

**Final Report - Marine Sediment
Sampling Program: Caribou
Harbour and Pictou Harbour,
Pictou County, Nova Scotia**

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Abbreviations

BTEX	Benzene, Toluene, Ethylene, Xylene
CCME	Canadian Council of Ministers of the Environment
<i>CEPA</i>	<i>Canadian Environmental Protection Act</i>
COC	Chain of Custody
CVAA	Cold Vapour Atomic Absorption
DUP	Duplicate
ECCC	Environment and Climate Change Canada
GPS	Global Positioning System
ICP	Inductively Coupled Plasma
ISQG	Interim Sediment Quality Guideline
MSSP	Marine Sediment Sampling Program
PAH	Polycyclic Aromatic Hydrocarbon
PCB	Polychlorinated Biphenyl
QA/QC	Quality Assurance / Quality Control
RDL	Reportable Detection Limit
SCC	Standards Council of Canada
SQG	Soil Quality Guideline
TOC	Total Organic Carbon
UTM	Universal Transverse Mercator



1.0 INTRODUCTION

At the request of Northern Pulp Nova Scotia Corporation (NPNS), Stantec Consulting Ltd. (Stantec) has undertaken a marine sediment sampling program (MSSP) for Caribou and Pictou Harbours, Pictou County, Nova Scotia. The purpose of the MSSP is to sample and characterize sediment quality from both harbours in support of the proposed NPNS Replacement Effluent Treatment Facility (the Project) and particularly, the sediment along the proposed trench for the marine pipeline route.

This report describes the sampling program design and methodology, summarizes the analytical results obtained, and compares and interprets the results against criteria used by Environment and Climate Change Canada (ECCC) for disposal at sea permitting purposes, including sidecasting dredged material.

The quantity of excavated sediment that may need to be permanently sidecasted or disposed at sea has not been determined at this time as the Project is still in the design stage. Preliminary estimates range from 9,100 to 14,900 cubic metres (m³), which will be better known once the geotechnical and geophysical investigations have been completed to further support the engineering design.

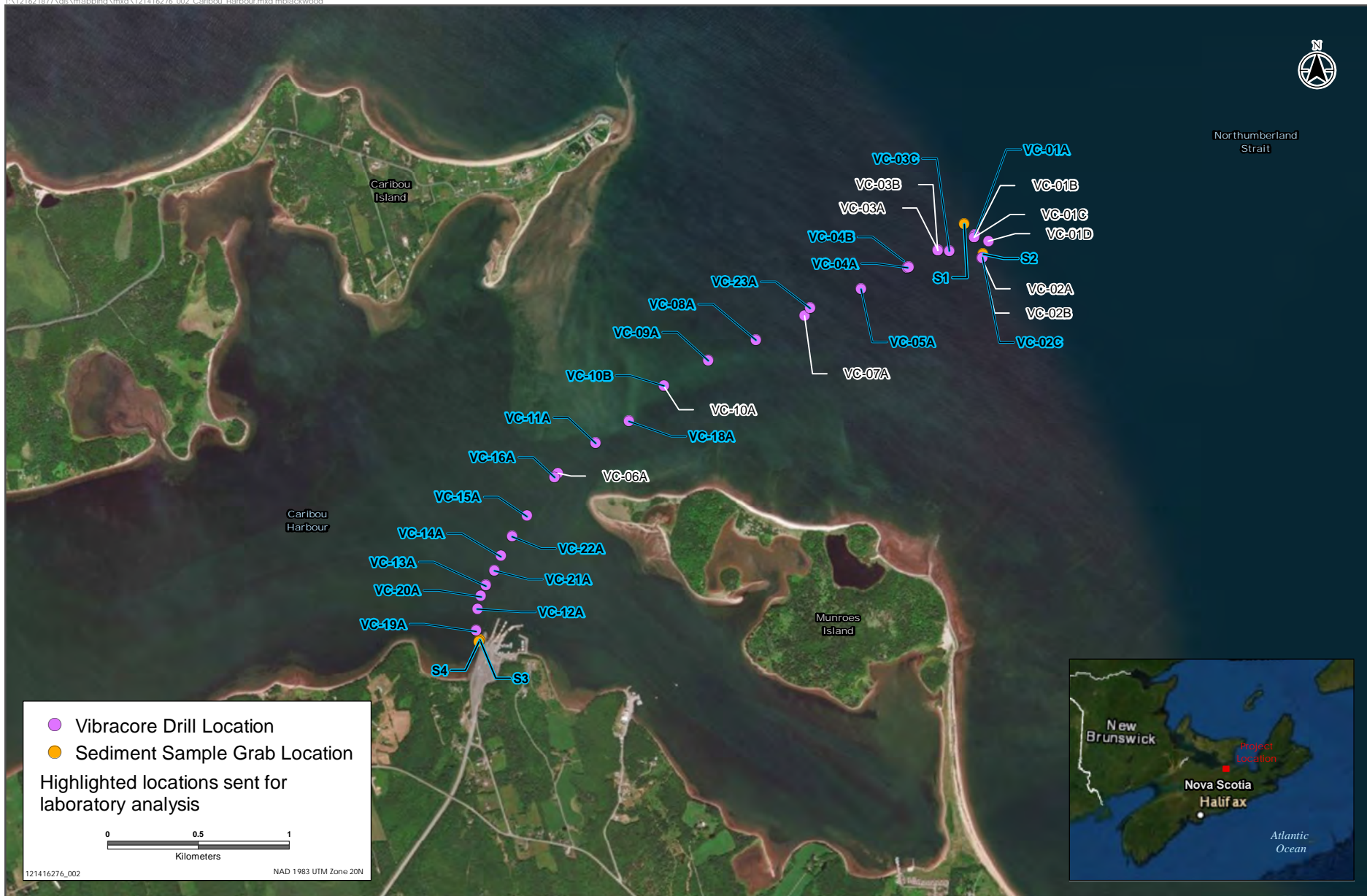
2.0 SAMPLING DESIGN

2.1 SITE PLAN

Thirty-seven composite samples from 31 vibracore locations within Caribou Harbour and Northumberland Strait (VC-01 to VC-23, and the retries of these locations), including 4 surface grab samples (S1 to S4), as well as eleven composite samples from 10 vibracore locations within Pictou Harbour (VC-50A to VC-54, and the retries at these locations when the vibracore did not fully penetrate to 3 m) were collected. The sample locations were distributed along the proposed marine pipeline route (Caribou Harbour and Pictou Harbour) and diffuser location in Northumberland Strait. Vibracores that returned a poor recovery percentage were attempted at another location nearby (i.e., identified with a letter 'A', 'B' or 'C' such that if vibracore VC-##A was not successful, it was retried at adjacent location VC-##B, and if that was not successful, then VC-##C was attempted and generally the last attempt before abandonment of that station location).

Figure 2.1 and 2.2 present the vibracore drilling locations in Caribou Harbour and Pictou Harbour, respectively.





Sources: Base Data - Natural Earth; Thematic Data - ERBC
Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community

Disclaimer: This map is for illustrative purposes to support this Stantec project. Questions can be directed to the issuing agency.

Vibracore Drill and Grab Sample Locations Caribou Harbour



Figure 2.1



Sources: Base Data - Natural Earth; Thematic Data - ERBC
Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community

Disclaimer: This map is for illustrative purposes to support this Stantec project. questions can be directed to the issuing agency

Vibracore Drill Locations Pictou Harbour



Figure 2.2

2.2 SAMPLE COLLECTION

Between April 28, 2019 and May 6, 2019 Stantec assisted Canadian Seabed Research Ltd. (CSR) with the collection of 3-m vibracores using a Rossfelder P-3 Vibracore system (Photo 1) drilled into the seabed from 31 locations in Caribou Harbour and 10 locations in Pictou Harbour along the proposed marine pipeline routes. Additional sediment grabs were collected using a Van Veen grab (S1 to S3) and a Petite Ponar grab (S4). Two of the additional samples were collected at Caribou Harbour and two at the proposed diffuser location in Northumberland Strait. Composite sediment samples were composed from within one-metre sections of the 3-m vibracore (i.e., top, mid-depth and bottom 1-m section of the vibracore). In total, forty-four marine sediment samples were collected from 25 locations with a Vibracore drill (33 composite samples from 20 locations at Caribou, and 11 composite samples from 5 locations in Pictou Harbour). All samples were submitted to Maxxam Analytics, an analytical laboratory accredited by the SCC, for physicochemical analysis. CSR operated the vibracore equipment in the field and provided the location coordinates presented in Table 2.1. Additional sample location information is provided in Table A1 (Appendix A) that provides the vibracore data on distance penetrated by the corer, percent recover, description of the material in the core, and what sections of the cores obtained were submitted to the laboratory for analysis.



Photo 1 Rossfelder P-3 Vibracore system



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Table 2.1 Locations of Marine Vibracores Collected at Caribou Harbour and Pictou Harbour

Vibracore ID	UTM NAD83 Zone 20 Easting (m)	UTM NAD83 Zone 20 Northing (m)
Caribou Harbour		
VC-01-1	526868.6	5067312.2
VC-01B	526861.3	5067300.3
VC-01C	526862	5067299
VC-01D	526941.1	5067278.9
VC-02A	526904	5067187.5
VC-02B	526905.5	5067187.7
VC-02C	526907.3	5067189
VC-03A	526663.6	5067228.1
VC-03B	526662.6	5067227.4
VC-03C	526726.9	5067224.8
VC-04A	526496.2	5067131.7
VC-04B	526502.1	5067135.2
VC-05A	526241.6	5067015.1
VC-06A	524573.9	5066004
VC-07A	525931.2	5066867.9
VC-08A	525663.0	5066734.9
VC-09A	525400.9	5066622.3
VC-10A	525156.5	5066481.3
VC-10B	525156.9	5066482.7
VC-11A	524783	5066168.4
VC-12A	524131.9	5065255.1
VC-13A	524178.8	5065386.3
VC-14A	524261.7	5065548.3
VC-15A	524405.3	5065768.1
VC-16A	524555.7	5065980.4
VC-18A	524964.7	5066289
VC-19A	524125	5065136.5
VC-20A	524151.9	5065327.1
VC-21A	524225.2	5065466.1
VC-22A	524322.9	5065654.7
VC-23A	525960.8	5066910
S1 (grab sample)	526808.5	5067371.2
S2 (grab sample)	526912	5067206
S3 (grab sample)	524145.4	5065085.2
S4 (grab sample)	524141.1	5065075.5



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Table 2.1 Locations of Marine Vibracores Collected at Caribou Harbour and Pictou Harbour

Vibracore ID	UTM NAD83 Zone 20 Easting (m)	UTM NAD83 Zone 20 Northing (m)
Pictou Harbour		
VC-50A	521562.2	5056173.1
VC-50B	521566.9	5056173.2
VC-50C	521567.2	5056172.2
VC-51A	521475.1	5056389.3
VC-51B	521472.7	5056386.4
VC-51C	521477.0	5056380.6
VC-52A	521386.2	5056655.6
VC-52B	521389.9	5056656
VC-53A	521309.0	5056899.1
VC-54A	521267.0	5057061.5
<p>Note: Bolded rows are the locations from which composite sediment samples were taken and submitted to the laboratory for physiochemical analysis. Additional data for each vibracore ID listed above is provided in Table A-1 in Appendix A.</p>		

Specific vibracores in Table 2.1 were selected to cover spatially the horizontal and vertical extents below the seabed of the proposed trench to be excavated along the pipeline route. The objective of selecting these vibracores is to identify the location(s) along the pipeline route that may contain potentially elevated concentrations of chemical parameters of concern used by ECCC to assess the suitability of dredged material for disposal at sea permitting applications. These locations could lead to the identification of Dredged Material Management Units (DMMU) for which a separate dredging and disposal decision may be made by ECCC (ECCC 2019).

2.3 SAMPLE ANALYSIS

Sediment from the vibracores retained for analysis and the sediment grab samples were submitted to Maxxam for the following analytical parameters and intended to support the assessment for disposal at sea requirements by ECCC (2019):

- Total organic carbon (TOC);
- Grain size distribution;
- Polycyclic aromatic hydrocarbons (PAHs) - low level analysis;
- Metals - this analysis included an ICP metals scan plus mercury by CVAA; and
- Polychlorinated biphenyls (PCBs) – Quebec congener method (MA.400-BPC1.0 Determination of Polychlorinated Biphenyls: Quantification by Gas Chromatography –Mass Spectrometry or Gas Chromatography–Electron Capture Detection – Congener and Homologue Group Method).



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In addition to the aforementioned parameters, eight surface sediment samples (VC-01-1SFC, VC-04B, VC-08A, VC-16-1, VC-23-1, S1, S1-Dup, and S2) were submitted to Maxxam for the following parameters to support sediment quality for a Human Health Risk Assessment, which are not intended for disposal at sea evaluation and are not presented in the body of this report:

- Total Petroleum Hydrocarbons (TPH) and benzene, toluene, ethylbenzene, and xylenes (BTEX) - this analysis included low level analysis for BTEX;
- Total sulphides;
- Total carbon;
- Total nitrogen;
- Dioxins and furans;
- EOX (extractable);
- Acid-volatile sulphide;
- Ammonia;
- Nitrate;
- TKN (Total Kjeldahl Nitrogen);
- Orthophosphate;
- pH;
- Specific non-chlorinated phenolic compounds (4-AAP phenol);
- Chlorinated VOCs;
- RBCA hydrocarbons;
- Total oil and grease; and
- Total cyanide.

Composite sediment samples from vibracores that were not retained for physicochemical analysis in Table 2.1 (i.e., with a different number and at a large horizontal distance) were archived and refrigerated at 4 °C for subsequent testing, if required and to confirm the extent of the DMMU.

3.0 ANALYTICAL RESULTS

The analytical results of the marine sediment samples collected from Caribou Harbour and Pictou Harbour are summarized in Tables A2 to A5 (Appendix A) and discussed below. The complete set of analytical results, including laboratory QA/QC and Certificates of Analyses for all parameters tested, are provided in Appendix B.

3.1 CARIBOU HARBOUR RESULTS

The analytical results of the marine sediment samples collected from Caribou Harbour are summarized in Tables A2 to A5 (Appendix A) and discussed below. The complete set of analytical results, including laboratory QA/QC and Certificates of Analyses for all parameters tested, are provided in Appendix B. Representative photos of a core sample (top and bottom depth of core location VC-20A) are provided in Photos 2 and 3 for 1-m sections of the vibracore.



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Photo 2 **Representative Core Sample from Location VC-20A-1, illustrating the top 0.2 m portion of the 0 m to 0.9 m section of the core containing soft, brown, sandy silt**



Photo 3 **Representative core sample from location VC-20A-3, illustrating top 0.2 m portion of the 1.5 m to 3.5 m section of core containing soft, grey, clayey silt**



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3.1.1 Grain Size Distribution

Grain size results for Caribou indicated that the substrate is predominately composed of sand, with silt content increasing with proximity to shore. The sediment grain size composition for samples from Caribou Harbour and out to the proposed diffuser location in Northumberland Strait are summarized in Table 3.1 below, and further detailed in Table A2, Appendix A. Grain size distributions including median particle diameter data are included in Appendix B.

Table 3.1 Sediment Grain Size Distribution for Samples from Caribou Harbour

Sample	Grain Size Fraction			
	Clay (%)	Silt (%)	Sand (%)	Gravel (%)
S1	0.94	<0.10	98	1.2
S1-DUP	1.1	<0.10	96	2.4
S1-LAB DUP	0.85	<0.10	86	13
S2	1.7	0.76	78	20
S3	16	58	26	0.32
S4	10	54	36	<0.10
VC-01-1-SFC	4.3	14	81	1.2
VC-01-1-SFC LAB DUP	4.5	16	78	1.1
VC-01-1-BTM	3	3.2	67	27
VC-02C-1	1.6	1.8	57	40
VC-02C-2	16	41	37	5.7
VC-03B-1	1.3	0.77	80	18
VC-04A	1.6	2.1	91	5.5
VC-04B	1.3	1.1	96	1.7
VC-05-1	8.3	16	73	2.4
VC-8A	1.7	0.71	98	<0.10
VC-09	1.2	0.47	95	3.8
VC-10B-1	1.3	0.43	98	0.68
VC-11-1	8.2	7.1	84	0.43
VC-11-2	7.8	65	27	<0.10
VC-12-1	4.4	13	77	6.2
VC-12-2	4.5	39	55	0.74
VC-14-1	19	67	14	<0.10
VC-14-2	16	74	10	<0.10
VC-14-3	29	61	10	<0.10
VC-15-1	11	54	34	0.43
VC-16-1	25	42	28	4.9
VC-16-2	34	55	11	<0.10
VC-16-3	14	75	10	0.51
VC-18-1	1.1	0.27	99	<0.10



Table 3.1 Sediment Grain Size Distribution for Samples from Caribou Harbour

Sample	Grain Size Fraction			
	Clay (%)	Silt (%)	Sand (%)	Gravel (%)
VC-18-1 LAB DUP	1.2	0.17	99	<0.10
VC-19-1	19	34	47	0.11
VC-19-3	14	75	10	0.62
VC-20-1	17	29	53	0.34
VC-20-3	14	75	11	0.35
VC-21-1	23	54	24	<0.10
VC-22-1	4.4	13	82	0.24
VC-22-3	26	43	31	<0.10
VC-23-1	7	10	83	0.18
VC-23-3	3	54	43	0.29
VC-23-4	7.8	71	21	<0.10

3.1.2 Carbon Content

Results for Total organic carbon (TOC) are located in Table A2 (Appendix A). Caribou Harbour samples contained TOC ranging from non-detectable (<0.5 g/kg) to 23 g/kg.

3.1.3 PAH Concentrations

No PAH concentrations exceeded either the *CEPA* Disposal at Sea sediment screening criteria or the CCME Sediment Quality Guidelines – Probable Effects Levels for Marine environments in samples collected in Caribou Harbour. A summary of the results compared to the referenced guidelines is provided in Table A3 (Appendix A).

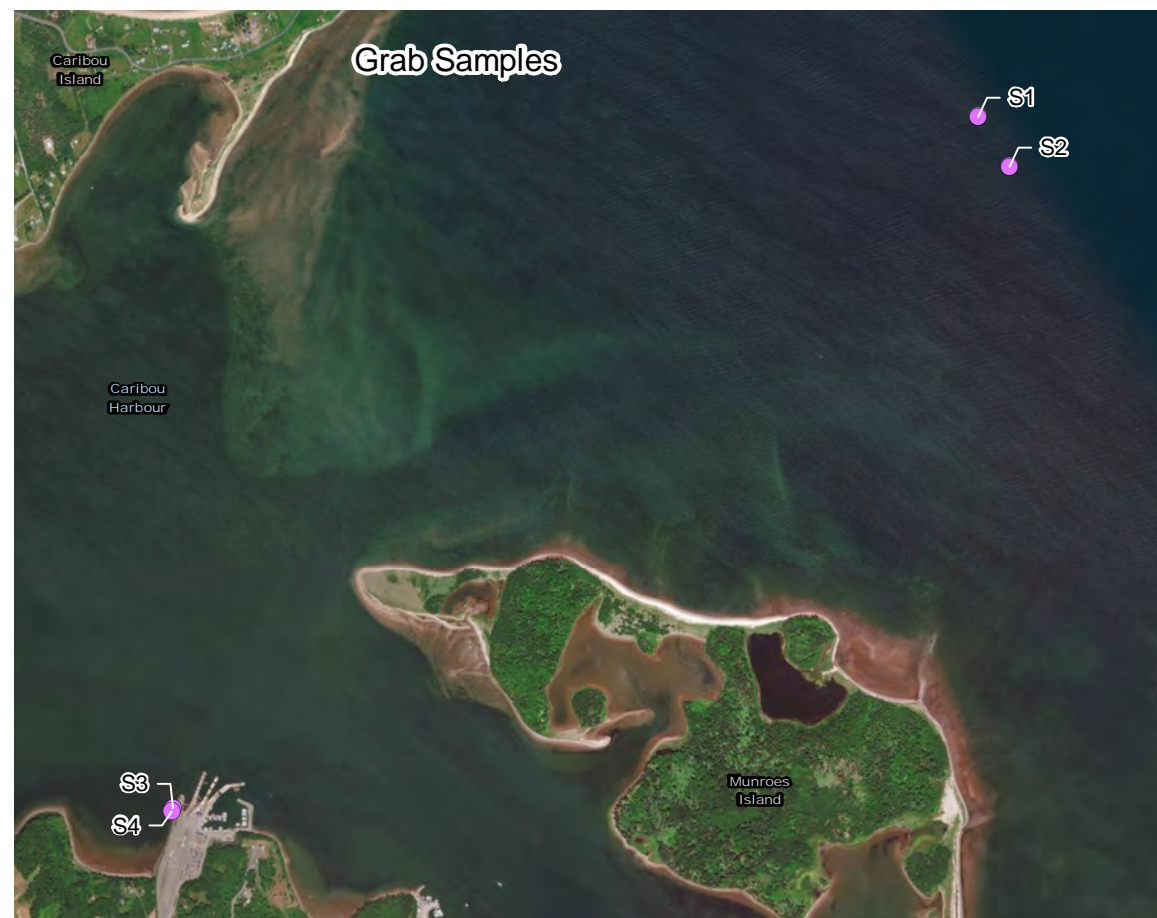
3.1.4 Metal Concentrations

The majority of samples did not exceed available guidelines for metals. Observed metals exceedances of referenced guidelines are summarized below. A summary of the results compared to each of the referenced guidelines is provided in Table A4 (Appendix A). Figure 3.1 present metals exceedances of these locations with respect to the CCME Marine Interim Sediment Quality Guidelines (ISQG), which are used by ECCC as guidance to characterize sediment (ECCC 2019) but are not included in the Disposal at Sea Regulations under the *Canadian Environmental Protection Act, 1999*.

The following parameters had results that exceeded the ECCC Lower Action Level sediment screening criteria (ECCC 2019), which are based on CCME Marine Interim Sediment Quality Guidelines:

- Arsenic (CCME ISQG limit of 7.24 mg/kg); nine samples (VC-14-1, VC-14-2, VC-14-3, VC-16-1, VC-16-2, VC-16-3, VC-19-3, VC-20-3, VC-21-1) with concentrations ranging from 7.3 mg/kg to 12 mg/kg.
- Copper (CCME ISQG limit of 18.7 mg/kg); two samples VC-12-2 (41 mg/kg), and VC-16-3 (19 mg/kg).



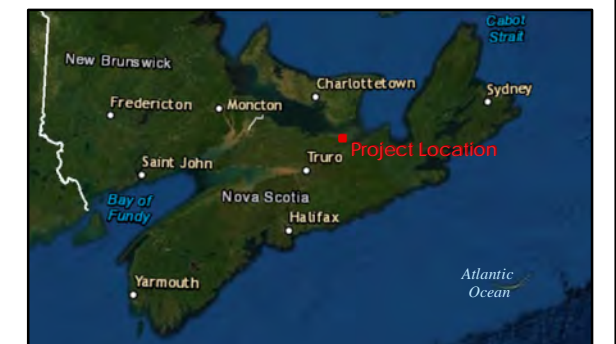


Metals Interim Sediment Quality Guideline (ISQG) Exceedances

- Arsenic Exceedance
- Copper Exceedance
- No Exceedances



Notes
 1. Coordinate System: NAD 1983 UTM Zone 20N
 2. Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA,



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Figure 3.1 Caribou Harbour Marine Sediment Sample Locations Metals Results Compared to CCME ISQG Marine Sediment Guidelines

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The concentrations of cadmium and mercury in the sediments from Caribou Harbour were below the Lower Levels identified in the Disposal at Sea Regulations; the concentrations of arsenic and copper exceeded the CCME ISQG values, but were below the CCME Probable Effects Levels (PEL). The ISQG is typically described as a value below which adverse effects are not expected to occur, whereas the higher PEL is described as a value above which adverse effects frequently occur. The range between the ISQG and the PEL is perceived as a range where the likelihood of adverse effects varies from low to possible.

The sediments characterized in 2014 and dredged in the navigation channel at Caribou for the Transport Canada Caribou Ferry Terminal also had some samples that exceeded ISQGs for arsenic and in the similar concentration range of 8 to 10 mg/kg (Amec 2015). Arsenic concentrations observed in the sediment are likely attributed to the general soils of the area which are relatively high in arsenic concentrations.

3.1.5 PCBs

The results indicate that the Total PCB concentrations did not exceed the *CEPA* Disposal at Sea Screening Criteria, or the CCME Sediment Quality Guidelines for Marine PELs at any of the analyzed sample locations. A summary of the PCB results is provided in Table A5 (Appendix A).

3.1.6 Summary of Caribou Harbour Results

Of the 33 composite samples submitted for analysis, 10 composite samples (from 6 vibracore locations) had metals parameters (arsenic and/or copper) exceed the CCME Marine Sediment Quality Guidelines – ISQG. Observed exceedances of arsenic were located in the top layer of each vibracore location (at locations VC-14A-1, VC-16A-1, and VC-21-1), while exceedances of copper were observed in deepercore composites (VC12-2 and VC-16-3). Additionally, arsenic exceedances were also found throughout the entire core depth in some locations (VC-14 and V-16A) and at the deep core composites at sample locations VC-19-3 and VC-20-3. All samples with exceedances were collected from within the inner harbour of Caribou.

3.2 PICTOU HARBOUR RESULTS

The analytical results of the marine sediment samples collected from Pictou Harbour are summarized in Tables A2 to A5 (Appendix A) and discussed below. The complete set of analytical results, including laboratory QA/QC and Certificates of Analyses for all parameters tested, are provided in Appendix B. A representative core sample is shown in Photos 4 and 5.



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Photo 4 **Representative Core Sample from Location VC-50C-2, illustrating a section of the core between 0.44 and 0.68 m of mid-depth core (0.2 to 1.2 m) containing grey/black silty sand**



Photo 5 **Representative Core Sample from Location VC-50C-3, illustrating the top 0.3 m of bottom depth core (1.2 to 2.2 m) containing grey to black silt**

3.2.1 Grain Size Distribution

Sediment within Pictou Harbour were identified as being predominately composed of silt and clay with only two samples (VC-50C-2 and VC-51A) containing more sand than either silt or clay (41% and 35%, respectively). The sediment grain size composition for samples from Pictou Harbour are summarized in Table 3.2 below, and A2 in Appendix A. Grain size distributions including median particle diameter data are included in Appendix B.



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Table 3.2 Sediment Grain Size Distribution at Pictou Harbour

Sample	Grain Size Fraction			
	Clay (%)	Silt (%)	Sand (%)	Gravel (%)
VC-50C-1	42	46	10	1.7
VC-50C-2	15	19	41	25
VC-50C-3	39	41	15	5.3
VC51A	19	27	35	18
VC-52-1	13	79	7.5	<0.10
VC-52-2	20	75	4.8	<0.10
VC-52-3	14	80	5.9	<0.10
VC-53-1	16	79	5	0.34
VC-53-1 LAB DUP	21	72	7.1	0.43
VC-53-2	16	68	16	1.1
VC-53-3	14	81	4.7	0.22
VC54A	15	76	7.3	2.3

3.2.2 Carbon Content

Results for Total organic carbon (TOC) are located in Table A2 (Appendix A). Pictou Harbour samples contained TOC ranging from 4.7 g/kg to 69 g/kg.

3.2.3 PAH Concentrations

An exceedance of Total PAH concentrations in sediment was reported at VC-50C-1 when compared to the *CEPA* Disposal at Sea sediment screening criteria. Exceedances of individual PAH parameters (specifically for acenaphthene, fluorene, naphthalene, and 2-methylnaphthalene) were reported at VC-50C-1 when compared to the CCME Sediment Quality Guidelines – Marine PELs. A summary of the results compared to the referenced guidelines is provided in Table A3 (Appendix A).

3.2.4 Metal Concentrations

Observed metals exceedances of referenced guidelines are summarized below. A summary of the results compared to each of the referenced guidelines is provided in Table A4 (Appendix A).

Only one sample (0.64 mg/kg at VC-53-3) exceeded the sediment screening criteria for cadmium (0.60 mg/kg) under the *CEPA* Disposal at Sea Regulations.

The following parameters had results that exceed the ECCC Lower Action Level sediment screening criteria (ECCC 2019) for some samples, which are based on CCME Marine ISQGs:

- Arsenic (CCME ISQG limit of 7.24 mg/kg) for all eleven samples (VC-50C-1, VC-50C-2, VC50C-3, VC-51, VC-52-1, VC-52-2, VC-52-3, VC-53-1, VC-53-2, VC-53-3, VC-54-1) with concentrations ranging from 8.3 mg/kg to 12 mg/kg.



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- Copper (CCME ISQG limit of 18.7 mg/kg) for five samples (VC-50C-1, VC-50C-3, VC-52-3, VC-53-3, VC-54-1) with concentrations ranging from 19 mg/kg to 21 mg/kg.
- Lead (CCME ISQG limit of 30.2 mg/kg) for two samples VC-50C-1 (33mg/kg), and VC-50C-3 (33 mg/kg).

Figure 3.2 present metals exceedances of these locations with respect to the CCME Marine Interim Sediment Quality Guidelines and the *CEPA* DAS screening criteria.

3.2.5 PCBs

The results indicate that the Total PCB concentrations did not exceed the *CEPA* Disposal at Sea Regulations Screening Criteria, or the CCME Sediment Quality Guidelines for Marine PELs at any of the analyzed sample locations. A summary of the PCB results is provided in Table A5 (Appendix A).

3.2.6 Summary of Pictou Harbour Results

Core composite sample VC-50C-1 exceeded the *CEPA* screening number for total PAH along with exceeding the CCME Marine PELs for four individual PAH concentrations. All 11 composite samples submitted for analysis (from 5 vibracore locations), had metals parameters (arsenic, lead and/or copper) exceed the CCME Sediment Quality Guidelines – Marine ISQG. Exceedances of arsenic were observed in all analyzed depths at vibracore locations VC-50C, VC-52A, and VC-53A. Samples collected at VC-51 and VC-54 had arsenic exceedances within the only core depth analyzed at either of those locations. Exceedances of copper were observed in core composites of varying depths (VC-50C-1, VC-50C-3, VC-52-3, VC-53-3, and VC-54-1). Lead was also exceeded in two core composites VC-50C-1 and VC-50C-3. Additionally, a single cadmium result (VC-53-3) exceeded the ECCC Lower Action Level screening criteria and was reported in the bottom-depth of the core.



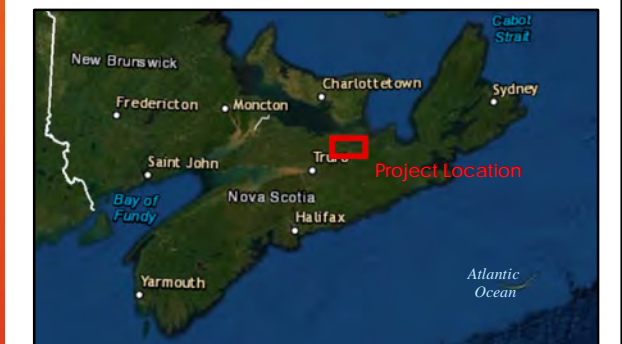


Metals Interim Sediment Quality Guideline (ISQG) Exceedances

- Arsenic Exceedance
- Copper Exceedance
- Lead Exceedance
- Cadmium Exceedance ³
- No Exceedances



- Notes
1. Coordinate System: NAD 1983 UTM Zone 20N
 2. Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
 - Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
 3. Exceedance of CEPA Disposal at Sea Regulations Lower Action Level



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Figure 3.2 Pictou Harbour Marine Sediment Sample Locations
Metals Results Compared to CCME
ISQG Marine Sediment Guidelines

4.0 QUALITY ASSURANCE/QUALITY CONTROL

Vibracore tubes were labeled on site using a waterproof marker with the date, sample site identifier, and sample number. Once the core samples were delivered upright to the Stantec laboratory in Dartmouth, NS, they were placed upright in a refrigerator at 4 °C prior to splitting the core and sub-sampling in the following days. The sediment samples were hand-delivered to the laboratory as they were processed. A copy of the Chain of Custody that accompanied the sediment samples is provided in Appendix B.

Samples were analyzed for each physicochemical parameter in the program by an accredited laboratory (Maxxam Analytics, Bedford, NS) and accredited by the SCC. The complete set of analytical results is provided in Appendix B, including laboratory QA/QC and Certificates of Analyses for all parameters tested.

To assess the quality of the analytical data, a review of the internal laboratory QA/QC results was completed including a review of laboratory duplicate analyses, method blanks, surrogates, spike samples, and QA/QC standards.

5.0 CLOSING

This report was undertaken exclusively for the purpose outlined herein and was limited to the scope and purpose specifically expressed in this report and the referenced documents. This report cannot be used or applied under any circumstances to another location or situation or for any other purpose without further evaluation of the data and related limitations. Any use of this report by a third party, or any reliance on decisions made based upon it, are the responsibility of such third parties. Stantec Consulting Ltd. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions taken.

This report represents the best professional judgment of Stantec Consulting Ltd. personnel available at the time of its preparation. Stantec Consulting Ltd. reserves the right to modify the contents of this report, in whole or in part, to reflect any new information that becomes available. If any conditions become apparent that differ significantly from our understanding of conditions as presented in this report, we request that we be notified immediately to reassess the conclusions provided herein.

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6.0 LITERATURE CITED

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APPENDIX A

Tabulated Results

TABLE A1 Sample Location Details for Marine Sediments - Caribou Harbour and Pictou Harbour, Pictou County, Nova Scotia

Sample ID	Easting (m)	Northing (m)	Latitude	Longitude	Sample Date/Time	Penetration (m)	Recovery (m)	Recovery %	Depth (m)	Description	Comments from Geotech Analysis	Samples Submitted to Maxxam Analytics	Sample Location Depth (m)	Oxidative Reduction Potential (mV)
Caribou Harbour Vibracore Samples														
VC-01A-1-SFC	526868.6	5067312.2	45 45 31.8436 N	062 39 16.2114 W	2019/04/28 09:00	3	1	33.3	0 - 0.5	Medium to fine SAND Silty SAND GRAVEL with sand, trace shells	Large cobble plugged nose cone	X	0 - 0.5	295
VC-01A-1-BTM									0.5 - 0.66			X	0.5 - 0.91	315
VC-01B	526861.3	5067300.3	45 45 31.4603 N	062 39 16.554 W	2019/05/04 12:45	1	0	0.0			No Recovery, No NC fingers		-	-
VC-01C	526862	5067299	45 45 31.4165 N	062 39 16.5214 W	2019/05/04 12:59	0.7	0.2	28.6			Cobbles		-	-
VC-01D	526941.1	5067278.9	45 45 30.7551 N	062 39 12.8638 W	2019/05/04 13:32	2.9	0	0.0			No Recovery		-	-
VC-02A	526904	5067187.5	45 45 27.799 N	062 39 14.5967 W	2019/05/04 10:45	2.9	1.6	55.2			Dry Sandy Silt in NC		-	-
VC-02B	526905.5	5067187.7	45 45 27.8047 N	062 39 14.5272 W	2019/05/04 11:16	2.9	0.5	17.2			Dry Sandy Silt in NC		-	-
VC-02C-1	526907.3	5067189	45 45 27.8468 N	062 39 14.4427 W	2019/05/04 11:43	2.9	2.3	79.3	0 - 0.8	Coarse SAND. Silty CLAY. Dense silty SAND till.	Dry Sandy Silt in NC, no fingers	X	0 - 0.8	-
VC-02C-2									0.8 - 1.1			X	0.8 - 1.1	
VC-02C-3									1.1 - 2.2				1.1 - 2.2	
VC-03A	526663.6	5067228.1	45 45 29.1468 N	062 39 25.7167 W	2019/05/04 09:06	2.3	0.25	10.9			Fine Sand		-	-
VC-03B	526662.6	5067227.4	45 45 29.1246 N	062 39 25.7627 W	2019/05/04 09:54	2.9	0.5	17.2	0-0.5	Poorly graded SAND, some gravel.	Fine Sand	X	0 - 0.5	-
VC-03C	526726.9	5067224.8	45 45 29.0314 N	062 39 22.79 W	2019/05/05 15:54	2	0.3	15.0			Sand		-	-
VC-04A	526496.2	5067131.7	45 45 26.0493 N	062 39 33.4842 W	2019/05/03 15:53	2.4	0.4	16.7			Sand	X	0 - 0.4	-
VC-04B	526502.1	5067135.2	45 45 26.1616 N	062 39 33.2104 W	2019/05/03 16:14	2.9	0.9	31.0	0 - 2.4	Grey to brown SAND, shells, gravel.	Sand	X	0 - 0.8	-
VC-05A-1	526241.6	5067015.1	45 45 22.3059 N	062 39 45.2936 W	2019/05/03 15:16	2.6	2.2	84.6	0 - 0.2	Reddish brown sandy SILT/CLAY, black organic particles.		X	0 - 0.2	-
									0.2 - 2.2					
VC-06A	524573.9	5066004	45 44 49.7635 N	062 41 2.6754 W	2019/05/04 15:40	0.9	0.3	33.3	0 - 0.3	Loose to compact SAND with gravel, trace cobbles and shells.	Sand over till		-	-
VC-07A	525931.2	5066867.9	45 45 17.5759 N	062 39 59.6919 W	2019/05/03 14:21	2.3	1.45	63.0	0 - 1.45	Brown silty SAND, shells.			-	-
VC-08A	525663.0	5066734.9	45 45 13.3041 N	062 40 12.1279 W	2019/04/28 10:10	1.1	0.8	72.7	0.0 - 0.5	Poorly graded SAND.		X	0 - 0.8	-
									0.5 - 1.1					
VC-09A	525400.9	5066622.3	45 45 9.6908 N	062 40 24.2804 W	2019/05/03 13:42	1.25	0.67	53.6	0 - 0.35	Poor to well graded SAND.	Possible weathered bedrock pieces in nose cone	X	0 - 0.67	-
									0.35 - 0.67					
VC-10A	525156.5	5066481.3	45 45 5.1549 N	062 40 35.6222 W	2019/05/03 12:59	1.2	0.4	33.3					-	-
VC-10B	525156.9	5066482.7	45 45 5.1993 N	062 40 35.6048 W	2019/05/03 13:00	1.3	0.65	50.0	0 - 0.4	Brown poorly graded SAND.	Possible weathered bedrock pieces in nose cone	X	0 - 0.4	-
VC-11A-1	524783	5066168.4	45 44 55.0626 N	062 40 52.9682 W	2019/05/03 13:26	2.2	1.5	68.2	0.4 - 0.65	Well graded SAND with gravel. Loose brown well graded SAND. Soft grey SILT, some woody organics/odour.	Sand over clay in nose cone	X	0 - 0.4	-
VC-11A-2									0.0 - 0.3					
VC-12-1	524131.9	5065255.1	45 44 25.5548 N	062 41 23.2647 W	2019/05/02 13:33	2.1	1.8	85.7	0 - 0.4	Black/grey silty SAND, shells. Red SAND, some silt. Till, dense to very dense.	Sand over till	X	0 - 0.8	86
VC-12-2									0.4 - 1.6					
VC13A	524178.8	5065386.3	45 44 29.7998 N	062 41 21.0731 W	2019/05/02 12:58	0.4	0.2	50.0	0 - 0.35	Poorly graded GRAVEL, trace sand and cobbles.	Large cobbles		NA	-
VC-14-1	524261.7	5065548.3	45 44 35.0388 N	062 41 17.2075 W	2019/05/02 11:35	3	2.5	83.3	0 - 0.9	Black brown sandy SILT, interbedded. Black sandy SILT. Black sandy SILT. Black sandy SILT.	Silt	X	0 - 0.6	-153
VC-14-2									0.9 - 1.4					
VC-14-3									1.4 - 1.9					
VC-15A-1	524405.3	5065768.1	45 44 42.1404 N	062 41 10.5212 W	2019/05/02 10:29	3	2.5	83.3	0 - 2.5	Soft grey SILT with sand, frequent/some leafy organics/odour.	Silt	X	0 - 0.5	-
VC-16-1	524555.7	5065980.4	45 44 49 N	062 41 3.523 W	2019/05/02 09:45	3	2.4	80.0	0 - 1.4	Very soft brown clayey SILT, some shells. Very soft grey SILT with clay, woody organics.	Silt	X	0 - 0.4	-133
VC-16-2									1.4 - 2.4					
VC-16-3														
VC-18A	524964.7	5066289	45 44 58.949 N	062 40 44.5321 W	2019/05/04 15:05	2	0.9	45.0	0 - 0.8	Loose brown poorly graded SAND, trace silt.	Sand, Gull Spit	X	0 - 0.9	-

TABLE A1 Sample Location Details for Marine Sediments - Caribou Harbour and Pictou Harbour, Pictou County, Nova Scotia

Sample ID	Easting (m)	Northing (m)	Latitude	Longitude	Sample Date/Time	Penetration (m)	Recovery (m)	Recovery %	Depth (m)	Description	Comments from Geotech Analysis	Samples Submitted to Maxxam Analytics	Sample Location Depth (m)	Oxidative Reduction Potential (mV)	
VC-19A-1	524125	5065136.5	45 44 21.7105 N	062 41 23.6058 W	2019/05/05 11:48	4.3	3.6	83.7	0 – 3.4	Very soft brown to grey sandy SILT, woody organics.	Silt	X	0 - 0.4	-	
VC-19A-3												X	1.4 - 2.4		
VC-20A-1	524151.9	5065327.1	45 44 27.883 N	062 41 22.3272 W	2019/05/05 12:36	4.3	3.4	79.1	0 – 0.9 0.9 – 3.5	Soft brown sandy SILT. Soft grey CLAYEY SILT, woody organics/shells/occasional gravel.	Silt	X	0 - 0.5	-	
VC-20A-3												X	1.5 - 2.5		
VC-21A-1	524225.2	5065466.1	45 44 32.3774 N	062 41 18.9092 W	2019/05/05 13:30	4.3	3.4	79.1	0 – 1.5 1.5 – 4.3	Very soft dark brown sandy SILT, occasional black organics. Stratified sandy SILT. Loose brown SAND.	Silt	X	0 - 0.5	-	
VC-21A-2															
VC-22A-1	524322.9	5065654.7	45 44 38.4787 N	062 41 14.3528 W	2019/05/05 14:15	4.3	3.5	81.4	0 – 2.25 2.25 – 3.0 3.0 – 3.45	Soft brown sandy SILT, trace shells, leafy organics. Grey clayey SILT. Grey silty CLAY.	Silt	X	0 - 0.45	-	
VC-22A-2															
VC-22A-3												X	1.45 - 2.45		
VC-23A-1	525960.8	5066910	45 45 18.937 N	062 39 58.3099 W	2019/05/05 15:00	3.2	3.1	96.9	0 – 0.8 0.8 – 2.1 2.1 – 3.2	Brown silty SAND to fine sand. Grey silty SAND. Grey SILT.	medium stiff silt	X	0 - 0.8	-8	
VC-23A-2														0.8 - 1.1	14
VC-23A-3												X	1.1 - 2.1	-48	
VC-23A-4												X	2.1 - 3.1	-63	
Surface Grab Samples															
S1	526808.5	5067371.2	45 45 33.7643 N	062 39 18.9817 W	5/6/2019	N/A	N/A	N/A			Field Duplicate collected here	X	0 - 0.1	220	
S2	526912	5067206	45 45 28.399 N	062 39 14.2213 W	5/6/2019	N/A	N/A	N/A				X	0 - 0.1	186	
S3	524145.4	5065085.2	45 44 20.048 N	062 41 22.6714 W	5/6/2019	N/A	N/A	N/A				X	0 - 0.1	159	
S4	524141.1	5065075.5	45 44 19.7322 N	062 41 22.8691 W	5/6/2019	N/A	N/A	N/A				X	0 - 0.1	-96	
Pictou Harbour Vibracore Samples															
VC-50A	521562.2	5056173.1	45 39 31.5778 N	062 43 23.6338 W	2019/04/29 07:57	-	-	-					-	-	
VC-50B	521566.9	5056173.2	45 39 31.5808 N	062 43 23.4138 W	2019/04/29 16:40	3	2	66.7			Clay layer at 2 m plugging nose cone		-	-	
VC-50C-1	521567.2	5056172.2	45 39 31.5506 N	062 43 23.4001 W	2019/04/29 10:15	3	2.2	73.3	0 – 0.2 0.2 – 1.4 1.4 – 3.3	Brown SILT. Grey silty SAND. Grey to black SILT, occasional organics/wood, shells.		X	0 - 0.2	-29	
VC-50C-2												X	0.2 - 1.2	-41	
VC-50C-3												X	1.2 - 2.2	-65	
VC-51A	521475.1	5056389.3	45 39 38.593 N	062 43 27.6237 W	2019/04/29 11:05	3	1	33.3				X	0 - 1.0	106	
VC-51B	521472.7	5056386.4	45 39 38.5009 N	062 43 27.7346 W	2019/04/29 11:42	2.9	1.8	62.1	0 – 3.0	Soft reddish brown sandy CLAY, some gravel below 1.0 m.	Clay in nose cone		-	-	
VC-51C	521477.0	5056380.6	45 39 38.3125 N	062 43 27.5368 W	2019/04/29 15:50	3	1.4	46.7			Large cobble in nose cone		-	-	
VC-52A-1	521386.2	5056655.6	45 39 47.2337 N	062 43 31.6896 W	2019/04/29 13:11	3	2.2	73.3	0 – 0.2 0.2 – 1.2 1.2 – 2.2			X	0 - 0.2	-11	
VC-52A-2												X	0.2 - 1.2	193	
VC-52A-3												X	1.2 - 2.2	150	
VC-52B	521389.9	5056656	45 39 47.2462 N	062 43 31.5163 W	2019/05/05 09:28	4.3	3.6	83.7	0 – 3.15	Soft/very soft grey SILT, occasional leafy organics/odours, shells.	Silt		-	-	
VC-53A-1	521309.0	5056899.1	45 39 55.131 N	062 43 35.2174 W	2019/04/29 13:59	3	2.2	73.3	0 – 3.15	Soft/very soft grey SILT, trace shells, organic odour.		X	0 - 0.2	-220	
VC-53A-2												X	0.2 - 1.2	-240	
VC-53A-3												X	1.2 - 2.2	-180	
VC-54A-1	521267.0	5057061.5	45 40 0.3995 N	062 43 37.1314 W	2019/04/29 14:42	2.5	1.4	56.0	0 – 0.1 0.1 – 2.5 2.5 – 2.6	Very soft brown SILT. Very soft grey SILT. Shells at interface (0.1 m). Dense brown silty SAND. Till.	Stiff clay in nose cone	X	0 - 0.4	2	
												X	0.1 – 2.5	-	
												X	2.5 – 2.6	-	

TABLE A2 Grain Size, TOC Results for Marine Sediments - Caribou Harbour and Pictou Harbour, Pictou County, Nova Scotia

Parameter	Units	Caribou Harbour																														
		S1	S1-DUP	S1-LAB DUP	S2	S3	S4	VC-01-1-SFC	VC-01-1-SFC LAB DUP	VC-01-1-BTM	VC-01-1-BTM LAB DUP	VC-02C-1	VC-02C-2	VC-03B-1	VC04A	VC04B	VC-05-1	VC-8A	VC-8A-LAB DUP	VC-09	VC-10B-1	VC-11-1	VC-11-2	VC-12-1	VC-12-2	VC-14-1	VC-14-2	VC-14-3	VC-15-1	VC-16-1	VC-16-2	
< -1 Phi (2 mm)	%	99 (4)	98 (4)	87 (4)	80 (4)	100	100	99	99	73 (1)	N/A	60 (2)	94 (2)	82 (2)	95 (2)	98 (2)	98 (2)	100	N/A	96	99	100	100	94	99	100	100	100	100	100	95	100
< 0 Phi (1 mm)	%	93 (4)	90 (4)	82 (4)	77 (4)	100	100	97	97	65	N/A	53 (2)	87 (2)	70 (2)	83 (2)	91 (2)	97 (2)	100	N/A	92	99	98	100	90	98	100	100	100	100	99	95	100
< +1 Phi (0.5 mm)	%	65 (4)	59 (4)	60 (4)	73 (4)	99	99	87	89	49	N/A	42 (2)	76 (2)	32 (2)	64 (2)	66 (2)	96	98	N/A	81	94	93	99	82	95	100	100	100	98	95	99	
< +2 Phi (0.25 mm)	%	3.7	3.1	4.3	37	98	99	64	70	16	N/A	13 (2)	64 (2)	6.1 (2)	19	12	91	76	N/A	41	48	58	96	51	83	99	100	99	96	93	98	
< +3 Phi (0.12 mm)	%	0.99	1.1	0.95	4.7	95	96	50	54	8.3	N/A	4.3	60	2.5	5.7	3.5	60	7	N/A	2.3	2.8	18	90	23	64	94	97	98	86	84	96	
< +4 Phi (0.062 mm)	%	0.96	1.1	0.91	2.5	74	64	18	21	6.2	N/A	3.4	57	2.1	3.8	2.4	24	2.4	N/A	1.7	1.7	15	73	17	44	86	90	90	65	67	89	
< +5 Phi (0.031 mm)	%	0.93	1.1	0.81	2.4	42	30	13	15	5.7	N/A	3.1	52	2.1	3.3	2.3	18	2.3	N/A	1.5	1.6	14	56	13	26	75	82	76	46	56	77	
< +6 Phi (0.016 mm)	%	0.98	1.1	0.85	2.1	28	18	8.9	9.3	5.1	N/A	2.8	44	1.8	2.8	2.1	14	2	N/A	1.4	1.4	12	49	9.7	16	60	65	58	37	44	60	
< +7 Phi (0.0078 mm)	%	0.98	1.1	0.88	1.7	18	12	5.4	5.4	3.8	N/A	2.1	31	1.4	2.1	1.6	9.5	1.9	N/A	1.1	1.3	9.2	9.6	5.6	6.2	33	27	35	24	29	39	
< +8 Phi (0.0039 mm)	%	0.94	1.1	0.85	1.7	16	10	4.3	4.5	3	N/A	1.6	16	1.3	1.6	1.3	8.3	1.7	N/A	1.2	1.3	8.2	7.8	4.4	4.5	19	16	29	11	25	34	
< +9 Phi (0.0020 mm)	%	0.94	1.1	0.86	1.7	13	8.2	3.6	3.4	1.7	N/A	0.92	5.1	1	1.6	1.4	6.4	1.6	N/A	1.1	1.2	6.6	7.3	2.9	2.6	10	7.9	20	6.8	19	25	
Gravel	%	1.2	2.4	13 (4)	20	0.32	<0.10	1.2	1.1	27	N/A	40	5.7	18	5.5	1.7	2.4	<0.10	N/A	3.8	0.68	0.43	<0.10	6.2	0.74	<0.10	<0.10	<0.10	0.43	4.9	<0.10	
Sand	%	98	96	86	78	26	36	81	78	67	N/A	57	37	80	91	96	73	98	N/A	95	98	84	27	77	55	14	10	10	34	28	11	
Silt	%	<0.10	<0.10	<0.10	0.76	58	54	14	16	3.2	N/A	1.8	41	0.77	2.1	1.1	16	0.71	N/A	0.47	0.43	7.1	65	13	39	67	74	61	54	42	55	
Clay	%	0.94	1.1	0.85	1.7	16	10	4.3	4.5	3	N/A	1.6	16	1.3	1.6	1.3	8.3	1.7	N/A	1.2	1.3	8.2	7.8	4.4	4.5	19	16	29	11	25	34	
Total Organic Carbon (TOC)	mg/kg	<500	<500	N/A	530	14000	10000	<500	N/A	<500	500	<500	12000	<500	<500	<500	1800	<500	N/A	<500	<500	<500	13000	<500	<500	15000	16000	14000	9400	11000	11000	

Notes:

- (1) PSA sample observation comment: Fraction contained organic matter
- (2) PSA sample observation comment: Fraction contained shells
- (3) PSA sample observation comment: Fraction contained unknown material
- (4) Poor duplicate agreement due to sample inhomogeneity. Additional rocky material in duplicate aliquot.

TABLE A2 Grain Size, TOC Results for Marine Sediments - Caribou Harbour and Pictou Harbour, Pictou County, Nova Scotia

Parameter	Units	Caribou Harbour														Pictou Harbour Sample Locations											
		VC-16-3	VC-18-1	VC-18-1 LAB DUP	VC-19-1	VC-19-3	VC-19-3 LAB DUP	VC-20-1	VC-20-3	VC-21-1	VC-22-1	VC-22-3	VC-23-1	VC-23-3	VC-23-4	VC-50C-1	VC-50C-2	VC-50C-3	VC51A	VC-52-1	VC-52-2	VC-52-3	VC-53-1	VC-53-1 LAB DUP	VC-53-2	VC-53-3	VC54A
< -1 Phi (2 mm)	%	99	100	100	100	99	N/A	100	100	100	100	100	100	100	100	98	75	95 (1)	82	100	100	100	100	100	99	100	98
< 0 Phi (1 mm)	%	98	100	100	100	99	N/A	100	99	100	99	100	99	99	100	98	65	93	78	100	100	100 (3)	100	100	98	100	98
< +1 Phi (0.5 mm)	%	96	96	96	98	98	N/A	99	99	100	96	99	98	99	99	97	55	91	75	100	100	100	99	99	97	100	97
< +2 Phi (0.25 mm)	%	94	44	38	87	95	N/A	96	98	99	69	98	95	98	99	95	43	88	68	99	99	99	99	98	92	99	96
< +3 Phi (0.12 mm)	%	92	1.8	1.8	68	93	N/A	72	96	90	30	92	55	92	98	93	38	84	56	98	99	98	97	96	88	97	93
< +4 Phi (0.062 mm)	%	89	1.4	1.4	53	89	N/A	46	89	76	18	69	17	57	79	88	34	80	46	93	95	94	95	93	83	95	90
< +5 Phi (0.031 mm)	%	90	1.3	1.3	40	78	N/A	34	77	60	13	56	14	41	60	83	32	76	42	81	86	85	85	84	81	91	86
< +6 Phi (0.016 mm)	%	80	1.2	1.2	31	66	N/A	27	68	45	10	45	12	32	48	69	26	64	34	69	73	77	76	71	69	81	73
< +7 Phi (0.0078 mm)	%	18	1	1.1	22	37	N/A	18	37	27	6.6	30	8	7.2	7.4	48	17	45	23	19	49	16	22	43	37	20	36
< +8 Phi (0.0039 mm)	%	14	1.1	1.2	19	14	N/A	17	14	23	4.4	26	7	3	7.8	42	15	39	19	13	20	14	16	21	16	14	15
< +9 Phi (0.0020 mm)	%	14	0.95	1.2	15	9.5	N/A	13	12	18	2.3	18	5.6	6.3	7.5	32	11	30	15	12	13	13	15	13	13	13	12
Gravel	%	0.51	<0.10	<0.10	0.11	0.62	N/A	0.34	0.35	<0.10	0.24	<0.10	0.18	0.29	<0.10	1.7	25	5.3	18	<0.10	<0.10	<0.10	0.34	0.43	1.1	0.22	2.3
Sand	%	10	99	99	47	10	N/A	53	11	24	82	31	83	43	21	10	41	15	35	7.5	4.8	5.9	5	7.1	16	4.7	7.3
Silt	%	75	0.27	0.17	34	75	N/A	29	75	54	13	43	10	54	71	46	19	41	27	79	75	80	79	72	68	81	76
Clay	%	14	1.1	1.2	19	14	N/A	17	14	23	4.4	26	7	3	7.8	42	15	39	19	13	20	14	16	21	16	14	15
Total Organic Carbon (TOC)	mg/kg	23000	<500	N/A	12000	21000	21000	8400	19000	9600	3700	13000	2000	6900	9000	66000	28000	69000	4700	22000	26000	25000	24000	24000	26000	28000	26000

Notes:

- (1) PSA sample observation comment: Fraction contained organic matter
- (2) PSA sample observation comment: Fraction contained shells
- (3) PSA sample observation comment: Fraction contained unknown material
- (4) Poor duplicate agreement due to sample inhomogeneity. Additional rocky material in duplicate aliquot.

TABLE A3 PAH Results for Marine Sediments - Caribou Harbour and Pictou Harbour, Pictou County, Nova Scotia

Parameter	Units	CEPA Disposal at Sea Screening Criteria	CCME Sediment Quality Guidelines	Pictou Harbour Sample Locations										
		Lower Level	Probable Effects Levels	VC-50C-1	VC-50C-2	VC-50C-3	VC51A	VC-52-1	VC-52-2	VC-52-3	VC-53-1	VC-53-2	VC-53-3	VC54A
Polyaromatic Hydrocarbons			Marine											
1-Methylnaphthalene	mg/kg	-	-	1.2	0.064	0.11	0.0063	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
2-Methylnaphthalene	mg/kg	-	0.201	1.8	0.082	0.15	0.0064	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Acenaphthene *	mg/kg	-	0.0889	0.69	<0.020 (1)	<0.020 (1)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Acenaphthylene *	mg/kg	-	0.128	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Anthracene *	mg/kg	-	0.245	0.04	0.031	0.031	0.0076	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Benzo(a)anthracene *	mg/kg	-	0.693	0.031	0.049	0.06	0.011	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Benzo(a)pyrene *	mg/kg	-	0.763	0.02	0.027	0.05	0.007	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Benzo(b)fluoranthene *	mg/kg	-	-	0.028	0.036	0.071	0.0085	<0.0050	<0.0050	<0.0050	0.014	<0.0050	<0.0050	<0.0050
Benzo(b,j)fluoranthene	mg/kg	-	-	0.042	0.055	0.11	<0.010	<0.010	<0.010	<0.010	0.014	<0.010	<0.010	<0.010
Benzo(g,h,i)perylene	mg/kg	-	-	0.018	0.016	0.03	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Benzo(j)fluoranthene	mg/kg	-	-	0.014	0.019	0.037	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Benzo(k)fluoranthene *	mg/kg	-	-	0.015	0.018	0.037	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Chrysene *	mg/kg	-	0.846	0.036	0.068	0.091	0.016	<0.0050	<0.0050	<0.0050	0.014	<0.0050	<0.0050	<0.0050
Dibenz(a,h)anthracene *	mg/kg	-	0.135	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Fluoranthene *	mg/kg	-	1.494	0.13	0.15	0.14	0.034	<0.0050	<0.0050	<0.0050	0.017	<0.0050	<0.0050	<0.0050
Fluorene *	mg/kg	-	0.144	0.36	0.021	0.03	0.0073	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Indeno(1,2,3-cd)pyrene *	mg/kg	-	-	0.014	0.012	0.024	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Naphthalene *	mg/kg	-	0.391	6.8	0.039	0.081	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Perylene	mg/kg	-	-	0.3	0.12	0.046	<0.0050	0.04	0.094	0.085	0.021	0.024	0.12	0.013
Phenanthrene*	mg/kg	-	0.544	0.24	0.11	0.11	0.032	<0.0050	<0.0050	<0.0050	<0.020 (1)	<0.0050	<0.0050	<0.0050
Pyrene *	mg/kg	-	1.398	0.12	0.13	0.21	0.027	<0.0050	<0.0050	<0.0050	0.025	<0.0050	<0.0050	<0.0050
Total PAH (calculated)	mg/kg	2.5	-	8.53	0.70	0.94	0.17	0.04	0.04	0.04	0.11	0.04	0.04	0.04

Notes:

(1) Elevated PAH RDL(s) due to matrix / co-extractive interference.

Total PAH calculation based on the sum of 16 individual PAH compounds (Acenaphthene, Naphthalene, Acenaphthylene, Anthracene, Phenanthrene, Fluorene, Fluoranthene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Chrysene, Benzo(ghi)perylene, Dibenz(a,h)anthracene, Indeno(1,2,3-cd)pyrene, Pyrene).

EXCEEDANCES - coding below indicates that results exceeds one or more guidelines:

= Shaded values exceed the CEPA Disposal at Sea Screening Criteria

= Bolded values exceed the CCME Sediment Quality Guidelines - Probable Effects Levels - Marine

TABLE A5 PCB Results for Marine Sediments - Caribou Harbour and Pictou Harbour, Pictou County, Nova Scotia

Parameter	Units	CEPA Disposal at Sea Screening Criteria - Lower Level	CCME Sediment Quality Guidelines for Aquatic Life	Caribou Harbour Sample Locations																				
				Marine PELs	VC-01-1-SFC	VC-01-1-SFC LAB DUP	VC-01-1-BTM	VC-02C-1	VC-02C-2	VC-03B-1	VC-05-1	VC08A	VC-09	VC-10B-1	VC-11-1	VC-11-2	VC-11-2 LAB DUP	VC-15-1	VC-16-1	VC-16-2	VC-16-3	VC-18	VC-18 LAB DUP	VC-19-1
Trichlorobiphenyls	mg/kg	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Tetrachlorobiphenyls	mg/kg	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Pentachlorobiphenyls	mg/kg	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Hexachlorobiphenyls	mg/kg	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Heptachlorobiphenyls	mg/kg	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Octachlorobiphenyls	mg/kg	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Nonachlorobiphenyls	mg/kg	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Decachlorobiphenyls	mg/kg	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Total PCB	mg/kg	0.1	0.189	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010

Notes:

EXCEEDANCES - coding below indicates that results exceeds one or more guidelines:

= Shaded values exceed the CEPA Disposal at Sea Screening Criteria

= Bolded values exceed the CCME Sediment Quality Guidelines for Aquatic Life - Probable Effects Levels

TABLE A5 PCB Results for Marine Sediments - Caribou Harbour and Pictou Harbour, Pictou County, Nova Scotia

Parameter	Units	CEPA Disposal at Sea Screening Criteria - Lower Level	CCME Sediment Quality Guidelines for Aquatic Life Marine PELs	Caribou Harbour Sample Locations								Pictou Harbour Sample Locations							
				VC-20-1	VC-20-3	VC-21-1	VC-22-1	VC-22-3	VC-23-1	VC-23-3	VC-23-4	VC-50C-1	VC-50C-2	VC-50C-3	VC-51A	VC-53-1	VC-53-2	VC-53-3	VC-54-1
Trichlorobiphenyls	mg/kg	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Tetrachlorobiphenyls	mg/kg	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Pentachlorobiphenyls	mg/kg	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Hexachlorobiphenyls	mg/kg	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Heptachlorobiphenyls	mg/kg	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Octachlorobiphenyls	mg/kg	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Nonachlorobiphenyls	mg/kg	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Decachlorobiphenyls	mg/kg	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Total PCB	mg/kg	0.1	0.189	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010

Notes:

EXCEEDANCES - coding below indicates that results exceeds one or more guidelines:

= Shaded values exceed the CEPA Disposal at Sea Screening Criteria

= Bolded values exceed the CCME Sediment Quality Guidelines for Aquatic Life - Probable Effects Levels

APPENDIX B

Laboratory Results



Your Project #: 121621877.400
 Your C.O.C. #: D40471, D40472

Attention: Sam Salley

Stantec Consulting Ltd
 40 Highfield Park Drive
 Suite 102
 Dartmouth, NS
 CANADA B3A 0A3

Report Date: 2019/06/12
 Report #: R5750836
 Version: 4 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: B9C0342

Received: 2019/05/06, 16:12

Sample Matrix: Sediment
 # Samples Received: 10

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Benzo(b/j)fluoranthene Sum (LL soil)	7	N/A	2019/05/14	N/A	Auto Calc.
Benzo(b/j)fluoranthene Sum (LL soil)	3	N/A	2019/05/15	N/A	Auto Calc.
Dioxins/Furans in Soil (EPS 1/RM/23) (1, 8)	2	2019/06/03	2019/06/08	BRL SOP-00406 (mod)	EPS 1/RM/23 m
Organic Halogen (Extractable) (2)	2	N/A	2019/05/12		
TEH in Soil (PIRI) (9)	2	2019/05/09	2019/05/09	ATL SOP 00111	Atl. RBCA v3.1 m
Petroleum Hydrocarbons F2-F4 in Soil (1, 10)	4	2019/05/13	2019/05/14	CAM SOP-00316	CCME CWS m
Petroleum Hydrocarbons F2-F4 in Soil (1, 10)	6	2019/05/14	2019/05/15	CAM SOP-00316	CCME CWS m
F4G (CCME Hydrocarbons Gravimetric) (1)	2	2019/05/13	2019/05/13	CAM SOP-00316	CCME PHC-CWS m
Mercury (CVAA)	10	2019/05/13	2019/05/13	ATL SOP 00026	EPA 245.5 m
Metals Solids Acid Extr. ICPMS	5	2019/05/10	2019/05/10	ATL SOP 00058	EPA 6020B R2 m
Metals Solids Acid Extr. ICPMS	5	2019/05/13	2019/05/13	ATL SOP 00058	EPA 6020B R2 m
Carbon Nitrogen Ratio (3)	2	2019/05/08	2019/05/15	Auto Calc	Auto Calc
Total Cyanide (4)	2	2019/05/13	2019/05/14	STL SOP-00035	MA300-CN 1.2 R4 m
Carbon, Nitrogen, Sulphur - Combustion (3)	2	N/A	2019/05/12	CAL SOP-00263	AN-A-030609-E-01 m
Water Content (Subcontracted) (4, 11)	2	N/A	2019/05/15	STL SOP-00021	MA.100-S.T. 1.1 R4 m
Moisture (Subcontracted) (5, 11)	2	2019/05/13	2019/05/14	BBY8SOP-00017	BCMOE BCLM Dec2000 m
Total PCB (4, 12)	9	2019/05/13	2019/05/14	STL SOP-00133	MA. 400-BPC 1.0 R5 m
Total PCB (4, 12)	1	2019/05/13	2019/05/15	STL SOP-00133	MA. 400-BPC 1.0 R5 m
Sulphide in Soil (5)	2	2019/05/13	2019/05/15	BBY6SOP-00052 BBY6SOP-00006	EPA-821-R-91-100 m
Total Kjeldahl Nitrogen (Available) (6)	1	2019/05/13	2019/05/14	AB SOP-00027/AB SOP-00008	EPA 351.1 R 1978 m
Total Kjeldahl Nitrogen (Available) (6)	1	2019/05/13	2019/05/15	AB SOP-00027/AB SOP-00008	EPA 351.1 R 1978 m
Moisture	5	N/A	2019/05/09	ATL SOP 00001	OMOE Handbook 1983 m
Moisture	5	N/A	2019/05/10	ATL SOP 00001	OMOE Handbook 1983 m
Nitrogen Ammonia - soil (as N)	2	2019/05/10	2019/05/14	ATL SOP 00015	EPA 350.1 R2 m
Nitrogen - Nitrate + Nitrite	2	2019/05/13	2019/05/15	ATL SOP 00016	USGS I-2547-11m
Nitrogen - Nitrite by auto colourimetry	2	2019/05/13	2019/05/14	ATL SOP 00017	SM 23 4500-NO2- B m
Nitrogen - Nitrate (as N)	2	N/A	2019/05/15	ATL SOP 00018	ASTM D3867-16
PAH in sediment by GC/MS (Low Level) (9)	7	2019/05/10	2019/05/14	ATL SOP 00102	EPA 8270E R6 m



Your Project #: 121621877.400
 Your C.O.C. #: D40471, D40472

Attention: Sam Salley

Stantec Consulting Ltd
 40 Highfield Park Drive
 Suite 102
 Dartmouth, NS
 CANADA B3A 0A3

Report Date: 2019/06/12
 Report #: R5750836
 Version: 4 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: B9C0342

Received: 2019/05/06, 16:12

Sample Matrix: Sediment
 # Samples Received: 10

Analyses	Quantity	Date		Laboratory Method	Reference
		Extracted	Analyzed		
PAH in sediment by GC/MS (Low Level) (9)	3	2019/05/10	2019/05/15	ATL SOP 00102	EPA 8270E R6 m
Phenols (4AAP) (1)	2	2019/05/10	2019/05/10	CAM SOP-00444	OMOE E3179 m
pH (5:1 DI Water Extract)	2	2019/05/13	2019/05/13	ATL SOP 00003	SM 23 4500-H+ B m
Phosphorus - ortho by auto Colourimetry	2	2019/05/13	2019/05/14	ATL SOP 00021	SM 23 4500-P E m
Particle size in solids (pipette&sieve) (13)	10	N/A	2019/05/16	ATL SOP 00012	MSAMS'78/WREP-125R3m
Acid Vol. Sulphide in S (Sub fr.Bedford) (7)	2	2019/05/09	2019/05/28		
Total Organic Carbon in Soil (1)	10	N/A	2019/05/15	CAM SOP-00468	BCMOE TOC Aug 2014
ModTPH (T1) Calc. for Soil	2	N/A	2019/05/10	N/A	Atl. RBCA v3.1 m
Volatile Organic Compounds and F1 PHCs (1)	9	N/A	2019/05/11	CAM SOP-00230	EPA 8260 m
Volatile Organic Compounds and F1 PHCs (1)	1	N/A	2019/05/13	CAM SOP-00230	EPA 8260 m
VOCs in Soil - Field Preserved (14)	2	N/A	2019/05/10	ATL SOP 00133	EPA 8260D R4 m
VPH in Soil (PIRI) - Field Preserved (14)	2	N/A	2019/05/09	ATL SOP 00119	Atl. RBCA v3.1 m

Remarks:

Bureau Veritas Laboratories are accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by BV Labs are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in BV Labs profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and BV Labs in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

BV Labs liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. BV Labs has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by BV Labs, unless otherwise agreed in writing. BV Labs is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested. When sampling is not conducted by BV Labs, results relate to the supplied samples tested. This Certificate shall not be reproduced except in full, without the written approval of the laboratory.



Your Project #: 121621877.400
Your C.O.C. #: D40471, D40472

Attention: Sam Salley

Stantec Consulting Ltd
40 Highfield Park Drive
Suite 102
Dartmouth, NS
CANADA B3A 0A3

Report Date: 2019/06/12
Report #: R5750836
Version: 4 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: B9C0342

Received: 2019/05/06, 16:12

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

- (1) This test was performed by Bureau Veritas Laboratories Mississauga
- (2) This test was performed by Bedford to Edm Petroleum/Ind
- (3) This test was performed by Bedford to Calgary Offsite
- (4) This test was performed by Bedford To Montreal Offsite
- (5) This test was performed by Bedford to Burnaby - Offsite
- (6) This test was performed by Bedford to Edm Env Offsite
- (7) This test was performed by Bedford to RPC Subcontract
- (8) Soils are reported on a dry weight basis unless otherwise specified.

Confirmatory runs for 2,3,7,8-TCDF are performed only if the primary result is greater than the RDL.

- (9) Soils are reported on a dry weight basis unless otherwise specified.
 - (10) All CCME PHC results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Bureau Veritas Laboratories conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following "Alberta Environment's Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil Validation of Performance-Based Alternative Methods September 2003". Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.
 - (11) Offsite analysis requires that subcontracted moisture be reported.
 - (12) Please note that the results have been corrected for the surrogate recoveries.
- Un-rounded results are used in the total "PCB" calculation. This total result is then rounded to two significant figures.
The total indicated is calculated only for the requested parameters.
- (13) Note: Graphical representation of larger fractions (PHI-4, PHI -3 and PHI -2) not applicable unless these optional parameters are specifically requested.
 - (14) No lab extraction date is given for C6-C10/BTEX and VOC samples that are field preserved with methanol. Extraction date is date sampled unless otherwise stated.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Marie Muise, Key Account Specialist
Email: Marie.MUISE@bvlabs.com
Phone# (902)420-0203 Ext:253

=====

BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



RBCA HYDROCARBONS IN SOIL (FIELD PRES.)

