X		⊘							W2S7-5.0
10																	

**Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL *Individual:* Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Turn-around times for samples received after 4:00pm will begin on the following business day.

Sample Disposal: ☐ Return to Client ☒ Disposal by Lab (Samples will be held for 30 days unless otherwise noted. A fee may be assessed if samples are retained after 30 days.)

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above, that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x Sydney Bronson	11/15/16 1540	x	11/15/16 1540
Relinquished	Date/Time	Received	Date/Time
x		x	

Special Remarks:
⊘ Add Next Day 12/9/16 cg

TAT → SameDay^ NextDay^ 2 Day 3 Day STD
^Please coordinate with the lab in advance

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

GeoEngineers
Chris Brown
600 Stewart Street, Suite 1700
Seattle, WA 98101

RE: Rufus Block 20
Work Order Number: 1611216

November 22, 2016

Attention Chris Brown:

Fremont Analytical, Inc. received 16 sample(s) on 11/21/2016 for the analyses presented in the following report.

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.
Gasoline by NWTPH-Gx
Mercury by EPA Method 7471
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)
Sample Moisture (Percent Moisture)
Total Metals by EPA Method 6020
Volatile Organic Compounds by EPA Method 8260C

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Mike Ridgeway
Laboratory Director

Date: *11/22/2016*

CLIENT: GeoEngineers
Project: Rufus Block 20
Work Order: 1611216

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1611216-001	TP-W3S5-5.0	11/21/2016 11:40 AM	11/21/2016 1:20 PM
1611216-002	TP-W4S20-5.0	11/21/2016 11:30 AM	11/21/2016 1:20 PM
1611216-003	TP-W4S35-2.5	11/21/2016 9:20 AM	11/21/2016 1:20 PM
1611216-004	TP-W4S35-5.0	11/21/2016 9:25 AM	11/21/2016 1:20 PM
1611216-005	TP-W4S35-7.5	11/21/2016 9:30 AM	11/21/2016 1:20 PM
1611216-006	TP-W4S35-10.0	11/21/2016 9:35 AM	11/21/2016 1:20 PM
1611216-007	TP-W4S35-12.5	11/21/2016 9:40 AM	11/21/2016 1:20 PM
1611216-008	TP-W4S35-15.0	11/21/2016 9:45 AM	11/21/2016 1:20 PM
1611216-009	TP-W14S9-2.5	11/21/2016 10:10 AM	11/21/2016 1:20 PM
1611216-010	TP-W14S9-5.0	11/21/2016 10:15 AM	11/21/2016 1:20 PM
1611216-011	TP-W14S9-7.5	11/21/2016 10:20 AM	11/21/2016 1:20 PM
1611216-012	TP-W14S36-2.5	11/21/2016 8:20 AM	11/21/2016 1:20 PM
1611216-013	TP-W14S36-5.0	11/21/2016 8:25 AM	11/21/2016 1:20 PM
1611216-014	TP-W14S36-7.5	11/21/2016 8:30 AM	11/21/2016 1:20 PM
1611216-015	TP-W14S36-10.0	11/21/2016 8:35 AM	11/21/2016 1:20 PM
1611216-016	TP-W14S36-12.5	11/21/2016 8:40 AM	11/21/2016 1:20 PM

Case Narrative

WO#: **1611216**
Date: **11/22/2016**

CLIENT: GeoEngineers
Project: Rufus Block 20

I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Analytical Report

Work Order: **1611216**
Date Reported: **11/22/2016**

Client: GeoEngineers
Collection Date: 11/21/2016 11:40:00 AM
Project: Rufus Block 20
Lab ID: 1611216-001
Matrix: Soil
Client Sample ID: **TP-W3S5-5.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 15507		Analyst: WC
Diesel (Fuel Oil)	ND	21.2		mg/Kg-dry	1	11/21/2016 7:44:00 PM
Heavy Oil	ND	52.9		mg/Kg-dry	1	11/21/2016 7:44:00 PM
Surr: 2-Fluorobiphenyl	75.4	50-150		%Rec	1	11/21/2016 7:44:00 PM
Surr: o-Terphenyl	79.5	50-150		%Rec	1	11/21/2016 7:44:00 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 15505		Analyst: BT
Naphthalene	ND	44.0		µg/Kg-dry	1	11/22/2016 1:29:30 AM
2-Methylnaphthalene	ND	44.0		µg/Kg-dry	1	11/22/2016 1:29:30 AM
1-Methylnaphthalene	ND	44.0		µg/Kg-dry	1	11/22/2016 1:29:30 AM
Acenaphthylene	ND	44.0		µg/Kg-dry	1	11/22/2016 1:29:30 AM
Acenaphthene	ND	44.0		µg/Kg-dry	1	11/22/2016 1:29:30 AM
Fluorene	ND	44.0		µg/Kg-dry	1	11/22/2016 1:29:30 AM
Phenanthrene	ND	44.0		µg/Kg-dry	1	11/22/2016 1:29:30 AM
Anthracene	ND	44.0		µg/Kg-dry	1	11/22/2016 1:29:30 AM
Fluoranthene	78.6	44.0		µg/Kg-dry	1	11/22/2016 1:29:30 AM
Pyrene	85.3	44.0		µg/Kg-dry	1	11/22/2016 1:29:30 AM
Benz(a)anthracene	65.0	44.0		µg/Kg-dry	1	11/22/2016 1:29:30 AM
Chrysene	52.9	44.0		µg/Kg-dry	1	11/22/2016 1:29:30 AM
Benzo(b)fluoranthene	92.7	44.0		µg/Kg-dry	1	11/22/2016 1:29:30 AM
Benzo(k)fluoranthene	ND	44.0		µg/Kg-dry	1	11/22/2016 1:29:30 AM
Benzo(a)pyrene	86.4	44.0	Q+	µg/Kg-dry	1	11/22/2016 1:29:30 AM
Indeno(1,2,3-cd)pyrene	ND	44.0		µg/Kg-dry	1	11/22/2016 1:29:30 AM
Dibenz(a,h)anthracene	ND	44.0		µg/Kg-dry	1	11/22/2016 1:29:30 AM
Benzo(g,h,i)perylene	ND	44.0		µg/Kg-dry	1	11/22/2016 1:29:30 AM
Surr: 2-Fluorobiphenyl	87.2	24.5-139		%Rec	1	11/22/2016 1:29:30 AM
Surr: Terphenyl-d14 (surr)	95.7	44.3-176		%Rec	1	11/22/2016 1:29:30 AM

NOTES:
Q+ - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF) - high bias

Gasoline by NWTPH-Gx				Batch ID: 15503		Analyst: EM
Gasoline	ND	5.57		mg/Kg-dry	1	11/22/2016 7:02:00 AM
Surr: Toluene-d8	103	65-135		%Rec	1	11/22/2016 7:02:00 AM
Surr: 4-Bromofluorobenzene	80.1	65-135		%Rec	1	11/22/2016 7:02:00 AM

Client: GeoEngineers
Collection Date: 11/21/2016 11:40:00 AM
Project: Rufus Block 20
Lab ID: 1611216-001
Matrix: Soil
Client Sample ID: **TP-W3S5-5.0**

Volatile Organic Compounds by EPA Method 8260C

Batch ID: 15503 Analyst: EM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane (CFC-12)	ND	0.0668		mg/Kg-dry	1	11/22/2016 7:02:00 AM
Chloromethane	ND	0.0668		mg/Kg-dry	1	11/22/2016 7:02:00 AM
Vinyl chloride	ND	0.00223		mg/Kg-dry	1	11/22/2016 7:02:00 AM
Bromomethane	ND	0.100		mg/Kg-dry	1	11/22/2016 7:02:00 AM
Trichlorofluoromethane (CFC-11)	ND	0.0557	Q	mg/Kg-dry	1	11/22/2016 7:02:00 AM
Chloroethane	ND	0.0668	Q	mg/Kg-dry	1	11/22/2016 7:02:00 AM
1,1-Dichloroethene	ND	0.0557	Q	mg/Kg-dry	1	11/22/2016 7:02:00 AM
Methylene chloride	ND	0.0223		mg/Kg-dry	1	11/22/2016 7:02:00 AM
trans-1,2-Dichloroethene	ND	0.0223		mg/Kg-dry	1	11/22/2016 7:02:00 AM
Methyl tert-butyl ether (MTBE)	ND	0.0557		mg/Kg-dry	1	11/22/2016 7:02:00 AM
1,1-Dichloroethane	ND	0.0223		mg/Kg-dry	1	11/22/2016 7:02:00 AM
2,2-Dichloropropane	ND	0.0557		mg/Kg-dry	1	11/22/2016 7:02:00 AM
cis-1,2-Dichloroethene	ND	0.0223		mg/Kg-dry	1	11/22/2016 7:02:00 AM
Chloroform	ND	0.0223		mg/Kg-dry	1	11/22/2016 7:02:00 AM
1,1,1-Trichloroethane (TCA)	ND	0.0223		mg/Kg-dry	1	11/22/2016 7:02:00 AM
1,1-Dichloropropene	ND	0.0223		mg/Kg-dry	1	11/22/2016 7:02:00 AM
Carbon tetrachloride	ND	0.0223		mg/Kg-dry	1	11/22/2016 7:02:00 AM
1,2-Dichloroethane (EDC)	ND	0.0334		mg/Kg-dry	1	11/22/2016 7:02:00 AM
Benzene	ND	0.0223		mg/Kg-dry	1	11/22/2016 7:02:00 AM
Trichloroethene (TCE)	ND	0.0223		mg/Kg-dry	1	11/22/2016 7:02:00 AM
1,2-Dichloropropane	ND	0.0223		mg/Kg-dry	1	11/22/2016 7:02:00 AM
Bromodichloromethane	ND	0.0223		mg/Kg-dry	1	11/22/2016 7:02:00 AM
Dibromomethane	ND	0.0445		mg/Kg-dry	1	11/22/2016 7:02:00 AM
cis-1,3-Dichloropropene	ND	0.0223		mg/Kg-dry	1	11/22/2016 7:02:00 AM
Toluene	ND	0.0223		mg/Kg-dry	1	11/22/2016 7:02:00 AM
trans-1,3-Dichloropropylene	ND	0.0334		mg/Kg-dry	1	11/22/2016 7:02:00 AM
1,1,2-Trichloroethane	ND	0.0334		mg/Kg-dry	1	11/22/2016 7:02:00 AM
1,3-Dichloropropane	ND	0.0557		mg/Kg-dry	1	11/22/2016 7:02:00 AM
Tetrachloroethene (PCE)	ND	0.0223		mg/Kg-dry	1	11/22/2016 7:02:00 AM
Dibromochloromethane	ND	0.0334		mg/Kg-dry	1	11/22/2016 7:02:00 AM
1,2-Dibromoethane (EDB)	ND	0.00557		mg/Kg-dry	1	11/22/2016 7:02:00 AM
Chlorobenzene	ND	0.0223		mg/Kg-dry	1	11/22/2016 7:02:00 AM
1,1,1,2-Tetrachloroethane	ND	0.0334		mg/Kg-dry	1	11/22/2016 7:02:00 AM
Ethylbenzene	ND	0.0334		mg/Kg-dry	1	11/22/2016 7:02:00 AM
m,p-Xylene	ND	0.0223		mg/Kg-dry	1	11/22/2016 7:02:00 AM
o-Xylene	ND	0.0223		mg/Kg-dry	1	11/22/2016 7:02:00 AM
Styrene	ND	0.0223		mg/Kg-dry	1	11/22/2016 7:02:00 AM
Isopropylbenzene	ND	0.0891		mg/Kg-dry	1	11/22/2016 7:02:00 AM
Bromoform	ND	0.0223		mg/Kg-dry	1	11/22/2016 7:02:00 AM

Analytical Report

Work Order: **1611216**
Date Reported: **11/22/2016**

Client: GeoEngineers
Collection Date: 11/21/2016 11:40:00 AM
Project: Rufus Block 20
Lab ID: 1611216-001
Matrix: Soil
Client Sample ID: **TP-W3S5-5.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15503		Analyst: EM
1,1,2,2-Tetrachloroethane	ND	0.0223		mg/Kg-dry	1	11/22/2016 7:02:00 AM
n-Propylbenzene	ND	0.0223		mg/Kg-dry	1	11/22/2016 7:02:00 AM
Bromobenzene	ND	0.0334		mg/Kg-dry	1	11/22/2016 7:02:00 AM
1,3,5-Trimethylbenzene	ND	0.0223		mg/Kg-dry	1	11/22/2016 7:02:00 AM
2-Chlorotoluene	ND	0.0223		mg/Kg-dry	1	11/22/2016 7:02:00 AM
4-Chlorotoluene	ND	0.0223		mg/Kg-dry	1	11/22/2016 7:02:00 AM
tert-Butylbenzene	ND	0.0223		mg/Kg-dry	1	11/22/2016 7:02:00 AM
1,2,3-Trichloropropane	ND	0.0223		mg/Kg-dry	1	11/22/2016 7:02:00 AM
1,2,4-Trichlorobenzene	ND	0.0557		mg/Kg-dry	1	11/22/2016 7:02:00 AM
sec-Butylbenzene	ND	0.0223		mg/Kg-dry	1	11/22/2016 7:02:00 AM
4-Isopropyltoluene	ND	0.0223		mg/Kg-dry	1	11/22/2016 7:02:00 AM
1,3-Dichlorobenzene	ND	0.0223		mg/Kg-dry	1	11/22/2016 7:02:00 AM
1,4-Dichlorobenzene	ND	0.0223		mg/Kg-dry	1	11/22/2016 7:02:00 AM
n-Butylbenzene	ND	0.0223		mg/Kg-dry	1	11/22/2016 7:02:00 AM
1,2-Dichlorobenzene	ND	0.0223		mg/Kg-dry	1	11/22/2016 7:02:00 AM
1,2-Dibromo-3-chloropropane	ND	0.557		mg/Kg-dry	1	11/22/2016 7:02:00 AM
1,2,4-Trimethylbenzene	ND	0.0223		mg/Kg-dry	1	11/22/2016 7:02:00 AM
Hexachlorobutadiene	ND	0.111		mg/Kg-dry	1	11/22/2016 7:02:00 AM
Naphthalene	ND	0.0334		mg/Kg-dry	1	11/22/2016 7:02:00 AM
1,2,3-Trichlorobenzene	ND	0.0223		mg/Kg-dry	1	11/22/2016 7:02:00 AM
Surr: Dibromofluoromethane	87.1	56.5-129		%Rec	1	11/22/2016 7:02:00 AM
Surr: Toluene-d8	95.1	64.3-131		%Rec	1	11/22/2016 7:02:00 AM
Surr: 1-Bromo-4-fluorobenzene	95.1	63.1-141		%Rec	1	11/22/2016 7:02:00 AM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Mercury by EPA Method 7471				Batch ID: 15509		Analyst: WF
Mercury	ND	0.290		mg/Kg-dry	1	11/22/2016 5:21:29 PM
Total Metals by EPA Method 6020				Batch ID: 15512		Analyst: TN
Arsenic	6.47	0.0902		mg/Kg-dry	1	11/22/2016 3:43:45 PM
Barium	204	0.451		mg/Kg-dry	1	11/22/2016 3:43:45 PM
Cadmium	0.293	0.180		mg/Kg-dry	1	11/22/2016 3:43:45 PM
Chromium	55.1	0.0902		mg/Kg-dry	1	11/22/2016 3:43:45 PM
Lead	165	0.180		mg/Kg-dry	1	11/22/2016 3:43:45 PM
Selenium	1.41	0.451		mg/Kg-dry	1	11/22/2016 3:43:45 PM

Analytical Report

Work Order: **1611216**
Date Reported: **11/22/2016**

Client: GeoEngineers
Collection Date: 11/21/2016 11:40:00 AM
Project: Rufus Block 20
Lab ID: 1611216-001
Matrix: Soil
Client Sample ID: **TP-W3S5-5.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 15512		Analyst: TN
Silver	0.129	0.0902		mg/Kg-dry	1	11/22/2016 3:43:45 PM
Sample Moisture (Percent Moisture)				Batch ID: R33041		Analyst: BB
Percent Moisture	20.2			wt%	1	11/22/2016 8:58:04 AM

Client: GeoEngineers
Collection Date: 11/21/2016 11:30:00 AM
Project: Rufus Block 20
Lab ID: 1611216-002
Matrix: Soil
Client Sample ID: **TP-W4S20-5.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 15507		Analyst: WC
Diesel (Fuel Oil)	ND	23.2		mg/Kg-dry	1	11/21/2016 8:15:00 PM
Heavy Oil	ND	58.0		mg/Kg-dry	1	11/21/2016 8:15:00 PM
Surr: 2-Fluorobiphenyl	80.5	50-150		%Rec	1	11/21/2016 8:15:00 PM
Surr: o-Terphenyl	84.1	50-150		%Rec	1	11/21/2016 8:15:00 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 15505		Analyst: BT
Naphthalene	ND	41.7		µg/Kg-dry	1	11/22/2016 1:50:12 AM
2-Methylnaphthalene	ND	41.7		µg/Kg-dry	1	11/22/2016 1:50:12 AM
1-Methylnaphthalene	ND	41.7		µg/Kg-dry	1	11/22/2016 1:50:12 AM
Acenaphthylene	ND	41.7		µg/Kg-dry	1	11/22/2016 1:50:12 AM
Acenaphthene	ND	41.7		µg/Kg-dry	1	11/22/2016 1:50:12 AM
Fluorene	ND	41.7		µg/Kg-dry	1	11/22/2016 1:50:12 AM
Phenanthrene	ND	41.7		µg/Kg-dry	1	11/22/2016 1:50:12 AM
Anthracene	ND	41.7		µg/Kg-dry	1	11/22/2016 1:50:12 AM
Fluoranthene	ND	41.7		µg/Kg-dry	1	11/22/2016 1:50:12 AM
Pyrene	43.7	41.7		µg/Kg-dry	1	11/22/2016 1:50:12 AM
Benz(a)anthracene	ND	41.7		µg/Kg-dry	1	11/22/2016 1:50:12 AM
Chrysene	ND	41.7		µg/Kg-dry	1	11/22/2016 1:50:12 AM
Benzo(b)fluoranthene	ND	41.7		µg/Kg-dry	1	11/22/2016 1:50:12 AM
Benzo(k)fluoranthene	ND	41.7		µg/Kg-dry	1	11/22/2016 1:50:12 AM
Benzo(a)pyrene	ND	41.7		µg/Kg-dry	1	11/22/2016 1:50:12 AM
Indeno(1,2,3-cd)pyrene	ND	41.7		µg/Kg-dry	1	11/22/2016 1:50:12 AM
Dibenz(a,h)anthracene	ND	41.7		µg/Kg-dry	1	11/22/2016 1:50:12 AM
Benzo(g,h,i)perylene	ND	41.7		µg/Kg-dry	1	11/22/2016 1:50:12 AM
Surr: 2-Fluorobiphenyl	80.4	24.5-139		%Rec	1	11/22/2016 1:50:12 AM
Surr: Terphenyl-d14 (surr)	89.7	44.3-176		%Rec	1	11/22/2016 1:50:12 AM
Gasoline by NWTPH-Gx				Batch ID: 15503		Analyst: EM
Gasoline	ND	5.09		mg/Kg-dry	1	11/22/2016 7:31:00 AM
Surr: Toluene-d8	99.0	65-135		%Rec	1	11/22/2016 7:31:00 AM
Surr: 4-Bromofluorobenzene	90.2	65-135		%Rec	1	11/22/2016 7:31:00 AM
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15503		Analyst: EM
Dichlorodifluoromethane (CFC-12)	ND	0.0610		mg/Kg-dry	1	11/22/2016 7:31:00 AM
Chloromethane	ND	0.0610		mg/Kg-dry	1	11/22/2016 7:31:00 AM
Vinyl chloride	ND	0.00203		mg/Kg-dry	1	11/22/2016 7:31:00 AM

Client: GeoEngineers
Collection Date: 11/21/2016 11:30:00 AM
Project: Rufus Block 20
Lab ID: 1611216-002
Matrix: Soil
Client Sample ID: **TP-W4S20-5.0**

Volatile Organic Compounds by EPA Method 8260C

Batch ID: 15503 Analyst: EM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Bromomethane	ND	0.0915		mg/Kg-dry	1	11/22/2016 7:31:00 AM
Trichlorofluoromethane (CFC-11)	ND	0.0509	Q	mg/Kg-dry	1	11/22/2016 7:31:00 AM
Chloroethane	ND	0.0610	Q	mg/Kg-dry	1	11/22/2016 7:31:00 AM
1,1-Dichloroethene	ND	0.0509	Q	mg/Kg-dry	1	11/22/2016 7:31:00 AM
Methylene chloride	ND	0.0203		mg/Kg-dry	1	11/22/2016 7:31:00 AM
trans-1,2-Dichloroethene	ND	0.0203		mg/Kg-dry	1	11/22/2016 7:31:00 AM
Methyl tert-butyl ether (MTBE)	ND	0.0509		mg/Kg-dry	1	11/22/2016 7:31:00 AM
1,1-Dichloroethane	ND	0.0203		mg/Kg-dry	1	11/22/2016 7:31:00 AM
2,2-Dichloropropane	ND	0.0509		mg/Kg-dry	1	11/22/2016 7:31:00 AM
cis-1,2-Dichloroethene	ND	0.0203		mg/Kg-dry	1	11/22/2016 7:31:00 AM
Chloroform	ND	0.0203		mg/Kg-dry	1	11/22/2016 7:31:00 AM
1,1,1-Trichloroethane (TCA)	ND	0.0203		mg/Kg-dry	1	11/22/2016 7:31:00 AM
1,1-Dichloropropene	ND	0.0203		mg/Kg-dry	1	11/22/2016 7:31:00 AM
Carbon tetrachloride	ND	0.0203		mg/Kg-dry	1	11/22/2016 7:31:00 AM
1,2-Dichloroethane (EDC)	ND	0.0305		mg/Kg-dry	1	11/22/2016 7:31:00 AM
Benzene	ND	0.0203		mg/Kg-dry	1	11/22/2016 7:31:00 AM
Trichloroethene (TCE)	ND	0.0203		mg/Kg-dry	1	11/22/2016 7:31:00 AM
1,2-Dichloropropane	ND	0.0203		mg/Kg-dry	1	11/22/2016 7:31:00 AM
Bromodichloromethane	ND	0.0203		mg/Kg-dry	1	11/22/2016 7:31:00 AM
Dibromomethane	ND	0.0407		mg/Kg-dry	1	11/22/2016 7:31:00 AM
cis-1,3-Dichloropropene	ND	0.0203		mg/Kg-dry	1	11/22/2016 7:31:00 AM
Toluene	ND	0.0203		mg/Kg-dry	1	11/22/2016 7:31:00 AM
trans-1,3-Dichloropropylene	ND	0.0305		mg/Kg-dry	1	11/22/2016 7:31:00 AM
1,1,2-Trichloroethane	ND	0.0305		mg/Kg-dry	1	11/22/2016 7:31:00 AM
1,3-Dichloropropane	ND	0.0509		mg/Kg-dry	1	11/22/2016 7:31:00 AM
Tetrachloroethene (PCE)	ND	0.0203		mg/Kg-dry	1	11/22/2016 7:31:00 AM
Dibromochloromethane	ND	0.0305		mg/Kg-dry	1	11/22/2016 7:31:00 AM
1,2-Dibromoethane (EDB)	ND	0.00509		mg/Kg-dry	1	11/22/2016 7:31:00 AM
Chlorobenzene	ND	0.0203		mg/Kg-dry	1	11/22/2016 7:31:00 AM
1,1,1,2-Tetrachloroethane	ND	0.0305		mg/Kg-dry	1	11/22/2016 7:31:00 AM
Ethylbenzene	ND	0.0305		mg/Kg-dry	1	11/22/2016 7:31:00 AM
m,p-Xylene	ND	0.0203		mg/Kg-dry	1	11/22/2016 7:31:00 AM
o-Xylene	ND	0.0203		mg/Kg-dry	1	11/22/2016 7:31:00 AM
Styrene	ND	0.0203		mg/Kg-dry	1	11/22/2016 7:31:00 AM
Isopropylbenzene	ND	0.0814		mg/Kg-dry	1	11/22/2016 7:31:00 AM
Bromoform	ND	0.0203		mg/Kg-dry	1	11/22/2016 7:31:00 AM
1,1,2,2-Tetrachloroethane	ND	0.0203		mg/Kg-dry	1	11/22/2016 7:31:00 AM
n-Propylbenzene	ND	0.0203		mg/Kg-dry	1	11/22/2016 7:31:00 AM
Bromobenzene	ND	0.0305		mg/Kg-dry	1	11/22/2016 7:31:00 AM

Client: GeoEngineers
Collection Date: 11/21/2016 11:30:00 AM
Project: Rufus Block 20
Lab ID: 1611216-002
Matrix: Soil
Client Sample ID: **TP-W4S20-5.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15503		Analyst: EM
1,3,5-Trimethylbenzene	ND	0.0203		mg/Kg-dry	1	11/22/2016 7:31:00 AM
2-Chlorotoluene	ND	0.0203		mg/Kg-dry	1	11/22/2016 7:31:00 AM
4-Chlorotoluene	ND	0.0203		mg/Kg-dry	1	11/22/2016 7:31:00 AM
tert-Butylbenzene	ND	0.0203		mg/Kg-dry	1	11/22/2016 7:31:00 AM
1,2,3-Trichloropropane	ND	0.0203		mg/Kg-dry	1	11/22/2016 7:31:00 AM
1,2,4-Trichlorobenzene	ND	0.0509		mg/Kg-dry	1	11/22/2016 7:31:00 AM
sec-Butylbenzene	ND	0.0203		mg/Kg-dry	1	11/22/2016 7:31:00 AM
4-Isopropyltoluene	ND	0.0203		mg/Kg-dry	1	11/22/2016 7:31:00 AM
1,3-Dichlorobenzene	ND	0.0203		mg/Kg-dry	1	11/22/2016 7:31:00 AM
1,4-Dichlorobenzene	ND	0.0203		mg/Kg-dry	1	11/22/2016 7:31:00 AM
n-Butylbenzene	ND	0.0203		mg/Kg-dry	1	11/22/2016 7:31:00 AM
1,2-Dichlorobenzene	ND	0.0203		mg/Kg-dry	1	11/22/2016 7:31:00 AM
1,2-Dibromo-3-chloropropane	ND	0.509		mg/Kg-dry	1	11/22/2016 7:31:00 AM
1,2,4-Trimethylbenzene	ND	0.0203		mg/Kg-dry	1	11/22/2016 7:31:00 AM
Hexachlorobutadiene	ND	0.102		mg/Kg-dry	1	11/22/2016 7:31:00 AM
Naphthalene	ND	0.0305		mg/Kg-dry	1	11/22/2016 7:31:00 AM
1,2,3-Trichlorobenzene	ND	0.0203		mg/Kg-dry	1	11/22/2016 7:31:00 AM
Surr: Dibromofluoromethane	91.1	56.5-129		%Rec	1	11/22/2016 7:31:00 AM
Surr: Toluene-d8	114	64.3-131		%Rec	1	11/22/2016 7:31:00 AM
Surr: 1-Bromo-4-fluorobenzene	107	63.1-141		%Rec	1	11/22/2016 7:31:00 AM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Mercury by EPA Method 7471				Batch ID: 15509		Analyst: WF
Mercury	ND	0.298		mg/Kg-dry	1	11/22/2016 5:27:58 PM
Total Metals by EPA Method 6020				Batch ID: 15512		Analyst: TN
Arsenic	6.03	0.0911		mg/Kg-dry	1	11/22/2016 3:47:17 PM
Barium	111	0.456		mg/Kg-dry	1	11/22/2016 3:47:17 PM
Cadmium	0.317	0.182		mg/Kg-dry	1	11/22/2016 3:47:17 PM
Chromium	43.4	0.0911		mg/Kg-dry	1	11/22/2016 3:47:17 PM
Lead	89.0	0.182		mg/Kg-dry	1	11/22/2016 3:47:17 PM
Selenium	1.38	0.456		mg/Kg-dry	1	11/22/2016 3:47:17 PM
Silver	ND	0.0911		mg/Kg-dry	1	11/22/2016 3:47:17 PM

Analytical Report

Work Order: **1611216**
Date Reported: **11/22/2016**

Client: GeoEngineers
Collection Date: 11/21/2016 11:30:00 AM
Project: Rufus Block 20
Lab ID: 1611216-002
Matrix: Soil
Client Sample ID: **TP-W4S20-5.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R33041		Analyst: BB
Percent Moisture	16.2			wt%	1	11/22/2016 8:58:04 AM

Client: GeoEngineers
Project: Rufus Block 20
Lab ID: 1611216-006
Client Sample ID: **TP-W4S35-10.0**

Collection Date: 11/21/2016 9:35:00 AM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 15507		Analyst: WC
Diesel (Fuel Oil)	ND	20.9		mg/Kg-dry	1	11/21/2016 8:47:00 PM
Heavy Oil	ND	52.4		mg/Kg-dry	1	11/21/2016 8:47:00 PM
Surr: 2-Fluorobiphenyl	85.7	50-150		%Rec	1	11/21/2016 8:47:00 PM
Surr: o-Terphenyl	87.4	50-150		%Rec	1	11/21/2016 8:47:00 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 15505		Analyst: BT
Naphthalene	ND	38.8		µg/Kg-dry	1	11/22/2016 2:10:56 AM
2-Methylnaphthalene	ND	38.8		µg/Kg-dry	1	11/22/2016 2:10:56 AM
1-Methylnaphthalene	ND	38.8		µg/Kg-dry	1	11/22/2016 2:10:56 AM
Acenaphthylene	ND	38.8		µg/Kg-dry	1	11/22/2016 2:10:56 AM
Acenaphthene	ND	38.8		µg/Kg-dry	1	11/22/2016 2:10:56 AM
Fluorene	ND	38.8		µg/Kg-dry	1	11/22/2016 2:10:56 AM
Phenanthrene	ND	38.8		µg/Kg-dry	1	11/22/2016 2:10:56 AM
Anthracene	ND	38.8		µg/Kg-dry	1	11/22/2016 2:10:56 AM
Fluoranthene	ND	38.8		µg/Kg-dry	1	11/22/2016 2:10:56 AM
Pyrene	ND	38.8		µg/Kg-dry	1	11/22/2016 2:10:56 AM
Benz(a)anthracene	ND	38.8		µg/Kg-dry	1	11/22/2016 2:10:56 AM
Chrysene	ND	38.8		µg/Kg-dry	1	11/22/2016 2:10:56 AM
Benzo(b)fluoranthene	ND	38.8		µg/Kg-dry	1	11/22/2016 2:10:56 AM
Benzo(k)fluoranthene	ND	38.8		µg/Kg-dry	1	11/22/2016 2:10:56 AM
Benzo(a)pyrene	ND	38.8		µg/Kg-dry	1	11/22/2016 2:10:56 AM
Indeno(1,2,3-cd)pyrene	ND	38.8		µg/Kg-dry	1	11/22/2016 2:10:56 AM
Dibenz(a,h)anthracene	ND	38.8		µg/Kg-dry	1	11/22/2016 2:10:56 AM
Benzo(g,h,i)perylene	ND	38.8		µg/Kg-dry	1	11/22/2016 2:10:56 AM
Surr: 2-Fluorobiphenyl	74.7	24.5-139		%Rec	1	11/22/2016 2:10:56 AM
Surr: Terphenyl-d14 (surr)	81.4	44.3-176		%Rec	1	11/22/2016 2:10:56 AM
Gasoline by NWTPH-Gx				Batch ID: 15503		Analyst: EM
Gasoline	ND	4.70		mg/Kg-dry	1	11/22/2016 7:59:00 AM
Surr: Toluene-d8	98.2	65-135		%Rec	1	11/22/2016 7:59:00 AM
Surr: 4-Bromofluorobenzene	88.2	65-135		%Rec	1	11/22/2016 7:59:00 AM
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15503		Analyst: EM
Dichlorodifluoromethane (CFC-12)	ND	0.0564		mg/Kg-dry	1	11/22/2016 7:59:00 AM
Chloromethane	ND	0.0564		mg/Kg-dry	1	11/22/2016 7:59:00 AM
Vinyl chloride	ND	0.00188		mg/Kg-dry	1	11/22/2016 7:59:00 AM

Client: GeoEngineers
Collection Date: 11/21/2016 9:35:00 AM
Project: Rufus Block 20
Lab ID: 1611216-006
Matrix: Soil
Client Sample ID: **TP-W4S35-10.0**

Volatile Organic Compounds by EPA Method 8260C

Batch ID: 15503 Analyst: EM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Bromomethane	ND	0.0846		mg/Kg-dry	1	11/22/2016 7:59:00 AM
Trichlorofluoromethane (CFC-11)	ND	0.0470	Q	mg/Kg-dry	1	11/22/2016 7:59:00 AM
Chloroethane	ND	0.0564	Q	mg/Kg-dry	1	11/22/2016 7:59:00 AM
1,1-Dichloroethene	ND	0.0470	Q	mg/Kg-dry	1	11/22/2016 7:59:00 AM
Methylene chloride	ND	0.0188		mg/Kg-dry	1	11/22/2016 7:59:00 AM
trans-1,2-Dichloroethene	ND	0.0188		mg/Kg-dry	1	11/22/2016 7:59:00 AM
Methyl tert-butyl ether (MTBE)	ND	0.0470		mg/Kg-dry	1	11/22/2016 7:59:00 AM
1,1-Dichloroethane	ND	0.0188		mg/Kg-dry	1	11/22/2016 7:59:00 AM
2,2-Dichloropropane	ND	0.0470		mg/Kg-dry	1	11/22/2016 7:59:00 AM
cis-1,2-Dichloroethene	ND	0.0188		mg/Kg-dry	1	11/22/2016 7:59:00 AM
Chloroform	ND	0.0188		mg/Kg-dry	1	11/22/2016 7:59:00 AM
1,1,1-Trichloroethane (TCA)	ND	0.0188		mg/Kg-dry	1	11/22/2016 7:59:00 AM
1,1-Dichloropropene	ND	0.0188		mg/Kg-dry	1	11/22/2016 7:59:00 AM
Carbon tetrachloride	ND	0.0188		mg/Kg-dry	1	11/22/2016 7:59:00 AM
1,2-Dichloroethane (EDC)	ND	0.0282		mg/Kg-dry	1	11/22/2016 7:59:00 AM
Benzene	ND	0.0188		mg/Kg-dry	1	11/22/2016 7:59:00 AM
Trichloroethene (TCE)	ND	0.0188		mg/Kg-dry	1	11/22/2016 7:59:00 AM
1,2-Dichloropropane	ND	0.0188		mg/Kg-dry	1	11/22/2016 7:59:00 AM
Bromodichloromethane	ND	0.0188		mg/Kg-dry	1	11/22/2016 7:59:00 AM
Dibromomethane	ND	0.0376		mg/Kg-dry	1	11/22/2016 7:59:00 AM
cis-1,3-Dichloropropene	ND	0.0188		mg/Kg-dry	1	11/22/2016 7:59:00 AM
Toluene	ND	0.0188		mg/Kg-dry	1	11/22/2016 7:59:00 AM
trans-1,3-Dichloropropylene	ND	0.0282		mg/Kg-dry	1	11/22/2016 7:59:00 AM
1,1,2-Trichloroethane	ND	0.0282		mg/Kg-dry	1	11/22/2016 7:59:00 AM
1,3-Dichloropropane	ND	0.0470		mg/Kg-dry	1	11/22/2016 7:59:00 AM
Tetrachloroethene (PCE)	ND	0.0188		mg/Kg-dry	1	11/22/2016 7:59:00 AM
Dibromochloromethane	ND	0.0282		mg/Kg-dry	1	11/22/2016 7:59:00 AM
1,2-Dibromoethane (EDB)	ND	0.00470		mg/Kg-dry	1	11/22/2016 7:59:00 AM
Chlorobenzene	ND	0.0188		mg/Kg-dry	1	11/22/2016 7:59:00 AM
1,1,1,2-Tetrachloroethane	ND	0.0282		mg/Kg-dry	1	11/22/2016 7:59:00 AM
Ethylbenzene	ND	0.0282		mg/Kg-dry	1	11/22/2016 7:59:00 AM
m,p-Xylene	ND	0.0188		mg/Kg-dry	1	11/22/2016 7:59:00 AM
o-Xylene	ND	0.0188		mg/Kg-dry	1	11/22/2016 7:59:00 AM
Styrene	ND	0.0188		mg/Kg-dry	1	11/22/2016 7:59:00 AM
Isopropylbenzene	ND	0.0752		mg/Kg-dry	1	11/22/2016 7:59:00 AM
Bromoform	ND	0.0188		mg/Kg-dry	1	11/22/2016 7:59:00 AM
1,1,2,2-Tetrachloroethane	ND	0.0188		mg/Kg-dry	1	11/22/2016 7:59:00 AM
n-Propylbenzene	ND	0.0188		mg/Kg-dry	1	11/22/2016 7:59:00 AM
Bromobenzene	ND	0.0282		mg/Kg-dry	1	11/22/2016 7:59:00 AM

Client: GeoEngineers
Collection Date: 11/21/2016 9:35:00 AM
Project: Rufus Block 20
Lab ID: 1611216-006
Matrix: Soil
Client Sample ID: **TP-W4S35-10.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15503		Analyst: EM
1,3,5-Trimethylbenzene	ND	0.0188		mg/Kg-dry	1	11/22/2016 7:59:00 AM
2-Chlorotoluene	ND	0.0188		mg/Kg-dry	1	11/22/2016 7:59:00 AM
4-Chlorotoluene	ND	0.0188		mg/Kg-dry	1	11/22/2016 7:59:00 AM
tert-Butylbenzene	ND	0.0188		mg/Kg-dry	1	11/22/2016 7:59:00 AM
1,2,3-Trichloropropane	ND	0.0188		mg/Kg-dry	1	11/22/2016 7:59:00 AM
1,2,4-Trichlorobenzene	ND	0.0470		mg/Kg-dry	1	11/22/2016 7:59:00 AM
sec-Butylbenzene	ND	0.0188		mg/Kg-dry	1	11/22/2016 7:59:00 AM
4-Isopropyltoluene	ND	0.0188		mg/Kg-dry	1	11/22/2016 7:59:00 AM
1,3-Dichlorobenzene	ND	0.0188		mg/Kg-dry	1	11/22/2016 7:59:00 AM
1,4-Dichlorobenzene	ND	0.0188		mg/Kg-dry	1	11/22/2016 7:59:00 AM
n-Butylbenzene	ND	0.0188		mg/Kg-dry	1	11/22/2016 7:59:00 AM
1,2-Dichlorobenzene	ND	0.0188		mg/Kg-dry	1	11/22/2016 7:59:00 AM
1,2-Dibromo-3-chloropropane	ND	0.470		mg/Kg-dry	1	11/22/2016 7:59:00 AM
1,2,4-Trimethylbenzene	ND	0.0188		mg/Kg-dry	1	11/22/2016 7:59:00 AM
Hexachlorobutadiene	ND	0.0940		mg/Kg-dry	1	11/22/2016 7:59:00 AM
Naphthalene	ND	0.0282		mg/Kg-dry	1	11/22/2016 7:59:00 AM
1,2,3-Trichlorobenzene	ND	0.0188		mg/Kg-dry	1	11/22/2016 7:59:00 AM
Surr: Dibromofluoromethane	92.4	56.5-129		%Rec	1	11/22/2016 7:59:00 AM
Surr: Toluene-d8	99.1	64.3-131		%Rec	1	11/22/2016 7:59:00 AM
Surr: 1-Bromo-4-fluorobenzene	105	63.1-141		%Rec	1	11/22/2016 7:59:00 AM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Mercury by EPA Method 7471				Batch ID: 15509		Analyst: WF
Mercury	ND	0.280		mg/Kg-dry	1	11/22/2016 5:29:33 PM
Total Metals by EPA Method 6020				Batch ID: 15512		Analyst: TN
Arsenic	2.49	0.0860		mg/Kg-dry	1	11/22/2016 3:50:49 PM
Barium	49.7	0.430		mg/Kg-dry	1	11/22/2016 3:50:49 PM
Cadmium	ND	0.172		mg/Kg-dry	1	11/22/2016 3:50:49 PM
Chromium	24.1	0.0860		mg/Kg-dry	1	11/22/2016 3:50:49 PM
Lead	6.93	0.172		mg/Kg-dry	1	11/22/2016 3:50:49 PM
Selenium	1.10	0.430		mg/Kg-dry	1	11/22/2016 3:50:49 PM
Silver	ND	0.0860		mg/Kg-dry	1	11/22/2016 3:50:49 PM

Analytical Report

Work Order: **1611216**
Date Reported: **11/22/2016**

Client: GeoEngineers
Collection Date: 11/21/2016 9:35:00 AM
Project: Rufus Block 20
Lab ID: 1611216-006
Matrix: Soil
Client Sample ID: **TP-W4S35-10.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R33041		Analyst: BB
Percent Moisture	12.6			wt%	1	11/22/2016 8:58:04 AM

Analytical Report

Work Order: **1611216**
Date Reported: **11/22/2016**

Client: GeoEngineers
Collection Date: 11/21/2016 10:15:00 AM
Project: Rufus Block 20
Lab ID: 1611216-010
Matrix: Soil
Client Sample ID: **TP-W14S9-5.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 15507		Analyst: WC
Diesel (Fuel Oil)	ND	27.1		mg/Kg-dry	1	11/21/2016 9:18:00 PM
Heavy Oil	ND	67.7		mg/Kg-dry	1	11/21/2016 9:18:00 PM
Surr: 2-Fluorobiphenyl	92.9	50-150		%Rec	1	11/21/2016 9:18:00 PM
Surr: o-Terphenyl	93.5	50-150		%Rec	1	11/21/2016 9:18:00 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 15505		Analyst: BT
Naphthalene	ND	49.8		µg/Kg-dry	1	11/22/2016 2:31:39 AM
2-Methylnaphthalene	ND	49.8		µg/Kg-dry	1	11/22/2016 2:31:39 AM
1-Methylnaphthalene	ND	49.8		µg/Kg-dry	1	11/22/2016 2:31:39 AM
Acenaphthylene	ND	49.8		µg/Kg-dry	1	11/22/2016 2:31:39 AM
Acenaphthene	ND	49.8		µg/Kg-dry	1	11/22/2016 2:31:39 AM
Fluorene	ND	49.8		µg/Kg-dry	1	11/22/2016 2:31:39 AM
Phenanthrene	83.4	49.8		µg/Kg-dry	1	11/22/2016 2:31:39 AM
Anthracene	ND	49.8		µg/Kg-dry	1	11/22/2016 2:31:39 AM
Fluoranthene	120	49.8		µg/Kg-dry	1	11/22/2016 2:31:39 AM
Pyrene	113	49.8		µg/Kg-dry	1	11/22/2016 2:31:39 AM
Benz(a)anthracene	93.6	49.8		µg/Kg-dry	1	11/22/2016 2:31:39 AM
Chrysene	85.5	49.8		µg/Kg-dry	1	11/22/2016 2:31:39 AM
Benzo(b)fluoranthene	127	49.8		µg/Kg-dry	1	11/22/2016 2:31:39 AM
Benzo(k)fluoranthene	ND	49.8		µg/Kg-dry	1	11/22/2016 2:31:39 AM
Benzo(a)pyrene	98.2	49.8	Q+	µg/Kg-dry	1	11/22/2016 2:31:39 AM
Indeno(1,2,3-cd)pyrene	ND	49.8		µg/Kg-dry	1	11/22/2016 2:31:39 AM
Dibenz(a,h)anthracene	ND	49.8		µg/Kg-dry	1	11/22/2016 2:31:39 AM
Benzo(g,h,i)perylene	ND	49.8		µg/Kg-dry	1	11/22/2016 2:31:39 AM
Surr: 2-Fluorobiphenyl	57.2	24.5-139		%Rec	1	11/22/2016 2:31:39 AM
Surr: Terphenyl-d14 (surr)	65.3	44.3-176		%Rec	1	11/22/2016 2:31:39 AM

NOTES:
Q+ - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF) - high bias

Gasoline by NWTPH-Gx				Batch ID: 15503		Analyst: EM
Gasoline	ND	7.78		mg/Kg-dry	1	11/22/2016 8:27:00 AM
Surr: Toluene-d8	101	65-135		%Rec	1	11/22/2016 8:27:00 AM
Surr: 4-Bromofluorobenzene	86.1	65-135		%Rec	1	11/22/2016 8:27:00 AM

Client: GeoEngineers
Collection Date: 11/21/2016 10:15:00 AM
Project: Rufus Block 20
Lab ID: 1611216-010
Matrix: Soil
Client Sample ID: **TP-W14S9-5.0**

Volatile Organic Compounds by EPA Method 8260C

Batch ID: 15503 Analyst: EM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane (CFC-12)	ND	0.0933		mg/Kg-dry	1	11/22/2016 8:27:00 AM
Chloromethane	ND	0.0933		mg/Kg-dry	1	11/22/2016 8:27:00 AM
Vinyl chloride	ND	0.00311		mg/Kg-dry	1	11/22/2016 8:27:00 AM
Bromomethane	ND	0.140		mg/Kg-dry	1	11/22/2016 8:27:00 AM
Trichlorofluoromethane (CFC-11)	ND	0.0778	Q	mg/Kg-dry	1	11/22/2016 8:27:00 AM
Chloroethane	ND	0.0933	Q	mg/Kg-dry	1	11/22/2016 8:27:00 AM
1,1-Dichloroethene	ND	0.0778	Q	mg/Kg-dry	1	11/22/2016 8:27:00 AM
Methylene chloride	ND	0.0311		mg/Kg-dry	1	11/22/2016 8:27:00 AM
trans-1,2-Dichloroethene	ND	0.0311		mg/Kg-dry	1	11/22/2016 8:27:00 AM
Methyl tert-butyl ether (MTBE)	ND	0.0778		mg/Kg-dry	1	11/22/2016 8:27:00 AM
1,1-Dichloroethane	ND	0.0311		mg/Kg-dry	1	11/22/2016 8:27:00 AM
2,2-Dichloropropane	ND	0.0778		mg/Kg-dry	1	11/22/2016 8:27:00 AM
cis-1,2-Dichloroethene	ND	0.0311		mg/Kg-dry	1	11/22/2016 8:27:00 AM
Chloroform	ND	0.0311		mg/Kg-dry	1	11/22/2016 8:27:00 AM
1,1,1-Trichloroethane (TCA)	ND	0.0311		mg/Kg-dry	1	11/22/2016 8:27:00 AM
1,1-Dichloropropene	ND	0.0311		mg/Kg-dry	1	11/22/2016 8:27:00 AM
Carbon tetrachloride	ND	0.0311		mg/Kg-dry	1	11/22/2016 8:27:00 AM
1,2-Dichloroethane (EDC)	ND	0.0467		mg/Kg-dry	1	11/22/2016 8:27:00 AM
Benzene	ND	0.0311		mg/Kg-dry	1	11/22/2016 8:27:00 AM
Trichloroethene (TCE)	ND	0.0311		mg/Kg-dry	1	11/22/2016 8:27:00 AM
1,2-Dichloropropane	ND	0.0311		mg/Kg-dry	1	11/22/2016 8:27:00 AM
Bromodichloromethane	ND	0.0311		mg/Kg-dry	1	11/22/2016 8:27:00 AM
Dibromomethane	ND	0.0622		mg/Kg-dry	1	11/22/2016 8:27:00 AM
cis-1,3-Dichloropropene	ND	0.0311		mg/Kg-dry	1	11/22/2016 8:27:00 AM
Toluene	ND	0.0311		mg/Kg-dry	1	11/22/2016 8:27:00 AM
trans-1,3-Dichloropropylene	ND	0.0467		mg/Kg-dry	1	11/22/2016 8:27:00 AM
1,1,2-Trichloroethane	ND	0.0467		mg/Kg-dry	1	11/22/2016 8:27:00 AM
1,3-Dichloropropane	ND	0.0778		mg/Kg-dry	1	11/22/2016 8:27:00 AM
Tetrachloroethene (PCE)	ND	0.0311		mg/Kg-dry	1	11/22/2016 8:27:00 AM
Dibromochloromethane	ND	0.0467		mg/Kg-dry	1	11/22/2016 8:27:00 AM
1,2-Dibromoethane (EDB)	ND	0.00778		mg/Kg-dry	1	11/22/2016 8:27:00 AM
Chlorobenzene	ND	0.0311		mg/Kg-dry	1	11/22/2016 8:27:00 AM
1,1,1,2-Tetrachloroethane	ND	0.0467		mg/Kg-dry	1	11/22/2016 8:27:00 AM
Ethylbenzene	ND	0.0467		mg/Kg-dry	1	11/22/2016 8:27:00 AM
m,p-Xylene	ND	0.0311		mg/Kg-dry	1	11/22/2016 8:27:00 AM
o-Xylene	ND	0.0311		mg/Kg-dry	1	11/22/2016 8:27:00 AM
Styrene	ND	0.0311		mg/Kg-dry	1	11/22/2016 8:27:00 AM
Isopropylbenzene	ND	0.124		mg/Kg-dry	1	11/22/2016 8:27:00 AM
Bromoform	ND	0.0311		mg/Kg-dry	1	11/22/2016 8:27:00 AM

Client: GeoEngineers
Collection Date: 11/21/2016 10:15:00 AM
Project: Rufus Block 20
Lab ID: 1611216-010
Matrix: Soil
Client Sample ID: **TP-W14S9-5.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15503		Analyst: EM
1,1,2,2-Tetrachloroethane	ND	0.0311		mg/Kg-dry	1	11/22/2016 8:27:00 AM
n-Propylbenzene	ND	0.0311		mg/Kg-dry	1	11/22/2016 8:27:00 AM
Bromobenzene	ND	0.0467		mg/Kg-dry	1	11/22/2016 8:27:00 AM
1,3,5-Trimethylbenzene	ND	0.0311		mg/Kg-dry	1	11/22/2016 8:27:00 AM
2-Chlorotoluene	ND	0.0311		mg/Kg-dry	1	11/22/2016 8:27:00 AM
4-Chlorotoluene	ND	0.0311		mg/Kg-dry	1	11/22/2016 8:27:00 AM
tert-Butylbenzene	ND	0.0311		mg/Kg-dry	1	11/22/2016 8:27:00 AM
1,2,3-Trichloropropane	ND	0.0311		mg/Kg-dry	1	11/22/2016 8:27:00 AM
1,2,4-Trichlorobenzene	ND	0.0778		mg/Kg-dry	1	11/22/2016 8:27:00 AM
sec-Butylbenzene	ND	0.0311		mg/Kg-dry	1	11/22/2016 8:27:00 AM
4-Isopropyltoluene	ND	0.0311		mg/Kg-dry	1	11/22/2016 8:27:00 AM
1,3-Dichlorobenzene	ND	0.0311		mg/Kg-dry	1	11/22/2016 8:27:00 AM
1,4-Dichlorobenzene	ND	0.0311		mg/Kg-dry	1	11/22/2016 8:27:00 AM
n-Butylbenzene	ND	0.0311		mg/Kg-dry	1	11/22/2016 8:27:00 AM
1,2-Dichlorobenzene	ND	0.0311		mg/Kg-dry	1	11/22/2016 8:27:00 AM
1,2-Dibromo-3-chloropropane	ND	0.778		mg/Kg-dry	1	11/22/2016 8:27:00 AM
1,2,4-Trimethylbenzene	ND	0.0311		mg/Kg-dry	1	11/22/2016 8:27:00 AM
Hexachlorobutadiene	ND	0.156		mg/Kg-dry	1	11/22/2016 8:27:00 AM
Naphthalene	ND	0.0467		mg/Kg-dry	1	11/22/2016 8:27:00 AM
1,2,3-Trichlorobenzene	ND	0.0311		mg/Kg-dry	1	11/22/2016 8:27:00 AM
Surr: Dibromofluoromethane	89.0	56.5-129		%Rec	1	11/22/2016 8:27:00 AM
Surr: Toluene-d8	100	64.3-131		%Rec	1	11/22/2016 8:27:00 AM
Surr: 1-Bromo-4-fluorobenzene	102	63.1-141		%Rec	1	11/22/2016 8:27:00 AM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Mercury by EPA Method 7471				Batch ID: 15509		Analyst: WF
Mercury	0.528	0.350		mg/Kg-dry	1	11/22/2016 5:31:14 PM
Total Metals by EPA Method 6020				Batch ID: 15512		Analyst: TN
Arsenic	15.0	0.112		mg/Kg-dry	1	11/22/2016 3:54:21 PM
Barium	6,100	0.560		mg/Kg-dry	1	11/22/2016 3:54:21 PM
Cadmium	57.9	0.224		mg/Kg-dry	1	11/22/2016 3:54:21 PM
Chromium	145	0.112		mg/Kg-dry	1	11/22/2016 3:54:21 PM
Lead	7,870	0.224	E	mg/Kg-dry	1	11/22/2016 3:54:21 PM
Selenium	1.32	0.560		mg/Kg-dry	1	11/22/2016 3:54:21 PM

Analytical Report

Work Order: **1611216**
Date Reported: **11/22/2016**

Client: GeoEngineers
Collection Date: 11/21/2016 10:15:00 AM
Project: Rufus Block 20
Lab ID: 1611216-010
Matrix: Soil
Client Sample ID: **TP-W14S9-5.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 15512		Analyst: TN
Silver	3.54	0.112		mg/Kg-dry	1	11/22/2016 3:54:21 PM
Sample Moisture (Percent Moisture)				Batch ID: R33041		Analyst: BB
Percent Moisture	31.3			wt%	1	11/22/2016 8:58:04 AM

Client: GeoEngineers
Collection Date: 11/21/2016 8:30:00 AM
Project: Rufus Block 20
Lab ID: 1611216-014
Matrix: Soil
Client Sample ID: **TP-W14S36-7.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 15507		Analyst: WC
Diesel (Fuel Oil)	ND	21.5		mg/Kg-dry	1	11/21/2016 9:49:00 PM
Heavy Oil	ND	53.8		mg/Kg-dry	1	11/21/2016 9:49:00 PM
Surr: 2-Fluorobiphenyl	69.4	50-150		%Rec	1	11/21/2016 9:49:00 PM
Surr: o-Terphenyl	78.7	50-150		%Rec	1	11/21/2016 9:49:00 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 15505		Analyst: BT
Naphthalene	ND	49.3		µg/Kg-dry	1	11/22/2016 2:52:21 AM
2-Methylnaphthalene	ND	49.3		µg/Kg-dry	1	11/22/2016 2:52:21 AM
1-Methylnaphthalene	ND	49.3		µg/Kg-dry	1	11/22/2016 2:52:21 AM
Acenaphthylene	ND	49.3		µg/Kg-dry	1	11/22/2016 2:52:21 AM
Acenaphthene	ND	49.3		µg/Kg-dry	1	11/22/2016 2:52:21 AM
Fluorene	ND	49.3		µg/Kg-dry	1	11/22/2016 2:52:21 AM
Phenanthrene	ND	49.3		µg/Kg-dry	1	11/22/2016 2:52:21 AM
Anthracene	ND	49.3		µg/Kg-dry	1	11/22/2016 2:52:21 AM
Fluoranthene	ND	49.3		µg/Kg-dry	1	11/22/2016 2:52:21 AM
Pyrene	ND	49.3		µg/Kg-dry	1	11/22/2016 2:52:21 AM
Benz(a)anthracene	ND	49.3		µg/Kg-dry	1	11/22/2016 2:52:21 AM
Chrysene	ND	49.3		µg/Kg-dry	1	11/22/2016 2:52:21 AM
Benzo(b)fluoranthene	ND	49.3		µg/Kg-dry	1	11/22/2016 2:52:21 AM
Benzo(k)fluoranthene	ND	49.3		µg/Kg-dry	1	11/22/2016 2:52:21 AM
Benzo(a)pyrene	ND	49.3		µg/Kg-dry	1	11/22/2016 2:52:21 AM
Indeno(1,2,3-cd)pyrene	ND	49.3		µg/Kg-dry	1	11/22/2016 2:52:21 AM
Dibenz(a,h)anthracene	ND	49.3		µg/Kg-dry	1	11/22/2016 2:52:21 AM
Benzo(g,h,i)perylene	ND	49.3		µg/Kg-dry	1	11/22/2016 2:52:21 AM
Surr: 2-Fluorobiphenyl	88.0	24.5-139		%Rec	1	11/22/2016 2:52:21 AM
Surr: Terphenyl-d14 (surr)	93.6	44.3-176		%Rec	1	11/22/2016 2:52:21 AM
Gasoline by NWTPH-Gx				Batch ID: 15503		Analyst: EM
Gasoline	ND	5.99		mg/Kg-dry	1	11/22/2016 8:55:00 AM
Surr: Toluene-d8	98.1	65-135		%Rec	1	11/22/2016 8:55:00 AM
Surr: 4-Bromofluorobenzene	68.5	65-135		%Rec	1	11/22/2016 8:55:00 AM
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15503		Analyst: EM
Dichlorodifluoromethane (CFC-12)	ND	0.0718		mg/Kg-dry	1	11/22/2016 8:55:00 AM
Chloromethane	ND	0.0718		mg/Kg-dry	1	11/22/2016 8:55:00 AM
Vinyl chloride	ND	0.00239		mg/Kg-dry	1	11/22/2016 8:55:00 AM

Client: GeoEngineers
Collection Date: 11/21/2016 8:30:00 AM
Project: Rufus Block 20
Lab ID: 1611216-014
Matrix: Soil
Client Sample ID: **TP-W14S36-7.5**

Volatile Organic Compounds by EPA Method 8260C

Batch ID: 15503 Analyst: EM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Bromomethane	ND	0.108		mg/Kg-dry	1	11/22/2016 8:55:00 AM
Trichlorofluoromethane (CFC-11)	ND	0.0599	Q	mg/Kg-dry	1	11/22/2016 8:55:00 AM
Chloroethane	ND	0.0718	Q	mg/Kg-dry	1	11/22/2016 8:55:00 AM
1,1-Dichloroethene	ND	0.0599	Q	mg/Kg-dry	1	11/22/2016 8:55:00 AM
Methylene chloride	ND	0.0239		mg/Kg-dry	1	11/22/2016 8:55:00 AM
trans-1,2-Dichloroethene	ND	0.0239		mg/Kg-dry	1	11/22/2016 8:55:00 AM
Methyl tert-butyl ether (MTBE)	ND	0.0599		mg/Kg-dry	1	11/22/2016 8:55:00 AM
1,1-Dichloroethane	ND	0.0239		mg/Kg-dry	1	11/22/2016 8:55:00 AM
2,2-Dichloropropane	ND	0.0599		mg/Kg-dry	1	11/22/2016 8:55:00 AM
cis-1,2-Dichloroethene	ND	0.0239		mg/Kg-dry	1	11/22/2016 8:55:00 AM
Chloroform	0.0377	0.0239	B	mg/Kg-dry	1	11/22/2016 8:55:00 AM
1,1,1-Trichloroethane (TCA)	ND	0.0239		mg/Kg-dry	1	11/22/2016 8:55:00 AM
1,1-Dichloropropene	ND	0.0239		mg/Kg-dry	1	11/22/2016 8:55:00 AM
Carbon tetrachloride	ND	0.0239		mg/Kg-dry	1	11/22/2016 8:55:00 AM
1,2-Dichloroethane (EDC)	ND	0.0359		mg/Kg-dry	1	11/22/2016 8:55:00 AM
Benzene	ND	0.0239		mg/Kg-dry	1	11/22/2016 8:55:00 AM
Trichloroethene (TCE)	ND	0.0239		mg/Kg-dry	1	11/22/2016 8:55:00 AM
1,2-Dichloropropane	ND	0.0239		mg/Kg-dry	1	11/22/2016 8:55:00 AM
Bromodichloromethane	ND	0.0239		mg/Kg-dry	1	11/22/2016 8:55:00 AM
Dibromomethane	ND	0.0479		mg/Kg-dry	1	11/22/2016 8:55:00 AM
cis-1,3-Dichloropropene	ND	0.0239		mg/Kg-dry	1	11/22/2016 8:55:00 AM
Toluene	ND	0.0239		mg/Kg-dry	1	11/22/2016 8:55:00 AM
trans-1,3-Dichloropropylene	ND	0.0359		mg/Kg-dry	1	11/22/2016 8:55:00 AM
1,1,2-Trichloroethane	ND	0.0359		mg/Kg-dry	1	11/22/2016 8:55:00 AM
1,3-Dichloropropane	ND	0.0599		mg/Kg-dry	1	11/22/2016 8:55:00 AM
Tetrachloroethene (PCE)	ND	0.0239		mg/Kg-dry	1	11/22/2016 8:55:00 AM
Dibromochloromethane	ND	0.0359		mg/Kg-dry	1	11/22/2016 8:55:00 AM
1,2-Dibromoethane (EDB)	ND	0.00599		mg/Kg-dry	1	11/22/2016 8:55:00 AM
Chlorobenzene	ND	0.0239		mg/Kg-dry	1	11/22/2016 8:55:00 AM
1,1,1,2-Tetrachloroethane	ND	0.0359		mg/Kg-dry	1	11/22/2016 8:55:00 AM
Ethylbenzene	ND	0.0359		mg/Kg-dry	1	11/22/2016 8:55:00 AM
m,p-Xylene	ND	0.0239		mg/Kg-dry	1	11/22/2016 8:55:00 AM
o-Xylene	ND	0.0239		mg/Kg-dry	1	11/22/2016 8:55:00 AM
Styrene	ND	0.0239		mg/Kg-dry	1	11/22/2016 8:55:00 AM
Isopropylbenzene	ND	0.0958		mg/Kg-dry	1	11/22/2016 8:55:00 AM
Bromoform	ND	0.0239		mg/Kg-dry	1	11/22/2016 8:55:00 AM
1,1,2,2-Tetrachloroethane	ND	0.0239		mg/Kg-dry	1	11/22/2016 8:55:00 AM
n-Propylbenzene	ND	0.0239		mg/Kg-dry	1	11/22/2016 8:55:00 AM
Bromobenzene	ND	0.0359		mg/Kg-dry	1	11/22/2016 8:55:00 AM

Client: GeoEngineers
Collection Date: 11/21/2016 8:30:00 AM
Project: Rufus Block 20
Lab ID: 1611216-014
Matrix: Soil
Client Sample ID: **TP-W14S36-7.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15503		Analyst: EM
1,3,5-Trimethylbenzene	ND	0.0239		mg/Kg-dry	1	11/22/2016 8:55:00 AM
2-Chlorotoluene	ND	0.0239		mg/Kg-dry	1	11/22/2016 8:55:00 AM
4-Chlorotoluene	ND	0.0239		mg/Kg-dry	1	11/22/2016 8:55:00 AM
tert-Butylbenzene	ND	0.0239		mg/Kg-dry	1	11/22/2016 8:55:00 AM
1,2,3-Trichloropropane	ND	0.0239		mg/Kg-dry	1	11/22/2016 8:55:00 AM
1,2,4-Trichlorobenzene	ND	0.0599		mg/Kg-dry	1	11/22/2016 8:55:00 AM
sec-Butylbenzene	ND	0.0239		mg/Kg-dry	1	11/22/2016 8:55:00 AM
4-Isopropyltoluene	ND	0.0239		mg/Kg-dry	1	11/22/2016 8:55:00 AM
1,3-Dichlorobenzene	ND	0.0239		mg/Kg-dry	1	11/22/2016 8:55:00 AM
1,4-Dichlorobenzene	ND	0.0239		mg/Kg-dry	1	11/22/2016 8:55:00 AM
n-Butylbenzene	ND	0.0239		mg/Kg-dry	1	11/22/2016 8:55:00 AM
1,2-Dichlorobenzene	ND	0.0239		mg/Kg-dry	1	11/22/2016 8:55:00 AM
1,2-Dibromo-3-chloropropane	ND	0.599		mg/Kg-dry	1	11/22/2016 8:55:00 AM
1,2,4-Trimethylbenzene	ND	0.0239		mg/Kg-dry	1	11/22/2016 8:55:00 AM
Hexachlorobutadiene	ND	0.120		mg/Kg-dry	1	11/22/2016 8:55:00 AM
Naphthalene	ND	0.0359		mg/Kg-dry	1	11/22/2016 8:55:00 AM
1,2,3-Trichlorobenzene	ND	0.0239		mg/Kg-dry	1	11/22/2016 8:55:00 AM
Surr: Dibromofluoromethane	90.0	56.5-129		%Rec	1	11/22/2016 8:55:00 AM
Surr: Toluene-d8	101	64.3-131		%Rec	1	11/22/2016 8:55:00 AM
Surr: 1-Bromo-4-fluorobenzene	81.3	63.1-141		%Rec	1	11/22/2016 8:55:00 AM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Mercury by EPA Method 7471				Batch ID: 15509		Analyst: WF
Mercury	ND	0.281		mg/Kg-dry	1	11/22/2016 5:32:50 PM
Total Metals by EPA Method 6020				Batch ID: 15512		Analyst: TN
Arsenic	3.34	0.0923		mg/Kg-dry	1	11/22/2016 3:57:53 PM
Barium	54.9	0.462		mg/Kg-dry	1	11/22/2016 3:57:53 PM
Cadmium	ND	0.185		mg/Kg-dry	1	11/22/2016 3:57:53 PM
Chromium	25.8	0.0923		mg/Kg-dry	1	11/22/2016 3:57:53 PM
Lead	7.04	0.185		mg/Kg-dry	1	11/22/2016 3:57:53 PM
Selenium	1.01	0.462		mg/Kg-dry	1	11/22/2016 3:57:53 PM
Silver	ND	0.0923		mg/Kg-dry	1	11/22/2016 3:57:53 PM

Analytical Report

Work Order: **1611216**
Date Reported: **11/22/2016**

Client: GeoEngineers
Project: Rufus Block 20
Lab ID: 1611216-014
Client Sample ID: **TP-W14S36-7.5**

Collection Date: 11/21/2016 8:30:00 AM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R33041		Analyst: BB
Percent Moisture	19.2			wt%	1	11/22/2016 8:58:04 AM

Work Order: 1611216
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID **MB-15507**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **11/21/2016**	RunNo: **33039**
Client ID: **MBLKS**	Batch ID: **15507**		Analysis Date: **11/21/2016**	SeqNo: **626111**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	20.0									
Heavy Oil	ND	50.0									
Surr: 2-Fluorobiphenyl	18.4		20.00		92.1	50	150				
Surr: o-Terphenyl	18.8		20.00		93.8	50	150				

Sample ID **LCS-15507**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **11/21/2016**	RunNo: **33039**
Client ID: **LCSS**	Batch ID: **15507**		Analysis Date: **11/21/2016**	SeqNo: **626110**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	473	20.0	500.0	0	94.7	65	135				
Surr: 2-Fluorobiphenyl	21.5		20.00		108	50	150				
Surr: o-Terphenyl	22.3		20.00		112	50	150				

Sample ID **1611220-002ADUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **11/21/2016**	RunNo: **33039**
Client ID: **BATCH**	Batch ID: **15507**		Analysis Date: **11/22/2016**	SeqNo: **626113**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	21.0						0		30	
Heavy Oil	ND	52.5						0		30	
Surr: 2-Fluorobiphenyl	17.6		20.98		83.6	50	150		0		
Surr: o-Terphenyl	17.8		20.98		84.9	50	150		0		

Sample ID **1611219-001ADUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **11/21/2016**	RunNo: **33039**
Client ID: **BATCH**	Batch ID: **15507**		Analysis Date: **11/22/2016**	SeqNo: **626099**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	968	20.2						1,367	34.2	30	R
Heavy Oil	1,190	50.5						1,232	3.86	30	
Surr: 2-Fluorobiphenyl	19.1		20.20		94.6	50	150		0		

Work Order: 1611216
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID	**1611219-001ADUP**	SampType: **DUP**		Units: **mg/Kg-dry**	Prep Date: **11/21/2016**	RunNo: **33039**
Client ID:	**BATCH**	Batch ID: **15507**			Analysis Date: **11/22/2016**	SeqNo: **626099**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: o-Terphenyl	19.7		20.20		97.4	50	150		0		

NOTES:
R - High RPD due to suspected sample inhomogeneity. The method is in control as indicated by the Laboratory Control Sample (LCS).

Sample ID	**1611219-001AMS**	SampType: **MS**		Units: **mg/Kg-dry**	Prep Date: **11/21/2016**	RunNo: **33039**
Client ID:	**BATCH**	Batch ID: **15507**			Analysis Date: **11/22/2016**	SeqNo: **626100**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	1,190	18.0	449.0	1,367	-39.9	65	135				S
Surr: 2-Fluorobiphenyl	19.4		17.96		108	50	150				
Surr: o-Terphenyl	21.2		17.96		118	50	150				

NOTES:
S - Outlying spike recovery(ies) observed. A duplicate analysis was performed with similar results indicating a possible matrix effect.

Sample ID	**1611219-001AMSD**	SampType: **MSD**		Units: **mg/Kg-dry**	Prep Date: **11/21/2016**	RunNo: **33039**
Client ID:	**BATCH**	Batch ID: **15507**			Analysis Date: **11/22/2016**	SeqNo: **626101**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	920	19.4	485.4	1,367	-92.0	65	135	1,188	25.4	30	S
Surr: 2-Fluorobiphenyl	23.7		19.42		122	50	150		0		
Surr: o-Terphenyl	24.8		19.42		128	50	150		0		

NOTES:
S - Outlying spike recovery(ies) observed. A duplicate analysis was performed with similar results indicating a possible matrix effect.

Work Order: 1611216
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Gasoline by NWTPH-Gx

Sample ID **LCS-15503**	SampType: **LCS**			Units: **mg/Kg**		Prep Date: **11/21/2016**		RunNo: **33046**			
Client ID: **LCSS**	Batch ID: **15503**					Analysis Date: **11/21/2016**		SeqNo: **626243**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	25.6	5.00	25.00	0	102	65	135				
Surr: Toluene-d8	1.11		1.250		88.8	65	135				
Surr: 4-Bromofluorobenzene	0.812		1.250		64.9	65	135				S

NOTES:
S - Outlying surrogate recovery(ies) observed.

Sample ID **MB-15503**	SampType: **MBLK**			Units: **mg/Kg**		Prep Date: **11/21/2016**		RunNo: **33046**			
Client ID: **MBLKS**	Batch ID: **15503**					Analysis Date: **11/21/2016**		SeqNo: **626245**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	5.00									
Surr: Toluene-d8	1.21		1.250		96.9	65	135				
Surr: 4-Bromofluorobenzene	0.985		1.250		78.8	65	135				

Sample ID **1611186-001BDUP**	SampType: **DUP**			Units: **mg/Kg-dry**		Prep Date: **11/21/2016**		RunNo: **33046**			
Client ID: **BATCH**	Batch ID: **15503**					Analysis Date: **11/21/2016**		SeqNo: **626216**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	6.43						0		30	
Surr: Toluene-d8	2.00		1.607		125	65	135		0		
Surr: 4-Bromofluorobenzene	1.79		1.607		111	65	135		0		

Sample ID **1611201-001BDUP**	SampType: **DUP**			Units: **mg/Kg-dry**		Prep Date: **11/21/2016**		RunNo: **33046**			
Client ID: **BATCH**	Batch ID: **15503**					Analysis Date: **11/22/2016**		SeqNo: **626229**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	5.75						0		30	
Surr: Toluene-d8	1.42		1.437		98.8	65	135		0		
Surr: 4-Bromofluorobenzene	1.29		1.437		90.1	65	135		0		

Work Order: 1611216
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Gasoline by NWTPH-Gx

Sample ID **1611216-014BMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **11/21/2016** RunNo: **33046**
Client ID: **TP-W14S36-7.5** Batch ID: **15503** Analysis Date: **11/22/2016** SeqNo: **626237**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	24.8	5.99	29.93	0	83.0	65	135				
Surr: Toluene-d8	1.48		1.496		98.6	65	135				
Surr: 4-Bromofluorobenzene	1.25		1.496		83.7	65	135				

Sample ID **1611216-014BMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **11/21/2016** RunNo: **33046**
Client ID: **TP-W14S36-7.5** Batch ID: **15503** Analysis Date: **11/22/2016** SeqNo: **626238**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	25.4	5.99	29.93	0	84.8	65	135	24.83	2.21	30	
Surr: Toluene-d8	1.50		1.496		100	65	135		0		
Surr: 4-Bromofluorobenzene	1.30		1.496		87.0	65	135		0		

Work Order: 1611216
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Mercury by EPA Method 7471

Sample ID	MB-15509	SampType:	MBLK			Units:	mg/Kg		Prep Date:	11/21/2016		RunNo:	33057	
Client ID:	MBLKS	Batch ID:	15509						Analysis Date:	11/22/2016		SeqNo:	626642	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Mercury		ND	0.236											

Sample ID	LCS-15509	SampType:	LCS			Units:	mg/Kg		Prep Date:	11/21/2016		RunNo:	33057	
Client ID:	LCSS	Batch ID:	15509						Analysis Date:	11/22/2016		SeqNo:	626643	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Mercury		0.534	0.240	0.4808	0	111	80	120						

Sample ID	1611216-001ADUP	SampType:	DUP			Units:	mg/Kg-dry		Prep Date:	11/21/2016		RunNo:	33057	
Client ID:	TP-W3S5-5.0	Batch ID:	15509						Analysis Date:	11/22/2016		SeqNo:	626645	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Mercury		ND	0.296						0		20			

Sample ID	1611216-001AMS	SampType:	MS			Units:	mg/Kg-dry		Prep Date:	11/21/2016		RunNo:	33057	
Client ID:	TP-W3S5-5.0	Batch ID:	15509						Analysis Date:	11/22/2016		SeqNo:	626646	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Mercury		0.762	0.280	0.5594	0.2193	97.0	70	130						

Sample ID	1611216-001AMSD	SampType:	MSD			Units:	mg/Kg-dry		Prep Date:	11/21/2016		RunNo:	33057	
Client ID:	TP-W3S5-5.0	Batch ID:	15509						Analysis Date:	11/22/2016		SeqNo:	626647	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Mercury		0.767	0.296	0.5911	0.2193	92.7	70	130	0.7620	0.693	20			

Work Order: 1611216
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **MB-15505**	SampType: **MBLK**	Units: **µg/Kg**	Prep Date: **11/21/2016**	RunNo: **33048**
Client ID: **MBLKS**	Batch ID: **15505**		Analysis Date: **11/21/2016**	SeqNo: **626265**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	40.0									
2-Methylnaphthalene	ND	40.0									
1-Methylnaphthalene	ND	40.0									
Acenaphthylene	ND	40.0									
Acenaphthene	ND	40.0									
Fluorene	ND	40.0									
Phenanthrene	ND	40.0									
Anthracene	ND	40.0									
Fluoranthene	ND	40.0									
Pyrene	ND	40.0									
Benz(a)anthracene	ND	40.0									
Chrysene	ND	40.0									
Benzo(b)fluoranthene	ND	40.0									
Benzo(k)fluoranthene	ND	40.0									
Benzo(a)pyrene	ND	40.0									
Indeno(1,2,3-cd)pyrene	ND	40.0									
Dibenz(a,h)anthracene	ND	40.0									
Benzo(g,h,i)perylene	ND	40.0									
Surr: 2-Fluorobiphenyl	466		500.0		93.3	24.5	139				
Surr: Terphenyl-d14 (surr)	478		500.0		95.7	44.3	176				

Sample ID **LCS-15505**	SampType: **LCS**	Units: **µg/Kg**	Prep Date: **11/21/2016**	RunNo: **33048**
Client ID: **LCSS**	Batch ID: **15505**		Analysis Date: **11/21/2016**	SeqNo: **626266**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	1,020	40.0	1,000	0	102	46.4	125				
2-Methylnaphthalene	1,080	40.0	1,000	0	108	45.1	135				
1-Methylnaphthalene	1,070	40.0	1,000	0	107	46.2	133				
Acenaphthylene	1,040	40.0	1,000	0	104	32.8	136				
Acenaphthene	1,040	40.0	1,000	0	104	38.7	129				

Work Order: 1611216
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **LCS-15505** SampType: **LCS** Units: **µg/Kg** Prep Date: **11/21/2016** RunNo: **33048**
Client ID: **LCSS** Batch ID: **15505** Analysis Date: **11/21/2016** SeqNo: **626266**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluorene	1,060	40.0	1,000	0	106	41.1	132				
Phenanthrene	1,080	40.0	1,000	0	108	43.9	133				
Anthracene	1,060	40.0	1,000	0	106	44.2	136				
Fluoranthene	1,050	40.0	1,000	0	105	45.9	137				
Pyrene	1,060	40.0	1,000	0	106	46.2	137				
Benz(a)anthracene	1,150	40.0	1,000	0	115	41.9	136				
Chrysene	1,090	40.0	1,000	0	109	46.9	138				
Benzo(b)fluoranthene	1,220	40.0	1,000	0	122	35.9	148				
Benzo(k)fluoranthene	1,270	40.0	1,000	0	127	43.9	144				Q+
Benzo(a)pyrene	1,300	40.0	1,000	0	130	36.3	144				Q+
Indeno(1,2,3-cd)pyrene	1,170	40.0	1,000	0	117	16.1	135				Q+
Dibenz(a,h)anthracene	1,160	40.0	1,000	0	116	17.2	136				Q+
Benzo(g,h,i)perylene	1,010	40.0	1,000	0	101	32.9	112				Q+
Surr: 2-Fluorobiphenyl	452		500.0		90.4	24.5	139				
Surr: Terphenyl-d14 (surr)	476		500.0		95.2	44.3	176				

NOTES:
Q+ - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF) - high bias

Sample ID **1611219-001ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **11/21/2016** RunNo: **33048**
Client ID: **BATCH** Batch ID: **15505** Analysis Date: **11/22/2016** SeqNo: **626279**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	936	41.7						526.6	56.0	30	R
2-Methylnaphthalene	2,080	41.7						1,654	23.0	30	
1-Methylnaphthalene	1,760	41.7						1,283	31.1	30	R
Acenaphthylene	106	41.7						64.40	49.1	30	R
Acenaphthene	1,720	41.7						656.1	89.6	30	R
Fluorene	1,380	41.7						577.0	82.3	30	R
Phenanthrene	5,130	41.7						1,936	90.4	30	R
Anthracene	786	41.7						339.2	79.5	30	R
Fluoranthene	1,650	41.7						446.1	115	30	R

Work Order: 1611216
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1611219-001ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **11/21/2016** RunNo: **33048**
Client ID: **BATCH** Batch ID: **15505** Analysis Date: **11/22/2016** SeqNo: **626279**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Pyrene	3,200	41.7						1,213	90.1	30	R
Benz(a)anthracene	687	41.7						334.6	69.0	30	R
Chrysene	1,490	41.7						645.6	79.2	30	R
Benzo(b)fluoranthene	281	41.7						146.4	62.9	30	R
Benzo(k)fluoranthene	56.8	41.7						53.07	6.86	30	Q+
Benzo(a)pyrene	581	41.7						335.6	53.6	30	RQ+
Indeno(1,2,3-cd)pyrene	485	41.7						269.8	57.0	30	RQ+,I
Dibenz(a,h)anthracene	303	41.7						148.8	68.1	30	RQ+,I
Benzo(g,h,i)perylene	1,470	41.7						799.0	59.3	30	RQ+,I
Surr: 2-Fluorobiphenyl	475		521.6		91.1	24.5	139		0		
Surr: Terphenyl-d14 (surr)	439		521.6		84.2	44.3	176		0		

NOTES:
Q+ - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF) - high bias
R - High RPD due to suspected sample inhomogeneity. The method is in control as indicated by the Laboratory Control Sample (LCS).
I - Indicates an analyte with an internal standard that does not meet established acceptance criteria.

Sample ID **1611219-001AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **11/21/2016** RunNo: **33048**
Client ID: **BATCH** Batch ID: **15505** Analysis Date: **11/22/2016** SeqNo: **626280**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	1,710	40.1	1,002	526.6	118	42.9	138				
2-Methylnaphthalene	2,230	40.1	1,002	1,654	57.2	42.8	151				
1-Methylnaphthalene	1,900	40.1	1,002	1,283	61.1	41.6	148				
Acenaphthylene	1,130	40.1	1,002	64.40	107	32.6	160				
Acenaphthene	1,870	40.1	1,002	656.1	121	46.3	142				
Fluorene	1,710	40.1	1,002	577.0	113	43.4	153				
Phenanthrene	3,340	40.1	1,002	1,936	140	45.5	140				S
Anthracene	1,430	40.1	1,002	339.2	109	32.6	160				
Fluoranthene	1,700	40.1	1,002	446.1	125	44.6	161				
Pyrene	1,940	40.1	1,002	1,213	72.4	48.3	158				
Benz(a)anthracene	858	40.1	1,002	334.6	52.3	57.5	169				S

Work Order: 1611216
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1611219-001AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **11/21/2016** RunNo: **33048**
Client ID: **BATCH** Batch ID: **15505** Analysis Date: **11/22/2016** SeqNo: **626280**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chrysene	1,480	40.1	1,002	645.6	83.7	45.2	146				
Benzo(b)fluoranthene	778	40.1	1,002	146.4	63.0	42.2	168				
Benzo(k)fluoranthene	713	40.1	1,002	53.07	65.8	48	161				Q+
Benzo(a)pyrene	927	40.1	1,002	335.6	59.0	34.4	179				Q+
Indeno(1,2,3-cd)pyrene	2,340	40.1	1,002	269.8	206	5	113				SQ+,I
Dibenz(a,h)anthracene	2,790	40.1	1,002	148.8	264	5	100				SQ+,I
Benzo(g,h,i)perylene	2,960	40.1	1,002	799.0	215	45.6	157				SQ+,I
Surr: 2-Fluorobiphenyl	375		501.2		74.8	24.5	139				
Surr: Terphenyl-d14 (surr)	331		501.2		66.1	44.3	176				

NOTES:
Q+ - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF) - high bias
S - Outlying spike recovery(ies) observed. A duplicate analysis was performed with similar results indicating a possible matrix effect.
I - Indicates an analyte with an internal standard that does not meet established acceptance criteria.

Sample ID **1611219-001AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **11/21/2016** RunNo: **33048**
Client ID: **BATCH** Batch ID: **15505** Analysis Date: **11/22/2016** SeqNo: **626281**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	1,540	39.7	992.3	526.6	102	42.9	138	1,713	10.9	30	
2-Methylnaphthalene	2,070	39.7	992.3	1,654	41.9	42.8	151	2,228	7.37	30	S
1-Methylnaphthalene	1,780	39.7	992.3	1,283	49.8	41.6	148	1,895	6.46	30	
Acenaphthylene	1,110	39.7	992.3	64.40	105	32.6	160	1,133	2.30	30	
Acenaphthene	1,680	39.7	992.3	656.1	103	46.3	142	1,869	10.9	30	
Fluorene	1,540	39.7	992.3	577.0	96.6	43.4	153	1,708	10.6	30	
Phenanthrene	2,790	39.7	992.3	1,936	86.1	45.5	140	3,341	17.9	30	
Anthracene	1,350	39.7	992.3	339.2	102	32.6	160	1,430	5.85	30	
Fluoranthene	1,460	39.7	992.3	446.1	102	44.6	161	1,696	14.9	30	
Pyrene	1,970	39.7	992.3	1,213	75.9	48.3	158	1,939	1.40	30	
Benz(a)anthracene	835	39.7	992.3	334.6	50.5	57.5	169	858.4	2.71	30	S
Chrysene	1,450	39.7	992.3	645.6	80.9	45.2	146	1,484	2.44	30	
Benzo(b)fluoranthene	755	39.7	992.3	146.4	61.3	42.2	168	778.1	2.99	30	

Work Order: 1611216
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1611219-001AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **11/21/2016** RunNo: **33048**
Client ID: **BATCH** Batch ID: **15505** Analysis Date: **11/22/2016** SeqNo: **626281**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzo(k)fluoranthene	671	39.7	992.3	53.07	62.2	48	161	712.7	6.07	30	Q+
Benzo(a)pyrene	856	39.7	992.3	335.6	52.4	34.4	179	926.9	7.98	30	Q+
Indeno(1,2,3-cd)pyrene	2,330	39.7	992.3	269.8	207	5	113	2,340	0.489	30	SQ+,I
Dibenz(a,h)anthracene	2,630	39.7	992.3	148.8	250	5	100	2,795	6.13	30	SQ+,I
Benzo(g,h,i)perylene	2,660	39.7	992.3	799.0	187	45.6	157	2,958	10.8	30	SQ+,I
Surr: 2-Fluorobiphenyl	439		496.2		88.5	24.5	139		0		
Surr: Terphenyl-d14 (surr)	408		496.2		82.1	44.3	176		0		

NOTES:
Q+ - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF) - high bias
S - Outlying spike recovery(ies) observed. A duplicate analysis was performed with similar results indicating a possible matrix effect.
I - Indicates an analyte with an internal standard that does not meet established acceptance criteria.

Work Order: 1611216
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Sample Moisture (Percent Moisture)

Sample ID **1611220-004ADUP** SampType: **DUP** Units: **wt%** Prep Date: **11/22/2016** RunNo: **33041**
Client ID: **BATCH** Batch ID: **R33041** Analysis Date: **11/22/2016** SeqNo: **626131**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	8.26	0.500						8.177	1.02	20	

Work Order: 1611216
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID **MB-15512** SampType: **MBLK** Units: **mg/Kg** Prep Date: **11/22/2016** RunNo: **33054**
Client ID: **MBLKS** Batch ID: **15512** Analysis Date: **11/22/2016** SeqNo: **626572**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.0787									
Barium	ND	0.394									
Cadmium	ND	0.157									
Chromium	ND	0.0787									
Lead	ND	0.157									
Selenium	ND	0.394									
Silver	ND	0.0787									

Sample ID **LCS-15512** SampType: **LCS** Units: **mg/Kg** Prep Date: **11/22/2016** RunNo: **33054**
Client ID: **LCSS** Batch ID: **15512** Analysis Date: **11/22/2016** SeqNo: **626573**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	39.7	0.0775	38.76	0	103	80	120				
Barium	40.6	0.388	38.76	0	105	80	120				
Cadmium	1.94	0.155	1.938	0	100	80	120				
Chromium	38.7	0.0775	38.76	0	99.7	80	120				
Lead	18.9	0.155	19.38	0	97.6	80	120				
Selenium	3.70	0.388	3.876	0	95.4	80	120				
Silver	1.71	0.0775	1.938	0	88.1	80	120				

Sample ID **1611201-001ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **11/22/2016** RunNo: **33054**
Client ID: **BATCH** Batch ID: **15512** Analysis Date: **11/22/2016** SeqNo: **626575**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	2.21	0.0894						2.762	22.3	20	R
Barium	96.3	0.447						124.1	25.2	20	R
Cadmium	ND	0.179						0		20	
Chromium	30.6	0.0894						34.48	12.0	20	
Lead	20.4	0.179						16.88	18.9	20	
Selenium	0.901	0.447						0.8343	7.71	20	

Work Order: 1611216
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID **1611201-001ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **11/22/2016** RunNo: **33054**
Client ID: **BATCH** Batch ID: **15512** Analysis Date: **11/22/2016** SeqNo: **626575**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Silver	ND	0.0894						0		20	

NOTES:
R - High RPD observed. The method is in control as indicated by the LCS.

Sample ID **1611201-001AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **11/22/2016** RunNo: **33054**
Client ID: **BATCH** Batch ID: **15512** Analysis Date: **11/22/2016** SeqNo: **626577**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	53.0	0.0922	46.09	2.762	109	75	125				
Barium	177	0.461	46.09	124.1	115	75	125				
Cadmium	2.12	0.184	2.304	0.08030	88.3	75	125				
Chromium	108	0.0922	46.09	34.48	159	75	125				S
Lead	42.7	0.184	23.04	16.88	112	75	125				
Selenium	5.48	0.461	4.609	0.8343	101	75	125				
Silver	1.63	0.0922	2.304	0.05836	68.1	75	125				S

NOTES:
S - Outlying spike recovery observed (Ag). A duplicate analysis was performed with similar results indicating a possible matrix effect.
S - Outlying spike recovery observed (Cr). A duplicate analysis was performed and recovered within range.

Sample ID **1611201-001AMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **11/22/2016** RunNo: **33054**
Client ID: **BATCH** Batch ID: **15512** Analysis Date: **11/22/2016** SeqNo: **626578**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	51.5	0.0922	46.09	2.762	106	75	125	52.99	2.87	20	
Barium	143	0.461	46.09	124.1	42.0	75	125	177.3	21.1	20	RS
Cadmium	1.93	0.184	2.304	0.08030	80.1	75	125	2.115	9.41	20	
Chromium	83.7	0.0922	46.09	34.48	107	75	125	107.9	25.3	20	R
Lead	37.4	0.184	23.04	16.88	88.9	75	125	42.67	13.2	20	
Selenium	5.08	0.461	4.609	0.8343	92.2	75	125	5.477	7.46	20	
Silver	1.46	0.0922	2.304	0.05836	61.0	75	125	1.627	10.5	20	S

Work Order: 1611216
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID **1611201-001AMSD**	SampType: **MSD**				Units: **mg/Kg-dry**		Prep Date: **11/22/2016**		RunNo: **33054**		
Client ID: **BATCH**	Batch ID: **15512**						Analysis Date: **11/22/2016**		SeqNo: **626578**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

NOTES:
S - Outlying spike recovery observed (Ag). A duplicate analysis was performed with similar results indicating a possible matrix effect.
S - Outlying spike recovery observed (Ba). A duplicate analysis was performed and recovered within range.
R - High RPD observed. The method is in control as indicated by the LCS.

Sample ID **1611201-001APDS**	SampType: **PDS**				Units: **mg/Kg-dry**		Prep Date: **11/22/2016**		RunNo: **33054**		
Client ID: **BATCH**	Batch ID: **15512**						Analysis Date: **11/22/2016**		SeqNo: **626579**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Silver	1.63	0.0861	2.15	0.0584	73.0	80	120				S

NOTES:
S - Spike recovery indicates a possible matrix effect. The method is in control as indicated by the Laboratory Control Sample (LCS).

Work Order: 1611216
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-15503** SampType: **LCS** Units: **mg/Kg** Prep Date: **11/21/2016** RunNo: **33045**
Client ID: **LCSS** Batch ID: **15503** Analysis Date: **11/21/2016** SeqNo: **626212**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	0.734	0.0600	1.000	0	73.4	34.5	141				
Chloromethane	0.712	0.0600	1.000	0	71.2	38.8	132				
Vinyl chloride	0.756	0.00200	1.000	0	75.6	44	142				
Bromomethane	0.809	0.0900	1.000	0	80.9	40.9	157				
Trichlorofluoromethane (CFC-11)	0.812	0.0500	1.000	0	81.2	41.7	153				Q
Chloroethane	0.768	0.0600	1.000	0	76.8	37.1	144				Q
1,1-Dichloroethene	0.898	0.0500	1.000	0	89.8	49.7	142				Q
Methylene chloride	1.02	0.0200	1.000	0	102	46.3	140				
trans-1,2-Dichloroethene	1.01	0.0200	1.000	0	101	68	130				
Methyl tert-butyl ether (MTBE)	0.897	0.0500	1.000	0	89.7	59.1	138				
1,1-Dichloroethane	0.989	0.0200	1.000	0	98.9	61.9	137				
2,2-Dichloropropane	1.03	0.0500	1.000	0	103	28.1	149				
cis-1,2-Dichloroethene	1.00	0.0200	1.000	0	100	71.3	135				
Chloroform	0.994	0.0200	1.000	0	99.4	67.5	129				B
1,1,1-Trichloroethane (TCA)	0.956	0.0200	1.000	0	95.6	69	132				
1,1-Dichloropropene	1.01	0.0200	1.000	0	101	72.7	131				
Carbon tetrachloride	0.993	0.0200	1.000	0	99.3	63.4	137				
1,2-Dichloroethane (EDC)	0.942	0.0300	1.000	0	94.2	61.9	136				
Benzene	0.990	0.0200	1.000	0	99.0	64.3	133				
Trichloroethene (TCE)	0.948	0.0200	1.000	0	94.8	65.5	137				
1,2-Dichloropropane	1.04	0.0200	1.000	0	104	63.2	142				
Bromodichloromethane	0.978	0.0200	1.000	0	97.8	73.2	131				
Dibromomethane	0.956	0.0400	1.000	0	95.6	70	130				
cis-1,3-Dichloropropene	1.00	0.0200	1.000	0	100	59.1	143				
Toluene	1.07	0.0200	1.000	0	107	67.3	138				
trans-1,3-Dichloropropylene	0.974	0.0300	1.000	0	97.4	49.2	149				
1,1,2-Trichloroethane	1.03	0.0300	1.000	0	103	74.5	129				
1,3-Dichloropropane	1.02	0.0500	1.000	0	102	70	130				
Tetrachloroethene (PCE)	1.06	0.0200	1.000	0	106	52.7	150				
Dibromochloromethane	1.02	0.0300	1.000	0	102	70.6	144				
1,2-Dibromoethane (EDB)	0.984	0.00500	1.000	0	98.4	70	130				

Work Order: 1611216
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-15503** SampType: **LCS** Units: **mg/Kg** Prep Date: **11/21/2016** RunNo: **33045**
Client ID: **LCSS** Batch ID: **15503** Analysis Date: **11/21/2016** SeqNo: **626212**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chlorobenzene	0.992	0.0200	1.000	0	99.2	76.1	123				
1,1,1,2-Tetrachloroethane	0.962	0.0300	1.000	0	96.2	65.9	141				
Ethylbenzene	0.986	0.0300	1.000	0	98.6	74	129				
m,p-Xylene	1.96	0.0200	2.000	0	98.1	70	124				
o-Xylene	1.03	0.0200	1.000	0	103	72.7	124				
Styrene	0.976	0.0200	1.000	0	97.6	76.8	130				
Isopropylbenzene	0.966	0.0800	1.000	0	96.6	70	130				
Bromoform	0.887	0.0200	1.000	0	88.7	67	154				
1,1,2,2-Tetrachloroethane	0.952	0.0200	1.000	0	95.2	60	130				
n-Propylbenzene	0.992	0.0200	1.000	0	99.2	74.8	125				
Bromobenzene	0.982	0.0300	1.000	0	98.2	49.2	144				
1,3,5-Trimethylbenzene	0.940	0.0200	1.000	0	94.0	74.6	123				
2-Chlorotoluene	0.966	0.0200	1.000	0	96.6	76.7	129				
4-Chlorotoluene	0.968	0.0200	1.000	0	96.8	77.5	125				
tert-Butylbenzene	0.919	0.0200	1.000	0	91.9	66.2	130				
1,2,3-Trichloropropane	0.914	0.0200	1.000	0	91.4	67.9	136				
1,2,4-Trichlorobenzene	0.843	0.0500	1.000	0	84.3	62.6	143				
sec-Butylbenzene	0.962	0.0200	1.000	0	96.2	75.6	133				
4-Isopropyltoluene	0.912	0.0200	1.000	0	91.2	76.8	131				
1,3-Dichlorobenzene	1.07	0.0200	1.000	0	107	72.8	128				
1,4-Dichlorobenzene	1.08	0.0200	1.000	0	108	72.6	126				
n-Butylbenzene	0.958	0.0200	1.000	0	95.8	65.3	136				Q
1,2-Dichlorobenzene	0.925	0.0200	1.000	0	92.5	72.8	126				Q
1,2-Dibromo-3-chloropropane	0.874	0.500	1.000	0	87.4	61.2	139				
1,2,4-Trimethylbenzene	0.942	0.0200	1.000	0	94.2	77.5	129				
Hexachlorobutadiene	0.429	0.100	1.000	0	42.8	42	151				
Naphthalene	0.879	0.0300	1.000	0	87.9	62.3	134				
1,2,3-Trichlorobenzene	0.813	0.0200	1.000	0	81.3	54.8	143				
Surr: Dibromofluoromethane	1.21		1.250		96.9	56.5	129				
Surr: Toluene-d8	1.26		1.250		100	64.3	131				
Surr: 1-Bromo-4-fluorobenzene	1.28		1.250		102	63.1	141				

Work Order: 1611216
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID	**LCS-15503**	SampType: **LCS**		Units: **mg/Kg**		Prep Date: **11/21/2016**		RunNo: **33045**	
Client ID:	**LCSS**	Batch ID: **15503**				Analysis Date: **11/21/2016**		SeqNo: **626212**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample ID	**MB-15503**	SampType: **MBLK**		Units: **mg/Kg**		Prep Date: **11/21/2016**		RunNo: **33045**	
Client ID:	**MBLKS**	Batch ID: **15503**				Analysis Date: **11/21/2016**		SeqNo: **626213**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	ND	0.0600									
Chloromethane	ND	0.0600									
Vinyl chloride	ND	0.00200									
Bromomethane	ND	0.0900									
Trichlorofluoromethane (CFC-11)	ND	0.0500									Q
Chloroethane	ND	0.0600									Q
1,1-Dichloroethene	ND	0.0500									Q
Methylene chloride	ND	0.0200									
trans-1,2-Dichloroethene	ND	0.0200									
Methyl tert-butyl ether (MTBE)	ND	0.0500									
1,1-Dichloroethane	ND	0.0200									
2,2-Dichloropropane	ND	0.0500									
cis-1,2-Dichloroethene	ND	0.0200									
Chloroform	0.0380	0.0200									
1,1,1-Trichloroethane (TCA)	ND	0.0200									
1,1-Dichloropropene	ND	0.0200									
Carbon tetrachloride	ND	0.0200									
1,2-Dichloroethane (EDC)	ND	0.0300									
Benzene	ND	0.0200									
Trichloroethene (TCE)	ND	0.0200									
1,2-Dichloropropane	ND	0.0200									
Bromodichloromethane	ND	0.0200									
Dibromomethane	ND	0.0400									
cis-1,3-Dichloropropene	ND	0.0200									

Work Order: 1611216
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-15503** SampType: **MBLK** Units: **mg/Kg** Prep Date: **11/21/2016** RunNo: **33045**
Client ID: **MBLKS** Batch ID: **15503** Analysis Date: **11/21/2016** SeqNo: **626213**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Toluene	ND	0.0200									
trans-1,3-Dichloropropylene	ND	0.0300									
1,1,2-Trichloroethane	ND	0.0300									
1,3-Dichloropropane	ND	0.0500									
Tetrachloroethene (PCE)	ND	0.0200									
Dibromochloromethane	ND	0.0300									
1,2-Dibromoethane (EDB)	ND	0.00500									
Chlorobenzene	ND	0.0200									
1,1,1,2-Tetrachloroethane	ND	0.0300									
Ethylbenzene	ND	0.0300									
m,p-Xylene	ND	0.0200									
o-Xylene	ND	0.0200									
Styrene	ND	0.0200									
Isopropylbenzene	ND	0.0800									
Bromoform	ND	0.0200									
1,1,2,2-Tetrachloroethane	ND	0.0200									
n-Propylbenzene	ND	0.0200									
Bromobenzene	ND	0.0300									
1,3,5-Trimethylbenzene	ND	0.0200									
2-Chlorotoluene	ND	0.0200									
4-Chlorotoluene	ND	0.0200									
tert-Butylbenzene	ND	0.0200									
1,2,3-Trichloropropane	ND	0.0200									
1,2,4-Trichlorobenzene	ND	0.0500									
sec-Butylbenzene	ND	0.0200									
4-Isopropyltoluene	ND	0.0200									
1,3-Dichlorobenzene	ND	0.0200									
1,4-Dichlorobenzene	ND	0.0200									
n-Butylbenzene	ND	0.0200									Q
1,2-Dichlorobenzene	ND	0.0200									Q
1,2-Dibromo-3-chloropropane	ND	0.500									

Work Order: 1611216
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-15503** SampType: **MBLK** Units: **mg/Kg** Prep Date: **11/21/2016** RunNo: **33045**
Client ID: **MBLKS** Batch ID: **15503** Analysis Date: **11/21/2016** SeqNo: **626213**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trimethylbenzene	ND	0.0200									
Hexachlorobutadiene	ND	0.100									
Naphthalene	ND	0.0300									
1,2,3-Trichlorobenzene	ND	0.0200									
Surr: Dibromofluoromethane	1.23		1.250		98.3	56.5	129				
Surr: Toluene-d8	1.64		1.250		132	64.3	131				S
Surr: 1-Bromo-4-fluorobenzene	1.17		1.250		93.6	63.1	141				

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).
S - Outlying surrogate recovery(ies) observed.

Sample ID **1611186-001BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **11/21/2016** RunNo: **33045**
Client ID: **BATCH** Batch ID: **15503** Analysis Date: **11/21/2016** SeqNo: **626189**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	ND	0.0771						0		30	
Chloromethane	ND	0.0771						0		30	
Vinyl chloride	ND	0.00257						0		30	
Bromomethane	ND	0.116						0		30	
Trichlorofluoromethane (CFC-11)	ND	0.0643						0		30	Q
Chloroethane	ND	0.0771						0		30	Q
1,1-Dichloroethene	ND	0.0643						0		30	Q
Methylene chloride	ND	0.0257						0		30	
trans-1,2-Dichloroethene	ND	0.0257						0		30	
Methyl tert-butyl ether (MTBE)	ND	0.0643						0		30	
1,1-Dichloroethane	ND	0.0257						0		30	
2,2-Dichloropropane	ND	0.0643						0		30	
cis-1,2-Dichloroethene	ND	0.0257						0		30	
Chloroform	ND	0.0257						0		30	
1,1,1-Trichloroethane (TCA)	ND	0.0257						0		30	
1,1-Dichloropropene	ND	0.0257						0		30	

Work Order: 1611216
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1611186-001BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **11/21/2016** RunNo: **33045**
Client ID: **BATCH** Batch ID: **15503** Analysis Date: **11/21/2016** SeqNo: **626189**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Carbon tetrachloride	ND	0.0257						0		30	
1,2-Dichloroethane (EDC)	ND	0.0386						0		30	
Benzene	ND	0.0257						0		30	
Trichloroethene (TCE)	ND	0.0257						0		30	
1,2-Dichloropropane	ND	0.0257						0		30	
Bromodichloromethane	ND	0.0257						0		30	
Dibromomethane	ND	0.0514						0		30	
cis-1,3-Dichloropropene	ND	0.0257						0		30	
Toluene	ND	0.0257						0		30	
trans-1,3-Dichloropropylene	ND	0.0386						0		30	
1,1,2-Trichloroethane	ND	0.0386						0		30	
1,3-Dichloropropane	ND	0.0643						0		30	
Tetrachloroethene (PCE)	ND	0.0257						0		30	
Dibromochloromethane	ND	0.0386						0		30	
1,2-Dibromoethane (EDB)	ND	0.00643						0		30	
Chlorobenzene	ND	0.0257						0		30	
1,1,1,2-Tetrachloroethane	ND	0.0386						0		30	
Ethylbenzene	ND	0.0386						0		30	
m,p-Xylene	ND	0.0257						0		30	
o-Xylene	ND	0.0257						0		30	
Styrene	ND	0.0257						0		30	
Isopropylbenzene	ND	0.103						0		30	
Bromoform	ND	0.0257						0		30	
1,1,2,2-Tetrachloroethane	ND	0.0257						0		30	
n-Propylbenzene	ND	0.0257						0		30	
Bromobenzene	ND	0.0386						0		30	
1,3,5-Trimethylbenzene	ND	0.0257						0		30	
2-Chlorotoluene	ND	0.0257						0		30	
4-Chlorotoluene	ND	0.0257						0		30	
tert-Butylbenzene	ND	0.0257						0		30	
1,2,3-Trichloropropane	ND	0.0257						0		30	

Work Order: 1611216
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1611186-001BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **11/21/2016** RunNo: **33045**
Client ID: **BATCH** Batch ID: **15503** Analysis Date: **11/21/2016** SeqNo: **626189**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	ND	0.0643						0		30	
sec-Butylbenzene	ND	0.0257						0		30	
4-Isopropyltoluene	ND	0.0257						0		30	
1,3-Dichlorobenzene	ND	0.0257						0		30	
1,4-Dichlorobenzene	ND	0.0257						0		30	
n-Butylbenzene	ND	0.0257						0		30	Q
1,2-Dichlorobenzene	ND	0.0257						0		30	Q
1,2-Dibromo-3-chloropropane	ND	0.643						0		30	
1,2,4-Trimethylbenzene	ND	0.0257						0		30	
Hexachlorobutadiene	ND	0.129						0		30	
Naphthalene	ND	0.0386						0		30	
1,2,3-Trichlorobenzene	ND	0.0257						0		30	
Surr: Dibromofluoromethane	1.54		1.607		95.5	56.5	129		0		
Surr: Toluene-d8	1.42		1.607		88.1	64.3	131		0		
Surr: 1-Bromo-4-fluorobenzene	2.13		1.607		132	63.1	141		0		

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample ID **1611186-010BMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **11/21/2016** RunNo: **33045**
Client ID: **BATCH** Batch ID: **15503** Analysis Date: **11/22/2016** SeqNo: **626199**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	1.64	0.0796	1.327	0	124	43.5	121				S
Chloromethane	1.32	0.0796	1.327	0	99.7	45	130				
Vinyl chloride	1.08	0.00265	1.327	0	81.4	51.2	146				
Bromomethane	0.373	0.119	1.327	0	28.1	21.3	120				
Trichlorofluoromethane (CFC-11)	0.385	0.0664	1.327	0	29.0	35	131				SQ
Chloroethane	0.173	0.0796	1.327	0	13.0	43.8	117				SQ
1,1-Dichloroethene	0.316	0.0664	1.327	0	23.8	61.9	141				SQ
Methylene chloride	1.13	0.0265	1.327	0	84.8	54.7	142				
trans-1,2-Dichloroethene	0.981	0.0265	1.327	0	73.9	52	136				

Work Order: 1611216
CLIENT: GeoEngineers
Project: Rufus Block 20

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Volatile Organic Compounds by EPA Method 8260C

Sample ID **1611186-010BMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **11/21/2016** RunNo: **33045**
Client ID: **BATCH** Batch ID: **15503** Analysis Date: **11/22/2016** SeqNo: **626199**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	1.06	0.0664	1.327	0	79.9	54.4	132				
1,1-Dichloroethane	0.972	0.0265	1.327	0	73.2	51.8	141				
2,2-Dichloropropane	0.906	0.0664	1.327	0	68.3	36	123				
cis-1,2-Dichloroethene	1.03	0.0265	1.327	0	77.8	58.6	136				
Chloroform	0.984	0.0265	1.327	0.02456	72.3	53.2	129				B
1,1,1-Trichloroethane (TCA)	0.986	0.0265	1.327	0	74.2	58.3	145				
1,1-Dichloropropene	1.09	0.0265	1.327	0	82.0	55.1	138				
Carbon tetrachloride	1.05	0.0265	1.327	0	79.0	53.3	144				
1,2-Dichloroethane (EDC)	0.978	0.0398	1.327	0	73.7	51.3	139				
Benzene	1.33	0.0265	1.327	0	101	63.5	133				
Trichloroethene (TCE)	1.24	0.0265	1.327	0	93.4	68.6	132				
1,2-Dichloropropane	1.18	0.0265	1.327	0	88.7	59	136				
Bromodichloromethane	1.11	0.0265	1.327	0	83.6	50.7	141				
Dibromomethane	1.24	0.0531	1.327	0	93.2	50.6	137				
cis-1,3-Dichloropropene	1.24	0.0265	1.327	0	93.6	50.4	138				
Toluene	1.24	0.0265	1.327	0	93.4	63.4	132				
trans-1,3-Dichloropropylene	1.11	0.0398	1.327	0	84.0	44.1	147				
1,1,2-Trichloroethane	1.22	0.0398	1.327	0	92.1	51.6	137				
1,3-Dichloropropane	1.18	0.0664	1.327	0	89.1	53.1	134				
Tetrachloroethene (PCE)	1.12	0.0265	1.327	0	84.7	35.6	158				
Dibromochloromethane	1.13	0.0398	1.327	0	85.2	55.3	140				
1,2-Dibromoethane (EDB)	1.38	0.00664	1.327	0	104	50.4	136				
Chlorobenzene	1.25	0.0265	1.327	0	94.5	60	133				
1,1,1,2-Tetrachloroethane	1.13	0.0398	1.327	0	85.4	53.1	142				
Ethylbenzene	1.20	0.0398	1.327	0	90.1	54.5	134				
m,p-Xylene	2.39	0.0265	2.655	0	90.1	53.1	132				
o-Xylene	1.20	0.0265	1.327	0	90.1	53.3	139				
Styrene	1.25	0.0265	1.327	0	93.8	51.1	132				
Isopropylbenzene	1.16	0.106	1.327	0	87.6	58.9	138				
Bromoform	1.27	0.0265	1.327	0	96.0	57.9	130				
1,1,2,2-Tetrachloroethane	1.28	0.0265	1.327	0	96.7	51.9	131				

Work Order: 1611216
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1611186-010BMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **11/21/2016** RunNo: **33045**
Client ID: **BATCH** Batch ID: **15503** Analysis Date: **11/22/2016** SeqNo: **626199**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
n-Propylbenzene	1.20	0.0265	1.327	0	90.8	53.6	140				
Bromobenzene	1.32	0.0398	1.327	0	99.1	54.2	140				
1,3,5-Trimethylbenzene	1.15	0.0265	1.327	0	86.5	51.8	136				
2-Chlorotoluene	1.13	0.0265	1.327	0	85.2	51.6	136				
4-Chlorotoluene	1.18	0.0265	1.327	0	89.1	50.1	139				
tert-Butylbenzene	1.15	0.0265	1.327	0	87.0	50.5	135				
1,2,3-Trichloropropane	1.11	0.0265	1.327	0	83.3	50.5	131				
1,2,4-Trichlorobenzene	1.80	0.0664	1.327	0	136	50.8	130				S
sec-Butylbenzene	1.19	0.0265	1.327	0	90.0	52.6	141				
4-Isopropyltoluene	1.14	0.0265	1.327	0	86.2	52.9	134				
1,3-Dichlorobenzene	1.29	0.0265	1.327	0	97.0	52.6	131				
1,4-Dichlorobenzene	1.23	0.0265	1.327	0	92.6	52.9	129				
n-Butylbenzene	1.28	0.0265	1.327	0	96.8	52.6	130				Q
1,2-Dichlorobenzene	1.35	0.0265	1.327	0	102	55.8	129				Q
1,2-Dibromo-3-chloropropane	1.45	0.664	1.327	0	109	40.5	131				
1,2,4-Trimethylbenzene	1.23	0.0265	1.327	0	93.0	50.6	137				
Hexachlorobutadiene	0.230	0.133	1.327	0	17.3	40.6	158				S
Naphthalene	1.78	0.0398	1.327	0	134	52.3	124				S
1,2,3-Trichlorobenzene	1.90	0.0265	1.327	0	143	54.4	124				S
Surr: Dibromofluoromethane	1.45		1.659		87.2	56.5	129				
Surr: Toluene-d8	1.71		1.659		103	64.3	131				
Surr: 1-Bromo-4-fluorobenzene	1.72		1.659		103	63.1	141				

NOTES:
S - Outlying spike recovery(ies) observed. The method is in control as indicated by the Laboratory Control Sample (LCS).
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample ID **1611186-010BMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **11/21/2016** RunNo: **33045**
Client ID: **BATCH** Batch ID: **15503** Analysis Date: **11/22/2016** SeqNo: **626200**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	1.26	0.0796	1.327	0	95.3	43.5	121	1.642	26.0	30	

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CLIENT: GeoEngineers
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Volatile Organic Compounds by EPA Method 8260C

Sample ID **1611186-010BMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **11/21/2016** RunNo: **33045**
Client ID: **BATCH** Batch ID: **15503** Analysis Date: **11/22/2016** SeqNo: **626200**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloromethane	1.57	0.0796	1.327	0	119	45	130	1.323	17.4	30	
Vinyl chloride	1.51	0.00265	1.327	0	114	51.2	146	1.080	33.0	30	R
Bromomethane	0.993	0.119	1.327	0	74.8	21.3	120	0.3730	90.8	30	R
Trichlorofluoromethane (CFC-11)	1.14	0.0664	1.327	0	85.9	35	131	0.3849	99.0	30	RQ
Chloroethane	0.983	0.0796	1.327	0	74.1	43.8	117	0.1726	140	30	RQ
1,1-Dichloroethene	1.18	0.0664	1.327	0	89.1	61.9	141	0.3159	116	30	RQ
Methylene chloride	1.43	0.0265	1.327	0	108	54.7	142	1.126	23.8	30	
trans-1,2-Dichloroethene	1.48	0.0265	1.327	0	112	52	136	0.9809	40.7	30	R
Methyl tert-butyl ether (MTBE)	1.45	0.0664	1.327	0	110	54.4	132	1.061	31.3	30	R
1,1-Dichloroethane	1.55	0.0265	1.327	0	117	51.8	141	0.9716	46.0	30	R
2,2-Dichloropropane	1.49	0.0664	1.327	0	112	36	123	0.9059	48.5	30	R
cis-1,2-Dichloroethene	1.73	0.0265	1.327	0	131	58.6	136	1.033	50.6	30	R
Chloroform	1.56	0.0265	1.327	0.02456	116	53.2	129	0.9836	45.5	30	BR
1,1,1-Trichloroethane (TCA)	1.36	0.0265	1.327	0	102	58.3	145	0.9856	31.6	30	R
1,1-Dichloropropene	1.33	0.0265	1.327	0	100	55.1	138	1.088	19.9	30	
Carbon tetrachloride	1.31	0.0265	1.327	0	98.4	53.3	144	1.049	21.8	30	
1,2-Dichloroethane (EDC)	1.45	0.0398	1.327	0	110	51.3	139	0.9776	39.2	30	R
Benzene	1.31	0.0265	1.327	0	98.5	63.5	133	1.334	2.01	30	
Trichloroethene (TCE)	1.17	0.0265	1.327	0	88.5	68.6	132	1.239	5.39	30	
1,2-Dichloropropane	1.59	0.0265	1.327	0	120	59	136	1.177	29.7	30	
Bromodichloromethane	1.37	0.0265	1.327	0	104	50.7	141	1.110	21.3	30	
Dibromomethane	1.29	0.0531	1.327	0	97.6	50.6	137	1.237	4.56	30	
cis-1,3-Dichloropropene	1.67	0.0265	1.327	0	126	50.4	138	1.242	29.4	30	
Toluene	1.72	0.0265	1.327	0	130	63.4	132	1.239	32.6	30	R
trans-1,3-Dichloropropylene	1.62	0.0398	1.327	0	122	44.1	147	1.115	37.1	30	R
1,1,2-Trichloroethane	1.83	0.0398	1.327	0	138	51.6	137	1.222	39.8	30	RS
1,3-Dichloropropane	1.71	0.0664	1.327	0	129	53.1	134	1.183	36.4	30	R
Tetrachloroethene (PCE)	1.56	0.0265	1.327	0	117	35.6	158	1.124	32.3	30	R
Dibromochloromethane	1.39	0.0398	1.327	0	104	55.3	140	1.131	20.3	30	
1,2-Dibromoethane (EDB)	1.33	0.00664	1.327	0	100	50.4	136	1.378	3.68	30	
Chlorobenzene	1.28	0.0265	1.327	0	96.2	60	133	1.254	1.73	30	

Work Order: 1611216
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1611186-010BMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **11/21/2016** RunNo: **33045**
Client ID: **BATCH** Batch ID: **15503** Analysis Date: **11/22/2016** SeqNo: **626200**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	1.27	0.0398	1.327	0	95.6	53.1	142	1.134	11.2	30	
Ethylbenzene	1.25	0.0398	1.327	0	94.5	54.5	134	1.195	4.77	30	
m,p-Xylene	2.48	0.0265	2.655	0	93.4	53.1	132	2.391	3.60	30	
o-Xylene	1.24	0.0265	1.327	0	93.2	53.3	139	1.196	3.33	30	
Styrene	1.31	0.0265	1.327	0	98.8	51.1	132	1.245	5.19	30	
Isopropylbenzene	1.24	0.106	1.327	0	93.4	58.9	138	1.163	6.36	30	
Bromoform	1.28	0.0265	1.327	0	96.6	57.9	130	1.274	0.571	30	
1,1,2,2-Tetrachloroethane	1.22	0.0265	1.327	0	92.0	51.9	131	1.284	4.98	30	
n-Propylbenzene	1.27	0.0265	1.327	0	96.0	53.6	140	1.205	5.57	30	
Bromobenzene	1.27	0.0398	1.327	0	95.8	54.2	140	1.315	3.44	30	
1,3,5-Trimethylbenzene	1.26	0.0265	1.327	0	95.3	51.8	136	1.148	9.63	30	
2-Chlorotoluene	1.30	0.0265	1.327	0	97.9	51.6	136	1.132	13.8	30	
4-Chlorotoluene	1.33	0.0265	1.327	0	101	50.1	139	1.182	12.1	30	
tert-Butylbenzene	1.27	0.0265	1.327	0	95.8	50.5	135	1.154	9.69	30	
1,2,3-Trichloropropane	1.20	0.0265	1.327	0	90.1	50.5	131	1.106	7.79	30	
1,2,4-Trichlorobenzene	1.52	0.0664	1.327	0	114	50.8	130	1.804	17.2	30	
sec-Butylbenzene	1.38	0.0265	1.327	0	104	52.6	141	1.195	14.6	30	
4-Isopropyltoluene	1.27	0.0265	1.327	0	96.1	52.9	134	1.145	10.8	30	
1,3-Dichlorobenzene	1.35	0.0265	1.327	0	102	52.6	131	1.287	4.98	30	
1,4-Dichlorobenzene	1.36	0.0265	1.327	0	103	52.9	129	1.230	10.4	30	
n-Butylbenzene	1.23	0.0265	1.327	0	92.9	52.6	130	1.285	4.11	30	Q
1,2-Dichlorobenzene	1.21	0.0265	1.327	0	91.3	55.8	129	1.352	10.9	30	Q
1,2-Dibromo-3-chloropropane	1.56	0.664	1.327	0	117	40.5	131	1.451	7.10	30	
1,2,4-Trimethylbenzene	1.26	0.0265	1.327	0	94.8	50.6	137	1.234	2.02	30	
Hexachlorobutadiene	1.41	0.133	1.327	0	106	40.6	158	0.2296	144	30	R
Naphthalene	1.74	0.0398	1.327	0	131	52.3	124	1.778	1.88	30	S
1,2,3-Trichlorobenzene	1.62	0.0265	1.327	0	122	54.4	124	1.904	16.4	30	
Surr: Dibromofluoromethane	1.77		1.659		107	56.5	129		0		
Surr: Toluene-d8	2.14		1.659		129	64.3	131		0		
Surr: 1-Bromo-4-fluorobenzene	1.78		1.659		107	63.1	141		0		

Work Order: 1611216
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1611186-010BMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **11/21/2016** RunNo: **33045**
Client ID: **BATCH** Batch ID: **15503** Analysis Date: **11/22/2016** SeqNo: **626200**

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

NOTES:
S - Outlying spike recovery(ies) observed. The method is in control as indicated by the Laboratory Control Sample (LCS).
R - High RPD observed. The method is in control as indicated by the LCS.
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample ID **1611201-001BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **11/21/2016** RunNo: **33045**
Client ID: **BATCH** Batch ID: **15503** Analysis Date: **11/22/2016** SeqNo: **626202**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	ND	0.0690						0		30	
Chloromethane	ND	0.0690						0		30	
Vinyl chloride	ND	0.00230						0		30	
Bromomethane	ND	0.103						0		30	
Trichlorofluoromethane (CFC-11)	ND	0.0575						0		30	Q
Chloroethane	ND	0.0690						0		30	Q
1,1-Dichloroethene	ND	0.0575						0		30	Q
Methylene chloride	ND	0.0230						0		30	
trans-1,2-Dichloroethene	ND	0.0230						0		30	
Methyl tert-butyl ether (MTBE)	ND	0.0575						0		30	
1,1-Dichloroethane	ND	0.0230						0		30	
2,2-Dichloropropane	ND	0.0575						0		30	
cis-1,2-Dichloroethene	ND	0.0230						0		30	
Chloroform	ND	0.0230						0		30	
1,1,1-Trichloroethane (TCA)	ND	0.0230						0		30	
1,1-Dichloropropene	ND	0.0230						0		30	
Carbon tetrachloride	ND	0.0230						0		30	
1,2-Dichloroethane (EDC)	ND	0.0345						0		30	
Benzene	ND	0.0230						0		30	
Trichloroethene (TCE)	ND	0.0230						0		30	
1,2-Dichloropropane	ND	0.0230						0		30	
Bromodichloromethane	ND	0.0230						0		30	

Work Order: 1611216
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1611201-001BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **11/21/2016** RunNo: **33045**
Client ID: **BATCH** Batch ID: **15503** Analysis Date: **11/22/2016** SeqNo: **626202**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dibromomethane	ND	0.0460						0		30	
cis-1,3-Dichloropropene	ND	0.0230						0		30	
Toluene	ND	0.0230						0		30	
trans-1,3-Dichloropropylene	ND	0.0345						0		30	
1,1,2-Trichloroethane	ND	0.0345						0		30	
1,3-Dichloropropane	ND	0.0575						0		30	
Tetrachloroethene (PCE)	ND	0.0230						0		30	
Dibromochloromethane	ND	0.0345						0		30	
1,2-Dibromoethane (EDB)	ND	0.00575						0		30	
Chlorobenzene	ND	0.0230						0		30	
1,1,1,2-Tetrachloroethane	ND	0.0345						0		30	
Ethylbenzene	ND	0.0345						0		30	
m,p-Xylene	ND	0.0230						0		30	
o-Xylene	ND	0.0230						0		30	
Styrene	ND	0.0230						0		30	
Isopropylbenzene	ND	0.0920						0		30	
Bromoform	ND	0.0230						0		30	
1,1,2,2-Tetrachloroethane	ND	0.0230						0		30	
n-Propylbenzene	ND	0.0230						0		30	
Bromobenzene	ND	0.0345						0		30	
1,3,5-Trimethylbenzene	ND	0.0230						0		30	
2-Chlorotoluene	ND	0.0230						0		30	
4-Chlorotoluene	ND	0.0230						0		30	
tert-Butylbenzene	ND	0.0230						0		30	
1,2,3-Trichloropropane	ND	0.0230						0		30	
1,2,4-Trichlorobenzene	ND	0.0575						0		30	
sec-Butylbenzene	ND	0.0230						0		30	
4-Isopropyltoluene	ND	0.0230						0		30	
1,3-Dichlorobenzene	ND	0.0230						0		30	
1,4-Dichlorobenzene	ND	0.0230						0		30	
n-Butylbenzene	ND	0.0230						0		30	

Work Order: 1611216
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1611201-001BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **11/21/2016** RunNo: **33045**
Client ID: **BATCH** Batch ID: **15503** Analysis Date: **11/22/2016** SeqNo: **626202**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2-Dichlorobenzene	ND	0.0230						0		30	
1,2-Dibromo-3-chloropropane	ND	0.575						0		30	
1,2,4-Trimethylbenzene	ND	0.0230						0		30	
Hexachlorobutadiene	ND	0.115						0		30	
Naphthalene	ND	0.0345						0		30	
1,2,3-Trichlorobenzene	ND	0.0230						0		30	
Surr: Dibromofluoromethane	1.40		1.437		97.6	56.5	129		0		
Surr: Toluene-d8	1.60		1.437		112	64.3	131		0		
Surr: 1-Bromo-4-fluorobenzene	1.53		1.437		106	63.1	141		0		

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample Log-In Check List

Client Name:	**GEI**	Work Order Number:	**1611216**
Logged by:	**Erica Silva**	Date Received:	**11/21/2016 1:20:00 PM**

Chain of Custody

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

Log In

3.	Coolers are present?	Yes ☑	No ☐	NA ☐
4.	Shipping container/cooler in good condition?	Yes ☑	No ☐	
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes ☐	No ☐	Not Required ☑
6.	Was an attempt made to cool the samples?	Yes ☐	No ☑	NA ☐
		Unknown prior to receipt		
7.	Were all items received at a temperature of >0°C to 10.0°C*	Yes ☐	No ☑	NA ☐
		Please refer to Item Information		
8.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
9.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
10.	Are samples properly preserved?	Yes ☑	No ☐	
11.	Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
12.	Is there headspace in the VOA vials?	Yes ☐	No ☐	NA ☑
13.	Did all samples containers arrive in good condition(unbroken)?	Yes ☑	No ☐	
14.	Does paperwork match bottle labels?	Yes ☑	No ☐	
15.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
16.	Is it clear what analyses were requested?	Yes ☑	No ☐	
17.	Were all holding times able to be met?	Yes ☑	No ☐	

Special Handling (if applicable)

18.	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: _____

19. Additional remarks:

Item Information

Item #	Temp ºC
Cooler	12.8
Sample	13.2

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Chain of Custody Record and Laboratory Services Agreement

Fremont Analytical
3600 Fremont Ave N. Tel: 206-352-3790
Seattle, WA 98103 Fax: 206-352-7178

Date: 11/21/16 Laboratory Project No (internal): 16112116

Page: 1 of: 2

Client: Geo Engineers
Address: 1600 Stewart St, Suite 1700
City, State, Zip: Seattle, WA
Telephone: Fax:

Project Name: Rufus Block 20
Project No: 20134-001-24 Collected by: Sydney Bronson
Location: Seattle, WA
Report To (PM): Chris Brown
PM Email: cbrown@geoengineers.com

*Matrix Codes: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T) | Dissolved (D)	Anions (IC)***	EDB (8011)	# Containers			Comments
1	TP-W355-5.0	11/21/16	1140	S	X			X		X		X		X	T			3			
2	TP-W4520-5.0		1130		X			X		X		X		X	T						
3	TP-W4535-2.5		0920																		
4	TP-W4535-5.0		0925																		
5	TP-W4535-7.5		0930																		
6	TP-W4535-10.0		0935		X			X		X		X		X	T						
7	TP-W4535-12.5		0940																		
8	TP-W4535-15.0		0945																		
9	TP-W1459-2.5		1010																		
10	TP-W1459-5.0		1015		X			X		X		X		X	T						

**Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL *Individual:* Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☒ Disposal by Lab (Samples will be held for 30 days unless otherwise noted. A fee may be assessed if samples are retained after 30 days.)