BV Labs ID		JQF836	JQF842			
Sampling Date		2019/05/02 09:45	2019/05/05 15:00			
COC Number		D40471	D40471			
	UNITS	VC-16-1	VC-23-1	RDL	MDL	QC Batch
Petroleum Hydrocarbons						
Benzene	mg/kg	<0.025	<0.025	0.025	N/A	6112673
Toluene	mg/kg	<0.050	<0.050	0.050	N/A	6112673
Ethylbenzene	mg/kg	<0.025	<0.025	0.025	0.025	6112673
Total Xylenes	mg/kg	<0.050	<0.050	0.050	N/A	6112673
C6 - C10 (less BTEX)	mg/kg	<2.5	<2.5	2.5	N/A	6112673
>C10-C16 Hydrocarbons	mg/kg	<10	<10	10	N/A	6112413
>C16-C21 Hydrocarbons	mg/kg	<10	<10	10	N/A	6112413
>C21-<C32 Hydrocarbons	mg/kg	37	<15	15	N/A	6112413
Modified TPH (Tier1)	mg/kg	37	<15	15	N/A	6109494
Reached Baseline at C32	mg/kg	Yes	NA	N/A	N/A	6112413
Hydrocarbon Resemblance	mg/kg	COMMENT (1)	NA	N/A	N/A	6112413
Surrogate Recovery (%)						
Isobutylbenzene - Extractable	%	90	93	N/A	N/A	6112413
n-Dotriacontane - Extractable	%	104	104	N/A	N/A	6112413
Isobutylbenzene - Volatile	%	90	92	N/A	N/A	6112673
RDL = Reportable Detection Limit QC Batch = Quality Control Batch N/A = Not Applicable (1) Possible lube oil fraction.						



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BV Labs Job #: B9C0342
Report Date: 2019/06/12

Stantec Consulting Ltd
Client Project #: 121621877.400
Sampler Initials: GSR

ATLANTIC VOC IN SOIL (FIELD PRES.)

BV Labs ID		JQF836	JQF842			
Sampling Date		2019/05/02 09:45	2019/05/05 15:00			
COC Number		D40471	D40471			
	UNITS	VC-16-1	VC-23-1	RDL	MDL	QC Batch
Volatile Organics						
1,1,1-Trichloroethane	ug/kg	<25	<25	25	0.00010	6109572
1,1,2,2-Tetrachloroethane	ug/kg	<25	<25	25	0.00040	6109572
1,1,2-Trichloroethane	ug/kg	<25	<25	25	0.00040	6109572
1,1-Dichloroethane	ug/kg	<25	<25	25	0.00010	6109572
1,1-Dichloroethylene	ug/kg	<25	<25	25	0.00010	6109572
1,2-Dichlorobenzene	ug/kg	<25	<25	25	0.00020	6109572
1,2-Dichloroethane	ug/kg	<25	<25	25	0.00010	6109572
1,2-Dichloropropane	ug/kg	<25	<25	25	0.00020	6109572
1,3-Dichlorobenzene	ug/kg	<25	<25	25	0.00020	6109572
1,4-Dichlorobenzene	ug/kg	<25	<25	25	0.00030	6109572
Benzene	ug/kg	<25	<25	25	0.00010	6109572
Bromodichloromethane	ug/kg	<25	<25	25	0.00020	6109572
Bromoform	ug/kg	<25	<25	25	0.00030	6109572
Bromomethane	ug/kg	<50	<50	50	0.00040	6109572
Carbon Tetrachloride	ug/kg	<25	<25	25	0.00010	6109572
Chlorobenzene	ug/kg	<25	<25	25	0.00010	6109572
Chloroethane	ug/kg	<200	<200	200	0.00030	6109572
Chloroform	ug/kg	<25	<25	25	0.00010	6109572
cis-1,2-Dichloroethylene	ug/kg	<25	<25	25	0.00010	6109572
cis-1,3-Dichloropropene	ug/kg	<25	<25	25	0.00020	6109572
Dibromochloromethane	ug/kg	<25	<25	25	0.00030	6109572
Ethylbenzene	ug/kg	<25	<25	25	0.00010	6109572
Ethylene Dibromide	ug/kg	<25	<25	25	0.00040	6109572
Methyl t-butyl ether (MTBE)	ug/kg	<25	<25	25	0.00010	6109572
Methylene Chloride(Dichloromethane)	ug/kg	<25	<25	25	0.00020	6109572
o-Xylene	ug/kg	<25	<25	25	0.00010	6109572
p+m-Xylene	ug/kg	<25	<25	25	0.00010	6109572
Styrene	ug/kg	<25	<25	25	0.00020	6109572
Tetrachloroethylene	ug/kg	<25	<25	25	0.00030	6109572
Toluene	ug/kg	<50	<50	50	0.00010	6109572
Total Xylenes	ug/kg	<50	<50	50	N/A	6109572
trans-1,2-Dichloroethylene	ug/kg	<25	<25	25	0.00020	6109572
trans-1,3-Dichloropropene	ug/kg	<25	<25	25	0.00030	6109572
Trichloroethylene	ug/kg	<10	<10	10	0.00020	6109572
RDL = Reportable Detection Limit QC Batch = Quality Control Batch N/A = Not Applicable						



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BV Labs Job #: B9C0342
Report Date: 2019/06/12

Stantec Consulting Ltd
Client Project #: 121621877.400
Sampler Initials: GSR

ATLANTIC VOC IN SOIL (FIELD PRES.)

BV Labs ID		JQF836	JQF842			
Sampling Date		2019/05/02 09:45	2019/05/05 15:00			
COC Number		D40471	D40471			
	UNITS	VC-16-1	VC-23-1	RDL	MDL	QC Batch
Trichlorofluoromethane (FREON 11)	ug/kg	<25	<25	25	0.00030	6109572
Vinyl Chloride	ug/kg	<20	<20	20	0.00020	6109572
Surrogate Recovery (%)						
4-Bromofluorobenzene	%	99	100	N/A	N/A	6109572
D10-o-Xylene	%	96	96	N/A	N/A	6109572
D4-1,2-Dichloroethane	%	102	105	N/A	N/A	6109572
D8-Toluene	%	99	98	N/A	N/A	6109572
RDL = Reportable Detection Limit QC Batch = Quality Control Batch N/A = Not Applicable						



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BV Labs Job #: B9C0342
Report Date: 2019/06/12

Stantec Consulting Ltd
Client Project #: 121621877.400
Sampler Initials: GSR

CCME PETROLEUM HYDROCARBONS SOIL (SEDIMENT)

BV Labs ID		JQF836		JQF837		JQF838		JQF839			
Sampling Date		2019/05/02 09:45		2019/05/02 09:45		2019/05/02 09:45		2019/04/29 16:40			
COC Number		D40471		D40471		D40471		D40471			
	UNITS	VC-16-1	RDL	VC-16-2	RDL	VC-16-3	QC Batch	VC-50C-1	RDL	MDL	QC Batch

Volatile Organics

Benzene	ug/g	<0.0060	0.0060	<0.0060	0.0060	<0.0060	6115045	0.0076	0.0060	0.0060	6115045
Ethylbenzene	ug/g	<0.010	0.010	<0.010	0.010	<0.010	6115045	0.025	0.010	0.010	6115045
Toluene	ug/g	<0.020	0.020	0.037	0.020	<0.020	6115045	0.039	0.020	0.020	6115045
p+m-Xylene	ug/g	<0.020	0.020	<0.020	0.020	<0.020	6115045	0.056	0.020	0.020	6115045
o-Xylene	ug/g	<0.020	0.020	<0.020	0.020	<0.020	6115045	<0.020	0.020	0.020	6115045
Total Xylenes	ug/g	<0.020	0.020	<0.020	0.020	<0.020	6115045	0.056	0.020	0.020	6115045
F1 (C6-C10)	ug/g	<10	10	<20 (1)	20	<10	6115045	<10	10	N/A	6115045
F1 (C6-C10) - BTEX	ug/g	<10	10	<20	20	<10	6115045	<10	10	N/A	6115045

F2-F4 Hydrocarbons

F2 (C10-C16 Hydrocarbons)	ug/g	<20	20	<20	20	<20	6121973	51	20	10	6119430
F3 (C16-C34 Hydrocarbons)	ug/g	<100	100	<100	100	<100	6121973	<100	100	10	6119430
F4 (C34-C50 Hydrocarbons)	ug/g	<100	100	<100	100	<100	6121973	<100	100	20	6119430
Reached Baseline at C50	ug/g	Yes	N/A	Yes	N/A	Yes	6121973	Yes	N/A	N/A	6119430

Surrogate Recovery (%)

o-Terphenyl	%	98	N/A	95	N/A	96	6121973	105	N/A	N/A	6119430
4-Bromofluorobenzene	%	96	N/A	98	N/A	96	6115045	98	N/A	N/A	6115045
D10-o-Xylene	%	102	N/A	101	N/A	97	6115045	102	N/A	N/A	6115045
D4-1,2-Dichloroethane	%	101	N/A	102	N/A	102	6115045	102	N/A	N/A	6115045
D8-Toluene	%	100	N/A	100	N/A	100	6115045	100	N/A	N/A	6115045

RDL = Reportable Detection Limit

QC Batch = Quality Control Batch

N/A = Not Applicable

(1) VOCF1 Analysis: Detection limits were raised due to high moisture content of soil provided.



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BV Labs Job #: B9C0342
Report Date: 2019/06/12

Stantec Consulting Ltd
Client Project #: 121621877.400
Sampler Initials: GSR

CCME PETROLEUM HYDROCARBONS SOIL (SEDIMENT)

BV Labs ID		JQF840			JQF841				JQF842			
Sampling Date		2019/04/29 16:40			2019/04/29 16:40				2019/05/05 15:00			
COC Number		D40471			D40471				D40471			
	UNITS	VC-50C-2	RDL	MDL	VC-50C-3	RDL	MDL	QC Batch	VC-23-1	RDL	MDL	QC Batch
Volatile Organics												
Benzene	ug/g	0.024	0.0060	0.0060	0.021	0.0060	0.0060	6115045	<0.0060	0.0060	0.0060	6115045
Ethylbenzene	ug/g	0.029	0.010	0.010	0.015	0.010	0.010	6115045	<0.010	0.010	0.010	6115045
Toluene	ug/g	0.15	0.020	0.020	0.10	0.020	0.020	6115045	<0.020	0.020	0.020	6115045
p+m-Xylene	ug/g	0.24	0.020	0.020	0.11	0.020	0.020	6115045	<0.020	0.020	0.020	6115045
o-Xylene	ug/g	0.066	0.020	0.020	0.039	0.020	0.020	6115045	<0.020	0.020	0.020	6115045
Total Xylenes	ug/g	0.31	0.020	0.020	0.15	0.020	0.020	6115045	<0.020	0.020	0.020	6115045
F1 (C6-C10)	ug/g	<10	10	N/A	<10	10	N/A	6115045	<10	10	N/A	6115045
F1 (C6-C10) - BTEX	ug/g	<10	10	N/A	<10	10	N/A	6115045	<10	10	N/A	6115045
F2-F4 Hydrocarbons												
F2 (C10-C16 Hydrocarbons)	ug/g	11	10	5.0	<20	20	10	6119430	<10	10	5.0	6121973
F3 (C16-C34 Hydrocarbons)	ug/g	79	50	5.0	140	100	10	6119430	<50	50	5.0	6121973
F4 (C34-C50 Hydrocarbons)	ug/g	<50	50	10	<100	100	20	6119430	<50	50	10	6121973
Reached Baseline at C50	ug/g	Yes	N/A	N/A	Yes	N/A	N/A	6119430	Yes	N/A	N/A	6121973
Surrogate Recovery (%)												
o-Terphenyl	%	99	N/A	N/A	103	N/A	N/A	6119430	94	N/A	N/A	6121973
4-Bromofluorobenzene	%	96	N/A	N/A	96	N/A	N/A	6115045	94	N/A	N/A	6115045
D10-o-Xylene	%	106	N/A	N/A	101	N/A	N/A	6115045	101	N/A	N/A	6115045
D4-1,2-Dichloroethane	%	101	N/A	N/A	103	N/A	N/A	6115045	101	N/A	N/A	6115045
D8-Toluene	%	100	N/A	N/A	100	N/A	N/A	6115045	100	N/A	N/A	6115045
RDL = Reportable Detection Limit QC Batch = Quality Control Batch N/A = Not Applicable												



CCME PETROLEUM HYDROCARBONS SOIL (SEDIMENT)

BV Labs ID		JQF843	JQF843	JQF844		JQF869			
Sampling Date		2019/05/05 15:00	2019/05/05 15:00	2019/05/05 15:00		2019/04/29 11:05			
COC Number		D40471	D40471	D40471		D40472			
	UNITS	VC-23-3	VC-23-3 Lab-Dup	VC-23-4	QC Batch	VC-51	RDL	MDL	QC Batch
Volatile Organics									
Benzene	ug/g	<0.0060	N/A	<0.0060	6115045	<0.0060	0.0060	0.0060	6115045
Ethylbenzene	ug/g	<0.010	N/A	<0.010	6115045	<0.010	0.010	0.010	6115045
Toluene	ug/g	<0.020	N/A	0.021	6115045	0.041	0.020	0.020	6115045
p+m-Xylene	ug/g	<0.020	N/A	<0.020	6115045	<0.020	0.020	0.020	6115045
o-Xylene	ug/g	<0.020	N/A	<0.020	6115045	<0.020	0.020	0.020	6115045
Total Xylenes	ug/g	<0.020	N/A	<0.020	6115045	<0.020	0.020	0.020	6115045
F1 (C6-C10)	ug/g	<10	N/A	<10	6115045	<10	10	N/A	6115045
F1 (C6-C10) - BTEX	ug/g	<10	N/A	<10	6115045	<10	10	N/A	6115045
F2-F4 Hydrocarbons									
F2 (C10-C16 Hydrocarbons)	ug/g	<10	<10	<10	6121973	<10	10	5.0	6119430
F3 (C16-C34 Hydrocarbons)	ug/g	<50	<50	<50	6121973	<50	50	5.0	6119430
F4 (C34-C50 Hydrocarbons)	ug/g	<50	<50	<50	6121973	<50	50	10	6119430
Reached Baseline at C50	ug/g	Yes	Yes	Yes	6121973	Yes	N/A	N/A	6119430
Surrogate Recovery (%)									
o-Terphenyl	%	94	93	97	6121973	103	N/A	N/A	6119430
4-Bromofluorobenzene	%	95	N/A	95	6115045	97	N/A	N/A	6115045
D10-o-Xylene	%	99	N/A	103	6115045	104	N/A	N/A	6115045
D4-1,2-Dichloroethane	%	101	N/A	101	6115045	100	N/A	N/A	6115045
D8-Toluene	%	101	N/A	100	6115045	102	N/A	N/A	6115045
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Lab-Dup = Laboratory Initiated Duplicate N/A = Not Applicable									



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BV Labs Job #: B9C0342
Report Date: 2019/06/12

Stantec Consulting Ltd
Client Project #: 121621877.400
Sampler Initials: GSR

RESULTS OF ANALYSES OF SEDIMENT

BV Labs ID		JQF836						
Sampling Date		2019/05/02 09:45						
COC Number		D40471			TOXIC EQUIVALENCY		# of	
	UNITS	VC-16-1	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
CONVENTIONALS								
Sulphide	ug/g	64.0	0.30	0.12	N/A	N/A	N/A	6124031
Inorganics								
Available (KCl) Total Kjeldahl Nitrogen	mg/kg	38	5.0	5.0	N/A	N/A	N/A	6123731
Ammonia-N	mg/kg	24	2.4	N/A	N/A	N/A	N/A	6117925
C:N RATIO	N/A	4.21	N/A	N/A	N/A	N/A	N/A	6128020
Moisture	%	43	1.0	0.20	N/A	N/A	N/A	6109898
Nitrate (N)	mg/kg	0.28	0.25	N/A	N/A	N/A	N/A	6109645
Nitrate + Nitrite (N)	mg/kg	0.28	0.25	N/A	N/A	N/A	N/A	6119805
Nitrite (N)	mg/kg	<0.050	0.050	N/A	N/A	N/A	N/A	6119806
Total Organic Carbon	mg/kg	11000	500	100	N/A	N/A	N/A	6122643
Orthophosphate (P)	mg/kg	0.94	0.050	N/A	N/A	N/A	N/A	6119804
Soluble (5:1) pH	pH	8.39	N/A	N/A	N/A	N/A	N/A	6118394
Phenols-4AAP	ug/g	<0.04	0.04	0.02	N/A	N/A	N/A	6114457
Total Cyanide (CN)	mg/kg	<5.0	5.0	N/A	N/A	N/A	N/A	6128790
Total Carbon	%	1.0	0.050	0.050	N/A	N/A	N/A	6117721
Total Sulphur (S)	%	0.64	0.060	0.060	N/A	N/A	N/A	6117721
Total Nitrogen	%	0.24	0.20	0.20	N/A	N/A	N/A	6117721
< -1 Phi (2 mm)	%	95	0.10	N/A	N/A	N/A	N/A	6112762
< 0 Phi (1 mm)	%	95	0.10	N/A	N/A	N/A	N/A	6112762
< +1 Phi (0.5 mm)	%	95	0.10	N/A	N/A	N/A	N/A	6112762
< +2 Phi (0.25 mm)	%	93	0.10	N/A	N/A	N/A	N/A	6112762
< +3 Phi (0.12 mm)	%	84	0.10	N/A	N/A	N/A	N/A	6112762
< +4 Phi (0.062 mm)	%	67	0.10	N/A	N/A	N/A	N/A	6112762
< +5 Phi (0.031 mm)	%	56	0.10	N/A	N/A	N/A	N/A	6112762
< +6 Phi (0.016 mm)	%	44	0.10	N/A	N/A	N/A	N/A	6112762
< +7 Phi (0.0078 mm)	%	29	0.10	N/A	N/A	N/A	N/A	6112762
< +8 Phi (0.0039 mm)	%	25	0.10	N/A	N/A	N/A	N/A	6112762
< +9 Phi (0.0020 mm)	%	19	0.10	N/A	N/A	N/A	N/A	6112762
Gravel	%	4.9	0.10	N/A	N/A	N/A	N/A	6112762
<p>RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.</p> <p>WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds</p> <p>QC Batch = Quality Control Batch N/A = Not Applicable</p>								



BUREAU
VERITAS

BV Labs Job #: B9C0342
Report Date: 2019/06/12

Stantec Consulting Ltd
Client Project #: 121621877.400
Sampler Initials: GSR

RESULTS OF ANALYSES OF SEDIMENT

BV Labs ID		JQF836						
Sampling Date		2019/05/02 09:45						
COC Number		D40471			TOXIC EQUIVALENCY		# of	
	UNITS	VC-16-1	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Sand	%	28	0.10	N/A	N/A	N/A	N/A	6112762
Silt	%	42	0.10	N/A	N/A	N/A	N/A	6112762
Clay	%	25	0.10	N/A	N/A	N/A	N/A	6112762
PCBs								
TriCB-(17)+(18)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
TriCB-(28)+(31)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
2'34'-TriCB-(33)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'55'-TetraCB-(52)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'45'-TetraCB-(49)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'35'-TetraCB-(44)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
244'5'-TetraCB-(74)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
23'4'5'-TetraCB-(70)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'35'6'-PentaCB-(95)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'455'-PentaCB-(101)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'44'5'-PentaCB-(99)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'345'-PentaCB-(87)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
233'4'6'-PentaCB-(110)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'4'-PentaCB-(82)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'355'6'-HexaCB-(151)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'34'5'6'-HexaCB-(149)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
23'44'5'-PentaCB-(118)	mg/kg	<0.010	0.010	N/A	0.000030	0.00000030	N/A	6128789
22'44'55'-HexaCB-(153)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'46'-HexaCB-(132)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
233'44'-PentaCB-(105)	mg/kg	<0.010	0.010	N/A	0.000030	0.00000030	N/A	6128789
HexaCB-(138)+(158)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'34'55'6'-HeptaCB-(187)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'344'5'6'-HeptaCB-(183)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'-HexaCB-(128)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'45'6'-HeptaCB-(177)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'6'-HeptaCB-(171)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
<p>RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.</p> <p>WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds QC Batch = Quality Control Batch N/A = Not Applicable</p>								



RESULTS OF ANALYSES OF SEDIMENT

BV Labs ID		JQF836						
Sampling Date		2019/05/02 09:45						
COC Number		D40471			TOXIC EQUIVALENCY		# of	
	UNITS	VC-16-1	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
233'44'5-HexaCB-(156)	mg/kg	<0.010	0.010	N/A	0.000030	0.00000030	N/A	6128789
22'344'55'-HeptaCB-(180)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
233'44'5'6-HeptaCB-(191)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
33'44'55'-HexaCB-(169)	mg/kg	<0.010	0.010	N/A	0.030	0.00030	N/A	6128789
22'33'44'5-HeptaCB-(170)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'455'6'-OctaCB-(199)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'455'66'-NonaCB-(208)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'56-OctaCB-(195)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'55'-OctaCB-(194)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
233'44'55'6-OctaCB-(205)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'55'6-NonaCB-(206)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
DecaCB-(209)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Trichlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Tetrachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Pentachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Hexachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Heptachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Octachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Nonachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Decachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Total PCB	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Physical Testing								
Moisture-Subcontracted	%w/w	45	0.50	N/A	N/A	N/A	N/A	6128791
Moisture-Subcontracted	%	42	0.30	N/A	N/A	N/A	N/A	6124030
Subcontracted Analysis								
Subcontract Parameter	N/A	ATTACHED	N/A	N/A	N/A	N/A	N/A	6113211
TOTAL TOXIC EQUIVALENCY	mg/kg	N/A	N/A	N/A	N/A	0.000301	N/A	N/A
Surrogate Recovery (%)								
2,3,3',4,6-Pentachlorobiphenyl	%	91	N/A	N/A	N/A	N/A	N/A	6128789
2',3,5-Trichlorobiphenyl	%	90	N/A	N/A	N/A	N/A	N/A	6128789
RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested. WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds QC Batch = Quality Control Batch N/A = Not Applicable								



RESULTS OF ANALYSES OF SEDIMENT

BV Labs ID		JQF836						
Sampling Date		2019/05/02 09:45						
COC Number		D40471	TOXIC EQUIVALENCY				# of	
	UNITS	VC-16-1	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
22'33'44'566'-Nonachlorobiphenyl	%	111	N/A	N/A	N/A	N/A	N/A	6128789

RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds
QC Batch = Quality Control Batch
N/A = Not Applicable

BV Labs ID		JQF836						
Sampling Date		2019/05/02 09:45						
COC Number		D40471	TOXIC EQUIVALENCY				# of	
	UNITS	VC-16-1 Lab-Dup	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch

Inorganics								
Ammonia-N	mg/kg	23	2.4	N/A	N/A	N/A	N/A	6117925
Nitrate + Nitrite (N)	mg/kg	<0.25	0.25	N/A	N/A	N/A	N/A	6119805
Nitrite (N)	mg/kg	<0.050	0.050	N/A	N/A	N/A	N/A	6119806
Orthophosphate (P)	mg/kg	0.79	0.050	N/A	N/A	N/A	N/A	6119804
TOTAL TOXIC EQUIVALENCY	mg/kg	N/A	N/A	N/A	N/A	0	N/A	N/A

RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
N/A = Not Applicable



BUREAU
VERITAS

BV Labs Job #: B9C0342
Report Date: 2019/06/12

Stantec Consulting Ltd
Client Project #: 121621877.400
Sampler Initials: GSR

RESULTS OF ANALYSES OF SEDIMENT

BV Labs ID		JQF837						
Sampling Date		2019/05/02 09:45						
COC Number		D40471			TOXIC EQUIVALENCY		# of	
	UNITS	VC-16-2	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Inorganics								
Moisture	%	46	1.0	0.20	N/A	N/A	N/A	6109898
Total Organic Carbon	mg/kg	11000	500	100	N/A	N/A	N/A	6122643
< -1 Phi (2 mm)	%	100	0.10	N/A	N/A	N/A	N/A	6112762
< 0 Phi (1 mm)	%	100	0.10	N/A	N/A	N/A	N/A	6112762
< +1 Phi (0.5 mm)	%	99	0.10	N/A	N/A	N/A	N/A	6112762
< +2 Phi (0.25 mm)	%	98	0.10	N/A	N/A	N/A	N/A	6112762
< +3 Phi (0.12 mm)	%	96	0.10	N/A	N/A	N/A	N/A	6112762
< +4 Phi (0.062 mm)	%	89	0.10	N/A	N/A	N/A	N/A	6112762
< +5 Phi (0.031 mm)	%	77	0.10	N/A	N/A	N/A	N/A	6112762
< +6 Phi (0.016 mm)	%	60	0.10	N/A	N/A	N/A	N/A	6112762
< +7 Phi (0.0078 mm)	%	39	0.10	N/A	N/A	N/A	N/A	6112762
< +8 Phi (0.0039 mm)	%	34	0.10	N/A	N/A	N/A	N/A	6112762
< +9 Phi (0.0020 mm)	%	25	0.10	N/A	N/A	N/A	N/A	6112762
Gravel	%	<0.10	0.10	N/A	N/A	N/A	N/A	6112762
Sand	%	11	0.10	N/A	N/A	N/A	N/A	6112762
Silt	%	55	0.10	N/A	N/A	N/A	N/A	6112762
Clay	%	34	0.10	N/A	N/A	N/A	N/A	6112762
PCBs								
TriCB-(17)+(18)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
TriCB-(28)+(31)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
2'34'-TriCB-(33)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'55'-TetraCB-(52)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'45'-TetraCB-(49)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'35'-TetraCB-(44)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
244'5'-TetraCB-(74)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
23'4'5'-TetraCB-(70)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'35'6'-PentaCB-(95)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'455'-PentaCB-(101)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
<p>RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.</p> <p>WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds QC Batch = Quality Control Batch N/A = Not Applicable</p>								



BUREAU
VERITAS

BV Labs Job #: B9C0342
Report Date: 2019/06/12

Stantec Consulting Ltd
Client Project #: 121621877.400
Sampler Initials: GSR

RESULTS OF ANALYSES OF SEDIMENT

BV Labs ID		JQF837						
Sampling Date		2019/05/02 09:45						
COC Number		D40471	TOXIC EQUIVALENCY				# of	
	UNITS	VC-16-2	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
22'44'5-PentaCB-(99)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'345'-PentaCB-(87)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
233'4'6-PentaCB-(110)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'4-PentaCB-(82)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'355'6-HexaCB-(151)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'34'5'6-HexaCB-(149)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
23'44'5-PentaCB-(118)	mg/kg	<0.010	0.010	N/A	0.000030	0.00000030	N/A	6128789
22'44'55'-HexaCB-(153)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'46'-HexaCB-(132)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
233'44'-PentaCB-(105)	mg/kg	<0.010	0.010	N/A	0.000030	0.00000030	N/A	6128789
HexaCB-(138)+(158)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'34'55'6-HeptaCB-(187)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'344'5'6-HeptaCB-(183)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'-HexaCB-(128)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'45'6'-HeptaCB-(177)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'6-HeptaCB-(171)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
233'44'5-HexaCB-(156)	mg/kg	<0.010	0.010	N/A	0.000030	0.00000030	N/A	6128789
22'344'55'-HeptaCB-(180)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
233'44'5'6-HeptaCB-(191)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
33'44'55'-HexaCB-(169)	mg/kg	<0.010	0.010	N/A	0.030	0.00030	N/A	6128789
22'33'44'5-HeptaCB-(170)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'455'6'-OctaCB-(199)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'455'66'-NonaCB-(208)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'56-OctaCB-(195)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'55'-OctaCB-(194)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
233'44'55'6-OctaCB-(205)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'55'6-NonaCB-(206)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
DecaCB-(209)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Trichlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Tetrachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789

RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds
QC Batch = Quality Control Batch
N/A = Not Applicable



RESULTS OF ANALYSES OF SEDIMENT

BV Labs ID		JQF837						
Sampling Date		2019/05/02 09:45						
COC Number		D40471			TOXIC EQUIVALENCY			# of
	UNITS	VC-16-2	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Pentachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Hexachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Heptachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Octachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Nonachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Decachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Total PCB	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
TOTAL TOXIC EQUIVALENCY	mg/kg	N/A	N/A	N/A	N/A	0.00030	N/A	N/A
Surrogate Recovery (%)								
2,3,3',4,6-Pentachlorobiphenyl	%	94	N/A	N/A	N/A	N/A	N/A	6128789
2',3,5-Trichlorobiphenyl	%	92	N/A	N/A	N/A	N/A	N/A	6128789
22'33'44'566'-Nonachlorobiphenyl	%	114	N/A	N/A	N/A	N/A	N/A	6128789
<p>RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested. WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds QC Batch = Quality Control Batch N/A = Not Applicable</p>								



BUREAU
VERITAS

BV Labs Job #: B9C0342
Report Date: 2019/06/12

Stantec Consulting Ltd
Client Project #: 121621877.400
Sampler Initials: GSR

RESULTS OF ANALYSES OF SEDIMENT

BV Labs ID		JQF838						
Sampling Date		2019/05/02 09:45						
COC Number		D40471			TOXIC EQUIVALENCY		# of	
	UNITS	VC-16-3	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Inorganics								
Moisture	%	51	1.0	0.20	N/A	N/A	N/A	6109898
Total Organic Carbon	mg/kg	23000	500	100	N/A	N/A	N/A	6122643
< -1 Phi (2 mm)	%	99	0.10	N/A	N/A	N/A	N/A	6112762
< 0 Phi (1 mm)	%	98	0.10	N/A	N/A	N/A	N/A	6112762
< +1 Phi (0.5 mm)	%	96	0.10	N/A	N/A	N/A	N/A	6112762
< +2 Phi (0.25 mm)	%	94	0.10	N/A	N/A	N/A	N/A	6112762
< +3 Phi (0.12 mm)	%	92	0.10	N/A	N/A	N/A	N/A	6112762
< +4 Phi (0.062 mm)	%	89	0.10	N/A	N/A	N/A	N/A	6112762
< +5 Phi (0.031 mm)	%	90	0.10	N/A	N/A	N/A	N/A	6112762
< +6 Phi (0.016 mm)	%	80	0.10	N/A	N/A	N/A	N/A	6112762
< +7 Phi (0.0078 mm)	%	18	0.10	N/A	N/A	N/A	N/A	6112762
< +8 Phi (0.0039 mm)	%	14	0.10	N/A	N/A	N/A	N/A	6112762
< +9 Phi (0.0020 mm)	%	14	0.10	N/A	N/A	N/A	N/A	6112762
Gravel	%	0.51	0.10	N/A	N/A	N/A	N/A	6112762
Sand	%	10	0.10	N/A	N/A	N/A	N/A	6112762
Silt	%	75	0.10	N/A	N/A	N/A	N/A	6112762
Clay	%	14	0.10	N/A	N/A	N/A	N/A	6112762
PCBs								
TriCB-(17)+(18)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
TriCB-(28)+(31)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
2'34'-TriCB-(33)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'55'-TetraCB-(52)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'45'-TetraCB-(49)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'35'-TetraCB-(44)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
244'5'-TetraCB-(74)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
23'4'5'-TetraCB-(70)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'35'6'-PentaCB-(95)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'455'-PentaCB-(101)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
<p>RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.</p> <p>WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds QC Batch = Quality Control Batch N/A = Not Applicable</p>								



RESULTS OF ANALYSES OF SEDIMENT

BV Labs ID		JQF838						
Sampling Date		2019/05/02 09:45						
COC Number		D40471	TOXIC EQUIVALENCY				# of	
	UNITS	VC-16-3	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
22'44'5-PentaCB-(99)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'345'-PentaCB-(87)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
233'4'6-PentaCB-(110)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'4-PentaCB-(82)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'355'6-HexaCB-(151)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'34'5'6-HexaCB-(149)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
23'44'5-PentaCB-(118)	mg/kg	<0.010	0.010	N/A	0.000030	0.00000030	N/A	6128789
22'44'55'-HexaCB-(153)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'46'-HexaCB-(132)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
233'44'-PentaCB-(105)	mg/kg	<0.010	0.010	N/A	0.000030	0.00000030	N/A	6128789
HexaCB-(138)+(158)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'34'55'6-HeptaCB-(187)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'344'5'6-HeptaCB-(183)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'-HexaCB-(128)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'45'6'-HeptaCB-(177)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'6-HeptaCB-(171)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
233'44'5-HexaCB-(156)	mg/kg	<0.010	0.010	N/A	0.000030	0.00000030	N/A	6128789
22'344'55'-HeptaCB-(180)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
233'44'5'6-HeptaCB-(191)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
33'44'55'-HexaCB-(169)	mg/kg	<0.010	0.010	N/A	0.030	0.00030	N/A	6128789
22'33'44'5-HeptaCB-(170)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'455'6'-OctaCB-(199)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'455'66'-NonaCB-(208)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'56-OctaCB-(195)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'55'-OctaCB-(194)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
233'44'55'6-OctaCB-(205)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'55'6-NonaCB-(206)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
DecaCB-(209)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Trichlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Tetrachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789

RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds
QC Batch = Quality Control Batch
N/A = Not Applicable



RESULTS OF ANALYSES OF SEDIMENT

BV Labs ID		JQF838						
Sampling Date		2019/05/02 09:45						
COC Number		D40471			TOXIC EQUIVALENCY			# of
	UNITS	VC-16-3	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Pentachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Hexachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Heptachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Octachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Nonachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Decachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Total PCB	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
TOTAL TOXIC EQUIVALENCY	mg/kg	N/A	N/A	N/A	N/A	0.00030	N/A	N/A
Surrogate Recovery (%)								
2,3,3',4,6-Pentachlorobiphenyl	%	91	N/A	N/A	N/A	N/A	N/A	6128789
2',3,5-Trichlorobiphenyl	%	90	N/A	N/A	N/A	N/A	N/A	6128789
22'33'44'566'-Nonachlorobiphenyl	%	109	N/A	N/A	N/A	N/A	N/A	6128789
<p>RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested. WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds QC Batch = Quality Control Batch N/A = Not Applicable</p>								



BUREAU
VERITAS

BV Labs Job #: B9C0342
Report Date: 2019/06/12

Stantec Consulting Ltd
Client Project #: 121621877.400
Sampler Initials: GSR

RESULTS OF ANALYSES OF SEDIMENT

BV Labs ID		JQF839						
Sampling Date		2019/04/29 16:40						
COC Number		D40471			TOXIC EQUIVALENCY		# of	
	UNITS	VC-50C-1	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Inorganics								
Moisture	%	48	1.0	0.20	N/A	N/A	N/A	6109898
Total Organic Carbon	mg/kg	66000	500	100	N/A	N/A	N/A	6122643
< -1 Phi (2 mm)	%	98	0.10	N/A	N/A	N/A	N/A	6112762
< 0 Phi (1 mm)	%	98	0.10	N/A	N/A	N/A	N/A	6112762
< +1 Phi (0.5 mm)	%	97	0.10	N/A	N/A	N/A	N/A	6112762
< +2 Phi (0.25 mm)	%	95	0.10	N/A	N/A	N/A	N/A	6112762
< +3 Phi (0.12 mm)	%	93	0.10	N/A	N/A	N/A	N/A	6112762
< +4 Phi (0.062 mm)	%	88	0.10	N/A	N/A	N/A	N/A	6112762
< +5 Phi (0.031 mm)	%	83	0.10	N/A	N/A	N/A	N/A	6112762
< +6 Phi (0.016 mm)	%	69	0.10	N/A	N/A	N/A	N/A	6112762
< +7 Phi (0.0078 mm)	%	48	0.10	N/A	N/A	N/A	N/A	6112762
< +8 Phi (0.0039 mm)	%	42	0.10	N/A	N/A	N/A	N/A	6112762
< +9 Phi (0.0020 mm)	%	32	0.10	N/A	N/A	N/A	N/A	6112762
Gravel	%	1.7	0.10	N/A	N/A	N/A	N/A	6112762
Sand	%	10	0.10	N/A	N/A	N/A	N/A	6112762
Silt	%	46	0.10	N/A	N/A	N/A	N/A	6112762
Clay	%	42	0.10	N/A	N/A	N/A	N/A	6112762
PCBs								
TriCB-(17)+(18)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
TriCB-(28)+(31)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
2'34'-TriCB-(33)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'55'-TetraCB-(52)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'45'-TetraCB-(49)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'35'-TetraCB-(44)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
244'5'-TetraCB-(74)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
23'4'5'-TetraCB-(70)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'35'6'-PentaCB-(95)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'455'-PentaCB-(101)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
<p>RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.</p> <p>WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds QC Batch = Quality Control Batch N/A = Not Applicable</p>								



BUREAU
VERITAS

BV Labs Job #: B9C0342
Report Date: 2019/06/12

Stantec Consulting Ltd
Client Project #: 121621877.400
Sampler Initials: GSR

RESULTS OF ANALYSES OF SEDIMENT

BV Labs ID		JQF839						
Sampling Date		2019/04/29 16:40						
COC Number		D40471	TOXIC EQUIVALENCY				# of	
	UNITS	VC-50C-1	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
22'44'5-PentaCB-(99)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'345'-PentaCB-(87)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
233'4'6-PentaCB-(110)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'4-PentaCB-(82)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'355'6-HexaCB-(151)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'34'5'6-HexaCB-(149)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
23'44'5-PentaCB-(118)	mg/kg	<0.010	0.010	N/A	0.000030	0.00000030	N/A	6128789
22'44'55'-HexaCB-(153)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'46'-HexaCB-(132)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
233'44'-PentaCB-(105)	mg/kg	<0.010	0.010	N/A	0.000030	0.00000030	N/A	6128789
HexaCB-(138)+(158)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'34'55'6-HeptaCB-(187)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'344'5'6-HeptaCB-(183)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'-HexaCB-(128)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'45'6'-HeptaCB-(177)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'6-HeptaCB-(171)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
233'44'5-HexaCB-(156)	mg/kg	<0.010	0.010	N/A	0.000030	0.00000030	N/A	6128789
22'344'55'-HeptaCB-(180)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
233'44'5'6-HeptaCB-(191)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
33'44'55'-HexaCB-(169)	mg/kg	<0.010	0.010	N/A	0.030	0.00030	N/A	6128789
22'33'44'5-HeptaCB-(170)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'455'6'-OctaCB-(199)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'455'66'-NonaCB-(208)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'56-OctaCB-(195)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'55'-OctaCB-(194)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
233'44'55'6-OctaCB-(205)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'55'6-NonaCB-(206)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
DecaCB-(209)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Trichlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Tetrachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789

RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds
QC Batch = Quality Control Batch
N/A = Not Applicable



RESULTS OF ANALYSES OF SEDIMENT

BV Labs ID		JQF839						
Sampling Date		2019/04/29 16:40						
COC Number		D40471			TOXIC EQUIVALENCY			# of
	UNITS	VC-50C-1	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Pentachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Hexachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Heptachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Octachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Nonachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Decachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Total PCB	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
TOTAL TOXIC EQUIVALENCY	mg/kg	N/A	N/A	N/A	N/A	0.00030	N/A	N/A
Surrogate Recovery (%)								
2,3,3',4,6-Pentachlorobiphenyl	%	92	N/A	N/A	N/A	N/A	N/A	6128789
2',3,5-Trichlorobiphenyl	%	88	N/A	N/A	N/A	N/A	N/A	6128789
22'33'44'566'-Nonachlorobiphenyl	%	112	N/A	N/A	N/A	N/A	N/A	6128789
<p>RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested. WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds QC Batch = Quality Control Batch N/A = Not Applicable</p>								



BUREAU
VERITAS

BV Labs Job #: B9C0342
Report Date: 2019/06/12

Stantec Consulting Ltd
Client Project #: 121621877.400
Sampler Initials: GSR

RESULTS OF ANALYSES OF SEDIMENT

BV Labs ID		JQF840						
Sampling Date		2019/04/29 16:40						
COC Number		D40471			TOXIC EQUIVALENCY		# of	
	UNITS	VC-50C-2	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Inorganics								
Moisture	%	35	1.0	0.20	N/A	N/A	N/A	6109898
Total Organic Carbon	mg/kg	28000	500	100	N/A	N/A	N/A	6122643
< -1 Phi (2 mm)	%	75	0.10	N/A	N/A	N/A	N/A	6112762
< 0 Phi (1 mm)	%	65	0.10	N/A	N/A	N/A	N/A	6112762
< +1 Phi (0.5 mm)	%	55	0.10	N/A	N/A	N/A	N/A	6112762
< +2 Phi (0.25 mm)	%	43	0.10	N/A	N/A	N/A	N/A	6112762
< +3 Phi (0.12 mm)	%	38	0.10	N/A	N/A	N/A	N/A	6112762
< +4 Phi (0.062 mm)	%	34	0.10	N/A	N/A	N/A	N/A	6112762
< +5 Phi (0.031 mm)	%	32	0.10	N/A	N/A	N/A	N/A	6112762
< +6 Phi (0.016 mm)	%	26	0.10	N/A	N/A	N/A	N/A	6112762
< +7 Phi (0.0078 mm)	%	17	0.10	N/A	N/A	N/A	N/A	6112762
< +8 Phi (0.0039 mm)	%	15	0.10	N/A	N/A	N/A	N/A	6112762
< +9 Phi (0.0020 mm)	%	11	0.10	N/A	N/A	N/A	N/A	6112762
Gravel	%	25	0.10	N/A	N/A	N/A	N/A	6112762
Sand	%	41	0.10	N/A	N/A	N/A	N/A	6112762
Silt	%	19	0.10	N/A	N/A	N/A	N/A	6112762
Clay	%	15	0.10	N/A	N/A	N/A	N/A	6112762
PCBs								
TriCB-(17)+(18)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
TriCB-(28)+(31)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
2'34'-TriCB-(33)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'55'-TetraCB-(52)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'45'-TetraCB-(49)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'35'-TetraCB-(44)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
244'5'-TetraCB-(74)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
23'4'5'-TetraCB-(70)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'35'6'-PentaCB-(95)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'455'-PentaCB-(101)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
<p>RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.</p> <p>WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds</p> <p>QC Batch = Quality Control Batch N/A = Not Applicable</p>								



RESULTS OF ANALYSES OF SEDIMENT

BV Labs ID		JQF840						
Sampling Date		2019/04/29 16:40						
COC Number		D40471	TOXIC EQUIVALENCY				# of	
	UNITS	VC-50C-2	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
22'44'5'-PentaCB-(99)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'345'-PentaCB-(87)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
233'4'6'-PentaCB-(110)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'4'-PentaCB-(82)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'355'6'-HexaCB-(151)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'34'5'6'-HexaCB-(149)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
23'44'5'-PentaCB-(118)	mg/kg	<0.010	0.010	N/A	0.000030	0.00000030	N/A	6128789
22'44'55'-HexaCB-(153)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'46'-HexaCB-(132)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
233'44'-PentaCB-(105)	mg/kg	<0.010	0.010	N/A	0.000030	0.00000030	N/A	6128789
HexaCB-(138)+(158)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'34'55'6'-HeptaCB-(187)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'344'5'6'-HeptaCB-(183)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'-HexaCB-(128)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'45'6'-HeptaCB-(177)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'6'-HeptaCB-(171)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
233'44'5'-HexaCB-(156)	mg/kg	<0.010	0.010	N/A	0.000030	0.00000030	N/A	6128789
22'344'55'-HeptaCB-(180)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
233'44'5'6'-HeptaCB-(191)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
33'44'55'-HexaCB-(169)	mg/kg	<0.010	0.010	N/A	0.030	0.00030	N/A	6128789
22'33'44'5'-HeptaCB-(170)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'455'6'-OctaCB-(199)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'455'66'-NonaCB-(208)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'56'-OctaCB-(195)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'55'-OctaCB-(194)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
233'44'55'6'-OctaCB-(205)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'55'6'-NonaCB-(206)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
DecaCB-(209)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Trichlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Tetrachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789

RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds
QC Batch = Quality Control Batch
N/A = Not Applicable



RESULTS OF ANALYSES OF SEDIMENT

BV Labs ID		JQF840						
Sampling Date		2019/04/29 16:40						
COC Number		D40471			TOXIC EQUIVALENCY			# of
	UNITS	VC-50C-2	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Pentachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Hexachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Heptachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Octachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Nonachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Decachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Total PCB	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
TOTAL TOXIC EQUIVALENCY	mg/kg	N/A	N/A	N/A	N/A	0.00030	N/A	N/A
Surrogate Recovery (%)								
2,3,3',4,6-Pentachlorobiphenyl	%	94	N/A	N/A	N/A	N/A	N/A	6128789
2',3,5-Trichlorobiphenyl	%	91	N/A	N/A	N/A	N/A	N/A	6128789
22'33'44'566'-Nonachlorobiphenyl	%	113	N/A	N/A	N/A	N/A	N/A	6128789
RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested. WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds QC Batch = Quality Control Batch N/A = Not Applicable								



BUREAU
VERITAS

BV Labs Job #: B9C0342
Report Date: 2019/06/12

Stantec Consulting Ltd
Client Project #: 121621877.400
Sampler Initials: GSR

RESULTS OF ANALYSES OF SEDIMENT

BV Labs ID		JQF841						
Sampling Date		2019/04/29 16:40						
COC Number		D40471			TOXIC EQUIVALENCY		# of	
	UNITS	VC-50C-3	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Inorganics								
Moisture	%	56	1.0	0.20	N/A	N/A	N/A	6112010
Total Organic Carbon	mg/kg	69000	500	100	N/A	N/A	N/A	6122643
< -1 Phi (2 mm)	%	95 (1)	0.10	N/A	N/A	N/A	N/A	6112762
< 0 Phi (1 mm)	%	93	0.10	N/A	N/A	N/A	N/A	6112762
< +1 Phi (0.5 mm)	%	91	0.10	N/A	N/A	N/A	N/A	6112762
< +2 Phi (0.25 mm)	%	88	0.10	N/A	N/A	N/A	N/A	6112762
< +3 Phi (0.12 mm)	%	84	0.10	N/A	N/A	N/A	N/A	6112762
< +4 Phi (0.062 mm)	%	80	0.10	N/A	N/A	N/A	N/A	6112762
< +5 Phi (0.031 mm)	%	76	0.10	N/A	N/A	N/A	N/A	6112762
< +6 Phi (0.016 mm)	%	64	0.10	N/A	N/A	N/A	N/A	6112762
< +7 Phi (0.0078 mm)	%	45	0.10	N/A	N/A	N/A	N/A	6112762
< +8 Phi (0.0039 mm)	%	39	0.10	N/A	N/A	N/A	N/A	6112762
< +9 Phi (0.0020 mm)	%	30	0.10	N/A	N/A	N/A	N/A	6112762
Gravel	%	5.3	0.10	N/A	N/A	N/A	N/A	6112762
Sand	%	15	0.10	N/A	N/A	N/A	N/A	6112762
Silt	%	41	0.10	N/A	N/A	N/A	N/A	6112762
Clay	%	39	0.10	N/A	N/A	N/A	N/A	6112762
PCBs								
TriCB-(17)+(18)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
TriCB-(28)+(31)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
2'34'-TriCB-(33)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'55'-TetraCB-(52)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'45'-TetraCB-(49)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'35'-TetraCB-(44)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
244'5'-TetraCB-(74)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
23'4'5'-TetraCB-(70)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'35'6'-PentaCB-(95)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
<p>RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.</p> <p>WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds</p> <p>QC Batch = Quality Control Batch N/A = Not Applicable (1) PSA sample observation comment: Fraction contained organic matter</p>								



BUREAU
VERITAS

BV Labs Job #: B9C0342
Report Date: 2019/06/12

Stantec Consulting Ltd
Client Project #: 121621877.400
Sampler Initials: GSR

RESULTS OF ANALYSES OF SEDIMENT

BV Labs ID		JQF841						
Sampling Date		2019/04/29 16:40						
COC Number		D40471			TOXIC EQUIVALENCY		# of	
	UNITS	VC-50C-3	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
22'455'-PentaCB-(101)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'44'5'-PentaCB-(99)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'345'-PentaCB-(87)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
233'4'6'-PentaCB-(110)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'4'-PentaCB-(82)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'355'6'-HexaCB-(151)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'34'5'6'-HexaCB-(149)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
23'44'5'-PentaCB-(118)	mg/kg	<0.010	0.010	N/A	0.000030	0.00000030	N/A	6128789
22'44'55'-HexaCB-(153)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'46'-HexaCB-(132)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
233'44'-PentaCB-(105)	mg/kg	<0.010	0.010	N/A	0.000030	0.00000030	N/A	6128789
HexaCB-(138)+(158)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'34'55'6'-HeptaCB-(187)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'344'5'6'-HeptaCB-(183)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'-HexaCB-(128)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'45'6'-HeptaCB-(177)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'6'-HeptaCB-(171)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
233'44'5'-HexaCB-(156)	mg/kg	<0.010	0.010	N/A	0.000030	0.00000030	N/A	6128789
22'344'55'-HeptaCB-(180)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
233'44'5'6'-HeptaCB-(191)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
33'44'55'-HexaCB-(169)	mg/kg	<0.010	0.010	N/A	0.030	0.00030	N/A	6128789
22'33'44'5'-HeptaCB-(170)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'455'6'-OctaCB-(199)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'455'66'-NonaCB-(208)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'56'-OctaCB-(195)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'55'-OctaCB-(194)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
233'44'55'6'-OctaCB-(205)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'55'6'-NonaCB-(206)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
DecaCB-(209)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Trichlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789

RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds
QC Batch = Quality Control Batch
N/A = Not Applicable



RESULTS OF ANALYSES OF SEDIMENT

BV Labs ID		JQF841						
Sampling Date		2019/04/29 16:40						
COC Number		D40471			TOXIC EQUIVALENCY			# of
	UNITS	VC-50C-3	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Tetrachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Pentachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Hexachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Heptachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Octachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Nonachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Decachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Total PCB	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
TOTAL TOXIC EQUIVALENCY	mg/kg	N/A	N/A	N/A	N/A	0.00030	N/A	N/A
Surrogate Recovery (%)								
2,3,3',4,6-Pentachlorobiphenyl	%	92	N/A	N/A	N/A	N/A	N/A	6128789
2',3,5-Trichlorobiphenyl	%	91	N/A	N/A	N/A	N/A	N/A	6128789
22'33'44'566'-Nonachlorobiphenyl	%	108	N/A	N/A	N/A	N/A	N/A	6128789
<p>RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested. WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds QC Batch = Quality Control Batch N/A = Not Applicable</p>								



BUREAU
VERITAS

BV Labs Job #: B9C0342
Report Date: 2019/06/12

Stantec Consulting Ltd
Client Project #: 121621877.400
Sampler Initials: GSR

RESULTS OF ANALYSES OF SEDIMENT

BV Labs ID		JQF842						
Sampling Date		2019/05/05 15:00						
COC Number		D40471			TOXIC EQUIVALENCY		# of	
	UNITS	VC-23-1	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
CONVENTIONALS								
Sulphide	ug/g	3.96	0.30	0.12	N/A	N/A	N/A	6124031
Inorganics								
Available (KCl) Total Kjeldahl Nitrogen	mg/kg	6.9 (1)	5.0	5.0	N/A	N/A	N/A	6123731
Ammonia-N	mg/kg	2.9	0.33	N/A	N/A	N/A	N/A	6117925
C:N RATIO	N/A	1.35	N/A	N/A	N/A	N/A	N/A	6128020
Moisture	%	23	1.0	0.20	N/A	N/A	N/A	6112010
Nitrate (N)	mg/kg	<0.25	0.25	N/A	N/A	N/A	N/A	6109645
Nitrate + Nitrite (N)	mg/kg	<0.25	0.25	N/A	N/A	N/A	N/A	6119805
Nitrite (N)	mg/kg	<0.050	0.050	N/A	N/A	N/A	N/A	6119806
Total Organic Carbon	mg/kg	2000	500	100	N/A	N/A	N/A	6122643
Orthophosphate (P)	mg/kg	0.48	0.050	N/A	N/A	N/A	N/A	6119804
Soluble (5:1) pH	pH	8.37	N/A	N/A	N/A	N/A	N/A	6118394
Phenols-4AAP	ug/g	<0.04	0.04	0.02	N/A	N/A	N/A	6114457
Total Cyanide (CN)	mg/kg	<5.0	5.0	N/A	N/A	N/A	N/A	6128790
Total Carbon	%	0.62	0.050	0.050	N/A	N/A	N/A	6117721
Total Sulphur (S)	%	0.19	0.060	0.060	N/A	N/A	N/A	6117721
Total Nitrogen	%	0.46	0.20	0.20	N/A	N/A	N/A	6117721
< -1 Phi (2 mm)	%	100	0.10	N/A	N/A	N/A	N/A	6112762
< 0 Phi (1 mm)	%	99	0.10	N/A	N/A	N/A	N/A	6112762
< +1 Phi (0.5 mm)	%	98	0.10	N/A	N/A	N/A	N/A	6112762
< +2 Phi (0.25 mm)	%	95	0.10	N/A	N/A	N/A	N/A	6112762
< +3 Phi (0.12 mm)	%	55	0.10	N/A	N/A	N/A	N/A	6112762
< +4 Phi (0.062 mm)	%	17	0.10	N/A	N/A	N/A	N/A	6112762
< +5 Phi (0.031 mm)	%	14	0.10	N/A	N/A	N/A	N/A	6112762
< +6 Phi (0.016 mm)	%	12	0.10	N/A	N/A	N/A	N/A	6112762
< +7 Phi (0.0078 mm)	%	8.0	0.10	N/A	N/A	N/A	N/A	6112762
< +8 Phi (0.0039 mm)	%	7.0	0.10	N/A	N/A	N/A	N/A	6112762
< +9 Phi (0.0020 mm)	%	5.6	0.10	N/A	N/A	N/A	N/A	6112762
<p>RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.</p> <p>WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds</p> <p>QC Batch = Quality Control Batch N/A = Not Applicable (1) Duplicate exceeds acceptance criteria due to sample non homogeneity. Reanalysis yields similar results.</p>								



RESULTS OF ANALYSES OF SEDIMENT

BV Labs ID		JQF842						
Sampling Date		2019/05/05 15:00						
COC Number		D40471			TOXIC EQUIVALENCY		# of	
	UNITS	VC-23-1	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Gravel	%	0.18	0.10	N/A	N/A	N/A	N/A	6112762
Sand	%	83	0.10	N/A	N/A	N/A	N/A	6112762
Silt	%	10	0.10	N/A	N/A	N/A	N/A	6112762
Clay	%	7.0	0.10	N/A	N/A	N/A	N/A	6112762
PCBs								
TriCB-(17)+(18)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
TriCB-(28)+(31)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
2'34'-TriCB-(33)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'55'-TetraCB-(52)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'45'-TetraCB-(49)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'35'-TetraCB-(44)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
244'5'-TetraCB-(74)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
23'4'5'-TetraCB-(70)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'35'6'-PentaCB-(95)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'455'6'-PentaCB-(101)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'44'5'-PentaCB-(99)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'345'6'-PentaCB-(87)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
233'4'6'-PentaCB-(110)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'4'-PentaCB-(82)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'355'6'-HexaCB-(151)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'34'5'6'-HexaCB-(149)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
23'44'5'-PentaCB-(118)	mg/kg	<0.010	0.010	N/A	0.000030	0.00000030	N/A	6128789
22'44'55'6'-HexaCB-(153)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'46'6'-HexaCB-(132)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
233'44'6'-PentaCB-(105)	mg/kg	<0.010	0.010	N/A	0.000030	0.00000030	N/A	6128789
HexaCB-(138)+(158)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'34'55'6'-HeptaCB-(187)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'344'5'6'-HeptaCB-(183)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'6'-HexaCB-(128)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'45'6'6'-HeptaCB-(177)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
<p>RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.</p> <p>WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds</p> <p>QC Batch = Quality Control Batch N/A = Not Applicable</p>								



RESULTS OF ANALYSES OF SEDIMENT

BV Labs ID		JQF842						
Sampling Date		2019/05/05 15:00						
COC Number		D40471			TOXIC EQUIVALENCY		# of	
	UNITS	VC-23-1	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
22'33'44'6-HeptaCB-(171)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
233'44'5-HexaCB-(156)	mg/kg	<0.010	0.010	N/A	0.000030	0.00000030	N/A	6128789
22'344'55'-HeptaCB-(180)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
233'44'5'6-HeptaCB-(191)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
33'44'55'-HexaCB-(169)	mg/kg	<0.010	0.010	N/A	0.030	0.00030	N/A	6128789
22'33'44'5-HeptaCB-(170)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'455'6'-OctaCB-(199)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'455'66'-NonaCB-(208)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'56-OctaCB-(195)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'55'-OctaCB-(194)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
233'44'55'6-OctaCB-(205)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'55'6-NonaCB-(206)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
DecaCB-(209)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Trichlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Tetrachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Pentachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Hexachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Heptachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Octachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Nonachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Decachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Total PCB	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Physical Testing								
Moisture-Subcontracted	%w/w	24	0.50	N/A	N/A	N/A	N/A	6128791
Moisture-Subcontracted	%	22	0.30	N/A	N/A	N/A	N/A	6124032
Subcontracted Analysis								
Subcontract Parameter	N/A	ATTACHED	N/A	N/A	N/A	N/A	N/A	6113211
TOTAL TOXIC EQUIVALENCY	mg/kg	N/A	N/A	N/A	N/A	0.000301	N/A	N/A
Surrogate Recovery (%)								
2,3,3',4,6-Pentachlorobiphenyl	%	91	N/A	N/A	N/A	N/A	N/A	6128789
<p>RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.</p> <p>WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds QC Batch = Quality Control Batch N/A = Not Applicable</p>								



RESULTS OF ANALYSES OF SEDIMENT

BV Labs ID		JQF842						
Sampling Date		2019/05/05 15:00						
COC Number		D40471	TOXIC EQUIVALENCY				# of	
	UNITS	VC-23-1	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
2',3,5-Trichlorobiphenyl	%	90	N/A	N/A	N/A	N/A	N/A	6128789
22'33'44'566'-Nonachlorobiphenyl	%	112	N/A	N/A	N/A	N/A	N/A	6128789

RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds
QC Batch = Quality Control Batch
N/A = Not Applicable

BV Labs ID		JQF842						
Sampling Date		2019/05/05 15:00						
COC Number		D40471	TOXIC EQUIVALENCY				# of	
	UNITS	VC-23-1 Lab-Dup	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch

Inorganics								
Available (KCl) Total Kjeldahl Nitrogen	mg/kg	22 (1)	5.0	5.0	N/A	N/A	N/A	6123731
TOTAL TOXIC EQUIVALENCY	mg/kg	N/A	N/A	N/A	N/A	0	N/A	N/A

RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
N/A = Not Applicable
(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.



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BV Labs Job #: B9C0342
Report Date: 2019/06/12

Stantec Consulting Ltd
Client Project #: 121621877.400
Sampler Initials: GSR

RESULTS OF ANALYSES OF SEDIMENT

BV Labs ID		JQF843						
Sampling Date		2019/05/05 15:00						
COC Number		D40471			TOXIC EQUIVALENCY		# of	
	UNITS	VC-23-3	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Inorganics								
Moisture	%	29	1.0	0.20	N/A	N/A	N/A	6112010
Total Organic Carbon	mg/kg	6900	500	100	N/A	N/A	N/A	6122643
< -1 Phi (2 mm)	%	100	0.10	N/A	N/A	N/A	N/A	6112762
< 0 Phi (1 mm)	%	99	0.10	N/A	N/A	N/A	N/A	6112762
< +1 Phi (0.5 mm)	%	99	0.10	N/A	N/A	N/A	N/A	6112762
< +2 Phi (0.25 mm)	%	98	0.10	N/A	N/A	N/A	N/A	6112762
< +3 Phi (0.12 mm)	%	92	0.10	N/A	N/A	N/A	N/A	6112762
< +4 Phi (0.062 mm)	%	57	0.10	N/A	N/A	N/A	N/A	6112762
< +5 Phi (0.031 mm)	%	41	0.10	N/A	N/A	N/A	N/A	6112762
< +6 Phi (0.016 mm)	%	32	0.10	N/A	N/A	N/A	N/A	6112762
< +7 Phi (0.0078 mm)	%	7.2	0.10	N/A	N/A	N/A	N/A	6112762
< +8 Phi (0.0039 mm)	%	3.0	0.10	N/A	N/A	N/A	N/A	6112762
< +9 Phi (0.0020 mm)	%	6.3	0.10	N/A	N/A	N/A	N/A	6112762
Gravel	%	0.29	0.10	N/A	N/A	N/A	N/A	6112762
Sand	%	43	0.10	N/A	N/A	N/A	N/A	6112762
Silt	%	54	0.10	N/A	N/A	N/A	N/A	6112762
Clay	%	3.0	0.10	N/A	N/A	N/A	N/A	6112762
PCBs								
TriCB-(17)+(18)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
TriCB-(28)+(31)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
2'34'-TriCB-(33)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'55'-TetraCB-(52)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'45'-TetraCB-(49)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'35'-TetraCB-(44)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
244'5'-TetraCB-(74)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
23'4'5'-TetraCB-(70)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'35'6'-PentaCB-(95)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'455'-PentaCB-(101)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
<p>RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.</p> <p>WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds QC Batch = Quality Control Batch N/A = Not Applicable</p>								



RESULTS OF ANALYSES OF SEDIMENT

BV Labs ID		JQF843						
Sampling Date		2019/05/05 15:00						
COC Number		D40471			TOXIC EQUIVALENCY			# of
	UNITS	VC-23-3	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
22'44'5-PentaCB-(99)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'345'-PentaCB-(87)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
233'4'6-PentaCB-(110)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'4-PentaCB-(82)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'355'6-HexaCB-(151)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'34'5'6-HexaCB-(149)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
23'44'5-PentaCB-(118)	mg/kg	<0.010	0.010	N/A	0.000030	0.00000030	N/A	6128789
22'44'55'-HexaCB-(153)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'46'-HexaCB-(132)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
233'44'-PentaCB-(105)	mg/kg	<0.010	0.010	N/A	0.000030	0.00000030	N/A	6128789
HexaCB-(138)+(158)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'34'55'6-HeptaCB-(187)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'344'5'6-HeptaCB-(183)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'-HexaCB-(128)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'45'6'-HeptaCB-(177)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'6-HeptaCB-(171)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
233'44'5-HexaCB-(156)	mg/kg	<0.010	0.010	N/A	0.000030	0.00000030	N/A	6128789
22'344'55'-HeptaCB-(180)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
233'44'5'6-HeptaCB-(191)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
33'44'55'-HexaCB-(169)	mg/kg	<0.010	0.010	N/A	0.030	0.00030	N/A	6128789
22'33'44'5-HeptaCB-(170)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'455'6'-OctaCB-(199)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'455'66'-NonaCB-(208)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'56-OctaCB-(195)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'55'-OctaCB-(194)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
233'44'55'6-OctaCB-(205)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'55'6-NonaCB-(206)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
DecaCB-(209)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Trichlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Tetrachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789

RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds
QC Batch = Quality Control Batch
N/A = Not Applicable



RESULTS OF ANALYSES OF SEDIMENT

BV Labs ID		JQF843						
Sampling Date		2019/05/05 15:00						
COC Number		D40471			TOXIC EQUIVALENCY			# of
	UNITS	VC-23-3	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Pentachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Hexachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Heptachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Octachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Nonachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Decachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Total PCB	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
TOTAL TOXIC EQUIVALENCY	mg/kg	N/A	N/A	N/A	N/A	0.00030	N/A	N/A
Surrogate Recovery (%)								
2,3,3',4,6-Pentachlorobiphenyl	%	90	N/A	N/A	N/A	N/A	N/A	6128789
2',3,5-Trichlorobiphenyl	%	90	N/A	N/A	N/A	N/A	N/A	6128789
22'33'44'566'-Nonachlorobiphenyl	%	111	N/A	N/A	N/A	N/A	N/A	6128789
<p>RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested. WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds QC Batch = Quality Control Batch N/A = Not Applicable</p>								



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BV Labs Job #: B9C0342
Report Date: 2019/06/12

Stantec Consulting Ltd
Client Project #: 121621877.400
Sampler Initials: GSR

RESULTS OF ANALYSES OF SEDIMENT

BV Labs ID		JQF844						
Sampling Date		2019/05/05 15:00						
COC Number		D40471			TOXIC EQUIVALENCY		# of	
	UNITS	VC-23-4	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Inorganics								
Moisture	%	33	1.0	0.20	N/A	N/A	N/A	6112010
Total Organic Carbon	mg/kg	9000	500	100	N/A	N/A	N/A	6122643
< -1 Phi (2 mm)	%	100	0.10	N/A	N/A	N/A	N/A	6112762
< 0 Phi (1 mm)	%	100	0.10	N/A	N/A	N/A	N/A	6112762
< +1 Phi (0.5 mm)	%	99	0.10	N/A	N/A	N/A	N/A	6112762
< +2 Phi (0.25 mm)	%	99	0.10	N/A	N/A	N/A	N/A	6112762
< +3 Phi (0.12 mm)	%	98	0.10	N/A	N/A	N/A	N/A	6112762
< +4 Phi (0.062 mm)	%	79	0.10	N/A	N/A	N/A	N/A	6112762
< +5 Phi (0.031 mm)	%	60	0.10	N/A	N/A	N/A	N/A	6112762
< +6 Phi (0.016 mm)	%	48	0.10	N/A	N/A	N/A	N/A	6112762
< +7 Phi (0.0078 mm)	%	7.4	0.10	N/A	N/A	N/A	N/A	6112762
< +8 Phi (0.0039 mm)	%	7.8	0.10	N/A	N/A	N/A	N/A	6112762
< +9 Phi (0.0020 mm)	%	7.5	0.10	N/A	N/A	N/A	N/A	6112762
Gravel	%	<0.10	0.10	N/A	N/A	N/A	N/A	6112762
Sand	%	21	0.10	N/A	N/A	N/A	N/A	6112762
Silt	%	71	0.10	N/A	N/A	N/A	N/A	6112762
Clay	%	7.8	0.10	N/A	N/A	N/A	N/A	6112762
PCBs								
TriCB-(17)+(18)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
TriCB-(28)+(31)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
2'34'-TriCB-(33)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'55'-TetraCB-(52)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'45'-TetraCB-(49)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'35'-TetraCB-(44)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
244'5'-TetraCB-(74)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
23'4'5'-TetraCB-(70)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'35'6'-PentaCB-(95)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'455'-PentaCB-(101)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
<p>RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.</p> <p>WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds QC Batch = Quality Control Batch N/A = Not Applicable</p>								



RESULTS OF ANALYSES OF SEDIMENT

BV Labs ID		JQF844						
Sampling Date		2019/05/05 15:00						
COC Number		D40471	TOXIC EQUIVALENCY				# of	
	UNITS	VC-23-4	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
22'44'5'-PentaCB-(99)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'345'-PentaCB-(87)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
233'4'6'-PentaCB-(110)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'4'-PentaCB-(82)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'355'6'-HexaCB-(151)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'34'5'6'-HexaCB-(149)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
23'44'5'-PentaCB-(118)	mg/kg	<0.010	0.010	N/A	0.000030	0.00000030	N/A	6128789
22'44'55'-HexaCB-(153)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'46'-HexaCB-(132)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
233'44'-PentaCB-(105)	mg/kg	<0.010	0.010	N/A	0.000030	0.00000030	N/A	6128789
HexaCB-(138)+(158)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'34'55'6'-HeptaCB-(187)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'344'5'6'-HeptaCB-(183)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'-HexaCB-(128)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'45'6'-HeptaCB-(177)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'6'-HeptaCB-(171)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
233'44'5'-HexaCB-(156)	mg/kg	<0.010	0.010	N/A	0.000030	0.00000030	N/A	6128789
22'344'55'-HeptaCB-(180)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
233'44'5'6'-HeptaCB-(191)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
33'44'55'-HexaCB-(169)	mg/kg	<0.010	0.010	N/A	0.030	0.00030	N/A	6128789
22'33'44'5'-HeptaCB-(170)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'455'6'-OctaCB-(199)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'455'66'-NonaCB-(208)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'56'-OctaCB-(195)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'55'-OctaCB-(194)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
233'44'55'6'-OctaCB-(205)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'55'6'-NonaCB-(206)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
DecaCB-(209)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Trichlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Tetrachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789

RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds
QC Batch = Quality Control Batch
N/A = Not Applicable



RESULTS OF ANALYSES OF SEDIMENT

BV Labs ID		JQF844						
Sampling Date		2019/05/05 15:00						
COC Number		D40471			TOXIC EQUIVALENCY			# of
	UNITS	VC-23-4	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Pentachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Hexachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Heptachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Octachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Nonachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Decachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Total PCB	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
TOTAL TOXIC EQUIVALENCY	mg/kg	N/A	N/A	N/A	N/A	0.00030	N/A	N/A
Surrogate Recovery (%)								
2,3,3',4,6-Pentachlorobiphenyl	%	92	N/A	N/A	N/A	N/A	N/A	6128789
2',3,5-Trichlorobiphenyl	%	91	N/A	N/A	N/A	N/A	N/A	6128789
22'33'44'566'-Nonachlorobiphenyl	%	113	N/A	N/A	N/A	N/A	N/A	6128789
RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested. WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds QC Batch = Quality Control Batch N/A = Not Applicable								



RESULTS OF ANALYSES OF SEDIMENT

BV Labs ID		JQF844						
Sampling Date		2019/05/05 15:00						
COC Number		D40471			TOXIC EQUIVALENCY		# of	
	UNITS	VC-23-4 Lab-Dup	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch

Inorganics

Total Organic Carbon	mg/kg	9500	500	100	N/A	N/A	N/A	6122643
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TOTAL TOXIC EQUIVALENCY	mg/kg	N/A	N/A	N/A	N/A	0	N/A	N/A
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RDL = Reportable Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,

The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

QC Batch = Quality Control Batch

Lab-Dup = Laboratory Initiated Duplicate

N/A = Not Applicable



BUREAU
VERITAS

BV Labs Job #: B9C0342
Report Date: 2019/06/12

Stantec Consulting Ltd
Client Project #: 121621877.400
Sampler Initials: GSR

RESULTS OF ANALYSES OF SEDIMENT

BV Labs ID		JQF869						
Sampling Date		2019/04/29 11:05						
COC Number		D40472			TOXIC EQUIVALENCY		# of	
	UNITS	VC-51	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Inorganics								
Moisture	%	19	1.0	0.20	N/A	N/A	N/A	6112010
Total Organic Carbon	mg/kg	4700	500	100	N/A	N/A	N/A	6122643
< -1 Phi (2 mm)	%	82	0.10	N/A	N/A	N/A	N/A	6112762
< 0 Phi (1 mm)	%	78	0.10	N/A	N/A	N/A	N/A	6112762
< +1 Phi (0.5 mm)	%	75	0.10	N/A	N/A	N/A	N/A	6112762
< +2 Phi (0.25 mm)	%	68	0.10	N/A	N/A	N/A	N/A	6112762
< +3 Phi (0.12 mm)	%	56	0.10	N/A	N/A	N/A	N/A	6112762
< +4 Phi (0.062 mm)	%	46	0.10	N/A	N/A	N/A	N/A	6112762
< +5 Phi (0.031 mm)	%	42	0.10	N/A	N/A	N/A	N/A	6112762
< +6 Phi (0.016 mm)	%	34	0.10	N/A	N/A	N/A	N/A	6112762
< +7 Phi (0.0078 mm)	%	23	0.10	N/A	N/A	N/A	N/A	6112762
< +8 Phi (0.0039 mm)	%	19	0.10	N/A	N/A	N/A	N/A	6112762
< +9 Phi (0.0020 mm)	%	15	0.10	N/A	N/A	N/A	N/A	6112762
Gravel	%	18	0.10	N/A	N/A	N/A	N/A	6112762
Sand	%	35	0.10	N/A	N/A	N/A	N/A	6112762
Silt	%	27	0.10	N/A	N/A	N/A	N/A	6112762
Clay	%	19	0.10	N/A	N/A	N/A	N/A	6112762
PCBs								
TriCB-(17)+(18)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
TriCB-(28)+(31)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
2'34'-TriCB-(33)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'55'-TetraCB-(52)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'45'-TetraCB-(49)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'35'-TetraCB-(44)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
244'5'-TetraCB-(74)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
23'4'5'-TetraCB-(70)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'35'6'-PentaCB-(95)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'455'-PentaCB-(101)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
<p>RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.</p> <p>WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds QC Batch = Quality Control Batch N/A = Not Applicable</p>								



RESULTS OF ANALYSES OF SEDIMENT

BV Labs ID		JQF869						
Sampling Date		2019/04/29 11:05						
COC Number		D40472	TOXIC EQUIVALENCY				# of	
	UNITS	VC-51	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
22'44'5'-PentaCB-(99)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'345'-PentaCB-(87)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
233'4'6'-PentaCB-(110)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'4'-PentaCB-(82)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'355'6'-HexaCB-(151)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'34'5'6'-HexaCB-(149)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
23'44'5'-PentaCB-(118)	mg/kg	<0.010	0.010	N/A	0.000030	0.00000030	N/A	6128789
22'44'55'-HexaCB-(153)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'46'-HexaCB-(132)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
233'44'-PentaCB-(105)	mg/kg	<0.010	0.010	N/A	0.000030	0.00000030	N/A	6128789
HexaCB-(138)+(158)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'34'55'6'-HeptaCB-(187)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'344'5'6'-HeptaCB-(183)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'-HexaCB-(128)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'45'6'-HeptaCB-(177)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'6'-HeptaCB-(171)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
233'44'5'-HexaCB-(156)	mg/kg	<0.010	0.010	N/A	0.000030	0.00000030	N/A	6128789
22'344'55'-HeptaCB-(180)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
233'44'5'6'-HeptaCB-(191)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
33'44'55'-HexaCB-(169)	mg/kg	<0.010	0.010	N/A	0.030	0.00030	N/A	6128789
22'33'44'5'-HeptaCB-(170)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'455'6'-OctaCB-(199)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'455'66'-NonaCB-(208)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'56'-OctaCB-(195)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'55'-OctaCB-(194)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
233'44'55'6'-OctaCB-(205)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'55'6'-NonaCB-(206)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
DecaCB-(209)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Trichlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Tetrachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789

RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds
QC Batch = Quality Control Batch
N/A = Not Applicable



RESULTS OF ANALYSES OF SEDIMENT

BV Labs ID		JQF869						
Sampling Date		2019/04/29 11:05						
COC Number		D40472			TOXIC EQUIVALENCY			# of
	UNITS	VC-51	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Pentachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Hexachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Heptachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Octachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Nonachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Decachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Total PCB	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
TOTAL TOXIC EQUIVALENCY	mg/kg	N/A	N/A	N/A	N/A	0.00030	N/A	N/A
Surrogate Recovery (%)								
2,3,3',4,6-Pentachlorobiphenyl	%	93	N/A	N/A	N/A	N/A	N/A	6128789
2',3,5-Trichlorobiphenyl	%	89	N/A	N/A	N/A	N/A	N/A	6128789
22'33'44'566'-Nonachlorobiphenyl	%	113	N/A	N/A	N/A	N/A	N/A	6128789
<p>RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested. WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds QC Batch = Quality Control Batch N/A = Not Applicable</p>								



MERCURY BY COLD VAPOUR AA (SEDIMENT)

BV Labs ID		JQF836	JQF837	JQF838	JQF839	JQF840	JQF841			
Sampling Date		2019/05/02 09:45	2019/05/02 09:45	2019/05/02 09:45	2019/04/29 16:40	2019/04/29 16:40	2019/04/29 16:40			
COC Number		D40471	D40471	D40471	D40471	D40471	D40471			
	UNITS	VC-16-1	VC-16-2	VC-16-3	VC-50C-1	VC-50C-2	VC-50C-3	RDL	MDL	QC Batch

Metals										
Mercury (Hg)	mg/kg	0.013	0.014	<0.010	0.056	0.057	0.13	0.010	N/A	6114563
RDL = Reportable Detection Limit QC Batch = Quality Control Batch N/A = Not Applicable										

BV Labs ID		JQF841	JQF842	JQF843	JQF844	JQF869			
Sampling Date		2019/04/29 16:40	2019/05/05 15:00	2019/05/05 15:00	2019/05/05 15:00	2019/04/29 11:05			
COC Number		D40471	D40471	D40471	D40471	D40472			
	UNITS	VC-50C-3 Lab-Dup	VC-23-1	VC-23-3	VC-23-4	VC-51	RDL	MDL	QC Batch

Metals										
Mercury (Hg)	mg/kg	0.13	<0.010	<0.010	<0.010	0.012	0.010	N/A	6114563	
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Lab-Dup = Laboratory Initiated Duplicate N/A = Not Applicable										



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VERITAS

BV Labs Job #: B9C0342
Report Date: 2019/06/12

Stantec Consulting Ltd
Client Project #: 121621877.400
Sampler Initials: GSR

ELEMENTS BY ATOMIC SPECTROSCOPY (SEDIMENT)

BV Labs ID		JQF836	JQF837	JQF838	JQF839	JQF840			
Sampling Date		2019/05/02 09:45	2019/05/02 09:45	2019/05/02 09:45	2019/04/29 16:40	2019/04/29 16:40			
COC Number		D40471	D40471	D40471	D40471	D40471			
	UNITS	VC-16-1	VC-16-2	VC-16-3	VC-50C-1	VC-50C-2	RDL	MDL	QC Batch
Metals									
Acid Extractable Aluminum (Al)	mg/kg	10000	13000	15000	13000	10000	10	N/A	6114380
Acid Extractable Antimony (Sb)	mg/kg	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	N/A	6114380
Acid Extractable Arsenic (As)	mg/kg	7.4	9.0	12	11	9.1	2.0	N/A	6114380
Acid Extractable Barium (Ba)	mg/kg	78	96	73	66	55	5.0	N/A	6114380
Acid Extractable Beryllium (Be)	mg/kg	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	N/A	6114380
Acid Extractable Bismuth (Bi)	mg/kg	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	N/A	6114380
Acid Extractable Boron (B)	mg/kg	<50	<50	110	70	<50	50	N/A	6114380
Acid Extractable Cadmium (Cd)	mg/kg	<0.30	<0.30	0.46	0.48	<0.30	0.30	N/A	6114380
Acid Extractable Chromium (Cr)	mg/kg	23	28	32	26	21	2.0	N/A	6114380
Acid Extractable Cobalt (Co)	mg/kg	11	13	14	13	11	1.0	N/A	6114380
Acid Extractable Copper (Cu)	mg/kg	15	17	19	19	17	2.0	N/A	6114380
Acid Extractable Iron (Fe)	mg/kg	25000	32000	35000	31000	30000	50	N/A	6114380
Acid Extractable Lead (Pb)	mg/kg	20	24	23	33	28	0.50	N/A	6114380
Acid Extractable Lithium (Li)	mg/kg	30	38	41	37	32	2.0	N/A	6114380
Acid Extractable Manganese (Mn)	mg/kg	310	390	550	510	330	2.0	N/A	6114380
Acid Extractable Molybdenum (Mo)	mg/kg	2.8	2.5	12	4.4	<2.0	2.0	N/A	6114380
Acid Extractable Nickel (Ni)	mg/kg	24	31	34	29	25	2.0	N/A	6114380
Acid Extractable Rubidium (Rb)	mg/kg	12	16	18	15	11	2.0	N/A	6114380
Acid Extractable Selenium (Se)	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	N/A	6114380
Acid Extractable Silver (Ag)	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	N/A	6114380
Acid Extractable Strontium (Sr)	mg/kg	29	31	34	36	35	5.0	N/A	6114380
Acid Extractable Thallium (Tl)	mg/kg	0.13	0.14	0.24	0.17	0.11	0.10	N/A	6114380
Acid Extractable Tin (Sn)	mg/kg	<1.0	<1.0	<1.0	1.1	5.5	1.0	N/A	6114380
Acid Extractable Uranium (U)	mg/kg	1.3	1.3	3.3	1.6	1.3	0.10	N/A	6114380
Acid Extractable Vanadium (V)	mg/kg	29	36	45	37	24	2.0	N/A	6114380
Acid Extractable Zinc (Zn)	mg/kg	72	84	84	110	110	5.0	N/A	6114380
RDL = Reportable Detection Limit QC Batch = Quality Control Batch N/A = Not Applicable									



ELEMENTS BY ATOMIC SPECTROSCOPY (SEDIMENT)

BV Labs ID		JQF841	JQF841	JQF842	JQF843	JQF844	JQF869			
Sampling Date		2019/04/29 16:40	2019/04/29 16:40	2019/05/05 15:00	2019/05/05 15:00	2019/05/05 15:00	2019/04/29 11:05			
COC Number		D40471	D40471	D40471	D40471	D40471	D40472			
	UNITS	VC-50C-3	VC-50C-3 Lab-Dup	VC-23-1	VC-23-3	VC-23-4	VC-51	RDL	MDL	QC Batch
Metals										
Acid Extractable Aluminum (Al)	mg/kg	12000	12000	5500	9000	9800	11000	10	N/A	6117751
Acid Extractable Antimony (Sb)	mg/kg	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	N/A	6117751
Acid Extractable Arsenic (As)	mg/kg	9.6	10	2.8	5.7	5.4	8.3	2.0	N/A	6117751
Acid Extractable Barium (Ba)	mg/kg	69	69	110	68	71	190	5.0	N/A	6117751
Acid Extractable Beryllium (Be)	mg/kg	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	N/A	6117751
Acid Extractable Bismuth (Bi)	mg/kg	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	N/A	6117751
Acid Extractable Boron (B)	mg/kg	<50	<50	<50	<50	<50	<50	50	N/A	6117751
Acid Extractable Cadmium (Cd)	mg/kg	0.32	0.32	<0.30	<0.30	<0.30	<0.30	0.30	N/A	6117751
Acid Extractable Chromium (Cr)	mg/kg	24	24	12	20	21	23	2.0	N/A	6117751
Acid Extractable Cobalt (Co)	mg/kg	11	11	5.9	9.3	10	13	1.0	N/A	6117751
Acid Extractable Copper (Cu)	mg/kg	20	21	5.4	10	12	17	2.0	N/A	6117751
Acid Extractable Iron (Fe)	mg/kg	29000	29000	14000	22000	23000	28000	50	N/A	6117751
Acid Extractable Lead (Pb)	mg/kg	33	34	8.2	12	14	21	0.50	N/A	6117751
Acid Extractable Lithium (Li)	mg/kg	34	33	16	25	28	26	2.0	N/A	6117751
Acid Extractable Manganese (Mn)	mg/kg	320	320	290	340	370	530	2.0	N/A	6117751
Acid Extractable Molybdenum (Mo)	mg/kg	2.4	2.5	<2.0	6.1	4.9	<2.0	2.0	N/A	6117751
Acid Extractable Nickel (Ni)	mg/kg	27	27	13	21	23	29	2.0	N/A	6117751
Acid Extractable Rubidium (Rb)	mg/kg	14	14	6.0	11	11	9.8	2.0	N/A	6117751
Acid Extractable Selenium (Se)	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	N/A	6117751
Acid Extractable Silver (Ag)	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	N/A	6117751
Acid Extractable Strontium (Sr)	mg/kg	48	38	17	17	18	17	5.0	N/A	6117751
Acid Extractable Thallium (Tl)	mg/kg	0.13	0.14	<0.10	0.11	0.11	<0.10	0.10	N/A	6117751
Acid Extractable Tin (Sn)	mg/kg	2.3	2.3	<1.0	<1.0	<1.0	<1.0	1.0	N/A	6117751
Acid Extractable Uranium (U)	mg/kg	1.2	1.2	0.82	1.8	1.5	0.61	0.10	N/A	6117751
Acid Extractable Vanadium (V)	mg/kg	34	33	16	26	28	21	2.0	N/A	6117751
Acid Extractable Zinc (Zn)	mg/kg	110	110	34	53	61	93	5.0	N/A	6117751
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Lab-Dup = Laboratory Initiated Duplicate N/A = Not Applicable										



BUREAU
VERITAS

BV Labs Job #: B9C0342
Report Date: 2019/06/12

Stantec Consulting Ltd
Client Project #: 121621877.400
Sampler Initials: GSR

SEMI-VOLATILE ORGANICS BY GC-MS (SEDIMENT)

BV Labs ID		JQF836	JQF837	JQF838		JQF839		JQF840			
Sampling Date		2019/05/02 09:45	2019/05/02 09:45	2019/05/02 09:45		2019/04/29 16:40		2019/04/29 16:40			
COC Number		D40471	D40471	D40471		D40471		D40471			
	UNITS	VC-16-1	VC-16-2	VC-16-3	QC Batch	VC-50C-1	RDL	VC-50C-2	RDL	MDL	QC Batch

Polyaromatic Hydrocarbons											
1-Methylnaphthalene	mg/kg	<0.0050	<0.0050	<0.0050	6114474	1.2	0.0050	0.064	0.0050	N/A	6114474
2-Methylnaphthalene	mg/kg	<0.0050	<0.0050	<0.0050	6114474	1.8	0.0050	0.082	0.0050	N/A	6114474
Acenaphthene	mg/kg	<0.0050	<0.0050	<0.0050	6114474	0.69	0.0050	<0.020 (1)	0.020	N/A	6114474
Acenaphthylene	mg/kg	<0.0050	<0.0050	<0.0050	6114474	<0.0050	0.0050	<0.0050	0.0050	N/A	6114474
Anthracene	mg/kg	<0.0050	<0.0050	<0.0050	6114474	0.040	0.0050	0.031	0.0050	N/A	6114474
Benzo(a)anthracene	mg/kg	0.022	0.016	<0.0050	6114474	0.031	0.0050	0.049	0.0050	N/A	6114474
Benzo(a)pyrene	mg/kg	0.024	0.016	<0.0050	6114474	0.020	0.0050	0.027	0.0050	N/A	6114474
Benzo(b)fluoranthene	mg/kg	0.033	0.023	<0.0050	6114474	0.028	0.0050	0.036	0.0050	N/A	6114474
Benzo(b/j)fluoranthene	mg/kg	0.050	0.035	<0.010	6109644	0.042	0.010	0.055	0.010	N/A	6107383
Benzo(g,h,i)perylene	mg/kg	0.014	0.013	<0.0050	6114474	0.018	0.0050	0.016	0.0050	N/A	6114474
Benzo(j)fluoranthene	mg/kg	0.017	0.011	<0.0050	6114474	0.014	0.0050	0.019	0.0050	N/A	6114474
Benzo(k)fluoranthene	mg/kg	0.018	0.012	<0.0050	6114474	0.015	0.0050	0.018	0.0050	N/A	6114474
Chrysene	mg/kg	0.028	0.018	<0.0050	6114474	0.036	0.0050	0.068	0.0050	N/A	6114474
Dibenz(a,h)anthracene	mg/kg	<0.0050	<0.0050	<0.0050	6114474	<0.0050	0.0050	<0.0050	0.0050	N/A	6114474
Fluoranthene	mg/kg	0.018	0.030	<0.0050	6114474	0.13	0.0050	0.15	0.0050	N/A	6114474
Fluorene	mg/kg	<0.0050	<0.0050	<0.0050	6114474	0.36	0.0050	0.021	0.0050	N/A	6114474
Indeno(1,2,3-cd)pyrene	mg/kg	0.012	0.011	<0.0050	6114474	0.014	0.0050	0.012	0.0050	N/A	6114474
Naphthalene	mg/kg	<0.0050	<0.0050	<0.0050	6114474	6.8	0.0050	0.039	0.0050	N/A	6114474
Perylene	mg/kg	0.019	0.024	0.027	6114474	0.30	0.0050	0.12	0.0050	N/A	6114474
Phenanthrene	mg/kg	<0.0050	<0.0050	<0.0050	6114474	0.24	0.0050	0.11	0.0050	N/A	6114474
Pyrene	mg/kg	0.054	0.032	<0.0050	6114474	0.12	0.0050	0.13	0.0050	N/A	6114474

Surrogate Recovery (%)											
D10-Anthracene	%	83	86	87	6114474	86	N/A	76	N/A	N/A	6114474
D14-Terphenyl	%	90	90	91	6114474	89	N/A	81	N/A	N/A	6114474
D8-Acenaphthylene	%	78	82	82	6114474	80	N/A	73	N/A	N/A	6114474

RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch
 N/A = Not Applicable
 (1) Elevated PAH RDL(s) due to matrix / co-extractive interference.



BUREAU
VERITAS

BV Labs Job #: B9C0342
Report Date: 2019/06/12

Stantec Consulting Ltd
Client Project #: 121621877.400
Sampler Initials: GSR

SEMI-VOLATILE ORGANICS BY GC-MS (SEDIMENT)

BV Labs ID		JQF841			JQF842		JQF843	JQF844			
Sampling Date		2019/04/29 16:40			2019/05/05 15:00		2019/05/05 15:00	2019/05/05 15:00			
COC Number		D40471			D40471		D40471	D40471			
	UNITS	VC-50C-3	RDL	QC Batch	VC-23-1	QC Batch	VC-23-3	VC-23-4	RDL	MDL	QC Batch

Polyaromatic Hydrocarbons											
1-Methylnaphthalene	mg/kg	0.11	0.0050	6114474	<0.0050	6114474	<0.0050	<0.0050	0.0050	N/A	6114865
2-Methylnaphthalene	mg/kg	0.15	0.0050	6114474	<0.0050	6114474	<0.0050	<0.0050	0.0050	N/A	6114865
Acenaphthene	mg/kg	<0.020 (1)	0.020	6114474	<0.0050	6114474	<0.0050	<0.0050	0.0050	N/A	6114865
Acenaphthylene	mg/kg	<0.0050	0.0050	6114474	<0.0050	6114474	<0.0050	<0.0050	0.0050	N/A	6114865
Anthracene	mg/kg	0.031	0.0050	6114474	<0.0050	6114474	<0.0050	<0.0050	0.0050	N/A	6114865
Benzo(a)anthracene	mg/kg	0.060	0.0050	6114474	<0.0050	6114474	<0.0050	<0.0050	0.0050	N/A	6114865
Benzo(a)pyrene	mg/kg	0.050	0.0050	6114474	<0.0050	6114474	<0.0050	<0.0050	0.0050	N/A	6114865
Benzo(b)fluoranthene	mg/kg	0.071	0.0050	6114474	<0.0050	6114474	<0.0050	<0.0050	0.0050	N/A	6114865
Benzo(b,j)fluoranthene	mg/kg	0.11	0.010	6107383	<0.010	6109644	<0.010	<0.010	0.010	N/A	6107383
Benzo(g,h,i)perylene	mg/kg	0.030	0.0050	6114474	<0.0050	6114474	<0.0050	<0.0050	0.0050	N/A	6114865
Benzo(j)fluoranthene	mg/kg	0.037	0.0050	6114474	<0.0050	6114474	<0.0050	<0.0050	0.0050	N/A	6114865
Benzo(k)fluoranthene	mg/kg	0.037	0.0050	6114474	<0.0050	6114474	<0.0050	<0.0050	0.0050	N/A	6114865
Chrysene	mg/kg	0.091	0.0050	6114474	<0.0050	6114474	<0.0050	<0.0050	0.0050	N/A	6114865
Dibenz(a,h)anthracene	mg/kg	<0.0050	0.0050	6114474	<0.0050	6114474	<0.0050	<0.0050	0.0050	N/A	6114865
Fluoranthene	mg/kg	0.14	0.0050	6114474	<0.0050	6114474	<0.0050	<0.0050	0.0050	N/A	6114865
Fluorene	mg/kg	0.030	0.0050	6114474	<0.0050	6114474	<0.0050	<0.0050	0.0050	N/A	6114865
Indeno(1,2,3-cd)pyrene	mg/kg	0.024	0.0050	6114474	<0.0050	6114474	<0.0050	<0.0050	0.0050	N/A	6114865
Naphthalene	mg/kg	0.081	0.0050	6114474	<0.0050	6114474	<0.0050	<0.0050	0.0050	N/A	6114865
Perylene	mg/kg	0.046	0.0050	6114474	<0.0050	6114474	0.028	0.049	0.0050	N/A	6114865
Phenanthrene	mg/kg	0.11	0.0050	6114474	<0.0050	6114474	<0.0050	<0.0050	0.0050	N/A	6114865
Pyrene	mg/kg	0.21	0.0050	6114474	<0.0050	6114474	<0.0050	<0.0050	0.0050	N/A	6114865

Surrogate Recovery (%)											
D10-Anthracene	%	77	N/A	6114474	82	6114474	94	94	N/A	N/A	6114865
D14-Terphenyl	%	85	N/A	6114474	91	6114474	90	91	N/A	N/A	6114865
D8-Acenaphthylene	%	77	N/A	6114474	81	6114474	89	89	N/A	N/A	6114865

RDL = Reportable Detection Limit

QC Batch = Quality Control Batch

N/A = Not Applicable

(1) Elevated PAH RDL(s) due to matrix / co-extractive interference.



SEMI-VOLATILE ORGANICS BY GC-MS (SEDIMENT)

BV Labs ID		JQF869			
Sampling Date		2019/04/29 11:05			
COC Number		D40472			
	UNITS	VC-51	RDL	MDL	QC Batch
Polyaromatic Hydrocarbons					
1-Methylnaphthalene	mg/kg	0.0063	0.0050	N/A	6114865
2-Methylnaphthalene	mg/kg	0.0064	0.0050	N/A	6114865
Acenaphthene	mg/kg	<0.0050	0.0050	N/A	6114865
Acenaphthylene	mg/kg	<0.0050	0.0050	N/A	6114865
Anthracene	mg/kg	0.0076	0.0050	N/A	6114865
Benzo(a)anthracene	mg/kg	0.011	0.0050	N/A	6114865
Benzo(a)pyrene	mg/kg	0.0070	0.0050	N/A	6114865
Benzo(b)fluoranthene	mg/kg	0.0085	0.0050	N/A	6114865
Benzo(b/j)fluoranthene	mg/kg	<0.010	0.010	N/A	6107383
Benzo(g,h,i)perylene	mg/kg	<0.0050	0.0050	N/A	6114865
Benzo(j)fluoranthene	mg/kg	<0.0050	0.0050	N/A	6114865
Benzo(k)fluoranthene	mg/kg	<0.0050	0.0050	N/A	6114865
Chrysene	mg/kg	0.016	0.0050	N/A	6114865
Dibenz(a,h)anthracene	mg/kg	<0.0050	0.0050	N/A	6114865
Fluoranthene	mg/kg	0.034	0.0050	N/A	6114865
Fluorene	mg/kg	0.0073	0.0050	N/A	6114865
Indeno(1,2,3-cd)pyrene	mg/kg	<0.0050	0.0050	N/A	6114865
Naphthalene	mg/kg	<0.0050	0.0050	N/A	6114865
Perylene	mg/kg	<0.0050	0.0050	N/A	6114865
Phenanthrene	mg/kg	0.032	0.0050	N/A	6114865
Pyrene	mg/kg	0.027	0.0050	N/A	6114865
Surrogate Recovery (%)					
D10-Anthracene	%	90	N/A	N/A	6114865
D14-Terphenyl	%	94	N/A	N/A	6114865
D8-Acenaphthylene	%	86	N/A	N/A	6114865
RDL = Reportable Detection Limit QC Batch = Quality Control Batch N/A = Not Applicable					



BUREAU
VERITAS

BV Labs Job #: B9C0342
Report Date: 2019/06/12

Stantec Consulting Ltd
Client Project #: 121621877.400
Sampler Initials: GSR

PETROLEUM HYDROCARBONS (CCME)

BV Labs ID		JQF836		JQF842			
Sampling Date		2019/05/02 09:45		2019/05/05 15:00			
COC Number		D40471		D40471			
	UNITS	VC-16-1	RDL	VC-23-1	RDL	MDL	QC Batch
F2-F4 Hydrocarbons							
Total Oil and Grease	ug/g	<170	170	<100	100	N/A	6117791
RDL = Reportable Detection Limit QC Batch = Quality Control Batch N/A = Not Applicable							



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VERITAS

BV Labs Job #: B9C0342
Report Date: 2019/06/12

Stantec Consulting Ltd
Client Project #: 121621877.400
Sampler Initials: GSR

DIOXINS AND FURANS BY HRMS (SEDIMENT)

BV Labs ID		JQF836							
Sampling Date		2019/05/02 09:45							
COC Number		D40471				TOXIC EQUIVALENCY		# of	
	UNITS	VC-16-1	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Dioxins & Furans									
2,3,7,8-Tetra CDD *	pg/g	<0.118	0.118	0.993	N/A	1.00	0.118	N/A	6164387
1,2,3,7,8-Penta CDD *	pg/g	<0.111	0.111	0.993	N/A	1.00	0.111	N/A	6164387
1,2,3,4,7,8-Hexa CDD *	pg/g	0.130	0.114	0.993	N/A	0.100	0.0130	N/A	6164387
1,2,3,6,7,8-Hexa CDD *	pg/g	0.266	0.0989	0.993	N/A	0.100	0.0266	N/A	6164387
1,2,3,7,8,9-Hexa CDD *	pg/g	0.226	0.0961	0.993	N/A	0.100	0.0226	N/A	6164387
1,2,3,4,6,7,8-Hepta CDD *	pg/g	8.55	0.112	0.993	N/A	0.0100	0.0855	N/A	6164387
Octa CDD *	pg/g	160	0.119	9.93	N/A	0.000300	0.0480	N/A	6164387
Total Tetra CDD *	pg/g	0.175	0.118	0.993	N/A	N/A	N/A	1	6164387
Total Penta CDD *	pg/g	0.374	0.111	0.993	N/A	N/A	N/A	1	6164387
Total Hexa CDD *	pg/g	4.84	0.102	0.993	N/A	N/A	N/A	7	6164387
Total Hepta CDD *	pg/g	34.5	0.112	0.993	N/A	N/A	N/A	2	6164387
2,3,7,8-Tetra CDF **	pg/g	0.844	0.110	0.993	N/A	0.100	0.0844	N/A	6164387
1,2,3,7,8-Penta CDF **	pg/g	<0.249 (1)	0.249	0.993	N/A	0.0300	0.00747	N/A	6164387
2,3,4,7,8-Penta CDF **	pg/g	0.268	0.108	0.993	N/A	0.300	0.0804	N/A	6164387
1,2,3,4,7,8-Hexa CDF **	pg/g	<0.261 (2)	0.261	0.993	N/A	0.100	0.0261	N/A	6164387
1,2,3,6,7,8-Hexa CDF **	pg/g	0.226	0.0961	0.993	N/A	0.100	0.0226	N/A	6164387
2,3,4,6,7,8-Hexa CDF **	pg/g	<0.198 (2)	0.198	0.993	N/A	0.100	0.0198	N/A	6164387
1,2,3,7,8,9-Hexa CDF **	pg/g	<0.120	0.120	0.993	N/A	0.100	0.0120	N/A	6164387
1,2,3,4,6,7,8-Hepta CDF **	pg/g	1.63	0.101	0.993	N/A	0.0100	0.0163	N/A	6164387
1,2,3,4,7,8,9-Hepta CDF **	pg/g	0.146	0.114	0.993	N/A	0.0100	0.00146	N/A	6164387
Octa CDF **	pg/g	2.36	0.111	9.93	N/A	0.000300	0.000708	N/A	6164387
Total Tetra CDF **	pg/g	5.19	0.110	0.993	N/A	N/A	N/A	10	6164387
EDL = Estimated Detection Limit RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested. WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds QC Batch = Quality Control Batch * CDD = Chloro Dibenzo-p-Dioxin N/A = Not Applicable ** CDF = Chloro Dibenzo-p-Furan (1) RT > 3 seconds - PCDD/DF analysis - Peak detected exceeds expected retention time (from internal standard) by greater than 3 seconds. RT>2 seconds - PCDD/DF analysis-Peak maxima of monitored ions exceeds 2 seconds (2) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.									



DIOXINS AND FURANS BY HRMS (SEDIMENT)

BV Labs ID		JQF836							
Sampling Date		2019/05/02 09:45							
COC Number		D40471				TOXIC EQUIVALENCY			# of
	UNITS	VC-16-1	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Total Penta CDF **	pg/g	2.36	0.108	0.993	N/A	N/A	N/A	3	6164387
Total Hexa CDF **	pg/g	2.02	0.109	0.993	N/A	N/A	N/A	5	6164387
Total Hepta CDF **	pg/g	3.33	0.107	0.993	N/A	N/A	N/A	3	6164387
TOTAL TOXIC EQUIVALENCY	pg/g	N/A	N/A	N/A	N/A	N/A	0.696	N/A	N/A
Surrogate Recovery (%)									
C13-1234678 HeptaCDD *	%	75	N/A	N/A	N/A	N/A	N/A	N/A	6164387
C13-1234678 HeptaCDF **	%	65	N/A	N/A	N/A	N/A	N/A	N/A	6164387
C13-123678 HexaCDD *	%	118	N/A	N/A	N/A	N/A	N/A	N/A	6164387
C13-123678 HexaCDF **	%	74	N/A	N/A	N/A	N/A	N/A	N/A	6164387
C13-12378 PentaCDD *	%	87	N/A	N/A	N/A	N/A	N/A	N/A	6164387
C13-12378 PentaCDF **	%	64	N/A	N/A	N/A	N/A	N/A	N/A	6164387
C13-2378 TetraCDD *	%	91	N/A	N/A	N/A	N/A	N/A	N/A	6164387
C13-2378 TetraCDF **	%	79	N/A	N/A	N/A	N/A	N/A	N/A	6164387
C13-OCDD *	%	63	N/A	N/A	N/A	N/A	N/A	N/A	6164387
<p>EDL = Estimated Detection Limit RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested. WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds QC Batch = Quality Control Batch ** CDF = Chloro Dibenzo-p-Furan N/A = Not Applicable * CDD = Chloro Dibenzo-p-Dioxin</p>									



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BV Labs Job #: B9C0342
Report Date: 2019/06/12

Stantec Consulting Ltd
Client Project #: 121621877.400
Sampler Initials: GSR

DIOXINS AND FURANS BY HRMS (SEDIMENT)

BV Labs ID		JQF842							
Sampling Date		2019/05/05 15:00							
COC Number		D40471				TOXIC EQUIVALENCY		# of	
	UNITS	VC-23-1	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Dioxins & Furans									
2,3,7,8-Tetra CDD *	pg/g	<0.113	0.113	0.998	N/A	1.00	0.113	N/A	6164387
1,2,3,7,8-Penta CDD *	pg/g	0.137	0.103	0.998	N/A	1.00	0.137	N/A	6164387
1,2,3,4,7,8-Hexa CDD *	pg/g	<0.129 (1)	0.129	0.998	N/A	0.100	0.0129	N/A	6164387
1,2,3,6,7,8-Hexa CDD *	pg/g	0.161	0.0975	0.998	N/A	0.100	0.0161	N/A	6164387
1,2,3,7,8,9-Hexa CDD *	pg/g	<0.135 (1)	0.135	0.998	N/A	0.100	0.0135	N/A	6164387
1,2,3,4,6,7,8-Hepta CDD *	pg/g	0.792	0.106	0.998	N/A	0.0100	0.00792	N/A	6164387
Octa CDD *	pg/g	26.9	0.105	9.98	N/A	0.000300	0.00807	N/A	6164387
Total Tetra CDD *	pg/g	<0.113	0.113	0.998	N/A	N/A	N/A	0	6164387
Total Penta CDD *	pg/g	0.137	0.103	0.998	N/A	N/A	N/A	1	6164387
Total Hexa CDD *	pg/g	0.599	0.101	0.998	N/A	N/A	N/A	2	6164387
Total Hepta CDD *	pg/g	2.72	0.106	0.998	N/A	N/A	N/A	2	6164387
2,3,7,8-Tetra CDF **	pg/g	<0.111	0.111	0.998	N/A	0.100	0.0111	N/A	6164387
1,2,3,7,8-Penta CDF **	pg/g	<0.129 (1)	0.129	0.998	N/A	0.0300	0.00387	N/A	6164387
2,3,4,7,8-Penta CDF **	pg/g	<0.178 (1)	0.178	0.998	N/A	0.300	0.0534	N/A	6164387
1,2,3,4,7,8-Hexa CDF **	pg/g	0.205	0.115	0.998	N/A	0.100	0.0205	N/A	6164387
1,2,3,6,7,8-Hexa CDF **	pg/g	0.175	0.0959	0.998	N/A	0.100	0.0175	N/A	6164387
2,3,4,6,7,8-Hexa CDF **	pg/g	0.269	0.109	0.998	N/A	0.100	0.0269	N/A	6164387
1,2,3,7,8,9-Hexa CDF **	pg/g	0.169	0.120	0.998	N/A	0.100	0.0169	N/A	6164387
1,2,3,4,6,7,8-Hepta CDF **	pg/g	0.213	0.0983	0.998	N/A	0.0100	0.00213	N/A	6164387
1,2,3,4,7,8,9-Hepta CDF **	pg/g	0.135	0.112	0.998	N/A	0.0100	0.00135	N/A	6164387
Octa CDF **	pg/g	0.371	0.110	9.98	N/A	0.000300	0.000111	N/A	6164387
Total Tetra CDF **	pg/g	<0.111	0.111	0.998	N/A	N/A	N/A	0	6164387
Total Penta CDF **	pg/g	<0.177 (1)	0.177	0.998	N/A	N/A	N/A	0	6164387
Total Hexa CDF **	pg/g	0.818	0.109	0.998	N/A	N/A	N/A	4	6164387
Total Hepta CDF **	pg/g	0.347	0.105	0.998	N/A	N/A	N/A	2	6164387
TOTAL TOXIC EQUIVALENCY	pg/g	N/A	N/A	N/A	N/A	N/A	0.462	N/A	N/A
EDL = Estimated Detection Limit RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested. WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds QC Batch = Quality Control Batch * CDD = Chloro Dibenzo-p-Dioxin N/A = Not Applicable ** CDF = Chloro Dibenzo-p-Furan (1) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.									



DIOXINS AND FURANS BY HRMS (SEDIMENT)

BV Labs ID		JQF842							
Sampling Date		2019/05/05 15:00							
COC Number		D40471				TOXIC EQUIVALENCY		# of	
	UNITS	VC-23-1	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Surrogate Recovery (%)									
C13-1234678 HeptaCDD *	%	71	N/A	N/A	N/A	N/A	N/A	N/A	6164387
C13-1234678 HeptaCDF **	%	65	N/A	N/A	N/A	N/A	N/A	N/A	6164387
C13-123678 HexaCDD *	%	111	N/A	N/A	N/A	N/A	N/A	N/A	6164387
C13-123678 HexaCDF **	%	64	N/A	N/A	N/A	N/A	N/A	N/A	6164387
C13-12378 PentaCDD *	%	78	N/A	N/A	N/A	N/A	N/A	N/A	6164387
C13-12378 PentaCDF **	%	57	N/A	N/A	N/A	N/A	N/A	N/A	6164387
C13-2378 TetraCDD *	%	90	N/A	N/A	N/A	N/A	N/A	N/A	6164387
C13-2378 TetraCDF **	%	78	N/A	N/A	N/A	N/A	N/A	N/A	6164387
C13-OCDD *	%	62	N/A	N/A	N/A	N/A	N/A	N/A	6164387
<p>EDL = Estimated Detection Limit RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested. WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds QC Batch = Quality Control Batch * CDD = Chloro Dibenzo-p-Dioxin N/A = Not Applicable ** CDF = Chloro Dibenzo-p-Furan</p>									



GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	2.7°C
Package 2	10.7°C

Some of the samples received with an average temperature just above 10°C.

Total Cyanide: Detection limits raised due to matrix interference.

Sample JQF836 [VC-16-1] : F2-F4 Analysis: Detection limits were adjusted for high moisture content.

Sample analyzed past method specified hold time for Sulphide in Soil. Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised.

Sample JQF837 [VC-16-2] : F2-F4 Analysis: Detection limits were adjusted for high moisture content.

Sample JQF838 [VC-16-3] : F2-F4 Analysis: Detection limits were adjusted for high moisture content.

Sample JQF839 [VC-50C-1] : F2-F4 Analysis: Detection limits were adjusted for high moisture content.

Sample JQF841 [VC-50C-3] : F2-F4 Analysis: Detection limits were adjusted for high moisture content.

Sample JQF842 [VC-23-1] : Sample analyzed past method specified hold time for Sulphide in Soil. Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised.

Sample JQF843 [VC-23-3] : VOCF1 Analysis: Greater than 10g of soil was submitted in the field preserved vial. This significantly exceeds the protocol specification of approximately 5g. Additional methanol was added to the vial to ensure extraction efficiency.

Sample JQF844 [VC-23-4] : VOCF1 Analysis: Greater than 10g of soil was submitted in the field preserved vial. This significantly exceeds the protocol specification of approximately 5g. Additional methanol was added to the vial to ensure extraction efficiency.

Sample JQF869 [VC-51] : VOCF1 Analysis: Greater than 10g of soil was submitted in the field preserved vial. This significantly exceeds the protocol specification of approximately 5g. Additional methanol was added to the vial to ensure extraction efficiency.

Results relate only to the items tested.



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QUALITY ASSURANCE REPORT

Stantec Consulting Ltd
Client Project #: 121621877.400
Sampler Initials: GSR

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
6109572	4-Bromofluorobenzene	2019/05/10	104	60 - 140	103	60 - 140	101	%				
6109572	D10-o-Xylene	2019/05/10	98 (1)	60 - 130	102	60 - 130	96	%				
6109572	D4-1,2-Dichloroethane	2019/05/10	98	60 - 140	97	60 - 140	98	%				
6109572	D8-Toluene	2019/05/10	99	60 - 140	99	60 - 140	100	%				
6112413	Isobutylbenzene - Extractable	2019/05/09	93	60 - 130	97	60 - 130	93	%				
6112413	n-Dotriacontane - Extractable	2019/05/09	107	60 - 130	109	60 - 130	104	%				
6112673	Isobutylbenzene - Volatile	2019/05/09	95 (2)	60 - 130	91	60 - 130	93	%				
6114474	D10-Anthracene	2019/05/11	93	50 - 130	94	50 - 130	99	%				
6114474	D14-Terphenyl	2019/05/11	93	50 - 130	94	50 - 130	95	%				
6114474	D8-Acenaphthylene	2019/05/11	87	50 - 130	90	50 - 130	91	%				
6114865	D10-Anthracene	2019/05/15	95	50 - 130	98	50 - 130	100	%				
6114865	D14-Terphenyl	2019/05/15	95	50 - 130	99	50 - 130	97	%				
6114865	D8-Acenaphthylene	2019/05/15	91	50 - 130	94	50 - 130	91	%				
6115045	4-Bromofluorobenzene	2019/05/11	100	60 - 140	101	60 - 140	94	%				
6115045	D10-o-Xylene	2019/05/11	100	60 - 130	76	60 - 130	94	%				
6115045	D4-1,2-Dichloroethane	2019/05/11	101	60 - 140	103	60 - 140	103	%				
6115045	D8-Toluene	2019/05/11	100	60 - 140	99	60 - 140	101	%				
6119430	o-Terphenyl	2019/05/14	102	60 - 130	99	60 - 130	100	%				
6121973	o-Terphenyl	2019/05/14	103	60 - 130	101	60 - 130	95	%				
6128789	2,3,3',4,6-Pentachlorobiphenyl	2019/05/14			91	60 - 130	90	%				
6128789	2',3,5-Trichlorobiphenyl	2019/05/14			91	60 - 130	90	%				
6128789	22'33'44'566'-Nonachlorobiphenyl	2019/05/14			114	60 - 130	111	%				
6164387	C13-1234678 HeptaCDD	2019/06/08	75	30 - 130	70	30 - 130	74	%				
6164387	C13-1234678 HeptaCDF	2019/06/08	59	30 - 130	67	30 - 130	63	%				
6164387	C13-123678 HexaCDD	2019/06/08	107	30 - 130	110	30 - 130	112	%				
6164387	C13-123678 HexaCDF	2019/06/08	68	30 - 130	61	30 - 130	64	%				
6164387	C13-12378 PentaCDD	2019/06/08	90	30 - 130	77	30 - 130	75	%				
6164387	C13-12378 PentaCDF	2019/06/08	63	30 - 130	59	30 - 130	59	%				
6164387	C13-2378 TetraCDD	2019/06/08	95	30 - 130	86	30 - 130	89	%				
6164387	C13-2378 TetraCDF	2019/06/08	82	30 - 130	77	30 - 130	77	%				
6164387	C13-OCDD	2019/06/08	63	30 - 130	64	30 - 130	62	%				
6109572	1,1,1-Trichloroethane	2019/05/10	106	60 - 140	110	60 - 130	<25	ug/kg	NC	50		



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QUALITY ASSURANCE REPORT(CONT'D)

Stantec Consulting Ltd
Client Project #: 121621877.400
Sampler Initials: GSR

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
6109572	1,1,2,2-Tetrachloroethane	2019/05/10	97	60 - 140	99	60 - 130	<25	ug/kg	NC	50		
6109572	1,1,2-Trichloroethane	2019/05/10	99	60 - 140	102	60 - 130	<25	ug/kg	NC	50		
6109572	1,1-Dichloroethane	2019/05/10	103	60 - 140	108	60 - 130	<25	ug/kg	NC	50		
6109572	1,1-Dichloroethylene	2019/05/10	105	60 - 140	112	60 - 130	<25	ug/kg	NC	50		
6109572	1,2-Dichlorobenzene	2019/05/10	94	60 - 140	100	60 - 130	<25	ug/kg	NC	50		
6109572	1,2-Dichloroethane	2019/05/10	94	60 - 140	98	60 - 130	<25	ug/kg	NC	50		
6109572	1,2-Dichloropropane	2019/05/10	102	60 - 140	106	60 - 130	<25	ug/kg	NC	50		
6109572	1,3-Dichlorobenzene	2019/05/10	95	60 - 140	102	60 - 130	<25	ug/kg	NC	50		
6109572	1,4-Dichlorobenzene	2019/05/10	94	60 - 140	100	60 - 130	<25	ug/kg	NC	50		
6109572	Benzene	2019/05/10	100	60 - 140	105	60 - 130	<25	ug/kg	NC	50		
6109572	Bromodichloromethane	2019/05/10	100	60 - 140	104	60 - 130	<25	ug/kg	NC	50		
6109572	Bromoform	2019/05/10	93	60 - 140	95	60 - 130	<25	ug/kg	NC	50		
6109572	Bromomethane	2019/05/10	94	60 - 140	96	60 - 140	<50	ug/kg	NC	50		
6109572	Carbon Tetrachloride	2019/05/10	104	60 - 140	109	60 - 130	<25	ug/kg	NC	50		
6109572	Chlorobenzene	2019/05/10	96	60 - 140	100	60 - 130	<25	ug/kg	NC	50		
6109572	Chloroethane	2019/05/10	91	60 - 140	97	60 - 140	<200	ug/kg	NC	50		
6109572	Chloroform	2019/05/10	91	60 - 140	96	60 - 130	<25	ug/kg	NC	50		
6109572	cis-1,2-Dichloroethylene	2019/05/10	103	60 - 140	108	60 - 130	<25	ug/kg	NC	50		
6109572	cis-1,3-Dichloropropene	2019/05/10	94	60 - 140	97	60 - 130	<25	ug/kg	NC	50		
6109572	Dibromochloromethane	2019/05/10	100	60 - 140	104	60 - 130	<25	ug/kg	NC	50		
6109572	Ethylbenzene	2019/05/10	103	60 - 140	107	60 - 130	<25	ug/kg	NC	50		
6109572	Ethylene Dibromide	2019/05/10	102	60 - 140	107	60 - 130	<25	ug/kg	NC	50		
6109572	Methyl t-butyl ether (MTBE)	2019/05/10	98	60 - 140	104	60 - 130	<25	ug/kg	NC	50		
6109572	Methylene Chloride(Dichloromethane)	2019/05/10	98	60 - 140	103	60 - 130	<25	ug/kg	NC	50		
6109572	o-Xylene	2019/05/10	108	60 - 140	114	60 - 130	<25	ug/kg	NC	50		
6109572	p+m-Xylene	2019/05/10	106	60 - 140	111	60 - 130	<25	ug/kg	NC	50		
6109572	Styrene	2019/05/10	103	60 - 140	107	60 - 130	<25	ug/kg	NC	50		
6109572	Tetrachloroethylene	2019/05/10	110	60 - 140	116	60 - 130	<25	ug/kg	NC	50		
6109572	Toluene	2019/05/10	101	60 - 140	107	60 - 130	<50	ug/kg	NC	50		
6109572	Total Xylenes	2019/05/10					<50	ug/kg	NC	50		
6109572	trans-1,2-Dichloroethylene	2019/05/10	106	60 - 140	112	60 - 130	<25	ug/kg	NC	50		
6109572	trans-1,3-Dichloropropene	2019/05/10	91	60 - 140	92	60 - 130	<25	ug/kg	NC	50		



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QUALITY ASSURANCE REPORT(CONT'D)

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Sampler Initials: GSR

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
6109572	Trichloroethylene	2019/05/10	108	60 - 140	114	60 - 130	<10	ug/kg	NC	50		
6109572	Trichlorofluoromethane (FREON 11)	2019/05/10	97	60 - 140	104	60 - 140	<25	ug/kg	NC	50		
6109572	Vinyl Chloride	2019/05/10	86	60 - 140	93	60 - 140	<20	ug/kg	NC	50		
6109898	Moisture	2019/05/09							0.86	25		
6112010	Moisture	2019/05/10							1.0	25		
6112413	>C10-C16 Hydrocarbons	2019/05/09	98	30 - 130	98	60 - 130	<10	mg/kg	NC	50		
6112413	>C16-C21 Hydrocarbons	2019/05/09	92	30 - 130	93	60 - 130	<10	mg/kg	NC	50		
6112413	>C21-<C32 Hydrocarbons	2019/05/09	117	30 - 130	108	60 - 130	<15	mg/kg	45	50		
6112673	Benzene	2019/05/09	92	60 - 130	87	60 - 140	<0.025	mg/kg	NC	50		
6112673	C6 - C10 (less BTEX)	2019/05/09					<2.5	mg/kg	NC	50		
6112673	Ethylbenzene	2019/05/09	96	60 - 130	88	60 - 140	<0.025	mg/kg	NC	50		
6112673	Toluene	2019/05/09	92	60 - 130	88	60 - 140	<0.050	mg/kg	NC	50		
6112673	Total Xylenes	2019/05/09	93	60 - 130	87	60 - 140	<0.050	mg/kg	NC	50		
6112762	Clay	2019/05/16							5.0	35		
6112762	Gravel	2019/05/16							14	35		
6112762	Sand	2019/05/16							3.4	35		
6112762	Silt	2019/05/16							18	35		
6114380	Acid Extractable Aluminum (Al)	2019/05/10					<10	mg/kg	15	35		
6114380	Acid Extractable Antimony (Sb)	2019/05/10	100	75 - 125	102	75 - 125	<2.0	mg/kg	NC	35		
6114380	Acid Extractable Arsenic (As)	2019/05/10	102	75 - 125	99	75 - 125	<2.0	mg/kg	26	35		
6114380	Acid Extractable Barium (Ba)	2019/05/10	125	75 - 125	97	75 - 125	<5.0	mg/kg	29	35		
6114380	Acid Extractable Beryllium (Be)	2019/05/10	104	75 - 125	104	75 - 125	<2.0	mg/kg	NC	35		
6114380	Acid Extractable Bismuth (Bi)	2019/05/10	103	75 - 125	102	75 - 125	<2.0	mg/kg	NC	35		
6114380	Acid Extractable Boron (B)	2019/05/10	99	75 - 125	100	75 - 125	<50	mg/kg	NC	35		
6114380	Acid Extractable Cadmium (Cd)	2019/05/10	98	75 - 125	97	75 - 125	<0.30	mg/kg	NC	35		
6114380	Acid Extractable Chromium (Cr)	2019/05/10	97	75 - 125	95	75 - 125	<2.0	mg/kg	5.1	35		
6114380	Acid Extractable Cobalt (Co)	2019/05/10	102	75 - 125	99	75 - 125	<1.0	mg/kg	8.6	35		
6114380	Acid Extractable Copper (Cu)	2019/05/10	98	75 - 125	97	75 - 125	<2.0	mg/kg	17	35		
6114380	Acid Extractable Iron (Fe)	2019/05/10					<50	mg/kg	12	35		
6114380	Acid Extractable Lead (Pb)	2019/05/10	106	75 - 125	100	75 - 125	<0.50	mg/kg	16	35		
6114380	Acid Extractable Lithium (Li)	2019/05/10	112	75 - 125	104	75 - 125	<2.0	mg/kg	12	35		
6114380	Acid Extractable Manganese (Mn)	2019/05/10	NC	75 - 125	101	75 - 125	<2.0	mg/kg	3.7	35		



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QUALITY ASSURANCE REPORT(CONT'D)

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QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
6114380	Acid Extractable Molybdenum (Mo)	2019/05/10	104	75 - 125	110	75 - 125	<2.0	mg/kg	NC	35		
6114380	Acid Extractable Nickel (Ni)	2019/05/10	102	75 - 125	98	75 - 125	<2.0	mg/kg	13	35		
6114380	Acid Extractable Rubidium (Rb)	2019/05/10	102	75 - 125	102	75 - 125	<2.0	mg/kg	14	35		
6114380	Acid Extractable Selenium (Se)	2019/05/10	100	75 - 125	99	75 - 125	<1.0	mg/kg	NC	35		
6114380	Acid Extractable Silver (Ag)	2019/05/10	99	75 - 125	99	75 - 125	<0.50	mg/kg	NC	35		
6114380	Acid Extractable Strontium (Sr)	2019/05/10	108	75 - 125	104	75 - 125	<5.0	mg/kg	1.1	35		
6114380	Acid Extractable Thallium (Tl)	2019/05/10	102	75 - 125	101	75 - 125	<0.10	mg/kg	NC	35		
6114380	Acid Extractable Tin (Sn)	2019/05/10	106	75 - 125	105	75 - 125	<1.0	mg/kg	NC	35		
6114380	Acid Extractable Uranium (U)	2019/05/10	102	75 - 125	102	75 - 125	<0.10	mg/kg	16	35		
6114380	Acid Extractable Vanadium (V)	2019/05/10	101	75 - 125	99	75 - 125	<2.0	mg/kg	14	35		
6114380	Acid Extractable Zinc (Zn)	2019/05/10	NC	75 - 125	99	75 - 125	<5.0	mg/kg	12	35		
6114457	Phenols-4AAP	2019/05/10	96	75 - 125	99	80 - 120	<0.04	ug/g	NC	20		
6114474	1-Methylnaphthalene	2019/05/11	80	50 - 130	85	50 - 130	<0.0050	mg/kg	NC	50		
6114474	2-Methylnaphthalene	2019/05/11	80	50 - 130	87	50 - 130	<0.0050	mg/kg	NC	50		
6114474	Acenaphthene	2019/05/11	86	50 - 130	91	50 - 130	<0.0050	mg/kg	NC	50		
6114474	Acenaphthylene	2019/05/11	86	50 - 130	91	50 - 130	<0.0050	mg/kg	NC	50		
6114474	Anthracene	2019/05/11	82	50 - 130	85	50 - 130	<0.0050	mg/kg	NC	50		
6114474	Benzo(a)anthracene	2019/05/11	81	50 - 130	81	50 - 130	<0.0050	mg/kg	NC	50		
6114474	Benzo(a)pyrene	2019/05/11	72	50 - 130	70	50 - 130	<0.0050	mg/kg	NC	50		
6114474	Benzo(b)fluoranthene	2019/05/11	78	50 - 130	77	50 - 130	<0.0050	mg/kg	NC	50		
6114474	Benzo(g,h,i)perylene	2019/05/11	76	50 - 130	70	50 - 130	<0.0050	mg/kg	NC	50		
6114474	Benzo(j)fluoranthene	2019/05/11	71	50 - 130	71	50 - 130	<0.0050	mg/kg	NC	50		
6114474	Benzo(k)fluoranthene	2019/05/11	77	50 - 130	75	50 - 130	<0.0050	mg/kg	NC	50		
6114474	Chrysene	2019/05/11	94	50 - 130	94	50 - 130	<0.0050	mg/kg	NC	50		
6114474	Dibenz(a,h)anthracene	2019/05/11	74	50 - 130	68	50 - 130	<0.0050	mg/kg	NC	50		
6114474	Fluoranthene	2019/05/11	87	50 - 130	89	50 - 130	<0.0050	mg/kg	NC	50		
6114474	Fluorene	2019/05/11	91	50 - 130	96	50 - 130	<0.0050	mg/kg	NC	50		
6114474	Indeno(1,2,3-cd)pyrene	2019/05/11	73	50 - 130	66	50 - 130	<0.0050	mg/kg	NC	50		
6114474	Naphthalene	2019/05/11	84	50 - 130	91	50 - 130	<0.0050	mg/kg	NC	50		
6114474	Perylene	2019/05/11	68	50 - 130	67	50 - 130	<0.0050	mg/kg	NC	50		
6114474	Phenanthrene	2019/05/11	96	50 - 130	99	50 - 130	<0.0050	mg/kg	NC	50		
6114474	Pyrene	2019/05/11	87	50 - 130	89	50 - 130	<0.0050	mg/kg	NC	50		



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			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
6114563	Mercury (Hg)	2019/05/13	89	75 - 125	96	80 - 120	<0.010	mg/kg	2.4	30	79	50 - 150
6114865	1-Methylnaphthalene	2019/05/15	82	50 - 130	87	50 - 130	<0.0050	mg/kg	NC	50		
6114865	2-Methylnaphthalene	2019/05/15	83	50 - 130	89	50 - 130	<0.0050	mg/kg	NC	50		
6114865	Acenaphthene	2019/05/15	89	50 - 130	98	50 - 130	<0.0050	mg/kg	NC	50		
6114865	Acenaphthylene	2019/05/15	92	50 - 130	95	50 - 130	<0.0050	mg/kg	NC	50		
6114865	Anthracene	2019/05/15	89	50 - 130	93	50 - 130	<0.0050	mg/kg	NC	50		
6114865	Benzo(a)anthracene	2019/05/15	85	50 - 130	84	50 - 130	<0.0050	mg/kg	NC	50		
6114865	Benzo(a)pyrene	2019/05/15	72	50 - 130	71	50 - 130	<0.0050	mg/kg	NC	50		
6114865	Benzo(b)fluoranthene	2019/05/15	80	50 - 130	82	50 - 130	<0.0050	mg/kg	NC	50		
6114865	Benzo(g,h,i)perylene	2019/05/15	77	50 - 130	70	50 - 130	<0.0050	mg/kg	NC	50		
6114865	Benzo(j)fluoranthene	2019/05/15	72	50 - 130	73	50 - 130	<0.0050	mg/kg	NC	50		
6114865	Benzo(k)fluoranthene	2019/05/15	78	50 - 130	77	50 - 130	<0.0050	mg/kg	NC	50		
6114865	Chrysene	2019/05/15	103	50 - 130	102	50 - 130	<0.0050	mg/kg	NC	50		
6114865	Dibenz(a,h)anthracene	2019/05/15	75	50 - 130	68	50 - 130	<0.0050	mg/kg	NC	50		
6114865	Fluoranthene	2019/05/15	91	50 - 130	92	50 - 130	<0.0050	mg/kg	NC	50		
6114865	Fluorene	2019/05/15	95	50 - 130	100	50 - 130	<0.0050	mg/kg	NC	50		
6114865	Indeno(1,2,3-cd)pyrene	2019/05/15	74	50 - 130	66	50 - 130	<0.0050	mg/kg	NC	50		
6114865	Naphthalene	2019/05/15	87	50 - 130	94	50 - 130	<0.0050	mg/kg	NC	50		
6114865	Perylene	2019/05/15	69	50 - 130	68	50 - 130	<0.0050	mg/kg	NC	50		
6114865	Phenanthrene	2019/05/15	96	50 - 130	102	50 - 130	<0.0050	mg/kg	NC	50		
6114865	Pyrene	2019/05/15	90	50 - 130	91	50 - 130	<0.0050	mg/kg	NC	50		
6115045	Benzene	2019/05/11	NC	60 - 140	92	60 - 130	<0.0060	ug/g	1.5	50		
6115045	Ethylbenzene	2019/05/11	NC	60 - 140	92	60 - 130	<0.010	ug/g	1.3	50		
6115045	F1 (C6-C10) - BTEX	2019/05/11					<10	ug/g	2.5	30		
6115045	F1 (C6-C10)	2019/05/11	NC	60 - 140	93	80 - 120	<10	ug/g	1.8	30		
6115045	o-Xylene	2019/05/11	NC	60 - 140	90	60 - 130	<0.020	ug/g	1.4	50		
6115045	p+m-Xylene	2019/05/11	NC	60 - 140	89	60 - 130	<0.020	ug/g	0.77	50		
6115045	Toluene	2019/05/11	NC	60 - 140	88	60 - 130	<0.020	ug/g	1.8	50		
6115045	Total Xylenes	2019/05/11					<0.020	ug/g	0.94	50		
6117721	Total Carbon	2019/05/12			105	75 - 125	<0.050	%	NC	30	99	75 - 125
6117721	Total Nitrogen	2019/05/12			99	75 - 125	<0.20	%	NC	30	110	75 - 125
6117721	Total Sulphur (S)	2019/05/12			97	75 - 125	<0.060	%	7.3	30	100	75 - 125



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			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
6117751	Acid Extractable Aluminum (Al)	2019/05/13					<10	mg/kg	4.4	35		
6117751	Acid Extractable Antimony (Sb)	2019/05/13	90	75 - 125	100	75 - 125	<2.0	mg/kg	NC	35		
6117751	Acid Extractable Arsenic (As)	2019/05/13	102	75 - 125	100	75 - 125	<2.0	mg/kg	3.6	35		
6117751	Acid Extractable Barium (Ba)	2019/05/13	NC	75 - 125	99	75 - 125	<5.0	mg/kg	1.0	35		
6117751	Acid Extractable Beryllium (Be)	2019/05/13	100	75 - 125	97	75 - 125	<2.0	mg/kg	NC	35		
6117751	Acid Extractable Bismuth (Bi)	2019/05/13	105	75 - 125	100	75 - 125	<2.0	mg/kg	NC	35		
6117751	Acid Extractable Boron (B)	2019/05/13	105	75 - 125	92	75 - 125	<50	mg/kg	NC	35		
6117751	Acid Extractable Cadmium (Cd)	2019/05/13	99	75 - 125	98	75 - 125	<0.30	mg/kg	2.4	35		
6117751	Acid Extractable Chromium (Cr)	2019/05/13	105	75 - 125	100	75 - 125	<2.0	mg/kg	0.020	35		
6117751	Acid Extractable Cobalt (Co)	2019/05/13	104	75 - 125	102	75 - 125	<1.0	mg/kg	0.60	35		
6117751	Acid Extractable Copper (Cu)	2019/05/13	99	75 - 125	99	75 - 125	<2.0	mg/kg	2.1	35		
6117751	Acid Extractable Iron (Fe)	2019/05/13					<50	mg/kg	0.72	35		
6117751	Acid Extractable Lead (Pb)	2019/05/13	102	75 - 125	98	75 - 125	<0.50	mg/kg	1.8	35		
6117751	Acid Extractable Lithium (Li)	2019/05/13	107	75 - 125	99	75 - 125	<2.0	mg/kg	1.0	35		
6117751	Acid Extractable Manganese (Mn)	2019/05/13	NC	75 - 125	100	75 - 125	<2.0	mg/kg	0.81	35		
6117751	Acid Extractable Molybdenum (Mo)	2019/05/13	105	75 - 125	103	75 - 125	<2.0	mg/kg	3.3	35		
6117751	Acid Extractable Nickel (Ni)	2019/05/13	104	75 - 125	101	75 - 125	<2.0	mg/kg	0.66	35		
6117751	Acid Extractable Rubidium (Rb)	2019/05/13	98	75 - 125	98	75 - 125	<2.0	mg/kg	2.2	35		
6117751	Acid Extractable Selenium (Se)	2019/05/13	103	75 - 125	103	75 - 125	<1.0	mg/kg	NC	35		
6117751	Acid Extractable Silver (Ag)	2019/05/13	100	75 - 125	98	75 - 125	<0.50	mg/kg	NC	35		
6117751	Acid Extractable Strontium (Sr)	2019/05/13	88	75 - 125	98	75 - 125	<5.0	mg/kg	22	35		
6117751	Acid Extractable Thallium (Tl)	2019/05/13	102	75 - 125	101	75 - 125	<0.10	mg/kg	5.8	35		
6117751	Acid Extractable Tin (Sn)	2019/05/13	104	75 - 125	97	75 - 125	<1.0	mg/kg	2.2	35		
6117751	Acid Extractable Uranium (U)	2019/05/13	106	75 - 125	96	75 - 125	<0.10	mg/kg	1.9	35		
6117751	Acid Extractable Vanadium (V)	2019/05/13	104	75 - 125	100	75 - 125	<2.0	mg/kg	1.5	35		
6117751	Acid Extractable Zinc (Zn)	2019/05/13	NC	75 - 125	100	75 - 125	<5.0	mg/kg	1.4	35		
6117791	Total Oil and Grease	2019/05/13	120	65 - 135	101	65 - 135	<100	ug/g	20	50		
6117925	Ammonia-N	2019/05/14	NC	75 - 125	100	80 - 120	<0.25	mg/kg	7.2	30		
6118394	Soluble (5:1) pH	2019/05/13							1.9	N/A		
6119430	F2 (C10-C16 Hydrocarbons)	2019/05/15	101	50 - 130	95	80 - 120	<10	ug/g	NC	30		
6119430	F3 (C16-C34 Hydrocarbons)	2019/05/15	99	50 - 130	94	80 - 120	<50	ug/g	NC	30		
6119430	F4 (C34-C50 Hydrocarbons)	2019/05/15	101	50 - 130	95	80 - 120	<50	ug/g	NC	30		



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			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
6119804	Orthophosphate (P)	2019/05/14	86	80 - 120	100	80 - 120	<0.050	mg/kg	18	25		
6119805	Nitrate + Nitrite (N)	2019/05/15	95	75 - 125	108	80 - 120	<0.25	mg/kg	11	35		
6119806	Nitrite (N)	2019/05/14	91	70 - 130	99	70 - 130	<0.050	mg/kg	NC	30		
6121973	F2 (C10-C16 Hydrocarbons)	2019/05/15	96	50 - 130	95	80 - 120	<10	ug/g	NC	30		
6121973	F3 (C16-C34 Hydrocarbons)	2019/05/15	98	50 - 130	98	80 - 120	<50	ug/g	NC	30		
6121973	F4 (C34-C50 Hydrocarbons)	2019/05/15	110	50 - 130	109	80 - 120	<50	ug/g	NC	30		
6122643	Total Organic Carbon	2019/05/15					<500	mg/kg	5.5	35	107	75 - 125
6123731	Available (KCl) Total Kjeldahl Nitrogen	2019/05/15	91	75 - 125	115	80 - 120	<5.0	mg/kg	104 (3)	30	104	75 - 125
6124030	Moisture-Subcontracted	2019/05/14					<0.30	%				
6124031	Sulphide	2019/05/15	NC	75 - 125	84	75 - 125	<0.50	ug/g	NC	30		
6124032	Moisture-Subcontracted	2019/05/14					<0.30	%	4.0	20		
6128789	22'33'44'55'6'-NonaCB-(206)	2019/05/14			62	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	22'33'44'55'-OctaCB-(194)	2019/05/14			84	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	22'33'44'56'-OctaCB-(195)	2019/05/14			86	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	22'33'44'5'-HeptaCB-(170)	2019/05/14			86	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	22'33'44'6'-HeptaCB-(171)	2019/05/14			82	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	22'33'44'-HexaCB-(128)	2019/05/14			101	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	22'33'455'66'-NonaCB-(208)	2019/05/14			75	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	22'33'455'6'-OctaCB-(199)	2019/05/14			86	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	22'33'45'6'-HeptaCB-(177)	2019/05/14			70	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	22'33'46'-HexaCB-(132)	2019/05/14			96	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	22'33'4-PentaCB-(82)	2019/05/14			82	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	22'344'55'-HeptaCB-(180)	2019/05/14			74	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	22'344'5'6'-HeptaCB-(183)	2019/05/14			77	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	22'34'55'6'-HeptaCB-(187)	2019/05/14			82	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	22'34'5'6'-HexaCB-(149)	2019/05/14			96	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	22'345'-PentaCB-(87)	2019/05/14			99	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	22'355'6'-HexaCB-(151)	2019/05/14			107	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	22'35'6'-PentaCB-(95)	2019/05/14			103	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	22'35'-TetraCB-(44)	2019/05/14			100	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	22'44'55'-HexaCB-(153)	2019/05/14			105	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	22'44'5'-PentaCB-(99)	2019/05/14			78	60 - 130	<0.010	mg/kg	NC	N/A		



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			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
6128789	22'455'-PentaCB-(101)	2019/05/14			89	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	22'45'-TetraCB-(49)	2019/05/14			101	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	22'55'-TetraCB-(52)	2019/05/14			93	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	233'44'55'6-OctaCB-(205)	2019/05/14			82	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	233'44'5'6-HeptaCB-(191)	2019/05/14			76	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	233'44'5-HexaCB-(156)	2019/05/14			106	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	233'44'-PentaCB-(105)	2019/05/14			112	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	233'4'6-PentaCB-(110)	2019/05/14			109	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	23'44'5-PentaCB-(118)	2019/05/14			100	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	23'4'5-TetraCB-(70)	2019/05/14			96	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	2'34-TriCB-(33)	2019/05/14			95	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	244'5-TetraCB-(74)	2019/05/14			101	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	33'44'55'-HexaCB-(169)	2019/05/14			118	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	DecaCB-(209)	2019/05/14			77	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	Decachlorobiphenyls	2019/05/14					<0.010	mg/kg	NC	30		
6128789	Heptachlorobiphenyls	2019/05/14					<0.010	mg/kg	NC	30		
6128789	HexaCB-(138)+(158)	2019/05/14			113	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	Hexachlorobiphenyls	2019/05/14					<0.010	mg/kg	NC	30		
6128789	Nonachlorobiphenyls	2019/05/14					<0.010	mg/kg	NC	30		
6128789	Octachlorobiphenyls	2019/05/14					<0.010	mg/kg	NC	30		
6128789	Pentachlorobiphenyls	2019/05/14					<0.010	mg/kg	NC	30		
6128789	Tetrachlorobiphenyls	2019/05/14					<0.010	mg/kg	NC	30		
6128789	Total PCB	2019/05/14			93	60 - 130	<0.010	mg/kg	NC	30		
6128789	TriCB-(17)+(18)	2019/05/14			99	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	TriCB-(28)+(31)	2019/05/14			99	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	Trichlorobiphenyls	2019/05/14					<0.010	mg/kg	NC	30		
6128790	Total Cyanide (CN)	2019/05/14			80	75 - 125	<0.50	mg/kg			89	75 - 125
6164387	1,2,3,4,6,7,8-Hepta CDD	2019/06/08	94	80 - 140	106	80 - 140	<0.106, EDL=0.106	pg/g	17	25		
6164387	1,2,3,4,6,7,8-Hepta CDF	2019/06/08	112	80 - 140	107	80 - 140	<0.0895, EDL=0.0895	pg/g	2.5	25		



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			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
6164387	1,2,3,4,7,8,9-Hepta CDF	2019/06/08	120	80 - 140	107	80 - 140	<0.102, EDL=0.102	pg/g	3.2	25		
6164387	1,2,3,4,7,8-Hexa CDD	2019/06/08	96	80 - 140	83	80 - 140	<0.122, EDL=0.122	pg/g	NC	25		
6164387	1,2,3,4,7,8-Hexa CDF	2019/06/08	137	80 - 140	131	80 - 140	<0.123, EDL=0.123	pg/g	0.91	25		
6164387	1,2,3,6,7,8-Hexa CDD	2019/06/08	92	80 - 140	99	80 - 140	<0.106, EDL=0.106	pg/g	1.1	25		
6164387	1,2,3,6,7,8-Hexa CDF	2019/06/08	124	80 - 140	127	80 - 140	<0.102, EDL=0.102	pg/g	1.5	25		
6164387	1,2,3,7,8,9-Hexa CDD	2019/06/08	93	80 - 140	84	80 - 140	<0.103, EDL=0.103	pg/g	16	25		
6164387	1,2,3,7,8,9-Hexa CDF	2019/06/08	132	80 - 140	136	80 - 140	<0.128, EDL=0.128	pg/g	NC	25		
6164387	1,2,3,7,8-Penta CDD	2019/06/08	103	80 - 140	104	80 - 140	<0.101, EDL=0.101	pg/g	1.2	25		
6164387	1,2,3,7,8-Penta CDF	2019/06/08	123	80 - 140	119	80 - 140	<0.117, EDL=0.117	pg/g	NC (5)	25		
6164387	2,3,4,6,7,8-Hexa CDF	2019/06/08	127	80 - 140	134	80 - 140	<0.116, EDL=0.116	pg/g	0.92	25		
6164387	2,3,4,7,8-Penta CDF	2019/06/08	127	80 - 140	108	80 - 140	<0.118, EDL=0.118	pg/g	10	25		
6164387	2,3,7,8-Tetra CDD	2019/06/08	90	80 - 140	97	80 - 140	<0.103, EDL=0.103	pg/g	1.4	25		
6164387	2,3,7,8-Tetra CDF	2019/06/08	106	80 - 140	106	80 - 140	<0.115, EDL=0.115	pg/g	1.9	25		
6164387	Octa CDD	2019/06/08	68 (4)	80 - 140	84	80 - 140	0.278, EDL=0.117	pg/g	1.0	25		
6164387	Octa CDF	2019/06/08	83	80 - 140	92	80 - 140	<0.112, EDL=0.112	pg/g	3.7	25		
6164387	Total Hepta CDD	2019/06/08					<0.106, EDL=0.106	pg/g	8.9	25		
6164387	Total Hepta CDF	2019/06/08					<0.0953, EDL=0.0953	pg/g	5.6	25		



BUREAU
VERITAS

BV Labs Job #: B9C0342
Report Date: 2019/06/12

QUALITY ASSURANCE REPORT(CONT'D)

Stantec Consulting Ltd
Client Project #: 121621877.400
Sampler Initials: GSR

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
6164387	Total Hexa CDD	2019/06/08					<0.110, EDL=0.110	pg/g	4.0	25		
6164387	Total Hexa CDF	2019/06/08					<0.117, EDL=0.117	pg/g	0.94	25		
6164387	Total Penta CDD	2019/06/08					<0.101, EDL=0.101	pg/g	0.63	25		
6164387	Total Penta CDF	2019/06/08					<0.118, EDL=0.118	pg/g	7.7	25		
6164387	Total Tetra CDD	2019/06/08					<0.103, EDL=0.103	pg/g	6.0	25		
6164387	Total Tetra CDF	2019/06/08					<0.115, EDL=0.115	pg/g	9.6	25		

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

- (1) VOC samples were extracted using a flat-bed shaker instead of the accelerated mechanical shaker due to matrix incompatibility.
- (2) VPH samples were extracted using a flat-bed shaker instead of the accelerated mechanical shaker due to matrix incompatibility.
- (3) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.
- (4) Recovery does not meet method criteria, possibly due to sample heterogeneity
- (5) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.