Turn-around times for samples received after 4:00pm will begin on the following business day.

Special Remarks:

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above, that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x Sydney	11/21/16 1320	x	11/21/16 1320
Relinquished	Date/Time	Received	Date/Time
x		x	

TAT → SameDay^ NextDay^ 2 Day 3 Day STD

^Please coordinate with the lab in advance

Chain of Custody Record and Laboratory Services Agreement

Fremont Analytical
3600 Fremont Ave N. Tel: 206-352-3790
Seattle, WA 98103 Fax: 206-352-7178

Date: 11/21/16 Laboratory Project No (internal): 1611216

Page: 2 of: 2

Client: GeoEngineers
Address: 1600 Stewart St, Suite 1700
City, State, Zip: Seattle, WA
Telephone: Fax:

Project Name: Rufus - Block 20
Project No: 20434-001-04 Collected by: SJB
Location: Seattle, WA
Report To (PM): Chris Brown
PM Email: cbrown@geoengineers.com

*Matrix Codes: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T) | Dissolved (D)	Anions (IC)***	EDB (8011)	# Containers	Comments
1	TP-W1459-7.5	11/21/16	1020	S														3	
2	TP-W14536-2.5		0820																
3	TP-W14536-5.0		0825																
4	TP-W14536-7.5		0830		X			X		X	X	X	X		T				
5	TP-W14536-10.0		0835																
6	TP-W14536-12.5		0840																
7																			
8																			
9																			
10																			

**Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL *Individual:* Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☒ Disposal by Lab (Samples will be held for 30 days unless otherwise noted. A fee may be assessed if samples are retained after 30 days.)

Turn-around times for samples received after 4:00pm will begin on the following business day.

Special Remarks:

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above, that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x Sydney	11/21/16 1320	x	11/21/16 1320
Relinquished	Date/Time	Received	Date/Time
x		x	

TAT → SameDay^ NextDay^ 2 Day 3 Day STD

^Please coordinate with the lab in advance

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

GeoEngineers
Chris Brown
600 Stewart Street, Suite 1700
Seattle, WA 98101

RE: Rufus Block 20
Work Order Number: 1611216

November 30, 2016

Attention Chris Brown:

Fremont Analytical, Inc. received 16 sample(s) on 11/21/2016 for the analyses presented in the following report.

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.
Gasoline by NWTPH-Gx
Hexavalent Chromium by EPA Method 7196
Mercury by EPA Method 7471
Metals (SW6020) with TCLP Extraction (EPA 1311)
pH by EPA Method 9045
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)
Sample Moisture (Percent Moisture)
Total Metals by EPA Method 6020
Volatile Organic Compounds by EPA Method 8260C

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,



Mike Ridgeway
Laboratory Director

Date: *11/30/2016*

CLIENT: GeoEngineers
Project: Rufus Block 20
Work Order: 1611216

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1611216-001	TP-W3S5-5.0	11/21/2016 11:40 AM	11/21/2016 1:20 PM
1611216-002	TP-W4S20-5.0	11/21/2016 11:30 AM	11/21/2016 1:20 PM
1611216-003	TP-W4S35-2.5	11/21/2016 9:20 AM	11/21/2016 1:20 PM
1611216-004	TP-W4S35-5.0	11/21/2016 9:25 AM	11/21/2016 1:20 PM
1611216-005	TP-W4S35-7.5	11/21/2016 9:30 AM	11/21/2016 1:20 PM
1611216-006	TP-W4S35-10.0	11/21/2016 9:35 AM	11/21/2016 1:20 PM
1611216-007	TP-W4S35-12.5	11/21/2016 9:40 AM	11/21/2016 1:20 PM
1611216-008	TP-W4S35-15.0	11/21/2016 9:45 AM	11/21/2016 1:20 PM
1611216-009	TP-W14S9-2.5	11/21/2016 10:10 AM	11/21/2016 1:20 PM
1611216-010	TP-W14S9-5.0	11/21/2016 10:15 AM	11/21/2016 1:20 PM
1611216-011	TP-W14S9-7.5	11/21/2016 10:20 AM	11/21/2016 1:20 PM
1611216-012	TP-W14S36-2.5	11/21/2016 8:20 AM	11/21/2016 1:20 PM
1611216-013	TP-W14S36-5.0	11/21/2016 8:25 AM	11/21/2016 1:20 PM
1611216-014	TP-W14S36-7.5	11/21/2016 8:30 AM	11/21/2016 1:20 PM
1611216-015	TP-W14S36-10.0	11/21/2016 8:35 AM	11/21/2016 1:20 PM
1611216-016	TP-W14S36-12.5	11/21/2016 8:40 AM	11/21/2016 1:20 PM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

Case Narrative

WO#: **1611216**
Date: **11/30/2016**

CLIENT: GeoEngineers
Project: Rufus Block 20

I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Analytical Report

Work Order: **1611216**
Date Reported: **11/30/2016**

Client: GeoEngineers
Collection Date: 11/21/2016 11:40:00 AM
Project: Rufus Block 20
Lab ID: 1611216-001
Matrix: Soil
Client Sample ID: **TP-W3S5-5.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 15507		Analyst: WC
Diesel (Fuel Oil)	ND	21.2		mg/Kg-dry	1	11/21/2016 7:44:00 PM
Heavy Oil	ND	52.9		mg/Kg-dry	1	11/21/2016 7:44:00 PM
Surr: 2-Fluorobiphenyl	75.4	50-150		%Rec	1	11/21/2016 7:44:00 PM
Surr: o-Terphenyl	79.5	50-150		%Rec	1	11/21/2016 7:44:00 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 15505		Analyst: BT
Naphthalene	ND	44.0		µg/Kg-dry	1	11/22/2016 1:29:30 AM
2-Methylnaphthalene	ND	44.0		µg/Kg-dry	1	11/22/2016 1:29:30 AM
1-Methylnaphthalene	ND	44.0		µg/Kg-dry	1	11/22/2016 1:29:30 AM
Acenaphthylene	ND	44.0		µg/Kg-dry	1	11/22/2016 1:29:30 AM
Acenaphthene	ND	44.0		µg/Kg-dry	1	11/22/2016 1:29:30 AM
Fluorene	ND	44.0		µg/Kg-dry	1	11/22/2016 1:29:30 AM
Phenanthrene	ND	44.0		µg/Kg-dry	1	11/22/2016 1:29:30 AM
Anthracene	ND	44.0		µg/Kg-dry	1	11/22/2016 1:29:30 AM
Fluoranthene	78.6	44.0		µg/Kg-dry	1	11/22/2016 1:29:30 AM
Pyrene	85.3	44.0		µg/Kg-dry	1	11/22/2016 1:29:30 AM
Benz(a)anthracene	65.0	44.0		µg/Kg-dry	1	11/22/2016 1:29:30 AM
Chrysene	52.9	44.0		µg/Kg-dry	1	11/22/2016 1:29:30 AM
Benzo(b)fluoranthene	92.7	44.0		µg/Kg-dry	1	11/22/2016 1:29:30 AM
Benzo(k)fluoranthene	ND	44.0		µg/Kg-dry	1	11/22/2016 1:29:30 AM
Benzo(a)pyrene	86.4	44.0	Q+	µg/Kg-dry	1	11/22/2016 1:29:30 AM
Indeno(1,2,3-cd)pyrene	ND	44.0		µg/Kg-dry	1	11/22/2016 1:29:30 AM
Dibenz(a,h)anthracene	ND	44.0		µg/Kg-dry	1	11/22/2016 1:29:30 AM
Benzo(g,h,i)perylene	ND	44.0		µg/Kg-dry	1	11/22/2016 1:29:30 AM
Surr: 2-Fluorobiphenyl	87.2	24.5-139		%Rec	1	11/22/2016 1:29:30 AM
Surr: Terphenyl-d14 (surr)	95.7	44.3-176		%Rec	1	11/22/2016 1:29:30 AM

NOTES:
Q+ - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF) - high bias

Gasoline by NWTPH-Gx				Batch ID: 15503		Analyst: EM
Gasoline	ND	5.57		mg/Kg-dry	1	11/22/2016 7:02:00 AM
Surr: Toluene-d8	103	65-135		%Rec	1	11/22/2016 7:02:00 AM
Surr: 4-Bromofluorobenzene	80.1	65-135		%Rec	1	11/22/2016 7:02:00 AM

Client: GeoEngineers
Collection Date: 11/21/2016 11:40:00 AM
Project: Rufus Block 20
Lab ID: 1611216-001
Matrix: Soil
Client Sample ID: **TP-W3S5-5.0**

Volatile Organic Compounds by EPA Method 8260C

Batch ID: 15503 Analyst: EM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane (CFC-12)	ND	0.0668		mg/Kg-dry	1	11/22/2016 7:02:00 AM
Chloromethane	ND	0.0668		mg/Kg-dry	1	11/22/2016 7:02:00 AM
Vinyl chloride	ND	0.00223		mg/Kg-dry	1	11/22/2016 7:02:00 AM
Bromomethane	ND	0.100		mg/Kg-dry	1	11/22/2016 7:02:00 AM
Trichlorofluoromethane (CFC-11)	ND	0.0557	Q	mg/Kg-dry	1	11/22/2016 7:02:00 AM
Chloroethane	ND	0.0668	Q	mg/Kg-dry	1	11/22/2016 7:02:00 AM
1,1-Dichloroethene	ND	0.0557	Q	mg/Kg-dry	1	11/22/2016 7:02:00 AM
Methylene chloride	ND	0.0223		mg/Kg-dry	1	11/22/2016 7:02:00 AM
trans-1,2-Dichloroethene	ND	0.0223		mg/Kg-dry	1	11/22/2016 7:02:00 AM
Methyl tert-butyl ether (MTBE)	ND	0.0557		mg/Kg-dry	1	11/22/2016 7:02:00 AM
1,1-Dichloroethane	ND	0.0223		mg/Kg-dry	1	11/22/2016 7:02:00 AM
2,2-Dichloropropane	ND	0.0557		mg/Kg-dry	1	11/22/2016 7:02:00 AM
cis-1,2-Dichloroethene	ND	0.0223		mg/Kg-dry	1	11/22/2016 7:02:00 AM
Chloroform	ND	0.0223		mg/Kg-dry	1	11/22/2016 7:02:00 AM
1,1,1-Trichloroethane (TCA)	ND	0.0223		mg/Kg-dry	1	11/22/2016 7:02:00 AM
1,1-Dichloropropene	ND	0.0223		mg/Kg-dry	1	11/22/2016 7:02:00 AM
Carbon tetrachloride	ND	0.0223		mg/Kg-dry	1	11/22/2016 7:02:00 AM
1,2-Dichloroethane (EDC)	ND	0.0334		mg/Kg-dry	1	11/22/2016 7:02:00 AM
Benzene	ND	0.0223		mg/Kg-dry	1	11/22/2016 7:02:00 AM
Trichloroethene (TCE)	ND	0.0223		mg/Kg-dry	1	11/22/2016 7:02:00 AM
1,2-Dichloropropane	ND	0.0223		mg/Kg-dry	1	11/22/2016 7:02:00 AM
Bromodichloromethane	ND	0.0223		mg/Kg-dry	1	11/22/2016 7:02:00 AM
Dibromomethane	ND	0.0445		mg/Kg-dry	1	11/22/2016 7:02:00 AM
cis-1,3-Dichloropropene	ND	0.0223		mg/Kg-dry	1	11/22/2016 7:02:00 AM
Toluene	ND	0.0223		mg/Kg-dry	1	11/22/2016 7:02:00 AM
trans-1,3-Dichloropropylene	ND	0.0334		mg/Kg-dry	1	11/22/2016 7:02:00 AM
1,1,2-Trichloroethane	ND	0.0334		mg/Kg-dry	1	11/22/2016 7:02:00 AM
1,3-Dichloropropane	ND	0.0557		mg/Kg-dry	1	11/22/2016 7:02:00 AM
Tetrachloroethene (PCE)	ND	0.0223		mg/Kg-dry	1	11/22/2016 7:02:00 AM
Dibromochloromethane	ND	0.0334		mg/Kg-dry	1	11/22/2016 7:02:00 AM
1,2-Dibromoethane (EDB)	ND	0.00557		mg/Kg-dry	1	11/22/2016 7:02:00 AM
Chlorobenzene	ND	0.0223		mg/Kg-dry	1	11/22/2016 7:02:00 AM
1,1,1,2-Tetrachloroethane	ND	0.0334		mg/Kg-dry	1	11/22/2016 7:02:00 AM
Ethylbenzene	ND	0.0334		mg/Kg-dry	1	11/22/2016 7:02:00 AM
m,p-Xylene	ND	0.0223		mg/Kg-dry	1	11/22/2016 7:02:00 AM
o-Xylene	ND	0.0223		mg/Kg-dry	1	11/22/2016 7:02:00 AM
Styrene	ND	0.0223		mg/Kg-dry	1	11/22/2016 7:02:00 AM
Isopropylbenzene	ND	0.0891		mg/Kg-dry	1	11/22/2016 7:02:00 AM
Bromoform	ND	0.0223		mg/Kg-dry	1	11/22/2016 7:02:00 AM

Client: GeoEngineers
Collection Date: 11/21/2016 11:40:00 AM
Project: Rufus Block 20
Lab ID: 1611216-001
Matrix: Soil
Client Sample ID: **TP-W3S5-5.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15503		Analyst: EM
1,1,2,2-Tetrachloroethane	ND	0.0223		mg/Kg-dry	1	11/22/2016 7:02:00 AM
n-Propylbenzene	ND	0.0223		mg/Kg-dry	1	11/22/2016 7:02:00 AM
Bromobenzene	ND	0.0334		mg/Kg-dry	1	11/22/2016 7:02:00 AM
1,3,5-Trimethylbenzene	ND	0.0223		mg/Kg-dry	1	11/22/2016 7:02:00 AM
2-Chlorotoluene	ND	0.0223		mg/Kg-dry	1	11/22/2016 7:02:00 AM
4-Chlorotoluene	ND	0.0223		mg/Kg-dry	1	11/22/2016 7:02:00 AM
tert-Butylbenzene	ND	0.0223		mg/Kg-dry	1	11/22/2016 7:02:00 AM
1,2,3-Trichloropropane	ND	0.0223		mg/Kg-dry	1	11/22/2016 7:02:00 AM
1,2,4-Trichlorobenzene	ND	0.0557		mg/Kg-dry	1	11/22/2016 7:02:00 AM
sec-Butylbenzene	ND	0.0223		mg/Kg-dry	1	11/22/2016 7:02:00 AM
4-Isopropyltoluene	ND	0.0223		mg/Kg-dry	1	11/22/2016 7:02:00 AM
1,3-Dichlorobenzene	ND	0.0223		mg/Kg-dry	1	11/22/2016 7:02:00 AM
1,4-Dichlorobenzene	ND	0.0223		mg/Kg-dry	1	11/22/2016 7:02:00 AM
n-Butylbenzene	ND	0.0223		mg/Kg-dry	1	11/22/2016 7:02:00 AM
1,2-Dichlorobenzene	ND	0.0223		mg/Kg-dry	1	11/22/2016 7:02:00 AM
1,2-Dibromo-3-chloropropane	ND	0.557		mg/Kg-dry	1	11/22/2016 7:02:00 AM
1,2,4-Trimethylbenzene	ND	0.0223		mg/Kg-dry	1	11/22/2016 7:02:00 AM
Hexachlorobutadiene	ND	0.111		mg/Kg-dry	1	11/22/2016 7:02:00 AM
Naphthalene	ND	0.0334		mg/Kg-dry	1	11/22/2016 7:02:00 AM
1,2,3-Trichlorobenzene	ND	0.0223		mg/Kg-dry	1	11/22/2016 7:02:00 AM
Surr: Dibromofluoromethane	87.1	56.5-129		%Rec	1	11/22/2016 7:02:00 AM
Surr: Toluene-d8	95.1	64.3-131		%Rec	1	11/22/2016 7:02:00 AM
Surr: 1-Bromo-4-fluorobenzene	95.1	63.1-141		%Rec	1	11/22/2016 7:02:00 AM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Mercury by EPA Method 7471				Batch ID: 15509		Analyst: WF
Mercury	ND	0.290		mg/Kg-dry	1	11/22/2016 5:21:29 PM
Total Metals by EPA Method 6020				Batch ID: 15512		Analyst: TN
Arsenic	6.47	0.0902		mg/Kg-dry	1	11/22/2016 3:43:45 PM
Barium	204	0.451		mg/Kg-dry	1	11/22/2016 3:43:45 PM
Cadmium	0.293	0.180		mg/Kg-dry	1	11/22/2016 3:43:45 PM
Chromium	55.1	0.0902		mg/Kg-dry	1	11/22/2016 3:43:45 PM
Lead	165	0.180		mg/Kg-dry	1	11/22/2016 3:43:45 PM
Selenium	1.41	0.451		mg/Kg-dry	1	11/22/2016 3:43:45 PM

Analytical Report

Work Order: **1611216**
Date Reported: **11/30/2016**

Client: GeoEngineers
Collection Date: 11/21/2016 11:40:00 AM
Project: Rufus Block 20
Lab ID: 1611216-001
Matrix: Soil
Client Sample ID: **TP-W3S5-5.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 15512		Analyst: TN
Silver	0.129	0.0902		mg/Kg-dry	1	11/22/2016 3:43:45 PM
Metals (SW6020) with TCLP Extraction (EPA 1311)				Batch ID: 15541		Analyst: TN
Lead	0.237	0.200		mg/L	1	11/29/2016 1:56:51 PM
Sample Moisture (Percent Moisture)				Batch ID: R33041		Analyst: BB
Percent Moisture	20.2			wt%	1	11/22/2016 8:58:04 AM

Client: GeoEngineers
Collection Date: 11/21/2016 11:30:00 AM
Project: Rufus Block 20
Lab ID: 1611216-002
Matrix: Soil
Client Sample ID: **TP-W4S20-5.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 15507		Analyst: WC
Diesel (Fuel Oil)	ND	23.2		mg/Kg-dry	1	11/21/2016 8:15:00 PM
Heavy Oil	ND	58.0		mg/Kg-dry	1	11/21/2016 8:15:00 PM
Surr: 2-Fluorobiphenyl	80.5	50-150		%Rec	1	11/21/2016 8:15:00 PM
Surr: o-Terphenyl	84.1	50-150		%Rec	1	11/21/2016 8:15:00 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 15505		Analyst: BT
Naphthalene	ND	41.7		µg/Kg-dry	1	11/22/2016 1:50:12 AM
2-Methylnaphthalene	ND	41.7		µg/Kg-dry	1	11/22/2016 1:50:12 AM
1-Methylnaphthalene	ND	41.7		µg/Kg-dry	1	11/22/2016 1:50:12 AM
Acenaphthylene	ND	41.7		µg/Kg-dry	1	11/22/2016 1:50:12 AM
Acenaphthene	ND	41.7		µg/Kg-dry	1	11/22/2016 1:50:12 AM
Fluorene	ND	41.7		µg/Kg-dry	1	11/22/2016 1:50:12 AM
Phenanthrene	ND	41.7		µg/Kg-dry	1	11/22/2016 1:50:12 AM
Anthracene	ND	41.7		µg/Kg-dry	1	11/22/2016 1:50:12 AM
Fluoranthene	ND	41.7		µg/Kg-dry	1	11/22/2016 1:50:12 AM
Pyrene	43.7	41.7		µg/Kg-dry	1	11/22/2016 1:50:12 AM
Benz(a)anthracene	ND	41.7		µg/Kg-dry	1	11/22/2016 1:50:12 AM
Chrysene	ND	41.7		µg/Kg-dry	1	11/22/2016 1:50:12 AM
Benzo(b)fluoranthene	ND	41.7		µg/Kg-dry	1	11/22/2016 1:50:12 AM
Benzo(k)fluoranthene	ND	41.7		µg/Kg-dry	1	11/22/2016 1:50:12 AM
Benzo(a)pyrene	ND	41.7		µg/Kg-dry	1	11/22/2016 1:50:12 AM
Indeno(1,2,3-cd)pyrene	ND	41.7		µg/Kg-dry	1	11/22/2016 1:50:12 AM
Dibenz(a,h)anthracene	ND	41.7		µg/Kg-dry	1	11/22/2016 1:50:12 AM
Benzo(g,h,i)perylene	ND	41.7		µg/Kg-dry	1	11/22/2016 1:50:12 AM
Surr: 2-Fluorobiphenyl	80.4	24.5-139		%Rec	1	11/22/2016 1:50:12 AM
Surr: Terphenyl-d14 (surr)	89.7	44.3-176		%Rec	1	11/22/2016 1:50:12 AM
Gasoline by NWTPH-Gx				Batch ID: 15503		Analyst: EM
Gasoline	ND	5.09		mg/Kg-dry	1	11/22/2016 7:31:00 AM
Surr: Toluene-d8	99.0	65-135		%Rec	1	11/22/2016 7:31:00 AM
Surr: 4-Bromofluorobenzene	90.2	65-135		%Rec	1	11/22/2016 7:31:00 AM
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15503		Analyst: EM
Dichlorodifluoromethane (CFC-12)	ND	0.0610		mg/Kg-dry	1	11/22/2016 7:31:00 AM
Chloromethane	ND	0.0610		mg/Kg-dry	1	11/22/2016 7:31:00 AM
Vinyl chloride	ND	0.00203		mg/Kg-dry	1	11/22/2016 7:31:00 AM

Client: GeoEngineers
Collection Date: 11/21/2016 11:30:00 AM
Project: Rufus Block 20
Lab ID: 1611216-002
Matrix: Soil
Client Sample ID: **TP-W4S20-5.0**

Volatile Organic Compounds by EPA Method 8260C

Batch ID: 15503 Analyst: EM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Bromomethane	ND	0.0915		mg/Kg-dry	1	11/22/2016 7:31:00 AM
Trichlorofluoromethane (CFC-11)	ND	0.0509	Q	mg/Kg-dry	1	11/22/2016 7:31:00 AM
Chloroethane	ND	0.0610	Q	mg/Kg-dry	1	11/22/2016 7:31:00 AM
1,1-Dichloroethene	ND	0.0509	Q	mg/Kg-dry	1	11/22/2016 7:31:00 AM
Methylene chloride	ND	0.0203		mg/Kg-dry	1	11/22/2016 7:31:00 AM
trans-1,2-Dichloroethene	ND	0.0203		mg/Kg-dry	1	11/22/2016 7:31:00 AM
Methyl tert-butyl ether (MTBE)	ND	0.0509		mg/Kg-dry	1	11/22/2016 7:31:00 AM
1,1-Dichloroethane	ND	0.0203		mg/Kg-dry	1	11/22/2016 7:31:00 AM
2,2-Dichloropropane	ND	0.0509		mg/Kg-dry	1	11/22/2016 7:31:00 AM
cis-1,2-Dichloroethene	ND	0.0203		mg/Kg-dry	1	11/22/2016 7:31:00 AM
Chloroform	ND	0.0203		mg/Kg-dry	1	11/22/2016 7:31:00 AM
1,1,1-Trichloroethane (TCA)	ND	0.0203		mg/Kg-dry	1	11/22/2016 7:31:00 AM
1,1-Dichloropropene	ND	0.0203		mg/Kg-dry	1	11/22/2016 7:31:00 AM
Carbon tetrachloride	ND	0.0203		mg/Kg-dry	1	11/22/2016 7:31:00 AM
1,2-Dichloroethane (EDC)	ND	0.0305		mg/Kg-dry	1	11/22/2016 7:31:00 AM
Benzene	ND	0.0203		mg/Kg-dry	1	11/22/2016 7:31:00 AM
Trichloroethene (TCE)	ND	0.0203		mg/Kg-dry	1	11/22/2016 7:31:00 AM
1,2-Dichloropropane	ND	0.0203		mg/Kg-dry	1	11/22/2016 7:31:00 AM
Bromodichloromethane	ND	0.0203		mg/Kg-dry	1	11/22/2016 7:31:00 AM
Dibromomethane	ND	0.0407		mg/Kg-dry	1	11/22/2016 7:31:00 AM
cis-1,3-Dichloropropene	ND	0.0203		mg/Kg-dry	1	11/22/2016 7:31:00 AM
Toluene	ND	0.0203		mg/Kg-dry	1	11/22/2016 7:31:00 AM
trans-1,3-Dichloropropylene	ND	0.0305		mg/Kg-dry	1	11/22/2016 7:31:00 AM
1,1,2-Trichloroethane	ND	0.0305		mg/Kg-dry	1	11/22/2016 7:31:00 AM
1,3-Dichloropropane	ND	0.0509		mg/Kg-dry	1	11/22/2016 7:31:00 AM
Tetrachloroethene (PCE)	ND	0.0203		mg/Kg-dry	1	11/22/2016 7:31:00 AM
Dibromochloromethane	ND	0.0305		mg/Kg-dry	1	11/22/2016 7:31:00 AM
1,2-Dibromoethane (EDB)	ND	0.00509		mg/Kg-dry	1	11/22/2016 7:31:00 AM
Chlorobenzene	ND	0.0203		mg/Kg-dry	1	11/22/2016 7:31:00 AM
1,1,1,2-Tetrachloroethane	ND	0.0305		mg/Kg-dry	1	11/22/2016 7:31:00 AM
Ethylbenzene	ND	0.0305		mg/Kg-dry	1	11/22/2016 7:31:00 AM
m,p-Xylene	ND	0.0203		mg/Kg-dry	1	11/22/2016 7:31:00 AM
o-Xylene	ND	0.0203		mg/Kg-dry	1	11/22/2016 7:31:00 AM
Styrene	ND	0.0203		mg/Kg-dry	1	11/22/2016 7:31:00 AM
Isopropylbenzene	ND	0.0814		mg/Kg-dry	1	11/22/2016 7:31:00 AM
Bromoform	ND	0.0203		mg/Kg-dry	1	11/22/2016 7:31:00 AM
1,1,2,2-Tetrachloroethane	ND	0.0203		mg/Kg-dry	1	11/22/2016 7:31:00 AM
n-Propylbenzene	ND	0.0203		mg/Kg-dry	1	11/22/2016 7:31:00 AM
Bromobenzene	ND	0.0305		mg/Kg-dry	1	11/22/2016 7:31:00 AM

Client: GeoEngineers
Collection Date: 11/21/2016 11:30:00 AM
Project: Rufus Block 20
Lab ID: 1611216-002
Matrix: Soil
Client Sample ID: **TP-W4S20-5.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15503		Analyst: EM
1,3,5-Trimethylbenzene	ND	0.0203		mg/Kg-dry	1	11/22/2016 7:31:00 AM
2-Chlorotoluene	ND	0.0203		mg/Kg-dry	1	11/22/2016 7:31:00 AM
4-Chlorotoluene	ND	0.0203		mg/Kg-dry	1	11/22/2016 7:31:00 AM
tert-Butylbenzene	ND	0.0203		mg/Kg-dry	1	11/22/2016 7:31:00 AM
1,2,3-Trichloropropane	ND	0.0203		mg/Kg-dry	1	11/22/2016 7:31:00 AM
1,2,4-Trichlorobenzene	ND	0.0509		mg/Kg-dry	1	11/22/2016 7:31:00 AM
sec-Butylbenzene	ND	0.0203		mg/Kg-dry	1	11/22/2016 7:31:00 AM
4-Isopropyltoluene	ND	0.0203		mg/Kg-dry	1	11/22/2016 7:31:00 AM
1,3-Dichlorobenzene	ND	0.0203		mg/Kg-dry	1	11/22/2016 7:31:00 AM
1,4-Dichlorobenzene	ND	0.0203		mg/Kg-dry	1	11/22/2016 7:31:00 AM
n-Butylbenzene	ND	0.0203		mg/Kg-dry	1	11/22/2016 7:31:00 AM
1,2-Dichlorobenzene	ND	0.0203		mg/Kg-dry	1	11/22/2016 7:31:00 AM
1,2-Dibromo-3-chloropropane	ND	0.509		mg/Kg-dry	1	11/22/2016 7:31:00 AM
1,2,4-Trimethylbenzene	ND	0.0203		mg/Kg-dry	1	11/22/2016 7:31:00 AM
Hexachlorobutadiene	ND	0.102		mg/Kg-dry	1	11/22/2016 7:31:00 AM
Naphthalene	ND	0.0305		mg/Kg-dry	1	11/22/2016 7:31:00 AM
1,2,3-Trichlorobenzene	ND	0.0203		mg/Kg-dry	1	11/22/2016 7:31:00 AM
Surr: Dibromofluoromethane	91.1	56.5-129		%Rec	1	11/22/2016 7:31:00 AM
Surr: Toluene-d8	114	64.3-131		%Rec	1	11/22/2016 7:31:00 AM
Surr: 1-Bromo-4-fluorobenzene	107	63.1-141		%Rec	1	11/22/2016 7:31:00 AM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Mercury by EPA Method 7471				Batch ID: 15509		Analyst: WF
Mercury	ND	0.298		mg/Kg-dry	1	11/22/2016 5:27:58 PM
Total Metals by EPA Method 6020				Batch ID: 15512		Analyst: TN
Arsenic	6.03	0.0911		mg/Kg-dry	1	11/22/2016 3:47:17 PM
Barium	111	0.456		mg/Kg-dry	1	11/22/2016 3:47:17 PM
Cadmium	0.317	0.182		mg/Kg-dry	1	11/22/2016 3:47:17 PM
Chromium	43.4	0.0911		mg/Kg-dry	1	11/22/2016 3:47:17 PM
Lead	89.0	0.182		mg/Kg-dry	1	11/22/2016 3:47:17 PM
Selenium	1.38	0.456		mg/Kg-dry	1	11/22/2016 3:47:17 PM
Silver	ND	0.0911		mg/Kg-dry	1	11/22/2016 3:47:17 PM

Analytical Report

Work Order: **1611216**

Date Reported: **11/30/2016**

Client: GeoEngineers **Collection Date:** 11/21/2016 11:30:00 AM

Project: Rufus Block 20

Lab ID: 1611216-002 **Matrix:** Soil

Client Sample ID: TP-W4S20-5.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R33041		Analyst: BB
Percent Moisture	16.2			wt%	1	11/22/2016 8:58:04 AM

Client: GeoEngineers
Collection Date: 11/21/2016 9:35:00 AM
Project: Rufus Block 20
Lab ID: 1611216-006
Matrix: Soil
Client Sample ID: **TP-W4S35-10.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 15507		Analyst: WC
Diesel (Fuel Oil)	ND	20.9		mg/Kg-dry	1	11/21/2016 8:47:00 PM
Heavy Oil	ND	52.4		mg/Kg-dry	1	11/21/2016 8:47:00 PM
Surr: 2-Fluorobiphenyl	85.7	50-150		%Rec	1	11/21/2016 8:47:00 PM
Surr: o-Terphenyl	87.4	50-150		%Rec	1	11/21/2016 8:47:00 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 15505		Analyst: BT
Naphthalene	ND	38.8		µg/Kg-dry	1	11/22/2016 2:10:56 AM
2-Methylnaphthalene	ND	38.8		µg/Kg-dry	1	11/22/2016 2:10:56 AM
1-Methylnaphthalene	ND	38.8		µg/Kg-dry	1	11/22/2016 2:10:56 AM
Acenaphthylene	ND	38.8		µg/Kg-dry	1	11/22/2016 2:10:56 AM
Acenaphthene	ND	38.8		µg/Kg-dry	1	11/22/2016 2:10:56 AM
Fluorene	ND	38.8		µg/Kg-dry	1	11/22/2016 2:10:56 AM
Phenanthrene	ND	38.8		µg/Kg-dry	1	11/22/2016 2:10:56 AM
Anthracene	ND	38.8		µg/Kg-dry	1	11/22/2016 2:10:56 AM
Fluoranthene	ND	38.8		µg/Kg-dry	1	11/22/2016 2:10:56 AM
Pyrene	ND	38.8		µg/Kg-dry	1	11/22/2016 2:10:56 AM
Benz(a)anthracene	ND	38.8		µg/Kg-dry	1	11/22/2016 2:10:56 AM
Chrysene	ND	38.8		µg/Kg-dry	1	11/22/2016 2:10:56 AM
Benzo(b)fluoranthene	ND	38.8		µg/Kg-dry	1	11/22/2016 2:10:56 AM
Benzo(k)fluoranthene	ND	38.8		µg/Kg-dry	1	11/22/2016 2:10:56 AM
Benzo(a)pyrene	ND	38.8		µg/Kg-dry	1	11/22/2016 2:10:56 AM
Indeno(1,2,3-cd)pyrene	ND	38.8		µg/Kg-dry	1	11/22/2016 2:10:56 AM
Dibenz(a,h)anthracene	ND	38.8		µg/Kg-dry	1	11/22/2016 2:10:56 AM
Benzo(g,h,i)perylene	ND	38.8		µg/Kg-dry	1	11/22/2016 2:10:56 AM
Surr: 2-Fluorobiphenyl	74.7	24.5-139		%Rec	1	11/22/2016 2:10:56 AM
Surr: Terphenyl-d14 (surr)	81.4	44.3-176		%Rec	1	11/22/2016 2:10:56 AM
Gasoline by NWTPH-Gx				Batch ID: 15503		Analyst: EM
Gasoline	ND	4.70		mg/Kg-dry	1	11/22/2016 7:59:00 AM
Surr: Toluene-d8	98.2	65-135		%Rec	1	11/22/2016 7:59:00 AM
Surr: 4-Bromofluorobenzene	88.2	65-135		%Rec	1	11/22/2016 7:59:00 AM
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15503		Analyst: EM
Dichlorodifluoromethane (CFC-12)	ND	0.0564		mg/Kg-dry	1	11/22/2016 7:59:00 AM
Chloromethane	ND	0.0564		mg/Kg-dry	1	11/22/2016 7:59:00 AM
Vinyl chloride	ND	0.00188		mg/Kg-dry	1	11/22/2016 7:59:00 AM

Client: GeoEngineers
Collection Date: 11/21/2016 9:35:00 AM
Project: Rufus Block 20
Lab ID: 1611216-006
Matrix: Soil
Client Sample ID: **TP-W4S35-10.0**

Volatile Organic Compounds by EPA Method 8260C

Batch ID: 15503 Analyst: EM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Bromomethane	ND	0.0846		mg/Kg-dry	1	11/22/2016 7:59:00 AM
Trichlorofluoromethane (CFC-11)	ND	0.0470	Q	mg/Kg-dry	1	11/22/2016 7:59:00 AM
Chloroethane	ND	0.0564	Q	mg/Kg-dry	1	11/22/2016 7:59:00 AM
1,1-Dichloroethene	ND	0.0470	Q	mg/Kg-dry	1	11/22/2016 7:59:00 AM
Methylene chloride	ND	0.0188		mg/Kg-dry	1	11/22/2016 7:59:00 AM
trans-1,2-Dichloroethene	ND	0.0188		mg/Kg-dry	1	11/22/2016 7:59:00 AM
Methyl tert-butyl ether (MTBE)	ND	0.0470		mg/Kg-dry	1	11/22/2016 7:59:00 AM
1,1-Dichloroethane	ND	0.0188		mg/Kg-dry	1	11/22/2016 7:59:00 AM
2,2-Dichloropropane	ND	0.0470		mg/Kg-dry	1	11/22/2016 7:59:00 AM
cis-1,2-Dichloroethene	ND	0.0188		mg/Kg-dry	1	11/22/2016 7:59:00 AM
Chloroform	ND	0.0188		mg/Kg-dry	1	11/22/2016 7:59:00 AM
1,1,1-Trichloroethane (TCA)	ND	0.0188		mg/Kg-dry	1	11/22/2016 7:59:00 AM
1,1-Dichloropropene	ND	0.0188		mg/Kg-dry	1	11/22/2016 7:59:00 AM
Carbon tetrachloride	ND	0.0188		mg/Kg-dry	1	11/22/2016 7:59:00 AM
1,2-Dichloroethane (EDC)	ND	0.0282		mg/Kg-dry	1	11/22/2016 7:59:00 AM
Benzene	ND	0.0188		mg/Kg-dry	1	11/22/2016 7:59:00 AM
Trichloroethene (TCE)	ND	0.0188		mg/Kg-dry	1	11/22/2016 7:59:00 AM
1,2-Dichloropropane	ND	0.0188		mg/Kg-dry	1	11/22/2016 7:59:00 AM
Bromodichloromethane	ND	0.0188		mg/Kg-dry	1	11/22/2016 7:59:00 AM
Dibromomethane	ND	0.0376		mg/Kg-dry	1	11/22/2016 7:59:00 AM
cis-1,3-Dichloropropene	ND	0.0188		mg/Kg-dry	1	11/22/2016 7:59:00 AM
Toluene	ND	0.0188		mg/Kg-dry	1	11/22/2016 7:59:00 AM
trans-1,3-Dichloropropylene	ND	0.0282		mg/Kg-dry	1	11/22/2016 7:59:00 AM
1,1,2-Trichloroethane	ND	0.0282		mg/Kg-dry	1	11/22/2016 7:59:00 AM
1,3-Dichloropropane	ND	0.0470		mg/Kg-dry	1	11/22/2016 7:59:00 AM
Tetrachloroethene (PCE)	ND	0.0188		mg/Kg-dry	1	11/22/2016 7:59:00 AM
Dibromochloromethane	ND	0.0282		mg/Kg-dry	1	11/22/2016 7:59:00 AM
1,2-Dibromoethane (EDB)	ND	0.00470		mg/Kg-dry	1	11/22/2016 7:59:00 AM
Chlorobenzene	ND	0.0188		mg/Kg-dry	1	11/22/2016 7:59:00 AM
1,1,1,2-Tetrachloroethane	ND	0.0282		mg/Kg-dry	1	11/22/2016 7:59:00 AM
Ethylbenzene	ND	0.0282		mg/Kg-dry	1	11/22/2016 7:59:00 AM
m,p-Xylene	ND	0.0188		mg/Kg-dry	1	11/22/2016 7:59:00 AM
o-Xylene	ND	0.0188		mg/Kg-dry	1	11/22/2016 7:59:00 AM
Styrene	ND	0.0188		mg/Kg-dry	1	11/22/2016 7:59:00 AM
Isopropylbenzene	ND	0.0752		mg/Kg-dry	1	11/22/2016 7:59:00 AM
Bromoform	ND	0.0188		mg/Kg-dry	1	11/22/2016 7:59:00 AM
1,1,2,2-Tetrachloroethane	ND	0.0188		mg/Kg-dry	1	11/22/2016 7:59:00 AM
n-Propylbenzene	ND	0.0188		mg/Kg-dry	1	11/22/2016 7:59:00 AM
Bromobenzene	ND	0.0282		mg/Kg-dry	1	11/22/2016 7:59:00 AM

Client: GeoEngineers
Collection Date: 11/21/2016 9:35:00 AM
Project: Rufus Block 20
Lab ID: 1611216-006
Matrix: Soil
Client Sample ID: **TP-W4S35-10.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15503		Analyst: EM
1,3,5-Trimethylbenzene	ND	0.0188		mg/Kg-dry	1	11/22/2016 7:59:00 AM
2-Chlorotoluene	ND	0.0188		mg/Kg-dry	1	11/22/2016 7:59:00 AM
4-Chlorotoluene	ND	0.0188		mg/Kg-dry	1	11/22/2016 7:59:00 AM
tert-Butylbenzene	ND	0.0188		mg/Kg-dry	1	11/22/2016 7:59:00 AM
1,2,3-Trichloropropane	ND	0.0188		mg/Kg-dry	1	11/22/2016 7:59:00 AM
1,2,4-Trichlorobenzene	ND	0.0470		mg/Kg-dry	1	11/22/2016 7:59:00 AM
sec-Butylbenzene	ND	0.0188		mg/Kg-dry	1	11/22/2016 7:59:00 AM
4-Isopropyltoluene	ND	0.0188		mg/Kg-dry	1	11/22/2016 7:59:00 AM
1,3-Dichlorobenzene	ND	0.0188		mg/Kg-dry	1	11/22/2016 7:59:00 AM
1,4-Dichlorobenzene	ND	0.0188		mg/Kg-dry	1	11/22/2016 7:59:00 AM
n-Butylbenzene	ND	0.0188		mg/Kg-dry	1	11/22/2016 7:59:00 AM
1,2-Dichlorobenzene	ND	0.0188		mg/Kg-dry	1	11/22/2016 7:59:00 AM
1,2-Dibromo-3-chloropropane	ND	0.470		mg/Kg-dry	1	11/22/2016 7:59:00 AM
1,2,4-Trimethylbenzene	ND	0.0188		mg/Kg-dry	1	11/22/2016 7:59:00 AM
Hexachlorobutadiene	ND	0.0940		mg/Kg-dry	1	11/22/2016 7:59:00 AM
Naphthalene	ND	0.0282		mg/Kg-dry	1	11/22/2016 7:59:00 AM
1,2,3-Trichlorobenzene	ND	0.0188		mg/Kg-dry	1	11/22/2016 7:59:00 AM
Surr: Dibromofluoromethane	92.4	56.5-129		%Rec	1	11/22/2016 7:59:00 AM
Surr: Toluene-d8	99.1	64.3-131		%Rec	1	11/22/2016 7:59:00 AM
Surr: 1-Bromo-4-fluorobenzene	105	63.1-141		%Rec	1	11/22/2016 7:59:00 AM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Mercury by EPA Method 7471				Batch ID: 15509		Analyst: WF
Mercury	ND	0.280		mg/Kg-dry	1	11/22/2016 5:29:33 PM
Total Metals by EPA Method 6020				Batch ID: 15512		Analyst: TN
Arsenic	2.49	0.0860		mg/Kg-dry	1	11/22/2016 3:50:49 PM
Barium	49.7	0.430		mg/Kg-dry	1	11/22/2016 3:50:49 PM
Cadmium	ND	0.172		mg/Kg-dry	1	11/22/2016 3:50:49 PM
Chromium	24.1	0.0860		mg/Kg-dry	1	11/22/2016 3:50:49 PM
Lead	6.93	0.172		mg/Kg-dry	1	11/22/2016 3:50:49 PM
Selenium	1.10	0.430		mg/Kg-dry	1	11/22/2016 3:50:49 PM
Silver	ND	0.0860		mg/Kg-dry	1	11/22/2016 3:50:49 PM

Analytical Report

Work Order: **1611216**
Date Reported: **11/30/2016**

Client: GeoEngineers
Collection Date: 11/21/2016 9:35:00 AM
Project: Rufus Block 20
Lab ID: 1611216-006
Matrix: Soil
Client Sample ID: **TP-W4S35-10.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R33041		Analyst: BB
Percent Moisture	12.6			wt%	1	11/22/2016 8:58:04 AM

Analytical Report

Work Order: **1611216**
Date Reported: **11/30/2016**

Client: GeoEngineers
Collection Date: 11/21/2016 10:15:00 AM
Project: Rufus Block 20
Lab ID: 1611216-010
Matrix: Soil
Client Sample ID: **TP-W14S9-5.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 15507		Analyst: WC
Diesel (Fuel Oil)	ND	27.1		mg/Kg-dry	1	11/21/2016 9:18:00 PM
Heavy Oil	ND	67.7		mg/Kg-dry	1	11/21/2016 9:18:00 PM
Surr: 2-Fluorobiphenyl	92.9	50-150		%Rec	1	11/21/2016 9:18:00 PM
Surr: o-Terphenyl	93.5	50-150		%Rec	1	11/21/2016 9:18:00 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 15505		Analyst: BT
Naphthalene	ND	49.8		µg/Kg-dry	1	11/22/2016 2:31:39 AM
2-Methylnaphthalene	ND	49.8		µg/Kg-dry	1	11/22/2016 2:31:39 AM
1-Methylnaphthalene	ND	49.8		µg/Kg-dry	1	11/22/2016 2:31:39 AM
Acenaphthylene	ND	49.8		µg/Kg-dry	1	11/22/2016 2:31:39 AM
Acenaphthene	ND	49.8		µg/Kg-dry	1	11/22/2016 2:31:39 AM
Fluorene	ND	49.8		µg/Kg-dry	1	11/22/2016 2:31:39 AM
Phenanthrene	83.4	49.8		µg/Kg-dry	1	11/22/2016 2:31:39 AM
Anthracene	ND	49.8		µg/Kg-dry	1	11/22/2016 2:31:39 AM
Fluoranthene	120	49.8		µg/Kg-dry	1	11/22/2016 2:31:39 AM
Pyrene	113	49.8		µg/Kg-dry	1	11/22/2016 2:31:39 AM
Benz(a)anthracene	93.6	49.8		µg/Kg-dry	1	11/22/2016 2:31:39 AM
Chrysene	85.5	49.8		µg/Kg-dry	1	11/22/2016 2:31:39 AM
Benzo(b)fluoranthene	127	49.8		µg/Kg-dry	1	11/22/2016 2:31:39 AM
Benzo(k)fluoranthene	ND	49.8		µg/Kg-dry	1	11/22/2016 2:31:39 AM
Benzo(a)pyrene	98.2	49.8	Q+	µg/Kg-dry	1	11/22/2016 2:31:39 AM
Indeno(1,2,3-cd)pyrene	ND	49.8		µg/Kg-dry	1	11/22/2016 2:31:39 AM
Dibenz(a,h)anthracene	ND	49.8		µg/Kg-dry	1	11/22/2016 2:31:39 AM
Benzo(g,h,i)perylene	ND	49.8		µg/Kg-dry	1	11/22/2016 2:31:39 AM
Surr: 2-Fluorobiphenyl	57.2	24.5-139		%Rec	1	11/22/2016 2:31:39 AM
Surr: Terphenyl-d14 (surr)	65.3	44.3-176		%Rec	1	11/22/2016 2:31:39 AM

NOTES:
Q+ - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF) - high bias

Gasoline by NWTPH-Gx				Batch ID: 15503		Analyst: EM
Gasoline	ND	7.78		mg/Kg-dry	1	11/22/2016 8:27:00 AM
Surr: Toluene-d8	101	65-135		%Rec	1	11/22/2016 8:27:00 AM
Surr: 4-Bromofluorobenzene	86.1	65-135		%Rec	1	11/22/2016 8:27:00 AM

Client: GeoEngineers
Collection Date: 11/21/2016 10:15:00 AM
Project: Rufus Block 20
Lab ID: 1611216-010
Matrix: Soil
Client Sample ID: **TP-W14S9-5.0**

Volatile Organic Compounds by EPA Method 8260C

Batch ID: 15503 Analyst: EM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane (CFC-12)	ND	0.0933		mg/Kg-dry	1	11/22/2016 8:27:00 AM
Chloromethane	ND	0.0933		mg/Kg-dry	1	11/22/2016 8:27:00 AM
Vinyl chloride	ND	0.00311		mg/Kg-dry	1	11/22/2016 8:27:00 AM
Bromomethane	ND	0.140		mg/Kg-dry	1	11/22/2016 8:27:00 AM
Trichlorofluoromethane (CFC-11)	ND	0.0778	Q	mg/Kg-dry	1	11/22/2016 8:27:00 AM
Chloroethane	ND	0.0933	Q	mg/Kg-dry	1	11/22/2016 8:27:00 AM
1,1-Dichloroethene	ND	0.0778	Q	mg/Kg-dry	1	11/22/2016 8:27:00 AM
Methylene chloride	ND	0.0311		mg/Kg-dry	1	11/22/2016 8:27:00 AM
trans-1,2-Dichloroethene	ND	0.0311		mg/Kg-dry	1	11/22/2016 8:27:00 AM
Methyl tert-butyl ether (MTBE)	ND	0.0778		mg/Kg-dry	1	11/22/2016 8:27:00 AM
1,1-Dichloroethane	ND	0.0311		mg/Kg-dry	1	11/22/2016 8:27:00 AM
2,2-Dichloropropane	ND	0.0778		mg/Kg-dry	1	11/22/2016 8:27:00 AM
cis-1,2-Dichloroethene	ND	0.0311		mg/Kg-dry	1	11/22/2016 8:27:00 AM
Chloroform	ND	0.0311		mg/Kg-dry	1	11/22/2016 8:27:00 AM
1,1,1-Trichloroethane (TCA)	ND	0.0311		mg/Kg-dry	1	11/22/2016 8:27:00 AM
1,1-Dichloropropene	ND	0.0311		mg/Kg-dry	1	11/22/2016 8:27:00 AM
Carbon tetrachloride	ND	0.0311		mg/Kg-dry	1	11/22/2016 8:27:00 AM
1,2-Dichloroethane (EDC)	ND	0.0467		mg/Kg-dry	1	11/22/2016 8:27:00 AM
Benzene	ND	0.0311		mg/Kg-dry	1	11/22/2016 8:27:00 AM
Trichloroethene (TCE)	ND	0.0311		mg/Kg-dry	1	11/22/2016 8:27:00 AM
1,2-Dichloropropane	ND	0.0311		mg/Kg-dry	1	11/22/2016 8:27:00 AM
Bromodichloromethane	ND	0.0311		mg/Kg-dry	1	11/22/2016 8:27:00 AM
Dibromomethane	ND	0.0622		mg/Kg-dry	1	11/22/2016 8:27:00 AM
cis-1,3-Dichloropropene	ND	0.0311		mg/Kg-dry	1	11/22/2016 8:27:00 AM
Toluene	ND	0.0311		mg/Kg-dry	1	11/22/2016 8:27:00 AM
trans-1,3-Dichloropropylene	ND	0.0467		mg/Kg-dry	1	11/22/2016 8:27:00 AM
1,1,2-Trichloroethane	ND	0.0467		mg/Kg-dry	1	11/22/2016 8:27:00 AM
1,3-Dichloropropane	ND	0.0778		mg/Kg-dry	1	11/22/2016 8:27:00 AM
Tetrachloroethene (PCE)	ND	0.0311		mg/Kg-dry	1	11/22/2016 8:27:00 AM
Dibromochloromethane	ND	0.0467		mg/Kg-dry	1	11/22/2016 8:27:00 AM
1,2-Dibromoethane (EDB)	ND	0.00778		mg/Kg-dry	1	11/22/2016 8:27:00 AM
Chlorobenzene	ND	0.0311		mg/Kg-dry	1	11/22/2016 8:27:00 AM
1,1,1,2-Tetrachloroethane	ND	0.0467		mg/Kg-dry	1	11/22/2016 8:27:00 AM
Ethylbenzene	ND	0.0467		mg/Kg-dry	1	11/22/2016 8:27:00 AM
m,p-Xylene	ND	0.0311		mg/Kg-dry	1	11/22/2016 8:27:00 AM
o-Xylene	ND	0.0311		mg/Kg-dry	1	11/22/2016 8:27:00 AM
Styrene	ND	0.0311		mg/Kg-dry	1	11/22/2016 8:27:00 AM
Isopropylbenzene	ND	0.124		mg/Kg-dry	1	11/22/2016 8:27:00 AM
Bromoform	ND	0.0311		mg/Kg-dry	1	11/22/2016 8:27:00 AM

Client: GeoEngineers
Collection Date: 11/21/2016 10:15:00 AM
Project: Rufus Block 20
Lab ID: 1611216-010
Matrix: Soil
Client Sample ID: **TP-W14S9-5.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15503		Analyst: EM
1,1,2,2-Tetrachloroethane	ND	0.0311		mg/Kg-dry	1	11/22/2016 8:27:00 AM
n-Propylbenzene	ND	0.0311		mg/Kg-dry	1	11/22/2016 8:27:00 AM
Bromobenzene	ND	0.0467		mg/Kg-dry	1	11/22/2016 8:27:00 AM
1,3,5-Trimethylbenzene	ND	0.0311		mg/Kg-dry	1	11/22/2016 8:27:00 AM
2-Chlorotoluene	ND	0.0311		mg/Kg-dry	1	11/22/2016 8:27:00 AM
4-Chlorotoluene	ND	0.0311		mg/Kg-dry	1	11/22/2016 8:27:00 AM
tert-Butylbenzene	ND	0.0311		mg/Kg-dry	1	11/22/2016 8:27:00 AM
1,2,3-Trichloropropane	ND	0.0311		mg/Kg-dry	1	11/22/2016 8:27:00 AM
1,2,4-Trichlorobenzene	ND	0.0778		mg/Kg-dry	1	11/22/2016 8:27:00 AM
sec-Butylbenzene	ND	0.0311		mg/Kg-dry	1	11/22/2016 8:27:00 AM
4-Isopropyltoluene	ND	0.0311		mg/Kg-dry	1	11/22/2016 8:27:00 AM
1,3-Dichlorobenzene	ND	0.0311		mg/Kg-dry	1	11/22/2016 8:27:00 AM
1,4-Dichlorobenzene	ND	0.0311		mg/Kg-dry	1	11/22/2016 8:27:00 AM
n-Butylbenzene	ND	0.0311		mg/Kg-dry	1	11/22/2016 8:27:00 AM
1,2-Dichlorobenzene	ND	0.0311		mg/Kg-dry	1	11/22/2016 8:27:00 AM
1,2-Dibromo-3-chloropropane	ND	0.778		mg/Kg-dry	1	11/22/2016 8:27:00 AM
1,2,4-Trimethylbenzene	ND	0.0311		mg/Kg-dry	1	11/22/2016 8:27:00 AM
Hexachlorobutadiene	ND	0.156		mg/Kg-dry	1	11/22/2016 8:27:00 AM
Naphthalene	ND	0.0467		mg/Kg-dry	1	11/22/2016 8:27:00 AM
1,2,3-Trichlorobenzene	ND	0.0311		mg/Kg-dry	1	11/22/2016 8:27:00 AM
Surr: Dibromofluoromethane	89.0	56.5-129		%Rec	1	11/22/2016 8:27:00 AM
Surr: Toluene-d8	100	64.3-131		%Rec	1	11/22/2016 8:27:00 AM
Surr: 1-Bromo-4-fluorobenzene	102	63.1-141		%Rec	1	11/22/2016 8:27:00 AM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Mercury by EPA Method 7471				Batch ID: 15509		Analyst: WF
Mercury	0.528	0.350		mg/Kg-dry	1	11/22/2016 5:31:14 PM
Total Metals by EPA Method 6020				Batch ID: 15512		Analyst: TN
Arsenic	15.0	0.112		mg/Kg-dry	1	11/22/2016 3:54:21 PM
Barium	6,100	0.560		mg/Kg-dry	1	11/22/2016 3:54:21 PM
Cadmium	57.9	0.224		mg/Kg-dry	1	11/22/2016 3:54:21 PM
Chromium	145	0.112		mg/Kg-dry	1	11/22/2016 3:54:21 PM
Lead	9,190	2.24	D	mg/Kg-dry	10	11/23/2016 12:00:02 PM
Selenium	1.32	0.560		mg/Kg-dry	1	11/22/2016 3:54:21 PM

Analytical Report

Work Order: **1611216**
Date Reported: **11/30/2016**

Client: GeoEngineers
Collection Date: 11/21/2016 10:15:00 AM
Project: Rufus Block 20
Lab ID: 1611216-010
Matrix: Soil
Client Sample ID: **TP-W14S9-5.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 15512		Analyst: TN
Silver	3.54	0.112		mg/Kg-dry	1	11/22/2016 3:54:21 PM
Metals (SW6020) with TCLP Extraction (EPA 1311)				Batch ID: 15541		Analyst: TN
Barium	1.63	0.500		mg/L	1	11/29/2016 2:18:08 PM
Cadmium	0.251	0.200		mg/L	1	11/29/2016 2:18:08 PM
Chromium	ND	0.100		mg/L	1	11/29/2016 2:18:08 PM
Lead	0.918	0.200		mg/L	1	11/29/2016 2:18:08 PM
Sample Moisture (Percent Moisture)				Batch ID: R33041		Analyst: BB
Percent Moisture	31.3			wt%	1	11/22/2016 8:58:04 AM
Hexavalent Chromium by EPA Method 7196				Batch ID: 15530		Analyst: MW
Chromium, Hexavalent	ND	0.675		mg/Kg-dry	1	11/28/2016 11:19:00 AM
pH by EPA Method 9045				Batch ID: R33086		Analyst: KT
Hydrogen Ion (pH)	7.21			pH	1	11/23/2016 11:30:00 AM

Analytical Report

Work Order: **1611216**
Date Reported: **11/30/2016**

Client: GeoEngineers
Collection Date: 11/21/2016 10:20:00 AM
Project: Rufus Block 20
Lab ID: 1611216-011
Matrix: Soil
Client Sample ID: **TP-W14S9-7.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 15523		Analyst: TN
Lead	3.03	0.187		mg/Kg-dry	1	11/23/2016 2:35:26 PM
Sample Moisture (Percent Moisture)				Batch ID: R33098		Analyst: CG
Percent Moisture	15.6	0.500		wt%	1	11/28/2016 9:08:22 AM

Client: GeoEngineers
Collection Date: 11/21/2016 8:30:00 AM
Project: Rufus Block 20
Lab ID: 1611216-014
Matrix: Soil
Client Sample ID: **TP-W14S36-7.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 15507		Analyst: WC
Diesel (Fuel Oil)	ND	21.5		mg/Kg-dry	1	11/21/2016 9:49:00 PM
Heavy Oil	ND	53.8		mg/Kg-dry	1	11/21/2016 9:49:00 PM
Surr: 2-Fluorobiphenyl	69.4	50-150		%Rec	1	11/21/2016 9:49:00 PM
Surr: o-Terphenyl	78.7	50-150		%Rec	1	11/21/2016 9:49:00 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 15505		Analyst: BT
Naphthalene	ND	49.3		µg/Kg-dry	1	11/22/2016 2:52:21 AM
2-Methylnaphthalene	ND	49.3		µg/Kg-dry	1	11/22/2016 2:52:21 AM
1-Methylnaphthalene	ND	49.3		µg/Kg-dry	1	11/22/2016 2:52:21 AM
Acenaphthylene	ND	49.3		µg/Kg-dry	1	11/22/2016 2:52:21 AM
Acenaphthene	ND	49.3		µg/Kg-dry	1	11/22/2016 2:52:21 AM
Fluorene	ND	49.3		µg/Kg-dry	1	11/22/2016 2:52:21 AM
Phenanthrene	ND	49.3		µg/Kg-dry	1	11/22/2016 2:52:21 AM
Anthracene	ND	49.3		µg/Kg-dry	1	11/22/2016 2:52:21 AM
Fluoranthene	ND	49.3		µg/Kg-dry	1	11/22/2016 2:52:21 AM
Pyrene	ND	49.3		µg/Kg-dry	1	11/22/2016 2:52:21 AM
Benz(a)anthracene	ND	49.3		µg/Kg-dry	1	11/22/2016 2:52:21 AM
Chrysene	ND	49.3		µg/Kg-dry	1	11/22/2016 2:52:21 AM
Benzo(b)fluoranthene	ND	49.3		µg/Kg-dry	1	11/22/2016 2:52:21 AM
Benzo(k)fluoranthene	ND	49.3		µg/Kg-dry	1	11/22/2016 2:52:21 AM
Benzo(a)pyrene	ND	49.3		µg/Kg-dry	1	11/22/2016 2:52:21 AM
Indeno(1,2,3-cd)pyrene	ND	49.3		µg/Kg-dry	1	11/22/2016 2:52:21 AM
Dibenz(a,h)anthracene	ND	49.3		µg/Kg-dry	1	11/22/2016 2:52:21 AM
Benzo(g,h,i)perylene	ND	49.3		µg/Kg-dry	1	11/22/2016 2:52:21 AM
Surr: 2-Fluorobiphenyl	88.0	24.5-139		%Rec	1	11/22/2016 2:52:21 AM
Surr: Terphenyl-d14 (surr)	93.6	44.3-176		%Rec	1	11/22/2016 2:52:21 AM
Gasoline by NWTPH-Gx				Batch ID: 15503		Analyst: EM
Gasoline	ND	5.99		mg/Kg-dry	1	11/22/2016 8:55:00 AM
Surr: Toluene-d8	98.1	65-135		%Rec	1	11/22/2016 8:55:00 AM
Surr: 4-Bromofluorobenzene	68.5	65-135		%Rec	1	11/22/2016 8:55:00 AM
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15503		Analyst: EM
Dichlorodifluoromethane (CFC-12)	ND	0.0718		mg/Kg-dry	1	11/22/2016 8:55:00 AM
Chloromethane	ND	0.0718		mg/Kg-dry	1	11/22/2016 8:55:00 AM
Vinyl chloride	ND	0.00239		mg/Kg-dry	1	11/22/2016 8:55:00 AM

Client: GeoEngineers
Collection Date: 11/21/2016 8:30:00 AM
Project: Rufus Block 20
Lab ID: 1611216-014
Matrix: Soil
Client Sample ID: **TP-W14S36-7.5**

Volatile Organic Compounds by EPA Method 8260C

Batch ID: 15503 Analyst: EM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Bromomethane	ND	0.108		mg/Kg-dry	1	11/22/2016 8:55:00 AM
Trichlorofluoromethane (CFC-11)	ND	0.0599	Q	mg/Kg-dry	1	11/22/2016 8:55:00 AM
Chloroethane	ND	0.0718	Q	mg/Kg-dry	1	11/22/2016 8:55:00 AM
1,1-Dichloroethene	ND	0.0599	Q	mg/Kg-dry	1	11/22/2016 8:55:00 AM
Methylene chloride	ND	0.0239		mg/Kg-dry	1	11/22/2016 8:55:00 AM
trans-1,2-Dichloroethene	ND	0.0239		mg/Kg-dry	1	11/22/2016 8:55:00 AM
Methyl tert-butyl ether (MTBE)	ND	0.0599		mg/Kg-dry	1	11/22/2016 8:55:00 AM
1,1-Dichloroethane	ND	0.0239		mg/Kg-dry	1	11/22/2016 8:55:00 AM
2,2-Dichloropropane	ND	0.0599		mg/Kg-dry	1	11/22/2016 8:55:00 AM
cis-1,2-Dichloroethene	ND	0.0239		mg/Kg-dry	1	11/22/2016 8:55:00 AM
Chloroform	0.0377	0.0239	B	mg/Kg-dry	1	11/22/2016 8:55:00 AM
1,1,1-Trichloroethane (TCA)	ND	0.0239		mg/Kg-dry	1	11/22/2016 8:55:00 AM
1,1-Dichloropropene	ND	0.0239		mg/Kg-dry	1	11/22/2016 8:55:00 AM
Carbon tetrachloride	ND	0.0239		mg/Kg-dry	1	11/22/2016 8:55:00 AM
1,2-Dichloroethane (EDC)	ND	0.0359		mg/Kg-dry	1	11/22/2016 8:55:00 AM
Benzene	ND	0.0239		mg/Kg-dry	1	11/22/2016 8:55:00 AM
Trichloroethene (TCE)	ND	0.0239		mg/Kg-dry	1	11/22/2016 8:55:00 AM
1,2-Dichloropropane	ND	0.0239		mg/Kg-dry	1	11/22/2016 8:55:00 AM
Bromodichloromethane	ND	0.0239		mg/Kg-dry	1	11/22/2016 8:55:00 AM
Dibromomethane	ND	0.0479		mg/Kg-dry	1	11/22/2016 8:55:00 AM
cis-1,3-Dichloropropene	ND	0.0239		mg/Kg-dry	1	11/22/2016 8:55:00 AM
Toluene	ND	0.0239		mg/Kg-dry	1	11/22/2016 8:55:00 AM
trans-1,3-Dichloropropylene	ND	0.0359		mg/Kg-dry	1	11/22/2016 8:55:00 AM
1,1,2-Trichloroethane	ND	0.0359		mg/Kg-dry	1	11/22/2016 8:55:00 AM
1,3-Dichloropropane	ND	0.0599		mg/Kg-dry	1	11/22/2016 8:55:00 AM
Tetrachloroethene (PCE)	ND	0.0239		mg/Kg-dry	1	11/22/2016 8:55:00 AM
Dibromochloromethane	ND	0.0359		mg/Kg-dry	1	11/22/2016 8:55:00 AM
1,2-Dibromoethane (EDB)	ND	0.00599		mg/Kg-dry	1	11/22/2016 8:55:00 AM
Chlorobenzene	ND	0.0239		mg/Kg-dry	1	11/22/2016 8:55:00 AM
1,1,1,2-Tetrachloroethane	ND	0.0359		mg/Kg-dry	1	11/22/2016 8:55:00 AM
Ethylbenzene	ND	0.0359		mg/Kg-dry	1	11/22/2016 8:55:00 AM
m,p-Xylene	ND	0.0239		mg/Kg-dry	1	11/22/2016 8:55:00 AM
o-Xylene	ND	0.0239		mg/Kg-dry	1	11/22/2016 8:55:00 AM
Styrene	ND	0.0239		mg/Kg-dry	1	11/22/2016 8:55:00 AM
Isopropylbenzene	ND	0.0958		mg/Kg-dry	1	11/22/2016 8:55:00 AM
Bromoform	ND	0.0239		mg/Kg-dry	1	11/22/2016 8:55:00 AM
1,1,2,2-Tetrachloroethane	ND	0.0239		mg/Kg-dry	1	11/22/2016 8:55:00 AM
n-Propylbenzene	ND	0.0239		mg/Kg-dry	1	11/22/2016 8:55:00 AM
Bromobenzene	ND	0.0359		mg/Kg-dry	1	11/22/2016 8:55:00 AM

Client: GeoEngineers
Collection Date: 11/21/2016 8:30:00 AM
Project: Rufus Block 20
Lab ID: 1611216-014
Matrix: Soil
Client Sample ID: **TP-W14S36-7.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15503		Analyst: EM
1,3,5-Trimethylbenzene	ND	0.0239		mg/Kg-dry	1	11/22/2016 8:55:00 AM
2-Chlorotoluene	ND	0.0239		mg/Kg-dry	1	11/22/2016 8:55:00 AM
4-Chlorotoluene	ND	0.0239		mg/Kg-dry	1	11/22/2016 8:55:00 AM
tert-Butylbenzene	ND	0.0239		mg/Kg-dry	1	11/22/2016 8:55:00 AM
1,2,3-Trichloropropane	ND	0.0239		mg/Kg-dry	1	11/22/2016 8:55:00 AM
1,2,4-Trichlorobenzene	ND	0.0599		mg/Kg-dry	1	11/22/2016 8:55:00 AM
sec-Butylbenzene	ND	0.0239		mg/Kg-dry	1	11/22/2016 8:55:00 AM
4-Isopropyltoluene	ND	0.0239		mg/Kg-dry	1	11/22/2016 8:55:00 AM
1,3-Dichlorobenzene	ND	0.0239		mg/Kg-dry	1	11/22/2016 8:55:00 AM
1,4-Dichlorobenzene	ND	0.0239		mg/Kg-dry	1	11/22/2016 8:55:00 AM
n-Butylbenzene	ND	0.0239		mg/Kg-dry	1	11/22/2016 8:55:00 AM
1,2-Dichlorobenzene	ND	0.0239		mg/Kg-dry	1	11/22/2016 8:55:00 AM
1,2-Dibromo-3-chloropropane	ND	0.599		mg/Kg-dry	1	11/22/2016 8:55:00 AM
1,2,4-Trimethylbenzene	ND	0.0239		mg/Kg-dry	1	11/22/2016 8:55:00 AM
Hexachlorobutadiene	ND	0.120		mg/Kg-dry	1	11/22/2016 8:55:00 AM
Naphthalene	ND	0.0359		mg/Kg-dry	1	11/22/2016 8:55:00 AM
1,2,3-Trichlorobenzene	ND	0.0239		mg/Kg-dry	1	11/22/2016 8:55:00 AM
Surr: Dibromofluoromethane	90.0	56.5-129		%Rec	1	11/22/2016 8:55:00 AM
Surr: Toluene-d8	101	64.3-131		%Rec	1	11/22/2016 8:55:00 AM
Surr: 1-Bromo-4-fluorobenzene	81.3	63.1-141		%Rec	1	11/22/2016 8:55:00 AM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Mercury by EPA Method 7471				Batch ID: 15509		Analyst: WF
Mercury	ND	0.281		mg/Kg-dry	1	11/22/2016 5:32:50 PM
Total Metals by EPA Method 6020				Batch ID: 15512		Analyst: TN
Arsenic	3.34	0.0923		mg/Kg-dry	1	11/22/2016 3:57:53 PM
Barium	54.9	0.462		mg/Kg-dry	1	11/22/2016 3:57:53 PM
Cadmium	ND	0.185		mg/Kg-dry	1	11/22/2016 3:57:53 PM
Chromium	25.8	0.0923		mg/Kg-dry	1	11/22/2016 3:57:53 PM
Lead	7.04	0.185		mg/Kg-dry	1	11/22/2016 3:57:53 PM
Selenium	1.01	0.462		mg/Kg-dry	1	11/22/2016 3:57:53 PM
Silver	ND	0.0923		mg/Kg-dry	1	11/22/2016 3:57:53 PM

Analytical Report

Work Order: **1611216**
Date Reported: **11/30/2016**

Client: GeoEngineers
Collection Date: 11/21/2016 8:30:00 AM
Project: Rufus Block 20
Lab ID: 1611216-014
Matrix: Soil
Client Sample ID: **TP-W14S36-7.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R33041		Analyst: BB
Percent Moisture	19.2			wt%	1	11/22/2016 8:58:04 AM

Work Order: 1611216
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID **MB-15507**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **11/21/2016**	RunNo: **33039**
Client ID: **MBLKS**	Batch ID: **15507**		Analysis Date: **11/21/2016**	SeqNo: **626111**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	20.0									
Heavy Oil	ND	50.0									
Surr: 2-Fluorobiphenyl	18.4		20.00		92.1	50	150				
Surr: o-Terphenyl	18.8		20.00		93.8	50	150				

Sample ID **LCS-15507**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **11/21/2016**	RunNo: **33039**
Client ID: **LCSS**	Batch ID: **15507**		Analysis Date: **11/21/2016**	SeqNo: **626110**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	473	20.0	500.0	0	94.7	65	135				
Surr: 2-Fluorobiphenyl	21.5		20.00		108	50	150				
Surr: o-Terphenyl	22.3		20.00		112	50	150				

Sample ID **1611220-002ADUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **11/21/2016**	RunNo: **33039**
Client ID: **BATCH**	Batch ID: **15507**		Analysis Date: **11/22/2016**	SeqNo: **626113**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	21.0						0		30	
Heavy Oil	ND	52.5						0		30	
Surr: 2-Fluorobiphenyl	17.6		20.98		83.6	50	150		0		
Surr: o-Terphenyl	17.8		20.98		84.9	50	150		0		

Sample ID **1611219-001ADUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **11/21/2016**	RunNo: **33039**
Client ID: **BATCH**	Batch ID: **15507**		Analysis Date: **11/22/2016**	SeqNo: **626099**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	968	20.2						1,367	34.2	30	R
Heavy Oil	1,190	50.5						1,232	3.86	30	
Surr: 2-Fluorobiphenyl	19.1		20.20		94.6	50	150		0		

Work Order: 1611216
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID **1611219-001ADUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **11/21/2016**	RunNo: **33039**
Client ID: **BATCH**	Batch ID: **15507**		Analysis Date: **11/22/2016**	SeqNo: **626099**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: o-Terphenyl	19.7		20.20		97.4	50	150		0		

NOTES:
R - High RPD due to suspected sample inhomogeneity. The method is in control as indicated by the Laboratory Control Sample (LCS).

Sample ID **1611219-001AMS**	SampType: **MS**	Units: **mg/Kg-dry**	Prep Date: **11/21/2016**	RunNo: **33039**
Client ID: **BATCH**	Batch ID: **15507**		Analysis Date: **11/22/2016**	SeqNo: **626100**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	1,190	18.0	449.0	1,367	-39.9	65	135				S
Surr: 2-Fluorobiphenyl	19.4		17.96		108	50	150				
Surr: o-Terphenyl	21.2		17.96		118	50	150				

NOTES:
S - Outlying spike recovery(ies) observed. A duplicate analysis was performed with similar results indicating a possible matrix effect.

Sample ID **1611219-001AMSD**	SampType: **MSD**	Units: **mg/Kg-dry**	Prep Date: **11/21/2016**	RunNo: **33039**
Client ID: **BATCH**	Batch ID: **15507**		Analysis Date: **11/22/2016**	SeqNo: **626101**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	920	19.4	485.4	1,367	-92.0	65	135	1,188	25.4	30	S
Surr: 2-Fluorobiphenyl	23.7		19.42		122	50	150		0		
Surr: o-Terphenyl	24.8		19.42		128	50	150		0		

NOTES:
S - Outlying spike recovery(ies) observed. A duplicate analysis was performed with similar results indicating a possible matrix effect.

Work Order: 1611216
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Gasoline by NWTPH-Gx

Sample ID **LCS-15503**	SampType: **LCS**			Units: **mg/Kg**		Prep Date: **11/21/2016**		RunNo: **33046**			
Client ID: **LCSS**	Batch ID: **15503**					Analysis Date: **11/21/2016**		SeqNo: **626243**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	25.6	5.00	25.00	0	102	65	135				
Surr: Toluene-d8	1.11		1.250		88.8	65	135				
Surr: 4-Bromofluorobenzene	0.812		1.250		64.9	65	135				S

NOTES:
S - Outlying surrogate recovery(ies) observed.

Sample ID **MB-15503**	SampType: **MBLK**			Units: **mg/Kg**		Prep Date: **11/21/2016**		RunNo: **33046**			
Client ID: **MBLKS**	Batch ID: **15503**					Analysis Date: **11/21/2016**		SeqNo: **626245**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	5.00									
Surr: Toluene-d8	1.21		1.250		96.9	65	135				
Surr: 4-Bromofluorobenzene	0.985		1.250		78.8	65	135				

Sample ID **1611186-001BDUP**	SampType: **DUP**			Units: **mg/Kg-dry**		Prep Date: **11/21/2016**		RunNo: **33046**			
Client ID: **BATCH**	Batch ID: **15503**					Analysis Date: **11/21/2016**		SeqNo: **626216**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	6.43						0		30	
Surr: Toluene-d8	2.00		1.607		125	65	135		0		
Surr: 4-Bromofluorobenzene	1.79		1.607		111	65	135		0		

Sample ID **1611201-001BDUP**	SampType: **DUP**			Units: **mg/Kg-dry**		Prep Date: **11/21/2016**		RunNo: **33046**			
Client ID: **BATCH**	Batch ID: **15503**					Analysis Date: **11/22/2016**		SeqNo: **626229**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	5.75						0		30	
Surr: Toluene-d8	1.42		1.437		98.8	65	135		0		
Surr: 4-Bromofluorobenzene	1.29		1.437		90.1	65	135		0		

Work Order: 1611216
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Gasoline by NWTPH-Gx

Sample ID	**1611216-014BMS**	SampType: **MS**		Units: **mg/Kg-dry**	Prep Date: **11/21/2016**	RunNo: **33046**
Client ID:	**TP-W14S36-7.5**	Batch ID: **15503**			Analysis Date: **11/22/2016**	SeqNo: **626237**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	24.8	5.99	29.93	0	83.0	65	135				
Surr: Toluene-d8	1.48		1.496		98.6	65	135				
Surr: 4-Bromofluorobenzene	1.25		1.496		83.7	65	135				

Sample ID	**1611216-014BMSD**	SampType: **MSD**		Units: **mg/Kg-dry**	Prep Date: **11/21/2016**	RunNo: **33046**
Client ID:	**TP-W14S36-7.5**	Batch ID: **15503**			Analysis Date: **11/22/2016**	SeqNo: **626238**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	25.4	5.99	29.93	0	84.8	65	135	24.83	2.21	30	
Surr: Toluene-d8	1.50		1.496		100	65	135		0		
Surr: 4-Bromofluorobenzene	1.30		1.496		87.0	65	135		0		

Work Order: 1611216
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Hexavalent Chromium by EPA Method 7196

Sample ID	**MB-15530**	SampType:	**MBLK**			Units:	**mg/Kg**	Prep Date:	**11/28/2016**	RunNo:	**33117**	
Client ID:	**MBLKS**	Batch ID:	**15530**					Analysis Date:	**11/28/2016**	SeqNo:	**627568**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent		ND	0.500									

Sample ID	**LCS-15530**	SampType:	**LCS**			Units:	**mg/Kg**	Prep Date:	**11/28/2016**	RunNo:	**33117**	
Client ID:	**LCSS**	Batch ID:	**15530**					Analysis Date:	**11/28/2016**	SeqNo:	**627569**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent		1.34	0.500	1.500	0	89.2	65	135				

Sample ID	**1611216-010ADUP**	SampType:	**DUP**			Units:	**mg/Kg-dry**	Prep Date:	**11/28/2016**	RunNo:	**33117**	
Client ID:	**TP-W14S9-5.0**	Batch ID:	**15530**					Analysis Date:	**11/28/2016**	SeqNo:	**627571**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent		ND	0.718						0		30	

Sample ID	**1611216-010AMS**	SampType:	**MS**			Units:	**mg/Kg-dry**	Prep Date:	**11/28/2016**	RunNo:	**33117**	
Client ID:	**TP-W14S9-5.0**	Batch ID:	**15530**					Analysis Date:	**11/28/2016**	SeqNo:	**627572**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent		2.62	0.723	3.615	0.4657	59.6	65	135				S

NOTES:
S - Outlying spike recovery(ies) observed. A duplicate analysis was performed and recovered within range.

Sample ID	**1611216-010AMSD**	SampType:	**MSD**			Units:	**mg/Kg-dry**	Prep Date:	**11/28/2016**	RunNo:	**33117**	
Client ID:	**TP-W14S9-5.0**	Batch ID:	**15530**					Analysis Date:	**11/28/2016**	SeqNo:	**627573**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent		2.87	0.710	3.551	0.4657	67.6	65	135	2.620	8.98	30	

Work Order: 1611216
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Hexavalent Chromium by EPA Method 7196

Sample ID **1611216-010APDS** SampType: **PDS** Units: **mg/Kg-dry** Prep Date: **11/28/2016** RunNo: **33117**
Client ID: **TP-W14S9-5.0** Batch ID: **15530** Analysis Date: **11/28/2016** SeqNo: **627574**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	0.325	0.728	2.50	0.0345	0.211	85	115				S

NOTES:
S - Spike recovery indicates a possible matrix effect. The method is in control as indicated by the Laboratory Control Sample (LCS).

Work Order: 1611216
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Mercury by EPA Method 7471

Sample ID	**MB-15509**	SampType:	**MBLK**			Units:	**mg/Kg**	Prep Date:	**11/21/2016**		RunNo:	**33057**	
Client ID:	**MBLKS**	Batch ID:	**15509**					Analysis Date:	**11/22/2016**		SeqNo:	**626642**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Mercury		ND	0.236										

Sample ID	**LCS-15509**	SampType:	**LCS**			Units:	**mg/Kg**	Prep Date:	**11/21/2016**		RunNo:	**33057**	
Client ID:	**LCSS**	Batch ID:	**15509**					Analysis Date:	**11/22/2016**		SeqNo:	**626643**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Mercury		0.534	0.240	0.4808	0	111	80	120					

Sample ID	**1611216-001ADUP**	SampType:	**DUP**			Units:	**mg/Kg-dry**	Prep Date:	**11/21/2016**		RunNo:	**33057**	
Client ID:	**TP-W3S5-5.0**	Batch ID:	**15509**					Analysis Date:	**11/22/2016**		SeqNo:	**626645**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Mercury		ND	0.296						0		20		

Sample ID	**1611216-001AMS**	SampType:	**MS**			Units:	**mg/Kg-dry**	Prep Date:	**11/21/2016**		RunNo:	**33057**	
Client ID:	**TP-W3S5-5.0**	Batch ID:	**15509**					Analysis Date:	**11/22/2016**		SeqNo:	**626646**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Mercury		0.762	0.280	0.5594	0.2193	97.0	70	130					

Sample ID	**1611216-001AMSD**	SampType:	**MSD**			Units:	**mg/Kg-dry**	Prep Date:	**11/21/2016**		RunNo:	**33057**	
Client ID:	**TP-W3S5-5.0**	Batch ID:	**15509**					Analysis Date:	**11/22/2016**		SeqNo:	**626647**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Mercury		0.767	0.296	0.5911	0.2193	92.7	70	130	0.7620	0.693	20		

Work Order: 1611216
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Metals (SW6020) with TCLP Extraction (EPA 1311)

Sample ID	**MB-15541**	SampType:	**MBLK**	Units:	**mg/L**	Prep Date:	**11/29/2016**	RunNo:	**33135**
Client ID:	**MBLKS**	Batch ID:	**15541**			Analysis Date:	**11/29/2016**	SeqNo:	**627880**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	ND	0.500									
Cadmium	ND	0.200									
Chromium	ND	0.100									
Lead	ND	0.200									

NOTES:
Method Blank from tumble (PREP-15531).

Sample ID	**LCS-15541**	SampType:	**LCS**	Units:	**mg/L**	Prep Date:	**11/29/2016**	RunNo:	**33135**
Client ID:	**LCSS**	Batch ID:	**15541**			Analysis Date:	**11/29/2016**	SeqNo:	**627881**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	5.10	0.500	5.000	0	102	65	135				
Cadmium	0.254	0.200	0.2500	0	102	65	135				
Chromium	5.15	0.100	5.000	0	103	65	135				
Lead	2.43	0.200	2.500	0	97.2	65	135				

Sample ID	**1611216-001ADUP**	SampType:	**DUP**	Units:	**mg/L**	Prep Date:	**11/29/2016**	RunNo:	**33135**
Client ID:	**TP-W3S5-5.0**	Batch ID:	**15541**			Analysis Date:	**11/29/2016**	SeqNo:	**627883**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.570	0.500						0.5559	2.53	30	
Cadmium	ND	0.200						0		30	
Chromium	ND	0.100						0		30	
Lead	0.230	0.200						0.2372	2.99	30	

Sample ID	**1611216-001AMS**	SampType:	**MS**	Units:	**mg/L**	Prep Date:	**11/29/2016**	RunNo:	**33135**
Client ID:	**TP-W3S5-5.0**	Batch ID:	**15541**			Analysis Date:	**11/29/2016**	SeqNo:	**627884**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	5.78	0.500	5.000	0.5559	104	65	135				

Work Order: 1611216
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Metals (SW6020) with TCLP Extraction (EPA 1311)

Sample ID **1611216-001AMS** SampType: **MS** Units: **mg/L** Prep Date: **11/29/2016** RunNo: **33135**
Client ID: **TP-W3S5-5.0** Batch ID: **15541** Analysis Date: **11/29/2016** SeqNo: **627884**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	0.249	0.200	0.2500	0.002085	98.7	65	135				
Chromium	5.26	0.100	5.000	0	105	65	135				
Lead	2.71	0.200	2.500	0.2372	98.9	65	135				

Sample ID **1611216-001AMSD** SampType: **MSD** Units: **mg/L** Prep Date: **11/29/2016** RunNo: **33135**
Client ID: **TP-W3S5-5.0** Batch ID: **15541** Analysis Date: **11/29/2016** SeqNo: **627887**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	5.59	0.500	5.000	0.5559	101	65	135	5.779	3.32	30	
Cadmium	0.253	0.200	0.2500	0.002085	100	65	135	0.2489	1.57	30	
Chromium	5.20	0.100	5.000	0	104	65	135	5.255	1.13	30	
Lead	2.70	0.200	2.500	0.2372	98.7	65	135	2.709	0.156	30	

Work Order: 1611216
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

pH by EPA Method 9045

Sample ID	**MB-R33086**	SampType: **MBLK**			Units: **pH**		Prep Date: **11/23/2016**		RunNo: **33086**	
Client ID:	**MBLKS**	Batch ID: **R33086**					Analysis Date: **11/23/2016**		SeqNo: **626944**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hydrogen Ion (pH)	6.02										

Sample ID	**LCS-R33086**	SampType: **LCS**			Units: **pH**		Prep Date: **11/23/2016**		RunNo: **33086**	
Client ID:	**LCSS**	Batch ID: **R33086**					Analysis Date: **11/23/2016**		SeqNo: **626945**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hydrogen Ion (pH)	7.02		7.000	0	100	95	105				

Sample ID	**1611216-010ADUP**	SampType: **DUP**			Units: **pH**		Prep Date: **11/23/2016**		RunNo: **33086**	
Client ID:	**TP-W14S9-5.0**	Batch ID: **R33086**					Analysis Date: **11/23/2016**		SeqNo: **626947**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hydrogen Ion (pH)	7.25							7.210	0.553	10	

Work Order: 1611216
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **MB-15505**	SampType: **MBLK**	Units: **µg/Kg**	Prep Date: **11/21/2016**	RunNo: **33048**
Client ID: **MBLKS**	Batch ID: **15505**		Analysis Date: **11/21/2016**	SeqNo: **626265**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	40.0									
2-Methylnaphthalene	ND	40.0									
1-Methylnaphthalene	ND	40.0									
Acenaphthylene	ND	40.0									
Acenaphthene	ND	40.0									
Fluorene	ND	40.0									
Phenanthrene	ND	40.0									
Anthracene	ND	40.0									
Fluoranthene	ND	40.0									
Pyrene	ND	40.0									
Benz(a)anthracene	ND	40.0									
Chrysene	ND	40.0									
Benzo(b)fluoranthene	ND	40.0									
Benzo(k)fluoranthene	ND	40.0									
Benzo(a)pyrene	ND	40.0									
Indeno(1,2,3-cd)pyrene	ND	40.0									
Dibenz(a,h)anthracene	ND	40.0									
Benzo(g,h,i)perylene	ND	40.0									
Surr: 2-Fluorobiphenyl	466		500.0		93.3	24.5	139				
Surr: Terphenyl-d14 (surr)	478		500.0		95.7	44.3	176				

Sample ID **LCS-15505**	SampType: **LCS**	Units: **µg/Kg**	Prep Date: **11/21/2016**	RunNo: **33048**
Client ID: **LCSS**	Batch ID: **15505**		Analysis Date: **11/21/2016**	SeqNo: **626266**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	1,020	40.0	1,000	0	102	46.4	125				
2-Methylnaphthalene	1,080	40.0	1,000	0	108	45.1	135				
1-Methylnaphthalene	1,070	40.0	1,000	0	107	46.2	133				
Acenaphthylene	1,040	40.0	1,000	0	104	32.8	136				
Acenaphthene	1,040	40.0	1,000	0	104	38.7	129				

Work Order: 1611216
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **LCS-15505** SampType: **LCS** Units: **µg/Kg** Prep Date: **11/21/2016** RunNo: **33048**
Client ID: **LCSS** Batch ID: **15505** Analysis Date: **11/21/2016** SeqNo: **626266**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluorene	1,060	40.0	1,000	0	106	41.1	132				
Phenanthrene	1,080	40.0	1,000	0	108	43.9	133				
Anthracene	1,060	40.0	1,000	0	106	44.2	136				
Fluoranthene	1,050	40.0	1,000	0	105	45.9	137				
Pyrene	1,060	40.0	1,000	0	106	46.2	137				
Benz(a)anthracene	1,150	40.0	1,000	0	115	41.9	136				
Chrysene	1,090	40.0	1,000	0	109	46.9	138				
Benzo(b)fluoranthene	1,220	40.0	1,000	0	122	35.9	148				
Benzo(k)fluoranthene	1,270	40.0	1,000	0	127	43.9	144				Q+
Benzo(a)pyrene	1,300	40.0	1,000	0	130	36.3	144				Q+
Indeno(1,2,3-cd)pyrene	1,170	40.0	1,000	0	117	16.1	135				Q+
Dibenz(a,h)anthracene	1,160	40.0	1,000	0	116	17.2	136				Q+
Benzo(g,h,i)perylene	1,010	40.0	1,000	0	101	32.9	112				Q+
Surr: 2-Fluorobiphenyl	452		500.0		90.4	24.5	139				
Surr: Terphenyl-d14 (surr)	476		500.0		95.2	44.3	176				

NOTES:
Q+ - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF) - high bias

Sample ID **1611219-001ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **11/21/2016** RunNo: **33048**
Client ID: **BATCH** Batch ID: **15505** Analysis Date: **11/22/2016** SeqNo: **626279**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	936	41.7						526.6	56.0	30	R
2-Methylnaphthalene	2,080	41.7						1,654	23.0	30	
1-Methylnaphthalene	1,760	41.7						1,283	31.1	30	R
Acenaphthylene	106	41.7						64.40	49.1	30	R
Acenaphthene	1,720	41.7						656.1	89.6	30	R
Fluorene	1,380	41.7						577.0	82.3	30	R
Phenanthrene	5,130	41.7						1,936	90.4	30	R
Anthracene	786	41.7						339.2	79.5	30	R
Fluoranthene	1,650	41.7						446.1	115	30	R

Work Order: 1611216
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1611219-001ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **11/21/2016** RunNo: **33048**
Client ID: **BATCH** Batch ID: **15505** Analysis Date: **11/22/2016** SeqNo: **626279**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Pyrene	3,200	41.7						1,213	90.1	30	R
Benz(a)anthracene	687	41.7						334.6	69.0	30	R
Chrysene	1,490	41.7						645.6	79.2	30	R
Benzo(b)fluoranthene	281	41.7						146.4	62.9	30	R
Benzo(k)fluoranthene	56.8	41.7						53.07	6.86	30	Q+
Benzo(a)pyrene	581	41.7						335.6	53.6	30	RQ+
Indeno(1,2,3-cd)pyrene	485	41.7						269.8	57.0	30	RQ+,I
Dibenz(a,h)anthracene	303	41.7						148.8	68.1	30	RQ+,I
Benzo(g,h,i)perylene	1,470	41.7						799.0	59.3	30	RQ+,I
Surr: 2-Fluorobiphenyl	475		521.6		91.1	24.5	139		0		
Surr: Terphenyl-d14 (surr)	439		521.6		84.2	44.3	176		0		

NOTES:
Q+ - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF) - high bias
R - High RPD due to suspected sample inhomogeneity. The method is in control as indicated by the Laboratory Control Sample (LCS).
I - Indicates an analyte with an internal standard that does not meet established acceptance criteria.

Sample ID **1611219-001AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **11/21/2016** RunNo: **33048**
Client ID: **BATCH** Batch ID: **15505** Analysis Date: **11/22/2016** SeqNo: **626280**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	1,710	40.1	1,002	526.6	118	42.9	138				
2-Methylnaphthalene	2,230	40.1	1,002	1,654	57.2	42.8	151				
1-Methylnaphthalene	1,900	40.1	1,002	1,283	61.1	41.6	148				
Acenaphthylene	1,130	40.1	1,002	64.40	107	32.6	160				
Acenaphthene	1,870	40.1	1,002	656.1	121	46.3	142				
Fluorene	1,710	40.1	1,002	577.0	113	43.4	153				
Phenanthrene	3,340	40.1	1,002	1,936	140	45.5	140				S
Anthracene	1,430	40.1	1,002	339.2	109	32.6	160				
Fluoranthene	1,700	40.1	1,002	446.1	125	44.6	161				
Pyrene	1,940	40.1	1,002	1,213	72.4	48.3	158				
Benz(a)anthracene	858	40.1	1,002	334.6	52.3	57.5	169				S

Work Order: 1611216
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1611219-001AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **11/21/2016** RunNo: **33048**
Client ID: **BATCH** Batch ID: **15505** Analysis Date: **11/22/2016** SeqNo: **626280**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chrysene	1,480	40.1	1,002	645.6	83.7	45.2	146				
Benzo(b)fluoranthene	778	40.1	1,002	146.4	63.0	42.2	168				
Benzo(k)fluoranthene	713	40.1	1,002	53.07	65.8	48	161				Q+
Benzo(a)pyrene	927	40.1	1,002	335.6	59.0	34.4	179				Q+
Indeno(1,2,3-cd)pyrene	2,340	40.1	1,002	269.8	206	5	113				SQ+,I
Dibenz(a,h)anthracene	2,790	40.1	1,002	148.8	264	5	100				SQ+,I
Benzo(g,h,i)perylene	2,960	40.1	1,002	799.0	215	45.6	157				SQ+,I
Surr: 2-Fluorobiphenyl	375		501.2		74.8	24.5	139				
Surr: Terphenyl-d14 (surr)	331		501.2		66.1	44.3	176				

NOTES:
Q+ - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF) - high bias
S - Outlying spike recovery(ies) observed. A duplicate analysis was performed with similar results indicating a possible matrix effect.
I - Indicates an analyte with an internal standard that does not meet established acceptance criteria.

Sample ID **1611219-001AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **11/21/2016** RunNo: **33048**
Client ID: **BATCH** Batch ID: **15505** Analysis Date: **11/22/2016** SeqNo: **626281**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	1,540	39.7	992.3	526.6	102	42.9	138	1,713	10.9	30	
2-Methylnaphthalene	2,070	39.7	992.3	1,654	41.9	42.8	151	2,228	7.37	30	S
1-Methylnaphthalene	1,780	39.7	992.3	1,283	49.8	41.6	148	1,895	6.46	30	
Acenaphthylene	1,110	39.7	992.3	64.40	105	32.6	160	1,133	2.30	30	
Acenaphthene	1,680	39.7	992.3	656.1	103	46.3	142	1,869	10.9	30	
Fluorene	1,540	39.7	992.3	577.0	96.6	43.4	153	1,708	10.6	30	
Phenanthrene	2,790	39.7	992.3	1,936	86.1	45.5	140	3,341	17.9	30	
Anthracene	1,350	39.7	992.3	339.2	102	32.6	160	1,430	5.85	30	
Fluoranthene	1,460	39.7	992.3	446.1	102	44.6	161	1,696	14.9	30	
Pyrene	1,970	39.7	992.3	1,213	75.9	48.3	158	1,939	1.40	30	
Benz(a)anthracene	835	39.7	992.3	334.6	50.5	57.5	169	858.4	2.71	30	S
Chrysene	1,450	39.7	992.3	645.6	80.9	45.2	146	1,484	2.44	30	
Benzo(b)fluoranthene	755	39.7	992.3	146.4	61.3	42.2	168	778.1	2.99	30	

Work Order: 1611216
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1611219-001AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **11/21/2016** RunNo: **33048**
Client ID: **BATCH** Batch ID: **15505** Analysis Date: **11/22/2016** SeqNo: **626281**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzo(k)fluoranthene	671	39.7	992.3	53.07	62.2	48	161	712.7	6.07	30	Q+
Benzo(a)pyrene	856	39.7	992.3	335.6	52.4	34.4	179	926.9	7.98	30	Q+
Indeno(1,2,3-cd)pyrene	2,330	39.7	992.3	269.8	207	5	113	2,340	0.489	30	SQ+,I
Dibenz(a,h)anthracene	2,630	39.7	992.3	148.8	250	5	100	2,795	6.13	30	SQ+,I
Benzo(g,h,i)perylene	2,660	39.7	992.3	799.0	187	45.6	157	2,958	10.8	30	SQ+,I
Surr: 2-Fluorobiphenyl	439		496.2		88.5	24.5	139		0		
Surr: Terphenyl-d14 (surr)	408		496.2		82.1	44.3	176		0		

NOTES:
Q+ - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF) - high bias
S - Outlying spike recovery(ies) observed. A duplicate analysis was performed with similar results indicating a possible matrix effect.
I - Indicates an analyte with an internal standard that does not meet established acceptance criteria.

Work Order: 1611216
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Sample Moisture (Percent Moisture)

Sample ID **1611227-014ADUP**	SampType: **DUP**			Units: **wt%**			Prep Date: **11/28/2016**		RunNo: **33098**	
Client ID: **BATCH**	Batch ID: **R33098**						Analysis Date: **11/28/2016**		SeqNo: **627253**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	22.6	0.500						21.96	2.77	20	

Sample ID **1611253-010ADUP**	SampType: **DUP**			Units: **wt%**			Prep Date: **11/28/2016**		RunNo: **33098**	
Client ID: **BATCH**	Batch ID: **R33098**						Analysis Date: **11/28/2016**		SeqNo: **627270**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	15.3	0.500						15.56	1.55	20	

Work Order: 1611216
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Sample Moisture (Percent Moisture)

Sample ID **1611220-004ADUP** SampType: **DUP** Units: **wt%** Prep Date: **11/22/2016** RunNo: **33041**
Client ID: **BATCH** Batch ID: **R33041** Analysis Date: **11/22/2016** SeqNo: **626131**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	8.26	0.500						8.177	1.02	20	

Work Order: 1611216
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID	**MB-15523**	SampType:	**MBLK**			Units:	**mg/Kg**	Prep Date:	**11/23/2016**		RunNo:	**33097**	
Client ID:	**MBLKS**	Batch ID:	**15523**					Analysis Date:	**11/23/2016**		SeqNo:	**627202**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Lead		ND	0.154										

Sample ID	**LCS-15523**	SampType:	**LCS**			Units:	**mg/Kg**	Prep Date:	**11/23/2016**		RunNo:	**33097**	
Client ID:	**LCSS**	Batch ID:	**15523**					Analysis Date:	**11/23/2016**		SeqNo:	**627203**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Lead		19.8	0.157	19.69	0	100	80	120					

Sample ID	**1611227-004ADUP**	SampType:	**DUP**			Units:	**mg/Kg-dry**	Prep Date:	**11/23/2016**		RunNo:	**33097**	
Client ID:	**BATCH**	Batch ID:	**15523**					Analysis Date:	**11/23/2016**		SeqNo:	**627205**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Lead		0.790	0.192						0.8028	1.65	20		

Sample ID	**1611227-004AMS**	SampType:	**MS**			Units:	**mg/Kg-dry**	Prep Date:	**11/23/2016**		RunNo:	**33097**	
Client ID:	**BATCH**	Batch ID:	**15523**					Analysis Date:	**11/23/2016**		SeqNo:	**627207**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Lead		22.8	0.193	24.16	0.8028	90.9	75	125					

Sample ID	**1611227-004AMSD**	SampType:	**MSD**			Units:	**mg/Kg-dry**	Prep Date:	**11/23/2016**		RunNo:	**33097**	
Client ID:	**BATCH**	Batch ID:	**15523**					Analysis Date:	**11/23/2016**		SeqNo:	**627208**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Lead		23.3	0.198	24.73	0.8028	90.8	75	125	22.77	2.13	20		

Work Order: 1611216
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID **1611227-004APDS** SampType: **PDS** Units: **mg/Kg-dry** Prep Date: **11/23/2016** RunNo: **33097**
Client ID: **BATCH** Batch ID: **15523** Analysis Date: **11/23/2016** SeqNo: **627209**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	23.0	0.195	24.4	0.803	91.3	80	120				

Work Order: 1611216
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID **MB-15512** SampType: **MBLK** Units: **mg/Kg** Prep Date: **11/22/2016** RunNo: **33054**
Client ID: **MBLKS** Batch ID: **15512** Analysis Date: **11/22/2016** SeqNo: **626572**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.0787									
Barium	ND	0.394									
Cadmium	ND	0.157									
Chromium	ND	0.0787									
Lead	ND	0.157									
Selenium	ND	0.394									
Silver	ND	0.0787									

Sample ID **LCS-15512** SampType: **LCS** Units: **mg/Kg** Prep Date: **11/22/2016** RunNo: **33054**
Client ID: **LCSS** Batch ID: **15512** Analysis Date: **11/22/2016** SeqNo: **626573**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	39.7	0.0775	38.76	0	103	80	120				
Barium	40.6	0.388	38.76	0	105	80	120				
Cadmium	1.94	0.155	1.938	0	100	80	120				
Chromium	38.7	0.0775	38.76	0	99.7	80	120				
Lead	18.9	0.155	19.38	0	97.6	80	120				
Selenium	3.70	0.388	3.876	0	95.4	80	120				
Silver	1.71	0.0775	1.938	0	88.1	80	120				

Sample ID **1611201-001ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **11/22/2016** RunNo: **33054**
Client ID: **BATCH** Batch ID: **15512** Analysis Date: **11/22/2016** SeqNo: **626575**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	2.21	0.0894						2.762	22.3	20	R
Barium	96.3	0.447						124.1	25.2	20	R
Cadmium	ND	0.179						0		20	
Chromium	30.6	0.0894						34.48	12.0	20	
Lead	20.4	0.179						16.88	18.9	20	
Selenium	0.901	0.447						0.8343	7.71	20	

Work Order: 1611216
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID **1611201-001ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **11/22/2016** RunNo: **33054**
Client ID: **BATCH** Batch ID: **15512** Analysis Date: **11/22/2016** SeqNo: **626575**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Silver	ND	0.0894						0		20	

NOTES:
R - High RPD observed. The method is in control as indicated by the LCS.

Sample ID **1611201-001AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **11/22/2016** RunNo: **33054**
Client ID: **BATCH** Batch ID: **15512** Analysis Date: **11/22/2016** SeqNo: **626577**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	53.0	0.0922	46.09	2.762	109	75	125				
Barium	177	0.461	46.09	124.1	115	75	125				
Cadmium	2.12	0.184	2.304	0.08030	88.3	75	125				
Chromium	108	0.0922	46.09	34.48	159	75	125				S
Lead	42.7	0.184	23.04	16.88	112	75	125				
Selenium	5.48	0.461	4.609	0.8343	101	75	125				
Silver	1.63	0.0922	2.304	0.05836	68.1	75	125				S

NOTES:
S - Outlying spike recovery observed (Cr). A duplicate analysis was performed and recovered within range.

Sample ID **1611201-001AMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **11/22/2016** RunNo: **33054**
Client ID: **BATCH** Batch ID: **15512** Analysis Date: **11/22/2016** SeqNo: **626578**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	51.5	0.0922	46.09	2.762	106	75	125	52.99	2.87	20	
Barium	143	0.461	46.09	124.1	42.0	75	125	177.3	21.1	20	RS
Cadmium	1.93	0.184	2.304	0.08030	80.1	75	125	2.115	9.41	20	
Chromium	83.7	0.0922	46.09	34.48	107	75	125	107.9	25.3	20	R
Lead	37.4	0.184	23.04	16.88	88.9	75	125	42.67	13.2	20	
Selenium	5.08	0.461	4.609	0.8343	92.2	75	125	5.477	7.46	20	
Silver	1.46	0.0922	2.304	0.05836	61.0	75	125	1.627	10.5	20	S

NOTES:
R - High RPD observed. The method is in control as indicated by the LCS.

Work Order: 1611216
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID **1611201-001APDS** SampType: **PDS** Units: **mg/Kg-dry** Prep Date: **11/22/2016** RunNo: **33054**
Client ID: **BATCH** Batch ID: **15512** Analysis Date: **11/22/2016** SeqNo: **626579**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Silver	1.63	0.0861	2.15	0.0584	73.0	80	120				S

NOTES:
S - Spike recovery indicates a possible matrix effect. The method is in control as indicated by the Laboratory Control Sample (LCS).

Work Order: 1611216
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-15503** SampType: **LCS** Units: **mg/Kg** Prep Date: **11/21/2016** RunNo: **33045**
Client ID: **LCSS** Batch ID: **15503** Analysis Date: **11/21/2016** SeqNo: **626212**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	0.734	0.0600	1.000	0	73.4	34.5	141				
Chloromethane	0.712	0.0600	1.000	0	71.2	38.8	132				
Vinyl chloride	0.756	0.00200	1.000	0	75.6	44	142				
Bromomethane	0.809	0.0900	1.000	0	80.9	40.9	157				
Trichlorofluoromethane (CFC-11)	0.812	0.0500	1.000	0	81.2	41.7	153				Q
Chloroethane	0.768	0.0600	1.000	0	76.8	37.1	144				Q
1,1-Dichloroethene	0.898	0.0500	1.000	0	89.8	49.7	142				Q
Methylene chloride	1.02	0.0200	1.000	0	102	46.3	140				
trans-1,2-Dichloroethene	1.01	0.0200	1.000	0	101	68	130				
Methyl tert-butyl ether (MTBE)	0.897	0.0500	1.000	0	89.7	59.1	138				
1,1-Dichloroethane	0.989	0.0200	1.000	0	98.9	61.9	137				
2,2-Dichloropropane	1.03	0.0500	1.000	0	103	28.1	149				
cis-1,2-Dichloroethene	1.00	0.0200	1.000	0	100	71.3	135				
Chloroform	0.994	0.0200	1.000	0	99.4	67.5	129				B
1,1,1-Trichloroethane (TCA)	0.956	0.0200	1.000	0	95.6	69	132				
1,1-Dichloropropene	1.01	0.0200	1.000	0	101	72.7	131				
Carbon tetrachloride	0.993	0.0200	1.000	0	99.3	63.4	137				
1,2-Dichloroethane (EDC)	0.942	0.0300	1.000	0	94.2	61.9	136				
Benzene	0.990	0.0200	1.000	0	99.0	64.3	133				
Trichloroethene (TCE)	0.948	0.0200	1.000	0	94.8	65.5	137				
1,2-Dichloropropane	1.04	0.0200	1.000	0	104	63.2	142				
Bromodichloromethane	0.978	0.0200	1.000	0	97.8	73.2	131				
Dibromomethane	0.956	0.0400	1.000	0	95.6	70	130				
cis-1,3-Dichloropropene	1.00	0.0200	1.000	0	100	59.1	143				
Toluene	1.07	0.0200	1.000	0	107	67.3	138				
trans-1,3-Dichloropropylene	0.974	0.0300	1.000	0	97.4	49.2	149				
1,1,2-Trichloroethane	1.03	0.0300	1.000	0	103	74.5	129				
1,3-Dichloropropane	1.02	0.0500	1.000	0	102	70	130				
Tetrachloroethene (PCE)	1.06	0.0200	1.000	0	106	52.7	150				
Dibromochloromethane	1.02	0.0300	1.000	0	102	70.6	144				
1,2-Dibromoethane (EDB)	0.984	0.00500	1.000	0	98.4	70	130				

Work Order: 1611216
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-15503** SampType: **LCS** Units: **mg/Kg** Prep Date: **11/21/2016** RunNo: **33045**
Client ID: **LCSS** Batch ID: **15503** Analysis Date: **11/21/2016** SeqNo: **626212**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chlorobenzene	0.992	0.0200	1.000	0	99.2	76.1	123				
1,1,1,2-Tetrachloroethane	0.962	0.0300	1.000	0	96.2	65.9	141				
Ethylbenzene	0.986	0.0300	1.000	0	98.6	74	129				
m,p-Xylene	1.96	0.0200	2.000	0	98.1	70	124				
o-Xylene	1.03	0.0200	1.000	0	103	72.7	124				
Styrene	0.976	0.0200	1.000	0	97.6	76.8	130				
Isopropylbenzene	0.966	0.0800	1.000	0	96.6	70	130				
Bromoform	0.887	0.0200	1.000	0	88.7	67	154				
1,1,2,2-Tetrachloroethane	0.952	0.0200	1.000	0	95.2	60	130				
n-Propylbenzene	0.992	0.0200	1.000	0	99.2	74.8	125				
Bromobenzene	0.982	0.0300	1.000	0	98.2	49.2	144				
1,3,5-Trimethylbenzene	0.940	0.0200	1.000	0	94.0	74.6	123				
2-Chlorotoluene	0.966	0.0200	1.000	0	96.6	76.7	129				
4-Chlorotoluene	0.968	0.0200	1.000	0	96.8	77.5	125				
tert-Butylbenzene	0.919	0.0200	1.000	0	91.9	66.2	130				
1,2,3-Trichloropropane	0.914	0.0200	1.000	0	91.4	67.9	136				
1,2,4-Trichlorobenzene	0.843	0.0500	1.000	0	84.3	62.6	143				
sec-Butylbenzene	0.962	0.0200	1.000	0	96.2	75.6	133				
4-Isopropyltoluene	0.912	0.0200	1.000	0	91.2	76.8	131				
1,3-Dichlorobenzene	1.07	0.0200	1.000	0	107	72.8	128				
1,4-Dichlorobenzene	1.08	0.0200	1.000	0	108	72.6	126				
n-Butylbenzene	0.958	0.0200	1.000	0	95.8	65.3	136				Q
1,2-Dichlorobenzene	0.925	0.0200	1.000	0	92.5	72.8	126				Q
1,2-Dibromo-3-chloropropane	0.874	0.500	1.000	0	87.4	61.2	139				
1,2,4-Trimethylbenzene	0.942	0.0200	1.000	0	94.2	77.5	129				
Hexachlorobutadiene	0.429	0.100	1.000	0	42.8	42	151				
Naphthalene	0.879	0.0300	1.000	0	87.9	62.3	134				
1,2,3-Trichlorobenzene	0.813	0.0200	1.000	0	81.3	54.8	143				
Surr: Dibromofluoromethane	1.21		1.250		96.9	56.5	129				
Surr: Toluene-d8	1.26		1.250		100	64.3	131				
Surr: 1-Bromo-4-fluorobenzene	1.28		1.250		102	63.1	141				

Work Order: 1611216
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID	**LCS-15503**	SampType:	**LCS**	Units:	**mg/Kg**	Prep Date:	**11/21/2016**	RunNo:	**33045**
Client ID:	**LCSS**	Batch ID:	**15503**			Analysis Date:	**11/21/2016**	SeqNo:	**626212**

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

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample ID	**MB-15503**	SampType:	**MBLK**	Units:	**mg/Kg**	Prep Date:	**11/21/2016**	RunNo:	**33045**
Client ID:	**MBLKS**	Batch ID:	**15503**			Analysis Date:	**11/21/2016**	SeqNo:	**626213**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	ND	0.0600									
Chloromethane	ND	0.0600									
Vinyl chloride	ND	0.00200									
Bromomethane	ND	0.0900									
Trichlorofluoromethane (CFC-11)	ND	0.0500									Q
Chloroethane	ND	0.0600									Q
1,1-Dichloroethene	ND	0.0500									Q
Methylene chloride	ND	0.0200									
trans-1,2-Dichloroethene	ND	0.0200									
Methyl tert-butyl ether (MTBE)	ND	0.0500									
1,1-Dichloroethane	ND	0.0200									
2,2-Dichloropropane	ND	0.0500									
cis-1,2-Dichloroethene	ND	0.0200									
Chloroform	0.0380	0.0200									
1,1,1-Trichloroethane (TCA)	ND	0.0200									
1,1-Dichloropropene	ND	0.0200									
Carbon tetrachloride	ND	0.0200									
1,2-Dichloroethane (EDC)	ND	0.0300									
Benzene	ND	0.0200									
Trichloroethene (TCE)	ND	0.0200									
1,2-Dichloropropane	ND	0.0200									
Bromodichloromethane	ND	0.0200									
Dibromomethane	ND	0.0400									
cis-1,3-Dichloropropene	ND	0.0200									

Work Order: 1611216
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-15503** SampType: **MBLK** Units: **mg/Kg** Prep Date: **11/21/2016** RunNo: **33045**
Client ID: **MBLKS** Batch ID: **15503** Analysis Date: **11/21/2016** SeqNo: **626213**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Toluene	ND	0.0200									
trans-1,3-Dichloropropylene	ND	0.0300									
1,1,2-Trichloroethane	ND	0.0300									
1,3-Dichloropropane	ND	0.0500									
Tetrachloroethene (PCE)	ND	0.0200									
Dibromochloromethane	ND	0.0300									
1,2-Dibromoethane (EDB)	ND	0.00500									
Chlorobenzene	ND	0.0200									
1,1,1,2-Tetrachloroethane	ND	0.0300									
Ethylbenzene	ND	0.0300									
m,p-Xylene	ND	0.0200									
o-Xylene	ND	0.0200									
Styrene	ND	0.0200									
Isopropylbenzene	ND	0.0800									
Bromoform	ND	0.0200									
1,1,2,2-Tetrachloroethane	ND	0.0200									
n-Propylbenzene	ND	0.0200									
Bromobenzene	ND	0.0300									
1,3,5-Trimethylbenzene	ND	0.0200									
2-Chlorotoluene	ND	0.0200									
4-Chlorotoluene	ND	0.0200									
tert-Butylbenzene	ND	0.0200									
1,2,3-Trichloropropane	ND	0.0200									
1,2,4-Trichlorobenzene	ND	0.0500									
sec-Butylbenzene	ND	0.0200									
4-Isopropyltoluene	ND	0.0200									
1,3-Dichlorobenzene	ND	0.0200									
1,4-Dichlorobenzene	ND	0.0200									
n-Butylbenzene	ND	0.0200									Q
1,2-Dichlorobenzene	ND	0.0200									Q
1,2-Dibromo-3-chloropropane	ND	0.500									

Work Order: 1611216
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-15503** SampType: **MBLK** Units: **mg/Kg** Prep Date: **11/21/2016** RunNo: **33045**
Client ID: **MBLKS** Batch ID: **15503** Analysis Date: **11/21/2016** SeqNo: **626213**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trimethylbenzene	ND	0.0200									
Hexachlorobutadiene	ND	0.100									
Naphthalene	ND	0.0300									
1,2,3-Trichlorobenzene	ND	0.0200									
Surr: Dibromofluoromethane	1.23		1.250		98.3	56.5	129				
Surr: Toluene-d8	1.64		1.250		132	64.3	131				S
Surr: 1-Bromo-4-fluorobenzene	1.17		1.250		93.6	63.1	141				

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).
S - Outlying surrogate recovery(ies) observed.