BUREAU
VERITAS

BV Labs Job #: B9C0342
Report Date: 2019/06/12

Stantec Consulting Ltd
Client Project #: 121621877.400
Sampler Initials: GSR

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Andy Lu, Ph.D., P.Chem., Scientific Specialist

Brad Newman, Scientific Service Specialist



Veronic Beausejour, B.Sc., Chemist, Supervisor

Ghayasuddin Khan, M.Sc., P.Chem., QP, Scientific Specialist, Inorganics

Eric Dearman, Scientific Specialist



Sylvain Chevigny, B.Sc., Chemist, Scientific Service Specialist

Gina Thompson, Inorganics General Chemistry Supervisor



BUREAU
VERITAS

BV Labs Job #: B9C0342
Report Date: 2019/06/12

Stantec Consulting Ltd
Client Project #: 121621877.400
Sampler Initials: GSR

VALIDATION SIGNATURE PAGE(CONT'D)

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Mike MacGillivray, Scientific Specialist (Inorganics)



Nouredine Chafiai, B.Sc., Chemist

Owen Cosby, BSc.C.Chem, Supervisor, HRMS Services

Rosemarie MacDonald, Scientific Specialist (Organics)

Winnie Au, B.Sc., QP, Scientific Specialist

BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

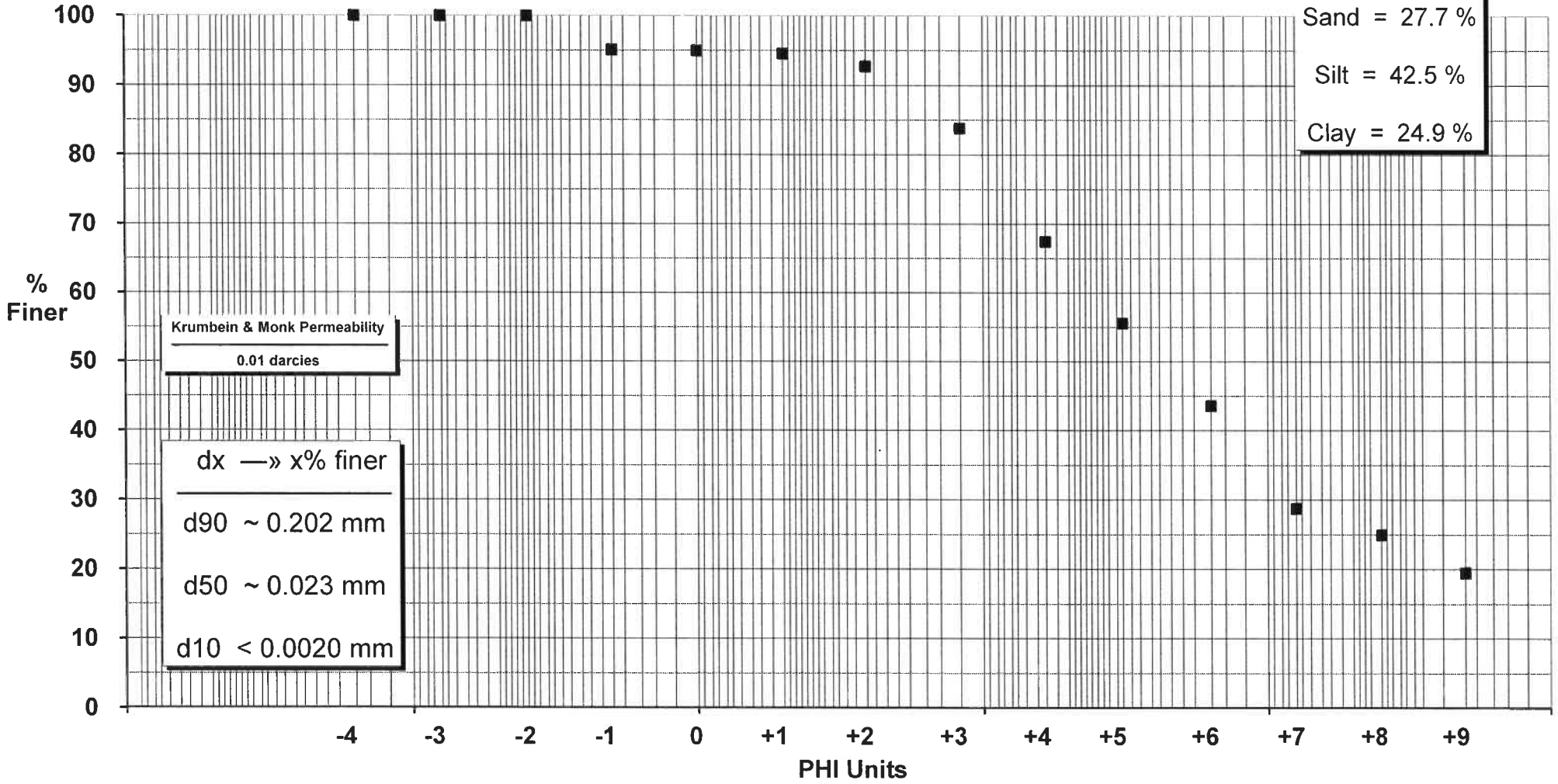


VC-16-1

Percent Coarser than 75 μm
(PHI = 3.737)
—
28.3 %

Percent Coarser than 50 μm
(PHI = 4.322)
—
36.4 %

Wentworth
—
Gravel = 4.9 %
Sand = 27.7 %
Silt = 42.5 %
Clay = 24.9 %



[Signature]
Approved



VC-16-2

Percent Coarser than 75 μm
(PHI = 3.737)

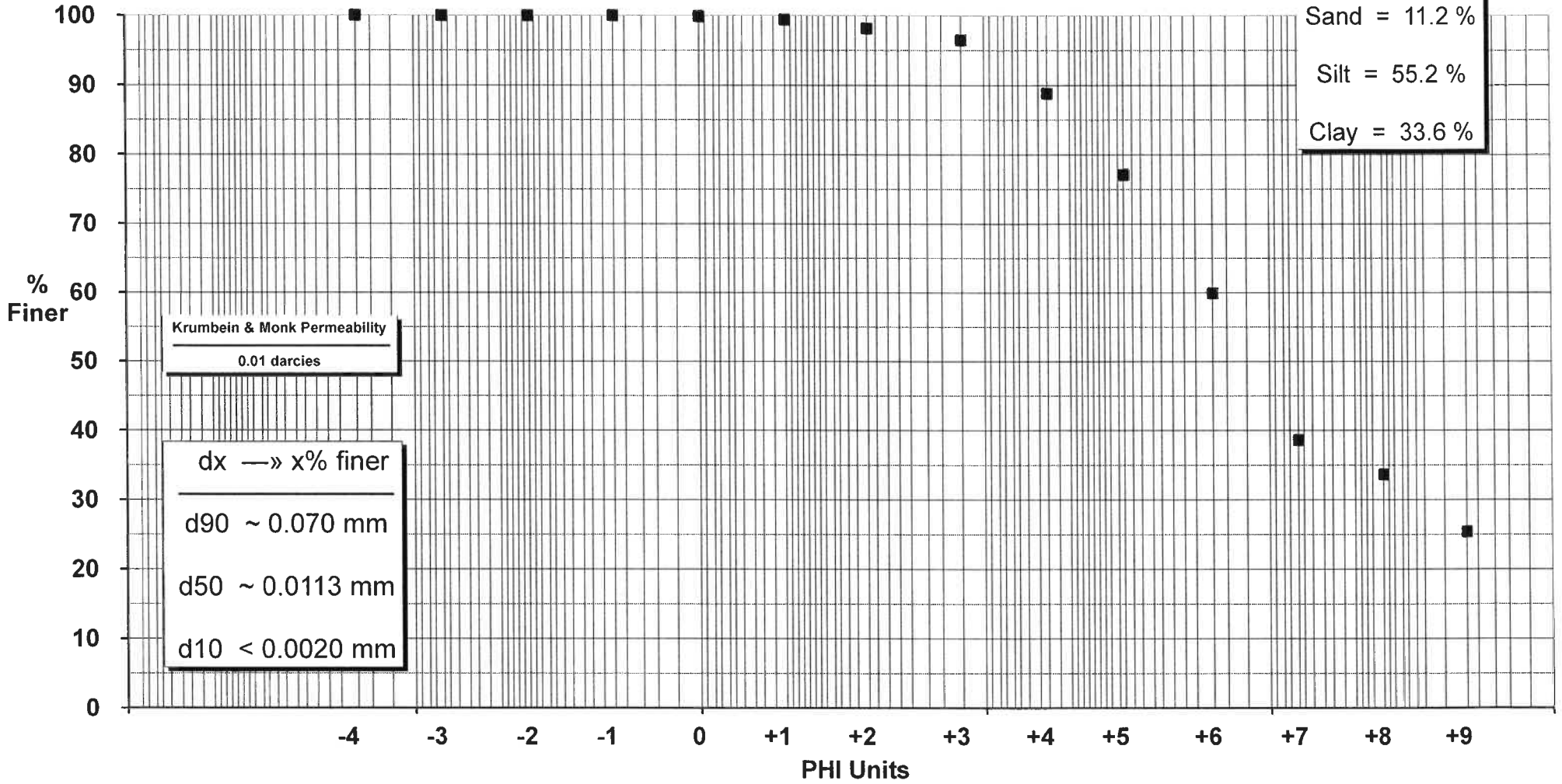
9.2 %

Percent Coarser than 50 μm
(PHI = 4.322)

15.0 %

Wentworth

Gravel = 0.0 %
Sand = 11.2 %
Silt = 55.2 %
Clay = 33.6 %




Approved

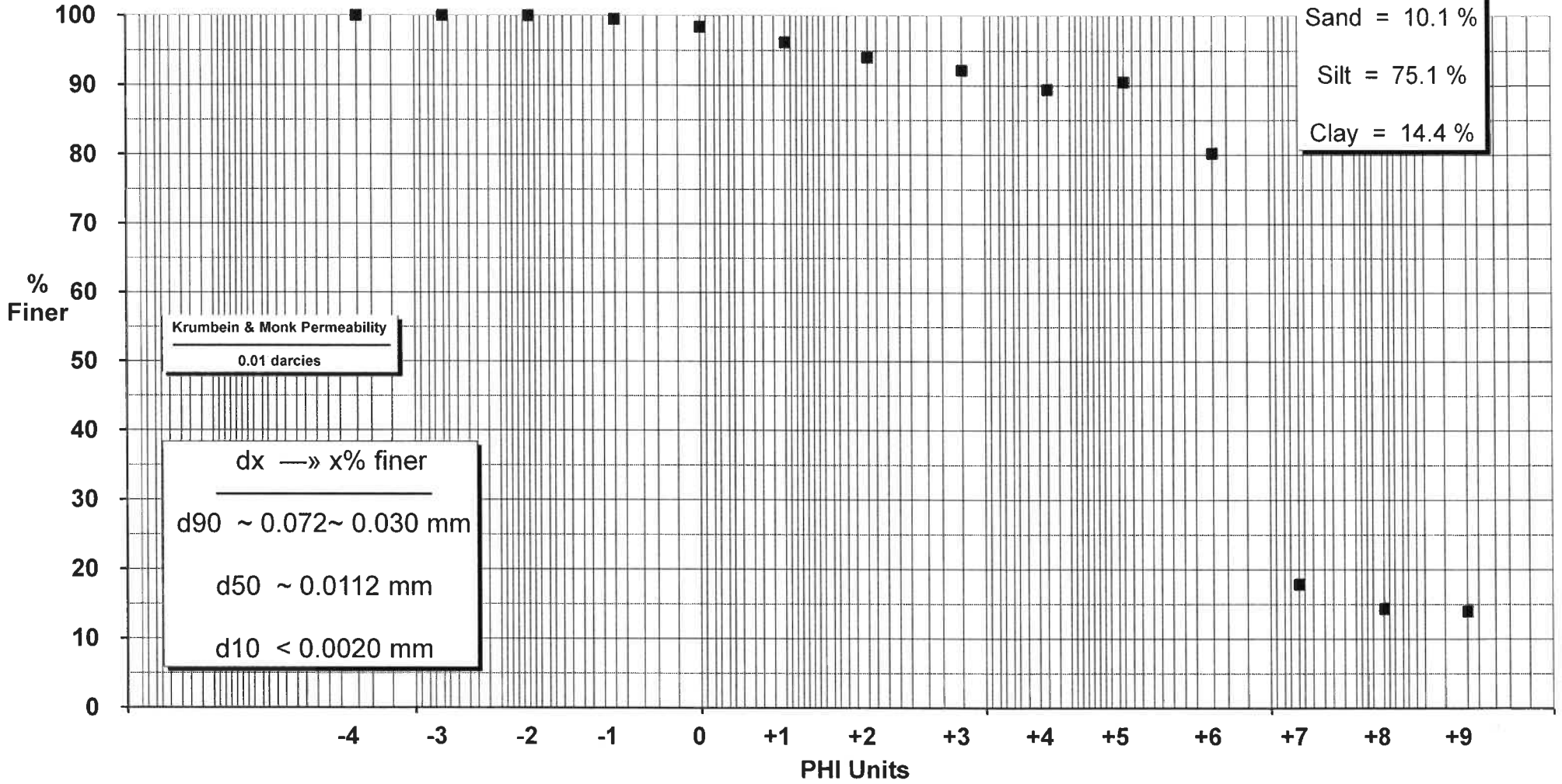


VC-16-3

Percent Coarser than 75 μm
(PHI = 3.737)
—
9.9 %

Percent Coarser than 50 μm
(PHI = 4.322)
—
10.2 %

Wentworth
Gravel = 0.5 %
Sand = 10.1 %
Silt = 75.1 %
Clay = 14.4 %



6/7/8
Approved

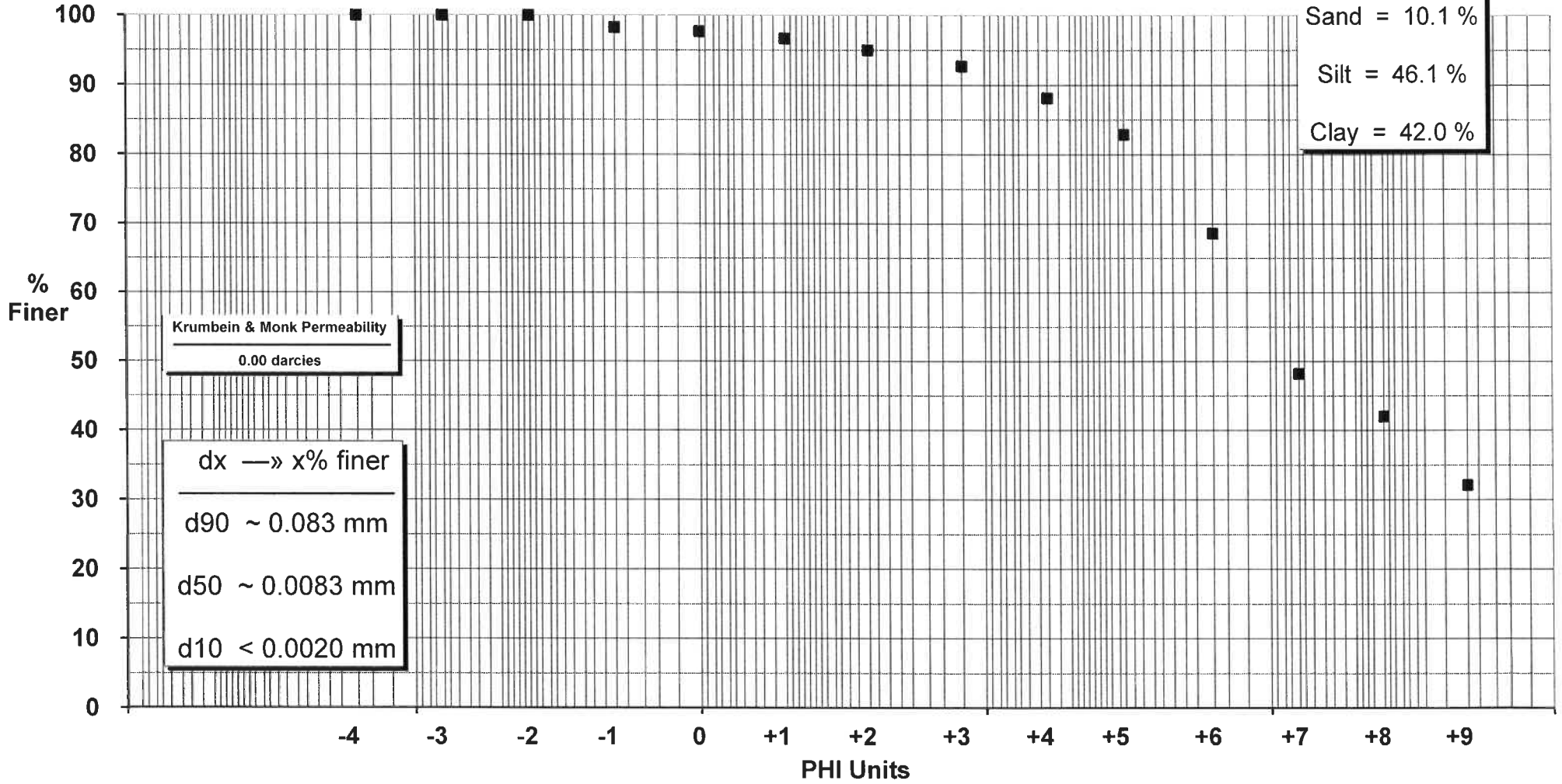


VC-50C-1

Percent Coarser than 75 μm
(PHI = 3.737)
—
10.7 %

Percent Coarser than 50 μm
(PHI = 4.322)
—
13.6 %

Wentworth
Gravel = 1.7 %
Sand = 10.1 %
Silt = 46.1 %
Clay = 42.0 %



Approved

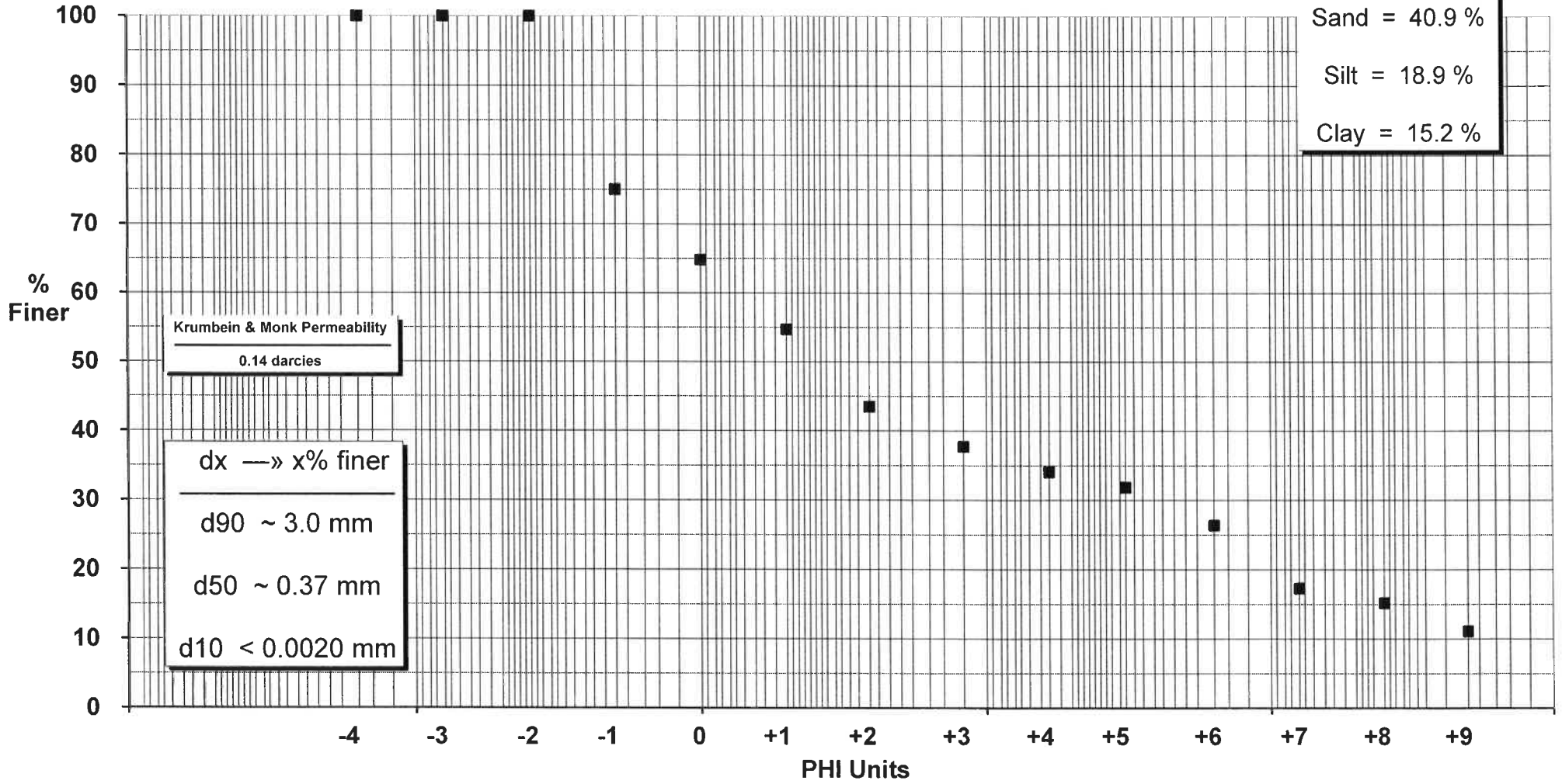



VC-50C-2

Percent Coarser than 75 μm
(PHI = 3.737)
—
65.0 %

Percent Coarser than 50 μm
(PHI = 4.322)
—
66.7 %

Wentworth
—
Gravel = 25.0 %
Sand = 40.9 %
Silt = 18.9 %
Clay = 15.2 %




Approved

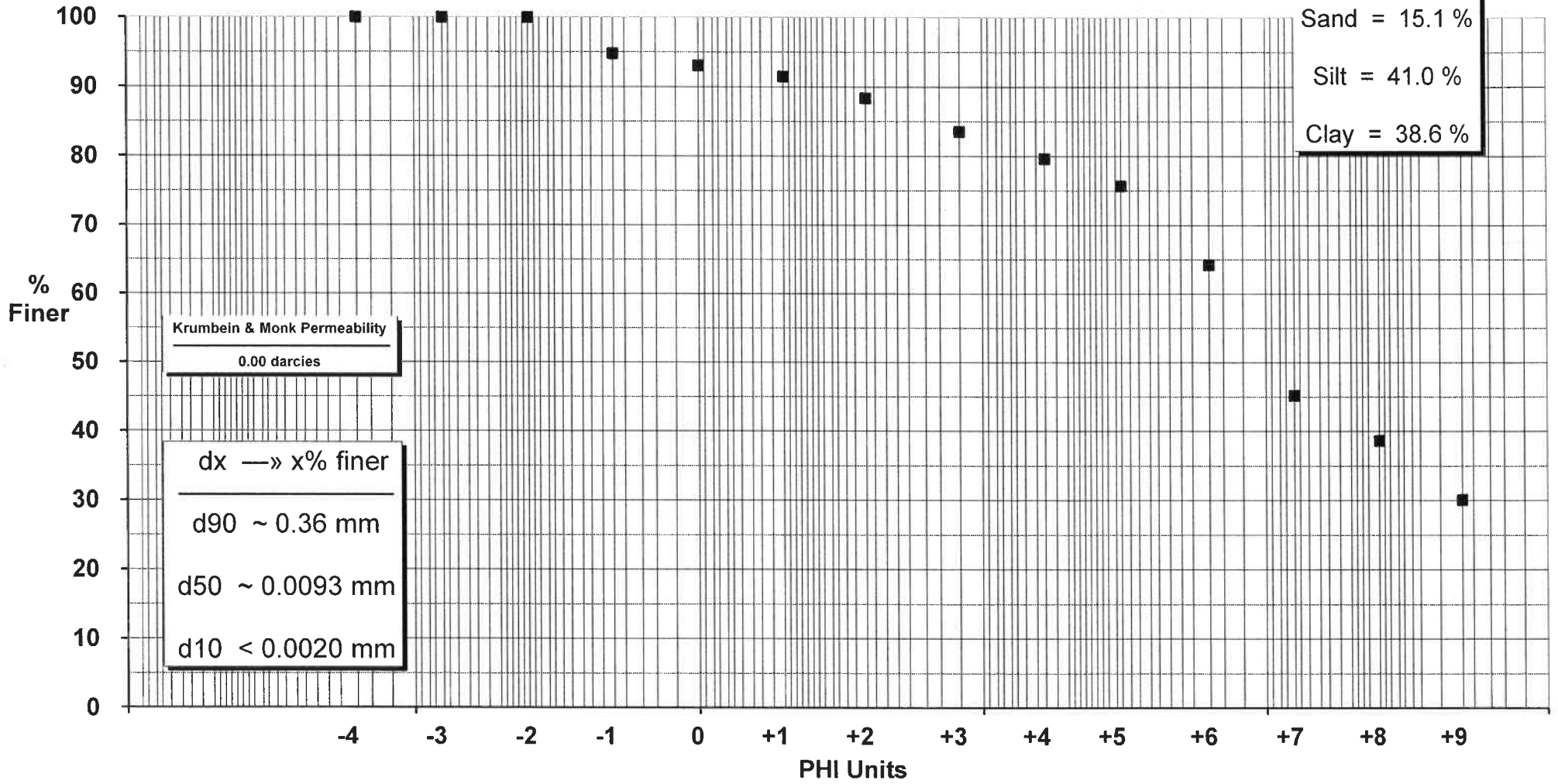


VC-50C-3

Percent Coarser than 75 μm
(PHI = 3.737)
—
19.4 %

Percent Coarser than 50 μm
(PHI = 4.322)
—
21.7 %

Wentworth
—
Gravel = 5.3 %
Sand = 15.1 %
Silt = 41.0 %
Clay = 38.6 %



[Signature]
Approved

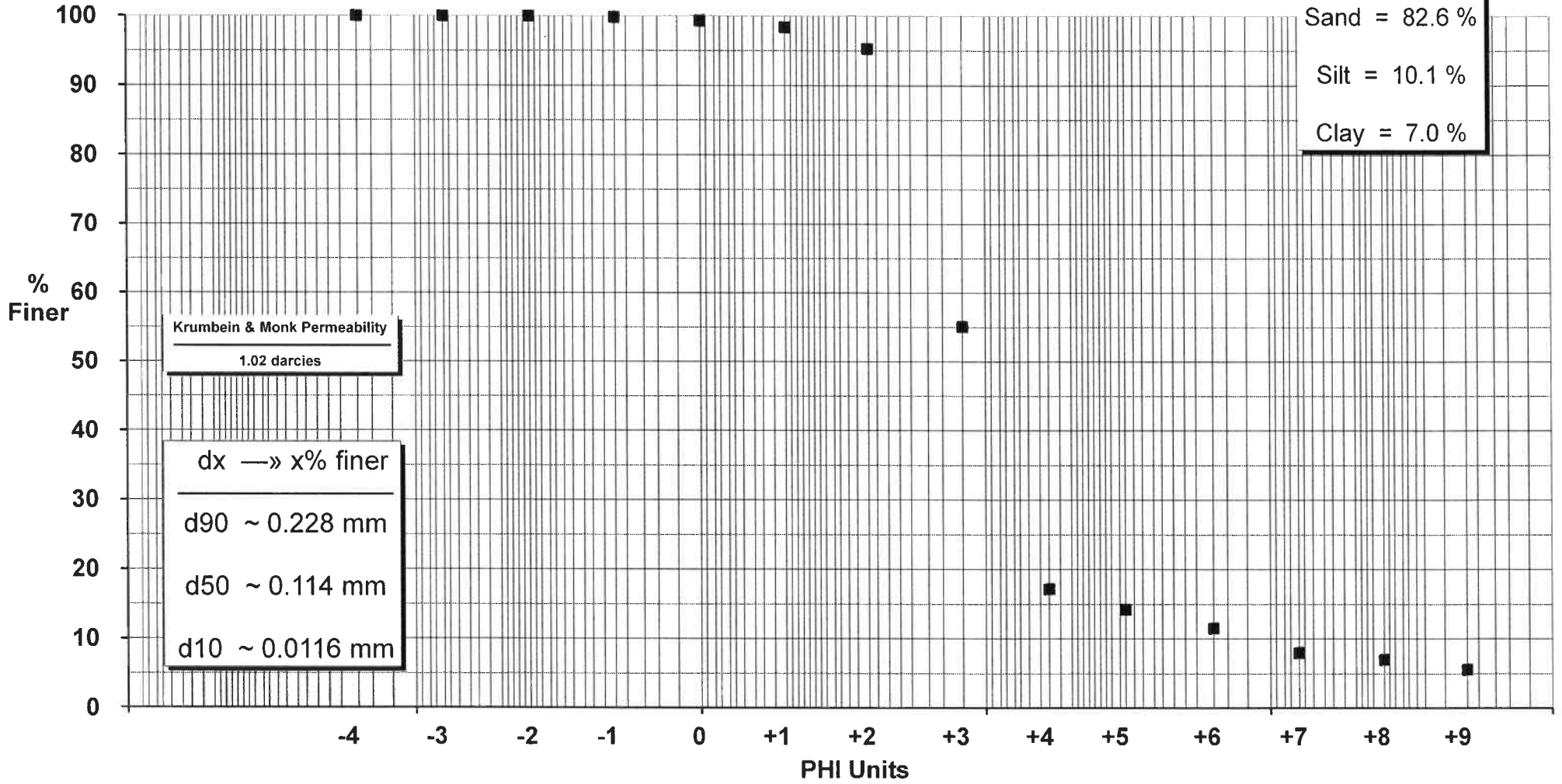


VC-23-1

Percent Coarser than 75 μm
(PHI = 3.737)
—
72.9 %

Percent Coarser than 50 μm
(PHI = 4.322)
—
83.8 %

Wentworth
Gravel = 0.2 %
Sand = 82.6 %
Silt = 10.1 %
Clay = 7.0 %



LTB
Approved

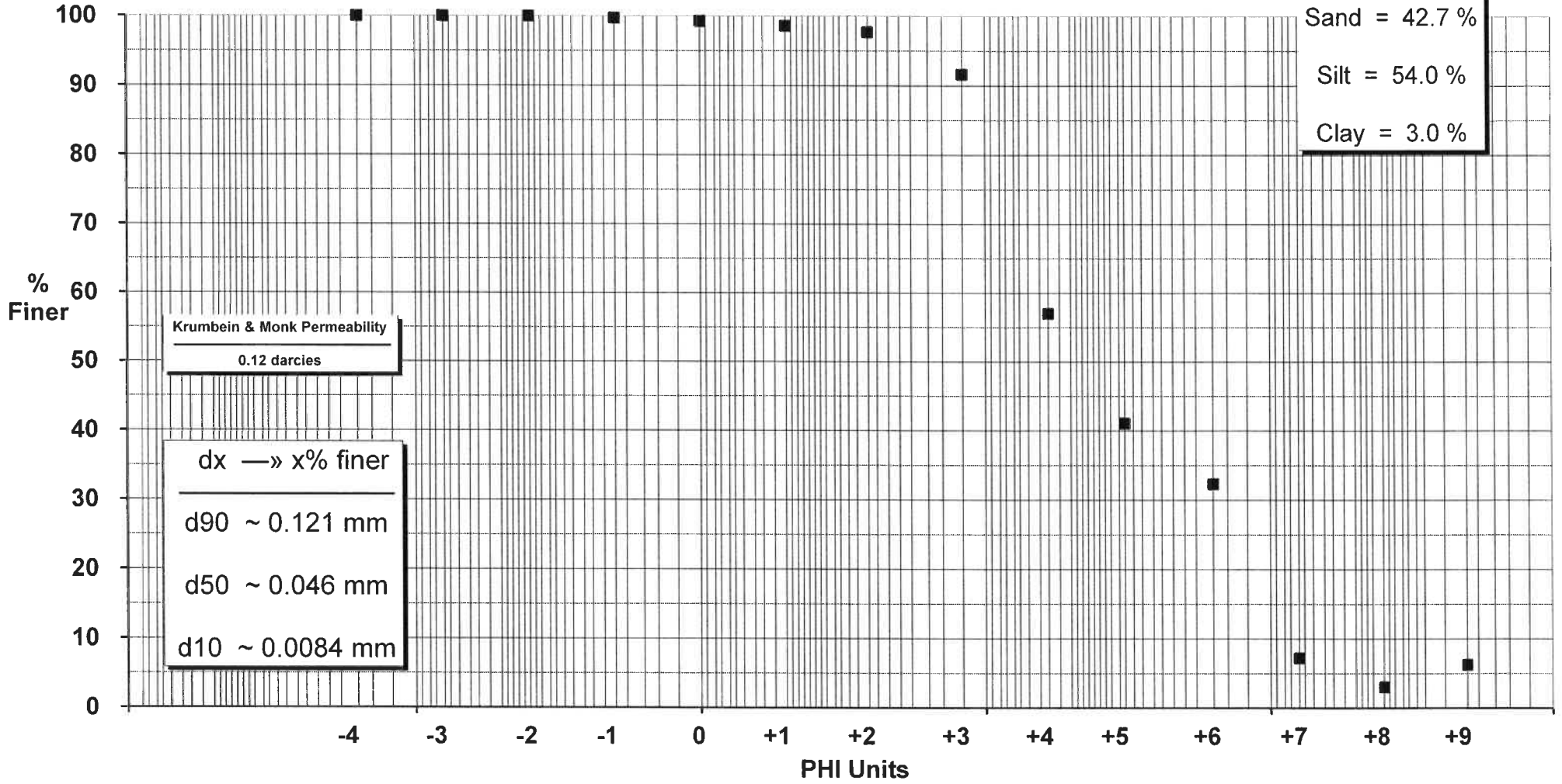


VC-23-3

Percent Coarser than 75 μm
(PHI = 3.737)
—
33.9 %

Percent Coarser than 50 μm
(PHI = 4.322)
—
48.1 %

Wentworth
—
Gravel = 0.3 %
Sand = 42.7 %
Silt = 54.0 %
Clay = 3.0 %



WJS
Approved

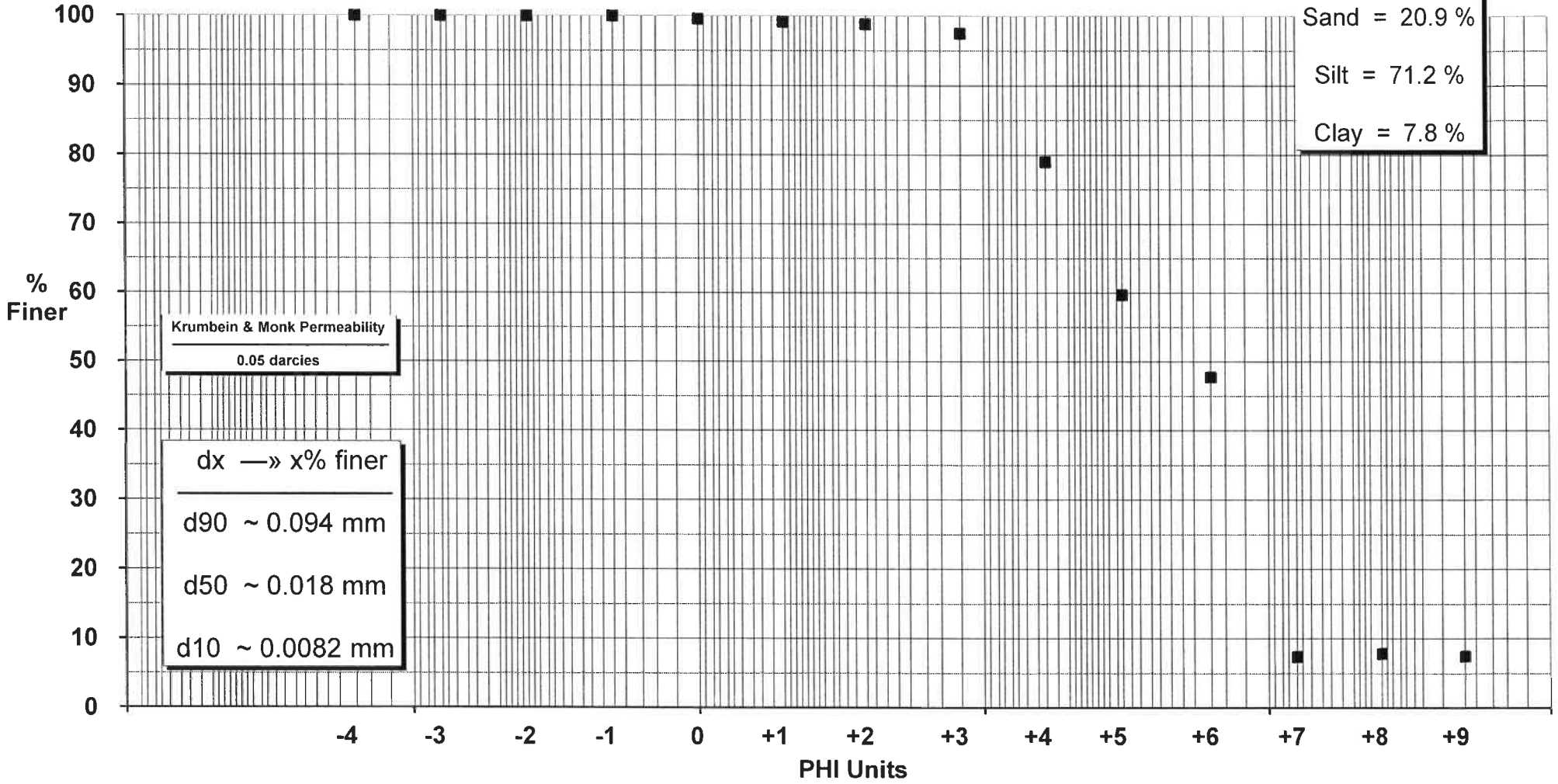



VC-23-4

Percent Coarser than 75 μm
(PHI = 3.737)
—
16.1 %

Percent Coarser than 50 μm
(PHI = 4.322)
—
27.2 %

Wentworth
—
Gravel = 0.0 %
Sand = 20.9 %
Silt = 71.2 %
Clay = 7.8 %




Approved

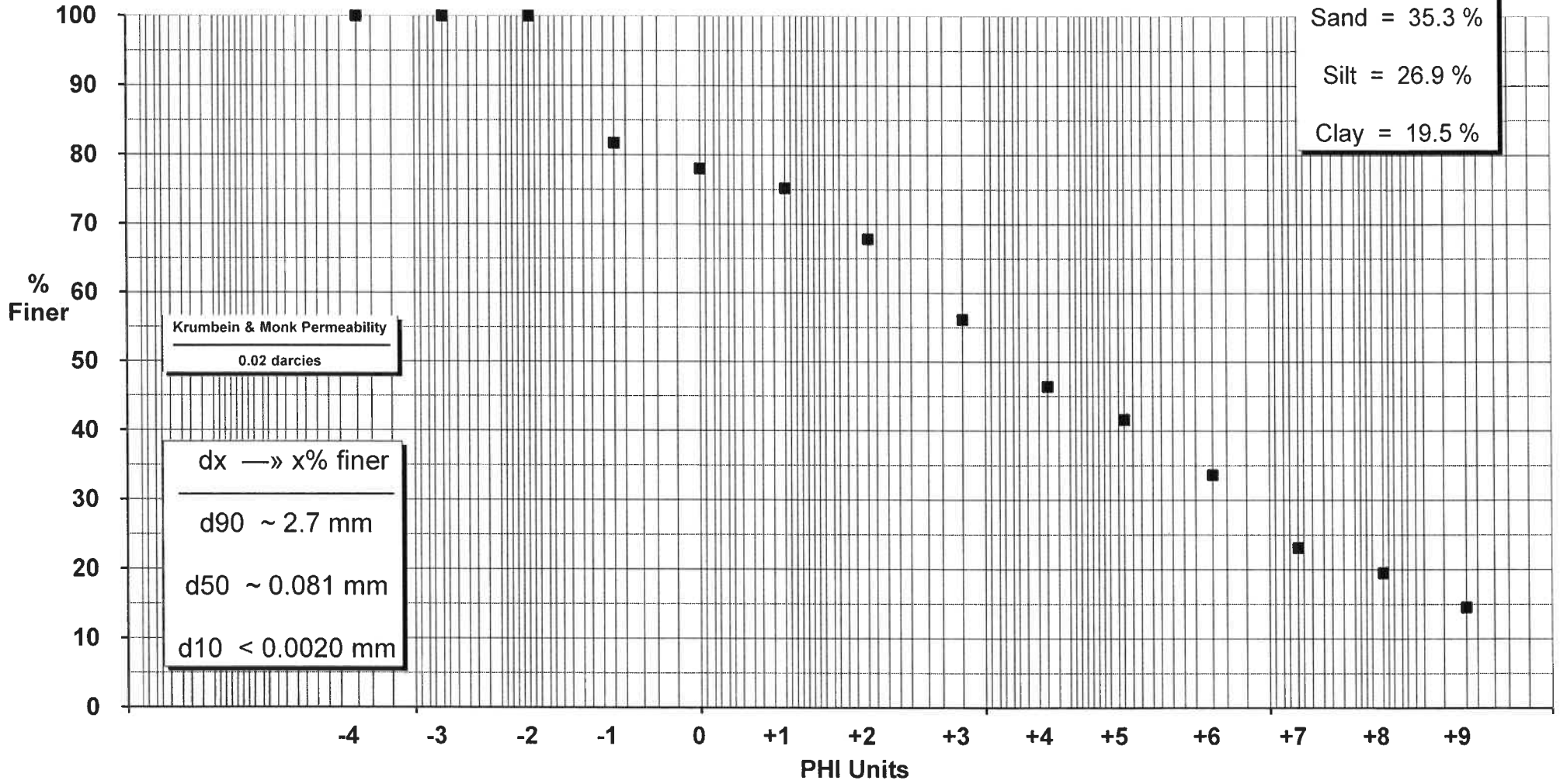


VC-51

Percent Coarser than 75 μm
(PHI = 3.737)
—
51.0 %

Percent Coarser than 50 μm
(PHI = 4.322)
—
55.1 %

Wentworth
Gravel = 18.3 %
Sand = 35.3 %
Silt = 26.9 %
Clay = 19.5 %




Approved



200 Bluewater Road, Suite 105, Bedford, Nova Scotia B4B 1G9 Tel: 902-420-0203 Fax: 902-420-9612 Toll Free: 1-800-565-7227
 49-55 Elizabeth Avenue, St John's, NL A1A 1W9 Tel: 709-754-0203 Fax: 709-754-8612 Toll Free: 1-888-492-7227
 465 George Street, Unit G, Sydney, NS B1P 1K5 Tel: 902-567-1255 Fax: 902-539-6504 Toll Free: 1-888-635-7770

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CHAIN OF CUSTODY RECORD

COC #: D40471

Page 1 of 1

Invoice Information			Report Information (if differs from invoice)			Project Information (where applicable)			Turnaround Time (TAT) Required																	
Company Name: <u>STANTEC</u>			Company Name: _____			Quotation #: _____			<input checked="" type="checkbox"/> Regular TAT (5 business days) Most analyses																	
Contact Name: _____			Contact Name: <u>SAM SAUER</u>			Purchase Order #: _____			PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS																	
Address: _____ PC: _____			Address: _____ PC: _____			Project #: <u>12162877.900</u>			IF RUSH please specify date (Surcharges will be applied)																	
Phone: _____			Phone: <u>902-468-7777</u>			Site Location: _____			DATE REQUIRED: _____																	
Email: _____			Email: <u>SAM.SAUER@STANTEC.COM</u>			Site Province: <u>NS</u>																				
Report Copies: _____			Report Copies: _____			Site #: _____																				
Report Copies: _____			Report Copies: _____			Sampled By: <u>GSR</u>																				
Laboratory Use Only				Analysis Requested																						
CUSTODY SEAL		COOLER TEMPERATURES		COOLER TEMPERATURES						Regulatory Requirements (Specify)																
Present	Intact																									
		<u>3, 3, 2</u>		<u>12, 11, 9</u>																						
COOLING MEDIA PRESENT Y / N																										
SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM																										
SAMPLE IDENTIFICATION		DATE SAMPLED (YYYY/MM/DD)	TIME SAMPLED (HH:MM)	MATRIX	IF OF CONTAINERS SUBMITTED	FIELD FILTERED & PRESERVED	LAB FILTRATION REQUIRED	RCAP-MS (Total Metals) Well / Surface water	RCAP-MS (Dissolved Metals) Ground waters	Total Digest (Default Method) for well water & surface water	Dissolved for ground water	Mercury (CIRCLE) TOTAL / DISSOLVED	Metals (Water)	Metals (Soil)	Default Acid Extractable (Available) Digest	Met Water Soluble Boron (required for CCME Agriculture / Landfill)	RBCA Hydrocarbons (BTEX, C6-C23)	CCME Hydrocarbons (CWS-PHC F1/BTEX, F2-F4)	PAHs (Default for water/soil)	PAHs (FWAL /CCME Sediment)	PCBs - Select One: Default or CCME Sediment	VOCs	Total Coliform/E.coli (Presence/Absence)	Total Coliform/E.coli (Count)	Regulatory Requirements (Specify)	
1	<u>VC-16-1</u>	<u>2019/05/02</u>	<u>9:45</u>	<u>SED</u>	<u>8</u>																					COMMENTS <u>SEE ATTACHED</u>
2	<u>VC-16-2</u>		<u>↓</u>		<u>17</u>																					<u>ANALYSIS B</u>
3	<u>VC-16-3</u>		<u>↓</u>		<u>12</u>																					<u>↓</u>
4	<u>VC-50C-1</u>	<u>2019/04/29</u>	<u>16:40</u>		<u>6</u>																					<u>ANALYSIS A</u>
5	<u>VC-50C-2</u>		<u>↓</u>		<u>6</u>																					<u>↓</u>
6	<u>VC-50C-3</u>		<u>↓</u>		<u>6</u>																					<u>↓</u>
7	<u>VC-23-1</u>	<u>2019/05/05</u>	<u>15:00</u>		<u>17</u>																					<u>ANALYSIS B</u>
8	<u>VC-23-3</u>		<u>↓</u>		<u>6</u>																					<u>" A</u>
9	<u>VC-23-4</u>		<u>↓</u>		<u>6</u>																					<u>" A</u>
10																										
RELINQUISHED BY: (Signature/Print)		DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)		DATE: (YYYY/MM/DD)	TIME: (HH:MM)	MAXXAM JOB #																		
<u>[Signature]</u>				<u>[Signature]</u>				<u>B9C0342</u>																		
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 485 George Street, Unit G, Sydney, NS B1P 1K5 Tel: 902-567-1255 Fax: 902-539-6504 Toll Free: 1-888-535-7770

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CHAIN OF CUSTODY RECORD

COC #: **D40472** Page **1** of **1**

Invoice Information			Report Information (if differs from invoice)			Project Information (where applicable)			Turnaround Time (TAT) Required															
Company Name: STANTEC			Company Name: SAM SAUER			Quotation #:			<input checked="" type="checkbox"/> Regular TAT (5 business days) Most analyses															
Contact Name:			Contact Name:			Purchase Order #:			PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS															
Address:			Address:			Project #:			IF RUSH please specify date (Surcharges will be applied)															
Phone:			Phone: 902-464-7777			Site Location:			DATE REQUIRED:															
Email:			Email: SAM.SAUER@STANTEC.COM			Site #:																		
Report Copies:			Report Copies:			Sampled By: CSL																		
Laboratory Use Only						Analysis Requested																		
CUSTODY SEAL		COOLER TEMPERATURES		COOLER TEMPERATURES		Metals (Water)	Metals (Soil)	Regulatory Requirements (Specify)																
Present	Intact																							
		3,3,2		12,11,9																				
COOLING MEDIA PRESENT Y / N																								
SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM																								
SAMPLE IDENTIFICATION		DATE SAMPLED (YYYY/MM/DD)	TIME SAMPLED (HH:MM)	MATRIX	# OF CONTAINERS SUBMITTED	FIELD FILTERED	LAB FILTRATION REQUIRED	RCAP-MS (Total Metals) Well / Surface water	RCAP-MS (Dissolved Metals) Ground waters	Total Digest (Default method) for well water & surface water	Dissolved for ground water	Mercury (CIRCLE) TOTAL / DISSOLVED	Metals & Mercury Default Acid Extractable (Available) Digest	Hot Water Soluble Boron (required for CCME Agricultural/Landfill)	RBCA Hydrocarbons (BTEX, CC-C2)	CCME Hydrocarbons (CWS-PHC F1/BTEX, F2-F4)	PAHs (Default for water/soil)	PAHs (FWAL/CCME Sediment)	PCBs - Select One: Default or CCME Sediment	VOCs	Total Coliform/E.coli (Presence/Absence)	Total Coliform/E.coli (Count)	HOLD - DO NOT ANALYZE	COMMENTS
1	VC-51	2019/05/06	11:05	SD	6																			SEE ATTACHED ANALYSIS 'A'
2																								
3																								
4																								
5																								
6																								
7																								
8																								
9																								
10																								
RELINQUISHED BY: (Signature/Print)		DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)		DATE: (YYYY/MM/DD)	TIME: (HH:MM)	MAXXAM JOB #																
Dan Lee		2019/05/06	16:12	PLN		2019/05/06	16:12	B9C0342																

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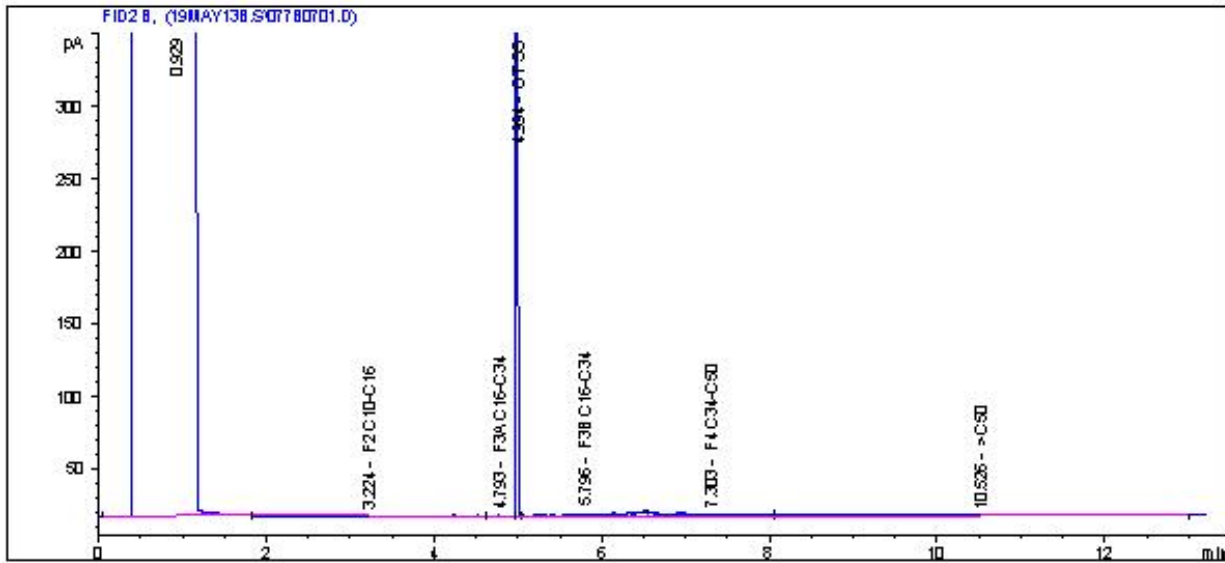
Analysis A Parameters - Disposal at Sea (DAS) Chemicals:

BTEX/TPH (CWS)
Low level mercury
Metals
PAHs (low level)
TOC
PCBs (low res Quebec)
Particle Size

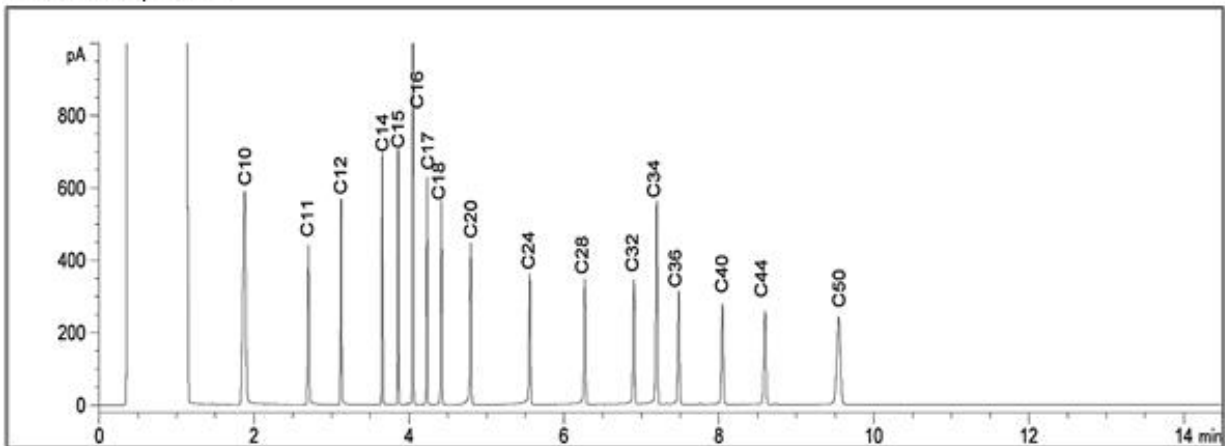
Analysis B Parameters - HHRA Chemicals of Potential Concern:

BTEX/TPH (CWS)
Low level mercury
Metals
PAHs (low level)
TOC
PCBs (low res Quebec)
Particle Size
Total sulphides
Total Carbon
Total Nitrogen
Dioxins and furans
EOX (extractable)
Acid-volatile sulphide
Ammonia
Nitrate
TKN
Orthophosphate
pH
Specific non-chlorinated phenolic compounds (4-AAP phenol)
Chlorinated VOCs
RBCA hydrocarbons
Total oil and grease
Total Cyanide

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Reference Spectrum



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline: **C6 - C12**

Diesel: **C10 - C24**

Jet Fuels: **C6 - C16**

Varsol: **C8 - C12**

Fuel Oils: **C6 - C32**

Creosote: **C10 - C26**

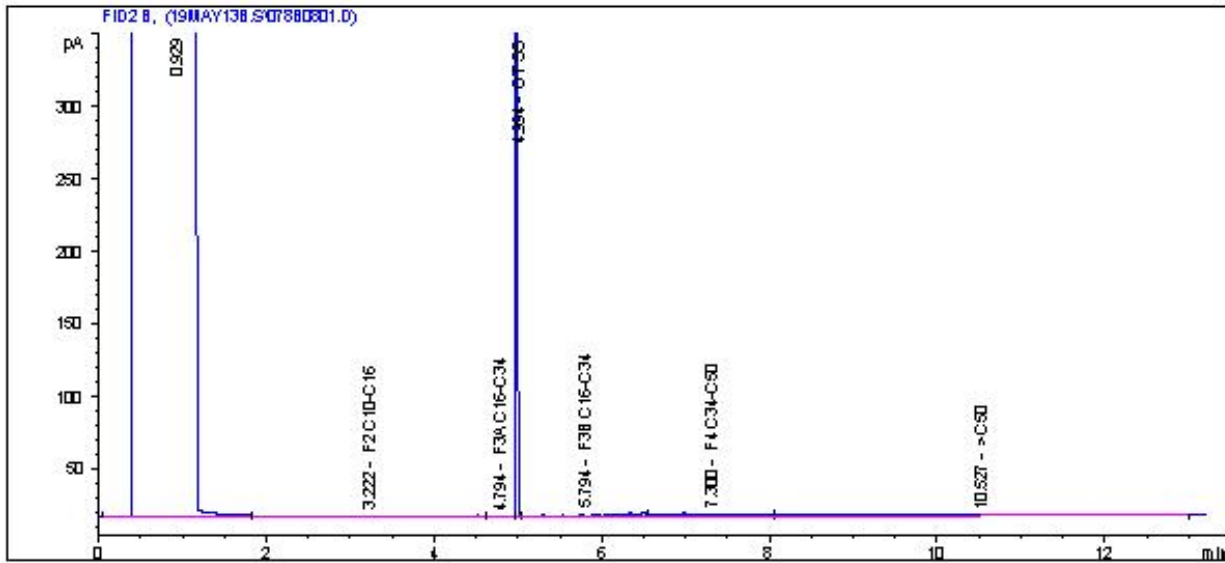
Kerosene: **C8 - C16**

Motor Oils: **C16 - C50**

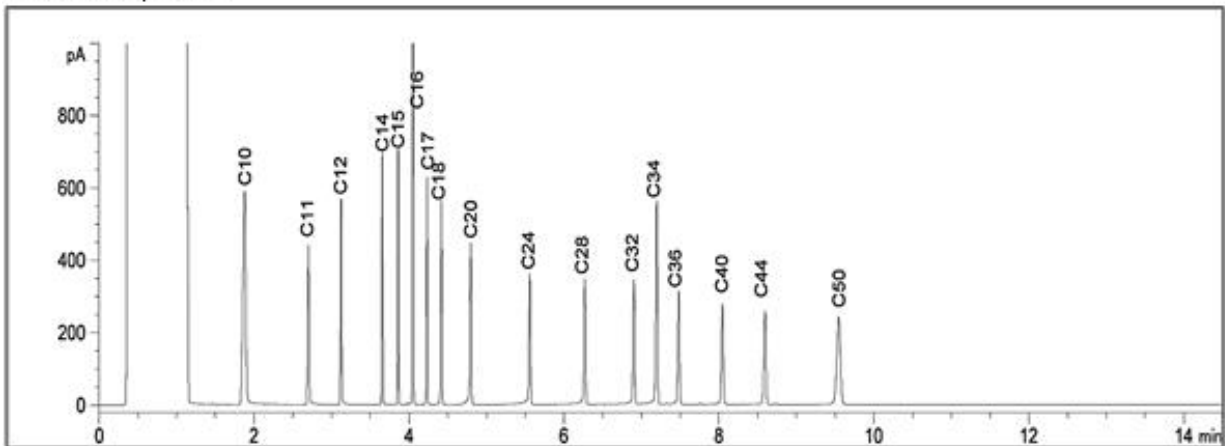
Asphalt: **C18 - C50+**

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Reference Spectrum



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline: **C6 - C12**

Diesel: **C10 - C24**

Jet Fuels: **C6 - C16**

Varsol: **C8 - C12**

Fuel Oils: **C6 - C32**

Creosote: **C10 - C26**

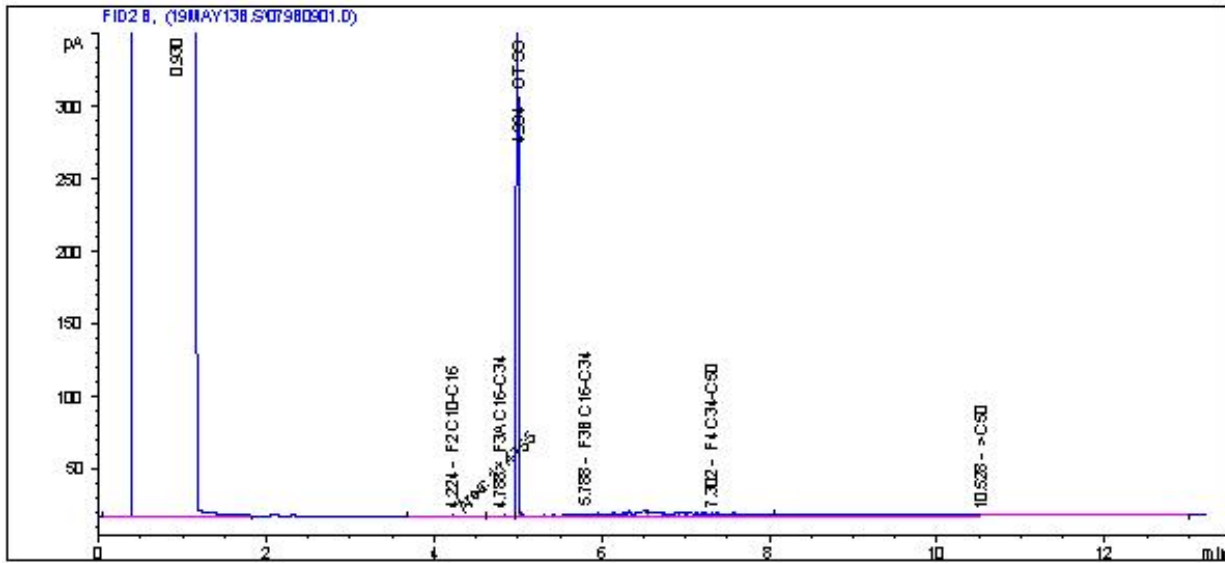
Kerosene: **C8 - C16**

Motor Oils: **C16 - C50**

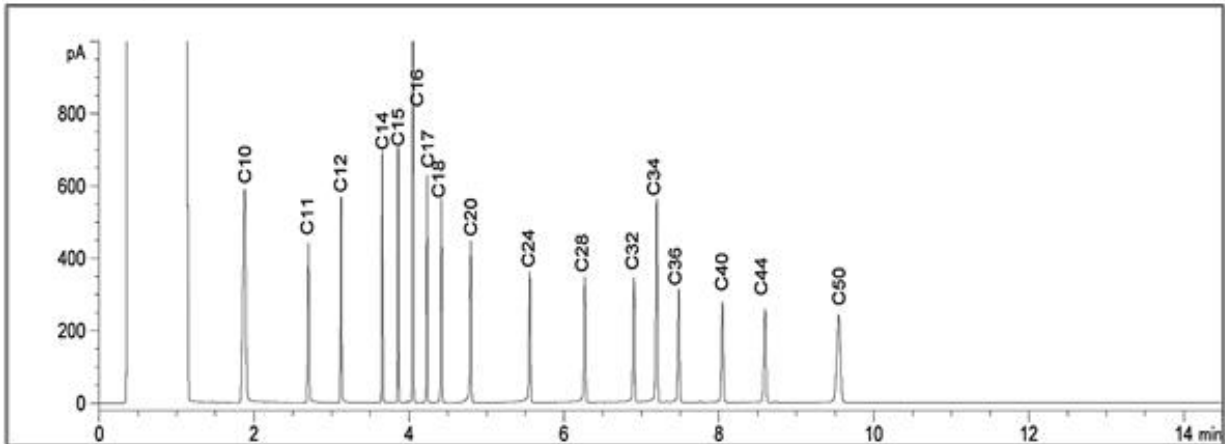
Asphalt: **C18 - C50+**

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Reference Spectrum



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline: **C6 - C12**

Diesel: **C10 - C24**

Jet Fuels: **C6 - C16**

Varsol: **C8 - C12**

Fuel Oils: **C6 - C32**

Creosote: **C10 - C26**

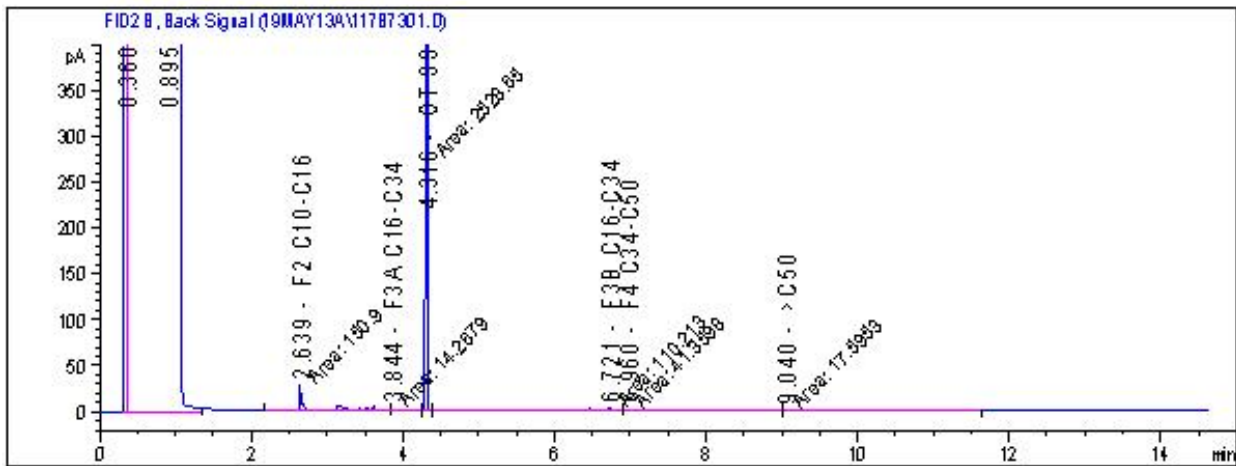
Kerosene: **C8 - C16**

Motor Oils: **C16 - C50**

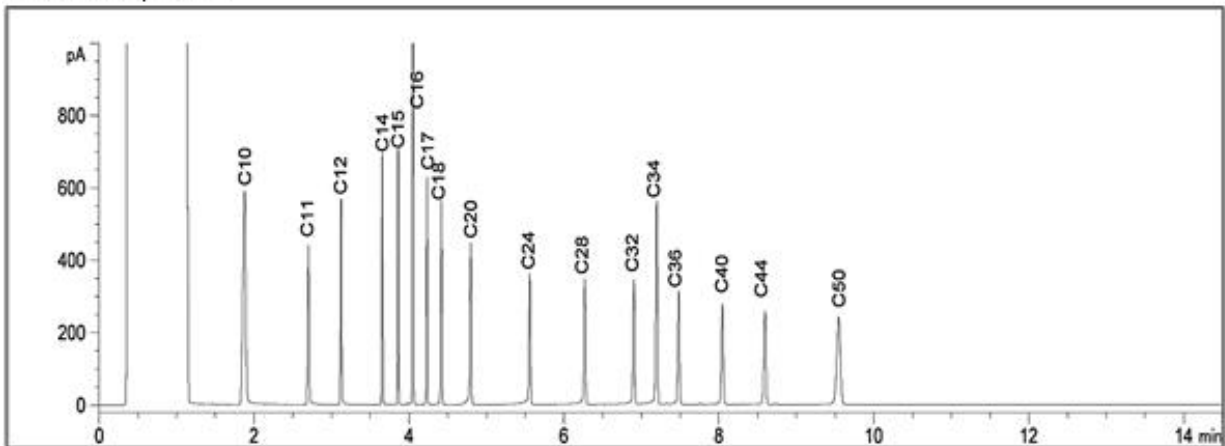
Asphalt: **C18 - C50+**

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Reference Spectrum



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline: **C6 - C12**

Diesel: **C10 - C24**

Jet Fuels: **C6 - C16**

Varsol: **C8 - C12**

Fuel Oils: **C6 - C32**

Creosote: **C10 - C26**

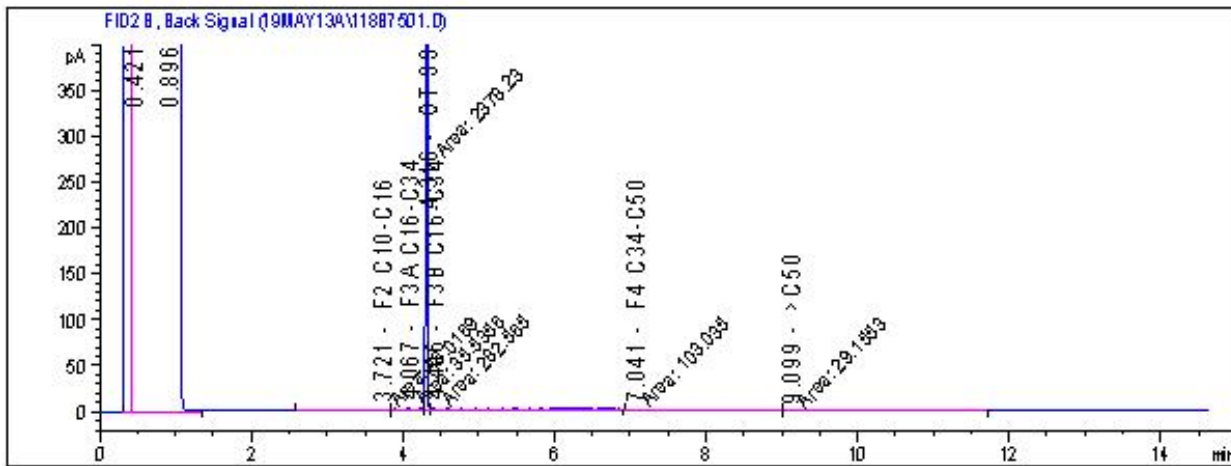
Kerosene: **C8 - C16**

Motor Oils: **C16 - C50**

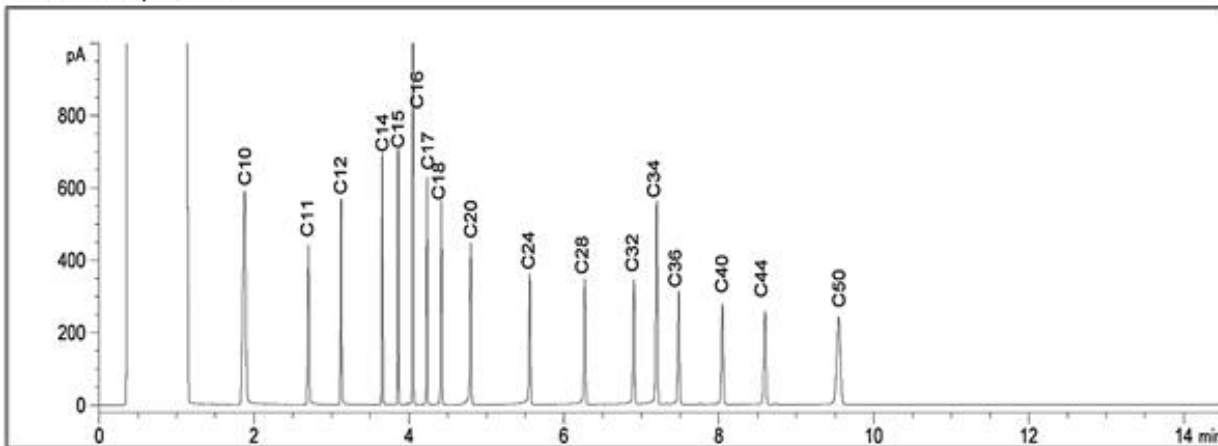
Asphalt: **C18 - C50+**

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Reference Spectrum



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline: **C6 - C12**

Diesel: **C10 - C24**

Jet Fuels: **C6 - C16**

Varsol: **C8 - C12**

Fuel Oils: **C6 - C32**

Creosote: **C10 - C26**

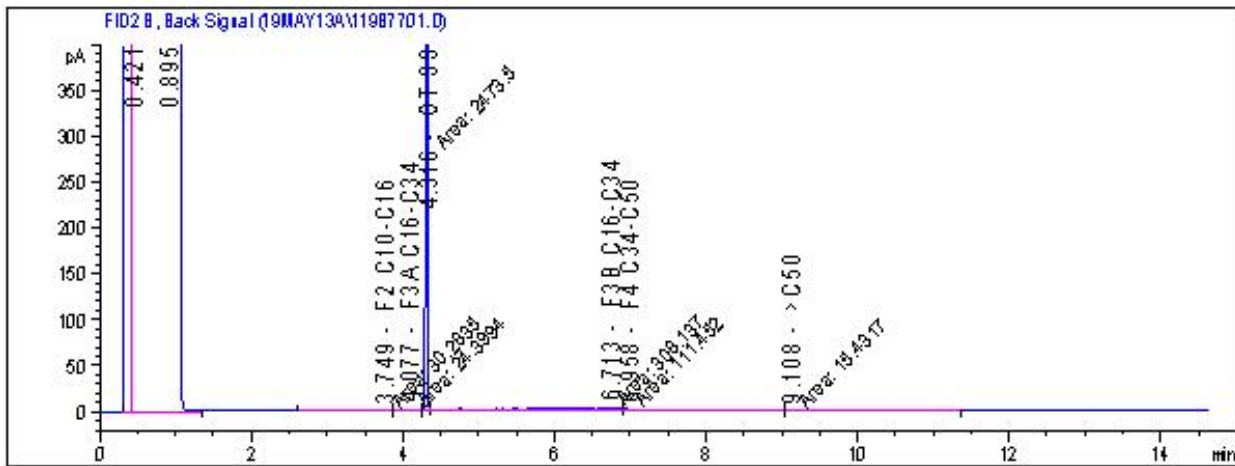
Kerosene: **C8 - C16**

Motor Oils: **C16 - C50**

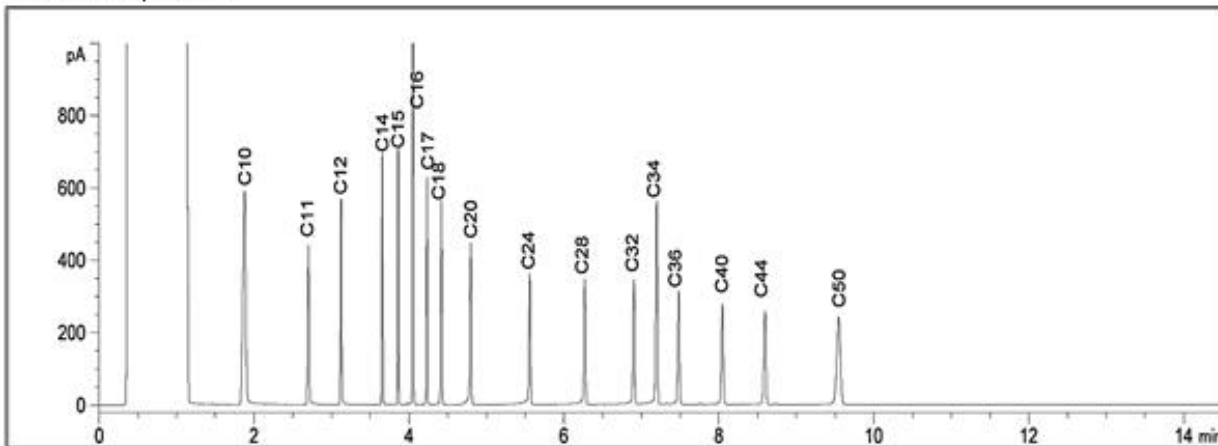
Asphalt: **C18 - C50+**

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Reference Spectrum

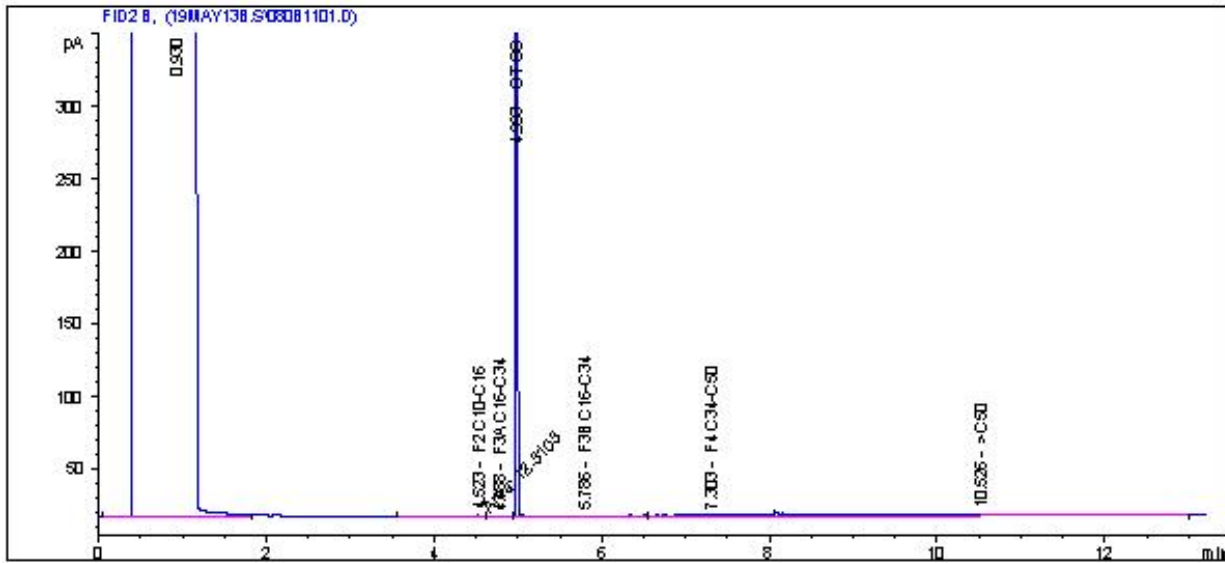


TYPICAL PRODUCT CARBON NUMBER RANGES

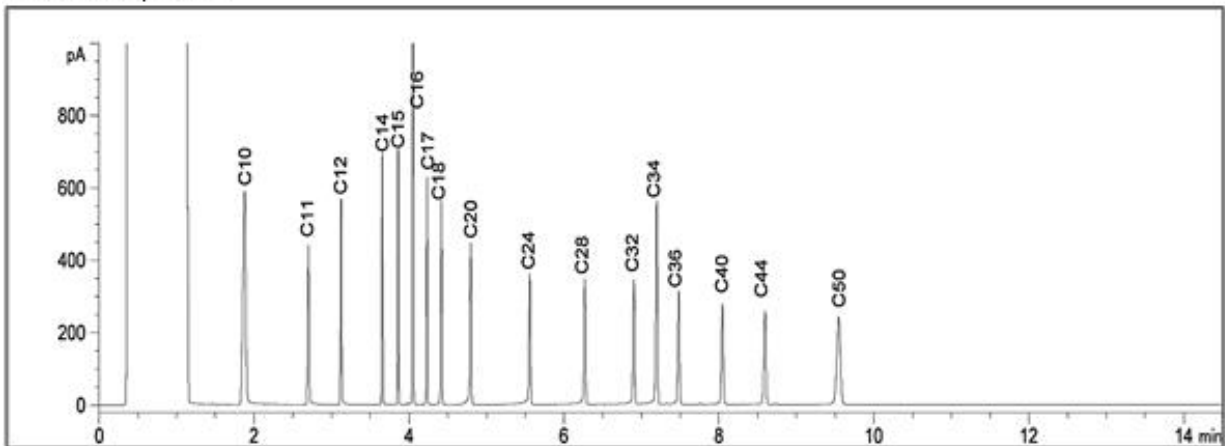
Gasoline: C6 - C12	Diesel: C10 - C24	Jet Fuels: C6 - C16
Varsol: C8 - C12	Fuel Oils: C6 - C32	Creosote: C10 - C26
Kerosene: C8 - C16	Motor Oils: C16 - C50	Asphalt: C18 - C50+

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Reference Spectrum



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline: **C6 - C12**

Diesel: **C10 - C24**

Jet Fuels: **C6 - C16**

Varsol: **C8 - C12**

Fuel Oils: **C6 - C32**

Creosote: **C10 - C26**

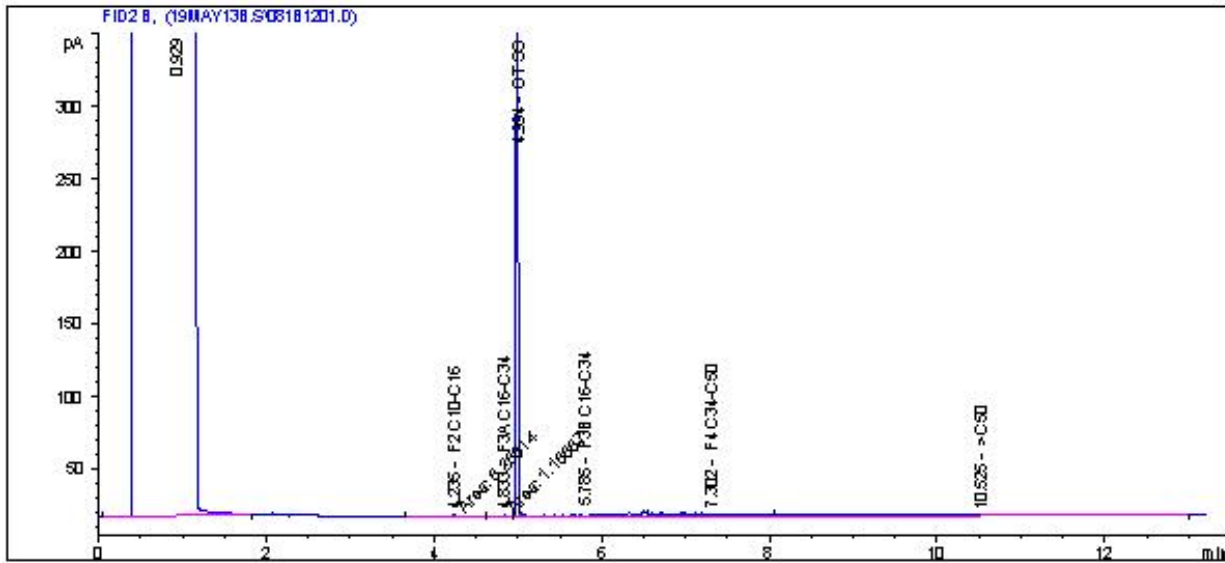
Kerosene: **C8 - C16**

Motor Oils: **C16 - C50**

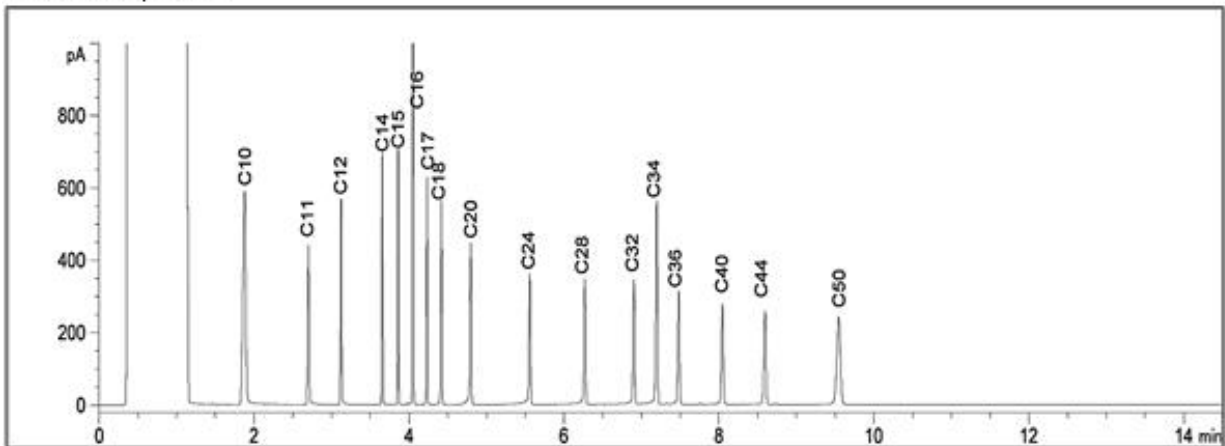
Asphalt: **C18 - C50+**

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Reference Spectrum



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline: **C6 - C12**

Diesel: **C10 - C24**

Jet Fuels: **C6 - C16**

Varsol: **C8 - C12**

Fuel Oils: **C6 - C32**

Creosote: **C10 - C26**

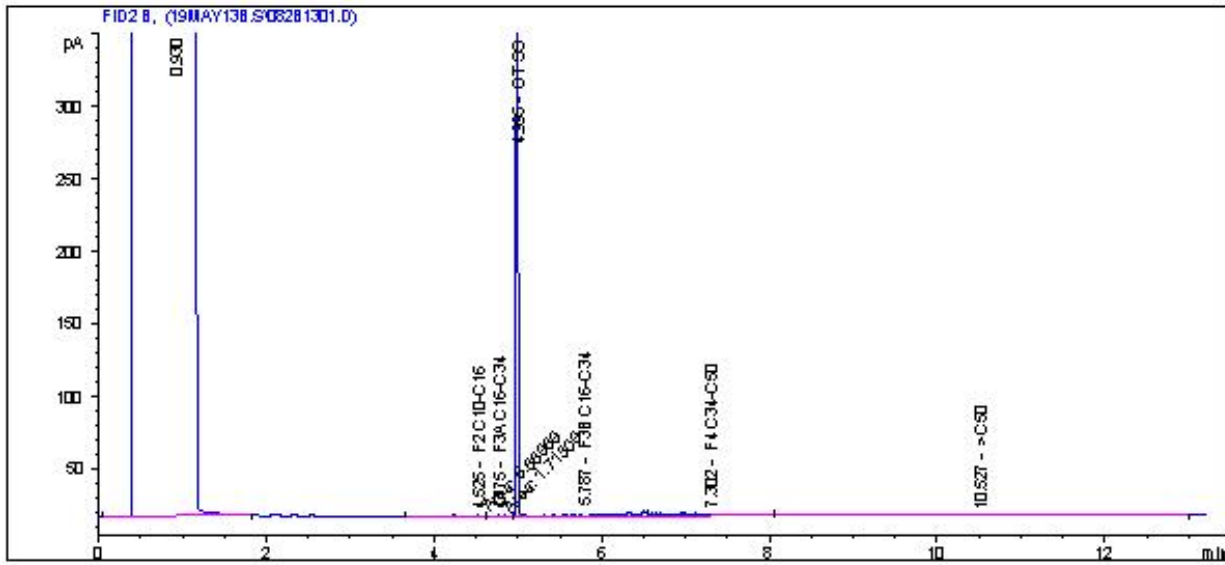
Kerosene: **C8 - C16**

Motor Oils: **C16 - C50**

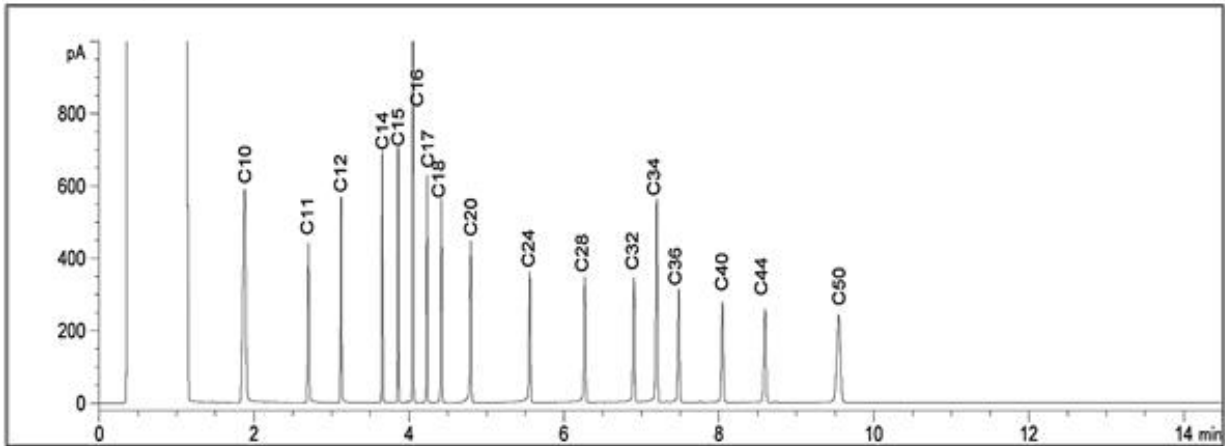
Asphalt: **C18 - C50+**

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Reference Spectrum

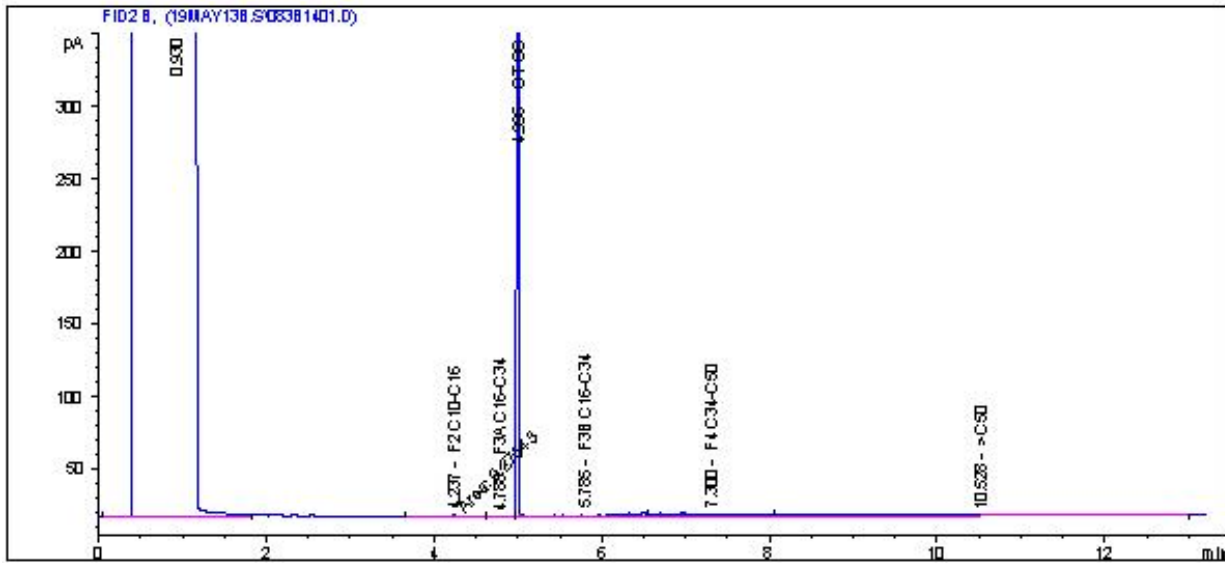


TYPICAL PRODUCT CARBON NUMBER RANGES

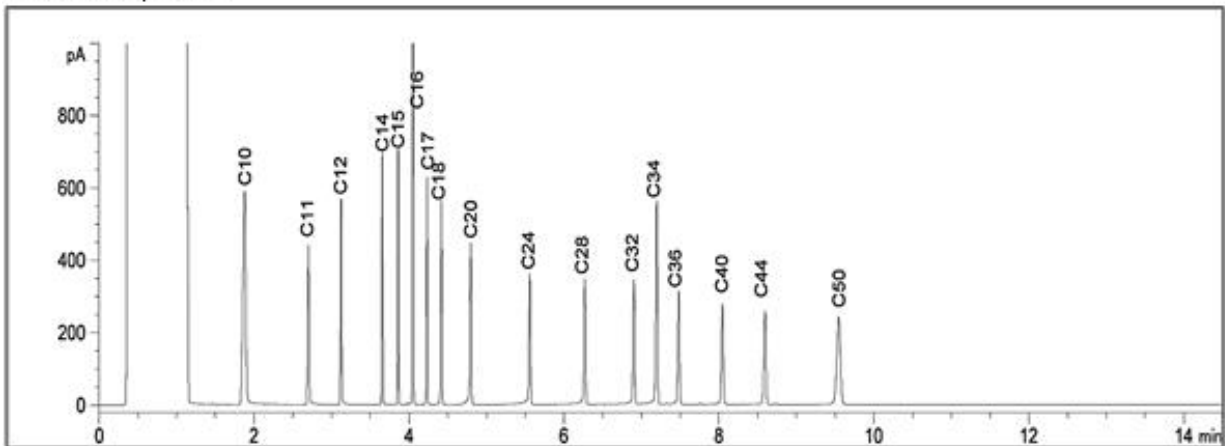
Gasoline: C6 - C12	Diesel: C10 - C24	Jet Fuels: C6 - C16
Varsol: C8 - C12	Fuel Oils: C6 - C32	Creosote: C10 - C26
Kerosene: C8 - C16	Motor Oils: C16 - C50	Asphalt: C18 - C50+

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Reference Spectrum



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline: **C6 - C12**

Diesel: **C10 - C24**

Jet Fuels: **C6 - C16**

Varsol: **C8 - C12**

Fuel Oils: **C6 - C32**

Creosote: **C10 - C26**

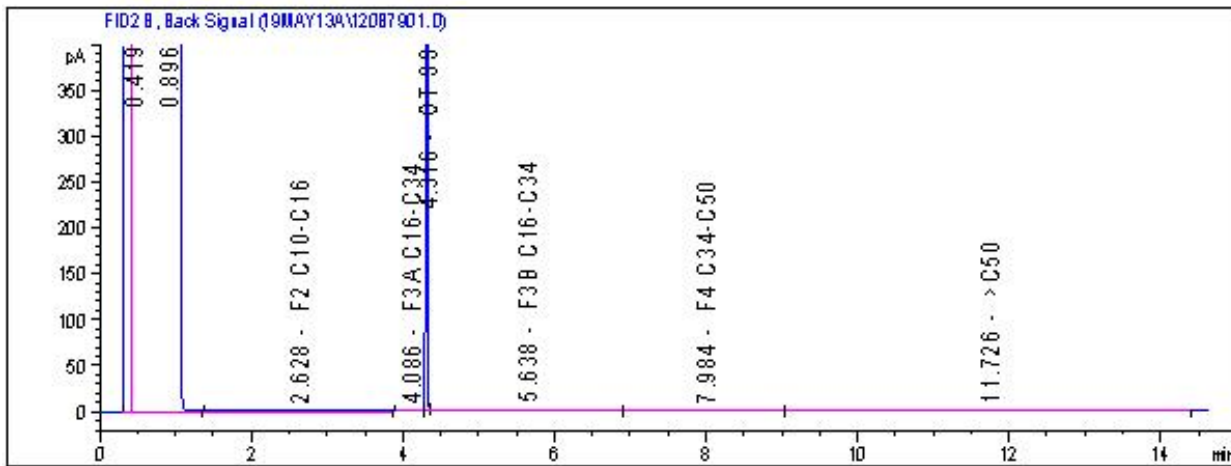
Kerosene: **C8 - C16**

Motor Oils: **C16 - C50**

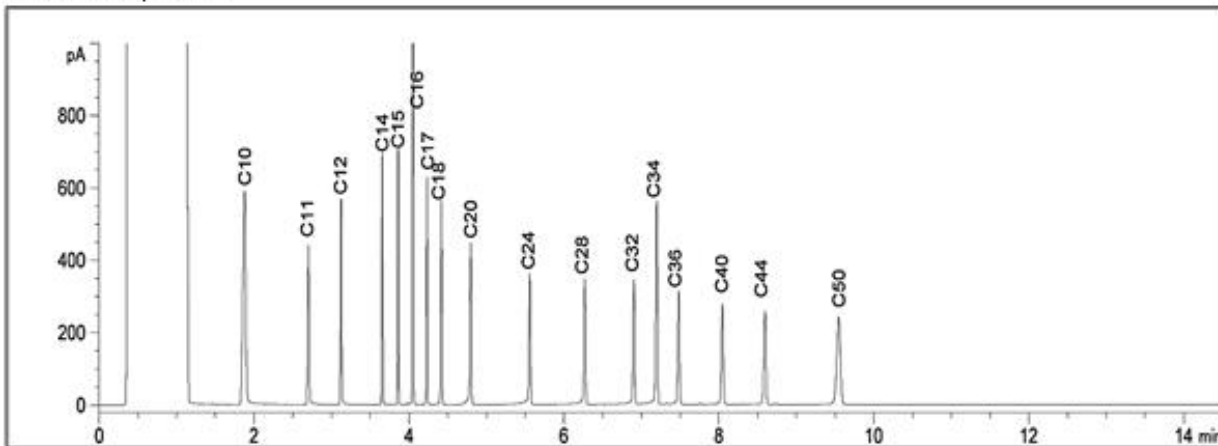
Asphalt: **C18 - C50+**

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Reference Spectrum



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline: **C6 - C12**

Diesel: **C10 - C24**

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Varsol: **C8 - C12**

Fuel Oils: **C6 - C32**

Creosote: **C10 - C26**

Kerosene: **C8 - C16**

Motor Oils: **C16 - C50**

Asphalt: **C18 - C50+**

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Your Project #: B9C0342
Site Location: B9C0342

Attention: BEDFORD CLIENT SERVICE

MAXXAM ANALYTICS
200 BLUEWATER ROAD, SUITE 105
BEDFORD, NS
CANADA B4B 1G9

Report Date: 2019/05/23
Report #: R2726180
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

MAXXAM JOB #: B934884

Received: 2019/05/09, 12:00

Sample Matrix: Solid
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Organic Halogen (Extractable)	2	N/A	2019/05/12	PTC SOP-00054	Coulometric-Titr.

Remarks:

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2017 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as ASTM, CGSB, EN, GPA and/or SM. If not provided with the results, identification of the reference method or Maxxam SOP is available upon request.

Maxxam Analytics' liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Maxxam has been retained to provide analysis of the samples provided by the Client using the testing methodology referenced in this report.

Measurement Uncertainty has not been accounted for when stating conformity to any referenced standard. Interpretation and use of the test results are the sole responsibility of the Client and are not within the scope of services provided by Maxxam, unless otherwise agreed in writing. When sampling is not conducted by Maxxam, results apply only to the sample(s) as received. Maxxam is not responsible for the accuracy or any data impacts that result from the information provided by the customer or on the clients behalf by their agent.

This report shall not be reproduced except in full, without the written approval of the laboratory.
Results relate only to the items tested.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Kristen Sywolos, PM supervisor
Email: KSywolos@maxxam.ca
Phone# (780)378-8522

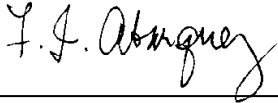
=====
Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

GENERAL COMMENTS

Results relate only to the items tested.

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Filomena Abarquez, Senior Analyst

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

CERTIFICATE OF ANALYSIS

B934884:VQ6684-01

MaxxID

Client ID

Meter Number

Laboratory Number

MAXXAM ANALYTICS

Operator Name

LSD

Well ID

JQF836-01R\VC-16-1

N/A

MAXXAM ANALYTICS

Well/Plant/Facility

Initials of Sampler

Sampling Company

JQF836-01R\VC-16-1

GLASS BOTTLE

Field or Area

Pool or Zone

Sample Point

Container Identity

Percent Full

Test Recovery

Interval

Elevations (m)

Sample Gathering Point

Solution Gas

Test Type

No.

Multiple Recovery

From:
To:

KB

GRD

Well Fluid Status

Well Status Mode

Production Rates

Gauge Pressures kPa

Temperature °C

Well Status Type

Well Type

Water m³/d

Oil m³/d

Gas 1000m³/d

Source

As Received

Source

As Received

Gas or Condensate Project

Licence No.

2019/05/02 09:45

2019/05/09

2019/05/13

2019/05/23

MN2

Date Sampled Start

Date Sampled End

Date Received

Date Reported

Date Reissued

Analyst

PARAMETER DESCRIPTION	RESULT	UNIT	METHOD	RDL
Misc. Organics				
Extractable Organic halogen	<2	mg/kg	Coulometric-Titr.	2

Results relate only to items tested

Remarks:

CERTIFICATE OF ANALYSIS

B934884:VQ6687-01

<u>MaxxID</u>	<u>Client ID</u>	<u>Meter Number</u>	<u>Laboratory Number</u>
MAXXAM ANALYTICS			
<u>Operator Name</u>		<u>LSD</u>	<u>Well ID</u>
JQF842-05R\VC-23-1		N/A	MAXXAM ANALYTICS
<u>Well/Plant/Facility</u>		<u>Initials of Sampler</u>	<u>Sampling Company</u>
		JQF842-05R\VC-23-1	GLASS BOTTLE
<u>Field or Area</u>	<u>Pool or Zone</u>	<u>Sample Point</u>	<u>Container Identity</u> <u>Percent Full</u>
<u>Test Recovery</u>		<u>Elevations (m)</u>	<u>Sample Gathering Point</u> <u>Solution Gas</u>
<u>Test Type</u>	<u>No.</u> <u>Multiple Recovery</u>	From: _____ To: _____	<u>Well Fluid Status</u> <u>Well Status Mode</u>
<u>Production Rates</u>		KB GRD	<u>Well Status Type</u> <u>Well Type</u>
Water m ³ /d	Oil m ³ /d	Gas 1000m ³ /d	<u>Gas or Condensate Project</u> <u>Licence No.</u>
<u>Date Sampled Start</u>	<u>Date Sampled End</u>	<u>Date Received</u>	<u>Date Reported</u> <u>Date Reissued</u> <u>Analyst</u>
2019/05/02 15:00		2019/05/09	2019/05/13 2019/05/23 MN2

PARAMETER DESCRIPTION	RESULT	UNIT	METHOD	RDL
Misc. Organics				
Extractable Organic halogen	<2	mg/kg	Coulometric-Titr.	2
Results relate only to items tested				

Remarks:

Report ID: 312759-IAS Rev01
Report Date: 29-May-19
Date Received: 10-May-19

CERTIFICATE OF ANALYSIS

for
Maxxam Analytics Inc
200 Bluewater Road, Suite 105
Bedford, NS B4B 1G9

rpc

921 College Hill Rd
Fredericton NB
Canada E3B 6Z9
Tel: 506.452.1212
Fax: 506.452.0594
www.rpc.ca

*** Revised Report ***

Attention: Marie Muise
Project #: B9C0342

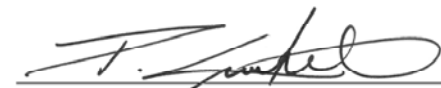
Analysis of Samples

Analytes:			Acid Volatile Sulfide
Units:			mg/kg
RL:			1
RPC Sample ID	Client Sample ID	Date Sampled	
312759-1	JQF836-04R\; VC-16-1	2-May-19	75
312759-2	JQF842-11R\; VC-23-1	5-May-19	1

This report relates only to the sample(s) and information provided to the laboratory.
RL = Reporting Limit



Ross Kean
Department Head
Inorganic Analytical Chemistry



Peter Crowhurst
Analytical Chemist
Inorganic Analytical Chemistry

CHEMISTRY

Page 1 of 2

Report ID: 312759-IAS Rev01
Report Date: 29-May-19
Date Received: 10-May-19

CERTIFICATE OF ANALYSIS

for
Maxxam Analytics Inc
200 Bluewater Road, Suite 105
Bedford, NS B4B 1G9

rpc

921 College Hill Rd
Fredericton NB
Canada E3B 6Z9
Tel: 506.452.1212
Fax: 506.452.0594
www.rpc.ca

General Report Comments

Acid Volatile Sulfide was determined according to EPA-821-R-91-100.
Results are reported on an "as received" (wet weight) basis.

Revision Comments

Added Units to the report.

COMMENTS

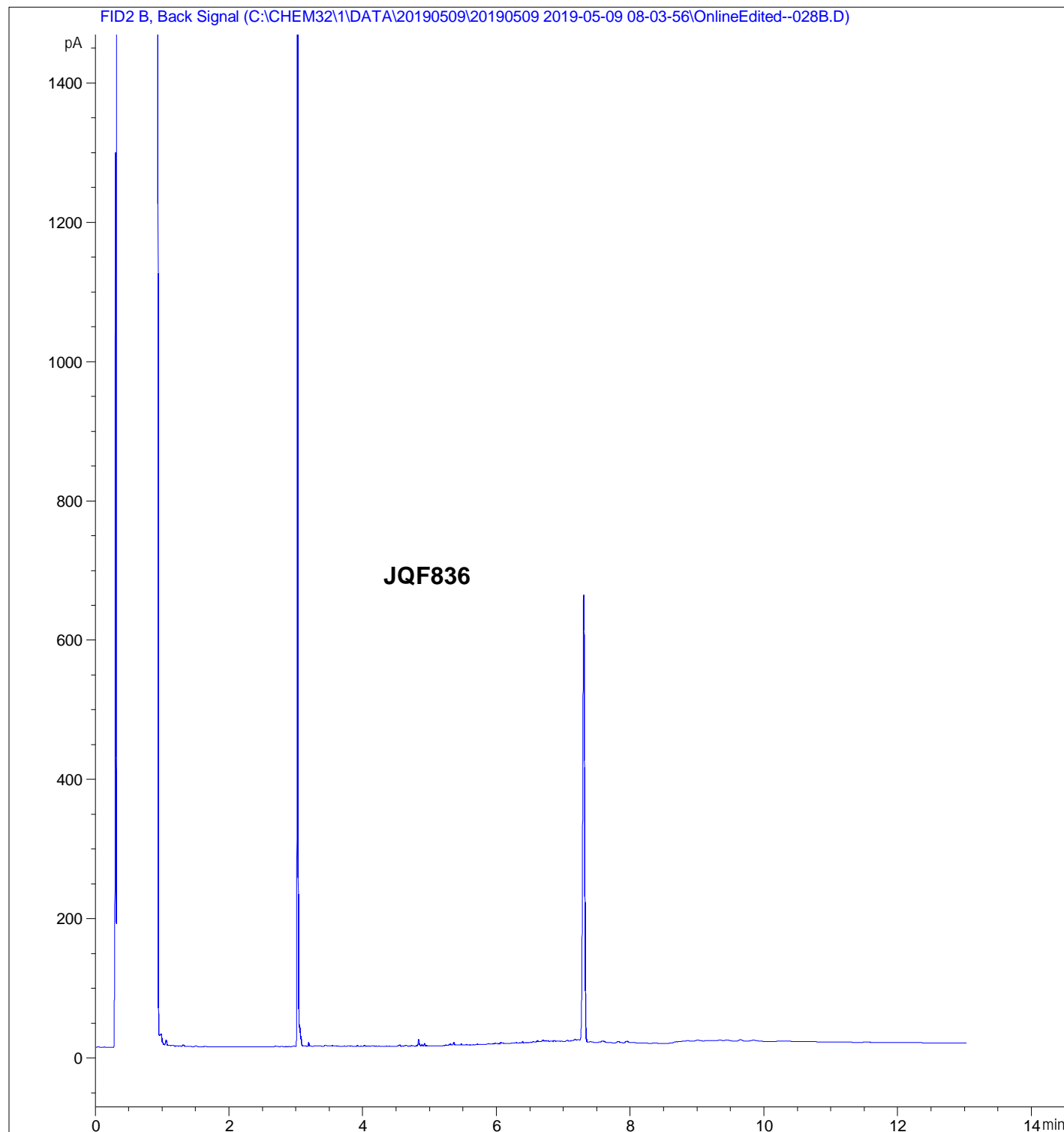
Page 2 of 2

=====

Acq. Operator : Bria Harvey Seq. Line : 28
Acq. Instrument : FID007 Location : 103 (B)
Injection Date : 2019/05/09 7:49:12 PM Inj : 1
 Inj Volume : 2 µl

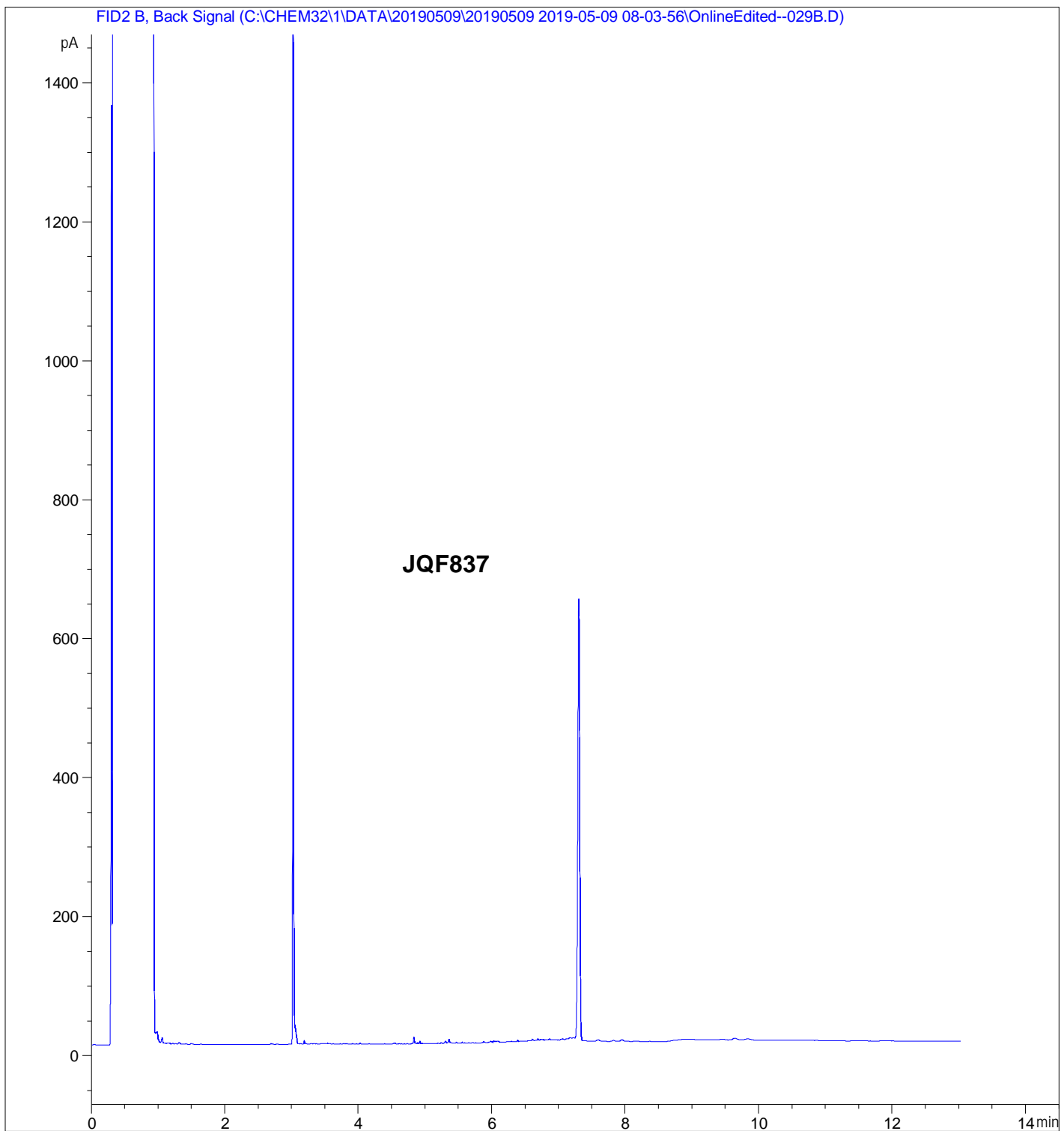
Acq. Method : C:\Chem32\1\Data\20190509\20190509 2019-05-09 08-03-56\runbakeh2.M
Last changed : 2019/05/09 8:03:56 AM by Bria Harvey
Analysis Method : C:\Chem32\1\Methods\TEHS-2.M
Last changed : 2019/05/10 8:39:17 AM by Bria Harvey
(modified after loading)

Current Chromatogram(s)




```
=====
Acq. Operator   : Bria Harvey                      Seq. Line :   29
Acq. Instrument : FID007                          Location  :   104 (B)
Injection Date  : 2019/05/09 8:06:11 PM          Inj       :    1
                                                    Inj Volume: 2 µl
Acq. Method     : C:\Chem32\1\Data\20190509\20190509 2019-05-09 08-03-56\runbakeh2.M
Last changed    : 2019/05/09 8:03:56 AM by Bria Harvey
Analysis Method : C:\Chem32\1\Methods\TEHS-2.M
Last changed    : 2019/05/10 8:39:17 AM by Bria Harvey
                 (modified after loading)
```

Current Chromatogram(s)



Your Project #: 121621877.400
Your C.O.C. #: D40475, D40476

Attention: Sam Salley

Stantec Consulting Ltd
40 Highfield Park Drive
Suite 102
Dartmouth, NS
CANADA B3A 0A3

Report Date: 2019/05/31
Report #: R5733567
Version: 2 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B9C3697

Received: 2019/05/08, 15:43

Sample Matrix: Soil
Samples Received: 12

Analyses	Quantity	Date	Date	Laboratory Method	Reference
		Extracted	Analyzed		
Benzo(b/j)fluoranthene Sum (LL soil)	12	N/A	2019/05/16	N/A	Auto Calc.
Petroleum Hydrocarbons F2-F4 in Soil (1, 3)	10	2019/05/13	2019/05/14	CAM SOP-00316	CCME CWS m
Petroleum Hydrocarbons F2-F4 in Soil (1, 3)	2	2019/05/13	2019/05/15	CAM SOP-00316	CCME CWS m
Mercury (CVAA)	12	2019/05/17	2019/05/17	ATL SOP 00026	EPA 245.5 m
Metals Solids Acid Extr. ICPMS	5	2019/05/14	2019/05/14	ATL SOP 00058	EPA 6020B R2 m
Metals Solids Acid Extr. ICPMS	7	2019/05/14	2019/05/15	ATL SOP 00058	EPA 6020B R2 m
Total PCB (2, 4)	12	2019/05/13	2019/05/15	STL SOP-00133	MA. 400-BPC 1.0 R5 m
Moisture	12	N/A	2019/05/13	ATL SOP 00001	OMOE Handbook 1983 m
PAH in sediment by GC/MS (Low Level) (5)	12	2019/05/10	2019/05/15	ATL SOP 00102	EPA 8270E R6 m
Particle size in solids (pipette&sieve) (6)	11	N/A	2019/05/27	ATL SOP 00012	MSAMS'78/WREP-125R3m
Particle size in solids (pipette&sieve) (6)	1	N/A	2019/05/31	ATL SOP 00012	MSAMS'78/WREP-125R3m
Total Organic Carbon in Soil (1)	12	N/A	2019/05/16	CAM SOP-00468	BCMOE TOC Aug 2014
Volatile Organic Compounds and F1 PHCs (1)	12	N/A	2019/05/15	CAM SOP-00230	EPA 8260 m

Remarks:

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Maxxam's profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Maxxam in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Maxxam Analytics' liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Maxxam has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Maxxam, unless otherwise agreed in writing. Maxxam is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope

Your Project #: 121621877.400
Your C.O.C. #: D40475, D40476

Attention: Sam Salley

Stantec Consulting Ltd
40 Highfield Park Drive
Suite 102
Dartmouth, NS
CANADA B3A 0A3

Report Date: 2019/05/31
Report #: R5733567
Version: 2 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B9C3697

Received: 2019/05/08, 15:43

dilution methods.

Results relate to samples tested. When sampling is not conducted by Maxxam, results relate to the supplied samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) This test was performed by Maxxam Analytics Mississauga

(2) This test was performed by Bedford To Montreal Offsite

(3) All CCME PHC results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following "Alberta Environment's Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil Validation of Performance-Based Alternative Methods September 2003". Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.

(4) Please note that the results have been corrected for the surrogate recoveries.

Un-rounded results are used in the total "PCB" calculation. This total result is then rounded to two significant figures.

The total indicated is calculated only for the requested parameters.

(5) Soils are reported on a dry weight basis unless otherwise specified.

(6) Note: Graphical representation of larger fractions (PHI-4, PHI -3 and PHI -2) not applicable unless these optional parameters are specifically requested.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Marie Muise, Key Account Specialist

Email: MMuise@maxxam.ca

Phone# (902)420-0203 Ext:253

=====
Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

CCME PETROLEUM HYDROCARBONS SOIL (SOIL)

Maxxam ID		JQZ281	JQZ281		JQZ282		JQZ283		JQZ284		
Sampling Date		2019/04/29 13:59	2019/04/29 13:59		2019/04/29 13:59		2019/04/29 13:59		2019/04/29 14:42		
COC Number		D40475	D40475		D40475		D40475		D40475		
	UNITS	VC-53-1	VC-53-1 Lab-Dup	RDL	VC-53-2	RDL	VC-53-3	RDL	VC-54-1	RDL	QC Batch
Volatile Organics											
Benzene	ug/g	<0.0060	<0.0060	0.0060	<0.012	0.012	<0.0060	0.0060	<0.012	0.012	6121107
Ethylbenzene	ug/g	<0.010	<0.010	0.010	<0.020	0.020	<0.010	0.010	<0.020	0.020	6121107
Toluene	ug/g	0.040	0.041	0.020	<0.040	0.040	<0.020	0.020	<0.040	0.040	6121107
p+m-Xylene	ug/g	<0.020	<0.020	0.020	<0.040	0.040	<0.020	0.020	<0.040	0.040	6121107
o-Xylene	ug/g	<0.020	<0.020	0.020	<0.040	0.040	<0.020	0.020	<0.040	0.040	6121107
Total Xylenes	ug/g	<0.020	<0.020	0.020	<0.040	0.040	<0.020	0.020	<0.040	0.040	6121107
F1 (C6-C10)	ug/g	<20 (1)	<20 (1)	20	<20	20	<20 (1)	20	<20	20	6121107
F1 (C6-C10) - BTEX	ug/g	<20	<20	20	<20	20	<20	20	<20	20	6121107
F2-F4 Hydrocarbons											
F2 (C10-C16 Hydrocarbons)	ug/g	<20	N/A	20	<20	20	<20	20	<20	20	6119430
F3 (C16-C34 Hydrocarbons)	ug/g	<100	N/A	100	<100	100	<100	100	<100	100	6119430
F4 (C34-C50 Hydrocarbons)	ug/g	<100	N/A	100	<100	100	<100	100	<100	100	6119430
Reached Baseline at C50	ug/g	Yes	N/A	N/A	Yes	N/A	Yes	N/A	Yes	N/A	6119430
Surrogate Recovery (%)											
o-Terphenyl	%	100	N/A	N/A	101	N/A	99	N/A	99	N/A	6119430
4-Bromofluorobenzene	%	94	95	N/A	94	N/A	96	N/A	97	N/A	6121107
D10-o-Xylene	%	103	103	N/A	102	N/A	99	N/A	97	N/A	6121107
D4-1,2-Dichloroethane	%	104	104	N/A	103	N/A	104	N/A	104	N/A	6121107
D8-Toluene	%	99	100	N/A	99	N/A	97	N/A	98	N/A	6121107
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Lab-Dup = Laboratory Initiated Duplicate N/A = Not Applicable (1) VOCF1 Analysis: Detection limits were raised due to high moisture content of soil provided.											

CCME PETROLEUM HYDROCARBONS SOIL (SOIL)

Maxxam ID		JQZ285	JQZ286	JQZ287	JQZ288	JQZ289	JQZ290		
Sampling Date		2019/05/02 10:29	2019/05/03 13:00	2019/05/03 13:42	2019/05/04 09:54	2019/05/03 11:26	2019/05/03 11:26		
COC Number		D40475	D40475	D40475	D40475	D40475	D40475		
	UNITS	VC-15-1	VC-10B-1	VC-9	VC-03B-1	VC-11-1	VC-11-2	RDL	QC Batch
Volatile Organics									
Benzene	ug/g	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	0.0060	6121107
Ethylbenzene	ug/g	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6121107
Toluene	ug/g	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	6121107
p+m-Xylene	ug/g	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	6121107
o-Xylene	ug/g	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	6121107
Total Xylenes	ug/g	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	6121107
F1 (C6-C10)	ug/g	<10	<10	<10	<10	<10	<10	10	6121107
F1 (C6-C10) - BTEX	ug/g	<10	<10	<10	<10	<10	<10	10	6121107
F2-F4 Hydrocarbons									
F2 (C10-C16 Hydrocarbons)	ug/g	<10	<10	<10	<10	<10	<10	10	6119430
F3 (C16-C34 Hydrocarbons)	ug/g	<50	<50	<50	<50	<50	<50	50	6119430
F4 (C34-C50 Hydrocarbons)	ug/g	<50	<50	<50	<50	<50	<50	50	6119430
Reached Baseline at C50	ug/g	Yes	Yes	Yes	Yes	Yes	Yes	N/A	6119430
Surrogate Recovery (%)									
o-Terphenyl	%	100	100	97	99	95	98	N/A	6119430
4-Bromofluorobenzene	%	95	94	95	94	95	96	N/A	6121107
D10-o-Xylene	%	106	101	127	103	116	101	N/A	6121107
D4-1,2-Dichloroethane	%	103	103	102	102	104	105	N/A	6121107
D8-Toluene	%	99	100	100	100	99	99	N/A	6121107
RDL = Reportable Detection Limit									
QC Batch = Quality Control Batch									
N/A = Not Applicable									

CCME PETROLEUM HYDROCARBONS SOIL (SOIL)

Maxxam ID		JQZ290	JQZ306	JQZ307		
Sampling Date		2019/05/03 11:26	2019/05/04 11:43	2019/05/04 11:43		
COC Number		D40475	D40476	D40476		
	UNITS	VC-11-2 Lab-Dup	VC-02C-1	VC-02C-2	RDL	QC Batch
Volatile Organics						
Benzene	ug/g	N/A	<0.0060	<0.0060	0.0060	6121107
Ethylbenzene	ug/g	N/A	<0.010	<0.010	0.010	6121107
Toluene	ug/g	N/A	0.027	<0.020	0.020	6121107
p+m-Xylene	ug/g	N/A	<0.020	<0.020	0.020	6121107
o-Xylene	ug/g	N/A	<0.020	<0.020	0.020	6121107
Total Xylenes	ug/g	N/A	<0.020	<0.020	0.020	6121107
F1 (C6-C10)	ug/g	N/A	<10	<10	10	6121107
F1 (C6-C10) - BTEX	ug/g	N/A	<10	<10	10	6121107
F2-F4 Hydrocarbons						
F2 (C10-C16 Hydrocarbons)	ug/g	<10	<10	<10	10	6119430
F3 (C16-C34 Hydrocarbons)	ug/g	<50	<50	<50	50	6119430
F4 (C34-C50 Hydrocarbons)	ug/g	<50	<50	<50	50	6119430
Reached Baseline at C50	ug/g	Yes	Yes	Yes	N/A	6119430
Surrogate Recovery (%)						
o-Terphenyl	%	98	99	97	N/A	6119430
4-Bromofluorobenzene	%	N/A	94	95	N/A	6121107
D10-o-Xylene	%	N/A	106	116	N/A	6121107
D4-1,2-Dichloroethane	%	N/A	104	105	N/A	6121107
D8-Toluene	%	N/A	99	99	N/A	6121107
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Lab-Dup = Laboratory Initiated Duplicate N/A = Not Applicable						

RESULTS OF ANALYSES OF SOIL

Maxxam ID		JQZ281					
Sampling Date		2019/04/29 13:59					
COC Number		D40475		TOXIC EQUIVALENCY			# of
	UNITS	VC-53-1	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Inorganics							
Moisture	%	60	1.0	N/A	N/A	N/A	6114558
Total Organic Carbon	mg/kg	24000	500	N/A	N/A	N/A	6122751
< -1 Phi (2 mm)	%	100	0.10	N/A	N/A	N/A	6114804
< 0 Phi (1 mm)	%	100	0.10	N/A	N/A	N/A	6114804
< +1 Phi (0.5 mm)	%	99	0.10	N/A	N/A	N/A	6114804
< +2 Phi (0.25 mm)	%	99	0.10	N/A	N/A	N/A	6114804
< +3 Phi (0.12 mm)	%	97	0.10	N/A	N/A	N/A	6114804
< +4 Phi (0.062 mm)	%	95	0.10	N/A	N/A	N/A	6114804
< +5 Phi (0.031 mm)	%	85	0.10	N/A	N/A	N/A	6114804
< +6 Phi (0.016 mm)	%	76	0.10	N/A	N/A	N/A	6114804
< +7 Phi (0.0078 mm)	%	22	0.10	N/A	N/A	N/A	6114804
< +8 Phi (0.0039 mm)	%	16	0.10	N/A	N/A	N/A	6114804
< +9 Phi (0.0020 mm)	%	15	0.10	N/A	N/A	N/A	6114804
Gravel	%	0.34	0.10	N/A	N/A	N/A	6114804
Sand	%	5.0	0.10	N/A	N/A	N/A	6114804
Silt	%	79	0.10	N/A	N/A	N/A	6114804
Clay	%	16	0.10	N/A	N/A	N/A	6114804
PCBs							
TriCB-(17)+(18)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
TriCB-(28)+(31)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
2'34-TriCB-(33)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'55'-TetraCB-(52)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'45'-TetraCB-(49)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'35'-TetraCB-(44)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
244'5-TetraCB-(74)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
23'4'5-TetraCB-(70)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'35'6-PentaCB-(95)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'455'-PentaCB-(101)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'44'5-PentaCB-(99)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'345'-PentaCB-(87)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
<p>RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.</p> <p>WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds</p> <p>QC Batch = Quality Control Batch N/A = Not Applicable</p>							

RESULTS OF ANALYSES OF SOIL

Maxxam ID		JQZ281					
Sampling Date		2019/04/29 13:59					
COC Number		D40475		TOXIC EQUIVALENCY			# of
	UNITS	VC-53-1	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
233'4'6-PentaCB-(110)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'4-PentaCB-(82)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'35'5'6-HexaCB-(151)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'34'5'6-HexaCB-(149)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
23'44'5-PentaCB-(118)	mg/kg	<0.010	0.010	0.000030	0.00000030	N/A	6127371
22'44'55'-HexaCB-(153)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'46'-HexaCB-(132)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
233'44'-PentaCB-(105)	mg/kg	<0.010	0.010	0.000030	0.00000030	N/A	6127371
HexaCB-(138)+(158)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'34'55'6-HeptaCB-(187)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'344'5'6-HeptaCB-(183)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'44'-HexaCB-(128)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'45'6'-HeptaCB-(177)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'44'6-HeptaCB-(171)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
233'44'5-HexaCB-(156)	mg/kg	<0.010	0.010	0.000030	0.00000030	N/A	6127371
22'344'55'-HeptaCB-(180)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
233'44'5'6-HeptaCB-(191)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
33'44'55'-HexaCB-(169)	mg/kg	<0.010	0.010	0.030	0.00030	N/A	6127371
22'33'44'5-HeptaCB-(170)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'455'6'-OctaCB-(199)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'455'66'-NonaCB-(208)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'44'56-OctaCB-(195)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'44'55'-OctaCB-(194)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
233'44'55'6-OctaCB-(205)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'44'55'6-NonaCB-(206)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
DecaCB-(209)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Trichlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Tetrachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Pentachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Hexachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Heptachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371

RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

QC Batch = Quality Control Batch
N/A = Not Applicable

RESULTS OF ANALYSES OF SOIL

Maxxam ID		JQZ281					
Sampling Date		2019/04/29 13:59					
COC Number		D40475		TOXIC EQUIVALENCY			# of
	UNITS	VC-53-1	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Octachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Nonachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Decachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Total PCB	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
TOTAL TOXIC EQUIVALENCY	mg/kg	N/A	N/A	N/A	0.00030	N/A	N/A
Surrogate Recovery (%)							
2,3,3',4,6-Pentachlorobiphenyl	%	98	N/A	N/A	N/A	N/A	6127371
2',3,5-Trichlorobiphenyl	%	104	N/A	N/A	N/A	N/A	6127371
22'33'44'566'-Nonachlorobiphenyl	%	113	N/A	N/A	N/A	N/A	6127371
<p>RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested. WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds QC Batch = Quality Control Batch N/A = Not Applicable</p>							

RESULTS OF ANALYSES OF SOIL

Maxxam ID		JQZ281					
Sampling Date		2019/04/29 13:59					
COC Number		D40475		TOXIC EQUIVALENCY		# of	
	UNITS	VC-53-1 Lab-Dup	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch

Inorganics							
Moisture	%	60	1.0	N/A	N/A	N/A	6114558
Total Organic Carbon	mg/kg	24000	500	N/A	N/A	N/A	6122751
< -1 Phi (2 mm)	%	100	0.10	N/A	N/A	N/A	6114804
< 0 Phi (1 mm)	%	100	0.10	N/A	N/A	N/A	6114804
< +1 Phi (0.5 mm)	%	99	0.10	N/A	N/A	N/A	6114804
< +2 Phi (0.25 mm)	%	98	0.10	N/A	N/A	N/A	6114804
< +3 Phi (0.12 mm)	%	96	0.10	N/A	N/A	N/A	6114804
< +4 Phi (0.062 mm)	%	93	0.10	N/A	N/A	N/A	6114804
< +5 Phi (0.031 mm)	%	84	0.10	N/A	N/A	N/A	6114804
< +6 Phi (0.016 mm)	%	71	0.10	N/A	N/A	N/A	6114804
< +7 Phi (0.0078 mm)	%	43	0.10	N/A	N/A	N/A	6114804
< +8 Phi (0.0039 mm)	%	21	0.10	N/A	N/A	N/A	6114804
< +9 Phi (0.0020 mm)	%	13	0.10	N/A	N/A	N/A	6114804
Gravel	%	0.43	0.10	N/A	N/A	N/A	6114804
Sand	%	7.1	0.10	N/A	N/A	N/A	6114804
Silt	%	72	0.10	N/A	N/A	N/A	6114804
Clay	%	21	0.10	N/A	N/A	N/A	6114804
TOTAL TOXIC EQUIVALENCY	mg/kg	N/A	N/A	N/A	0	N/A	N/A

RDL = Reportable Detection Limit
 TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
 The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
 WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds
 QC Batch = Quality Control Batch
 Lab-Dup = Laboratory Initiated Duplicate
 N/A = Not Applicable

RESULTS OF ANALYSES OF SOIL

Maxxam ID		JQZ282					
Sampling Date		2019/04/29 13:59					
COC Number		D40475		TOXIC EQUIVALENCY			# of
	UNITS	VC-53-2	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Inorganics							
Moisture	%	60	1.0	N/A	N/A	N/A	6114558
Total Organic Carbon	mg/kg	26000	500	N/A	N/A	N/A	6122751
< -1 Phi (2 mm)	%	99	0.10	N/A	N/A	N/A	6114804
< 0 Phi (1 mm)	%	98	0.10	N/A	N/A	N/A	6114804
< +1 Phi (0.5 mm)	%	97	0.10	N/A	N/A	N/A	6114804
< +2 Phi (0.25 mm)	%	92	0.10	N/A	N/A	N/A	6114804
< +3 Phi (0.12 mm)	%	88	0.10	N/A	N/A	N/A	6114804
< +4 Phi (0.062 mm)	%	83	0.10	N/A	N/A	N/A	6114804
< +5 Phi (0.031 mm)	%	81	0.10	N/A	N/A	N/A	6114804
< +6 Phi (0.016 mm)	%	69	0.10	N/A	N/A	N/A	6114804
< +7 Phi (0.0078 mm)	%	37	0.10	N/A	N/A	N/A	6114804
< +8 Phi (0.0039 mm)	%	16	0.10	N/A	N/A	N/A	6114804
< +9 Phi (0.0020 mm)	%	13	0.10	N/A	N/A	N/A	6114804
Gravel	%	1.1	0.10	N/A	N/A	N/A	6114804
Sand	%	16	0.10	N/A	N/A	N/A	6114804
Silt	%	68	0.10	N/A	N/A	N/A	6114804
Clay	%	16	0.10	N/A	N/A	N/A	6114804
PCBs							
TriCB-(17)+(18)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
TriCB-(28)+(31)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
2'34-TriCB-(33)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'55'-TetraCB-(52)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'45'-TetraCB-(49)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'35'-TetraCB-(44)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
244'5-TetraCB-(74)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
23'4'5-TetraCB-(70)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'35'6-PentaCB-(95)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'455'-PentaCB-(101)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'44'5-PentaCB-(99)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'345'-PentaCB-(87)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
<p>RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.</p> <p>WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds</p> <p>QC Batch = Quality Control Batch N/A = Not Applicable</p>							

RESULTS OF ANALYSES OF SOIL

Maxxam ID		JQZ282					
Sampling Date		2019/04/29 13:59					
COC Number		D40475		TOXIC EQUIVALENCY			# of
	UNITS	VC-53-2	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
233'4'6-PentaCB-(110)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'4-PentaCB-(82)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'35'5'6-HexaCB-(151)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'34'5'6-HexaCB-(149)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
23'44'5-PentaCB-(118)	mg/kg	<0.010	0.010	0.000030	0.00000030	N/A	6127371
22'44'55'-HexaCB-(153)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'46'-HexaCB-(132)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
233'44'-PentaCB-(105)	mg/kg	<0.010	0.010	0.000030	0.00000030	N/A	6127371
HexaCB-(138)+(158)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'34'55'6-HeptaCB-(187)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'344'5'6-HeptaCB-(183)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'44'-HexaCB-(128)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'45'6'-HeptaCB-(177)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'44'6-HeptaCB-(171)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
233'44'5-HexaCB-(156)	mg/kg	<0.010	0.010	0.000030	0.00000030	N/A	6127371
22'344'55'-HeptaCB-(180)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
233'44'5'6-HeptaCB-(191)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
33'44'55'-HexaCB-(169)	mg/kg	<0.010	0.010	0.030	0.00030	N/A	6127371
22'33'44'5-HeptaCB-(170)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'455'6'-OctaCB-(199)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'455'66'-NonaCB-(208)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'44'56-OctaCB-(195)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'44'55'-OctaCB-(194)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
233'44'55'6-OctaCB-(205)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'44'55'6-NonaCB-(206)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
DecaCB-(209)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Trichlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Tetrachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Pentachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Hexachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Heptachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371

RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

QC Batch = Quality Control Batch
N/A = Not Applicable

RESULTS OF ANALYSES OF SOIL

Maxxam ID		JQZ282					
Sampling Date		2019/04/29 13:59					
COC Number		D40475		TOXIC EQUIVALENCY			# of
	UNITS	VC-53-2	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Octachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Nonachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Decachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Total PCB	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
TOTAL TOXIC EQUIVALENCY	mg/kg	N/A	N/A	N/A	0.00030	N/A	N/A
Surrogate Recovery (%)							
2,3,3',4,6-Pentachlorobiphenyl	%	96	N/A	N/A	N/A	N/A	6127371
2',3,5-Trichlorobiphenyl	%	99	N/A	N/A	N/A	N/A	6127371
22'33'44'566'-Nonachlorobiphenyl	%	105	N/A	N/A	N/A	N/A	6127371
<p>RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested. WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds QC Batch = Quality Control Batch N/A = Not Applicable</p>							

RESULTS OF ANALYSES OF SOIL

Maxxam ID		JQZ283					
Sampling Date		2019/04/29 13:59					
COC Number		D40475		TOXIC EQUIVALENCY			# of
	UNITS	VC-53-3	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Inorganics							
Moisture	%	54	1.0	N/A	N/A	N/A	6114558
Total Organic Carbon	mg/kg	28000	500	N/A	N/A	N/A	6122751
< -1 Phi (2 mm)	%	100	0.10	N/A	N/A	N/A	6114804
< 0 Phi (1 mm)	%	100	0.10	N/A	N/A	N/A	6114804
< +1 Phi (0.5 mm)	%	100	0.10	N/A	N/A	N/A	6114804
< +2 Phi (0.25 mm)	%	99	0.10	N/A	N/A	N/A	6114804
< +3 Phi (0.12 mm)	%	97	0.10	N/A	N/A	N/A	6114804
< +4 Phi (0.062 mm)	%	95	0.10	N/A	N/A	N/A	6114804
< +5 Phi (0.031 mm)	%	91	0.10	N/A	N/A	N/A	6114804
< +6 Phi (0.016 mm)	%	81	0.10	N/A	N/A	N/A	6114804
< +7 Phi (0.0078 mm)	%	20	0.10	N/A	N/A	N/A	6114804
< +8 Phi (0.0039 mm)	%	14	0.10	N/A	N/A	N/A	6114804
< +9 Phi (0.0020 mm)	%	13	0.10	N/A	N/A	N/A	6114804
Gravel	%	0.22	0.10	N/A	N/A	N/A	6114804
Sand	%	4.7	0.10	N/A	N/A	N/A	6114804
Silt	%	81	0.10	N/A	N/A	N/A	6114804
Clay	%	14	0.10	N/A	N/A	N/A	6114804
PCBs							
TriCB-(17)+(18)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
TriCB-(28)+(31)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
2'34-TriCB-(33)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'55'-TetraCB-(52)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'45'-TetraCB-(49)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'35'-TetraCB-(44)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
244'5-TetraCB-(74)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
23'4'5-TetraCB-(70)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'35'6-PentaCB-(95)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'455'-PentaCB-(101)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'44'5-PentaCB-(99)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'345'-PentaCB-(87)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
<p>RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.</p> <p>WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds</p> <p>QC Batch = Quality Control Batch N/A = Not Applicable</p>							

RESULTS OF ANALYSES OF SOIL

Maxxam ID		JQZ283					
Sampling Date		2019/04/29 13:59					
COC Number		D40475		TOXIC EQUIVALENCY			# of
	UNITS	VC-53-3	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
233'4'6-PentaCB-(110)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'4-PentaCB-(82)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'35'5'6-HexaCB-(151)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'34'5'6-HexaCB-(149)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
23'44'5-PentaCB-(118)	mg/kg	<0.010	0.010	0.000030	0.00000030	N/A	6127371
22'44'55'-HexaCB-(153)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'46'-HexaCB-(132)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
233'44'-PentaCB-(105)	mg/kg	<0.010	0.010	0.000030	0.00000030	N/A	6127371
HexaCB-(138)+(158)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'34'55'6-HeptaCB-(187)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'344'5'6-HeptaCB-(183)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'44'-HexaCB-(128)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'45'6'-HeptaCB-(177)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'44'6-HeptaCB-(171)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
233'44'5-HexaCB-(156)	mg/kg	<0.010	0.010	0.000030	0.00000030	N/A	6127371
22'344'55'-HeptaCB-(180)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
233'44'5'6-HeptaCB-(191)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
33'44'55'-HexaCB-(169)	mg/kg	<0.010	0.010	0.030	0.00030	N/A	6127371
22'33'44'5-HeptaCB-(170)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'455'6'-OctaCB-(199)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'455'66'-NonaCB-(208)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'44'56-OctaCB-(195)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'44'55'-OctaCB-(194)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
233'44'55'6-OctaCB-(205)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'44'55'6-NonaCB-(206)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
DecaCB-(209)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Trichlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Tetrachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Pentachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Hexachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Heptachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371

RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

QC Batch = Quality Control Batch
N/A = Not Applicable

RESULTS OF ANALYSES OF SOIL

Maxxam ID		JQZ283					
Sampling Date		2019/04/29 13:59					
COC Number		D40475		TOXIC EQUIVALENCY			# of
	UNITS	VC-53-3	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Octachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Nonachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Decachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Total PCB	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
TOTAL TOXIC EQUIVALENCY	mg/kg	N/A	N/A	N/A	0.00030	N/A	N/A
Surrogate Recovery (%)							
2,3,3',4,6-Pentachlorobiphenyl	%	97	N/A	N/A	N/A	N/A	6127371
2',3,5-Trichlorobiphenyl	%	100	N/A	N/A	N/A	N/A	6127371
22'33'44'566'-Nonachlorobiphenyl	%	107	N/A	N/A	N/A	N/A	6127371
<p>RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested. WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds QC Batch = Quality Control Batch N/A = Not Applicable</p>							

RESULTS OF ANALYSES OF SOIL

Maxxam ID		JQZ284					
Sampling Date		2019/04/29 14:42					
COC Number		D40475		TOXIC EQUIVALENCY			# of
	UNITS	VC-54-1	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Inorganics							
Moisture	%	58	1.0	N/A	N/A	N/A	6114558
Total Organic Carbon	mg/kg	26000	500	N/A	N/A	N/A	6122751
< -1 Phi (2 mm)	%	98	0.10	N/A	N/A	N/A	6114804
< 0 Phi (1 mm)	%	98	0.10	N/A	N/A	N/A	6114804
< +1 Phi (0.5 mm)	%	97	0.10	N/A	N/A	N/A	6114804
< +2 Phi (0.25 mm)	%	96	0.10	N/A	N/A	N/A	6114804
< +3 Phi (0.12 mm)	%	93	0.10	N/A	N/A	N/A	6114804
< +4 Phi (0.062 mm)	%	90	0.10	N/A	N/A	N/A	6114804
< +5 Phi (0.031 mm)	%	86	0.10	N/A	N/A	N/A	6114804
< +6 Phi (0.016 mm)	%	73	0.10	N/A	N/A	N/A	6114804
< +7 Phi (0.0078 mm)	%	36	0.10	N/A	N/A	N/A	6114804
< +8 Phi (0.0039 mm)	%	15	0.10	N/A	N/A	N/A	6114804
< +9 Phi (0.0020 mm)	%	12	0.10	N/A	N/A	N/A	6114804
Gravel	%	2.3	0.10	N/A	N/A	N/A	6114804
Sand	%	7.3	0.10	N/A	N/A	N/A	6114804
Silt	%	76	0.10	N/A	N/A	N/A	6114804
Clay	%	15	0.10	N/A	N/A	N/A	6114804
PCBs							
TriCB-(17)+(18)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
TriCB-(28)+(31)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
2'34-TriCB-(33)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'55'-TetraCB-(52)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'45'-TetraCB-(49)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'35'-TetraCB-(44)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
244'5-TetraCB-(74)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
23'4'5-TetraCB-(70)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'35'6-PentaCB-(95)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'455'-PentaCB-(101)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'44'5-PentaCB-(99)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'345'-PentaCB-(87)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
<p>RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.</p> <p>WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds</p> <p>QC Batch = Quality Control Batch N/A = Not Applicable</p>							