Sample ID **1611186-001BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **11/21/2016** RunNo: **33045**
Client ID: **BATCH** Batch ID: **15503** Analysis Date: **11/21/2016** SeqNo: **626189**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	ND	0.0771						0		30	
Chloromethane	ND	0.0771						0		30	
Vinyl chloride	ND	0.00257						0		30	
Bromomethane	ND	0.116						0		30	
Trichlorofluoromethane (CFC-11)	ND	0.0643						0		30	Q
Chloroethane	ND	0.0771						0		30	Q
1,1-Dichloroethene	ND	0.0643						0		30	Q
Methylene chloride	ND	0.0257						0		30	
trans-1,2-Dichloroethene	ND	0.0257						0		30	
Methyl tert-butyl ether (MTBE)	ND	0.0643						0		30	
1,1-Dichloroethane	ND	0.0257						0		30	
2,2-Dichloropropane	ND	0.0643						0		30	
cis-1,2-Dichloroethene	ND	0.0257						0		30	
Chloroform	ND	0.0257						0		30	
1,1,1-Trichloroethane (TCA)	ND	0.0257						0		30	
1,1-Dichloropropene	ND	0.0257						0		30	

Work Order: 1611216
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1611186-001BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **11/21/2016** RunNo: **33045**
Client ID: **BATCH** Batch ID: **15503** Analysis Date: **11/21/2016** SeqNo: **626189**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Carbon tetrachloride	ND	0.0257						0		30	
1,2-Dichloroethane (EDC)	ND	0.0386						0		30	
Benzene	ND	0.0257						0		30	
Trichloroethene (TCE)	ND	0.0257						0		30	
1,2-Dichloropropane	ND	0.0257						0		30	
Bromodichloromethane	ND	0.0257						0		30	
Dibromomethane	ND	0.0514						0		30	
cis-1,3-Dichloropropene	ND	0.0257						0		30	
Toluene	ND	0.0257						0		30	
trans-1,3-Dichloropropylene	ND	0.0386						0		30	
1,1,2-Trichloroethane	ND	0.0386						0		30	
1,3-Dichloropropane	ND	0.0643						0		30	
Tetrachloroethene (PCE)	ND	0.0257						0		30	
Dibromochloromethane	ND	0.0386						0		30	
1,2-Dibromoethane (EDB)	ND	0.00643						0		30	
Chlorobenzene	ND	0.0257						0		30	
1,1,1,2-Tetrachloroethane	ND	0.0386						0		30	
Ethylbenzene	ND	0.0386						0		30	
m,p-Xylene	ND	0.0257						0		30	
o-Xylene	ND	0.0257						0		30	
Styrene	ND	0.0257						0		30	
Isopropylbenzene	ND	0.103						0		30	
Bromoform	ND	0.0257						0		30	
1,1,2,2-Tetrachloroethane	ND	0.0257						0		30	
n-Propylbenzene	ND	0.0257						0		30	
Bromobenzene	ND	0.0386						0		30	
1,3,5-Trimethylbenzene	ND	0.0257						0		30	
2-Chlorotoluene	ND	0.0257						0		30	
4-Chlorotoluene	ND	0.0257						0		30	
tert-Butylbenzene	ND	0.0257						0		30	
1,2,3-Trichloropropane	ND	0.0257						0		30	

Work Order: 1611216
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1611186-001BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **11/21/2016** RunNo: **33045**
Client ID: **BATCH** Batch ID: **15503** Analysis Date: **11/21/2016** SeqNo: **626189**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	ND	0.0643						0		30	
sec-Butylbenzene	ND	0.0257						0		30	
4-Isopropyltoluene	ND	0.0257						0		30	
1,3-Dichlorobenzene	ND	0.0257						0		30	
1,4-Dichlorobenzene	ND	0.0257						0		30	
n-Butylbenzene	ND	0.0257						0		30	Q
1,2-Dichlorobenzene	ND	0.0257						0		30	Q
1,2-Dibromo-3-chloropropane	ND	0.643						0		30	
1,2,4-Trimethylbenzene	ND	0.0257						0		30	
Hexachlorobutadiene	ND	0.129						0		30	
Naphthalene	ND	0.0386						0		30	
1,2,3-Trichlorobenzene	ND	0.0257						0		30	
Surr: Dibromofluoromethane	1.54		1.607		95.5	56.5	129		0		
Surr: Toluene-d8	1.42		1.607		88.1	64.3	131		0		
Surr: 1-Bromo-4-fluorobenzene	2.13		1.607		132	63.1	141		0		

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample ID **1611186-010BMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **11/21/2016** RunNo: **33045**
Client ID: **BATCH** Batch ID: **15503** Analysis Date: **11/22/2016** SeqNo: **626199**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	1.64	0.0796	1.327	0	124	43.5	121				S
Chloromethane	1.32	0.0796	1.327	0	99.7	45	130				
Vinyl chloride	1.08	0.00265	1.327	0	81.4	51.2	146				
Bromomethane	0.373	0.119	1.327	0	28.1	21.3	120				
Trichlorofluoromethane (CFC-11)	0.385	0.0664	1.327	0	29.0	35	131				SQ
Chloroethane	0.173	0.0796	1.327	0	13.0	43.8	117				SQ
1,1-Dichloroethene	0.316	0.0664	1.327	0	23.8	61.9	141				SQ
Methylene chloride	1.13	0.0265	1.327	0	84.8	54.7	142				
trans-1,2-Dichloroethene	0.981	0.0265	1.327	0	73.9	52	136				

Work Order: 1611216
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1611186-010BMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **11/21/2016** RunNo: **33045**
Client ID: **BATCH** Batch ID: **15503** Analysis Date: **11/22/2016** SeqNo: **626199**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	1.06	0.0664	1.327	0	79.9	54.4	132				
1,1-Dichloroethane	0.972	0.0265	1.327	0	73.2	51.8	141				
2,2-Dichloropropane	0.906	0.0664	1.327	0	68.3	36	123				
cis-1,2-Dichloroethene	1.03	0.0265	1.327	0	77.8	58.6	136				
Chloroform	0.984	0.0265	1.327	0.02456	72.3	53.2	129				B
1,1,1-Trichloroethane (TCA)	0.986	0.0265	1.327	0	74.2	58.3	145				
1,1-Dichloropropene	1.09	0.0265	1.327	0	82.0	55.1	138				
Carbon tetrachloride	1.05	0.0265	1.327	0	79.0	53.3	144				
1,2-Dichloroethane (EDC)	0.978	0.0398	1.327	0	73.7	51.3	139				
Benzene	1.33	0.0265	1.327	0	101	63.5	133				
Trichloroethene (TCE)	1.24	0.0265	1.327	0	93.4	68.6	132				
1,2-Dichloropropane	1.18	0.0265	1.327	0	88.7	59	136				
Bromodichloromethane	1.11	0.0265	1.327	0	83.6	50.7	141				
Dibromomethane	1.24	0.0531	1.327	0	93.2	50.6	137				
cis-1,3-Dichloropropene	1.24	0.0265	1.327	0	93.6	50.4	138				
Toluene	1.24	0.0265	1.327	0	93.4	63.4	132				
trans-1,3-Dichloropropylene	1.11	0.0398	1.327	0	84.0	44.1	147				
1,1,2-Trichloroethane	1.22	0.0398	1.327	0	92.1	51.6	137				
1,3-Dichloropropane	1.18	0.0664	1.327	0	89.1	53.1	134				
Tetrachloroethene (PCE)	1.12	0.0265	1.327	0	84.7	35.6	158				
Dibromochloromethane	1.13	0.0398	1.327	0	85.2	55.3	140				
1,2-Dibromoethane (EDB)	1.38	0.00664	1.327	0	104	50.4	136				
Chlorobenzene	1.25	0.0265	1.327	0	94.5	60	133				
1,1,1,2-Tetrachloroethane	1.13	0.0398	1.327	0	85.4	53.1	142				
Ethylbenzene	1.20	0.0398	1.327	0	90.1	54.5	134				
m,p-Xylene	2.39	0.0265	2.655	0	90.1	53.1	132				
o-Xylene	1.20	0.0265	1.327	0	90.1	53.3	139				
Styrene	1.25	0.0265	1.327	0	93.8	51.1	132				
Isopropylbenzene	1.16	0.106	1.327	0	87.6	58.9	138				
Bromoform	1.27	0.0265	1.327	0	96.0	57.9	130				
1,1,2,2-Tetrachloroethane	1.28	0.0265	1.327	0	96.7	51.9	131				

Work Order: 1611216
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1611186-010BMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **11/21/2016** RunNo: **33045**
Client ID: **BATCH** Batch ID: **15503** Analysis Date: **11/22/2016** SeqNo: **626199**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
n-Propylbenzene	1.20	0.0265	1.327	0	90.8	53.6	140				
Bromobenzene	1.32	0.0398	1.327	0	99.1	54.2	140				
1,3,5-Trimethylbenzene	1.15	0.0265	1.327	0	86.5	51.8	136				
2-Chlorotoluene	1.13	0.0265	1.327	0	85.2	51.6	136				
4-Chlorotoluene	1.18	0.0265	1.327	0	89.1	50.1	139				
tert-Butylbenzene	1.15	0.0265	1.327	0	87.0	50.5	135				
1,2,3-Trichloropropane	1.11	0.0265	1.327	0	83.3	50.5	131				
1,2,4-Trichlorobenzene	1.80	0.0664	1.327	0	136	50.8	130				S
sec-Butylbenzene	1.19	0.0265	1.327	0	90.0	52.6	141				
4-Isopropyltoluene	1.14	0.0265	1.327	0	86.2	52.9	134				
1,3-Dichlorobenzene	1.29	0.0265	1.327	0	97.0	52.6	131				
1,4-Dichlorobenzene	1.23	0.0265	1.327	0	92.6	52.9	129				
n-Butylbenzene	1.28	0.0265	1.327	0	96.8	52.6	130				Q
1,2-Dichlorobenzene	1.35	0.0265	1.327	0	102	55.8	129				Q
1,2-Dibromo-3-chloropropane	1.45	0.664	1.327	0	109	40.5	131				
1,2,4-Trimethylbenzene	1.23	0.0265	1.327	0	93.0	50.6	137				
Hexachlorobutadiene	0.230	0.133	1.327	0	17.3	40.6	158				S
Naphthalene	1.78	0.0398	1.327	0	134	52.3	124				S
1,2,3-Trichlorobenzene	1.90	0.0265	1.327	0	143	54.4	124				S
Surr: Dibromofluoromethane	1.45		1.659		87.2	56.5	129				
Surr: Toluene-d8	1.71		1.659		103	64.3	131				
Surr: 1-Bromo-4-fluorobenzene	1.72		1.659		103	63.1	141				

NOTES:
S - Outlying spike recovery(ies) observed. The method is in control as indicated by the Laboratory Control Sample (LCS).
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample ID **1611186-010BMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **11/21/2016** RunNo: **33045**
Client ID: **BATCH** Batch ID: **15503** Analysis Date: **11/22/2016** SeqNo: **626200**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	1.26	0.0796	1.327	0	95.3	43.5	121	1.642	26.0	30	

Work Order: 1611216
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1611186-010BMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **11/21/2016** RunNo: **33045**
Client ID: **BATCH** Batch ID: **15503** Analysis Date: **11/22/2016** SeqNo: **626200**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloromethane	1.57	0.0796	1.327	0	119	45	130	1.323	17.4	30	
Vinyl chloride	1.51	0.00265	1.327	0	114	51.2	146	1.080	33.0	30	R
Bromomethane	0.993	0.119	1.327	0	74.8	21.3	120	0.3730	90.8	30	R
Trichlorofluoromethane (CFC-11)	1.14	0.0664	1.327	0	85.9	35	131	0.3849	99.0	30	RQ
Chloroethane	0.983	0.0796	1.327	0	74.1	43.8	117	0.1726	140	30	RQ
1,1-Dichloroethene	1.18	0.0664	1.327	0	89.1	61.9	141	0.3159	116	30	RQ
Methylene chloride	1.43	0.0265	1.327	0	108	54.7	142	1.126	23.8	30	
trans-1,2-Dichloroethene	1.48	0.0265	1.327	0	112	52	136	0.9809	40.7	30	R
Methyl tert-butyl ether (MTBE)	1.45	0.0664	1.327	0	110	54.4	132	1.061	31.3	30	R
1,1-Dichloroethane	1.55	0.0265	1.327	0	117	51.8	141	0.9716	46.0	30	R
2,2-Dichloropropane	1.49	0.0664	1.327	0	112	36	123	0.9059	48.5	30	R
cis-1,2-Dichloroethene	1.73	0.0265	1.327	0	131	58.6	136	1.033	50.6	30	R
Chloroform	1.56	0.0265	1.327	0.02456	116	53.2	129	0.9836	45.5	30	BR
1,1,1-Trichloroethane (TCA)	1.36	0.0265	1.327	0	102	58.3	145	0.9856	31.6	30	R
1,1-Dichloropropene	1.33	0.0265	1.327	0	100	55.1	138	1.088	19.9	30	
Carbon tetrachloride	1.31	0.0265	1.327	0	98.4	53.3	144	1.049	21.8	30	
1,2-Dichloroethane (EDC)	1.45	0.0398	1.327	0	110	51.3	139	0.9776	39.2	30	R
Benzene	1.31	0.0265	1.327	0	98.5	63.5	133	1.334	2.01	30	
Trichloroethene (TCE)	1.17	0.0265	1.327	0	88.5	68.6	132	1.239	5.39	30	
1,2-Dichloropropane	1.59	0.0265	1.327	0	120	59	136	1.177	29.7	30	
Bromodichloromethane	1.37	0.0265	1.327	0	104	50.7	141	1.110	21.3	30	
Dibromomethane	1.29	0.0531	1.327	0	97.6	50.6	137	1.237	4.56	30	
cis-1,3-Dichloropropene	1.67	0.0265	1.327	0	126	50.4	138	1.242	29.4	30	
Toluene	1.72	0.0265	1.327	0	130	63.4	132	1.239	32.6	30	R
trans-1,3-Dichloropropylene	1.62	0.0398	1.327	0	122	44.1	147	1.115	37.1	30	R
1,1,2-Trichloroethane	1.83	0.0398	1.327	0	138	51.6	137	1.222	39.8	30	RS
1,3-Dichloropropane	1.71	0.0664	1.327	0	129	53.1	134	1.183	36.4	30	R
Tetrachloroethene (PCE)	1.56	0.0265	1.327	0	117	35.6	158	1.124	32.3	30	R
Dibromochloromethane	1.39	0.0398	1.327	0	104	55.3	140	1.131	20.3	30	
1,2-Dibromoethane (EDB)	1.33	0.00664	1.327	0	100	50.4	136	1.378	3.68	30	
Chlorobenzene	1.28	0.0265	1.327	0	96.2	60	133	1.254	1.73	30	

Work Order: 1611216
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1611186-010BMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **11/21/2016** RunNo: **33045**
Client ID: **BATCH** Batch ID: **15503** Analysis Date: **11/22/2016** SeqNo: **626200**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	1.27	0.0398	1.327	0	95.6	53.1	142	1.134	11.2	30	
Ethylbenzene	1.25	0.0398	1.327	0	94.5	54.5	134	1.195	4.77	30	
m,p-Xylene	2.48	0.0265	2.655	0	93.4	53.1	132	2.391	3.60	30	
o-Xylene	1.24	0.0265	1.327	0	93.2	53.3	139	1.196	3.33	30	
Styrene	1.31	0.0265	1.327	0	98.8	51.1	132	1.245	5.19	30	
Isopropylbenzene	1.24	0.106	1.327	0	93.4	58.9	138	1.163	6.36	30	
Bromoform	1.28	0.0265	1.327	0	96.6	57.9	130	1.274	0.571	30	
1,1,2,2-Tetrachloroethane	1.22	0.0265	1.327	0	92.0	51.9	131	1.284	4.98	30	
n-Propylbenzene	1.27	0.0265	1.327	0	96.0	53.6	140	1.205	5.57	30	
Bromobenzene	1.27	0.0398	1.327	0	95.8	54.2	140	1.315	3.44	30	
1,3,5-Trimethylbenzene	1.26	0.0265	1.327	0	95.3	51.8	136	1.148	9.63	30	
2-Chlorotoluene	1.30	0.0265	1.327	0	97.9	51.6	136	1.132	13.8	30	
4-Chlorotoluene	1.33	0.0265	1.327	0	101	50.1	139	1.182	12.1	30	
tert-Butylbenzene	1.27	0.0265	1.327	0	95.8	50.5	135	1.154	9.69	30	
1,2,3-Trichloropropane	1.20	0.0265	1.327	0	90.1	50.5	131	1.106	7.79	30	
1,2,4-Trichlorobenzene	1.52	0.0664	1.327	0	114	50.8	130	1.804	17.2	30	
sec-Butylbenzene	1.38	0.0265	1.327	0	104	52.6	141	1.195	14.6	30	
4-Isopropyltoluene	1.27	0.0265	1.327	0	96.1	52.9	134	1.145	10.8	30	
1,3-Dichlorobenzene	1.35	0.0265	1.327	0	102	52.6	131	1.287	4.98	30	
1,4-Dichlorobenzene	1.36	0.0265	1.327	0	103	52.9	129	1.230	10.4	30	
n-Butylbenzene	1.23	0.0265	1.327	0	92.9	52.6	130	1.285	4.11	30	Q
1,2-Dichlorobenzene	1.21	0.0265	1.327	0	91.3	55.8	129	1.352	10.9	30	Q
1,2-Dibromo-3-chloropropane	1.56	0.664	1.327	0	117	40.5	131	1.451	7.10	30	
1,2,4-Trimethylbenzene	1.26	0.0265	1.327	0	94.8	50.6	137	1.234	2.02	30	
Hexachlorobutadiene	1.41	0.133	1.327	0	106	40.6	158	0.2296	144	30	R
Naphthalene	1.74	0.0398	1.327	0	131	52.3	124	1.778	1.88	30	S
1,2,3-Trichlorobenzene	1.62	0.0265	1.327	0	122	54.4	124	1.904	16.4	30	
Surr: Dibromofluoromethane	1.77		1.659		107	56.5	129		0		
Surr: Toluene-d8	2.14		1.659		129	64.3	131		0		
Surr: 1-Bromo-4-fluorobenzene	1.78		1.659		107	63.1	141		0		

Work Order: 1611216
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1611186-010BMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **11/21/2016** RunNo: **33045**
Client ID: **BATCH** Batch ID: **15503** Analysis Date: **11/22/2016** SeqNo: **626200**

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

NOTES:
S - Outlying spike recovery(ies) observed. The method is in control as indicated by the Laboratory Control Sample (LCS).
R - High RPD observed. The method is in control as indicated by the LCS.
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample ID **1611201-001BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **11/21/2016** RunNo: **33045**
Client ID: **BATCH** Batch ID: **15503** Analysis Date: **11/22/2016** SeqNo: **626202**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	ND	0.0690						0		30	
Chloromethane	ND	0.0690						0		30	
Vinyl chloride	ND	0.00230						0		30	
Bromomethane	ND	0.103						0		30	
Trichlorofluoromethane (CFC-11)	ND	0.0575						0		30	Q
Chloroethane	ND	0.0690						0		30	Q
1,1-Dichloroethene	ND	0.0575						0		30	Q
Methylene chloride	ND	0.0230						0		30	
trans-1,2-Dichloroethene	ND	0.0230						0		30	
Methyl tert-butyl ether (MTBE)	ND	0.0575						0		30	
1,1-Dichloroethane	ND	0.0230						0		30	
2,2-Dichloropropane	ND	0.0575						0		30	
cis-1,2-Dichloroethene	ND	0.0230						0		30	
Chloroform	ND	0.0230						0		30	
1,1,1-Trichloroethane (TCA)	ND	0.0230						0		30	
1,1-Dichloropropene	ND	0.0230						0		30	
Carbon tetrachloride	ND	0.0230						0		30	
1,2-Dichloroethane (EDC)	ND	0.0345						0		30	
Benzene	ND	0.0230						0		30	
Trichloroethene (TCE)	ND	0.0230						0		30	
1,2-Dichloropropane	ND	0.0230						0		30	
Bromodichloromethane	ND	0.0230						0		30	

Work Order: 1611216
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1611201-001BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **11/21/2016** RunNo: **33045**
Client ID: **BATCH** Batch ID: **15503** Analysis Date: **11/22/2016** SeqNo: **626202**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dibromomethane	ND	0.0460						0		30	
cis-1,3-Dichloropropene	ND	0.0230						0		30	
Toluene	ND	0.0230						0		30	
trans-1,3-Dichloropropylene	ND	0.0345						0		30	
1,1,2-Trichloroethane	ND	0.0345						0		30	
1,3-Dichloropropane	ND	0.0575						0		30	
Tetrachloroethene (PCE)	ND	0.0230						0		30	
Dibromochloromethane	ND	0.0345						0		30	
1,2-Dibromoethane (EDB)	ND	0.00575						0		30	
Chlorobenzene	ND	0.0230						0		30	
1,1,1,2-Tetrachloroethane	ND	0.0345						0		30	
Ethylbenzene	ND	0.0345						0		30	
m,p-Xylene	ND	0.0230						0		30	
o-Xylene	ND	0.0230						0		30	
Styrene	ND	0.0230						0		30	
Isopropylbenzene	ND	0.0920						0		30	
Bromoform	ND	0.0230						0		30	
1,1,2,2-Tetrachloroethane	ND	0.0230						0		30	
n-Propylbenzene	ND	0.0230						0		30	
Bromobenzene	ND	0.0345						0		30	
1,3,5-Trimethylbenzene	ND	0.0230						0		30	
2-Chlorotoluene	ND	0.0230						0		30	
4-Chlorotoluene	ND	0.0230						0		30	
tert-Butylbenzene	ND	0.0230						0		30	
1,2,3-Trichloropropane	ND	0.0230						0		30	
1,2,4-Trichlorobenzene	ND	0.0575						0		30	
sec-Butylbenzene	ND	0.0230						0		30	
4-Isopropyltoluene	ND	0.0230						0		30	
1,3-Dichlorobenzene	ND	0.0230						0		30	
1,4-Dichlorobenzene	ND	0.0230						0		30	
n-Butylbenzene	ND	0.0230						0		30	

Work Order: 1611216
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1611201-001BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **11/21/2016** RunNo: **33045**
Client ID: **BATCH** Batch ID: **15503** Analysis Date: **11/22/2016** SeqNo: **626202**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2-Dichlorobenzene	ND	0.0230						0		30	
1,2-Dibromo-3-chloropropane	ND	0.575						0		30	
1,2,4-Trimethylbenzene	ND	0.0230						0		30	
Hexachlorobutadiene	ND	0.115						0		30	
Naphthalene	ND	0.0345						0		30	
1,2,3-Trichlorobenzene	ND	0.0230						0		30	
Surr: Dibromofluoromethane	1.40		1.437		97.6	56.5	129		0		
Surr: Toluene-d8	1.60		1.437		112	64.3	131		0		
Surr: 1-Bromo-4-fluorobenzene	1.53		1.437		106	63.1	141		0		

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample Log-In Check List

Client Name:	**GEI**	Work Order Number:	**1611216**
Logged by:	**Erica Silva**	Date Received:	**11/21/2016 1:20:00 PM**

Chain of Custody

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

Log In

3.	Coolers are present?	Yes ☑	No ☐	NA ☐
4.	Shipping container/cooler in good condition?	Yes ☑	No ☐	
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes ☐	No ☐	Not Required ☑
6.	Was an attempt made to cool the samples?	Yes ☐	No ☑	NA ☐
		Unknown prior to receipt		
7.	Were all items received at a temperature of >0°C to 10.0°C*	Yes ☐	No ☑	NA ☐
		Please refer to Item Information		
8.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
9.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
10.	Are samples properly preserved?	Yes ☑	No ☐	
11.	Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
12.	Is there headspace in the VOA vials?	Yes ☐	No ☐	NA ☑
13.	Did all samples containers arrive in good condition(unbroken)?	Yes ☑	No ☐	
14.	Does paperwork match bottle labels?	Yes ☑	No ☐	
15.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
16.	Is it clear what analyses were requested?	Yes ☑	No ☐	
17.	Were all holding times able to be met?	Yes ☑	No ☐	

Special Handling (if applicable)

18.	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: _____

19. Additional remarks:

Item Information

Item #	Temp ºC
Cooler	12.8
Sample	13.2

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Chain of Custody Record and Laboratory Services Agreement

Fremont Analytical
3600 Fremont Ave N. Tel: 206-352-3790
Seattle, WA 98103 Fax: 206-352-7178

Date: 11/21/16 Laboratory Project No (internal): 16112116

Page: 1 of: 2

Client: Geo Engineers
Address: 1600 Stewart St, Suite 1700
City, State, Zip: Seattle, WA
Telephone: Fax:

Project Name: Rufus Block 20
Project No: 20134-001-24 Collected by: Sydney Bronson
Location: Seattle, WA
Report To (PM): Chris Brown
PM Email: cbrown@geoengineers.com

*Matrix Codes: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T) | Dissolved (D)	Anions (IC)***	EDB (8011)	# Containers	Comments
1	TP-W355-5.0	11/21/16	1140	S	X			X		X		X		X	T			3	
2	TP-W4520-5.0		1130		X			X		X		X		X	T				
3	TP-W4535-2.5		0920																
4	TP-W4535-5.0		0925																
5	TP-W4535-7.5		0930																
6	TP-W4535-10.0		0935		X			X		X		X		X	T				
7	TP-W4535-12.5		0940																
8	TP-W4535-15.0		0945																
9	TP-W1459-2.5		1010																
10	TP-W1459-5.0		1015		X			X		X		X		X	T				

**Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL *Individual:* Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☒ Disposal by Lab (Samples will be held for 30 days unless otherwise noted. A fee may be assessed if samples are retained after 30 days.)

Turn-around times for samples received after 4:00pm will begin on the following business day.

Special Remarks:

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above, that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x Sydney	11/21/16 1320	x	11/21/16 1320
Relinquished	Date/Time	Received	Date/Time
x		x	

TAT → SameDay^ NextDay^ 2 Day 3 Day STD

^Please coordinate with the lab in advance

Chain of Custody Record and Laboratory Services Agreement

Fremont Analytical
3600 Fremont Ave N. Tel: 206-352-3790
Seattle, WA 98103 Fax: 206-352-7178

Date: 11/21/16 Laboratory Project No (internal): 1611216

Page: 2 of: 2

Client: GeoEngineers
Address: 1600 Stewart St, Suite 1700
City, State, Zip: Seattle, WA
Telephone: Fax:

Project Name: Rufus - Block 20
Project No: 20434-001-04 Collected by: SJB
Location: Seattle, WA
Report To (PM): Chris Brown
PM Email: cbrown@geoengineers.com

*Matrix Codes: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T) | Dissolved (D)	Anions (IC)***	EDB (8011)	# Containers	Comments
1	TP-W1459-7.5	11/21/16	1020	S														3	
2	TP-W14536-2.5	"	0820	"														"	
3	TP-W14536-5.0		0825																
4	TP-W14536-7.5		0830		X			X		X		X		X	T				
5	TP-W14536-10.0		0835																
6	TP-W14536-12.5		0840																
7																			
8																			
9																			
10																			

**Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL *Individual:* Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☒ Disposal by Lab (Samples will be held for 30 days unless otherwise noted. A fee may be assessed if samples are retained after 30 days.)

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Special Remarks:

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Relinquished	Date/Time	Received	Date/Time
x Sydney M	11/21/16 1320	x	11/21/16 1320
Relinquished	Date/Time	Received	Date/Time
x		x	

TAT → SameDay^ NextDay^ 2 Day 3 Day STD

^Please coordinate with the lab in advance

Chain of Custody Record and Laboratory Services Agreement

Fremont Analytical

3600 Fremont Ave N.
Seattle, WA 98103

Tel: 206-352-3790
Fax: 206-352-7178

Date: 11/21/16

Laboratory Project No (internal): 161121L6

Page: 1 of: 2

Client: Geo Engineers
Address: 1600 Stewart St, Suite 1700
City, State, Zip: Seattle, WA
Telephone: Fax:

Project Name: Rufus Block 20
Project No: 20434-001-2.4
Collected by: Sydney Brownson
Location: Seattle, WA
Report To (PM): Chris Brown
PM Email: cbrown@geoengineers.com

*Matrix Codes: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T) / Dissolved (D)	Anions (IC)***	EDB (8011)	# containers	TCLP Pb	pH	Comments
1	TP-W355-5.0	11/21/16	1140	S	X			X		X		X		X	T			3	X		
2	TP-W4520-5.0		1130		X			X		X		X		X	T						
3	TP-W4535-2.5		0920																		
4	TP-W4535-5.0		0925																		
5	TP-W4535-7.5		0930																		
6	TP-W4535-10.0		0935		X			X		X		X		X	T						
7	TP-W4535-12.5		0940																		
8	TP-W4535-15.0		0945																		
9	TP-W1459-2.5		1010																		
10	TP-W1459-5.0		1015		X			X		X		X		X	T				X	X	

**Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☒ Disposal by Lab (Samples will be held for 30 days unless otherwise noted. A fee may be assessed if samples are retained after 30 days.)

Turn-around times for samples received after 4:00pm will begin on the following business day.

Special Remarks:
(X) Add on ASAP TAT per Chris Brown 11/23/16 cg

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above, that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x Sydney	11/21/16 1320	x	11/21/16 1320
Relinquished	Date/Time	Redeived	Date/Time
x		x	

TAT → SameDay^ NextDay^ 2 Day 3 Day STD

^Please coordinate with the lab in advance

Fremont Analytical

Chain of Custody Record and Laboratory Services Agreement

3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 11/21/16
Laboratory Project No (internal): 1611216
Page: 2 of: 2

Client: GeoEngineers
Address: 1600 Stewart St, Suite 1700
City, State, Zip: Seattle, WA
Telephone: Fax:

Project Name: Rufus - Block 20
Project No: 20434-001-04 Collected by: SJB
Location: Seattle, WA
Report To (PM): Chris Brown
PM Email: cbrown@geoengineers.com

*Matrix Codes: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T) / Dissolved (D)	Anions (IC)***	EDB (8011)	Pb	# Containers	Comments
1	TP-W1459-7.5	11/21/16	1020	S														X	3	
2	TP-W14536-2.5	"	0820	"															"	
3	TP-W14536-5.0		0825																	
4	TP-W14536-7.5		0830				X		X		X		X		X	T				
5	TP-W14536-10.0		0835																	
6	TP-W14536-12.5		0840																	
7																				
8																				
9																				
10																				

**Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL *Individual:* Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☒ Disposal by Lab (Samples will be held for 30 days unless otherwise noted. A fee may be assessed if samples are retained after 30 days.)

Turn-around times for samples received after 4:00pm will begin on the following business day.

Special Remarks:

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above, that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x [signature]	11/21/16 1320	x [signature]	11/21/16 1320
Relinquished	Date/Time	Received	Date/Time
x		x	

TAT → SameDay^ NextDay^ 2 Day 3 Day STD

^Please coordinate with the lab in advance

Fremont

Chain of Custody Record and Laboratory Services Agreement

3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 11/21/16
Laboratory Project No (internal): 1611216
Page: 1 of: 2

Client: Geo Engineers
Address: 1600 Stewart St, Suite 1400
City, State, Zip: Seattle, WA
Telephone: Fax:

Project Name: Rufus Block 20
Project No: 20134-001-24
Collected by: Sydney Bronson
Location: Seattle, WA
Report To (PM): Chris Brown
PM Email: Cbrown@geoengineers.com

*Matrix Codes: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T)	Dissolved (D)	Anions (IC)***	TOC (9060)	# Containers	Hex Cr	TCLP Pb	pH	TCLP Cr	Comments
1 TP-W355-5.0	11/21/16	1140	S	X			X		X	X		X	T					3	X				
2 TP-W4520-5.0		1130		X			X		X	X		X	T										
3 TP-W4535-2.5		0920																					
4 TP-W4535-5.0		0925																					
5 TP-W4535-7.5		0930																					
6 TP-W4535-10.0		0935		X			X		X	X		X	T										
7 TP-W4535-12.5		0940																					
8 TP-W4535-15.0		0945																					
9 TP-W1459-2.5		1010																					
10 TP-W1459-5.0	↓	1015	↓	X			X		X	X		X	T			X		↓	X	X	X	X	← Re-run for Pb+Cd

**Metals Analysis (Circle): MTCA-5 (RCRA-8) Priority Pollutants TAL *Individual:* Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☒ Disposal by Lab (Samples will be held for 30 days unless otherwise noted. A fee may be assessed if samples are retained after 30 days.)

Turn-around times for samples received after 4:00pm will begin on the following business day.

Special Remarks:
(X) Add on ASAP TAT per Chris Brown 11/23/16 eq

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above, that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x Sydney	11/21/16 1320	x	11/21/16 1320
Relinquished	Date/Time	Received	Date/Time
x		x	

TAT → SameDay^ NextDay^ 2 Day 3 Day STD
^Please coordinate with the lab in advance

Fremont ANALYTICAL

Chain of Custody Record and Laboratory Services Agreement

3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 11/21/16 Laboratory Project No (internal): 161121L6

Page: 2 of: 2

Client: GeoEngineers
Address: 1600 Stewart St, Suite 1700
City, State, Zip: Seattle, WA
Telephone: Fax:

Project Name: Rufus - Block 20
Project No: 20434-001-04 Collected by: SJB
Location: Seattle, WA
Report To (PM): Chris Brown
PM Email: Cbrown@geoengineers.com

*Matrix Codes: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T) / Dissolved (D)	Anions (IC)***	EDB (8011)	Pb (Total)	# Containers	Comments
1	TP-W1459-7.5	11/21/16	1020	S														(Pb)	3	
2	TP-W14536-2.5	"	0820	"																
3	TP-W14536-5.0		0825																	
4	TP-W14536-7.5		0830		X			X	X	X	X	X	X	T						
5	TP-W14536-10.0		0835																	
6	TP-W14536-12.5		0840																	
7																				
8																				
9																				
10																				

**Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☒ Disposal by Lab (Samples will be held for 30 days unless otherwise noted. A fee may be assessed if samples are retained after 30 days.)

Turn-around times for samples received after 4:00pm will begin on the following business day.

Special Remarks:

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above, that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x [signature]	11/21/16 1320	x [signature]	11/21/16 1320
Relinquished	Date/Time	Received	Date/Time
x		x	

TAT → SameDay^ (NextDay^) 2 Day 3 Day STD

^Please coordinate with the lab in advance

Fremont

Chain of Custody Record and Laboratory Services Agreement

3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 11/21/16
Laboratory Project No (internal): 161121le
Page: 1 of: 2

Client: Cer Engineers
Address: 1600 Stewart St, Suite 1260
City, State, Zip: Seattle, WA
Telephone: Fax:

Project Name: Rufus Block 20
Project No: 20434-001-2.4
Collected by: Sydney Bronson
Location: Seattle, WA
Report To (PM): Chris Brown
PM Email: CBrown@cerengineers.com

*Matrix Codes: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T) / Dissolved (D)	Anions (IC)***	TPH (8021)	Hex Cr	TCLP Pb	PH	TCLP Cr	TCLP Ba	TCLP Cd	Comments
1	TP-W355-5.0	11/21/16	1140	S	X			X		X		X		X	T			3	X					
2	TP-W4S20-5.0		1130		X			X		X		X		X	T									
3	TP-W4535-2.5		0920																					
4	TP-W4535-5.0		0925																					
5	TP-W4535-7.5		0930																					
6	TP-W4535-10.0		0935		X			X		X		X		X	T									
7	TP-W4535-12.5		0940																					
8	TP-W4535-15.0		0945																					
9	TP-W1459-2.5		1010																					
10	TP-W1459-5.0	↓	1015	↓	X			X		X		X		X	T			X	X	X	X	X	X	Run for Pb+Cd

**Metals Analysis (Circle): MTCA-5 (RCRA-8) Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☒ Disposal by Lab (Samples will be held for 30 days unless otherwise noted. A fee may be assessed if samples are retained after 30 days.)

Turn-around times for samples received after 4:00pm will begin on the following business day.

Special Remarks:
⊗ Add on ASAP TAT per Chris Brown 11/23/16 cg
⊗ Add on ASAP TAT - Chris Brown 11/30/16

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above, that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
Sydney	11/21/16 1320		
Relinquished	Date/Time	Received	Date/Time
			11/21/16 1320

TAT → SameDay* NextDay* 2 Day 3 Day STD
*Please coordinate with the lab in advance

Distribution: White - Lab, Yellow - File, Pink - Originator

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

GeoEngineers
Chris Brown
600 Stewart Street, Suite 1700
Seattle, WA 98101

RE: Rufus - Block 20
Work Order Number: 1612048

December 06, 2016

Attention Chris Brown:

Fremont Analytical, Inc. received 4 sample(s) on 12/5/2016 for the analyses presented in the following report.

Mercury by EPA Method 7471
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)
Sample Moisture (Percent Moisture)
Total Metals by EPA Method 6020

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Mike Ridgeway
Laboratory Director

Date: *12/06/2016*

CLIENT: GeoEngineers
Project: Rufus - Block 20
Work Order: 1612048

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1612048-001	TP-W14S7-4.0	12/05/2016 3:10 PM	12/05/2016 4:15 PM
1612048-002	TP-W14S1Z-4.0	12/05/2016 3:25 PM	12/05/2016 4:15 PM
1612048-003	TP-W12S9-4.0	12/05/2016 3:20 PM	12/05/2016 4:15 PM
1612048-004	TP-W16S9-4.0	12/05/2016 3:15 PM	12/05/2016 4:15 PM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

Case Narrative

WO#: **1612048**
Date: **12/6/2016**

CLIENT: GeoEngineers
Project: Rufus - Block 20

I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Analytical Report

Work Order: **1612048**
Date Reported: **12/6/2016**

Client: GeoEngineers
Collection Date: 12/5/2016 3:10:00 PM
Project: Rufus - Block 20
Lab ID: 1612048-001
Matrix: Soil
Client Sample ID: **TP-W14S7-4.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 15604		Analyst: BT
Benz(a)anthracene	ND	41.5		µg/Kg-dry	1	12/5/2016 11:23:05 PM
Chrysene	ND	41.5		µg/Kg-dry	1	12/5/2016 11:23:05 PM
Benzo(b)fluoranthene	ND	41.5		µg/Kg-dry	1	12/5/2016 11:23:05 PM
Benzo(k)fluoranthene	ND	41.5		µg/Kg-dry	1	12/5/2016 11:23:05 PM
Benzo(a)pyrene	ND	41.5		µg/Kg-dry	1	12/5/2016 11:23:05 PM
Indeno(1,2,3-cd)pyrene	ND	41.5	I	µg/Kg-dry	1	12/5/2016 11:23:05 PM
Dibenz(a,h)anthracene	ND	41.5	I	µg/Kg-dry	1	12/5/2016 11:23:05 PM
Surr: 2-Fluorobiphenyl	70.7	24.5-139		%Rec	1	12/5/2016 11:23:05 PM
Surr: Terphenyl-d14 (surr)	59.3	44.3-176		%Rec	1	12/5/2016 11:23:05 PM

NOTES:
I - Indicates an analyte with an internal standard that does not meet established acceptance criteria.

Mercury by EPA Method 7471				Batch ID: 15611		Analyst: WF
Mercury	ND	0.257		mg/Kg-dry	1	12/6/2016 2:23:57 PM
Total Metals by EPA Method 6020				Batch ID: 15608		Analyst: TN
Arsenic	2.75	0.0815		mg/Kg-dry	1	12/6/2016 2:10:21 PM
Barium	66.7	0.407		mg/Kg-dry	1	12/6/2016 2:10:21 PM
Cadmium	ND	0.163		mg/Kg-dry	1	12/6/2016 2:10:21 PM
Chromium	34.3	0.0815		mg/Kg-dry	1	12/6/2016 2:10:21 PM
Lead	14.7	0.163		mg/Kg-dry	1	12/6/2016 2:10:21 PM
Selenium	1.00	0.407		mg/Kg-dry	1	12/6/2016 2:10:21 PM
Silver	ND	0.0815		mg/Kg-dry	1	12/6/2016 2:10:21 PM
Sample Moisture (Percent Moisture)				Batch ID: R33229		Analyst: BB
Percent Moisture	9.77			wt%	1	12/6/2016 8:15:05 AM

Analytical Report

Work Order: **1612048**
Date Reported: **12/6/2016**

Client: GeoEngineers
Collection Date: 12/5/2016 3:25:00 PM
Project: Rufus - Block 20
Lab ID: 1612048-002
Matrix: Soil
Client Sample ID: **TP-W14S1Z-4.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 15604		Analyst: BT
Benz(a)anthracene	ND	43.5		µg/Kg-dry	1	12/5/2016 11:43:34 PM
Chrysene	ND	43.5		µg/Kg-dry	1	12/5/2016 11:43:34 PM
Benzo(b)fluoranthene	ND	43.5		µg/Kg-dry	1	12/5/2016 11:43:34 PM
Benzo(k)fluoranthene	ND	43.5		µg/Kg-dry	1	12/5/2016 11:43:34 PM
Benzo(a)pyrene	ND	43.5		µg/Kg-dry	1	12/5/2016 11:43:34 PM
Indeno(1,2,3-cd)pyrene	ND	43.5	I	µg/Kg-dry	1	12/5/2016 11:43:34 PM
Dibenz(a,h)anthracene	ND	43.5	I	µg/Kg-dry	1	12/5/2016 11:43:34 PM
Surr: 2-Fluorobiphenyl	87.9	24.5-139		%Rec	1	12/5/2016 11:43:34 PM
Surr: Terphenyl-d14 (surr)	74.2	44.3-176		%Rec	1	12/5/2016 11:43:34 PM

NOTES:
I - Indicates an analyte with an internal standard that does not meet established acceptance criteria.

Mercury by EPA Method 7471				Batch ID: 15611		Analyst: WF
Mercury	ND	0.285		mg/Kg-dry	1	12/6/2016 2:25:32 PM
Total Metals by EPA Method 6020				Batch ID: 15608		Analyst: TN
Arsenic	5.49	0.0897		mg/Kg-dry	1	12/6/2016 2:38:42 PM
Barium	96.2	0.448		mg/Kg-dry	1	12/6/2016 2:38:42 PM
Cadmium	ND	0.179		mg/Kg-dry	1	12/6/2016 2:38:42 PM
Chromium	43.7	0.0897		mg/Kg-dry	1	12/6/2016 2:38:42 PM
Lead	41.6	0.179		mg/Kg-dry	1	12/6/2016 2:38:42 PM
Selenium	1.06	0.448		mg/Kg-dry	1	12/6/2016 2:38:42 PM
Silver	ND	0.0897		mg/Kg-dry	1	12/6/2016 2:38:42 PM
Sample Moisture (Percent Moisture)				Batch ID: R33229		Analyst: BB
Percent Moisture	12.2			wt%	1	12/6/2016 8:15:05 AM

Analytical Report

Work Order: **1612048**
Date Reported: **12/6/2016**

Client: GeoEngineers
Collection Date: 12/5/2016 3:20:00 PM
Project: Rufus - Block 20
Lab ID: 1612048-003
Matrix: Soil
Client Sample ID: **TP-W12S9-4.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 15604		Analyst: BT
Benz(a)anthracene	81.1	43.6		µg/Kg-dry	1	12/6/2016 12:04:13 AM
Chrysene	125	43.6		µg/Kg-dry	1	12/6/2016 12:04:13 AM
Benzo(b)fluoranthene	100	43.6	Q+	µg/Kg-dry	1	12/6/2016 12:04:13 AM
Benzo(k)fluoranthene	ND	43.6		µg/Kg-dry	1	12/6/2016 12:04:13 AM
Benzo(a)pyrene	87.6	43.6	Q+	µg/Kg-dry	1	12/6/2016 12:04:13 AM
Indeno(1,2,3-cd)pyrene	118	43.6	Q+ I	µg/Kg-dry	1	12/6/2016 12:04:13 AM
Dibenz(a,h)anthracene	ND	43.6	I	µg/Kg-dry	1	12/6/2016 12:04:13 AM
Surr: 2-Fluorobiphenyl	72.5	24.5-139		%Rec	1	12/6/2016 12:04:13 AM
Surr: Terphenyl-d14 (surr)	59.7	44.3-176		%Rec	1	12/6/2016 12:04:13 AM

NOTES:
I - Indicates an analyte with an internal standard that does not meet established acceptance criteria.
Q+ - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF) - high bias

Mercury by EPA Method 7471				Batch ID: 15611		Analyst: WF
Mercury	ND	0.315		mg/Kg-dry	1	12/6/2016 2:27:08 PM
Total Metals by EPA Method 6020				Batch ID: 15608		Analyst: TN
Arsenic	9.28	0.0984		mg/Kg-dry	1	12/6/2016 2:42:14 PM
Barium	197	0.492		mg/Kg-dry	1	12/6/2016 2:42:14 PM
Cadmium	0.296	0.197		mg/Kg-dry	1	12/6/2016 2:42:14 PM
Chromium	73.7	0.0984		mg/Kg-dry	1	12/6/2016 2:42:14 PM
Lead	238	0.197		mg/Kg-dry	1	12/6/2016 2:42:14 PM
Selenium	1.49	0.492		mg/Kg-dry	1	12/6/2016 2:42:14 PM
Silver	0.129	0.0984		mg/Kg-dry	1	12/6/2016 2:42:14 PM
Sample Moisture (Percent Moisture)				Batch ID: R33229		Analyst: BB
Percent Moisture	20.6			wt%	1	12/6/2016 8:15:05 AM

Analytical Report

Work Order: **1612048**
Date Reported: **12/6/2016**

Client: GeoEngineers
Collection Date: 12/5/2016 3:15:00 PM
Project: Rufus - Block 20
Lab ID: 1612048-004
Matrix: Soil
Client Sample ID: **TP-W16S9-4.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 15604		Analyst: BT
Benz(a)anthracene	ND	39.8		µg/Kg-dry	1	12/6/2016 12:24:39 AM
Chrysene	ND	39.8		µg/Kg-dry	1	12/6/2016 12:24:39 AM
Benzo(b)fluoranthene	ND	39.8		µg/Kg-dry	1	12/6/2016 12:24:39 AM
Benzo(k)fluoranthene	ND	39.8		µg/Kg-dry	1	12/6/2016 12:24:39 AM
Benzo(a)pyrene	ND	39.8		µg/Kg-dry	1	12/6/2016 12:24:39 AM
Indeno(1,2,3-cd)pyrene	ND	39.8	I	µg/Kg-dry	1	12/6/2016 12:24:39 AM
Dibenz(a,h)anthracene	ND	39.8	I	µg/Kg-dry	1	12/6/2016 12:24:39 AM
Surr: 2-Fluorobiphenyl	76.4	24.5-139		%Rec	1	12/6/2016 12:24:39 AM
Surr: Terphenyl-d14 (surr)	65.4	44.3-176		%Rec	1	12/6/2016 12:24:39 AM

NOTES:
I - Indicates an analyte with an internal standard that does not meet established acceptance criteria.

Mercury by EPA Method 7471				Batch ID: 15611		Analyst: WF
Mercury	ND	0.259		mg/Kg-dry	1	12/6/2016 2:32:06 PM
Total Metals by EPA Method 6020				Batch ID: 15608		Analyst: TN
Arsenic	3.58	0.0818		mg/Kg-dry	1	12/6/2016 2:45:46 PM
Barium	71.8	0.409		mg/Kg-dry	1	12/6/2016 2:45:46 PM
Cadmium	ND	0.164		mg/Kg-dry	1	12/6/2016 2:45:46 PM
Chromium	34.8	0.0818		mg/Kg-dry	1	12/6/2016 2:45:46 PM
Lead	21.2	0.164		mg/Kg-dry	1	12/6/2016 2:45:46 PM
Selenium	0.935	0.409		mg/Kg-dry	1	12/6/2016 2:45:46 PM
Silver	ND	0.0818		mg/Kg-dry	1	12/6/2016 2:45:46 PM
Sample Moisture (Percent Moisture)				Batch ID: R33229		Analyst: BB
Percent Moisture	12.1			wt%	1	12/6/2016 8:15:05 AM

Work Order: 1612048
CLIENT: GeoEngineers
Project: Rufus - Block 20

QC SUMMARY REPORT

Mercury by EPA Method 7471

Sample ID	MB-15611	SampType:	MBLK			Units:	mg/Kg	Prep Date:	12/6/2016	RunNo:	33239	
Client ID:	MBLKS	Batch ID:	15611					Analysis Date:	12/6/2016	SeqNo:	630577	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		ND	0.240									

Sample ID	LCS-15611	SampType:	LCS			Units:	mg/Kg	Prep Date:	12/6/2016	RunNo:	33239	
Client ID:	LCSS	Batch ID:	15611					Analysis Date:	12/6/2016	SeqNo:	630578	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.515	0.250	0.5000	0	103	80	120				

Sample ID	1611216-011ADUP	SampType:	DUP			Units:	mg/Kg-dry	Prep Date:	12/6/2016	RunNo:	33239	
Client ID:	BATCH	Batch ID:	15611					Analysis Date:	12/6/2016	SeqNo:	630580	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		ND	0.291						0		20	

Sample ID	1611216-011AMS	SampType:	MS			Units:	mg/Kg-dry	Prep Date:	12/6/2016	RunNo:	33239	
Client ID:	BATCH	Batch ID:	15611					Analysis Date:	12/6/2016	SeqNo:	630581	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.611	0.291	0.5810	0.02494	101	70	130				

Sample ID	1611216-011AMSD	SampType:	MSD			Units:	mg/Kg-dry	Prep Date:	12/6/2016	RunNo:	33239	
Client ID:	BATCH	Batch ID:	15611					Analysis Date:	12/6/2016	SeqNo:	630582	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.633	0.280	0.5591	0.02494	109	70	130	0.6112	3.48	20	

Work Order: 1612048
CLIENT: GeoEngineers
Project: Rufus - Block 20

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **MB-15604** SampType: **MBLK** Units: **µg/Kg** Prep Date: **12/5/2016** RunNo: **33241**
Client ID: **MBLKS** Batch ID: **15604** Analysis Date: **12/5/2016** SeqNo: **630401**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	ND	40.0									
Chrysene	ND	40.0									
Benzo(b)fluoranthene	ND	40.0									
Benzo(k)fluoranthene	ND	40.0									
Benzo(a)pyrene	ND	40.0									
Indeno(1,2,3-cd)pyrene	ND	40.0									
Dibenz(a,h)anthracene	ND	40.0									
Surr: 2-Fluorobiphenyl	506		500.0		101	24.5	139				
Surr: Terphenyl-d14 (surr)	482		500.0		96.4	44.3	176				

Sample ID **LCS-15604** SampType: **LCS** Units: **µg/Kg** Prep Date: **12/5/2016** RunNo: **33241**
Client ID: **LCSS** Batch ID: **15604** Analysis Date: **12/5/2016** SeqNo: **630402**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	1,100	40.0	1,000	0	110	41.9	136				
Chrysene	988	40.0	1,000	0	98.8	46.9	138				
Benzo(b)fluoranthene	1,220	40.0	1,000	0	122	35.9	148				Q+
Benzo(k)fluoranthene	1,230	40.0	1,000	0	123	43.9	144				Q+
Benzo(a)pyrene	1,330	40.0	1,000	0	133	36.3	144				Q+
Indeno(1,2,3-cd)pyrene	1,250	40.0	1,000	0	125	16.1	135				Q+
Dibenz(a,h)anthracene	1,250	40.0	1,000	0	125	17.2	136				Q+
Surr: 2-Fluorobiphenyl	510		500.0		102	24.5	139				
Surr: Terphenyl-d14 (surr)	483		500.0		96.6	44.3	176				

NOTES:
Q+ - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF) - high bias

Sample ID **1611216-011ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **12/5/2016** RunNo: **33241**
Client ID: **BATCH** Batch ID: **15604** Analysis Date: **12/5/2016** SeqNo: **630409**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	ND	46.0						0		30	

Work Order: 1612048
CLIENT: GeoEngineers
Project: Rufus - Block 20

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1611216-011ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **12/5/2016** RunNo: **33241**
Client ID: **BATCH** Batch ID: **15604** Analysis Date: **12/5/2016** SeqNo: **630409**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chrysene	ND	46.0						0		30	
Benzo(b)fluoranthene	ND	46.0						0		30	
Benzo(k)fluoranthene	ND	46.0						0		30	
Benzo(a)pyrene	ND	46.0						0		30	
Indeno(1,2,3-cd)pyrene	ND	46.0						0		30	I
Dibenz(a,h)anthracene	ND	46.0						0		30	I
Surr: 2-Fluorobiphenyl	496		574.8		86.2	24.5	139		0		
Surr: Terphenyl-d14 (surr)	436		574.8		75.9	44.3	176		0		

NOTES:
I - Indicates an analyte with an internal standard that does not meet established acceptance criteria.

Sample ID **1611216-011AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **12/5/2016** RunNo: **33241**
Client ID: **BATCH** Batch ID: **15604** Analysis Date: **12/5/2016** SeqNo: **630410**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	654	44.6	1,114	7.941	58.0	57.5	169				
Chrysene	1,040	44.6	1,114	0	93.4	45.2	146				
Benzo(b)fluoranthene	711	44.6	1,114	0	63.8	42.2	168				Q+
Benzo(k)fluoranthene	742	44.6	1,114	0	66.6	48	161				Q+
Benzo(a)pyrene	739	44.6	1,114	0	66.3	34.4	179				Q+
Indeno(1,2,3-cd)pyrene	1,610	44.6	1,114	7.478	144	5	113				SQ+ I
Dibenz(a,h)anthracene	1,920	44.6	1,114	8.661	172	17.3	156				SQ+ I
Surr: 2-Fluorobiphenyl	475		557.0		85.3	24.5	139				
Surr: Terphenyl-d14 (surr)	400		557.0		71.9	44.3	176				

NOTES:
Q+ - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF) - high bias
S - Spike recovery indicates a possible matrix effect. The method is in control as indicated by the Laboratory Control Sample (LCS).
I - Indicates an analyte with an internal standard that does not meet established acceptance criteria.

Work Order: 1612048
CLIENT: GeoEngineers
Project: Rufus - Block 20

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1611216-011AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **12/5/2016** RunNo: **33241**
Client ID: **BATCH** Batch ID: **15604** Analysis Date: **12/5/2016** SeqNo: **630411**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	681	44.4	1,109	7.941	60.7	57.5	169	654.4	4.03	30	
Chrysene	1,060	44.4	1,109	0	95.6	45.2	146	1,041	1.83	30	
Benzo(b)fluoranthene	748	44.4	1,109	0	67.4	42.2	168	710.9	5.04	30	Q+
Benzo(k)fluoranthene	743	44.4	1,109	0	67.0	48	161	741.9	0.202	30	Q+
Benzo(a)pyrene	756	44.4	1,109	0	68.1	34.4	179	739.0	2.21	30	Q+
Indeno(1,2,3-cd)pyrene	1,700	44.4	1,109	7.478	152	5	113	1,612	5.08	30	SQ+ I
Dibenz(a,h)anthracene	2,030	44.4	1,109	8.661	182	17.3	156	1,925	5.31	30	SQ+ I
Surr: 2-Fluorobiphenyl	499		554.4		90.1	24.5	139		0		
Surr: Terphenyl-d14 (surr)	412		554.4		74.3	44.3	176		0		

NOTES:
S - Spike recovery indicates a possible matrix effect. The method is in control as indicated by the Laboratory Control Sample (LCS).
I - Indicates an analyte with an internal standard that does not meet established acceptance criteria.
Q+ - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF) - high bias

Date: *12/6/2016*

Work Order: 1612048
CLIENT: GeoEngineers
Project: Rufus - Block 20

QC SUMMARY REPORT

Sample Moisture (Percent Moisture)

Sample ID **1612048-004ADUP** SampType: **DUP** Units: **wt%** Prep Date: **12/6/2016** RunNo: **33229**
Client ID: **TP-W16S9-4.0** Batch ID: **R33229** Analysis Date: **12/6/2016** SeqNo: **630165**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	12.0	0.500						12.08	0.294	20	

Work Order: 1612048
CLIENT: GeoEngineers
Project: Rufus - Block 20

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID	**MB-15608**	SampType: **MBLK**		Units: **mg/Kg**		Prep Date: **12/6/2016**		RunNo: **33246**			
Client ID:	**MBLKS**	Batch ID: **15608**				Analysis Date: **12/6/2016**		SeqNo: **630617**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.0781									
Barium	ND	0.391									
Cadmium	ND	0.156									
Chromium	ND	0.0781									
Lead	ND	0.156									
Selenium	ND	0.391									
Silver	ND	0.0781									

Sample ID	**LCS-15608**	SampType: **LCS**		Units: **mg/Kg**		Prep Date: **12/6/2016**		RunNo: **33246**			
Client ID:	**LCSS**	Batch ID: **15608**				Analysis Date: **12/6/2016**		SeqNo: **630618**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	39.2	0.0800	40.00	0	97.9	80	120				
Barium	38.1	0.400	40.00	0	95.2	80	120				
Cadmium	2.06	0.160	2.000	0	103	80	120				
Chromium	39.2	0.0800	40.00	0	98.1	80	120				
Lead	20.1	0.160	20.00	0	101	80	120				
Selenium	3.84	0.400	4.000	0	96.0	80	120				
Silver	1.89	0.0800	2.000	0	94.7	80	120				

Sample ID	**1612048-001ADUP**	SampType: **DUP**		Units: **mg/Kg-dry**		Prep Date: **12/6/2016**		RunNo: **33246**			
Client ID:	**TP-W14S7-4.0**	Batch ID: **15608**				Analysis Date: **12/6/2016**		SeqNo: **630620**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	3.57	0.0815						2.753	25.8	20	R
Barium	62.8	0.407						66.66	5.91	20	
Cadmium	ND	0.163						0		20	
Chromium	30.3	0.0815						34.34	12.5	20	
Lead	23.5	0.163						14.69	46.0	20	R
Selenium	1.07	0.407						1.002	7.00	20	

Work Order: 1612048
CLIENT: GeoEngineers
Project: Rufus - Block 20

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID **1612048-001ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **12/6/2016** RunNo: **33246**
Client ID: **TP-W14S7-4.0** Batch ID: **15608** Analysis Date: **12/6/2016** SeqNo: **630620**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Silver	ND	0.0815						0		20	

NOTES:
R - High RPD observed. The method is in control as indicated by the LCS.

Sample ID **1612048-001AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **12/6/2016** RunNo: **33246**
Client ID: **TP-W14S7-4.0** Batch ID: **15608** Analysis Date: **12/6/2016** SeqNo: **630622**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	43.3	0.0809	40.45	2.753	100	75	125				
Barium	111	0.404	40.45	66.66	111	75	125				
Cadmium	2.18	0.162	2.022	0.07799	104	75	125				
Chromium	79.0	0.0809	40.45	34.34	111	75	125				
Lead	45.1	0.162	20.22	14.69	150	75	125				S
Selenium	4.85	0.404	4.045	1.002	95.1	75	125				
Silver	1.34	0.0809	2.022	0.04429	64.2	75	125				S

NOTES:
S - Outlying spike recovery(ies) observed. A duplicate analysis was performed with similar results indicating a possible matrix effect.

Sample ID **1612048-001AMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **12/6/2016** RunNo: **33246**
Client ID: **TP-W14S7-4.0** Batch ID: **15608** Analysis Date: **12/6/2016** SeqNo: **630623**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	43.3	0.0815	40.74	2.753	99.4	75	125	43.27	0.0187	20	
Barium	117	0.407	40.74	66.66	124	75	125	111.4	5.12	20	
Cadmium	2.17	0.163	2.037	0.07799	102	75	125	2.181	0.724	20	
Chromium	78.7	0.0815	40.74	34.34	109	75	125	79.04	0.398	20	
Lead	50.1	0.163	20.37	14.69	174	75	125	45.09	10.5	20	S
Selenium	4.68	0.407	4.074	1.002	90.2	75	125	4.847	3.60	20	
Silver	1.42	0.0815	2.037	0.04429	67.6	75	125	1.343	5.72	20	S

NOTES:
S - Outlying spike recovery(ies) observed. A duplicate analysis was performed with similar results indicating a possible matrix effect.

Work Order: 1612048
CLIENT: GeoEngineers
Project: Rufus - Block 20

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID **1612048-001APDS** SampType: **PDS** Units: **mg/Kg-dry** Prep Date: **12/6/2016** RunNo: **33246**
Client ID: **TP-W14S7-4.0** Batch ID: **15608** Analysis Date: **12/6/2016** SeqNo: **630626**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	114	0.0815	50.0	6.76	107	80	120				
Barium	294	0.407	50.0	164	130	80	120				S
Cadmium	5.45	0.163	2.50	0.191	105	80	120				
Chromium	205	0.0815	50.0	84.3	121	80	120				S
Lead	106	0.163	25.0	36.0	139	80	120				S
Selenium	13.4	0.407	5.00	2.46	110	80	120				
Silver	4.04	0.0815	2.50	0.109	78.6	80	120				S

NOTES:
S - Spike recovery indicates a possible matrix effect. The method is in control as indicated by the Laboratory Control Sample (LCS).

Sample Log-In Check List

Client Name:	**GEI**	Work Order Number:	**1612048**
Logged by:	**Erica Silva**	Date Received:	**12/5/2016 4:15:00 PM**

Chain of Custody

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

Log In

3.	Coolers are present?	Yes ☑	No ☐	NA ☐
4.	Shipping container/cooler in good condition?	Yes ☑	No ☐	
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes ☐	No ☐	Not Required ☑
6.	Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
7.	Were all items received at a temperature of >0°C to 10.0°C*	Yes ☐	No ☑	NA ☐

Samples received straight from field

8.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
9.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
10.	Are samples properly preserved?	Yes ☑	No ☐	
11.	Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
12.	Is there headspace in the VOA vials?	Yes ☐	No ☐	NA ☑
13.	Did all samples containers arrive in good condition(unbroken)?	Yes ☑	No ☐	
14.	Does paperwork match bottle labels?	Yes ☑	No ☐	
15.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
16.	Is it clear what analyses were requested?	Yes ☑	No ☐	
17.	Were all holding times able to be met?	Yes ☑	No ☐	

Special Handling (if applicable)

18.	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: _____

19. Additional remarks:

Item Information

Item #	Temp ºC
Cooler	10.1
Sample	10.3

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Chain of Custody Record and Laboratory Services Agreement

Fremont Analytical
3600 Fremont Ave N. Tel: 206-352-3790
Seattle, WA 98103 Fax: 206-352-7178

Date: 12/5/16 Laboratory Project No (internal): 1612048

Page: 1 of: 1

Client: GeoEngineers
Address: 1600 Stewart St, Suite 1700
City, State, Zip: Seattle, WA
Telephone: Fax:

Project Name: Rufus - Block 20
Project No: 20434-001-24 Collected by: Sydney Bronson
Location: Seattle, WA
Report To (PM): Chris Brown
PM Email: cbrown@geoengineers.com

*Matrix Codes: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8) Total (T) / Dissolved (D)	Anions (IC)***	EDB (8011)	cPAHs			# Containers	Comments
1	TP-W1457-4.0	12/5/16	1510	S									X				X			1	
2	TP-W1457Z-4.0	↓	1525	↓									↓				↓			↓	
3	TP-W1259-4.0		1520																		
4	TP-W1659-4.0		1515																		
5																					
6																					
7																					
8																					
9																					
10																					

**Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL *Individual:* Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☒ Disposal by Lab (Samples will be held for 30 days unless otherwise noted. A fee may be assessed if samples are retained after 30 days.)

Turn-around times for samples received after 4:00pm will begin on the following business day.

Special Remarks: TAT - ASAP.

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above, that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x Sydney	12/5/16 1615	x	12/5/16 1615
x		x	

TAT → SameDay^ NextDay^ 2 Day 3 Day STD

^Please coordinate with the lab in advance

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

GeoEngineers
Chris Brown
600 Stewart Street, Suite 1700
Seattle, WA 98101

RE: Rufus Block 20
Work Order Number: 1612155

December 15, 2016

Attention Chris Brown:

Fremont Analytical, Inc. received 4 sample(s) on 12/14/2016 for the analyses presented in the following report.

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.
Gasoline by NWTPH-Gx
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)
Sample Moisture (Percent Moisture)
Total Metals by EPA Method 6020
Volatile Organic Compounds by EPA Method 8260C

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Mike Ridgeway
Laboratory Director

Date: *12/15/2016*

CLIENT: GeoEngineers
Project: Rufus Block 20
Work Order: 1612155

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1612155-001	S5-4.0	12/13/2016 9:50 AM	12/14/2016 3:20 PM
1612155-002	E17-4.0	12/13/2016 9:55 AM	12/14/2016 3:20 PM
1612155-003	W17S3-5.0	12/14/2016 10:30 AM	12/14/2016 3:20 PM
1612155-004	W13S29-10.0	12/14/2016 12:00 PM	12/14/2016 3:20 PM

Case Narrative

WO#: **1612155**
Date: **12/15/2016**

CLIENT: GeoEngineers
Project: Rufus Block 20

I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Analytical Report

Work Order: **1612155**
Date Reported: **12/15/2016**

Client: GeoEngineers
Collection Date: 12/13/2016 9:50:00 AM
Project: Rufus Block 20
Lab ID: 1612155-001
Matrix: Soil
Client Sample ID: **S5-4.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 15691		Analyst: SG
Benz(a)anthracene	ND	40.8		µg/Kg-dry	1	12/14/2016 9:43:43 PM
Chrysene	ND	40.8		µg/Kg-dry	1	12/14/2016 9:43:43 PM
Benzo(b)fluoranthene	ND	40.8		µg/Kg-dry	1	12/14/2016 9:43:43 PM
Benzo(k)fluoranthene	ND	40.8		µg/Kg-dry	1	12/14/2016 9:43:43 PM
Benzo(a)pyrene	ND	40.8		µg/Kg-dry	1	12/14/2016 9:43:43 PM
Indeno(1,2,3-cd)pyrene	ND	40.8		µg/Kg-dry	1	12/14/2016 9:43:43 PM
Dibenz(a,h)anthracene	ND	40.8		µg/Kg-dry	1	12/14/2016 9:43:43 PM
Surr: 2-Fluorobiphenyl	93.2	24.5-139		%Rec	1	12/14/2016 9:43:43 PM
Surr: Terphenyl-d14 (surr)	109	44.3-176		%Rec	1	12/14/2016 9:43:43 PM
Sample Moisture (Percent Moisture)				Batch ID: R33402		Analyst: BB
Percent Moisture	9.89	0.500		wt%	1	12/15/2016 9:43:10 AM

Analytical Report

Work Order: **1612155**
Date Reported: **12/15/2016**

Client: GeoEngineers
Collection Date: 12/13/2016 9:55:00 AM
Project: Rufus Block 20
Lab ID: 1612155-002
Matrix: Soil
Client Sample ID: **E17-4.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 15691		Analyst: SG
Benz(a)anthracene	ND	41.8		µg/Kg-dry	1	12/14/2016 11:06:58 PM
Chrysene	ND	41.8		µg/Kg-dry	1	12/14/2016 11:06:58 PM
Benzo(b)fluoranthene	ND	41.8		µg/Kg-dry	1	12/14/2016 11:06:58 PM
Benzo(k)fluoranthene	ND	41.8		µg/Kg-dry	1	12/14/2016 11:06:58 PM
Benzo(a)pyrene	ND	41.8		µg/Kg-dry	1	12/14/2016 11:06:58 PM
Indeno(1,2,3-cd)pyrene	ND	41.8		µg/Kg-dry	1	12/14/2016 11:06:58 PM
Dibenz(a,h)anthracene	ND	41.8		µg/Kg-dry	1	12/14/2016 11:06:58 PM
Surr: 2-Fluorobiphenyl	81.0	24.5-139		%Rec	1	12/14/2016 11:06:58 PM
Surr: Terphenyl-d14 (surr)	105	44.3-176		%Rec	1	12/14/2016 11:06:58 PM
Sample Moisture (Percent Moisture)				Batch ID: R33402		Analyst: BB
Percent Moisture	12.0	0.500		wt%	1	12/15/2016 9:43:10 AM

Analytical Report

Work Order: **1612155**
Date Reported: **12/15/2016**

Client: GeoEngineers
Collection Date: 12/14/2016 12:00:00 PM
Project: Rufus Block 20
Lab ID: 1612155-004
Matrix: Soil
Client Sample ID: **W13S29-10.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 15683		Analyst: WC
Diesel (Fuel Oil)	662	34.3		mg/Kg-dry	1	12/14/2016 6:43:40 PM
Heavy Oil	ND	85.8		mg/Kg-dry	1	12/14/2016 6:43:40 PM
Surr: 2-Fluorobiphenyl	95.5	50-150		%Rec	1	12/14/2016 6:43:40 PM
Surr: o-Terphenyl	76.8	50-150		%Rec	1	12/14/2016 6:43:40 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 15691		Analyst: SG
Benz(a)anthracene	84.0	61.6		µg/Kg-dry	1	12/14/2016 11:27:49 PM
Chrysene	87.8	61.6		µg/Kg-dry	1	12/14/2016 11:27:49 PM
Benzo(b)fluoranthene	103	61.6		µg/Kg-dry	1	12/14/2016 11:27:49 PM
Benzo(k)fluoranthene	ND	61.6		µg/Kg-dry	1	12/14/2016 11:27:49 PM
Benzo(a)pyrene	93.5	61.6		µg/Kg-dry	1	12/14/2016 11:27:49 PM
Indeno(1,2,3-cd)pyrene	ND	61.6		µg/Kg-dry	1	12/14/2016 11:27:49 PM
Dibenz(a,h)anthracene	ND	61.6		µg/Kg-dry	1	12/14/2016 11:27:49 PM
Surr: 2-Fluorobiphenyl	93.9	24.5-139		%Rec	1	12/14/2016 11:27:49 PM
Surr: Terphenyl-d14 (surr)	111	44.3-176		%Rec	1	12/14/2016 11:27:49 PM
Gasoline by NWTPH-Gx				Batch ID: 15688		Analyst: NG
Gasoline	ND	7.57		mg/Kg-dry	1	12/14/2016 9:38:00 PM
Surr: 4-Bromofluorobenzene	101	65-135		%Rec	1	12/14/2016 9:38:00 PM
Surr: Toluene-d8	96.3	65-135		%Rec	1	12/14/2016 9:38:00 PM
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15688		Analyst: NG
Benzene	ND	0.0303		mg/Kg-dry	1	12/14/2016 9:38:00 PM
Toluene	ND	0.0303		mg/Kg-dry	1	12/14/2016 9:38:00 PM
Ethylbenzene	ND	0.0454		mg/Kg-dry	1	12/14/2016 9:38:00 PM
m,p-Xylene	ND	0.0303		mg/Kg-dry	1	12/14/2016 9:38:00 PM
o-Xylene	ND	0.0303		mg/Kg-dry	1	12/14/2016 9:38:00 PM
Surr: Dibromofluoromethane	98.6	56.5-129		%Rec	1	12/14/2016 9:38:00 PM
Surr: Toluene-d8	96.1	64.5-151		%Rec	1	12/14/2016 9:38:00 PM
Surr: 1-Bromo-4-fluorobenzene	98.6	63.1-141		%Rec	1	12/14/2016 9:38:00 PM
Total Metals by EPA Method 6020				Batch ID: 15695		Analyst: TN
Lead	757	0.288		mg/Kg-dry	1	12/15/2016 4:08:09 PM

Analytical Report

Work Order: **1612155**
Date Reported: **12/15/2016**

Client: GeoEngineers
Collection Date: 12/14/2016 12:00:00 PM
Project: Rufus Block 20
Lab ID: 1612155-004
Matrix: Soil
Client Sample ID: **W13S29-10.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R33402		Analyst: BB
Percent Moisture	45.0	0.500		wt%	1	12/15/2016 9:43:10 AM

Work Order: 1612155
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID **MB-15683** SampType: **MBLK** Units: **mg/Kg** Prep Date: **12/14/2016** RunNo: **33416**
Client ID: **MBLKS** Batch ID: **15683** Analysis Date: **12/14/2016** SeqNo: **634039**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	20.0									
Heavy Oil	ND	50.0									
Surr: 2-Fluorobiphenyl	16.1		20.00		80.6	50	150				
Surr: o-Terphenyl	16.6		20.00		83.0	50	150				

Sample ID **LCS-15683** SampType: **LCS** Units: **mg/Kg** Prep Date: **12/14/2016** RunNo: **33416**
Client ID: **LCSS** Batch ID: **15683** Analysis Date: **12/14/2016** SeqNo: **634038**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	388	20.0	500.0	0	77.7	65	135				
Surr: 2-Fluorobiphenyl	19.0		20.00		94.9	50	150				
Surr: o-Terphenyl	19.3		20.00		96.5	50	150				

Sample ID **1612133-001ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **12/14/2016** RunNo: **33416**
Client ID: **BATCH** Batch ID: **15683** Analysis Date: **12/14/2016** SeqNo: **634022**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	22.3						0		30	
Diesel Range Organics (C12-C24)	158	22.3						160.4	1.80	30	
Heavy Oil	126	55.7						123.1	2.06	30	
Surr: 2-Fluorobiphenyl	22.3		22.30		100	50	150		0		
Surr: o-Terphenyl	20.2		22.30		90.5	50	150		0		

NOTES:
DRO - Indicates the presence of unresolved compounds eluting from dodecane through tetracosane (C12-C24).

Sample ID **1612133-001AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **12/14/2016** RunNo: **33416**
Client ID: **BATCH** Batch ID: **15683** Analysis Date: **12/14/2016** SeqNo: **634023**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	626	24.0	598.9	152.0	79.1	65	135				

Work Order: 1612155
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID **1612133-001AMS**	SampType: **MS**			Units: **mg/Kg-dry**	Prep Date: **12/14/2016**			RunNo: **33416**		
Client ID: **BATCH**	Batch ID: **15683**				Analysis Date: **12/14/2016**			SeqNo: **634023**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 2-Fluorobiphenyl	24.2		23.96		101	50	150				
Surr: o-Terphenyl	23.7		23.96		98.9	50	150				

Sample ID **1612133-001AMSD**	SampType: **MSD**			Units: **mg/Kg-dry**	Prep Date: **12/14/2016**			RunNo: **33416**		
Client ID: **BATCH**	Batch ID: **15683**				Analysis Date: **12/14/2016**			SeqNo: **634024**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	592	23.9	597.8	152.0	73.6	65	135	625.7	5.51	30	
Surr: 2-Fluorobiphenyl	24.8		23.91		104	50	150		0		
Surr: o-Terphenyl	23.7		23.91		99.0	50	150		0		

Sample ID **1612139-002ADUP**	SampType: **DUP**			Units: **mg/Kg-dry**	Prep Date: **12/14/2016**			RunNo: **33416**		
Client ID: **BATCH**	Batch ID: **15683**				Analysis Date: **12/15/2016**			SeqNo: **634027**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	18.2						0		30	
Heavy Oil	ND	45.6						0		30	
Surr: 2-Fluorobiphenyl	15.0		18.24		82.4	50	150		0		
Surr: o-Terphenyl	15.3		18.24		84.1	50	150		0		

Work Order: 1612155
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Gasoline by NWTPH-Gx

Sample ID **LCS-15688**	SampType: **LCS**			Units: **mg/Kg**		Prep Date: **12/14/2016**		RunNo: **33425**		
Client ID: **LCSS**	Batch ID: **15688**					Analysis Date: **12/14/2016**		SeqNo: **634116**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	25.5	5.00	25.00	0	102	65	135				
Surr: Toluene-d8	1.22		1.250		97.3	65	135				
Surr: 4-Bromofluorobenzene	1.30		1.250		104	65	135				

Sample ID **LCSD-15688**	SampType: **LCSD**			Units: **mg/Kg**		Prep Date: **12/14/2016**		RunNo: **33425**		
Client ID: **LCSS02**	Batch ID: **15688**					Analysis Date: **12/14/2016**		SeqNo: **634115**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	24.3	5.00	25.00	0	97.1	65	135	25.48	4.87	20	
Surr: Toluene-d8	1.22		1.250		97.2	65	135		0		
Surr: 4-Bromofluorobenzene	1.28		1.250		102	65	135		0		

Sample ID **MB-15688**	SampType: **MBLK**			Units: **mg/Kg**		Prep Date: **12/14/2016**		RunNo: **33425**		
Client ID: **MBLKS**	Batch ID: **15688**					Analysis Date: **12/14/2016**		SeqNo: **634117**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	5.00									
Surr: Toluene-d8	1.21		1.250		97.2	65	135				
Surr: 4-Bromofluorobenzene	1.20		1.250		95.7	65	135				

Sample ID **1612139-001BDUP**	SampType: **DUP**			Units: **mg/Kg-dry**		Prep Date: **12/14/2016**		RunNo: **33425**		
Client ID: **BATCH**	Batch ID: **15688**					Analysis Date: **12/14/2016**		SeqNo: **634110**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	4.65						0		30	
Surr: Toluene-d8	1.14		1.163		98.2	65	135		0		
Surr: 4-Bromofluorobenzene	1.15		1.163		98.5	65	135		0		

Work Order: 1612155
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **MB-15691**	SampType: **MBLK**	Units: **µg/Kg**	Prep Date: **12/14/2016**	RunNo: **33415**
Client ID: **MBLKS**	Batch ID: **15691**		Analysis Date: **12/14/2016**	SeqNo: **633982**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	ND	40.0									
Chrysene	ND	40.0									
Benzo(b)fluoranthene	ND	40.0									
Benzo(k)fluoranthene	ND	40.0									
Benzo(a)pyrene	ND	40.0									
Indeno(1,2,3-cd)pyrene	ND	40.0									
Dibenz(a,h)anthracene	ND	40.0									
Surr: 2-Fluorobiphenyl	476		500.0		95.1	24.5	139				
Surr: Terphenyl-d14 (surr)	540		500.0		108	44.3	176				

Sample ID **LCS-15691**	SampType: **LCS**	Units: **µg/Kg**	Prep Date: **12/14/2016**	RunNo: **33415**
Client ID: **LCSS**	Batch ID: **15691**		Analysis Date: **12/14/2016**	SeqNo: **633983**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	1,190	40.0	1,000	0	119	41.9	136				
Chrysene	1,060	40.0	1,000	0	106	46.9	138				
Benzo(b)fluoranthene	1,060	40.0	1,000	0	106	35.9	148				
Benzo(k)fluoranthene	1,080	40.0	1,000	0	108	41.8	153				
Benzo(a)pyrene	1,010	40.0	1,000	0	101	36.3	144				
Indeno(1,2,3-cd)pyrene	1,090	40.0	1,000	0	109	16.1	135				
Dibenz(a,h)anthracene	1,080	40.0	1,000	0	108	17.2	136				
Surr: 2-Fluorobiphenyl	509		500.0		102	24.5	139				
Surr: Terphenyl-d14 (surr)	555		500.0		111	44.3	176				

Sample ID **1612155-001ADUP**	SampType: **DUP**	Units: **µg/Kg-dry**	Prep Date: **12/14/2016**	RunNo: **33415**
Client ID: **S5-4.0**	Batch ID: **15691**		Analysis Date: **12/14/2016**	SeqNo: **633985**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	ND	42.2						0		30	
Chrysene	ND	42.2						0		30	

Work Order: 1612155
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1612155-001ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **12/14/2016** RunNo: **33415**
Client ID: **S5-4.0** Batch ID: **15691** Analysis Date: **12/14/2016** SeqNo: **633985**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzo(b)fluoranthene	ND	42.2						0		30	
Benzo(k)fluoranthene	ND	42.2						0		30	
Benzo(a)pyrene	ND	42.2						0		30	
Indeno(1,2,3-cd)pyrene	ND	42.2						0		30	
Dibenz(a,h)anthracene	ND	42.2						0		30	
Surr: 2-Fluorobiphenyl	425		526.9		80.7	24.5	139		0		
Surr: Terphenyl-d14 (surr)	514		526.9		97.5	44.3	176		0		

Sample ID **1612155-001AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **12/14/2016** RunNo: **33415**
Client ID: **S5-4.0** Batch ID: **15691** Analysis Date: **12/14/2016** SeqNo: **633986**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	1,140	37.6	939.7	0	121	57.5	169				
Chrysene	993	37.6	939.7	0	106	45.2	146				
Benzo(b)fluoranthene	942	37.6	939.7	8.055	99.4	42.2	168				
Benzo(k)fluoranthene	1,050	37.6	939.7	4.010	111	48	161				
Benzo(a)pyrene	1,020	37.6	939.7	0	108	34.4	179				
Indeno(1,2,3-cd)pyrene	1,030	37.6	939.7	6.392	109	5	113				
Dibenz(a,h)anthracene	1,000	37.6	939.7	6.672	106	17.3	156				
Surr: 2-Fluorobiphenyl	457		469.8		97.2	24.5	139				
Surr: Terphenyl-d14 (surr)	517		469.8		110	44.3	176				

Sample ID **1612155-001AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **12/14/2016** RunNo: **33415**
Client ID: **S5-4.0** Batch ID: **15691** Analysis Date: **12/14/2016** SeqNo: **633987**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	1,150	38.5	963.3	0	120	57.5	169	1,140	1.21	30	
Chrysene	970	38.5	963.3	0	101	45.2	146	993.1	2.36	30	
Benzo(b)fluoranthene	978	38.5	963.3	8.055	101	42.2	168	942.1	3.79	30	
Benzo(k)fluoranthene	1,070	38.5	963.3	4.010	110	48	161	1,051	1.54	30	

Work Order: 1612155
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1612155-001AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **12/14/2016** RunNo: **33415**
Client ID: **S5-4.0** Batch ID: **15691** Analysis Date: **12/14/2016** SeqNo: **633987**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzo(a)pyrene	1,050	38.5	963.3	0	109	34.4	179	1,017	3.08	30	
Indeno(1,2,3-cd)pyrene	1,040	38.5	963.3	6.392	107	5	113	1,029	1.22	30	
Dibenz(a,h)anthracene	1,030	38.5	963.3	6.672	107	17.3	156	1,004	3.01	30	
Surr: 2-Fluorobiphenyl	425		481.7		88.3	24.5	139		0		
Surr: Terphenyl-d14 (surr)	502		481.7		104	44.3	176		0		

Work Order: 1612155
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Sample Moisture (Percent Moisture)

Sample ID **1612160-005ADUP** SampType: **DUP** Units: **wt%** Prep Date: **12/15/2016** RunNo: **33402**
Client ID: **BATCH** Batch ID: **R33402** Analysis Date: **12/15/2016** SeqNo: **634008**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	20.7	0.500						17.13	18.7	20	

Work Order: 1612155
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID	MB-15695	SampType:	MBLK			Units:	mg/Kg			Prep Date:	12/15/2016			RunNo:	33439	
Client ID:	MBLKS	Batch ID:	15695							Analysis Date:	12/15/2016			SeqNo:	634482	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual				
Lead		ND	0.156													

Sample ID	LCS-15695	SampType:	LCS			Units:	mg/Kg			Prep Date:	12/15/2016			RunNo:	33439	
Client ID:	LCSS	Batch ID:	15695							Analysis Date:	12/15/2016			SeqNo:	634483	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual				
Lead		17.8	0.145	18.12	0	98.4	80	120								

Sample ID	1612155-004ADUP	SampType:	DUP			Units:	mg/Kg-dry			Prep Date:	12/15/2016			RunNo:	33439	
Client ID:	W13S29-10.0	Batch ID:	15695							Analysis Date:	12/15/2016			SeqNo:	634485	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual				
Lead		932	0.288						757.1	20.7	20	R				

NOTES:
R - High RPD observed. The method is in control as indicated by the LCS.

Sample ID	1612155-004AMS	SampType:	MS			Units:	mg/Kg-dry			Prep Date:	12/15/2016			RunNo:	33439	
Client ID:	W13S29-10.0	Batch ID:	15695							Analysis Date:	12/15/2016			SeqNo:	634487	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual				
Lead		766	0.288	36.06	757.1	23.6	75	125				S				

NOTES:
S - Analyte concentration was too high for accurate spike recovery(ies).

Sample ID	1612155-004AMSD	SampType:	MSD			Units:	mg/Kg-dry			Prep Date:	12/15/2016			RunNo:	33439	
Client ID:	W13S29-10.0	Batch ID:	15695							Analysis Date:	12/15/2016			SeqNo:	634488	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual				
Lead		1,060	0.288	36.06	757.1	851	75	125	765.6	32.6	20	SR				

Work Order: 1612155
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID **1612155-004AMSD**	SampType: **MSD**			Units: **mg/Kg-dry**		Prep Date: **12/15/2016**		RunNo: **33439**			
Client ID: **W13S29-10.0**	Batch ID: **15695**					Analysis Date: **12/15/2016**		SeqNo: **634488**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

NOTES:
S - Analyte concentration was too high for accurate spike recovery(ies).
R - High RPD observed. The method is in control as indicated by the LCS.

Sample ID **1612155-004APDS**	SampType: **PDS**			Units: **mg/Kg-dry**		Prep Date: **12/15/2016**		RunNo: **33439**			
Client ID: **W13S29-10.0**	Batch ID: **15695**					Analysis Date: **12/15/2016**		SeqNo: **634489**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	1,140	0.288	25.0	1,050	182	80	120				S

NOTES:
S - Analyte concentration was too high for accurate spike recovery(ies).

Work Order: 1612155
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-15688** SampType: **LCS** Units: **mg/Kg** Prep Date: **12/14/2016** RunNo: **33424**
Client ID: **LCSS** Batch ID: **15688** Analysis Date: **12/14/2016** SeqNo: **634072**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	1.08	0.0200	1.000	0	108	64.3	133				
Toluene	1.08	0.0200	1.000	0	108	67.3	138				
Ethylbenzene	1.08	0.0300	1.000	0	108	74	129				
m,p-Xylene	2.19	0.0200	2.000	0	109	70	124				
o-Xylene	1.08	0.0200	1.000	0	108	72.7	124				
Surr: Dibromofluoromethane	1.25		1.250		99.9	56.5	129				
Surr: Toluene-d8	1.27		1.250		101	64.5	151				
Surr: 1-Bromo-4-fluorobenzene	1.31		1.250		105	63.1	141				

Sample ID **MB-15688** SampType: **MBLK** Units: **mg/Kg** Prep Date: **12/14/2016** RunNo: **33424**
Client ID: **MBLKS** Batch ID: **15688** Analysis Date: **12/14/2016** SeqNo: **634073**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	0.0200									
Toluene	ND	0.0200									
Ethylbenzene	ND	0.0300									
m,p-Xylene	ND	0.0200									
o-Xylene	ND	0.0200									
Surr: Dibromofluoromethane	1.23		1.250		98.4	56.5	129				
Surr: Toluene-d8	1.21		1.250		96.9	64.5	151				
Surr: 1-Bromo-4-fluorobenzene	1.17		1.250		93.3	63.1	141				

Sample ID **1612139-001BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **12/14/2016** RunNo: **33424**
Client ID: **BATCH** Batch ID: **15688** Analysis Date: **12/14/2016** SeqNo: **634065**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	0.0186						0		30	
Toluene	ND	0.0186						0		30	
Ethylbenzene	ND	0.0279						0		30	
m,p-Xylene	ND	0.0186						0		30	

Work Order: 1612155
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1612139-001BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **12/14/2016** RunNo: **33424**
Client ID: **BATCH** Batch ID: **15688** Analysis Date: **12/14/2016** SeqNo: **634065**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
o-Xylene	ND	0.0186						0		30	
Surr: Dibromofluoromethane	1.14		1.163		97.9	56.5	129		0		
Surr: Toluene-d8	1.13		1.163		97.4	64.5	151		0		
Surr: 1-Bromo-4-fluorobenzene	1.10		1.163		94.8	63.1	141		0		

Sample ID **1612139-002BMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **12/14/2016** RunNo: **33424**
Client ID: **BATCH** Batch ID: **15688** Analysis Date: **12/14/2016** SeqNo: **634067**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	1.53	0.0285	1.427	0	107	63.5	133				
Toluene	1.51	0.0285	1.427	0	105	63.4	132				
Ethylbenzene	1.50	0.0428	1.427	0	105	54.5	134				
m,p-Xylene	3.05	0.0285	2.854	0	107	53.1	132				
o-Xylene	1.50	0.0285	1.427	0	105	53.3	139				
Surr: Dibromofluoromethane	1.75		1.784		98.1	56.5	129				
Surr: Toluene-d8	1.81		1.784		101	64.5	151				
Surr: 1-Bromo-4-fluorobenzene	1.89		1.784		106	63.1	141				

Sample ID **1612139-002BMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **12/14/2016** RunNo: **33424**
Client ID: **BATCH** Batch ID: **15688** Analysis Date: **12/14/2016** SeqNo: **634068**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	1.91	0.0285	1.427	0	134	63.5	133	1.531	22.3	30	S
Toluene	2.00	0.0285	1.427	0	140	63.4	132	1.505	28.2	30	S
Ethylbenzene	1.47	0.0428	1.427	0	103	54.5	134	1.504	2.27	30	
m,p-Xylene	2.97	0.0285	2.854	0	104	53.1	132	3.046	2.64	30	
o-Xylene	1.46	0.0285	1.427	0	102	53.3	139	1.500	2.84	30	
Surr: Dibromofluoromethane	1.85		1.784		104	56.5	129		0		
Surr: Toluene-d8	2.44		1.784		137	64.5	151		0		
Surr: 1-Bromo-4-fluorobenzene	1.87		1.784		105	63.1	141		0		

Work Order: 1612155
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1612139-002BMSD**	SampType: **MSD**			Units: **mg/Kg-dry**	Prep Date: **12/14/2016**		RunNo: **33424**		
Client ID: **BATCH**	Batch ID: **15688**				Analysis Date: **12/14/2016**		SeqNo: **634068**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

NOTES:
S - Outlying spike recovery(ies) observed. A duplicate analysis was performed and recovered within range.

Sample Log-In Check List

Client Name:	**GEI**	Work Order Number:	**1612155**
Logged by:	**Clare Griggs**	Date Received:	**12/14/2016 3:20:00 PM**

Chain of Custody

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

Log In

3.	Coolers are present?	Yes ☑	No ☐	NA ☐
4.	Shipping container/cooler in good condition?	Yes ☑	No ☐	
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes ☐	No ☐	Not Required ☑
6.	Was an attempt made to cool the samples?	Yes ☐	No ☑	NA ☐
	Sample received at appropriate temperature			
7.	Were all items received at a temperature of >0°C to 10.0°C*	Yes ☑	No ☐	NA ☐
8.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
9.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
10.	Are samples properly preserved?	Yes ☑	No ☐	
11.	Was preservative added to bottles?	Yes ☑	No ☐	NA ☐ MeOH
12.	Is there headspace in the VOA vials?	Yes ☐	No ☐	NA ☑
13.	Did all samples containers arrive in good condition(unbroken)?	Yes ☑	No ☐	
14.	Does paperwork match bottle labels?	Yes ☑	No ☐	
15.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
16.	Is it clear what analyses were requested?	Yes ☑	No ☐	
17.	Were all holding times able to be met?	Yes ☑	No ☐	

Special Handling (if applicable)

18.	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: _____

19. Additional remarks:

Item Information

Item #	Temp ºC
Sample	8.5

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Chain of Custody Record and Laboratory Services Agreement

Fremont Analytical

3600 Fremont Ave N. Tel: 206-352-3790
Seattle, WA 98103 Fax: 206-352-7178

Date: _____ Laboratory Project No (internal): 1612155

Page: 1 of: 1

Client: GeoEngineers
Address: 600 Stewart St, Suite 1700
City, State, Zip: Seattle, WA
Telephone: _____ Fax: _____

Project Name: Rufus Block 20
Project No: 20434-001-24 Collected by: Sydney Bronson
Location: Seattle, WA
Report To (PM): Chris Brown
PM Email: cbrown@geoengineers.com

*Matrix Codes: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM / 625)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T)	Dissolved (D)	Anions (IC)**	EDB (8011)	cPAHs	Pb	# Containers	Comments
1	S5-4.0	12/13/16	0950	S														X			1	Standard TAT
2	E17-4.0	↓	0955	↓														X			1	↓
3	~~W355-10.0~~			↓														X	X			~~Next day TAT~~
4	W783-5.0	12/14/16	1030																		1	Hold
5	W1329-10.0	↓	1200	↓		X			X									X	X		1	quant to Diesel #2. Next day TAT
6																						
7																						
8																						
9																						
10																						

**Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL *Individual:* Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☒ Disposal by Lab (Samples will be held for 30 days unless otherwise noted. A fee may be assessed if samples are retained after 30 days.)

Turn-around times for samples received after 4:00pm will begin on the following business day.

Special Remarks: Chris Brown to Contact about Sample on Hold.

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above, that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x Sydney Bronson	12/14/16 1520	x	12/14/16 1520
x		x	

TAT → SameDay^ NextDay^ 2 Day 3 Day STD

^Please coordinate with the lab in advance

Distribution: White - Lab, Yellow - File, Pink - Originator

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

GeoEngineers
Chris Brown
600 Stewart Street, Suite 1700
Seattle, WA 98101

RE: Rufus Block 20
Work Order Number: 1612168

December 16, 2016

Attention Chris Brown:

Fremont Analytical, Inc. received 1 sample(s) on 12/15/2016 for the analyses presented in the following report.

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.
Gasoline by NWTPH-Gx
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)
Total Metals by EPA Method 6020
Volatile Organic Compounds by EPA Method 8260C

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Mike Ridgeway
Laboratory Director

Date: *12/16/2016*

CLIENT: GeoEngineers
Project: Rufus Block 20
Work Order: 1612168

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1612168-001	UST-2-Product	12/15/2016 8:50 AM	12/15/2016 12:20 PM

Case Narrative

WO#: **1612168**
Date: **12/16/2016**

CLIENT: GeoEngineers
Project: Rufus Block 20

I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Analytical Report

Work Order: **1612168**

Date Reported: **12/16/2016**

Client: GeoEngineers **Collection Date:** 12/15/2016 8:50:00 AM

Project: Rufus Block 20

Lab ID: 1612168-001 **Matrix:** Product

Client Sample ID: UST-2-Product

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 15700		Analyst: WC
Diesel (Fuel Oil)	159,000	4,000	D	mg/Kg	20	12/16/2016 8:48:03 AM
Heavy Oil	94,800	10,000	D	mg/Kg	20	12/16/2016 8:48:03 AM
Surr: 2-Fluorobiphenyl	446	50-150	DS	%Rec	20	12/16/2016 8:48:03 AM
Surr: o-Terphenyl	213	50-150	DS	%Rec	20	12/16/2016 8:48:03 AM

NOTES:

S - Outlying surrogate recovery attributed to TPH interference. The method is in control as indicated by the Method Blank (MB) & Laboratory Control Sample (LCS).

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 15702		Analyst: SG
Benz(a)anthracene	16,600	400		µg/Kg	1	12/15/2016 6:40:33 PM
Chrysene	26,100	400		µg/Kg	1	12/15/2016 6:40:33 PM
Benzo(b)fluoranthene	2,290	400		µg/Kg	1	12/15/2016 6:40:33 PM
Benzo(k)fluoranthene	ND	400		µg/Kg	1	12/15/2016 6:40:33 PM
Benzo(a)pyrene	2,570	400		µg/Kg	1	12/15/2016 6:40:33 PM
Indeno(1,2,3-cd)pyrene	ND	400	QI	µg/Kg	1	12/15/2016 6:40:33 PM
Dibenz(a,h)anthracene	ND	400	QI	µg/Kg	1	12/15/2016 6:40:33 PM
Surr: 2-Fluorobiphenyl	153	24.5-139	S	%Rec	1	12/15/2016 6:40:33 PM
Surr: Terphenyl-d14 (surr)	141	44.3-176		%Rec	1	12/15/2016 6:40:33 PM

NOTES:

S - Outlying surrogate recovery attributed to TPH interference. The method is in control as indicated by the Method Blank (MB) & Laboratory Control Sample (LCS).

I - Indicates an analyte with an internal standard that does not meet established acceptance criteria.

Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Gasoline by NWTPH-Gx				Batch ID: 15704		Analyst: NG
Gasoline	ND	490	D	mg/Kg	10	12/15/2016 8:33:56 PM
Surr: 4-Bromofluorobenzene	107	65-135	D	%Rec	10	12/15/2016 8:33:56 PM
Surr: Toluene-d8	96.4	65-135	D	%Rec	10	12/15/2016 8:33:56 PM

NOTES:

Diluted due to matrix.

Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15704		Analyst: NG
Benzene	2.12	1.96	D	mg/Kg	10	12/15/2016 8:33:56 PM
Toluene	19.4	1.96	D	mg/Kg	10	12/15/2016 8:33:56 PM
Ethylbenzene	16.1	2.94	D	mg/Kg	10	12/15/2016 8:33:56 PM
m,p-Xylene	83.1	1.96	D	mg/Kg	10	12/15/2016 8:33:56 PM

Analytical Report

Work Order: **1612168**
Date Reported: **12/16/2016**

Client: GeoEngineers
Collection Date: 12/15/2016 8:50:00 AM
Project: Rufus Block 20
Lab ID: 1612168-001
Matrix: Product
Client Sample ID: **UST-2-Product**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15704		Analyst: NG
o-Xylene	43.3	1.96	D	mg/Kg	10	12/15/2016 8:33:56 PM
Surr: Dibromofluoromethane	101	56.5-129	D	%Rec	10	12/15/2016 8:33:56 PM
Surr: Toluene-d8	98.2	64.5-151	D	%Rec	10	12/15/2016 8:33:56 PM
Surr: 1-Bromo-4-fluorobenzene	102	63.1-141	D	%Rec	10	12/15/2016 8:33:56 PM
NOTES: Diluted due to matrix.						
Total Metals by EPA Method 6020				Batch ID: 15695		Analyst: TN
Lead	3.41	0.385		mg/Kg	1	12/15/2016 4:57:45 PM

Work Order: 1612168
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID **MB-15700**	SampType: **MBLK**			Units: **mg/Kg**		Prep Date: **12/15/2016**		RunNo: **33443**		
Client ID: **MBLKS**	Batch ID: **15700**					Analysis Date: **12/15/2016**		SeqNo: **634543**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	20.0									
Heavy Oil	ND	50.0									
Surr: 2-Fluorobiphenyl	15.5		20.00		77.3	50	150				
Surr: o-Terphenyl	15.7		20.00		78.5	50	150				

Sample ID **LCS-15700**	SampType: **LCS**			Units: **mg/Kg**		Prep Date: **12/15/2016**		RunNo: **33443**		
Client ID: **LCSS**	Batch ID: **15700**					Analysis Date: **12/15/2016**		SeqNo: **634541**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	406	20.0	500.0	0	81.2	65	135				
Surr: 2-Fluorobiphenyl	20.2		20.00		101	50	150				
Surr: o-Terphenyl	20.5		20.00		103	50	150				

Sample ID **LCSD-15700**	SampType: **LCSD**			Units: **mg/Kg**		Prep Date: **12/15/2016**		RunNo: **33443**		
Client ID: **LCSS02**	Batch ID: **15700**					Analysis Date: **12/15/2016**		SeqNo: **634542**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	401	20.0	500.0	0	80.3	65	135	406.2	1.22	30	
Surr: 2-Fluorobiphenyl	19.5		20.00		97.3	50	150		0		
Surr: o-Terphenyl	20.1		20.00		100	50	150		0		

Work Order: 1612168
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Gasoline by NWTPH-Gx

Sample ID **LCS-15704**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **12/15/2016**	RunNo: **33448**
Client ID: **LCSS**	Batch ID: **15704**		Analysis Date: **12/15/2016**	SeqNo: **634590**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	23.4	5.00	25.00	0	93.7	65	135				
Surr: Toluene-d8	1.23		1.250		98.7	65	135				
Surr: 4-Bromofluorobenzene	1.29		1.250		103	65	135				

Sample ID **LCSD-15704**	SampType: **LCSD**	Units: **mg/Kg**	Prep Date: **12/15/2016**	RunNo: **33448**
Client ID: **LCSS02**	Batch ID: **15704**		Analysis Date: **12/15/2016**	SeqNo: **634591**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	21.6	5.00	25.00	0	86.6	65	135	23.41	7.88	20	
Surr: Toluene-d8	1.23		1.250		98.7	65	135		0		
Surr: 4-Bromofluorobenzene	1.29		1.250		103	65	135		0		

Sample ID **MB-15704**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **12/15/2016**	RunNo: **33448**
Client ID: **MBLKS**	Batch ID: **15704**		Analysis Date: **12/15/2016**	SeqNo: **634592**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	5.00									
Surr: Toluene-d8	1.22		1.250		97.3	65	135				
Surr: 4-Bromofluorobenzene	1.24		1.250		99.5	65	135				

Work Order: 1612168
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **MB-15702** SampType: **MBLK** Units: **µg/Kg** Prep Date: **12/15/2016** RunNo: **33450**
Client ID: **MBLKS** Batch ID: **15702** Analysis Date: **12/15/2016** SeqNo: **634608**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	ND	40.0									
Chrysene	ND	40.0									
Benzo(b)fluoranthene	ND	40.0									
Benzo(k)fluoranthene	ND	40.0									
Benzo(a)pyrene	ND	40.0									
Indeno(1,2,3-cd)pyrene	ND	40.0									Q
Dibenz(a,h)anthracene	ND	40.0									Q
Surr: 2-Fluorobiphenyl	479		500.0		95.8	24.5	139				
Surr: Terphenyl-d14 (surr)	594		500.0		119	44.3	176				

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample ID **LCS-15702** SampType: **LCS** Units: **µg/Kg** Prep Date: **12/15/2016** RunNo: **33450**
Client ID: **LCSS** Batch ID: **15702** Analysis Date: **12/15/2016** SeqNo: **634609**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	1,340	40.0	1,000	0	134	41.9	136				
Chrysene	1,150	40.0	1,000	0	115	46.9	138				
Benzo(b)fluoranthene	1,120	40.0	1,000	0	112	35.9	148				
Benzo(k)fluoranthene	1,240	40.0	1,000	0	124	41.8	153				
Benzo(a)pyrene	1,190	40.0	1,000	0	119	36.3	144				
Indeno(1,2,3-cd)pyrene	890	40.0	1,000	0	89.0	16.1	135				
Dibenz(a,h)anthracene	857	40.0	1,000	0	85.7	17.2	136				
Surr: 2-Fluorobiphenyl	539		500.0		108	24.5	139				
Surr: Terphenyl-d14 (surr)	632		500.0		126	44.3	176				

Sample ID **LCSD-15702** SampType: **LCSD** Units: **µg/Kg** Prep Date: **12/15/2016** RunNo: **33450**
Client ID: **LCSS02** Batch ID: **15702** Analysis Date: **12/15/2016** SeqNo: **634610**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	1,260	40.0	1,000	0	126	41.9	136	1,337	5.86	30	

Work Order: 1612168
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **LCSD-15702** SampType: **LCSD** Units: **µg/Kg** Prep Date: **12/15/2016** RunNo: **33450**
Client ID: **LCSS02** Batch ID: **15702** Analysis Date: **12/15/2016** SeqNo: **634610**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chrysene	1,060	40.0	1,000	0	106	46.9	138	1,146	7.54	30	
Benzo(b)fluoranthene	1,060	40.0	1,000	0	106	35.9	148	1,120	5.92	30	
Benzo(k)fluoranthene	1,170	40.0	1,000	0	117	41.8	153	1,240	6.20	30	
Benzo(a)pyrene	1,050	40.0	1,000	0	105	36.3	144	1,187	11.9	30	
Indeno(1,2,3-cd)pyrene	868	40.0	1,000	0	86.8	16.1	135	890.2	2.56	30	
Dibenz(a,h)anthracene	852	40.0	1,000	0	85.2	17.2	136	856.6	0.549	30	
Surr: 2-Fluorobiphenyl	502		500.0		100	24.5	139		0		
Surr: Terphenyl-d14 (surr)	566		500.0		113	44.3	176		0		

Work Order: 1612168
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID	**MB-15695**	SampType:	**MBLK**			Units:	**mg/Kg**		Prep Date:	**12/15/2016**		RunNo:	**33439**	
Client ID:	**MBLKS**	Batch ID:	**15695**						Analysis Date:	**12/15/2016**		SeqNo:	**634482**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Lead		ND	0.156											

Sample ID	**LCS-15695**	SampType:	**LCS**			Units:	**mg/Kg**		Prep Date:	**12/15/2016**		RunNo:	**33439**	
Client ID:	**LCSS**	Batch ID:	**15695**						Analysis Date:	**12/15/2016**		SeqNo:	**634483**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Lead		17.8	0.145	18.12	0	98.4	80	120						

Sample ID	**1612155-004ADUP**	SampType:	**DUP**			Units:	**mg/Kg-dry**		Prep Date:	**12/15/2016**		RunNo:	**33439**	
Client ID:	**BATCH**	Batch ID:	**15695**						Analysis Date:	**12/15/2016**		SeqNo:	**634485**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Lead		932	0.288						757.1	20.7	20	R		

NOTES:
R - High RPD observed. The method is in control as indicated by the LCS.

Sample ID	**1612155-004AMS**	SampType:	**MS**			Units:	**mg/Kg-dry**		Prep Date:	**12/15/2016**		RunNo:	**33439**	
Client ID:	**BATCH**	Batch ID:	**15695**						Analysis Date:	**12/15/2016**		SeqNo:	**634487**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Lead		766	0.288	36.06	757.1	23.6	75	125				S		

NOTES:
S - Analyte concentration was too high for accurate spike recovery(ies).

Sample ID	**1612155-004AMSD**	SampType:	**MSD**			Units:	**mg/Kg-dry**		Prep Date:	**12/15/2016**		RunNo:	**33439**	
Client ID:	**BATCH**	Batch ID:	**15695**						Analysis Date:	**12/15/2016**		SeqNo:	**634488**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Lead		1,060	0.288	36.06	757.1	851	75	125	765.6	32.6	20	RS		

Work Order: 1612168
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID	**1612155-004AMSD**	SampType:	**MSD**		Units:	**mg/Kg-dry**	Prep Date:	**12/15/2016**	RunNo:	**33439**
Client ID:	**BATCH**	Batch ID:	**15695**				Analysis Date:	**12/15/2016**	SeqNo:	**634488**

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

NOTES:
S - Analyte concentration was too high for accurate spike recovery(ies).
R - High RPD observed. The method is in control as indicated by the LCS.

Sample ID	**1612155-004APDS**	SampType:	**PDS**		Units:	**mg/Kg-dry**	Prep Date:	**12/15/2016**	RunNo:	**33439**
Client ID:	**BATCH**	Batch ID:	**15695**				Analysis Date:	**12/15/2016**	SeqNo:	**634489**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	823	0.288	36.1	757	182	80	120				S

NOTES:
S - Analyte concentration was too high for accurate spike recovery(ies).

Work Order: 1612168
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-15704** SampType: **LCS** Units: **mg/Kg** Prep Date: **12/15/2016** RunNo: **33447**
Client ID: **LCSS** Batch ID: **15704** Analysis Date: **12/15/2016** SeqNo: **634583**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	1.06	0.0200	1.000	0	106	64.3	133				
Toluene	1.07	0.0200	1.000	0	107	67.3	138				
Ethylbenzene	1.11	0.0300	1.000	0	111	74	129				
m,p-Xylene	2.18	0.0200	2.000	0	109	70	124				
o-Xylene	1.09	0.0200	1.000	0	109	72.7	124				
Surr: Dibromofluoromethane	1.29		1.250		103	56.5	129				
Surr: Toluene-d8	1.25		1.250		100	64.5	151				
Surr: 1-Bromo-4-fluorobenzene	1.27		1.250		101	63.1	141				

Sample ID **LCSD-15704** SampType: **LCSD** Units: **mg/Kg** Prep Date: **12/15/2016** RunNo: **33447**
Client ID: **LCSS02** Batch ID: **15704** Analysis Date: **12/15/2016** SeqNo: **634584**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	1.06	0.0200	1.000	0	106	74.6	124	1.063	0.398	20	
Toluene	1.07	0.0200	1.000	0	107	67.3	138	1.072	0.612	20	
Ethylbenzene	1.10	0.0300	1.000	0	110	74	129	1.108	0.889	20	
m,p-Xylene	2.18	0.0200	2.000	0	109	70	124	2.176	0.168	20	
o-Xylene	1.09	0.0200	1.000	0	109	72.7	124	1.095	0.745	20	
Surr: Dibromofluoromethane	1.28		1.250		103	56.5	129		0		
Surr: Toluene-d8	1.25		1.250		100	64.5	151		0		
Surr: 1-Bromo-4-fluorobenzene	1.27		1.250		101	63.1	141		0		

Sample ID **MB-15704** SampType: **MBLK** Units: **mg/Kg** Prep Date: **12/15/2016** RunNo: **33447**
Client ID: **MBLKS** Batch ID: **15704** Analysis Date: **12/15/2016** SeqNo: **634585**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	0.0200									
Toluene	ND	0.0200									
Ethylbenzene	ND	0.0300									
m,p-Xylene	ND	0.0200									

Work Order: 1612168
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-15704** SampType: **MBLK** Units: **mg/Kg** Prep Date: **12/15/2016** RunNo: **33447**
Client ID: **MBLKS** Batch ID: **15704** Analysis Date: **12/15/2016** SeqNo: **634585**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
o-Xylene	ND	0.0200									
Surr: Dibromofluoromethane	1.27		1.250		101	56.5	129				
Surr: Toluene-d8	1.19		1.250		95.6	64.5	151				
Surr: 1-Bromo-4-fluorobenzene	1.19		1.250		95.2	63.1	141				

Sample Log-In Check List

Client Name:	**GEI**	Work Order Number:	**1612168**
Logged by:	**Erica Silva**	Date Received:	**12/15/2016 12:20:00 PM**

Chain of Custody

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

Log In

3.	Coolers are present?	Yes ☐	No ☑	NA ☐
	Sample received straight from field			
4.	Shipping container/cooler in good condition?	Yes ☑	No ☐	
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes ☐	No ☐	Not Required ☑
6.	Was an attempt made to cool the samples?	Yes ☐	No ☐	NA ☑
7.	Were all items received at a temperature of >0°C to 10.0°C*	Yes ☐	No ☐	NA ☑
8.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
9.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
10.	Are samples properly preserved?	Yes ☑	No ☐	
11.	Was preservative added to bottles?	Yes ☑	No ☐	NA ☐ MeOH to 001B
12.	Is there headspace in the VOA vials?	Yes ☐	No ☐	NA ☑
13.	Did all samples containers arrive in good condition(unbroken)?	Yes ☑	No ☐	
14.	Does paperwork match bottle labels?	Yes ☑	No ☐	
15.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
16.	Is it clear what analyses were requested?	Yes ☑	No ☐	
17.	Were all holding times able to be met?	Yes ☑	No ☐	

Special Handling (if applicable)

18.	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: _____

19. Additional remarks:

Item Information

Item #	Temp ºC
Sample	11.3

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Chain of Custody Record and Laboratory Services Agreement

Fremont Analytical
3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 12/15/16

Laboratory Project No (internal): 1612468

Page: 1 of: 1

Client: GeoEngineers
Address: 1600 Stewart St, Suite 1700
City, State, Zip: Seattle, WA
Telephone: _____ Fax: _____

Project Name: Rufus Block 20
Project No: 20434-001-24 Collected by: Sydney Bronson
Location: Seattle, WA
Report To (PM): Chris Braun
PM Email: Cbraun@geoengineers.com

*Matrix Codes: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM / 625)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8) Total (T) / Dissolved (D)	Anions (IC)***	EDB (8011)	cPAHs	Pb		Comments
1 VST-2-Product	12/15/16	0850	P		X				X				X			X	X		UST Product Sample w/ minimal soil
2																			
3																			
4																			
5																			
6																			
7																			
8																			
9																			
10																			

**Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL *Individual:* Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☒ Disposal by Lab (Samples will be held for 30 days unless otherwise noted. A fee may be assessed if samples are retained after 30 days.)

Turn-around times for samples received after 4:00pm will begin on the following business day.

Special Remarks:

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above, that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x Sydney	12/15/16 1220	x	12/15/16 1220
Relinquished	Date/Time	Received	Date/Time
x		x	

TAT → SameDay^ NextDay^ 2 Day 3 Day STD

^Please coordinate with the lab in advance

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

GeoEngineers
Chris Brown
600 Stewart Street, Suite 1700
Seattle, WA 98101

RE: Rufus Block 20
Work Order Number: 1612190

December 20, 2016

Attention Chris Brown:

Fremont Analytical, Inc. received 16 sample(s) on 12/16/2016 for the analyses presented in the following report.

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)
Sample Moisture (Percent Moisture)
Total Metals by EPA Method 6020

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Mike Ridgeway
Laboratory Director

CC:
Sydney Bronson

Date: *12/20/2016*

CLIENT: GeoEngineers
Project: Rufus Block 20
Work Order: 1612190

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1612190-001	W14S9-10.0	12/16/2016 3:20 PM	12/16/2016 4:45 PM
1612190-002	W3S5-10.0	12/16/2016 3:25 PM	12/16/2016 4:45 PM
1612190-003	W17S6-5.0	12/16/2016 3:30 PM	12/16/2016 4:45 PM
1612190-004	W17S9-5.0	12/16/2016 3:35 PM	12/16/2016 4:45 PM
1612190-005	W17S12-5.0	12/16/2016 3:40 PM	12/16/2016 4:45 PM
1612190-006	W17S15-5.0	12/16/2016 3:45 PM	12/16/2016 4:45 PM
1612190-007	W17S18-5.0	12/16/2016 3:50 PM	12/16/2016 4:45 PM
1612190-008	W17S21-5.0	12/16/2016 3:55 PM	12/16/2016 4:45 PM
1612190-009	W17S24-5.0	12/16/2016 4:00 PM	12/16/2016 4:45 PM
1612190-010	W17S27-5.0	12/16/2016 4:05 PM	12/16/2016 4:45 PM
1612190-011	W17S30-5.0	12/16/2016 4:10 PM	12/16/2016 4:45 PM
1612190-012	W17S33-5.0	12/16/2016 4:15 PM	12/16/2016 4:45 PM
1612190-013	W17S36-5.0	12/16/2016 4:20 PM	12/16/2016 4:45 PM
1612190-014	W17S39-5.0	12/16/2016 4:25 PM	12/16/2016 4:45 PM
1612190-015	W17S42-5.0	12/16/2016 3:15 PM	12/16/2016 4:45 PM
1612190-016	W17S45-5.0	12/16/2016 3:10 PM	12/16/2016 4:45 PM

Case Narrative

WO#: **1612190**
Date: **12/20/2016**

CLIENT: GeoEngineers
Project: Rufus Block 20

I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Analytical Report

Work Order: **1612190**
Date Reported: **12/20/2016**

Client: GeoEngineers
Collection Date: 12/16/2016 3:20:00 PM
Project: Rufus Block 20
Lab ID: 1612190-001
Matrix: Soil
Client Sample ID: **W14S9-10.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 15718		Analyst: BT
Benz(a)anthracene	ND	54.0		µg/Kg-dry	1	12/19/2016 8:07:55 PM
Chrysene	ND	54.0		µg/Kg-dry	1	12/19/2016 8:07:55 PM
Benzo(b)fluoranthene	ND	54.0		µg/Kg-dry	1	12/19/2016 8:07:55 PM
Benzo(k)fluoranthene	ND	54.0		µg/Kg-dry	1	12/19/2016 8:07:55 PM
Benzo(a)pyrene	ND	54.0		µg/Kg-dry	1	12/19/2016 8:07:55 PM
Indeno(1,2,3-cd)pyrene	ND	54.0		µg/Kg-dry	1	12/19/2016 8:07:55 PM
Dibenz(a,h)anthracene	ND	54.0		µg/Kg-dry	1	12/19/2016 8:07:55 PM
Surr: 2-Fluorobiphenyl	92.9	24.5-139		%Rec	1	12/19/2016 8:07:55 PM
Surr: Terphenyl-d14 (surr)	96.4	44.3-176		%Rec	1	12/19/2016 8:07:55 PM
Total Metals by EPA Method 6020				Batch ID: 15714		Analyst: TN
Cadmium	ND	0.215		mg/Kg-dry	1	12/19/2016 2:30:18 PM
Sample Moisture (Percent Moisture)				Batch ID: R33468		Analyst: BB
Percent Moisture	28.0	0.500		wt%	1	12/19/2016 10:01:37 AM

Analytical Report

Work Order: **1612190**
Date Reported: **12/20/2016**

Client: GeoEngineers
Collection Date: 12/16/2016 3:25:00 PM
Project: Rufus Block 20
Lab ID: 1612190-002
Matrix: Soil
Client Sample ID: **W3S5-10.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 15718		Analyst: BT
Benz(a)anthracene	ND	46.7		µg/Kg-dry	1	12/19/2016 8:29:10 PM
Chrysene	ND	46.7		µg/Kg-dry	1	12/19/2016 8:29:10 PM
Benzo(b)fluoranthene	ND	46.7		µg/Kg-dry	1	12/19/2016 8:29:10 PM
Benzo(k)fluoranthene	ND	46.7		µg/Kg-dry	1	12/19/2016 8:29:10 PM
Benzo(a)pyrene	ND	46.7		µg/Kg-dry	1	12/19/2016 8:29:10 PM
Indeno(1,2,3-cd)pyrene	ND	46.7		µg/Kg-dry	1	12/19/2016 8:29:10 PM
Dibenz(a,h)anthracene	ND	46.7		µg/Kg-dry	1	12/19/2016 8:29:10 PM
Surr: 2-Fluorobiphenyl	79.3	24.5-139		%Rec	1	12/19/2016 8:29:10 PM
Surr: Terphenyl-d14 (surr)	85.8	44.3-176		%Rec	1	12/19/2016 8:29:10 PM
Total Metals by EPA Method 6020				Batch ID: 15714		Analyst: TN
Lead	7.11	0.204		mg/Kg-dry	1	12/19/2016 2:33:54 PM
Sample Moisture (Percent Moisture)				Batch ID: R33468		Analyst: BB
Percent Moisture	26.9	0.500		wt%	1	12/19/2016 10:01:37 AM

Work Order: 1612190
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **MB-15718**	SampType: **MBLK**	Units: **µg/Kg**	Prep Date: **12/19/2016**	RunNo: **33484**
Client ID: **MBLKS**	Batch ID: **15718**		Analysis Date: **12/19/2016**	SeqNo: **635248**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	ND	40.0									
Chrysene	ND	40.0									
Benzo(b)fluoranthene	ND	40.0									
Benzo(k)fluoranthene	ND	40.0									
Benzo(a)pyrene	ND	40.0									
Indeno(1,2,3-cd)pyrene	ND	40.0									
Dibenz(a,h)anthracene	ND	40.0									
Surr: 2-Fluorobiphenyl	536		500.0		107	24.5	139				
Surr: Terphenyl-d14 (surr)	541		500.0		108	44.3	176				

Sample ID **LCS-15718**	SampType: **LCS**	Units: **µg/Kg**	Prep Date: **12/19/2016**	RunNo: **33484**
Client ID: **LCSS**	Batch ID: **15718**		Analysis Date: **12/19/2016**	SeqNo: **635284**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	923	40.0	1,000	0	92.3	41.9	136				
Chrysene	1,080	40.0	1,000	0	108	46.9	138				
Benzo(b)fluoranthene	1,180	40.0	1,000	0	118	35.9	148				
Benzo(k)fluoranthene	1,040	40.0	1,000	0	104	41.8	153				
Benzo(a)pyrene	919	40.0	1,000	0	91.9	36.3	144				
Indeno(1,2,3-cd)pyrene	994	40.0	1,000	0	99.4	16.1	135				
Dibenz(a,h)anthracene	982	40.0	1,000	0	98.2	17.2	136				
Surr: 2-Fluorobiphenyl	526		500.0		105	24.5	139				
Surr: Terphenyl-d14 (surr)	539		500.0		108	44.3	176				

Sample ID **1612190-001ADUP**	SampType: **DUP**	Units: **µg/Kg-dry**	Prep Date: **12/19/2016**	RunNo: **33484**
Client ID: **W14S9-10.0**	Batch ID: **15718**		Analysis Date: **12/19/2016**	SeqNo: **635289**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	ND	54.0						0		30	
Chrysene	90.1	54.0						3.471	185	30	R

Work Order: 1612190
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1612190-001ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **12/19/2016** RunNo: **33484**
Client ID: **W14S9-10.0** Batch ID: **15718** Analysis Date: **12/19/2016** SeqNo: **635289**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzo(b)fluoranthene	ND	54.0						0		30	
Benzo(k)fluoranthene	ND	54.0						0		30	
Benzo(a)pyrene	ND	54.0						0		30	
Indeno(1,2,3-cd)pyrene	ND	54.0						0		30	
Dibenz(a,h)anthracene	ND	54.0						0		30	
Surr: 2-Fluorobiphenyl	670		675.3		99.2	24.5	139		0		
Surr: Terphenyl-d14 (surr)	624		675.3		92.4	44.3	176		0		

NOTES:
R - High RPD observed.

Sample ID **1612190-001AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **12/19/2016** RunNo: **33484**
Client ID: **W14S9-10.0** Batch ID: **15718** Analysis Date: **12/19/2016** SeqNo: **635290**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	945	54.2	1,355	0	69.7	57.5	169				
Chrysene	1,280	54.2	1,355	3.471	93.9	45.2	146				
Benzo(b)fluoranthene	928	54.2	1,355	5.664	68.1	42.2	168				
Benzo(k)fluoranthene	1,080	54.2	1,355	11.12	78.9	48	161				
Benzo(a)pyrene	918	54.2	1,355	6.895	67.3	34.4	179				
Indeno(1,2,3-cd)pyrene	1,070	54.2	1,355	5.166	78.5	5	113				
Dibenz(a,h)anthracene	1,030	54.2	1,355	0	76.2	17.3	156				
Surr: 2-Fluorobiphenyl	570		677.3		84.1	24.5	139				
Surr: Terphenyl-d14 (surr)	613		677.3		90.5	44.3	176				

Sample ID **1612190-001AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **12/19/2016** RunNo: **33484**
Client ID: **W14S9-10.0** Batch ID: **15718** Analysis Date: **12/19/2016** SeqNo: **635291**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	1,130	54.6	1,365	0	82.8	57.5	169	944.6	18.0	30	
Chrysene	1,470	54.6	1,365	3.471	107	45.2	146	1,276	14.1	30	
Benzo(b)fluoranthene	1,080	54.6	1,365	5.664	78.7	42.2	168	928.0	15.1	30	

Work Order: 1612190
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1612190-001AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **12/19/2016** RunNo: **33484**
Client ID: **W14S9-10.0** Batch ID: **15718** Analysis Date: **12/19/2016** SeqNo: **635291**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzo(k)fluoranthene	1,200	54.6	1,365	11.12	87.3	48	161	1,080	10.7	30	
Benzo(a)pyrene	1,060	54.6	1,365	6.895	77.5	34.4	179	918.3	14.8	30	
Indeno(1,2,3-cd)pyrene	1,200	54.6	1,365	5.166	87.3	5	113	1,068	11.3	30	
Dibenz(a,h)anthracene	1,160	54.6	1,365	0	85.2	17.3	156	1,032	11.9	30	
Surr: 2-Fluorobiphenyl	614		682.6		90.0	24.5	139		0		
Surr: Terphenyl-d14 (surr)	652		682.6		95.5	44.3	176		0		

Work Order: 1612190
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Sample Moisture (Percent Moisture)

Sample ID **1612191-002ADUP** SampType: **DUP** Units: **wt%** Prep Date: **12/19/2016** RunNo: **33468**
Client ID: **BATCH** Batch ID: **R33468** Analysis Date: **12/19/2016** SeqNo: **634875**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	7.96	0.500						8.008	0.584	20	

Work Order: 1612190
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID	**MB-15714**	SampType:	**MBLK**			Units:	**mg/Kg**	Prep Date:	**12/19/2016**	RunNo:	**33477**	
Client ID:	**MBLKS**	Batch ID:	**15714**					Analysis Date:	**12/19/2016**	SeqNo:	**635095**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium		ND	0.159									
Lead		ND	0.159									

Sample ID	**LCS-15714**	SampType:	**LCS**			Units:	**mg/Kg**	Prep Date:	**12/19/2016**	RunNo:	**33477**	
Client ID:	**LCSS**	Batch ID:	**15714**					Analysis Date:	**12/19/2016**	SeqNo:	**635096**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium		2.04	0.157	1.969	0	103	80	120				
Lead		20.8	0.157	19.69	0	106	80	120				

Sample ID	**1612102-001ADUP**	SampType:	**DUP**			Units:	**mg/Kg-dry**	Prep Date:	**12/19/2016**	RunNo:	**33477**	
Client ID:	**BATCH**	Batch ID:	**15714**					Analysis Date:	**12/19/2016**	SeqNo:	**635098**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium		ND	0.212						0		20	
Lead		18.9	0.212						16.53	13.6	20	

Sample ID	**1612102-001AMS**	SampType:	**MS**			Units:	**mg/Kg-dry**	Prep Date:	**12/19/2016**	RunNo:	**33477**	
Client ID:	**BATCH**	Batch ID:	**15714**					Analysis Date:	**12/19/2016**	SeqNo:	**635100**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium		2.79	0.212	2.651	0.06623	103	75	125				
Lead		45.2	0.212	26.51	16.53	108	75	125				

Sample ID	**1612102-001AMSD**	SampType:	**MSD**			Units:	**mg/Kg-dry**	Prep Date:	**12/19/2016**	RunNo:	**33477**	
Client ID:	**BATCH**	Batch ID:	**15714**					Analysis Date:	**12/19/2016**	SeqNo:	**635101**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium		2.80	0.210	2.631	0.06623	104	75	125	2.789	0.289	20	

Work Order: 1612190
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID	**1612102-001AMSD**	SampType: **MSD**			Units: **mg/Kg-dry**		Prep Date: **12/19/2016**		RunNo: **33477**		
Client ID:	**BATCH**	Batch ID: **15714**					Analysis Date: **12/19/2016**		SeqNo: **635101**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	46.2	0.210	26.31	16.53	113	75	125	45.20	2.25	20	

Sample Log-In Check List

Client Name:	**GEI**	Work Order Number:	**1612190**
Logged by:	**Clare Griggs**	Date Received:	**12/16/2016 4:45:00 PM**

Chain of Custody

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

Log In

3.	Coolers are present?	Yes	☑	No ☐	NA	☐
4.	Shipping container/cooler in good condition?	Yes	☑	No ☐		
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes	☐	No ☐	Not Required	☑
6.	Was an attempt made to cool the samples?	Yes	☑	No ☐	NA	☐
7.	Were all items received at a temperature of >0°C to 10.0°C*	Yes	☑	No ☐	NA	☐
8.	Sample(s) in proper container(s)?	Yes	☑	No ☐		
9.	Sufficient sample volume for indicated test(s)?	Yes	☑	No ☐		
10.	Are samples properly preserved?	Yes	☑	No ☐		
11.	Was preservative added to bottles?	Yes	☐	No ☑	NA	☐
12.	Is there headspace in the VOA vials?	Yes	☐	No ☐	NA	☑
13.	Did all samples containers arrive in good condition(unbroken)?	Yes	☑	No ☐		
14.	Does paperwork match bottle labels?	Yes	☑	No ☐		
15.	Are matrices correctly identified on Chain of Custody?	Yes	☑	No ☐		
16.	Is it clear what analyses were requested?	Yes	☑	No ☐		
17.	Were all holding times able to be met?	Yes	☑	No ☐		

Special Handling (if applicable)

18.	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: _____

19. Additional remarks:

Item Information

Item #	Temp ºC
Cooler	2.6
Sample	4.6

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Chain of Custody Record and Laboratory Services Agreement

Fremont Analytical

3600 Fremont Ave N. Tel: 206-352-3790
Seattle, WA 98103 Fax: 206-352-7178

Date: 12/16/16 Laboratory Project No (internal): 1612790

Page: 1 of: 2

Client: GeoEngineers
Address: 1000 Stewart St, Suite 1700
City, State, Zip: Seattle, WA
Telephone: Fax:

Project Name: Rufus Block 20
Project No: 20434-001-24 Collected by: Sydney Bronson
Location: Seattle, WA
Report To (PM): Chris Brown
PM Email: CBrown@geoengineers.com

*Matrix Codes: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM / 625)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8) Total (T) / Dissolved (D)	Anions (IC)***	EDB (8011)	cPAHs	Hold	# Containers	Comments
1	W1459-10.0	12/14/16	1520	S										X			X		1	Metals → Cd only, Standard TAT
2	W355-10.0		1525											X			X			Metals → Pb only, Next Day TAT
3	W1796-5.0		1530															X		
4	W1799-5.0		1535															X		
5	W17912-5.0		1540															X		
6	W17915-5.0		1545															X		
7	W17918-5.0		1550															X		
8	W17921-5.0		1555															X		
9	W17924-5.0		1600															X		
10	W17927-5.0	↓	1605	↓														X	↓	

**Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL *Individual:* Ag Al As B Ba Be Ca (Cd) Co Cr Cu Fe Hg K Mg Mn Mo Na Ni (Pb) Sb Se Sr Sn Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☒ Disposal by Lab (Samples will be held for 30 days unless otherwise noted. A fee may be assessed if samples are retained after 30 days.)

Turn-around times for samples received after 4:00pm will begin on the following business day.

Special Remarks: Chris Brown to contact w/ request for analyses

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above, that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x Sydney	12/16/16 1645	x	12/16/16 1645
Relinquished	Date/Time	Received	Date/Time
x		x	

TAT → SameDay^ NextDay^ 2 Day 3 Day STD

^Please coordinate with the lab in advance

Chain of Custody Record and Laboratory Services Agreement

Fremont Analytical
3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 12/16/16
Laboratory Project No (internal):
Page: 2 of: 2

Client: GeoEngineers
Address: 1600 Stewart St, Suite 1700
City, State, Zip: Seattle, WA
Telephone: Fax:

Project Name: Rufus Block 70
Project No: 20434-001-24 Collected by: Sydney Branson
Location: Seattle, WA
Report To (PM): Chris Brown
PM Email: cbrown@geoengineers.com

*Matrix Codes: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM / 625)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8) Total (T) | Dissolved (D)	Anions (IC)***	EDB (8011)	Hold		# containers	Comments
1	W17S30-5.0	12/16/16	1610	S													X			1
2	W17S33-5.0		1615														X			
3	W17S36-5.0		1620														X			
4	W17S39-5.0		1625														X			
5	W17S42-5.0		1515														X			
6	W17S45-5.0		1510														X			
7																				
8																				
9																				
10																				

**Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL *Individual:* Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☒ Disposal by Lab (Samples will be held for 30 days unless otherwise noted. A fee may be assessed if samples are retained after 30 days.)

Turn-around times for samples received after 4:00pm will begin on the following business day.

Special Remarks: Chris Brown to contact w/ request for analyses

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above, that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x [signature]	12/16/16 1645	x [signature]	12/16/16 1645
Relinquished	Date/Time	Received	Date/Time
x		x	

TAT → SameDay^ NextDay^ 2 Day 3 Day STD

^Please coordinate with the lab in advance

Distribution: White - Lab, Yellow - File, Pink - Originator

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

GeoEngineers
Chris Brown
600 Stewart Street, Suite 1700
Seattle, WA 98101

RE: Rufus Block 20
Work Order Number: 1612212

December 22, 2016

Attention Chris Brown:

Fremont Analytical, Inc. received 7 sample(s) on 12/20/2016 for the analyses presented in the following report.