RESULTS OF ANALYSES OF SOIL

Maxxam ID		JQZ284					
Sampling Date		2019/04/29 14:42					
COC Number		D40475		TOXIC EQUIVALENCY			# of
	UNITS	VC-54-1	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
233'4'6-PentaCB-(110)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'4-PentaCB-(82)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'355'6-HexaCB-(151)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'34'5'6-HexaCB-(149)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
23'44'5-PentaCB-(118)	mg/kg	<0.010	0.010	0.000030	0.00000030	N/A	6127371
22'44'55'-HexaCB-(153)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'46'-HexaCB-(132)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
233'44'-PentaCB-(105)	mg/kg	<0.010	0.010	0.000030	0.00000030	N/A	6127371
HexaCB-(138)+(158)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'34'55'6-HeptaCB-(187)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'344'5'6-HeptaCB-(183)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'44'-HexaCB-(128)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'45'6'-HeptaCB-(177)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'44'6-HeptaCB-(171)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
233'44'5-HexaCB-(156)	mg/kg	<0.010	0.010	0.000030	0.00000030	N/A	6127371
22'344'55'-HeptaCB-(180)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
233'44'5'6-HeptaCB-(191)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
33'44'55'-HexaCB-(169)	mg/kg	<0.010	0.010	0.030	0.00030	N/A	6127371
22'33'44'5-HeptaCB-(170)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'455'6'-OctaCB-(199)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'455'66'-NonaCB-(208)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'44'56-OctaCB-(195)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'44'55'-OctaCB-(194)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
233'44'55'6-OctaCB-(205)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'44'55'6-NonaCB-(206)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
DecaCB-(209)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Trichlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Tetrachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Pentachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Hexachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Heptachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371

RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

QC Batch = Quality Control Batch
N/A = Not Applicable

RESULTS OF ANALYSES OF SOIL

Maxxam ID		JQZ284					
Sampling Date		2019/04/29 14:42					
COC Number		D40475		TOXIC EQUIVALENCY			# of
	UNITS	VC-54-1	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Octachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Nonachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Decachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Total PCB	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
TOTAL TOXIC EQUIVALENCY	mg/kg	N/A	N/A	N/A	0.00030	N/A	N/A
Surrogate Recovery (%)							
2,3,3',4,6-Pentachlorobiphenyl	%	99	N/A	N/A	N/A	N/A	6127371
2',3,5-Trichlorobiphenyl	%	104	N/A	N/A	N/A	N/A	6127371
22'33'44'566'-Nonachlorobiphenyl	%	108	N/A	N/A	N/A	N/A	6127371
<p>RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested. WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds QC Batch = Quality Control Batch N/A = Not Applicable</p>							

RESULTS OF ANALYSES OF SOIL

Maxxam ID		JQZ285					
Sampling Date		2019/05/02 10:29					
COC Number		D40475		TOXIC EQUIVALENCY			# of
	UNITS	VC-15-1	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Inorganics							
Moisture	%	38	1.0	N/A	N/A	N/A	6114558
Total Organic Carbon	mg/kg	9400	500	N/A	N/A	N/A	6122751
< -1 Phi (2 mm)	%	100	0.10	N/A	N/A	N/A	6114804
< 0 Phi (1 mm)	%	99	0.10	N/A	N/A	N/A	6114804
< +1 Phi (0.5 mm)	%	98	0.10	N/A	N/A	N/A	6114804
< +2 Phi (0.25 mm)	%	96	0.10	N/A	N/A	N/A	6114804
< +3 Phi (0.12 mm)	%	86	0.10	N/A	N/A	N/A	6114804
< +4 Phi (0.062 mm)	%	65	0.10	N/A	N/A	N/A	6114804
< +5 Phi (0.031 mm)	%	46	0.10	N/A	N/A	N/A	6114804
< +6 Phi (0.016 mm)	%	37	0.10	N/A	N/A	N/A	6114804
< +7 Phi (0.0078 mm)	%	24	0.10	N/A	N/A	N/A	6114804
< +8 Phi (0.0039 mm)	%	11	0.10	N/A	N/A	N/A	6114804
< +9 Phi (0.0020 mm)	%	6.8	0.10	N/A	N/A	N/A	6114804
Gravel	%	0.43	0.10	N/A	N/A	N/A	6114804
Sand	%	34	0.10	N/A	N/A	N/A	6114804
Silt	%	54	0.10	N/A	N/A	N/A	6114804
Clay	%	11	0.10	N/A	N/A	N/A	6114804
PCBs							
TriCB-(17)+(18)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
TriCB-(28)+(31)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
2'34-TriCB-(33)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'55'-TetraCB-(52)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'45'-TetraCB-(49)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'35'-TetraCB-(44)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
244'5-TetraCB-(74)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
23'4'5-TetraCB-(70)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'35'6-PentaCB-(95)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'455'-PentaCB-(101)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'44'5-PentaCB-(99)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'345'-PentaCB-(87)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
<p>RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.</p> <p>WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds</p> <p>QC Batch = Quality Control Batch N/A = Not Applicable</p>							

RESULTS OF ANALYSES OF SOIL

Maxxam ID		JQZ285					
Sampling Date		2019/05/02 10:29					
COC Number		D40475		TOXIC EQUIVALENCY			# of
	UNITS	VC-15-1	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
233'4'6-PentaCB-(110)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'4-PentaCB-(82)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'35'5'6-HexaCB-(151)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'34'5'6-HexaCB-(149)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
23'44'5-PentaCB-(118)	mg/kg	<0.010	0.010	0.000030	0.00000030	N/A	6127371
22'44'55'-HexaCB-(153)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'46'-HexaCB-(132)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
233'44'-PentaCB-(105)	mg/kg	<0.010	0.010	0.000030	0.00000030	N/A	6127371
HexaCB-(138)+(158)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'34'55'6-HeptaCB-(187)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'344'5'6-HeptaCB-(183)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'44'-HexaCB-(128)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'45'6'-HeptaCB-(177)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'44'6-HeptaCB-(171)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
233'44'5-HexaCB-(156)	mg/kg	<0.010	0.010	0.000030	0.00000030	N/A	6127371
22'344'55'-HeptaCB-(180)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
233'44'5'6-HeptaCB-(191)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
33'44'55'-HexaCB-(169)	mg/kg	<0.010	0.010	0.030	0.00030	N/A	6127371
22'33'44'5-HeptaCB-(170)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'455'6'-OctaCB-(199)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'455'66'-NonaCB-(208)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'44'56-OctaCB-(195)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'44'55'-OctaCB-(194)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
233'44'55'6-OctaCB-(205)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'44'55'6-NonaCB-(206)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
DecaCB-(209)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Trichlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Tetrachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Pentachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Hexachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Heptachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371

RDL = Reportable Detection Limit
 TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
 The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
 WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds
 QC Batch = Quality Control Batch
 N/A = Not Applicable

RESULTS OF ANALYSES OF SOIL

Maxxam ID		JQZ285					
Sampling Date		2019/05/02 10:29					
COC Number		D40475		TOXIC EQUIVALENCY			# of
	UNITS	VC-15-1	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Octachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Nonachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Decachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Total PCB	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
TOTAL TOXIC EQUIVALENCY	mg/kg	N/A	N/A	N/A	0.00030	N/A	N/A
Surrogate Recovery (%)							
2,3,3',4,6-Pentachlorobiphenyl	%	90	N/A	N/A	N/A	N/A	6127371
2',3,5-Trichlorobiphenyl	%	94	N/A	N/A	N/A	N/A	6127371
22'33'44'566'-Nonachlorobiphenyl	%	98	N/A	N/A	N/A	N/A	6127371
<p>RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested. WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds QC Batch = Quality Control Batch N/A = Not Applicable</p>							

RESULTS OF ANALYSES OF SOIL

Maxxam ID		JQZ286					
Sampling Date		2019/05/03 13:00					
COC Number		D40475		TOXIC EQUIVALENCY			# of
	UNITS	VC-10B-1	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Inorganics							
Moisture	%	18	1.0	N/A	N/A	N/A	6114558
Total Organic Carbon	mg/kg	<500	500	N/A	N/A	N/A	6122751
< -1 Phi (2 mm)	%	99	0.10	N/A	N/A	N/A	6114804
< 0 Phi (1 mm)	%	99	0.10	N/A	N/A	N/A	6114804
< +1 Phi (0.5 mm)	%	94	0.10	N/A	N/A	N/A	6114804
< +2 Phi (0.25 mm)	%	48	0.10	N/A	N/A	N/A	6114804
< +3 Phi (0.12 mm)	%	2.8	0.10	N/A	N/A	N/A	6114804
< +4 Phi (0.062 mm)	%	1.7	0.10	N/A	N/A	N/A	6114804
< +5 Phi (0.031 mm)	%	1.6	0.10	N/A	N/A	N/A	6114804
< +6 Phi (0.016 mm)	%	1.4	0.10	N/A	N/A	N/A	6114804
< +7 Phi (0.0078 mm)	%	1.3	0.10	N/A	N/A	N/A	6114804
< +8 Phi (0.0039 mm)	%	1.3	0.10	N/A	N/A	N/A	6114804
< +9 Phi (0.0020 mm)	%	1.2	0.10	N/A	N/A	N/A	6114804
Gravel	%	0.68	0.10	N/A	N/A	N/A	6114804
Sand	%	98	0.10	N/A	N/A	N/A	6114804
Silt	%	0.43	0.10	N/A	N/A	N/A	6114804
Clay	%	1.3	0.10	N/A	N/A	N/A	6114804
PCBs							
TriCB-(17)+(18)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
TriCB-(28)+(31)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
2'34-TriCB-(33)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'55'-TetraCB-(52)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'45'-TetraCB-(49)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'35'-TetraCB-(44)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
244'5-TetraCB-(74)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
23'4'5-TetraCB-(70)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'35'6-PentaCB-(95)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'455'-PentaCB-(101)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'44'5-PentaCB-(99)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'345'-PentaCB-(87)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
<p>RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.</p> <p>WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds</p> <p>QC Batch = Quality Control Batch N/A = Not Applicable</p>							

RESULTS OF ANALYSES OF SOIL

Maxxam ID		JQZ286					
Sampling Date		2019/05/03 13:00					
COC Number		D40475		TOXIC EQUIVALENCY			# of
	UNITS	VC-10B-1	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
233'4'6-PentaCB-(110)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'4-PentaCB-(82)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'355'6-HexaCB-(151)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'34'5'6-HexaCB-(149)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
23'44'5-PentaCB-(118)	mg/kg	<0.010	0.010	0.000030	0.00000030	N/A	6127371
22'44'55'-HexaCB-(153)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'46'-HexaCB-(132)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
233'44'-PentaCB-(105)	mg/kg	<0.010	0.010	0.000030	0.00000030	N/A	6127371
HexaCB-(138)+(158)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'34'55'6-HeptaCB-(187)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'344'5'6-HeptaCB-(183)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'44'-HexaCB-(128)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'45'6'-HeptaCB-(177)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'44'6-HeptaCB-(171)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
233'44'5-HexaCB-(156)	mg/kg	<0.010	0.010	0.000030	0.00000030	N/A	6127371
22'344'55'-HeptaCB-(180)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
233'44'5'6-HeptaCB-(191)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
33'44'55'-HexaCB-(169)	mg/kg	<0.010	0.010	0.030	0.00030	N/A	6127371
22'33'44'5-HeptaCB-(170)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'455'6'-OctaCB-(199)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'455'66'-NonaCB-(208)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'44'56-OctaCB-(195)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'44'55'-OctaCB-(194)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
233'44'55'6-OctaCB-(205)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'44'55'6-NonaCB-(206)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
DecaCB-(209)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Trichlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Tetrachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Pentachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Hexachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Heptachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371

RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

QC Batch = Quality Control Batch
N/A = Not Applicable

RESULTS OF ANALYSES OF SOIL

Maxxam ID		JQZ286					
Sampling Date		2019/05/03 13:00					
COC Number		D40475		TOXIC EQUIVALENCY			# of
	UNITS	VC-10B-1	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Octachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Nonachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Decachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Total PCB	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
TOTAL TOXIC EQUIVALENCY	mg/kg	N/A	N/A	N/A	0.00030	N/A	N/A
Surrogate Recovery (%)							
2,3,3',4,6-Pentachlorobiphenyl	%	94	N/A	N/A	N/A	N/A	6127371
2',3,5-Trichlorobiphenyl	%	98	N/A	N/A	N/A	N/A	6127371
22'33'44'566'-Nonachlorobiphenyl	%	101	N/A	N/A	N/A	N/A	6127371
<p>RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested. WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds QC Batch = Quality Control Batch N/A = Not Applicable</p>							

RESULTS OF ANALYSES OF SOIL

Maxxam ID		JQZ287					
Sampling Date		2019/05/03 13:42					
COC Number		D40475		TOXIC EQUIVALENCY			# of
	UNITS	VC-9	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Inorganics							
Moisture	%	19	1.0	N/A	N/A	N/A	6114558
Total Organic Carbon	mg/kg	<500	500	N/A	N/A	N/A	6122751
< -1 Phi (2 mm)	%	96	0.10	N/A	N/A	N/A	6114804
< 0 Phi (1 mm)	%	92	0.10	N/A	N/A	N/A	6114804
< +1 Phi (0.5 mm)	%	81	0.10	N/A	N/A	N/A	6114804
< +2 Phi (0.25 mm)	%	41	0.10	N/A	N/A	N/A	6114804
< +3 Phi (0.12 mm)	%	2.3	0.10	N/A	N/A	N/A	6114804
< +4 Phi (0.062 mm)	%	1.7	0.10	N/A	N/A	N/A	6114804
< +5 Phi (0.031 mm)	%	1.5	0.10	N/A	N/A	N/A	6114804
< +6 Phi (0.016 mm)	%	1.4	0.10	N/A	N/A	N/A	6114804
< +7 Phi (0.0078 mm)	%	1.1	0.10	N/A	N/A	N/A	6114804
< +8 Phi (0.0039 mm)	%	1.2	0.10	N/A	N/A	N/A	6114804
< +9 Phi (0.0020 mm)	%	1.1	0.10	N/A	N/A	N/A	6114804
Gravel	%	3.8	0.10	N/A	N/A	N/A	6114804
Sand	%	95	0.10	N/A	N/A	N/A	6114804
Silt	%	0.47	0.10	N/A	N/A	N/A	6114804
Clay	%	1.2	0.10	N/A	N/A	N/A	6114804
PCBs							
TriCB-(17)+(18)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
TriCB-(28)+(31)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
2'34-TriCB-(33)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'55'-TetraCB-(52)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'45'-TetraCB-(49)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'35'-TetraCB-(44)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
244'5-TetraCB-(74)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
23'4'5-TetraCB-(70)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'35'6-PentaCB-(95)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'455'-PentaCB-(101)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'44'5-PentaCB-(99)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'345'-PentaCB-(87)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
<p>RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.</p> <p>WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds</p> <p>QC Batch = Quality Control Batch N/A = Not Applicable</p>							

RESULTS OF ANALYSES OF SOIL

Maxxam ID		JQZ287					
Sampling Date		2019/05/03 13:42					
COC Number		D40475		TOXIC EQUIVALENCY			# of
	UNITS	VC-9	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
233'4'6-PentaCB-(110)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'4-PentaCB-(82)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'35'5'6-HexaCB-(151)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'34'5'6-HexaCB-(149)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
23'44'5-PentaCB-(118)	mg/kg	<0.010	0.010	0.000030	0.00000030	N/A	6127371
22'44'55'-HexaCB-(153)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'46'-HexaCB-(132)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
233'44'-PentaCB-(105)	mg/kg	<0.010	0.010	0.000030	0.00000030	N/A	6127371
HexaCB-(138)+(158)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'34'55'6-HeptaCB-(187)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'344'5'6-HeptaCB-(183)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'44'-HexaCB-(128)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'45'6'-HeptaCB-(177)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'44'6-HeptaCB-(171)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
233'44'5-HexaCB-(156)	mg/kg	<0.010	0.010	0.000030	0.00000030	N/A	6127371
22'344'55'-HeptaCB-(180)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
233'44'5'6-HeptaCB-(191)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
33'44'55'-HexaCB-(169)	mg/kg	<0.010	0.010	0.030	0.00030	N/A	6127371
22'33'44'5-HeptaCB-(170)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'455'6'-OctaCB-(199)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'455'66'-NonaCB-(208)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'44'56-OctaCB-(195)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'44'55'-OctaCB-(194)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
233'44'55'6-OctaCB-(205)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'44'55'6-NonaCB-(206)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
DecaCB-(209)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Trichlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Tetrachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Pentachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Hexachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Heptachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371

RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

QC Batch = Quality Control Batch
N/A = Not Applicable

RESULTS OF ANALYSES OF SOIL

Maxxam ID		JQZ287					
Sampling Date		2019/05/03 13:42					
COC Number		D40475		TOXIC EQUIVALENCY			# of
	UNITS	VC-9	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Octachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Nonachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Decachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Total PCB	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
TOTAL TOXIC EQUIVALENCY	mg/kg	N/A	N/A	N/A	0.00030	N/A	N/A
Surrogate Recovery (%)							
2,3,3',4,6-Pentachlorobiphenyl	%	93	N/A	N/A	N/A	N/A	6127371
2',3,5-Trichlorobiphenyl	%	98	N/A	N/A	N/A	N/A	6127371
22'33'44'566'-Nonachlorobiphenyl	%	105	N/A	N/A	N/A	N/A	6127371
<p>RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested. WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds QC Batch = Quality Control Batch N/A = Not Applicable</p>							

RESULTS OF ANALYSES OF SOIL

Maxxam ID		JQZ288					
Sampling Date		2019/05/04 09:54					
COC Number		D40475		TOXIC EQUIVALENCY			# of
	UNITS	VC-03B-1	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Inorganics							
Moisture	%	15	1.0	N/A	N/A	N/A	6114558
Total Organic Carbon	mg/kg	<500	500	N/A	N/A	N/A	6122751
< -1 Phi (2 mm)	%	82 (1)	0.10	N/A	N/A	N/A	6114804
< 0 Phi (1 mm)	%	70 (1)	0.10	N/A	N/A	N/A	6114804
< +1 Phi (0.5 mm)	%	32 (1)	0.10	N/A	N/A	N/A	6114804
< +2 Phi (0.25 mm)	%	6.1 (1)	0.10	N/A	N/A	N/A	6114804
< +3 Phi (0.12 mm)	%	2.5	0.10	N/A	N/A	N/A	6114804
< +4 Phi (0.062 mm)	%	2.1	0.10	N/A	N/A	N/A	6114804
< +5 Phi (0.031 mm)	%	2.1	0.10	N/A	N/A	N/A	6114804
< +6 Phi (0.016 mm)	%	1.8	0.10	N/A	N/A	N/A	6114804
< +7 Phi (0.0078 mm)	%	1.4	0.10	N/A	N/A	N/A	6114804
< +8 Phi (0.0039 mm)	%	1.3	0.10	N/A	N/A	N/A	6114804
< +9 Phi (0.0020 mm)	%	1.0	0.10	N/A	N/A	N/A	6114804
Gravel	%	18	0.10	N/A	N/A	N/A	6114804
Sand	%	80	0.10	N/A	N/A	N/A	6114804
Silt	%	0.77	0.10	N/A	N/A	N/A	6114804
Clay	%	1.3	0.10	N/A	N/A	N/A	6114804
PCBs							
TriCB-(17)+(18)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
TriCB-(28)+(31)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
2'34-TriCB-(33)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'55'-TetraCB-(52)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'45'-TetraCB-(49)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'35'-TetraCB-(44)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
244'5-TetraCB-(74)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
23'4'5-TetraCB-(70)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'35'6-PentaCB-(95)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'455'-PentaCB-(101)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'44'5-PentaCB-(99)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
<p>RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.</p> <p>WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds</p> <p>QC Batch = Quality Control Batch N/A = Not Applicable (1) PSA sample observation comment: Fraction contained shells</p>							

RESULTS OF ANALYSES OF SOIL

Maxxam ID		JQZ288					
Sampling Date		2019/05/04 09:54					
COC Number		D40475		TOXIC EQUIVALENCY			# of
	UNITS	VC-03B-1	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
22'345'-PentaCB-(87)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
233'4'6'-PentaCB-(110)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'4'-PentaCB-(82)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'355'6'-HexaCB-(151)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'34'5'6'-HexaCB-(149)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
23'44'5'-PentaCB-(118)	mg/kg	<0.010	0.010	0.000030	0.00000030	N/A	6127371
22'44'55'-HexaCB-(153)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'46'-HexaCB-(132)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
233'44'-PentaCB-(105)	mg/kg	<0.010	0.010	0.000030	0.00000030	N/A	6127371
HexaCB-(138)+(158)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'34'55'6'-HeptaCB-(187)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'344'5'6'-HeptaCB-(183)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'44'-HexaCB-(128)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'45'6'-HeptaCB-(177)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'44'6'-HeptaCB-(171)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
233'44'5'-HexaCB-(156)	mg/kg	<0.010	0.010	0.000030	0.00000030	N/A	6127371
22'344'55'-HeptaCB-(180)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
233'44'5'6'-HeptaCB-(191)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
33'44'55'-HexaCB-(169)	mg/kg	<0.010	0.010	0.030	0.00030	N/A	6127371
22'33'44'5'-HeptaCB-(170)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'455'6'-OctaCB-(199)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'455'66'-NonaCB-(208)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'44'56'-OctaCB-(195)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'44'55'-OctaCB-(194)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
233'44'55'6'-OctaCB-(205)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'44'55'6'-NonaCB-(206)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
DecaCB-(209)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Trichlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Tetrachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Pentachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Hexachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371

RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

QC Batch = Quality Control Batch
N/A = Not Applicable

RESULTS OF ANALYSES OF SOIL

Maxxam ID		JQZ288					
Sampling Date		2019/05/04 09:54					
COC Number		D40475		TOXIC EQUIVALENCY			# of
	UNITS	VC-03B-1	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Heptachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Octachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Nonachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Decachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Total PCB	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
TOTAL TOXIC EQUIVALENCY	mg/kg	N/A	N/A	N/A	0.00030	N/A	N/A
Surrogate Recovery (%)							
2,3,3',4,6-Pentachlorobiphenyl	%	93	N/A	N/A	N/A	N/A	6127371
2',3,5-Trichlorobiphenyl	%	98	N/A	N/A	N/A	N/A	6127371
22'33'44'566'-Nonachlorobiphenyl	%	107	N/A	N/A	N/A	N/A	6127371
<p>RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested. WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds QC Batch = Quality Control Batch N/A = Not Applicable</p>							

RESULTS OF ANALYSES OF SOIL

Maxxam ID		JQZ289					
Sampling Date		2019/05/03 11:26					
COC Number		D40475		TOXIC EQUIVALENCY			# of
	UNITS	VC-11-1	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Inorganics							
Moisture	%	35	1.0	N/A	N/A	N/A	6114558
Total Organic Carbon	mg/kg	<500	500	N/A	N/A	N/A	6122751
< -1 Phi (2 mm)	%	100	0.10	N/A	N/A	N/A	6114804
< 0 Phi (1 mm)	%	98	0.10	N/A	N/A	N/A	6114804
< +1 Phi (0.5 mm)	%	93	0.10	N/A	N/A	N/A	6114804
< +2 Phi (0.25 mm)	%	58	0.10	N/A	N/A	N/A	6114804
< +3 Phi (0.12 mm)	%	18	0.10	N/A	N/A	N/A	6114804
< +4 Phi (0.062 mm)	%	15	0.10	N/A	N/A	N/A	6114804
< +5 Phi (0.031 mm)	%	14	0.10	N/A	N/A	N/A	6114804
< +6 Phi (0.016 mm)	%	12	0.10	N/A	N/A	N/A	6114804
< +7 Phi (0.0078 mm)	%	9.2	0.10	N/A	N/A	N/A	6114804
< +8 Phi (0.0039 mm)	%	8.2	0.10	N/A	N/A	N/A	6114804
< +9 Phi (0.0020 mm)	%	6.6	0.10	N/A	N/A	N/A	6114804
Gravel	%	0.43	0.10	N/A	N/A	N/A	6114804
Sand	%	84	0.10	N/A	N/A	N/A	6114804
Silt	%	7.1	0.10	N/A	N/A	N/A	6114804
Clay	%	8.2	0.10	N/A	N/A	N/A	6114804
PCBs							
TriCB-(17)+(18)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
TriCB-(28)+(31)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
2'34-TriCB-(33)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'55'-TetraCB-(52)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'45'-TetraCB-(49)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'35'-TetraCB-(44)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
244'5-TetraCB-(74)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
23'4'5-TetraCB-(70)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'35'6-PentaCB-(95)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'455'-PentaCB-(101)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'44'5-PentaCB-(99)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'345'-PentaCB-(87)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
<p>RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.</p> <p>WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds</p> <p>QC Batch = Quality Control Batch N/A = Not Applicable</p>							

RESULTS OF ANALYSES OF SOIL

Maxxam ID		JQZ289					
Sampling Date		2019/05/03 11:26					
COC Number		D40475		TOXIC EQUIVALENCY			# of
	UNITS	VC-11-1	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
233'4'6-PentaCB-(110)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'4-PentaCB-(82)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'35'5'6-HexaCB-(151)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'34'5'6-HexaCB-(149)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
23'44'5-PentaCB-(118)	mg/kg	<0.010	0.010	0.000030	0.00000030	N/A	6127371
22'44'55'-HexaCB-(153)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'46'-HexaCB-(132)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
233'44'-PentaCB-(105)	mg/kg	<0.010	0.010	0.000030	0.00000030	N/A	6127371
HexaCB-(138)+(158)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'34'55'6-HeptaCB-(187)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'344'5'6-HeptaCB-(183)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'44'-HexaCB-(128)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'45'6'-HeptaCB-(177)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'44'6-HeptaCB-(171)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
233'44'5-HexaCB-(156)	mg/kg	<0.010	0.010	0.000030	0.00000030	N/A	6127371
22'344'55'-HeptaCB-(180)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
233'44'5'6-HeptaCB-(191)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
33'44'55'-HexaCB-(169)	mg/kg	<0.010	0.010	0.030	0.00030	N/A	6127371
22'33'44'5-HeptaCB-(170)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'455'6'-OctaCB-(199)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'455'66'-NonaCB-(208)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'44'56-OctaCB-(195)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'44'55'-OctaCB-(194)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
233'44'55'6-OctaCB-(205)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'44'55'6-NonaCB-(206)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
DecaCB-(209)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Trichlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Tetrachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Pentachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Hexachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Heptachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371

RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

QC Batch = Quality Control Batch
N/A = Not Applicable

RESULTS OF ANALYSES OF SOIL

Maxxam ID		JQZ289					
Sampling Date		2019/05/03 11:26					
COC Number		D40475		TOXIC EQUIVALENCY			# of
	UNITS	VC-11-1	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Octachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Nonachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Decachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Total PCB	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
TOTAL TOXIC EQUIVALENCY	mg/kg	N/A	N/A	N/A	0.00030	N/A	N/A
Surrogate Recovery (%)							
2,3,3',4,6-Pentachlorobiphenyl	%	93	N/A	N/A	N/A	N/A	6127371
2',3,5-Trichlorobiphenyl	%	98	N/A	N/A	N/A	N/A	6127371
22'33'44'566'-Nonachlorobiphenyl	%	106	N/A	N/A	N/A	N/A	6127371
<p>RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested. WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds QC Batch = Quality Control Batch N/A = Not Applicable</p>							

RESULTS OF ANALYSES OF SOIL

Maxxam ID		JQZ290					
Sampling Date		2019/05/03 11:26					
COC Number		D40475		TOXIC EQUIVALENCY			# of
	UNITS	VC-11-2	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Inorganics							
Moisture	%	33	1.0	N/A	N/A	N/A	6114558
Total Organic Carbon	mg/kg	13000	500	N/A	N/A	N/A	6122751
< -1 Phi (2 mm)	%	100	0.10	N/A	N/A	N/A	6114804
< 0 Phi (1 mm)	%	100	0.10	N/A	N/A	N/A	6114804
< +1 Phi (0.5 mm)	%	99	0.10	N/A	N/A	N/A	6114804
< +2 Phi (0.25 mm)	%	96	0.10	N/A	N/A	N/A	6114804
< +3 Phi (0.12 mm)	%	90	0.10	N/A	N/A	N/A	6114804
< +4 Phi (0.062 mm)	%	73	0.10	N/A	N/A	N/A	6114804
< +5 Phi (0.031 mm)	%	56	0.10	N/A	N/A	N/A	6114804
< +6 Phi (0.016 mm)	%	49	0.10	N/A	N/A	N/A	6114804
< +7 Phi (0.0078 mm)	%	9.6	0.10	N/A	N/A	N/A	6114804
< +8 Phi (0.0039 mm)	%	7.8	0.10	N/A	N/A	N/A	6114804
< +9 Phi (0.0020 mm)	%	7.3	0.10	N/A	N/A	N/A	6114804
Gravel	%	<0.10	0.10	N/A	N/A	N/A	6114804
Sand	%	27	0.10	N/A	N/A	N/A	6114804
Silt	%	65	0.10	N/A	N/A	N/A	6114804
Clay	%	7.8	0.10	N/A	N/A	N/A	6114804
PCBs							
TriCB-(17)+(18)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
TriCB-(28)+(31)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
2'34-TriCB-(33)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'55'-TetraCB-(52)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'45'-TetraCB-(49)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'35'-TetraCB-(44)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
244'5-TetraCB-(74)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
23'4'5-TetraCB-(70)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'35'6-PentaCB-(95)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'455'-PentaCB-(101)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'44'5-PentaCB-(99)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'345'-PentaCB-(87)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
<p>RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.</p> <p>WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds</p> <p>QC Batch = Quality Control Batch N/A = Not Applicable</p>							

RESULTS OF ANALYSES OF SOIL

Maxxam ID		JQZ290					
Sampling Date		2019/05/03 11:26					
COC Number		D40475		TOXIC EQUIVALENCY			# of
	UNITS	VC-11-2	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
233'4'6-PentaCB-(110)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'4-PentaCB-(82)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'35'5'6-HexaCB-(151)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'34'5'6-HexaCB-(149)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
23'44'5-PentaCB-(118)	mg/kg	<0.010	0.010	0.000030	0.00000030	N/A	6127371
22'44'55'-HexaCB-(153)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'46'-HexaCB-(132)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
233'44'-PentaCB-(105)	mg/kg	<0.010	0.010	0.000030	0.00000030	N/A	6127371
HexaCB-(138)+(158)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'34'55'6-HeptaCB-(187)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'344'5'6-HeptaCB-(183)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'44'-HexaCB-(128)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'45'6'-HeptaCB-(177)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'44'6-HeptaCB-(171)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
233'44'5-HexaCB-(156)	mg/kg	<0.010	0.010	0.000030	0.00000030	N/A	6127371
22'344'55'-HeptaCB-(180)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
233'44'5'6-HeptaCB-(191)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
33'44'55'-HexaCB-(169)	mg/kg	<0.010	0.010	0.030	0.00030	N/A	6127371
22'33'44'5-HeptaCB-(170)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'455'6'-OctaCB-(199)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'455'66'-NonaCB-(208)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'44'56-OctaCB-(195)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'44'55'-OctaCB-(194)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
233'44'55'6-OctaCB-(205)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'44'55'6-NonaCB-(206)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
DecaCB-(209)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Trichlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Tetrachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Pentachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Hexachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Heptachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371

RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

QC Batch = Quality Control Batch
N/A = Not Applicable

RESULTS OF ANALYSES OF SOIL

Maxxam ID		JQZ290					
Sampling Date		2019/05/03 11:26					
COC Number		D40475		TOXIC EQUIVALENCY			# of
	UNITS	VC-11-2	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Octachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Nonachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Decachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Total PCB	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
TOTAL TOXIC EQUIVALENCY	mg/kg	N/A	N/A	N/A	0.00030	N/A	N/A
Surrogate Recovery (%)							
2,3,3',4,6-Pentachlorobiphenyl	%	97	N/A	N/A	N/A	N/A	6127371
2',3,5-Trichlorobiphenyl	%	102	N/A	N/A	N/A	N/A	6127371
22'33'44'566'-Nonachlorobiphenyl	%	106	N/A	N/A	N/A	N/A	6127371
<p>RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested. WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds QC Batch = Quality Control Batch N/A = Not Applicable</p>							

RESULTS OF ANALYSES OF SOIL

Maxxam ID		JQZ290					
Sampling Date		2019/05/03 11:26					
COC Number		D40475		TOXIC EQUIVALENCY		# of	
	UNITS	VC-11-2 Lab-Dup	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
PCBs							
TriCB-(17)+(18)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
TriCB-(28)+(31)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
2'34-TriCB-(33)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'55'-TetraCB-(52)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'45'-TetraCB-(49)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'35'-TetraCB-(44)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
244'5-TetraCB-(74)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
23'4'5-TetraCB-(70)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'35'6-PentaCB-(95)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'455'-PentaCB-(101)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'44'5-PentaCB-(99)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'345'-PentaCB-(87)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
233'4'6-PentaCB-(110)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'4-PentaCB-(82)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'355'6-HexaCB-(151)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'34'5'6-HexaCB-(149)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
23'44'5-PentaCB-(118)	mg/kg	<0.010	0.010	0.000030	0.00000030	N/A	6127371
22'44'55'-HexaCB-(153)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'46'-HexaCB-(132)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
233'44'-PentaCB-(105)	mg/kg	<0.010	0.010	0.000030	0.00000030	N/A	6127371
HexaCB-(138)+(158)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'34'55'6-HeptaCB-(187)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'344'5'6-HeptaCB-(183)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'44'-HexaCB-(128)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'45'6'-HeptaCB-(177)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'44'6'-HeptaCB-(171)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
233'44'5-HexaCB-(156)	mg/kg	<0.010	0.010	0.000030	0.00000030	N/A	6127371
22'344'55'-HeptaCB-(180)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
<p>RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.</p> <p>WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds</p> <p>QC Batch = Quality Control Batch Lab-Dup = Laboratory Initiated Duplicate N/A = Not Applicable</p>							

RESULTS OF ANALYSES OF SOIL

Maxxam ID		JQZ290					
Sampling Date		2019/05/03 11:26					
COC Number		D40475		TOXIC EQUIVALENCY			# of
	UNITS	VC-11-2 Lab-Dup	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
233'44'5'6'-HeptaCB-(191)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
33'44'55'-HexaCB-(169)	mg/kg	<0.010	0.010	0.030	0.00030	N/A	6127371
22'33'44'5'-HeptaCB-(170)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'45'5'6'-OctaCB-(199)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'45'5'6'6'-NonaCB-(208)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'44'5'6'-OctaCB-(195)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'44'5'5'-OctaCB-(194)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
233'44'5'5'6'-OctaCB-(205)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'44'5'5'6'-NonaCB-(206)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
DecaCB-(209)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Trichlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Tetrachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Pentachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Hexachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Heptachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Octachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Nonachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Decachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Total PCB	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
TOTAL TOXIC EQUIVALENCY	mg/kg	N/A	N/A	N/A	0.00030	N/A	N/A
Surrogate Recovery (%)							
2,3,3',4,6-Pentachlorobiphenyl	%	94	N/A	N/A	N/A	N/A	6127371
2',3,5-Trichlorobiphenyl	%	99	N/A	N/A	N/A	N/A	6127371
22'33'44'5'6'6'-Nonachlorobiphenyl	%	103	N/A	N/A	N/A	N/A	6127371
RDL = Reportable Detection Limit							
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,							
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.							
WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds							
QC Batch = Quality Control Batch							
Lab-Dup = Laboratory Initiated Duplicate							
N/A = Not Applicable							

RESULTS OF ANALYSES OF SOIL

Maxxam ID		JQZ306					
Sampling Date		2019/05/04 11:43					
COC Number		D40476		TOXIC EQUIVALENCY			# of
	UNITS	VC-02C-1	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Inorganics							
Moisture	%	11	1.0	N/A	N/A	N/A	6114558
Total Organic Carbon	mg/kg	<500	500	N/A	N/A	N/A	6122751
< -1 Phi (2 mm)	%	60 (1)	0.10	N/A	N/A	N/A	6114804
< 0 Phi (1 mm)	%	53 (1)	0.10	N/A	N/A	N/A	6114804
< +1 Phi (0.5 mm)	%	42 (1)	0.10	N/A	N/A	N/A	6114804
< +2 Phi (0.25 mm)	%	13 (1)	0.10	N/A	N/A	N/A	6114804
< +3 Phi (0.12 mm)	%	4.3	0.10	N/A	N/A	N/A	6114804
< +4 Phi (0.062 mm)	%	3.4	0.10	N/A	N/A	N/A	6114804
< +5 Phi (0.031 mm)	%	3.1	0.10	N/A	N/A	N/A	6114804
< +6 Phi (0.016 mm)	%	2.8	0.10	N/A	N/A	N/A	6114804
< +7 Phi (0.0078 mm)	%	2.1	0.10	N/A	N/A	N/A	6114804
< +8 Phi (0.0039 mm)	%	1.6	0.10	N/A	N/A	N/A	6114804
< +9 Phi (0.0020 mm)	%	0.92	0.10	N/A	N/A	N/A	6114804
Gravel	%	40	0.10	N/A	N/A	N/A	6114804
Sand	%	57	0.10	N/A	N/A	N/A	6114804
Silt	%	1.8	0.10	N/A	N/A	N/A	6114804
Clay	%	1.6	0.10	N/A	N/A	N/A	6114804
PCBs							
TriCB-(17)+(18)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
TriCB-(28)+(31)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
2'34-TriCB-(33)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'55'-TetraCB-(52)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'45'-TetraCB-(49)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'35'-TetraCB-(44)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
244'5-TetraCB-(74)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
23'4'5-TetraCB-(70)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'35'6-PentaCB-(95)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'455'-PentaCB-(101)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'44'5-PentaCB-(99)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
<p>RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested. WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds QC Batch = Quality Control Batch N/A = Not Applicable (1) PSA sample observation comment: Fraction contained shells</p>							

RESULTS OF ANALYSES OF SOIL

Maxxam ID		JQZ306					
Sampling Date		2019/05/04 11:43					
COC Number		D40476		TOXIC EQUIVALENCY			# of
	UNITS	VC-02C-1	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
22'345'-PentaCB-(87)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
233'4'6'-PentaCB-(110)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'4'-PentaCB-(82)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'355'6'-HexaCB-(151)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'34'5'6'-HexaCB-(149)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
23'44'5'-PentaCB-(118)	mg/kg	<0.010	0.010	0.000030	0.00000030	N/A	6127371
22'44'55'-HexaCB-(153)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'46'-HexaCB-(132)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
233'44'-PentaCB-(105)	mg/kg	<0.010	0.010	0.000030	0.00000030	N/A	6127371
HexaCB-(138)+(158)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'34'55'6'-HeptaCB-(187)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'344'5'6'-HeptaCB-(183)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'44'-HexaCB-(128)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'45'6'-HeptaCB-(177)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'44'6'-HeptaCB-(171)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
233'44'5'-HexaCB-(156)	mg/kg	<0.010	0.010	0.000030	0.00000030	N/A	6127371
22'344'55'-HeptaCB-(180)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
233'44'5'6'-HeptaCB-(191)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
33'44'55'-HexaCB-(169)	mg/kg	<0.010	0.010	0.030	0.00030	N/A	6127371
22'33'44'5'-HeptaCB-(170)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'455'6'-OctaCB-(199)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'455'66'-NonaCB-(208)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'44'56'-OctaCB-(195)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'44'55'-OctaCB-(194)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
233'44'55'6'-OctaCB-(205)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'44'55'6'-NonaCB-(206)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
DecaCB-(209)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Trichlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Tetrachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Pentachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Hexachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371

RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

QC Batch = Quality Control Batch
N/A = Not Applicable

RESULTS OF ANALYSES OF SOIL

Maxxam ID		JQZ306					
Sampling Date		2019/05/04 11:43					
COC Number		D40476		TOXIC EQUIVALENCY			# of
	UNITS	VC-02C-1	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Heptachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Octachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Nonachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Decachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Total PCB	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
TOTAL TOXIC EQUIVALENCY	mg/kg	N/A	N/A	N/A	0.00030	N/A	N/A
Surrogate Recovery (%)							
2,3,3',4,6-Pentachlorobiphenyl	%	93	N/A	N/A	N/A	N/A	6127371
2',3,5-Trichlorobiphenyl	%	97	N/A	N/A	N/A	N/A	6127371
22'33'44'566'-Nonachlorobiphenyl	%	105	N/A	N/A	N/A	N/A	6127371
<p>RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested. WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds QC Batch = Quality Control Batch N/A = Not Applicable</p>							

RESULTS OF ANALYSES OF SOIL

Maxxam ID		JQZ307					
Sampling Date		2019/05/04 11:43					
COC Number		D40476		TOXIC EQUIVALENCY			# of
	UNITS	VC-02C-2	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Inorganics							
Moisture	%	34	1.0	N/A	N/A	N/A	6114558
Total Organic Carbon	mg/kg	12000	500	N/A	N/A	N/A	6122751
< -1 Phi (2 mm)	%	94 (1)	0.10	N/A	N/A	N/A	6114804
< 0 Phi (1 mm)	%	87 (1)	0.10	N/A	N/A	N/A	6114804
< +1 Phi (0.5 mm)	%	76 (1)	0.10	N/A	N/A	N/A	6114804
< +2 Phi (0.25 mm)	%	64 (1)	0.10	N/A	N/A	N/A	6114804
< +3 Phi (0.12 mm)	%	60	0.10	N/A	N/A	N/A	6114804
< +4 Phi (0.062 mm)	%	57	0.10	N/A	N/A	N/A	6114804
< +5 Phi (0.031 mm)	%	52	0.10	N/A	N/A	N/A	6114804
< +6 Phi (0.016 mm)	%	44	0.10	N/A	N/A	N/A	6114804
< +7 Phi (0.0078 mm)	%	31	0.10	N/A	N/A	N/A	6114804
< +8 Phi (0.0039 mm)	%	16	0.10	N/A	N/A	N/A	6114804
< +9 Phi (0.0020 mm)	%	5.1	0.10	N/A	N/A	N/A	6114804
Gravel	%	5.7	0.10	N/A	N/A	N/A	6114804
Sand	%	37	0.10	N/A	N/A	N/A	6114804
Silt	%	41	0.10	N/A	N/A	N/A	6114804
Clay	%	16	0.10	N/A	N/A	N/A	6114804
PCBs							
TriCB-(17)+(18)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
TriCB-(28)+(31)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
2'34-TriCB-(33)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'55'-TetraCB-(52)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'45'-TetraCB-(49)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'35'-TetraCB-(44)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
244'5-TetraCB-(74)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
23'4'5-TetraCB-(70)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'35'6-PentaCB-(95)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'455'-PentaCB-(101)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'44'5-PentaCB-(99)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
<p>RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested. WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds QC Batch = Quality Control Batch N/A = Not Applicable (1) PSA sample observation comment: Fraction contained shells</p>							

RESULTS OF ANALYSES OF SOIL

Maxxam ID		JQZ307					
Sampling Date		2019/05/04 11:43					
COC Number		D40476		TOXIC EQUIVALENCY			# of
	UNITS	VC-02C-2	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
22'345'-PentaCB-(87)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
233'4'6'-PentaCB-(110)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'4'-PentaCB-(82)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'355'6'-HexaCB-(151)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'34'5'6'-HexaCB-(149)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
23'44'5'-PentaCB-(118)	mg/kg	<0.010	0.010	0.000030	0.00000030	N/A	6127371
22'44'55'-HexaCB-(153)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'46'-HexaCB-(132)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
233'44'-PentaCB-(105)	mg/kg	<0.010	0.010	0.000030	0.00000030	N/A	6127371
HexaCB-(138)+(158)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'34'55'6'-HeptaCB-(187)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'344'5'6'-HeptaCB-(183)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'44'-HexaCB-(128)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'45'6'-HeptaCB-(177)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'44'6'-HeptaCB-(171)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
233'44'5'-HexaCB-(156)	mg/kg	<0.010	0.010	0.000030	0.00000030	N/A	6127371
22'344'55'-HeptaCB-(180)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
233'44'5'6'-HeptaCB-(191)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
33'44'55'-HexaCB-(169)	mg/kg	<0.010	0.010	0.030	0.00030	N/A	6127371
22'33'44'5'-HeptaCB-(170)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'455'6'-OctaCB-(199)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'455'66'-NonaCB-(208)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'44'56'-OctaCB-(195)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'44'55'-OctaCB-(194)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
233'44'55'6'-OctaCB-(205)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
22'33'44'55'6'-NonaCB-(206)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
DecaCB-(209)	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Trichlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Tetrachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Pentachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Hexachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371

RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

QC Batch = Quality Control Batch
N/A = Not Applicable

RESULTS OF ANALYSES OF SOIL

Maxxam ID		JQZ307					
Sampling Date		2019/05/04 11:43					
COC Number		D40476		TOXIC EQUIVALENCY			# of
	UNITS	VC-02C-2	RDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Heptachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Octachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Nonachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Decachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
Total PCB	mg/kg	<0.010	0.010	N/A	N/A	N/A	6127371
TOTAL TOXIC EQUIVALENCY	mg/kg	N/A	N/A	N/A	0.00030	N/A	N/A
Surrogate Recovery (%)							
2,3,3',4,6-Pentachlorobiphenyl	%	94	N/A	N/A	N/A	N/A	6127371
2',3,5-Trichlorobiphenyl	%	100	N/A	N/A	N/A	N/A	6127371
22'33'44'566'-Nonachlorobiphenyl	%	105	N/A	N/A	N/A	N/A	6127371
<p>RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested. WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds QC Batch = Quality Control Batch N/A = Not Applicable</p>							

MERCURY BY COLD VAPOUR AA (SOIL)

Maxxam ID		JQZ281	JQZ282	JQZ283	JQZ284	JQZ285	JQZ286	JQZ286		
Sampling Date		2019/04/29 13:59	2019/04/29 13:59	2019/04/29 13:59	2019/04/29 14:42	2019/05/02 10:29	2019/05/03 13:00	2019/05/03 13:00		
COC Number		D40475	D40475	D40475	D40475	D40475	D40475	D40475		
	UNITS	VC-53-1	VC-53-2	VC-53-3	VC-54-1	VC-15-1	VC-10B-1	VC-10B-1 Lab-Dup	RDL	QC Batch

Metals

Mercury (Hg)	mg/kg	0.027	0.025	0.014	0.030	<0.010	<0.010	<0.010	0.010	6124602
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RDL = Reportable Detection Limit

QC Batch = Quality Control Batch

Lab-Dup = Laboratory Initiated Duplicate

Maxxam ID		JQZ287	JQZ288	JQZ289	JQZ290	JQZ306	JQZ307		
Sampling Date		2019/05/03 13:42	2019/05/04 09:54	2019/05/03 11:26	2019/05/03 11:26	2019/05/04 11:43	2019/05/04 11:43		
COC Number		D40475	D40475	D40475	D40475	D40476	D40476		
	UNITS	VC-9	VC-03B-1	VC-11-1	VC-11-2	VC-02C-1	VC-02C-2	RDL	QC Batch

Metals

Mercury (Hg)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.022	0.010	6124602
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RDL = Reportable Detection Limit

QC Batch = Quality Control Batch

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		JQZ281	JQZ282	JQZ283	JQZ284	JQZ285	JQZ286		
Sampling Date		2019/04/29 13:59	2019/04/29 13:59	2019/04/29 13:59	2019/04/29 14:42	2019/05/02 10:29	2019/05/03 13:00		
COC Number		D40475	D40475	D40475	D40475	D40475	D40475		
	UNITS	VC-53-1	VC-53-2	VC-53-3	VC-54-1	VC-15-1	VC-10B-1	RDL	QC Batch
Metals									
Acid Extractable Aluminum (Al)	mg/kg	15000	14000	15000	14000	8800	1600	10	6119763
Acid Extractable Antimony (Sb)	mg/kg	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	6119763
Acid Extractable Arsenic (As)	mg/kg	12	11	12	12	6.1	<2.0	2.0	6119763
Acid Extractable Barium (Ba)	mg/kg	66	61	59	62	67	22	5.0	6119763
Acid Extractable Beryllium (Be)	mg/kg	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	6119763
Acid Extractable Bismuth (Bi)	mg/kg	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	6119763
Acid Extractable Boron (B)	mg/kg	95	120	110	97	51	<50	50	6119763
Acid Extractable Cadmium (Cd)	mg/kg	0.48	0.51	0.64	0.54	<0.30	<0.30	0.30	6119763
Acid Extractable Chromium (Cr)	mg/kg	29	29	32	28	19	4.1	2.0	6119763
Acid Extractable Cobalt (Co)	mg/kg	13	13	14	13	9.0	1.7	1.0	6119763
Acid Extractable Copper (Cu)	mg/kg	18	18	20	19	11	<2.0	2.0	6119763
Acid Extractable Iron (Fe)	mg/kg	33000	34000	36000	33000	22000	3700	50	6119763
Acid Extractable Lead (Pb)	mg/kg	24	22	24	25	13	1.6	0.50	6119763
Acid Extractable Lithium (Li)	mg/kg	39	36	41	38	25	4.7	2.0	6119763
Acid Extractable Manganese (Mn)	mg/kg	490	520	510	510	330	64	2.0	6119763
Acid Extractable Mercury (Hg)	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	6119763
Acid Extractable Molybdenum (Mo)	mg/kg	8.8	11	13	10	4.9	<2.0	2.0	6119763
Acid Extractable Nickel (Ni)	mg/kg	32	31	36	32	20	3.5	2.0	6119763
Acid Extractable Rubidium (Rb)	mg/kg	17	16	17	16	10	<2.0	2.0	6119763
Acid Extractable Selenium (Se)	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	6119763
Acid Extractable Silver (Ag)	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	6119763
Acid Extractable Strontium (Sr)	mg/kg	38	63	53	35	19	<5.0	5.0	6119763
Acid Extractable Thallium (Tl)	mg/kg	0.21	0.21	0.24	0.20	0.11	<0.10	0.10	6119763
Acid Extractable Tin (Sn)	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	6119763
Acid Extractable Uranium (U)	mg/kg	2.7	3.1	3.8	2.9	1.5	0.18	0.10	6119763
Acid Extractable Vanadium (V)	mg/kg	42	43	45	41	27	3.3	2.0	6119763
Acid Extractable Zinc (Zn)	mg/kg	93	89	95	100	54	11	5.0	6119763
RDL = Reportable Detection Limit									
QC Batch = Quality Control Batch									

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		JQZ286	JQZ287	JQZ288	JQZ289	JQZ290	JQZ306		
Sampling Date		2019/05/03 13:00	2019/05/03 13:42	2019/05/04 09:54	2019/05/03 11:26	2019/05/03 11:26	2019/05/04 11:43		
COC Number		D40475	D40475	D40475	D40475	D40475	D40476		
	UNITS	VC-10B-1 Lab-Dup	VC-9	VC-03B-1	VC-11-1	VC-11-2	VC-02C-1	RDL	QC Batch
Metals									
Acid Extractable Aluminum (Al)	mg/kg	1600	1400	750	2100	9900	1300	10	6119763
Acid Extractable Antimony (Sb)	mg/kg	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	6119763
Acid Extractable Arsenic (As)	mg/kg	<2.0	<2.0	<2.0	<2.0	7.0	<2.0	2.0	6119763
Acid Extractable Barium (Ba)	mg/kg	21	13	5.8	33	72	18	5.0	6119763
Acid Extractable Beryllium (Be)	mg/kg	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	6119763
Acid Extractable Bismuth (Bi)	mg/kg	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	6119763
Acid Extractable Boron (B)	mg/kg	<50	<50	<50	<50	63	<50	50	6119763
Acid Extractable Cadmium (Cd)	mg/kg	<0.30	<0.30	<0.30	<0.30	0.31	<0.30	0.30	6119763
Acid Extractable Chromium (Cr)	mg/kg	4.3	3.6	4.7	4.9	21	4.8	2.0	6119763
Acid Extractable Cobalt (Co)	mg/kg	1.7	1.5	<1.0	2.2	10	1.4	1.0	6119763
Acid Extractable Copper (Cu)	mg/kg	<2.0	<2.0	<2.0	<2.0	12	<2.0	2.0	6119763
Acid Extractable Iron (Fe)	mg/kg	3800	3300	2000	5200	24000	3400	50	6119763
Acid Extractable Lead (Pb)	mg/kg	1.7	1.4	1.2	2.3	15	1.8	0.50	6119763
Acid Extractable Lithium (Li)	mg/kg	4.8	4.2	2.4	6.4	29	3.8	2.0	6119763
Acid Extractable Manganese (Mn)	mg/kg	55	53	94	89	360	110	2.0	6119763
Acid Extractable Mercury (Hg)	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	6119763
Acid Extractable Molybdenum (Mo)	mg/kg	<2.0	<2.0	<2.0	<2.0	8.3	<2.0	2.0	6119763
Acid Extractable Nickel (Ni)	mg/kg	3.7	3.1	3.2	4.7	24	3.9	2.0	6119763
Acid Extractable Rubidium (Rb)	mg/kg	<2.0	<2.0	<2.0	<2.0	11	<2.0	2.0	6119763
Acid Extractable Selenium (Se)	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	6119763
Acid Extractable Silver (Ag)	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	6119763
Acid Extractable Strontium (Sr)	mg/kg	<5.0	<5.0	34	<5.0	22	83	5.0	6119763
Acid Extractable Thallium (Tl)	mg/kg	<0.10	<0.10	<0.10	<0.10	0.14	<0.10	0.10	6119763
Acid Extractable Tin (Sn)	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	6119763
Acid Extractable Uranium (U)	mg/kg	0.18	0.15	0.14	0.25	2.3	0.26	0.10	6119763
Acid Extractable Vanadium (V)	mg/kg	3.8	3.1	2.5	5.6	30	4.9	2.0	6119763
Acid Extractable Zinc (Zn)	mg/kg	12	9.9	5.1	15	61	8.6	5.0	6119763
RDL = Reportable Detection Limit									
QC Batch = Quality Control Batch									
Lab-Dup = Laboratory Initiated Duplicate									

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		JQZ307		
Sampling Date		2019/05/04 11:43		
COC Number		D40476		
	UNITS	VC-02C-2	RDL	QC Batch
Metals				
Acid Extractable Aluminum (Al)	mg/kg	7800	10	6119763
Acid Extractable Antimony (Sb)	mg/kg	<2.0	2.0	6119763
Acid Extractable Arsenic (As)	mg/kg	6.0	2.0	6119763
Acid Extractable Barium (Ba)	mg/kg	53	5.0	6119763
Acid Extractable Beryllium (Be)	mg/kg	<2.0	2.0	6119763
Acid Extractable Bismuth (Bi)	mg/kg	<2.0	2.0	6119763
Acid Extractable Boron (B)	mg/kg	<50	50	6119763
Acid Extractable Cadmium (Cd)	mg/kg	<0.30	0.30	6119763
Acid Extractable Chromium (Cr)	mg/kg	17	2.0	6119763
Acid Extractable Cobalt (Co)	mg/kg	7.4	1.0	6119763
Acid Extractable Copper (Cu)	mg/kg	9.8	2.0	6119763
Acid Extractable Iron (Fe)	mg/kg	19000	50	6119763
Acid Extractable Lead (Pb)	mg/kg	11	0.50	6119763
Acid Extractable Lithium (Li)	mg/kg	24	2.0	6119763
Acid Extractable Manganese (Mn)	mg/kg	560	2.0	6119763
Acid Extractable Mercury (Hg)	mg/kg	<0.10	0.10	6119763
Acid Extractable Molybdenum (Mo)	mg/kg	5.5	2.0	6119763
Acid Extractable Nickel (Ni)	mg/kg	17	2.0	6119763
Acid Extractable Rubidium (Rb)	mg/kg	9.9	2.0	6119763
Acid Extractable Selenium (Se)	mg/kg	<1.0	1.0	6119763
Acid Extractable Silver (Ag)	mg/kg	<0.50	0.50	6119763
Acid Extractable Strontium (Sr)	mg/kg	270	5.0	6119763
Acid Extractable Thallium (Tl)	mg/kg	<0.10	0.10	6119763
Acid Extractable Tin (Sn)	mg/kg	<1.0	1.0	6119763
Acid Extractable Uranium (U)	mg/kg	2.9	0.10	6119763
Acid Extractable Vanadium (V)	mg/kg	21	2.0	6119763
Acid Extractable Zinc (Zn)	mg/kg	45	5.0	6119763
RDL = Reportable Detection Limit				
QC Batch = Quality Control Batch				

SEMI-VOLATILE ORGANICS BY GC-MS (SOIL)

Maxxam ID		JQZ281		JQZ282	JQZ283	JQZ284	JQZ285	JQZ286		
Sampling Date		2019/04/29 13:59		2019/04/29 13:59	2019/04/29 13:59	2019/04/29 14:42	2019/05/02 10:29	2019/05/03 13:00		
COC Number		D40475		D40475	D40475	D40475	D40475	D40475		
	UNITS	VC-53-1	RDL	VC-53-2	VC-53-3	VC-54-1	VC-15-1	VC-10B-1	RDL	QC Batch

Polyaromatic Hydrocarbons										
1-Methylnaphthalene	mg/kg	<0.0050	0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6114865
2-Methylnaphthalene	mg/kg	<0.0050	0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6114865
Acenaphthene	mg/kg	<0.0050	0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6114865
Acenaphthylene	mg/kg	<0.0050	0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6114865
Anthracene	mg/kg	<0.0050	0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6114865
Benzo(a)anthracene	mg/kg	<0.0050	0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6114865
Benzo(a)pyrene	mg/kg	<0.0050	0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6114865
Benzo(b)fluoranthene	mg/kg	0.014	0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6114865
Benzo(b,j)fluoranthene	mg/kg	0.014	0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6112177
Benzo(g,h,i)perylene	mg/kg	<0.0050	0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6114865
Benzo(j)fluoranthene	mg/kg	<0.0050	0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6114865
Benzo(k)fluoranthene	mg/kg	<0.0050	0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6114865
Chrysene	mg/kg	0.014	0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6114865
Dibenz(a,h)anthracene	mg/kg	<0.0050	0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6114865
Fluoranthene	mg/kg	0.017	0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6114865
Fluorene	mg/kg	<0.0050	0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6114865
Indeno(1,2,3-cd)pyrene	mg/kg	<0.0050	0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6114865
Naphthalene	mg/kg	<0.0050	0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6114865
Perylene	mg/kg	0.021	0.0050	0.024	0.12	0.013	0.0085	<0.0050	0.0050	6114865
Phenanthrene	mg/kg	<0.020 (1)	0.020	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6114865
Pyrene	mg/kg	0.025	0.0050	<0.0050	<0.0050	<0.0050	0.013	<0.0050	0.0050	6114865

Surrogate Recovery (%)										
D10-Anthracene	%	90	N/A	88	89	88	90	90	N/A	6114865
D14-Terphenyl	%	93	N/A	95	96	95	95	96	N/A	6114865
D8-Acenaphthylene	%	83	N/A	81	82	79	86	86	N/A	6114865

RDL = Reportable Detection Limit

QC Batch = Quality Control Batch

N/A = Not Applicable

(1) Elevated PAH RDL(s) due to matrix / co-extractive interference.

SEMI-VOLATILE ORGANICS BY GC-MS (SOIL)

Maxxam ID		JQZ287	JQZ288	JQZ289	JQZ290	JQZ306	JQZ307		
Sampling Date		2019/05/03 13:42	2019/05/04 09:54	2019/05/03 11:26	2019/05/03 11:26	2019/05/04 11:43	2019/05/04 11:43		
COC Number		D40475	D40475	D40475	D40475	D40476	D40476		
	UNITS	VC-9	VC-03B-1	VC-11-1	VC-11-2	VC-02C-1	VC-02C-2	RDL	QC Batch

Polyaromatic Hydrocarbons

1-Methylnaphthalene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6114865
2-Methylnaphthalene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6114865
Acenaphthene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6114865
Acenaphthylene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6114865
Anthracene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6114865
Benzo(a)anthracene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6114865
Benzo(a)pyrene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6114865
Benzo(b)fluoranthene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6114865
Benzo(b/j)fluoranthene	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6112177
Benzo(g,h,i)perylene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6114865
Benzo(j)fluoranthene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6114865
Benzo(k)fluoranthene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6114865
Chrysene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6114865
Dibenz(a,h)anthracene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6114865
Fluoranthene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6114865
Fluorene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6114865
Indeno(1,2,3-cd)pyrene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6114865
Naphthalene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6114865
Perylene	mg/kg	<0.0050	<0.0050	0.014	0.020	<0.0050	0.026	0.0050	6114865
Phenanthrene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6114865
Pyrene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6114865

Surrogate Recovery (%)

D10-Anthracene	%	87	85	91	86	90	89	N/A	6114865
D14-Terphenyl	%	95	89	92	90	95	90	N/A	6114865
D8-Acenaphthylene	%	87	85	84	78	86	84	N/A	6114865

RDL = Reportable Detection Limit

QC Batch = Quality Control Batch

N/A = Not Applicable

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	5.0°C
Package 2	5.7°C

Sample JQZ281 [VC-53-1] : F2-F4 Analysis: Detection limits were adjusted for high moisture content.

Sample JQZ282 [VC-53-2] : F2-F4 Analysis: Detection limits were adjusted for high moisture content.

VOCF1 Analysis: Detection limits were raised due to high moisture content of soil provided.

Sample JQZ283 [VC-53-3] : F2-F4 Analysis: Detection limits were adjusted for high moisture content.

Sample JQZ284 [VC-54-1] : F2-F4 Analysis: Detection limits were adjusted for high moisture content.

VOCF1 Analysis: Detection limits were raised due to high moisture content of soil provided.

Sample JQZ286 [VC-10B-1] : VOCF1 Analysis: Greater than 10g of soil was submitted in the field preserved vial. This significantly exceeds the protocol specification of approximately 5g. Additional methanol was added to the vial to ensure extraction efficiency.

Sample JQZ287 [VC-9] : VOCF1 Analysis: Greater than 10g of soil was submitted in the field preserved vial. This significantly exceeds the protocol specification of approximately 5g. Additional methanol was added to the vial to ensure extraction efficiency.

Results relate only to the items tested.

QUALITY ASSURANCE REPORT

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
6114865	D10-Anthracene	2019/05/15	95	50 - 130	98	50 - 130	100	%				
6114865	D14-Terphenyl	2019/05/15	95	50 - 130	99	50 - 130	97	%				
6114865	D8-Acenaphthylene	2019/05/15	91	50 - 130	94	50 - 130	91	%				
6119430	o-Terphenyl	2019/05/14	102	60 - 130	99	60 - 130	100	%				
6121107	4-Bromofluorobenzene	2019/05/15	100	60 - 140	101	60 - 140	95	%				
6121107	D10-o-Xylene	2019/05/15	129	60 - 130	88	60 - 130	102	%				
6121107	D4-1,2-Dichloroethane	2019/05/15	105	60 - 140	101	60 - 140	102	%				
6121107	D8-Toluene	2019/05/15	99	60 - 140	99	60 - 140	101	%				
6127371	2,3,3',4,6-Pentachlorobiphenyl	2019/05/15			93	60 - 130	95	%				
6127371	2',3,5-Trichlorobiphenyl	2019/05/15			97	60 - 130	101	%				
6127371	22'33'44'566'-Nonachlorobiphenyl	2019/05/15			104	60 - 130	105	%				
6114558	Moisture	2019/05/13							0.33	25		
6114804	Clay	2019/05/27							25	35		
6114804	Gravel	2019/05/27							23	35		
6114804	Sand	2019/05/27							35	35		
6114804	Silt	2019/05/27							8.9	35		
6114865	1-Methylnaphthalene	2019/05/15	82	50 - 130	87	50 - 130	<0.0050	mg/kg	NC	50		
6114865	2-Methylnaphthalene	2019/05/15	83	50 - 130	89	50 - 130	<0.0050	mg/kg	NC	50		
6114865	Acenaphthene	2019/05/15	89	50 - 130	98	50 - 130	<0.0050	mg/kg	NC	50		
6114865	Acenaphthylene	2019/05/15	92	50 - 130	95	50 - 130	<0.0050	mg/kg	NC	50		
6114865	Anthracene	2019/05/15	89	50 - 130	93	50 - 130	<0.0050	mg/kg	NC	50		
6114865	Benzo(a)anthracene	2019/05/15	85	50 - 130	84	50 - 130	<0.0050	mg/kg	NC	50		
6114865	Benzo(a)pyrene	2019/05/15	72	50 - 130	71	50 - 130	<0.0050	mg/kg	NC	50		
6114865	Benzo(b)fluoranthene	2019/05/15	80	50 - 130	82	50 - 130	<0.0050	mg/kg	NC	50		
6114865	Benzo(g,h,i)perylene	2019/05/15	77	50 - 130	70	50 - 130	<0.0050	mg/kg	NC	50		
6114865	Benzo(j)fluoranthene	2019/05/15	72	50 - 130	73	50 - 130	<0.0050	mg/kg	NC	50		
6114865	Benzo(k)fluoranthene	2019/05/15	78	50 - 130	77	50 - 130	<0.0050	mg/kg	NC	50		
6114865	Chrysene	2019/05/15	103	50 - 130	102	50 - 130	<0.0050	mg/kg	NC	50		
6114865	Dibenz(a,h)anthracene	2019/05/15	75	50 - 130	68	50 - 130	<0.0050	mg/kg	NC	50		
6114865	Fluoranthene	2019/05/15	91	50 - 130	92	50 - 130	<0.0050	mg/kg	NC	50		
6114865	Fluorene	2019/05/15	95	50 - 130	100	50 - 130	<0.0050	mg/kg	NC	50		
6114865	Indeno(1,2,3-cd)pyrene	2019/05/15	74	50 - 130	66	50 - 130	<0.0050	mg/kg	NC	50		
6114865	Naphthalene	2019/05/15	87	50 - 130	94	50 - 130	<0.0050	mg/kg	NC	50		

QUALITY ASSURANCE REPORT(CONT'D)

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
6114865	Perylene	2019/05/15	69	50 - 130	68	50 - 130	<0.0050	mg/kg	NC	50		
6114865	Phenanthrene	2019/05/15	96	50 - 130	102	50 - 130	<0.0050	mg/kg	NC	50		
6114865	Pyrene	2019/05/15	90	50 - 130	91	50 - 130	<0.0050	mg/kg	NC	50		
6119430	F2 (C10-C16 Hydrocarbons)	2019/05/15	101	50 - 130	95	80 - 120	<10	ug/g	NC	30		
6119430	F3 (C16-C34 Hydrocarbons)	2019/05/15	99	50 - 130	94	80 - 120	<50	ug/g	NC	30		
6119430	F4 (C34-C50 Hydrocarbons)	2019/05/15	101	50 - 130	95	80 - 120	<50	ug/g	NC	30		
6119763	Acid Extractable Aluminum (Al)	2019/05/14					<10	mg/kg	1.6	35		
6119763	Acid Extractable Antimony (Sb)	2019/05/14	98	75 - 125	99	75 - 125	<2.0	mg/kg	NC	35		
6119763	Acid Extractable Arsenic (As)	2019/05/14	100	75 - 125	99	75 - 125	<2.0	mg/kg	NC	35		
6119763	Acid Extractable Barium (Ba)	2019/05/14	77	75 - 125	96	75 - 125	<5.0	mg/kg	6.1	35		
6119763	Acid Extractable Beryllium (Be)	2019/05/14	100	75 - 125	100	75 - 125	<2.0	mg/kg	NC	35		
6119763	Acid Extractable Bismuth (Bi)	2019/05/14	100	75 - 125	98	75 - 125	<2.0	mg/kg	NC	35		
6119763	Acid Extractable Boron (B)	2019/05/14	97	75 - 125	105	75 - 125	<50	mg/kg	NC	35		
6119763	Acid Extractable Cadmium (Cd)	2019/05/14	97	75 - 125	97	75 - 125	<0.30	mg/kg	NC	35		
6119763	Acid Extractable Chromium (Cr)	2019/05/14	98	75 - 125	97	75 - 125	<2.0	mg/kg	4.8	35		
6119763	Acid Extractable Cobalt (Co)	2019/05/14	100	75 - 125	98	75 - 125	<1.0	mg/kg	1.5	35		
6119763	Acid Extractable Copper (Cu)	2019/05/14	97	75 - 125	96	75 - 125	<2.0	mg/kg	NC	35		
6119763	Acid Extractable Iron (Fe)	2019/05/14					<50	mg/kg	4.1	35		
6119763	Acid Extractable Lead (Pb)	2019/05/14	98	75 - 125	97	75 - 125	<0.50	mg/kg	7.5	35		
6119763	Acid Extractable Lithium (Li)	2019/05/14	106	75 - 125	101	75 - 125	<2.0	mg/kg	2.8	35		
6119763	Acid Extractable Manganese (Mn)	2019/05/14	NC	75 - 125	100	75 - 125	<2.0	mg/kg	16	35		
6119763	Acid Extractable Mercury (Hg)	2019/05/14	94	75 - 125	101	75 - 125	<0.10	mg/kg	NC	35		
6119763	Acid Extractable Molybdenum (Mo)	2019/05/14	97	75 - 125	94	75 - 125	<2.0	mg/kg	NC	35		
6119763	Acid Extractable Nickel (Ni)	2019/05/14	100	75 - 125	99	75 - 125	<2.0	mg/kg	4.8	35		
6119763	Acid Extractable Rubidium (Rb)	2019/05/14	100	75 - 125	98	75 - 125	<2.0	mg/kg	NC	35		
6119763	Acid Extractable Selenium (Se)	2019/05/14	104	75 - 125	103	75 - 125	<1.0	mg/kg	NC	35		
6119763	Acid Extractable Silver (Ag)	2019/05/14	96	75 - 125	96	75 - 125	<0.50	mg/kg	NC	35		
6119763	Acid Extractable Strontium (Sr)	2019/05/14	102	75 - 125	97	75 - 125	<5.0	mg/kg	NC	35		
6119763	Acid Extractable Thallium (Tl)	2019/05/14	99	75 - 125	99	75 - 125	<0.10	mg/kg	NC	35		
6119763	Acid Extractable Tin (Sn)	2019/05/14	102	75 - 125	100	75 - 125	<1.0	mg/kg	NC	35		
6119763	Acid Extractable Uranium (U)	2019/05/14	104	75 - 125	103	75 - 125	<0.10	mg/kg	0.36	35		
6119763	Acid Extractable Vanadium (V)	2019/05/14	100	75 - 125	98	75 - 125	<2.0	mg/kg	12	35		
6119763	Acid Extractable Zinc (Zn)	2019/05/14	100	75 - 125	98	75 - 125	<5.0	mg/kg	9.5	35		

QUALITY ASSURANCE REPORT(CONT'D)

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
6121107	Benzene	2019/05/15	99	60 - 140	91	60 - 130	<0.0060	ug/g	NC	50		
6121107	Ethylbenzene	2019/05/15	99	60 - 140	92	60 - 130	<0.010	ug/g	NC	50		
6121107	F1 (C6-C10) - BTEX	2019/05/15					<10	ug/g	NC	30		
6121107	F1 (C6-C10)	2019/05/15	117	60 - 140	89	80 - 120	<10	ug/g	NC (1)	30		
6121107	o-Xylene	2019/05/15	97	60 - 140	90	60 - 130	<0.020	ug/g	NC	50		
6121107	p+m-Xylene	2019/05/15	96	60 - 140	90	60 - 130	<0.020	ug/g	NC	50		
6121107	Toluene	2019/05/15	96	60 - 140	89	60 - 130	<0.020	ug/g	2.2	50		
6121107	Total Xylenes	2019/05/15					<0.020	ug/g	NC	50		
6122751	Total Organic Carbon	2019/05/16					<500	mg/kg	4.1	35	110	75 - 125
6124602	Mercury (Hg)	2019/05/17	96	75 - 125	96	80 - 120	<0.010	mg/kg	NC	30	80	50 - 150
6127371	22'33'44'55'6'-NonaCB-(206)	2019/05/15			64	60 - 130	<0.010	mg/kg	NC	N/A		
6127371	22'33'44'55'-OctaCB-(194)	2019/05/15			84	60 - 130	<0.010	mg/kg	NC	N/A		
6127371	22'33'44'56'-OctaCB-(195)	2019/05/15			82	60 - 130	<0.010	mg/kg	NC	N/A		
6127371	22'33'44'5'-HeptaCB-(170)	2019/05/15			88	60 - 130	<0.010	mg/kg	NC	N/A		
6127371	22'33'44'6'-HeptaCB-(171)	2019/05/15			76	60 - 130	<0.010	mg/kg	NC	N/A		
6127371	22'33'44'-HexaCB-(128)	2019/05/15			87	60 - 130	<0.010	mg/kg	NC	N/A		
6127371	22'33'455'66'-NonaCB-(208)	2019/05/15			73	60 - 130	<0.010	mg/kg	NC	N/A		
6127371	22'33'455'6'-OctaCB-(199)	2019/05/15			84	60 - 130	<0.010	mg/kg	NC	N/A		
6127371	22'33'45'6'-HeptaCB-(177)	2019/05/15			66	60 - 130	<0.010	mg/kg	NC	N/A		
6127371	22'33'46'-HexaCB-(132)	2019/05/15			94	60 - 130	<0.010	mg/kg	NC	N/A		
6127371	22'33'4'-PentaCB-(82)	2019/05/15			76	60 - 130	<0.010	mg/kg	NC	N/A		
6127371	22'344'55'-HeptaCB-(180)	2019/05/15			75	60 - 130	<0.010	mg/kg	NC	N/A		
6127371	22'344'5'6'-HeptaCB-(183)	2019/05/15			73	60 - 130	<0.010	mg/kg	NC	N/A		
6127371	22'34'55'6'-HeptaCB-(187)	2019/05/15			75	60 - 130	<0.010	mg/kg	NC	N/A		
6127371	22'34'5'6'-HexaCB-(149)	2019/05/15			95	60 - 130	<0.010	mg/kg	NC	N/A		
6127371	22'345'-PentaCB-(87)	2019/05/15			95	60 - 130	<0.010	mg/kg	NC	N/A		
6127371	22'355'6'-HexaCB-(151)	2019/05/15			106	60 - 130	<0.010	mg/kg	NC	N/A		
6127371	22'35'6'-PentaCB-(95)	2019/05/15			103	60 - 130	<0.010	mg/kg	NC	N/A		
6127371	22'35'-TetraCB-(44)	2019/05/15			97	60 - 130	<0.010	mg/kg	NC	N/A		
6127371	22'44'55'-HexaCB-(153)	2019/05/15			108	60 - 130	<0.010	mg/kg	NC	N/A		
6127371	22'44'5'-PentaCB-(99)	2019/05/15			85	60 - 130	<0.010	mg/kg	NC	N/A		
6127371	22'455'-PentaCB-(101)	2019/05/15			93	60 - 130	<0.010	mg/kg	NC	N/A		
6127371	22'45'-TetraCB-(49)	2019/05/15			98	60 - 130	<0.010	mg/kg	NC	N/A		

QUALITY ASSURANCE REPORT(CONT'D)

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
6127371	22'55'-TetraCB-(52)	2019/05/15			92	60 - 130	<0.010	mg/kg	NC	N/A		
6127371	233'44'55'6-OctaCB-(205)	2019/05/15			84	60 - 130	<0.010	mg/kg	NC	N/A		
6127371	233'44'5'6-HeptaCB-(191)	2019/05/15			75	60 - 130	<0.010	mg/kg	NC	N/A		
6127371	233'44'5-HexaCB-(156)	2019/05/15			99	60 - 130	<0.010	mg/kg	NC	N/A		
6127371	233'44'-PentaCB-(105)	2019/05/15			131 (2)	60 - 130	<0.010	mg/kg	NC	N/A		
6127371	233'4'6-PentaCB-(110)	2019/05/15			107	60 - 130	<0.010	mg/kg	NC	N/A		
6127371	23'44'5-PentaCB-(118)	2019/05/15			109	60 - 130	<0.010	mg/kg	NC	N/A		
6127371	23'4'5-TetraCB-(70)	2019/05/15			96	60 - 130	<0.010	mg/kg	NC	N/A		
6127371	2'34-TriCB-(33)	2019/05/15			93	60 - 130	<0.010	mg/kg	NC	N/A		
6127371	244'5-TetraCB-(74)	2019/05/15			117	60 - 130	<0.010	mg/kg	NC	N/A		
6127371	33'44'55'-HexaCB-(169)	2019/05/15			121	60 - 130	<0.010	mg/kg	NC	N/A		
6127371	DecaCB-(209)	2019/05/15			79	60 - 130	<0.010	mg/kg	NC	N/A		
6127371	Decachlorobiphenyls	2019/05/15					<0.010	mg/kg	NC	30		
6127371	Heptachlorobiphenyls	2019/05/15					<0.010	mg/kg	NC	30		
6127371	HexaCB-(138)+(158)	2019/05/15			118	60 - 130	<0.010	mg/kg	NC	N/A		
6127371	Hexachlorobiphenyls	2019/05/15					<0.010	mg/kg	NC	30		
6127371	Nonachlorobiphenyls	2019/05/15					<0.010	mg/kg	NC	30		
6127371	Octachlorobiphenyls	2019/05/15					<0.010	mg/kg	NC	30		
6127371	Pentachlorobiphenyls	2019/05/15					<0.010	mg/kg	NC	30		
6127371	Tetrachlorobiphenyls	2019/05/15					<0.010	mg/kg	NC	30		
6127371	Total PCB	2019/05/15			92	60 - 130	<0.010	mg/kg	NC	30		
6127371	TriCB-(17)+(18)	2019/05/15			94	60 - 130	<0.010	mg/kg	NC	N/A		
6127371	TriCB-(28)+(31)	2019/05/15			91	60 - 130	<0.010	mg/kg	NC	N/A		

QUALITY ASSURANCE REPORT(CONT'D)

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
6127371	Trichlorobiphenyls	2019/05/15					<0.010	mg/kg	NC	30		

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) VOCF1 Analysis: Detection limits were raised due to high moisture content of soil provided.