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)
Sample Moisture (Percent Moisture)
Total Metals by EPA Method 6020
Volatile Organic Compounds by EPA Method 8260C

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Mike Ridgeway
Laboratory Director

Date: *12/22/2016*

CLIENT: GeoEngineers
Project: Rufus Block 20
Work Order: 1612212

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1612212-001	W10S28-13.0	12/19/2016 1:40 PM	12/20/2016 5:25 PM
1612212-002	W14S28-13.0	12/19/2016 1:45 PM	12/20/2016 5:25 PM
1612212-003	W12S24-13.0	12/19/2016 1:50 PM	12/20/2016 5:25 PM
1612212-004	W12S28-14.0	12/20/2016 7:15 AM	12/20/2016 5:25 PM
1612212-005	W13S30-13.0	12/20/2016 9:00 AM	12/20/2016 5:25 PM
1612212-006	W13S29-17.0	12/20/2016 9:15 AM	12/20/2016 5:25 PM
1612212-007	W12S28-17.0	12/20/2016 9:30 AM	12/20/2016 5:25 PM

Case Narrative

WO#: **1612212**
Date: **12/22/2016**

CLIENT: GeoEngineers
Project: Rufus Block 20

I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Analytical Report

Work Order: **1612212**

Date Reported: **12/22/2016**

Client: GeoEngineers **Collection Date:** 12/19/2016 1:40:00 PM

Project: Rufus Block 20

Lab ID: 1612212-001 **Matrix:** Soil

Client Sample ID: W10S28-13.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 15737		Analyst: WC
Diesel (Fuel Oil)	ND	22.8		mg/Kg-dry	1	12/21/2016 5:03:02 PM
Heavy Oil	ND	57.0		mg/Kg-dry	1	12/21/2016 5:03:02 PM
Surr: 2-Fluorobiphenyl	74.1	50-150		%Rec	1	12/21/2016 5:03:02 PM
Surr: o-Terphenyl	77.5	50-150		%Rec	1	12/21/2016 5:03:02 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 15735		Analyst: BT
Benz(a)anthracene	ND	46.9		µg/Kg-dry	1	12/21/2016 5:23:01 PM
Chrysene	ND	46.9		µg/Kg-dry	1	12/21/2016 5:23:01 PM
Benzo(b)fluoranthene	ND	46.9		µg/Kg-dry	1	12/21/2016 5:23:01 PM
Benzo(k)fluoranthene	ND	46.9		µg/Kg-dry	1	12/21/2016 5:23:01 PM
Benzo(a)pyrene	ND	46.9		µg/Kg-dry	1	12/21/2016 5:23:01 PM
Indeno(1,2,3-cd)pyrene	ND	46.9		µg/Kg-dry	1	12/21/2016 5:23:01 PM
Dibenz(a,h)anthracene	ND	46.9		µg/Kg-dry	1	12/21/2016 5:23:01 PM
Surr: 2-Fluorobiphenyl	47.3	24.5-139		%Rec	1	12/21/2016 5:23:01 PM
Surr: Terphenyl-d14 (surr)	64.9	44.3-176		%Rec	1	12/21/2016 5:23:01 PM
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15736		Analyst: NG
Benzene	ND	0.0208		mg/Kg-dry	1	12/21/2016 4:55:40 PM
Toluene	ND	0.0208		mg/Kg-dry	1	12/21/2016 4:55:40 PM
Ethylbenzene	ND	0.0313		mg/Kg-dry	1	12/21/2016 4:55:40 PM
m,p-Xylene	ND	0.0208		mg/Kg-dry	1	12/21/2016 4:55:40 PM
o-Xylene	ND	0.0208		mg/Kg-dry	1	12/21/2016 4:55:40 PM
Surr: Dibromofluoromethane	98.3	56.5-129		%Rec	1	12/21/2016 4:55:40 PM
Surr: Toluene-d8	98.4	64.5-151		%Rec	1	12/21/2016 4:55:40 PM
Surr: 1-Bromo-4-fluorobenzene	93.0	63.1-141		%Rec	1	12/21/2016 4:55:40 PM
Total Metals by EPA Method 6020				Batch ID: 15739		Analyst: TN
Lead	4.05	0.190		mg/Kg-dry	1	12/21/2016 4:26:31 PM
Sample Moisture (Percent Moisture)				Batch ID: R33522		Analyst: BB
Percent Moisture	18.6	0.500		wt%	1	12/21/2016 11:41:40 AM

Analytical Report

Work Order: **1612212**

Date Reported: **12/22/2016**

Client: GeoEngineers **Collection Date:** 12/19/2016 1:45:00 PM

Project: Rufus Block 20

Lab ID: 1612212-002 **Matrix:** Soil

Client Sample ID: W14S28-13.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 15737		Analyst: WC
Diesel (Fuel Oil)	ND	24.2		mg/Kg-dry	1	12/21/2016 2:58:41 PM
Heavy Oil	ND	60.5		mg/Kg-dry	1	12/21/2016 2:58:41 PM
Surr: 2-Fluorobiphenyl	75.0	50-150		%Rec	1	12/21/2016 2:58:41 PM
Surr: o-Terphenyl	71.1	50-150		%Rec	1	12/21/2016 2:58:41 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 15735		Analyst: BT
Benz(a)anthracene	ND	48.6		µg/Kg-dry	1	12/21/2016 9:59:21 PM
Chrysene	ND	48.6		µg/Kg-dry	1	12/21/2016 9:59:21 PM
Benzo(b)fluoranthene	ND	48.6		µg/Kg-dry	1	12/21/2016 9:59:21 PM
Benzo(k)fluoranthene	ND	48.6		µg/Kg-dry	1	12/21/2016 9:59:21 PM
Benzo(a)pyrene	ND	48.6		µg/Kg-dry	1	12/21/2016 9:59:21 PM
Indeno(1,2,3-cd)pyrene	ND	48.6		µg/Kg-dry	1	12/21/2016 9:59:21 PM
Dibenz(a,h)anthracene	ND	48.6		µg/Kg-dry	1	12/21/2016 9:59:21 PM
Surr: 2-Fluorobiphenyl	31.0	24.5-139		%Rec	1	12/21/2016 9:59:21 PM
Surr: Terphenyl-d14 (surr)	46.0	44.3-176		%Rec	1	12/21/2016 9:59:21 PM
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15736		Analyst: NG
Benzene	ND	0.0221		mg/Kg-dry	1	12/21/2016 5:26:32 PM
Toluene	ND	0.0221		mg/Kg-dry	1	12/21/2016 5:26:32 PM
Ethylbenzene	ND	0.0332		mg/Kg-dry	1	12/21/2016 5:26:32 PM
m,p-Xylene	ND	0.0221		mg/Kg-dry	1	12/21/2016 5:26:32 PM
o-Xylene	ND	0.0221		mg/Kg-dry	1	12/21/2016 5:26:32 PM
Surr: Dibromofluoromethane	97.7	56.5-129		%Rec	1	12/21/2016 5:26:32 PM
Surr: Toluene-d8	97.2	64.5-151		%Rec	1	12/21/2016 5:26:32 PM
Surr: 1-Bromo-4-fluorobenzene	94.0	63.1-141		%Rec	1	12/21/2016 5:26:32 PM
Total Metals by EPA Method 6020				Batch ID: 15739		Analyst: TN
Lead	2.94	0.206		mg/Kg-dry	1	12/21/2016 4:30:06 PM
Sample Moisture (Percent Moisture)				Batch ID: R33522		Analyst: BB
Percent Moisture	22.8	0.500		wt%	1	12/21/2016 11:41:40 AM

Analytical Report

Work Order: **1612212**

Date Reported: **12/22/2016**

Client: GeoEngineers
Collection Date: 12/19/2016 1:50:00 PM
Project: Rufus Block 20
Lab ID: 1612212-003
Matrix: Soil
Client Sample ID: **W12S24-13.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 15737		Analyst: WC
Diesel (Fuel Oil)	ND	25.4		mg/Kg-dry	1	12/21/2016 5:34:01 PM
Heavy Oil	ND	63.5		mg/Kg-dry	1	12/21/2016 5:34:01 PM
Surr: 2-Fluorobiphenyl	75.5	50-150		%Rec	1	12/21/2016 5:34:01 PM
Surr: o-Terphenyl	74.8	50-150		%Rec	1	12/21/2016 5:34:01 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 15735		Analyst: BT
Benz(a)anthracene	ND	49.1		µg/Kg-dry	1	12/21/2016 10:20:30 PM
Chrysene	ND	49.1		µg/Kg-dry	1	12/21/2016 10:20:30 PM
Benzo(b)fluoranthene	ND	49.1		µg/Kg-dry	1	12/21/2016 10:20:30 PM
Benzo(k)fluoranthene	ND	49.1		µg/Kg-dry	1	12/21/2016 10:20:30 PM
Benzo(a)pyrene	ND	49.1		µg/Kg-dry	1	12/21/2016 10:20:30 PM
Indeno(1,2,3-cd)pyrene	ND	49.1		µg/Kg-dry	1	12/21/2016 10:20:30 PM
Dibenz(a,h)anthracene	ND	49.1		µg/Kg-dry	1	12/21/2016 10:20:30 PM
Surr: 2-Fluorobiphenyl	50.7	24.5-139		%Rec	1	12/21/2016 10:20:30 PM
Surr: Terphenyl-d14 (surr)	54.1	44.3-176		%Rec	1	12/21/2016 10:20:30 PM
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15736		Analyst: NG
Benzene	ND	0.0252		mg/Kg-dry	1	12/21/2016 5:57:23 PM
Toluene	ND	0.0252		mg/Kg-dry	1	12/21/2016 5:57:23 PM
Ethylbenzene	ND	0.0377		mg/Kg-dry	1	12/21/2016 5:57:23 PM
m,p-Xylene	ND	0.0252		mg/Kg-dry	1	12/21/2016 5:57:23 PM
o-Xylene	ND	0.0252		mg/Kg-dry	1	12/21/2016 5:57:23 PM
Surr: Dibromofluoromethane	99.1	56.5-129		%Rec	1	12/21/2016 5:57:23 PM
Surr: Toluene-d8	99.8	64.5-151		%Rec	1	12/21/2016 5:57:23 PM
Surr: 1-Bromo-4-fluorobenzene	93.9	63.1-141		%Rec	1	12/21/2016 5:57:23 PM
Total Metals by EPA Method 6020				Batch ID: 15739		Analyst: TN
Lead	5.21	0.191		mg/Kg-dry	1	12/21/2016 4:33:42 PM
Sample Moisture (Percent Moisture)				Batch ID: R33522		Analyst: BB
Percent Moisture	21.9	0.500		wt%	1	12/21/2016 11:41:40 AM

Analytical Report

Work Order: **1612212**
Date Reported: **12/22/2016**

Client: GeoEngineers
Collection Date: 12/20/2016 7:15:00 AM
Project: Rufus Block 20
Lab ID: 1612212-004
Matrix: Soil
Client Sample ID: **W12S28-14.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 15737		Analyst: WC
Diesel (Fuel Oil)	11,800	206	D	mg/Kg-dry	10	12/22/2016 8:41:24 AM
Heavy Oil	8,180	516	D	mg/Kg-dry	10	12/22/2016 8:41:24 AM
Surr: 2-Fluorobiphenyl	357	50-150	S	%Rec	1	12/21/2016 6:05:03 PM
Surr: o-Terphenyl	174	50-150	S	%Rec	1	12/21/2016 6:05:03 PM

NOTES:
S - Outlying surrogate recovery attributed to TPH interference. The method is in control as indicated by the Method Blank (MB) & Laboratory Control Sample (LCS).
E - Estimated value. The amount exceeds the linear working range of the instrument.

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 15735		Analyst: BT
Benz(a)anthracene	ND	959	D	µg/Kg-dry	20	12/21/2016 10:41:43 PM
Chrysene	1,900	959	D	µg/Kg-dry	20	12/21/2016 10:41:43 PM
Benzo(b)fluoranthene	ND	959	D	µg/Kg-dry	20	12/21/2016 10:41:43 PM
Benzo(k)fluoranthene	ND	959	D	µg/Kg-dry	20	12/21/2016 10:41:43 PM
Benzo(a)pyrene	ND	959	D	µg/Kg-dry	20	12/21/2016 10:41:43 PM
Indeno(1,2,3-cd)pyrene	175	959	JD	µg/Kg-dry	20	12/21/2016 10:41:43 PM
Dibenz(a,h)anthracene	ND	959	D	µg/Kg-dry	20	12/21/2016 10:41:43 PM
Surr: 2-Fluorobiphenyl	83.8	24.5-139	D	%Rec	20	12/21/2016 10:41:43 PM
Surr: Terphenyl-d14 (surr)	80.6	44.3-176	D	%Rec	20	12/21/2016 10:41:43 PM

NOTES:
Diluted due to matrix.

Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15736		Analyst: NG
Benzene	ND	0.0189		mg/Kg-dry	1	12/21/2016 7:29:43 PM
Toluene	ND	0.0189		mg/Kg-dry	1	12/21/2016 7:29:43 PM
Ethylbenzene	ND	0.0283		mg/Kg-dry	1	12/21/2016 7:29:43 PM
m,p-Xylene	0.437	0.0189		mg/Kg-dry	1	12/21/2016 7:29:43 PM
o-Xylene	0.418	0.0189		mg/Kg-dry	1	12/21/2016 7:29:43 PM
Surr: Dibromofluoromethane	103	56.5-129		%Rec	1	12/21/2016 7:29:43 PM
Surr: Toluene-d8	113	64.5-151		%Rec	1	12/21/2016 7:29:43 PM
Surr: 1-Bromo-4-fluorobenzene	108	63.1-141		%Rec	1	12/21/2016 7:29:43 PM

Total Metals by EPA Method 6020				Batch ID: 15739		Analyst: TN
Lead	3.16	0.189		mg/Kg-dry	1	12/21/2016 4:37:18 PM

Analytical Report

Work Order: **1612212**

Date Reported: **12/22/2016**

Client: GeoEngineers **Collection Date:** 12/20/2016 7:15:00 AM

Project: Rufus Block 20

Lab ID: 1612212-004 **Matrix:** Soil

Client Sample ID: W12S28-14.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R33522		Analyst: BB
Percent Moisture	17.4	0.500		wt%	1	12/21/2016 11:41:40 AM

Analytical Report

Work Order: **1612212**

Date Reported: **12/22/2016**

Client: GeoEngineers
Collection Date: 12/20/2016 9:00:00 AM
Project: Rufus Block 20
Lab ID: 1612212-005
Matrix: Soil
Client Sample ID: **W13S30-13.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 15737		Analyst: WC
Diesel (Fuel Oil)	ND	25.5		mg/Kg-dry	1	12/21/2016 6:36:05 PM
Heavy Oil	95.9	63.8		mg/Kg-dry	1	12/21/2016 6:36:05 PM
Surr: 2-Fluorobiphenyl	74.0	50-150		%Rec	1	12/21/2016 6:36:05 PM
Surr: o-Terphenyl	72.1	50-150		%Rec	1	12/21/2016 6:36:05 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 15735		Analyst: BT
Benz(a)anthracene	ND	47.6		µg/Kg-dry	1	12/21/2016 11:23:57 PM
Chrysene	ND	47.6		µg/Kg-dry	1	12/21/2016 11:23:57 PM
Benzo(b)fluoranthene	ND	47.6		µg/Kg-dry	1	12/21/2016 11:23:57 PM
Benzo(k)fluoranthene	ND	47.6		µg/Kg-dry	1	12/21/2016 11:23:57 PM
Benzo(a)pyrene	ND	47.6		µg/Kg-dry	1	12/21/2016 11:23:57 PM
Indeno(1,2,3-cd)pyrene	ND	47.6		µg/Kg-dry	1	12/21/2016 11:23:57 PM
Dibenz(a,h)anthracene	ND	47.6		µg/Kg-dry	1	12/21/2016 11:23:57 PM
Surr: 2-Fluorobiphenyl	50.3	24.5-139		%Rec	1	12/21/2016 11:23:57 PM
Surr: Terphenyl-d14 (surr)	59.9	44.3-176		%Rec	1	12/21/2016 11:23:57 PM
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15736		Analyst: NG
Benzene	ND	0.0232		mg/Kg-dry	1	12/21/2016 6:28:10 PM
Toluene	ND	0.0232		mg/Kg-dry	1	12/21/2016 6:28:10 PM
Ethylbenzene	ND	0.0349		mg/Kg-dry	1	12/21/2016 6:28:10 PM
m,p-Xylene	ND	0.0232		mg/Kg-dry	1	12/21/2016 6:28:10 PM
o-Xylene	ND	0.0232		mg/Kg-dry	1	12/21/2016 6:28:10 PM
Surr: Dibromofluoromethane	101	56.5-129		%Rec	1	12/21/2016 6:28:10 PM
Surr: Toluene-d8	96.6	64.5-151		%Rec	1	12/21/2016 6:28:10 PM
Surr: 1-Bromo-4-fluorobenzene	94.1	63.1-141		%Rec	1	12/21/2016 6:28:10 PM
Total Metals by EPA Method 6020				Batch ID: 15739		Analyst: TN
Lead	8.02	0.196		mg/Kg-dry	1	12/21/2016 4:40:54 PM
Sample Moisture (Percent Moisture)				Batch ID: R33522		Analyst: BB
Percent Moisture	24.5	0.500		wt%	1	12/21/2016 11:41:40 AM

Analytical Report

Work Order: **1612212**
Date Reported: **12/22/2016**

Client: GeoEngineers
Collection Date: 12/20/2016 9:15:00 AM
Project: Rufus Block 20
Lab ID: 1612212-006
Matrix: Soil
Client Sample ID: **W13S29-17.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 15737		Analyst: WC
Diesel (Fuel Oil)	ND	23.0		mg/Kg-dry	1	12/21/2016 8:09:01 PM
Heavy Oil	ND	57.6		mg/Kg-dry	1	12/21/2016 8:09:01 PM
Surr: 2-Fluorobiphenyl	66.7	50-150		%Rec	1	12/21/2016 8:09:01 PM
Surr: o-Terphenyl	60.3	50-150		%Rec	1	12/21/2016 8:09:01 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 15735		Analyst: BT
Benz(a)anthracene	ND	46.3		µg/Kg-dry	1	12/21/2016 4:40:13 PM
Chrysene	ND	46.3		µg/Kg-dry	1	12/21/2016 4:40:13 PM
Benzo(b)fluoranthene	ND	46.3		µg/Kg-dry	1	12/21/2016 4:40:13 PM
Benzo(k)fluoranthene	ND	46.3		µg/Kg-dry	1	12/21/2016 4:40:13 PM
Benzo(a)pyrene	ND	46.3		µg/Kg-dry	1	12/21/2016 4:40:13 PM
Indeno(1,2,3-cd)pyrene	ND	46.3		µg/Kg-dry	1	12/21/2016 4:40:13 PM
Dibenz(a,h)anthracene	ND	46.3		µg/Kg-dry	1	12/21/2016 4:40:13 PM
Surr: 2-Fluorobiphenyl	56.4	24.5-139		%Rec	1	12/21/2016 4:40:13 PM
Surr: Terphenyl-d14 (surr)	67.0	44.3-176		%Rec	1	12/21/2016 4:40:13 PM
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15736		Analyst: NG
Benzene	ND	0.0234		mg/Kg-dry	1	12/21/2016 12:48:07 PM
Toluene	ND	0.0234		mg/Kg-dry	1	12/21/2016 12:48:07 PM
Ethylbenzene	ND	0.0351		mg/Kg-dry	1	12/21/2016 12:48:07 PM
m,p-Xylene	ND	0.0234		mg/Kg-dry	1	12/21/2016 12:48:07 PM
o-Xylene	ND	0.0234		mg/Kg-dry	1	12/21/2016 12:48:07 PM
Surr: Dibromofluoromethane	98.4	56.5-129		%Rec	1	12/21/2016 12:48:07 PM
Surr: Toluene-d8	97.6	64.5-151		%Rec	1	12/21/2016 12:48:07 PM
Surr: 1-Bromo-4-fluorobenzene	93.8	63.1-141		%Rec	1	12/21/2016 12:48:07 PM
Total Metals by EPA Method 6020				Batch ID: 15739		Analyst: TN
Lead	4.47	0.188		mg/Kg-dry	1	12/21/2016 3:50:30 PM
Sample Moisture (Percent Moisture)				Batch ID: R33522		Analyst: BB
Percent Moisture	21.9	0.500		wt%	1	12/21/2016 11:41:40 AM

Analytical Report

Work Order: **1612212**

Date Reported: **12/22/2016**

Client: GeoEngineers
Collection Date: 12/20/2016 9:30:00 AM
Project: Rufus Block 20
Lab ID: 1612212-007
Matrix: Soil
Client Sample ID: **W12S28-17.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 15737		Analyst: WC
Diesel (Fuel Oil)	ND	22.7		mg/Kg-dry	1	12/21/2016 8:39:52 PM
Heavy Oil	ND	56.9		mg/Kg-dry	1	12/21/2016 8:39:52 PM
Surr: 2-Fluorobiphenyl	80.9	50-150		%Rec	1	12/21/2016 8:39:52 PM
Surr: o-Terphenyl	75.1	50-150		%Rec	1	12/21/2016 8:39:52 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 15735		Analyst: BT
Benz(a)anthracene	ND	42.3		µg/Kg-dry	1	12/21/2016 5:01:37 PM
Chrysene	ND	42.3		µg/Kg-dry	1	12/21/2016 5:01:37 PM
Benzo(b)fluoranthene	ND	42.3		µg/Kg-dry	1	12/21/2016 5:01:37 PM
Benzo(k)fluoranthene	ND	42.3		µg/Kg-dry	1	12/21/2016 5:01:37 PM
Benzo(a)pyrene	ND	42.3		µg/Kg-dry	1	12/21/2016 5:01:37 PM
Indeno(1,2,3-cd)pyrene	ND	42.3		µg/Kg-dry	1	12/21/2016 5:01:37 PM
Dibenz(a,h)anthracene	ND	42.3		µg/Kg-dry	1	12/21/2016 5:01:37 PM
Surr: 2-Fluorobiphenyl	55.3	24.5-139		%Rec	1	12/21/2016 5:01:37 PM
Surr: Terphenyl-d14 (surr)	59.9	44.3-176		%Rec	1	12/21/2016 5:01:37 PM
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15736		Analyst: NG
Benzene	ND	0.0174		mg/Kg-dry	1	12/21/2016 1:50:04 PM
Toluene	ND	0.0174		mg/Kg-dry	1	12/21/2016 1:50:04 PM
Ethylbenzene	ND	0.0261		mg/Kg-dry	1	12/21/2016 1:50:04 PM
m,p-Xylene	ND	0.0174		mg/Kg-dry	1	12/21/2016 1:50:04 PM
o-Xylene	ND	0.0174		mg/Kg-dry	1	12/21/2016 1:50:04 PM
Surr: Dibromofluoromethane	99.5	56.5-129		%Rec	1	12/21/2016 1:50:04 PM
Surr: Toluene-d8	98.2	64.5-151		%Rec	1	12/21/2016 1:50:04 PM
Surr: 1-Bromo-4-fluorobenzene	94.7	63.1-141		%Rec	1	12/21/2016 1:50:04 PM
Total Metals by EPA Method 6020				Batch ID: 15739		Analyst: TN
Lead	5.01	0.172		mg/Kg-dry	1	12/21/2016 4:12:05 PM
Sample Moisture (Percent Moisture)				Batch ID: R33522		Analyst: BB
Percent Moisture	16.6	0.500		wt%	1	12/21/2016 11:41:40 AM

Work Order: 1612212
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID **MB-15737**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **12/21/2016**	RunNo: **33538**
Client ID: **MBLKS**	Batch ID: **15737**		Analysis Date: **12/21/2016**	SeqNo: **636271**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	20.0									
Heavy Oil	ND	50.0									
Surr: 2-Fluorobiphenyl	14.3		20.00		71.7	50	150				
Surr: o-Terphenyl	14.4		20.00		72.1	50	150				

Sample ID **LCS-15737**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **12/21/2016**	RunNo: **33538**
Client ID: **LCSS**	Batch ID: **15737**		Analysis Date: **12/21/2016**	SeqNo: **636270**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	420	20.0	500.0	0	83.9	65	135				
Surr: 2-Fluorobiphenyl	18.9		20.00		94.5	50	150				
Surr: o-Terphenyl	19.3		20.00		96.7	50	150				

Sample ID **1612212-002ADUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **12/21/2016**	RunNo: **33538**
Client ID: **W14S28-13.0**	Batch ID: **15737**		Analysis Date: **12/21/2016**	SeqNo: **636256**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	24.9						0		30	
Heavy Oil	ND	62.3						0		30	
Surr: 2-Fluorobiphenyl	17.0		24.91		68.1	50	150		0		
Surr: o-Terphenyl	17.6		24.91		70.8	50	150		0		

Sample ID **1612212-002AMS**	SampType: **MS**	Units: **mg/Kg-dry**	Prep Date: **12/21/2016**	RunNo: **33538**
Client ID: **W14S28-13.0**	Batch ID: **15737**		Analysis Date: **12/21/2016**	SeqNo: **636257**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	484	24.3	607.0	0	79.8	65	135				
Surr: 2-Fluorobiphenyl	20.9		24.28		86.2	50	150				
Surr: o-Terphenyl	21.9		24.28		90.2	50	150				

Work Order: 1612212
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID	**1612212-002AMS**	SampType:	**MS**	Units:	**mg/Kg-dry**	Prep Date:	**12/21/2016**	RunNo:	**33538**
Client ID:	**W14S28-13.0**	Batch ID:	**15737**			Analysis Date:	**12/21/2016**	SeqNo:	**636257**

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

Sample ID	**1612212-002AMSD**	SampType:	**MSD**	Units:	**mg/Kg-dry**	Prep Date:	**12/21/2016**	RunNo:	**33538**
Client ID:	**W14S28-13.0**	Batch ID:	**15737**			Analysis Date:	**12/21/2016**	SeqNo:	**636258**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	428	22.5	561.8	0	76.2	65	135	484.2	12.3	30	
Surr: 2-Fluorobiphenyl	20.6		22.47		91.7	50	150		0		
Surr: o-Terphenyl	22.0		22.47		97.8	50	150		0		

Work Order: 1612212
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **MB-15735**	SampType: **MBLK**	Units: **µg/Kg**	Prep Date: **12/21/2016**	RunNo: **33537**
Client ID: **MBLKS**	Batch ID: **15735**		Analysis Date: **12/21/2016**	SeqNo: **636245**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	ND	40.0									
Chrysene	ND	40.0									
Benzo(b)fluoranthene	ND	40.0									
Benzo(k)fluoranthene	ND	40.0									
Benzo(a)pyrene	ND	40.0									
Indeno(1,2,3-cd)pyrene	ND	40.0									
Dibenz(a,h)anthracene	ND	40.0									
Surr: 2-Fluorobiphenyl	318		500.0		63.6	24.5	139				
Surr: Terphenyl-d14 (surr)	356		500.0		71.2	44.3	176				

Sample ID **LCS-15735**	SampType: **LCS**	Units: **µg/Kg**	Prep Date: **12/21/2016**	RunNo: **33537**
Client ID: **LCSS**	Batch ID: **15735**		Analysis Date: **12/21/2016**	SeqNo: **636246**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	957	40.0	1,000	0	95.7	41.9	136				
Chrysene	938	40.0	1,000	0	93.8	46.9	138				
Benzo(b)fluoranthene	985	40.0	1,000	0	98.5	35.9	148				
Benzo(k)fluoranthene	1,020	40.0	1,000	0	102	41.8	153				
Benzo(a)pyrene	1,070	40.0	1,000	0	107	36.3	144				
Indeno(1,2,3-cd)pyrene	1,230	40.0	1,000	0	123	16.1	135				
Dibenz(a,h)anthracene	1,260	40.0	1,000	0	126	17.2	136				
Surr: 2-Fluorobiphenyl	332		500.0		66.3	24.5	139				
Surr: Terphenyl-d14 (surr)	361		500.0		72.1	44.3	176				

Sample ID **1612212-001ADUP**	SampType: **DUP**	Units: **µg/Kg-dry**	Prep Date: **12/21/2016**	RunNo: **33537**
Client ID: **W10S28-13.0**	Batch ID: **15735**		Analysis Date: **12/21/2016**	SeqNo: **636250**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	ND	45.5						0		30	
Chrysene	ND	45.5						0		30	

Work Order: 1612212
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1612212-001ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **12/21/2016** RunNo: **33537**
Client ID: **W10S28-13.0** Batch ID: **15735** Analysis Date: **12/21/2016** SeqNo: **636250**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzo(b)fluoranthene	ND	45.5						0		30	
Benzo(k)fluoranthene	ND	45.5						0		30	
Benzo(a)pyrene	ND	45.5						0		30	
Indeno(1,2,3-cd)pyrene	ND	45.5						0		30	
Dibenz(a,h)anthracene	ND	45.5						0		30	
Surr: 2-Fluorobiphenyl	271		568.4		47.6	24.5	139		0		
Surr: Terphenyl-d14 (surr)	361		568.4		63.4	44.3	176		0		

Sample ID **1612212-001AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **12/21/2016** RunNo: **33537**
Client ID: **W10S28-13.0** Batch ID: **15735** Analysis Date: **12/21/2016** SeqNo: **636251**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	1,120	47.6	1,190	0	94.2	57.5	169				
Chrysene	1,100	47.6	1,190	0	92.2	45.2	146				
Benzo(b)fluoranthene	1,180	47.6	1,190	0	98.8	42.2	168				
Benzo(k)fluoranthene	1,170	47.6	1,190	0	98.0	48	161				
Benzo(a)pyrene	1,240	47.6	1,190	0	104	34.4	179				
Indeno(1,2,3-cd)pyrene	1,430	47.6	1,190	0	120	5	113				S
Dibenz(a,h)anthracene	1,460	47.6	1,190	0	123	17.3	156				
Surr: 2-Fluorobiphenyl	347		594.9		58.3	24.5	139				
Surr: Terphenyl-d14 (surr)	413		594.9		69.5	44.3	176				

NOTES:
S - Spike recovery indicates a possible matrix effect. The method is in control as indicated by the Laboratory Control Sample (LCS).

Sample ID **1612212-001AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **12/21/2016** RunNo: **33537**
Client ID: **W10S28-13.0** Batch ID: **15735** Analysis Date: **12/21/2016** SeqNo: **636252**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	1,110	46.8	1,169	0	94.8	57.5	169	1,121	1.12	30	
Chrysene	1,070	46.8	1,169	0	91.1	45.2	146	1,097	2.98	30	
Benzo(b)fluoranthene	1,140	46.8	1,169	0	97.2	42.2	168	1,176	3.45	30	

Work Order: 1612212
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1612212-001AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **12/21/2016** RunNo: **33537**
Client ID: **W10S28-13.0** Batch ID: **15735** Analysis Date: **12/21/2016** SeqNo: **636252**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzo(k)fluoranthene	1,180	46.8	1,169	0	101	48	161	1,166	0.817	30	
Benzo(a)pyrene	1,220	46.8	1,169	0	104	34.4	179	1,237	1.34	30	
Indeno(1,2,3-cd)pyrene	1,420	46.8	1,169	0	121	5	113	1,428	0.843	30	S
Dibenz(a,h)anthracene	1,450	46.8	1,169	0	124	17.3	156	1,461	0.677	30	
Surr: 2-Fluorobiphenyl	312		584.7		53.4	24.5	139		0		
Surr: Terphenyl-d14 (surr)	405		584.7		69.3	44.3	176		0		

NOTES:
S - Spike recovery indicates a possible matrix effect. The method is in control as indicated by the Laboratory Control Sample (LCS).

Work Order: 1612212
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Sample Moisture (Percent Moisture)

Sample ID **1612212-007ADUP** SampType: **DUP** Units: **wt%** Prep Date: **12/21/2016** RunNo: **33522**
Client ID: **W12S28-17.0** Batch ID: **R33522** Analysis Date: **12/21/2016** SeqNo: **635953**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	15.9	0.500						16.57	3.96	20	

Work Order: 1612212
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID	**MB-15739**	SampType:	**MBLK**			Units:	**mg/Kg**	Prep Date:	**12/21/2016**	RunNo:	**33533**	
Client ID:	**MBLKS**	Batch ID:	**15739**					Analysis Date:	**12/21/2016**	SeqNo:	**636168**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead		ND	0.143									

Sample ID	**LCS-15739**	SampType:	**LCS**			Units:	**mg/Kg**	Prep Date:	**12/21/2016**	RunNo:	**33533**	
Client ID:	**LCSS**	Batch ID:	**15739**					Analysis Date:	**12/21/2016**	SeqNo:	**636169**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead		20.7	0.160	20.00	0	104	80	120				

Sample ID	**1612212-006ADUP**	SampType:	**DUP**			Units:	**mg/Kg-dry**	Prep Date:	**12/21/2016**	RunNo:	**33533**	
Client ID:	**W13S29-17.0**	Batch ID:	**15739**					Analysis Date:	**12/21/2016**	SeqNo:	**636171**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead		4.77	0.187						4.473	6.49	20	

Sample ID	**1612212-006AMS**	SampType:	**MS**			Units:	**mg/Kg-dry**	Prep Date:	**12/21/2016**	RunNo:	**33533**	
Client ID:	**W13S29-17.0**	Batch ID:	**15739**					Analysis Date:	**12/21/2016**	SeqNo:	**636173**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead		29.1	0.187	23.38	4.473	105	75	125				

Sample ID	**1612212-006AMSD**	SampType:	**MSD**			Units:	**mg/Kg-dry**	Prep Date:	**12/21/2016**	RunNo:	**33533**	
Client ID:	**W13S29-17.0**	Batch ID:	**15739**					Analysis Date:	**12/21/2016**	SeqNo:	**636174**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead		28.1	0.187	23.38	4.473	101	75	125	29.12	3.46	20	

Work Order: 1612212
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-15736** SampType: **LCS** Units: **mg/Kg** Prep Date: **12/21/2016** RunNo: **33527**
Client ID: **LCSS** Batch ID: **15736** Analysis Date: **12/21/2016** SeqNo: **636065**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	1.06	0.0200	1.000	0	106	64.3	133				
Toluene	1.04	0.0200	1.000	0	104	67.3	138				
Ethylbenzene	1.06	0.0300	1.000	0	106	74	129				
m,p-Xylene	2.13	0.0200	2.000	0	107	70	124				
o-Xylene	1.04	0.0200	1.000	0	104	72.7	124				
Surr: Dibromofluoromethane	1.23		1.250		98.7	56.5	129				
Surr: Toluene-d8	1.28		1.250		102	64.5	151				
Surr: 1-Bromo-4-fluorobenzene	1.31		1.250		104	63.1	141				

Sample ID **MB-15736** SampType: **MBLK** Units: **mg/Kg** Prep Date: **12/21/2016** RunNo: **33527**
Client ID: **MBLKS** Batch ID: **15736** Analysis Date: **12/21/2016** SeqNo: **636066**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	0.0200									
Toluene	ND	0.0200									
Ethylbenzene	ND	0.0300									
m,p-Xylene	ND	0.0200									
o-Xylene	ND	0.0200									
Surr: Dibromofluoromethane	1.25		1.250		100	56.5	129				
Surr: Toluene-d8	1.21		1.250		97.1	64.5	151				
Surr: 1-Bromo-4-fluorobenzene	1.16		1.250		92.9	63.1	141				

Sample ID **1612212-006BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **12/21/2016** RunNo: **33527**
Client ID: **W13S29-17.0** Batch ID: **15736** Analysis Date: **12/21/2016** SeqNo: **636060**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	0.0234						0		30	
Toluene	ND	0.0234						0		30	
Ethylbenzene	ND	0.0351						0		30	
m,p-Xylene	ND	0.0234						0		30	

Work Order: 1612212
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1612212-006BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **12/21/2016** RunNo: **33527**
Client ID: **W13S29-17.0** Batch ID: **15736** Analysis Date: **12/21/2016** SeqNo: **636060**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
o-Xylene	ND	0.0234						0		30	
Surr: Dibromofluoromethane	1.44		1.461		98.8	56.5	129		0		
Surr: Toluene-d8	1.42		1.461		96.9	64.5	151		0		
Surr: 1-Bromo-4-fluorobenzene	1.36		1.461		93.2	63.1	141		0		

Sample ID **1612212-007BMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **12/21/2016** RunNo: **33527**
Client ID: **W12S28-17.0** Batch ID: **15736** Analysis Date: **12/21/2016** SeqNo: **636062**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	0.875	0.0174	0.8711	0	100	63.5	133				
Toluene	0.865	0.0174	0.8711	0	99.3	63.4	132				
Ethylbenzene	0.847	0.0261	0.8711	0	97.3	54.5	134				
m,p-Xylene	1.75	0.0174	1.742	0	100	53.1	132				
o-Xylene	0.843	0.0174	0.8711	0	96.8	53.3	139				
Surr: Dibromofluoromethane	1.09		1.089		99.9	56.5	129				
Surr: Toluene-d8	1.12		1.089		103	64.5	151				
Surr: 1-Bromo-4-fluorobenzene	1.14		1.089		105	63.1	141				

Sample ID **1612212-007BMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **12/21/2016** RunNo: **33527**
Client ID: **W12S28-17.0** Batch ID: **15736** Analysis Date: **12/21/2016** SeqNo: **636063**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	0.840	0.0174	0.8711	0	96.4	63.5	133	0.8750	4.11	30	
Toluene	0.825	0.0174	0.8711	0	94.7	63.4	132	0.8654	4.77	30	
Ethylbenzene	0.812	0.0261	0.8711	0	93.2	54.5	134	0.8472	4.27	30	
m,p-Xylene	1.66	0.0174	1.742	0	95.1	53.1	132	1.746	5.27	30	
o-Xylene	0.815	0.0174	0.8711	0	93.6	53.3	139	0.8434	3.41	30	
Surr: Dibromofluoromethane	1.08		1.089		99.2	56.5	129		0		
Surr: Toluene-d8	1.11		1.089		102	64.5	151		0		
Surr: 1-Bromo-4-fluorobenzene	1.15		1.089		105	63.1	141		0		

Work Order: 1612212
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1612212-007BMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **12/21/2016** RunNo: **33527**
Client ID: **W12S28-17.0** Batch ID: **15736** Analysis Date: **12/21/2016** SeqNo: **636063**

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

Sample Log-In Check List

Client Name:	**GEI**	Work Order Number:	**1612212**
Logged by:	**Clare Griggs**	Date Received:	**12/20/2016 5:25:00 PM**

Chain of Custody

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

Log In

3.	Coolers are present?	Yes ☑	No ☐	NA ☐
4.	Shipping container/cooler in good condition?	Yes ☑	No ☐	
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes ☐	No ☐	Not Required ☑
6.	Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
7.	Were all items received at a temperature of >0°C to 10.0°C*	Yes ☑	No ☐	NA ☐
8.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
9.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
10.	Are samples properly preserved?	Yes ☑	No ☐	
11.	Was preservative added to bottles?	Yes ☑	No ☐	NA ☐ MeOH
12.	Is there headspace in the VOA vials?	Yes ☐	No ☐	NA ☑
13.	Did all samples containers arrive in good condition(unbroken)?	Yes ☑	No ☐	
14.	Does paperwork match bottle labels?	Yes ☑	No ☐	
15.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
16.	Is it clear what analyses were requested?	Yes ☑	No ☐	
17.	Were all holding times able to be met?	Yes ☑	No ☐	

Special Handling (if applicable)

18.	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: _____

19. Additional remarks:

Item Information

Item #	Temp ºC
Cooler 1	2.9
Sample 1	2.5

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Chain of Custody Record and Laboratory Services Agreement

Fremont Analytical
3600 Fremont Ave N. Tel: 206-352-3790
Seattle, WA 98103 Fax: 206-352-7178

Date: 12/20/16 Laboratory Project No (internal): 1612212

Page: 1 of: 1

Client: GeoEngineers
Address: 1600 Stewart St, Suite 1700
City, State, Zip: Seattle, WA
Telephone: Fax:

Project Name: Rufus Block 20
Project No: 20434-001-24 Collected by: Sydney Branson
Location: Seattle, WA
Report To (PM): Chris Brown
PM Email: cbrown@geoengineers.com

*Matrix Codes: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX (BTEX only)	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM / 625)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T) / Dissolved (D)	Anions (IC)***	EDB (8011)	cPAHs			Comments	# Containers
1	W10S28-13.0	12/19/16	1340	S		X				X				X			X				STANDARD TAT	1
2	W14S28-13.0		1345																		STANDARD TAT	
3	W12S24-13.0		1350																		STANDARD TAT	
4	W12S28-14.0	12/20/16	0715																		Standard TAT	
5	W13S30-13.0		0900																		Standard TAT	
6	W13S29-17.0		0915																		Next day TAT	
7	W12S28-17.0		0930																		Next day TAT	
8																						
9																						
10																						

**Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL *Individual:* Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☒ Disposal by Lab (Samples will be held for 30 days unless otherwise noted. A fee may be assessed if samples are retained after 30 days.)

Turn-around times for samples received after 4:00pm will begin on the following business day.

Special Remarks:

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above, that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x Sydney Branson	12/20/16 1725	x	12/20/16 1725
x		x	

TAT → SameDay^ NextDay^ 2 Day 3 Day STD

^Please coordinate with the lab in advance

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

GeoEngineers
Chris Brown
600 Stewart Street, Suite 1700
Seattle, WA 98101

RE: Rufus Block 20
Work Order Number: 1612275

December 29, 2016

Attention Chris Brown:

Fremont Analytical, Inc. received 3 sample(s) on 12/28/2016 for the analyses presented in the following report.

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.
Gasoline by NWTPH-Gx
Mercury by EPA Method 7471
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)
Sample Moisture (Percent Moisture)
Total Metals by EPA Method 6020
Volatile Organic Compounds by EPA Method 8260C

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Mike Ridgeway
Laboratory Director

Date: *12/30/2016*

CLIENT: GeoEngineers
Project: Rufus Block 20
Work Order: 1612275

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1612275-001	W27N22-5.0	12/28/2016 2:05 PM	12/28/2016 3:12 PM
1612275-002	W24N23-5.0	12/28/2016 2:00 PM	12/28/2016 3:12 PM
1612275-003	W32N21-5.0	12/28/2016 2:10 PM	12/28/2016 3:12 PM

Case Narrative

WO#: **1612275**
Date: **12/29/2016**

CLIENT: GeoEngineers
Project: Rufus Block 20

I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Analytical Report

Work Order: **1612275**

Date Reported: **12/29/2016**

Client: GeoEngineers
Collection Date: 12/28/2016 2:05:00 PM
Project: Rufus Block 20
Lab ID: 1612275-001
Matrix: Soil
Client Sample ID: **W27N22-5.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 15785		Analyst: WC
Diesel (Fuel Oil)	ND	20.2		mg/Kg-dry	1	12/28/2016 8:51:02 PM
Heavy Oil	62.3	50.4		mg/Kg-dry	1	12/28/2016 8:51:02 PM
Surr: 2-Fluorobiphenyl	86.4	50-150		%Rec	1	12/28/2016 8:51:02 PM
Surr: o-Terphenyl	90.8	50-150		%Rec	1	12/28/2016 8:51:02 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 15784		Analyst: BT
Naphthalene	ND	45.8		µg/Kg-dry	1	12/28/2016 9:15:37 PM
2-Methylnaphthalene	ND	45.8		µg/Kg-dry	1	12/28/2016 9:15:37 PM
1-Methylnaphthalene	ND	45.8		µg/Kg-dry	1	12/28/2016 9:15:37 PM
Acenaphthylene	ND	45.8		µg/Kg-dry	1	12/28/2016 9:15:37 PM
Acenaphthene	86.6	45.8		µg/Kg-dry	1	12/28/2016 9:15:37 PM
Fluorene	66.9	45.8		µg/Kg-dry	1	12/28/2016 9:15:37 PM
Phenanthrene	744	45.8		µg/Kg-dry	1	12/28/2016 9:15:37 PM
Anthracene	149	45.8		µg/Kg-dry	1	12/28/2016 9:15:37 PM
Fluoranthene	754	45.8		µg/Kg-dry	1	12/28/2016 9:15:37 PM
Pyrene	867	45.8		µg/Kg-dry	1	12/28/2016 9:15:37 PM
Benz(a)anthracene	328	45.8		µg/Kg-dry	1	12/28/2016 9:15:37 PM
Chrysene	373	45.8		µg/Kg-dry	1	12/28/2016 9:15:37 PM
Benzo(b)fluoranthene	412	45.8		µg/Kg-dry	1	12/28/2016 9:15:37 PM
Benzo(k)fluoranthene	100	45.8		µg/Kg-dry	1	12/28/2016 9:15:37 PM
Benzo(a)pyrene	395	45.8		µg/Kg-dry	1	12/28/2016 9:15:37 PM
Indeno(1,2,3-cd)pyrene	233	45.8	Q	µg/Kg-dry	1	12/28/2016 9:15:37 PM
Dibenz(a,h)anthracene	66.9	45.8	Q	µg/Kg-dry	1	12/28/2016 9:15:37 PM
Benzo(g,h,i)perylene	280	45.8	Q	µg/Kg-dry	1	12/28/2016 9:15:37 PM
Surr: 2-Fluorobiphenyl	59.6	24.5-139		%Rec	1	12/28/2016 9:15:37 PM
Surr: Terphenyl-d14 (surr)	70.3	44.3-176		%Rec	1	12/28/2016 9:15:37 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Gasoline by NWTPH-Gx				Batch ID: 15786		Analyst: NG
Gasoline	ND	5.47		mg/Kg-dry	1	12/29/2016 10:50:17 AM
Surr: Toluene-d8	92.5	65-135		%Rec	1	12/29/2016 10:50:17 AM
Surr: 4-Bromofluorobenzene	102	65-135		%Rec	1	12/29/2016 10:50:17 AM

Client: GeoEngineers
Collection Date: 12/28/2016 2:05:00 PM
Project: Rufus Block 20
Lab ID: 1612275-001
Matrix: Soil
Client Sample ID: **W27N22-5.0**

Volatile Organic Compounds by EPA Method 8260C

Batch ID: 15786 Analyst: NG

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane (CFC-12)	ND	0.0657		mg/Kg-dry	1	12/29/2016 10:50:17 AM
Chloromethane	ND	0.0657		mg/Kg-dry	1	12/29/2016 10:50:17 AM
Vinyl chloride	ND	0.00219		mg/Kg-dry	1	12/29/2016 10:50:17 AM
Bromomethane	ND	0.0985		mg/Kg-dry	1	12/29/2016 10:50:17 AM
Trichlorofluoromethane (CFC-11)	ND	0.0547		mg/Kg-dry	1	12/29/2016 10:50:17 AM
Chloroethane	ND	0.0657		mg/Kg-dry	1	12/29/2016 10:50:17 AM
1,1-Dichloroethene	ND	0.0547		mg/Kg-dry	1	12/29/2016 10:50:17 AM
Methylene chloride	ND	0.0219		mg/Kg-dry	1	12/29/2016 10:50:17 AM
trans-1,2-Dichloroethene	ND	0.0219		mg/Kg-dry	1	12/29/2016 10:50:17 AM
Methyl tert-butyl ether (MTBE)	ND	0.0547		mg/Kg-dry	1	12/29/2016 10:50:17 AM
1,1-Dichloroethane	ND	0.0219		mg/Kg-dry	1	12/29/2016 10:50:17 AM
2,2-Dichloropropane	ND	0.0547		mg/Kg-dry	1	12/29/2016 10:50:17 AM
cis-1,2-Dichloroethene	ND	0.0219		mg/Kg-dry	1	12/29/2016 10:50:17 AM
Chloroform	0.0523	0.0219	BQ	mg/Kg-dry	1	12/29/2016 10:50:17 AM
1,1,1-Trichloroethane (TCA)	ND	0.0219		mg/Kg-dry	1	12/29/2016 10:50:17 AM
1,1-Dichloropropene	ND	0.0219		mg/Kg-dry	1	12/29/2016 10:50:17 AM
Carbon tetrachloride	ND	0.0219		mg/Kg-dry	1	12/29/2016 10:50:17 AM
1,2-Dichloroethane (EDC)	ND	0.0328		mg/Kg-dry	1	12/29/2016 10:50:17 AM
Benzene	ND	0.0219		mg/Kg-dry	1	12/29/2016 10:50:17 AM
Trichloroethene (TCE)	ND	0.0219		mg/Kg-dry	1	12/29/2016 10:50:17 AM
1,2-Dichloropropane	ND	0.0219		mg/Kg-dry	1	12/29/2016 10:50:17 AM
Bromodichloromethane	ND	0.0219		mg/Kg-dry	1	12/29/2016 10:50:17 AM
Dibromomethane	ND	0.0438		mg/Kg-dry	1	12/29/2016 10:50:17 AM
cis-1,3-Dichloropropene	ND	0.0219		mg/Kg-dry	1	12/29/2016 10:50:17 AM
Toluene	ND	0.0219		mg/Kg-dry	1	12/29/2016 10:50:17 AM
trans-1,3-Dichloropropylene	ND	0.0328		mg/Kg-dry	1	12/29/2016 10:50:17 AM
1,1,2-Trichloroethane	ND	0.0328		mg/Kg-dry	1	12/29/2016 10:50:17 AM
1,3-Dichloropropane	ND	0.0547		mg/Kg-dry	1	12/29/2016 10:50:17 AM
Tetrachloroethene (PCE)	ND	0.0219		mg/Kg-dry	1	12/29/2016 10:50:17 AM
Dibromochloromethane	ND	0.0328		mg/Kg-dry	1	12/29/2016 10:50:17 AM
1,2-Dibromoethane (EDB)	ND	0.00547		mg/Kg-dry	1	12/29/2016 10:50:17 AM
Chlorobenzene	ND	0.0219		mg/Kg-dry	1	12/29/2016 10:50:17 AM
1,1,1,2-Tetrachloroethane	ND	0.0328		mg/Kg-dry	1	12/29/2016 10:50:17 AM
Ethylbenzene	ND	0.0328		mg/Kg-dry	1	12/29/2016 10:50:17 AM
m,p-Xylene	ND	0.0219		mg/Kg-dry	1	12/29/2016 10:50:17 AM
o-Xylene	ND	0.0219		mg/Kg-dry	1	12/29/2016 10:50:17 AM
Styrene	ND	0.0219		mg/Kg-dry	1	12/29/2016 10:50:17 AM
Isopropylbenzene	ND	0.0876		mg/Kg-dry	1	12/29/2016 10:50:17 AM
Bromoform	ND	0.0219		mg/Kg-dry	1	12/29/2016 10:50:17 AM

Client: GeoEngineers
Collection Date: 12/28/2016 2:05:00 PM
Project: Rufus Block 20
Lab ID: 1612275-001
Matrix: Soil
Client Sample ID: **W27N22-5.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15786		Analyst: NG
1,1,2,2-Tetrachloroethane	ND	0.0219		mg/Kg-dry	1	12/29/2016 10:50:17 AM
n-Propylbenzene	ND	0.0219		mg/Kg-dry	1	12/29/2016 10:50:17 AM
Bromobenzene	ND	0.0328		mg/Kg-dry	1	12/29/2016 10:50:17 AM
1,3,5-Trimethylbenzene	ND	0.0219		mg/Kg-dry	1	12/29/2016 10:50:17 AM
2-Chlorotoluene	ND	0.0219		mg/Kg-dry	1	12/29/2016 10:50:17 AM
4-Chlorotoluene	ND	0.0219		mg/Kg-dry	1	12/29/2016 10:50:17 AM
tert-Butylbenzene	ND	0.0219		mg/Kg-dry	1	12/29/2016 10:50:17 AM
1,2,3-Trichloropropane	ND	0.0219		mg/Kg-dry	1	12/29/2016 10:50:17 AM
1,2,4-Trichlorobenzene	ND	0.0547		mg/Kg-dry	1	12/29/2016 10:50:17 AM
sec-Butylbenzene	ND	0.0219		mg/Kg-dry	1	12/29/2016 10:50:17 AM
4-Isopropyltoluene	ND	0.0219		mg/Kg-dry	1	12/29/2016 10:50:17 AM
1,3-Dichlorobenzene	ND	0.0219		mg/Kg-dry	1	12/29/2016 10:50:17 AM
1,4-Dichlorobenzene	ND	0.0219		mg/Kg-dry	1	12/29/2016 10:50:17 AM
n-Butylbenzene	ND	0.0219		mg/Kg-dry	1	12/29/2016 10:50:17 AM
1,2-Dichlorobenzene	ND	0.0219		mg/Kg-dry	1	12/29/2016 10:50:17 AM
1,2-Dibromo-3-chloropropane	ND	0.547		mg/Kg-dry	1	12/29/2016 10:50:17 AM
1,2,4-Trimethylbenzene	ND	0.0219		mg/Kg-dry	1	12/29/2016 10:50:17 AM
Hexachlorobutadiene	ND	0.109		mg/Kg-dry	1	12/29/2016 10:50:17 AM
Naphthalene	ND	0.0328		mg/Kg-dry	1	12/29/2016 10:50:17 AM
1,2,3-Trichlorobenzene	ND	0.0219		mg/Kg-dry	1	12/29/2016 10:50:17 AM
Surr: Dibromofluoromethane	98.9	56.5-129		%Rec	1	12/29/2016 10:50:17 AM
Surr: Toluene-d8	102	64.5-151		%Rec	1	12/29/2016 10:50:17 AM
Surr: 1-Bromo-4-fluorobenzene	96.2	63.1-141		%Rec	1	12/29/2016 10:50:17 AM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).
Chloroform is a common laboratory contaminant that is a bi-product of the chlorination of municipal water. Please refer to the Method Blank.

Mercury by EPA Method 7471				Batch ID: 15798		Analyst: WF
Mercury	ND	0.284		mg/Kg-dry	1	12/29/2016 4:01:58 PM
Total Metals by EPA Method 6020				Batch ID: 15790		Analyst: TN
Arsenic	5.71	0.0959		mg/Kg-dry	1	12/29/2016 1:45:56 PM
Barium	240	0.479		mg/Kg-dry	1	12/29/2016 1:45:56 PM
Cadmium	0.222	0.192		mg/Kg-dry	1	12/29/2016 1:45:56 PM
Chromium	40.8	0.0959		mg/Kg-dry	1	12/29/2016 1:45:56 PM

Analytical Report

Work Order: **1612275**

Date Reported: **12/29/2016**

Client: GeoEngineers
Collection Date: 12/28/2016 2:05:00 PM
Project: Rufus Block 20
Lab ID: 1612275-001
Matrix: Soil
Client Sample ID: **W27N22-5.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 15790		Analyst: TN
Lead	102	0.192		mg/Kg-dry	1	12/29/2016 1:45:56 PM
Selenium	1.53	0.479		mg/Kg-dry	1	12/29/2016 1:45:56 PM
Silver	0.136	0.0959		mg/Kg-dry	1	12/29/2016 1:45:56 PM
Sample Moisture (Percent Moisture)				Batch ID: R33612		Analyst: BB
Percent Moisture	13.8			wt%	1	12/29/2016 9:13:11 AM

Analytical Report

Work Order: **1612275**

Date Reported: **12/29/2016**

Client: GeoEngineers **Collection Date:** 12/28/2016 2:00:00 PM

Project: Rufus Block 20

Lab ID: 1612275-002 **Matrix:** Soil

Client Sample ID: W24N23-5.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 15785		Analyst: WC
Diesel (Fuel Oil)	ND	20.4		mg/Kg-dry	1	12/28/2016 6:47:20 PM
Heavy Oil	52.8	50.9		mg/Kg-dry	1	12/28/2016 6:47:20 PM
Surr: 2-Fluorobiphenyl	79.8	50-150		%Rec	1	12/28/2016 6:47:20 PM
Surr: o-Terphenyl	81.8	50-150		%Rec	1	12/28/2016 6:47:20 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 15784		Analyst: BT
Naphthalene	ND	38.4		µg/Kg-dry	1	12/28/2016 10:40:18 PM
2-Methylnaphthalene	ND	38.4		µg/Kg-dry	1	12/28/2016 10:40:18 PM
1-Methylnaphthalene	ND	38.4		µg/Kg-dry	1	12/28/2016 10:40:18 PM
Acenaphthylene	ND	38.4		µg/Kg-dry	1	12/28/2016 10:40:18 PM
Acenaphthene	ND	38.4		µg/Kg-dry	1	12/28/2016 10:40:18 PM
Fluorene	ND	38.4		µg/Kg-dry	1	12/28/2016 10:40:18 PM
Phenanthrene	82.1	38.4		µg/Kg-dry	1	12/28/2016 10:40:18 PM
Anthracene	ND	38.4		µg/Kg-dry	1	12/28/2016 10:40:18 PM
Fluoranthene	105	38.4		µg/Kg-dry	1	12/28/2016 10:40:18 PM
Pyrene	124	38.4		µg/Kg-dry	1	12/28/2016 10:40:18 PM
Benz(a)anthracene	56.5	38.4		µg/Kg-dry	1	12/28/2016 10:40:18 PM
Chrysene	57.3	38.4		µg/Kg-dry	1	12/28/2016 10:40:18 PM
Benzo(b)fluoranthene	71.6	38.4		µg/Kg-dry	1	12/28/2016 10:40:18 PM
Benzo(k)fluoranthene	ND	38.4		µg/Kg-dry	1	12/28/2016 10:40:18 PM
Benzo(a)pyrene	68.0	38.4		µg/Kg-dry	1	12/28/2016 10:40:18 PM
Indeno(1,2,3-cd)pyrene	43.6	38.4	Q	µg/Kg-dry	1	12/28/2016 10:40:18 PM
Dibenz(a,h)anthracene	ND	38.4		µg/Kg-dry	1	12/28/2016 10:40:18 PM
Benzo(g,h,i)perylene	46.9	38.4	Q	µg/Kg-dry	1	12/28/2016 10:40:18 PM
Surr: 2-Fluorobiphenyl	51.6	24.5-139		%Rec	1	12/28/2016 10:40:18 PM
Surr: Terphenyl-d14 (surr)	66.3	44.3-176		%Rec	1	12/28/2016 10:40:18 PM

NOTES:

Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Gasoline by NWTPH-Gx				Batch ID: 15786		Analyst: NG
Gasoline	ND	5.51		mg/Kg-dry	1	12/29/2016 11:21:14 AM
Surr: Toluene-d8	92.6	65-135		%Rec	1	12/29/2016 11:21:14 AM
Surr: 4-Bromofluorobenzene	103	65-135		%Rec	1	12/29/2016 11:21:14 AM

Client: GeoEngineers
Collection Date: 12/28/2016 2:00:00 PM
Project: Rufus Block 20
Lab ID: 1612275-002
Matrix: Soil
Client Sample ID: **W24N23-5.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15786		Analyst: NG
Dichlorodifluoromethane (CFC-12)	ND	0.0662		mg/Kg-dry	1	12/29/2016 11:21:14 AM
Chloromethane	ND	0.0662		mg/Kg-dry	1	12/29/2016 11:21:14 AM
Vinyl chloride	ND	0.00221		mg/Kg-dry	1	12/29/2016 11:21:14 AM
Bromomethane	ND	0.0992		mg/Kg-dry	1	12/29/2016 11:21:14 AM
Trichlorofluoromethane (CFC-11)	ND	0.0551		mg/Kg-dry	1	12/29/2016 11:21:14 AM
Chloroethane	ND	0.0662		mg/Kg-dry	1	12/29/2016 11:21:14 AM
1,1-Dichloroethene	ND	0.0551		mg/Kg-dry	1	12/29/2016 11:21:14 AM
Methylene chloride	ND	0.0221		mg/Kg-dry	1	12/29/2016 11:21:14 AM
trans-1,2-Dichloroethene	ND	0.0221		mg/Kg-dry	1	12/29/2016 11:21:14 AM
Methyl tert-butyl ether (MTBE)	ND	0.0551		mg/Kg-dry	1	12/29/2016 11:21:14 AM
1,1-Dichloroethane	ND	0.0221		mg/Kg-dry	1	12/29/2016 11:21:14 AM
2,2-Dichloropropane	ND	0.0551		mg/Kg-dry	1	12/29/2016 11:21:14 AM
cis-1,2-Dichloroethene	ND	0.0221		mg/Kg-dry	1	12/29/2016 11:21:14 AM
Chloroform	0.0525	0.0221	BQ	mg/Kg-dry	1	12/29/2016 11:21:14 AM
1,1,1-Trichloroethane (TCA)	ND	0.0221		mg/Kg-dry	1	12/29/2016 11:21:14 AM
1,1-Dichloropropene	ND	0.0221		mg/Kg-dry	1	12/29/2016 11:21:14 AM
Carbon tetrachloride	ND	0.0221		mg/Kg-dry	1	12/29/2016 11:21:14 AM
1,2-Dichloroethane (EDC)	ND	0.0331		mg/Kg-dry	1	12/29/2016 11:21:14 AM
Benzene	ND	0.0221		mg/Kg-dry	1	12/29/2016 11:21:14 AM
Trichloroethene (TCE)	ND	0.0221		mg/Kg-dry	1	12/29/2016 11:21:14 AM
1,2-Dichloropropane	ND	0.0221		mg/Kg-dry	1	12/29/2016 11:21:14 AM
Bromodichloromethane	ND	0.0221		mg/Kg-dry	1	12/29/2016 11:21:14 AM
Dibromomethane	ND	0.0441		mg/Kg-dry	1	12/29/2016 11:21:14 AM
cis-1,3-Dichloropropene	ND	0.0221		mg/Kg-dry	1	12/29/2016 11:21:14 AM
Toluene	ND	0.0221		mg/Kg-dry	1	12/29/2016 11:21:14 AM
trans-1,3-Dichloropropylene	ND	0.0331		mg/Kg-dry	1	12/29/2016 11:21:14 AM
1,1,2-Trichloroethane	ND	0.0331		mg/Kg-dry	1	12/29/2016 11:21:14 AM
1,3-Dichloropropane	ND	0.0551		mg/Kg-dry	1	12/29/2016 11:21:14 AM
Tetrachloroethene (PCE)	ND	0.0221		mg/Kg-dry	1	12/29/2016 11:21:14 AM
Dibromochloromethane	ND	0.0331		mg/Kg-dry	1	12/29/2016 11:21:14 AM
1,2-Dibromoethane (EDB)	ND	0.00551		mg/Kg-dry	1	12/29/2016 11:21:14 AM
Chlorobenzene	ND	0.0221		mg/Kg-dry	1	12/29/2016 11:21:14 AM
1,1,1,2-Tetrachloroethane	ND	0.0331		mg/Kg-dry	1	12/29/2016 11:21:14 AM
Ethylbenzene	ND	0.0331		mg/Kg-dry	1	12/29/2016 11:21:14 AM
m,p-Xylene	ND	0.0221		mg/Kg-dry	1	12/29/2016 11:21:14 AM
o-Xylene	ND	0.0221		mg/Kg-dry	1	12/29/2016 11:21:14 AM
Styrene	ND	0.0221		mg/Kg-dry	1	12/29/2016 11:21:14 AM
Isopropylbenzene	ND	0.0882		mg/Kg-dry	1	12/29/2016 11:21:14 AM
Bromoform	ND	0.0221		mg/Kg-dry	1	12/29/2016 11:21:14 AM

Client: GeoEngineers
Project: Rufus Block 20
Lab ID: 1612275-002
Client Sample ID: **W24N23-5.0**

Collection Date: 12/28/2016 2:00:00 PM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15786		Analyst: NG
1,1,2,2-Tetrachloroethane	ND	0.0221		mg/Kg-dry	1	12/29/2016 11:21:14 AM
n-Propylbenzene	ND	0.0221		mg/Kg-dry	1	12/29/2016 11:21:14 AM
Bromobenzene	ND	0.0331		mg/Kg-dry	1	12/29/2016 11:21:14 AM
1,3,5-Trimethylbenzene	ND	0.0221		mg/Kg-dry	1	12/29/2016 11:21:14 AM
2-Chlorotoluene	ND	0.0221		mg/Kg-dry	1	12/29/2016 11:21:14 AM
4-Chlorotoluene	ND	0.0221		mg/Kg-dry	1	12/29/2016 11:21:14 AM
tert-Butylbenzene	ND	0.0221		mg/Kg-dry	1	12/29/2016 11:21:14 AM
1,2,3-Trichloropropane	ND	0.0221		mg/Kg-dry	1	12/29/2016 11:21:14 AM
1,2,4-Trichlorobenzene	ND	0.0551		mg/Kg-dry	1	12/29/2016 11:21:14 AM
sec-Butylbenzene	ND	0.0221		mg/Kg-dry	1	12/29/2016 11:21:14 AM
4-Isopropyltoluene	ND	0.0221		mg/Kg-dry	1	12/29/2016 11:21:14 AM
1,3-Dichlorobenzene	ND	0.0221		mg/Kg-dry	1	12/29/2016 11:21:14 AM
1,4-Dichlorobenzene	ND	0.0221		mg/Kg-dry	1	12/29/2016 11:21:14 AM
n-Butylbenzene	ND	0.0221		mg/Kg-dry	1	12/29/2016 11:21:14 AM
1,2-Dichlorobenzene	ND	0.0221		mg/Kg-dry	1	12/29/2016 11:21:14 AM
1,2-Dibromo-3-chloropropane	ND	0.551		mg/Kg-dry	1	12/29/2016 11:21:14 AM
1,2,4-Trimethylbenzene	ND	0.0221		mg/Kg-dry	1	12/29/2016 11:21:14 AM
Hexachlorobutadiene	ND	0.110		mg/Kg-dry	1	12/29/2016 11:21:14 AM
Naphthalene	ND	0.0331		mg/Kg-dry	1	12/29/2016 11:21:14 AM
1,2,3-Trichlorobenzene	ND	0.0221		mg/Kg-dry	1	12/29/2016 11:21:14 AM
Surr: Dibromofluoromethane	99.5	56.5-129		%Rec	1	12/29/2016 11:21:14 AM
Surr: Toluene-d8	102	64.5-151		%Rec	1	12/29/2016 11:21:14 AM
Surr: 1-Bromo-4-fluorobenzene	97.6	63.1-141		%Rec	1	12/29/2016 11:21:14 AM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).
Chloroform is a common laboratory contaminant that is a bi-product of the chlorination of municipal water. Please refer to the Method Blank.

Mercury by EPA Method 7471				Batch ID: 15798		Analyst: WF
Mercury	ND	0.271		mg/Kg-dry	1	12/29/2016 4:03:34 PM
Total Metals by EPA Method 6020				Batch ID: 15790		Analyst: TN
Arsenic	5.47	0.0957		mg/Kg-dry	1	12/29/2016 2:14:44 PM
Barium	158	0.479		mg/Kg-dry	1	12/29/2016 2:14:44 PM
Cadmium	ND	0.191		mg/Kg-dry	1	12/29/2016 2:14:44 PM
Chromium	41.6	0.0957		mg/Kg-dry	1	12/29/2016 2:14:44 PM

Analytical Report

Work Order: **1612275**
Date Reported: **12/29/2016**

Client: GeoEngineers
Collection Date: 12/28/2016 2:00:00 PM
Project: Rufus Block 20
Lab ID: 1612275-002
Matrix: Soil
Client Sample ID: **W24N23-5.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 15790		Analyst: TN
Lead	79.5	0.191		mg/Kg-dry	1	12/29/2016 2:14:44 PM
Selenium	1.29	0.479		mg/Kg-dry	1	12/29/2016 2:14:44 PM
Silver	0.104	0.0957		mg/Kg-dry	1	12/29/2016 2:14:44 PM
Sample Moisture (Percent Moisture)				Batch ID: R33612		Analyst: BB
Percent Moisture	13.0			wt%	1	12/29/2016 9:13:11 AM

Analytical Report

Work Order: **1612275**

Date Reported: **12/29/2016**

Client: GeoEngineers **Collection Date:** 12/28/2016 2:10:00 PM

Project: Rufus Block 20

Lab ID: 1612275-003 **Matrix:** Soil

Client Sample ID: W32N21-5.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 15785		Analyst: WC
Diesel (Fuel Oil)	ND	21.7		mg/Kg-dry	1	12/28/2016 9:21:50 PM
Heavy Oil	126	54.3		mg/Kg-dry	1	12/28/2016 9:21:50 PM
Surr: 2-Fluorobiphenyl	79.8	50-150		%Rec	1	12/28/2016 9:21:50 PM
Surr: o-Terphenyl	93.7	50-150		%Rec	1	12/28/2016 9:21:50 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 15784		Analyst: BT
Naphthalene	ND	40.4		µg/Kg-dry	1	12/28/2016 11:01:25 PM
2-Methylnaphthalene	48.8	40.4		µg/Kg-dry	1	12/28/2016 11:01:25 PM
1-Methylnaphthalene	ND	40.4		µg/Kg-dry	1	12/28/2016 11:01:25 PM
Acenaphthylene	ND	40.4		µg/Kg-dry	1	12/28/2016 11:01:25 PM
Acenaphthene	ND	40.4		µg/Kg-dry	1	12/28/2016 11:01:25 PM
Fluorene	ND	40.4		µg/Kg-dry	1	12/28/2016 11:01:25 PM
Phenanthrene	180	40.4		µg/Kg-dry	1	12/28/2016 11:01:25 PM
Anthracene	ND	40.4		µg/Kg-dry	1	12/28/2016 11:01:25 PM
Fluoranthene	240	40.4		µg/Kg-dry	1	12/28/2016 11:01:25 PM
Pyrene	281	40.4		µg/Kg-dry	1	12/28/2016 11:01:25 PM
Benz(a)anthracene	139	40.4		µg/Kg-dry	1	12/28/2016 11:01:25 PM
Chrysene	148	40.4		µg/Kg-dry	1	12/28/2016 11:01:25 PM
Benzo(b)fluoranthene	193	40.4		µg/Kg-dry	1	12/28/2016 11:01:25 PM
Benzo(k)fluoranthene	63.8	40.4		µg/Kg-dry	1	12/28/2016 11:01:25 PM
Benzo(a)pyrene	188	40.4		µg/Kg-dry	1	12/28/2016 11:01:25 PM
Indeno(1,2,3-cd)pyrene	132	40.4	Q	µg/Kg-dry	1	12/28/2016 11:01:25 PM
Dibenz(a,h)anthracene	ND	40.4		µg/Kg-dry	1	12/28/2016 11:01:25 PM
Benzo(g,h,i)perylene	159	40.4	Q	µg/Kg-dry	1	12/28/2016 11:01:25 PM
Surr: 2-Fluorobiphenyl	56.4	24.5-139		%Rec	1	12/28/2016 11:01:25 PM
Surr: Terphenyl-d14 (surr)	69.4	44.3-176		%Rec	1	12/28/2016 11:01:25 PM

NOTES:

Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Gasoline by NWTPH-Gx				Batch ID: 15786		Analyst: NG
Gasoline	ND	5.45		mg/Kg-dry	1	12/29/2016 12:23:04 PM
Surr: Toluene-d8	93.2	65-135		%Rec	1	12/29/2016 12:23:04 PM
Surr: 4-Bromofluorobenzene	103	65-135		%Rec	1	12/29/2016 12:23:04 PM

Client: GeoEngineers
Collection Date: 12/28/2016 2:10:00 PM
Project: Rufus Block 20
Lab ID: 1612275-003
Matrix: Soil
Client Sample ID: **W32N21-5.0**

Volatile Organic Compounds by EPA Method 8260C

Batch ID: 15786 Analyst: NG

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane (CFC-12)	ND	0.0654		mg/Kg-dry	1	12/29/2016 12:23:04 PM
Chloromethane	ND	0.0654		mg/Kg-dry	1	12/29/2016 12:23:04 PM
Vinyl chloride	ND	0.00218		mg/Kg-dry	1	12/29/2016 12:23:04 PM
Bromomethane	ND	0.0981		mg/Kg-dry	1	12/29/2016 12:23:04 PM
Trichlorofluoromethane (CFC-11)	ND	0.0545		mg/Kg-dry	1	12/29/2016 12:23:04 PM
Chloroethane	ND	0.0654		mg/Kg-dry	1	12/29/2016 12:23:04 PM
1,1-Dichloroethene	ND	0.0545		mg/Kg-dry	1	12/29/2016 12:23:04 PM
Methylene chloride	ND	0.0218		mg/Kg-dry	1	12/29/2016 12:23:04 PM
trans-1,2-Dichloroethene	ND	0.0218		mg/Kg-dry	1	12/29/2016 12:23:04 PM
Methyl tert-butyl ether (MTBE)	ND	0.0545		mg/Kg-dry	1	12/29/2016 12:23:04 PM
1,1-Dichloroethane	ND	0.0218		mg/Kg-dry	1	12/29/2016 12:23:04 PM
2,2-Dichloropropane	ND	0.0545		mg/Kg-dry	1	12/29/2016 12:23:04 PM
cis-1,2-Dichloroethene	ND	0.0218		mg/Kg-dry	1	12/29/2016 12:23:04 PM
Chloroform	0.0512	0.0218	BQ	mg/Kg-dry	1	12/29/2016 12:23:04 PM
1,1,1-Trichloroethane (TCA)	ND	0.0218		mg/Kg-dry	1	12/29/2016 12:23:04 PM
1,1-Dichloropropene	ND	0.0218		mg/Kg-dry	1	12/29/2016 12:23:04 PM
Carbon tetrachloride	ND	0.0218		mg/Kg-dry	1	12/29/2016 12:23:04 PM
1,2-Dichloroethane (EDC)	ND	0.0327		mg/Kg-dry	1	12/29/2016 12:23:04 PM
Benzene	ND	0.0218		mg/Kg-dry	1	12/29/2016 12:23:04 PM
Trichloroethene (TCE)	ND	0.0218		mg/Kg-dry	1	12/29/2016 12:23:04 PM
1,2-Dichloropropane	ND	0.0218		mg/Kg-dry	1	12/29/2016 12:23:04 PM
Bromodichloromethane	ND	0.0218		mg/Kg-dry	1	12/29/2016 12:23:04 PM
Dibromomethane	ND	0.0436		mg/Kg-dry	1	12/29/2016 12:23:04 PM
cis-1,3-Dichloropropene	ND	0.0218		mg/Kg-dry	1	12/29/2016 12:23:04 PM
Toluene	ND	0.0218		mg/Kg-dry	1	12/29/2016 12:23:04 PM
trans-1,3-Dichloropropylene	ND	0.0327		mg/Kg-dry	1	12/29/2016 12:23:04 PM
1,1,2-Trichloroethane	ND	0.0327		mg/Kg-dry	1	12/29/2016 12:23:04 PM
1,3-Dichloropropane	ND	0.0545		mg/Kg-dry	1	12/29/2016 12:23:04 PM
Tetrachloroethene (PCE)	ND	0.0218		mg/Kg-dry	1	12/29/2016 12:23:04 PM
Dibromochloromethane	ND	0.0327		mg/Kg-dry	1	12/29/2016 12:23:04 PM
1,2-Dibromoethane (EDB)	ND	0.00545		mg/Kg-dry	1	12/29/2016 12:23:04 PM
Chlorobenzene	ND	0.0218		mg/Kg-dry	1	12/29/2016 12:23:04 PM
1,1,1,2-Tetrachloroethane	ND	0.0327		mg/Kg-dry	1	12/29/2016 12:23:04 PM
Ethylbenzene	ND	0.0327		mg/Kg-dry	1	12/29/2016 12:23:04 PM
m,p-Xylene	ND	0.0218		mg/Kg-dry	1	12/29/2016 12:23:04 PM
o-Xylene	ND	0.0218		mg/Kg-dry	1	12/29/2016 12:23:04 PM
Styrene	ND	0.0218		mg/Kg-dry	1	12/29/2016 12:23:04 PM
Isopropylbenzene	ND	0.0872		mg/Kg-dry	1	12/29/2016 12:23:04 PM
Bromoform	ND	0.0218		mg/Kg-dry	1	12/29/2016 12:23:04 PM

Client: GeoEngineers **Collection Date:** 12/28/2016 2:10:00 PM

Project: Rufus Block 20

Lab ID: 1612275-003 **Matrix:** Soil

Client Sample ID: W32N21-5.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15786		Analyst: NG
1,1,2,2-Tetrachloroethane	ND	0.0218		mg/Kg-dry	1	12/29/2016 12:23:04 PM
n-Propylbenzene	ND	0.0218		mg/Kg-dry	1	12/29/2016 12:23:04 PM
Bromobenzene	ND	0.0327		mg/Kg-dry	1	12/29/2016 12:23:04 PM
1,3,5-Trimethylbenzene	0.0240	0.0218		mg/Kg-dry	1	12/29/2016 12:23:04 PM
2-Chlorotoluene	ND	0.0218		mg/Kg-dry	1	12/29/2016 12:23:04 PM
4-Chlorotoluene	ND	0.0218		mg/Kg-dry	1	12/29/2016 12:23:04 PM
tert-Butylbenzene	ND	0.0218		mg/Kg-dry	1	12/29/2016 12:23:04 PM
1,2,3-Trichloropropane	ND	0.0218		mg/Kg-dry	1	12/29/2016 12:23:04 PM
1,2,4-Trichlorobenzene	ND	0.0545		mg/Kg-dry	1	12/29/2016 12:23:04 PM
sec-Butylbenzene	ND	0.0218		mg/Kg-dry	1	12/29/2016 12:23:04 PM
4-Isopropyltoluene	ND	0.0218		mg/Kg-dry	1	12/29/2016 12:23:04 PM
1,3-Dichlorobenzene	ND	0.0218		mg/Kg-dry	1	12/29/2016 12:23:04 PM
1,4-Dichlorobenzene	ND	0.0218		mg/Kg-dry	1	12/29/2016 12:23:04 PM
n-Butylbenzene	ND	0.0218		mg/Kg-dry	1	12/29/2016 12:23:04 PM
1,2-Dichlorobenzene	ND	0.0218		mg/Kg-dry	1	12/29/2016 12:23:04 PM
1,2-Dibromo-3-chloropropane	ND	0.545		mg/Kg-dry	1	12/29/2016 12:23:04 PM
1,2,4-Trimethylbenzene	0.0470	0.0218		mg/Kg-dry	1	12/29/2016 12:23:04 PM
Hexachlorobutadiene	ND	0.109		mg/Kg-dry	1	12/29/2016 12:23:04 PM
Naphthalene	ND	0.0327		mg/Kg-dry	1	12/29/2016 12:23:04 PM
1,2,3-Trichlorobenzene	ND	0.0218		mg/Kg-dry	1	12/29/2016 12:23:04 PM
Surr: Dibromofluoromethane	99.2	56.5-129		%Rec	1	12/29/2016 12:23:04 PM
Surr: Toluene-d8	102	64.5-151		%Rec	1	12/29/2016 12:23:04 PM
Surr: 1-Bromo-4-fluorobenzene	97.5	63.1-141		%Rec	1	12/29/2016 12:23:04 PM

NOTES:

Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Chloroform is a common laboratory contaminant that is a bi-product of the chlorination of municipal water. Please refer to the Method Blank.

Mercury by EPA Method 7471				Batch ID: 15798		Analyst: WF
Mercury	ND	0.286		mg/Kg-dry	1	12/29/2016 4:05:10 PM
Total Metals by EPA Method 6020				Batch ID: 15790		Analyst: TN
Arsenic	5.10	0.0923		mg/Kg-dry	1	12/29/2016 2:18:20 PM
Barium	138	0.461		mg/Kg-dry	1	12/29/2016 2:18:20 PM
Cadmium	ND	0.185		mg/Kg-dry	1	12/29/2016 2:18:20 PM
Chromium	42.0	0.0923		mg/Kg-dry	1	12/29/2016 2:18:20 PM

Analytical Report

Work Order: **1612275**
Date Reported: **12/29/2016**

Client: GeoEngineers
Collection Date: 12/28/2016 2:10:00 PM
Project: Rufus Block 20
Lab ID: 1612275-003
Matrix: Soil
Client Sample ID: **W32N21-5.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 15790		Analyst: TN
Lead	70.5	0.185		mg/Kg-dry	1	12/29/2016 2:18:20 PM
Selenium	1.50	0.461		mg/Kg-dry	1	12/29/2016 2:18:20 PM
Silver	0.105	0.0923		mg/Kg-dry	1	12/29/2016 2:18:20 PM
Sample Moisture (Percent Moisture)				Batch ID: R33612		Analyst: BB
Percent Moisture	12.6			wt%	1	12/29/2016 9:13:11 AM

Work Order: 1612275
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID **MB-15785**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **12/28/2016**	RunNo: **33610**
Client ID: **MBLKS**	Batch ID: **15785**		Analysis Date: **12/28/2016**	SeqNo: **637789**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	20.0									
Heavy Oil	ND	50.0									
Surr: 2-Fluorobiphenyl	18.2		20.00		90.9	50	150				
Surr: o-Terphenyl	18.1		20.00		90.7	50	150				

Sample ID **LCS-15785**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **12/28/2016**	RunNo: **33610**
Client ID: **LCSS**	Batch ID: **15785**		Analysis Date: **12/28/2016**	SeqNo: **637788**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	468	20.0	500.0	0	93.5	65	135				
Surr: 2-Fluorobiphenyl	21.6		20.00		108	50	150				
Surr: o-Terphenyl	22.5		20.00		112	50	150				

Sample ID **1612275-002ADUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **12/28/2016**	RunNo: **33610**
Client ID: **W24N23-5.0**	Batch ID: **15785**		Analysis Date: **12/28/2016**	SeqNo: **637780**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	21.3						0		30	
Heavy Oil	53.9	53.3						52.76	2.11	30	
Surr: 2-Fluorobiphenyl	18.3		21.32		86.0	50	150		0		
Surr: o-Terphenyl	18.3		21.32		86.1	50	150		0		

Sample ID **1612275-002AMS**	SampType: **MS**	Units: **mg/Kg-dry**	Prep Date: **12/28/2016**	RunNo: **33610**
Client ID: **W24N23-5.0**	Batch ID: **15785**		Analysis Date: **12/28/2016**	SeqNo: **637781**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	499	20.7	517.5	0	96.4	65	135				
Surr: 2-Fluorobiphenyl	21.4		20.70		104	50	150				
Surr: o-Terphenyl	23.0		20.70		111	50	150				

Work Order: 1612275
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID **1612275-002AMS**	SampType: **MS**			Units: **mg/Kg-dry**		Prep Date: **12/28/2016**		RunNo: **33610**			
Client ID: **W24N23-5.0**	Batch ID: **15785**					Analysis Date: **12/28/2016**		SeqNo: **637781**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID **1612275-002AMSD**	SampType: **MSD**			Units: **mg/Kg-dry**		Prep Date: **12/28/2016**		RunNo: **33610**			
Client ID: **W24N23-5.0**	Batch ID: **15785**					Analysis Date: **12/28/2016**		SeqNo: **637782**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	509	22.3	558.3	0	91.2	65	135	499.0	2.02	30	
Surr: 2-Fluorobiphenyl	22.4		22.33		100	50	150		0		
Surr: o-Terphenyl	23.4		22.33		105	50	150		0		

Work Order: 1612275
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Gasoline by NWTPH-Gx

Sample ID	**LCS-15786**	SampType: **LCS**		Units: **mg/Kg**		Prep Date: **12/28/2016**		RunNo: **33628**			
Client ID:	**LCSS**	Batch ID: **15786**				Analysis Date: **12/29/2016**		SeqNo: **638108**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	38.0	5.00	25.00	0	152	65	135				S
Surr: Toluene-d8	1.17		1.250		93.9	65	135				
Surr: 4-Bromofluorobenzene	1.34		1.250		107	65	135				

NOTES:
S - Outlying spike recovery observed (high bias). Samples are non-detect for this analyte; no further action required.

Sample ID	**MB-15786**	SampType: **MBLK**		Units: **mg/Kg**		Prep Date: **12/28/2016**		RunNo: **33628**			
Client ID:	**MBLKS**	Batch ID: **15786**				Analysis Date: **12/29/2016**		SeqNo: **638109**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	5.00									
Surr: Toluene-d8	1.14		1.250		91.4	65	135				
Surr: 4-Bromofluorobenzene	1.28		1.250		102	65	135				

Sample ID	**1612275-002BDUP**	SampType: **DUP**		Units: **mg/Kg-dry**		Prep Date: **12/28/2016**		RunNo: **33628**			
Client ID:	**W24N23-5.0**	Batch ID: **15786**				Analysis Date: **12/29/2016**		SeqNo: **638103**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	5.51						0		30	
Surr: Toluene-d8	1.27		1.378		92.2	65	135		0		
Surr: 4-Bromofluorobenzene	1.41		1.378		102	65	135		0		

Sample ID	**1612275-003BMS**	SampType: **MS**		Units: **mg/Kg-dry**		Prep Date: **12/28/2016**		RunNo: **33628**			
Client ID:	**W32N21-5.0**	Batch ID: **15786**				Analysis Date: **12/29/2016**		SeqNo: **638105**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	39.1	5.45	27.25	0	144	65	135				S
Surr: Toluene-d8	1.28		1.362		94.2	65	135				
Surr: 4-Bromofluorobenzene	1.45		1.362		106	65	135				

Work Order: 1612275
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Gasoline by NWTPH-Gx

Sample ID **1612275-003BMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **12/28/2016** RunNo: **33628**
Client ID: **W32N21-5.0** Batch ID: **15786** Analysis Date: **12/29/2016** SeqNo: **638105**

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

NOTES:
S - Outlying spike recovery(ies) observed. A duplicate analysis was performed and recovered within range.

Sample ID **1612275-003BMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **12/28/2016** RunNo: **33628**
Client ID: **W32N21-5.0** Batch ID: **15786** Analysis Date: **12/29/2016** SeqNo: **638106**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	35.7	5.45	27.25	0	131	65	135	39.14	9.26	30	
Surr: Toluene-d8	1.26		1.362		92.8	65	135		0		
Surr: 4-Bromofluorobenzene	1.42		1.362		104	65	135		0		

Work Order: 1612275
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Mercury by EPA Method 7471

Sample ID	MB-15798	SampType:	MBLK			Units:	mg/Kg	Prep Date:	12/29/2016	RunNo:	33624	
Client ID:	MBLKS	Batch ID:	15798					Analysis Date:	12/29/2016	SeqNo:	638187	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		ND	0.250									

Sample ID	LCS-15798	SampType:	LCS			Units:	mg/Kg	Prep Date:	12/29/2016	RunNo:	33624	
Client ID:	LCSS	Batch ID:	15798					Analysis Date:	12/29/2016	SeqNo:	638188	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.505	0.240	0.4808	0	105	80	120				

Sample ID	1612228-001ADUP	SampType:	DUP			Units:	mg/Kg-dry	Prep Date:	12/29/2016	RunNo:	33624	
Client ID:	BATCH	Batch ID:	15798					Analysis Date:	12/29/2016	SeqNo:	638190	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		ND	0.253						0		20	

Sample ID	1612228-001AMS	SampType:	MS			Units:	mg/Kg-dry	Prep Date:	12/29/2016	RunNo:	33624	
Client ID:	BATCH	Batch ID:	15798					Analysis Date:	12/29/2016	SeqNo:	638191	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.552	0.244	0.4871	0.03868	105	70	130				

Sample ID	1612228-001AMSD	SampType:	MSD			Units:	mg/Kg-dry	Prep Date:	12/29/2016	RunNo:	33624	
Client ID:	BATCH	Batch ID:	15798					Analysis Date:	12/29/2016	SeqNo:	638192	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.535	0.248	0.4963	0.03868	100	70	130	0.5524	3.19	20	

Work Order: 1612275
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **MB-15784**	SampType: **MBLK**	Units: **µg/Kg**	Prep Date: **12/28/2016**	RunNo: **33618**
Client ID: **MBLKS**	Batch ID: **15784**		Analysis Date: **12/28/2016**	SeqNo: **637857**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	40.0									
2-Methylnaphthalene	ND	40.0									
1-Methylnaphthalene	ND	40.0									
Acenaphthylene	ND	40.0									
Acenaphthene	ND	40.0									
Fluorene	ND	40.0									
Phenanthrene	ND	40.0									
Anthracene	ND	40.0									
Fluoranthene	ND	40.0									
Pyrene	ND	40.0									
Benz(a)anthracene	ND	40.0									
Chrysene	ND	40.0									
Benzo(b)fluoranthene	ND	40.0									
Benzo(k)fluoranthene	ND	40.0									
Benzo(a)pyrene	ND	40.0									
Indeno(1,2,3-cd)pyrene	ND	40.0									
Dibenz(a,h)anthracene	ND	40.0									
Benzo(g,h,i)perylene	ND	40.0									
Surr: 2-Fluorobiphenyl	338		500.0		67.7	24.5	139				
Surr: Terphenyl-d14 (surr)	384		500.0		76.8	44.3	176				

Sample ID **LCS-15784**	SampType: **LCS**	Units: **µg/Kg**	Prep Date: **12/28/2016**	RunNo: **33618**
Client ID: **LCSS**	Batch ID: **15784**		Analysis Date: **12/28/2016**	SeqNo: **637858**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	1,010	40.0	1,000	0	101	46.4	125				
2-Methylnaphthalene	1,030	40.0	1,000	0	103	45.1	135				
1-Methylnaphthalene	1,020	40.0	1,000	0	102	46.2	133				
Acenaphthylene	998	40.0	1,000	0	99.8	32.8	136				
Acenaphthene	941	40.0	1,000	0	94.1	38.7	129				

Work Order: 1612275
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **LCS-15784** SampType: **LCS** Units: **µg/Kg** Prep Date: **12/28/2016** RunNo: **33618**
Client ID: **LCSS** Batch ID: **15784** Analysis Date: **12/28/2016** SeqNo: **637858**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluorene	1,020	40.0	1,000	0	102	41.4	144				
Phenanthrene	973	40.0	1,000	0	97.3	43.9	133				
Anthracene	1,030	40.0	1,000	0	103	44.2	136				
Fluoranthene	1,020	40.0	1,000	0	102	45.9	137				
Pyrene	1,030	40.0	1,000	0	103	46.2	137				
Benz(a)anthracene	1,060	40.0	1,000	0	106	41.9	136				
Chrysene	1,050	40.0	1,000	0	105	46.9	138				
Benzo(b)fluoranthene	1,070	40.0	1,000	0	107	35.9	148				
Benzo(k)fluoranthene	1,170	40.0	1,000	0	117	41.8	153				
Benzo(a)pyrene	1,190	40.0	1,000	0	119	36.3	144				
Indeno(1,2,3-cd)pyrene	1,360	40.0	1,000	0	136	31.3	159				
Dibenz(a,h)anthracene	1,380	40.0	1,000	0	138	28	158				
Benzo(g,h,i)perylene	1,390	40.0	1,000	0	139	32.4	144				
Surr: 2-Fluorobiphenyl	372		500.0		74.5	24.5	139				
Surr: Terphenyl-d14 (surr)	392		500.0		78.5	44.3	176				

Sample ID **1612275-001ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **12/28/2016** RunNo: **33618**
Client ID: **W27N22-5.0** Batch ID: **15784** Analysis Date: **12/28/2016** SeqNo: **637860**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	44.8						0		30	
2-Methylnaphthalene	ND	44.8						0		30	
1-Methylnaphthalene	ND	44.8						0		30	
Acenaphthylene	ND	44.8						0		30	
Acenaphthene	ND	44.8						86.64	74.0	30	R
Fluorene	ND	44.8						66.94	84.3	30	
Phenanthrene	414	44.8						743.5	57.0	30	R
Anthracene	64.6	44.8						148.9	79.0	30	R
Fluoranthene	519	44.8						754.3	37.0	30	R
Pyrene	582	44.8						866.9	39.4	30	R

Work Order: 1612275
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1612275-001ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **12/28/2016** RunNo: **33618**
Client ID: **W27N22-5.0** Batch ID: **15784** Analysis Date: **12/28/2016** SeqNo: **637860**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	237	44.8						328.2	32.2	30	R
Chrysene	258	44.8						373.3	36.6	30	R
Benzo(b)fluoranthene	290	44.8						412.2	34.9	30	R
Benzo(k)fluoranthene	99.0	44.8						100.0	0.988	30	
Benzo(a)pyrene	298	44.8						395.0	28.0	30	
Indeno(1,2,3-cd)pyrene	187	44.8						232.9	21.6	30	Q
Dibenz(a,h)anthracene	59.4	44.8						66.87	11.9	30	Q
Benzo(g,h,i)perylene	252	44.8						279.9	10.4	30	Q
Surr: 2-Fluorobiphenyl	339		559.9		60.6	24.5	139		0		
Surr: Terphenyl-d14 (surr)	371		559.9		66.3	44.3	176		0		

NOTES:
R - High RPD observed. The method is in control as indicated by the Laboratory Control Sample (LCS).
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample ID **1612275-001AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **12/28/2016** RunNo: **33618**
Client ID: **W27N22-5.0** Batch ID: **15784** Analysis Date: **12/28/2016** SeqNo: **637861**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	995	44.7	1,118	28.05	86.6	42.9	138				
2-Methylnaphthalene	980	44.7	1,118	22.02	85.7	42.8	151				
1-Methylnaphthalene	961	44.7	1,118	26.07	83.7	41.6	148				
Acenaphthylene	980	44.7	1,118	25.04	85.5	32.6	160				
Acenaphthene	916	44.7	1,118	86.64	74.2	46.3	142				
Fluorene	1,010	44.7	1,118	66.94	84.6	43.4	153				
Phenanthrene	1,230	44.7	1,118	743.5	43.7	45.5	140				S
Anthracene	1,060	44.7	1,118	148.9	81.4	32.6	160				
Fluoranthene	1,420	44.7	1,118	754.3	59.8	44.6	161				
Pyrene	1,500	44.7	1,118	866.9	56.4	48.3	158				
Benz(a)anthracene	1,270	44.7	1,118	328.2	84.2	57.5	169				
Chrysene	1,230	44.7	1,118	373.3	76.6	45.2	146				
Benzo(b)fluoranthene	1,340	44.7	1,118	412.2	83.3	42.2	168				

Work Order: 1612275
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1612275-001AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **12/28/2016** RunNo: **33618**
Client ID: **W27N22-5.0** Batch ID: **15784** Analysis Date: **12/28/2016** SeqNo: **637861**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzo(k)fluoranthene	1,250	44.7	1,118	100.0	103	48	161				
Benzo(a)pyrene	1,470	44.7	1,118	395.0	95.7	34.4	179				
Indeno(1,2,3-cd)pyrene	1,480	44.7	1,118	232.9	112	5	113				
Dibenz(a,h)anthracene	1,400	44.7	1,118	66.87	120	17.3	156				
Benzo(g,h,i)perylene	1,530	44.7	1,118	279.9	112	45.6	157				
Surr: 2-Fluorobiphenyl	337		558.8		60.4	24.5	139				
Surr: Terphenyl-d14 (surr)	369		558.8		66.1	44.3	176				

NOTES:
S - Spike recovery indicates a possible matrix effect. The method is in control as indicated by the Laboratory Control Sample (LCS).

Sample ID **1612275-001AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **12/28/2016** RunNo: **33618**
Client ID: **W27N22-5.0** Batch ID: **15784** Analysis Date: **12/28/2016** SeqNo: **637862**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	960	41.3	1,033	28.05	90.2	42.9	138	995.4	3.66	30	
2-Methylnaphthalene	949	41.3	1,033	22.02	89.7	42.8	151	980.0	3.23	30	
1-Methylnaphthalene	931	41.3	1,033	26.07	87.6	41.6	148	961.3	3.25	30	
Acenaphthylene	940	41.3	1,033	25.04	88.6	32.6	160	980.4	4.17	30	
Acenaphthene	885	41.3	1,033	86.64	77.3	46.3	142	916.3	3.48	30	
Fluorene	974	41.3	1,033	66.94	87.9	43.4	153	1,013	3.84	30	
Phenanthrene	1,140	41.3	1,033	743.5	38.5	45.5	140	1,232	7.66	30	S
Anthracene	1,010	41.3	1,033	148.9	83.7	32.6	160	1,058	4.35	30	
Fluoranthene	1,260	41.3	1,033	754.3	49.2	44.6	161	1,422	11.9	30	
Pyrene	1,320	41.3	1,033	866.9	43.5	48.3	158	1,497	12.9	30	S
Benz(a)anthracene	1,150	41.3	1,033	328.2	79.7	57.5	169	1,270	9.76	30	
Chrysene	1,120	41.3	1,033	373.3	72.4	45.2	146	1,229	9.19	30	
Benzo(b)fluoranthene	1,240	41.3	1,033	412.2	80.0	42.2	168	1,343	8.11	30	
Benzo(k)fluoranthene	1,130	41.3	1,033	100.0	99.4	48	161	1,247	10.1	30	
Benzo(a)pyrene	1,320	41.3	1,033	395.0	89.1	34.4	179	1,465	10.8	30	
Indeno(1,2,3-cd)pyrene	1,380	41.3	1,033	232.9	111	5	113	1,480	7.16	30	
Dibenz(a,h)anthracene	1,330	41.3	1,033	66.87	122	17.3	156	1,404	5.24	30	

Work Order: 1612275
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1612275-001AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **12/28/2016** RunNo: **33618**
Client ID: **W27N22-5.0** Batch ID: **15784** Analysis Date: **12/28/2016** SeqNo: **637862**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzo(g,h,i)perylene	1,400	41.3	1,033	279.9	108	45.6	157	1,528	9.11	30	
Surr: 2-Fluorobiphenyl	319		516.5		61.9	24.5	139		0		
Surr: Terphenyl-d14 (surr)	347		516.5		67.2	44.3	176		0		

NOTES:
S - Spike recovery indicates a possible matrix effect. The method is in control as indicated by the Laboratory Control Sample (LCS).

Work Order: 1612275
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Sample Moisture (Percent Moisture)

Sample ID **1612275-003ADUP** SampType: **DUP** Units: **wt%** Prep Date: **12/29/2016** RunNo: **33612**
Client ID: **W32N21-5.0** Batch ID: **R33612** Analysis Date: **12/29/2016** SeqNo: **637795**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	13.5	0.500						12.62	6.43	20	

Work Order: 1612275
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID **MB-15790** SampType: **MBLK** Units: **mg/Kg** Prep Date: **12/29/2016** RunNo: **33626**
Client ID: **MBLKS** Batch ID: **15790** Analysis Date: **12/29/2016** SeqNo: **638045**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.0806									
Barium	ND	0.403									
Cadmium	ND	0.161									
Chromium	ND	0.0806									
Lead	ND	0.161									
Selenium	ND	0.403									
Silver	ND	0.0806									

Sample ID **LCS-15790** SampType: **LCS** Units: **mg/Kg** Prep Date: **12/29/2016** RunNo: **33626**
Client ID: **LCSS** Batch ID: **15790** Analysis Date: **12/29/2016** SeqNo: **638046**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	45.0	0.0826	41.32	0	109	80	120				
Barium	44.3	0.413	41.32	0	107	80	120				
Cadmium	2.17	0.165	2.066	0	105	80	120				
Chromium	46.0	0.0826	41.32	0	111	80	120				
Lead	20.5	0.165	20.66	0	99.2	80	120				
Selenium	4.33	0.413	4.132	0	105	80	120				
Silver	2.08	0.0826	2.066	0	101	80	120				

Sample ID **1612275-001ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **12/29/2016** RunNo: **33626**
Client ID: **W27N22-5.0** Batch ID: **15790** Analysis Date: **12/29/2016** SeqNo: **638050**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	8.19	0.0959						5.705	35.7	20	R
Barium	265	0.479						239.7	10.2	20	
Cadmium	0.274	0.192						0.2222	20.9	20	
Chromium	47.7	0.0959						40.82	15.6	20	
Lead	107	0.192						102.5	4.37	20	
Selenium	2.01	0.479						1.535	27.0	20	

Work Order: 1612275
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID **1612275-001ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **12/29/2016** RunNo: **33626**
Client ID: **W27N22-5.0** Batch ID: **15790** Analysis Date: **12/29/2016** SeqNo: **638050**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Silver	0.194	0.0959						0.1356	35.4	20	

NOTES:
R - High RPD observed. The method is in control as indicated by the LCS.

Sample ID **1612275-001AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **12/29/2016** RunNo: **33626**
Client ID: **W27N22-5.0** Batch ID: **15790** Analysis Date: **12/29/2016** SeqNo: **638052**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	61.7	0.0951	47.54	5.705	118	75	125				
Barium	398	0.475	47.54	239.7	334	75	125				S
Cadmium	2.90	0.190	2.377	0.2222	113	75	125				
Chromium	104	0.0951	47.54	40.82	133	75	125				S
Lead	124	0.190	23.77	102.5	90.2	75	125				
Selenium	6.93	0.475	4.754	1.535	113	75	125				
Silver	1.80	0.0951	2.377	0.1356	69.9	75	125				S

NOTES:
S - Outlying spike recovery(ies) observed. A duplicate analysis was performed with similar results indicating a possible matrix effect.

Sample ID **1612275-001AMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **12/29/2016** RunNo: **33626**
Client ID: **W27N22-5.0** Batch ID: **15790** Analysis Date: **12/29/2016** SeqNo: **638053**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	59.9	0.0951	47.54	5.705	114	75	125	61.71	2.93	20	
Barium	273	0.475	47.54	239.7	70.7	75	125	398.5	37.3	20	RS
Cadmium	2.71	0.190	2.377	0.2222	105	75	125	2.902	6.86	20	
Chromium	103	0.0951	47.54	40.82	131	75	125	104.0	0.909	20	S
Lead	150	0.190	23.77	102.5	200	75	125	123.9	19.1	20	S
Selenium	7.03	0.475	4.754	1.535	116	75	125	6.930	1.48	20	
Silver	1.77	0.0951	2.377	0.1356	68.7	75	125	1.797	1.63	20	S

Work Order: 1612275
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID **1612275-001AMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **12/29/2016** RunNo: **33626**
Client ID: **W27N22-5.0** Batch ID: **15790** Analysis Date: **12/29/2016** SeqNo: **638053**

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

NOTES:
S - Outlying spike recovery(ies) observed. A duplicate analysis was performed with similar results indicating a possible matrix effect.
S - Outlying spike recovery(ies) observed. A duplicate analysis was performed and recovered within range.
R - High RPD observed. The method is in control as indicated by the LCS.

Sample ID **1612275-001APDS** SampType: **PDS** Units: **mg/Kg-dry** Prep Date: **12/29/2016** RunNo: **33626**
Client ID: **W27N22-5.0** Batch ID: **15790** Analysis Date: **12/29/2016** SeqNo: **638054**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	134	0.0959	50.0	11.9	122	80	120				S
Barium	661	0.479	50.0	500	161	80	120				S
Cadmium	5.95	0.192	2.50	0.464	110	80	120				
Chromium	222	0.0959	50.0	85.2	137	80	120				S
Lead	302	0.192	25.0	214	177	80	120				S
Selenium	14.5	0.479	5.00	3.20	113	80	120				
Silver	4.37	0.0959	2.50	0.283	81.7	80	120				

NOTES:
S - Spike recovery indicates a possible matrix effect. The method is in control as indicated by the Laboratory Control Sample (LCS).

Work Order: 1612275
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-15786** SampType: **LCS** Units: **mg/Kg** Prep Date: **12/28/2016** RunNo: **33627**
Client ID: **LCSS** Batch ID: **15786** Analysis Date: **12/29/2016** SeqNo: **638066**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	1.49	0.0600	1.000	0	149	34.5	141				S
Chloromethane	0.986	0.0600	1.000	0	98.6	38.8	132				
Vinyl chloride	1.29	0.00200	1.000	0	129	44	142				
Bromomethane	1.33	0.0900	1.000	0	133	40.9	157				
Trichlorofluoromethane (CFC-11)	1.23	0.0500	1.000	0	123	41.7	153				
Chloroethane	1.31	0.0600	1.000	0	131	37.1	144				
1,1-Dichloroethene	1.15	0.0500	1.000	0	115	49.7	142				
Methylene chloride	1.21	0.0200	1.000	0	121	46.3	140				
trans-1,2-Dichloroethene	1.21	0.0200	1.000	0	121	68	130				
Methyl tert-butyl ether (MTBE)	1.44	0.0500	1.000	0	144	66.3	145				
1,1-Dichloroethane	1.14	0.0200	1.000	0	114	61.9	137				
2,2-Dichloropropane	1.56	0.0500	1.000	0	156	28.1	149				S
cis-1,2-Dichloroethene	1.35	0.0200	1.000	0	135	71.3	135				
Chloroform	1.44	0.0200	1.000	0	144	69	145				B
1,1,1-Trichloroethane (TCA)	1.26	0.0200	1.000	0	126	69	132				
1,1-Dichloropropene	1.17	0.0200	1.000	0	117	72.7	131				
Carbon tetrachloride	1.12	0.0200	1.000	0	112	63.4	137				
1,2-Dichloroethane (EDC)	1.21	0.0300	1.000	0	121	61.9	136				
Benzene	1.18	0.0200	1.000	0	118	64.3	133				
Trichloroethene (TCE)	1.22	0.0200	1.000	0	122	65.5	137				
1,2-Dichloropropane	1.21	0.0200	1.000	0	121	63.2	142				
Bromodichloromethane	1.14	0.0200	1.000	0	114	73.2	131				
Dibromomethane	1.20	0.0400	1.000	0	120	70	130				
cis-1,3-Dichloropropene	1.26	0.0200	1.000	0	126	59.1	143				
Toluene	1.20	0.0200	1.000	0	120	67.3	138				
trans-1,3-Dichloropropylene	1.22	0.0300	1.000	0	122	49.2	149				
1,1,2-Trichloroethane	1.20	0.0300	1.000	0	120	74.5	129				
1,3-Dichloropropane	1.25	0.0500	1.000	0	125	70	130				
Tetrachloroethene (PCE)	1.22	0.0200	1.000	0	122	52.7	150				
Dibromochloromethane	1.13	0.0300	1.000	0	113	70.6	144				
1,2-Dibromoethane (EDB)	1.24	0.00500	1.000	0	124	70	130				

Work Order: 1612275
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-15786** SampType: **LCS** Units: **mg/Kg** Prep Date: **12/28/2016** RunNo: **33627**
Client ID: **LCSS** Batch ID: **15786** Analysis Date: **12/29/2016** SeqNo: **638066**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chlorobenzene	1.13	0.0200	1.000	0	113	76.1	123				
1,1,1,2-Tetrachloroethane	1.09	0.0300	1.000	0	109	65.9	141				
Ethylbenzene	1.15	0.0300	1.000	0	115	74	129				
m,p-Xylene	2.26	0.0200	2.000	0	113	70	124				
o-Xylene	1.14	0.0200	1.000	0	114	72.7	124				
Styrene	1.14	0.0200	1.000	0	114	76.8	130				
Isopropylbenzene	1.13	0.0800	1.000	0	113	70	130				
Bromoform	0.964	0.0200	1.000	0	96.4	67	154				
1,1,2,2-Tetrachloroethane	1.06	0.0200	1.000	0	106	60	130				
n-Propylbenzene	1.11	0.0200	1.000	0	111	74.8	125				
Bromobenzene	1.13	0.0300	1.000	0	113	49.2	144				
1,3,5-Trimethylbenzene	1.10	0.0200	1.000	0	110	74.6	123				
2-Chlorotoluene	1.13	0.0200	1.000	0	113	76.7	129				
4-Chlorotoluene	1.13	0.0200	1.000	0	113	77.5	125				
tert-Butylbenzene	1.12	0.0200	1.000	0	112	66.2	130				
1,2,3-Trichloropropane	1.12	0.0200	1.000	0	112	67.9	136				
1,2,4-Trichlorobenzene	1.18	0.0500	1.000	0	118	62.6	143				
sec-Butylbenzene	1.11	0.0200	1.000	0	111	75.6	133				
4-Isopropyltoluene	1.09	0.0200	1.000	0	109	76.8	131				
1,3-Dichlorobenzene	1.15	0.0200	1.000	0	115	72.8	128				
1,4-Dichlorobenzene	1.16	0.0200	1.000	0	116	72.6	126				
n-Butylbenzene	1.13	0.0200	1.000	0	113	65.3	136				
1,2-Dichlorobenzene	1.16	0.0200	1.000	0	116	72.8	126				
1,2-Dibromo-3-chloropropane	1.09	0.500	1.000	0	109	61.2	139				
1,2,4-Trimethylbenzene	1.12	0.0200	1.000	0	112	77.5	129				
Hexachlorobutadiene	1.12	0.100	1.000	0	112	42	151				
Naphthalene	1.25	0.0300	1.000	0	125	62.3	134				
1,2,3-Trichlorobenzene	1.12	0.0200	1.000	0	112	54.8	143				
Surr: Dibromofluoromethane	1.25		1.250		100	56.5	129				
Surr: Toluene-d8	1.34		1.250		107	64.5	151				
Surr: 1-Bromo-4-fluorobenzene	1.29		1.250		103	63.1	141				

Work Order: 1612275
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID	**LCS-15786**	SampType: **LCS**		Units: **mg/Kg**		Prep Date: **12/28/2016**		RunNo: **33627**	
Client ID:	**LCSS**	Batch ID: **15786**				Analysis Date: **12/29/2016**		SeqNo: **638066**	

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

NOTES:
S - Outlying spike recovery observed (high bias). Samples are non-detect for this analyte; no further action required.

Sample ID	**MB-15786**	SampType: **MBLK**		Units: **mg/Kg**		Prep Date: **12/28/2016**		RunNo: **33627**	
Client ID:	**MBLKS**	Batch ID: **15786**				Analysis Date: **12/29/2016**		SeqNo: **638067**	

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	ND	0.0600									
Chloromethane	ND	0.0600									
Vinyl chloride	ND	0.00200									
Bromomethane	ND	0.0900									
Trichlorofluoromethane (CFC-11)	ND	0.0500									
Chloroethane	ND	0.0600									
1,1-Dichloroethene	ND	0.0500									
Methylene chloride	ND	0.0200									
trans-1,2-Dichloroethene	ND	0.0200									
Methyl tert-butyl ether (MTBE)	ND	0.0500									
1,1-Dichloroethane	ND	0.0200									
2,2-Dichloropropane	ND	0.0500									
cis-1,2-Dichloroethene	ND	0.0200									
Chloroform	0.179	0.0200									
1,1,1-Trichloroethane (TCA)	ND	0.0200									
1,1-Dichloropropene	ND	0.0200									
Carbon tetrachloride	ND	0.0200									
1,2-Dichloroethane (EDC)	ND	0.0300									
Benzene	ND	0.0200									
Trichloroethene (TCE)	ND	0.0200									
1,2-Dichloropropane	ND	0.0200									
Bromodichloromethane	ND	0.0200									
Dibromomethane	ND	0.0400									
cis-1,3-Dichloropropene	ND	0.0200									

Work Order: 1612275
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-15786** SampType: **MBLK** Units: **mg/Kg** Prep Date: **12/28/2016** RunNo: **33627**
Client ID: **MBLKS** Batch ID: **15786** Analysis Date: **12/29/2016** SeqNo: **638067**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Toluene	ND	0.0200									
trans-1,3-Dichloropropylene	ND	0.0300									
1,1,2-Trichloroethane	ND	0.0300									
1,3-Dichloropropane	ND	0.0500									
Tetrachloroethene (PCE)	ND	0.0200									
Dibromochloromethane	ND	0.0300									
1,2-Dibromoethane (EDB)	ND	0.00500									
Chlorobenzene	ND	0.0200									
1,1,1,2-Tetrachloroethane	ND	0.0300									
Ethylbenzene	ND	0.0300									
m,p-Xylene	ND	0.0200									
o-Xylene	ND	0.0200									
Styrene	ND	0.0200									
Isopropylbenzene	ND	0.0800									
Bromoform	ND	0.0200									
1,1,2,2-Tetrachloroethane	ND	0.0200									
n-Propylbenzene	ND	0.0200									
Bromobenzene	ND	0.0300									
1,3,5-Trimethylbenzene	ND	0.0200									
2-Chlorotoluene	ND	0.0200									
4-Chlorotoluene	ND	0.0200									
tert-Butylbenzene	ND	0.0200									
1,2,3-Trichloropropane	ND	0.0200									
1,2,4-Trichlorobenzene	ND	0.0500									
sec-Butylbenzene	ND	0.0200									
4-Isopropyltoluene	ND	0.0200									
1,3-Dichlorobenzene	ND	0.0200									
1,4-Dichlorobenzene	ND	0.0200									
n-Butylbenzene	ND	0.0200									
1,2-Dichlorobenzene	ND	0.0200									
1,2-Dibromo-3-chloropropane	ND	0.500									

Work Order: 1612275
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-15786** SampType: **MBLK** Units: **mg/Kg** Prep Date: **12/28/2016** RunNo: **33627**
Client ID: **MBLKS** Batch ID: **15786** Analysis Date: **12/29/2016** SeqNo: **638067**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trimethylbenzene	ND	0.0200									
Hexachlorobutadiene	ND	0.100									
Naphthalene	ND	0.0300									
1,2,3-Trichlorobenzene	ND	0.0200									
Surr: Dibromofluoromethane	1.26		1.250		100	56.5	129				
Surr: Toluene-d8	1.30		1.250		104	64.5	151				
Surr: 1-Bromo-4-fluorobenzene	1.23		1.250		98.0	63.1	141				

Sample ID **1612275-002BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **12/28/2016** RunNo: **33627**
Client ID: **W24N23-5.0** Batch ID: **15786** Analysis Date: **12/29/2016** SeqNo: **638063**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	ND	0.0662						0		30	
Chloromethane	ND	0.0662						0		30	
Vinyl chloride	ND	0.00221						0		30	
Bromomethane	ND	0.0992						0		30	
Trichlorofluoromethane (CFC-11)	ND	0.0551						0		30	
Chloroethane	ND	0.0662						0		30	
1,1-Dichloroethene	ND	0.0551						0		30	
Methylene chloride	ND	0.0221						0		30	
trans-1,2-Dichloroethene	ND	0.0221						0		30	
Methyl tert-butyl ether (MTBE)	ND	0.0551						0		30	
1,1-Dichloroethane	ND	0.0221						0		30	
2,2-Dichloropropane	ND	0.0551						0		30	
cis-1,2-Dichloroethene	ND	0.0221						0		30	
Chloroform	0.0501	0.0221						0.05253	4.78	30	BQ
1,1,1-Trichloroethane (TCA)	ND	0.0221						0		30	
1,1-Dichloropropene	ND	0.0221						0		30	
Carbon tetrachloride	ND	0.0221						0		30	
1,2-Dichloroethane (EDC)	ND	0.0331						0		30	

Work Order: 1612275
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1612275-002BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **12/28/2016** RunNo: **33627**
Client ID: **W24N23-5.0** Batch ID: **15786** Analysis Date: **12/29/2016** SeqNo: **638063**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	0.0221						0		30	
Trichloroethene (TCE)	ND	0.0221						0		30	
1,2-Dichloropropane	ND	0.0221						0		30	
Bromodichloromethane	ND	0.0221						0		30	
Dibromomethane	ND	0.0441						0		30	
cis-1,3-Dichloropropene	ND	0.0221						0		30	
Toluene	ND	0.0221						0		30	
trans-1,3-Dichloropropylene	ND	0.0331						0		30	
1,1,2-Trichloroethane	ND	0.0331						0		30	
1,3-Dichloropropane	ND	0.0551						0		30	
Tetrachloroethene (PCE)	ND	0.0221						0		30	
Dibromochloromethane	ND	0.0331						0		30	
1,2-Dibromoethane (EDB)	ND	0.00551						0		30	
Chlorobenzene	ND	0.0221						0		30	
1,1,1,2-Tetrachloroethane	ND	0.0331						0		30	
Ethylbenzene	ND	0.0331						0		30	
m,p-Xylene	ND	0.0221						0		30	
o-Xylene	ND	0.0221						0		30	
Styrene	ND	0.0221						0		30	
Isopropylbenzene	ND	0.0882						0		30	
Bromoform	ND	0.0221						0		30	
1,1,2,2-Tetrachloroethane	ND	0.0221						0		30	
n-Propylbenzene	ND	0.0221						0		30	
Bromobenzene	ND	0.0331						0		30	
1,3,5-Trimethylbenzene	ND	0.0221						0		30	
2-Chlorotoluene	ND	0.0221						0		30	
4-Chlorotoluene	ND	0.0221						0		30	
tert-Butylbenzene	ND	0.0221						0		30	
1,2,3-Trichloropropane	ND	0.0221						0		30	
1,2,4-Trichlorobenzene	ND	0.0551						0		30	
sec-Butylbenzene	ND	0.0221						0		30	

Work Order: 1612275
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1612275-002BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **12/28/2016** RunNo: **33627**
Client ID: **W24N23-5.0** Batch ID: **15786** Analysis Date: **12/29/2016** SeqNo: **638063**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4-Isopropyltoluene	ND	0.0221						0		30	
1,3-Dichlorobenzene	ND	0.0221						0		30	
1,4-Dichlorobenzene	ND	0.0221						0		30	
n-Butylbenzene	ND	0.0221						0		30	
1,2-Dichlorobenzene	ND	0.0221						0		30	
1,2-Dibromo-3-chloropropane	ND	0.551						0		30	
1,2,4-Trimethylbenzene	ND	0.0221						0		30	
Hexachlorobutadiene	ND	0.110						0		30	
Naphthalene	ND	0.0331						0		30	
1,2,3-Trichlorobenzene	ND	0.0221						0		30	
Surr: Dibromofluoromethane	1.36		1.378		98.5	56.5	129		0		
Surr: Toluene-d8	1.40		1.378		102	64.5	151		0		
Surr: 1-Bromo-4-fluorobenzene	1.34		1.378		97.0	63.1	141		0		

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample ID **1612275-001BMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **12/28/2016** RunNo: **33627**
Client ID: **W27N22-5.0** Batch ID: **15786** Analysis Date: **12/29/2016** SeqNo: **638060**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	0.881	0.0657	1.094	0	80.5	43.5	121				
Chloromethane	2.53	0.0657	1.094	0	231	45	130				S
Vinyl chloride	1.34	0.00219	1.094	0	122	51.2	146				
Bromomethane	0.676	0.0985	1.094	0.03130	58.9	21.3	120				
Trichlorofluoromethane (CFC-11)	0.720	0.0547	1.094	0	65.8	35	131				
Chloroethane	0.620	0.0657	1.094	0	56.6	43.8	117				
1,1-Dichloroethene	1.18	0.0547	1.094	0	108	61.9	141				
Methylene chloride	0.991	0.0219	1.094	0	90.6	54.7	142				
trans-1,2-Dichloroethene	1.12	0.0219	1.094	0	102	52	136				
Methyl tert-butyl ether (MTBE)	1.39	0.0547	1.094	0	127	54.4	132				
1,1-Dichloroethane	1.19	0.0219	1.094	0	109	51.8	141				

Work Order: 1612275
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1612275-001BMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **12/28/2016** RunNo: **33627**
Client ID: **W27N22-5.0** Batch ID: **15786** Analysis Date: **12/29/2016** SeqNo: **638060**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2,2-Dichloropropane	1.67	0.0547	1.094	0	152	36	123				S
cis-1,2-Dichloroethene	1.37	0.0219	1.094	0	126	58.6	136				
Chloroform	1.30	0.0219	1.094	0.05227	114	53.2	129				B
1,1,1-Trichloroethane (TCA)	1.26	0.0219	1.094	0	115	58.3	145				
1,1-Dichloropropene	1.16	0.0219	1.094	0	106	55.1	138				
Carbon tetrachloride	0.946	0.0219	1.094	0	86.4	53.3	144				
1,2-Dichloroethane (EDC)	1.21	0.0328	1.094	0	111	51.3	139				
Benzene	1.19	0.0219	1.094	0	109	63.5	133				
Trichloroethene (TCE)	1.22	0.0219	1.094	0	112	68.6	132				
1,2-Dichloropropane	1.21	0.0219	1.094	0	111	59	136				
Bromodichloromethane	1.10	0.0219	1.094	0	101	50.7	141				
Dibromomethane	1.22	0.0438	1.094	0	112	50.6	137				
cis-1,3-Dichloropropene	1.19	0.0219	1.094	0	109	50.4	138				
Toluene	1.20	0.0219	1.094	0	109	63.4	132				
trans-1,3-Dichloropropylene	1.23	0.0328	1.094	0	113	44.1	147				
1,1,2-Trichloroethane	1.21	0.0328	1.094	0	110	51.6	137				
1,3-Dichloropropane	1.25	0.0547	1.094	0	115	53.1	134				
Tetrachloroethene (PCE)	1.22	0.0219	1.094	0	112	35.6	158				
Dibromochloromethane	1.09	0.0328	1.094	0	99.6	55.3	140				
1,2-Dibromoethane (EDB)	1.24	0.00547	1.094	0	113	50.4	136				
Chlorobenzene	1.21	0.0219	1.094	0	111	60	133				
1,1,1,2-Tetrachloroethane	1.09	0.0328	1.094	0	99.9	53.1	142				
Ethylbenzene	1.16	0.0328	1.094	0	106	54.5	134				
m,p-Xylene	2.33	0.0219	2.189	0	107	53.1	132				
o-Xylene	1.15	0.0219	1.094	0	105	53.3	139				
Styrene	1.19	0.0219	1.094	0	109	51.1	132				
Isopropylbenzene	1.15	0.0876	1.094	0	105	58.9	138				
Bromoform	0.979	0.0219	1.094	0	89.4	57.9	130				
1,1,2,2-Tetrachloroethane	1.12	0.0219	1.094	0	103	51.9	131				
n-Propylbenzene	1.14	0.0219	1.094	0	104	53.6	140				
Bromobenzene	1.17	0.0328	1.094	0	107	54.2	140				

Work Order: 1612275
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1612275-001BMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **12/28/2016** RunNo: **33627**
Client ID: **W27N22-5.0** Batch ID: **15786** Analysis Date: **12/29/2016** SeqNo: **638060**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,3,5-Trimethylbenzene	1.14	0.0219	1.094	0	104	51.8	136				
2-Chlorotoluene	1.16	0.0219	1.094	0	106	51.6	136				
4-Chlorotoluene	1.18	0.0219	1.094	0	108	50.1	139				
tert-Butylbenzene	1.15	0.0219	1.094	0	105	50.5	135				
1,2,3-Trichloropropane	1.18	0.0219	1.094	0	107	50.5	131				
1,2,4-Trichlorobenzene	1.25	0.0547	1.094	0	114	50.8	130				
sec-Butylbenzene	1.14	0.0219	1.094	0	104	52.6	141				
4-Isopropyltoluene	1.15	0.0219	1.094	0	105	52.9	134				
1,3-Dichlorobenzene	1.16	0.0219	1.094	0	106	52.6	131				
1,4-Dichlorobenzene	1.19	0.0219	1.094	0	108	52.9	129				
n-Butylbenzene	1.14	0.0219	1.094	0	104	52.6	130				
1,2-Dichlorobenzene	1.18	0.0219	1.094	0	108	55.8	129				
1,2-Dibromo-3-chloropropane	1.17	0.547	1.094	0	107	40.5	131				
1,2,4-Trimethylbenzene	1.16	0.0219	1.094	0	106	50.6	137				
Hexachlorobutadiene	1.21	0.109	1.094	0	110	40.6	158				
Naphthalene	1.35	0.0328	1.094	0	123	52.3	124				
1,2,3-Trichlorobenzene	1.24	0.0219	1.094	0	113	54.4	124				
Surr: Dibromofluoromethane	1.35		1.368		99.0	56.5	129				
Surr: Toluene-d8	1.42		1.368		104	64.5	151				
Surr: 1-Bromo-4-fluorobenzene	1.41		1.368		103	63.1	141				

NOTES:
S - Outlying spike recoveries were associated with this sample.

Sample ID **1612275-001BMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **12/28/2016** RunNo: **33627**
Client ID: **W27N22-5.0** Batch ID: **15786** Analysis Date: **12/29/2016** SeqNo: **638061**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	0.794	0.0657	1.094	0	72.6	43.5	121	0.8813	10.4	30	
Chloromethane	2.37	0.0657	1.094	0	216	45	130	2.527	6.54	30	S
Vinyl chloride	1.27	0.00219	1.094	0	116	51.2	146	1.339	5.52	30	
Bromomethane	0.660	0.0985	1.094	0.03130	57.4	21.3	120	0.6761	2.42	30	

Work Order: 1612275
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1612275-001BMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **12/28/2016** RunNo: **33627**
Client ID: **W27N22-5.0** Batch ID: **15786** Analysis Date: **12/29/2016** SeqNo: **638061**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Trichlorofluoromethane (CFC-11)	0.743	0.0547	1.094	0	67.9	35	131	0.7203	3.07	30	
Chloroethane	0.578	0.0657	1.094	0	52.8	43.8	117	0.6197	6.92	30	
1,1-Dichloroethene	1.05	0.0547	1.094	0	96.1	61.9	141	1.178	11.4	30	
Methylene chloride	0.931	0.0219	1.094	0	85.1	54.7	142	0.9913	6.23	30	
trans-1,2-Dichloroethene	1.04	0.0219	1.094	0	95.4	52	136	1.119	6.95	30	
Methyl tert-butyl ether (MTBE)	1.30	0.0547	1.094	0	119	54.4	132	1.387	6.40	30	
1,1-Dichloroethane	1.11	0.0219	1.094	0	102	51.8	141	1.194	6.93	30	
2,2-Dichloropropane	1.58	0.0547	1.094	0	144	36	123	1.665	5.29	30	S
cis-1,2-Dichloroethene	1.28	0.0219	1.094	0	117	58.6	136	1.374	6.83	30	
Chloroform	1.22	0.0219	1.094	0.05227	107	53.2	129	1.304	6.40	30	B
1,1,1-Trichloroethane (TCA)	1.17	0.0219	1.094	0	107	58.3	145	1.260	7.12	30	
1,1-Dichloropropene	1.08	0.0219	1.094	0	98.7	55.1	138	1.157	6.79	30	
Carbon tetrachloride	0.879	0.0219	1.094	0	80.3	53.3	144	0.9455	7.33	30	
1,2-Dichloroethane (EDC)	1.14	0.0328	1.094	0	105	51.3	139	1.214	5.89	30	
Benzene	1.11	0.0219	1.094	0	102	63.5	133	1.191	6.72	30	
Trichloroethene (TCE)	1.14	0.0219	1.094	0	105	68.6	132	1.221	6.42	30	
1,2-Dichloropropane	1.13	0.0219	1.094	0	103	59	136	1.214	7.10	30	
Bromodichloromethane	1.03	0.0219	1.094	0	94.1	50.7	141	1.101	6.68	30	
Dibromomethane	1.14	0.0438	1.094	0	104	50.6	137	1.222	6.72	30	
cis-1,3-Dichloropropene	1.14	0.0219	1.094	0	104	50.4	138	1.195	4.88	30	
Toluene	1.12	0.0219	1.094	0	102	63.4	132	1.195	6.36	30	
trans-1,3-Dichloropropylene	1.15	0.0328	1.094	0	105	44.1	147	1.232	6.67	30	
1,1,2-Trichloroethane	1.14	0.0328	1.094	0	104	51.6	137	1.205	5.39	30	
1,3-Dichloropropane	1.16	0.0547	1.094	0	106	53.1	134	1.255	7.59	30	
Tetrachloroethene (PCE)	1.13	0.0219	1.094	0	104	35.6	158	1.225	7.72	30	
Dibromochloromethane	1.01	0.0328	1.094	0	92.6	55.3	140	1.090	7.34	30	
1,2-Dibromoethane (EDB)	1.15	0.00547	1.094	0	105	50.4	136	1.241	8.05	30	
Chlorobenzene	1.09	0.0219	1.094	0	99.6	60	133	1.214	10.8	30	
1,1,1,2-Tetrachloroethane	0.996	0.0328	1.094	0	91.0	53.1	142	1.094	9.39	30	
Ethylbenzene	1.08	0.0328	1.094	0	98.7	54.5	134	1.159	7.08	30	
m,p-Xylene	2.16	0.0219	2.189	0	98.8	53.1	132	2.335	7.66	30	

Work Order: 1612275
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1612275-001BMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **12/28/2016** RunNo: **33627**
Client ID: **W27N22-5.0** Batch ID: **15786** Analysis Date: **12/29/2016** SeqNo: **638061**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
o-Xylene	1.08	0.0219	1.094	0	98.3	53.3	139	1.150	6.71	30	
Styrene	1.09	0.0219	1.094	0	99.9	51.1	132	1.188	8.31	30	
Isopropylbenzene	1.07	0.0876	1.094	0	97.4	58.9	138	1.148	7.42	30	
Bromoform	0.905	0.0219	1.094	0	82.7	57.9	130	0.9787	7.79	30	
1,1,2,2-Tetrachloroethane	1.03	0.0219	1.094	0	94.5	51.9	131	1.124	8.24	30	
n-Propylbenzene	1.06	0.0219	1.094	0	97.0	53.6	140	1.138	6.99	30	
Bromobenzene	1.10	0.0328	1.094	0	101	54.2	140	1.169	6.05	30	
1,3,5-Trimethylbenzene	1.07	0.0219	1.094	0	97.9	51.8	136	1.140	6.19	30	
2-Chlorotoluene	1.09	0.0219	1.094	0	99.3	51.6	136	1.162	6.69	30	
4-Chlorotoluene	1.11	0.0219	1.094	0	101	50.1	139	1.184	6.67	30	
tert-Butylbenzene	1.07	0.0219	1.094	0	98.2	50.5	135	1.150	6.77	30	
1,2,3-Trichloropropane	1.11	0.0219	1.094	0	101	50.5	131	1.176	5.99	30	
1,2,4-Trichlorobenzene	1.23	0.0547	1.094	0	112	50.8	130	1.246	1.20	30	
sec-Butylbenzene	1.06	0.0219	1.094	0	96.4	52.6	141	1.138	7.56	30	
4-Isopropyltoluene	1.07	0.0219	1.094	0	98.0	52.9	134	1.146	6.71	30	
1,3-Dichlorobenzene	1.12	0.0219	1.094	0	102	52.6	131	1.163	4.07	30	
1,4-Dichlorobenzene	1.13	0.0219	1.094	0	103	52.9	129	1.186	4.84	30	
n-Butylbenzene	1.09	0.0219	1.094	0	99.8	52.6	130	1.142	4.53	30	
1,2-Dichlorobenzene	1.14	0.0219	1.094	0	104	55.8	129	1.185	3.94	30	
1,2-Dibromo-3-chloropropane	1.12	0.547	1.094	0	102	40.5	131	1.168	4.18	30	
1,2,4-Trimethylbenzene	1.08	0.0219	1.094	0	98.8	50.6	137	1.163	7.37	30	
Hexachlorobutadiene	1.18	0.109	1.094	0	108	40.6	158	1.208	2.06	30	
Naphthalene	1.35	0.0328	1.094	0	123	52.3	124	1.351	0.388	30	
1,2,3-Trichlorobenzene	1.22	0.0219	1.094	0	111	54.4	124	1.241	1.93	30	
Surr: Dibromofluoromethane	1.35		1.368		98.4	56.5	129		0		
Surr: Toluene-d8	1.42		1.368		104	64.5	151		0		
Surr: 1-Bromo-4-fluorobenzene	1.42		1.368		104	63.1	141		0		

NOTES:
S - Outlying spike recoveries were associated with this sample.