(2) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Anastassia Hamanov, Scientific Specialist



Eric Dearman, Scientific Specialist



Sylvain Chevigny, B.Sc., Chemist, Scientific Service Specialist



Gina Thompson, Inorganics General Chemistry Supervisor



Rosemarie MacDonald, Scientific Specialist (Organics)

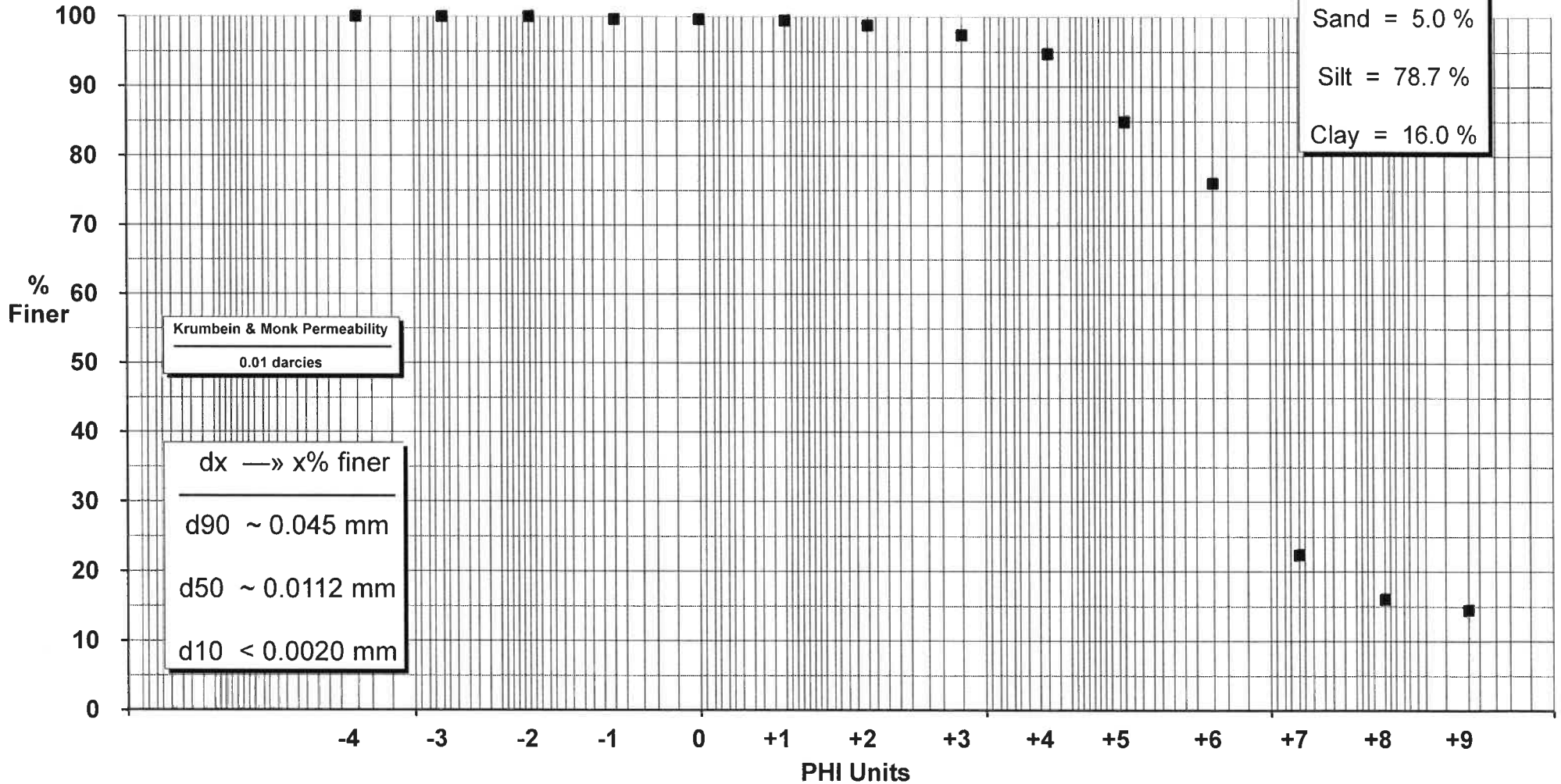
Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



VC-53-1

Percent Coarser than 75 μm (PHI = 3.737)	Percent Coarser than 50 μm (PHI = 4.322)
—	—
4.6 %	8.4 %

Wentworth
Gravel = 0.3 %
Sand = 5.0 %
Silt = 78.7 %
Clay = 16.0 %



ATA
Approved

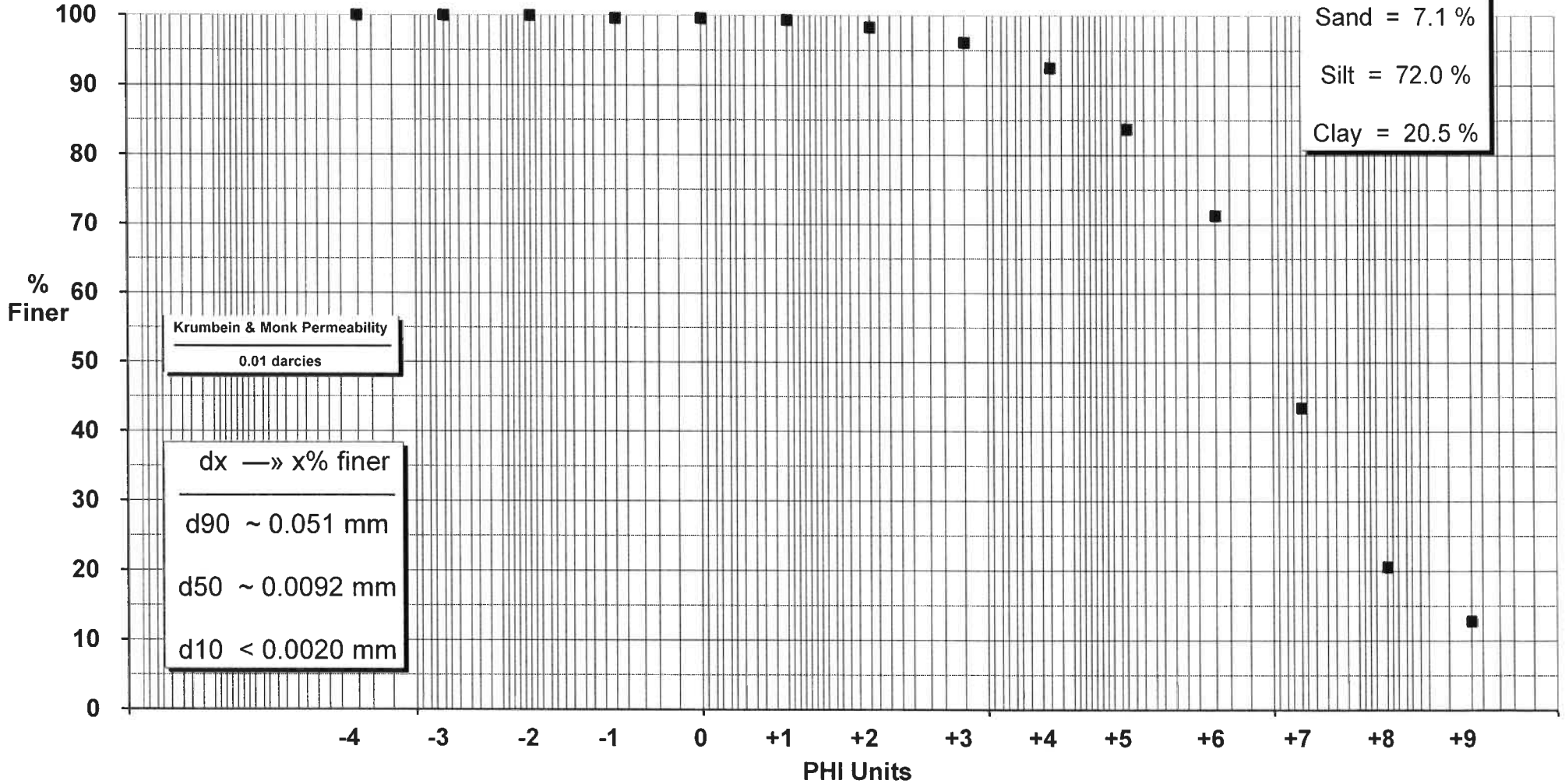


VC-53-1

Percent Coarser than 75 μm
(PHI = 3.737)
6.5 %

Percent Coarser than 50 μm
(PHI = 4.322)
10.3 %

Wentworth
Gravel = 0.4 %
Sand = 7.1 %
Silt = 72.0 %
Clay = 20.5 %



CFL
Approved

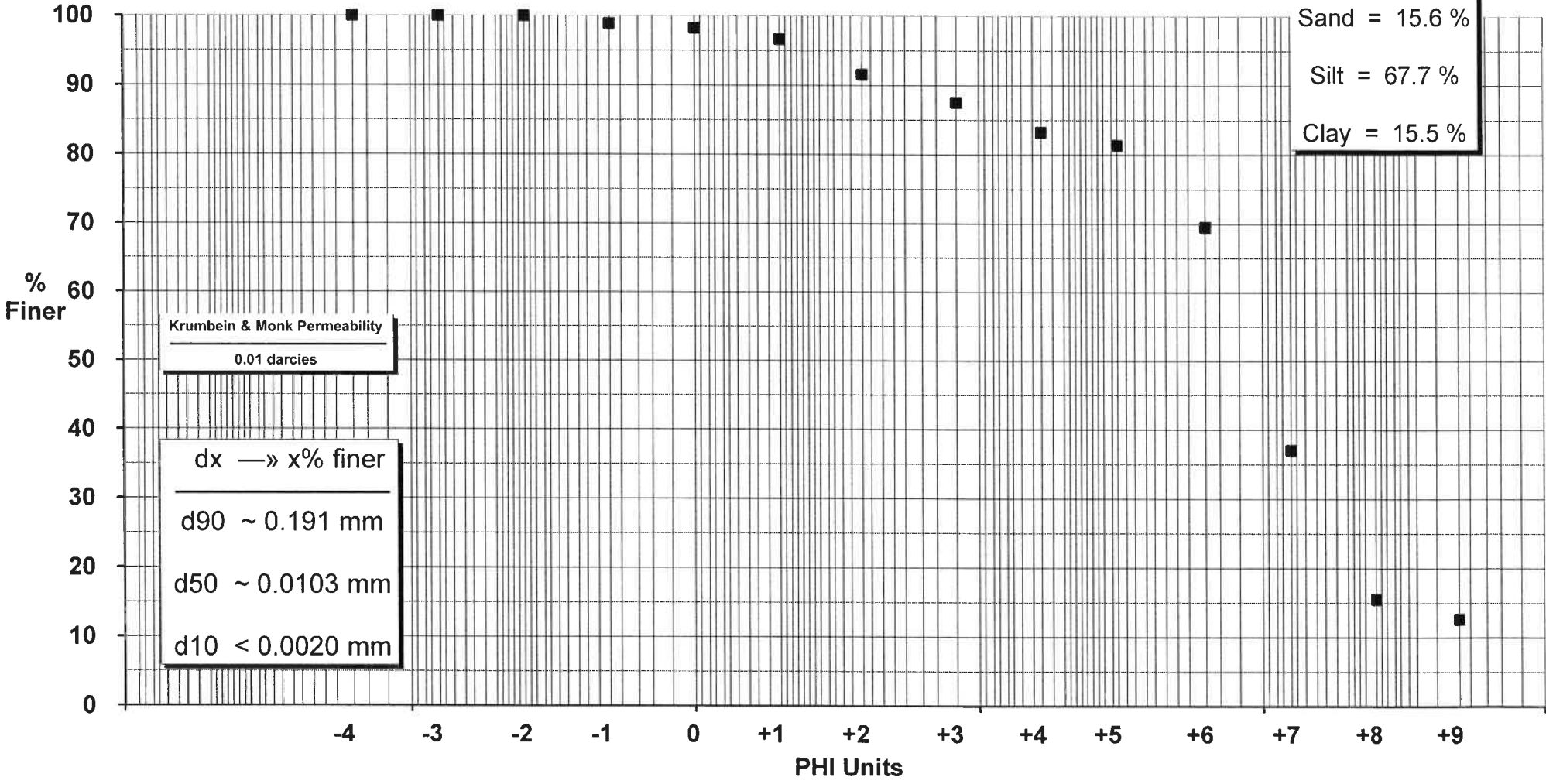
Maxxam

VC-53-2

Percent Coarser than 75 μ m (PHI = 3.737)
—
15.6 %

Percent Coarser than 50 μ m (PHI = 4.322)
—
17.4 %

Wentworth
Gravel = 1.1 %
Sand = 15.6 %
Silt = 67.7 %
Clay = 15.5 %



CSA
Approved

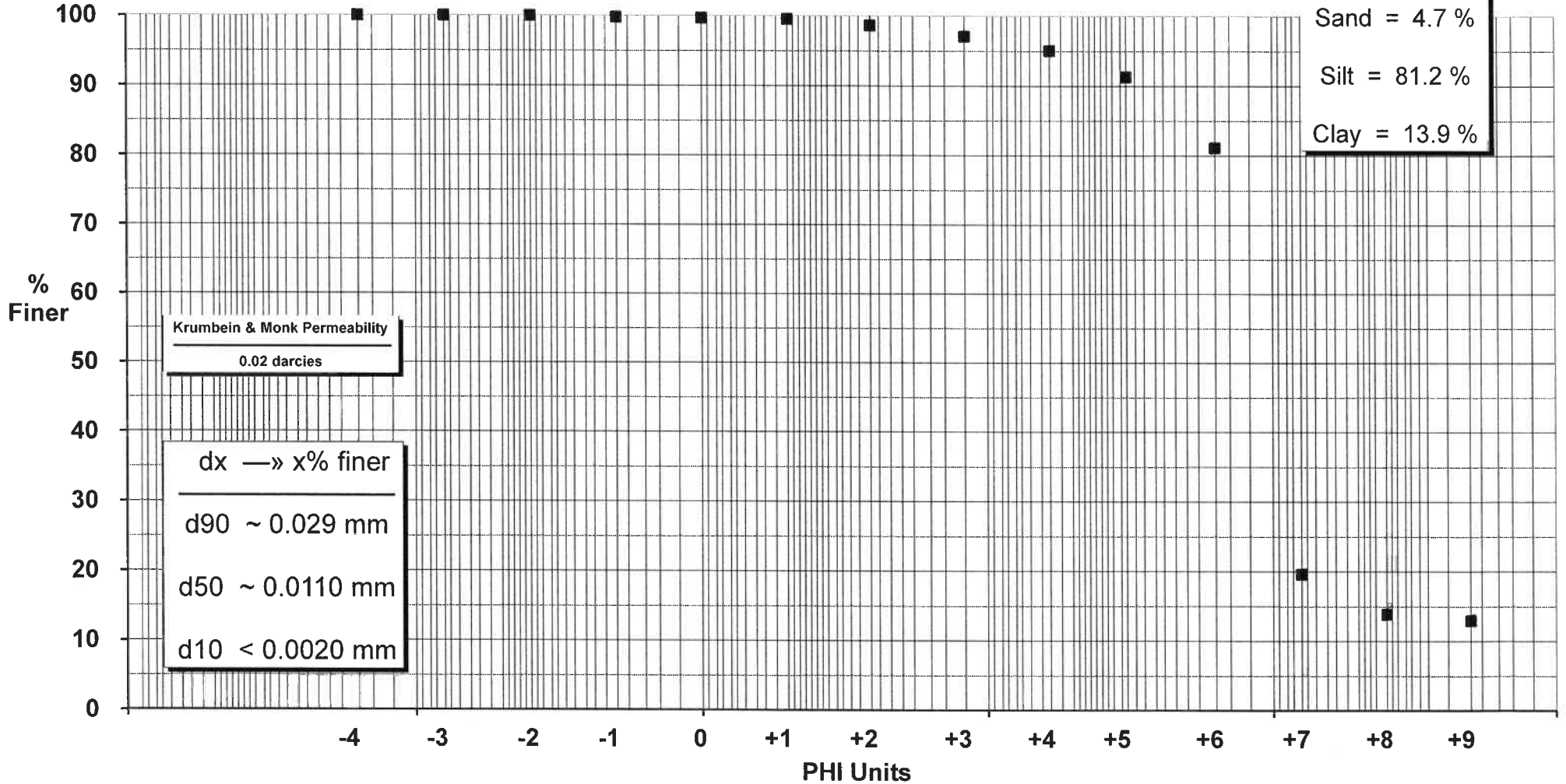


VC-53-3

Percent Coarser than 75 μ m
(PHI = 3.737)
4.4 %

Percent Coarser than 50 μ m
(PHI = 4.322)
6.1 %

Wentworth
Gravel = 0.2 %
Sand = 4.7 %
Silt = 81.2 %
Clay = 13.9 %



INA
Approved

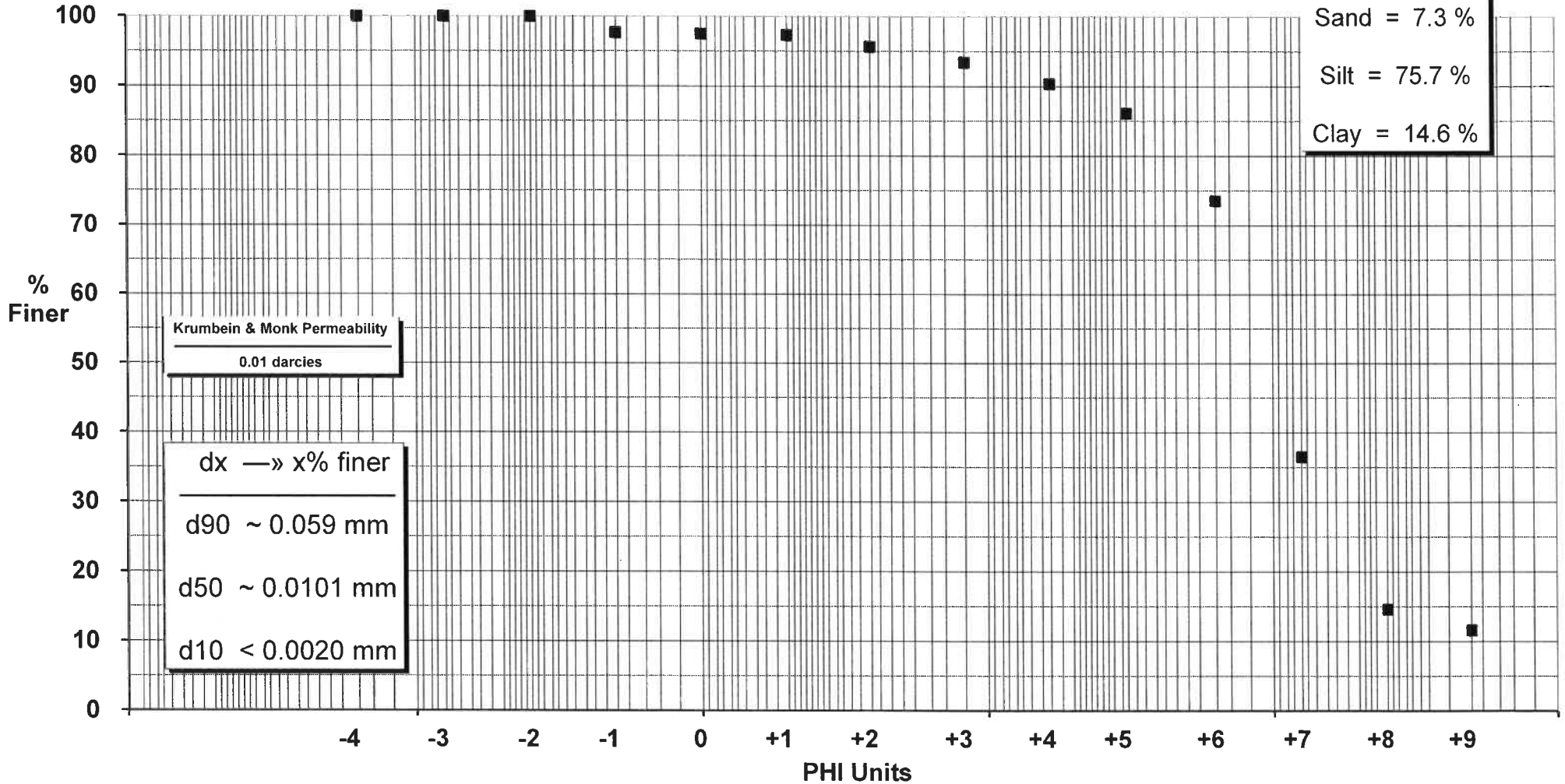


VC-54-1

Percent Coarser than 75 μm
(PHI = 3.737)
—
8.9 %

Percent Coarser than 50 μm
(PHI = 4.322)
—
11.0 %

Wentworth
—
Gravel = 2.3 %
Sand = 7.3 %
Silt = 75.7 %
Clay = 14.6 %



[Signature]
Approved

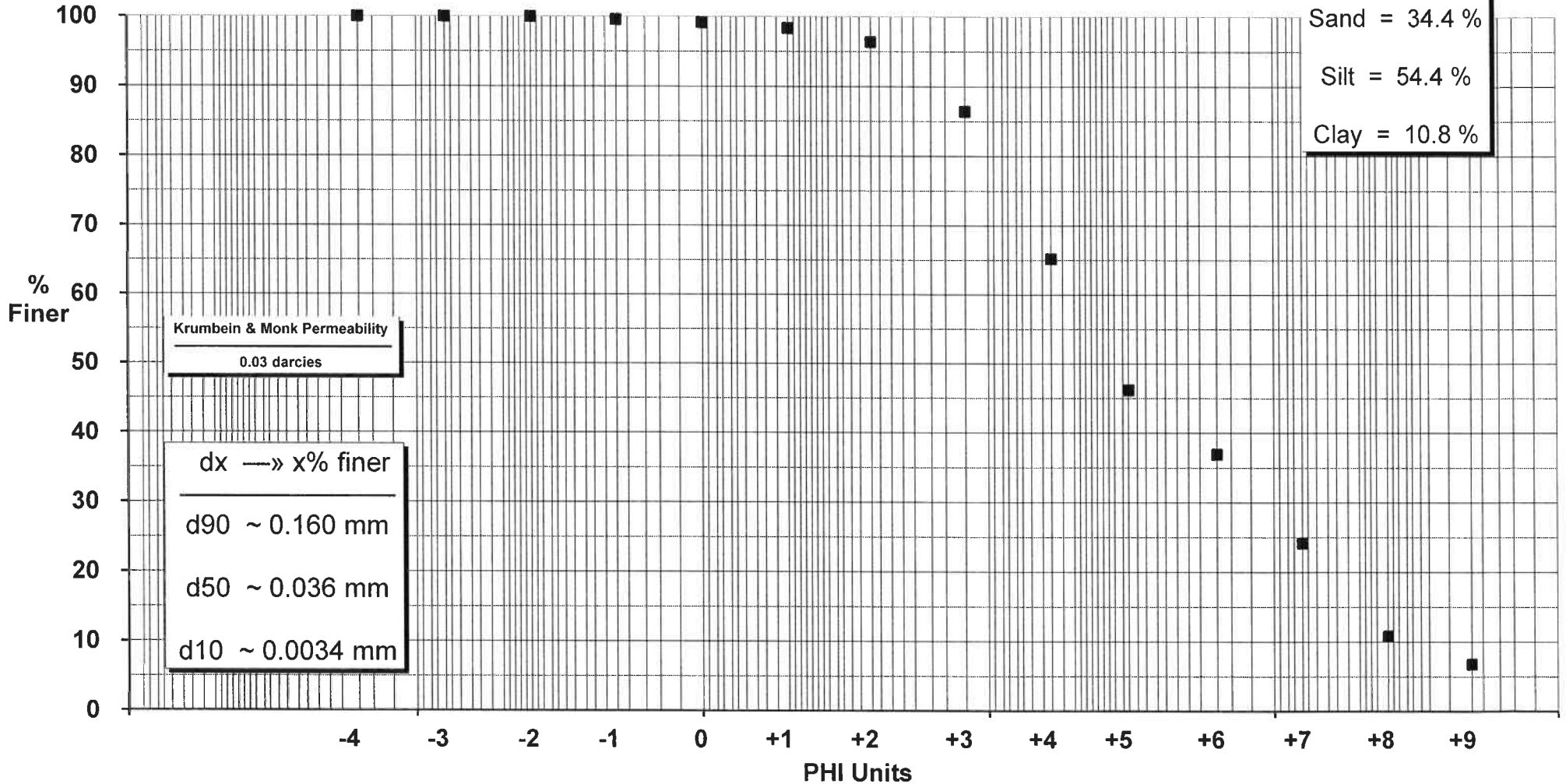


VC-15-1

Percent Coarser than 75 μm
(PHI = 3.737)
—
29.2 %

Percent Coarser than 50 μm
(PHI = 4.322)
—
40.9 %

Wentworth
—
Gravel = 0.4 %
Sand = 34.4 %
Silt = 54.4 %
Clay = 10.8 %



Approved

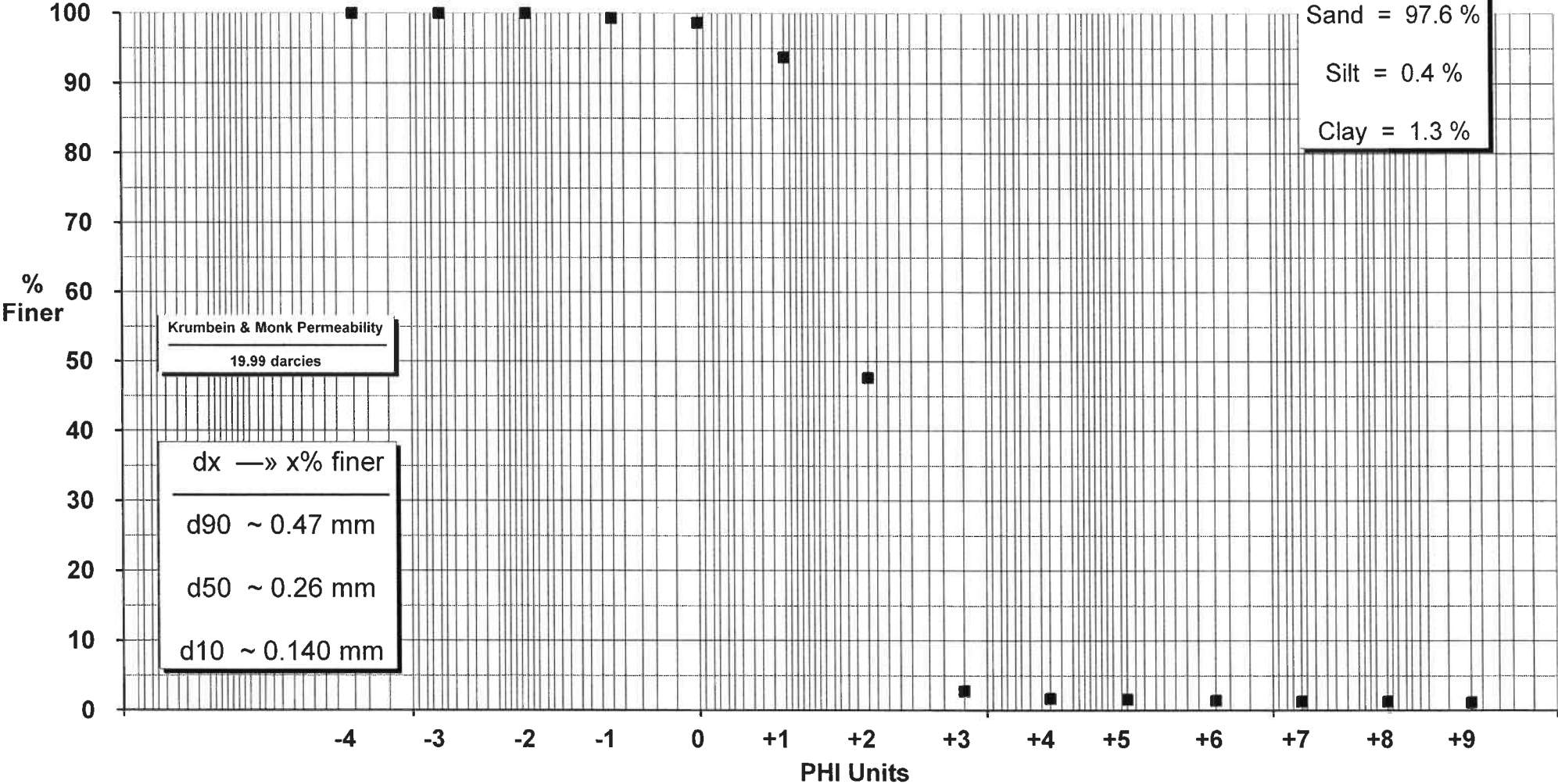


VC-10B-1

Percent Coarser than 75 μ m (PHI = 3.737)
—
98.0 %

Percent Coarser than 50 μ m (PHI = 4.322)
—
98.3 %

Wentworth
Gravel = 0.7 %
Sand = 97.6 %
Silt = 0.4 %
Clay = 1.3 %



CTH
Approved

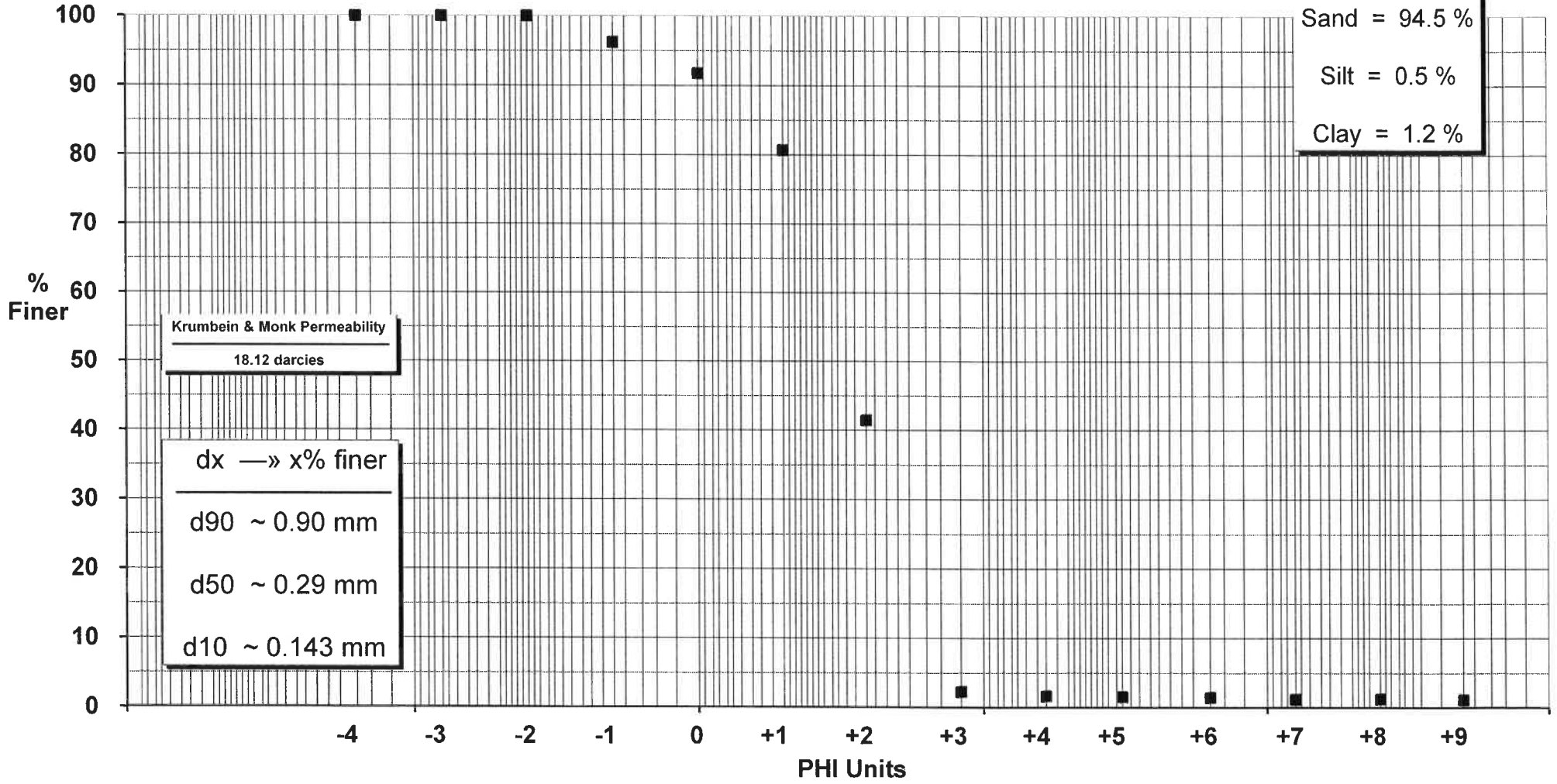


VC-9

Percent Coarser than 75 μm
(PHI = 3.737)
—
98.2 %

Percent Coarser than 50 μm
(PHI = 4.322)
—
98.4 %

Wentworth
Gravel = 3.8 %
Sand = 94.5 %
Silt = 0.5 %
Clay = 1.2 %



Approved

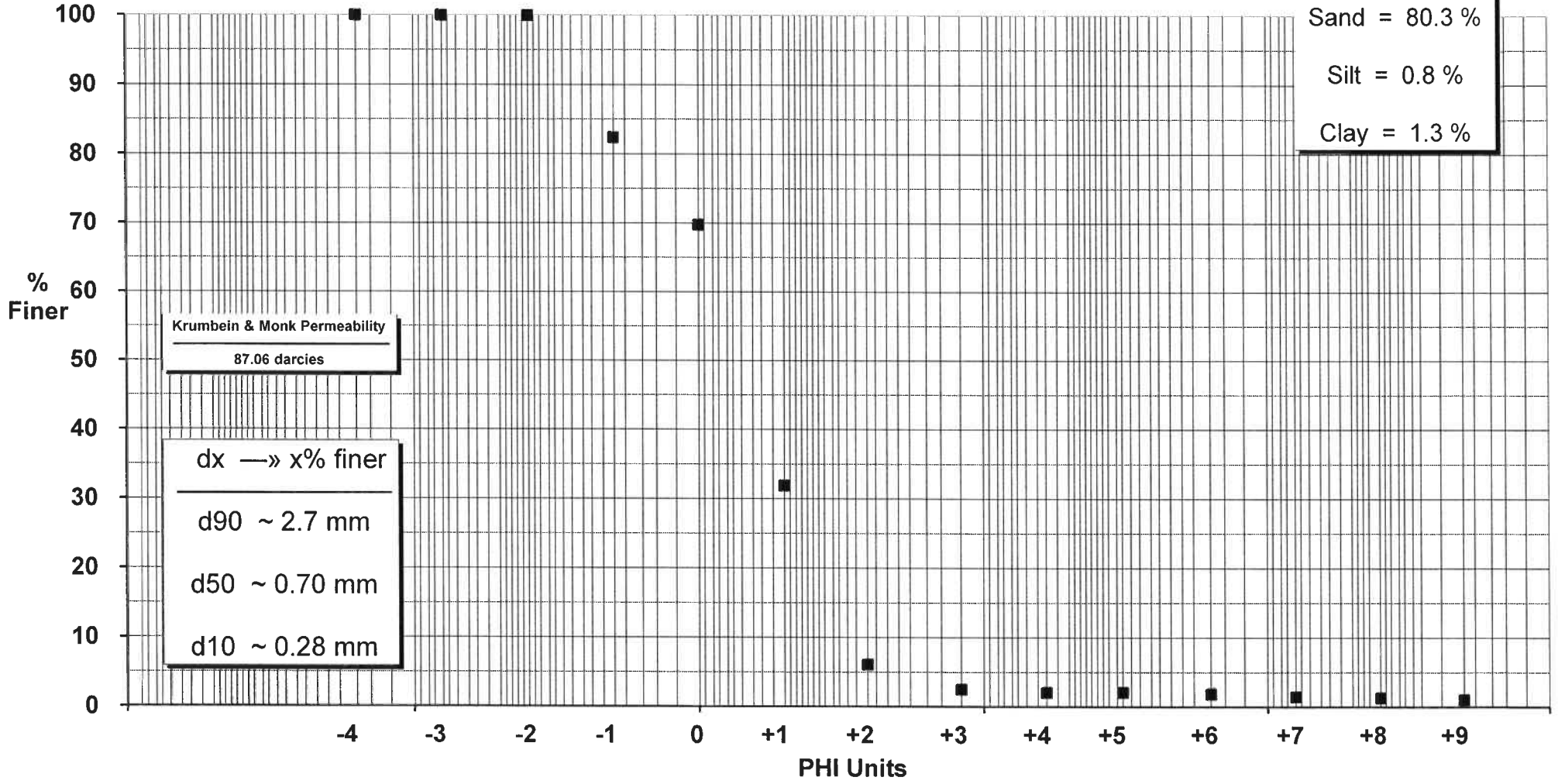


VC-03B-1

Percent Coarser than 75 μ m
(PHI = 3.737)
—
97.8 %

Percent Coarser than 50 μ m
(PHI = 4.322)
—
97.9 %

Wentworth
Gravel = 17.6 %
Sand = 80.3 %
Silt = 0.8 %
Clay = 1.3 %



DTA
Approved

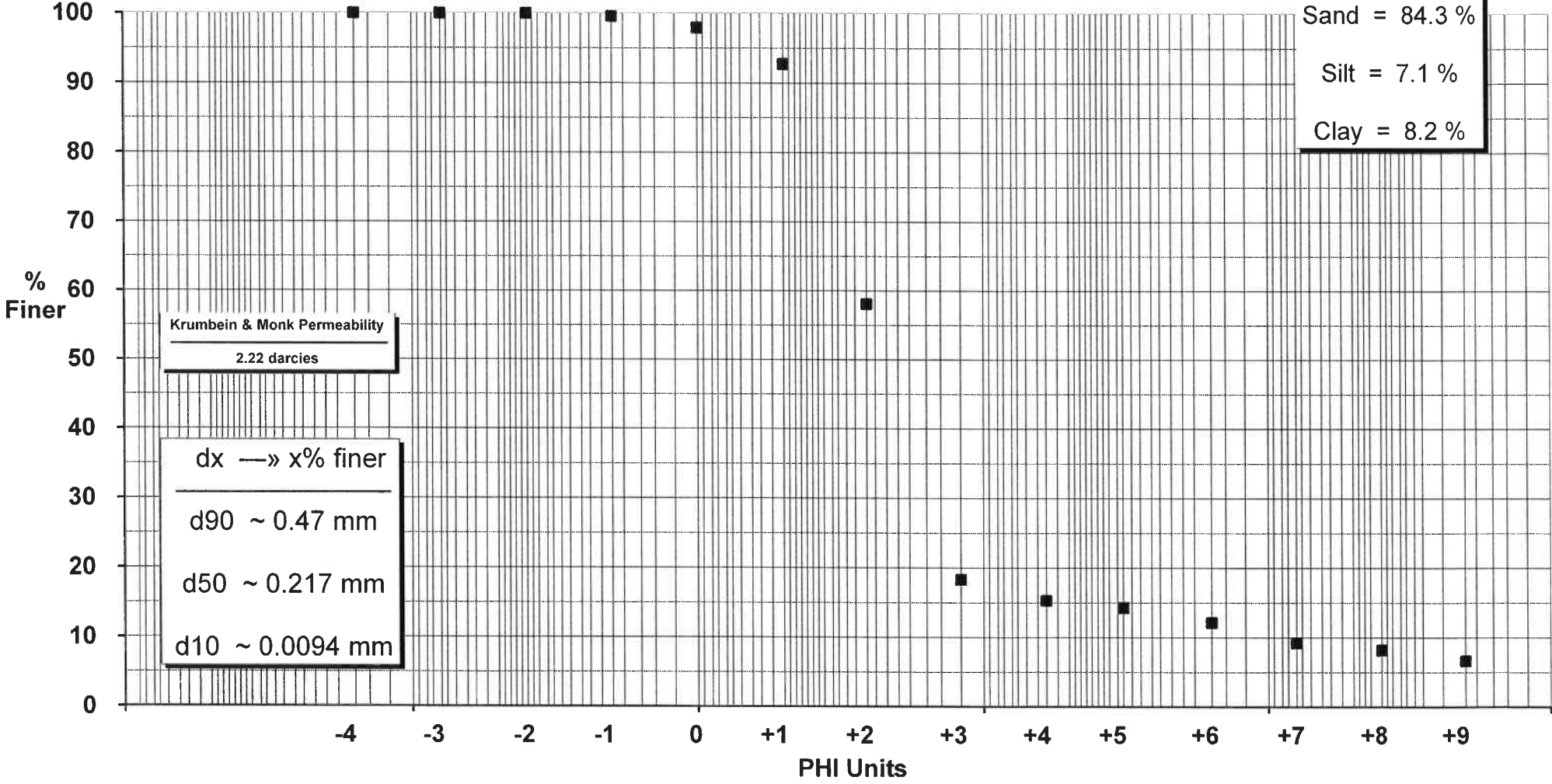


VC-11-1

Percent Coarser than 75 µm
(PHI = 3.737)
—
83.9 %

Percent Coarser than 50 µm
(PHI = 4.322)
—
85.0 %

Wentworth
Gravel = 0.4 %
Sand = 84.3 %
Silt = 7.1 %
Clay = 8.2 %



WJH
Approved

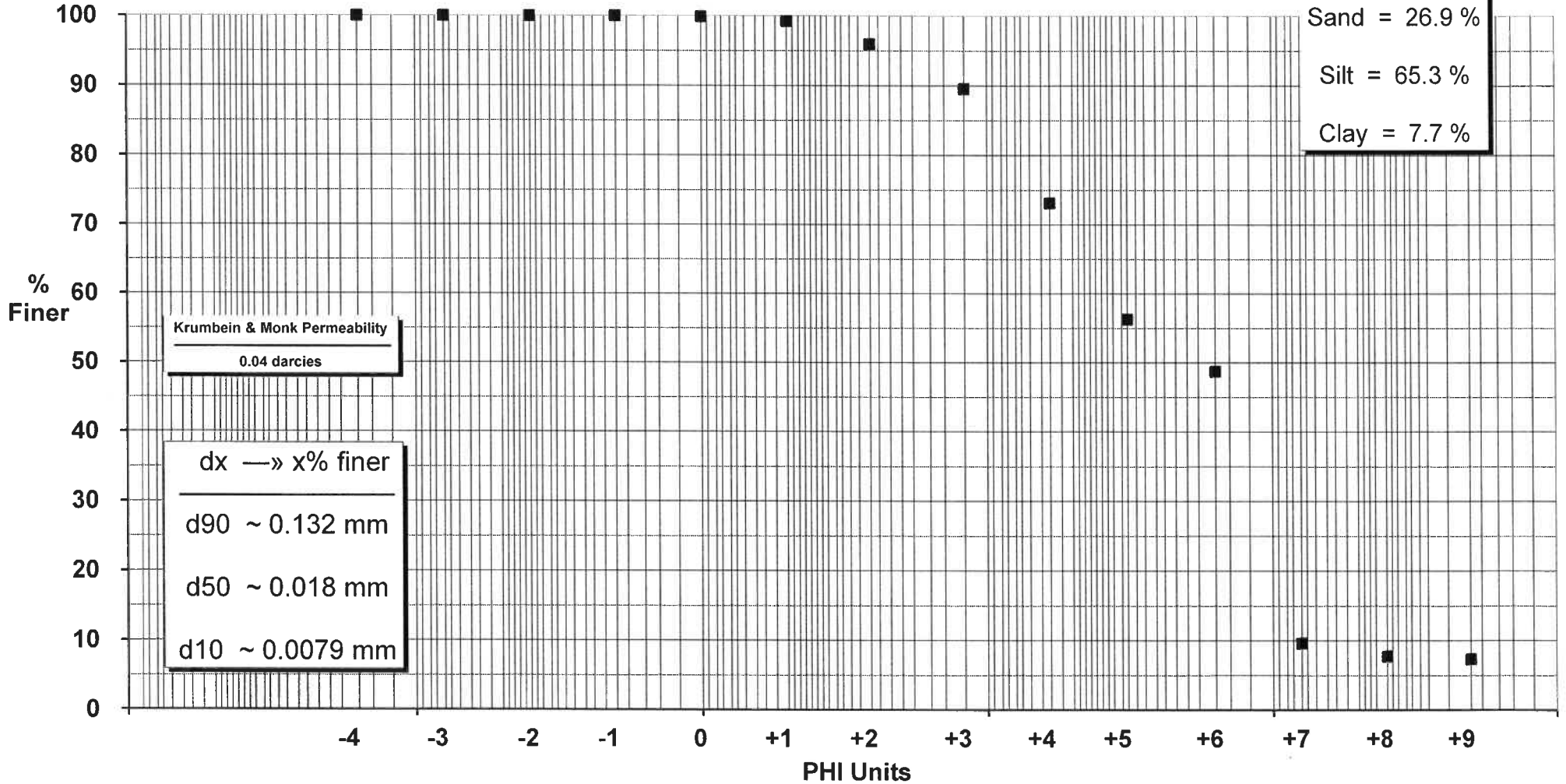


VC-11-2

Percent Coarser than 75 μm
(PHI = 3.737)
—
22.6 %

Percent Coarser than 50 μm
(PHI = 4.322)
—
32.3 %

Wentworth
—
Gravel = 0.0 %
Sand = 26.9 %
Silt = 65.3 %
Clay = 7.7 %



CTA
Approved

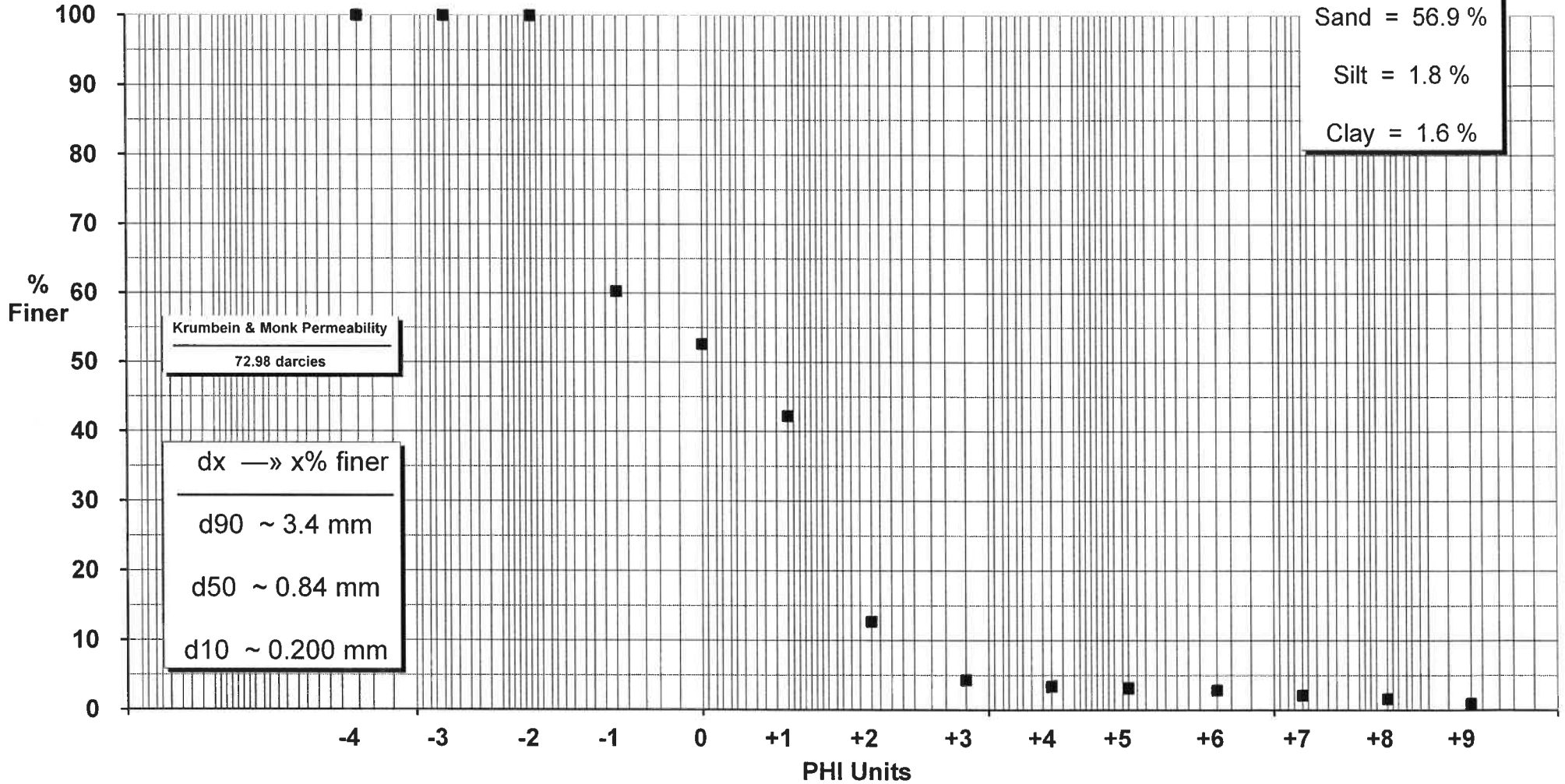


VC-02C-1

Percent Coarser than 75 μm
(PHI = 3.737)
—
96.4 %

Percent Coarser than 50 μm
(PHI = 4.322)
—
96.7 %

Wentworth
—
Gravel = 39.8 %
Sand = 56.9 %
Silt = 1.8 %
Clay = 1.6 %



[Signature]
Approved

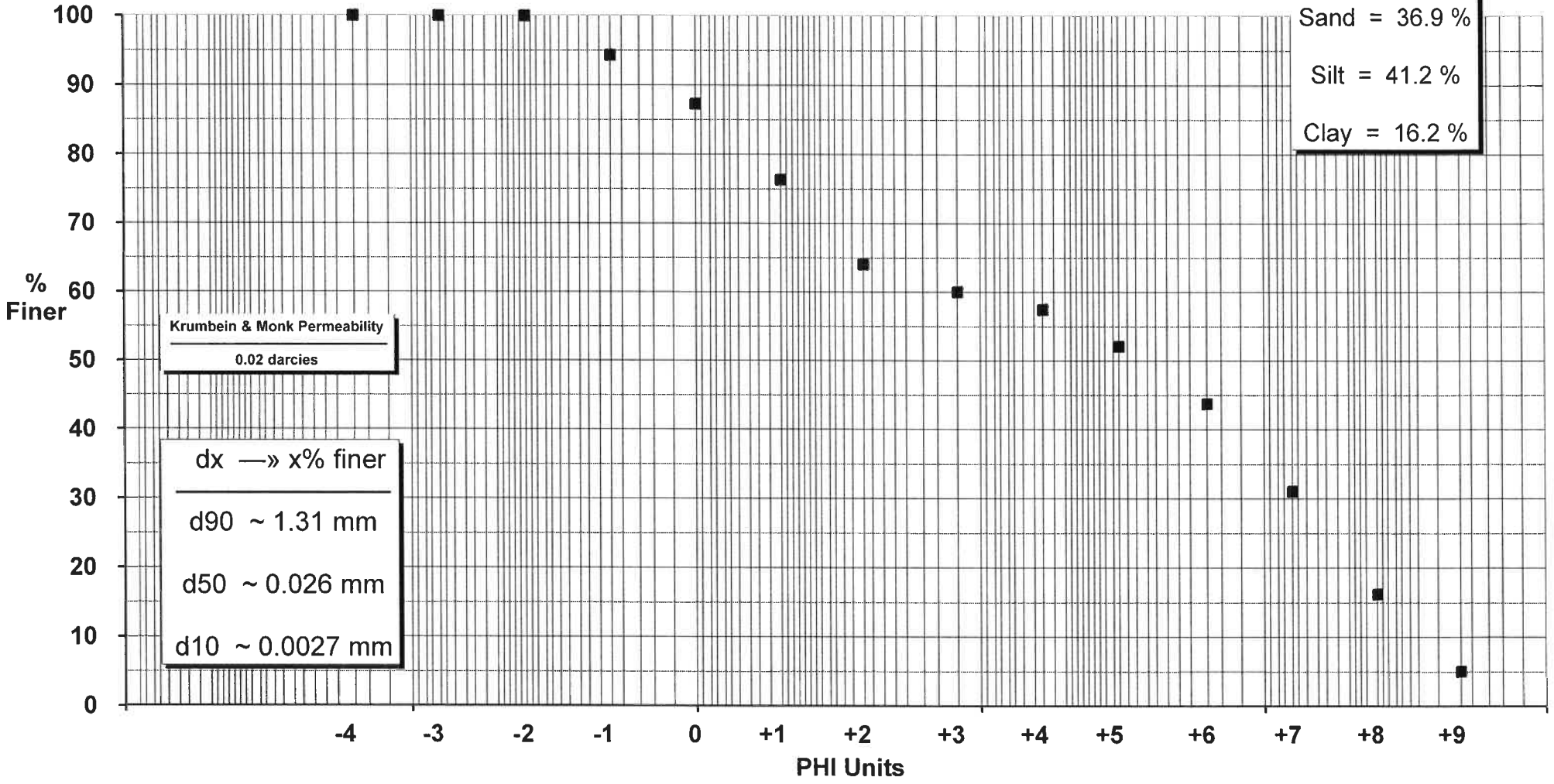


VC-02C-2

Percent Coarser than 75 μm
(PHI = 3.737)
—
41.9 %

Percent Coarser than 50 μm
(PHI = 4.322)
—
44.3 %

Wentworth
—
Gravel = 5.7 %
Sand = 36.9 %
Silt = 41.2 %
Clay = 16.2 %



Approved



200 Bluewater Road, Suite 105, Bedford, Nova Scotia B4B 1G9 Tel: 902-420-0203 Fax: 902-420-8612 Toll Free: 1-800-565-7227
 49-55 Elizabeth Avenue, St John's, NL A1A 1W9 Tel: 709-754-0203 Fax: 709-754-8612 Toll Free: 1-888-492-7227
 465 George Street, Unit G, Sydney, NS B1P 1K5 Tel: 902-567-1255 Fax: 902-539-8504 Toll Free: 1-888-535-7770

ATL FCD 00149 / 23

www.maxxam.ca E-mail: Customerservicebedford@maxxam.ca

CHAIN OF CUSTODY RECORD

COC #: **D40475** Page **1** of **2**

Invoice Information			Report Information (if differs from invoice)			Project Information (where applicable)			Turnaround Time (TAT) Required															
Company Name: STANTEC			Company Name: _____			Quotation #: _____			<input checked="" type="checkbox"/> Regular TAT (5 business days) Most analyses															
Contact Name: _____			Contact Name: Sam Sawyer			Purchase Order #: _____			PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS															
Address: _____			Address: _____			Project #: 121621877.400			IF RUSH please specify date (Surcharges will be applied)															
Phone: _____			Phone: 902 468 7777			Site Location: _____			DATE REQUIRED:															
Email: _____			Email: Sam.Sawyer@STANTEC.com			Site Province: _____																		
Report Copies: _____			Report Copies: _____			Sampled By: _____																		
Laboratory Use Only						Analysis Requested																		
CUSTODY SEAL		COOLER TEMPERATURES		COOLER TEMPERATURES		Metals (Water)	Metals (Soil)	PCAP-MS (Total Metals) Well / Surface water	PCAP-MS (Dissolved Metals) Ground waters	Total Digest (Default Method) for well water & surface water	Dissolved for ground water	Mercury (CIRCLE) TOTAL / DISSOLVED	Metals & Mercury	Default Acid Extractable (Available) Digest	Hex Water Soluble Boron (required for CCME Agricultural / Landfill)	RBCA Hydrocarbons (BTEX, G6-C32)	CCME Hydrocarbons (CVS-PHE,F4,BTEX, F2-F4)	PAHs (Default for water/soil)	PAHs (FWAL / CCME Sediment)	PCBs - Select One: Default or CCME Sediment	VOCs	Total Coliform/E.coli (Presence/Absence)	Total Coliform/E.coli (Count)	Regulatory Requirements (Specify)
Present	Intact																							
		7, 4, 4	9, 4, 4																					
COOLING MEDIA PRESENT Y / N																								
SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM																								
SAMPLE IDENTIFICATION	DATE SAMPLED (YYYY/MM/DD)	TIME SAMPLED (HH:MM)	MATRIX	# OF CONTAINERS SUBMITTED	FIELD FILTERED & PRESERVED	LAB FILTRATION REQUIRED	PCAP-MS (Total Metals) Well / Surface water	PCAP-MS (Dissolved Metals) Ground waters	Total Digest (Default Method) for well water & surface water	Dissolved for ground water	Mercury (CIRCLE) TOTAL / DISSOLVED	Metals & Mercury	Default Acid Extractable (Available) Digest	Hex Water Soluble Boron (required for CCME Agricultural / Landfill)	RBCA Hydrocarbons (BTEX, G6-C32)	CCME Hydrocarbons (CVS-PHE,F4,BTEX, F2-F4)	PAHs (Default for water/soil)	PAHs (FWAL / CCME Sediment)	PCBs - Select One: Default or CCME Sediment	VOCs	Total Coliform/E.coli (Presence/Absence)	Total Coliform/E.coli (Count)	Regulatory Requirements (Specify)	
1	VC-53-1	2019/04/29	13:39	sed	6																			COMMENTS: SEE ATTACHED ANALYSIS A
2	VC-53-2	↓	↓	6																				
3	VC-53-3	↓	↓	6																				
4	VC-54-1	↓	14:42	6																				
5	VC-15-1	2019/05/02	10:29	6																				
6	VC-10B-1	2019/05/03	13:00	6																				
7	VC-9	↓	13:42	6																				
8	VC-03B-1	2019/05/04	9:54	6																				
9	VC-11-1	2019/05/03	11:26	6																				
10	VC-11-2	↓	↓	6																				
RELINQUISHED BY: (Signature/Print)		DATE: (YYYY/MM/DD)		TIME: (HH:MM)		RECEIVED BY: (Signature/Print)		DATE: (YYYY/MM/DD)		TIME: (HH:MM)		MAXXAM JOB #												
		2019/05/08										B9C3697												
VI4		COMP.ZGM																						

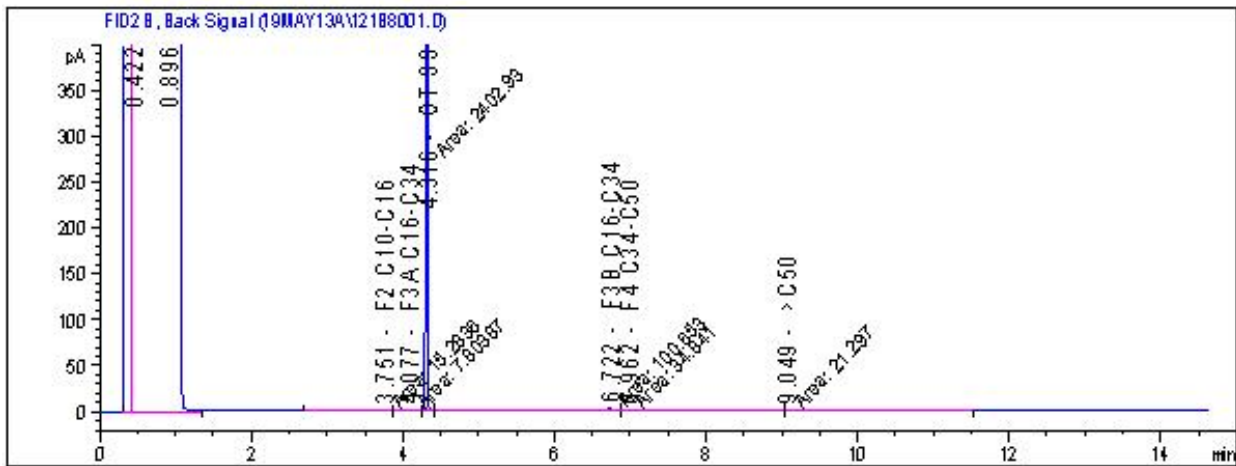
Unless otherwise agreed to in writing, work submitted on this Chain of Custody is subject to Maxxam's standard Terms and Conditions. Signing of this Chain of Custody document is acknowledgment and acceptance of our terms which are available for viewing at www.maxxam.ca/terms.