Sample Log-In Check List

Client Name:	**GEI**	Work Order Number:	**1612275**
Logged by:	**Clare Griggs**	Date Received:	**12/28/2016 3:12:00 PM**

Chain of Custody

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

Log In

3.	Coolers are present?	Yes ☐	No ☑	NA ☐
	Samples received straight from field.			
4.	Shipping container/cooler in good condition?	Yes ☑	No ☐	
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes ☐	No ☐	Not Required ☑
6.	Was an attempt made to cool the samples?	Yes ☐	No ☐	NA ☑
7.	Were all items received at a temperature of >0°C to 10.0°C*	Yes ☐	No ☐	NA ☑
8.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
9.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
10.	Are samples properly preserved?	Yes ☑	No ☐	
11.	Was preservative added to bottles?	Yes ☑	No ☐	NA ☐ MeOH
12.	Is there headspace in the VOA vials?	Yes ☐	No ☐	NA ☑
13.	Did all samples containers arrive in good condition(unbroken)?	Yes ☑	No ☐	
14.	Does paperwork match bottle labels?	Yes ☑	No ☐	
15.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
16.	Is it clear what analyses were requested?	Yes ☑	No ☐	
17.	Were all holding times able to be met?	Yes ☑	No ☐	

Special Handling (if applicable)

18.	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: _____

19. Additional remarks:

Item Information

Item #	Temp ºC
Sample	12.6

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Chain of Custody Record and Laboratory Services Agreement

Fremont Analytical
3600 Fremont Ave N. Tel: 206-352-3790
Seattle, WA 98103 Fax: 206-352-7178

Date: 12/28/16 Laboratory Project No (internal): 1612275

Page: 1 of: 1

Client: GeoEngineers
Address: 1600 Stewart St Suite 1700
City, State, Zip: Seattle, WA
Telephone: Fax:

Project Name: Rufus Block 20
Project No: 20434-001-24 Collected by: Sydney Bronson
Location: Seattle, WA
Report To (PM): Chris Brown
PM Email: cbrown@geoengineers.com

*Matrix Codes: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM / 625)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8) Total (T)	Dissolved (D)	Anions (IC)***	EDB (8011)	Comments
1	N22W27-5.0	12/28/16	1405	S	X			X		X		X		X				
2	N23W24-5.0	↓	1400	↓	↓			↓		↓		↓		↓				
3	N21W32-5.0	↓	1410	↓	↓			↓		↓		↓		↓				
4																		
5																		
6																		
7																		
8																		
9																		
10																		

**Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL *Individual:* Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Turn-around times for samples received after 4:00pm will begin on the following business day.

Special Remarks:

Sample Disposal: ☐ Return to Client ☒ Disposal by Lab (Samples will be held for 30 days unless otherwise noted. A fee may be assessed if samples are retained after 30 days.)

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above, that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x Sydney	12/28/16 1510	x	12/28/16 1512
x		x	

TAT → SameDay^ NextDay^ 2 Day 3 Day STD

^Please coordinate with the lab in advance

Fremont Analytical

Chain of Custody Record and Laboratory Services Agreement

3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 12/28/16
Laboratory Project No (internal):
Page: 1 of: 1

Client: GeoEngineers
Address: 1100 Olive Way Suite 1700
City, State, Zip: Seattle, WA
Telephone: Fax:

Project Name: Rufus Block 70
Project No: 20431-001-04 Collected by: Sydney Bronson
Location: Seattle, WA
Report To (PM): Chris Brown
PM Email: cbrown@geoengineers.com

*Matrix Codes: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM / 625)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T)	Dissolved (D)	Anions (IC)***	EDB (8011)	Comments
1	W27N22-5.0 ~~N22W27-5.0~~	12/15/16	1405	S	X			X		X		X		X					Rename: W27N22-5.0
2	N23W24-5.0	"	1400	"	"			"		"		"		"					Rename: W24N23-5.0
3	N21W32-5.0	"	1410	"	"			"		"		"		"					Rename: W32N21-5.0
4																			
5																			
6																			
7																			
8																			
9																			
10																			

**Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL *Individual:* Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☒ Disposal by Lab (Samples will be held for 30 days unless otherwise noted. A fee may be assessed if samples are retained after 30 days.)

Turn-around times for samples received after 4:00pm will begin on the following business day.

Special Remarks:

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above, that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x Sydney Bronson	12/15/16 1510	x	12/15/16 1512
x		x	

TAT → SameDay^ NextDay^ 2 Day 3 Day STD

^Please coordinate with the lab in advance

Distribution: White - Lab, Yellow - File, Pink - Originator

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

GeoEngineers
Chris Brown
600 Stewart Street, Suite 1700
Seattle, WA 98101

RE: Rufus Block 20
Work Order Number: 1612284

January 05, 2017

Attention Chris Brown:

Fremont Analytical, Inc. received 18 sample(s) on 12/29/2016 for the analyses presented in the following report.

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.
Gasoline by NWTPH-Gx
Mercury by EPA Method 7471
Metals (SW6020) with TCLP Extraction (EPA 1311)
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)
Sample Moisture (Percent Moisture)
Total Metals by EPA Method 6020
Volatile Organic Compounds by EPA Method 8260C

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Mike Ridgeway
Laboratory Director

Date: *01/05/2017*

CLIENT: GeoEngineers
Project: Rufus Block 20
Work Order: 1612284

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1612284-001	W34N29-11.0	12/29/2016 11:00 AM	12/29/2016 2:57 PM
1612284-002	W33N31-11.0	12/29/2016 11:10 AM	12/29/2016 2:57 PM
1612284-003	W34N33-11.0	12/29/2016 10:55 AM	12/29/2016 2:57 PM
1612284-004	W23N30-17.5	12/29/2016 11:55 AM	12/29/2016 2:57 PM
1612284-005	W24N33-17.5	12/29/2016 12:10 PM	12/29/2016 2:57 PM
1612284-006	W27N36-17.5	12/29/2016 12:20 PM	12/29/2016 2:57 PM
1612284-007	W22N27-8.5	12/29/2016 11:45 AM	12/29/2016 2:57 PM
1612284-008	W24N28-8.5	12/29/2016 11:30 AM	12/29/2016 2:57 PM
1612284-009	W26N29-8.5	12/29/2016 11:20 AM	12/29/2016 2:57 PM
1612284-010	W28N31-8.5	12/29/2016 11:15 AM	12/29/2016 2:57 PM
1612284-011	W30N33-8.5	12/29/2016 10:50 AM	12/29/2016 2:57 PM
1612284-012	W29UN2-8.5	12/29/2016 10:40 AM	12/29/2016 2:57 PM
1612284-013	W26UN4-8.5	12/29/2016 10:20 AM	12/29/2016 2:57 PM
1612284-014	W21UN7-8.5	12/29/2016 10:15 AM	12/29/2016 2:57 PM
1612284-015	W20N30-8.5	12/29/2016 12:25 PM	12/29/2016 2:57 PM
1612284-016	W20N34-8.5	12/29/2016 12:30 PM	12/29/2016 2:57 PM
1612284-017	W20UN1-8.5	12/29/2016 12:35 PM	12/29/2016 2:57 PM
1612284-018	W20UN6-8.5	12/29/2016 12:40 PM	12/29/2016 2:57 PM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

Case Narrative

WO#: **1612284**
Date: **1/5/2017**

CLIENT: GeoEngineers
Project: Rufus Block 20

I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Analytical Report

Work Order: **1612284**
Date Reported: **1/5/2017**

Client: GeoEngineers
Collection Date: 12/29/2016 11:00:00 AM
Project: Rufus Block 20
Lab ID: 1612284-001
Matrix: Soil
Client Sample ID: **W34N29-11.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 15806		Analyst: WC
Diesel (Fuel Oil)	ND	23.6		mg/Kg-dry	1	12/29/2016 7:21:17 PM
Heavy Oil	968	59.1		mg/Kg-dry	1	12/29/2016 7:21:17 PM
Surr: 2-Fluorobiphenyl	87.5	50-150		%Rec	1	12/29/2016 7:21:17 PM
Surr: o-Terphenyl	95.3	50-150		%Rec	1	12/29/2016 7:21:17 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 15804		Analyst: BT
Naphthalene	709	50.6		µg/Kg-dry	1	12/30/2016 2:37:32 AM
2-Methylnaphthalene	1,190	50.6		µg/Kg-dry	1	12/30/2016 2:37:32 AM
1-Methylnaphthalene	852	50.6		µg/Kg-dry	1	12/30/2016 2:37:32 AM
Acenaphthylene	ND	50.6		µg/Kg-dry	1	12/30/2016 2:37:32 AM
Acenaphthene	ND	50.6		µg/Kg-dry	1	12/30/2016 2:37:32 AM
Fluorene	ND	50.6		µg/Kg-dry	1	12/30/2016 2:37:32 AM
Phenanthrene	124	50.6		µg/Kg-dry	1	12/30/2016 2:37:32 AM
Anthracene	ND	50.6		µg/Kg-dry	1	12/30/2016 2:37:32 AM
Fluoranthene	229	50.6		µg/Kg-dry	1	12/30/2016 2:37:32 AM
Pyrene	292	50.6		µg/Kg-dry	1	12/30/2016 2:37:32 AM
Benz(a)anthracene	137	50.6		µg/Kg-dry	1	12/30/2016 2:37:32 AM
Chrysene	153	50.6		µg/Kg-dry	1	12/30/2016 2:37:32 AM
Benzo(b)fluoranthene	220	50.6		µg/Kg-dry	1	12/30/2016 2:37:32 AM
Benzo(k)fluoranthene	ND	50.6		µg/Kg-dry	1	12/30/2016 2:37:32 AM
Benzo(a)pyrene	200	50.6		µg/Kg-dry	1	12/30/2016 2:37:32 AM
Indeno(1,2,3-cd)pyrene	120	50.6	Q	µg/Kg-dry	1	12/30/2016 2:37:32 AM
Dibenz(a,h)anthracene	ND	50.6		µg/Kg-dry	1	12/30/2016 2:37:32 AM
Benzo(g,h,i)perylene	172	50.6	Q	µg/Kg-dry	1	12/30/2016 2:37:32 AM
Surr: 2-Fluorobiphenyl	66.9	24.5-139		%Rec	1	12/30/2016 2:37:32 AM
Surr: Terphenyl-d14 (surr)	68.0	44.3-176		%Rec	1	12/30/2016 2:37:32 AM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Gasoline by NWTPH-Gx				Batch ID: 15805		Analyst: EM
Gasoline	43.9	4.65		mg/Kg-dry	1	12/30/2016 7:51:40 PM
Surr: Toluene-d8	100	65-135		%Rec	1	12/30/2016 7:51:40 PM
Surr: 4-Bromofluorobenzene	99.6	65-135		%Rec	1	12/30/2016 7:51:40 PM

Client: GeoEngineers
Project: Rufus Block 20
Lab ID: 1612284-001
Client Sample ID: **W34N29-11.0**

Collection Date: 12/29/2016 11:00:00 AM
Matrix: Soil

Volatile Organic Compounds by EPA Method 8260C

Batch ID: 15805 Analyst: EM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane (CFC-12)	ND	0.0558	Q	mg/Kg-dry	1	12/30/2016 7:51:40 PM
Chloromethane	ND	0.0558	Q	mg/Kg-dry	1	12/30/2016 7:51:40 PM
Vinyl chloride	ND	0.00186	Q	mg/Kg-dry	1	12/30/2016 7:51:40 PM
Bromomethane	ND	0.0837		mg/Kg-dry	1	12/30/2016 7:51:40 PM
Trichlorofluoromethane (CFC-11)	ND	0.0465		mg/Kg-dry	1	12/30/2016 7:51:40 PM
Chloroethane	ND	0.0558	Q	mg/Kg-dry	1	12/30/2016 7:51:40 PM
1,1-Dichloroethene	ND	0.0465		mg/Kg-dry	1	12/30/2016 7:51:40 PM
Methylene chloride	ND	0.0186		mg/Kg-dry	1	12/30/2016 7:51:40 PM
trans-1,2-Dichloroethene	ND	0.0186		mg/Kg-dry	1	12/30/2016 7:51:40 PM
Methyl tert-butyl ether (MTBE)	ND	0.0465		mg/Kg-dry	1	12/30/2016 7:51:40 PM
1,1-Dichloroethane	ND	0.0186		mg/Kg-dry	1	12/30/2016 7:51:40 PM
2,2-Dichloropropane	ND	0.0465		mg/Kg-dry	1	12/30/2016 7:51:40 PM
cis-1,2-Dichloroethene	ND	0.0186		mg/Kg-dry	1	12/30/2016 7:51:40 PM
Chloroform	ND	0.0186		mg/Kg-dry	1	12/30/2016 7:51:40 PM
1,1,1-Trichloroethane (TCA)	ND	0.0186		mg/Kg-dry	1	12/30/2016 7:51:40 PM
1,1-Dichloropropene	ND	0.0186		mg/Kg-dry	1	12/30/2016 7:51:40 PM
Carbon tetrachloride	ND	0.0186		mg/Kg-dry	1	12/30/2016 7:51:40 PM
1,2-Dichloroethane (EDC)	ND	0.0279		mg/Kg-dry	1	12/30/2016 7:51:40 PM
Benzene	ND	0.0186		mg/Kg-dry	1	12/30/2016 7:51:40 PM
Trichloroethene (TCE)	ND	0.0186		mg/Kg-dry	1	12/30/2016 7:51:40 PM
1,2-Dichloropropane	ND	0.0186		mg/Kg-dry	1	12/30/2016 7:51:40 PM
Bromodichloromethane	ND	0.0186		mg/Kg-dry	1	12/30/2016 7:51:40 PM
Dibromomethane	ND	0.0372		mg/Kg-dry	1	12/30/2016 7:51:40 PM
cis-1,3-Dichloropropene	ND	0.0186		mg/Kg-dry	1	12/30/2016 7:51:40 PM
Toluene	ND	0.0186		mg/Kg-dry	1	12/30/2016 7:51:40 PM
trans-1,3-Dichloropropylene	ND	0.0279		mg/Kg-dry	1	12/30/2016 7:51:40 PM
1,1,2-Trichloroethane	ND	0.0279		mg/Kg-dry	1	12/30/2016 7:51:40 PM
1,3-Dichloropropane	ND	0.0465		mg/Kg-dry	1	12/30/2016 7:51:40 PM
Tetrachloroethene (PCE)	ND	0.0186		mg/Kg-dry	1	12/30/2016 7:51:40 PM
Dibromochloromethane	ND	0.0279		mg/Kg-dry	1	12/30/2016 7:51:40 PM
1,2-Dibromoethane (EDB)	ND	0.00465		mg/Kg-dry	1	12/30/2016 7:51:40 PM
Chlorobenzene	ND	0.0186		mg/Kg-dry	1	12/30/2016 7:51:40 PM
1,1,1,2-Tetrachloroethane	ND	0.0279		mg/Kg-dry	1	12/30/2016 7:51:40 PM
Ethylbenzene	ND	0.0279		mg/Kg-dry	1	12/30/2016 7:51:40 PM
m,p-Xylene	ND	0.0186		mg/Kg-dry	1	12/30/2016 7:51:40 PM
o-Xylene	ND	0.0186		mg/Kg-dry	1	12/30/2016 7:51:40 PM
Styrene	ND	0.0186		mg/Kg-dry	1	12/30/2016 7:51:40 PM
Isopropylbenzene	ND	0.0744		mg/Kg-dry	1	12/30/2016 7:51:40 PM
Bromoform	ND	0.0186	Q	mg/Kg-dry	1	12/30/2016 7:51:40 PM

Client: GeoEngineers
Collection Date: 12/29/2016 11:00:00 AM
Project: Rufus Block 20
Lab ID: 1612284-001
Matrix: Soil
Client Sample ID: **W34N29-11.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15805		Analyst: EM
1,1,2,2-Tetrachloroethane	ND	0.0186		mg/Kg-dry	1	12/30/2016 7:51:40 PM
n-Propylbenzene	0.135	0.0186		mg/Kg-dry	1	12/30/2016 7:51:40 PM
Bromobenzene	ND	0.0279		mg/Kg-dry	1	12/30/2016 7:51:40 PM
1,3,5-Trimethylbenzene	ND	0.0186		mg/Kg-dry	1	12/30/2016 7:51:40 PM
2-Chlorotoluene	ND	0.0186		mg/Kg-dry	1	12/30/2016 7:51:40 PM
4-Chlorotoluene	ND	0.0186		mg/Kg-dry	1	12/30/2016 7:51:40 PM
tert-Butylbenzene	ND	0.0186		mg/Kg-dry	1	12/30/2016 7:51:40 PM
1,2,3-Trichloropropane	ND	0.0186		mg/Kg-dry	1	12/30/2016 7:51:40 PM
1,2,4-Trichlorobenzene	ND	0.0465		mg/Kg-dry	1	12/30/2016 7:51:40 PM
sec-Butylbenzene	0.0331	0.0186		mg/Kg-dry	1	12/30/2016 7:51:40 PM
4-Isopropyltoluene	ND	0.0186		mg/Kg-dry	1	12/30/2016 7:51:40 PM
1,3-Dichlorobenzene	ND	0.0186		mg/Kg-dry	1	12/30/2016 7:51:40 PM
1,4-Dichlorobenzene	ND	0.0186		mg/Kg-dry	1	12/30/2016 7:51:40 PM
n-Butylbenzene	0.159	0.0186		mg/Kg-dry	1	12/30/2016 7:51:40 PM
1,2-Dichlorobenzene	ND	0.0186		mg/Kg-dry	1	12/30/2016 7:51:40 PM
1,2-Dibromo-3-chloropropane	ND	0.465	Q	mg/Kg-dry	1	12/30/2016 7:51:40 PM
1,2,4-Trimethylbenzene	0.308	0.0186		mg/Kg-dry	1	12/30/2016 7:51:40 PM
Hexachlorobutadiene	ND	0.0930		mg/Kg-dry	1	12/30/2016 7:51:40 PM
Naphthalene	0.261	0.0279		mg/Kg-dry	1	12/30/2016 7:51:40 PM
1,2,3-Trichlorobenzene	ND	0.0186		mg/Kg-dry	1	12/30/2016 7:51:40 PM
Surr: Dibromofluoromethane	95.4	56.5-129		%Rec	1	12/30/2016 7:51:40 PM
Surr: Toluene-d8	100	64.5-151		%Rec	1	12/30/2016 7:51:40 PM
Surr: 1-Bromo-4-fluorobenzene	97.6	63.1-141		%Rec	1	12/30/2016 7:51:40 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Mercury by EPA Method 7471				Batch ID: 15808		Analyst: WF
Mercury	ND	0.300		mg/Kg-dry	1	12/30/2016 11:04:04 AM
Total Metals by EPA Method 6020				Batch ID: 15809		Analyst: TN
Arsenic	5.06	0.103		mg/Kg-dry	1	12/30/2016 1:12:46 PM
Barium	92.7	0.513		mg/Kg-dry	1	12/30/2016 1:12:46 PM
Cadmium	0.334	0.205		mg/Kg-dry	1	12/30/2016 1:12:46 PM
Chromium	41.4	0.103		mg/Kg-dry	1	12/30/2016 1:12:46 PM
Lead	175	0.205		mg/Kg-dry	1	12/30/2016 1:12:46 PM
Selenium	1.08	0.513		mg/Kg-dry	1	12/30/2016 1:12:46 PM

Analytical Report

Work Order: **1612284**
Date Reported: **1/5/2017**

Client: GeoEngineers
Collection Date: 12/29/2016 11:00:00 AM
Project: Rufus Block 20
Lab ID: 1612284-001
Matrix: Soil
Client Sample ID: **W34N29-11.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 15809		Analyst: TN
Silver	0.138	0.103		mg/Kg-dry	1	12/30/2016 1:12:46 PM
Metals (SW6020) with TCLP Extraction (EPA 1311)				Batch ID: 15840		Analyst: TN
Lead	1.10	0.500		mg/L	1	1/4/2017 5:10:35 PM
Sample Moisture (Percent Moisture)				Batch ID: R33640		Analyst: BB
Percent Moisture	21.4			wt%	1	12/30/2016 8:19:43 AM

Analytical Report

Work Order: **1612284**
Date Reported: **1/5/2017**

Client: GeoEngineers
Collection Date: 12/29/2016 11:10:00 AM
Project: Rufus Block 20
Lab ID: 1612284-002
Matrix: Soil
Client Sample ID: **W33N31-11.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 15806		Analyst: WC
Diesel (Fuel Oil)	ND	20.6		mg/Kg-dry	1	12/29/2016 8:23:18 PM
Heavy Oil	52.5	51.4		mg/Kg-dry	1	12/29/2016 8:23:18 PM
Surr: 2-Fluorobiphenyl	85.7	50-150		%Rec	1	12/29/2016 8:23:18 PM
Surr: o-Terphenyl	87.8	50-150		%Rec	1	12/29/2016 8:23:18 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 15804		Analyst: BT
Naphthalene	ND	41.3		µg/Kg-dry	1	12/30/2016 4:01:58 AM
2-Methylnaphthalene	ND	41.3		µg/Kg-dry	1	12/30/2016 4:01:58 AM
1-Methylnaphthalene	ND	41.3		µg/Kg-dry	1	12/30/2016 4:01:58 AM
Acenaphthylene	ND	41.3		µg/Kg-dry	1	12/30/2016 4:01:58 AM
Acenaphthene	ND	41.3		µg/Kg-dry	1	12/30/2016 4:01:58 AM
Fluorene	ND	41.3		µg/Kg-dry	1	12/30/2016 4:01:58 AM
Phenanthrene	84.5	41.3		µg/Kg-dry	1	12/30/2016 4:01:58 AM
Anthracene	ND	41.3		µg/Kg-dry	1	12/30/2016 4:01:58 AM
Fluoranthene	126	41.3		µg/Kg-dry	1	12/30/2016 4:01:58 AM
Pyrene	148	41.3		µg/Kg-dry	1	12/30/2016 4:01:58 AM
Benz(a)anthracene	57.5	41.3		µg/Kg-dry	1	12/30/2016 4:01:58 AM
Chrysene	77.4	41.3		µg/Kg-dry	1	12/30/2016 4:01:58 AM
Benzo(b)fluoranthene	83.9	41.3		µg/Kg-dry	1	12/30/2016 4:01:58 AM
Benzo(k)fluoranthene	ND	41.3		µg/Kg-dry	1	12/30/2016 4:01:58 AM
Benzo(a)pyrene	81.7	41.3		µg/Kg-dry	1	12/30/2016 4:01:58 AM
Indeno(1,2,3-cd)pyrene	58.8	41.3	Q	µg/Kg-dry	1	12/30/2016 4:01:58 AM
Dibenz(a,h)anthracene	ND	41.3		µg/Kg-dry	1	12/30/2016 4:01:58 AM
Benzo(g,h,i)perylene	72.3	41.3	Q	µg/Kg-dry	1	12/30/2016 4:01:58 AM
Surr: 2-Fluorobiphenyl	59.5	24.5-139		%Rec	1	12/30/2016 4:01:58 AM
Surr: Terphenyl-d14 (surr)	65.9	44.3-176		%Rec	1	12/30/2016 4:01:58 AM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Gasoline by NWTPH-Gx				Batch ID: 15805		Analyst: EM
Gasoline	ND	5.04		mg/Kg-dry	1	12/30/2016 8:20:41 PM
Surr: Toluene-d8	101	65-135		%Rec	1	12/30/2016 8:20:41 PM
Surr: 4-Bromofluorobenzene	95.7	65-135		%Rec	1	12/30/2016 8:20:41 PM

Client: GeoEngineers
Collection Date: 12/29/2016 11:10:00 AM
Project: Rufus Block 20
Lab ID: 1612284-002
Matrix: Soil
Client Sample ID: **W33N31-11.0**

Volatile Organic Compounds by EPA Method 8260C

Batch ID: 15805 Analyst: EM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane (CFC-12)	ND	0.0605	Q	mg/Kg-dry	1	12/30/2016 8:20:41 PM
Chloromethane	ND	0.0605	Q	mg/Kg-dry	1	12/30/2016 8:20:41 PM
Vinyl chloride	ND	0.00202	Q	mg/Kg-dry	1	12/30/2016 8:20:41 PM
Bromomethane	ND	0.0907		mg/Kg-dry	1	12/30/2016 8:20:41 PM
Trichlorofluoromethane (CFC-11)	ND	0.0504		mg/Kg-dry	1	12/30/2016 8:20:41 PM
Chloroethane	ND	0.0605	Q	mg/Kg-dry	1	12/30/2016 8:20:41 PM
1,1-Dichloroethene	ND	0.0504		mg/Kg-dry	1	12/30/2016 8:20:41 PM
Methylene chloride	ND	0.0202		mg/Kg-dry	1	12/30/2016 8:20:41 PM
trans-1,2-Dichloroethene	ND	0.0202		mg/Kg-dry	1	12/30/2016 8:20:41 PM
Methyl tert-butyl ether (MTBE)	ND	0.0504		mg/Kg-dry	1	12/30/2016 8:20:41 PM
1,1-Dichloroethane	ND	0.0202		mg/Kg-dry	1	12/30/2016 8:20:41 PM
2,2-Dichloropropane	ND	0.0504		mg/Kg-dry	1	12/30/2016 8:20:41 PM
cis-1,2-Dichloroethene	ND	0.0202		mg/Kg-dry	1	12/30/2016 8:20:41 PM
Chloroform	ND	0.0202		mg/Kg-dry	1	12/30/2016 8:20:41 PM
1,1,1-Trichloroethane (TCA)	ND	0.0202		mg/Kg-dry	1	12/30/2016 8:20:41 PM
1,1-Dichloropropene	ND	0.0202		mg/Kg-dry	1	12/30/2016 8:20:41 PM
Carbon tetrachloride	ND	0.0202		mg/Kg-dry	1	12/30/2016 8:20:41 PM
1,2-Dichloroethane (EDC)	ND	0.0302		mg/Kg-dry	1	12/30/2016 8:20:41 PM
Benzene	ND	0.0202		mg/Kg-dry	1	12/30/2016 8:20:41 PM
Trichloroethene (TCE)	ND	0.0202		mg/Kg-dry	1	12/30/2016 8:20:41 PM
1,2-Dichloropropane	ND	0.0202		mg/Kg-dry	1	12/30/2016 8:20:41 PM
Bromodichloromethane	ND	0.0202		mg/Kg-dry	1	12/30/2016 8:20:41 PM
Dibromomethane	ND	0.0403		mg/Kg-dry	1	12/30/2016 8:20:41 PM
cis-1,3-Dichloropropene	ND	0.0202		mg/Kg-dry	1	12/30/2016 8:20:41 PM
Toluene	ND	0.0202		mg/Kg-dry	1	12/30/2016 8:20:41 PM
trans-1,3-Dichloropropylene	ND	0.0302		mg/Kg-dry	1	12/30/2016 8:20:41 PM
1,1,2-Trichloroethane	ND	0.0302		mg/Kg-dry	1	12/30/2016 8:20:41 PM
1,3-Dichloropropane	ND	0.0504		mg/Kg-dry	1	12/30/2016 8:20:41 PM
Tetrachloroethene (PCE)	ND	0.0202		mg/Kg-dry	1	12/30/2016 8:20:41 PM
Dibromochloromethane	ND	0.0302		mg/Kg-dry	1	12/30/2016 8:20:41 PM
1,2-Dibromoethane (EDB)	ND	0.00504		mg/Kg-dry	1	12/30/2016 8:20:41 PM
Chlorobenzene	ND	0.0202		mg/Kg-dry	1	12/30/2016 8:20:41 PM
1,1,1,2-Tetrachloroethane	ND	0.0302		mg/Kg-dry	1	12/30/2016 8:20:41 PM
Ethylbenzene	ND	0.0302		mg/Kg-dry	1	12/30/2016 8:20:41 PM
m,p-Xylene	ND	0.0202		mg/Kg-dry	1	12/30/2016 8:20:41 PM
o-Xylene	ND	0.0202		mg/Kg-dry	1	12/30/2016 8:20:41 PM
Styrene	ND	0.0202		mg/Kg-dry	1	12/30/2016 8:20:41 PM
Isopropylbenzene	ND	0.0806		mg/Kg-dry	1	12/30/2016 8:20:41 PM
Bromoform	ND	0.0202	Q	mg/Kg-dry	1	12/30/2016 8:20:41 PM

Analytical Report

Work Order: **1612284**
Date Reported: **1/5/2017**

Client: GeoEngineers
Collection Date: 12/29/2016 11:10:00 AM
Project: Rufus Block 20
Lab ID: 1612284-002
Matrix: Soil
Client Sample ID: **W33N31-11.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15805		Analyst: EM
1,1,2,2-Tetrachloroethane	ND	0.0202		mg/Kg-dry	1	12/30/2016 8:20:41 PM
n-Propylbenzene	ND	0.0202		mg/Kg-dry	1	12/30/2016 8:20:41 PM
Bromobenzene	ND	0.0302		mg/Kg-dry	1	12/30/2016 8:20:41 PM
1,3,5-Trimethylbenzene	ND	0.0202		mg/Kg-dry	1	12/30/2016 8:20:41 PM
2-Chlorotoluene	ND	0.0202		mg/Kg-dry	1	12/30/2016 8:20:41 PM
4-Chlorotoluene	ND	0.0202		mg/Kg-dry	1	12/30/2016 8:20:41 PM
tert-Butylbenzene	ND	0.0202		mg/Kg-dry	1	12/30/2016 8:20:41 PM
1,2,3-Trichloropropane	ND	0.0202		mg/Kg-dry	1	12/30/2016 8:20:41 PM
1,2,4-Trichlorobenzene	ND	0.0504		mg/Kg-dry	1	12/30/2016 8:20:41 PM
sec-Butylbenzene	ND	0.0202		mg/Kg-dry	1	12/30/2016 8:20:41 PM
4-Isopropyltoluene	ND	0.0202		mg/Kg-dry	1	12/30/2016 8:20:41 PM
1,3-Dichlorobenzene	ND	0.0202		mg/Kg-dry	1	12/30/2016 8:20:41 PM
1,4-Dichlorobenzene	ND	0.0202		mg/Kg-dry	1	12/30/2016 8:20:41 PM
n-Butylbenzene	ND	0.0202		mg/Kg-dry	1	12/30/2016 8:20:41 PM
1,2-Dichlorobenzene	ND	0.0202		mg/Kg-dry	1	12/30/2016 8:20:41 PM
1,2-Dibromo-3-chloropropane	ND	0.504	Q	mg/Kg-dry	1	12/30/2016 8:20:41 PM
1,2,4-Trimethylbenzene	ND	0.0202		mg/Kg-dry	1	12/30/2016 8:20:41 PM
Hexachlorobutadiene	ND	0.101		mg/Kg-dry	1	12/30/2016 8:20:41 PM
Naphthalene	ND	0.0302		mg/Kg-dry	1	12/30/2016 8:20:41 PM
1,2,3-Trichlorobenzene	ND	0.0202		mg/Kg-dry	1	12/30/2016 8:20:41 PM
Surr: Dibromofluoromethane	95.0	56.5-129		%Rec	1	12/30/2016 8:20:41 PM
Surr: Toluene-d8	98.7	64.5-151		%Rec	1	12/30/2016 8:20:41 PM
Surr: 1-Bromo-4-fluorobenzene	94.9	63.1-141		%Rec	1	12/30/2016 8:20:41 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Mercury by EPA Method 7471				Batch ID: 15808		Analyst: WF
Mercury	ND	0.278		mg/Kg-dry	1	12/30/2016 11:10:33 AM
Total Metals by EPA Method 6020				Batch ID: 15809		Analyst: TN
Arsenic	5.21	0.0904		mg/Kg-dry	1	12/30/2016 1:34:21 PM
Barium	91.2	0.452		mg/Kg-dry	1	12/30/2016 1:34:21 PM
Cadmium	ND	0.181		mg/Kg-dry	1	12/30/2016 1:34:21 PM
Chromium	37.6	0.0904		mg/Kg-dry	1	12/30/2016 1:34:21 PM
Lead	113	0.181		mg/Kg-dry	1	12/30/2016 1:34:21 PM
Selenium	1.20	0.452		mg/Kg-dry	1	12/30/2016 1:34:21 PM

Analytical Report

Work Order: **1612284**
Date Reported: **1/5/2017**

Client: GeoEngineers
Collection Date: 12/29/2016 11:10:00 AM
Project: Rufus Block 20
Lab ID: 1612284-002
Matrix: Soil
Client Sample ID: **W33N31-11.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 15809		Analyst: TN
Silver	ND	0.0904		mg/Kg-dry	1	12/30/2016 1:34:21 PM
Metals (SW6020) with TCLP Extraction (EPA 1311)				Batch ID: 15840		Analyst: TN
Lead	ND	0.500		mg/L	1	1/4/2017 5:24:58 PM
Sample Moisture (Percent Moisture)				Batch ID: R33640		Analyst: BB
Percent Moisture	13.6			wt%	1	12/30/2016 8:19:43 AM

Analytical Report

Work Order: **1612284**
Date Reported: **1/5/2017**

Client: GeoEngineers
Collection Date: 12/29/2016 10:55:00 AM
Project: Rufus Block 20
Lab ID: 1612284-003
Matrix: Soil
Client Sample ID: **W34N33-11.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 15806		Analyst: WC
Diesel (Fuel Oil)	ND	21.9		mg/Kg-dry	1	12/29/2016 9:55:36 PM
Heavy Oil	103	54.8		mg/Kg-dry	1	12/29/2016 9:55:36 PM
Surr: 2-Fluorobiphenyl	88.4	50-150		%Rec	1	12/29/2016 9:55:36 PM
Surr: o-Terphenyl	89.9	50-150		%Rec	1	12/29/2016 9:55:36 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 15804		Analyst: BT
Naphthalene	ND	45.7		µg/Kg-dry	1	12/30/2016 4:23:07 AM
2-Methylnaphthalene	ND	45.7		µg/Kg-dry	1	12/30/2016 4:23:07 AM
1-Methylnaphthalene	ND	45.7		µg/Kg-dry	1	12/30/2016 4:23:07 AM
Acenaphthylene	ND	45.7		µg/Kg-dry	1	12/30/2016 4:23:07 AM
Acenaphthene	ND	45.7		µg/Kg-dry	1	12/30/2016 4:23:07 AM
Fluorene	ND	45.7		µg/Kg-dry	1	12/30/2016 4:23:07 AM
Phenanthrene	ND	45.7		µg/Kg-dry	1	12/30/2016 4:23:07 AM
Anthracene	ND	45.7		µg/Kg-dry	1	12/30/2016 4:23:07 AM
Fluoranthene	77.0	45.7		µg/Kg-dry	1	12/30/2016 4:23:07 AM
Pyrene	87.6	45.7		µg/Kg-dry	1	12/30/2016 4:23:07 AM
Benz(a)anthracene	49.7	45.7		µg/Kg-dry	1	12/30/2016 4:23:07 AM
Chrysene	51.4	45.7		µg/Kg-dry	1	12/30/2016 4:23:07 AM
Benzo(b)fluoranthene	71.5	45.7		µg/Kg-dry	1	12/30/2016 4:23:07 AM
Benzo(k)fluoranthene	ND	45.7		µg/Kg-dry	1	12/30/2016 4:23:07 AM
Benzo(a)pyrene	56.5	45.7		µg/Kg-dry	1	12/30/2016 4:23:07 AM
Indeno(1,2,3-cd)pyrene	ND	45.7		µg/Kg-dry	1	12/30/2016 4:23:07 AM
Dibenz(a,h)anthracene	ND	45.7		µg/Kg-dry	1	12/30/2016 4:23:07 AM
Benzo(g,h,i)perylene	ND	45.7		µg/Kg-dry	1	12/30/2016 4:23:07 AM
Surr: 2-Fluorobiphenyl	49.5	24.5-139		%Rec	1	12/30/2016 4:23:07 AM
Surr: Terphenyl-d14 (surr)	63.0	44.3-176		%Rec	1	12/30/2016 4:23:07 AM
Gasoline by NWTPH-Gx				Batch ID: 15805		Analyst: EM
Gasoline	ND	4.69		mg/Kg-dry	1	12/30/2016 8:49:51 PM
Surr: Toluene-d8	99.9	65-135		%Rec	1	12/30/2016 8:49:51 PM
Surr: 4-Bromofluorobenzene	95.9	65-135		%Rec	1	12/30/2016 8:49:51 PM
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15805		Analyst: EM
Dichlorodifluoromethane (CFC-12)	ND	0.0563	Q	mg/Kg-dry	1	12/30/2016 8:49:51 PM
Chloromethane	ND	0.0563	Q	mg/Kg-dry	1	12/30/2016 8:49:51 PM
Vinyl chloride	ND	0.00188	Q	mg/Kg-dry	1	12/30/2016 8:49:51 PM

Client: GeoEngineers
Collection Date: 12/29/2016 10:55:00 AM
Project: Rufus Block 20
Lab ID: 1612284-003
Matrix: Soil
Client Sample ID: **W34N33-11.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15805		Analyst: EM
Bromomethane	ND	0.0845		mg/Kg-dry	1	12/30/2016 8:49:51 PM
Trichlorofluoromethane (CFC-11)	ND	0.0469		mg/Kg-dry	1	12/30/2016 8:49:51 PM
Chloroethane	ND	0.0563	Q	mg/Kg-dry	1	12/30/2016 8:49:51 PM
1,1-Dichloroethene	ND	0.0469		mg/Kg-dry	1	12/30/2016 8:49:51 PM
Methylene chloride	ND	0.0188		mg/Kg-dry	1	12/30/2016 8:49:51 PM
trans-1,2-Dichloroethene	ND	0.0188		mg/Kg-dry	1	12/30/2016 8:49:51 PM
Methyl tert-butyl ether (MTBE)	ND	0.0469		mg/Kg-dry	1	12/30/2016 8:49:51 PM
1,1-Dichloroethane	ND	0.0188		mg/Kg-dry	1	12/30/2016 8:49:51 PM
2,2-Dichloropropane	ND	0.0469		mg/Kg-dry	1	12/30/2016 8:49:51 PM
cis-1,2-Dichloroethene	ND	0.0188		mg/Kg-dry	1	12/30/2016 8:49:51 PM
Chloroform	ND	0.0188		mg/Kg-dry	1	12/30/2016 8:49:51 PM
1,1,1-Trichloroethane (TCA)	ND	0.0188		mg/Kg-dry	1	12/30/2016 8:49:51 PM
1,1-Dichloropropene	ND	0.0188		mg/Kg-dry	1	12/30/2016 8:49:51 PM
Carbon tetrachloride	ND	0.0188		mg/Kg-dry	1	12/30/2016 8:49:51 PM
1,2-Dichloroethane (EDC)	ND	0.0282		mg/Kg-dry	1	12/30/2016 8:49:51 PM
Benzene	ND	0.0188		mg/Kg-dry	1	12/30/2016 8:49:51 PM
Trichloroethene (TCE)	ND	0.0188		mg/Kg-dry	1	12/30/2016 8:49:51 PM
1,2-Dichloropropane	ND	0.0188		mg/Kg-dry	1	12/30/2016 8:49:51 PM
Bromodichloromethane	ND	0.0188		mg/Kg-dry	1	12/30/2016 8:49:51 PM
Dibromomethane	ND	0.0376		mg/Kg-dry	1	12/30/2016 8:49:51 PM
cis-1,3-Dichloropropene	ND	0.0188		mg/Kg-dry	1	12/30/2016 8:49:51 PM
Toluene	ND	0.0188		mg/Kg-dry	1	12/30/2016 8:49:51 PM
trans-1,3-Dichloropropylene	ND	0.0282		mg/Kg-dry	1	12/30/2016 8:49:51 PM
1,1,2-Trichloroethane	ND	0.0282		mg/Kg-dry	1	12/30/2016 8:49:51 PM
1,3-Dichloropropane	ND	0.0469		mg/Kg-dry	1	12/30/2016 8:49:51 PM
Tetrachloroethene (PCE)	ND	0.0188		mg/Kg-dry	1	12/30/2016 8:49:51 PM
Dibromochloromethane	ND	0.0282		mg/Kg-dry	1	12/30/2016 8:49:51 PM
1,2-Dibromoethane (EDB)	ND	0.00469		mg/Kg-dry	1	12/30/2016 8:49:51 PM
Chlorobenzene	ND	0.0188		mg/Kg-dry	1	12/30/2016 8:49:51 PM
1,1,1,2-Tetrachloroethane	ND	0.0282		mg/Kg-dry	1	12/30/2016 8:49:51 PM
Ethylbenzene	ND	0.0282		mg/Kg-dry	1	12/30/2016 8:49:51 PM
m,p-Xylene	ND	0.0188		mg/Kg-dry	1	12/30/2016 8:49:51 PM
o-Xylene	ND	0.0188		mg/Kg-dry	1	12/30/2016 8:49:51 PM
Styrene	ND	0.0188		mg/Kg-dry	1	12/30/2016 8:49:51 PM
Isopropylbenzene	ND	0.0751		mg/Kg-dry	1	12/30/2016 8:49:51 PM
Bromoform	ND	0.0188	Q	mg/Kg-dry	1	12/30/2016 8:49:51 PM
1,1,2,2-Tetrachloroethane	ND	0.0188		mg/Kg-dry	1	12/30/2016 8:49:51 PM
n-Propylbenzene	ND	0.0188		mg/Kg-dry	1	12/30/2016 8:49:51 PM
Bromobenzene	ND	0.0282		mg/Kg-dry	1	12/30/2016 8:49:51 PM

Analytical Report

Work Order: **1612284**
Date Reported: **1/5/2017**

Client: GeoEngineers
Collection Date: 12/29/2016 10:55:00 AM
Project: Rufus Block 20
Lab ID: 1612284-003
Matrix: Soil
Client Sample ID: **W34N33-11.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15805		Analyst: EM
1,3,5-Trimethylbenzene	ND	0.0188		mg/Kg-dry	1	12/30/2016 8:49:51 PM
2-Chlorotoluene	ND	0.0188		mg/Kg-dry	1	12/30/2016 8:49:51 PM
4-Chlorotoluene	ND	0.0188		mg/Kg-dry	1	12/30/2016 8:49:51 PM
tert-Butylbenzene	ND	0.0188		mg/Kg-dry	1	12/30/2016 8:49:51 PM
1,2,3-Trichloropropane	ND	0.0188		mg/Kg-dry	1	12/30/2016 8:49:51 PM
1,2,4-Trichlorobenzene	ND	0.0469		mg/Kg-dry	1	12/30/2016 8:49:51 PM
sec-Butylbenzene	ND	0.0188		mg/Kg-dry	1	12/30/2016 8:49:51 PM
4-Isopropyltoluene	ND	0.0188		mg/Kg-dry	1	12/30/2016 8:49:51 PM
1,3-Dichlorobenzene	ND	0.0188		mg/Kg-dry	1	12/30/2016 8:49:51 PM
1,4-Dichlorobenzene	ND	0.0188		mg/Kg-dry	1	12/30/2016 8:49:51 PM
n-Butylbenzene	ND	0.0188		mg/Kg-dry	1	12/30/2016 8:49:51 PM
1,2-Dichlorobenzene	ND	0.0188		mg/Kg-dry	1	12/30/2016 8:49:51 PM
1,2-Dibromo-3-chloropropane	ND	0.469	Q	mg/Kg-dry	1	12/30/2016 8:49:51 PM
1,2,4-Trimethylbenzene	ND	0.0188		mg/Kg-dry	1	12/30/2016 8:49:51 PM
Hexachlorobutadiene	ND	0.0939		mg/Kg-dry	1	12/30/2016 8:49:51 PM
Naphthalene	ND	0.0282		mg/Kg-dry	1	12/30/2016 8:49:51 PM
1,2,3-Trichlorobenzene	ND	0.0188		mg/Kg-dry	1	12/30/2016 8:49:51 PM
Surr: Dibromofluoromethane	95.2	56.5-129		%Rec	1	12/30/2016 8:49:51 PM
Surr: Toluene-d8	98.8	64.5-151		%Rec	1	12/30/2016 8:49:51 PM
Surr: 1-Bromo-4-fluorobenzene	95.2	63.1-141		%Rec	1	12/30/2016 8:49:51 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Mercury by EPA Method 7471				Batch ID: 15808		Analyst: WF
Mercury	ND	0.290		mg/Kg-dry	1	12/30/2016 11:12:08 AM
Total Metals by EPA Method 6020				Batch ID: 15809		Analyst: TN
Arsenic	5.53	0.0953		mg/Kg-dry	1	12/30/2016 1:37:57 PM
Barium	96.6	0.477		mg/Kg-dry	1	12/30/2016 1:37:57 PM
Cadmium	ND	0.191		mg/Kg-dry	1	12/30/2016 1:37:57 PM
Chromium	63.0	0.0953		mg/Kg-dry	1	12/30/2016 1:37:57 PM
Lead	62.8	0.191		mg/Kg-dry	1	12/30/2016 1:37:57 PM
Selenium	1.33	0.477		mg/Kg-dry	1	12/30/2016 1:37:57 PM
Silver	ND	0.0953		mg/Kg-dry	1	12/30/2016 1:37:57 PM

Analytical Report

Work Order: **1612284**
Date Reported: **1/5/2017**

Client: GeoEngineers
Collection Date: 12/29/2016 10:55:00 AM
Project: Rufus Block 20
Lab ID: 1612284-003
Matrix: Soil
Client Sample ID: **W34N33-11.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R33640		Analyst: BB
Percent Moisture	18.7			wt%	1	12/30/2016 8:19:43 AM

Analytical Report

Work Order: **1612284**
Date Reported: **1/5/2017**

Client: GeoEngineers
Collection Date: 12/29/2016 11:55:00 AM
Project: Rufus Block 20
Lab ID: 1612284-004
Matrix: Soil
Client Sample ID: **W23N30-17.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 15806		Analyst: WC
Diesel (Fuel Oil)	ND	21.2		mg/Kg-dry	1	12/29/2016 11:27:43 PM
Heavy Oil	ND	53.1		mg/Kg-dry	1	12/29/2016 11:27:43 PM
Surr: 2-Fluorobiphenyl	96.4	50-150		%Rec	1	12/29/2016 11:27:43 PM
Surr: o-Terphenyl	101	50-150		%Rec	1	12/29/2016 11:27:43 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 15804		Analyst: BT
Naphthalene	ND	46.2		µg/Kg-dry	1	12/30/2016 4:44:19 AM
2-Methylnaphthalene	ND	46.2		µg/Kg-dry	1	12/30/2016 4:44:19 AM
1-Methylnaphthalene	ND	46.2		µg/Kg-dry	1	12/30/2016 4:44:19 AM
Acenaphthylene	ND	46.2		µg/Kg-dry	1	12/30/2016 4:44:19 AM
Acenaphthene	ND	46.2		µg/Kg-dry	1	12/30/2016 4:44:19 AM
Fluorene	ND	46.2		µg/Kg-dry	1	12/30/2016 4:44:19 AM
Phenanthrene	ND	46.2		µg/Kg-dry	1	12/30/2016 4:44:19 AM
Anthracene	ND	46.2		µg/Kg-dry	1	12/30/2016 4:44:19 AM
Fluoranthene	ND	46.2		µg/Kg-dry	1	12/30/2016 4:44:19 AM
Pyrene	ND	46.2		µg/Kg-dry	1	12/30/2016 4:44:19 AM
Benz(a)anthracene	ND	46.2		µg/Kg-dry	1	12/30/2016 4:44:19 AM
Chrysene	ND	46.2		µg/Kg-dry	1	12/30/2016 4:44:19 AM
Benzo(b)fluoranthene	ND	46.2		µg/Kg-dry	1	12/30/2016 4:44:19 AM
Benzo(k)fluoranthene	ND	46.2		µg/Kg-dry	1	12/30/2016 4:44:19 AM
Benzo(a)pyrene	ND	46.2		µg/Kg-dry	1	12/30/2016 4:44:19 AM
Indeno(1,2,3-cd)pyrene	ND	46.2		µg/Kg-dry	1	12/30/2016 4:44:19 AM
Dibenz(a,h)anthracene	ND	46.2		µg/Kg-dry	1	12/30/2016 4:44:19 AM
Benzo(g,h,i)perylene	ND	46.2		µg/Kg-dry	1	12/30/2016 4:44:19 AM
Surr: 2-Fluorobiphenyl	46.5	24.5-139		%Rec	1	12/30/2016 4:44:19 AM
Surr: Terphenyl-d14 (surr)	67.0	44.3-176		%Rec	1	12/30/2016 4:44:19 AM
Gasoline by NWTPH-Gx				Batch ID: 15805		Analyst: EM
Gasoline	ND	3.87		mg/Kg-dry	1	12/30/2016 9:18:48 PM
Surr: Toluene-d8	101	65-135		%Rec	1	12/30/2016 9:18:48 PM
Surr: 4-Bromofluorobenzene	95.7	65-135		%Rec	1	12/30/2016 9:18:48 PM
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15805		Analyst: EM
Dichlorodifluoromethane (CFC-12)	ND	0.0464	Q	mg/Kg-dry	1	12/30/2016 9:18:48 PM
Chloromethane	ND	0.0464	Q	mg/Kg-dry	1	12/30/2016 9:18:48 PM
Vinyl chloride	ND	0.00155	Q	mg/Kg-dry	1	12/30/2016 9:18:48 PM

Client: GeoEngineers
Collection Date: 12/29/2016 11:55:00 AM
Project: Rufus Block 20
Lab ID: 1612284-004
Matrix: Soil
Client Sample ID: **W23N30-17.5**

Volatile Organic Compounds by EPA Method 8260C

Batch ID: 15805 Analyst: EM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Bromomethane	ND	0.0696		mg/Kg-dry	1	12/30/2016 9:18:48 PM
Trichlorofluoromethane (CFC-11)	ND	0.0387		mg/Kg-dry	1	12/30/2016 9:18:48 PM
Chloroethane	ND	0.0464	Q	mg/Kg-dry	1	12/30/2016 9:18:48 PM
1,1-Dichloroethene	ND	0.0387		mg/Kg-dry	1	12/30/2016 9:18:48 PM
Methylene chloride	ND	0.0155		mg/Kg-dry	1	12/30/2016 9:18:48 PM
trans-1,2-Dichloroethene	ND	0.0155		mg/Kg-dry	1	12/30/2016 9:18:48 PM
Methyl tert-butyl ether (MTBE)	ND	0.0387		mg/Kg-dry	1	12/30/2016 9:18:48 PM
1,1-Dichloroethane	ND	0.0155		mg/Kg-dry	1	12/30/2016 9:18:48 PM
2,2-Dichloropropane	ND	0.0387		mg/Kg-dry	1	12/30/2016 9:18:48 PM
cis-1,2-Dichloroethene	ND	0.0155		mg/Kg-dry	1	12/30/2016 9:18:48 PM
Chloroform	ND	0.0155		mg/Kg-dry	1	12/30/2016 9:18:48 PM
1,1,1-Trichloroethane (TCA)	ND	0.0155		mg/Kg-dry	1	12/30/2016 9:18:48 PM
1,1-Dichloropropene	ND	0.0155		mg/Kg-dry	1	12/30/2016 9:18:48 PM
Carbon tetrachloride	ND	0.0155		mg/Kg-dry	1	12/30/2016 9:18:48 PM
1,2-Dichloroethane (EDC)	ND	0.0232		mg/Kg-dry	1	12/30/2016 9:18:48 PM
Benzene	ND	0.0155		mg/Kg-dry	1	12/30/2016 9:18:48 PM
Trichloroethene (TCE)	ND	0.0155		mg/Kg-dry	1	12/30/2016 9:18:48 PM
1,2-Dichloropropane	ND	0.0155		mg/Kg-dry	1	12/30/2016 9:18:48 PM
Bromodichloromethane	ND	0.0155		mg/Kg-dry	1	12/30/2016 9:18:48 PM
Dibromomethane	ND	0.0309		mg/Kg-dry	1	12/30/2016 9:18:48 PM
cis-1,3-Dichloropropene	ND	0.0155		mg/Kg-dry	1	12/30/2016 9:18:48 PM
Toluene	ND	0.0155		mg/Kg-dry	1	12/30/2016 9:18:48 PM
trans-1,3-Dichloropropylene	ND	0.0232		mg/Kg-dry	1	12/30/2016 9:18:48 PM
1,1,2-Trichloroethane	ND	0.0232		mg/Kg-dry	1	12/30/2016 9:18:48 PM
1,3-Dichloropropane	ND	0.0387		mg/Kg-dry	1	12/30/2016 9:18:48 PM
Tetrachloroethene (PCE)	ND	0.0155		mg/Kg-dry	1	12/30/2016 9:18:48 PM
Dibromochloromethane	ND	0.0232		mg/Kg-dry	1	12/30/2016 9:18:48 PM
1,2-Dibromoethane (EDB)	ND	0.00387		mg/Kg-dry	1	12/30/2016 9:18:48 PM
Chlorobenzene	ND	0.0155		mg/Kg-dry	1	12/30/2016 9:18:48 PM
1,1,1,2-Tetrachloroethane	ND	0.0232		mg/Kg-dry	1	12/30/2016 9:18:48 PM
Ethylbenzene	ND	0.0232		mg/Kg-dry	1	12/30/2016 9:18:48 PM
m,p-Xylene	ND	0.0155		mg/Kg-dry	1	12/30/2016 9:18:48 PM
o-Xylene	ND	0.0155		mg/Kg-dry	1	12/30/2016 9:18:48 PM
Styrene	ND	0.0155		mg/Kg-dry	1	12/30/2016 9:18:48 PM
Isopropylbenzene	ND	0.0619		mg/Kg-dry	1	12/30/2016 9:18:48 PM
Bromoform	ND	0.0155	Q	mg/Kg-dry	1	12/30/2016 9:18:48 PM
1,1,2,2-Tetrachloroethane	ND	0.0155		mg/Kg-dry	1	12/30/2016 9:18:48 PM
n-Propylbenzene	ND	0.0155		mg/Kg-dry	1	12/30/2016 9:18:48 PM
Bromobenzene	ND	0.0232		mg/Kg-dry	1	12/30/2016 9:18:48 PM

Client: GeoEngineers
Collection Date: 12/29/2016 11:55:00 AM
Project: Rufus Block 20
Lab ID: 1612284-004
Matrix: Soil
Client Sample ID: **W23N30-17.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15805		Analyst: EM
1,3,5-Trimethylbenzene	ND	0.0155		mg/Kg-dry	1	12/30/2016 9:18:48 PM
2-Chlorotoluene	ND	0.0155		mg/Kg-dry	1	12/30/2016 9:18:48 PM
4-Chlorotoluene	ND	0.0155		mg/Kg-dry	1	12/30/2016 9:18:48 PM
tert-Butylbenzene	ND	0.0155		mg/Kg-dry	1	12/30/2016 9:18:48 PM
1,2,3-Trichloropropane	ND	0.0155		mg/Kg-dry	1	12/30/2016 9:18:48 PM
1,2,4-Trichlorobenzene	ND	0.0387		mg/Kg-dry	1	12/30/2016 9:18:48 PM
sec-Butylbenzene	ND	0.0155		mg/Kg-dry	1	12/30/2016 9:18:48 PM
4-Isopropyltoluene	ND	0.0155		mg/Kg-dry	1	12/30/2016 9:18:48 PM
1,3-Dichlorobenzene	ND	0.0155		mg/Kg-dry	1	12/30/2016 9:18:48 PM
1,4-Dichlorobenzene	ND	0.0155		mg/Kg-dry	1	12/30/2016 9:18:48 PM
n-Butylbenzene	ND	0.0155		mg/Kg-dry	1	12/30/2016 9:18:48 PM
1,2-Dichlorobenzene	ND	0.0155		mg/Kg-dry	1	12/30/2016 9:18:48 PM
1,2-Dibromo-3-chloropropane	ND	0.387	Q	mg/Kg-dry	1	12/30/2016 9:18:48 PM
1,2,4-Trimethylbenzene	ND	0.0155		mg/Kg-dry	1	12/30/2016 9:18:48 PM
Hexachlorobutadiene	ND	0.0773		mg/Kg-dry	1	12/30/2016 9:18:48 PM
Naphthalene	ND	0.0232		mg/Kg-dry	1	12/30/2016 9:18:48 PM
1,2,3-Trichlorobenzene	ND	0.0155		mg/Kg-dry	1	12/30/2016 9:18:48 PM
Surr: Dibromofluoromethane	94.8	56.5-129		%Rec	1	12/30/2016 9:18:48 PM
Surr: Toluene-d8	98.7	64.5-151		%Rec	1	12/30/2016 9:18:48 PM
Surr: 1-Bromo-4-fluorobenzene	95.1	63.1-141		%Rec	1	12/30/2016 9:18:48 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Mercury by EPA Method 7471				Batch ID: 15808		Analyst: WF
Mercury	ND	0.293		mg/Kg-dry	1	12/30/2016 11:13:44 AM
Total Metals by EPA Method 6020				Batch ID: 15809		Analyst: TN
Arsenic	2.68	0.0915		mg/Kg-dry	1	12/30/2016 1:48:46 PM
Barium	83.6	0.457		mg/Kg-dry	1	12/30/2016 1:48:46 PM
Cadmium	ND	0.183		mg/Kg-dry	1	12/30/2016 1:48:46 PM
Chromium	33.3	0.0915		mg/Kg-dry	1	12/30/2016 1:48:46 PM
Lead	21.3	0.183		mg/Kg-dry	1	12/30/2016 1:48:46 PM
Selenium	0.821	0.457		mg/Kg-dry	1	12/30/2016 1:48:46 PM
Silver	ND	0.0915		mg/Kg-dry	1	12/30/2016 1:48:46 PM

Analytical Report

Work Order: **1612284**
Date Reported: **1/5/2017**

Client: GeoEngineers
Collection Date: 12/29/2016 11:55:00 AM
Project: Rufus Block 20
Lab ID: 1612284-004
Matrix: Soil
Client Sample ID: **W23N30-17.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R33640		Analyst: BB
Percent Moisture	14.6			wt%	1	12/30/2016 8:19:43 AM

Client: GeoEngineers
Collection Date: 12/29/2016 12:10:00 PM
Project: Rufus Block 20
Lab ID: 1612284-005
Matrix: Soil
Client Sample ID: **W24N33-17.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 15806		Analyst: WC
Diesel (Fuel Oil)	ND	22.4		mg/Kg-dry	1	12/29/2016 11:58:24 PM
Heavy Oil	ND	56.0		mg/Kg-dry	1	12/29/2016 11:58:24 PM
Surr: 2-Fluorobiphenyl	102	50-150		%Rec	1	12/29/2016 11:58:24 PM
Surr: o-Terphenyl	105	50-150		%Rec	1	12/29/2016 11:58:24 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 15804		Analyst: BT
Naphthalene	ND	40.4		µg/Kg-dry	1	12/30/2016 5:05:24 AM
2-Methylnaphthalene	ND	40.4		µg/Kg-dry	1	12/30/2016 5:05:24 AM
1-Methylnaphthalene	ND	40.4		µg/Kg-dry	1	12/30/2016 5:05:24 AM
Acenaphthylene	ND	40.4		µg/Kg-dry	1	12/30/2016 5:05:24 AM
Acenaphthene	ND	40.4		µg/Kg-dry	1	12/30/2016 5:05:24 AM
Fluorene	ND	40.4		µg/Kg-dry	1	12/30/2016 5:05:24 AM
Phenanthrene	ND	40.4		µg/Kg-dry	1	12/30/2016 5:05:24 AM
Anthracene	ND	40.4		µg/Kg-dry	1	12/30/2016 5:05:24 AM
Fluoranthene	ND	40.4		µg/Kg-dry	1	12/30/2016 5:05:24 AM
Pyrene	ND	40.4		µg/Kg-dry	1	12/30/2016 5:05:24 AM
Benz(a)anthracene	ND	40.4		µg/Kg-dry	1	12/30/2016 5:05:24 AM
Chrysene	ND	40.4		µg/Kg-dry	1	12/30/2016 5:05:24 AM
Benzo(b)fluoranthene	ND	40.4		µg/Kg-dry	1	12/30/2016 5:05:24 AM
Benzo(k)fluoranthene	ND	40.4		µg/Kg-dry	1	12/30/2016 5:05:24 AM
Benzo(a)pyrene	ND	40.4		µg/Kg-dry	1	12/30/2016 5:05:24 AM
Indeno(1,2,3-cd)pyrene	ND	40.4		µg/Kg-dry	1	12/30/2016 5:05:24 AM
Dibenz(a,h)anthracene	ND	40.4		µg/Kg-dry	1	12/30/2016 5:05:24 AM
Benzo(g,h,i)perylene	ND	40.4		µg/Kg-dry	1	12/30/2016 5:05:24 AM
Surr: 2-Fluorobiphenyl	43.7	24.5-139		%Rec	1	12/30/2016 5:05:24 AM
Surr: Terphenyl-d14 (surr)	61.8	44.3-176		%Rec	1	12/30/2016 5:05:24 AM
Gasoline by NWTPH-Gx				Batch ID: 15805		Analyst: EM
Gasoline	ND	4.65		mg/Kg-dry	1	12/30/2016 9:47:49 PM
Surr: Toluene-d8	101	65-135		%Rec	1	12/30/2016 9:47:49 PM
Surr: 4-Bromofluorobenzene	95.4	65-135		%Rec	1	12/30/2016 9:47:49 PM
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15805		Analyst: EM
Dichlorodifluoromethane (CFC-12)	ND	0.0558	Q	mg/Kg-dry	1	12/30/2016 9:47:49 PM
Chloromethane	ND	0.0558	Q	mg/Kg-dry	1	12/30/2016 9:47:49 PM
Vinyl chloride	ND	0.00186	Q	mg/Kg-dry	1	12/30/2016 9:47:49 PM

Client: GeoEngineers
Collection Date: 12/29/2016 12:10:00 PM
Project: Rufus Block 20
Lab ID: 1612284-005
Matrix: Soil
Client Sample ID: **W24N33-17.5**

Volatile Organic Compounds by EPA Method 8260C

Batch ID: 15805 Analyst: EM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Bromomethane	ND	0.0837		mg/Kg-dry	1	12/30/2016 9:47:49 PM
Trichlorofluoromethane (CFC-11)	ND	0.0465		mg/Kg-dry	1	12/30/2016 9:47:49 PM
Chloroethane	ND	0.0558	Q	mg/Kg-dry	1	12/30/2016 9:47:49 PM
1,1-Dichloroethene	ND	0.0465		mg/Kg-dry	1	12/30/2016 9:47:49 PM
Methylene chloride	ND	0.0186		mg/Kg-dry	1	12/30/2016 9:47:49 PM
trans-1,2-Dichloroethene	ND	0.0186		mg/Kg-dry	1	12/30/2016 9:47:49 PM
Methyl tert-butyl ether (MTBE)	ND	0.0465		mg/Kg-dry	1	12/30/2016 9:47:49 PM
1,1-Dichloroethane	ND	0.0186		mg/Kg-dry	1	12/30/2016 9:47:49 PM
2,2-Dichloropropane	ND	0.0465		mg/Kg-dry	1	12/30/2016 9:47:49 PM
cis-1,2-Dichloroethene	ND	0.0186		mg/Kg-dry	1	12/30/2016 9:47:49 PM
Chloroform	ND	0.0186		mg/Kg-dry	1	12/30/2016 9:47:49 PM
1,1,1-Trichloroethane (TCA)	ND	0.0186		mg/Kg-dry	1	12/30/2016 9:47:49 PM
1,1-Dichloropropene	ND	0.0186		mg/Kg-dry	1	12/30/2016 9:47:49 PM
Carbon tetrachloride	ND	0.0186		mg/Kg-dry	1	12/30/2016 9:47:49 PM
1,2-Dichloroethane (EDC)	ND	0.0279		mg/Kg-dry	1	12/30/2016 9:47:49 PM
Benzene	ND	0.0186		mg/Kg-dry	1	12/30/2016 9:47:49 PM
Trichloroethene (TCE)	ND	0.0186		mg/Kg-dry	1	12/30/2016 9:47:49 PM
1,2-Dichloropropane	ND	0.0186		mg/Kg-dry	1	12/30/2016 9:47:49 PM
Bromodichloromethane	ND	0.0186		mg/Kg-dry	1	12/30/2016 9:47:49 PM
Dibromomethane	ND	0.0372		mg/Kg-dry	1	12/30/2016 9:47:49 PM
cis-1,3-Dichloropropene	ND	0.0186		mg/Kg-dry	1	12/30/2016 9:47:49 PM
Toluene	ND	0.0186		mg/Kg-dry	1	12/30/2016 9:47:49 PM
trans-1,3-Dichloropropylene	ND	0.0279		mg/Kg-dry	1	12/30/2016 9:47:49 PM
1,1,2-Trichloroethane	ND	0.0279		mg/Kg-dry	1	12/30/2016 9:47:49 PM
1,3-Dichloropropane	ND	0.0465		mg/Kg-dry	1	12/30/2016 9:47:49 PM
Tetrachloroethene (PCE)	ND	0.0186		mg/Kg-dry	1	12/30/2016 9:47:49 PM
Dibromochloromethane	ND	0.0279		mg/Kg-dry	1	12/30/2016 9:47:49 PM
1,2-Dibromoethane (EDB)	ND	0.00465		mg/Kg-dry	1	12/30/2016 9:47:49 PM
Chlorobenzene	ND	0.0186		mg/Kg-dry	1	12/30/2016 9:47:49 PM
1,1,1,2-Tetrachloroethane	ND	0.0279		mg/Kg-dry	1	12/30/2016 9:47:49 PM
Ethylbenzene	ND	0.0279		mg/Kg-dry	1	12/30/2016 9:47:49 PM
m,p-Xylene	ND	0.0186		mg/Kg-dry	1	12/30/2016 9:47:49 PM
o-Xylene	ND	0.0186		mg/Kg-dry	1	12/30/2016 9:47:49 PM
Styrene	ND	0.0186		mg/Kg-dry	1	12/30/2016 9:47:49 PM
Isopropylbenzene	ND	0.0744		mg/Kg-dry	1	12/30/2016 9:47:49 PM
Bromoform	ND	0.0186	Q	mg/Kg-dry	1	12/30/2016 9:47:49 PM
1,1,2,2-Tetrachloroethane	ND	0.0186		mg/Kg-dry	1	12/30/2016 9:47:49 PM
n-Propylbenzene	ND	0.0186		mg/Kg-dry	1	12/30/2016 9:47:49 PM
Bromobenzene	ND	0.0279		mg/Kg-dry	1	12/30/2016 9:47:49 PM

Client: GeoEngineers
Collection Date: 12/29/2016 12:10:00 PM
Project: Rufus Block 20
Lab ID: 1612284-005
Matrix: Soil
Client Sample ID: **W24N33-17.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15805		Analyst: EM
1,3,5-Trimethylbenzene	ND	0.0186		mg/Kg-dry	1	12/30/2016 9:47:49 PM
2-Chlorotoluene	ND	0.0186		mg/Kg-dry	1	12/30/2016 9:47:49 PM
4-Chlorotoluene	ND	0.0186		mg/Kg-dry	1	12/30/2016 9:47:49 PM
tert-Butylbenzene	ND	0.0186		mg/Kg-dry	1	12/30/2016 9:47:49 PM
1,2,3-Trichloropropane	ND	0.0186		mg/Kg-dry	1	12/30/2016 9:47:49 PM
1,2,4-Trichlorobenzene	ND	0.0465		mg/Kg-dry	1	12/30/2016 9:47:49 PM
sec-Butylbenzene	ND	0.0186		mg/Kg-dry	1	12/30/2016 9:47:49 PM
4-Isopropyltoluene	ND	0.0186		mg/Kg-dry	1	12/30/2016 9:47:49 PM
1,3-Dichlorobenzene	ND	0.0186		mg/Kg-dry	1	12/30/2016 9:47:49 PM
1,4-Dichlorobenzene	ND	0.0186		mg/Kg-dry	1	12/30/2016 9:47:49 PM
n-Butylbenzene	ND	0.0186		mg/Kg-dry	1	12/30/2016 9:47:49 PM
1,2-Dichlorobenzene	ND	0.0186		mg/Kg-dry	1	12/30/2016 9:47:49 PM
1,2-Dibromo-3-chloropropane	ND	0.465	Q	mg/Kg-dry	1	12/30/2016 9:47:49 PM
1,2,4-Trimethylbenzene	ND	0.0186		mg/Kg-dry	1	12/30/2016 9:47:49 PM
Hexachlorobutadiene	ND	0.0930		mg/Kg-dry	1	12/30/2016 9:47:49 PM
Naphthalene	ND	0.0279		mg/Kg-dry	1	12/30/2016 9:47:49 PM
1,2,3-Trichlorobenzene	ND	0.0186		mg/Kg-dry	1	12/30/2016 9:47:49 PM
Surr: Dibromofluoromethane	94.5	56.5-129		%Rec	1	12/30/2016 9:47:49 PM
Surr: Toluene-d8	99.1	64.5-151		%Rec	1	12/30/2016 9:47:49 PM
Surr: 1-Bromo-4-fluorobenzene	94.8	63.1-141		%Rec	1	12/30/2016 9:47:49 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Mercury by EPA Method 7471				Batch ID: 15808		Analyst: WF
Mercury	ND	0.291		mg/Kg-dry	1	12/30/2016 11:15:20 AM
Total Metals by EPA Method 6020				Batch ID: 15809		Analyst: TN
Arsenic	2.40	0.0896		mg/Kg-dry	1	12/30/2016 1:52:22 PM
Barium	76.2	0.448		mg/Kg-dry	1	12/30/2016 1:52:22 PM
Cadmium	ND	0.179		mg/Kg-dry	1	12/30/2016 1:52:22 PM
Chromium	35.6	0.0896		mg/Kg-dry	1	12/30/2016 1:52:22 PM
Lead	3.29	0.179		mg/Kg-dry	1	12/30/2016 1:52:22 PM
Selenium	0.791	0.448		mg/Kg-dry	1	12/30/2016 1:52:22 PM
Silver	ND	0.0896		mg/Kg-dry	1	12/30/2016 1:52:22 PM

Analytical Report

Work Order: **1612284**
Date Reported: **1/5/2017**

Client: GeoEngineers
Collection Date: 12/29/2016 12:10:00 PM
Project: Rufus Block 20
Lab ID: 1612284-005
Matrix: Soil
Client Sample ID: **W24N33-17.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R33640		Analyst: BB
Percent Moisture	14.2			wt%	1	12/30/2016 8:19:43 AM

Client: GeoEngineers
Collection Date: 12/29/2016 12:20:00 PM
Project: Rufus Block 20
Lab ID: 1612284-006
Matrix: Soil
Client Sample ID: **W27N36-17.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 15806		Analyst: WC
Diesel (Fuel Oil)	ND	23.5		mg/Kg-dry	1	12/30/2016 12:29:03 AM
Heavy Oil	ND	58.9		mg/Kg-dry	1	12/30/2016 12:29:03 AM
Surr: 2-Fluorobiphenyl	82.5	50-150		%Rec	1	12/30/2016 12:29:03 AM
Surr: o-Terphenyl	80.1	50-150		%Rec	1	12/30/2016 12:29:03 AM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 15804		Analyst: BT
Naphthalene	ND	42.8		µg/Kg-dry	1	12/30/2016 5:26:32 AM
2-Methylnaphthalene	ND	42.8		µg/Kg-dry	1	12/30/2016 5:26:32 AM
1-Methylnaphthalene	ND	42.8		µg/Kg-dry	1	12/30/2016 5:26:32 AM
Acenaphthylene	ND	42.8		µg/Kg-dry	1	12/30/2016 5:26:32 AM
Acenaphthene	ND	42.8		µg/Kg-dry	1	12/30/2016 5:26:32 AM
Fluorene	ND	42.8		µg/Kg-dry	1	12/30/2016 5:26:32 AM
Phenanthrene	ND	42.8		µg/Kg-dry	1	12/30/2016 5:26:32 AM
Anthracene	ND	42.8		µg/Kg-dry	1	12/30/2016 5:26:32 AM
Fluoranthene	ND	42.8		µg/Kg-dry	1	12/30/2016 5:26:32 AM
Pyrene	ND	42.8		µg/Kg-dry	1	12/30/2016 5:26:32 AM
Benz(a)anthracene	ND	42.8		µg/Kg-dry	1	12/30/2016 5:26:32 AM
Chrysene	ND	42.8		µg/Kg-dry	1	12/30/2016 5:26:32 AM
Benzo(b)fluoranthene	ND	42.8		µg/Kg-dry	1	12/30/2016 5:26:32 AM
Benzo(k)fluoranthene	ND	42.8		µg/Kg-dry	1	12/30/2016 5:26:32 AM
Benzo(a)pyrene	ND	42.8		µg/Kg-dry	1	12/30/2016 5:26:32 AM
Indeno(1,2,3-cd)pyrene	ND	42.8		µg/Kg-dry	1	12/30/2016 5:26:32 AM
Dibenz(a,h)anthracene	ND	42.8		µg/Kg-dry	1	12/30/2016 5:26:32 AM
Benzo(g,h,i)perylene	ND	42.8		µg/Kg-dry	1	12/30/2016 5:26:32 AM
Surr: 2-Fluorobiphenyl	45.4	24.5-139		%Rec	1	12/30/2016 5:26:32 AM
Surr: Terphenyl-d14 (surr)	66.0	44.3-176		%Rec	1	12/30/2016 5:26:32 AM
Gasoline by NWTPH-Gx				Batch ID: 15805		Analyst: EM
Gasoline	ND	4.95		mg/Kg-dry	1	12/30/2016 10:16:50 PM
Surr: Toluene-d8	101	65-135		%Rec	1	12/30/2016 10:16:50 PM
Surr: 4-Bromofluorobenzene	96.4	65-135		%Rec	1	12/30/2016 10:16:50 PM
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15805		Analyst: EM
Dichlorodifluoromethane (CFC-12)	ND	0.0594	Q	mg/Kg-dry	1	12/30/2016 10:16:50 PM
Chloromethane	ND	0.0594	Q	mg/Kg-dry	1	12/30/2016 10:16:50 PM
Vinyl chloride	ND	0.00198	Q	mg/Kg-dry	1	12/30/2016 10:16:50 PM

Client: GeoEngineers
Collection Date: 12/29/2016 12:20:00 PM
Project: Rufus Block 20
Lab ID: 1612284-006
Matrix: Soil
Client Sample ID: **W27N36-17.5**

Volatile Organic Compounds by EPA Method 8260C

Batch ID: 15805 Analyst: EM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Bromomethane	ND	0.0892		mg/Kg-dry	1	12/30/2016 10:16:50 PM
Trichlorofluoromethane (CFC-11)	ND	0.0495		mg/Kg-dry	1	12/30/2016 10:16:50 PM
Chloroethane	ND	0.0594	Q	mg/Kg-dry	1	12/30/2016 10:16:50 PM
1,1-Dichloroethene	ND	0.0495		mg/Kg-dry	1	12/30/2016 10:16:50 PM
Methylene chloride	ND	0.0198		mg/Kg-dry	1	12/30/2016 10:16:50 PM
trans-1,2-Dichloroethene	ND	0.0198		mg/Kg-dry	1	12/30/2016 10:16:50 PM
Methyl tert-butyl ether (MTBE)	ND	0.0495		mg/Kg-dry	1	12/30/2016 10:16:50 PM
1,1-Dichloroethane	ND	0.0198		mg/Kg-dry	1	12/30/2016 10:16:50 PM
2,2-Dichloropropane	ND	0.0495		mg/Kg-dry	1	12/30/2016 10:16:50 PM
cis-1,2-Dichloroethene	ND	0.0198		mg/Kg-dry	1	12/30/2016 10:16:50 PM
Chloroform	ND	0.0198		mg/Kg-dry	1	12/30/2016 10:16:50 PM
1,1,1-Trichloroethane (TCA)	ND	0.0198		mg/Kg-dry	1	12/30/2016 10:16:50 PM
1,1-Dichloropropene	ND	0.0198		mg/Kg-dry	1	12/30/2016 10:16:50 PM
Carbon tetrachloride	ND	0.0198		mg/Kg-dry	1	12/30/2016 10:16:50 PM
1,2-Dichloroethane (EDC)	ND	0.0297		mg/Kg-dry	1	12/30/2016 10:16:50 PM
Benzene	ND	0.0198		mg/Kg-dry	1	12/30/2016 10:16:50 PM
Trichloroethene (TCE)	ND	0.0198		mg/Kg-dry	1	12/30/2016 10:16:50 PM
1,2-Dichloropropane	ND	0.0198		mg/Kg-dry	1	12/30/2016 10:16:50 PM
Bromodichloromethane	ND	0.0198		mg/Kg-dry	1	12/30/2016 10:16:50 PM
Dibromomethane	ND	0.0396		mg/Kg-dry	1	12/30/2016 10:16:50 PM
cis-1,3-Dichloropropene	ND	0.0198		mg/Kg-dry	1	12/30/2016 10:16:50 PM
Toluene	ND	0.0198		mg/Kg-dry	1	12/30/2016 10:16:50 PM
trans-1,3-Dichloropropylene	ND	0.0297		mg/Kg-dry	1	12/30/2016 10:16:50 PM
1,1,2-Trichloroethane	ND	0.0297		mg/Kg-dry	1	12/30/2016 10:16:50 PM
1,3-Dichloropropane	ND	0.0495		mg/Kg-dry	1	12/30/2016 10:16:50 PM
Tetrachloroethene (PCE)	ND	0.0198		mg/Kg-dry	1	12/30/2016 10:16:50 PM
Dibromochloromethane	ND	0.0297		mg/Kg-dry	1	12/30/2016 10:16:50 PM
1,2-Dibromoethane (EDB)	ND	0.00495		mg/Kg-dry	1	12/30/2016 10:16:50 PM
Chlorobenzene	ND	0.0198		mg/Kg-dry	1	12/30/2016 10:16:50 PM
1,1,1,2-Tetrachloroethane	ND	0.0297		mg/Kg-dry	1	12/30/2016 10:16:50 PM
Ethylbenzene	ND	0.0297		mg/Kg-dry	1	12/30/2016 10:16:50 PM
m,p-Xylene	ND	0.0198		mg/Kg-dry	1	12/30/2016 10:16:50 PM
o-Xylene	ND	0.0198		mg/Kg-dry	1	12/30/2016 10:16:50 PM
Styrene	ND	0.0198		mg/Kg-dry	1	12/30/2016 10:16:50 PM
Isopropylbenzene	ND	0.0793		mg/Kg-dry	1	12/30/2016 10:16:50 PM
Bromoform	ND	0.0198	Q	mg/Kg-dry	1	12/30/2016 10:16:50 PM
1,1,2,2-Tetrachloroethane	ND	0.0198		mg/Kg-dry	1	12/30/2016 10:16:50 PM
n-Propylbenzene	ND	0.0198		mg/Kg-dry	1	12/30/2016 10:16:50 PM
Bromobenzene	ND	0.0297		mg/Kg-dry	1	12/30/2016 10:16:50 PM

Client: GeoEngineers
Collection Date: 12/29/2016 12:20:00 PM
Project: Rufus Block 20
Lab ID: 1612284-006
Matrix: Soil
Client Sample ID: **W27N36-17.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15805		Analyst: EM
1,3,5-Trimethylbenzene	ND	0.0198		mg/Kg-dry	1	12/30/2016 10:16:50 PM
2-Chlorotoluene	ND	0.0198		mg/Kg-dry	1	12/30/2016 10:16:50 PM
4-Chlorotoluene	ND	0.0198		mg/Kg-dry	1	12/30/2016 10:16:50 PM
tert-Butylbenzene	ND	0.0198		mg/Kg-dry	1	12/30/2016 10:16:50 PM
1,2,3-Trichloropropane	ND	0.0198		mg/Kg-dry	1	12/30/2016 10:16:50 PM
1,2,4-Trichlorobenzene	ND	0.0495		mg/Kg-dry	1	12/30/2016 10:16:50 PM
sec-Butylbenzene	ND	0.0198		mg/Kg-dry	1	12/30/2016 10:16:50 PM
4-Isopropyltoluene	ND	0.0198		mg/Kg-dry	1	12/30/2016 10:16:50 PM
1,3-Dichlorobenzene	ND	0.0198		mg/Kg-dry	1	12/30/2016 10:16:50 PM
1,4-Dichlorobenzene	ND	0.0198		mg/Kg-dry	1	12/30/2016 10:16:50 PM
n-Butylbenzene	ND	0.0198		mg/Kg-dry	1	12/30/2016 10:16:50 PM
1,2-Dichlorobenzene	ND	0.0198		mg/Kg-dry	1	12/30/2016 10:16:50 PM
1,2-Dibromo-3-chloropropane	ND	0.495	Q	mg/Kg-dry	1	12/30/2016 10:16:50 PM
1,2,4-Trimethylbenzene	ND	0.0198		mg/Kg-dry	1	12/30/2016 10:16:50 PM
Hexachlorobutadiene	ND	0.0991		mg/Kg-dry	1	12/30/2016 10:16:50 PM
Naphthalene	ND	0.0297		mg/Kg-dry	1	12/30/2016 10:16:50 PM
1,2,3-Trichlorobenzene	ND	0.0198		mg/Kg-dry	1	12/30/2016 10:16:50 PM
Surr: Dibromofluoromethane	94.3	56.5-129		%Rec	1	12/30/2016 10:16:50 PM
Surr: Toluene-d8	99.5	64.5-151		%Rec	1	12/30/2016 10:16:50 PM
Surr: 1-Bromo-4-fluorobenzene	95.8	63.1-141		%Rec	1	12/30/2016 10:16:50 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Mercury by EPA Method 7471				Batch ID: 15808		Analyst: WF
Mercury	ND	0.300		mg/Kg-dry	1	12/30/2016 11:20:18 AM
Total Metals by EPA Method 6020				Batch ID: 15809		Analyst: TN
Arsenic	3.95	0.0924		mg/Kg-dry	1	12/30/2016 1:55:58 PM
Barium	63.6	0.462		mg/Kg-dry	1	12/30/2016 1:55:58 PM
Cadmium	ND	0.185		mg/Kg-dry	1	12/30/2016 1:55:58 PM
Chromium	44.6	0.0924		mg/Kg-dry	1	12/30/2016 1:55:58 PM
Lead	2.79	0.185		mg/Kg-dry	1	12/30/2016 1:55:58 PM
Selenium	1.20	0.462		mg/Kg-dry	1	12/30/2016 1:55:58 PM
Silver	ND	0.0924		mg/Kg-dry	1	12/30/2016 1:55:58 PM

Analytical Report

Work Order: **1612284**
Date Reported: **1/5/2017**

Client: GeoEngineers
Collection Date: 12/29/2016 12:20:00 PM
Project: Rufus Block 20
Lab ID: 1612284-006
Matrix: Soil
Client Sample ID: **W27N36-17.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R33640		Analyst: BB
Percent Moisture	16.7			wt%	1	12/30/2016 8:19:43 AM

Analytical Report

Work Order: **1612284**
Date Reported: **1/5/2017**

Client: GeoEngineers
Collection Date: 12/29/2016 11:45:00 AM
Project: Rufus Block 20
Lab ID: 1612284-007
Matrix: Soil
Client Sample ID: **W22N27-8.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 15806		Analyst: WC
Diesel (Fuel Oil)	ND	23.4		mg/Kg-dry	1	12/30/2016 12:59:41 AM
Heavy Oil	ND	58.4		mg/Kg-dry	1	12/30/2016 12:59:41 AM
Surr: 2-Fluorobiphenyl	90.7	50-150		%Rec	1	12/30/2016 12:59:41 AM
Surr: o-Terphenyl	89.2	50-150		%Rec	1	12/30/2016 12:59:41 AM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 15804		Analyst: BT
Naphthalene	ND	44.1		µg/Kg-dry	1	12/30/2016 5:47:38 AM
2-Methylnaphthalene	ND	44.1		µg/Kg-dry	1	12/30/2016 5:47:38 AM
1-Methylnaphthalene	ND	44.1		µg/Kg-dry	1	12/30/2016 5:47:38 AM
Acenaphthylene	ND	44.1		µg/Kg-dry	1	12/30/2016 5:47:38 AM
Acenaphthene	ND	44.1		µg/Kg-dry	1	12/30/2016 5:47:38 AM
Fluorene	ND	44.1		µg/Kg-dry	1	12/30/2016 5:47:38 AM
Phenanthrene	146	44.1		µg/Kg-dry	1	12/30/2016 5:47:38 AM
Anthracene	ND	44.1		µg/Kg-dry	1	12/30/2016 5:47:38 AM
Fluoranthene	187	44.1		µg/Kg-dry	1	12/30/2016 5:47:38 AM
Pyrene	202	44.1		µg/Kg-dry	1	12/30/2016 5:47:38 AM
Benz(a)anthracene	87.2	44.1		µg/Kg-dry	1	12/30/2016 5:47:38 AM
Chrysene	91.1	44.1		µg/Kg-dry	1	12/30/2016 5:47:38 AM
Benzo(b)fluoranthene	113	44.1		µg/Kg-dry	1	12/30/2016 5:47:38 AM
Benzo(k)fluoranthene	ND	44.1		µg/Kg-dry	1	12/30/2016 5:47:38 AM
Benzo(a)pyrene	105	44.1		µg/Kg-dry	1	12/30/2016 5:47:38 AM
Indeno(1,2,3-cd)pyrene	65.3	44.1	Q	µg/Kg-dry	1	12/30/2016 5:47:38 AM
Dibenz(a,h)anthracene	ND	44.1		µg/Kg-dry	1	12/30/2016 5:47:38 AM
Benzo(g,h,i)perylene	73.6	44.1	Q	µg/Kg-dry	1	12/30/2016 5:47:38 AM
Surr: 2-Fluorobiphenyl	49.9	24.5-139		%Rec	1	12/30/2016 5:47:38 AM
Surr: Terphenyl-d14 (surr)	63.0	44.3-176		%Rec	1	12/30/2016 5:47:38 AM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Gasoline by NWTPH-Gx				Batch ID: 15805		Analyst: EM
Gasoline	ND	3.56		mg/Kg-dry	1	12/30/2016 10:45:50 PM
Surr: Toluene-d8	101	65-135		%Rec	1	12/30/2016 10:45:50 PM
Surr: 4-Bromofluorobenzene	97.1	65-135		%Rec	1	12/30/2016 10:45:50 PM

Client: GeoEngineers
Collection Date: 12/29/2016 11:45:00 AM
Project: Rufus Block 20
Lab ID: 1612284-007
Matrix: Soil
Client Sample ID: **W22N27-8.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15805		Analyst: EM
Dichlorodifluoromethane (CFC-12)	ND	0.0427	Q	mg/Kg-dry	1	12/30/2016 10:45:50 PM
Chloromethane	ND	0.0427	Q	mg/Kg-dry	1	12/30/2016 10:45:50 PM
Vinyl chloride	ND	0.00142	Q	mg/Kg-dry	1	12/30/2016 10:45:50 PM
Bromomethane	ND	0.0640		mg/Kg-dry	1	12/30/2016 10:45:50 PM
Trichlorofluoromethane (CFC-11)	ND	0.0356		mg/Kg-dry	1	12/30/2016 10:45:50 PM
Chloroethane	ND	0.0427	Q	mg/Kg-dry	1	12/30/2016 10:45:50 PM
1,1-Dichloroethene	ND	0.0356		mg/Kg-dry	1	12/30/2016 10:45:50 PM
Methylene chloride	ND	0.0142		mg/Kg-dry	1	12/30/2016 10:45:50 PM
trans-1,2-Dichloroethene	ND	0.0142		mg/Kg-dry	1	12/30/2016 10:45:50 PM
Methyl tert-butyl ether (MTBE)	ND	0.0356		mg/Kg-dry	1	12/30/2016 10:45:50 PM
1,1-Dichloroethane	ND	0.0142		mg/Kg-dry	1	12/30/2016 10:45:50 PM
2,2-Dichloropropane	ND	0.0356		mg/Kg-dry	1	12/30/2016 10:45:50 PM
cis-1,2-Dichloroethene	ND	0.0142		mg/Kg-dry	1	12/30/2016 10:45:50 PM
Chloroform	ND	0.0142		mg/Kg-dry	1	12/30/2016 10:45:50 PM
1,1,1-Trichloroethane (TCA)	ND	0.0142		mg/Kg-dry	1	12/30/2016 10:45:50 PM
1,1-Dichloropropene	ND	0.0142		mg/Kg-dry	1	12/30/2016 10:45:50 PM
Carbon tetrachloride	ND	0.0142		mg/Kg-dry	1	12/30/2016 10:45:50 PM
1,2-Dichloroethane (EDC)	ND	0.0213		mg/Kg-dry	1	12/30/2016 10:45:50 PM
Benzene	ND	0.0142		mg/Kg-dry	1	12/30/2016 10:45:50 PM
Trichloroethene (TCE)	ND	0.0142		mg/Kg-dry	1	12/30/2016 10:45:50 PM
1,2-Dichloropropane	ND	0.0142		mg/Kg-dry	1	12/30/2016 10:45:50 PM
Bromodichloromethane	ND	0.0142		mg/Kg-dry	1	12/30/2016 10:45:50 PM
Dibromomethane	ND	0.0285		mg/Kg-dry	1	12/30/2016 10:45:50 PM
cis-1,3-Dichloropropene	ND	0.0142		mg/Kg-dry	1	12/30/2016 10:45:50 PM
Toluene	ND	0.0142		mg/Kg-dry	1	12/30/2016 10:45:50 PM
trans-1,3-Dichloropropylene	ND	0.0213		mg/Kg-dry	1	12/30/2016 10:45:50 PM
1,1,2-Trichloroethane	ND	0.0213		mg/Kg-dry	1	12/30/2016 10:45:50 PM
1,3-Dichloropropane	ND	0.0356		mg/Kg-dry	1	12/30/2016 10:45:50 PM
Tetrachloroethene (PCE)	ND	0.0142		mg/Kg-dry	1	12/30/2016 10:45:50 PM
Dibromochloromethane	ND	0.0213		mg/Kg-dry	1	12/30/2016 10:45:50 PM
1,2-Dibromoethane (EDB)	ND	0.00356		mg/Kg-dry	1	12/30/2016 10:45:50 PM
Chlorobenzene	ND	0.0142		mg/Kg-dry	1	12/30/2016 10:45:50 PM
1,1,1,2-Tetrachloroethane	ND	0.0213		mg/Kg-dry	1	12/30/2016 10:45:50 PM
Ethylbenzene	ND	0.0213		mg/Kg-dry	1	12/30/2016 10:45:50 PM
m,p-Xylene	ND	0.0142		mg/Kg-dry	1	12/30/2016 10:45:50 PM
o-Xylene	ND	0.0142		mg/Kg-dry	1	12/30/2016 10:45:50 PM
Styrene	ND	0.0142		mg/Kg-dry	1	12/30/2016 10:45:50 PM
Isopropylbenzene	ND	0.0569		mg/Kg-dry	1	12/30/2016 10:45:50 PM
Bromoform	ND	0.0142	Q	mg/Kg-dry	1	12/30/2016 10:45:50 PM

Client: GeoEngineers
Project: Rufus Block 20
Lab ID: 1612284-007
Client Sample ID: **W22N27-8.5**

Collection Date: 12/29/2016 11:45:00 AM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15805		Analyst: EM
1,1,2,2-Tetrachloroethane	ND	0.0142		mg/Kg-dry	1	12/30/2016 10:45:50 PM
n-Propylbenzene	ND	0.0142		mg/Kg-dry	1	12/30/2016 10:45:50 PM
Bromobenzene	ND	0.0213		mg/Kg-dry	1	12/30/2016 10:45:50 PM
1,3,5-Trimethylbenzene	ND	0.0142		mg/Kg-dry	1	12/30/2016 10:45:50 PM
2-Chlorotoluene	ND	0.0142		mg/Kg-dry	1	12/30/2016 10:45:50 PM
4-Chlorotoluene	ND	0.0142		mg/Kg-dry	1	12/30/2016 10:45:50 PM
tert-Butylbenzene	ND	0.0142		mg/Kg-dry	1	12/30/2016 10:45:50 PM
1,2,3-Trichloropropane	ND	0.0142		mg/Kg-dry	1	12/30/2016 10:45:50 PM
1,2,4-Trichlorobenzene	ND	0.0356		mg/Kg-dry	1	12/30/2016 10:45:50 PM
sec-Butylbenzene	ND	0.0142		mg/Kg-dry	1	12/30/2016 10:45:50 PM
4-Isopropyltoluene	ND	0.0142		mg/Kg-dry	1	12/30/2016 10:45:50 PM
1,3-Dichlorobenzene	ND	0.0142		mg/Kg-dry	1	12/30/2016 10:45:50 PM
1,4-Dichlorobenzene	ND	0.0142		mg/Kg-dry	1	12/30/2016 10:45:50 PM
n-Butylbenzene	ND	0.0142		mg/Kg-dry	1	12/30/2016 10:45:50 PM
1,2-Dichlorobenzene	ND	0.0142		mg/Kg-dry	1	12/30/2016 10:45:50 PM
1,2-Dibromo-3-chloropropane	ND	0.356	Q	mg/Kg-dry	1	12/30/2016 10:45:50 PM
1,2,4-Trimethylbenzene	ND	0.0142		mg/Kg-dry	1	12/30/2016 10:45:50 PM
Hexachlorobutadiene	ND	0.0711		mg/Kg-dry	1	12/30/2016 10:45:50 PM
Naphthalene	ND	0.0213		mg/Kg-dry	1	12/30/2016 10:45:50 PM
1,2,3-Trichlorobenzene	ND	0.0142		mg/Kg-dry	1	12/30/2016 10:45:50 PM
Surr: Dibromofluoromethane	93.6	56.5-129		%Rec	1	12/30/2016 10:45:50 PM
Surr: Toluene-d8	98.6	64.5-151		%Rec	1	12/30/2016 10:45:50 PM
Surr: 1-Bromo-4-fluorobenzene	96.4	63.1-141		%Rec	1	12/30/2016 10:45:50 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Mercury by EPA Method 7471				Batch ID: 15808		Analyst: WF
Mercury	ND	0.292		mg/Kg-dry	1	12/30/2016 11:21:55 AM
Total Metals by EPA Method 6020				Batch ID: 15809		Analyst: TN
Arsenic	2.23	0.0923		mg/Kg-dry	1	12/30/2016 1:59:34 PM
Barium	70.2	0.462		mg/Kg-dry	1	12/30/2016 1:59:34 PM
Cadmium	ND	0.185		mg/Kg-dry	1	12/30/2016 1:59:34 PM
Chromium	35.8	0.0923		mg/Kg-dry	1	12/30/2016 1:59:34 PM
Lead	25.8	0.185		mg/Kg-dry	1	12/30/2016 1:59:34 PM
Selenium	0.919	0.462		mg/Kg-dry	1	12/30/2016 1:59:34 PM

Analytical Report

Work Order: **1612284**
Date Reported: **1/5/2017**

Client: GeoEngineers
Project: Rufus Block 20
Lab ID: 1612284-007
Client Sample ID: **W22N27-8.5**

Collection Date: 12/29/2016 11:45:00 AM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 15809		Analyst: TN
Silver	ND	0.0923		mg/Kg-dry	1	12/30/2016 1:59:34 PM
Sample Moisture (Percent Moisture)				Batch ID: R33640		Analyst: BB
Percent Moisture	16.0			wt%	1	12/30/2016 8:19:43 AM

Client: GeoEngineers
Collection Date: 12/29/2016 11:30:00 AM
Project: Rufus Block 20
Lab ID: 1612284-008
Matrix: Soil
Client Sample ID: **W24N28-8.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 15806		Analyst: WC
Diesel (Fuel Oil)	ND	21.9		mg/Kg-dry	1	12/30/2016 1:30:16 AM
Heavy Oil	ND	54.8		mg/Kg-dry	1	12/30/2016 1:30:16 AM
Surr: 2-Fluorobiphenyl	93.5	50-150		%Rec	1	12/30/2016 1:30:16 AM
Surr: o-Terphenyl	96.1	50-150		%Rec	1	12/30/2016 1:30:16 AM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 15804		Analyst: BT
Naphthalene	ND	44.9		µg/Kg-dry	1	12/30/2016 6:08:43 AM
2-Methylnaphthalene	ND	44.9		µg/Kg-dry	1	12/30/2016 6:08:43 AM
1-Methylnaphthalene	ND	44.9		µg/Kg-dry	1	12/30/2016 6:08:43 AM
Acenaphthylene	ND	44.9		µg/Kg-dry	1	12/30/2016 6:08:43 AM
Acenaphthene	ND	44.9		µg/Kg-dry	1	12/30/2016 6:08:43 AM
Fluorene	ND	44.9		µg/Kg-dry	1	12/30/2016 6:08:43 AM
Phenanthrene	68.9	44.9		µg/Kg-dry	1	12/30/2016 6:08:43 AM
Anthracene	ND	44.9		µg/Kg-dry	1	12/30/2016 6:08:43 AM
Fluoranthene	138	44.9		µg/Kg-dry	1	12/30/2016 6:08:43 AM
Pyrene	158	44.9		µg/Kg-dry	1	12/30/2016 6:08:43 AM
Benz(a)anthracene	83.8	44.9		µg/Kg-dry	1	12/30/2016 6:08:43 AM
Chrysene	83.1	44.9		µg/Kg-dry	1	12/30/2016 6:08:43 AM
Benzo(b)fluoranthene	93.3	44.9		µg/Kg-dry	1	12/30/2016 6:08:43 AM
Benzo(k)fluoranthene	ND	44.9		µg/Kg-dry	1	12/30/2016 6:08:43 AM
Benzo(a)pyrene	94.1	44.9		µg/Kg-dry	1	12/30/2016 6:08:43 AM
Indeno(1,2,3-cd)pyrene	59.5	44.9	Q	µg/Kg-dry	1	12/30/2016 6:08:43 AM
Dibenz(a,h)anthracene	ND	44.9		µg/Kg-dry	1	12/30/2016 6:08:43 AM
Benzo(g,h,i)perylene	66.5	44.9	Q	µg/Kg-dry	1	12/30/2016 6:08:43 AM
Surr: 2-Fluorobiphenyl	55.6	24.5-139		%Rec	1	12/30/2016 6:08:43 AM
Surr: Terphenyl-d14 (surr)	65.6	44.3-176		%Rec	1	12/30/2016 6:08:43 AM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Gasoline by NWTPH-Gx				Batch ID: 15805		Analyst: EM
Gasoline	ND	4.57		mg/Kg-dry	1	12/30/2016 11:14:44 PM
Surr: Toluene-d8	100	65-135		%Rec	1	12/30/2016 11:14:44 PM
Surr: 4-Bromofluorobenzene	96.5	65-135		%Rec	1	12/30/2016 11:14:44 PM

Client: GeoEngineers
Collection Date: 12/29/2016 11:30:00 AM
Project: Rufus Block 20
Lab ID: 1612284-008
Matrix: Soil
Client Sample ID: **W24N28-8.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15805		Analyst: EM
Dichlorodifluoromethane (CFC-12)	ND	0.0549	Q	mg/Kg-dry	1	12/30/2016 11:14:44 PM
Chloromethane	ND	0.0549	Q	mg/Kg-dry	1	12/30/2016 11:14:44 PM
Vinyl chloride	ND	0.00183	Q	mg/Kg-dry	1	12/30/2016 11:14:44 PM
Bromomethane	ND	0.0823		mg/Kg-dry	1	12/30/2016 11:14:44 PM
Trichlorofluoromethane (CFC-11)	ND	0.0457		mg/Kg-dry	1	12/30/2016 11:14:44 PM
Chloroethane	ND	0.0549	Q	mg/Kg-dry	1	12/30/2016 11:14:44 PM
1,1-Dichloroethene	ND	0.0457		mg/Kg-dry	1	12/30/2016 11:14:44 PM
Methylene chloride	ND	0.0183		mg/Kg-dry	1	12/30/2016 11:14:44 PM
trans-1,2-Dichloroethene	ND	0.0183		mg/Kg-dry	1	12/30/2016 11:14:44 PM
Methyl tert-butyl ether (MTBE)	ND	0.0457		mg/Kg-dry	1	12/30/2016 11:14:44 PM
1,1-Dichloroethane	ND	0.0183		mg/Kg-dry	1	12/30/2016 11:14:44 PM
2,2-Dichloropropane	ND	0.0457		mg/Kg-dry	1	12/30/2016 11:14:44 PM
cis-1,2-Dichloroethene	ND	0.0183		mg/Kg-dry	1	12/30/2016 11:14:44 PM
Chloroform	ND	0.0183		mg/Kg-dry	1	12/30/2016 11:14:44 PM
1,1,1-Trichloroethane (TCA)	ND	0.0183		mg/Kg-dry	1	12/30/2016 11:14:44 PM
1,1-Dichloropropene	ND	0.0183		mg/Kg-dry	1	12/30/2016 11:14:44 PM
Carbon tetrachloride	ND	0.0183		mg/Kg-dry	1	12/30/2016 11:14:44 PM
1,2-Dichloroethane (EDC)	ND	0.0274		mg/Kg-dry	1	12/30/2016 11:14:44 PM
Benzene	ND	0.0183		mg/Kg-dry	1	12/30/2016 11:14:44 PM
Trichloroethene (TCE)	ND	0.0183		mg/Kg-dry	1	12/30/2016 11:14:44 PM
1,2-Dichloropropane	ND	0.0183		mg/Kg-dry	1	12/30/2016 11:14:44 PM
Bromodichloromethane	ND	0.0183		mg/Kg-dry	1	12/30/2016 11:14:44 PM
Dibromomethane	ND	0.0366		mg/Kg-dry	1	12/30/2016 11:14:44 PM
cis-1,3-Dichloropropene	ND	0.0183		mg/Kg-dry	1	12/30/2016 11:14:44 PM
Toluene	ND	0.0183		mg/Kg-dry	1	12/30/2016 11:14:44 PM
trans-1,3-Dichloropropylene	ND	0.0274		mg/Kg-dry	1	12/30/2016 11:14:44 PM
1,1,2-Trichloroethane	ND	0.0274		mg/Kg-dry	1	12/30/2016 11:14:44 PM
1,3-Dichloropropane	ND	0.0457		mg/Kg-dry	1	12/30/2016 11:14:44 PM
Tetrachloroethene (PCE)	ND	0.0183		mg/Kg-dry	1	12/30/2016 11:14:44 PM
Dibromochloromethane	ND	0.0274		mg/Kg-dry	1	12/30/2016 11:14:44 PM
1,2-Dibromoethane (EDB)	ND	0.00457		mg/Kg-dry	1	12/30/2016 11:14:44 PM
Chlorobenzene	ND	0.0183		mg/Kg-dry	1	12/30/2016 11:14:44 PM
1,1,1,2-Tetrachloroethane	ND	0.0274		mg/Kg-dry	1	12/30/2016 11:14:44 PM
Ethylbenzene	ND	0.0274		mg/Kg-dry	1	12/30/2016 11:14:44 PM
m,p-Xylene	ND	0.0183		mg/Kg-dry	1	12/30/2016 11:14:44 PM
o-Xylene	ND	0.0183		mg/Kg-dry	1	12/30/2016 11:14:44 PM
Styrene	ND	0.0183		mg/Kg-dry	1	12/30/2016 11:14:44 PM
Isopropylbenzene	ND	0.0732		mg/Kg-dry	1	12/30/2016 11:14:44 PM
Bromoform	ND	0.0183	Q	mg/Kg-dry	1	12/30/2016 11:14:44 PM

Client: GeoEngineers
Project: Rufus Block 20
Lab ID: 1612284-008
Client Sample ID: **W24N28-8.5**

Collection Date: 12/29/2016 11:30:00 AM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15805		Analyst: EM
1,1,2,2-Tetrachloroethane	ND	0.0183		mg/Kg-dry	1	12/30/2016 11:14:44 PM
n-Propylbenzene	ND	0.0183		mg/Kg-dry	1	12/30/2016 11:14:44 PM
Bromobenzene	ND	0.0274		mg/Kg-dry	1	12/30/2016 11:14:44 PM
1,3,5-Trimethylbenzene	ND	0.0183		mg/Kg-dry	1	12/30/2016 11:14:44 PM
2-Chlorotoluene	ND	0.0183		mg/Kg-dry	1	12/30/2016 11:14:44 PM
4-Chlorotoluene	ND	0.0183		mg/Kg-dry	1	12/30/2016 11:14:44 PM
tert-Butylbenzene	ND	0.0183		mg/Kg-dry	1	12/30/2016 11:14:44 PM
1,2,3-Trichloropropane	ND	0.0183		mg/Kg-dry	1	12/30/2016 11:14:44 PM
1,2,4-Trichlorobenzene	ND	0.0457		mg/Kg-dry	1	12/30/2016 11:14:44 PM
sec-Butylbenzene	ND	0.0183		mg/Kg-dry	1	12/30/2016 11:14:44 PM
4-Isopropyltoluene	ND	0.0183		mg/Kg-dry	1	12/30/2016 11:14:44 PM
1,3-Dichlorobenzene	ND	0.0183		mg/Kg-dry	1	12/30/2016 11:14:44 PM
1,4-Dichlorobenzene	ND	0.0183		mg/Kg-dry	1	12/30/2016 11:14:44 PM
n-Butylbenzene	ND	0.0183		mg/Kg-dry	1	12/30/2016 11:14:44 PM
1,2-Dichlorobenzene	ND	0.0183		mg/Kg-dry	1	12/30/2016 11:14:44 PM
1,2-Dibromo-3-chloropropane	ND	0.457	Q	mg/Kg-dry	1	12/30/2016 11:14:44 PM
1,2,4-Trimethylbenzene	ND	0.0183		mg/Kg-dry	1	12/30/2016 11:14:44 PM
Hexachlorobutadiene	ND	0.0915		mg/Kg-dry	1	12/30/2016 11:14:44 PM
Naphthalene	ND	0.0274		mg/Kg-dry	1	12/30/2016 11:14:44 PM
1,2,3-Trichlorobenzene	ND	0.0183		mg/Kg-dry	1	12/30/2016 11:14:44 PM
Surr: Dibromofluoromethane	93.2	56.5-129		%Rec	1	12/30/2016 11:14:44 PM
Surr: Toluene-d8	98.9	64.5-151		%Rec	1	12/30/2016 11:14:44 PM
Surr: 1-Bromo-4-fluorobenzene	95.8	63.1-141		%Rec	1	12/30/2016 11:14:44 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Mercury by EPA Method 7471				Batch ID: 15808		Analyst: WF
Mercury	ND	0.278		mg/Kg-dry	1	12/30/2016 11:23:33 AM
Total Metals by EPA Method 6020				Batch ID: 15809		Analyst: TN
Arsenic	3.46	0.0954		mg/Kg-dry	1	12/30/2016 2:03:10 PM
Barium	66.9	0.477		mg/Kg-dry	1	12/30/2016 2:03:10 PM
Cadmium	ND	0.191		mg/Kg-dry	1	12/30/2016 2:03:10 PM
Chromium	36.2	0.0954		mg/Kg-dry	1	12/30/2016 2:03:10 PM
Lead	32.7	0.191		mg/Kg-dry	1	12/30/2016 2:03:10 PM
Selenium	1.59	0.477		mg/Kg-dry	1	12/30/2016 2:03:10 PM

Analytical Report

Work Order: **1612284**
Date Reported: **1/5/2017**

Client: GeoEngineers
Collection Date: 12/29/2016 11:30:00 AM
Project: Rufus Block 20
Lab ID: 1612284-008
Matrix: Soil
Client Sample ID: **W24N28-8.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 15809		Analyst: TN
Silver	ND	0.0954		mg/Kg-dry	1	12/30/2016 2:03:10 PM
Sample Moisture (Percent Moisture)				Batch ID: R33640		Analyst: BB
Percent Moisture	13.4			wt%	1	12/30/2016 8:19:43 AM

Analytical Report

Work Order: **1612284**
Date Reported: **1/5/2017**

Client: GeoEngineers
Collection Date: 12/29/2016 11:20:00 AM
Project: Rufus Block 20
Lab ID: 1612284-009
Matrix: Soil
Client Sample ID: **W26N29-8.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 15806		Analyst: WC
Diesel (Fuel Oil)	ND	23.6		mg/Kg-dry	1	12/30/2016 2:01:02 AM
Heavy Oil	127	58.9		mg/Kg-dry	1	12/30/2016 2:01:02 AM
Surr: 2-Fluorobiphenyl	92.2	50-150		%Rec	1	12/30/2016 2:01:02 AM
Surr: o-Terphenyl	92.1	50-150		%Rec	1	12/30/2016 2:01:02 AM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 15804		Analyst: BT
Naphthalene	ND	43.5		µg/Kg-dry	1	12/30/2016 6:29:53 AM
2-Methylnaphthalene	ND	43.5		µg/Kg-dry	1	12/30/2016 6:29:53 AM
1-Methylnaphthalene	ND	43.5		µg/Kg-dry	1	12/30/2016 6:29:53 AM
Acenaphthylene	ND	43.5		µg/Kg-dry	1	12/30/2016 6:29:53 AM
Acenaphthene	ND	43.5		µg/Kg-dry	1	12/30/2016 6:29:53 AM
Fluorene	ND	43.5		µg/Kg-dry	1	12/30/2016 6:29:53 AM
Phenanthrene	ND	43.5		µg/Kg-dry	1	12/30/2016 6:29:53 AM
Anthracene	ND	43.5		µg/Kg-dry	1	12/30/2016 6:29:53 AM
Fluoranthene	ND	43.5		µg/Kg-dry	1	12/30/2016 6:29:53 AM
Pyrene	ND	43.5		µg/Kg-dry	1	12/30/2016 6:29:53 AM
Benz(a)anthracene	ND	43.5		µg/Kg-dry	1	12/30/2016 6:29:53 AM
Chrysene	ND	43.5		µg/Kg-dry	1	12/30/2016 6:29:53 AM
Benzo(b)fluoranthene	ND	43.5		µg/Kg-dry	1	12/30/2016 6:29:53 AM
Benzo(k)fluoranthene	ND	43.5		µg/Kg-dry	1	12/30/2016 6:29:53 AM
Benzo(a)pyrene	ND	43.5		µg/Kg-dry	1	12/30/2016 6:29:53 AM
Indeno(1,2,3-cd)pyrene	ND	43.5		µg/Kg-dry	1	12/30/2016 6:29:53 AM
Dibenz(a,h)anthracene	ND	43.5		µg/Kg-dry	1	12/30/2016 6:29:53 AM
Benzo(g,h,i)perylene	ND	43.5		µg/Kg-dry	1	12/30/2016 6:29:53 AM
Surr: 2-Fluorobiphenyl	62.4	24.5-139		%Rec	1	12/30/2016 6:29:53 AM
Surr: Terphenyl-d14 (surr)	68.2	44.3-176		%Rec	1	12/30/2016 6:29:53 AM
Gasoline by NWTPH-Gx				Batch ID: 15805		Analyst: EM
Gasoline	ND	5.06		mg/Kg-dry	1	12/30/2016 11:43:39 PM
Surr: Toluene-d8	99.9	65-135		%Rec	1	12/30/2016 11:43:39 PM
Surr: 4-Bromofluorobenzene	96.4	65-135		%Rec	1	12/30/2016 11:43:39 PM
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15805		Analyst: EM
Dichlorodifluoromethane (CFC-12)	ND	0.0607	Q	mg/Kg-dry	1	12/30/2016 11:43:39 PM
Chloromethane	ND	0.0607	Q	mg/Kg-dry	1	12/30/2016 11:43:39 PM
Vinyl chloride	ND	0.00202	Q	mg/Kg-dry	1	12/30/2016 11:43:39 PM

Client: GeoEngineers
Project: Rufus Block 20
Lab ID: 1612284-009
Client Sample ID: **W26N29-8.5**

Collection Date: 12/29/2016 11:20:00 AM
Matrix: Soil

Volatile Organic Compounds by EPA Method 8260C Batch ID: 15805 Analyst: EM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Bromomethane	ND	0.0910		mg/Kg-dry	1	12/30/2016 11:43:39 PM
Trichlorofluoromethane (CFC-11)	ND	0.0506		mg/Kg-dry	1	12/30/2016 11:43:39 PM
Chloroethane	ND	0.0607	Q	mg/Kg-dry	1	12/30/2016 11:43:39 PM
1,1-Dichloroethene	ND	0.0506		mg/Kg-dry	1	12/30/2016 11:43:39 PM
Methylene chloride	ND	0.0202		mg/Kg-dry	1	12/30/2016 11:43:39 PM
trans-1,2-Dichloroethene	ND	0.0202		mg/Kg-dry	1	12/30/2016 11:43:39 PM
Methyl tert-butyl ether (MTBE)	ND	0.0506		mg/Kg-dry	1	12/30/2016 11:43:39 PM
1,1-Dichloroethane	ND	0.0202		mg/Kg-dry	1	12/30/2016 11:43:39 PM
2,2-Dichloropropane	ND	0.0506		mg/Kg-dry	1	12/30/2016 11:43:39 PM
cis-1,2-Dichloroethene	ND	0.0202		mg/Kg-dry	1	12/30/2016 11:43:39 PM
Chloroform	ND	0.0202		mg/Kg-dry	1	12/30/2016 11:43:39 PM
1,1,1-Trichloroethane (TCA)	ND	0.0202		mg/Kg-dry	1	12/30/2016 11:43:39 PM
1,1-Dichloropropene	ND	0.0202		mg/Kg-dry	1	12/30/2016 11:43:39 PM
Carbon tetrachloride	ND	0.0202		mg/Kg-dry	1	12/30/2016 11:43:39 PM
1,2-Dichloroethane (EDC)	ND	0.0303		mg/Kg-dry	1	12/30/2016 11:43:39 PM
Benzene	ND	0.0202		mg/Kg-dry	1	12/30/2016 11:43:39 PM
Trichloroethene (TCE)	ND	0.0202		mg/Kg-dry	1	12/30/2016 11:43:39 PM
1,2-Dichloropropane	ND	0.0202		mg/Kg-dry	1	12/30/2016 11:43:39 PM
Bromodichloromethane	ND	0.0202		mg/Kg-dry	1	12/30/2016 11:43:39 PM
Dibromomethane	ND	0.0405		mg/Kg-dry	1	12/30/2016 11:43:39 PM
cis-1,3-Dichloropropene	ND	0.0202		mg/Kg-dry	1	12/30/2016 11:43:39 PM
Toluene	ND	0.0202		mg/Kg-dry	1	12/30/2016 11:43:39 PM
trans-1,3-Dichloropropylene	ND	0.0303		mg/Kg-dry	1	12/30/2016 11:43:39 PM
1,1,2-Trichloroethane	ND	0.0303		mg/Kg-dry	1	12/30/2016 11:43:39 PM
1,3-Dichloropropane	ND	0.0506		mg/Kg-dry	1	12/30/2016 11:43:39 PM
Tetrachloroethene (PCE)	ND	0.0202		mg/Kg-dry	1	12/30/2016 11:43:39 PM
Dibromochloromethane	ND	0.0303		mg/Kg-dry	1	12/30/2016 11:43:39 PM
1,2-Dibromoethane (EDB)	ND	0.00506		mg/Kg-dry	1	12/30/2016 11:43:39 PM
Chlorobenzene	ND	0.0202		mg/Kg-dry	1	12/30/2016 11:43:39 PM
1,1,1,2-Tetrachloroethane	ND	0.0303		mg/Kg-dry	1	12/30/2016 11:43:39 PM
Ethylbenzene	ND	0.0303		mg/Kg-dry	1	12/30/2016 11:43:39 PM
m,p-Xylene	ND	0.0202		mg/Kg-dry	1	12/30/2016 11:43:39 PM
o-Xylene	ND	0.0202		mg/Kg-dry	1	12/30/2016 11:43:39 PM
Styrene	ND	0.0202		mg/Kg-dry	1	12/30/2016 11:43:39 PM
Isopropylbenzene	ND	0.0809		mg/Kg-dry	1	12/30/2016 11:43:39 PM
Bromoform	ND	0.0202	Q	mg/Kg-dry	1	12/30/2016 11:43:39 PM
1,1,2,2-Tetrachloroethane	ND	0.0202		mg/Kg-dry	1	12/30/2016 11:43:39 PM
n-Propylbenzene	ND	0.0202		mg/Kg-dry	1	12/30/2016 11:43:39 PM
Bromobenzene	ND	0.0303		mg/Kg-dry	1	12/30/2016 11:43:39 PM

Analytical Report

Work Order: **1612284**
Date Reported: **1/5/2017**

Client: GeoEngineers
Collection Date: 12/29/2016 11:20:00 AM
Project: Rufus Block 20
Lab ID: 1612284-009
Matrix: Soil
Client Sample ID: **W26N29-8.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15805		Analyst: EM
1,3,5-Trimethylbenzene	ND	0.0202		mg/Kg-dry	1	12/30/2016 11:43:39 PM
2-Chlorotoluene	ND	0.0202		mg/Kg-dry	1	12/30/2016 11:43:39 PM
4-Chlorotoluene	ND	0.0202		mg/Kg-dry	1	12/30/2016 11:43:39 PM
tert-Butylbenzene	ND	0.0202		mg/Kg-dry	1	12/30/2016 11:43:39 PM
1,2,3-Trichloropropane	ND	0.0202		mg/Kg-dry	1	12/30/2016 11:43:39 PM
1,2,4-Trichlorobenzene	ND	0.0506		mg/Kg-dry	1	12/30/2016 11:43:39 PM
sec-Butylbenzene	ND	0.0202		mg/Kg-dry	1	12/30/2016 11:43:39 PM
4-Isopropyltoluene	ND	0.0202		mg/Kg-dry	1	12/30/2016 11:43:39 PM
1,3-Dichlorobenzene	ND	0.0202		mg/Kg-dry	1	12/30/2016 11:43:39 PM
1,4-Dichlorobenzene	ND	0.0202		mg/Kg-dry	1	12/30/2016 11:43:39 PM
n-Butylbenzene	ND	0.0202		mg/Kg-dry	1	12/30/2016 11:43:39 PM
1,2-Dichlorobenzene	ND	0.0202		mg/Kg-dry	1	12/30/2016 11:43:39 PM
1,2-Dibromo-3-chloropropane	ND	0.506	Q	mg/Kg-dry	1	12/30/2016 11:43:39 PM
1,2,4-Trimethylbenzene	ND	0.0202		mg/Kg-dry	1	12/30/2016 11:43:39 PM
Hexachlorobutadiene	ND	0.101		mg/Kg-dry	1	12/30/2016 11:43:39 PM
Naphthalene	ND	0.0303		mg/Kg-dry	1	12/30/2016 11:43:39 PM
1,2,3-Trichlorobenzene	ND	0.0202		mg/Kg-dry	1	12/30/2016 11:43:39 PM
Surr: Dibromofluoromethane	94.6	56.5-129		%Rec	1	12/30/2016 11:43:39 PM
Surr: Toluene-d8	101	64.5-151		%Rec	1	12/30/2016 11:43:39 PM
Surr: 1-Bromo-4-fluorobenzene	95.7	63.1-141		%Rec	1	12/30/2016 11:43:39 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Mercury by EPA Method 7471				Batch ID: 15808		Analyst: WF
Mercury	ND	0.294		mg/Kg-dry	1	12/30/2016 11:25:11 AM
Total Metals by EPA Method 6020				Batch ID: 15809		Analyst: TN
Arsenic	4.81	0.0928		mg/Kg-dry	1	12/30/2016 2:06:46 PM
Barium	65.1	0.464		mg/Kg-dry	1	12/30/2016 2:06:46 PM
Cadmium	ND	0.186		mg/Kg-dry	1	12/30/2016 2:06:46 PM
Chromium	54.5	0.0928		mg/Kg-dry	1	12/30/2016 2:06:46 PM
Lead	20.4	0.186		mg/Kg-dry	1	12/30/2016 2:06:46 PM
Selenium	1.73	0.464		mg/Kg-dry	1	12/30/2016 2:06:46 PM
Silver	ND	0.0928		mg/Kg-dry	1	12/30/2016 2:06:46 PM

Analytical Report

Work Order: **1612284**
Date Reported: **1/5/2017**

Client: GeoEngineers
Collection Date: 12/29/2016 11:20:00 AM
Project: Rufus Block 20
Lab ID: 1612284-009
Matrix: Soil
Client Sample ID: **W26N29-8.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R33640		Analyst: BB
Percent Moisture	16.5			wt%	1	12/30/2016 8:19:43 AM

Analytical Report

Work Order: **1612284**
Date Reported: **1/5/2017**

Client: GeoEngineers
Collection Date: 12/29/2016 11:15:00 AM
Project: Rufus Block 20
Lab ID: 1612284-010
Matrix: Soil
Client Sample ID: **W28N31-8.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 15806		Analyst: WC
Diesel (Fuel Oil)	ND	22.7		mg/Kg-dry	1	12/30/2016 2:31:41 AM
Heavy Oil	ND	56.7		mg/Kg-dry	1	12/30/2016 2:31:41 AM
Surr: 2-Fluorobiphenyl	80.5	50-150		%Rec	1	12/30/2016 2:31:41 AM
Surr: o-Terphenyl	87.6	50-150		%Rec	1	12/30/2016 2:31:41 AM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 15804		Analyst: BT
Naphthalene	ND	39.2		µg/Kg-dry	1	12/30/2016 6:50:57 AM
2-Methylnaphthalene	ND	39.2		µg/Kg-dry	1	12/30/2016 6:50:57 AM
1-Methylnaphthalene	ND	39.2		µg/Kg-dry	1	12/30/2016 6:50:57 AM
Acenaphthylene	ND	39.2		µg/Kg-dry	1	12/30/2016 6:50:57 AM
Acenaphthene	ND	39.2		µg/Kg-dry	1	12/30/2016 6:50:57 AM
Fluorene	ND	39.2		µg/Kg-dry	1	12/30/2016 6:50:57 AM
Phenanthrene	53.6	39.2		µg/Kg-dry	1	12/30/2016 6:50:57 AM
Anthracene	ND	39.2		µg/Kg-dry	1	12/30/2016 6:50:57 AM
Fluoranthene	93.7	39.2		µg/Kg-dry	1	12/30/2016 6:50:57 AM
Pyrene	106	39.2		µg/Kg-dry	1	12/30/2016 6:50:57 AM
Benz(a)anthracene	40.0	39.2		µg/Kg-dry	1	12/30/2016 6:50:57 AM
Chrysene	53.7	39.2		µg/Kg-dry	1	12/30/2016 6:50:57 AM
Benzo(b)fluoranthene	71.0	39.2		µg/Kg-dry	1	12/30/2016 6:50:57 AM
Benzo(k)fluoranthene	ND	39.2		µg/Kg-dry	1	12/30/2016 6:50:57 AM
Benzo(a)pyrene	52.7	39.2		µg/Kg-dry	1	12/30/2016 6:50:57 AM
Indeno(1,2,3-cd)pyrene	41.1	39.2	Q	µg/Kg-dry	1	12/30/2016 6:50:57 AM
Dibenz(a,h)anthracene	ND	39.2		µg/Kg-dry	1	12/30/2016 6:50:57 AM
Benzo(g,h,i)perylene	48.1	39.2	Q	µg/Kg-dry	1	12/30/2016 6:50:57 AM
Surr: 2-Fluorobiphenyl	55.6	24.5-139		%Rec	1	12/30/2016 6:50:57 AM
Surr: Terphenyl-d14 (surr)	73.3	44.3-176		%Rec	1	12/30/2016 6:50:57 AM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Gasoline by NWTPH-Gx				Batch ID: 15805		Analyst: EM
Gasoline	ND	5.32		mg/Kg-dry	1	12/30/2016 3:28:11 PM
Surr: Toluene-d8	98.8	65-135		%Rec	1	12/30/2016 3:28:11 PM
Surr: 4-Bromofluorobenzene	96.0	65-135		%Rec	1	12/30/2016 3:28:11 PM

Client: GeoEngineers
Collection Date: 12/29/2016 11:15:00 AM
Project: Rufus Block 20
Lab ID: 1612284-010
Matrix: Soil
Client Sample ID: **W28N31-8.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15805		Analyst: EM
Dichlorodifluoromethane (CFC-12)	ND	0.0638	Q	mg/Kg-dry	1	12/30/2016 3:28:11 PM
Chloromethane	ND	0.0638	Q	mg/Kg-dry	1	12/30/2016 3:28:11 PM
Vinyl chloride	ND	0.00213	Q	mg/Kg-dry	1	12/30/2016 3:28:11 PM
Bromomethane	ND	0.0957		mg/Kg-dry	1	12/30/2016 3:28:11 PM
Trichlorofluoromethane (CFC-11)	ND	0.0532		mg/Kg-dry	1	12/30/2016 3:28:11 PM
Chloroethane	ND	0.0638	Q	mg/Kg-dry	1	12/30/2016 3:28:11 PM
1,1-Dichloroethene	ND	0.0532		mg/Kg-dry	1	12/30/2016 3:28:11 PM
Methylene chloride	ND	0.0213		mg/Kg-dry	1	12/30/2016 3:28:11 PM
trans-1,2-Dichloroethene	ND	0.0213		mg/Kg-dry	1	12/30/2016 3:28:11 PM
Methyl tert-butyl ether (MTBE)	ND	0.0532		mg/Kg-dry	1	12/30/2016 3:28:11 PM
1,1-Dichloroethane	ND	0.0213		mg/Kg-dry	1	12/30/2016 3:28:11 PM
2,2-Dichloropropane	ND	0.0532		mg/Kg-dry	1	12/30/2016 3:28:11 PM
cis-1,2-Dichloroethene	ND	0.0213		mg/Kg-dry	1	12/30/2016 3:28:11 PM
Chloroform	ND	0.0213		mg/Kg-dry	1	12/30/2016 3:28:11 PM
1,1,1-Trichloroethane (TCA)	ND	0.0213		mg/Kg-dry	1	12/30/2016 3:28:11 PM
1,1-Dichloropropene	ND	0.0213		mg/Kg-dry	1	12/30/2016 3:28:11 PM
Carbon tetrachloride	ND	0.0213		mg/Kg-dry	1	12/30/2016 3:28:11 PM
1,2-Dichloroethane (EDC)	ND	0.0319		mg/Kg-dry	1	12/30/2016 3:28:11 PM
Benzene	ND	0.0213		mg/Kg-dry	1	12/30/2016 3:28:11 PM
Trichloroethene (TCE)	ND	0.0213		mg/Kg-dry	1	12/30/2016 3:28:11 PM
1,2-Dichloropropane	ND	0.0213		mg/Kg-dry	1	12/30/2016 3:28:11 PM
Bromodichloromethane	ND	0.0213		mg/Kg-dry	1	12/30/2016 3:28:11 PM
Dibromomethane	ND	0.0425		mg/Kg-dry	1	12/30/2016 3:28:11 PM
cis-1,3-Dichloropropene	ND	0.0213		mg/Kg-dry	1	12/30/2016 3:28:11 PM
Toluene	ND	0.0213		mg/Kg-dry	1	12/30/2016 3:28:11 PM
trans-1,3-Dichloropropylene	ND	0.0319		mg/Kg-dry	1	12/30/2016 3:28:11 PM
1,1,2-Trichloroethane	ND	0.0319		mg/Kg-dry	1	12/30/2016 3:28:11 PM
1,3-Dichloropropane	ND	0.0532		mg/Kg-dry	1	12/30/2016 3:28:11 PM
Tetrachloroethene (PCE)	ND	0.0213		mg/Kg-dry	1	12/30/2016 3:28:11 PM
Dibromochloromethane	ND	0.0319		mg/Kg-dry	1	12/30/2016 3:28:11 PM
1,2-Dibromoethane (EDB)	ND	0.00532		mg/Kg-dry	1	12/30/2016 3:28:11 PM
Chlorobenzene	ND	0.0213		mg/Kg-dry	1	12/30/2016 3:28:11 PM
1,1,1,2-Tetrachloroethane	ND	0.0319		mg/Kg-dry	1	12/30/2016 3:28:11 PM
Ethylbenzene	ND	0.0319		mg/Kg-dry	1	12/30/2016 3:28:11 PM
m,p-Xylene	ND	0.0213		mg/Kg-dry	1	12/30/2016 3:28:11 PM
o-Xylene	ND	0.0213		mg/Kg-dry	1	12/30/2016 3:28:11 PM
Styrene	ND	0.0213		mg/Kg-dry	1	12/30/2016 3:28:11 PM
Isopropylbenzene	ND	0.0851		mg/Kg-dry	1	12/30/2016 3:28:11 PM
Bromoform	ND	0.0213	Q	mg/Kg-dry	1	12/30/2016 3:28:11 PM

Analytical Report

Work Order: **1612284**
Date Reported: **1/5/2017**

Client: GeoEngineers
Collection Date: 12/29/2016 11:15:00 AM
Project: Rufus Block 20
Lab ID: 1612284-010
Matrix: Soil
Client Sample ID: **W28N31-8.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15805		Analyst: EM
1,1,2,2-Tetrachloroethane	ND	0.0213		mg/Kg-dry	1	12/30/2016 3:28:11 PM
n-Propylbenzene	ND	0.0213		mg/Kg-dry	1	12/30/2016 3:28:11 PM
Bromobenzene	ND	0.0319		mg/Kg-dry	1	12/30/2016 3:28:11 PM
1,3,5-Trimethylbenzene	ND	0.0213		mg/Kg-dry	1	12/30/2016 3:28:11 PM
2-Chlorotoluene	ND	0.0213		mg/Kg-dry	1	12/30/2016 3:28:11 PM
4-Chlorotoluene	ND	0.0213		mg/Kg-dry	1	12/30/2016 3:28:11 PM
tert-Butylbenzene	ND	0.0213		mg/Kg-dry	1	12/30/2016 3:28:11 PM
1,2,3-Trichloropropane	ND	0.0213		mg/Kg-dry	1	12/30/2016 3:28:11 PM
1,2,4-Trichlorobenzene	ND	0.0532		mg/Kg-dry	1	12/30/2016 3:28:11 PM
sec-Butylbenzene	ND	0.0213		mg/Kg-dry	1	12/30/2016 3:28:11 PM
4-Isopropyltoluene	ND	0.0213		mg/Kg-dry	1	12/30/2016 3:28:11 PM
1,3-Dichlorobenzene	ND	0.0213		mg/Kg-dry	1	12/30/2016 3:28:11 PM
1,4-Dichlorobenzene	ND	0.0213		mg/Kg-dry	1	12/30/2016 3:28:11 PM
n-Butylbenzene	ND	0.0213		mg/Kg-dry	1	12/30/2016 3:28:11 PM
1,2-Dichlorobenzene	ND	0.0213		mg/Kg-dry	1	12/30/2016 3:28:11 PM
1,2-Dibromo-3-chloropropane	ND	0.532	Q	mg/Kg-dry	1	12/30/2016 3:28:11 PM
1,2,4-Trimethylbenzene	ND	0.0213		mg/Kg-dry	1	12/30/2016 3:28:11 PM
Hexachlorobutadiene	ND	0.106		mg/Kg-dry	1	12/30/2016 3:28:11 PM
Naphthalene	ND	0.0319		mg/Kg-dry	1	12/30/2016 3:28:11 PM
1,2,3-Trichlorobenzene	ND	0.0213		mg/Kg-dry	1	12/30/2016 3:28:11 PM
Surr: Dibromofluoromethane	99.7	56.5-129		%Rec	1	12/30/2016 3:28:11 PM
Surr: Toluene-d8	98.6	64.5-151		%Rec	1	12/30/2016 3:28:11 PM
Surr: 1-Bromo-4-fluorobenzene	95.4	63.1-141		%Rec	1	12/30/2016 3:28:11 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Mercury by EPA Method 7471				Batch ID: 15808		Analyst: WF
Mercury	ND	0.277		mg/Kg-dry	1	12/30/2016 11:26:46 AM
Total Metals by EPA Method 6020				Batch ID: 15809		Analyst: TN
Arsenic	4.93	0.0860		mg/Kg-dry	1	12/30/2016 2:10:22 PM
Barium	73.7	0.430		mg/Kg-dry	1	12/30/2016 2:10:22 PM
Cadmium	ND	0.172		mg/Kg-dry	1	12/30/2016 2:10:22 PM
Chromium	45.3	0.0860		mg/Kg-dry	1	12/30/2016 2:10:22 PM
Lead	83.7	0.172		mg/Kg-dry	1	12/30/2016 2:10:22 PM
Selenium	1.44	0.430		mg/Kg-dry	1	12/30/2016 2:10:22 PM

Analytical Report

Work Order: **1612284**
Date Reported: **1/5/2017**

Client: GeoEngineers
Collection Date: 12/29/2016 11:15:00 AM
Project: Rufus Block 20
Lab ID: 1612284-010
Matrix: Soil
Client Sample ID: **W28N31-8.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 15809		Analyst: TN
Silver	ND	0.0860		mg/Kg-dry	1	12/30/2016 2:10:22 PM
Sample Moisture (Percent Moisture)				Batch ID: R33640		Analyst: BB
Percent Moisture	13.3			wt%	1	12/30/2016 8:19:43 AM

Analytical Report

Work Order: **1612284**
Date Reported: **1/5/2017**

Client: GeoEngineers
Collection Date: 12/29/2016 10:50:00 AM
Project: Rufus Block 20
Lab ID: 1612284-011
Matrix: Soil
Client Sample ID: **W30N33-8.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 15806		Analyst: WC
Diesel (Fuel Oil)	ND	22.1		mg/Kg-dry	1	12/30/2016 3:33:08 AM
Heavy Oil	60.7	55.2		mg/Kg-dry	1	12/30/2016 3:33:08 AM
Surr: 2-Fluorobiphenyl	83.5	50-150		%Rec	1	12/30/2016 3:33:08 AM
Surr: o-Terphenyl	86.7	50-150		%Rec	1	12/30/2016 3:33:08 AM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 15804		Analyst: BT
Naphthalene	ND	42.7		µg/Kg-dry	1	12/30/2016 7:12:02 AM
2-Methylnaphthalene	ND	42.7		µg/Kg-dry	1	12/30/2016 7:12:02 AM
1-Methylnaphthalene	ND	42.7		µg/Kg-dry	1	12/30/2016 7:12:02 AM
Acenaphthylene	ND	42.7		µg/Kg-dry	1	12/30/2016 7:12:02 AM
Acenaphthene	ND	42.7		µg/Kg-dry	1	12/30/2016 7:12:02 AM
Fluorene	ND	42.7		µg/Kg-dry	1	12/30/2016 7:12:02 AM
Phenanthrene	71.0	42.7		µg/Kg-dry	1	12/30/2016 7:12:02 AM
Anthracene	ND	42.7		µg/Kg-dry	1	12/30/2016 7:12:02 AM
Fluoranthene	141	42.7		µg/Kg-dry	1	12/30/2016 7:12:02 AM
Pyrene	165	42.7		µg/Kg-dry	1	12/30/2016 7:12:02 AM
Benz(a)anthracene	72.9	42.7		µg/Kg-dry	1	12/30/2016 7:12:02 AM
Chrysene	88.9	42.7		µg/Kg-dry	1	12/30/2016 7:12:02 AM
Benzo(b)fluoranthene	121	42.7		µg/Kg-dry	1	12/30/2016 7:12:02 AM
Benzo(k)fluoranthene	ND	42.7		µg/Kg-dry	1	12/30/2016 7:12:02 AM
Benzo(a)pyrene	98.5	42.7		µg/Kg-dry	1	12/30/2016 7:12:02 AM
Indeno(1,2,3-cd)pyrene	70.6	42.7	Q	µg/Kg-dry	1	12/30/2016 7:12:02 AM
Dibenz(a,h)anthracene	ND	42.7		µg/Kg-dry	1	12/30/2016 7:12:02 AM
Benzo(g,h,i)perylene	87.7	42.7	Q	µg/Kg-dry	1	12/30/2016 7:12:02 AM
Surr: 2-Fluorobiphenyl	60.4	24.5-139		%Rec	1	12/30/2016 7:12:02 AM
Surr: Terphenyl-d14 (surr)	66.4	44.3-176		%Rec	1	12/30/2016 7:12:02 AM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Gasoline by NWTPH-Gx				Batch ID: 15805		Analyst: EM
Gasoline	ND	4.01		mg/Kg-dry	1	12/30/2016 3:57:37 PM
Surr: Toluene-d8	98.9	65-135		%Rec	1	12/30/2016 3:57:37 PM
Surr: 4-Bromofluorobenzene	97.4	65-135		%Rec	1	12/30/2016 3:57:37 PM

Client: GeoEngineers
Collection Date: 12/29/2016 10:50:00 AM
Project: Rufus Block 20
Lab ID: 1612284-011
Matrix: Soil
Client Sample ID: **W30N33-8.5**

Volatile Organic Compounds by EPA Method 8260C

Batch ID: 15805 Analyst: EM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane (CFC-12)	ND	0.0481	Q	mg/Kg-dry	1	12/30/2016 3:57:37 PM
Chloromethane	ND	0.0481	Q	mg/Kg-dry	1	12/30/2016 3:57:37 PM
Vinyl chloride	ND	0.00160	Q	mg/Kg-dry	1	12/30/2016 3:57:37 PM
Bromomethane	ND	0.0722		mg/Kg-dry	1	12/30/2016 3:57:37 PM
Trichlorofluoromethane (CFC-11)	ND	0.0401		mg/Kg-dry	1	12/30/2016 3:57:37 PM
Chloroethane	ND	0.0481	Q	mg/Kg-dry	1	12/30/2016 3:57:37 PM
1,1-Dichloroethene	ND	0.0401		mg/Kg-dry	1	12/30/2016 3:57:37 PM
Methylene chloride	ND	0.0160		mg/Kg-dry	1	12/30/2016 3:57:37 PM
trans-1,2-Dichloroethene	ND	0.0160		mg/Kg-dry	1	12/30/2016 3:57:37 PM
Methyl tert-butyl ether (MTBE)	ND	0.0401		mg/Kg-dry	1	12/30/2016 3:57:37 PM
1,1-Dichloroethane	ND	0.0160		mg/Kg-dry	1	12/30/2016 3:57:37 PM
2,2-Dichloropropane	ND	0.0401		mg/Kg-dry	1	12/30/2016 3:57:37 PM
cis-1,2-Dichloroethene	ND	0.0160		mg/Kg-dry	1	12/30/2016 3:57:37 PM
Chloroform	ND	0.0160		mg/Kg-dry	1	12/30/2016 3:57:37 PM
1,1,1-Trichloroethane (TCA)	ND	0.0160		mg/Kg-dry	1	12/30/2016 3:57:37 PM
1,1-Dichloropropene	ND	0.0160		mg/Kg-dry	1	12/30/2016 3:57:37 PM
Carbon tetrachloride	ND	0.0160		mg/Kg-dry	1	12/30/2016 3:57:37 PM
1,2-Dichloroethane (EDC)	ND	0.0241		mg/Kg-dry	1	12/30/2016 3:57:37 PM
Benzene	ND	0.0160		mg/Kg-dry	1	12/30/2016 3:57:37 PM
Trichloroethene (TCE)	ND	0.0160		mg/Kg-dry	1	12/30/2016 3:57:37 PM
1,2-Dichloropropane	ND	0.0160		mg/Kg-dry	1	12/30/2016 3:57:37 PM
Bromodichloromethane	ND	0.0160		mg/Kg-dry	1	12/30/2016 3:57:37 PM
Dibromomethane	ND	0.0321		mg/Kg-dry	1	12/30/2016 3:57:37 PM
cis-1,3-Dichloropropene	ND	0.0160		mg/Kg-dry	1	12/30/2016 3:57:37 PM
Toluene	ND	0.0160		mg/Kg-dry	1	12/30/2016 3:57:37 PM
trans-1,3-Dichloropropylene	ND	0.0241		mg/Kg-dry	1	12/30/2016 3:57:37 PM
1,1,2-Trichloroethane	ND	0.0241		mg/Kg-dry	1	12/30/2016 3:57:37 PM
1,3-Dichloropropane	ND	0.0401		mg/Kg-dry	1	12/30/2016 3:57:37 PM
Tetrachloroethene (PCE)	ND	0.0160		mg/Kg-dry	1	12/30/2016 3:57:37 PM
Dibromochloromethane	ND	0.0241		mg/Kg-dry	1	12/30/2016 3:57:37 PM
1,2-Dibromoethane (EDB)	ND	0.00401		mg/Kg-dry	1	12/30/2016 3:57:37 PM
Chlorobenzene	ND	0.0160		mg/Kg-dry	1	12/30/2016 3:57:37 PM
1,1,1,2-Tetrachloroethane	ND	0.0241		mg/Kg-dry	1	12/30/2016 3:57:37 PM
Ethylbenzene	ND	0.0241		mg/Kg-dry	1	12/30/2016 3:57:37 PM
m,p-Xylene	ND	0.0160		mg/Kg-dry	1	12/30/2016 3:57:37 PM
o-Xylene	ND	0.0160		mg/Kg-dry	1	12/30/2016 3:57:37 PM
Styrene	ND	0.0160		mg/Kg-dry	1	12/30/2016 3:57:37 PM
Isopropylbenzene	ND	0.0642		mg/Kg-dry	1	12/30/2016 3:57:37 PM
Bromoform	ND	0.0160	Q	mg/Kg-dry	1	12/30/2016 3:57:37 PM

Analytical Report

Work Order: **1612284**
Date Reported: **1/5/2017**

Client: GeoEngineers
Collection Date: 12/29/2016 10:50:00 AM
Project: Rufus Block 20
Lab ID: 1612284-011
Matrix: Soil
Client Sample ID: **W30N33-8.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15805		Analyst: EM
1,1,2,2-Tetrachloroethane	ND	0.0160		mg/Kg-dry	1	12/30/2016 3:57:37 PM
n-Propylbenzene	ND	0.0160		mg/Kg-dry	1	12/30/2016 3:57:37 PM
Bromobenzene	ND	0.0241		mg/Kg-dry	1	12/30/2016 3:57:37 PM
1,3,5-Trimethylbenzene	ND	0.0160		mg/Kg-dry	1	12/30/2016 3:57:37 PM
2-Chlorotoluene	ND	0.0160		mg/Kg-dry	1	12/30/2016 3:57:37 PM
4-Chlorotoluene	ND	0.0160		mg/Kg-dry	1	12/30/2016 3:57:37 PM
tert-Butylbenzene	ND	0.0160		mg/Kg-dry	1	12/30/2016 3:57:37 PM
1,2,3-Trichloropropane	ND	0.0160		mg/Kg-dry	1	12/30/2016 3:57:37 PM
1,2,4-Trichlorobenzene	ND	0.0401		mg/Kg-dry	1	12/30/2016 3:57:37 PM
sec-Butylbenzene	ND	0.0160		mg/Kg-dry	1	12/30/2016 3:57:37 PM
4-Isopropyltoluene	ND	0.0160		mg/Kg-dry	1	12/30/2016 3:57:37 PM
1,3-Dichlorobenzene	ND	0.0160		mg/Kg-dry	1	12/30/2016 3:57:37 PM
1,4-Dichlorobenzene	ND	0.0160		mg/Kg-dry	1	12/30/2016 3:57:37 PM
n-Butylbenzene	ND	0.0160		mg/Kg-dry	1	12/30/2016 3:57:37 PM
1,2-Dichlorobenzene	ND	0.0160		mg/Kg-dry	1	12/30/2016 3:57:37 PM
1,2-Dibromo-3-chloropropane	ND	0.401	Q	mg/Kg-dry	1	12/30/2016 3:57:37 PM
1,2,4-Trimethylbenzene	ND	0.0160		mg/Kg-dry	1	12/30/2016 3:57:37 PM
Hexachlorobutadiene	ND	0.0802		mg/Kg-dry	1	12/30/2016 3:57:37 PM
Naphthalene	ND	0.0241		mg/Kg-dry	1	12/30/2016 3:57:37 PM
1,2,3-Trichlorobenzene	ND	0.0160		mg/Kg-dry	1	12/30/2016 3:57:37 PM
Surr: Dibromofluoromethane	98.6	56.5-129		%Rec	1	12/30/2016 3:57:37 PM
Surr: Toluene-d8	99.5	64.5-151		%Rec	1	12/30/2016 3:57:37 PM
Surr: 1-Bromo-4-fluorobenzene	96.8	63.1-141		%Rec	1	12/30/2016 3:57:37 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Mercury by EPA Method 7471				Batch ID: 15808		Analyst: WF
Mercury	ND	0.274		mg/Kg-dry	1	12/30/2016 11:28:22 AM
Total Metals by EPA Method 6020				Batch ID: 15809		Analyst: TN
Arsenic	6.79	0.0872		mg/Kg-dry	1	12/30/2016 2:13:57 PM
Barium	97.3	0.436		mg/Kg-dry	1	12/30/2016 2:13:57 PM
Cadmium	0.216	0.174		mg/Kg-dry	1	12/30/2016 2:13:57 PM
Chromium	42.0	0.0872		mg/Kg-dry	1	12/30/2016 2:13:57 PM
Lead	369	0.174		mg/Kg-dry	1	12/30/2016 2:13:57 PM
Selenium	1.05	0.436		mg/Kg-dry	1	12/30/2016 2:13:57 PM

Analytical Report

Work Order: **1612284**
Date Reported: **1/5/2017**

Client: GeoEngineers
Collection Date: 12/29/2016 10:50:00 AM
Project: Rufus Block 20
Lab ID: 1612284-011
Matrix: Soil
Client Sample ID: **W30N33-8.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 15809		Analyst: TN
Silver	ND	0.0872		mg/Kg-dry	1	12/30/2016 2:13:57 PM
Metals (SW6020) with TCLP Extraction (EPA 1311)				Batch ID: 15840		Analyst: TN
Lead	ND	0.500		mg/L	1	1/4/2017 5:28:34 PM
Sample Moisture (Percent Moisture)				Batch ID: R33640		Analyst: BB
Percent Moisture	13.8			wt%	1	12/30/2016 8:19:43 AM

Analytical Report

Work Order: **1612284**
Date Reported: **1/5/2017**

Client: GeoEngineers
Project: Rufus Block 20
Lab ID: 1612284-012
Client Sample ID: **W29UN2-8.5**

Collection Date: 12/29/2016 10:40:00 AM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 15806		Analyst: WC
Diesel (Fuel Oil)	ND	22.0		mg/Kg-dry	1	12/30/2016 4:03:50 AM
Heavy Oil	73.4	55.1		mg/Kg-dry	1	12/30/2016 4:03:50 AM
Surr: 2-Fluorobiphenyl	85.0	50-150		%Rec	1	12/30/2016 4:03:50 AM
Surr: o-Terphenyl	95.0	50-150		%Rec	1	12/30/2016 4:03:50 AM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 15804		Analyst: BT
Naphthalene	ND	41.2		µg/Kg-dry	1	12/30/2016 7:33:09 AM
2-Methylnaphthalene	ND	41.2		µg/Kg-dry	1	12/30/2016 7:33:09 AM
1-Methylnaphthalene	ND	41.2		µg/Kg-dry	1	12/30/2016 7:33:09 AM
Acenaphthylene	ND	41.2		µg/Kg-dry	1	12/30/2016 7:33:09 AM
Acenaphthene	ND	41.2		µg/Kg-dry	1	12/30/2016 7:33:09 AM
Fluorene	ND	41.2		µg/Kg-dry	1	12/30/2016 7:33:09 AM
Phenanthrene	116	41.2		µg/Kg-dry	1	12/30/2016 7:33:09 AM
Anthracene	ND	41.2		µg/Kg-dry	1	12/30/2016 7:33:09 AM
Fluoranthene	163	41.2		µg/Kg-dry	1	12/30/2016 7:33:09 AM
Pyrene	189	41.2		µg/Kg-dry	1	12/30/2016 7:33:09 AM
Benz(a)anthracene	62.3	41.2		µg/Kg-dry	1	12/30/2016 7:33:09 AM
Chrysene	101	41.2		µg/Kg-dry	1	12/30/2016 7:33:09 AM
Benzo(b)fluoranthene	115	41.2		µg/Kg-dry	1	12/30/2016 7:33:09 AM
Benzo(k)fluoranthene	ND	41.2		µg/Kg-dry	1	12/30/2016 7:33:09 AM
Benzo(a)pyrene	90.4	41.2		µg/Kg-dry	1	12/30/2016 7:33:09 AM
Indeno(1,2,3-cd)pyrene	68.2	41.2	Q	µg/Kg-dry	1	12/30/2016 7:33:09 AM
Dibenz(a,h)anthracene	ND	41.2		µg/Kg-dry	1	12/30/2016 7:33:09 AM
Benzo(g,h,i)perylene	82.2	41.2	Q	µg/Kg-dry	1	12/30/2016 7:33:09 AM
Surr: 2-Fluorobiphenyl	54.5	24.5-139		%Rec	1	12/30/2016 7:33:09 AM
Surr: Terphenyl-d14 (surr)	62.2	44.3-176		%Rec	1	12/30/2016 7:33:09 AM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Gasoline by NWTPH-Gx				Batch ID: 15805		Analyst: EM
Gasoline	ND	4.57		mg/Kg-dry	1	12/30/2016 4:27:03 PM
Surr: Toluene-d8	99.3	65-135		%Rec	1	12/30/2016 4:27:03 PM
Surr: 4-Bromofluorobenzene	97.4	65-135		%Rec	1	12/30/2016 4:27:03 PM

Client: GeoEngineers
Collection Date: 12/29/2016 10:40:00 AM
Project: Rufus Block 20
Lab ID: 1612284-012
Matrix: Soil
Client Sample ID: **W29UN2-8.5**

Volatile Organic Compounds by EPA Method 8260C

Batch ID: 15805 Analyst: EM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane (CFC-12)	ND	0.0549	Q	mg/Kg-dry	1	12/30/2016 4:27:03 PM
Chloromethane	ND	0.0549	Q	mg/Kg-dry	1	12/30/2016 4:27:03 PM
Vinyl chloride	ND	0.00183	Q	mg/Kg-dry	1	12/30/2016 4:27:03 PM
Bromomethane	ND	0.0823		mg/Kg-dry	1	12/30/2016 4:27:03 PM
Trichlorofluoromethane (CFC-11)	ND	0.0457		mg/Kg-dry	1	12/30/2016 4:27:03 PM
Chloroethane	ND	0.0549	Q	mg/Kg-dry	1	12/30/2016 4:27:03 PM
1,1-Dichloroethene	ND	0.0457		mg/Kg-dry	1	12/30/2016 4:27:03 PM
Methylene chloride	ND	0.0183		mg/Kg-dry	1	12/30/2016 4:27:03 PM
trans-1,2-Dichloroethene	ND	0.0183		mg/Kg-dry	1	12/30/2016 4:27:03 PM
Methyl tert-butyl ether (MTBE)	ND	0.0457		mg/Kg-dry	1	12/30/2016 4:27:03 PM
1,1-Dichloroethane	ND	0.0183		mg/Kg-dry	1	12/30/2016 4:27:03 PM
2,2-Dichloropropane	ND	0.0457		mg/Kg-dry	1	12/30/2016 4:27:03 PM
cis-1,2-Dichloroethene	ND	0.0183		mg/Kg-dry	1	12/30/2016 4:27:03 PM
Chloroform	ND	0.0183		mg/Kg-dry	1	12/30/2016 4:27:03 PM
1,1,1-Trichloroethane (TCA)	ND	0.0183		mg/Kg-dry	1	12/30/2016 4:27:03 PM
1,1-Dichloropropene	ND	0.0183		mg/Kg-dry	1	12/30/2016 4:27:03 PM
Carbon tetrachloride	ND	0.0183		mg/Kg-dry	1	12/30/2016 4:27:03 PM
1,2-Dichloroethane (EDC)	ND	0.0274		mg/Kg-dry	1	12/30/2016 4:27:03 PM
Benzene	ND	0.0183		mg/Kg-dry	1	12/30/2016 4:27:03 PM
Trichloroethene (TCE)	ND	0.0183		mg/Kg-dry	1	12/30/2016 4:27:03 PM
1,2-Dichloropropane	ND	0.0183		mg/Kg-dry	1	12/30/2016 4:27:03 PM
Bromodichloromethane	ND	0.0183		mg/Kg-dry	1	12/30/2016 4:27:03 PM
Dibromomethane	ND	0.0366		mg/Kg-dry	1	12/30/2016 4:27:03 PM
cis-1,3-Dichloropropene	ND	0.0183		mg/Kg-dry	1	12/30/2016 4:27:03 PM
Toluene	ND	0.0183		mg/Kg-dry	1	12/30/2016 4:27:03 PM
trans-1,3-Dichloropropylene	ND	0.0274		mg/Kg-dry	1	12/30/2016 4:27:03 PM
1,1,2-Trichloroethane	ND	0.0274		mg/Kg-dry	1	12/30/2016 4:27:03 PM
1,3-Dichloropropane	ND	0.0457		mg/Kg-dry	1	12/30/2016 4:27:03 PM
Tetrachloroethene (PCE)	ND	0.0183		mg/Kg-dry	1	12/30/2016 4:27:03 PM
Dibromochloromethane	ND	0.0274		mg/Kg-dry	1	12/30/2016 4:27:03 PM
1,2-Dibromoethane (EDB)	ND	0.00457		mg/Kg-dry	1	12/30/2016 4:27:03 PM
Chlorobenzene	ND	0.0183		mg/Kg-dry	1	12/30/2016 4:27:03 PM
1,1,1,2-Tetrachloroethane	ND	0.0274		mg/Kg-dry	1	12/30/2016 4:27:03 PM
Ethylbenzene	ND	0.0274		mg/Kg-dry	1	12/30/2016 4:27:03 PM
m,p-Xylene	ND	0.0183		mg/Kg-dry	1	12/30/2016 4:27:03 PM
o-Xylene	ND	0.0183		mg/Kg-dry	1	12/30/2016 4:27:03 PM
Styrene	ND	0.0183		mg/Kg-dry	1	12/30/2016 4:27:03 PM
Isopropylbenzene	ND	0.0731		mg/Kg-dry	1	12/30/2016 4:27:03 PM
Bromoform	ND	0.0183	Q	mg/Kg-dry	1	12/30/2016 4:27:03 PM

Analytical Report

Work Order: **1612284**
Date Reported: **1/5/2017**

Client: GeoEngineers
Collection Date: 12/29/2016 10:40:00 AM
Project: Rufus Block 20
Lab ID: 1612284-012
Matrix: Soil
Client Sample ID: **W29UN2-8.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15805		Analyst: EM
1,1,2,2-Tetrachloroethane	ND	0.0183		mg/Kg-dry	1	12/30/2016 4:27:03 PM
n-Propylbenzene	ND	0.0183		mg/Kg-dry	1	12/30/2016 4:27:03 PM
Bromobenzene	ND	0.0274		mg/Kg-dry	1	12/30/2016 4:27:03 PM
1,3,5-Trimethylbenzene	ND	0.0183		mg/Kg-dry	1	12/30/2016 4:27:03 PM
2-Chlorotoluene	ND	0.0183		mg/Kg-dry	1	12/30/2016 4:27:03 PM
4-Chlorotoluene	ND	0.0183		mg/Kg-dry	1	12/30/2016 4:27:03 PM
tert-Butylbenzene	ND	0.0183		mg/Kg-dry	1	12/30/2016 4:27:03 PM
1,2,3-Trichloropropane	ND	0.0183		mg/Kg-dry	1	12/30/2016 4:27:03 PM
1,2,4-Trichlorobenzene	ND	0.0457		mg/Kg-dry	1	12/30/2016 4:27:03 PM
sec-Butylbenzene	ND	0.0183		mg/Kg-dry	1	12/30/2016 4:27:03 PM
4-Isopropyltoluene	ND	0.0183		mg/Kg-dry	1	12/30/2016 4:27:03 PM
1,3-Dichlorobenzene	ND	0.0183		mg/Kg-dry	1	12/30/2016 4:27:03 PM
1,4-Dichlorobenzene	ND	0.0183		mg/Kg-dry	1	12/30/2016 4:27:03 PM
n-Butylbenzene	ND	0.0183		mg/Kg-dry	1	12/30/2016 4:27:03 PM
1,2-Dichlorobenzene	ND	0.0183		mg/Kg-dry	1	12/30/2016 4:27:03 PM
1,2-Dibromo-3-chloropropane	ND	0.457	Q	mg/Kg-dry	1	12/30/2016 4:27:03 PM
1,2,4-Trimethylbenzene	ND	0.0183		mg/Kg-dry	1	12/30/2016 4:27:03 PM
Hexachlorobutadiene	ND	0.0914		mg/Kg-dry	1	12/30/2016 4:27:03 PM
Naphthalene	ND	0.0274		mg/Kg-dry	1	12/30/2016 4:27:03 PM
1,2,3-Trichlorobenzene	ND	0.0183		mg/Kg-dry	1	12/30/2016 4:27:03 PM
Surr: Dibromofluoromethane	98.9	56.5-129		%Rec	1	12/30/2016 4:27:03 PM
Surr: Toluene-d8	101	64.5-151		%Rec	1	12/30/2016 4:27:03 PM
Surr: 1-Bromo-4-fluorobenzene	96.7	63.1-141		%Rec	1	12/30/2016 4:27:03 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Mercury by EPA Method 7471				Batch ID: 15808		Analyst: WF
Mercury	ND	0.271		mg/Kg-dry	1	12/30/2016 11:29:59 AM
Total Metals by EPA Method 6020				Batch ID: 15809		Analyst: TN
Arsenic	4.84	0.0959		mg/Kg-dry	1	12/30/2016 2:17:33 PM
Barium	96.5	0.480		mg/Kg-dry	1	12/30/2016 2:17:33 PM
Cadmium	0.209	0.192		mg/Kg-dry	1	12/30/2016 2:17:33 PM
Chromium	44.9	0.0959		mg/Kg-dry	1	12/30/2016 2:17:33 PM
Lead	321	0.192		mg/Kg-dry	1	12/30/2016 2:17:33 PM
Selenium	1.04	0.480		mg/Kg-dry	1	12/30/2016 2:17:33 PM

Analytical Report

Work Order: **1612284**
Date Reported: **1/5/2017**

Client: GeoEngineers
Collection Date: 12/29/2016 10:40:00 AM
Project: Rufus Block 20
Lab ID: 1612284-012
Matrix: Soil
Client Sample ID: **W29UN2-8.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 15809		Analyst: TN
Silver	ND	0.0959		mg/Kg-dry	1	12/30/2016 2:17:33 PM
Metals (SW6020) with TCLP Extraction (EPA 1311)				Batch ID: 15840		Analyst: TN
Lead	ND	0.500		mg/L	1	1/4/2017 5:32:10 PM
Sample Moisture (Percent Moisture)				Batch ID: R33640		Analyst: BB
Percent Moisture	14.6			wt%	1	12/30/2016 8:19:43 AM

Analytical Report

Work Order: **1612284**
Date Reported: **1/5/2017**

Client: GeoEngineers
Collection Date: 12/29/2016 10:20:00 AM
Project: Rufus Block 20
Lab ID: 1612284-013
Matrix: Soil
Client Sample ID: **W26UN4-8.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 15806		Analyst: WC
Diesel (Fuel Oil)	ND	24.2		mg/Kg-dry	1	12/30/2016 5:35:52 AM
Heavy Oil	ND	60.4		mg/Kg-dry	1	12/30/2016 5:35:52 AM
Surr: 2-Fluorobiphenyl	110	50-150		%Rec	1	12/30/2016 5:35:52 AM
Surr: o-Terphenyl	112	50-150		%Rec	1	12/30/2016 5:35:52 AM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 15804		Analyst: BT
Naphthalene	ND	47.9		µg/Kg-dry	1	12/30/2016 7:54:12 AM
2-Methylnaphthalene	ND	47.9		µg/Kg-dry	1	12/30/2016 7:54:12 AM
1-Methylnaphthalene	ND	47.9		µg/Kg-dry	1	12/30/2016 7:54:12 AM
Acenaphthylene	ND	47.9		µg/Kg-dry	1	12/30/2016 7:54:12 AM
Acenaphthene	ND	47.9		µg/Kg-dry	1	12/30/2016 7:54:12 AM
Fluorene	ND	47.9		µg/Kg-dry	1	12/30/2016 7:54:12 AM
Phenanthrene	ND	47.9		µg/Kg-dry	1	12/30/2016 7:54:12 AM
Anthracene	ND	47.9		µg/Kg-dry	1	12/30/2016 7:54:12 AM
Fluoranthene	ND	47.9		µg/Kg-dry	1	12/30/2016 7:54:12 AM
Pyrene	ND	47.9		µg/Kg-dry	1	12/30/2016 7:54:12 AM
Benz(a)anthracene	ND	47.9		µg/Kg-dry	1	12/30/2016 7:54:12 AM
Chrysene	ND	47.9		µg/Kg-dry	1	12/30/2016 7:54:12 AM
Benzo(b)fluoranthene	ND	47.9		µg/Kg-dry	1	12/30/2016 7:54:12 AM
Benzo(k)fluoranthene	ND	47.9		µg/Kg-dry	1	12/30/2016 7:54:12 AM
Benzo(a)pyrene	ND	47.9		µg/Kg-dry	1	12/30/2016 7:54:12 AM
Indeno(1,2,3-cd)pyrene	ND	47.9		µg/Kg-dry	1	12/30/2016 7:54:12 AM
Dibenz(a,h)anthracene	ND	47.9		µg/Kg-dry	1	12/30/2016 7:54:12 AM
Benzo(g,h,i)perylene	ND	47.9		µg/Kg-dry	1	12/30/2016 7:54:12 AM
Surr: 2-Fluorobiphenyl	39.1	24.5-139		%Rec	1	12/30/2016 7:54:12 AM
Surr: Terphenyl-d14 (surr)	59.0	44.3-176		%Rec	1	12/30/2016 7:54:12 AM
Gasoline by NWTPH-Gx				Batch ID: 15805		Analyst: EM
Gasoline	ND	3.60		mg/Kg-dry	1	12/30/2016 4:56:25 PM
Surr: Toluene-d8	99.1	65-135		%Rec	1	12/30/2016 4:56:25 PM
Surr: 4-Bromofluorobenzene	96.3	65-135		%Rec	1	12/30/2016 4:56:25 PM
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15805		Analyst: EM
Dichlorodifluoromethane (CFC-12)	ND	0.0432	Q	mg/Kg-dry	1	12/30/2016 4:56:25 PM
Chloromethane	ND	0.0432	Q	mg/Kg-dry	1	12/30/2016 4:56:25 PM
Vinyl chloride	ND	0.00144	Q	mg/Kg-dry	1	12/30/2016 4:56:25 PM

Client: GeoEngineers
Collection Date: 12/29/2016 10:20:00 AM
Project: Rufus Block 20
Lab ID: 1612284-013
Matrix: Soil
Client Sample ID: **W26UN4-8.5**

Volatile Organic Compounds by EPA Method 8260C

Batch ID: 15805 Analyst: EM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Bromomethane	ND	0.0648		mg/Kg-dry	1	12/30/2016 4:56:25 PM
Trichlorofluoromethane (CFC-11)	ND	0.0360		mg/Kg-dry	1	12/30/2016 4:56:25 PM
Chloroethane	ND	0.0432	Q	mg/Kg-dry	1	12/30/2016 4:56:25 PM
1,1-Dichloroethene	ND	0.0360		mg/Kg-dry	1	12/30/2016 4:56:25 PM
Methylene chloride	ND	0.0144		mg/Kg-dry	1	12/30/2016 4:56:25 PM
trans-1,2-Dichloroethene	ND	0.0144		mg/Kg-dry	1	12/30/2016 4:56:25 PM
Methyl tert-butyl ether (MTBE)	ND	0.0360		mg/Kg-dry	1	12/30/2016 4:56:25 PM
1,1-Dichloroethane	ND	0.0144		mg/Kg-dry	1	12/30/2016 4:56:25 PM
2,2-Dichloropropane	ND	0.0360		mg/Kg-dry	1	12/30/2016 4:56:25 PM
cis-1,2-Dichloroethene	ND	0.0144		mg/Kg-dry	1	12/30/2016 4:56:25 PM
Chloroform	ND	0.0144		mg/Kg-dry	1	12/30/2016 4:56:25 PM
1,1,1-Trichloroethane (TCA)	ND	0.0144		mg/Kg-dry	1	12/30/2016 4:56:25 PM
1,1-Dichloropropene	ND	0.0144		mg/Kg-dry	1	12/30/2016 4:56:25 PM
Carbon tetrachloride	ND	0.0144		mg/Kg-dry	1	12/30/2016 4:56:25 PM
1,2-Dichloroethane (EDC)	ND	0.0216		mg/Kg-dry	1	12/30/2016 4:56:25 PM
Benzene	ND	0.0144		mg/Kg-dry	1	12/30/2016 4:56:25 PM
Trichloroethene (TCE)	ND	0.0144		mg/Kg-dry	1	12/30/2016 4:56:25 PM
1,2-Dichloropropane	ND	0.0144		mg/Kg-dry	1	12/30/2016 4:56:25 PM
Bromodichloromethane	ND	0.0144		mg/Kg-dry	1	12/30/2016 4:56:25 PM
Dibromomethane	ND	0.0288		mg/Kg-dry	1	12/30/2016 4:56:25 PM
cis-1,3-Dichloropropene	ND	0.0144		mg/Kg-dry	1	12/30/2016 4:56:25 PM
Toluene	ND	0.0144		mg/Kg-dry	1	12/30/2016 4:56:25 PM
trans-1,3-Dichloropropylene	ND	0.0216		mg/Kg-dry	1	12/30/2016 4:56:25 PM
1,1,2-Trichloroethane	ND	0.0216		mg/Kg-dry	1	12/30/2016 4:56:25 PM
1,3-Dichloropropane	ND	0.0360		mg/Kg-dry	1	12/30/2016 4:56:25 PM
Tetrachloroethene (PCE)	ND	0.0144		mg/Kg-dry	1	12/30/2016 4:56:25 PM
Dibromochloromethane	ND	0.0216		mg/Kg-dry	1	12/30/2016 4:56:25 PM
1,2-Dibromoethane (EDB)	ND	0.00360		mg/Kg-dry	1	12/30/2016 4:56:25 PM
Chlorobenzene	ND	0.0144		mg/Kg-dry	1	12/30/2016 4:56:25 PM
1,1,1,2-Tetrachloroethane	ND	0.0216		mg/Kg-dry	1	12/30/2016 4:56:25 PM
Ethylbenzene	ND	0.0216		mg/Kg-dry	1	12/30/2016 4:56:25 PM
m,p-Xylene	ND	0.0144		mg/Kg-dry	1	12/30/2016 4:56:25 PM
o-Xylene	ND	0.0144		mg/Kg-dry	1	12/30/2016 4:56:25 PM
Styrene	ND	0.0144		mg/Kg-dry	1	12/30/2016 4:56:25 PM
Isopropylbenzene	ND	0.0576		mg/Kg-dry	1	12/30/2016 4:56:25 PM
Bromoform	ND	0.0144	Q	mg/Kg-dry	1	12/30/2016 4:56:25 PM
1,1,2,2-Tetrachloroethane	ND	0.0144		mg/Kg-dry	1	12/30/2016 4:56:25 PM
n-Propylbenzene	ND	0.0144		mg/Kg-dry	1	12/30/2016 4:56:25 PM
Bromobenzene	ND	0.0216		mg/Kg-dry	1	12/30/2016 4:56:25 PM

Client: GeoEngineers
Collection Date: 12/29/2016 10:20:00 AM
Project: Rufus Block 20
Lab ID: 1612284-013
Matrix: Soil
Client Sample ID: **W26UN4-8.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15805		Analyst: EM
1,3,5-Trimethylbenzene	ND	0.0144		mg/Kg-dry	1	12/30/2016 4:56:25 PM
2-Chlorotoluene	ND	0.0144		mg/Kg-dry	1	12/30/2016 4:56:25 PM
4-Chlorotoluene	ND	0.0144		mg/Kg-dry	1	12/30/2016 4:56:25 PM
tert-Butylbenzene	ND	0.0144		mg/Kg-dry	1	12/30/2016 4:56:25 PM
1,2,3-Trichloropropane	ND	0.0144		mg/Kg-dry	1	12/30/2016 4:56:25 PM
1,2,4-Trichlorobenzene	ND	0.0360		mg/Kg-dry	1	12/30/2016 4:56:25 PM
sec-Butylbenzene	ND	0.0144		mg/Kg-dry	1	12/30/2016 4:56:25 PM
4-Isopropyltoluene	ND	0.0144		mg/Kg-dry	1	12/30/2016 4:56:25 PM
1,3-Dichlorobenzene	ND	0.0144		mg/Kg-dry	1	12/30/2016 4:56:25 PM
1,4-Dichlorobenzene	ND	0.0144		mg/Kg-dry	1	12/30/2016 4:56:25 PM
n-Butylbenzene	ND	0.0144		mg/Kg-dry	1	12/30/2016 4:56:25 PM
1,2-Dichlorobenzene	ND	0.0144		mg/Kg-dry	1	12/30/2016 4:56:25 PM
1,2-Dibromo-3-chloropropane	ND	0.360	Q	mg/Kg-dry	1	12/30/2016 4:56:25 PM
1,2,4-Trimethylbenzene	ND	0.0144		mg/Kg-dry	1	12/30/2016 4:56:25 PM
Hexachlorobutadiene	ND	0.0720		mg/Kg-dry	1	12/30/2016 4:56:25 PM
Naphthalene	ND	0.0216		mg/Kg-dry	1	12/30/2016 4:56:25 PM
1,2,3-Trichlorobenzene	ND	0.0144		mg/Kg-dry	1	12/30/2016 4:56:25 PM
Surr: Dibromofluoromethane	97.8	56.5-129		%Rec	1	12/30/2016 4:56:25 PM
Surr: Toluene-d8	99.7	64.5-151		%Rec	1	12/30/2016 4:56:25 PM
Surr: 1-Bromo-4-fluorobenzene	95.7	63.1-141		%Rec	1	12/30/2016 4:56:25 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Mercury by EPA Method 7471				Batch ID: 15808		Analyst: WF
Mercury	ND	0.306		mg/Kg-dry	1	12/30/2016 11:31:36 AM
Total Metals by EPA Method 6020				Batch ID: 15809		Analyst: TN
Arsenic	3.10	0.0920		mg/Kg-dry	1	12/30/2016 2:21:09 PM
Barium	62.1	0.460		mg/Kg-dry	1	12/30/2016 2:21:09 PM
Cadmium	ND	0.184		mg/Kg-dry	1	12/30/2016 2:21:09 PM
Chromium	34.2	0.0920		mg/Kg-dry	1	12/30/2016 2:21:09 PM
Lead	3.71	0.184		mg/Kg-dry	1	12/30/2016 2:21:09 PM
Selenium	1.37	0.460		mg/Kg-dry	1	12/30/2016 2:21:09 PM
Silver	ND	0.0920		mg/Kg-dry	1	12/30/2016 2:21:09 PM

Analytical Report

Work Order: **1612284**
Date Reported: **1/5/2017**

Client: GeoEngineers
Collection Date: 12/29/2016 10:20:00 AM
Project: Rufus Block 20
Lab ID: 1612284-013
Matrix: Soil
Client Sample ID: **W26UN4-8.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R33640		Analyst: BB
Percent Moisture	18.3			wt%	1	12/30/2016 8:19:43 AM

Analytical Report

Work Order: **1612284**
Date Reported: **1/5/2017**

Client: GeoEngineers
Collection Date: 12/29/2016 10:15:00 AM
Project: Rufus Block 20
Lab ID: 1612284-014
Matrix: Soil
Client Sample ID: **W21UN7-8.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 15806		Analyst: WC
Diesel (Fuel Oil)	ND	21.6		mg/Kg-dry	1	12/30/2016 6:06:32 AM
Heavy Oil	ND	54.0		mg/Kg-dry	1	12/30/2016 6:06:32 AM
Heavy Oil Range Organics (C24-37)	67.5	54.0		mg/Kg-dry	1	12/30/2016 6:06:32 AM
Surr: 2-Fluorobiphenyl	94.8	50-150		%Rec	1	12/30/2016 6:06:32 AM
Surr: o-Terphenyl	89.2	50-150		%Rec	1	12/30/2016 6:06:32 AM
NOTES: Heavy Oil Range Organics - Indicates the presence of unresolved compounds in the Lube+ Oil ranges.						
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 15804		Analyst: BT
Naphthalene	ND	41.2		µg/Kg-dry	1	12/30/2016 8:15:18 AM
2-Methylnaphthalene	ND	41.2		µg/Kg-dry	1	12/30/2016 8:15:18 AM
1-Methylnaphthalene	ND	41.2		µg/Kg-dry	1	12/30/2016 8:15:18 AM
Acenaphthylene	ND	41.2		µg/Kg-dry	1	12/30/2016 8:15:18 AM
Acenaphthene	ND	41.2		µg/Kg-dry	1	12/30/2016 8:15:18 AM
Fluorene	ND	41.2		µg/Kg-dry	1	12/30/2016 8:15:18 AM
Phenanthrene	60.3	41.2		µg/Kg-dry	1	12/30/2016 8:15:18 AM
Anthracene	ND	41.2		µg/Kg-dry	1	12/30/2016 8:15:18 AM
Fluoranthene	94.8	41.2		µg/Kg-dry	1	12/30/2016 8:15:18 AM
Pyrene	109	41.2		µg/Kg-dry	1	12/30/2016 8:15:18 AM
Benz(a)anthracene	51.8	41.2		µg/Kg-dry	1	12/30/2016 8:15:18 AM
Chrysene	51.4	41.2		µg/Kg-dry	1	12/30/2016 8:15:18 AM
Benzo(b)fluoranthene	64.3	41.2		µg/Kg-dry	1	12/30/2016 8:15:18 AM
Benzo(k)fluoranthene	ND	41.2		µg/Kg-dry	1	12/30/2016 8:15:18 AM
Benzo(a)pyrene	61.0	41.2		µg/Kg-dry	1	12/30/2016 8:15:18 AM
Indeno(1,2,3-cd)pyrene	ND	41.2		µg/Kg-dry	1	12/30/2016 8:15:18 AM
Dibenz(a,h)anthracene	ND	41.2		µg/Kg-dry	1	12/30/2016 8:15:18 AM
Benzo(g,h,i)perylene	ND	41.2		µg/Kg-dry	1	12/30/2016 8:15:18 AM
Surr: 2-Fluorobiphenyl	47.4	24.5-139		%Rec	1	12/30/2016 8:15:18 AM
Surr: Terphenyl-d14 (surr)	61.2	44.3-176		%Rec	1	12/30/2016 8:15:18 AM
Gasoline by NWTPH-Gx				Batch ID: 15805		Analyst: EM
Gasoline	ND	3.94		mg/Kg-dry	1	12/30/2016 5:25:48 PM
Surr: Toluene-d8	98.8	65-135		%Rec	1	12/30/2016 5:25:48 PM
Surr: 4-Bromofluorobenzene	96.3	65-135		%Rec	1	12/30/2016 5:25:48 PM

Client: GeoEngineers
Collection Date: 12/29/2016 10:15:00 AM
Project: Rufus Block 20
Lab ID: 1612284-014
Matrix: Soil
Client Sample ID: **W21UN7-8.5**

Volatile Organic Compounds by EPA Method 8260C

Batch ID: 15805 Analyst: EM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane (CFC-12)	ND	0.0473	Q	mg/Kg-dry	1	12/30/2016 5:25:48 PM
Chloromethane	ND	0.0473	Q	mg/Kg-dry	1	12/30/2016 5:25:48 PM
Vinyl chloride	ND	0.00158	Q	mg/Kg-dry	1	12/30/2016 5:25:48 PM
Bromomethane	ND	0.0710		mg/Kg-dry	1	12/30/2016 5:25:48 PM
Trichlorofluoromethane (CFC-11)	ND	0.0394		mg/Kg-dry	1	12/30/2016 5:25:48 PM
Chloroethane	ND	0.0473	Q	mg/Kg-dry	1	12/30/2016 5:25:48 PM
1,1-Dichloroethene	ND	0.0394		mg/Kg-dry	1	12/30/2016 5:25:48 PM
Methylene chloride	ND	0.0158		mg/Kg-dry	1	12/30/2016 5:25:48 PM
trans-1,2-Dichloroethene	ND	0.0158		mg/Kg-dry	1	12/30/2016 5:25:48 PM
Methyl tert-butyl ether (MTBE)	ND	0.0394		mg/Kg-dry	1	12/30/2016 5:25:48 PM
1,1-Dichloroethane	ND	0.0158		mg/Kg-dry	1	12/30/2016 5:25:48 PM
2,2-Dichloropropane	ND	0.0394		mg/Kg-dry	1	12/30/2016 5:25:48 PM
cis-1,2-Dichloroethene	ND	0.0158		mg/Kg-dry	1	12/30/2016 5:25:48 PM
Chloroform	ND	0.0158		mg/Kg-dry	1	12/30/2016 5:25:48 PM
1,1,1-Trichloroethane (TCA)	ND	0.0158		mg/Kg-dry	1	12/30/2016 5:25:48 PM
1,1-Dichloropropene	ND	0.0158		mg/Kg-dry	1	12/30/2016 5:25:48 PM
Carbon tetrachloride	ND	0.0158		mg/Kg-dry	1	12/30/2016 5:25:48 PM
1,2-Dichloroethane (EDC)	ND	0.0237		mg/Kg-dry	1	12/30/2016 5:25:48 PM
Benzene	ND	0.0158		mg/Kg-dry	1	12/30/2016 5:25:48 PM
Trichloroethene (TCE)	ND	0.0158		mg/Kg-dry	1	12/30/2016 5:25:48 PM
1,2-Dichloropropane	ND	0.0158		mg/Kg-dry	1	12/30/2016 5:25:48 PM
Bromodichloromethane	ND	0.0158		mg/Kg-dry	1	12/30/2016 5:25:48 PM
Dibromomethane	ND	0.0316		mg/Kg-dry	1	12/30/2016 5:25:48 PM
cis-1,3-Dichloropropene	ND	0.0158		mg/Kg-dry	1	12/30/2016 5:25:48 PM
Toluene	ND	0.0158		mg/Kg-dry	1	12/30/2016 5:25:48 PM
trans-1,3-Dichloropropylene	ND	0.0237		mg/Kg-dry	1	12/30/2016 5:25:48 PM
1,1,2-Trichloroethane	ND	0.0237		mg/Kg-dry	1	12/30/2016 5:25:48 PM
1,3-Dichloropropane	ND	0.0394		mg/Kg-dry	1	12/30/2016 5:25:48 PM
Tetrachloroethene (PCE)	ND	0.0158		mg/Kg-dry	1	12/30/2016 5:25:48 PM
Dibromochloromethane	ND	0.0237		mg/Kg-dry	1	12/30/2016 5:25:48 PM
1,2-Dibromoethane (EDB)	ND	0.00394		mg/Kg-dry	1	12/30/2016 5:25:48 PM
Chlorobenzene	ND	0.0158		mg/Kg-dry	1	12/30/2016 5:25:48 PM
1,1,1,2-Tetrachloroethane	ND	0.0237		mg/Kg-dry	1	12/30/2016 5:25:48 PM
Ethylbenzene	ND	0.0237		mg/Kg-dry	1	12/30/2016 5:25:48 PM
m,p-Xylene	ND	0.0158		mg/Kg-dry	1	12/30/2016 5:25:48 PM
o-Xylene	ND	0.0158		mg/Kg-dry	1	12/30/2016 5:25:48 PM
Styrene	ND	0.0158		mg/Kg-dry	1	12/30/2016 5:25:48 PM
Isopropylbenzene	ND	0.0631		mg/Kg-dry	1	12/30/2016 5:25:48 PM
Bromoform	ND	0.0158	Q	mg/Kg-dry	1	12/30/2016 5:25:48 PM

Client: GeoEngineers
Collection Date: 12/29/2016 10:15:00 AM
Project: Rufus Block 20
Lab ID: 1612284-014
Matrix: Soil
Client Sample ID: **W21UN7-8.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15805		Analyst: EM
1,1,2,2-Tetrachloroethane	ND	0.0158		mg/Kg-dry	1	12/30/2016 5:25:48 PM
n-Propylbenzene	ND	0.0158		mg/Kg-dry	1	12/30/2016 5:25:48 PM
Bromobenzene	ND	0.0237		mg/Kg-dry	1	12/30/2016 5:25:48 PM
1,3,5-Trimethylbenzene	ND	0.0158		mg/Kg-dry	1	12/30/2016 5:25:48 PM
2-Chlorotoluene	ND	0.0158		mg/Kg-dry	1	12/30/2016 5:25:48 PM
4-Chlorotoluene	ND	0.0158		mg/Kg-dry	1	12/30/2016 5:25:48 PM
tert-Butylbenzene	ND	0.0158		mg/Kg-dry	1	12/30/2016 5:25:48 PM
1,2,3-Trichloropropane	ND	0.0158		mg/Kg-dry	1	12/30/2016 5:25:48 PM
1,2,4-Trichlorobenzene	ND	0.0394		mg/Kg-dry	1	12/30/2016 5:25:48 PM
sec-Butylbenzene	ND	0.0158		mg/Kg-dry	1	12/30/2016 5:25:48 PM
4-Isopropyltoluene	ND	0.0158		mg/Kg-dry	1	12/30/2016 5:25:48 PM
1,3-Dichlorobenzene	ND	0.0158		mg/Kg-dry	1	12/30/2016 5:25:48 PM
1,4-Dichlorobenzene	ND	0.0158		mg/Kg-dry	1	12/30/2016 5:25:48 PM
n-Butylbenzene	ND	0.0158		mg/Kg-dry	1	12/30/2016 5:25:48 PM
1,2-Dichlorobenzene	ND	0.0158		mg/Kg-dry	1	12/30/2016 5:25:48 PM
1,2-Dibromo-3-chloropropane	ND	0.394	Q	mg/Kg-dry	1	12/30/2016 5:25:48 PM
1,2,4-Trimethylbenzene	ND	0.0158		mg/Kg-dry	1	12/30/2016 5:25:48 PM
Hexachlorobutadiene	ND	0.0789		mg/Kg-dry	1	12/30/2016 5:25:48 PM
Naphthalene	ND	0.0237		mg/Kg-dry	1	12/30/2016 5:25:48 PM
1,2,3-Trichlorobenzene	ND	0.0158		mg/Kg-dry	1	12/30/2016 5:25:48 PM
Surr: Dibromofluoromethane	96.3	56.5-129		%Rec	1	12/30/2016 5:25:48 PM
Surr: Toluene-d8	99.7	64.5-151		%Rec	1	12/30/2016 5:25:48 PM
Surr: 1-Bromo-4-fluorobenzene	95.7	63.1-141		%Rec	1	12/30/2016 5:25:48 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Mercury by EPA Method 7471				Batch ID: 15808		Analyst: WF
Mercury	ND	0.286		mg/Kg-dry	1	12/30/2016 11:33:18 AM
Total Metals by EPA Method 6020				Batch ID: 15809		Analyst: TN
Arsenic	2.82	0.0993		mg/Kg-dry	1	12/30/2016 2:31:59 PM
Barium	75.4	0.496		mg/Kg-dry	1	12/30/2016 2:31:59 PM
Cadmium	ND	0.199		mg/Kg-dry	1	12/30/2016 2:31:59 PM
Chromium	39.0	0.0993		mg/Kg-dry	1	12/30/2016 2:31:59 PM
Lead	17.0	0.199		mg/Kg-dry	1	12/30/2016 2:31:59 PM
Selenium	0.900	0.496		mg/Kg-dry	1	12/30/2016 2:31:59 PM

Analytical Report

Work Order: **1612284**
Date Reported: **1/5/2017**

Client: GeoEngineers
Collection Date: 12/29/2016 10:15:00 AM
Project: Rufus Block 20
Lab ID: 1612284-014
Matrix: Soil
Client Sample ID: **W21UN7-8.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 15809		Analyst: TN
Silver	ND	0.0993		mg/Kg-dry	1	12/30/2016 2:31:59 PM
Sample Moisture (Percent Moisture)				Batch ID: R33640		Analyst: BB
Percent Moisture	16.1			wt%	1	12/30/2016 8:19:43 AM

Client: GeoEngineers
Collection Date: 12/29/2016 12:25:00 PM
Project: Rufus Block 20
Lab ID: 1612284-015
Matrix: Soil
Client Sample ID: **W20N30-8.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 15806		Analyst: WC
Diesel (Fuel Oil)	ND	23.1		mg/Kg-dry	1	12/30/2016 6:37:12 AM
Heavy Oil	ND	57.8		mg/Kg-dry	1	12/30/2016 6:37:12 AM
Surr: 2-Fluorobiphenyl	103	50-150		%Rec	1	12/30/2016 6:37:12 AM
Surr: o-Terphenyl	107	50-150		%Rec	1	12/30/2016 6:37:12 AM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 15804		Analyst: BT
Naphthalene	ND	44.8		µg/Kg-dry	1	12/30/2016 8:36:26 AM
2-Methylnaphthalene	ND	44.8		µg/Kg-dry	1	12/30/2016 8:36:26 AM
1-Methylnaphthalene	ND	44.8		µg/Kg-dry	1	12/30/2016 8:36:26 AM
Acenaphthylene	ND	44.8		µg/Kg-dry	1	12/30/2016 8:36:26 AM
Acenaphthene	ND	44.8		µg/Kg-dry	1	12/30/2016 8:36:26 AM
Fluorene	ND	44.8		µg/Kg-dry	1	12/30/2016 8:36:26 AM
Phenanthrene	ND	44.8		µg/Kg-dry	1	12/30/2016 8:36:26 AM
Anthracene	ND	44.8		µg/Kg-dry	1	12/30/2016 8:36:26 AM
Fluoranthene	ND	44.8		µg/Kg-dry	1	12/30/2016 8:36:26 AM
Pyrene	ND	44.8		µg/Kg-dry	1	12/30/2016 8:36:26 AM
Benz(a)anthracene	ND	44.8		µg/Kg-dry	1	12/30/2016 8:36:26 AM
Chrysene	ND	44.8		µg/Kg-dry	1	12/30/2016 8:36:26 AM
Benzo(b)fluoranthene	ND	44.8		µg/Kg-dry	1	12/30/2016 8:36:26 AM
Benzo(k)fluoranthene	ND	44.8		µg/Kg-dry	1	12/30/2016 8:36:26 AM
Benzo(a)pyrene	ND	44.8		µg/Kg-dry	1	12/30/2016 8:36:26 AM
Indeno(1,2,3-cd)pyrene	ND	44.8		µg/Kg-dry	1	12/30/2016 8:36:26 AM
Dibenz(a,h)anthracene	ND	44.8		µg/Kg-dry	1	12/30/2016 8:36:26 AM
Benzo(g,h,i)perylene	ND	44.8		µg/Kg-dry	1	12/30/2016 8:36:26 AM
Surr: 2-Fluorobiphenyl	48.3	24.5-139		%Rec	1	12/30/2016 8:36:26 AM
Surr: Terphenyl-d14 (surr)	58.8	44.3-176		%Rec	1	12/30/2016 8:36:26 AM
Gasoline by NWTPH-Gx				Batch ID: 15805		Analyst: EM
Gasoline	ND	5.69		mg/Kg-dry	1	12/30/2016 5:55:05 PM
Surr: Toluene-d8	99.8	65-135		%Rec	1	12/30/2016 5:55:05 PM
Surr: 4-Bromofluorobenzene	96.1	65-135		%Rec	1	12/30/2016 5:55:05 PM
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15805		Analyst: EM
Dichlorodifluoromethane (CFC-12)	ND	0.0683	Q	mg/Kg-dry	1	12/30/2016 5:55:05 PM
Chloromethane	ND	0.0683	Q	mg/Kg-dry	1	12/30/2016 5:55:05 PM
Vinyl chloride	ND	0.00228	Q	mg/Kg-dry	1	12/30/2016 5:55:05 PM

Client: GeoEngineers
Collection Date: 12/29/2016 12:25:00 PM
Project: Rufus Block 20
Lab ID: 1612284-015
Matrix: Soil
Client Sample ID: **W20N30-8.5**

Volatile Organic Compounds by EPA Method 8260C

Batch ID: 15805 Analyst: EM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Bromomethane	ND	0.102		mg/Kg-dry	1	12/30/2016 5:55:05 PM
Trichlorofluoromethane (CFC-11)	ND	0.0569		mg/Kg-dry	1	12/30/2016 5:55:05 PM
Chloroethane	ND	0.0683	Q	mg/Kg-dry	1	12/30/2016 5:55:05 PM
1,1-Dichloroethene	ND	0.0569		mg/Kg-dry	1	12/30/2016 5:55:05 PM
Methylene chloride	ND	0.0228		mg/Kg-dry	1	12/30/2016 5:55:05 PM
trans-1,2-Dichloroethene	ND	0.0228		mg/Kg-dry	1	12/30/2016 5:55:05 PM
Methyl tert-butyl ether (MTBE)	ND	0.0569		mg/Kg-dry	1	12/30/2016 5:55:05 PM
1,1-Dichloroethane	ND	0.0228		mg/Kg-dry	1	12/30/2016 5:55:05 PM
2,2-Dichloropropane	ND	0.0569		mg/Kg-dry	1	12/30/2016 5:55:05 PM
cis-1,2-Dichloroethene	ND	0.0228		mg/Kg-dry	1	12/30/2016 5:55:05 PM
Chloroform	ND	0.0228		mg/Kg-dry	1	12/30/2016 5:55:05 PM
1,1,1-Trichloroethane (TCA)	ND	0.0228		mg/Kg-dry	1	12/30/2016 5:55:05 PM
1,1-Dichloropropene	ND	0.0228		mg/Kg-dry	1	12/30/2016 5:55:05 PM
Carbon tetrachloride	ND	0.0228		mg/Kg-dry	1	12/30/2016 5:55:05 PM
1,2-Dichloroethane (EDC)	ND	0.0342		mg/Kg-dry	1	12/30/2016 5:55:05 PM
Benzene	ND	0.0228		mg/Kg-dry	1	12/30/2016 5:55:05 PM
Trichloroethene (TCE)	ND	0.0228		mg/Kg-dry	1	12/30/2016 5:55:05 PM
1,2-Dichloropropane	ND	0.0228		mg/Kg-dry	1	12/30/2016 5:55:05 PM
Bromodichloromethane	ND	0.0228		mg/Kg-dry	1	12/30/2016 5:55:05 PM
Dibromomethane	ND	0.0455		mg/Kg-dry	1	12/30/2016 5:55:05 PM
cis-1,3-Dichloropropene	ND	0.0228		mg/Kg-dry	1	12/30/2016 5:55:05 PM
Toluene	ND	0.0228		mg/Kg-dry	1	12/30/2016 5:55:05 PM
trans-1,3-Dichloropropylene	ND	0.0342		mg/Kg-dry	1	12/30/2016 5:55:05 PM
1,1,2-Trichloroethane	ND	0.0342		mg/Kg-dry	1	12/30/2016 5:55:05 PM
1,3-Dichloropropane	ND	0.0569		mg/Kg-dry	1	12/30/2016 5:55:05 PM
Tetrachloroethene (PCE)	ND	0.0228		mg/Kg-dry	1	12/30/2016 5:55:05 PM
Dibromochloromethane	ND	0.0342		mg/Kg-dry	1	12/30/2016 5:55:05 PM
1,2-Dibromoethane (EDB)	ND	0.00569		mg/Kg-dry	1	12/30/2016 5:55:05 PM
Chlorobenzene	ND	0.0228		mg/Kg-dry	1	12/30/2016 5:55:05 PM
1,1,1,2-Tetrachloroethane	ND	0.0342		mg/Kg-dry	1	12/30/2016 5:55:05 PM
Ethylbenzene	ND	0.0342		mg/Kg-dry	1	12/30/2016 5:55:05 PM
m,p-Xylene	ND	0.0228		mg/Kg-dry	1	12/30/2016 5:55:05 PM
o-Xylene	ND	0.0228		mg/Kg-dry	1	12/30/2016 5:55:05 PM
Styrene	ND	0.0228		mg/Kg-dry	1	12/30/2016 5:55:05 PM
Isopropylbenzene	ND	0.0911		mg/Kg-dry	1	12/30/2016 5:55:05 PM
Bromoform	ND	0.0228	Q	mg/Kg-dry	1	12/30/2016 5:55:05 PM
1,1,2,2-Tetrachloroethane	ND	0.0228		mg/Kg-dry	1	12/30/2016 5:55:05 PM
n-Propylbenzene	ND	0.0228		mg/Kg-dry	1	12/30/2016 5:55:05 PM
Bromobenzene	ND	0.0342		mg/Kg-dry	1	12/30/2016 5:55:05 PM

Analytical Report

Work Order: **1612284**
Date Reported: **1/5/2017**

Client: GeoEngineers
Collection Date: 12/29/2016 12:25:00 PM
Project: Rufus Block 20
Lab ID: 1612284-015
Matrix: Soil
Client Sample ID: **W20N30-8.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15805		Analyst: EM
1,3,5-Trimethylbenzene	ND	0.0228		mg/Kg-dry	1	12/30/2016 5:55:05 PM
2-Chlorotoluene	ND	0.0228		mg/Kg-dry	1	12/30/2016 5:55:05 PM
4-Chlorotoluene	ND	0.0228		mg/Kg-dry	1	12/30/2016 5:55:05 PM
tert-Butylbenzene	ND	0.0228		mg/Kg-dry	1	12/30/2016 5:55:05 PM
1,2,3-Trichloropropane	ND	0.0228		mg/Kg-dry	1	12/30/2016 5:55:05 PM
1,2,4-Trichlorobenzene	ND	0.0569		mg/Kg-dry	1	12/30/2016 5:55:05 PM
sec-Butylbenzene	ND	0.0228		mg/Kg-dry	1	12/30/2016 5:55:05 PM
4-Isopropyltoluene	ND	0.0228		mg/Kg-dry	1	12/30/2016 5:55:05 PM
1,3-Dichlorobenzene	ND	0.0228		mg/Kg-dry	1	12/30/2016 5:55:05 PM
1,4-Dichlorobenzene	ND	0.0228		mg/Kg-dry	1	12/30/2016 5:55:05 PM
n-Butylbenzene	ND	0.0228		mg/Kg-dry	1	12/30/2016 5:55:05 PM
1,2-Dichlorobenzene	ND	0.0228		mg/Kg-dry	1	12/30/2016 5:55:05 PM
1,2-Dibromo-3-chloropropane	ND	0.569	Q	mg/Kg-dry	1	12/30/2016 5:55:05 PM
1,2,4-Trimethylbenzene	ND	0.0228		mg/Kg-dry	1	12/30/2016 5:55:05 PM
Hexachlorobutadiene	ND	0.114		mg/Kg-dry	1	12/30/2016 5:55:05 PM
Naphthalene	ND	0.0342		mg/Kg-dry	1	12/30/2016 5:55:05 PM
1,2,3-Trichlorobenzene	ND	0.0228		mg/Kg-dry	1	12/30/2016 5:55:05 PM
Surr: Dibromofluoromethane	95.9	56.5-129		%Rec	1	12/30/2016 5:55:05 PM
Surr: Toluene-d8	98.2	64.5-151		%Rec	1	12/30/2016 5:55:05 PM
Surr: 1-Bromo-4-fluorobenzene	95.4	63.1-141		%Rec	1	12/30/2016 5:55:05 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Mercury by EPA Method 7471				Batch ID: 15808		Analyst: WF
Mercury	ND	0.291		mg/Kg-dry	1	12/30/2016 11:34:56 AM
Total Metals by EPA Method 6020				Batch ID: 15809		Analyst: TN
Arsenic	6.47	0.0899		mg/Kg-dry	1	12/30/2016 2:35:34 PM
Barium	99.3	0.449		mg/Kg-dry	1	12/30/2016 2:35:34 PM
Cadmium	ND	0.180		mg/Kg-dry	1	12/30/2016 2:35:34 PM
Chromium	56.0	0.0899		mg/Kg-dry	1	12/30/2016 2:35:34 PM
Lead	4.19	0.180		mg/Kg-dry	1	12/30/2016 2:35:34 PM
Selenium	1.82	0.449		mg/Kg-dry	1	12/30/2016 2:35:34 PM
Silver	ND	0.0899		mg/Kg-dry	1	12/30/2016 2:35:34 PM

Analytical Report

Work Order: **1612284**
Date Reported: **1/5/2017**

Client: GeoEngineers
Collection Date: 12/29/2016 12:25:00 PM
Project: Rufus Block 20
Lab ID: 1612284-015
Matrix: Soil
Client Sample ID: **W20N30-8.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R33640		Analyst: BB
Percent Moisture	15.7			wt%	1	12/30/2016 8:19:43 AM

Analytical Report

Work Order: **1612284**
Date Reported: **1/5/2017**

Client: GeoEngineers
Collection Date: 12/29/2016 12:30:00 PM
Project: Rufus Block 20
Lab ID: 1612284-016
Matrix: Soil
Client Sample ID: **W20N34-8.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 15806		Analyst: WC
Diesel (Fuel Oil)	ND	24.6		mg/Kg-dry	1	12/30/2016 7:07:51 AM
Heavy Oil	ND	61.4		mg/Kg-dry	1	12/30/2016 7:07:51 AM
Surr: 2-Fluorobiphenyl	91.9	50-150		%Rec	1	12/30/2016 7:07:51 AM
Surr: o-Terphenyl	92.7	50-150		%Rec	1	12/30/2016 7:07:51 AM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 15804		Analyst: BT
Naphthalene	ND	47.1		µg/Kg-dry	1	12/30/2016 8:57:36 AM
2-Methylnaphthalene	ND	47.1		µg/Kg-dry	1	12/30/2016 8:57:36 AM
1-Methylnaphthalene	ND	47.1		µg/Kg-dry	1	12/30/2016 8:57:36 AM
Acenaphthylene	ND	47.1		µg/Kg-dry	1	12/30/2016 8:57:36 AM
Acenaphthene	ND	47.1		µg/Kg-dry	1	12/30/2016 8:57:36 AM
Fluorene	ND	47.1		µg/Kg-dry	1	12/30/2016 8:57:36 AM
Phenanthrene	ND	47.1		µg/Kg-dry	1	12/30/2016 8:57:36 AM
Anthracene	ND	47.1		µg/Kg-dry	1	12/30/2016 8:57:36 AM
Fluoranthene	ND	47.1		µg/Kg-dry	1	12/30/2016 8:57:36 AM
Pyrene	ND	47.1		µg/Kg-dry	1	12/30/2016 8:57:36 AM
Benz(a)anthracene	ND	47.1		µg/Kg-dry	1	12/30/2016 8:57:36 AM
Chrysene	ND	47.1		µg/Kg-dry	1	12/30/2016 8:57:36 AM
Benzo(b)fluoranthene	ND	47.1		µg/Kg-dry	1	12/30/2016 8:57:36 AM
Benzo(k)fluoranthene	ND	47.1		µg/Kg-dry	1	12/30/2016 8:57:36 AM
Benzo(a)pyrene	ND	47.1		µg/Kg-dry	1	12/30/2016 8:57:36 AM
Indeno(1,2,3-cd)pyrene	ND	47.1		µg/Kg-dry	1	12/30/2016 8:57:36 AM
Dibenz(a,h)anthracene	ND	47.1		µg/Kg-dry	1	12/30/2016 8:57:36 AM
Benzo(g,h,i)perylene	ND	47.1		µg/Kg-dry	1	12/30/2016 8:57:36 AM
Surr: 2-Fluorobiphenyl	41.5	24.5-139		%Rec	1	12/30/2016 8:57:36 AM
Surr: Terphenyl-d14 (surr)	60.5	44.3-176		%Rec	1	12/30/2016 8:57:36 AM
Gasoline by NWTPH-Gx				Batch ID: 15805		Analyst: EM
Gasoline	ND	6.48		mg/Kg-dry	1	12/30/2016 6:24:15 PM
Surr: Toluene-d8	99.7	65-135		%Rec	1	12/30/2016 6:24:15 PM
Surr: 4-Bromofluorobenzene	96.4	65-135		%Rec	1	12/30/2016 6:24:15 PM
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15805		Analyst: EM
Dichlorodifluoromethane (CFC-12)	ND	0.0777	Q	mg/Kg-dry	1	12/30/2016 6:24:15 PM
Chloromethane	ND	0.0777	Q	mg/Kg-dry	1	12/30/2016 6:24:15 PM
Vinyl chloride	ND	0.00259	Q	mg/Kg-dry	1	12/30/2016 6:24:15 PM

Client: GeoEngineers
Collection Date: 12/29/2016 12:30:00 PM
Project: Rufus Block 20
Lab ID: 1612284-016
Matrix: Soil
Client Sample ID: **W20N34-8.5**

Volatile Organic Compounds by EPA Method 8260C

Batch ID: 15805 Analyst: EM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Bromomethane	ND	0.117		mg/Kg-dry	1	12/30/2016 6:24:15 PM
Trichlorofluoromethane (CFC-11)	ND	0.0648		mg/Kg-dry	1	12/30/2016 6:24:15 PM
Chloroethane	ND	0.0777	Q	mg/Kg-dry	1	12/30/2016 6:24:15 PM
1,1-Dichloroethene	ND	0.0648		mg/Kg-dry	1	12/30/2016 6:24:15 PM
Methylene chloride	ND	0.0259		mg/Kg-dry	1	12/30/2016 6:24:15 PM
trans-1,2-Dichloroethene	ND	0.0259		mg/Kg-dry	1	12/30/2016 6:24:15 PM
Methyl tert-butyl ether (MTBE)	ND	0.0648		mg/Kg-dry	1	12/30/2016 6:24:15 PM
1,1-Dichloroethane	ND	0.0259		mg/Kg-dry	1	12/30/2016 6:24:15 PM
2,2-Dichloropropane	ND	0.0648		mg/Kg-dry	1	12/30/2016 6:24:15 PM
cis-1,2-Dichloroethene	ND	0.0259		mg/Kg-dry	1	12/30/2016 6:24:15 PM
Chloroform	ND	0.0259		mg/Kg-dry	1	12/30/2016 6:24:15 PM
1,1,1-Trichloroethane (TCA)	ND	0.0259		mg/Kg-dry	1	12/30/2016 6:24:15 PM
1,1-Dichloropropene	ND	0.0259		mg/Kg-dry	1	12/30/2016 6:24:15 PM
Carbon tetrachloride	ND	0.0259		mg/Kg-dry	1	12/30/2016 6:24:15 PM
1,2-Dichloroethane (EDC)	ND	0.0389		mg/Kg-dry	1	12/30/2016 6:24:15 PM
Benzene	ND	0.0259		mg/Kg-dry	1	12/30/2016 6:24:15 PM
Trichloroethene (TCE)	ND	0.0259		mg/Kg-dry	1	12/30/2016 6:24:15 PM
1,2-Dichloropropane	ND	0.0259		mg/Kg-dry	1	12/30/2016 6:24:15 PM
Bromodichloromethane	ND	0.0259		mg/Kg-dry	1	12/30/2016 6:24:15 PM
Dibromomethane	ND	0.0518		mg/Kg-dry	1	12/30/2016 6:24:15 PM
cis-1,3-Dichloropropene	ND	0.0259		mg/Kg-dry	1	12/30/2016 6:24:15 PM
Toluene	ND	0.0259		mg/Kg-dry	1	12/30/2016 6:24:15 PM
trans-1,3-Dichloropropylene	ND	0.0389		mg/Kg-dry	1	12/30/2016 6:24:15 PM
1,1,2-Trichloroethane	ND	0.0389		mg/Kg-dry	1	12/30/2016 6:24:15 PM
1,3-Dichloropropane	ND	0.0648		mg/Kg-dry	1	12/30/2016 6:24:15 PM
Tetrachloroethene (PCE)	ND	0.0259		mg/Kg-dry	1	12/30/2016 6:24:15 PM
Dibromochloromethane	ND	0.0389		mg/Kg-dry	1	12/30/2016 6:24:15 PM
1,2-Dibromoethane (EDB)	ND	0.00648		mg/Kg-dry	1	12/30/2016 6:24:15 PM
Chlorobenzene	ND	0.0259		mg/Kg-dry	1	12/30/2016 6:24:15 PM
1,1,1,2-Tetrachloroethane	ND	0.0389		mg/Kg-dry	1	12/30/2016 6:24:15 PM
Ethylbenzene	ND	0.0389		mg/Kg-dry	1	12/30/2016 6:24:15 PM
m,p-Xylene	ND	0.0259		mg/Kg-dry	1	12/30/2016 6:24:15 PM
o-Xylene	ND	0.0259		mg/Kg-dry	1	12/30/2016 6:24:15 PM
Styrene	ND	0.0259		mg/Kg-dry	1	12/30/2016 6:24:15 PM
Isopropylbenzene	ND	0.104		mg/Kg-dry	1	12/30/2016 6:24:15 PM
Bromoform	ND	0.0259	Q	mg/Kg-dry	1	12/30/2016 6:24:15 PM
1,1,2,2-Tetrachloroethane	ND	0.0259		mg/Kg-dry	1	12/30/2016 6:24:15 PM
n-Propylbenzene	ND	0.0259		mg/Kg-dry	1	12/30/2016 6:24:15 PM
Bromobenzene	ND	0.0389		mg/Kg-dry	1	12/30/2016 6:24:15 PM

Analytical Report

Work Order: **1612284**
Date Reported: **1/5/2017**

Client: GeoEngineers
Collection Date: 12/29/2016 12:30:00 PM
Project: Rufus Block 20
Lab ID: 1612284-016
Matrix: Soil
Client Sample ID: **W20N34-8.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15805		Analyst: EM
1,3,5-Trimethylbenzene	ND	0.0259		mg/Kg-dry	1	12/30/2016 6:24:15 PM
2-Chlorotoluene	ND	0.0259		mg/Kg-dry	1	12/30/2016 6:24:15 PM
4-Chlorotoluene	ND	0.0259		mg/Kg-dry	1	12/30/2016 6:24:15 PM
tert-Butylbenzene	ND	0.0259		mg/Kg-dry	1	12/30/2016 6:24:15 PM
1,2,3-Trichloropropane	ND	0.0259		mg/Kg-dry	1	12/30/2016 6:24:15 PM
1,2,4-Trichlorobenzene	ND	0.0648		mg/Kg-dry	1	12/30/2016 6:24:15 PM
sec-Butylbenzene	ND	0.0259		mg/Kg-dry	1	12/30/2016 6:24:15 PM
4-Isopropyltoluene	ND	0.0259		mg/Kg-dry	1	12/30/2016 6:24:15 PM
1,3-Dichlorobenzene	ND	0.0259		mg/Kg-dry	1	12/30/2016 6:24:15 PM
1,4-Dichlorobenzene	ND	0.0259		mg/Kg-dry	1	12/30/2016 6:24:15 PM
n-Butylbenzene	ND	0.0259		mg/Kg-dry	1	12/30/2016 6:24:15 PM
1,2-Dichlorobenzene	ND	0.0259		mg/Kg-dry	1	12/30/2016 6:24:15 PM
1,2-Dibromo-3-chloropropane	ND	0.648	Q	mg/Kg-dry	1	12/30/2016 6:24:15 PM
1,2,4-Trimethylbenzene	ND	0.0259		mg/Kg-dry	1	12/30/2016 6:24:15 PM
Hexachlorobutadiene	ND	0.130		mg/Kg-dry	1	12/30/2016 6:24:15 PM
Naphthalene	ND	0.0389		mg/Kg-dry	1	12/30/2016 6:24:15 PM
1,2,3-Trichlorobenzene	ND	0.0259		mg/Kg-dry	1	12/30/2016 6:24:15 PM
Surr: Dibromofluoromethane	95.6	56.5-129		%Rec	1	12/30/2016 6:24:15 PM
Surr: Toluene-d8	99.1	64.5-151		%Rec	1	12/30/2016 6:24:15 PM
Surr: 1-Bromo-4-fluorobenzene	95.7	63.1-141		%Rec	1	12/30/2016 6:24:15 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Mercury by EPA Method 7471				Batch ID: 15808		Analyst: WF
Mercury	ND	0.316		mg/Kg-dry	1	12/30/2016 11:39:49 AM
Total Metals by EPA Method 6020				Batch ID: 15809		Analyst: TN
Arsenic	9.78	0.104		mg/Kg-dry	1	12/30/2016 2:39:10 PM
Barium	109	0.519		mg/Kg-dry	1	12/30/2016 2:39:10 PM
Cadmium	ND	0.208		mg/Kg-dry	1	12/30/2016 2:39:10 PM
Chromium	62.2	0.104		mg/Kg-dry	1	12/30/2016 2:39:10 PM
Lead	4.49	0.208		mg/Kg-dry	1	12/30/2016 2:39:10 PM
Selenium	1.84	0.519		mg/Kg-dry	1	12/30/2016 2:39:10 PM
Silver	ND	0.104		mg/Kg-dry	1	12/30/2016 2:39:10 PM

Analytical Report

Work Order: **1612284**
Date Reported: **1/5/2017**

Client: GeoEngineers
Collection Date: 12/29/2016 12:30:00 PM
Project: Rufus Block 20
Lab ID: 1612284-016
Matrix: Soil
Client Sample ID: **W20N34-8.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R33640		Analyst: BB
Percent Moisture	22.4			wt%	1	12/30/2016 8:19:43 AM

Analytical Report

Work Order: **1612284**
Date Reported: **1/5/2017**

Client: GeoEngineers
Collection Date: 12/29/2016 12:35:00 PM
Project: Rufus Block 20
Lab ID: 1612284-017
Matrix: Soil
Client Sample ID: **W20UN1-8.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 15806		Analyst: WC
Diesel (Fuel Oil)	ND	23.7		mg/Kg-dry	1	12/30/2016 7:38:27 AM
Heavy Oil	ND	59.3		mg/Kg-dry	1	12/30/2016 7:38:27 AM
Surr: 2-Fluorobiphenyl	88.4	50-150		%Rec	1	12/30/2016 7:38:27 AM
Surr: o-Terphenyl	93.5	50-150		%Rec	1	12/30/2016 7:38:27 AM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 15804		Analyst: BT
Naphthalene	ND	51.9		µg/Kg-dry	1	12/30/2016 9:18:46 AM
2-Methylnaphthalene	ND	51.9		µg/Kg-dry	1	12/30/2016 9:18:46 AM
1-Methylnaphthalene	ND	51.9		µg/Kg-dry	1	12/30/2016 9:18:46 AM
Acenaphthylene	ND	51.9		µg/Kg-dry	1	12/30/2016 9:18:46 AM
Acenaphthene	ND	51.9		µg/Kg-dry	1	12/30/2016 9:18:46 AM
Fluorene	ND	51.9		µg/Kg-dry	1	12/30/2016 9:18:46 AM
Phenanthrene	ND	51.9		µg/Kg-dry	1	12/30/2016 9:18:46 AM
Anthracene	ND	51.9		µg/Kg-dry	1	12/30/2016 9:18:46 AM
Fluoranthene	ND	51.9		µg/Kg-dry	1	12/30/2016 9:18:46 AM
Pyrene	ND	51.9		µg/Kg-dry	1	12/30/2016 9:18:46 AM
Benz(a)anthracene	ND	51.9		µg/Kg-dry	1	12/30/2016 9:18:46 AM
Chrysene	ND	51.9		µg/Kg-dry	1	12/30/2016 9:18:46 AM
Benzo(b)fluoranthene	ND	51.9		µg/Kg-dry	1	12/30/2016 9:18:46 AM
Benzo(k)fluoranthene	ND	51.9		µg/Kg-dry	1	12/30/2016 9:18:46 AM
Benzo(a)pyrene	ND	51.9		µg/Kg-dry	1	12/30/2016 9:18:46 AM
Indeno(1,2,3-cd)pyrene	ND	51.9		µg/Kg-dry	1	12/30/2016 9:18:46 AM
Dibenz(a,h)anthracene	ND	51.9		µg/Kg-dry	1	12/30/2016 9:18:46 AM
Benzo(g,h,i)perylene	ND	51.9		µg/Kg-dry	1	12/30/2016 9:18:46 AM
Surr: 2-Fluorobiphenyl	39.7	24.5-139		%Rec	1	12/30/2016 9:18:46 AM
Surr: Terphenyl-d14 (surr)	59.8	44.3-176		%Rec	1	12/30/2016 9:18:46 AM
Gasoline by NWTPH-Gx				Batch ID: 15805		Analyst: EM
Gasoline	ND	7.27		mg/Kg-dry	1	12/30/2016 6:53:26 PM
Surr: Toluene-d8	100	65-135		%Rec	1	12/30/2016 6:53:26 PM
Surr: 4-Bromofluorobenzene	96.7	65-135		%Rec	1	12/30/2016 6:53:26 PM
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15805		Analyst: EM
Dichlorodifluoromethane (CFC-12)	ND	0.0873	Q	mg/Kg-dry	1	12/30/2016 6:53:26 PM
Chloromethane	ND	0.0873	Q	mg/Kg-dry	1	12/30/2016 6:53:26 PM
Vinyl chloride	ND	0.00291	Q	mg/Kg-dry	1	12/30/2016 6:53:26 PM

Client: GeoEngineers
Collection Date: 12/29/2016 12:35:00 PM
Project: Rufus Block 20
Lab ID: 1612284-017
Matrix: Soil
Client Sample ID: **W20UN1-8.5**

Volatile Organic Compounds by EPA Method 8260C

Batch ID: 15805 Analyst: EM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Bromomethane	ND	0.131		mg/Kg-dry	1	12/30/2016 6:53:26 PM
Trichlorofluoromethane (CFC-11)	ND	0.0727		mg/Kg-dry	1	12/30/2016 6:53:26 PM
Chloroethane	ND	0.0873	Q	mg/Kg-dry	1	12/30/2016 6:53:26 PM
1,1-Dichloroethene	ND	0.0727		mg/Kg-dry	1	12/30/2016 6:53:26 PM
Methylene chloride	ND	0.0291		mg/Kg-dry	1	12/30/2016 6:53:26 PM
trans-1,2-Dichloroethene	ND	0.0291		mg/Kg-dry	1	12/30/2016 6:53:26 PM
Methyl tert-butyl ether (MTBE)	ND	0.0727		mg/Kg-dry	1	12/30/2016 6:53:26 PM
1,1-Dichloroethane	ND	0.0291		mg/Kg-dry	1	12/30/2016 6:53:26 PM
2,2-Dichloropropane	ND	0.0727		mg/Kg-dry	1	12/30/2016 6:53:26 PM
cis-1,2-Dichloroethene	ND	0.0291		mg/Kg-dry	1	12/30/2016 6:53:26 PM
Chloroform	ND	0.0291		mg/Kg-dry	1	12/30/2016 6:53:26 PM
1,1,1-Trichloroethane (TCA)	ND	0.0291		mg/Kg-dry	1	12/30/2016 6:53:26 PM
1,1-Dichloropropene	ND	0.0291		mg/Kg-dry	1	12/30/2016 6:53:26 PM
Carbon tetrachloride	ND	0.0291		mg/Kg-dry	1	12/30/2016 6:53:26 PM
1,2-Dichloroethane (EDC)	ND	0.0436		mg/Kg-dry	1	12/30/2016 6:53:26 PM
Benzene	ND	0.0291		mg/Kg-dry	1	12/30/2016 6:53:26 PM
Trichloroethene (TCE)	ND	0.0291		mg/Kg-dry	1	12/30/2016 6:53:26 PM
1,2-Dichloropropane	ND	0.0291		mg/Kg-dry	1	12/30/2016 6:53:26 PM
Bromodichloromethane	ND	0.0291		mg/Kg-dry	1	12/30/2016 6:53:26 PM
Dibromomethane	ND	0.0582		mg/Kg-dry	1	12/30/2016 6:53:26 PM
cis-1,3-Dichloropropene	ND	0.0291		mg/Kg-dry	1	12/30/2016 6:53:26 PM
Toluene	ND	0.0291		mg/Kg-dry	1	12/30/2016 6:53:26 PM
trans-1,3-Dichloropropylene	ND	0.0436		mg/Kg-dry	1	12/30/2016 6:53:26 PM
1,1,2-Trichloroethane	ND	0.0436		mg/Kg-dry	1	12/30/2016 6:53:26 PM
1,3-Dichloropropane	ND	0.0727		mg/Kg-dry	1	12/30/2016 6:53:26 PM
Tetrachloroethene (PCE)	ND	0.0291		mg/Kg-dry	1	12/30/2016 6:53:26 PM
Dibromochloromethane	ND	0.0436		mg/Kg-dry	1	12/30/2016 6:53:26 PM
1,2-Dibromoethane (EDB)	ND	0.00727		mg/Kg-dry	1	12/30/2016 6:53:26 PM
Chlorobenzene	ND	0.0291		mg/Kg-dry	1	12/30/2016 6:53:26 PM
1,1,1,2-Tetrachloroethane	ND	0.0436		mg/Kg-dry	1	12/30/2016 6:53:26 PM
Ethylbenzene	ND	0.0436		mg/Kg-dry	1	12/30/2016 6:53:26 PM
m,p-Xylene	ND	0.0291		mg/Kg-dry	1	12/30/2016 6:53:26 PM
o-Xylene	ND	0.0291		mg/Kg-dry	1	12/30/2016 6:53:26 PM
Styrene	ND	0.0291		mg/Kg-dry	1	12/30/2016 6:53:26 PM
Isopropylbenzene	ND	0.116		mg/Kg-dry	1	12/30/2016 6:53:26 PM
Bromoform	ND	0.0291	Q	mg/Kg-dry	1	12/30/2016 6:53:26 PM
1,1,2,2-Tetrachloroethane	ND	0.0291		mg/Kg-dry	1	12/30/2016 6:53:26 PM
n-Propylbenzene	ND	0.0291		mg/Kg-dry	1	12/30/2016 6:53:26 PM
Bromobenzene	ND	0.0436		mg/Kg-dry	1	12/30/2016 6:53:26 PM

Analytical Report

Work Order: **1612284**
Date Reported: **1/5/2017**

Client: GeoEngineers
Collection Date: 12/29/2016 12:35:00 PM
Project: Rufus Block 20
Lab ID: 1612284-017
Matrix: Soil
Client Sample ID: **W20UN1-8.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15805		Analyst: EM
1,3,5-Trimethylbenzene	ND	0.0291		mg/Kg-dry	1	12/30/2016 6:53:26 PM
2-Chlorotoluene	ND	0.0291		mg/Kg-dry	1	12/30/2016 6:53:26 PM
4-Chlorotoluene	ND	0.0291		mg/Kg-dry	1	12/30/2016 6:53:26 PM
tert-Butylbenzene	ND	0.0291		mg/Kg-dry	1	12/30/2016 6:53:26 PM
1,2,3-Trichloropropane	ND	0.0291		mg/Kg-dry	1	12/30/2016 6:53:26 PM
1,2,4-Trichlorobenzene	ND	0.0727		mg/Kg-dry	1	12/30/2016 6:53:26 PM
sec-Butylbenzene	ND	0.0291		mg/Kg-dry	1	12/30/2016 6:53:26 PM
4-Isopropyltoluene	ND	0.0291		mg/Kg-dry	1	12/30/2016 6:53:26 PM
1,3-Dichlorobenzene	ND	0.0291		mg/Kg-dry	1	12/30/2016 6:53:26 PM
1,4-Dichlorobenzene	ND	0.0291		mg/Kg-dry	1	12/30/2016 6:53:26 PM
n-Butylbenzene	ND	0.0291		mg/Kg-dry	1	12/30/2016 6:53:26 PM
1,2-Dichlorobenzene	ND	0.0291		mg/Kg-dry	1	12/30/2016 6:53:26 PM
1,2-Dibromo-3-chloropropane	ND	0.727	Q	mg/Kg-dry	1	12/30/2016 6:53:26 PM
1,2,4-Trimethylbenzene	ND	0.0291		mg/Kg-dry	1	12/30/2016 6:53:26 PM
Hexachlorobutadiene	ND	0.145		mg/Kg-dry	1	12/30/2016 6:53:26 PM
Naphthalene	ND	0.0436		mg/Kg-dry	1	12/30/2016 6:53:26 PM
1,2,3-Trichlorobenzene	ND	0.0291		mg/Kg-dry	1	12/30/2016 6:53:26 PM
Surr: Dibromofluoromethane	95.6	56.5-129		%Rec	1	12/30/2016 6:53:26 PM
Surr: Toluene-d8	99.3	64.5-151		%Rec	1	12/30/2016 6:53:26 PM
Surr: 1-Bromo-4-fluorobenzene	96.0	63.1-141		%Rec	1	12/30/2016 6:53:26 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Mercury by EPA Method 7471				Batch ID: 15808		Analyst: WF
Mercury	ND	0.321		mg/Kg-dry	1	12/30/2016 11:41:26 AM
Total Metals by EPA Method 6020				Batch ID: 15809		Analyst: TN
Arsenic	4.86	0.106		mg/Kg-dry	1	12/30/2016 2:42:46 PM
Barium	128	0.530		mg/Kg-dry	1	12/30/2016 2:42:46 PM
Cadmium	ND	0.212		mg/Kg-dry	1	12/30/2016 2:42:46 PM
Chromium	83.9	0.106		mg/Kg-dry	1	12/30/2016 2:42:46 PM
Lead	5.32	0.212		mg/Kg-dry	1	12/30/2016 2:42:46 PM
Selenium	1.97	0.530		mg/Kg-dry	1	12/30/2016 2:42:46 PM
Silver	ND	0.106		mg/Kg-dry	1	12/30/2016 2:42:46 PM

Analytical Report

Work Order: **1612284**
Date Reported: **1/5/2017**

Client: GeoEngineers
Collection Date: 12/29/2016 12:35:00 PM
Project: Rufus Block 20
Lab ID: 1612284-017
Matrix: Soil
Client Sample ID: **W20UN1-8.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R33640		Analyst: BB
Percent Moisture	25.1			wt%	1	12/30/2016 8:19:43 AM

Client: GeoEngineers
Project: Rufus Block 20
Lab ID: 1612284-018
Client Sample ID: **W20UN6-8.5**

Collection Date: 12/29/2016 12:40:00 PM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 15806		Analyst: WC
Diesel (Fuel Oil)	ND	24.1		mg/Kg-dry	1	12/30/2016 8:09:10 AM
Heavy Oil	ND	60.2		mg/Kg-dry	1	12/30/2016 8:09:10 AM
Surr: 2-Fluorobiphenyl	97.7	50-150		%Rec	1	12/30/2016 8:09:10 AM
Surr: o-Terphenyl	107	50-150		%Rec	1	12/30/2016 8:09:10 AM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 15804		Analyst: BT
Naphthalene	ND	50.3		µg/Kg-dry	1	12/30/2016 9:40:01 AM
2-Methylnaphthalene	ND	50.3		µg/Kg-dry	1	12/30/2016 9:40:01 AM
1-Methylnaphthalene	ND	50.3		µg/Kg-dry	1	12/30/2016 9:40:01 AM
Acenaphthylene	ND	50.3		µg/Kg-dry	1	12/30/2016 9:40:01 AM
Acenaphthene	ND	50.3		µg/Kg-dry	1	12/30/2016 9:40:01 AM
Fluorene	ND	50.3		µg/Kg-dry	1	12/30/2016 9:40:01 AM
Phenanthrene	ND	50.3		µg/Kg-dry	1	12/30/2016 9:40:01 AM
Anthracene	ND	50.3		µg/Kg-dry	1	12/30/2016 9:40:01 AM
Fluoranthene	ND	50.3		µg/Kg-dry	1	12/30/2016 9:40:01 AM
Pyrene	ND	50.3		µg/Kg-dry	1	12/30/2016 9:40:01 AM
Benz(a)anthracene	ND	50.3		µg/Kg-dry	1	12/30/2016 9:40:01 AM
Chrysene	ND	50.3		µg/Kg-dry	1	12/30/2016 9:40:01 AM
Benzo(b)fluoranthene	ND	50.3		µg/Kg-dry	1	12/30/2016 9:40:01 AM
Benzo(k)fluoranthene	ND	50.3		µg/Kg-dry	1	12/30/2016 9:40:01 AM
Benzo(a)pyrene	ND	50.3		µg/Kg-dry	1	12/30/2016 9:40:01 AM
Indeno(1,2,3-cd)pyrene	ND	50.3		µg/Kg-dry	1	12/30/2016 9:40:01 AM
Dibenz(a,h)anthracene	ND	50.3		µg/Kg-dry	1	12/30/2016 9:40:01 AM
Benzo(g,h,i)perylene	ND	50.3		µg/Kg-dry	1	12/30/2016 9:40:01 AM
Surr: 2-Fluorobiphenyl	41.7	24.5-139		%Rec	1	12/30/2016 9:40:01 AM
Surr: Terphenyl-d14 (surr)	53.1	44.3-176		%Rec	1	12/30/2016 9:40:01 AM
Gasoline by NWTPH-Gx				Batch ID: 15805		Analyst: EM
Gasoline	ND	6.49		mg/Kg-dry	1	12/30/2016 7:22:32 PM
Surr: Toluene-d8	101	65-135		%Rec	1	12/30/2016 7:22:32 PM
Surr: 4-Bromofluorobenzene	95.8	65-135		%Rec	1	12/30/2016 7:22:32 PM
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15805		Analyst: EM
Dichlorodifluoromethane (CFC-12)	ND	0.0779	Q	mg/Kg-dry	1	12/30/2016 7:22:32 PM
Chloromethane	ND	0.0779	Q	mg/Kg-dry	1	12/30/2016 7:22:32 PM
Vinyl chloride	ND	0.00260	Q	mg/Kg-dry	1	12/30/2016 7:22:32 PM

Client: GeoEngineers
Collection Date: 12/29/2016 12:40:00 PM
Project: Rufus Block 20
Lab ID: 1612284-018
Matrix: Soil
Client Sample ID: **W20UN6-8.5**

Volatile Organic Compounds by EPA Method 8260C

Batch ID: 15805 Analyst: EM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Bromomethane	ND	0.117		mg/Kg-dry	1	12/30/2016 7:22:32 PM
Trichlorofluoromethane (CFC-11)	ND	0.0649		mg/Kg-dry	1	12/30/2016 7:22:32 PM
Chloroethane	ND	0.0779	Q	mg/Kg-dry	1	12/30/2016 7:22:32 PM
1,1-Dichloroethene	ND	0.0649		mg/Kg-dry	1	12/30/2016 7:22:32 PM
Methylene chloride	ND	0.0260		mg/Kg-dry	1	12/30/2016 7:22:32 PM
trans-1,2-Dichloroethene	ND	0.0260		mg/Kg-dry	1	12/30/2016 7:22:32 PM
Methyl tert-butyl ether (MTBE)	ND	0.0649		mg/Kg-dry	1	12/30/2016 7:22:32 PM
1,1-Dichloroethane	ND	0.0260		mg/Kg-dry	1	12/30/2016 7:22:32 PM
2,2-Dichloropropane	ND	0.0649		mg/Kg-dry	1	12/30/2016 7:22:32 PM
cis-1,2-Dichloroethene	ND	0.0260		mg/Kg-dry	1	12/30/2016 7:22:32 PM
Chloroform	ND	0.0260		mg/Kg-dry	1	12/30/2016 7:22:32 PM
1,1,1-Trichloroethane (TCA)	ND	0.0260		mg/Kg-dry	1	12/30/2016 7:22:32 PM
1,1-Dichloropropene	ND	0.0260		mg/Kg-dry	1	12/30/2016 7:22:32 PM
Carbon tetrachloride	ND	0.0260		mg/Kg-dry	1	12/30/2016 7:22:32 PM
1,2-Dichloroethane (EDC)	ND	0.0390		mg/Kg-dry	1	12/30/2016 7:22:32 PM
Benzene	ND	0.0260		mg/Kg-dry	1	12/30/2016 7:22:32 PM
Trichloroethene (TCE)	ND	0.0260		mg/Kg-dry	1	12/30/2016 7:22:32 PM
1,2-Dichloropropane	ND	0.0260		mg/Kg-dry	1	12/30/2016 7:22:32 PM
Bromodichloromethane	ND	0.0260		mg/Kg-dry	1	12/30/2016 7:22:32 PM
Dibromomethane	ND	0.0520		mg/Kg-dry	1	12/30/2016 7:22:32 PM
cis-1,3-Dichloropropene	ND	0.0260		mg/Kg-dry	1	12/30/2016 7:22:32 PM
Toluene	ND	0.0260		mg/Kg-dry	1	12/30/2016 7:22:32 PM
trans-1,3-Dichloropropylene	ND	0.0390		mg/Kg-dry	1	12/30/2016 7:22:32 PM
1,1,2-Trichloroethane	ND	0.0390		mg/Kg-dry	1	12/30/2016 7:22:32 PM
1,3-Dichloropropane	ND	0.0649		mg/Kg-dry	1	12/30/2016 7:22:32 PM
Tetrachloroethene (PCE)	ND	0.0260		mg/Kg-dry	1	12/30/2016 7:22:32 PM
Dibromochloromethane	ND	0.0390		mg/Kg-dry	1	12/30/2016 7:22:32 PM
1,2-Dibromoethane (EDB)	ND	0.00649		mg/Kg-dry	1	12/30/2016 7:22:32 PM
Chlorobenzene	ND	0.0260		mg/Kg-dry	1	12/30/2016 7:22:32 PM
1,1,1,2-Tetrachloroethane	ND	0.0390		mg/Kg-dry	1	12/30/2016 7:22:32 PM
Ethylbenzene	ND	0.0390		mg/Kg-dry	1	12/30/2016 7:22:32 PM
m,p-Xylene	ND	0.0260		mg/Kg-dry	1	12/30/2016 7:22:32 PM
o-Xylene	ND	0.0260		mg/Kg-dry	1	12/30/2016 7:22:32 PM
Styrene	ND	0.0260		mg/Kg-dry	1	12/30/2016 7:22:32 PM
Isopropylbenzene	ND	0.104		mg/Kg-dry	1	12/30/2016 7:22:32 PM
Bromoform	ND	0.0260	Q	mg/Kg-dry	1	12/30/2016 7:22:32 PM
1,1,2,2-Tetrachloroethane	ND	0.0260		mg/Kg-dry	1	12/30/2016 7:22:32 PM
n-Propylbenzene	ND	0.0260		mg/Kg-dry	1	12/30/2016 7:22:32 PM
Bromobenzene	ND	0.0390		mg/Kg-dry	1	12/30/2016 7:22:32 PM

Analytical Report

Work Order: **1612284**
Date Reported: **1/5/2017**

Client: GeoEngineers
Collection Date: 12/29/2016 12:40:00 PM
Project: Rufus Block 20
Lab ID: 1612284-018
Matrix: Soil
Client Sample ID: **W20UN6-8.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15805		Analyst: EM
1,3,5-Trimethylbenzene	ND	0.0260		mg/Kg-dry	1	12/30/2016 7:22:32 PM
2-Chlorotoluene	ND	0.0260		mg/Kg-dry	1	12/30/2016 7:22:32 PM
4-Chlorotoluene	ND	0.0260		mg/Kg-dry	1	12/30/2016 7:22:32 PM
tert-Butylbenzene	ND	0.0260		mg/Kg-dry	1	12/30/2016 7:22:32 PM
1,2,3-Trichloropropane	ND	0.0260		mg/Kg-dry	1	12/30/2016 7:22:32 PM
1,2,4-Trichlorobenzene	ND	0.0649		mg/Kg-dry	1	12/30/2016 7:22:32 PM
sec-Butylbenzene	ND	0.0260		mg/Kg-dry	1	12/30/2016 7:22:32 PM
4-Isopropyltoluene	ND	0.0260		mg/Kg-dry	1	12/30/2016 7:22:32 PM
1,3-Dichlorobenzene	ND	0.0260		mg/Kg-dry	1	12/30/2016 7:22:32 PM
1,4-Dichlorobenzene	ND	0.0260		mg/Kg-dry	1	12/30/2016 7:22:32 PM
n-Butylbenzene	ND	0.0260		mg/Kg-dry	1	12/30/2016 7:22:32 PM
1,2-Dichlorobenzene	ND	0.0260		mg/Kg-dry	1	12/30/2016 7:22:32 PM
1,2-Dibromo-3-chloropropane	ND	0.649	Q	mg/Kg-dry	1	12/30/2016 7:22:32 PM
1,2,4-Trimethylbenzene	ND	0.0260		mg/Kg-dry	1	12/30/2016 7:22:32 PM
Hexachlorobutadiene	ND	0.130		mg/Kg-dry	1	12/30/2016 7:22:32 PM
Naphthalene	ND	0.0390		mg/Kg-dry	1	12/30/2016 7:22:32 PM
1,2,3-Trichlorobenzene	ND	0.0260		mg/Kg-dry	1	12/30/2016 7:22:32 PM
Surr: Dibromofluoromethane	95.0	56.5-129		%Rec	1	12/30/2016 7:22:32 PM
Surr: Toluene-d8	98.7	64.5-151		%Rec	1	12/30/2016 7:22:32 PM
Surr: 1-Bromo-4-fluorobenzene	95.1	63.1-141		%Rec	1	12/30/2016 7:22:32 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Mercury by EPA Method 7471				Batch ID: 15808		Analyst: WF
Mercury	ND	0.326		mg/Kg-dry	1	12/30/2016 11:43:02 AM
Total Metals by EPA Method 6020				Batch ID: 15809		Analyst: TN
Arsenic	6.37	0.106		mg/Kg-dry	1	12/30/2016 2:46:22 PM
Barium	132	0.528		mg/Kg-dry	1	12/30/2016 2:46:22 PM
Cadmium	ND	0.211		mg/Kg-dry	1	12/30/2016 2:46:22 PM
Chromium	106	0.106		mg/Kg-dry	1	12/30/2016 2:46:22 PM
Lead	6.48	0.211		mg/Kg-dry	1	12/30/2016 2:46:22 PM
Selenium	2.98	0.528		mg/Kg-dry	1	12/30/2016 2:46:22 PM
Silver	ND	0.106		mg/Kg-dry	1	12/30/2016 2:46:22 PM

Analytical Report

Work Order: **1612284**
Date Reported: **1/5/2017**

Client: GeoEngineers
Collection Date: 12/29/2016 12:40:00 PM
Project: Rufus Block 20
Lab ID: 1612284-018
Matrix: Soil
Client Sample ID: **W20UN6-8.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R33640		Analyst: BB
Percent Moisture	24.8			wt%	1	12/30/2016 8:19:43 AM

Work Order: 1612284
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID **MB-15806** SampType: **MBLK** Units: **mg/Kg** Prep Date: **12/29/2016** RunNo: **33641**
Client ID: **MBLKS** Batch ID: **15806** Analysis Date: **12/29/2016** SeqNo: **638497**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	20.0									
Heavy Oil	ND	50.0									
Surr: 2-Fluorobiphenyl	18.3		20.00		91.5	50	150				
Surr: o-Terphenyl	18.4		20.00		92.1	50	150				

Sample ID **LCS-15806** SampType: **LCS** Units: **mg/Kg** Prep Date: **12/29/2016** RunNo: **33641**
Client ID: **LCSS** Batch ID: **15806** Analysis Date: **12/29/2016** SeqNo: **638496**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	487	20.0	500.0	0	97.5	65	135				
Surr: 2-Fluorobiphenyl	22.4		20.00		112	50	150				
Surr: o-Terphenyl	23.9		20.00		119	50	150				

Sample ID **1612284-001ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **12/29/2016** RunNo: **33641**
Client ID: **W34N29-11.0** Batch ID: **15806** Analysis Date: **12/29/2016** SeqNo: **638477**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	23.6						0		30	
Heavy Oil	1,460	59.1						968.3	40.2	30	R
Surr: 2-Fluorobiphenyl	21.2		23.65		89.6	50	150		0		
Surr: o-Terphenyl	23.3		23.65		98.6	50	150		0		

NOTES:
R - High RPD due to suspected sample inhomogeneity. The method is in control as indicated by the Laboratory Control Sample (LCS).

Sample ID **1612284-002AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **12/29/2016** RunNo: **33641**
Client ID: **W33N31-11.0** Batch ID: **15806** Analysis Date: **12/29/2016** SeqNo: **638479**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	493	20.1	502.7	0	98.1	65	135				
Surr: 2-Fluorobiphenyl	21.0		20.11		105	50	150				

Work Order: 1612284
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID **1612284-002AMS**	SampType: **MS**	Units: **mg/Kg-dry**	Prep Date: **12/29/2016**	RunNo: **33641**
Client ID: **W33N31-11.0**	Batch ID: **15806**		Analysis Date: **12/29/2016**	SeqNo: **638479**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: o-Terphenyl	22.4		20.11		111	50	150				

Sample ID **1612284-002AMSD**	SampType: **MSD**	Units: **mg/Kg-dry**	Prep Date: **12/29/2016**	RunNo: **33641**
Client ID: **W33N31-11.0**	Batch ID: **15806**		Analysis Date: **12/29/2016**	SeqNo: **638480**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	532	23.0	575.7	0	92.5	65	135	493.1	7.65	30	
Surr: 2-Fluorobiphenyl	23.0		23.03		99.7	50	150		0		
Surr: o-Terphenyl	24.9		23.03		108	50	150		0		

Sample ID **1612284-010ADUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **12/29/2016**	RunNo: **33641**
Client ID: **W28N31-8.5**	Batch ID: **15806**		Analysis Date: **12/30/2016**	SeqNo: **638468**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	21.3						0		30	
Heavy Oil	ND	53.3						0		30	
Surr: 2-Fluorobiphenyl	19.0		21.31		89.4	50	150		0		
Surr: o-Terphenyl	19.4		21.31		91.2	50	150		0		

Work Order: 1612284
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Gasoline by NWTPH-Gx

Sample ID **LCS-15805**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **12/29/2016**	RunNo: **33685**
Client ID: **LCSS**	Batch ID: **15805**		Analysis Date: **12/31/2016**	SeqNo: **639386**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	28.1	5.00	25.00	0	112	65	135				
Surr: Toluene-d8	1.26		1.250		101	65	135				
Surr: 4-Bromofluorobenzene	1.24		1.250		99.1	65	135				

Sample ID **MB-15805**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **12/29/2016**	RunNo: **33685**
Client ID: **MBLKS**	Batch ID: **15805**		Analysis Date: **12/31/2016**	SeqNo: **639387**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	5.00									
Surr: Toluene-d8	1.26		1.250		100	65	135				
Surr: 4-Bromofluorobenzene	1.22		1.250		97.4	65	135				

Sample ID **1612284-001BDUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **12/29/2016**	RunNo: **33685**
Client ID: **W34N29-11.0**	Batch ID: **15805**		Analysis Date: **12/31/2016**	SeqNo: **639362**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	46.5	4.65						43.85	5.82	30	
Surr: Toluene-d8	1.15		1.162		99.3	65	135		0		
Surr: 4-Bromofluorobenzene	1.17		1.162		100	65	135		0		

Sample ID **1612284-009BDUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **12/29/2016**	RunNo: **33685**
Client ID: **W26N29-8.5**	Batch ID: **15805**		Analysis Date: **12/31/2016**	SeqNo: **639371**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	5.06						0		30	
Surr: Toluene-d8	1.27		1.264		101	65	135		0		
Surr: 4-Bromofluorobenzene	1.20		1.264		95.3	65	135		0		

Work Order: 1612284
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Gasoline by NWTPH-Gx

Sample ID **1612284-015BMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **12/29/2016** RunNo: **33685**
Client ID: **W20N30-8.5** Batch ID: **15805** Analysis Date: **12/31/2016** SeqNo: **639378**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	27.2	5.69	28.47	0	95.7	65	135				
Surr: Toluene-d8	1.42		1.423		99.7	65	135				
Surr: 4-Bromofluorobenzene	1.39		1.423		97.3	65	135				

Sample ID **1612284-015BMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **12/29/2016** RunNo: **33685**
Client ID: **W20N30-8.5** Batch ID: **15805** Analysis Date: **12/31/2016** SeqNo: **639379**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	28.9	5.69	28.47	0	102	65	135	27.25	5.96	30	
Surr: Toluene-d8	1.43		1.423		101	65	135		0		
Surr: 4-Bromofluorobenzene	1.37		1.423		96.1	65	135		0		

Work Order: 1612284
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Mercury by EPA Method 7471

Sample ID **MB-15808** SampType: **MBLK** Units: **mg/Kg** Prep Date: **12/29/2016** RunNo: **33643**
Client ID: **MBLKS** Batch ID: **15808** Analysis Date: **12/30/2016** SeqNo: **638562**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.231									

Sample ID **LCS-15808** SampType: **LCS** Units: **mg/Kg** Prep Date: **12/29/2016** RunNo: **33643**
Client ID: **LCSS** Batch ID: **15808** Analysis Date: **12/30/2016** SeqNo: **638563**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.484	0.227	0.4545	0	106	80	120				

Sample ID **1612284-001ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **12/29/2016** RunNo: **33643**
Client ID: **W34N29-11.0** Batch ID: **15808** Analysis Date: **12/30/2016** SeqNo: **638565**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.312						0		20	

Sample ID **1612284-001AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **12/29/2016** RunNo: **33643**
Client ID: **W34N29-11.0** Batch ID: **15808** Analysis Date: **12/30/2016** SeqNo: **638566**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.730	0.306	0.6116	0.1476	95.3	70	130				

Sample ID **1612284-001AMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **12/29/2016** RunNo: **33643**
Client ID: **W34N29-11.0** Batch ID: **15808** Analysis Date: **12/30/2016** SeqNo: **638567**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.781	0.312	0.6236	0.1476	102	70	130	0.7302	6.68	20	

Work Order: 1612284
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Metals (SW6020) with TCLP Extraction (EPA 1311)

Sample ID	**MB-15840**	SampType: **MBLK**			Units: **mg/L**		Prep Date: **1/4/2017**		RunNo: **33729**		
Client ID:	**MBLKS**	Batch ID: **15840**					Analysis Date: **1/4/2017**		SeqNo: **640382**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	0.500									

Sample ID	**LCS-15840**	SampType: **LCS**			Units: **mg/L**		Prep Date: **1/4/2017**		RunNo: **33729**		
Client ID:	**LCSS**	Batch ID: **15840**					Analysis Date: **1/4/2017**		SeqNo: **640383**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	2.36	0.500	2.500	0	94.6	65	135				

Sample ID	**1612284-001ADUP**	SampType: **DUP**			Units: **mg/L**		Prep Date: **1/4/2017**		RunNo: **33729**		
Client ID:	**W34N29-11.0**	Batch ID: **15840**					Analysis Date: **1/4/2017**		SeqNo: **640385**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	1.18	0.500						1.104	6.41	30	

Sample ID	**1612284-001AMS**	SampType: **MS**			Units: **mg/L**		Prep Date: **1/4/2017**		RunNo: **33729**		
Client ID:	**W34N29-11.0**	Batch ID: **15840**					Analysis Date: **1/4/2017**		SeqNo: **640386**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	3.44	0.500	2.500	1.104	93.3	65	135				

Sample ID	**1612284-001AMSD**	SampType: **MSD**			Units: **mg/L**		Prep Date: **1/4/2017**		RunNo: **33729**		
Client ID:	**W34N29-11.0**	Batch ID: **15840**					Analysis Date: **1/4/2017**		SeqNo: **640387**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	3.39	0.500	2.500	1.104	91.5	65	135	3.437	1.38	30	

Work Order: 1612284
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **MB-15804** SampType: **MBLK** Units: **µg/Kg** Prep Date: **12/29/2016** RunNo: **33658**
Client ID: **MBLKS** Batch ID: **15804** Analysis Date: **12/30/2016** SeqNo: **638688**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	40.0									
2-Methylnaphthalene	ND	40.0									
1-Methylnaphthalene	ND	40.0									
Acenaphthylene	ND	40.0									
Acenaphthene	ND	40.0									
Fluorene	ND	40.0									
Phenanthrene	ND	40.0									
Anthracene	ND	40.0									
Fluoranthene	ND	40.0									
Pyrene	ND	40.0									
Benz(a)anthracene	ND	40.0									
Chrysene	ND	40.0									
Benzo(b)fluoranthene	ND	40.0									
Benzo(k)fluoranthene	ND	40.0									
Benzo(a)pyrene	ND	40.0									
Indeno(1,2,3-cd)pyrene	ND	40.0									
Dibenz(a,h)anthracene	ND	40.0									
Benzo(g,h,i)perylene	ND	40.0									
Surr: 2-Fluorobiphenyl	326		500.0		65.3	24.5	139				
Surr: Terphenyl-d14 (surr)	383		500.0		76.6	44.3	176				

Sample ID **LCS-15804** SampType: **LCS** Units: **µg/Kg** Prep Date: **12/29/2016** RunNo: **33658**
Client ID: **LCSS** Batch ID: **15804** Analysis Date: **12/30/2016** SeqNo: **638654**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	990	40.0	1,000	0	99.0	46.4	125				
2-Methylnaphthalene	996	40.0	1,000	0	99.6	45.1	135				
1-Methylnaphthalene	976	40.0	1,000	0	97.6	46.2	133				
Acenaphthylene	964	40.0	1,000	0	96.4	32.8	136				
Acenaphthene	906	40.0	1,000	0	90.6	38.7	129				

Work Order: 1612284
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **LCS-15804** SampType: **LCS** Units: **µg/Kg** Prep Date: **12/29/2016** RunNo: **33658**
Client ID: **LCSS** Batch ID: **15804** Analysis Date: **12/30/2016** SeqNo: **638654**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluorene	998	40.0	1,000	0	99.8	41.4	144				
Phenanthrene	960	40.0	1,000	0	96.0	43.9	133				
Anthracene	1,020	40.0	1,000	0	102	44.2	136				
Fluoranthene	1,020	40.0	1,000	0	102	45.9	137				
Pyrene	1,030	40.0	1,000	0	103	46.2	137				
Benz(a)anthracene	1,060	40.0	1,000	0	106	41.9	136				
Chrysene	1,050	40.0	1,000	0	105	46.9	138				
Benzo(b)fluoranthene	1,140	40.0	1,000	0	114	35.9	148				
Benzo(k)fluoranthene	1,110	40.0	1,000	0	111	41.8	153				
Benzo(a)pyrene	1,200	40.0	1,000	0	120	36.3	144				
Indeno(1,2,3-cd)pyrene	1,360	40.0	1,000	0	136	31.3	159				
Dibenz(a,h)anthracene	1,390	40.0	1,000	0	139	28	158				
Benzo(g,h,i)perylene	1,390	40.0	1,000	0	139	32.4	144				
Surr: 2-Fluorobiphenyl	325		500.0		65.0	24.5	139				
Surr: Terphenyl-d14 (surr)	378		500.0		75.6	44.3	176				

Sample ID **1612284-001ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **12/29/2016** RunNo: **33658**
Client ID: **W34N29-11.0** Batch ID: **15804** Analysis Date: **12/30/2016** SeqNo: **638656**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	491	48.3						708.5	36.3	30	R
2-Methylnaphthalene	885	48.3						1,193	29.7	30	
1-Methylnaphthalene	651	48.3						852.2	26.8	30	
Acenaphthylene	ND	48.3						0		30	
Acenaphthene	ND	48.3						0		30	
Fluorene	ND	48.3						0		30	
Phenanthrene	84.3	48.3						123.6	37.8	30	
Anthracene	ND	48.3						0		30	
Fluoranthene	172	48.3						229.4	28.6	30	R
Pyrene	222	48.3						292.4	27.6	30	R

Work Order: 1612284
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1612284-001ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **12/29/2016** RunNo: **33658**
Client ID: **W34N29-11.0** Batch ID: **15804** Analysis Date: **12/30/2016** SeqNo: **638656**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	98.0	48.3						137.1	33.3	30	
Chrysene	114	48.3						153.4	29.2	30	
Benzo(b)fluoranthene	148	48.3						220.4	39.0	30	R
Benzo(k)fluoranthene	50.7	48.3						47.15	7.25	30	
Benzo(a)pyrene	157	48.3						200.4	24.4	30	
Indeno(1,2,3-cd)pyrene	89.8	48.3						119.5	28.4	30	Q
Dibenz(a,h)anthracene	ND	48.3						0		30	
Benzo(g,h,i)perylene	130	48.3						171.9	28.0	30	Q
Surr: 2-Fluorobiphenyl	362		604.0		60.0	24.5	139		0		
Surr: Terphenyl-d14 (surr)	368		604.0		61.0	44.3	176		0		

NOTES:
R - High RPD due to suspected sample inhomogeneity. The method is in control as indicated by the Laboratory Control Sample (LCS).
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample ID **1612284-001AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **12/29/2016** RunNo: **33658**
Client ID: **W34N29-11.0** Batch ID: **15804** Analysis Date: **12/30/2016** SeqNo: **638657**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	1,490	47.5	1,188	708.5	65.8	42.9	138				
2-Methylnaphthalene	1,820	47.5	1,188	1,193	52.5	42.8	151				
1-Methylnaphthalene	1,600	47.5	1,188	852.2	62.8	41.6	148				
Acenaphthylene	1,100	47.5	1,188	30.30	89.7	32.6	160				
Acenaphthene	1,020	47.5	1,188	15.31	84.7	46.3	142				
Fluorene	1,150	47.5	1,188	24.44	94.6	43.4	153				
Phenanthrene	1,150	47.5	1,188	123.6	86.6	45.5	140				
Anthracene	1,150	47.5	1,188	24.75	95.0	32.6	160				
Fluoranthene	1,290	47.5	1,188	229.4	89.2	44.6	161				
Pyrene	1,350	47.5	1,188	292.4	89.2	48.3	158				
Benz(a)anthracene	1,270	47.5	1,188	137.1	95.0	57.5	169				
Chrysene	1,280	47.5	1,188	153.4	94.6	45.2	146				
Benzo(b)fluoranthene	1,420	47.5	1,188	220.4	101	42.2	168				

Work Order: 1612284
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1612284-001AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **12/29/2016** RunNo: **33658**
Client ID: **W34N29-11.0** Batch ID: **15804** Analysis Date: **12/30/2016** SeqNo: **638657**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzo(k)fluoranthene	1,400	47.5	1,188	47.15	114	48	161				
Benzo(a)pyrene	1,570	47.5	1,188	200.4	115	34.4	179				
Indeno(1,2,3-cd)pyrene	1,550	47.5	1,188	119.5	121	5	113				S
Dibenz(a,h)anthracene	1,530	47.5	1,188	37.70	126	17.3	156				
Benzo(g,h,i)perylene	1,600	47.5	1,188	171.9	120	45.6	157				
Surr: 2-Fluorobiphenyl	377		593.9		63.4	24.5	139				
Surr: Terphenyl-d14 (surr)	404		593.9		68.0	44.3	176				

NOTES:
S - Outlying spike recoveries were associated with this sample.

Sample ID **1612284-001AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **12/29/2016** RunNo: **33658**
Client ID: **W34N29-11.0** Batch ID: **15804** Analysis Date: **12/30/2016** SeqNo: **638658**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	1,880	48.2	1,205	708.5	97.6	42.9	138	1,490	23.4	30	
2-Methylnaphthalene	2,300	48.2	1,205	1,193	92.0	42.8	151	1,817	23.6	30	
1-Methylnaphthalene	1,960	48.2	1,205	852.2	91.7	41.6	148	1,598	20.2	30	
Acenaphthylene	1,210	48.2	1,205	30.30	98.2	32.6	160	1,095	10.2	30	
Acenaphthene	1,130	48.2	1,205	15.31	92.5	46.3	142	1,021	10.1	30	
Fluorene	1,260	48.2	1,205	24.44	103	43.4	153	1,148	9.41	30	
Phenanthrene	1,310	48.2	1,205	123.6	98.2	45.5	140	1,153	12.5	30	
Anthracene	1,280	48.2	1,205	24.75	104	32.6	160	1,153	10.2	30	
Fluoranthene	1,490	48.2	1,205	229.4	105	44.6	161	1,289	14.7	30	
Pyrene	1,570	48.2	1,205	292.4	106	48.3	158	1,352	15.1	30	
Benz(a)anthracene	1,450	48.2	1,205	137.1	109	57.5	169	1,266	13.6	30	
Chrysene	1,390	48.2	1,205	153.4	103	45.2	146	1,277	8.32	30	
Benzo(b)fluoranthene	1,720	48.2	1,205	220.4	125	42.2	168	1,423	18.9	30	
Benzo(k)fluoranthene	1,470	48.2	1,205	47.15	118	48	161	1,400	4.63	30	
Benzo(a)pyrene	1,780	48.2	1,205	200.4	131	34.4	179	1,568	12.7	30	
Indeno(1,2,3-cd)pyrene	1,720	48.2	1,205	119.5	133	5	113	1,554	10.0	30	S
Dibenz(a,h)anthracene	1,680	48.2	1,205	37.70	136	17.3	156	1,533	9.04	30	

Work Order: 1612284
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1612284-001AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **12/29/2016** RunNo: **33658**
Client ID: **W34N29-11.0** Batch ID: **15804** Analysis Date: **12/30/2016** SeqNo: **638658**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzo(g,h,i)perylene	1,770	48.2	1,205	171.9	133	45.6	157	1,601	9.99	30	
Surr: 2-Fluorobiphenyl	419		602.3		69.6	24.5	139		0		
Surr: Terphenyl-d14 (surr)	442		602.3		73.5	44.3	176		0		

NOTES:
S - Outlying spike recoveries were associated with this sample.

Work Order: 1612284
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Sample Moisture (Percent Moisture)

Sample ID **1612284-018ADUP** SampType: **DUP** Units: **wt%** Prep Date: **12/30/2016** RunNo: **33640**
Client ID: **W20UN6-8.5** Batch ID: **R33640** Analysis Date: **12/30/2016** SeqNo: **638367**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	24.5	0.500						24.81	1.07	20	

Sample ID **1612285-006ADUP** SampType: **DUP** Units: **wt%** Prep Date: **12/30/2016** RunNo: **33640**
Client ID: **BATCH** Batch ID: **R33640** Analysis Date: **12/30/2016** SeqNo: **638374**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	11.0	0.500						11.19	1.80	20	

Work Order: 1612284
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID **MB-15809** SampType: **MBLK** Units: **mg/Kg** Prep Date: **12/29/2016** RunNo: **33678**
Client ID: **MBLKS** Batch ID: **15809** Analysis Date: **12/30/2016** SeqNo: **639154**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.0787									
Barium	ND	0.394									
Cadmium	ND	0.157									
Chromium	ND	0.0787									
Lead	ND	0.157									
Selenium	ND	0.394									
Silver	ND	0.0787									

Sample ID **LCS-15809** SampType: **LCS** Units: **mg/Kg** Prep Date: **12/29/2016** RunNo: **33678**
Client ID: **LCSS** Batch ID: **15809** Analysis Date: **12/30/2016** SeqNo: **639155**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	45.4	0.0826	41.32	0	110	80	120				
Barium	42.9	0.413	41.32	0	104	80	120				
Cadmium	2.12	0.165	2.066	0	102	80	120				
Chromium	47.9	0.0826	41.32	0	116	80	120				
Lead	20.9	0.165	20.66	0	101	80	120				
Selenium	3.95	0.413	4.132	0	95.5	80	120				
Silver	2.17	0.0826	2.066	0	105	80	120				

Sample ID **1612284-001ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **12/29/2016** RunNo: **33678**
Client ID: **W34N29-11.0** Batch ID: **15809** Analysis Date: **12/30/2016** SeqNo: **639157**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	5.06	0.103						5.064	0.180	20	
Barium	93.1	0.513						92.73	0.356	20	
Cadmium	0.308	0.205						0.3335	7.98	20	
Chromium	42.4	0.103						41.41	2.47	20	
Lead	267	0.205						175.5	41.2	20	R
Selenium	1.14	0.513						1.079	5.81	20	

Work Order: 1612284
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID **1612284-001ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **12/29/2016** RunNo: **33678**
Client ID: **W34N29-11.0** Batch ID: **15809** Analysis Date: **12/30/2016** SeqNo: **639157**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Silver	0.135	0.103						0.1383	2.33	20	

NOTES:
R - High RPD observed. The method is in control as indicated by the LCS.

Sample ID **1612284-001AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **12/29/2016** RunNo: **33678**
Client ID: **W34N29-11.0** Batch ID: **15809** Analysis Date: **12/30/2016** SeqNo: **639159**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	48.7	0.102	50.88	5.064	85.8	75	125				
Barium	142	0.509	50.88	92.73	97.0	75	125				
Cadmium	2.77	0.204	2.544	0.3335	96.0	75	125				
Chromium	108	0.102	50.88	41.41	130	75	125				S
Lead	3,740	0.204	25.44	175.5	14,000	75	125				SE
Selenium	4.52	0.509	5.088	1.079	67.6	75	125				S
Silver	1.94	0.102	2.544	0.1383	70.8	75	125				S

NOTES:
S - Outlying spike recovery(ies) observed for Chromium, Lead and Silver. A duplicate analysis was performed with similar results indicating a possible matrix effect.
S - Outlying spike recovery observed for Selenium. A duplicate analysis was performed and recovered within range.

Sample ID **1612284-001AMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **12/29/2016** RunNo: **33678**
Client ID: **W34N29-11.0** Batch ID: **15809** Analysis Date: **12/30/2016** SeqNo: **639160**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	61.9	0.103	51.29	5.064	111	75	125	48.73	23.7	20	R
Barium	149	0.513	51.29	92.73	110	75	125	142.1	4.82	20	
Cadmium	2.78	0.205	2.565	0.3335	95.5	75	125	2.775	0.303	20	
Chromium	112	0.103	51.29	41.41	137	75	125	107.8	3.48	20	S
Lead	174	0.205	25.65	175.5	-5.30	75	125	3,744	182	20	RS
Selenium	6.33	0.513	5.129	1.079	102	75	125	4.519	33.4	20	R
Silver	1.95	0.103	2.565	0.1383	70.7	75	125	1.939	0.661	20	S

Work Order: 1612284
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID **1612284-001AMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **12/29/2016** RunNo: **33678**
Client ID: **W34N29-11.0** Batch ID: **15809** Analysis Date: **12/30/2016** SeqNo: **639160**

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

NOTES:
S - Outlying spike recovery(ies) observed for Chromium, Lead and Silver. A duplicate analysis was performed with similar results indicating a possible matrix effect.
R - High RPD observed (Matrix). The method is in control as indicated by the LCS.

Sample ID **1612284-001APDS** SampType: **PDS** Units: **mg/Kg-dry** Prep Date: **12/29/2016** RunNo: **33678**
Client ID: **W34N29-11.0** Batch ID: **15809** Analysis Date: **12/30/2016** SeqNo: **639161**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	190	0.103	50.0	80.7	109	80	120				
Lead	401	0.205	25.0	342	118	80	120				
Silver	3.94	0.103	2.50	0.270	73.3	80	120				S

NOTES:
S - Spike recovery indicates a possible matrix effect. The method is in control as indicated by the Laboratory Control Sample (LCS).

Work Order: 1612284
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-15805** SampType: **LCS** Units: **mg/Kg** Prep Date: **12/29/2016** RunNo: **33687**
Client ID: **LCSS** Batch ID: **15805** Analysis Date: **12/31/2016** SeqNo: **639358**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	0.972	0.0600	1.000	0	97.2	34.5	141				
Chloromethane	1.00	0.0600	1.000	0	100	38.8	132				
Vinyl chloride	1.00	0.00200	1.000	0	100	44	142				
Bromomethane	1.28	0.0900	1.000	0	128	40.9	157				
Trichlorofluoromethane (CFC-11)	1.04	0.0500	1.000	0	104	41.7	153				
Chloroethane	1.03	0.0600	1.000	0	103	37.1	144				
1,1-Dichloroethene	1.03	0.0500	1.000	0	103	49.7	142				
Methylene chloride	1.03	0.0200	1.000	0	103	46.3	140				
trans-1,2-Dichloroethene	1.02	0.0200	1.000	0	102	68	130				
Methyl tert-butyl ether (MTBE)	0.883	0.0500	1.000	0	88.3	66.3	145				
1,1-Dichloroethane	1.03	0.0200	1.000	0	103	61.9	137				
2,2-Dichloropropane	1.18	0.0500	1.000	0	118	28.1	149				
cis-1,2-Dichloroethene	1.04	0.0200	1.000	0	104	71.3	135				
Chloroform	1.01	0.0200	1.000	0	101	69	145				
1,1,1-Trichloroethane (TCA)	0.980	0.0200	1.000	0	98.0	69	132				
1,1-Dichloropropene	1.04	0.0200	1.000	0	104	72.7	131				
Carbon tetrachloride	0.985	0.0200	1.000	0	98.5	63.4	137				
1,2-Dichloroethane (EDC)	1.04	0.0300	1.000	0	104	61.9	136				
Benzene	1.03	0.0200	1.000	0	103	64.3	133				
Trichloroethene (TCE)	1.03	0.0200	1.000	0	103	65.5	137				
1,2-Dichloropropane	1.02	0.0200	1.000	0	102	63.2	142				
Bromodichloromethane	0.914	0.0200	1.000	0	91.4	73.2	131				
Dibromomethane	0.957	0.0400	1.000	0	95.7	70	130				
cis-1,3-Dichloropropene	0.956	0.0200	1.000	0	95.6	59.1	143				
Toluene	1.02	0.0200	1.000	0	102	67.3	138				
trans-1,3-Dichloropropylene	0.878	0.0300	1.000	0	87.8	49.2	149				
1,1,2-Trichloroethane	1.04	0.0300	1.000	0	104	74.5	129				
1,3-Dichloropropane	1.00	0.0500	1.000	0	100	70	130				
Tetrachloroethene (PCE)	1.01	0.0200	1.000	0	101	52.7	150				
Dibromochloromethane	0.884	0.0300	1.000	0	88.4	70.6	144				
1,2-Dibromoethane (EDB)	0.985	0.00500	1.000	0	98.5	70	130				

Work Order: 1612284
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-15805** SampType: **LCS** Units: **mg/Kg** Prep Date: **12/29/2016** RunNo: **33687**
Client ID: **LCSS** Batch ID: **15805** Analysis Date: **12/31/2016** SeqNo: **639358**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chlorobenzene	1.01	0.0200	1.000	0	101	76.1	123				
1,1,1,2-Tetrachloroethane	0.965	0.0300	1.000	0	96.5	65.9	141				
Ethylbenzene	1.02	0.0300	1.000	0	102	74	129				
m,p-Xylene	2.03	0.0200	2.000	0	102	70	124				
o-Xylene	1.01	0.0200	1.000	0	101	72.7	124				
Styrene	1.00	0.0200	1.000	0	100	76.8	130				
Isopropylbenzene	1.01	0.0800	1.000	0	101	70	130				
Bromoform	0.805	0.0200	1.000	0	80.5	67	154				
1,1,2,2-Tetrachloroethane	0.952	0.0200	1.000	0	95.2	60	130				
n-Propylbenzene	1.02	0.0200	1.000	0	102	74.8	125				
Bromobenzene	0.987	0.0300	1.000	0	98.7	49.2	144				
1,3,5-Trimethylbenzene	1.01	0.0200	1.000	0	101	74.6	123				
2-Chlorotoluene	1.01	0.0200	1.000	0	101	76.7	129				
4-Chlorotoluene	1.01	0.0200	1.000	0	101	77.5	125				
tert-Butylbenzene	1.00	0.0200	1.000	0	100	66.2	130				
1,2,3-Trichloropropane	0.931	0.0200	1.000	0	93.1	67.9	136				
1,2,4-Trichlorobenzene	0.979	0.0500	1.000	0	97.9	62.6	143				
sec-Butylbenzene	1.01	0.0200	1.000	0	101	75.6	133				
4-Isopropyltoluene	1.01	0.0200	1.000	0	101	76.8	131				
1,3-Dichlorobenzene	1.05	0.0200	1.000	0	105	72.8	128				
1,4-Dichlorobenzene	1.04	0.0200	1.000	0	104	72.6	126				
n-Butylbenzene	1.03	0.0200	1.000	0	103	65.3	136				
1,2-Dichlorobenzene	1.04	0.0200	1.000	0	104	72.8	126				
1,2-Dibromo-3-chloropropane	0.800	0.500	1.000	0	80.0	61.2	139				
1,2,4-Trimethylbenzene	1.01	0.0200	1.000	0	101	77.5	129				
Hexachlorobutadiene	0.997	0.100	1.000	0	99.7	42	151				
Naphthalene	0.965	0.0300	1.000	0	96.5	62.3	134				
1,2,3-Trichlorobenzene	0.987	0.0200	1.000	0	98.7	54.8	143				
Surr: Dibromofluoromethane	1.28		1.250		103	56.5	129				
Surr: Toluene-d8	1.25		1.250		100	64.5	151				
Surr: 1-Bromo-4-fluorobenzene	1.26		1.250		101	63.1	141				

Work Order: 1612284
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID	LCS-15805	SampType:	LCS	Units:	mg/Kg	Prep Date:	12/29/2016	RunNo:	33687
Client ID:	LCSS	Batch ID:	15805			Analysis Date:	12/31/2016	SeqNo:	639358

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

Sample ID	MB-15805	SampType:	MBLK	Units:	µg/L	Prep Date:	12/29/2016	RunNo:	33687
Client ID:	MBLKS	Batch ID:	15805			Analysis Date:	12/31/2016	SeqNo:	639359

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	ND	0.0600									
Chloromethane	ND	0.0600									Q
Vinyl chloride	ND	0.00200									Q
Bromomethane	ND	0.0900									
Trichlorofluoromethane (CFC-11)	ND	0.0500									
Chloroethane	ND	0.0600									Q
1,1-Dichloroethene	ND	0.0500									
Methylene chloride	ND	0.0200									
trans-1,2-Dichloroethene	ND	0.0200									
Methyl tert-butyl ether (MTBE)	ND	0.0500									
1,1-Dichloroethane	ND	0.0200									
2,2-Dichloropropane	ND	0.0500									
cis-1,2-Dichloroethene	ND	0.0200									
Chloroform	ND	0.0200									
1,1,1-Trichloroethane (TCA)	ND	0.0200									
1,1-Dichloropropene	ND	0.0200									
Carbon tetrachloride	ND	0.0200									
1,2-Dichloroethane (EDC)	ND	0.0300									
Benzene	ND	0.0200									
Trichloroethene (TCE)	ND	0.0200									
1,2-Dichloropropane	ND	0.0200									
Bromodichloromethane	ND	0.0200									
Dibromomethane	ND	0.0400									
cis-1,3-Dichloropropene	ND	0.0200									
Toluene	ND	0.0200									

Work Order: 1612284
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-15805** SampType: **MBLK** Units: **µg/L** Prep Date: **12/29/2016** RunNo: **33687**
Client ID: **MBLKS** Batch ID: **15805** Analysis Date: **12/31/2016** SeqNo: **639359**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
trans-1,3-Dichloropropylene	ND	0.0300									
1,1,2-Trichloroethane	ND	0.0300									
1,3-Dichloropropane	ND	0.0500									
Tetrachloroethene (PCE)	ND	0.0200									
Dibromochloromethane	ND	0.0300									
1,2-Dibromoethane (EDB)	ND	0.00500									
Chlorobenzene	ND	0.0200									
1,1,1,2-Tetrachloroethane	ND	0.0300									
Ethylbenzene	ND	0.0300									
m,p-Xylene	ND	0.0200									
o-Xylene	ND	0.0200									
Styrene	ND	0.0200									
Isopropylbenzene	ND	0.0800									
Bromoform	ND	0.0200									Q
1,1,2,2-Tetrachloroethane	ND	0.0200									
n-Propylbenzene	ND	0.0200									
Bromobenzene	ND	0.0300									
1,3,5-Trimethylbenzene	ND	0.0200									
2-Chlorotoluene	ND	0.0200									
4-Chlorotoluene	ND	0.0200									
tert-Butylbenzene	ND	0.0200									
1,2,3-Trichloropropane	ND	0.0200									
1,2,4-Trichlorobenzene	ND	0.0500									
sec-Butylbenzene	ND	0.0200									
4-Isopropyltoluene	ND	0.0200									
1,3-Dichlorobenzene	ND	0.0200									
1,4-Dichlorobenzene	ND	0.0200									
n-Butylbenzene	ND	0.0200									
1,2-Dichlorobenzene	ND	0.0200									
1,2-Dibromo-3-chloropropane	ND	0.500									Q
1,2,4-Trimethylbenzene	ND	0.0200									

Work Order: 1612284
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-15805** SampType: **MBLK** Units: **µg/L** Prep Date: **12/29/2016** RunNo: **33687**
Client ID: **MBLKS** Batch ID: **15805** Analysis Date: **12/31/2016** SeqNo: **639359**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexachlorobutadiene	ND	0.100									
Naphthalene	ND	0.0300									
1,2,3-Trichlorobenzene	ND	0.0200									
Surr: Dibromofluoromethane	1.23		1.250		98.1	56.5	129				
Surr: Toluene-d8	1.25		1.250		100	64.5	151				
Surr: 1-Bromo-4-fluorobenzene	1.21		1.250		96.5	63.1	141				

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample ID **1612284-001BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **12/29/2016** RunNo: **33687**
Client ID: **W34N29-11.0** Batch ID: **15805** Analysis Date: **12/31/2016** SeqNo: **639334**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	ND	0.0558						0		30	
Chloromethane	ND	0.0558						0		30	Q
Vinyl chloride	ND	0.00186						0		30	Q
Bromomethane	ND	0.0837						0		30	
Trichlorofluoromethane (CFC-11)	ND	0.0465						0		30	
Chloroethane	ND	0.0558						0		30	Q
1,1-Dichloroethene	ND	0.0465						0		30	
Methylene chloride	ND	0.0186						0		30	
trans-1,2-Dichloroethene	ND	0.0186						0		30	
Methyl tert-butyl ether (MTBE)	ND	0.0465						0		30	
1,1-Dichloroethane	ND	0.0186						0		30	
2,2-Dichloropropane	ND	0.0465						0		30	
cis-1,2-Dichloroethene	ND	0.0186						0		30	
Chloroform	ND	0.0186						0		30	
1,1,1-Trichloroethane (TCA)	ND	0.0186						0		30	
1,1-Dichloropropene	ND	0.0186						0		30	
Carbon tetrachloride	ND	0.0186						0		30	
1,2-Dichloroethane (EDC)	ND	0.0279						0		30	

Work Order: 1612284
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1612284-001BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **12/29/2016** RunNo: **33687**
Client ID: **W34N29-11.0** Batch ID: **15805** Analysis Date: **12/31/2016** SeqNo: **639334**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	0.0186						0		30	
Trichloroethene (TCE)	ND	0.0186						0		30	
1,2-Dichloropropane	ND	0.0186						0		30	
Bromodichloromethane	ND	0.0186						0		30	
Dibromomethane	ND	0.0372						0		30	
cis-1,3-Dichloropropene	ND	0.0186						0		30	
Toluene	ND	0.0186						0		30	
trans-1,3-Dichloropropylene	ND	0.0279						0		30	
1,1,2-Trichloroethane	ND	0.0279						0		30	
1,3-Dichloropropane	ND	0.0465						0		30	
Tetrachloroethene (PCE)	ND	0.0186						0		30	
Dibromochloromethane	ND	0.0279						0		30	
1,2-Dibromoethane (EDB)	ND	0.00465						0		30	
Chlorobenzene	ND	0.0186						0		30	
1,1,1,2-Tetrachloroethane	ND	0.0279						0		30	
Ethylbenzene	ND	0.0279						0		30	
m,p-Xylene	ND	0.0186						0		30	
o-Xylene	ND	0.0186						0		30	
Styrene	ND	0.0186						0		30	
Isopropylbenzene	ND	0.0744						0		30	
Bromoform	ND	0.0186						0		30	Q
1,1,2,2-Tetrachloroethane	ND	0.0186						0		30	
n-Propylbenzene	0.152	0.0186						0.1350	12.0	30	
Bromobenzene	ND	0.0279						0		30	
1,3,5-Trimethylbenzene	ND	0.0186						0		30	
2-Chlorotoluene	ND	0.0186						0		30	
4-Chlorotoluene	ND	0.0186						0		30	
tert-Butylbenzene	ND	0.0186						0		30	
1,2,3-Trichloropropane	ND	0.0186						0		30	
1,2,4-Trichlorobenzene	ND	0.0465						0		30	
sec-Butylbenzene	0.0383	0.0186						0.03314	14.5	30	

Work Order: 1612284
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1612284-001BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **12/29/2016** RunNo: **33687**
Client ID: **W34N29-11.0** Batch ID: **15805** Analysis Date: **12/31/2016** SeqNo: **639334**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4-Isopropyltoluene	ND	0.0186						0		30	
1,3-Dichlorobenzene	ND	0.0186						0		30	
1,4-Dichlorobenzene	ND	0.0186						0		30	
n-Butylbenzene	0.179	0.0186						0.1594	11.6	30	
1,2-Dichlorobenzene	ND	0.0186						0		30	
1,2-Dibromo-3-chloropropane	ND	0.465						0		30	Q
1,2,4-Trimethylbenzene	0.349	0.0186						0.3080	12.5	30	
Hexachlorobutadiene	ND	0.0930						0		30	
Naphthalene	0.282	0.0279						0.2611	7.85	30	
1,2,3-Trichlorobenzene	ND	0.0186						0		30	
Surr: Dibromofluoromethane	1.11		1.162		95.9	56.5	129		0		
Surr: Toluene-d8	1.16		1.162		100	64.5	151		0		
Surr: 1-Bromo-4-fluorobenzene	1.15		1.162		98.6	63.1	141		0		

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample ID **1612284-009BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **12/29/2016** RunNo: **33687**
Client ID: **W26N29-8.5** Batch ID: **15805** Analysis Date: **12/31/2016** SeqNo: **639345**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	ND	0.0607						0		30	
Chloromethane	ND	0.0607						0		30	Q
Vinyl chloride	ND	0.00202						0		30	Q
Bromomethane	ND	0.0910						0		30	
Trichlorofluoromethane (CFC-11)	ND	0.0506						0		30	
Chloroethane	ND	0.0607						0		30	Q
1,1-Dichloroethene	ND	0.0506						0		30	
Methylene chloride	ND	0.0202						0		30	
trans-1,2-Dichloroethene	ND	0.0202						0		30	
Methyl tert-butyl ether (MTBE)	ND	0.0506						0		30	
1,1-Dichloroethane	ND	0.0202						0		30	

Work Order: 1612284
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1612284-009BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **12/29/2016** RunNo: **33687**
Client ID: **W26N29-8.5** Batch ID: **15805** Analysis Date: **12/31/2016** SeqNo: **639345**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2,2-Dichloropropane	ND	0.0506						0		30	
cis-1,2-Dichloroethene	ND	0.0202						0		30	
Chloroform	ND	0.0202						0		30	
1,1,1-Trichloroethane (TCA)	ND	0.0202						0		30	
1,1-Dichloropropene	ND	0.0202						0		30	
Carbon tetrachloride	ND	0.0202						0		30	
1,2-Dichloroethane (EDC)	ND	0.0303						0		30	
Benzene	ND	0.0202						0		30	
Trichloroethene (TCE)	ND	0.0202						0		30	
1,2-Dichloropropane	ND	0.0202						0		30	
Bromodichloromethane	ND	0.0202						0		30	
Dibromomethane	ND	0.0405						0		30	
cis-1,3-Dichloropropene	ND	0.0202						0		30	
Toluene	ND	0.0202						0		30	
trans-1,3-Dichloropropylene	ND	0.0303						0		30	
1,1,2-Trichloroethane	ND	0.0303						0		30	
1,3-Dichloropropane	ND	0.0506						0		30	
Tetrachloroethene (PCE)	ND	0.0202						0		30	
Dibromochloromethane	ND	0.0303						0		30	
1,2-Dibromoethane (EDB)	ND	0.00506						0		30	
Chlorobenzene	ND	0.0202						0		30	
1,1,1,2-Tetrachloroethane	ND	0.0303						0		30	
Ethylbenzene	ND	0.0303						0		30	
m,p-Xylene	ND	0.0202						0		30	
o-Xylene	ND	0.0202						0		30	
Styrene	ND	0.0202						0		30	
Isopropylbenzene	ND	0.0809						0		30	
Bromoform	ND	0.0202						0		30	Q
1,1,2,2-Tetrachloroethane	ND	0.0202						0		30	
n-Propylbenzene	ND	0.0202						0		30	
Bromobenzene	ND	0.0303						0		30	

Work Order: 1612284
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1612284-009BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **12/29/2016** RunNo: **33687**
Client ID: **W26N29-8.5** Batch ID: **15805** Analysis Date: **12/31/2016** SeqNo: **639345**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,3,5-Trimethylbenzene	ND	0.0202						0		30	
2-Chlorotoluene	ND	0.0202						0		30	
4-Chlorotoluene	ND	0.0202						0		30	
tert-Butylbenzene	ND	0.0202						0		30	
1,2,3-Trichloropropane	ND	0.0202						0		30	
1,2,4-Trichlorobenzene	ND	0.0506						0		30	
sec-Butylbenzene	ND	0.0202						0		30	
4-Isopropyltoluene	ND	0.0202						0		30	
1,3-Dichlorobenzene	ND	0.0202						0		30	
1,4-Dichlorobenzene	ND	0.0202						0		30	
n-Butylbenzene	ND	0.0202						0		30	
1,2-Dichlorobenzene	ND	0.0202						0		30	
1,2-Dibromo-3-chloropropane	ND	0.506						0		30	Q
1,2,4-Trimethylbenzene	ND	0.0202						0		30	
Hexachlorobutadiene	ND	0.101						0		30	
Naphthalene	ND	0.0303						0		30	
1,2,3-Trichlorobenzene	ND	0.0202						0		30	
Surr: Dibromofluoromethane	1.21		1.264		95.7	56.5	129		0		
Surr: Toluene-d8	1.27		1.264		100	64.5	151		0		
Surr: 1-Bromo-4-fluorobenzene	1.20		1.264		94.6	63.1	141		0		

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample ID **1612284-006BMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **12/29/2016** RunNo: **33687**
Client ID: **W27N36-17.5** Batch ID: **15805** Analysis Date: **12/31/2016** SeqNo: **639340**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	0.841	0.0594	0.9906	0	84.9	43.5	121				
Chloromethane	0.987	0.0594	0.9906	0	99.7	45	130				
Vinyl chloride	1.02	0.00198	0.9906	0	103	51.2	146				
Bromomethane	0.503	0.0892	0.9906	0	50.7	21.3	120				

Work Order: 1612284
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1612284-006BMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **12/29/2016** RunNo: **33687**
Client ID: **W27N36-17.5** Batch ID: **15805** Analysis Date: **12/31/2016** SeqNo: **639340**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Trichlorofluoromethane (CFC-11)	0.617	0.0495	0.9906	0	62.3	35	131				
Chloroethane	0.487	0.0594	0.9906	0	49.1	43.8	117				
1,1-Dichloroethene	1.16	0.0495	0.9906	0	117	61.9	141				
Methylene chloride	1.19	0.0198	0.9906	0	120	54.7	142				
trans-1,2-Dichloroethene	1.15	0.0198	0.9906	0	117	52	136				
Methyl tert-butyl ether (MTBE)	0.951	0.0495	0.9906	0	96.0	54.4	132				
1,1-Dichloroethane	1.18	0.0198	0.9906	0	120	51.8	141				
2,2-Dichloropropane	0.818	0.0495	0.9906	0	82.5	36	123				
cis-1,2-Dichloroethene	1.16	0.0198	0.9906	0	117	58.6	136				
Chloroform	1.14	0.0198	0.9906	0	115	53.2	129				
1,1,1-Trichloroethane (TCA)	1.08	0.0198	0.9906	0	109	58.3	145				
1,1-Dichloropropene	1.19	0.0198	0.9906	0	121	55.1	138				
Carbon tetrachloride	1.10	0.0198	0.9906	0	111	53.3	144				
1,2-Dichloroethane (EDC)	1.14	0.0297	0.9906	0	115	51.3	139				
Benzene	1.15	0.0198	0.9906	0	116	63.5	133				
Trichloroethene (TCE)	1.14	0.0198	0.9906	0	115	68.6	132				
1,2-Dichloropropane	1.13	0.0198	0.9906	0	114	59	136				
Bromodichloromethane	0.971	0.0198	0.9906	0	98.1	50.7	141				
Dibromomethane	1.03	0.0396	0.9906	0	104	50.6	137				
cis-1,3-Dichloropropene	0.986	0.0198	0.9906	0	99.5	50.4	138				
Toluene	1.13	0.0198	0.9906	0	114	63.4	132				
trans-1,3-Dichloropropylene	0.918	0.0297	0.9906	0	92.6	44.1	147				
1,1,2-Trichloroethane	1.12	0.0297	0.9906	0	113	51.6	137				
1,3-Dichloropropane	1.10	0.0495	0.9906	0	111	53.1	134				
Tetrachloroethene (PCE)	1.16	0.0198	0.9906	0	117	35.6	158				
Dibromochloromethane	0.913	0.0297	0.9906	0	92.2	55.3	140				
1,2-Dibromoethane (EDB)	1.07	0.00495	0.9906	0	108	50.4	136				
Chlorobenzene	1.13	0.0198	0.9906	0	114	60	133				
1,1,1,2-Tetrachloroethane	1.03	0.0297	0.9906	0	104	53.1	142				
Ethylbenzene	1.15	0.0297	0.9906	0	116	54.5	134				
m,p-Xylene	2.30	0.0198	1.981	0	116	53.1	132				

Work Order: 1612284
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1612284-006BMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **12/29/2016** RunNo: **33687**
Client ID: **W27N36-17.5** Batch ID: **15805** Analysis Date: **12/31/2016** SeqNo: **639340**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
o-Xylene	1.12	0.0198	0.9906	0	113	53.3	139				
Styrene	1.12	0.0198	0.9906	0	113	51.1	132				
Isopropylbenzene	1.15	0.0793	0.9906	0	116	58.9	138				
Bromoform	0.781	0.0198	0.9906	0	78.8	57.9	130				
1,1,2,2-Tetrachloroethane	1.01	0.0198	0.9906	0	102	51.9	131				
n-Propylbenzene	1.16	0.0198	0.9906	0	118	53.6	140				
Bromobenzene	1.08	0.0297	0.9906	0	109	54.2	140				
1,3,5-Trimethylbenzene	1.13	0.0198	0.9906	0	114	51.8	136				
2-Chlorotoluene	1.11	0.0198	0.9906	0	112	51.6	136				
4-Chlorotoluene	1.13	0.0198	0.9906	0	114	50.1	139				
tert-Butylbenzene	1.14	0.0198	0.9906	0	115	50.5	135				
1,2,3-Trichloropropane	0.970	0.0198	0.9906	0	97.9	50.5	131				
1,2,4-Trichlorobenzene	1.15	0.0495	0.9906	0	116	50.8	130				
sec-Butylbenzene	1.16	0.0198	0.9906	0	117	52.6	141				
4-Isopropyltoluene	1.12	0.0198	0.9906	0	113	52.9	134				
1,3-Dichlorobenzene	1.16	0.0198	0.9906	0	117	52.6	131				
1,4-Dichlorobenzene	1.16	0.0198	0.9906	0	117	52.9	129				
n-Butylbenzene	1.20	0.0198	0.9906	0	122	52.6	130				
1,2-Dichlorobenzene	1.14	0.0198	0.9906	0	115	55.8	129				
1,2-Dibromo-3-chloropropane	0.809	0.495	0.9906	0	81.7	40.5	131				
1,2,4-Trimethylbenzene	1.12	0.0198	0.9906	0	113	50.6	137				
Hexachlorobutadiene	1.21	0.0991	0.9906	0	123	40.6	158				
Naphthalene	1.10	0.0297	0.9906	0	111	52.3	124				
1,2,3-Trichlorobenzene	1.15	0.0198	0.9906	0	116	54.4	124				
Surr: Dibromofluoromethane	1.24		1.238		99.9	56.5	129				
Surr: Toluene-d8	1.24		1.238		99.9	64.5	151				
Surr: 1-Bromo-4-fluorobenzene	1.24		1.238		99.8	63.1	141				

Work Order: 1612284
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1612284-006BMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **12/29/2016** RunNo: **33687**
Client ID: **W27N36-17.5** Batch ID: **15805** Analysis Date: **12/31/2016** SeqNo: **639341**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	0.882	0.0594	0.9906	0	89.0	43.5	121	0.8415	4.69	30	
Chloromethane	1.06	0.0594	0.9906	0	107	45	130	0.9873	7.43	30	
Vinyl chloride	1.09	0.00198	0.9906	0	110	51.2	146	1.024	6.37	30	
Bromomethane	0.600	0.0892	0.9906	0	60.5	21.3	120	0.5025	17.7	30	
Trichlorofluoromethane (CFC-11)	0.730	0.0495	0.9906	0	73.7	35	131	0.6170	16.8	30	
Chloroethane	0.535	0.0594	0.9906	0	54.0	43.8	117	0.4865	9.56	30	
1,1-Dichloroethene	1.22	0.0495	0.9906	0	124	61.9	141	1.164	5.09	30	
Methylene chloride	1.23	0.0198	0.9906	0	124	54.7	142	1.188	3.07	30	
trans-1,2-Dichloroethene	1.19	0.0198	0.9906	0	120	52	136	1.155	3.33	30	
Methyl tert-butyl ether (MTBE)	0.977	0.0495	0.9906	0	98.6	54.4	132	0.9508	2.68	30	
1,1-Dichloroethane	1.19	0.0198	0.9906	0	121	51.8	141	1.184	0.854	30	
2,2-Dichloropropane	0.844	0.0495	0.9906	0	85.2	36	123	0.8177	3.19	30	
cis-1,2-Dichloroethene	1.17	0.0198	0.9906	0	119	58.6	136	1.158	1.40	30	
Chloroform	1.18	0.0198	0.9906	0	119	53.2	129	1.141	3.26	30	
1,1,1-Trichloroethane (TCA)	1.13	0.0198	0.9906	0	114	58.3	145	1.082	3.96	30	
1,1-Dichloropropene	1.22	0.0198	0.9906	0	123	55.1	138	1.195	2.36	30	
Carbon tetrachloride	1.10	0.0198	0.9906	0	111	53.3	144	1.095	0.685	30	
1,2-Dichloroethane (EDC)	1.15	0.0297	0.9906	0	116	51.3	139	1.141	0.943	30	
Benzene	1.19	0.0198	0.9906	0	120	63.5	133	1.150	3.35	30	
Trichloroethene (TCE)	1.19	0.0198	0.9906	0	120	68.6	132	1.143	4.23	30	
1,2-Dichloropropane	1.17	0.0198	0.9906	0	118	59	136	1.132	3.28	30	
Bromodichloromethane	1.01	0.0198	0.9906	0	102	50.7	141	0.9714	3.99	30	
Dibromomethane	1.08	0.0396	0.9906	0	109	50.6	137	1.033	4.02	30	
cis-1,3-Dichloropropene	1.02	0.0198	0.9906	0	103	50.4	138	0.9858	3.14	30	
Toluene	1.18	0.0198	0.9906	0	119	63.4	132	1.131	4.56	30	
trans-1,3-Dichloropropylene	0.956	0.0297	0.9906	0	96.5	44.1	147	0.9176	4.14	30	
1,1,2-Trichloroethane	1.15	0.0297	0.9906	0	116	51.6	137	1.121	2.63	30	
1,3-Dichloropropane	1.12	0.0495	0.9906	0	113	53.1	134	1.097	1.91	30	
Tetrachloroethene (PCE)	1.20	0.0198	0.9906	0	121	35.6	158	1.161	3.19	30	
Dibromochloromethane	0.950	0.0297	0.9906	0	95.9	55.3	140	0.9134	3.89	30	
1,2-Dibromoethane (EDB)	1.10	0.00495	0.9906	0	111	50.4	136	1.074	1.97	30	

Work Order: 1612284
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1612284-006BMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **12/29/2016** RunNo: **33687**
Client ID: **W27N36-17.5** Batch ID: **15805** Analysis Date: **12/31/2016** SeqNo: **639341**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chlorobenzene	1.16	0.0198	0.9906	0	117	60	133	1.126	3.05	30	
1,1,1,2-Tetrachloroethane	1.06	0.0297	0.9906	0	107	53.1	142	1.029	2.56	30	
Ethylbenzene	1.19	0.0297	0.9906	0	120	54.5	134	1.153	2.78	30	
m,p-Xylene	2.35	0.0198	1.981	0	119	53.1	132	2.298	2.30	30	
o-Xylene	1.16	0.0198	0.9906	0	117	53.3	139	1.121	3.10	30	
Styrene	1.16	0.0198	0.9906	0	117	51.1	132	1.123	2.91	30	
Isopropylbenzene	1.18	0.0793	0.9906	0	119	58.9	138	1.149	2.90	30	
Bromoform	0.791	0.0198	0.9906	0	79.9	57.9	130	0.7809	1.29	30	
1,1,2,2-Tetrachloroethane	1.02	0.0198	0.9906	0	103	51.9	131	1.010	0.554	30	
n-Propylbenzene	1.20	0.0198	0.9906	0	121	53.6	140	1.164	3.25	30	
Bromobenzene	1.11	0.0297	0.9906	0	112	54.2	140	1.078	3.10	30	
1,3,5-Trimethylbenzene	1.17	0.0198	0.9906	0	118	51.8	136	1.133	3.52	30	
2-Chlorotoluene	1.15	0.0198	0.9906	0	117	51.6	136	1.114	3.58	30	
4-Chlorotoluene	1.18	0.0198	0.9906	0	119	50.1	139	1.134	3.79	30	
tert-Butylbenzene	1.18	0.0198	0.9906	0	119	50.5	135	1.142	3.38	30	
1,2,3-Trichloropropane	1.04	0.0198	0.9906	0	105	50.5	131	0.9700	6.74	30	
1,2,4-Trichlorobenzene	1.19	0.0495	0.9906	0	120	50.8	130	1.148	3.30	30	
sec-Butylbenzene	1.21	0.0198	0.9906	0	122	52.6	141	1.161	4.12	30	
4-Isopropyltoluene	1.17	0.0198	0.9906	0	118	52.9	134	1.122	4.33	30	
1,3-Dichlorobenzene	1.19	0.0198	0.9906	0	120	52.6	131	1.155	2.93	30	
1,4-Dichlorobenzene	1.19	0.0198	0.9906	0	121	52.9	129	1.160	2.85	30	
n-Butylbenzene	1.26	0.0198	0.9906	0	128	52.6	130	1.205	4.77	30	
1,2-Dichlorobenzene	1.17	0.0198	0.9906	0	118	55.8	129	1.139	2.29	30	
1,2-Dibromo-3-chloropropane	0.802	0.495	0.9906	0	80.9	40.5	131	0.8093	0.941	30	
1,2,4-Trimethylbenzene	1.15	0.0198	0.9906	0	116	50.6	137	1.118	2.91	30	
Hexachlorobutadiene	1.27	0.0991	0.9906	0	128	40.6	158	1.215	4.45	30	
Naphthalene	1.17	0.0297	0.9906	0	118	52.3	124	1.095	6.54	30	
1,2,3-Trichlorobenzene	1.18	0.0198	0.9906	0	119	54.4	124	1.150	2.48	30	
Surr: Dibromofluoromethane	1.25		1.238		101	56.5	129		0		
Surr: Toluene-d8	1.24		1.238		100	64.5	151		0		
Surr: 1-Bromo-4-fluorobenzene	1.24		1.238		100	63.1	141		0		

Work Order: 1612284
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1612284-006BMSD**	SampType: **MSD**			Units: **mg/Kg-dry**	Prep Date: **12/29/2016**		RunNo: **33687**		
Client ID: **W27N36-17.5**	Batch ID: **15805**				Analysis Date: **12/31/2016**		SeqNo: **639341**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample Log-In Check List

Client Name:	**GEI**	Work Order Number:	**1612284**
Logged by:	**Erica Silva**	Date Received:	**12/29/2016 2:57:00 PM**

Chain of Custody

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

Log In

3.	Coolers are present?	Yes ☑	No ☐	NA ☐
4.	Shipping container/cooler in good condition?	Yes ☑	No ☐	
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes ☐	No ☐	Not Required ☑
6.	Was an attempt made to cool the samples?	Yes ☐	No ☑	NA ☐
		Unknown prior to receipt		
7.	Were all items received at a temperature of >0°C to 10.0°C*	Yes ☐	No ☑	NA ☐
		Please refer to Item Information		
8.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
9.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
10.	Are samples properly preserved?	Yes ☑	No ☐	
11.	Was preservative added to bottles?	Yes ☑	No ☐	NA ☐
				MeOH to 001B - 018B
12.	Is there headspace in the VOA vials?	Yes ☐	No ☐	NA ☑
13.	Did all samples containers arrive in good condition(unbroken)?	Yes ☑	No ☐	
14.	Does paperwork match bottle labels?	Yes ☑	No ☐	
15.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
16.	Is it clear what analyses were requested?	Yes ☑	No ☐	
17.	Were all holding times able to be met?	Yes ☑	No ☐	

Special Handling (if applicable)

18.	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: _____

19. Additional remarks:

Item Information

Item #	Temp ºC
Cooler	9.9
Sample	11.1

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Chain of Custody Record and Laboratory Services Agreement

Fremont Analytical
3600 Fremont Ave N. Tel: 206-352-3790
Seattle, WA 98103 Fax: 206-352-7178

Date: 12/29/16 Laboratory Project No (internal): 1612284

Page: 1 of: 2

Client: GeoEngineers
Address: 1600 Stewart St, Suite 1700
City, State, Zip: Seattle, WA
Telephone: Fax:

Project Name: Rufus Block 20
Project No: 20434-001-24 Collected by: Sydney
Location: Seattle, WA
Report To (PM): Chris Brown
PM Email: cbrown@geoengineers.com

*Matrix Codes: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM / 625)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T)	Dissolved (D)	Anions (IC)***	EDB (8011)	Comments
1	W34N29-11.0	12/29/16	1100	S	X			X		X		X		X					
2	W33N31-11.0		1110																
3	W34N33-11.0		1055																
4	W23N30-17.5		1155																
5	W24N33-17.5		1210																
6	W27N36-17.5		1220																
7	W22N27-8.5		1145																
8	W24N28-8.5		1130																
9	W26N29-8.5		1120																
10	W28N31-8.5	↓	1115	↓	↓			↓		↓		↓		↓					

**Metals Analysis (Circle): MTCA-5 (RCRA-8) Priority Pollutants TAL *Individual:* Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☒ Disposal by Lab (Samples will be held for 30 days unless otherwise noted. A fee may be assessed if samples are retained after 30 days.)

Turn-around times for samples received after 4:00pm will begin on the following business day.

Special Remarks:

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above, that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x Sydney	12/29/16 1457	x	12/29/16 1457
x	Date/Time	x	Date/Time

TAT → SameDay^ NextDay^ 2 Day 3 Day STD

^Please coordinate with the lab in advance

Distribution: White - Lab, Yellow - File, Pink - Originator

Chain of Custody Record and Laboratory Services Agreement

Fremont Analytical
3600 Fremont Ave N. Tel: 206-352-3790
Seattle, WA 98103 Fax: 206-352-7178

Date: 12/29/16 Laboratory Project No (internal): 1612284

Page: 2 of: 2

Client: GeoEngineers
Address: 1600 Stewart St, Suite 1700
City, State, Zip: Seattle, WA
Telephone: Fax:

Project Name: Rufus Block 20
Project No: 20434-001-24 Collected by: Sydney Bronson
Location: Seattle, WA
Report To (PM): Chris Brown
PM Email: cbrown@geoengineers.com

*Matrix Codes: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

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1	W30 N33-8.5	12/29/16	1050	S	X			X		X		X		X					
2	W29 UN2-8.5		1040																
3	W26 UN4-8.5		1020																
4	W21 UN7-8.5		1015																
5	W20 N30-8.5		1225																
6	W20 N34-8.5		1230																
7	W20 UN1-8.5		1235																
8	W20 UN6-8.5		1240																
9																			
10																			

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Location: Seattle, WA
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PM Email: Cbrown@geoengineers.com

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1	W34N29 - 11.0	12/29/16	1100	S	X			X		X	X		X			⊗		⊗ Add Analysis per C. Brown
2	W33N31 - 11.0		1110													⊗		RUSH TAT 1/3/17 CW
3	W34N33 - 11.0		1055															
4	W23N30 - 17.5		1155															
5	W24N33 - 14.5		1210															
6	W27N36 - 17.5		1220															
7	W22N27 - 8.5		1145															
8	W24N28 - 8.5		1130															
9	W26N29 - 8.5		1120															
10	W28N31 - 8.5	↓	1115	↓	↓			↓		↓	↓		↓					

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x		x	

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Chain of Custody Record and Laboratory Services Agreement

Fremont Analytical

3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 12/29/16
Laboratory Project No (internal): 1612284
Page: 2 of: 2

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City, State, Zip: Seattle, WA
Telephone: ____ Fax: ____

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1	W30 N33-8.5	12/29/16	1050	S	X			X		X		X		X				⊗	
2	W29 UN2-8.5		1040															⊗	
3	W26 UN4-8.5		1020																
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7	W20 UN1-8.5		1235																
8	W20 UN6-8.5	↓	1240	↓	↓			↓		↓		↓		↓					
9																			
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Relinquished	Date/Time	Received	Date/Time
x		x	

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^Please coordinate with the lab in advance

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

GeoEngineers
Chris Brown
600 Stewart Street, Suite 1700
Seattle, WA 98101

RE: Rufus Block 20
Work Order Number: 1701009

January 04, 2017

Attention Chris Brown:

Fremont Analytical, Inc. received 6 sample(s) on 1/3/2017 for the analyses presented in the following report.

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.
Mercury by EPA Method 7471
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)
Sample Moisture (Percent Moisture)
Total Metals by EPA Method 6020

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Mike Ridgeway
Laboratory Director

Date: *01/04/2017*

CLIENT: GeoEngineers
Project: Rufus Block 20
Work Order: 1701009

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1701009-001	W35N3-2.5	01/03/2017 2:00 PM	01/03/2017 2:59 PM
1701009-002	W30N3-2.5	01/03/2017 1:55 PM	01/03/2017 2:59 PM
1701009-003	W27N11-4.0	01/03/2017 1:45 PM	01/03/2017 2:59 PM
1701009-004	W27N15-4.0	01/03/2017 1:50 PM	01/03/2017 2:59 PM
1701009-005	W23N11-4.0	01/03/2017 1:35 PM	01/03/2017 2:59 PM
1701009-006	W23N15-4.0	01/03/2017 1:40 PM	01/03/2017 2:59 PM

Case Narrative

WO#: **1701009**
Date: **1/4/2017**

CLIENT: GeoEngineers
Project: Rufus Block 20

I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Analytical Report

Work Order: **1701009**
Date Reported: **1/4/2017**

Client: GeoEngineers
Collection Date: 1/3/2017 2:00:00 PM
Project: Rufus Block 20
Lab ID: 1701009-001
Matrix: Soil
Client Sample ID: **W35N3-2.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 15830		Analyst: SG
Diesel (Fuel Oil)	ND	20.4		mg/Kg-dry	1	1/3/2017 8:52:00 PM
Heavy Oil	ND	50.9		mg/Kg-dry	1	1/3/2017 8:52:00 PM
Surr: 2-Fluorobiphenyl	87.9	50-150		%Rec	1	1/3/2017 8:52:00 PM
Surr: o-Terphenyl	90.1	50-150		%Rec	1	1/3/2017 8:52:00 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 15829		Analyst: SG
Benz(a)anthracene	79.2	42.4		µg/Kg-dry	1	1/3/2017 11:27:26 PM
Chrysene	112	42.4		µg/Kg-dry	1	1/3/2017 11:27:26 PM
Benzo(b)fluoranthene	145	42.4		µg/Kg-dry	1	1/3/2017 11:27:26 PM
Benzo(k)fluoranthene	51.0	42.4		µg/Kg-dry	1	1/3/2017 11:27:26 PM
Benzo(a)pyrene	125	42.4		µg/Kg-dry	1	1/3/2017 11:27:26 PM
Indeno(1,2,3-cd)pyrene	78.3	42.4	Q	µg/Kg-dry	1	1/3/2017 11:27:26 PM
Dibenz(a,h)anthracene	ND	42.4		µg/Kg-dry	1	1/3/2017 11:27:26 PM
Surr: 2-Fluorobiphenyl	64.9	24.5-139		%Rec	1	1/3/2017 11:27:26 PM
Surr: Terphenyl-d14 (surr)	67.1	44.3-176		%Rec	1	1/3/2017 11:27:26 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Mercury by EPA Method 7471				Batch ID: 15836		Analyst: WF
Mercury	ND	0.280		mg/Kg-dry	1	1/4/2017 12:47:23 PM
Total Metals by EPA Method 6020				Batch ID: 15835		Analyst: TN
Arsenic	6.69	0.0862		mg/Kg-dry	1	1/4/2017 4:05:45 PM
Barium	129	0.431		mg/Kg-dry	1	1/4/2017 4:05:45 PM
Cadmium	0.324	0.172		mg/Kg-dry	1	1/4/2017 4:05:45 PM
Chromium	46.6	0.0862	B	mg/Kg-dry	1	1/4/2017 4:05:45 PM
Lead	81.6	0.172		mg/Kg-dry	1	1/4/2017 4:05:45 PM
Selenium	1.39	0.431		mg/Kg-dry	1	1/4/2017 4:05:45 PM
Silver	0.126	0.0862		mg/Kg-dry	1	1/4/2017 4:05:45 PM
Sample Moisture (Percent Moisture)				Batch ID: R33710		Analyst: CG
Percent Moisture	10.8			wt%	1	1/4/2017 8:50:38 AM

Analytical Report

Work Order: **1701009**
Date Reported: **1/4/2017**

Client: GeoEngineers
Collection Date: 1/3/2017 1:55:00 PM
Project: Rufus Block 20
Lab ID: 1701009-002
Matrix: Soil
Client Sample ID: **W30N3-2.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 15830		Analyst: SG
Diesel (Fuel Oil)	ND	22.5		mg/Kg-dry	1	1/3/2017 9:22:00 PM
Heavy Oil	ND	56.1		mg/Kg-dry	1	1/3/2017 9:22:00 PM
Surr: 2-Fluorobiphenyl	95.7	50-150		%Rec	1	1/3/2017 9:22:00 PM
Surr: o-Terphenyl	99.2	50-150		%Rec	1	1/3/2017 9:22:00 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 15829		Analyst: SG
Benz(a)anthracene	ND	40.2		µg/Kg-dry	1	1/3/2017 11:48:17 PM
Chrysene	ND	40.2		µg/Kg-dry	1	1/3/2017 11:48:17 PM
Benzo(b)fluoranthene	ND	40.2		µg/Kg-dry	1	1/3/2017 11:48:17 PM
Benzo(k)fluoranthene	ND	40.2		µg/Kg-dry	1	1/3/2017 11:48:17 PM
Benzo(a)pyrene	ND	40.2		µg/Kg-dry	1	1/3/2017 11:48:17 PM
Indeno(1,2,3-cd)pyrene	ND	40.2		µg/Kg-dry	1	1/3/2017 11:48:17 PM
Dibenz(a,h)anthracene	ND	40.2		µg/Kg-dry	1	1/3/2017 11:48:17 PM
Surr: 2-Fluorobiphenyl	52.3	24.5-139		%Rec	1	1/3/2017 11:48:17 PM
Surr: Terphenyl-d14 (surr)	73.2	44.3-176		%Rec	1	1/3/2017 11:48:17 PM
Mercury by EPA Method 7471				Batch ID: 15836		Analyst: WF
Mercury	ND	0.269		mg/Kg-dry	1	1/4/2017 12:49:02 PM
Total Metals by EPA Method 6020				Batch ID: 15835		Analyst: TN
Arsenic	2.40	0.0907		mg/Kg-dry	1	1/4/2017 4:09:20 PM
Barium	43.4	0.453		mg/Kg-dry	1	1/4/2017 4:09:20 PM
Cadmium	ND	0.181		mg/Kg-dry	1	1/4/2017 4:09:20 PM
Chromium	32.5	0.0907	B	mg/Kg-dry	1	1/4/2017 4:09:20 PM
Lead	2.53	0.181		mg/Kg-dry	1	1/4/2017 4:09:20 PM
Selenium	0.820	0.453		mg/Kg-dry	1	1/4/2017 4:09:20 PM
Silver	ND	0.0907		mg/Kg-dry	1	1/4/2017 4:09:20 PM
Sample Moisture (Percent Moisture)				Batch ID: R33710		Analyst: CG
Percent Moisture	13.8			wt%	1	1/4/2017 8:50:38 AM

Analytical Report

Work Order: **1701009**
Date Reported: **1/4/2017**

Client: GeoEngineers
Collection Date: 1/3/2017 1:45:00 PM
Project: Rufus Block 20
Lab ID: 1701009-003
Matrix: Soil
Client Sample ID: **W27N11-4.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 15830		Analyst: SG
Diesel (Fuel Oil)	ND	22.5		mg/Kg-dry	1	1/3/2017 9:52:00 PM
Heavy Oil	ND	56.3		mg/Kg-dry	1	1/3/2017 9:52:00 PM
Surr: 2-Fluorobiphenyl	65.4	50-150		%Rec	1	1/3/2017 9:52:00 PM
Surr: o-Terphenyl	67.7	50-150		%Rec	1	1/3/2017 9:52:00 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 15829		Analyst: SG
Benz(a)anthracene	ND	46.0		µg/Kg-dry	1	1/4/2017 12:09:04 AM
Chrysene	ND	46.0		µg/Kg-dry	1	1/4/2017 12:09:04 AM
Benzo(b)fluoranthene	ND	46.0		µg/Kg-dry	1	1/4/2017 12:09:04 AM
Benzo(k)fluoranthene	ND	46.0		µg/Kg-dry	1	1/4/2017 12:09:04 AM
Benzo(a)pyrene	ND	46.0		µg/Kg-dry	1	1/4/2017 12:09:04 AM
Indeno(1,2,3-cd)pyrene	ND	46.0		µg/Kg-dry	1	1/4/2017 12:09:04 AM
Dibenz(a,h)anthracene	ND	46.0		µg/Kg-dry	1	1/4/2017 12:09:04 AM
Surr: 2-Fluorobiphenyl	61.7	24.5-139		%Rec	1	1/4/2017 12:09:04 AM
Surr: Terphenyl-d14 (surr)	66.9	44.3-176		%Rec	1	1/4/2017 12:09:04 AM
Mercury by EPA Method 7471				Batch ID: 15836		Analyst: WF
Mercury	ND	0.291		mg/Kg-dry	1	1/4/2017 12:50:41 PM
Total Metals by EPA Method 6020				Batch ID: 15835		Analyst: TN
Arsenic	4.23	0.0925		mg/Kg-dry	1	1/4/2017 4:20:10 PM
Barium	137	0.462		mg/Kg-dry	1	1/4/2017 4:20:10 PM
Cadmium	0.742	0.185		mg/Kg-dry	1	1/4/2017 4:20:10 PM
Chromium	60.8	0.0925	B	mg/Kg-dry	1	1/4/2017 4:20:10 PM
Lead	34.9	0.185		mg/Kg-dry	1	1/4/2017 4:20:10 PM
Selenium	0.971	0.462		mg/Kg-dry	1	1/4/2017 4:20:10 PM
Silver	0.182	0.0925		mg/Kg-dry	1	1/4/2017 4:20:10 PM
Sample Moisture (Percent Moisture)				Batch ID: R33710		Analyst: CG
Percent Moisture	17.4			wt%	1	1/4/2017 8:50:38 AM

Analytical Report

Work Order: **1701009**
Date Reported: **1/4/2017**

Client: GeoEngineers
Collection Date: 1/3/2017 1:50:00 PM
Project: Rufus Block 20
Lab ID: 1701009-004
Matrix: Soil
Client Sample ID: **W27N15-4.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 15830		Analyst: SG
Diesel (Fuel Oil)	ND	19.1		mg/Kg-dry	1	1/3/2017 10:22:00 PM
Heavy Oil	80.0	47.6		mg/Kg-dry	1	1/3/2017 10:22:00 PM
Surr: 2-Fluorobiphenyl	77.6	50-150		%Rec	1	1/3/2017 10:22:00 PM
Surr: o-Terphenyl	79.3	50-150		%Rec	1	1/3/2017 10:22:00 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 15829		Analyst: SG
Benz(a)anthracene	419	41.2		µg/Kg-dry	1	1/4/2017 12:29:50 AM
Chrysene	523	41.2		µg/Kg-dry	1	1/4/2017 12:29:50 AM
Benzo(b)fluoranthene	591	41.2		µg/Kg-dry	1	1/4/2017 12:29:50 AM
Benzo(k)fluoranthene	156	41.2		µg/Kg-dry	1	1/4/2017 12:29:50 AM
Benzo(a)pyrene	533	41.2		µg/Kg-dry	1	1/4/2017 12:29:50 AM
Indeno(1,2,3-cd)pyrene	299	41.2	Q	µg/Kg-dry	1	1/4/2017 12:29:50 AM
Dibenz(a,h)anthracene	73.6	41.2	Q	µg/Kg-dry	1	1/4/2017 12:29:50 AM
Surr: 2-Fluorobiphenyl	66.5	24.5-139		%Rec	1	1/4/2017 12:29:50 AM
Surr: Terphenyl-d14 (surr)	68.0	44.3-176		%Rec	1	1/4/2017 12:29:50 AM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Mercury by EPA Method 7471				Batch ID: 15836		Analyst: WF
Mercury	ND	0.258		mg/Kg-dry	1	1/4/2017 12:52:18 PM
Total Metals by EPA Method 6020				Batch ID: 15835		Analyst: TN
Arsenic	3.84	0.0894		mg/Kg-dry	1	1/4/2017 4:23:46 PM
Barium	134	0.447		mg/Kg-dry	1	1/4/2017 4:23:46 PM
Cadmium	0.320	0.179		mg/Kg-dry	1	1/4/2017 4:23:46 PM
Chromium	38.7	0.0894	B	mg/Kg-dry	1	1/4/2017 4:23:46 PM
Lead	57.7	0.179		mg/Kg-dry	1	1/4/2017 4:23:46 PM
Selenium	0.861	0.447		mg/Kg-dry	1	1/4/2017 4:23:46 PM
Silver	0.185	0.0894		mg/Kg-dry	1	1/4/2017 4:23:46 PM
Sample Moisture (Percent Moisture)				Batch ID: R33710		Analyst: CG
Percent Moisture	12.0			wt%	1	1/4/2017 8:50:38 AM

Analytical Report

Work Order: **1701009**
Date Reported: **1/4/2017**

Client: GeoEngineers
Collection Date: 1/3/2017 1:35:00 PM
Project: Rufus Block 20
Lab ID: 1701009-005
Matrix: Soil
Client Sample ID: **W23N11-4.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 15830		Analyst: SG
Diesel (Fuel Oil)	ND	19.1		mg/Kg-dry	1	1/3/2017 10:52:00 PM
Heavy Oil	ND	47.7		mg/Kg-dry	1	1/3/2017 10:52:00 PM
Surr: 2-Fluorobiphenyl	70.4	50-150		%Rec	1	1/3/2017 10:52:00 PM
Surr: o-Terphenyl	72.4	50-150		%Rec	1	1/3/2017 10:52:00 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 15829		Analyst: SG
Benz(a)anthracene	ND	40.3		µg/Kg-dry	1	1/4/2017 12:50:40 AM
Chrysene	ND	40.3		µg/Kg-dry	1	1/4/2017 12:50:40 AM
Benzo(b)fluoranthene	ND	40.3		µg/Kg-dry	1	1/4/2017 12:50:40 AM
Benzo(k)fluoranthene	ND	40.3		µg/Kg-dry	1	1/4/2017 12:50:40 AM
Benzo(a)pyrene	ND	40.3		µg/Kg-dry	1	1/4/2017 12:50:40 AM
Indeno(1,2,3-cd)pyrene	ND	40.3		µg/Kg-dry	1	1/4/2017 12:50:40 AM
Dibenz(a,h)anthracene	ND	40.3		µg/Kg-dry	1	1/4/2017 12:50:40 AM
Surr: 2-Fluorobiphenyl	64.5	24.5-139		%Rec	1	1/4/2017 12:50:40 AM
Surr: Terphenyl-d14 (surr)	71.9	44.3-176		%Rec	1	1/4/2017 12:50:40 AM
Mercury by EPA Method 7471				Batch ID: 15836		Analyst: WF
Mercury	ND	0.248		mg/Kg-dry	1	1/4/2017 12:53:55 PM
Total Metals by EPA Method 6020				Batch ID: 15835		Analyst: TN
Arsenic	4.55	0.0795		mg/Kg-dry	1	1/4/2017 4:27:21 PM
Barium	63.3	0.397		mg/Kg-dry	1	1/4/2017 4:27:21 PM
Cadmium	ND	0.159		mg/Kg-dry	1	1/4/2017 4:27:21 PM
Chromium	44.2	0.0795	B	mg/Kg-dry	1	1/4/2017 4:27:21 PM
Lead	2.97	0.159		mg/Kg-dry	1	1/4/2017 4:27:21 PM
Selenium	0.889	0.397		mg/Kg-dry	1	1/4/2017 4:27:21 PM
Silver	ND	0.0795		mg/Kg-dry	1	1/4/2017 4:27:21 PM
Sample Moisture (Percent Moisture)				Batch ID: R33710		Analyst: CG
Percent Moisture	8.18			wt%	1	1/4/2017 8:50:38 AM

Analytical Report

Work Order: **1701009**
Date Reported: **1/4/2017**

Client: GeoEngineers
Collection Date: 1/3/2017 1:40:00 PM
Project: Rufus Block 20
Lab ID: 1701009-006
Matrix: Soil
Client Sample ID: **W23N15-4.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 15830		Analyst: SG
Diesel (Fuel Oil)	ND	18.2		mg/Kg-dry	1	1/3/2017 11:22:00 PM
Heavy Oil	ND	45.4		mg/Kg-dry	1	1/3/2017 11:22:00 PM
Surr: 2-Fluorobiphenyl	55.0	50-150		%Rec	1	1/3/2017 11:22:00 PM
Surr: o-Terphenyl	56.9	50-150		%Rec	1	1/3/2017 11:22:00 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 15829		Analyst: SG
Benz(a)anthracene	ND	38.6		µg/Kg-dry	1	1/4/2017 1:11:27 AM
Chrysene	ND	38.6		µg/Kg-dry	1	1/4/2017 1:11:27 AM
Benzo(b)fluoranthene	ND	38.6		µg/Kg-dry	1	1/4/2017 1:11:27 AM
Benzo(k)fluoranthene	ND	38.6		µg/Kg-dry	1	1/4/2017 1:11:27 AM
Benzo(a)pyrene	ND	38.6		µg/Kg-dry	1	1/4/2017 1:11:27 AM
Indeno(1,2,3-cd)pyrene	ND	38.6		µg/Kg-dry	1	1/4/2017 1:11:27 AM
Dibenz(a,h)anthracene	ND	38.6		µg/Kg-dry	1	1/4/2017 1:11:27 AM
Surr: 2-Fluorobiphenyl	69.0	24.5-139		%Rec	1	1/4/2017 1:11:27 AM
Surr: Terphenyl-d14 (surr)	75.5	44.3-176		%Rec	1	1/4/2017 1:11:27 AM
Mercury by EPA Method 7471				Batch ID: 15836		Analyst: WF
Mercury	ND	0.251		mg/Kg-dry	1	1/4/2017 12:55:35 PM
Total Metals by EPA Method 6020				Batch ID: 15835		Analyst: TN
Arsenic	5.07	0.0820		mg/Kg-dry	1	1/4/2017 4:30:57 PM
Barium	431	0.410		mg/Kg-dry	1	1/4/2017 4:30:57 PM
Cadmium	ND	0.164		mg/Kg-dry	1	1/4/2017 4:30:57 PM
Chromium	37.1	0.0820	B	mg/Kg-dry	1	1/4/2017 4:30:57 PM
Lead	34.7	0.164		mg/Kg-dry	1	1/4/2017 4:30:57 PM
Selenium	0.861	0.410		mg/Kg-dry	1	1/4/2017 4:30:57 PM
Silver	ND	0.0820		mg/Kg-dry	1	1/4/2017 4:30:57 PM
Sample Moisture (Percent Moisture)				Batch ID: R33710		Analyst: CG
Percent Moisture	7.65			wt%	1	1/4/2017 8:50:38 AM

Work Order: 1701009
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID **MB-15830** SampType: **MBLK** Units: **mg/Kg** Prep Date: **1/3/2017** RunNo: **33711**
Client ID: **MBLKS** Batch ID: **15830** Analysis Date: **1/3/2017** SeqNo: **639928**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	20.0									
Heavy Oil	ND	50.0									
Surr: 2-Fluorobiphenyl	18.5		20.00		92.6	50	150				
Surr: o-Terphenyl	19.0		20.00		95.2	50	150				

Sample ID **LCS-15830** SampType: **LCS** Units: **mg/Kg** Prep Date: **1/3/2017** RunNo: **33711**
Client ID: **LCSS** Batch ID: **15830** Analysis Date: **1/3/2017** SeqNo: **639927**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	489	20.0	500.0	0	97.8	65	135				
Surr: 2-Fluorobiphenyl	20.9		20.00		105	50	150				
Surr: o-Terphenyl	22.8		20.00		114	50	150				

Sample ID **1701004-004ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **1/3/2017** RunNo: **33711**
Client ID: **BATCH** Batch ID: **15830** Analysis Date: **1/3/2017** SeqNo: **639906**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	18.8						0		30	
Heavy Oil	ND	47.1						111.0	110	30	R
Surr: 2-Fluorobiphenyl	15.7		18.84		83.4	50	150		0		
Surr: o-Terphenyl	16.3		18.84		86.5	50	150		0		

NOTES:
R - High RPD due to suspected sample inhomogeneity. The method is in control as indicated by the Laboratory Control Sample (LCS).

Sample ID **1701004-004AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **1/3/2017** RunNo: **33711**
Client ID: **BATCH** Batch ID: **15830** Analysis Date: **1/3/2017** SeqNo: **639907**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	431	19.9	498.7	0	86.4	65	135				
Surr: 2-Fluorobiphenyl	20.5		19.95		103	50	150				

Work Order: 1701009
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID **1701004-004AMS**	SampType: **MS**			Units: **mg/Kg-dry**	Prep Date: **1/3/2017**			RunNo: **33711**		
Client ID: **BATCH**	Batch ID: **15830**				Analysis Date: **1/3/2017**			SeqNo: **639907**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: o-Terphenyl	20.6		19.95		103	50	150				

Sample ID **1701004-004AMSD**	SampType: **MSD**			Units: **mg/Kg-dry**	Prep Date: **1/3/2017**			RunNo: **33711**		
Client ID: **BATCH**	Batch ID: **15830**				Analysis Date: **1/3/2017**			SeqNo: **639908**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	356	17.9	447.5	0	79.6	65	135	430.9	18.9	30	
Surr: 2-Fluorobiphenyl	15.6		17.90		87.2	50	150		0		
Surr: o-Terphenyl	15.9		17.90		89.0	50	150		0		

Sample ID **1701010-002BDUP**	SampType: **DUP**			Units: **mg/Kg-dry**	Prep Date: **1/3/2017**			RunNo: **33711**		
Client ID: **BATCH**	Batch ID: **15830**				Analysis Date: **1/4/2017**			SeqNo: **639918**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	23.0						0		30	
Heavy Oil	ND	57.4						0		30	
Surr: 2-Fluorobiphenyl	36.9		45.94		80.3	50	150		0		
Surr: o-Terphenyl	38.0		45.94		82.7	50	150		0		

Work Order: 1701009
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Mercury by EPA Method 7471

Sample ID	**MB-15836**	SampType:	**MBLK**			Units:	**mg/Kg**		Prep Date:	**1/3/2017**		RunNo:	**33720**	
Client ID:	**MBLKS**	Batch ID:	**15836**						Analysis Date:	**1/4/2017**		SeqNo:	**640080**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Mercury		ND	0.231											

Sample ID	**LCS-15836**	SampType:	**LCS**			Units:	**mg/Kg**		Prep Date:	**1/3/2017**		RunNo:	**33720**	
Client ID:	**LCSS**	Batch ID:	**15836**						Analysis Date:	**1/4/2017**		SeqNo:	**640081**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Mercury		0.534	0.250	0.5000	0	107	80	120						

Sample ID	**1612294-001ADUP**	SampType:	**DUP**			Units:	**mg/Kg-dry**		Prep Date:	**1/3/2017**		RunNo:	**33720**	
Client ID:	**BATCH**	Batch ID:	**15836**						Analysis Date:	**1/4/2017**		SeqNo:	**640083**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Mercury		ND	0.273						0		20			

Sample ID	**1612294-001AMS**	SampType:	**MS**			Units:	**mg/Kg-dry**		Prep Date:	**1/3/2017**		RunNo:	**33720**	
Client ID:	**BATCH**	Batch ID:	**15836**						Analysis Date:	**1/4/2017**		SeqNo:	**640084**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Mercury		0.622	0.278	0.5564	0.02789	107	70	130						

Sample ID	**1612294-001AMSD**	SampType:	**MSD**			Units:	**mg/Kg-dry**		Prep Date:	**1/3/2017**		RunNo:	**33720**	
Client ID:	**BATCH**	Batch ID:	**15836**						Analysis Date:	**1/4/2017**		SeqNo:	**640085**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Mercury		0.582	0.268	0.5358	0.02789	103	70	130	0.6221	6.68	20			

Work Order: 1701009
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **MB-15829**	SampType: **MBLK**	Units: **µg/Kg**	Prep Date: **1/3/2017**	RunNo: **33724**
Client ID: **MBLKS**	Batch ID: **15829**		Analysis Date: **1/3/2017**	SeqNo: **640137**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	ND	40.0									
Chrysene	ND	40.0									
Benzo(b)fluoranthene	ND	40.0									
Benzo(k)fluoranthene	ND	40.0									
Benzo(a)pyrene	ND	40.0									
Indeno(1,2,3-cd)pyrene	ND	40.0									
Dibenz(a,h)anthracene	ND	40.0									
Surr: 2-Fluorobiphenyl	364		500.0		72.8	24.5	139				
Surr: Terphenyl-d14 (surr)	409		500.0		81.7	44.3	176				

Sample ID **LCS-15829**	SampType: **LCS**	Units: **µg/Kg**	Prep Date: **1/3/2017**	RunNo: **33724**
Client ID: **LCSS**	Batch ID: **15829**		Analysis Date: **1/3/2017**	SeqNo: **640138**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	1,250	40.0	1,000	0	125	41.9	136				
Chrysene	1,280	40.0	1,000	0	128	46.9	138				
Benzo(b)fluoranthene	1,400	40.0	1,000	0	140	35.9	148				
Benzo(k)fluoranthene	1,340	40.0	1,000	0	134	41.8	153				
Benzo(a)pyrene	1,460	40.0	1,000	0	146	34.3	157				
Indeno(1,2,3-cd)pyrene	1,390	40.0	1,000	0	139	31.3	159				
Dibenz(a,h)anthracene	1,400	40.0	1,000	0	140	28	158				
Surr: 2-Fluorobiphenyl	375		500.0		75.0	24.5	139				
Surr: Terphenyl-d14 (surr)	412		500.0		82.4	44.3	176				

Sample ID **1701004-003ADUP**	SampType: **DUP**	Units: **µg/Kg-dry**	Prep Date: **1/3/2017**	RunNo: **33724**
Client ID: **BATCH**	Batch ID: **15829**		Analysis Date: **1/3/2017**	SeqNo: **640140**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	ND	35.6						0		30	
Chrysene	ND	35.6						0		30	

Work Order: 1701009
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1701004-003ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **1/3/2017** RunNo: **33724**
Client ID: **BATCH** Batch ID: **15829** Analysis Date: **1/3/2017** SeqNo: **640140**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzo(b)fluoranthene	ND	35.6						0		30	
Benzo(k)fluoranthene	ND	35.6						0		30	
Benzo(a)pyrene	ND	35.6						0		30	
Indeno(1,2,3-cd)pyrene	ND	35.6						0		30	
Dibenz(a,h)anthracene	ND	35.6						0		30	
Surr: 2-Fluorobiphenyl	332		445.2		74.5	24.5	139		0		
Surr: Terphenyl-d14 (surr)	345		445.2		77.5	44.3	176		0		

Sample ID **1701004-003AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **1/3/2017** RunNo: **33724**
Client ID: **BATCH** Batch ID: **15829** Analysis Date: **1/3/2017** SeqNo: **640141**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	1,320	40.9	1,024	8.381	128	57.5	169				
Chrysene	1,340	40.9	1,024	21.97	128	45.2	146				
Benzo(b)fluoranthene	1,450	40.9	1,024	14.61	140	42.2	168				
Benzo(k)fluoranthene	1,430	40.9	1,024	0	140	48	161				
Benzo(a)pyrene	1,530	40.9	1,024	17.13	148	34.4	179				
Indeno(1,2,3-cd)pyrene	1,450	40.9	1,024	0	141	5	113				S
Dibenz(a,h)anthracene	1,450	40.9	1,024	0	141	17.3	156				
Surr: 2-Fluorobiphenyl	399		511.8		78.0	24.5	139				
Surr: Terphenyl-d14 (surr)	411		511.8		80.3	44.3	176				

NOTES:
S - Outlying spike recovery observed.

Sample ID **1701004-003AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **1/3/2017** RunNo: **33724**
Client ID: **BATCH** Batch ID: **15829** Analysis Date: **1/3/2017** SeqNo: **640142**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	1,240	40.6	1,016	8.381	121	57.5	169	1,315	6.04	30	
Chrysene	1,270	40.6	1,016	21.97	122	45.2	146	1,336	5.45	30	
Benzo(b)fluoranthene	1,320	40.6	1,016	14.61	129	42.2	168	1,446	9.02	30	

Work Order: 1701009
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1701004-003AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **1/3/2017** RunNo: **33724**
Client ID: **BATCH** Batch ID: **15829** Analysis Date: **1/3/2017** SeqNo: **640142**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzo(k)fluoranthene	1,390	40.6	1,016	0	137	48	161	1,429	2.77	30	
Benzo(a)pyrene	1,460	40.6	1,016	17.13	142	34.4	179	1,529	4.62	30	
Indeno(1,2,3-cd)pyrene	1,360	40.6	1,016	0	134	5	113	1,446	6.23	30	S
Dibenz(a,h)anthracene	1,360	40.6	1,016	0	134	17.3	156	1,447	6.03	30	
Surr: 2-Fluorobiphenyl	376		507.9		74.1	24.5	139		0		
Surr: Terphenyl-d14 (surr)	385		507.9		75.8	44.3	176		0		

NOTES:
S - Outlying spike recovery observed.

Work Order: 1701009
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Sample Moisture (Percent Moisture)

Sample ID **1701011-006ADUP** SampType: **DUP** Units: **wt%** Prep Date: **1/4/2017** RunNo: **33710**
Client ID: **BATCH** Batch ID: **R33710** Analysis Date: **1/4/2017** SeqNo: **639903**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	14.5	0.500						15.21	5.06	20	

Work Order: 1701009
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID	**MB-15835**	SampType: **MBLK**		Units: **mg/Kg**		Prep Date: **1/3/2017**		RunNo: **33728**			
Client ID:	**MBLKS**	Batch ID: **15835**				Analysis Date: **1/4/2017**		SeqNo: **640334**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.0758									
Barium	ND	0.379									
Cadmium	ND	0.152									
Chromium	0.116	0.0758									
Lead	ND	0.152									
Selenium	ND	0.379									
Silver	ND	0.0758									

Sample ID	**LCS-15835**	SampType: **LCS**		Units: **mg/Kg**		Prep Date: **1/3/2017**		RunNo: **33728**			
Client ID:	**LCSS**	Batch ID: **15835**				Analysis Date: **1/4/2017**		SeqNo: **640335**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	42.5	0.0787	39.37	0	108	80	120				
Barium	41.4	0.394	39.37	0	105	80	120				
Cadmium	2.13	0.157	1.969	0	108	80	120				
Chromium	45.8	0.0787	39.37	0	116	80	120				B
Lead	20.3	0.157	19.69	0	103	80	120				
Selenium	3.82	0.394	3.937	0	97.1	80	120				
Silver	2.03	0.0787	1.969	0	103	80	120				

Sample ID	**1612294-001ADUP**	SampType: **DUP**		Units: **mg/Kg-dry**		Prep Date: **1/3/2017**		RunNo: **33728**			
Client ID:	**BATCH**	Batch ID: **15835**				Analysis Date: **1/4/2017**		SeqNo: **640337**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	3.08	0.0911						3.221	4.58	20	
Barium	74.3	0.456						61.33	19.2	20	
Cadmium	ND	0.182						0		20	
Chromium	30.8	0.0911						27.23	12.2	20	B
Lead	15.8	0.182						14.43	8.95	20	
Selenium	0.773	0.456						0.8445	8.79	20	

Work Order: 1701009
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID **1612294-001ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **1/3/2017** RunNo: **33728**
Client ID: **BATCH** Batch ID: **15835** Analysis Date: **1/4/2017** SeqNo: **640337**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Silver	ND	0.0911						0		20	

Sample ID **1612294-001AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **1/3/2017** RunNo: **33728**
Client ID: **BATCH** Batch ID: **15835** Analysis Date: **1/4/2017** SeqNo: **640341**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	51.3	0.0919	45.93	3.221	105	75	125				
Barium	84.2	0.459	45.93	61.33	49.8	75	125				S
Cadmium	2.41	0.184	2.296	0.09397	101	75	125				
Chromium	78.4	0.0919	45.93	27.23	111	75	125				B
Lead	30.6	0.184	22.96	14.43	70.6	75	125				S
Selenium	5.14	0.459	4.593	0.8445	93.4	75	125				
Silver	1.78	0.0919	2.296	0.05383	75.2	75	125				

NOTES:
S - Outlying spike recovery observed (Ba). A duplicate analysis was performed with similar results indicating a possible matrix effect.
S - Outlying spike recovery observed (Pb). A duplicate analysis was performed and recovered within range.

Sample ID **1612294-001AMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **1/3/2017** RunNo: **33728**
Client ID: **BATCH** Batch ID: **15835** Analysis Date: **1/4/2017** SeqNo: **640342**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	55.0	0.0919	45.93	3.221	113	75	125	51.28	6.93	20	
Barium	91.1	0.459	45.93	61.33	64.9	75	125	84.20	7.92	20	S
Cadmium	2.41	0.184	2.296	0.09397	101	75	125	2.408	0.0802	20	
Chromium	100	0.0919	45.93	27.23	159	75	125	78.43	24.6	20	BRS
Lead	35.5	0.184	22.96	14.43	91.7	75	125	30.63	14.7	20	
Selenium	5.38	0.459	4.593	0.8445	98.8	75	125	5.136	4.68	20	
Silver	1.72	0.0919	2.296	0.05383	72.6	75	125	1.781	3.39	20	S

Work Order: 1701009
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID	**1612294-001AMSD**	SampType:	**MSD**	Units:	**mg/Kg-dry**	Prep Date:	**1/3/2017**	RunNo:	**33728**
Client ID:	**BATCH**	Batch ID:	**15835**			Analysis Date:	**1/4/2017**	SeqNo:	**640342**

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

NOTES:
S - Outlying spike recovery observed (Ba). A duplicate analysis was performed with similar results indicating a possible matrix effect.
S - Outlying spike recovery(ies) observed (Cr, Ag). A duplicate analysis was performed and recovered within range.
R - High RPD observed. The method is in control as indicated by the LCS.

Sample ID	**1612294-001APDS**	SampType:	**PDS**	Units:	**mg/Kg-dry**	Prep Date:	**1/3/2017**	RunNo:	**33728**
Client ID:	**BATCH**	Batch ID:	**15835**			Analysis Date:	**1/4/2017**	SeqNo:	**640343**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	102	0.459	45.9	61.3	87.6	80	120				

Sample Log-In Check List

Client Name:	**GEI**	Work Order Number:	**1701009**
Logged by:	**Clare Griggs**	Date Received:	**1/3/2017 2:59:00 PM**

Chain of Custody

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

Log In

3.	Coolers are present?	Yes ☑	No ☐	NA ☐
4.	Shipping container/cooler in good condition?	Yes ☑	No ☐	
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes ☐	No ☐	Not Required ☑
6.	Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
7.	Were all items received at a temperature of >0°C to 10.0°C*	Yes ☑	No ☐	NA ☐
8.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
9.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
10.	Are samples properly preserved?	Yes ☑	No ☐	
11.	Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
12.	Is there headspace in the VOA vials?	Yes ☐	No ☐	NA ☑
13.	Did all samples containers arrive in good condition(unbroken)?	Yes ☑	No ☐	
14.	Does paperwork match bottle labels?	Yes ☑	No ☐	
15.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
16.	Is it clear what analyses were requested?	Yes ☑	No ☐	
17.	Were all holding times able to be met?	Yes ☑	No ☐	

Special Handling (if applicable)

18.	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: _____

19. Additional remarks:

Item Information

Item #	Temp ºC
Cooler	2.6
Sample	5.6

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Chain of Custody Record and Laboratory Services Agreement

Fremont Analytical

3600 Fremont Ave N. Tel: 206-352-3790
Seattle, WA 98103 Fax: 206-352-7178

Date: 1/03/17 Laboratory Project No (internal): 1701009

Page: 1 of: 1

Client: GeoEngineers
Address: 1600 Stewart St, Suite 1700
City, State, Zip: Seattle, WA
Telephone: Fax:

Project Name: Rufus Block 20
Project No: 20434-001-24 Collected by:
Location: Seattle, WA
Report To (PM): Chris Brown
PM Email: Cbrown@geoengineers.com

*Matrix Codes: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM / 625)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8) Total (T) / Dissolved (D)	Anions (IC)***	EDB (8011)	cPAHs				Comments
1	W35N3-2.5	1/3/17	1400	S	X				X				X			X					
2	W30N3-2.5		1355						X				X			X					
3	W27N11-4.0		1345						X				X			X					
4	W27N15-4.0		1350						X				X			X					
5	W23N11-4.0		1335						X				X			X					
6	W23N15-4.0		1340						X				X			X					
7																					
8																					
9																					
10																					

**Metals Analysis (Circle): MTCA-5 (RCRA-8) Priority Pollutants TAL *Individual:* Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☒ Disposal by Lab (Samples will be held for 30 days unless otherwise noted. A fee may be assessed if samples are retained after 30 days.)

Turn-around times for samples received after 4:00pm will begin on the following business day.

Special Remarks:

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above, that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x Sydney Ann	1/3/17 1459	x	1/3/17 1459
Relinquished	Date/Time	Received	Date/Time
x		x	

TAT → SameDay^ (NextDay^) 2 Day 3 Day STD

^Please coordinate with the lab in advance

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

GeoEngineers
Chris Brown
600 Stewart Street, Suite 1700
Seattle, WA 98101

RE: Rufus Block 20
Work Order Number: 1701048

January 13, 2017

Attention Chris Brown:

Fremont Analytical, Inc. received 5 sample(s) on 1/6/2017 for the analyses presented in the following report.

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.
Mercury by EPA Method 7471
Metals (SW6020) with TCLP Extraction (EPA 1311)
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)
Sample Moisture (Percent Moisture)
Total Metals by EPA Method 6020

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Mike Ridgeway
Laboratory Director

Date: *01/13/2017*

CLIENT: GeoEngineers
Project: Rufus Block 20
Work Order: 1701048

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1701048-001	W33N9-6.0	01/06/2017 8:30 AM	01/06/2017 3:32 PM
1701048-002	W24N6-6.0	01/06/2017 8:45 AM	01/06/2017 3:32 PM
1701048-003	W25N13-3.5	01/05/2017 12:30 PM	01/06/2017 3:32 PM
1701048-004	W30-2.5	01/05/2017 3:30 PM	01/06/2017 3:32 PM
1701048-005	W35-2.5	01/05/2017 3:35 PM	01/06/2017 3:32 PM

Case Narrative

WO#: **1701048**
Date: **1/13/2017**

CLIENT: GeoEngineers
Project: Rufus Block 20

I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Analytical Report

Work Order: **1701048**
Date Reported: **1/13/2017**

Client: GeoEngineers
Collection Date: 1/6/2017 8:30:00 AM
Project: Rufus Block 20
Lab ID: 1701048-001
Matrix: Soil
Client Sample ID: **W33N9-6.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 15869		Analyst: WC
Diesel (Fuel Oil)	ND	19.6		mg/Kg-dry	1	1/9/2017 10:22:02 AM
Heavy Oil	ND	49.0		mg/Kg-dry	1	1/9/2017 10:22:02 AM
Surr: 2-Fluorobiphenyl	110	50-150		%Rec	1	1/9/2017 10:22:02 AM
Surr: o-Terphenyl	107	50-150		%Rec	1	1/9/2017 10:22:02 AM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 15870		Analyst: SG
Benz(a)anthracene	ND	42.4		µg/Kg-dry	1	1/10/2017 4:58:15 PM
Chrysene	ND	42.4		µg/Kg-dry	1	1/10/2017 4:58:15 PM
Benzo(b)fluoranthene	ND	42.4		µg/Kg-dry	1	1/10/2017 4:58:15 PM
Benzo(k)fluoranthene	ND	42.4		µg/Kg-dry	1	1/10/2017 4:58:15 PM
Benzo(a)pyrene	ND	42.4		µg/Kg-dry	1	1/10/2017 4:58:15 PM
Indeno(1,2,3-cd)pyrene	ND	42.4		µg/Kg-dry	1	1/10/2017 4:58:15 PM
Dibenz(a,h)anthracene	ND	42.4		µg/Kg-dry	1	1/10/2017 4:58:15 PM
Surr: 2-Fluorobiphenyl	61.8	24.5-139		%Rec	1	1/10/2017 4:58:15 PM
Surr: Terphenyl-d14 (surr)	76.8	44.3-176		%Rec	1	1/10/2017 4:58:15 PM
Mercury by EPA Method 7471				Batch ID: 15879		Analyst: WF
Mercury	ND	0.268		mg/Kg-dry	1	1/9/2017 2:22:22 PM
Total Metals by EPA Method 6020				Batch ID: 15872		Analyst: TN
Arsenic	4.00	0.0881		mg/Kg-dry	1	1/9/2017 2:48:34 PM
Barium	113	0.441		mg/Kg-dry	1	1/9/2017 2:48:34 PM
Cadmium	ND	0.176		mg/Kg-dry	1	1/9/2017 2:48:34 PM
Chromium	41.0	0.0881		mg/Kg-dry	1	1/9/2017 2:48:34 PM
Lead	23.7	0.176		mg/Kg-dry	1	1/9/2017 2:48:34 PM
Selenium	1.37	0.441		mg/Kg-dry	1	1/9/2017 2:48:34 PM
Silver	ND	0.0881		mg/Kg-dry	1	1/9/2017 2:48:34 PM
Sample Moisture (Percent Moisture)				Batch ID: R33776		Analyst: BB
Percent Moisture	12.0			wt%	1	1/9/2017 9:25:20 AM

Analytical Report

Work Order: **1701048**
Date Reported: **1/13/2017**

Client: GeoEngineers
Collection Date: 1/6/2017 8:45:00 AM
Project: Rufus Block 20
Lab ID: 1701048-002
Matrix: Soil
Client Sample ID: **W24N6-6.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 15869		Analyst: WC
Diesel (Fuel Oil)	ND	21.4		mg/Kg-dry	1	1/9/2017 10:52:46 AM
Heavy Oil	ND	53.5		mg/Kg-dry	1	1/9/2017 10:52:46 AM
Surr: 2-Fluorobiphenyl	98.8	50-150		%Rec	1	1/9/2017 10:52:46 AM
Surr: o-Terphenyl	92.8	50-150		%Rec	1	1/9/2017 10:52:46 AM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 15870		Analyst: SG
Benz(a)anthracene	49.1	37.8		µg/Kg-dry	1	1/10/2017 5:19:13 PM
Chrysene	55.8	37.8	Q	µg/Kg-dry	1	1/10/2017 5:19:13 PM
Benzo(b)fluoranthene	38.9	37.8		µg/Kg-dry	1	1/10/2017 5:19:13 PM
Benzo(k)fluoranthene	ND	37.8		µg/Kg-dry	1	1/10/2017 5:19:13 PM
Benzo(a)pyrene	43.7	37.8	Q	µg/Kg-dry	1	1/10/2017 5:19:13 PM
Indeno(1,2,3-cd)pyrene	ND	37.8		µg/Kg-dry	1	1/10/2017 5:19:13 PM
Dibenz(a,h)anthracene	ND	37.8		µg/Kg-dry	1	1/10/2017 5:19:13 PM
Surr: 2-Fluorobiphenyl	56.3	24.5-139		%Rec	1	1/10/2017 5:19:13 PM
Surr: Terphenyl-d14 (surr)	71.7	44.3-176		%Rec	1	1/10/2017 5:19:13 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Mercury by EPA Method 7471				Batch ID: 15879		Analyst: WF
Mercury	ND	0.277		mg/Kg-dry	1	1/9/2017 2:28:51 PM
Total Metals by EPA Method 6020				Batch ID: 15872		Analyst: TN
Arsenic	5.51	0.0864		mg/Kg-dry	1	1/9/2017 3:17:23 PM
Barium	115	0.432		mg/Kg-dry	1	1/9/2017 3:17:23 PM
Cadmium	ND	0.173		mg/Kg-dry	1	1/9/2017 3:17:23 PM
Chromium	42.1	0.0864		mg/Kg-dry	1	1/9/2017 3:17:23 PM
Lead	18.7	0.173		mg/Kg-dry	1	1/9/2017 3:17:23 PM
Selenium	1.32	0.432		mg/Kg-dry	1	1/9/2017 3:17:23 PM
Silver	0.0918	0.0864		mg/Kg-dry	1	1/9/2017 3:17:23 PM
Sample Moisture (Percent Moisture)				Batch ID: R33776		Analyst: BB
Percent Moisture	11.7			wt%	1	1/9/2017 9:25:20 AM

Analytical Report

Work Order: **1701048**
Date Reported: **1/13/2017**

Client: GeoEngineers
Project: Rufus Block 20
Lab ID: 1701048-003
Client Sample ID: **W25N13-3.5**

Collection Date: 1/5/2017 12:30:00 PM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 15872		Analyst: TN
Lead	2.67	0.163		mg/Kg-dry	1	1/9/2017 3:20:59 PM
Metals (SW6020) with TCLP Extraction (EPA 1311)				Batch ID: 15912		Analyst: TN
Lead	ND	0.200		mg/L	1	1/12/2017 4:15:55 PM
Sample Moisture (Percent Moisture)				Batch ID: R33776		Analyst: BB
Percent Moisture	7.81	0.500		wt%	1	1/9/2017 9:25:20 AM

Analytical Report

Work Order: **1701048**
Date Reported: **1/13/2017**

Client: GeoEngineers
Collection Date: 1/5/2017 3:30:00 PM
Project: Rufus Block 20
Lab ID: 1701048-004
Matrix: Soil
Client Sample ID: **W30-2.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 15870		Analyst: SG
Benz(a)anthracene	78.7	48.7		µg/Kg-dry	1	1/10/2017 5:40:16 PM
Chrysene	88.3	48.7	Q	µg/Kg-dry	1	1/10/2017 5:40:16 PM
Benzo(b)fluoranthene	101	48.7		µg/Kg-dry	1	1/10/2017 5:40:16 PM
Benzo(k)fluoranthene	ND	48.7		µg/Kg-dry	1	1/10/2017 5:40:16 PM
Benzo(a)pyrene	97.1	48.7	Q	µg/Kg-dry	1	1/10/2017 5:40:16 PM
Indeno(1,2,3-cd)pyrene	54.2	48.7		µg/Kg-dry	1	1/10/2017 5:40:16 PM
Dibenz(a,h)anthracene	ND	48.7		µg/Kg-dry	1	1/10/2017 5:40:16 PM
Surr: 2-Fluorobiphenyl	57.4	24.5-139		%Rec	1	1/10/2017 5:40:16 PM
Surr: Terphenyl-d14 (surr)	73.2	44.3-176		%Rec	1	1/10/2017 5:40:16 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample Moisture (Percent Moisture)				Batch ID: R33776		Analyst: BB
Percent Moisture	18.4	0.500		wt%	1	1/9/2017 9:25:20 AM

Analytical Report

Work Order: **1701048**
Date Reported: **1/13/2017**

Client: GeoEngineers
Project: Rufus Block 20
Lab ID: 1701048-005
Client Sample ID: **W35-2.5**

Collection Date: 1/5/2017 3:35:00 PM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 15870		Analyst: SG
Benz(a)anthracene	ND	47.2		µg/Kg-dry	1	1/10/2017 6:01:26 PM
Chrysene	ND	47.2		µg/Kg-dry	1	1/10/2017 6:01:26 PM
Benzo(b)fluoranthene	ND	47.2		µg/Kg-dry	1	1/10/2017 6:01:26 PM
Benzo(k)fluoranthene	ND	47.2		µg/Kg-dry	1	1/10/2017 6:01:26 PM
Benzo(a)pyrene	ND	47.2		µg/Kg-dry	1	1/10/2017 6:01:26 PM
Indeno(1,2,3-cd)pyrene	ND	47.2		µg/Kg-dry	1	1/10/2017 6:01:26 PM
Dibenz(a,h)anthracene	ND	47.2		µg/Kg-dry	1	1/10/2017 6:01:26 PM
Surr: 2-Fluorobiphenyl	57.5	24.5-139		%Rec	1	1/10/2017 6:01:26 PM
Surr: Terphenyl-d14 (surr)	68.7	44.3-176		%Rec	1	1/10/2017 6:01:26 PM
Sample Moisture (Percent Moisture)				Batch ID: R33776		Analyst: BB
Percent Moisture	17.3	0.500		wt%	1	1/9/2017 9:25:20 AM

Work Order: 1701048
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID **MB-15869**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **1/6/2017**	RunNo: **33782**
Client ID: **MBLKS**	Batch ID: **15869**		Analysis Date: **1/9/2017**	SeqNo: **641590**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	20.0									
Heavy Oil	ND	50.0									
Surr: 2-Fluorobiphenyl	19.4		20.00		96.9	50	150				
Surr: o-Terphenyl	18.7		20.00		93.5	50	150				

Sample ID **LCS-15869**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **1/6/2017**	RunNo: **33782**
Client ID: **LCSS**	Batch ID: **15869**		Analysis Date: **1/9/2017**	SeqNo: **641589**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	480	20.0	500.0	0	96.0	65	135				
Surr: 2-Fluorobiphenyl	23.4		20.00		117	50	150				
Surr: o-Terphenyl	22.1		20.00		111	50	150				

Sample ID **1701043-001ADUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **1/6/2017**	RunNo: **33782**
Client ID: **BATCH**	Batch ID: **15869**		Analysis Date: **1/9/2017**	SeqNo: **641582**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	22.0						0		30	
Heavy Oil	ND	54.9						0		30	
Surr: 2-Fluorobiphenyl	22.1		21.97		101	50	150		0		
Surr: o-Terphenyl	19.3		21.97		87.9	50	150		0		

Sample ID **1701043-001AMS**	SampType: **MS**	Units: **mg/Kg-dry**	Prep Date: **1/6/2017**	RunNo: **33782**
Client ID: **BATCH**	Batch ID: **15869**		Analysis Date: **1/9/2017**	SeqNo: **641583**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	539	22.1	553.2	15.19	94.6	65	135				
Surr: 2-Fluorobiphenyl	25.4		22.13		115	50	150				
Surr: o-Terphenyl	23.5		22.13		106	50	150				

Work Order: 1701048
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID **1701043-001AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **1/6/2017** RunNo: **33782**
Client ID: **BATCH** Batch ID: **15869** Analysis Date: **1/9/2017** SeqNo: **641583**

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

Sample ID **1701043-001AMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **1/6/2017** RunNo: **33782**
Client ID: **BATCH** Batch ID: **15869** Analysis Date: **1/9/2017** SeqNo: **641584**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	537	22.3	557.2	15.19	93.7	65	135	538.5	0.263	30	
Surr: 2-Fluorobiphenyl	26.5		22.29		119	50	150		0		
Surr: o-Terphenyl	24.4		22.29		109	50	150		0		

Work Order: 1701048
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Mercury by EPA Method 7471

Sample ID	**MB-15879**	SampType:	**MBLK**			Units:	**mg/Kg**	Prep Date:	**1/9/2017**		RunNo:	**33780**	
Client ID:	**MBLKS**	Batch ID:	**15879**					Analysis Date:	**1/9/2017**		SeqNo:	**641607**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Mercury		ND	0.236										

Sample ID	**LCS-15879**	SampType:	**LCS**			Units:	**mg/Kg**	Prep Date:	**1/9/2017**		RunNo:	**33780**	
Client ID:	**LCSS**	Batch ID:	**15879**					Analysis Date:	**1/9/2017**		SeqNo:	**641608**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Mercury		0.513	0.240	0.4808	0	107	80	120					

Sample ID	**1701048-001ADUP**	SampType:	**DUP**			Units:	**mg/Kg-dry**	Prep Date:	**1/9/2017**		RunNo:	**33780**	
Client ID:	**W33N9-6.0**	Batch ID:	**15879**					Analysis Date:	**1/9/2017**		SeqNo:	**641610**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Mercury		ND	0.268						0		20		

Sample ID	**1701048-001AMS**	SampType:	**MS**			Units:	**mg/Kg-dry**	Prep Date:	**1/9/2017**		RunNo:	**33780**	
Client ID:	**W33N9-6.0**	Batch ID:	**15879**					Analysis Date:	**1/9/2017**		SeqNo:	**641611**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Mercury		0.622	0.268	0.5361	0.03110	110	70	130					

Sample ID	**1701048-001AMSD**	SampType:	**MSD**			Units:	**mg/Kg-dry**	Prep Date:	**1/9/2017**		RunNo:	**33780**	
Client ID:	**W33N9-6.0**	Batch ID:	**15879**					Analysis Date:	**1/9/2017**		SeqNo:	**641612**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Mercury		0.598	0.258	0.5166	0.03110	110	70	130	0.6219	3.88	20		

Work Order: 1701048
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Metals (SW6020) with TCLP Extraction (EPA 1311)

Sample ID	**MB-15912**	SampType: **MBLK**			Units: **mg/L**		Prep Date: **1/12/2017**		RunNo: **33874**	
Client ID:	**MBLKS**	Batch ID: **15912**					Analysis Date: **1/12/2017**		SeqNo: **643782**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	0.200									

Sample ID	**LCS-15912**	SampType: **LCS**			Units: **mg/L**		Prep Date: **1/12/2017**		RunNo: **33874**	
Client ID:	**LCSS**	Batch ID: **15912**					Analysis Date: **1/12/2017**		SeqNo: **643783**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	2.32	0.200	2.500	0	92.7	65	135				

Sample ID	**1701048-003ADUP**	SampType: **DUP**			Units: **mg/L**		Prep Date: **1/12/2017**		RunNo: **33874**	
Client ID:	**W25N13-3.5**	Batch ID: **15912**					Analysis Date: **1/12/2017**		SeqNo: **643785**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	0.200						0		30	

Sample ID	**1701048-003AMS**	SampType: **MS**			Units: **mg/L**		Prep Date: **1/12/2017**		RunNo: **33874**	
Client ID:	**W25N13-3.5**	Batch ID: **15912**					Analysis Date: **1/12/2017**		SeqNo: **643786**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	2.34	0.200	2.500	0	93.6	65	135				

Sample ID	**1701048-003AMSD**	SampType: **MSD**			Units: **mg/L**		Prep Date: **1/12/2017**		RunNo: **33874**	
Client ID:	**W25N13-3.5**	Batch ID: **15912**					Analysis Date: **1/12/2017**		SeqNo: **643787**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	2.36	0.200	2.500	0	94.2	65	135	2.341	0.610	30	

Work Order: 1701048
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **MB-15870**	SampType: **MBLK**	Units: **µg/Kg**	Prep Date: **1/6/2017**	RunNo: **33826**
Client ID: **MBLKS**	Batch ID: **15870**		Analysis Date: **1/10/2017**	SeqNo: **642532**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	ND	40.0									
Chrysene	ND	40.0									
Benzo(b)fluoranthene	ND	40.0									
Benzo(k)fluoranthene	ND	40.0									
Benzo(a)pyrene	ND	40.0									
Indeno(1,2,3-cd)pyrene	ND	40.0									
Dibenz(a,h)anthracene	ND	40.0									
Surr: 2-Fluorobiphenyl	369		500.0		73.9	24.5	139				
Surr: Terphenyl-d14 (surr)	462		500.0		92.3	44.3	176				

Sample ID **LCS-15870**	SampType: **LCS**	Units: **µg/Kg**	Prep Date: **1/6/2017**	RunNo: **33826**
Client ID: **LCSS**	Batch ID: **15870**		Analysis Date: **1/10/2017**	SeqNo: **642533**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	1,060	40.0	1,000	0	106	41.9	136				
Chrysene	1,120	40.0	1,000	0	112	46.9	138				
Benzo(b)fluoranthene	1,030	40.0	1,000	0	103	35.9	148				
Benzo(k)fluoranthene	1,240	40.0	1,000	0	124	41.8	153				
Benzo(a)pyrene	1,200	40.0	1,000	0	120	34.3	157				
Indeno(1,2,3-cd)pyrene	1,150	40.0	1,000	0	115	31.3	159				
Dibenz(a,h)anthracene	1,170	40.0	1,000	0	117	28	158				
Surr: 2-Fluorobiphenyl	342		500.0		68.4	24.5	139				
Surr: Terphenyl-d14 (surr)	409		500.0		81.8	44.3	176				

Sample ID **1701020-005ADUP**	SampType: **DUP**	Units: **µg/Kg-dry**	Prep Date: **1/6/2017**	RunNo: **33826**
Client ID: **BATCH**	Batch ID: **15870**		Analysis Date: **1/10/2017**	SeqNo: **642535**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	ND	42.2						0		30	
Chrysene	ND	42.2						0		30	

Work Order: 1701048
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1701020-005ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **1/6/2017** RunNo: **33826**
Client ID: **BATCH** Batch ID: **15870** Analysis Date: **1/10/2017** SeqNo: **642535**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzo(b)fluoranthene	ND	42.2						0		30	
Benzo(k)fluoranthene	ND	42.2						0		30	
Benzo(a)pyrene	ND	42.2						0		30	
Indeno(1,2,3-cd)pyrene	ND	42.2						0		30	
Dibenz(a,h)anthracene	ND	42.2						0		30	
Surr: 2-Fluorobiphenyl	255		527.7		48.4	24.5	139		0		
Surr: Terphenyl-d14 (surr)	315		527.7		59.7	44.3	176		0		

Sample ID **1701020-005AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **1/6/2017** RunNo: **33826**
Client ID: **BATCH** Batch ID: **15870** Analysis Date: **1/10/2017** SeqNo: **642536**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	781	43.1	1,077	0	72.5	57.5	169				
Chrysene	830	43.1	1,077	0	77.1	45.2	146				
Benzo(b)fluoranthene	708	43.1	1,077	0	65.8	42.2	168				
Benzo(k)fluoranthene	942	43.1	1,077	0	87.4	48	161				
Benzo(a)pyrene	874	43.1	1,077	0	81.2	34.4	179				
Indeno(1,2,3-cd)pyrene	833	43.1	1,077	0	77.4	5	113				
Dibenz(a,h)anthracene	850	43.1	1,077	0	78.9	17.3	156				
Surr: 2-Fluorobiphenyl	257		538.5		47.8	24.5	139				
Surr: Terphenyl-d14 (surr)	293		538.5		54.3	44.3	176				

Sample ID **1701020-005AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **1/6/2017** RunNo: **33826**
Client ID: **BATCH** Batch ID: **15870** Analysis Date: **1/10/2017** SeqNo: **642537**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	967	46.3	1,157	0	83.7	57.5	169	781.0	21.3	30	
Chrysene	1,050	46.3	1,157	0	90.5	45.2	146	830.2	23.0	30	
Benzo(b)fluoranthene	905	46.3	1,157	0	78.3	42.2	168	708.3	24.4	30	
Benzo(k)fluoranthene	1,160	46.3	1,157	0	100	48	161	941.8	20.9	30	

Work Order: 1701048
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1701020-005AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **1/6/2017** RunNo: **33826**
Client ID: **BATCH** Batch ID: **15870** Analysis Date: **1/10/2017** SeqNo: **642537**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzo(a)pyrene	1,090	46.3	1,157	0	94.1	34.4	179	874.5	21.8	30	
Indeno(1,2,3-cd)pyrene	1,040	46.3	1,157	0	89.8	5	113	833.2	21.9	30	
Dibenz(a,h)anthracene	1,070	46.3	1,157	0	92.1	17.3	156	850.1	22.5	30	
Surr: 2-Fluorobiphenyl	212		578.3		36.7	24.5	139		0		
Surr: Terphenyl-d14 (surr)	205		578.3		35.4	44.3	176		0		S

NOTES:
S - Outlying surrogate recovery(ies) observed. A duplicate analysis was performed and recovered within range.

Work Order: 1701048
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Sample Moisture (Percent Moisture)

Sample ID **1701048-005ADUP** SampType: **DUP** Units: **wt%** Prep Date: **1/9/2017** RunNo: **33776**
Client ID: **W35-2.5** Batch ID: **R33776** Analysis Date: **1/9/2017** SeqNo: **641537**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	17.5	0.500						17.27	1.59	20	

Work Order: 1701048
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID **MB-15872** SampType: **MBLK** Units: **mg/Kg** Prep Date: **1/9/2017** RunNo: **33785**
Client ID: **MBLKS** Batch ID: **15872** Analysis Date: **1/9/2017** SeqNo: **641705**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.0769									
Barium	ND	0.385									
Cadmium	ND	0.154									
Chromium	ND	0.0769									
Lead	ND	0.154									
Selenium	ND	0.385									
Silver	ND	0.0769									

Sample ID **LCS-15872** SampType: **LCS** Units: **mg/Kg** Prep Date: **1/9/2017** RunNo: **33785**
Client ID: **LCSS** Batch ID: **15872** Analysis Date: **1/9/2017** SeqNo: **641706**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	37.5	0.0735	36.76	0	102	80	120				
Barium	38.5	0.368	36.76	0	105	80	120				
Cadmium	1.97	0.147	1.838	0	107	80	120				
Chromium	38.6	0.0735	36.76	0	105	80	120				
Lead	18.5	0.147	18.38	0	100	80	120				
Selenium	3.67	0.368	3.676	0	99.9	80	120				
Silver	1.81	0.0735	1.838	0	98.5	80	120				

Sample ID **1701048-001ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **1/9/2017** RunNo: **33785**
Client ID: **W33N9-6.0** Batch ID: **15872** Analysis Date: **1/9/2017** SeqNo: **641708**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	4.38	0.0881						4.003	9.07	20	
Barium	114	0.441						112.8	0.811	20	
Cadmium	ND	0.176						0		20	
Chromium	46.0	0.0881						40.97	11.7	20	
Lead	16.7	0.176						23.66	34.7	20	R
Selenium	1.38	0.441						1.373	0.675	20	

Work Order: 1701048
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID **1701048-001ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **1/9/2017** RunNo: **33785**
Client ID: **W33N9-6.0** Batch ID: **15872** Analysis Date: **1/9/2017** SeqNo: **641708**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Silver	ND	0.0881						0		20	

NOTES:
R - High RPD observed. The method is in control as indicated by the LCS.

Sample ID **1701048-001AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **1/9/2017** RunNo: **33785**
Client ID: **W33N9-6.0** Batch ID: **15872** Analysis Date: **1/9/2017** SeqNo: **641710**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	49.4	0.0881	44.05	4.003	103	75	125				
Barium	146	0.441	44.05	112.8	74.4	75	125				S
Cadmium	2.63	0.176	2.203	0.1251	114	75	125				
Chromium	93.2	0.0881	44.05	40.97	119	75	125				
Lead	36.2	0.176	22.03	23.66	57.0	75	125				S
Selenium	5.75	0.441	4.405	1.373	99.4	75	125				
Silver	1.76	0.0881	2.203	0.08207	76.0	75	125				

NOTES:
S - Outlying spike recovery(ies) observed. A duplicate analysis was performed and recovered within range.

Sample ID **1701048-001AMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **1/9/2017** RunNo: **33785**
Client ID: **W33N9-6.0** Batch ID: **15872** Analysis Date: **1/9/2017** SeqNo: **641714**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	52.1	0.0874	43.72	4.003	110	75	125	49.40	5.39	20	
Barium	154	0.437	43.72	112.8	93.4	75	125	145.6	5.40	20	
Cadmium	2.62	0.175	2.186	0.1251	114	75	125	2.628	0.235	20	
Chromium	97.4	0.0874	43.72	40.97	129	75	125	93.24	4.39	20	S
Lead	41.0	0.175	21.86	23.66	79.5	75	125	36.23	12.5	20	
Selenium	5.56	0.437	4.372	1.373	95.7	75	125	5.752	3.47	20	
Silver	1.77	0.0874	2.186	0.08207	77.4	75	125	1.757	0.903	20	

NOTES:
S - Outlying spike recovery(ies) observed. A duplicate analysis was performed and recovered within range.

Sample Log-In Check List

Client Name:	**GEI**	Work Order Number:	**1701048**
Logged by:	**Erica Silva**	Date Received:	**1/6/2017 3:32:00 PM**

Chain of Custody

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

Log In

3.	Coolers are present?	Yes ☑	No ☐	NA ☐
4.	Shipping container/cooler in good condition?	Yes ☑	No ☐	
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes ☐	No ☐	Not Required ☑
6.	Was an attempt made to cool the samples?	Yes ☐	No ☑	NA ☐
	Samples received at appropriate temperature			
7.	Were all items received at a temperature of >0°C to 10.0°C*	Yes ☑	No ☐	NA ☐
8.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
9.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
10.	Are samples properly preserved?	Yes ☑	No ☐	
11.	Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
12.	Is there headspace in the VOA vials?	Yes ☐	No ☐	NA ☑
13.	Did all samples containers arrive in good condition(unbroken)?	Yes ☑	No ☐	
14.	Does paperwork match bottle labels?	Yes ☑	No ☐	
15.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
16.	Is it clear what analyses were requested?	Yes ☑	No ☐	
17.	Were all holding times able to be met?	Yes ☑	No ☐	

Special Handling (if applicable)

18.	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: _____

19. Additional remarks:

Item Information

Item #	Temp ºC
Cooler	3.4
Sample	3.3

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Chain of Custody Record and Laboratory Services Agreement

Fremont Analytical
3600 Fremont Ave N. Tel: 206-352-3790
Seattle, WA 98103 Fax: 206-352-7178

Date: 1/6/17 Laboratory Project No (internal): 1701048

Page: 1 of: 1

Client: GeoEngineers
Address: 1600 Stewart St, Suite 1700
City, State, Zip: Seattle, WA
Telephone: Fax:

Project Name: Rufus Block 70
Project No: 20434-001-24 Collected by: Sydney Brawson
Location: Seattle, WA
Report To (PM): Chris Brown
PM Email: cbrown@geoengineers.com

*Matrix Codes: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM / 625)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8) Total (T)	Dissolved (D)	Anions (IC)***	EDB (8011)	cPAHs	TCLP Pb	Comments
1	W33N9-6.0	1/6/17	0830	S					X					X			X			RCRA-8 metals, Next Day TAT
2	W24N6-6.0	↓	0845	↓					X					X			X			RCRA-8 metals, Next Day TAT
3	W25N13-3.5	1/5/17	1230											X				X		Lead only, Standard TAT
4	W30-2.5	↓	1530														X			Standard TAT
5	W35-2.5	↓	1535	↓													X			Standard TAT
6																				
7																				
8																				
9																				
10																				

**Metals Analysis (Circle): MTCA-5 (RCRA-8) Priority Pollutants TAL *Individual:* Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni (Pb) Sb Se Sr Sn Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Turn-around times for samples received after 4:00pm will begin on the following business day.

Sample Disposal: ☐ Return to Client ☒ Disposal by Lab (Samples will be held for 30 days unless otherwise noted. A fee may be assessed if samples are retained after 30 days.)

Special Remarks: See Comments for TAT + metals analyses
Next Day = EOD Monday

TAT → SameDay^ (NextDay^) 2 Day 3 Day (STD)

^Please coordinate with the lab in advance

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above, that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x Sydney	1/6/17 1532	x	1/6/2017 15:32
Relinquished	Date/Time	Received	Date/Time
x		x	

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

GeoEngineers
Chris Brown
600 Stewart Street, Suite 1700
Seattle, WA 98101

RE: Rufus Block 20
Work Order Number: 1701108

January 17, 2017

Attention Chris Brown:

Fremont Analytical, Inc. received 9 sample(s) on 1/13/2017 for the analyses presented in the following report.

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)
Sample Moisture (Percent Moisture)
Total Metals by EPA Method 6020

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Mike Ridgeway
Laboratory Director

Date: *01/17/2017*

CLIENT: GeoEngineers
Project: Rufus Block 20
Work Order: 1701108

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1701108-001	W36N3-6.0	01/12/2017 2:50 PM	01/13/2017 2:14 PM
1701108-002	W35N6-6.0	01/12/2017 2:55 PM	01/13/2017 2:14 PM
1701108-003	W35N3-10.0	01/12/2017 3:00 PM	01/13/2017 2:14 PM
1701108-004	W27N15-6.0	01/12/2017 3:05 PM	01/13/2017 2:14 PM
1701108-005	W25N16-6.0	01/12/2017 3:10 PM	01/13/2017 2:14 PM
1701108-006	W29N13-6.0	01/12/2017 3:15 PM	01/13/2017 2:14 PM
1701108-007	W23N27-11.0	01/12/2017 3:20 PM	01/13/2017 2:14 PM
1701108-008	W30N22-10.0	01/12/2017 3:25 PM	01/13/2017 2:14 PM
1701108-009	W20N25-8.5	01/12/2017 3:30 PM	01/13/2017 2:14 PM

Case Narrative

WO#: **1701108**
Date: **1/17/2017**

CLIENT: GeoEngineers
Project: Rufus Block 20

I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Analytical Report

Work Order: **1701108**
Date Reported: **1/17/2017**

Client: GeoEngineers
Collection Date: 1/12/2017 2:50:00 PM
Project: Rufus Block 20
Lab ID: 1701108-001
Matrix: Soil
Client Sample ID: **W36N3-6.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 15940		Analyst: BT
Benz(a)anthracene	ND	44.1		µg/Kg-dry	1	1/16/2017 8:51:20 PM
Chrysene	ND	44.1		µg/Kg-dry	1	1/16/2017 8:51:20 PM
Benzo(b)fluoranthene	ND	44.1		µg/Kg-dry	1	1/16/2017 8:51:20 PM
Benzo(k)fluoranthene	ND	44.1		µg/Kg-dry	1	1/16/2017 8:51:20 PM
Benzo(a)pyrene	ND	44.1		µg/Kg-dry	1	1/16/2017 8:51:20 PM
Indeno(1,2,3-cd)pyrene	ND	44.1		µg/Kg-dry	1	1/16/2017 8:51:20 PM
Dibenz(a,h)anthracene	ND	44.1		µg/Kg-dry	1	1/16/2017 8:51:20 PM
Surr: 2-Fluorobiphenyl	65.3	24.5-139		%Rec	1	1/16/2017 8:51:20 PM
Surr: Terphenyl-d14 (surr)	82.0	44.3-176		%Rec	1	1/16/2017 8:51:20 PM
Sample Moisture (Percent Moisture)				Batch ID: R33891		Analyst: BB
Percent Moisture	16.7	0.500		wt%	1	1/16/2017 11:10:43 AM

Analytical Report

Work Order: **1701108**
Date Reported: **1/17/2017**

Client: GeoEngineers
Collection Date: 1/12/2017 2:55:00 PM
Project: Rufus Block 20
Lab ID: 1701108-002
Matrix: Soil
Client Sample ID: **W35N6-6.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 15940		Analyst: BT
Benz(a)anthracene	ND	42.7		µg/Kg-dry	1	1/16/2017 10:15:53 PM
Chrysene	ND	42.7		µg/Kg-dry	1	1/16/2017 10:15:53 PM
Benzo(b)fluoranthene	ND	42.7		µg/Kg-dry	1	1/16/2017 10:15:53 PM
Benzo(k)fluoranthene	ND	42.7		µg/Kg-dry	1	1/16/2017 10:15:53 PM
Benzo(a)pyrene	ND	42.7		µg/Kg-dry	1	1/16/2017 10:15:53 PM
Indeno(1,2,3-cd)pyrene	ND	42.7		µg/Kg-dry	1	1/16/2017 10:15:53 PM
Dibenz(a,h)anthracene	ND	42.7		µg/Kg-dry	1	1/16/2017 10:15:53 PM
Surr: 2-Fluorobiphenyl	66.5	24.5-139		%Rec	1	1/16/2017 10:15:53 PM
Surr: Terphenyl-d14 (surr)	78.4	44.3-176		%Rec	1	1/16/2017 10:15:53 PM
Sample Moisture (Percent Moisture)				Batch ID: R33891		Analyst: BB
Percent Moisture	10.8	0.500		wt%	1	1/16/2017 11:10:43 AM

Analytical Report

Work Order: **1701108**
Date Reported: **1/17/2017**

Client: GeoEngineers
Collection Date: 1/12/2017 3:00:00 PM
Project: Rufus Block 20
Lab ID: 1701108-003
Matrix: Soil
Client Sample ID: **W35N3-10.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 15940		Analyst: BT
Benz(a)anthracene	ND	43.9		µg/Kg-dry	1	1/16/2017 10:37:04 PM
Chrysene	ND	43.9		µg/Kg-dry	1	1/16/2017 10:37:04 PM
Benzo(b)fluoranthene	ND	43.9		µg/Kg-dry	1	1/16/2017 10:37:04 PM
Benzo(k)fluoranthene	ND	43.9		µg/Kg-dry	1	1/16/2017 10:37:04 PM
Benzo(a)pyrene	ND	43.9		µg/Kg-dry	1	1/16/2017 10:37:04 PM
Indeno(1,2,3-cd)pyrene	ND	43.9		µg/Kg-dry	1	1/16/2017 10:37:04 PM
Dibenz(a,h)anthracene	ND	43.9		µg/Kg-dry	1	1/16/2017 10:37:04 PM
Surr: 2-Fluorobiphenyl	52.3	24.5-139		%Rec	1	1/16/2017 10:37:04 PM
Surr: Terphenyl-d14 (surr)	79.5	44.3-176		%Rec	1	1/16/2017 10:37:04 PM
Sample Moisture (Percent Moisture)				Batch ID: R33891		Analyst: BB
Percent Moisture	16.4	0.500		wt%	1	1/16/2017 11:10:43 AM

Analytical Report

Work Order: **1701108**
Date Reported: **1/17/2017**

Client: GeoEngineers
Collection Date: 1/12/2017 3:05:00 PM
Project: Rufus Block 20
Lab ID: 1701108-004
Matrix: Soil
Client Sample ID: **W27N15-6.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 15940		Analyst: BT
Benz(a)anthracene	ND	44.2		µg/Kg-dry	1	1/16/2017 10:58:11 PM
Chrysene	ND	44.2		µg/Kg-dry	1	1/16/2017 10:58:11 PM
Benzo(b)fluoranthene	ND	44.2		µg/Kg-dry	1	1/16/2017 10:58:11 PM
Benzo(k)fluoranthene	ND	44.2		µg/Kg-dry	1	1/16/2017 10:58:11 PM
Benzo(a)pyrene	ND	44.2		µg/Kg-dry	1	1/16/2017 10:58:11 PM
Indeno(1,2,3-cd)pyrene	ND	44.2		µg/Kg-dry	1	1/16/2017 10:58:11 PM
Dibenz(a,h)anthracene	ND	44.2		µg/Kg-dry	1	1/16/2017 10:58:11 PM
Surr: 2-Fluorobiphenyl	62.4	24.5-139		%Rec	1	1/16/2017 10:58:11 PM
Surr: Terphenyl-d14 (surr)	76.5	44.3-176		%Rec	1	1/16/2017 10:58:11 PM
Sample Moisture (Percent Moisture)				Batch ID: R33891		Analyst: BB
Percent Moisture	16.2	0.500		wt%	1	1/16/2017 11:10:43 AM

Analytical Report

Work Order: **1701108**
Date Reported: **1/17/2017**

Client: GeoEngineers
Collection Date: 1/12/2017 3:10:00 PM
Project: Rufus Block 20
Lab ID: 1701108-005
Matrix: Soil
Client Sample ID: **W25N16-6.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 15940		Analyst: BT
Benz(a)anthracene	ND	45.6		µg/Kg-dry	1	1/16/2017 11:19:17 PM
Chrysene	ND	45.6		µg/Kg-dry	1	1/16/2017 11:19:17 PM
Benzo(b)fluoranthene	ND	45.6		µg/Kg-dry	1	1/16/2017 11:19:17 PM
Benzo(k)fluoranthene	ND	45.6		µg/Kg-dry	1	1/16/2017 11:19:17 PM
Benzo(a)pyrene	ND	45.6		µg/Kg-dry	1	1/16/2017 11:19:17 PM
Indeno(1,2,3-cd)pyrene	ND	45.6		µg/Kg-dry	1	1/16/2017 11:19:17 PM
Dibenz(a,h)anthracene	ND	45.6		µg/Kg-dry	1	1/16/2017 11:19:17 PM
Surr: 2-Fluorobiphenyl	54.1	24.5-139		%Rec	1	1/16/2017 11:19:17 PM
Surr: Terphenyl-d14 (surr)	73.4	44.3-176		%Rec	1	1/16/2017 11:19:17 PM
Sample Moisture (Percent Moisture)				Batch ID: R33891		Analyst: BB
Percent Moisture	17.8	0.500		wt%	1	1/16/2017 11:10:43 AM

Analytical Report

Work Order: **1701108**
Date Reported: **1/17/2017**

Client: GeoEngineers
Collection Date: 1/12/2017 3:15:00 PM
Project: Rufus Block 20
Lab ID: 1701108-006
Matrix: Soil
Client Sample ID: **W29N13-6.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 15940		Analyst: BT
Benz(a)anthracene	ND	48.6		µg/Kg-dry	1	1/16/2017 11:40:28 PM
Chrysene	ND	48.6		µg/Kg-dry	1	1/16/2017 11:40:28 PM
Benzo(b)fluoranthene	ND	48.6		µg/Kg-dry	1	1/16/2017 11:40:28 PM
Benzo(k)fluoranthene	ND	48.6		µg/Kg-dry	1	1/16/2017 11:40:28 PM
Benzo(a)pyrene	ND	48.6		µg/Kg-dry	1	1/16/2017 11:40:28 PM
Indeno(1,2,3-cd)pyrene	ND	48.6		µg/Kg-dry	1	1/16/2017 11:40:28 PM
Dibenz(a,h)anthracene	ND	48.6		µg/Kg-dry	1	1/16/2017 11:40:28 PM
Surr: 2-Fluorobiphenyl	60.9	24.5-139		%Rec	1	1/16/2017 11:40:28 PM
Surr: Terphenyl-d14 (surr)	80.8	44.3-176		%Rec	1	1/16/2017 11:40:28 PM
Sample Moisture (Percent Moisture)				Batch ID: R33891		Analyst: BB
Percent Moisture	24.1	0.500		wt%	1	1/16/2017 11:10:43 AM

Analytical Report

Work Order: **1701108**
Date Reported: **1/17/2017**

Client: GeoEngineers
Collection Date: 1/12/2017 3:20:00 PM
Project: Rufus Block 20
Lab ID: 1701108-007
Matrix: Soil
Client Sample ID: **W23N27-11.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 15940		Analyst: BT
Benz(a)anthracene	ND	47.0		µg/Kg-dry	1	1/17/2017 12:01:36 AM
Chrysene	ND	47.0		µg/Kg-dry	1	1/17/2017 12:01:36 AM
Benzo(b)fluoranthene	ND	47.0		µg/Kg-dry	1	1/17/2017 12:01:36 AM
Benzo(k)fluoranthene	ND	47.0		µg/Kg-dry	1	1/17/2017 12:01:36 AM
Benzo(a)pyrene	ND	47.0		µg/Kg-dry	1	1/17/2017 12:01:36 AM
Indeno(1,2,3-cd)pyrene	ND	47.0		µg/Kg-dry	1	1/17/2017 12:01:36 AM
Dibenz(a,h)anthracene	ND	47.0		µg/Kg-dry	1	1/17/2017 12:01:36 AM
Surr: 2-Fluorobiphenyl	61.0	24.5-139		%Rec	1	1/17/2017 12:01:36 AM
Surr: Terphenyl-d14 (surr)	73.6	44.3-176		%Rec	1	1/17/2017 12:01:36 AM
Sample Moisture (Percent Moisture)				Batch ID: R33891		Analyst: BB
Percent Moisture	19.2	0.500		wt%	1	1/16/2017 11:10:43 AM

Analytical Report

Work Order: **1701108**
Date Reported: **1/17/2017**

Client: GeoEngineers
Collection Date: 1/12/2017 3:25:00 PM
Project: Rufus Block 20
Lab ID: 1701108-008
Matrix: Soil
Client Sample ID: **W30N22-10.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 15940		Analyst: BT
Benz(a)anthracene	ND	50.6		µg/Kg-dry	1	1/17/2017 12:22:44 AM
Chrysene	ND	50.6		µg/Kg-dry	1	1/17/2017 12:22:44 AM
Benzo(b)fluoranthene	ND	50.6		µg/Kg-dry	1	1/17/2017 12:22:44 AM
Benzo(k)fluoranthene	ND	50.6		µg/Kg-dry	1	1/17/2017 12:22:44 AM
Benzo(a)pyrene	ND	50.6		µg/Kg-dry	1	1/17/2017 12:22:44 AM
Indeno(1,2,3-cd)pyrene	ND	50.6		µg/Kg-dry	1	1/17/2017 12:22:44 AM
Dibenz(a,h)anthracene	ND	50.6		µg/Kg-dry	1	1/17/2017 12:22:44 AM
Surr: 2-Fluorobiphenyl	52.1	24.5-139		%Rec	1	1/17/2017 12:22:44 AM
Surr: Terphenyl-d14 (surr)	73.4	44.3-176		%Rec	1	1/17/2017 12:22:44 AM
Sample Moisture (Percent Moisture)				Batch ID: R33891		Analyst: BB
Percent Moisture	21.9	0.500		wt%	1	1/16/2017 11:10:43 AM

Analytical Report

Work Order: **1701108**
Date Reported: **1/17/2017**

Client: GeoEngineers
Collection Date: 1/12/2017 3:30:00 PM
Project: Rufus Block 20
Lab ID: 1701108-009
Matrix: Soil
Client Sample ID: **W20N25-8.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 15940		Analyst: BT
Benz(a)anthracene	ND	40.9		µg/Kg-dry	1	1/17/2017 12:43:56 AM
Chrysene	ND	40.9		µg/Kg-dry	1	1/17/2017 12:43:56 AM
Benzo(b)fluoranthene	ND	40.9		µg/Kg-dry	1	1/17/2017 12:43:56 AM
Benzo(k)fluoranthene	ND	40.9		µg/Kg-dry	1	1/17/2017 12:43:56 AM
Benzo(a)pyrene	ND	40.9		µg/Kg-dry	1	1/17/2017 12:43:56 AM
Indeno(1,2,3-cd)pyrene	ND	40.9		µg/Kg-dry	1	1/17/2017 12:43:56 AM
Dibenz(a,h)anthracene	ND	40.9		µg/Kg-dry	1	1/17/2017 12:43:56 AM
Surr: 2-Fluorobiphenyl	65.3	24.5-139		%Rec	1	1/17/2017 12:43:56 AM
Surr: Terphenyl-d14 (surr)	76.9	44.3-176		%Rec	1	1/17/2017 12:43:56 AM
Total Metals by EPA Method 6020				Batch ID: 15935		Analyst: TN
Lead	2.06	0.168		mg/Kg-dry	1	1/17/2017 12:16:04 PM
Sample Moisture (Percent Moisture)				Batch ID: R33891		Analyst: BB
Percent Moisture	9.13	0.500		wt%	1	1/16/2017 11:10:43 AM

Work Order: 1701108
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **MB-15940**	SampType: **MBLK**	Units: **µg/Kg**	Prep Date: **1/16/2017**	RunNo: **33913**
Client ID: **MBLKS**	Batch ID: **15940**		Analysis Date: **1/16/2017**	SeqNo: **644704**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	ND	40.0									
Chrysene	ND	40.0									
Benzo(b)fluoranthene	ND	40.0									
Benzo(k)fluoranthene	ND	40.0									
Benzo(a)pyrene	ND	40.0									
Indeno(1,2,3-cd)pyrene	ND	40.0									
Dibenz(a,h)anthracene	ND	40.0									
Surr: 2-Fluorobiphenyl	385		500.0		77.1	24.5	139				
Surr: Terphenyl-d14 (surr)	426		500.0		85.1	44.3	176				

Sample ID **LCS-15940**	SampType: **LCS**	Units: **µg/Kg**	Prep Date: **1/16/2017**	RunNo: **33913**
Client ID: **LCSS**	Batch ID: **15940**		Analysis Date: **1/16/2017**	SeqNo: **644705**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	1,010	40.0	1,000	0	101	41.9	136				
Chrysene	1,090	40.0	1,000	0	109	46.9	138				
Benzo(b)fluoranthene	965	40.0	1,000	0	96.5	35.9	148				
Benzo(k)fluoranthene	1,030	40.0	1,000	0	103	41.8	153				
Benzo(a)pyrene	996	40.0	1,000	0	99.6	34.3	157				
Indeno(1,2,3-cd)pyrene	1,020	40.0	1,000	0	102	31.3	159				
Dibenz(a,h)anthracene	1,020	40.0	1,000	0	102	28	158				
Surr: 2-Fluorobiphenyl	422		500.0		84.3	24.5	139				
Surr: Terphenyl-d14 (surr)	425		500.0		85.1	44.3	176				

Sample ID **1701108-001ADUP**	SampType: **DUP**	Units: **µg/Kg-dry**	Prep Date: **1/16/2017**	RunNo: **33913**
Client ID: **W36N3-6.0**	Batch ID: **15940**		Analysis Date: **1/16/2017**	SeqNo: **644709**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	67.8	47.6						23.65	96.6	30	
Chrysene	58.3	47.6						14.90	119	30	Q

Work Order: 1701108
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1701108-001ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **1/16/2017** RunNo: **33913**
Client ID: **W36N3-6.0** Batch ID: **15940** Analysis Date: **1/16/2017** SeqNo: **644709**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzo(b)fluoranthene	ND	47.6						0		30	
Benzo(k)fluoranthene	ND	47.6						0		30	
Benzo(a)pyrene	ND	47.6						0		30	
Indeno(1,2,3-cd)pyrene	ND	47.6						0		30	
Dibenz(a,h)anthracene	ND	47.6						0		30	
Surr: 2-Fluorobiphenyl	412		595.1		69.2	24.5	139		0		
Surr: Terphenyl-d14 (surr)	506		595.1		84.9	44.3	176		0		

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample ID **1701108-001AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **1/16/2017** RunNo: **33913**
Client ID: **W36N3-6.0** Batch ID: **15940** Analysis Date: **1/16/2017** SeqNo: **644710**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	1,220	46.1	1,154	23.65	104	57.5	169				
Chrysene	1,200	46.1	1,154	14.90	103	45.2	146				
Benzo(b)fluoranthene	1,180	46.1	1,154	21.18	101	42.2	168				
Benzo(k)fluoranthene	1,160	46.1	1,154	10.30	100	48	161				
Benzo(a)pyrene	1,150	46.1	1,154	16.81	98.4	34.4	179				
Indeno(1,2,3-cd)pyrene	1,160	46.1	1,154	9.306	100	5	113				
Dibenz(a,h)anthracene	1,170	46.1	1,154	4.094	101	17.3	156				
Surr: 2-Fluorobiphenyl	455		576.8		78.8	24.5	139				
Surr: Terphenyl-d14 (surr)	479		576.8		83.0	44.3	176				

Sample ID **1701108-001AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **1/16/2017** RunNo: **33913**
Client ID: **W36N3-6.0** Batch ID: **15940** Analysis Date: **1/16/2017** SeqNo: **644712**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	1,080	44.3	1,108	23.65	95.7	57.5	169	1,221	11.9	30	
Chrysene	1,210	44.3	1,108	14.90	108	45.2	146	1,204	0.745	30	
Benzo(b)fluoranthene	1,070	44.3	1,108	21.18	94.9	42.2	168	1,181	9.60	30	

Work Order: 1701108
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1701108-001AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **1/16/2017** RunNo: **33913**
Client ID: **W36N3-6.0** Batch ID: **15940** Analysis Date: **1/16/2017** SeqNo: **644712**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzo(k)fluoranthene	1,050	44.3	1,108	10.30	93.8	48	161	1,164	10.4	30	
Benzo(a)pyrene	1,050	44.3	1,108	16.81	93.1	34.4	179	1,152	9.46	30	
Indeno(1,2,3-cd)pyrene	1,010	44.3	1,108	9.306	90.6	5	113	1,163	13.9	30	
Dibenz(a,h)anthracene	1,050	44.3	1,108	4.094	94.1	17.3	156	1,166	10.8	30	
Surr: 2-Fluorobiphenyl	404		553.9		73.0	24.5	139		0		
Surr: Terphenyl-d14 (surr)	452		553.9		81.6	44.3	176		0		

Work Order: 1701108
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Sample Moisture (Percent Moisture)

Sample ID **1701108-009ADUP** SampType: **DUP** Units: **wt%** Prep Date: **1/16/2017** RunNo: **33891**
Client ID: **W20N25-8.5** Batch ID: **R33891** Analysis Date: **1/16/2017** SeqNo: **644347**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	9.13	0.500						9.127	0	20	

Work Order: 1701108
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID	**MB-15935**	SampType:	**MBLK**			Units:	**mg/Kg**		Prep Date:	**1/16/2017**		RunNo:	**33914**	
Client ID:	**MBLKS**	Batch ID:	**15935**						Analysis Date:	**1/17/2017**		SeqNo:	**644836**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Lead		ND	0.149											

Sample ID	**LCS-15935**	SampType:	**LCS**			Units:	**mg/Kg**		Prep Date:	**1/16/2017**		RunNo:	**33914**	
Client ID:	**LCSS**	Batch ID:	**15935**						Analysis Date:	**1/17/2017**		SeqNo:	**644837**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Lead		19.4	0.150	18.80	0	103	80	120						

Sample ID	**1701108-009ADUP**	SampType:	**DUP**			Units:	**mg/Kg-dry**		Prep Date:	**1/16/2017**		RunNo:	**33914**	
Client ID:	**W20N25-8.5**	Batch ID:	**15935**						Analysis Date:	**1/17/2017**		SeqNo:	**644839**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Lead		2.02	0.167						2.060	1.80	20			

Sample ID	**1701108-009AMS**	SampType:	**MS**			Units:	**mg/Kg-dry**		Prep Date:	**1/16/2017**		RunNo:	**33914**	
Client ID:	**W20N25-8.5**	Batch ID:	**15935**						Analysis Date:	**1/17/2017**		SeqNo:	**644841**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Lead		22.3	0.167	20.84	2.060	97.0	75	125						

Sample ID	**1701108-009AMSD**	SampType:	**MSD**			Units:	**mg/Kg-dry**		Prep Date:	**1/16/2017**		RunNo:	**33914**	
Client ID:	**W20N25-8.5**	Batch ID:	**15935**						Analysis Date:	**1/17/2017**		SeqNo:	**644842**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Lead		22.3	0.165	20.68	2.060	97.7	75	125	22.28	0.0748	20			

Sample Log-In Check List

Client Name:	**GEI**	Work Order Number:	**1701108**
Logged by:	**Chelsea Ward**	Date Received:	**1/13/2017 2:14:00 PM**

Chain of Custody

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

Log In

3.	Coolers are present?	Yes ☑	No ☐	NA ☐
4.	Shipping container/cooler in good condition?	Yes ☑	No ☐	
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes ☐	No ☐	Not Required ☑
6.	Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
7.	Were all items received at a temperature of >0°C to 10.0°C*	Yes ☑	No ☐	NA ☐
8.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
9.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
10.	Are samples properly preserved?	Yes ☑	No ☐	
11.	Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
12.	Is there headspace in the VOA vials?	Yes ☐	No ☐	NA ☑
13.	Did all samples containers arrive in good condition(unbroken)?	Yes ☑	No ☐	
14.	Does paperwork match bottle labels?	Yes ☑	No ☐	
15.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
16.	Is it clear what analyses were requested?	Yes ☑	No ☐	
17.	Were all holding times able to be met?	Yes ☑	No ☐	

Special Handling (if applicable)

18.	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: _____

19. Additional remarks:

Item Information

Item #	Temp ºC
Cooler	1.6
Sample	1.1

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Fremont Analytical

Chain of Custody Record and Laboratory Services Agreement

3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 1/13/2017 Laboratory Project No (internal): _____

Page: 1 of: 1

Client: GeoEngineers
Address: 1100 Olive Way, Ste 1700
City, State, Zip: Seattle WA
Telephone: _____ Fax: _____

Project Name: Burbs Block 70
Project No: 20131-001-04 Collected by: Tyson Brown
Location: Seattle, WA
Report To (PM): Chris Brown
PM Email: cbrown@geoengineers.com

*Matrix Codes: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM / 625)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T) | Dissolved (D)	Anions (IC)***	EDB (8011)	GAH	AGH	cPAHs		Comments
1	W30N3-6.0	1/13/17	1400	S														X	X	X		
2	W35N6-6.0	"	1425	"																X		
3	W35N3-10.0		1500																	X		
4	W17N15-6.0		1505																	X		
5	W25N16-6.0		1515		X															X		
6	W7N13-6.0		1520																	X		
7	W73N77-11.0		1529																	X		
8	W30N22-10.0		1575																	X		
9	W70N25-8.5	↓	1530	↓										X	T			↓		X		
10																						

**Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL *Individual:* Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: Return to Client Disposal by Lab (Samples will be held for 30 days unless otherwise noted. A fee may be assessed if samples are retained after 30 days.)

Turn-around times for samples received after 4:00pm will begin on the following business day.

Special Remarks:
Chris Brown to Confirm w/ analysts request
CB request analysis 1/13/16

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above, that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x [signature]	1/13/17 1414	x [signature]	1/13/17 1410
x		x	

TAT → SameDay^ NextDay^ 2 Day 3 Day STD

^Please coordinate with the lab in advance

Distribution: White - Lab, Yellow - File, Pink - Originator

www.fremontanalytical.com

3600 Fremont Ave. N.
Seattle, WA 98103
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F: (206) 352-7178
info@fremontanalytical.com

GeoEngineers
Chris Brown
600 Stewart Street, Suite 1700
Seattle, WA 98101

RE: Rufus Block 20
Work Order Number: 1701219

January 30, 2017

Attention Chris Brown:

Fremont Analytical, Inc. received 9 sample(s) on 1/20/2017 for the analyses presented in the following report.

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.
Gasoline by NWTPH-Gx
Mercury by EPA Method 7471
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)
Sample Moisture (Percent Moisture)
Total Metals by EPA Method 6020
Volatile Organic Compounds by EPA Method 8260C

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Mike Ridgeway
Laboratory Director

Date: *01/30/2017*

CLIENT: GeoEngineers
Project: Rufus Block 20
Work Order: 1701219

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1701219-001	W25N9-10.0	01/18/2017 12:50 PM	01/20/2017 2:39 PM
1701219-002	W25N9-15.0	01/19/2017 8:20 AM	01/20/2017 2:39 PM
1701219-003	W23N9-12.5	01/19/2017 8:15 AM	01/20/2017 2:39 PM
1701219-004	W25N8-12.5	01/19/2017 8:10 AM	01/20/2017 2:39 PM
1701219-005	W25N11-12.5	01/19/2017 8:05 AM	01/20/2017 2:39 PM
1701219-006	W27N9-12.5	01/19/2017 8:00 AM	01/20/2017 2:39 PM
1701219-007	W9-24.5	01/19/2017 7:55 AM	01/20/2017 2:39 PM
1701219-008	W9S47-25.0	01/20/2017 9:50 AM	01/20/2017 2:39 PM
1701219-009	W9-27.0	01/20/2017 9:55 AM	01/20/2017 2:39 PM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

Case Narrative

WO#: **1701219**
Date: **1/30/2017**

CLIENT: GeoEngineers
Project: Rufus Block 20

I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Analytical Report

Work Order: **1701219**
Date Reported: **1/30/2017**

Client: GeoEngineers
Collection Date: 1/18/2017 12:50:00 PM
Project: Rufus Block 20
Lab ID: 1701219-001
Matrix: Soil
Client Sample ID: **W25N9-10.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 16005		Analyst: WC
Diesel (Fuel Oil)	5,820	119	D	mg/Kg-dry	5	1/24/2017 10:13:15 AM
Heavy Oil	ND	59.6		mg/Kg-dry	1	1/24/2017 6:09:00 AM
Surr: 2-Fluorobiphenyl	662	50-150	S	%Rec	1	1/24/2017 6:09:00 AM
Surr: o-Terphenyl	89.5	50-150		%Rec	1	1/24/2017 6:09:00 AM

NOTES:
S - Outlying surrogate recovery attributed to TPH interference. The method is in control as indicated by the Method Blank (MB) & Laboratory Control Sample (LCS).

Gasoline by NWTPH-Gx				Batch ID: 15985		Analyst: MW
Gasoline	ND	5.30		mg/Kg-dry	1	1/21/2017 4:19:53 PM
Surr: Toluene-d8	89.9	65-135		%Rec	1	1/21/2017 4:19:53 PM
Surr: 4-Bromofluorobenzene	97.9	65-135		%Rec	1	1/21/2017 4:19:53 PM
Total Metals by EPA Method 6020				Batch ID: 15990		Analyst: TN
Lead	3.34	0.187		mg/Kg-dry	1	1/24/2017 6:00:35 PM
Sample Moisture (Percent Moisture)				Batch ID: R34007		Analyst: BB
Percent Moisture	18.2	0.500		wt%	1	1/23/2017 9:39:48 AM

Analytical Report

Work Order: **1701219**
Date Reported: **1/30/2017**

Client: GeoEngineers
Collection Date: 1/19/2017 8:20:00 AM
Project: Rufus Block 20
Lab ID: 1701219-002
Matrix: Soil
Client Sample ID: **W25N9-15.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 16043		Analyst: WC
Diesel (Fuel Oil)	ND	20.5		mg/Kg-dry	1	1/26/2017 1:35:36 PM
Heavy Oil	ND	51.2		mg/Kg-dry	1	1/26/2017 1:35:36 PM
Surr: 2-Fluorobiphenyl	72.0	50-150		%Rec	1	1/26/2017 1:35:36 PM
Surr: o-Terphenyl	73.6	50-150		%Rec	1	1/26/2017 1:35:36 PM
Sample Moisture (Percent Moisture)				Batch ID: R34081		Analyst: CG
Percent Moisture	14.3	0.500		wt%	1	1/26/2017 9:56:02 AM

Analytical Report

Work Order: **1701219**
Date Reported: **1/30/2017**

Client: GeoEngineers
Collection Date: 1/20/2017 9:50:00 AM
Project: Rufus Block 20
Lab ID: 1701219-008
Matrix: Soil
Client Sample ID: **W9S47-25.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 16005		Analyst: WC
Diesel (Fuel Oil)	431	19.2		mg/Kg-dry	1	1/24/2017 6:39:26 AM
Heavy Oil	ND	48.1		mg/Kg-dry	1	1/24/2017 6:39:26 AM
Surr: 2-Fluorobiphenyl	97.7	50-150		%Rec	1	1/24/2017 6:39:26 AM
Surr: o-Terphenyl	102	50-150		%Rec	1	1/24/2017 6:39:26 AM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 15987		Analyst: BT
Naphthalene	82.2	47.4		µg/Kg-dry	1	1/21/2017 2:52:04 AM
2-Methylnaphthalene	558	47.4		µg/Kg-dry	1	1/21/2017 2:52:04 AM
1-Methylnaphthalene	626	47.4		µg/Kg-dry	1	1/21/2017 2:52:04 AM
Acenaphthylene	ND	47.4		µg/Kg-dry	1	1/21/2017 2:52:04 AM
Acenaphthene	94.3	47.4		µg/Kg-dry	1	1/21/2017 2:52:04 AM
Fluorene	189	47.4		µg/Kg-dry	1	1/21/2017 2:52:04 AM
Phenanthrene	385	47.4		µg/Kg-dry	1	1/21/2017 2:52:04 AM
Anthracene	ND	47.4		µg/Kg-dry	1	1/21/2017 2:52:04 AM
Fluoranthene	ND	47.4		µg/Kg-dry	1	1/21/2017 2:52:04 AM
Pyrene	ND	47.4		µg/Kg-dry	1	1/21/2017 2:52:04 AM
Benz(a)anthracene	ND	47.4		µg/Kg-dry	1	1/21/2017 2:52:04 AM
Chrysene	ND	47.4		µg/Kg-dry	1	1/21/2017 2:52:04 AM
Benzo(b)fluoranthene	ND	47.4		µg/Kg-dry	1	1/21/2017 2:52:04 AM
Benzo(k)fluoranthene	ND	47.4		µg/Kg-dry	1	1/21/2017 2:52:04 AM
Benzo(a)pyrene	ND	47.4		µg/Kg-dry	1	1/21/2017 2:52:04 AM
Indeno(1,2,3-cd)pyrene	ND	47.4		µg/Kg-dry	1	1/21/2017 2:52:04 AM
Dibenz(a,h)anthracene	ND	47.4		µg/Kg-dry	1	1/21/2017 2:52:04 AM
Benzo(g,h,i)perylene	ND	47.4		µg/Kg-dry	1	1/21/2017 2:52:04 AM
Surr: 2-Fluorobiphenyl	87.5	24.5-139		%Rec	1	1/21/2017 2:52:04 AM
Surr: Terphenyl-d14 (surr)	93.8	44.3-176		%Rec	1	1/21/2017 2:52:04 AM
Gasoline by NWTPH-Gx				Batch ID: 15985		Analyst: MW
Gasoline	ND	4.84		mg/Kg-dry	1	1/21/2017 1:11:54 PM
Surr: 4-Bromofluorobenzene	107	65-135		%Rec	1	1/21/2017 1:11:54 PM
Surr: Toluene-d8	91.7	65-135		%Rec	1	1/21/2017 1:11:54 PM
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15985		Analyst: MW
Benzene	ND	0.0194		mg/Kg-dry	1	1/21/2017 1:11:54 PM
Toluene	ND	0.0194		mg/Kg-dry	1	1/21/2017 1:11:54 PM
Ethylbenzene	ND	0.0291		mg/Kg-dry	1	1/21/2017 1:11:54 PM

Analytical Report

Work Order: **1701219**
Date Reported: **1/30/2017**

Client: GeoEngineers
Collection Date: 1/20/2017 9:50:00 AM
Project: Rufus Block 20
Lab ID: 1701219-008
Matrix: Soil
Client Sample ID: **W9S47-25.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15985		Analyst: MW
m,p-Xylene	ND	0.0194		mg/Kg-dry	1	1/21/2017 1:11:54 PM
o-Xylene	ND	0.0194		mg/Kg-dry	1	1/21/2017 1:11:54 PM
Surr: Dibromofluoromethane	97.7	56.5-129		%Rec	1	1/21/2017 1:11:54 PM
Surr: Toluene-d8	97.7	64.5-151		%Rec	1	1/21/2017 1:11:54 PM
Surr: 1-Bromo-4-fluorobenzene	101	63.1-141		%Rec	1	1/21/2017 1:11:54 PM
Mercury by EPA Method 7471				Batch ID: 15991		Analyst: WF
Mercury	ND	0.277		mg/Kg-dry	1	1/23/2017 1:56:02 PM
Total Metals by EPA Method 6020				Batch ID: 15990		Analyst: TN
Arsenic	6.72	0.0932		mg/Kg-dry	1	1/23/2017 4:15:49 PM
Cadmium	ND	0.186		mg/Kg-dry	1	1/23/2017 4:15:49 PM
Chromium	54.4	0.0932	B	mg/Kg-dry	1	1/23/2017 4:15:49 PM
Lead	3.84	0.186		mg/Kg-dry	1	1/24/2017 6:04:11 PM
Sample Moisture (Percent Moisture)				Batch ID: R34007		Analyst: BB
Percent Moisture	18.1			wt%	1	1/23/2017 9:39:48 AM

Analytical Report

Work Order: **1701219**
Date Reported: **1/30/2017**

Client: GeoEngineers
Project: Rufus Block 20
Lab ID: 1701219-009
Client Sample ID: **W9-27.0**

Collection Date: 1/20/2017 9:55:00 AM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 16043		Analyst: WC
Diesel (Fuel Oil)	ND	22.6		mg/Kg-dry	1	1/26/2017 2:06:48 PM
Heavy Oil	ND	56.6		mg/Kg-dry	1	1/26/2017 2:06:48 PM
Surr: 2-Fluorobiphenyl	87.2	50-150		%Rec	1	1/26/2017 2:06:48 PM
Surr: o-Terphenyl	85.2	50-150		%Rec	1	1/26/2017 2:06:48 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 16042		Analyst: BT
Benz(a)anthracene	ND	43.4		µg/Kg-dry	1	1/26/2017 1:02:06 PM
Chrysene	ND	43.4		µg/Kg-dry	1	1/26/2017 1:02:06 PM
Benzo(b)fluoranthene	ND	43.4		µg/Kg-dry	1	1/26/2017 1:02:06 PM
Benzo(k)fluoranthene	ND	43.4		µg/Kg-dry	1	1/26/2017 1:02:06 PM
Benzo(a)pyrene	ND	43.4		µg/Kg-dry	1	1/26/2017 1:02:06 PM
Indeno(1,2,3-cd)pyrene	ND	43.4		µg/Kg-dry	1	1/26/2017 1:02:06 PM
Dibenz(a,h)anthracene	ND	43.4		µg/Kg-dry	1	1/26/2017 1:02:06 PM
Surr: 2-Fluorobiphenyl	93.9	24.5-139		%Rec	1	1/26/2017 1:02:06 PM
Surr: Terphenyl-d14 (surr)	110	44.3-176		%Rec	1	1/26/2017 1:02:06 PM
Sample Moisture (Percent Moisture)				Batch ID: R34081		Analyst: CG
Percent Moisture	17.8	0.500		wt%	1	1/26/2017 9:56:02 AM

Work Order: 1701219
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID **MB-16043**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **1/26/2017**	RunNo: **34091**
Client ID: **MBLKS**	Batch ID: **16043**		Analysis Date: **1/26/2017**	SeqNo: **648926**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	20.0									
Heavy Oil	ND	50.0									
Surr: 2-Fluorobiphenyl	17.6		20.00		87.8	50	150				
Surr: o-Terphenyl	17.4		20.00		86.9	50	150				

Sample ID **LCS-16043**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **1/26/2017**	RunNo: **34091**
Client ID: **LCSS**	Batch ID: **16043**		Analysis Date: **1/26/2017**	SeqNo: **648925**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	475	20.0	500.0	0	95.0	65	135				
Surr: 2-Fluorobiphenyl	20.2		20.00		101	50	150				
Surr: o-Terphenyl	21.7		20.00		109	50	150				

Sample ID **1701280-001ADUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **1/26/2017**	RunNo: **34091**
Client ID: **BATCH**	Batch ID: **16043**		Analysis Date: **1/26/2017**	SeqNo: **648922**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	22.1						0		30	
Heavy Oil	150	55.1						109.6	31.1	30	
Surr: 2-Fluorobiphenyl	15.8		22.06		71.4	50	150		0		
Surr: o-Terphenyl	17.3		22.06		78.3	50	150		0		

Sample ID **1701280-001AMS**	SampType: **MS**	Units: **mg/Kg-dry**	Prep Date: **1/26/2017**	RunNo: **34091**
Client ID: **BATCH**	Batch ID: **16043**		Analysis Date: **1/26/2017**	SeqNo: **648927**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	471	19.9	497.6	5.565	93.5	65	135				
Surr: 2-Fluorobiphenyl	21.1		19.90		106	50	150				
Surr: o-Terphenyl	22.1		19.90		111	50	150				

Work Order: 1701219
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID **1701280-001AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **1/26/2017** RunNo: **34091**
Client ID: **BATCH** Batch ID: **16043** Analysis Date: **1/26/2017** SeqNo: **648927**

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

Sample ID **1701280-001AMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **1/26/2017** RunNo: **34091**
Client ID: **BATCH** Batch ID: **16043** Analysis Date: **1/26/2017** SeqNo: **648928**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	476	20.1	503.2	5.565	93.5	65	135	470.8	1.08	30	
Surr: 2-Fluorobiphenyl	18.5		20.13		92.0	50	150		0		
Surr: o-Terphenyl	19.5		20.13		97.0	50	150		0		

Sample ID **1701272-005ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **1/26/2017** RunNo: **34091**
Client ID: **BATCH** Batch ID: **16043** Analysis Date: **1/26/2017** SeqNo: **649269**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	22.2						0		30	
Heavy Oil	ND	55.4						0		30	
Surr: 2-Fluorobiphenyl	18.9		22.18		85.4	50	150		0		
Surr: o-Terphenyl	18.5		22.18		83.3	50	150		0		

Work Order: 1701219
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID **MB-16005**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **1/23/2017**	RunNo: **34034**
Client ID: **MBLKS**	Batch ID: **16005**		Analysis Date: **1/24/2017**	SeqNo: **647732**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	20.0									
Heavy Oil	ND	50.0									
Surr: 2-Fluorobiphenyl	17.0		20.00		85.0	50	150				
Surr: o-Terphenyl	17.5		20.00		87.4	50	150				

Sample ID **LCS-16005**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **1/23/2017**	RunNo: **34034**
Client ID: **LCSS**	Batch ID: **16005**		Analysis Date: **1/24/2017**	SeqNo: **647731**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	500	20.0	500.0	0	99.9	65	135				
Surr: 2-Fluorobiphenyl	20.7		20.00		104	50	150				
Surr: o-Terphenyl	21.4		20.00		107	50	150				

Sample ID **1701132-046ADUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **1/23/2017**	RunNo: **34034**
Client ID: **BATCH**	Batch ID: **16005**		Analysis Date: **1/24/2017**	SeqNo: **647721**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	20.0						0		30	
Heavy Oil	ND	49.9						0		30	
Surr: 2-Fluorobiphenyl	16.5		19.96		82.8	50	150		0		
Surr: o-Terphenyl	15.1		19.96		75.5	50	150		0		

Sample ID **1701132-046AMS**	SampType: **MS**	Units: **mg/Kg-dry**	Prep Date: **1/23/2017**	RunNo: **34034**
Client ID: **BATCH**	Batch ID: **16005**		Analysis Date: **1/24/2017**	SeqNo: **647722**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	485	19.4	484.4	7.409	98.5	65	135				
Surr: 2-Fluorobiphenyl	18.8		19.38		96.8	50	150				
Surr: o-Terphenyl	20.0		19.38		103	50	150				

Work Order: 1701219
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID **1701132-046AMS**	SampType: **MS**			Units: **mg/Kg-dry**		Prep Date: **1/23/2017**			RunNo: **34034**		
Client ID: **BATCH**	Batch ID: **16005**					Analysis Date: **1/24/2017**			SeqNo: **647722**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID **1701132-046AMSD**	SampType: **MSD**			Units: **mg/Kg-dry**		Prep Date: **1/23/2017**			RunNo: **34034**		
Client ID: **BATCH**	Batch ID: **16005**					Analysis Date: **1/24/2017**			SeqNo: **647723**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	489	19.9	496.3	7.409	97.0	65	135	484.6	0.850	30	
Surr: 2-Fluorobiphenyl	20.8		19.85		105	50	150		0		
Surr: o-Terphenyl	21.3		19.85		107	50	150		0		

Work Order: 1701219
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Gasoline by NWTPH-Gx

Sample ID **LCS-15985** SampType: **LCS** Units: **mg/Kg** Prep Date: **1/20/2017** RunNo: **34020**
Client ID: **LCSS** Batch ID: **15985** Analysis Date: **1/20/2017** SeqNo: **647278**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	25.7	5.00	25.00	0	103	65	135				
Surr: Toluene-d8	1.17		1.250		93.6	65	135				
Surr: 4-Bromofluorobenzene	1.29		1.250		103	65	135				

Sample ID **MB-15985** SampType: **MBLK** Units: **mg/Kg** Prep Date: **1/20/2017** RunNo: **34020**
Client ID: **MBLKS** Batch ID: **15985** Analysis Date: **1/20/2017** SeqNo: **647279**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	5.00									
Surr: Toluene-d8	1.17		1.250		93.2	65	135				
Surr: 4-Bromofluorobenzene	1.31		1.250		104	65	135				

Sample ID **1701132-047BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **1/20/2017** RunNo: **34020**
Client ID: **BATCH** Batch ID: **15985** Analysis Date: **1/21/2017** SeqNo: **647252**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	4.85						0		30	
Surr: Toluene-d8	1.14		1.212		93.7	65	135		0		
Surr: 4-Bromofluorobenzene	1.26		1.212		104	65	135		0		

Sample ID **1701132-123BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **1/20/2017** RunNo: **34020**
Client ID: **BATCH** Batch ID: **15985** Analysis Date: **1/21/2017** SeqNo: **647255**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	4.88						0		30	
Surr: Toluene-d8	1.13		1.220		92.3	65	135		0		
Surr: 4-Bromofluorobenzene	1.25		1.220		103	65	135		0		

Work Order: 1701219
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Gasoline by NWTPH-Gx

Sample ID **1701203-001BMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **1/20/2017** RunNo: **34020**
Client ID: **BATCH** Batch ID: **15985** Analysis Date: **1/21/2017** SeqNo: **647263**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	146	5.61	28.07	0	519	65	135				S
Surr: Toluene-d8	1.29		1.403		92.0	65	135				
Surr: 4-Bromofluorobenzene	1.57		1.403		112	65	135				

NOTES:
S - Outlying spike recovery(ies) observed.

Sample ID **1701203-001BMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **1/20/2017** RunNo: **34020**
Client ID: **BATCH** Batch ID: **15985** Analysis Date: **1/21/2017** SeqNo: **647264**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	46.2	5.61	28.07	0	165	65	135	145.7	104	30	RS
Surr: Toluene-d8	1.30		1.403		92.6	65	135		0		
Surr: 4-Bromofluorobenzene	1.53		1.403		109	65	135		0		

NOTES:
S - Outlying spike recovery(ies) observed.
R - High RPD observed. The method is in control as indicated by the LCS.

Work Order: 1701219
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Mercury by EPA Method 7471

Sample ID	**MB-15991**	SampType:	**MBLK**			Units:	**mg/Kg**	Prep Date:	**1/23/2017**		RunNo:	**34017**	
Client ID:	**MBLKS**	Batch ID:	**15991**					Analysis Date:	**1/23/2017**		SeqNo:	**647192**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Mercury		ND	0.245										

Sample ID	**LCS-15991**	SampType:	**LCS**			Units:	**mg/Kg**	Prep Date:	**1/23/2017**		RunNo:	**34017**	
Client ID:	**LCSS**	Batch ID:	**15991**					Analysis Date:	**1/23/2017**		SeqNo:	**647193**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Mercury		0.512	0.245	0.4902	0	104	80	120					

Sample ID	**1701206-001ADUP**	SampType:	**DUP**			Units:	**mg/Kg-dry**	Prep Date:	**1/23/2017**		RunNo:	**34017**	
Client ID:	**BATCH**	Batch ID:	**15991**					Analysis Date:	**1/23/2017**		SeqNo:	**647195**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Mercury		ND	0.295						0		20		

Sample ID	**1701206-001AMS**	SampType:	**MS**			Units:	**mg/Kg-dry**	Prep Date:	**1/23/2017**		RunNo:	**34017**	
Client ID:	**BATCH**	Batch ID:	**15991**					Analysis Date:	**1/23/2017**		SeqNo:	**647196**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Mercury		0.596	0.283	0.5669	0.02086	102	70	130					

Sample ID	**1701206-001AMSD**	SampType:	**MSD**			Units:	**mg/Kg-dry**	Prep Date:	**1/23/2017**		RunNo:	**34017**	
Client ID:	**BATCH**	Batch ID:	**15991**					Analysis Date:	**1/23/2017**		SeqNo:	**647197**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Mercury		0.632	0.295	0.5891	0.02086	104	70	130	0.5964	5.73	20		

Work Order: 1701219
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **MB-16042**	SampType: **MBLK**	Units: **µg/Kg**	Prep Date: **1/26/2017**	RunNo: **34095**
Client ID: **MBLKS**	Batch ID: **16042**		Analysis Date: **1/26/2017**	SeqNo: **649106**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	ND	40.0									
Chrysene	ND	40.0									
Benzo(b)fluoranthene	ND	40.0									
Benzo(k)fluoranthene	ND	40.0									
Benzo(a)pyrene	ND	40.0									
Indeno(1,2,3-cd)pyrene	ND	40.0									
Dibenz(a,h)anthracene	ND	40.0									
Surr: 2-Fluorobiphenyl	540		500.0		108	24.5	139				
Surr: Terphenyl-d14 (surr)	576		500.0		115	44.3	176				

Sample ID **LCS-16042**	SampType: **LCS**	Units: **µg/Kg**	Prep Date: **1/26/2017**	RunNo: **34095**
Client ID: **LCSS**	Batch ID: **16042**		Analysis Date: **1/26/2017**	SeqNo: **649107**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	1,190	40.0	1,000	0	119	41.9	136				
Chrysene	1,130	40.0	1,000	0	113	46.9	138				
Benzo(b)fluoranthene	1,160	40.0	1,000	0	116	35.9	148				
Benzo(k)fluoranthene	1,090	40.0	1,000	0	109	41.8	153				
Benzo(a)pyrene	1,110	40.0	1,000	0	111	34.3	157				
Indeno(1,2,3-cd)pyrene	972	40.0	1,000	0	97.2	31.3	159				
Dibenz(a,h)anthracene	975	40.0	1,000	0	97.5	28	158				
Surr: 2-Fluorobiphenyl	531		500.0		106	24.5	139				
Surr: Terphenyl-d14 (surr)	589		500.0		118	44.3	176				

Sample ID **1701219-009ADUP**	SampType: **DUP**	Units: **µg/Kg-dry**	Prep Date: **1/26/2017**	RunNo: **34095**
Client ID: **W9-27.0**	Batch ID: **16042**		Analysis Date: **1/26/2017**	SeqNo: **649109**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	ND	41.2						0		30	
Chrysene	ND	41.2						0		30	

Work Order: 1701219
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1701219-009ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **1/26/2017** RunNo: **34095**
Client ID: **W9-27.0** Batch ID: **16042** Analysis Date: **1/26/2017** SeqNo: **649109**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzo(b)fluoranthene	ND	41.2						0		30	
Benzo(k)fluoranthene	ND	41.2						0		30	
Benzo(a)pyrene	ND	41.2						0		30	
Indeno(1,2,3-cd)pyrene	ND	41.2						0		30	
Dibenz(a,h)anthracene	ND	41.2						0		30	
Surr: 2-Fluorobiphenyl	443		514.7		86.1	24.5	139		0		
Surr: Terphenyl-d14 (surr)	560		514.7		109	44.3	176		0		

Sample ID **1701219-009AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **1/26/2017** RunNo: **34095**
Client ID: **W9-27.0** Batch ID: **16042** Analysis Date: **1/26/2017** SeqNo: **649110**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	1,370	45.7	1,143	0	120	57.5	169				
Chrysene	1,280	45.7	1,143	0	112	45.2	146				
Benzo(b)fluoranthene	1,250	45.7	1,143	1.586	109	42.2	168				
Benzo(k)fluoranthene	1,330	45.7	1,143	0	116	48	161				
Benzo(a)pyrene	1,280	45.7	1,143	1.961	112	34.4	179				
Indeno(1,2,3-cd)pyrene	1,090	45.7	1,143	0	95.0	5	113				
Dibenz(a,h)anthracene	1,090	45.7	1,143	0	95.2	17.3	156				
Surr: 2-Fluorobiphenyl	550		571.7		96.1	24.5	139				
Surr: Terphenyl-d14 (surr)	681		571.7		119	44.3	176				

Sample ID **1701219-009AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **1/26/2017** RunNo: **34095**
Client ID: **W9-27.0** Batch ID: **16042** Analysis Date: **1/26/2017** SeqNo: **649111**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	1,380	47.2	1,180	0	117	57.5	169	1,375	0.350	30	
Chrysene	1,310	47.2	1,180	0	111	45.2	146	1,284	1.60	30	
Benzo(b)fluoranthene	1,320	47.2	1,180	1.586	112	42.2	168	1,246	5.87	30	
Benzo(k)fluoranthene	1,320	47.2	1,180	0	111	48	161	1,328	0.897	30	

Work Order: 1701219
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1701219-009AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **1/26/2017** RunNo: **34095**
Client ID: **W9-27.0** Batch ID: **16042** Analysis Date: **1/26/2017** SeqNo: **649111**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzo(a)pyrene	1,310	47.2	1,180	1.961	111	34.4	179	1,280	2.54	30	
Indeno(1,2,3-cd)pyrene	1,120	47.2	1,180	0	94.6	5	113	1,086	2.77	30	
Dibenz(a,h)anthracene	1,130	47.2	1,180	0	95.4	17.3	156	1,088	3.41	30	
Surr: 2-Fluorobiphenyl	530		590.0		89.7	24.5	139		0		
Surr: Terphenyl-d14 (surr)	681		590.0		115	44.3	176		0		

Work Order: 1701219
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **MB-15987**	SampType: **MBLK**	Units: **µg/Kg**	Prep Date: **1/20/2017**	RunNo: **34014**
Client ID: **MBLKS**	Batch ID: **15987**		Analysis Date: **1/20/2017**	SeqNo: **647055**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	40.0									
2-Methylnaphthalene	ND	40.0									
1-Methylnaphthalene	ND	40.0									
Acenaphthylene	ND	40.0									
Acenaphthene	ND	40.0									
Fluorene	ND	40.0									
Phenanthrene	ND	40.0									
Anthracene	ND	40.0									
Fluoranthene	ND	40.0									
Pyrene	ND	40.0									
Benz(a)anthracene	ND	40.0									
Chrysene	ND	40.0									
Benzo(b)fluoranthene	ND	40.0									
Benzo(k)fluoranthene	ND	40.0									
Benzo(a)pyrene	ND	40.0									
Indeno(1,2,3-cd)pyrene	ND	40.0									
Dibenz(a,h)anthracene	ND	40.0									
Benzo(g,h,i)perylene	ND	40.0									
Surr: 2-Fluorobiphenyl	387		500.0		77.4	24.5	139				
Surr: Terphenyl-d14 (surr)	509		500.0		102	44.3	176				

Sample ID **LCS-15987**	SampType: **LCS**	Units: **µg/Kg**	Prep Date: **1/20/2017**	RunNo: **34014**
Client ID: **LCSS**	Batch ID: **15987**		Analysis Date: **1/20/2017**	SeqNo: **647056**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	922	40.0	1,000	0	92.2	46.4	125				
2-Methylnaphthalene	879	40.0	1,000	0	87.9	45.1	135				
1-Methylnaphthalene	873	40.0	1,000	0	87.3	46.2	133				
Acenaphthylene	932	40.0	1,000	0	93.2	32.8	136				
Acenaphthene	904	40.0	1,000	0	90.4	38.7	129				

Work Order: 1701219
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **LCS-15987** SampType: **LCS** Units: **µg/Kg** Prep Date: **1/20/2017** RunNo: **34014**
Client ID: **LCSS** Batch ID: **15987** Analysis Date: **1/20/2017** SeqNo: **647056**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluorene	942	40.0	1,000	0	94.2	41.4	144				
Phenanthrene	951	40.0	1,000	0	95.1	43.9	133				
Anthracene	945	40.0	1,000	0	94.5	44.2	136				
Fluoranthene	949	40.0	1,000	0	94.9	45.9	137				
Pyrene	953	40.0	1,000	0	95.3	46.2	137				
Benz(a)anthracene	977	40.0	1,000	0	97.7	41.9	136				
Chrysene	947	40.0	1,000	0	94.7	46.9	138				
Benzo(b)fluoranthene	955	40.0	1,000	0	95.5	35.9	148				
Benzo(k)fluoranthene	937	40.0	1,000	0	93.7	41.8	153				
Benzo(a)pyrene	942	40.0	1,000	0	94.2	34.3	157				
Indeno(1,2,3-cd)pyrene	966	40.0	1,000	0	96.6	31.3	159				
Dibenz(a,h)anthracene	961	40.0	1,000	0	96.1	28	158				
Benzo(g,h,i)perylene	847	40.0	1,000	0	84.7	32.4	144				
Surr: 2-Fluorobiphenyl	408		500.0		81.7	24.5	139				
Surr: Terphenyl-d14 (surr)	495		500.0		98.9	44.3	176				

Sample ID **1701130-001ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **1/20/2017** RunNo: **34014**
Client ID: **BATCH** Batch ID: **15987** Analysis Date: **1/20/2017** SeqNo: **647058**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	44.9						0		30	
2-Methylnaphthalene	ND	44.9						0		30	
1-Methylnaphthalene	ND	44.9						0		30	
Acenaphthylene	ND	44.9						0		30	
Acenaphthene	ND	44.9						0		30	
Fluorene	ND	44.9						0		30	
Phenanthrene	ND	44.9						0		30	
Anthracene	ND	44.9						0		30	
Fluoranthene	ND	44.9						0		30	
Pyrene	ND	44.9						0		30	

Work Order: 1701219
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1701130-001ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **1/20/2017** RunNo: **34014**
Client ID: **BATCH** Batch ID: **15987** Analysis Date: **1/20/2017** SeqNo: **647058**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	ND	44.9						0		30	
Chrysene	ND	44.9						0		30	
Benzo(b)fluoranthene	ND	44.9						0		30	
Benzo(k)fluoranthene	ND	44.9						0		30	
Benzo(a)pyrene	ND	44.9						0		30	
Indeno(1,2,3-cd)pyrene	ND	44.9						0		30	
Dibenz(a,h)anthracene	ND	44.9						0		30	
Benzo(g,h,i)perylene	ND	44.9						0		30	
Surr: 2-Fluorobiphenyl	420		561.7		74.9	24.5	139		0		
Surr: Terphenyl-d14 (surr)	484		561.7		86.1	44.3	176		0		

Sample ID **1701130-001AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **1/20/2017** RunNo: **34014**
Client ID: **BATCH** Batch ID: **15987** Analysis Date: **1/20/2017** SeqNo: **647059**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	1,100	50.4	1,259	0	87.6	42.9	138				
2-Methylnaphthalene	1,090	50.4	1,259	2.911	86.3	42.8	151				
1-Methylnaphthalene	1,080	50.4	1,259	0	85.7	41.6	148				
Acenaphthylene	1,180	50.4	1,259	0	93.6	32.6	160				
Acenaphthene	1,140	50.4	1,259	0	90.7	46.3	142				
Fluorene	1,210	50.4	1,259	0	96.3	43.4	153				
Phenanthrene	1,240	50.4	1,259	7.010	97.6	45.5	140				
Anthracene	1,250	50.4	1,259	0	99.0	32.6	160				
Fluoranthene	1,250	50.4	1,259	0	99.5	44.6	161				
Pyrene	1,250	50.4	1,259	2.482	99.3	48.3	158				
Benz(a)anthracene	1,300	50.4	1,259	0	103	57.5	169				
Chrysene	1,230	50.4	1,259	3.439	97.4	45.2	146				
Benzo(b)fluoranthene	1,250	50.4	1,259	6.751	98.7	42.2	168				
Benzo(k)fluoranthene	1,230	50.4	1,259	0	97.8	48	161				
Benzo(a)pyrene	1,240	50.4	1,259	5.502	98.2	34.4	179				

Work Order: 1701219
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1701130-001AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **1/20/2017** RunNo: **34014**
Client ID: **BATCH** Batch ID: **15987** Analysis Date: **1/20/2017** SeqNo: **647059**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Indeno(1,2,3-cd)pyrene	1,240	50.4	1,259	0	98.1	5	113				
Dibenz(a,h)anthracene	1,230	50.4	1,259	0	97.8	17.3	156				
Benzo(g,h,i)perylene	1,070	50.4	1,259	5.196	84.3	45.6	157				
Surr: 2-Fluorobiphenyl	538		629.7		85.5	24.5	139				
Surr: Terphenyl-d14 (surr)	642		629.7		102	44.3	176				

Sample ID **1701130-001AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **1/20/2017** RunNo: **34014**
Client ID: **BATCH** Batch ID: **15987** Analysis Date: **1/20/2017** SeqNo: **647060**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	1,060	44.8	1,120	0	95.0	42.9	138	1,103	3.57	30	
2-Methylnaphthalene	1,050	44.8	1,120	2.911	93.4	42.8	151	1,089	3.69	30	
1-Methylnaphthalene	1,040	44.8	1,120	0	92.8	41.6	148	1,079	3.72	30	
Acenaphthylene	1,120	44.8	1,120	0	100	32.6	160	1,178	4.74	30	
Acenaphthene	1,090	44.8	1,120	0	97.0	46.3	142	1,142	4.94	30	
Fluorene	1,140	44.8	1,120	0	102	43.4	153	1,213	6.33	30	
Phenanthrene	1,150	44.8	1,120	7.010	102	45.5	140	1,236	7.07	30	
Anthracene	1,160	44.8	1,120	0	103	32.6	160	1,246	7.25	30	
Fluoranthene	1,160	44.8	1,120	0	104	44.6	161	1,253	7.42	30	
Pyrene	1,170	44.8	1,120	2.482	104	48.3	158	1,253	7.07	30	
Benz(a)anthracene	1,210	44.8	1,120	0	108	57.5	169	1,296	7.08	30	
Chrysene	1,150	44.8	1,120	3.439	102	45.2	146	1,230	7.09	30	
Benzo(b)fluoranthene	1,160	44.8	1,120	6.751	103	42.2	168	1,249	7.02	30	
Benzo(k)fluoranthene	1,130	44.8	1,120	0	101	48	161	1,232	8.93	30	
Benzo(a)pyrene	1,150	44.8	1,120	5.502	102	34.4	179	1,243	7.48	30	
Indeno(1,2,3-cd)pyrene	1,130	44.8	1,120	0	101	5	113	1,236	8.84	30	
Dibenz(a,h)anthracene	1,130	44.8	1,120	0	101	17.3	156	1,232	8.91	30	
Benzo(g,h,i)perylene	968	44.8	1,120	5.196	85.9	45.6	157	1,067	9.74	30	
Surr: 2-Fluorobiphenyl	507		560.2		90.4	24.5	139		0		
Surr: Terphenyl-d14 (surr)	588		560.2		105	44.3	176		0		

Work Order: 1701219
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1701130-001AMSD**	SampType: **MSD**			Units: **µg/Kg-dry**		Prep Date: **1/20/2017**		RunNo: **34014**			
Client ID: **BATCH**	Batch ID: **15987**					Analysis Date: **1/20/2017**		SeqNo: **647060**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID **MB-15987**	SampType: **MBLK**			Units: **µg/Kg**		Prep Date: **1/20/2017**		RunNo: **34014**			
Client ID: **MBLKS**	Batch ID: **15987**					Analysis Date: **1/23/2017**		SeqNo: **647905**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2-Methylnaphthalene	ND	40.0									
1-Methylnaphthalene	ND	40.0									
Phenanthrene	ND	40.0									
Surr: 2-Fluorobiphenyl	390		500.0		78.1	24.5	139				
Surr: Terphenyl-d14 (surr)	517		500.0		103	44.3	176				

Work Order: 1701219
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Sample Moisture (Percent Moisture)

Sample ID **1701219-009ADUP** SampType: **DUP** Units: **wt%** Prep Date: **1/26/2017** RunNo: **34081**
Client ID: **W9-27.0** Batch ID: **R34081** Analysis Date: **1/26/2017** SeqNo: **648718**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	12.4	0.500						17.81	36.0	20	R

Work Order: 1701219
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Sample Moisture (Percent Moisture)

Sample ID **1701219-008ADUP** SampType: **DUP** Units: **wt%** Prep Date: **1/23/2017** RunNo: **34007**
Client ID: **W9S47-25.0** Batch ID: **R34007** Analysis Date: **1/23/2017** SeqNo: **646929**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	18.1	0.500						18.08	0.0457	20	

Work Order: 1701219
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID **MB-15990** SampType: **MBLK** Units: **mg/Kg** Prep Date: **1/23/2017** RunNo: **34022**
Client ID: **MBLKS** Batch ID: **15990** Analysis Date: **1/23/2017** SeqNo: **647386**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.0806									
Cadmium	ND	0.161									
Chromium	0.499	0.0806									
Lead	ND	0.161									

Sample ID **LCS-15990** SampType: **LCS** Units: **mg/Kg** Prep Date: **1/23/2017** RunNo: **34022**
Client ID: **LCSS** Batch ID: **15990** Analysis Date: **1/23/2017** SeqNo: **647387**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	42.6	0.0763	38.17	0	112	80	120				
Cadmium	2.25	0.153	1.908	0	118	80	120				
Chromium	43.0	0.0763	38.17	0	113	80	120				B
Lead	21.5	0.153	19.08	0	112	80	120				

Sample ID **1701130-001ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **1/23/2017** RunNo: **34022**
Client ID: **BATCH** Batch ID: **15990** Analysis Date: **1/23/2017** SeqNo: **647389**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.3	0.0992						5.610	59.1	20	R
Cadmium	ND	0.198						0		20	
Chromium	82.1	0.0992						47.05	54.3	20	BR
Lead	12.8	0.198						8.174	43.9	20	R

NOTES:
R - High RPD observed. The method is in control as indicated by the LCS.

Sample ID **1701130-001AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **1/23/2017** RunNo: **34022**
Client ID: **BATCH** Batch ID: **15990** Analysis Date: **1/23/2017** SeqNo: **647391**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	64.4	0.102	50.77	5.610	116	75	125				

Work Order: 1701219
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID **1701130-001AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **1/23/2017** RunNo: **34022**
Client ID: **BATCH** Batch ID: **15990** Analysis Date: **1/23/2017** SeqNo: **647391**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	2.34	0.203	2.538	0.1485	86.3	75	125				
Chromium	98.7	0.102	50.77	47.05	102	75	125				B
Lead	33.4	0.203	25.38	8.174	99.4	75	125				

Sample ID **1701130-001AMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **1/23/2017** RunNo: **34022**
Client ID: **BATCH** Batch ID: **15990** Analysis Date: **1/23/2017** SeqNo: **647392**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	69.8	0.100	49.99	5.610	128	75	125	64.41	8.08	20	S
Cadmium	2.57	0.200	2.499	0.1485	96.9	75	125	2.339	9.46	20	
Chromium	113	0.100	49.99	47.05	131	75	125	98.69	13.1	20	BS
Lead	37.6	0.200	24.99	8.174	118	75	125	33.40	11.9	20	

NOTES:
S - Outlying spike recovery(ies) observed. A duplicate analysis was performed and recovered within range.

Work Order: 1701219
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-15985** SampType: **LCS** Units: **mg/Kg** Prep Date: **1/20/2017** RunNo: **34016**
Client ID: **LCSS** Batch ID: **15985** Analysis Date: **1/20/2017** SeqNo: **647176**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	1.02	0.0200	1.000	0	102	64.3	133				
Toluene	1.01	0.0200	1.000	0	101	67.3	138				
Ethylbenzene	1.03	0.0300	1.000	0	103	74	129				
m,p-Xylene	2.03	0.0200	2.000	0	101	70	124				
o-Xylene	0.988	0.0200	1.000	0	98.8	72.7	124				
Surr: Dibromofluoromethane	1.26		1.250		101	56.5	129				
Surr: Toluene-d8	1.28		1.250		102	64.5	151				
Surr: 1-Bromo-4-fluorobenzene	1.30		1.250		104	63.1	141				

Sample ID **MB-15985** SampType: **MBLK** Units: **mg/Kg** Prep Date: **1/20/2017** RunNo: **34016**
Client ID: **MBLKS** Batch ID: **15985** Analysis Date: **1/20/2017** SeqNo: **647177**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	0.0200									
Toluene	ND	0.0200									
Ethylbenzene	ND	0.0300									
m,p-Xylene	ND	0.0200									
o-Xylene	ND	0.0200									
Surr: Dibromofluoromethane	1.21		1.250		96.5	56.5	129				
Surr: Toluene-d8	1.20		1.250		96.3	64.5	151				
Surr: 1-Bromo-4-fluorobenzene	1.23		1.250		98.5	63.1	141				

Sample ID **1701132-047BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **1/20/2017** RunNo: **34016**
Client ID: **BATCH** Batch ID: **15985** Analysis Date: **1/21/2017** SeqNo: **647154**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	0.0194						0		30	
Toluene	ND	0.0194						0		30	
Ethylbenzene	ND	0.0291						0		30	
m,p-Xylene	ND	0.0194						0		30	

Work Order: 1701219
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1701132-047BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **1/20/2017** RunNo: **34016**
Client ID: **BATCH** Batch ID: **15985** Analysis Date: **1/21/2017** SeqNo: **647154**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
o-Xylene	ND	0.0194						0		30	
Surr: Dibromofluoromethane	1.20		1.212		98.6	56.5	129		0		
Surr: Toluene-d8	1.18		1.212		97.4	64.5	151		0		
Surr: 1-Bromo-4-fluorobenzene	1.18		1.212		97.5	63.1	141		0		

Sample ID **1701132-123BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **1/20/2017** RunNo: **34016**
Client ID: **BATCH** Batch ID: **15985** Analysis Date: **1/21/2017** SeqNo: **647157**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	0.0195						0		30	
Toluene	ND	0.0195						0		30	
Ethylbenzene	ND	0.0293						0		30	
m,p-Xylene	ND	0.0195						0		30	
o-Xylene	ND	0.0195						0		30	
Surr: Dibromofluoromethane	1.21		1.220		99.5	56.5	129		0		
Surr: Toluene-d8	1.19		1.220		97.4	64.5	151		0		
Surr: 1-Bromo-4-fluorobenzene	1.18		1.220		96.8	63.1	141		0		

Sample ID **1701147-002BMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **1/20/2017** RunNo: **34016**
Client ID: **BATCH** Batch ID: **15985** Analysis Date: **1/21/2017** SeqNo: **647160**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	1.03	0.0202	1.010	0	102	63.5	133				
Toluene	1.00	0.0202	1.010	0	99.2	63.4	132				
Ethylbenzene	1.07	0.0303	1.010	0	106	54.5	134				
m,p-Xylene	2.03	0.0202	2.020	0	100	53.1	132				
o-Xylene	1.01	0.0202	1.010	0	99.8	53.3	139				
Surr: Dibromofluoromethane	1.30		1.262		103	56.5	129				
Surr: Toluene-d8	1.28		1.262		102	64.5	151				
Surr: 1-Bromo-4-fluorobenzene	1.32		1.262		104	63.1	141				

Work Order: 1701219
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1701147-002BMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **1/20/2017** RunNo: **34016**
Client ID: **BATCH** Batch ID: **15985** Analysis Date: **1/21/2017** SeqNo: **647160**

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

Sample ID **1701147-002BMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **1/20/2017** RunNo: **34016**
Client ID: **BATCH** Batch ID: **15985** Analysis Date: **1/21/2017** SeqNo: **647161**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	0.971	0.0202	1.010	0	96.1	63.5	133	1.031	6.02	30	
Toluene	0.944	0.0202	1.010	0	93.5	63.4	132	1.001	5.88	30	
Ethylbenzene	0.975	0.0303	1.010	0	96.5	54.5	134	1.069	9.17	30	
m,p-Xylene	1.93	0.0202	2.020	0	95.6	53.1	132	2.025	4.83	30	
o-Xylene	0.946	0.0202	1.010	0	93.7	53.3	139	1.008	6.27	30	
Surr: Dibromofluoromethane	1.28		1.262		101	56.5	129		0		
Surr: Toluene-d8	1.27		1.262		101	64.5	151		0		
Surr: 1-Bromo-4-fluorobenzene	1.31		1.262		104	63.1	141		0		

Sample Log-In Check List

Client Name:	**GEI**	Work Order Number:	**1701219**
Logged by:	**Erica Silva**	Date Received:	**1/20/2017 2:39:00 PM**

Chain of Custody

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

Log In

3.	Coolers are present?	Yes ☑	No ☐	NA ☐
4.	Shipping container/cooler in good condition?	Yes ☑	No ☐	
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes ☐	No ☐	Not Required ☑
6.	Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
7.	Were all items received at a temperature of >0°C to 10.0°C*	Yes ☑	No ☐	NA ☐
8.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
9.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
10.	Are samples properly preserved?	Yes ☑	No ☐	
11.	Was preservative added to bottles?	Yes ☑	No ☐	NA ☐ Meoh
12.	Is there headspace in the VOA vials?	Yes ☐	No ☐	NA ☑
13.	Did all samples containers arrive in good condition(unbroken)?	Yes ☑	No ☐	
14.	Does paperwork match bottle labels?	Yes ☑	No ☐	
15.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
16.	Is it clear what analyses were requested?	Yes ☑	No ☐	
17.	Were all holding times able to be met?	Yes ☑	No ☐	

Special Handling (if applicable)

18.	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: _____

19. Additional remarks:

Item Information

Item #	Temp ºC
Cooler	8.2
Sample	5.8

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Fremont Analytical

Chain of Custody Record and Laboratory Services Agreement

3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 1/20/17 Laboratory Project No (internal): 1701219

Page: 1 of: 1

Client: GeoEngineers
Address: 1600 Stewart St, Suite 1700
City, State, Zip: Seattle, WA
Telephone: Fax:

Project Name: Rufus Block 20
Project No: 20434-001-24 Collected by: Sydney Bronson
Location: Seattle, WA
Report To (PM): Chris Brown
PM Email: cbrown@geoengineers.com

*Matrix Codes: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM / 625)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T)	Dissolved (D)	Anions (IC)***	EDB (8011)	cPAHs		Hold	Comments
1	W25N9-10.0	1/18/17	1250	S			X		X				X									Metals - Pb only
2	~~W25N9-15.0~~ W25N10-15.0	1/19/17	0820																		X	
3	W23N9-12.5		0815																			
4	W25N8-12.5		0810																			
5	W25N11-12.5		0805																			
6	W27N9-12.5		0800																			
7	W9-24.5	↓	0755	↓																	↓	
8	W9547-30.0	1/20/17	0950	S		X			X		X	X	X									MTCA 5 metals
9	W9-27.0	↓	0955	↓		~~X~~			~~X~~		~~X~~	~~X~~									X	.
10																						

**Metals Analysis (Circle): (MTCA-5) RCRA-8 Priority Pollutants TAL *Individual:* Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni (Pb) Sb Se Sr Sn Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Turn-around times for samples received after 4:00pm will begin on the following business day.

Special Remarks:

Sample Disposal: ☐ Return to Client ☒ Disposal by Lab (Samples will be held for 30 days unless otherwise noted. A fee may be assessed if samples are retained after 30 days.)

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above, that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x Sydney Bronson	1/20/17 1439	x	1/20/17 1439
x		x	

TAT → SameDay^ NextDay^ (2 Day) 3 Day STD

^Please coordinate with the lab in advance

Fremont Analytical

Chain of Custody Record and Laboratory Services Agreement

3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 1/20/17

Laboratory Project No (internal): _____

Page: 1 of: 1

Client: _____
Address: _____
City, State, Zip: _____
Telephone: _____ Fax: _____

Project Name: _____
Project No: _____ Collected by: _____
Location: _____
Report To (PM): _____
PM Email: _____

*Matrix Codes: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM / 625)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T) | Dissolved (D)	Anions (IC)***	EDB (8011)				Comments
1							X		X				X								
2																				X	
3																					
4																					
5																					
6																					Please change Sample ID to: W9547-25.0
7																					
8	W9547-30.0					X			X		X	+	X								
9						X	—		X	—	X	X	—							X	
10																					

**Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL *Individual:* Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab (Samples will be held for 30 days unless otherwise noted. A fee may be assessed if samples are retained after 30 days.)

Turn-around times for samples received after 4:00pm will begin on the following business day.

Special Remarks:
by SJB on 1/24/17

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above, that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x	1/20/17 1439	x	1/21/17 1439
x		x	

TAT → SameDay^ NextDay^ 2 Day 3 Day STD

^Please coordinate with the lab in advance

Distribution: White - Lab, Yellow - File, Pink - Originator

Fremont Analytical

Chain of Custody Record and Laboratory Services Agreement

3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 1/22/17 Laboratory Project No (internal): _____

Page: 1 of: 1

Client: _____ Project Name: _____

Address: _____ Project No: _____ Collected by: _____

City, State, Zip: _____ Location: _____

Telephone: _____ Fax: _____ Report To (PM): _____

PM Email: _____

*Matrix Codes: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM / 625)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8) Total (T) / Dissolved (D)	Anions (IC)***	EDB (8011)	cPAHs	Hold	Comments
1	W25N9-10.0	1/19/17	1150	S			X		X				X						
2	~~W25N9-15.0~~	1/19/17	0910						X									X	Dx (W25N9-15.0)
3	W25N9-17.5		0915																
4	W25N9-20.5		1010																
5	W25N11-17.5		0805																
6	W27N9-12.5		0800																
7	W29-24.5	↓	0745	↓														↓	
8	W9547-25.0	1/19/17	0940	S		X			X		X	X	X						
9	W9-27.0	↓	0955	↓		X		X	X		X	X	X			X		X	Dx, cPAHs
10																			

Previously edited by SJB on 1/24/17

**Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL *Individual:* Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab (Samples will be held for 30 days unless otherwise noted. A fee may be assessed if samples are retained after 30 days.)

Turn-around times for samples received after 4:00pm will begin on the following business day.

Special Remarks: *Edits by SJB on 1/25/2017

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above, that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x Sydney M	1/25/17 1439	x	1/22/17 1439
Relinquished	Date/Time	Received	Date/Time
x		x	

TAT → SameDay^ NextDay^ 2 Day 3 Day STD

^Please coordinate with the lab in advance

Distribution: White - Lab, Yellow - File, Pink - Originator

www.fremontanalytical.com

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GeoEngineers
Chris Brown
600 Stewart Street, Suite 1700
Seattle, WA 98101

RE: Rufus Block 20
Work Order Number: 1701324

January 31, 2017

Attention Chris Brown:

Fremont Analytical, Inc. received 9 sample(s) on 1/27/2017 for the analyses presented in the following report.

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)
Sample Moisture (Percent Moisture)
Total Metals by EPA Method 6020

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Mike Ridgeway
Laboratory Director

Date: *01/31/2017*

CLIENT: GeoEngineers
Project: Rufus Block 20
Work Order: 1701324

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1701324-001	W11S47-28.0	01/26/2017 4:50 PM	01/27/2017 1:48 PM
1701324-002	W9S47-30.0	01/26/2017 4:55 PM	01/27/2017 1:48 PM
1701324-003	W290N2-15.0	01/27/2017 7:50 AM	01/27/2017 1:48 PM
1701324-004	W30N33-14.5	01/27/2017 7:55 AM	01/27/2017 1:48 PM
1701324-005	W33N31-16.0	01/27/2017 8:20 AM	01/27/2017 1:48 PM
1701324-006	W34N29-19.0	01/27/2017 8:10 AM	01/27/2017 1:48 PM
1701324-007	W12S9-18.0	01/27/2017 8:40 AM	01/27/2017 1:48 PM
1701324-008	W35N32-16.0	01/27/2017 8:00 AM	01/27/2017 1:48 PM
1701324-009	W14S9-19.0	01/26/2017 2:50 PM	01/27/2017 1:48 PM

Case Narrative

WO#: **1701324**
Date: **1/31/2017**

CLIENT: GeoEngineers
Project: Rufus Block 20

I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Analytical Report

Work Order: **1701324**
Date Reported: **1/31/2017**

Client: GeoEngineers
Collection Date: 1/27/2017 7:50:00 AM
Project: Rufus Block 20
Lab ID: 1701324-003
Matrix: Soil
Client Sample ID: **W290N2-15.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 16074		Analyst: BT
Benz(a)anthracene	ND	48.8		µg/Kg-dry	1	1/30/2017 8:16:46 PM
Chrysene	ND	48.8		µg/Kg-dry	1	1/30/2017 8:16:46 PM
Benzo(b)fluoranthene	ND	48.8		µg/Kg-dry	1	1/30/2017 8:16:46 PM
Benzo(k)fluoranthene	ND	48.8		µg/Kg-dry	1	1/30/2017 8:16:46 PM
Benzo(a)pyrene	ND	48.8		µg/Kg-dry	1	1/30/2017 8:16:46 PM
Indeno(1,2,3-cd)pyrene	ND	48.8		µg/Kg-dry	1	1/30/2017 8:16:46 PM
Dibenz(a,h)anthracene	ND	48.8		µg/Kg-dry	1	1/30/2017 8:16:46 PM
Surr: 2-Fluorobiphenyl	92.6	24.5-139		%Rec	1	1/30/2017 8:16:46 PM
Surr: Terphenyl-d14 (surr)	107	44.3-176		%Rec	1	1/30/2017 8:16:46 PM
Total Metals by EPA Method 6020				Batch ID: 16070		Analyst: TN
Lead	3.62	0.186		mg/Kg-dry	1	1/30/2017 6:09:36 PM
Sample Moisture (Percent Moisture)				Batch ID: R34142		Analyst: BB
Percent Moisture	20.9	0.500		wt%	1	1/30/2017 10:08:52 AM

Analytical Report

Work Order: **1701324**
Date Reported: **1/31/2017**

Client: GeoEngineers
Collection Date: 1/27/2017 7:55:00 AM
Project: Rufus Block 20
Lab ID: 1701324-004
Matrix: Soil
Client Sample ID: **W30N33-14.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 16074		Analyst: BT
Benz(a)anthracene	ND	53.8		µg/Kg-dry	1	1/30/2017 9:41:27 PM
Chrysene	ND	53.8		µg/Kg-dry	1	1/30/2017 9:41:27 PM
Benzo(b)fluoranthene	ND	53.8		µg/Kg-dry	1	1/30/2017 9:41:27 PM
Benzo(k)fluoranthene	ND	53.8		µg/Kg-dry	1	1/30/2017 9:41:27 PM
Benzo(a)pyrene	ND	53.8		µg/Kg-dry	1	1/30/2017 9:41:27 PM
Indeno(1,2,3-cd)pyrene	ND	53.8		µg/Kg-dry	1	1/30/2017 9:41:27 PM
Dibenz(a,h)anthracene	ND	53.8		µg/Kg-dry	1	1/30/2017 9:41:27 PM
Surr: 2-Fluorobiphenyl	80.7	24.5-139		%Rec	1	1/30/2017 9:41:27 PM
Surr: Terphenyl-d14 (surr)	93.7	44.3-176		%Rec	1	1/30/2017 9:41:27 PM
Total Metals by EPA Method 6020				Batch ID: 16070		Analyst: TN
Lead	11.0	0.205		mg/Kg-dry	1	1/30/2017 6:13:11 PM
Sample Moisture (Percent Moisture)				Batch ID: R34142		Analyst: BB
Percent Moisture	28.2	0.500		wt%	1	1/30/2017 10:08:52 AM

Analytical Report

Work Order: **1701324**
Date Reported: **1/31/2017**

Client: GeoEngineers
Project: Rufus Block 20
Lab ID: 1701324-005
Client Sample ID: **W33N31-16.0**

Collection Date: 1/27/2017 8:20:00 AM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 16074		Analyst: BT
Benz(a)anthracene	ND	49.3		µg/Kg-dry	1	1/30/2017 10:02:33 PM
Chrysene	ND	49.3		µg/Kg-dry	1	1/30/2017 10:02:33 PM
Benzo(b)fluoranthene	ND	49.3		µg/Kg-dry	1	1/30/2017 10:02:33 PM
Benzo(k)fluoranthene	ND	49.3		µg/Kg-dry	1	1/30/2017 10:02:33 PM
Benzo(a)pyrene	ND	49.3		µg/Kg-dry	1	1/30/2017 10:02:33 PM
Indeno(1,2,3-cd)pyrene	ND	49.3		µg/Kg-dry	1	1/30/2017 10:02:33 PM
Dibenz(a,h)anthracene	ND	49.3		µg/Kg-dry	1	1/30/2017 10:02:33 PM
Surr: 2-Fluorobiphenyl	76.6	24.5-139		%Rec	1	1/30/2017 10:02:33 PM
Surr: Terphenyl-d14 (surr)	90.9	44.3-176		%Rec	1	1/30/2017 10:02:33 PM
Sample Moisture (Percent Moisture)				Batch ID: R34142		Analyst: BB
Percent Moisture	23.5	0.500		wt%	1	1/30/2017 10:08:52 AM

Analytical Report

Work Order: **1701324**
Date Reported: **1/31/2017**

Client: GeoEngineers
Collection Date: 1/27/2017 8:10:00 AM
Project: Rufus Block 20
Lab ID: 1701324-006
Matrix: Soil
Client Sample ID: **W34N29-19.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 16074		Analyst: BT
Benz(a)anthracene	ND	48.4		µg/Kg-dry	1	1/30/2017 10:23:44 PM
Chrysene	ND	48.4		µg/Kg-dry	1	1/30/2017 10:23:44 PM
Benzo(b)fluoranthene	ND	48.4		µg/Kg-dry	1	1/30/2017 10:23:44 PM
Benzo(k)fluoranthene	ND	48.4		µg/Kg-dry	1	1/30/2017 10:23:44 PM
Benzo(a)pyrene	ND	48.4		µg/Kg-dry	1	1/30/2017 10:23:44 PM
Indeno(1,2,3-cd)pyrene	ND	48.4		µg/Kg-dry	1	1/30/2017 10:23:44 PM
Dibenz(a,h)anthracene	ND	48.4		µg/Kg-dry	1	1/30/2017 10:23:44 PM
Surr: 2-Fluorobiphenyl	91.9	24.5-139		%Rec	1	1/30/2017 10:23:44 PM
Surr: Terphenyl-d14 (surr)	103	44.3-176		%Rec	1	1/30/2017 10:23:44 PM
Sample Moisture (Percent Moisture)				Batch ID: R34142		Analyst: BB
Percent Moisture	22.7	0.500		wt%	1	1/30/2017 10:08:52 AM

Analytical Report

Work Order: **1701324**
Date Reported: **1/31/2017**

Client: GeoEngineers
Collection Date: 1/27/2017 8:40:00 AM
Project: Rufus Block 20
Lab ID: 1701324-007
Matrix: Soil
Client Sample ID: **W12S9-18.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 16074		Analyst: BT
Benz(a)anthracene	ND	49.6		µg/Kg-dry	1	1/30/2017 10:44:56 PM
Chrysene	ND	49.6		µg/Kg-dry	1	1/30/2017 10:44:56 PM
Benzo(b)fluoranthene	ND	49.6		µg/Kg-dry	1	1/30/2017 10:44:56 PM
Benzo(k)fluoranthene	ND	49.6		µg/Kg-dry	1	1/30/2017 10:44:56 PM
Benzo(a)pyrene	ND	49.6		µg/Kg-dry	1	1/30/2017 10:44:56 PM
Indeno(1,2,3-cd)pyrene	ND	49.6		µg/Kg-dry	1	1/30/2017 10:44:56 PM
Dibenz(a,h)anthracene	ND	49.6		µg/Kg-dry	1	1/30/2017 10:44:56 PM
Surr: 2-Fluorobiphenyl	78.4	24.5-139		%Rec	1	1/30/2017 10:44:56 PM
Surr: Terphenyl-d14 (surr)	96.3	44.3-176		%Rec	1	1/30/2017 10:44:56 PM
Sample Moisture (Percent Moisture)				Batch ID: R34142		Analyst: BB
Percent Moisture	23.3	0.500		wt%	1	1/30/2017 10:08:52 AM

Analytical Report

Work Order: **1701324**
Date Reported: **1/31/2017**

Client: GeoEngineers
Collection Date: 1/27/2017 8:00:00 AM
Project: Rufus Block 20
Lab ID: 1701324-008
Matrix: Soil
Client Sample ID: **W35N32-16.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 16058		Analyst: WC
Diesel (Fuel Oil)	ND	21.4		mg/Kg-dry	1	1/27/2017 11:04:42 PM
Heavy Oil	ND	53.5		mg/Kg-dry	1	1/27/2017 11:04:42 PM
Surr: 2-Fluorobiphenyl	81.0	50-150		%Rec	1	1/27/2017 11:04:42 PM
Surr: o-Terphenyl	74.7	50-150		%Rec	1	1/27/2017 11:04:42 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 16074		Analyst: BT
Benz(a)anthracene	ND	43.1		µg/Kg-dry	1	1/30/2017 11:06:04 PM
Chrysene	ND	43.1		µg/Kg-dry	1	1/30/2017 11:06:04 PM
Benzo(b)fluoranthene	ND	43.1		µg/Kg-dry	1	1/30/2017 11:06:04 PM
Benzo(k)fluoranthene	ND	43.1		µg/Kg-dry	1	1/30/2017 11:06:04 PM
Benzo(a)pyrene	ND	43.1		µg/Kg-dry	1	1/30/2017 11:06:04 PM
Indeno(1,2,3-cd)pyrene	ND	43.1		µg/Kg-dry	1	1/30/2017 11:06:04 PM
Dibenz(a,h)anthracene	ND	43.1		µg/Kg-dry	1	1/30/2017 11:06:04 PM
Surr: 2-Fluorobiphenyl	96.0	24.5-139		%Rec	1	1/30/2017 11:06:04 PM
Surr: Terphenyl-d14 (surr)	103	44.3-176		%Rec	1	1/30/2017 11:06:04 PM
Sample Moisture (Percent Moisture)				Batch ID: R34142		Analyst: BB
Percent Moisture	13.8	0.500		wt%	1	1/30/2017 10:08:52 AM

Work Order: 1701324
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID **MB-16058**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **1/27/2017**	RunNo: **34135**
Client ID: **MBLKS**	Batch ID: **16058**		Analysis Date: **1/27/2017**	SeqNo: **649993**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	20.0									
Heavy Oil	ND	50.0									
Surr: 2-Fluorobiphenyl	16.0		20.00		80.1	50	150				
Surr: o-Terphenyl	15.8		20.00		79.1	50	150				

Sample ID **LCS-16058**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **1/27/2017**	RunNo: **34135**
Client ID: **LCSS**	Batch ID: **16058**		Analysis Date: **1/27/2017**	SeqNo: **649992**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	508	20.0	500.0	0	102	65	135				
Surr: 2-Fluorobiphenyl	20.6		20.00		103	50	150				
Surr: o-Terphenyl	21.6		20.00		108	50	150				

Sample ID **1701275-003ADUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **1/27/2017**	RunNo: **34135**
Client ID: **BATCH**	Batch ID: **16058**		Analysis Date: **1/27/2017**	SeqNo: **649983**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	25.8						0		30	
Heavy Oil	ND	64.4						0		30	
Surr: 2-Fluorobiphenyl	21.4		25.76		83.2	50	150		0		
Surr: o-Terphenyl	19.2		25.76		74.5	50	150		0		

Sample ID **1701275-003AMS**	SampType: **MS**	Units: **mg/Kg-dry**	Prep Date: **1/27/2017**	RunNo: **34135**
Client ID: **BATCH**	Batch ID: **16058**		Analysis Date: **1/27/2017**	SeqNo: **649984**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	660	25.6	639.9	0	103	65	135				
Surr: 2-Fluorobiphenyl	28.9		25.60		113	50	150				
Surr: o-Terphenyl	29.8		25.60		116	50	150				

Work Order: 1701324
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID **1701275-003AMS**	SampType: **MS**			Units: **mg/Kg-dry**		Prep Date: **1/27/2017**		RunNo: **34135**			
Client ID: **BATCH**	Batch ID: **16058**					Analysis Date: **1/27/2017**		SeqNo: **649984**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID **1701275-003AMSD**	SampType: **MSD**			Units: **mg/Kg-dry**		Prep Date: **1/27/2017**		RunNo: **34135**			
Client ID: **BATCH**	Batch ID: **16058**					Analysis Date: **1/27/2017**		SeqNo: **649985**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	619	25.9	648.7	0	95.4	65	135	659.7	6.40	30	
Surr: 2-Fluorobiphenyl	26.6		25.95		103	50	150		0		
Surr: o-Terphenyl	27.6		25.95		106	50	150		0		

Work Order: 1701324
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **MB-16074**	SampType: **MBLK**	Units: **µg/Kg**	Prep Date: **1/30/2017**	RunNo: **34185**
Client ID: **MBLKS**	Batch ID: **16074**		Analysis Date: **1/30/2017**	SeqNo: **651155**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	ND	40.0									
Chrysene	ND	40.0									
Benzo(b)fluoranthene	ND	40.0									
Benzo(k)fluoranthene	ND	40.0									
Benzo(a)pyrene	ND	40.0									
Indeno(1,2,3-cd)pyrene	ND	40.0									
Dibenz(a,h)anthracene	ND	40.0									
Surr: 2-Fluorobiphenyl	620		500.0		124	24.5	139				
Surr: Terphenyl-d14 (surr)	677		500.0		135	44.3	176				

Sample ID **LCS-16074**	SampType: **LCS**	Units: **µg/Kg**	Prep Date: **1/30/2017**	RunNo: **34185**
Client ID: **LCSS**	Batch ID: **16074**		Analysis Date: **1/30/2017**	SeqNo: **651156**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	1,100	40.0	1,000	0	110	41.9	136				
Chrysene	1,080	40.0	1,000	0	108	46.9	138				
Benzo(b)fluoranthene	1,040	40.0	1,000	0	104	35.9	148				
Benzo(k)fluoranthene	1,110	40.0	1,000	0	111	41.8	153				
Benzo(a)pyrene	1,080	40.0	1,000	0	108	34.3	157				
Indeno(1,2,3-cd)pyrene	927	40.0	1,000	0	92.7	31.3	159				
Dibenz(a,h)anthracene	925	40.0	1,000	0	92.5	28	158				
Surr: 2-Fluorobiphenyl	519		500.0		104	24.5	139				
Surr: Terphenyl-d14 (surr)	568		500.0		114	44.3	176				

Sample ID **1701324-003ADUP**	SampType: **DUP**	Units: **µg/Kg-dry**	Prep Date: **1/30/2017**	RunNo: **34185**
Client ID: **W290N2-15.0**	Batch ID: **16074**		Analysis Date: **1/30/2017**	SeqNo: **651158**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	ND	48.1						0		30	
Chrysene	ND	48.1						0		30	

Work Order: 1701324
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1701324-003ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **1/30/2017** RunNo: **34185**
Client ID: **W290N2-15.0** Batch ID: **16074** Analysis Date: **1/30/2017** SeqNo: **651158**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzo(b)fluoranthene	ND	48.1						0		30	
Benzo(k)fluoranthene	ND	48.1						0		30	
Benzo(a)pyrene	ND	48.1						0		30	
Indeno(1,2,3-cd)pyrene	ND	48.1						0		30	
Dibenz(a,h)anthracene	ND	48.1						0		30	
Surr: 2-Fluorobiphenyl	564		601.3		93.9	24.5	139		0		
Surr: Terphenyl-d14 (surr)	628		601.3		105	44.3	176		0		

Sample ID **1701324-003AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **1/30/2017** RunNo: **34185**
Client ID: **W290N2-15.0** Batch ID: **16074** Analysis Date: **1/30/2017** SeqNo: **651159**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	1,390	49.2	1,230	0	113	57.5	169				
Chrysene	1,390	49.2	1,230	0	113	45.2	146				
Benzo(b)fluoranthene	1,360	49.2	1,230	0	110	42.2	168				
Benzo(k)fluoranthene	1,380	49.2	1,230	0	112	48	161				
Benzo(a)pyrene	1,370	49.2	1,230	0	111	34.4	179				
Indeno(1,2,3-cd)pyrene	1,180	49.2	1,230	0	96.3	5	113				
Dibenz(a,h)anthracene	1,180	49.2	1,230	0	95.6	17.3	156				
Surr: 2-Fluorobiphenyl	669		614.8		109	24.5	139				
Surr: Terphenyl-d14 (surr)	730		614.8		119	44.3	176				

Sample ID **1701324-003AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **1/30/2017** RunNo: **34185**
Client ID: **W290N2-15.0** Batch ID: **16074** Analysis Date: **1/30/2017** SeqNo: **651160**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	1,500	49.2	1,230	0	122	57.5	169	1,394	7.37	30	
Chrysene	1,510	49.2	1,230	0	123	45.2	146	1,394	8.21	30	
Benzo(b)fluoranthene	1,440	49.2	1,230	0	118	42.2	168	1,356	6.32	30	
Benzo(k)fluoranthene	1,500	49.2	1,230	0	122	48	161	1,380	8.29	30	

Work Order: 1701324
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1701324-003AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **1/30/2017** RunNo: **34185**
Client ID: **W290N2-15.0** Batch ID: **16074** Analysis Date: **1/30/2017** SeqNo: **651160**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzo(a)pyrene	1,470	49.2	1,230	0	120	34.4	179	1,368	7.45	30	
Indeno(1,2,3-cd)pyrene	1,270	49.2	1,230	0	103	5	113	1,184	6.89	30	
Dibenz(a,h)anthracene	1,270	49.2	1,230	0	103	17.3	156	1,175	7.65	30	
Surr: 2-Fluorobiphenyl	701		614.8		114	24.5	139		0		
Surr: Terphenyl-d14 (surr)	761		614.8		124	44.3	176		0		

Work Order: 1701324
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Sample Moisture (Percent Moisture)

Sample ID **1701278-001ADUP** SampType: **DUP** Units: **wt%** Prep Date: **1/30/2017** RunNo: **34142**
Client ID: **BATCH** Batch ID: **R34142** Analysis Date: **1/30/2017** SeqNo: **650087**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	17.6	0.500						20.89	17.3	20	

Sample ID **1701306-001ADUP** SampType: **DUP** Units: **wt%** Prep Date: **1/30/2017** RunNo: **34142**
Client ID: **BATCH** Batch ID: **R34142** Analysis Date: **1/30/2017** SeqNo: **650108**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	23.4	0.500						24.24	3.51	20	

Work Order: 1701324
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID	**MB-16070**	SampType:	**MBLK**			Units:	**mg/Kg**	Prep Date:	**1/30/2017**	RunNo:	**34160**	
Client ID:	**MBLKS**	Batch ID:	**16070**					Analysis Date:	**1/30/2017**	SeqNo:	**650380**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead		ND	0.152									

Sample ID	**LCS-16070**	SampType:	**LCS**			Units:	**mg/Kg**	Prep Date:	**1/30/2017**	RunNo:	**34160**	
Client ID:	**LCSS**	Batch ID:	**16070**					Analysis Date:	**1/30/2017**	SeqNo:	**650381**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead		20.6	0.156	19.53	0	106	80	120				

Sample ID	**1701271-001ADUP**	SampType:	**DUP**			Units:	**mg/Kg-dry**	Prep Date:	**1/30/2017**	RunNo:	**34160**	
Client ID:	**BATCH**	Batch ID:	**16070**					Analysis Date:	**1/30/2017**	SeqNo:	**650383**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead		0.534	0.186						0.5022	6.06	20	

Sample ID	**1701271-001AMS**	SampType:	**MS**			Units:	**mg/Kg-dry**	Prep Date:	**1/30/2017**	RunNo:	**34160**	
Client ID:	**BATCH**	Batch ID:	**16070**					Analysis Date:	**1/30/2017**	SeqNo:	**650385**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead		22.7	0.186	23.26	0.5022	95.6	75	125				

Sample ID	**1701271-001AMSD**	SampType:	**MSD**			Units:	**mg/Kg-dry**	Prep Date:	**1/30/2017**	RunNo:	**34160**	
Client ID:	**BATCH**	Batch ID:	**16070**					Analysis Date:	**1/30/2017**	SeqNo:	**650386**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead		22.9	0.186	23.26	0.5022	96.3	75	125	22.73	0.695	20	

Sample Log-In Check List

Client Name:	**GEI**	Work Order Number:	**1701324**
Logged by:	**Clare Griggs**	Date Received:	**1/27/2017 1:48:00 PM**

Chain of Custody

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

Log In

3.	Coolers are present?	Yes ☑	No ☐	NA ☐
4.	Shipping container/cooler in good condition?	Yes ☑	No ☐	
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes ☐	No ☐	Not Required ☑
6.	Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
7.	Were all items received at a temperature of >0°C to 10.0°C*	Yes ☐	No ☑	NA ☐
	Please refer to item information			
8.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
9.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
10.	Are samples properly preserved?	Yes ☑	No ☐	
11.	Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
12.	Is there headspace in the VOA vials?	Yes ☐	No ☐	NA ☑
13.	Did all samples containers arrive in good condition(unbroken)?	Yes ☑	No ☐	
14.	Does paperwork match bottle labels?	Yes ☑	No ☐	
15.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
16.	Is it clear what analyses were requested?	Yes ☑	No ☐	
17.	Were all holding times able to be met?	Yes ☑	No ☐	

Special Handling (if applicable)

18.	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: _____

19. Additional remarks:

Item Information

Item #	Temp ºC
Cooler	10.6
Sample	13.1

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Chain of Custody Record and Laboratory Services Agreement

Fremont Analytical

3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 1/27/17 Laboratory Project No (internal): 170134

Page: 1 of: 1

Client: GeoEngineers
Address: 1600 Stewart St, Suite 1700
City, State, Zip: Seattle, WA
Telephone: Fax:

Project Name: Rufus Block 20
Project No: 20434-001-24 Collected by: Sydney Bronson
Location: Seattle, WA
Report To (PM): Chris Brown
PM Email: cbrown@geoengineers.com

*Matrix Codes: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM / 625)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8) Total (T)	Dissolved (D)	Anions (IC)***	EDB (8011)	cPAHs		Hold	Comments
1	W1154 7 - 28.0	1/26/17	1650	S																X	
2	W954 7 - 30.0	↓	1655	↓																X	
3	W29N2 - 15.0	1/27/17	0750											X			X				
4	W30N33 - 14.5		0755											X			X				
5	W33N31 - 16.0		0820														X				
6	W34N29 - 19.0		0810														X				
7	W1259 - 18.0		0840														X				
8	W35N32 - 16.0	↓	0800						X								X				
9	W1459 - 15.0	1/24/17	1450	↓																X	
10																					

**Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL *Individual:* Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni (Pb) Sb Se Sr Sn Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☒ Disposal by Lab (Samples will be held for 30 days unless otherwise noted. A fee may be assessed if samples are retained after 30 days.)

Turn-around times for samples received after 4:00pm will begin on the following business day.

Special Remarks:

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above, that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x Sydney M	1/27/17 1348	x	1/27/17 1346
Relinquished	Date/Time	Received	Date/Time
x		x	

TAT → SameDay^ NextDay^ 2 Day 3 Day STD

^Please coordinate with the lab in advance

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

GeoEngineers
Chris Brown
600 Stewart Street, Suite 1700
Seattle, WA 98101

RE: Rufus Block 20
Work Order Number: 1702075

February 15, 2017

Attention Chris Brown:

Fremont Analytical, Inc. received 2 sample(s) on 2/8/2017 for the analyses presented in the following report.

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)
Sample Moisture (Percent Moisture)

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Mike Ridgeway
Laboratory Director

Date: *02/15/2017*

CLIENT: GeoEngineers
Project: Rufus Block 20
Work Order: 1702075

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1702075-001	W9-31.0	02/08/2017 1:40 PM	02/08/2017 1:45 PM
1702075-002	N31-11.0	02/08/2017 1:30 PM	02/08/2017 1:45 PM

Case Narrative

WO#: **1702075**
Date: **2/15/2017**

CLIENT: GeoEngineers
Project: Rufus Block 20

I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Analytical Report

Work Order: **1702075**
Date Reported: **2/15/2017**

Client: GeoEngineers
Project: Rufus Block 20
Lab ID: 1702075-001
Client Sample ID: **W9-31.0**

Collection Date: 2/8/2017 1:40:00 PM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 16201		Analyst: WC
Diesel (Fuel Oil)	ND	23.1		mg/Kg-dry	1	2/10/2017 7:50:38 PM
Heavy Oil	ND	57.7		mg/Kg-dry	1	2/10/2017 7:50:38 PM
Surr: 2-Fluorobiphenyl	101	50-150		%Rec	1	2/10/2017 7:50:38 PM
Surr: o-Terphenyl	109	50-150		%Rec	1	2/10/2017 7:50:38 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 16214		Analyst: BT
Benz(a)anthracene	ND	50.5		µg/Kg-dry	1	2/15/2017 2:13:31 PM
Chrysene	ND	50.5		µg/Kg-dry	1	2/15/2017 2:13:31 PM
Benzo(b)fluoranthene	ND	50.5		µg/Kg-dry	1	2/15/2017 2:13:31 PM
Benzo(k)fluoranthene	ND	50.5		µg/Kg-dry	1	2/15/2017 2:13:31 PM
Benzo(a)pyrene	ND	50.5		µg/Kg-dry	1	2/15/2017 2:13:31 PM
Indeno(1,2,3-cd)pyrene	ND	50.5		µg/Kg-dry	1	2/15/2017 2:13:31 PM
Dibenz(a,h)anthracene	ND	50.5		µg/Kg-dry	1	2/15/2017 2:13:31 PM
Surr: 2-Fluorobiphenyl	80.2	24.5-139		%Rec	1	2/15/2017 2:13:31 PM
Surr: Terphenyl-d14 (surr)	123	44.3-176		%Rec	1	2/15/2017 2:13:31 PM
Sample Moisture (Percent Moisture)				Batch ID: R34359		Analyst: BB
Percent Moisture	23.4	0.500		wt%	1	2/9/2017 2:15:03 PM

Analytical Report

Work Order: **1702075**
Date Reported: **2/15/2017**

Client: GeoEngineers
Project: Rufus Block 20
Lab ID: 1702075-002
Client Sample ID: **N31-11.0**

Collection Date: 2/8/2017 1:30:00 PM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 16201		Analyst: WC
Diesel (Fuel Oil)	ND	21.9		mg/Kg-dry	1	2/10/2017 5:46:48 PM
Heavy Oil	ND	54.7		mg/Kg-dry	1	2/10/2017 5:46:48 PM
Surr: 2-Fluorobiphenyl	76.0	50-150		%Rec	1	2/10/2017 5:46:48 PM
Surr: o-Terphenyl	82.4	50-150		%Rec	1	2/10/2017 5:46:48 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 16214		Analyst: BT
Benz(a)anthracene	ND	43.4		µg/Kg-dry	1	2/15/2017 3:46:20 PM
Chrysene	ND	43.4		µg/Kg-dry	1	2/15/2017 3:46:20 PM
Benzo(b)fluoranthene	46.1	43.4		µg/Kg-dry	1	2/15/2017 3:46:20 PM
Benzo(k)fluoranthene	ND	43.4		µg/Kg-dry	1	2/15/2017 3:46:20 PM
Benzo(a)pyrene	ND	43.4		µg/Kg-dry	1	2/15/2017 3:46:20 PM
Indeno(1,2,3-cd)pyrene	ND	43.4		µg/Kg-dry	1	2/15/2017 3:46:20 PM
Dibenz(a,h)anthracene	ND	43.4		µg/Kg-dry	1	2/15/2017 3:46:20 PM
Surr: 2-Fluorobiphenyl	86.2	24.5-139		%Rec	1	2/15/2017 3:46:20 PM
Surr: Terphenyl-d14 (surr)	125	44.3-176		%Rec	1	2/15/2017 3:46:20 PM
Sample Moisture (Percent Moisture)				Batch ID: R34383		Analyst: BB
Percent Moisture	16.1	0.500		wt%	1	2/10/2017 11:42:59 AM

Work Order: 1702075
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID **MB-16201**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **2/10/2017**	RunNo: **34407**
Client ID: **MBLKS**	Batch ID: **16201**		Analysis Date: **2/10/2017**	SeqNo: **656711**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	20.0									
Heavy Oil	ND	50.0									
Surr: 2-Fluorobiphenyl	16.5		20.00		82.6	50	150				
Surr: o-Terphenyl	17.4		20.00		86.9	50	150				

Sample ID **LCS-16201**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **2/10/2017**	RunNo: **34407**
Client ID: **LCSS**	Batch ID: **16201**		Analysis Date: **2/10/2017**	SeqNo: **656710**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	480	20.0	500.0	0	96.0	65	135				
Surr: 2-Fluorobiphenyl	18.2		20.00		91.0	50	150				
Surr: o-Terphenyl	20.0		20.00		99.9	50	150				

Sample ID **1702075-002ADUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **2/10/2017**	RunNo: **34407**
Client ID: **N31-11.0**	Batch ID: **16201**		Analysis Date: **2/10/2017**	SeqNo: **656701**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	23.7						0		30	
Heavy Oil	ND	59.3						0		30	
Surr: 2-Fluorobiphenyl	17.2		23.71		72.6	50	150		0		
Surr: o-Terphenyl	18.7		23.71		78.8	50	150		0		

Sample ID **1702075-002AMS**	SampType: **MS**	Units: **mg/Kg-dry**	Prep Date: **2/10/2017**	RunNo: **34407**
Client ID: **N31-11.0**	Batch ID: **16201**		Analysis Date: **2/10/2017**	SeqNo: **656702**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	553	22.4	559.9	0	98.8	65	135				
Surr: 2-Fluorobiphenyl	19.3		22.39		86.2	50	150				
Surr: o-Terphenyl	21.8		22.39		97.3	50	150				

Work Order: 1702075
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID **1702075-002AMS**	SampType: **MS**			Units: **mg/Kg-dry**		Prep Date: **2/10/2017**			RunNo: **34407**		
Client ID: **N31-11.0**	Batch ID: **16201**					Analysis Date: **2/10/2017**			SeqNo: **656702**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID **1702075-002AMSD**	SampType: **MSD**			Units: **mg/Kg-dry**		Prep Date: **2/10/2017**			RunNo: **34407**		
Client ID: **N31-11.0**	Batch ID: **16201**					Analysis Date: **2/10/2017**			SeqNo: **656703**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	538	21.5	536.7	0	100	65	135	553.4	2.84	30	
Surr: 2-Fluorobiphenyl	19.7		21.47		91.7	50	150		0		
Surr: o-Terphenyl	22.1		21.47		103	50	150		0		

Work Order: 1702075
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **MB-16214**	SampType: **MBLK**	Units: **µg/Kg**	Prep Date: **2/13/2017**	RunNo: **34471**
Client ID: **MBLKS**	Batch ID: **16214**		Analysis Date: **2/15/2017**	SeqNo: **658118**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	ND	40.0									
Chrysene	ND	40.0									
Benzo(b)fluoranthene	ND	40.0									
Benzo(k)fluoranthene	ND	40.0									
Benzo(a)pyrene	ND	40.0									
Indeno(1,2,3-cd)pyrene	ND	40.0									
Dibenz(a,h)anthracene	ND	40.0									
Surr: 2-Fluorobiphenyl	525		500.0		105	24.5	139				
Surr: Terphenyl-d14 (surr)	712		500.0		142	44.3	176				

Sample ID **LCS-16214**	SampType: **LCS**	Units: **µg/Kg**	Prep Date: **2/13/2017**	RunNo: **34471**
Client ID: **LCSS**	Batch ID: **16214**		Analysis Date: **2/15/2017**	SeqNo: **658119**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	1,340	40.0	1,000	0	134	41.9	136				
Chrysene	1,160	40.0	1,000	0	116	46.9	138				
Benzo(b)fluoranthene	1,500	40.0	1,000	0	150	41	155				
Benzo(k)fluoranthene	1,140	40.0	1,000	0	114	41.8	153				
Benzo(a)pyrene	1,410	40.0	1,000	0	141	34.3	157				
Indeno(1,2,3-cd)pyrene	1,180	40.0	1,000	0	118	31.3	159				
Dibenz(a,h)anthracene	1,180	40.0	1,000	0	118	28	158				
Surr: 2-Fluorobiphenyl	559		500.0		112	24.5	139				
Surr: Terphenyl-d14 (surr)	717		500.0		143	44.3	176				

Sample ID **1702075-001ADUP**	SampType: **DUP**	Units: **µg/Kg-dry**	Prep Date: **2/13/2017**	RunNo: **34471**
Client ID: **W9-31.0**	Batch ID: **16214**		Analysis Date: **2/15/2017**	SeqNo: **658121**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	ND	44.1						0		30	
Chrysene	ND	44.1						0		30	

Work Order: 1702075
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1702075-001ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **2/13/2017** RunNo: **34471**
Client ID: **W9-31.0** Batch ID: **16214** Analysis Date: **2/15/2017** SeqNo: **658121**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzo(b)fluoranthene	ND	44.1						0		30	
Benzo(k)fluoranthene	ND	44.1						0		30	
Benzo(a)pyrene	ND	44.1						0		30	
Indeno(1,2,3-cd)pyrene	ND	44.1						0		30	
Dibenz(a,h)anthracene	ND	44.1						0		30	
Surr: 2-Fluorobiphenyl	431		551.5		78.1	24.5	139		0		
Surr: Terphenyl-d14 (surr)	671		551.5		122	44.3	176		0		

Sample ID **1702075-001AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **2/13/2017** RunNo: **34471**
Client ID: **W9-31.0** Batch ID: **16214** Analysis Date: **2/15/2017** SeqNo: **658122**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	1,340	48.4	1,210	0	111	57.5	169				
Chrysene	1,230	48.4	1,210	0	101	45.2	146				
Benzo(b)fluoranthene	1,450	48.4	1,210	3.556	119	42.2	168				
Benzo(k)fluoranthene	1,220	48.4	1,210	3.149	100	48	161				
Benzo(a)pyrene	1,460	48.4	1,210	5.389	121	34.4	179				
Indeno(1,2,3-cd)pyrene	1,200	48.4	1,210	4.687	98.4	5	113				
Dibenz(a,h)anthracene	1,210	48.4	1,210	5.176	99.9	17.3	156				
Surr: 2-Fluorobiphenyl	476		605.2		78.7	24.5	139				
Surr: Terphenyl-d14 (surr)	726		605.2		120	44.3	176				

Sample ID **1702075-001AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **2/13/2017** RunNo: **34471**
Client ID: **W9-31.0** Batch ID: **16214** Analysis Date: **2/15/2017** SeqNo: **658123**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	1,300	47.8	1,195	0	109	57.5	169	1,363	4.64	30	
Chrysene	1,220	47.8	1,195	0	102	45.2	146	1,215	0.230	30	
Benzo(b)fluoranthene	1,480	47.8	1,195	3.556	123	42.2	168	1,462	0.973	30	
Benzo(k)fluoranthene	1,170	47.8	1,195	3.149	98.0	48	161	1,242	5.61	30	

Work Order: 1702075
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1702075-001AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **2/13/2017** RunNo: **34471**
Client ID: **W9-31.0** Batch ID: **16214** Analysis Date: **2/15/2017** SeqNo: **658123**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzo(a)pyrene	1,430	47.8	1,195	5.389	119	34.4	179	1,474	3.08	30	
Indeno(1,2,3-cd)pyrene	1,180	47.8	1,195	4.687	98.3	5	113	1,214	2.93	30	
Dibenz(a,h)anthracene	1,190	47.8	1,195	5.176	99.5	17.3	156	1,232	3.16	30	
Surr: 2-Fluorobiphenyl	475		597.4		79.5	24.5	139		0		
Surr: Terphenyl-d14 (surr)	692		597.4		116	44.3	176		0		

Work Order: 1702075
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Sample Moisture (Percent Moisture)

Sample ID **1702075-002ADUP** SampType: **DUP** Units: **wt%** Prep Date: **2/10/2017** RunNo: **34383**
Client ID: **N31-11.0** Batch ID: **R34383** Analysis Date: **2/10/2017** SeqNo: **656131**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	16.7	0.500						16.14	3.36	20	

Work Order: 1702075
CLIENT: GeoEngineers
Project: Rufus Block 20

QC SUMMARY REPORT

Sample Moisture (Percent Moisture)

Sample ID **1702069-002ADUP** SampType: **DUP** Units: **wt%** Prep Date: **2/9/2017** RunNo: **34359**
Client ID: **BATCH** Batch ID: **R34359** Analysis Date: **2/9/2017** SeqNo: **655719**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	18.2	0.500						18.08	0.692	20	

Sample Log-In Check List

Client Name:	**GEI**	Work Order Number:	**1702075**
Logged by:	**Clare Griggs**	Date Received:	**2/8/2017 1:45:00 PM**

Chain of Custody

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

Log In

3.	Coolers are present?	Yes ☑	No ☐	NA ☐
4.	Shipping container/cooler in good condition?	Yes ☑	No ☐	
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes ☐	No ☐	Not Required ☑
6.	Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
7.	Were all items received at a temperature of >0°C to 10.0°C*	Yes ☑	No ☐	NA ☐
8.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
9.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
10.	Are samples properly preserved?	Yes ☑	No ☐	
11.	Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
12.	Is there headspace in the VOA vials?	Yes ☐	No ☐	NA ☑
13.	Did all samples containers arrive in good condition(unbroken)?	Yes ☑	No ☐	
14.	Does paperwork match bottle labels?	Yes ☑	No ☐	
15.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
16.	Is it clear what analyses were requested?	Yes ☑	No ☐	
17.	Were all holding times able to be met?	Yes ☑	No ☐	

Special Handling (if applicable)

18.	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: _____

19. Additional remarks:

Item Information

Item #	Temp ºC
Cooler	3.1
Sample	6.3

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Chain of Custody Record and Laboratory Services Agreement

Fremont Analytical

3600 Fremont Ave N.
Seattle, WA 98103

Tel: 206-352-3790
Fax: 206-352-7178

Date: 2/8/17

Laboratory Project No (internal): 1702075

Page: 1 of: 1

Client: GeoEngineers
Address: 1600 Stewart St, Suite 1700
City, State, Zip: Seattle, WA
Telephone: _____ Fax: _____

Project Name: Rufus Block 20
Project No: 24434-001-24 Collected by: Sydney Brownson
Location: Seattle, WA
Report To (PM): Chris Brown
PM Email: cbrown@geoengineers.com

*Matrix Codes: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM / 625)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8) Total (T) | Dissolved (D)	Anions (IC)***	EDB (8011)	cPAHs		Hold	Comments
1	W9-31.0	2/8/17	1340	S						X							X				
2	N31-11.0	↓	1330	↓																X	
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					

**Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL *Individual:* Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☒ Disposal by Lab (Samples will be held for 30 days unless otherwise noted. A fee may be assessed if samples are retained after 30 days.)

Turn-around times for samples received after 4:00pm will begin on the following business day.

Special Remarks:

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above, that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x Sydney Brownson	2/8/17 1345	x [signature]	2/8/17 1345
Relinquished	Date/Time	Received	Date/Time
x		x	

TAT → SameDay^ NextDay^ 2 Day 3 Day (STD)

^Please coordinate with the lab in advance

Fremont ANALYTICAL

Chain of Custody Record and Laboratory Services Agreement

3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 2/8/17

Laboratory Project No (internal): 1702075

Page: 1 of: 1

Client: GeoEngineers
Address: 1600 Stewart St, Suite 1700
City, State, Zip: Seattle, WA
Telephone: Fax:

Project Name: Rufus Block 20
Project No: 20434-001-24
Collected by: Sydney Brownson
Location: Seattle, WA
Report To (PM): Chris Brown
PM Email: cbrown@geoengineers.com

*Matrix Codes: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM / 625)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T) | Dissolved (D)	Anions (IC)***	EDB (8011)	cPAHs		Hold	Comments
1	W9-31.0	2/8/17	1340	S					X								X				
2	N31-11.0	↓	1330	↓					(X)								(X)			X	
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					

**Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL *Individual:* Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☒ Disposal by Lab (Samples will be held for 30 days unless otherwise noted. A fee may be assessed if samples are retained after 30 days.)

Turn-around times for samples received after 4:00pm will begin on the following business day.

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Relinquished	Date/Time	Received	Date/Time
x Sydney Brownson	2/8/17 1345	x	2/8/17 1345
Relinquished	Date/Time	Received	Date/Time
x		x	

TAT → SameDay^ NextDay^ 2 Day 3 Day (STD)

^Please coordinate with the lab in advance

1311 N. 35th St.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

GeoEngineers
Jessica Smith
600 Stewart Street, Suite 1700
Seattle, Washington 98101

RE: New Zealand
Lab ID: 1204002

April 09, 2012

Attention Jessica Smith:

Fremont Analytical, Inc. received 3 sample(s) on 2/21/2012 for the analyses presented in the following report.

Metals (SW6020) with TCLP Extraction (EPA 1311)

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Michelle Clements
Sr. Chemist / Lab Manager

Date: *04/09/2012*

CLIENT: GeoEngineers
Project: New Zealand
Lab Order: 1204002

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1204002-001	MW19-1-7.5	02/20/2012 8:50 AM	02/21/2012 10:03 AM
1204002-002	B19-4-15.0	02/20/2012 3:53 PM	02/21/2012 10:03 AM
1204002-003	B20-3-10	02/27/2012 8:12 AM	02/27/2012 6:30 PM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

Case Narrative

WO#: **1204002**
Date: **4/9/2012**

CLIENT: GeoEngineers
Project: New Zealand

I. SAMPLE RECEIPT:
All samples were received intact. The internal ice chest temperatures were measured on receipt and are recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Analytical Report

WO#: **1204002**
Date Reported: **4/9/2012**

CLIENT: GeoEngineers
Project: New Zealand

Lab ID: 1204002-001 **Collection Date:** 2/20/2012 8:50:00 AM
Client Sample ID: **MW19-1-7.5** **Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Metals (SW6020) with TCLP Extraction (EPA 1311)				Batch ID: 2173		Analyst: BR
Chromium	ND	0.500		mg/L	1	4/4/2012 8:00:48 AM

Lab ID: 1204002-002 **Collection Date:** 2/20/2012 3:53:00 PM
Client Sample ID: **B19-4-15.0** **Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Metals (SW6020) with TCLP Extraction (EPA 1311)				Batch ID: 2173		Analyst: BR
Chromium	ND	0.500		mg/L	1	4/4/2012 8:44:48 AM

Lab ID: 1204002-003 **Collection Date:** 2/27/2012 8:12:00 AM
Client Sample ID: **B20-3-10** **Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Metals (SW6020) with TCLP Extraction (EPA 1311)				Batch ID: 2173		Analyst: BR
Lead	0.599	0.500		mg/L	1	4/4/2012 8:53:48 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Date: *4/9/2012*

Work Order: 1204002
CLIENT: GeoEngineers
Project: New Zealand

QC SUMMARY REPORT

Metals (SW6020) with TCLP Extraction (EPA 1311)

Sample ID: **MB-2173** SampType: **MBLK** Units: **mg/L** Prep Date: **4/3/2012** RunNo: **3872**
Client ID: **MBLKS** Batch ID: **2173** Analysis Date: **4/4/2012** SeqNo: **69592**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	0.500									
Lead	ND	0.500									

Sample ID: **LCS-2173** SampType: **LCS** Units: **mg/L** Prep Date: **4/3/2012** RunNo: **3872**
Client ID: **LCSS** Batch ID: **2173** Analysis Date: **4/4/2012** SeqNo: **69593**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	13.6	0.500	12.50	0	109	65	135				
Lead	6.78	0.500	6.250	0	109	65	135				

Sample ID: **1204002-001ADUP** SampType: **DUP** Units: **mg/L** Prep Date: **4/3/2012** RunNo: **3872**
Client ID: **MW19-1-7.5** Batch ID: **2173** Analysis Date: **4/4/2012** SeqNo: **69595**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	0.500						0	0	30	R
Lead	ND	0.500						0	0	30	R

Sample ID: **1204002-001AMS** SampType: **MS** Units: **mg/L** Prep Date: **4/3/2012** RunNo: **3872**
Client ID: **MW19-1-7.5** Batch ID: **2173** Analysis Date: **4/4/2012** SeqNo: **69596**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	12.5	0.500	12.50	0.02016	99.9	65	135				
Lead	6.11	0.500	6.250	0.02890	97.3	65	135				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Date: *4/9/2012*

Work Order: 1204002
CLIENT: GeoEngineers
Project: New Zealand

QC SUMMARY REPORT

Metals (SW6020) with TCLP Extraction (EPA 1311)

Sample ID: **1204002-001AMSD** SampType: **MSD** Units: **mg/L** Prep Date: **4/3/2012** RunNo: **3872**
Client ID: **MW19-1-7.5** Batch ID: **2173** Analysis Date: **4/4/2012** SeqNo: **69597**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	12.4	0.500	12.50	0.02016	99.4	65	135	12.50	0.500	30	
Lead	6.08	0.500	6.250	0.02890	96.9	65	135	6.113	0.505	30	

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Fremont Analytical

Chain of Custody Record

1311 N. 35th Street
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Laboratory Project No (internal): 1204002 (1202119)

Date: 2/20/12 Page: 1 of: 3

Client:	GeoEngineers, Inc		Project Name:	New Zealand	
Address:	Plaza 600 Building, Suite 1700		Location:	Denny Triangle	
City, State, Zip	Seattle, WA, 98101	Tel: 206-728-1674	Collected by:	Theo Lesmana/Chris Brown	
Reports To (PM):	Jessica Smith	Fax: 425-861-6050	Email:	jasmith@geoengineers.com	Project #: 10484-001-02

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	BTEX (EPA 8260)	Gasoline Range Organics (NWTPH-Gx)	Semivolatile Organics (EPA 8270)	Diesel/Heavy Oil Range Organics (NWTPH-Dx)	SVOC (EPA 8270 - SIM)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Organochlorine Pesticides (EPA 8081)	Chlorinated Herbicides (EPA 8151A)	Metals* (6020 / 200.8)	TOC (7)	Anions (IC)**	RCRA 8 Metals by EPA 6020 / 7000	TCLP Cr	TCLP-Cr	Comments/Depth
MW19-1-	2/20/12		S														X			OB
MW19-1-2.5	2/20/12	830	S														X			
MW19-1-5.0	2/ /12	840	S														X			(X) Per J. Smith 4/2/12 cf
MW19-1-7.5	2/ /12	850	S														X	(X)		
MW19-1-10.0	2/ /12	900	S														X			
MW19-1-12.5	2/ /12	910	S														X			
MW19-1-15.0	2/ /12	920	S														X			
MW19-1-17.5	2/ /12	925	S														X			
MW19-1-20.0	2/ /12	935	S														X			
MW19-1-22.5	2/ /12	945	S														X			

*Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Co Cu Cr Mo Fe Hg K Mg Mn Mo Ni P Pb Sb Se Sr Sn Ti Tl U V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide Ortho-Phosphate Fluoride Nitrate-Nitrite

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab (A fee may be assessed if samples are retained more than 30 days)

Special Remarks:

Relinquished: Theo Lesmana	Date/Time: 2/21/12 1000	Received:		Date/Time: 2/21/12 10:03	
Relinquished:	Date/Time:	Received:		Date/Time:	

TAT -> Next Day 2 Day 3 Day STD

Distribution: White - Lab, Yellow - File, Pink - Originator

www.fremontanalytical.com

Fremont Analytical

Chain of Custody Record

1311 N. 35th Street
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Laboratory Project No (Internal): ~~1202119~~ ~~1202120~~ 1204002

Date: 2/21/12 Page: 1 of: 2

Client:	GeoEngineers, Inc			Project Name:	New Zealand
Address:	Plaza 600 Building, Suite 1700			Location:	Denny Triangle
City, State, Zip	Seattle, WA, 98101	Tel:	206-728-2674	Collected by:	Theo Leonard/Chris Brown
Reports To (PM)	Jessica Smith	Fax:	425-861-6050	Email:	jasmith@geoengineers.com

Project No: 20434-001-02

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	BTEX	EPA 8260	Gasoline Range Organics	EPA 8021b	Hydrocarbon Identification (NWTPH)	Diesel/Heavy Oil Range Organics	Semi VOC (EPA 8270)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals* (6020 / 200.8)	Total (T) / Dissolved (D)	Anions (IC)**	RCRA 8 Metals by EPA 6000/7000	Hold	TCLP - Cr	Comments/Depth
B19-4 - 2.5	2/20/12	1510	S																X			
B19-4 - 5.0	2/20/12	1515	S																X			
B19-4 - 7.5	2/20/12	1526	S																X			(X) Per J. Smith 4/2/12 CJ
B19-4 - 10.0	2/20/12	1535	S																X			
B19-4 - 12.5	2/20/12	1543	S																X			
B19-4 - 15.0	2/20/12	1553	S																X	X		
B19-4 - 17.5	2/20/12	1603	S																X			
B19-4 - 20.0	2/20/12	1613	S																X			
B19-4 - 22.5	2/20/12	1616	S																X			
B19-4 - 25.0	2/20/12	1621	S																X			

*Metals Analysis (Circle): MTCA 5 RCRA 8 Priority Pollutants TAL Individual Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: ☐ Return to Client ☒ Disposal by Lab (a fee may be assessed if samples are retained after 60 days)

Special Remarks:

Relinquished	Date/Time	Received	Date/Time
[signature]	2/21/12 1600	[signature]	2/21/12 1613
Relinquished	Date/Time	Received	Date/Time

TAT --> Next Day 2 Day 3 Day STD

Distribution: White - Lab, Yellow - File, Pink - Originator

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Chain of Custody Record

1111 N. 35th Street
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Laboratory Project No (Receive): ~~1202121~~ 1204002

Date: 2/27/12

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Client:	GeoEngineers, Inc.			Project Name:	New Zealand
Address:	Plaza 600 Building, Suite 1700			Location:	Denny Triangle
City, State, Zip	Seattle, WA, 98101	Tel:	206-728-2674	Collected by:	Theo Leonard/Chris Brown
Reports To (PM):	Jessica Smith	Fax:	425-861-6050	Email:	jsmith@geoengineers.com

Project No: 20434-001-02

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	PAHs (EPA 8270)	Gasoline Range Organics	Hydrocarbon Identification (HCID)	Diesel- & Heavy Oil Range Organics	SGM HCs (EPA 8270)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals* (6020 / 200.8)	Total (T) Dissolved (D)	Arsenic (As)**	Store Sample by EPA 6000/7000	Hold	TLP - TD	Comments/Depth
B20-3-2.5	2/27/12	755	S															X		
B20-3-5.0	2/ /12	801	S																	
B20-3-7.5	2/ /12	807	S																	⊗ Per T. Smith 4/27/12 CH
B20-3-10.0	2/ /12	812	S															⊗		
B20-3-12.5	2/ /12	818	S																	
B20-3-15.0	2/ /12	825	S																	
B20-3-17.5	2/ /12	829	S																	
B20-3-20.0	2/ /12	839	S																	
B20-3-22.5	2/ /12	846	S																	
B20-3-25.0	2/ /12	857	S															↓		

*Metals Analysis (Circle): NWTCA-5 RCRA-8 Priority Pollutants TAL Antimony Ag Al As B Ba Be Ca Cd Co Cu Cr Cu Fe Pb B Mg Mn Mo Ni Pb Sb Se Sr Sn Ti Tl U V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate-Nitrite

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab (A fee may be assessed if samples are retained after 30 days.)

Special Remarks:

Relinquished	Date/Time		Received	Date/Time	
× Ellie Kraae	2/27/12	1830	× Jay Zeh	2/27/12	1830
Relinquished	Date/Time		Received	Date/Time	
×			×		

TAT—> Next Day 2 Day 3 Day STD

Distribution: White - Lab; Yellow - File; Pink - Originator

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