2019 MAY 8 15:43

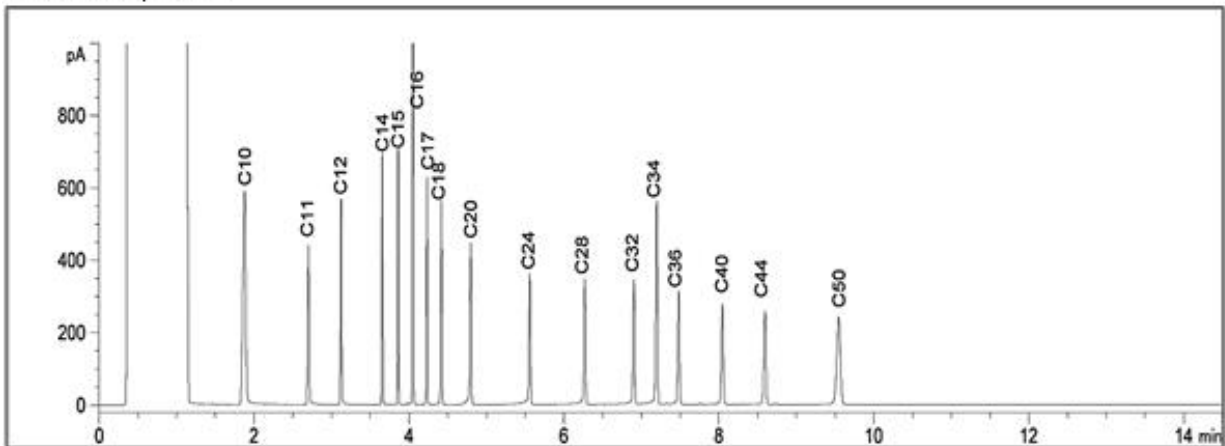
White: Maxxam

Pink: Client

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Reference Spectrum



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline: **C6 - C12**

Diesel: **C10 - C24**

Jet Fuels: **C6 - C16**

Varsol: **C8 - C12**

Fuel Oils: **C6 - C32**

Creosote: **C10 - C26**

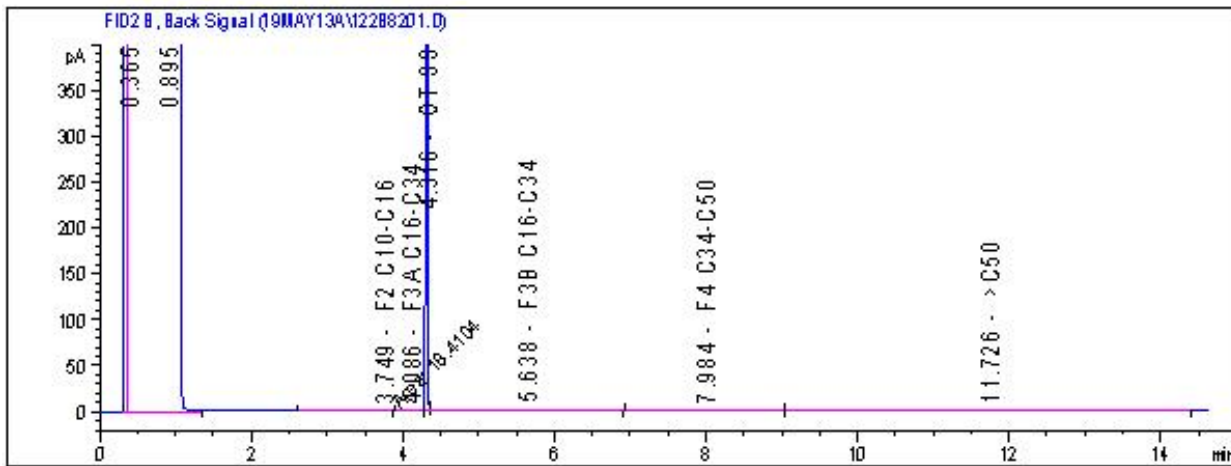
Kerosene: **C8 - C16**

Motor Oils: **C16 - C50**

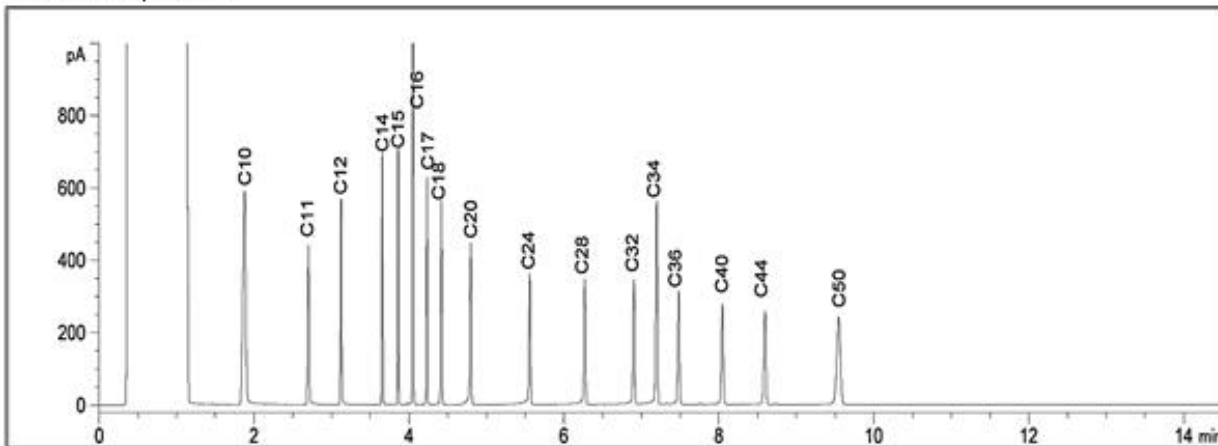
Asphalt: **C18 - C50+**

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Reference Spectrum



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline: **C6 - C12**

Diesel: **C10 - C24**

Jet Fuels: **C6 - C16**

Varsol: **C8 - C12**

Fuel Oils: **C6 - C32**

Creosote: **C10 - C26**

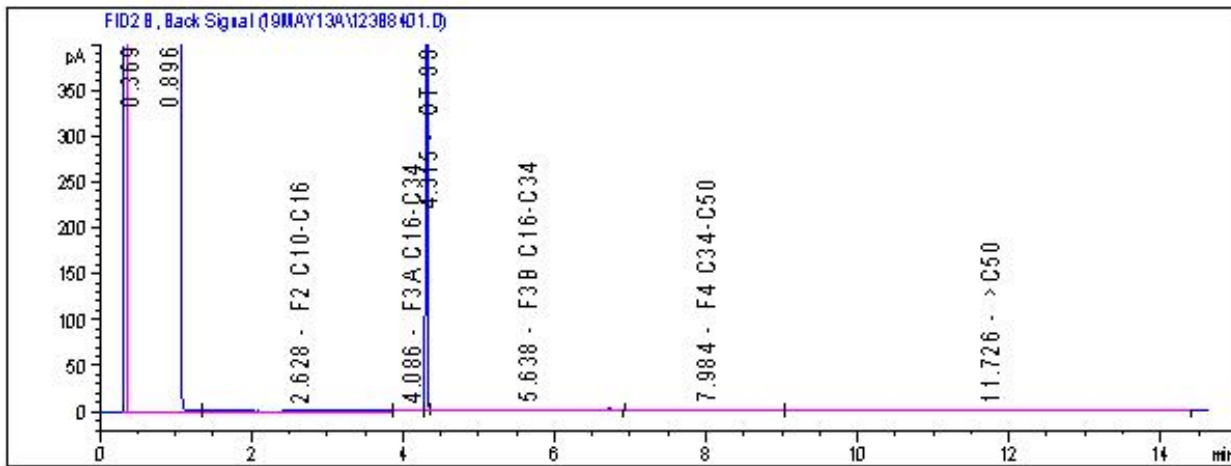
Kerosene: **C8 - C16**

Motor Oils: **C16 - C50**

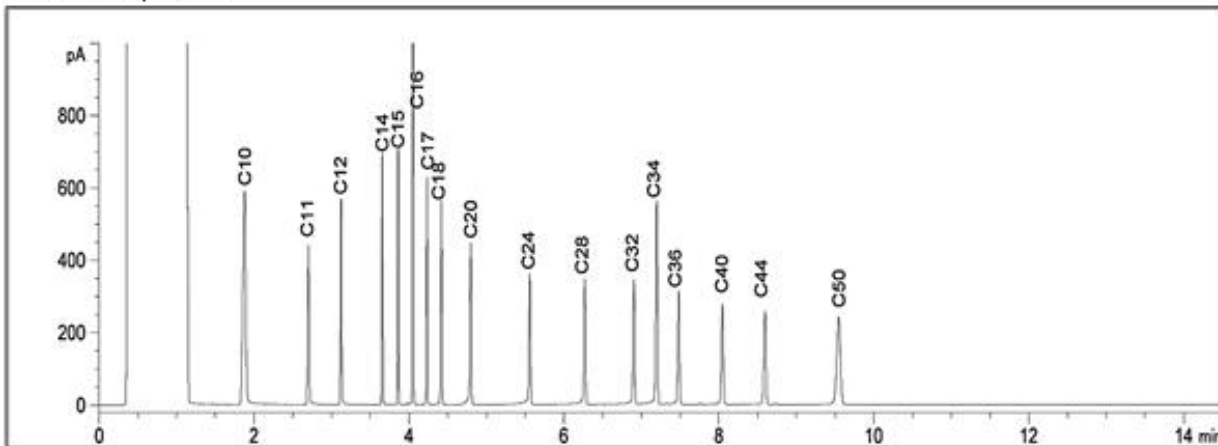
Asphalt: **C18 - C50+**

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Reference Spectrum



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline: **C6 - C12**

Diesel: **C10 - C24**

Jet Fuels: **C6 - C16**

Varsol: **C8 - C12**

Fuel Oils: **C6 - C32**

Creosote: **C10 - C26**

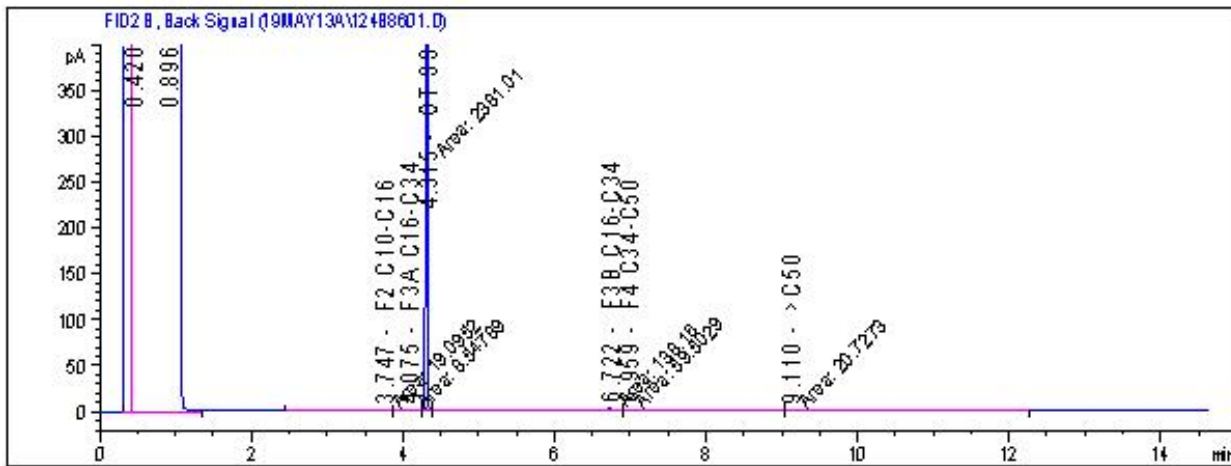
Kerosene: **C8 - C16**

Motor Oils: **C16 - C50**

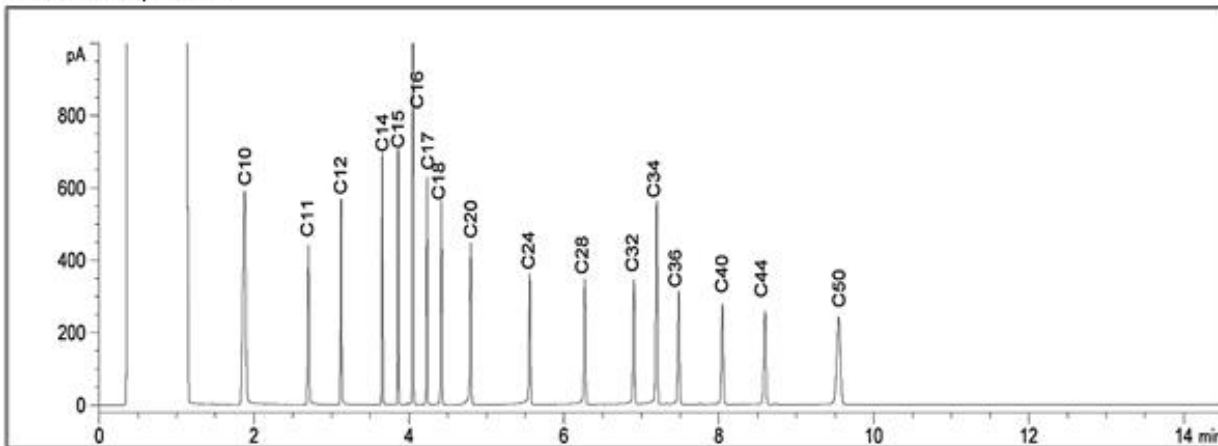
Asphalt: **C18 - C50+**

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Reference Spectrum



TYPICAL PRODUCT CARBON NUMBER RANGES

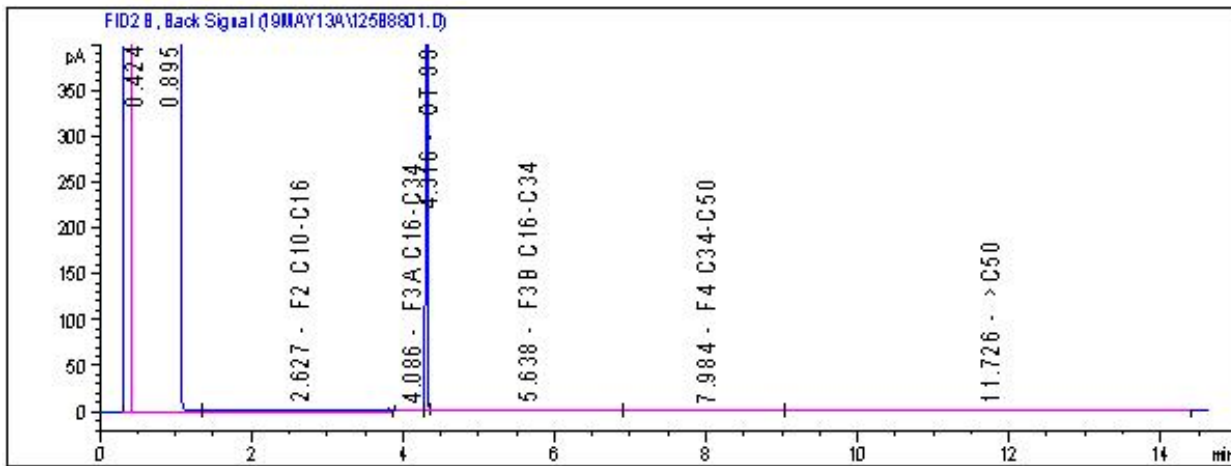
Gasoline: **C6 - C12**
 Varsol: **C8 - C12**
 Kerosene: **C8 - C16**

Diesel: **C10 - C24**
 Fuel Oils: **C6 - C32**
 Motor Oils: **C16 - C50**

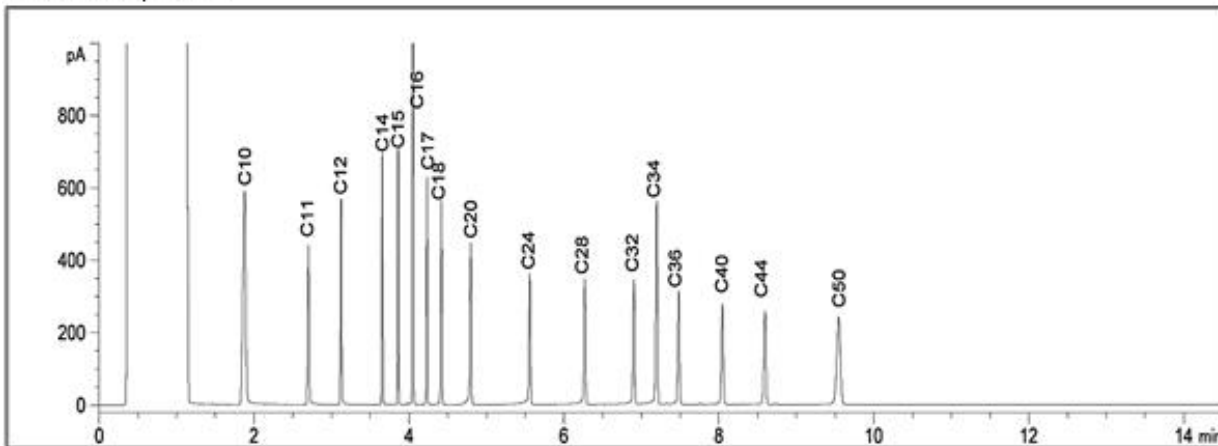
Jet Fuels: **C6 - C16**
 Creosote: **C10 - C26**
 Asphalt: **C18 - C50+**

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Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Reference Spectrum



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline: C6 - C12

Diesel: C10 - C24

Jet Fuels: C6 - C16

Varsol: C8 - C12

Fuel Oils: C6 - C32

Creosote: C10 - C26

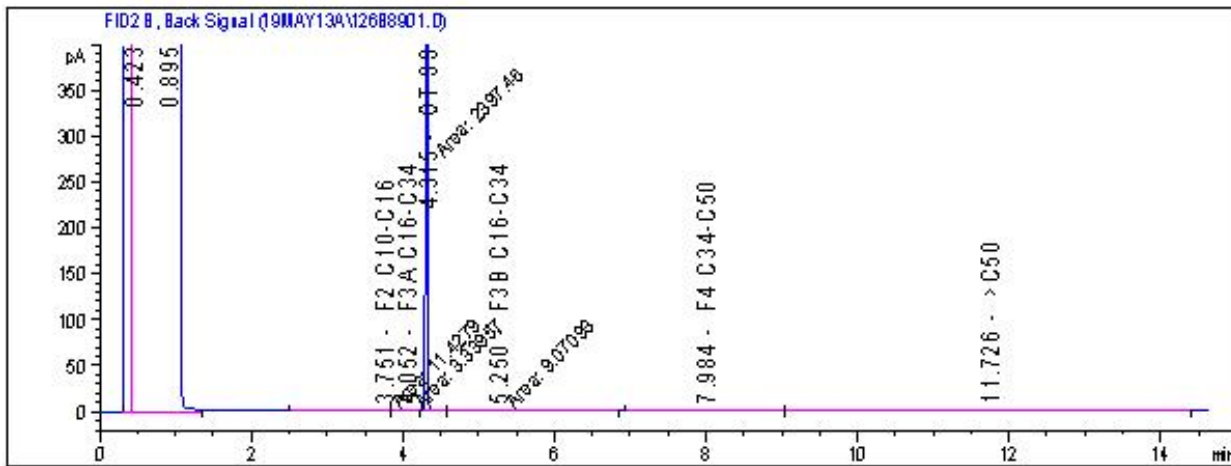
Kerosene: C8 - C16

Motor Oils: C16 - C50

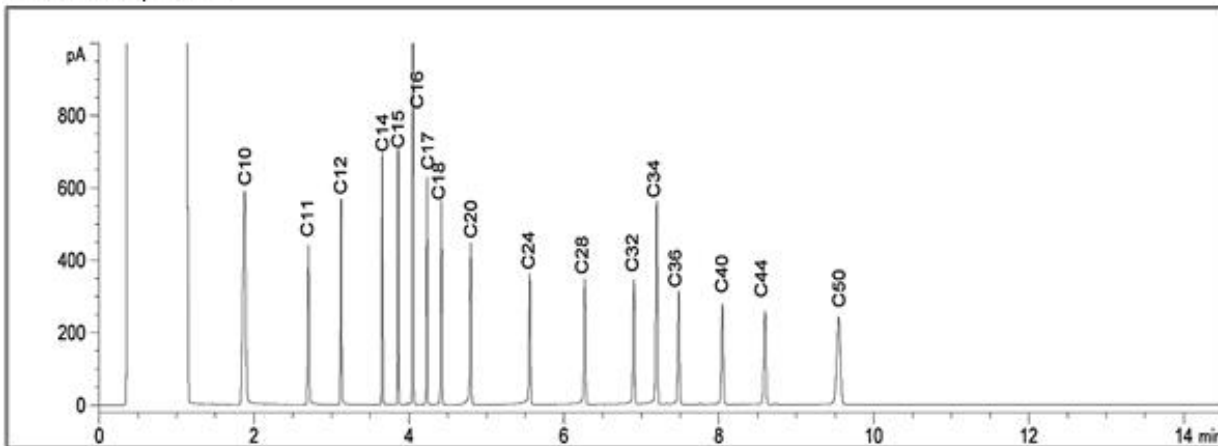
Asphalt: C18 - C50+

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Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Reference Spectrum



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline: **C6 - C12**

Diesel: **C10 - C24**

Jet Fuels: **C6 - C16**

Varsol: **C8 - C12**

Fuel Oils: **C6 - C32**

Creosote: **C10 - C26**

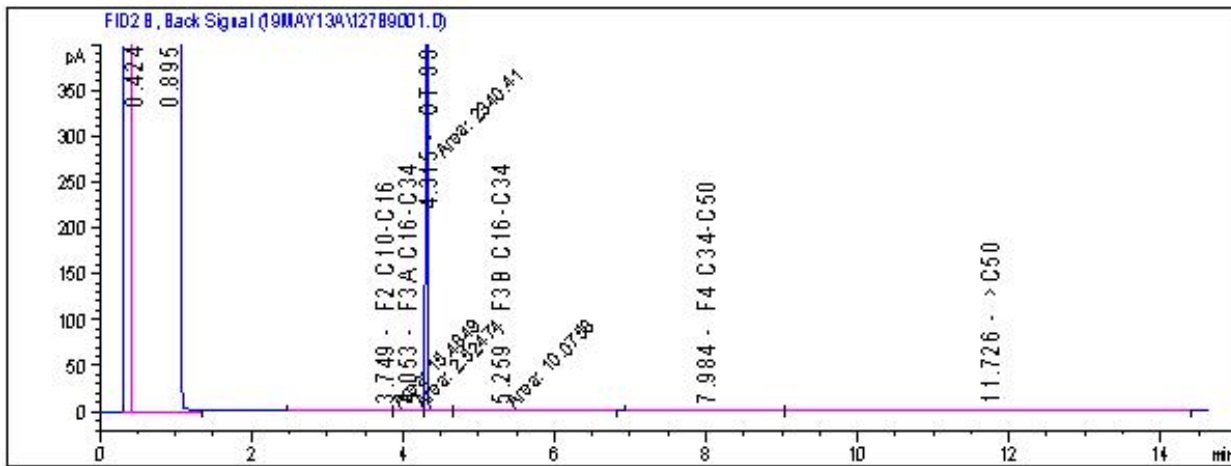
Kerosene: **C8 - C16**

Motor Oils: **C16 - C50**

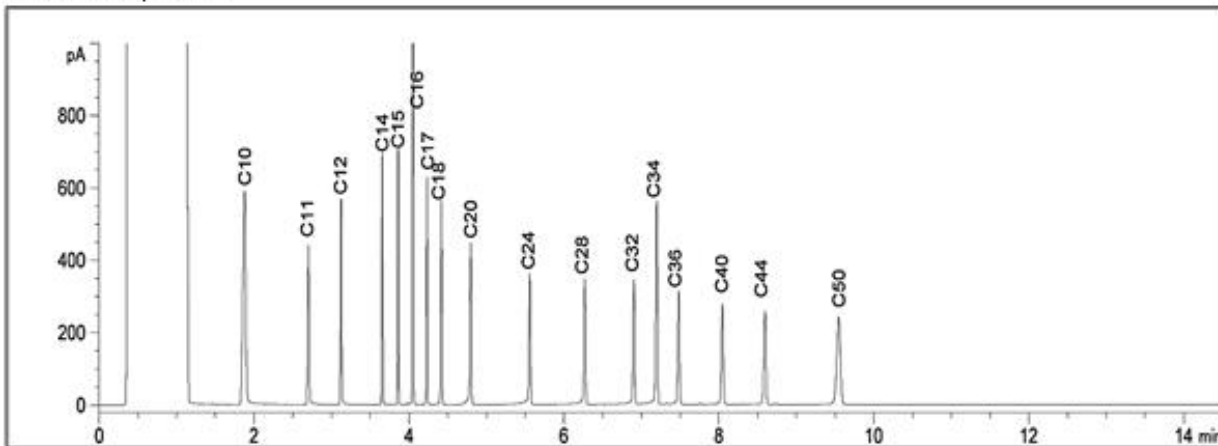
Asphalt: **C18 - C50+**

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Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Reference Spectrum



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline: **C6 - C12**

Diesel: **C10 - C24**

Jet Fuels: **C6 - C16**

Varsol: **C8 - C12**

Fuel Oils: **C6 - C32**

Creosote: **C10 - C26**

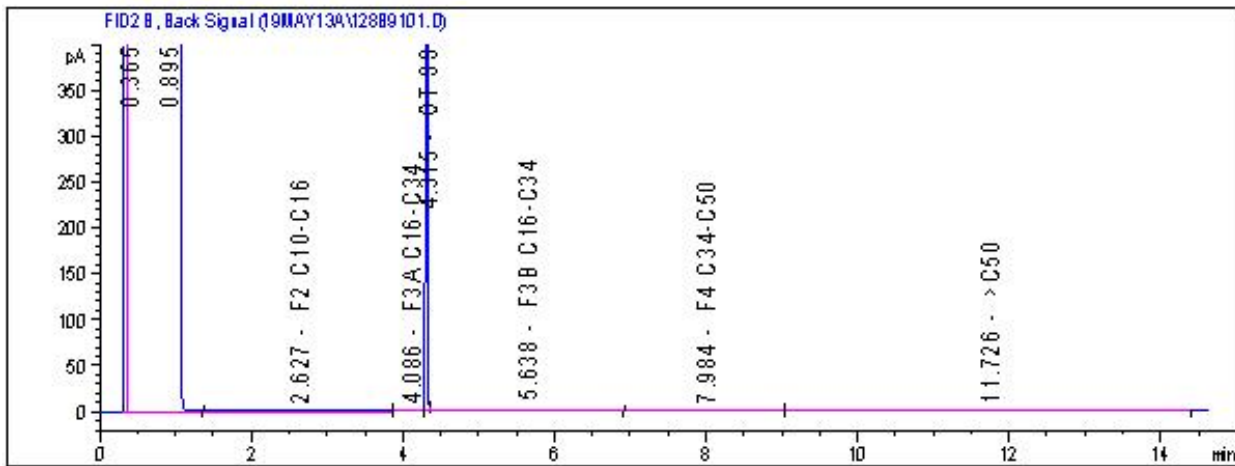
Kerosene: **C8 - C16**

Motor Oils: **C16 - C50**

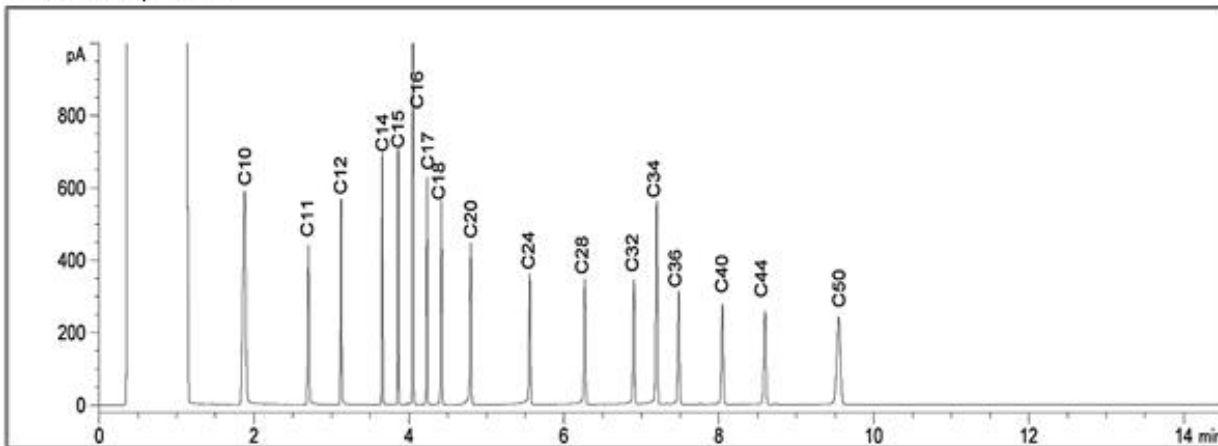
Asphalt: **C18 - C50+**

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Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Reference Spectrum



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline: C6 - C12

Diesel: C10 - C24

Jet Fuels: C6 - C16

Varsol: C8 - C12

Fuel Oils: C6 - C32

Creosote: C10 - C26

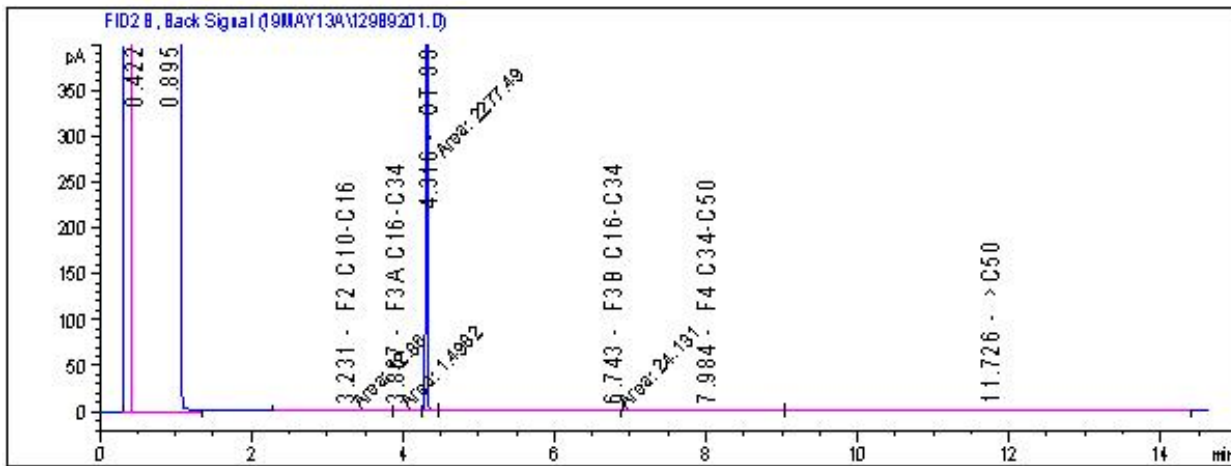
Kerosene: C8 - C16

Motor Oils: C16 - C50

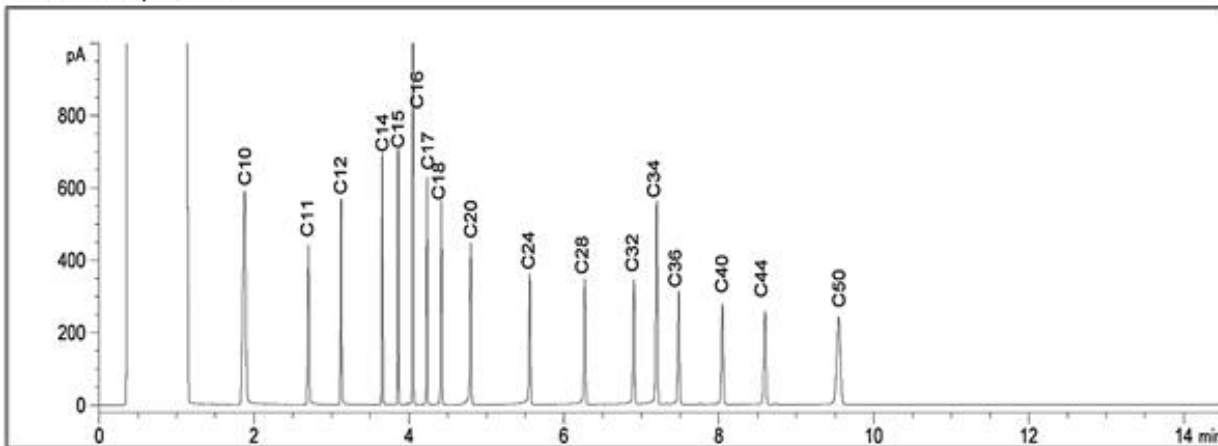
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Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Reference Spectrum



TYPICAL PRODUCT CARBON NUMBER RANGES

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Diesel: **C10 - C24**

Jet Fuels: **C6 - C16**

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Fuel Oils: **C6 - C32**

Creosote: **C10 - C26**

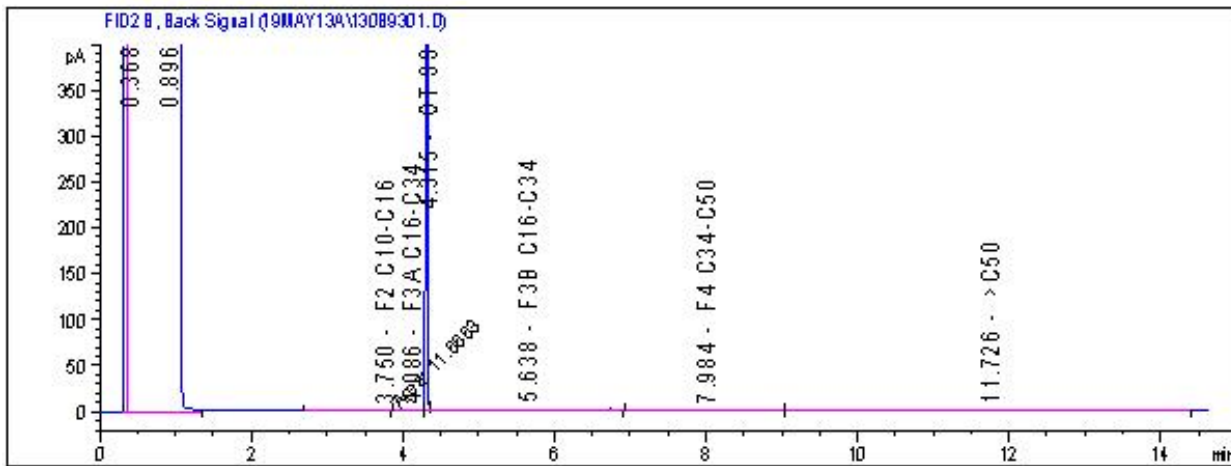
Kerosene: **C8 - C16**

Motor Oils: **C16 - C50**

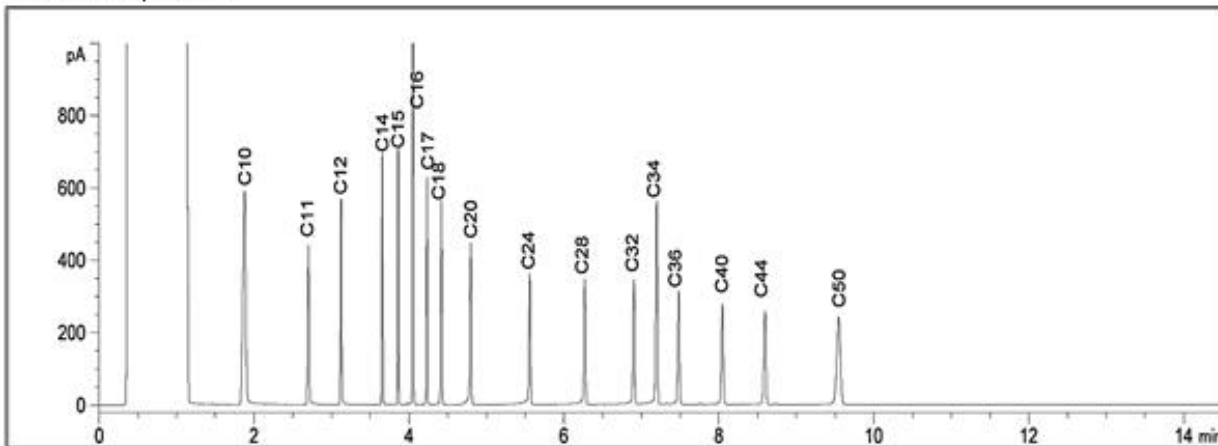
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Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Reference Spectrum



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Jet Fuels: **C6 - C16**

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Fuel Oils: **C6 - C32**

Creosote: **C10 - C26**

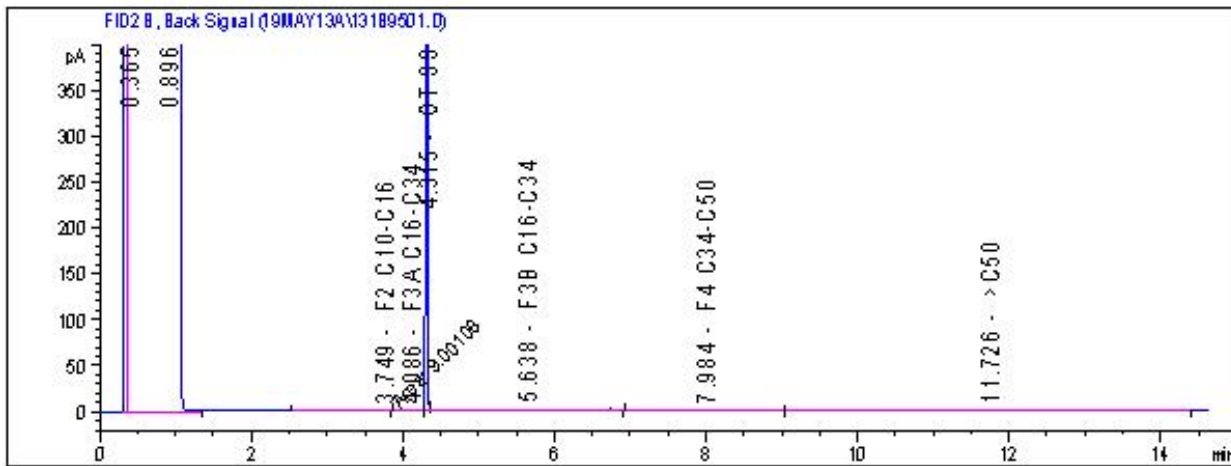
Kerosene: **C8 - C16**

Motor Oils: **C16 - C50**

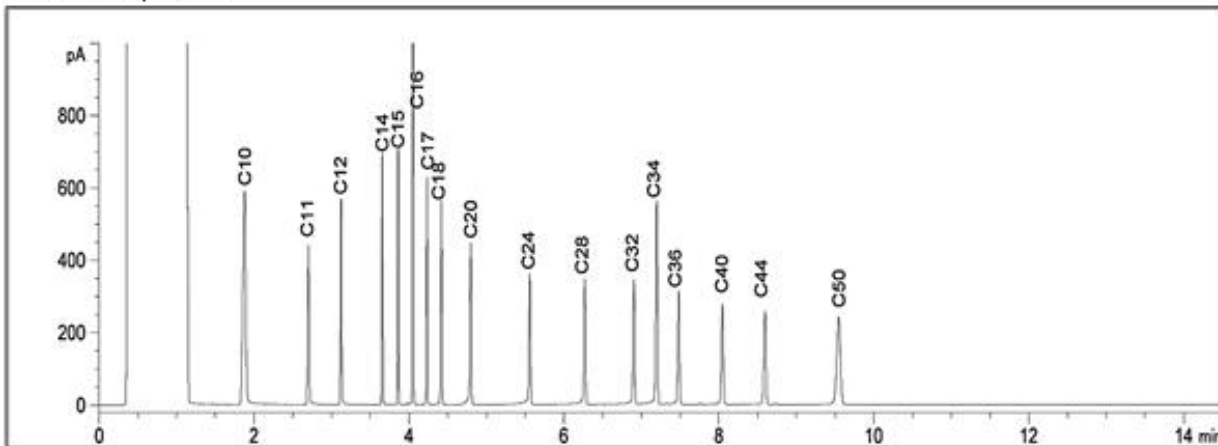
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Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Reference Spectrum



TYPICAL PRODUCT CARBON NUMBER RANGES

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Jet Fuels: **C6 - C16**

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Creosote: **C10 - C26**

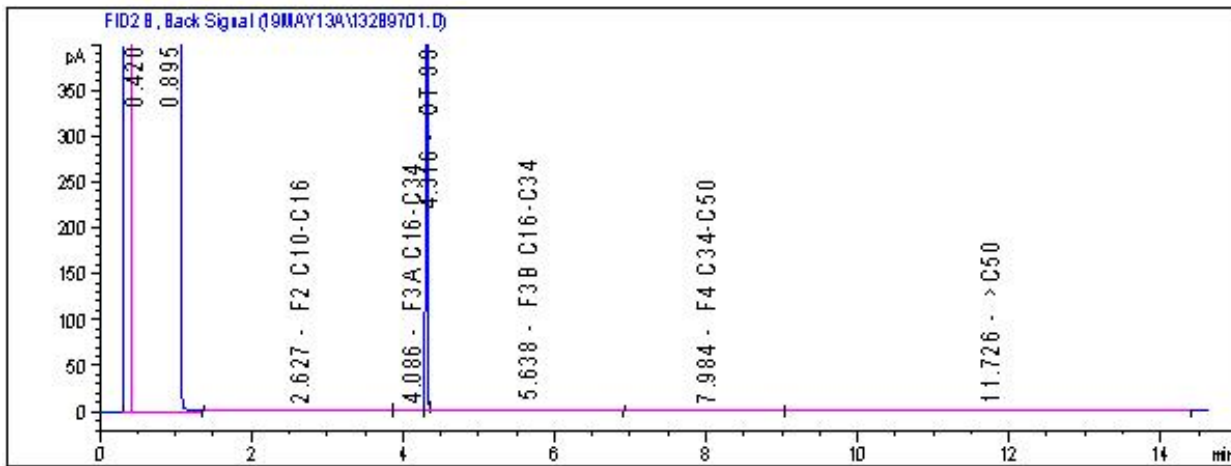
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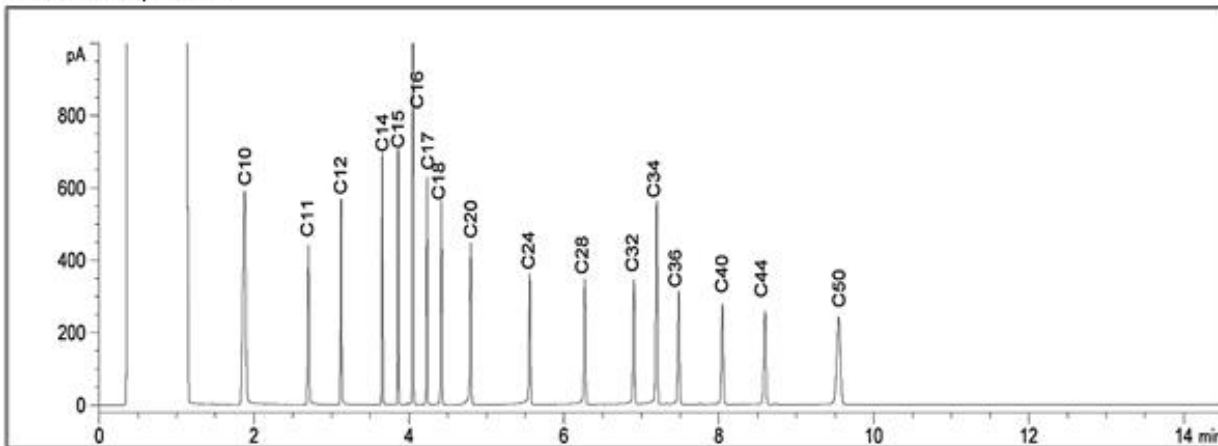
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Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Reference Spectrum



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Fuel Oils: **C6 - C32**

Creosote: **C10 - C26**

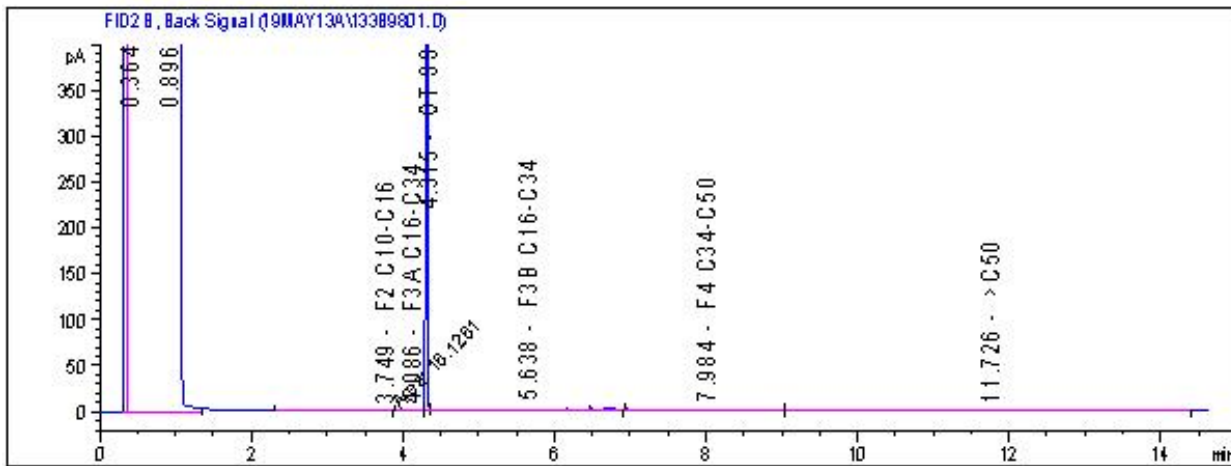
Kerosene: **C8 - C16**

Motor Oils: **C16 - C50**

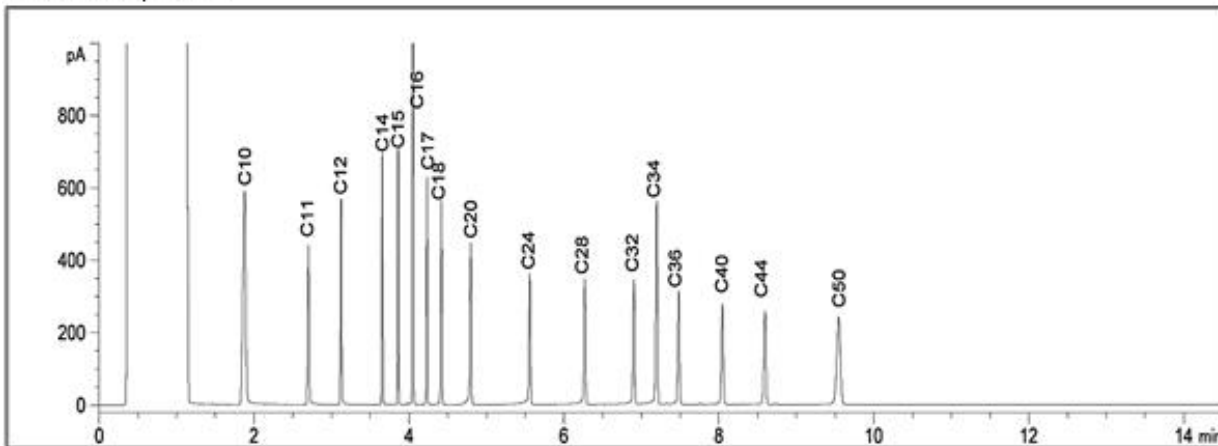
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Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Reference Spectrum



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Creosote: **C10 - C26**

Kerosene: **C8 - C16**

Motor Oils: **C16 - C50**

Asphalt: **C18 - C50+**

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



Your Project #: 121621877.400
 Your C.O.C. #: D40478

Attention: Sam Salley

Stantec Consulting Ltd
 40 Highfield Park Drive
 Suite 102
 Dartmouth, NS
 CANADA B3A 0A3

Report Date: 2019/06/06
 Report #: R5741884
 Version: 3 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: B9C7055

Received: 2019/05/13, 13:38

Sample Matrix: Soil
 # Samples Received: 9

Analyses	Quantity	Date	Date	Laboratory Method	Reference
		Extracted	Analyzed		
Benzo(b/j)fluoranthene Sum (LL soil)	9	N/A	2019/05/21	N/A	Auto Calc.
Petroleum Hydrocarbons F2-F4 in Soil (1, 3)	9	2019/05/17	2019/05/21	CAM SOP-00316	CCME CWS m
Mercury (CVAA)	9	2019/05/17	2019/05/17	ATL SOP 00026	EPA 245.5 m
Metals Solids Acid Extr. ICPMS	9	2019/05/15	2019/05/16	ATL SOP 00058	EPA 6020B R2 m
Total PCB (2, 4)	6	2019/05/17	2019/05/17	STL SOP-00133	MA. 400-BPC 1.0 R5 m
Total PCB (2, 4)	3	2019/05/17	2019/05/18	STL SOP-00133	MA. 400-BPC 1.0 R5 m
Moisture	9	N/A	2019/05/15	ATL SOP 00001	OMOE Handbook 1983 m
PAH in sediment by GC/MS (Low Level) (5)	9	2019/05/16	2019/05/18	ATL SOP 00102	EPA 8270E R6 m
Particle size in solids (pipette&sieve) (6)	8	N/A	2019/05/31	ATL SOP 00012	MSAMS'78/WREP-125R3m
Particle size in solids (pipette&sieve) (6)	1	N/A	2019/06/06	ATL SOP 00012	MSAMS'78/WREP-125R3m
Total Organic Carbon in Soil (1)	9	N/A	2019/05/21	CAM SOP-00468	BCMOE TOC Aug 2014
Volatile Organic Compounds and F1 PHCs (1)	9	N/A	2019/05/16	CAM SOP-00230	EPA 8260 m

Remarks:

Bureau Veritas Laboratories are accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by BV Labs are based upon recognized Provincial, Federal or US method compendia such as CCME, MDELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in BV Labs profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and BV Labs in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

BV Labs liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. BV Labs has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by BV Labs, unless otherwise agreed in writing. BV Labs is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested. When sampling is not conducted by BV Labs, results relate to the supplied samples tested.



Your Project #: 121621877.400
Your C.O.C. #: D40478

Attention: Sam Salley

Stantec Consulting Ltd
40 Highfield Park Drive
Suite 102
Dartmouth, NS
CANADA B3A 0A3

Report Date: 2019/06/06
Report #: R5741884
Version: 3 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: B9C7055

Received: 2019/05/13, 13:38

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) This test was performed by Bureau Veritas Laboratories Mississauga

(2) This test was performed by Bedford To Montreal Offsite

(3) All CCME PHC results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Bureau Veritas Laboratories conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following "Alberta Environment's Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil Validation of Performance-Based Alternative Methods September 2003". Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.

(4) Please note that the results have been corrected for the surrogate recoveries.

Un-rounded results are used in the total "PCB" calculation. This total result is then rounded to two significant figures.

The total indicated is calculated only for the requested parameters.

(5) Soils are reported on a dry weight basis unless otherwise specified.

(6) Note: Graphical representation of larger fractions (PHI-4, PHI -3 and PHI -2) not applicable unless these optional parameters are specifically requested.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Marie Muise, Key Account Specialist

Email: Marie.MUISE@bvlab.com

Phone# (902)420-0203 Ext:253

=====

BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



BUREAU
VERITAS

BV Labs Job #: B9C7055
Report Date: 2019/06/06

Stantec Consulting Ltd
Client Project #: 121621877.400

CCME PETROLEUM HYDROCARBONS SOIL (SOIL)

BV Labs ID		JRT558	JRT559		JRT560	JRT561	JRT562	JRT563		
Sampling Date		2019/05/04 15:05	2019/05/05 11:48		2019/05/05 11:48	2019/05/05 12:36	2019/05/05 12:36	2019/05/05 13:30		
COC Number		D40478	D40478		D40478	D40478	D40478	D40478		
	UNITS	VC-18	VC-19-1	RDL	VC-19-3	VC-20-1	VC-20-3	VC-21-1	RDL	QC Batch

Volatile Organics										
Benzene	ug/g	<0.0060	<0.0060	0.0060	<0.0060	<0.0060	<0.0060	<0.0060	0.0060	6122793
Ethylbenzene	ug/g	<0.010	<0.010	0.010	<0.010	<0.010	<0.010	<0.010	0.010	6122793
Toluene	ug/g	<0.020	0.40	0.020	<0.020	<0.020	<0.020	0.066	0.020	6122793
p+m-Xylene	ug/g	<0.020	<0.020	0.020	<0.020	<0.020	<0.020	<0.020	0.020	6122793
o-Xylene	ug/g	<0.020	<0.020	0.020	<0.020	<0.020	<0.020	<0.020	0.020	6122793
Total Xylenes	ug/g	<0.020	<0.020	0.020	<0.020	<0.020	<0.020	<0.020	0.020	6122793
F1 (C6-C10)	ug/g	<10	<10	10	<10	<10	<10	<10	10	6122793
F1 (C6-C10) - BTEX	ug/g	<10	<10	10	<10	<10	<10	<10	10	6122793

F2-F4 Hydrocarbons										
F2 (C10-C16 Hydrocarbons)	ug/g	<10	<10	10	<20	<20	<20	<20	20	6128558
F3 (C16-C34 Hydrocarbons)	ug/g	<50	<50	50	<100	<100	<100	<100	100	6128558
F4 (C34-C50 Hydrocarbons)	ug/g	<50	<50	50	<100	<100	<100	<100	100	6128558
Reached Baseline at C50	ug/g	Yes	Yes	N/A	Yes	Yes	Yes	Yes	N/A	6128558

Surrogate Recovery (%)										
o-Terphenyl	%	95	96	N/A	99	98	100	100	N/A	6128558
4-Bromofluorobenzene	%	93	93	N/A	91	93	93	93	N/A	6122793
D10-o-Xylene	%	91	98	N/A	91	94	94	97	N/A	6122793
D4-1,2-Dichloroethane	%	101	100	N/A	101	103	104	103	N/A	6122793
D8-Toluene	%	97	96	N/A	96	97	97	96	N/A	6122793

RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch
 N/A = Not Applicable



BUREAU
VERITAS

BV Labs Job #: B9C7055
Report Date: 2019/06/06

Stantec Consulting Ltd
Client Project #: 121621877.400

CCME PETROLEUM HYDROCARBONS SOIL (SOIL)

BV Labs ID		JRT564	JRT564	JRT565	JRT566		
Sampling Date		2019/05/05 14:15	2019/05/05 14:15	2019/05/05 14:15	2019/05/03 15:16		
COC Number		D40478	D40478	D40478	D40478		
	UNITS	VC-22-1	VC-22-1 Lab-Dup	VC-22-3	VC-05-1	RDL	QC Batch
Volatile Organics							
Benzene	ug/g	<0.0060	<0.0060	<0.0060	<0.0060	0.0060	6122793
Ethylbenzene	ug/g	<0.010	<0.010	<0.010	<0.010	0.010	6122793
Toluene	ug/g	<0.020	<0.020	<0.020	<0.020	0.020	6122793
p+m-Xylene	ug/g	<0.020	<0.020	<0.020	<0.020	0.020	6122793
o-Xylene	ug/g	<0.020	<0.020	<0.020	<0.020	0.020	6122793
Total Xylenes	ug/g	<0.020	<0.020	<0.020	<0.020	0.020	6122793
F1 (C6-C10)	ug/g	<10	<10	<10	<10	10	6122793
F1 (C6-C10) - BTEX	ug/g	<10	<10	<10	<10	10	6122793
F2-F4 Hydrocarbons							
F2 (C10-C16 Hydrocarbons)	ug/g	<10	N/A	<10	<10	10	6128558
F3 (C16-C34 Hydrocarbons)	ug/g	<50	N/A	<50	<50	50	6128558
F4 (C34-C50 Hydrocarbons)	ug/g	<50	N/A	<50	<50	50	6128558
Reached Baseline at C50	ug/g	Yes	N/A	Yes	Yes	N/A	6128558
Surrogate Recovery (%)							
o-Terphenyl	%	98	N/A	99	96	N/A	6128558
4-Bromofluorobenzene	%	92	93	92	92	N/A	6122793
D10-o-Xylene	%	94	96	94	90	N/A	6122793
D4-1,2-Dichloroethane	%	100	102	104	101	N/A	6122793
D8-Toluene	%	97	97	98	96	N/A	6122793
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Lab-Dup = Laboratory Initiated Duplicate N/A = Not Applicable							



BUREAU
VERITAS

BV Labs Job #: B9C7055
Report Date: 2019/06/06

Stantec Consulting Ltd
Client Project #: 121621877.400

RESULTS OF ANALYSES OF SOIL

BV Labs ID		JRT558	JRT558	JRT559	JRT560	JRT560	JRT561		
Sampling Date		2019/05/04 15:05	2019/05/04 15:05	2019/05/05 11:48	2019/05/05 11:48	2019/05/05 11:48	2019/05/05 12:36		
COC Number		D40478	D40478	D40478	D40478	D40478	D40478		
	UNITS	VC-18	VC-18 Lab-Dup	VC-19-1	VC-19-3	VC-19-3 Lab-Dup	VC-20-1	RDL	QC Batch

Inorganics									
Moisture	%	11	N/A	40	47	N/A	40	1.0	6120226
Total Organic Carbon	mg/kg	<500	N/A	12000	21000	21000	8400	500	6128443
< -1 Phi (2 mm)	%	100	100	100	99	N/A	100	0.10	6130881
< 0 Phi (1 mm)	%	100	100	100	99	N/A	100	0.10	6130881
< +1 Phi (0.5 mm)	%	96	96	98	98	N/A	99	0.10	6130881
< +2 Phi (0.25 mm)	%	44	38	87	95	N/A	96	0.10	6130881
< +3 Phi (0.12 mm)	%	1.8	1.8	68	93	N/A	72	0.10	6130881
< +4 Phi (0.062 mm)	%	1.4	1.4	53	89	N/A	46	0.10	6130881
< +5 Phi (0.031 mm)	%	1.3	1.3	40	78	N/A	34	0.10	6130881
< +6 Phi (0.016 mm)	%	1.2	1.2	31	66	N/A	27	0.10	6130881
< +7 Phi (0.0078 mm)	%	1.0	1.1	22	37	N/A	18	0.10	6130881
< +8 Phi (0.0039 mm)	%	1.1	1.2	19	14	N/A	17	0.10	6130881
< +9 Phi (0.0020 mm)	%	0.95	1.2	15	9.5	N/A	13	0.10	6130881
Gravel	%	<0.10	<0.10	0.11	0.62	N/A	0.34	0.10	6130881
Sand	%	99	99	47	10	N/A	53	0.10	6130881
Silt	%	0.27	0.17	34	75	N/A	29	0.10	6130881
Clay	%	1.1	1.2	19	14	N/A	17	0.10	6130881

PCBs									
TriCB-(17)+(18)	mg/kg	<0.010	<0.010	<0.010	<0.010	N/A	<0.010	0.010	6133856
TriCB-(28)+(31)	mg/kg	<0.010	<0.010	<0.010	<0.010	N/A	<0.010	0.010	6133856
2'34'-TriCB-(33)	mg/kg	<0.010	<0.010	<0.010	<0.010	N/A	<0.010	0.010	6133856
22'55'-TetraCB-(52)	mg/kg	<0.010	<0.010	<0.010	<0.010	N/A	<0.010	0.010	6133856
22'45'-TetraCB-(49)	mg/kg	<0.010	<0.010	<0.010	<0.010	N/A	<0.010	0.010	6133856
22'35'-TetraCB-(44)	mg/kg	<0.010	<0.010	<0.010	<0.010	N/A	<0.010	0.010	6133856
244'5'-TetraCB-(74)	mg/kg	<0.010	<0.010	<0.010	<0.010	N/A	<0.010	0.010	6133856
23'4'5'-TetraCB-(70)	mg/kg	<0.010	<0.010	<0.010	<0.010	N/A	<0.010	0.010	6133856
22'35'6'-PentaCB-(95)	mg/kg	<0.010	<0.010	<0.010	<0.010	N/A	<0.010	0.010	6133856
22'455'-PentaCB-(101)	mg/kg	<0.010	<0.010	<0.010	<0.010	N/A	<0.010	0.010	6133856
22'44'5'-PentaCB-(99)	mg/kg	<0.010	<0.010	<0.010	<0.010	N/A	<0.010	0.010	6133856
22'345'-PentaCB-(87)	mg/kg	<0.010	<0.010	<0.010	<0.010	N/A	<0.010	0.010	6133856
233'4'6'-PentaCB-(110)	mg/kg	<0.010	<0.010	<0.010	<0.010	N/A	<0.010	0.010	6133856
22'33'4'-PentaCB-(82)	mg/kg	<0.010	<0.010	<0.010	<0.010	N/A	<0.010	0.010	6133856
22'355'6'-HexaCB-(151)	mg/kg	<0.010	<0.010	<0.010	<0.010	N/A	<0.010	0.010	6133856
22'34'5'6'-HexaCB-(149)	mg/kg	<0.010	<0.010	<0.010	<0.010	N/A	<0.010	0.010	6133856

RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch
 Lab-Dup = Laboratory Initiated Duplicate
 N/A = Not Applicable



BUREAU
VERITAS

BV Labs Job #: B9C7055
Report Date: 2019/06/06

Stantec Consulting Ltd
Client Project #: 121621877.400

RESULTS OF ANALYSES OF SOIL

BV Labs ID		JRT558	JRT558	JRT559	JRT560	JRT560	JRT561		
Sampling Date		2019/05/04 15:05	2019/05/04 15:05	2019/05/05 11:48	2019/05/05 11:48	2019/05/05 11:48	2019/05/05 12:36		
COC Number		D40478	D40478	D40478	D40478	D40478	D40478		
	UNITS	VC-18	VC-18 Lab-Dup	VC-19-1	VC-19-3	VC-19-3 Lab-Dup	VC-20-1	RDL	QC Batch
23'44'5-PentaCB-(118)	mg/kg	<0.010	<0.010	<0.010	<0.010	N/A	<0.010	0.010	6133856
22'44'55'-HexaCB-(153)	mg/kg	<0.010	<0.010	<0.010	<0.010	N/A	<0.010	0.010	6133856
22'33'46'-HexaCB-(132)	mg/kg	<0.010	<0.010	<0.010	<0.010	N/A	<0.010	0.010	6133856
233'44'-PentaCB-(105)	mg/kg	<0.010	<0.010	<0.010	<0.010	N/A	<0.010	0.010	6133856
HexaCB-(138)+(158)	mg/kg	<0.010	<0.010	<0.010	<0.010	N/A	<0.010	0.010	6133856
22'34'55'6-HeptaCB-(187)	mg/kg	<0.010	<0.010	<0.010	<0.010	N/A	<0.010	0.010	6133856
22'344'5'6-HeptaCB-(183)	mg/kg	<0.010	<0.010	<0.010	<0.010	N/A	<0.010	0.010	6133856
22'33'44'-HexaCB-(128)	mg/kg	<0.010	<0.010	<0.010	<0.010	N/A	<0.010	0.010	6133856
22'33'45'6'-HeptaCB-(177)	mg/kg	<0.010	<0.010	<0.010	<0.010	N/A	<0.010	0.010	6133856
22'33'44'6-HeptaCB-(171)	mg/kg	<0.010	<0.010	<0.010	<0.010	N/A	<0.010	0.010	6133856
233'44'5-HexaCB-(156)	mg/kg	<0.010	<0.010	<0.010	<0.010	N/A	<0.010	0.010	6133856
22'344'55'-HeptaCB-(180)	mg/kg	<0.010	<0.010	<0.010	<0.010	N/A	<0.010	0.010	6133856
233'44'5'6-HeptaCB-(191)	mg/kg	<0.010	<0.010	<0.010	<0.010	N/A	<0.010	0.010	6133856
33'44'55'-HexaCB-(169)	mg/kg	<0.010	<0.010	<0.010	<0.010	N/A	<0.010	0.010	6133856
22'33'44'5-HeptaCB-(170)	mg/kg	<0.010	<0.010	<0.010	<0.010	N/A	<0.010	0.010	6133856
22'33'455'6'-OctaCB-(199)	mg/kg	<0.010	<0.010	<0.010	<0.010	N/A	<0.010	0.010	6133856
22'33'455'66'-NonaCB-(208)	mg/kg	<0.010	<0.010	<0.010	<0.010	N/A	<0.010	0.010	6133856
22'33'44'56-OctaCB-(195)	mg/kg	<0.010	<0.010	<0.010	<0.010	N/A	<0.010	0.010	6133856
22'33'44'55'-OctaCB-(194)	mg/kg	<0.010	<0.010	<0.010	<0.010	N/A	<0.010	0.010	6133856
233'44'55'6-OctaCB-(205)	mg/kg	<0.010	<0.010	<0.010	<0.010	N/A	<0.010	0.010	6133856
22'33'44'55'6-NonaCB-(206)	mg/kg	<0.010	<0.010	<0.010	<0.010	N/A	<0.010	0.010	6133856
DecaCB-(209)	mg/kg	<0.010	<0.010	<0.010	<0.010	N/A	<0.010	0.010	6133856
Trichlorobiphenyls	mg/kg	<0.010	<0.010	<0.010	<0.010	N/A	<0.010	0.010	6133856
Tetrachlorobiphenyls	mg/kg	<0.010	<0.010	<0.010	<0.010	N/A	<0.010	0.010	6133856
Pentachlorobiphenyls	mg/kg	<0.010	<0.010	<0.010	<0.010	N/A	<0.010	0.010	6133856
Hexachlorobiphenyls	mg/kg	<0.010	<0.010	<0.010	<0.010	N/A	<0.010	0.010	6133856
Heptachlorobiphenyls	mg/kg	<0.010	<0.010	<0.010	<0.010	N/A	<0.010	0.010	6133856
Octachlorobiphenyls	mg/kg	<0.010	<0.010	<0.010	<0.010	N/A	<0.010	0.010	6133856
Nonachlorobiphenyls	mg/kg	<0.010	<0.010	<0.010	<0.010	N/A	<0.010	0.010	6133856
Decachlorobiphenyls	mg/kg	<0.010	<0.010	<0.010	<0.010	N/A	<0.010	0.010	6133856
Total PCB	mg/kg	<0.010	<0.010	<0.010	<0.010	N/A	<0.010	0.010	6133856
Surrogate Recovery (%)									
2,3,3',4,6-Pentachlorobiphenyl	%	91	90	92	93	N/A	90	N/A	6133856
2',3,5-Trichlorobiphenyl	%	91	91	92	93	N/A	91	N/A	6133856
22'33'44'566'-Nonachlorobiphenyl	%	103	102	102	102	N/A	100	N/A	6133856
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Lab-Dup = Laboratory Initiated Duplicate N/A = Not Applicable									



BUREAU
VERITAS

BV Labs Job #: B9C7055
Report Date: 2019/06/06

Stantec Consulting Ltd
Client Project #: 121621877.400

RESULTS OF ANALYSES OF SOIL

BV Labs ID		JRT562	JRT563	JRT564	JRT565	JRT566		
Sampling Date		2019/05/05 12:36	2019/05/05 13:30	2019/05/05 14:15	2019/05/05 14:15	2019/05/03 15:16		
COC Number		D40478	D40478	D40478	D40478	D40478		
	UNITS	VC-20-3	VC-21-1	VC-22-1	VC-22-3	VC-05-1	RDL	QC Batch
Inorganics								
Moisture	%	47	45	27	40	25	1.0	6120226
Total Organic Carbon	mg/kg	19000	9600	3700	13000	1800	500	6128443
< -1 Phi (2 mm)	%	100	100	100	100	98 (1)	0.10	6130881
< 0 Phi (1 mm)	%	99	100	99	100	97 (1)	0.10	6130881
< +1 Phi (0.5 mm)	%	99	100	96	99	96	0.10	6130881
< +2 Phi (0.25 mm)	%	98	99	69	98	91	0.10	6130881
< +3 Phi (0.12 mm)	%	96	90	30	92	60	0.10	6130881
< +4 Phi (0.062 mm)	%	89	76	18	69	24	0.10	6130881
< +5 Phi (0.031 mm)	%	77	60	13	56	18	0.10	6130881
< +6 Phi (0.016 mm)	%	68	45	10	45	14	0.10	6130881
< +7 Phi (0.0078 mm)	%	37	27	6.6	30	9.5	0.10	6130881
< +8 Phi (0.0039 mm)	%	14	23	4.4	26	8.3	0.10	6130881
< +9 Phi (0.0020 mm)	%	12	18	2.3	18	6.4	0.10	6130881
Gravel	%	0.35	<0.10	0.24	<0.10	2.4	0.10	6130881
Sand	%	11	24	82	31	73	0.10	6130881
Silt	%	75	54	13	43	16	0.10	6130881
Clay	%	14	23	4.4	26	8.3	0.10	6130881
PCBs								
TriCB-(17)+(18)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133856
TriCB-(28)+(31)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133856
2'34'-TriCB-(33)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133856
22'55'-TetraCB-(52)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133856
22'45'-TetraCB-(49)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133856
22'35'-TetraCB-(44)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133856
244'5'-TetraCB-(74)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133856
23'4'5'-TetraCB-(70)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133856
22'35'6'-PentaCB-(95)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133856
22'455'6'-PentaCB-(101)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133856
22'44'5'-PentaCB-(99)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133856
22'345'6'-PentaCB-(87)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133856
233'4'6'-PentaCB-(110)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133856
22'33'4'-PentaCB-(82)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133856
22'355'6'-HexaCB-(151)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133856
22'34'5'6'-HexaCB-(149)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133856
RDL = Reportable Detection Limit								
QC Batch = Quality Control Batch								
(1) PSA sample observation comment: Fraction contained shells								



BUREAU
VERITAS

BV Labs Job #: B9C7055
Report Date: 2019/06/06

Stantec Consulting Ltd
Client Project #: 121621877.400

RESULTS OF ANALYSES OF SOIL

BV Labs ID		JRT562	JRT563	JRT564	JRT565	JRT566		
Sampling Date		2019/05/05 12:36	2019/05/05 13:30	2019/05/05 14:15	2019/05/05 14:15	2019/05/03 15:16		
COC Number		D40478	D40478	D40478	D40478	D40478		
	UNITS	VC-20-3	VC-21-1	VC-22-1	VC-22-3	VC-05-1	RDL	QC Batch
23'44'5-PentaCB-(118)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133856
22'44'55'-HexaCB-(153)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133856
22'33'46'-HexaCB-(132)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133856
233'44'-PentaCB-(105)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133856
HexaCB-(138)+(158)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133856
22'34'55'6-HeptaCB-(187)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133856
22'344'5'6-HeptaCB-(183)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133856
22'33'44'-HexaCB-(128)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133856
22'33'45'6'-HeptaCB-(177)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133856
22'33'44'6-HeptaCB-(171)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133856
233'44'5-HexaCB-(156)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133856
22'344'55'-HeptaCB-(180)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133856
233'44'5'6-HeptaCB-(191)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133856
33'44'55'-HexaCB-(169)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133856
22'33'44'5-HeptaCB-(170)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133856
22'33'455'6'-OctaCB-(199)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133856
22'33'455'66'-NonaCB-(208)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133856
22'33'44'56-OctaCB-(195)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133856
22'33'44'55'-OctaCB-(194)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133856
233'44'55'6-OctaCB-(205)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133856
22'33'44'55'6-NonaCB-(206)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133856
DecaCB-(209)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133856
Trichlorobiphenyls	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133856
Tetrachlorobiphenyls	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133856
Pentachlorobiphenyls	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133856
Hexachlorobiphenyls	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133856
Heptachlorobiphenyls	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133856
Octachlorobiphenyls	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133856
Nonachlorobiphenyls	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133856
Decachlorobiphenyls	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133856
Total PCB	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133856
Surrogate Recovery (%)								
2,3,3',4,6-Pentachlorobiphenyl	%	93	93	92	92	89	N/A	6133856
2',3,5-Trichlorobiphenyl	%	93	92	91	91	91	N/A	6133856
22'33'44'566'-Nonachlorobiphenyl	%	102	107	104	104	104	N/A	6133856
RDL = Reportable Detection Limit QC Batch = Quality Control Batch N/A = Not Applicable								



MERCURY BY COLD VAPOUR AA (SOIL)

BV Labs ID		JRT558	JRT558		JRT559	JRT560	JRT561	JRT562		
Sampling Date		2019/05/04 15:05	2019/05/04 15:05		2019/05/05 11:48	2019/05/05 11:48	2019/05/05 12:36	2019/05/05 12:36		
COC Number		D40478	D40478		D40478	D40478	D40478	D40478		
	UNITS	VC-18	VC-18 Lab-Dup	QC Batch	VC-19-1	VC-19-3	VC-20-1	VC-20-3	RDL	QC Batch

Metals										
Mercury (Hg)	mg/kg	<0.010	<0.010	6124603	<0.010	<0.010	<0.010	<0.010	0.010	6124602
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Lab-Dup = Laboratory Initiated Duplicate										

BV Labs ID		JRT563	JRT564	JRT565		JRT566		
Sampling Date		2019/05/05 13:30	2019/05/05 14:15	2019/05/05 14:15		2019/05/03 15:16		
COC Number		D40478	D40478	D40478		D40478		
	UNITS	VC-21-1	VC-22-1	VC-22-3	QC Batch	VC-05-1	RDL	QC Batch

Metals								
Mercury (Hg)	mg/kg	0.014	<0.010	<0.010	6124602	<0.010	0.010	6124603
RDL = Reportable Detection Limit QC Batch = Quality Control Batch								



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VERITAS

BV Labs Job #: B9C7055
Report Date: 2019/06/06

Stantec Consulting Ltd
Client Project #: 121621877.400

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

BV Labs ID		JRT558	JRT559	JRT560	JRT561	JRT562	JRT563		
Sampling Date		2019/05/04 15:05	2019/05/05 11:48	2019/05/05 11:48	2019/05/05 12:36	2019/05/05 12:36	2019/05/05 13:30		
COC Number		D40478	D40478	D40478	D40478	D40478	D40478		
	UNITS	VC-18	VC-19-1	VC-19-3	VC-20-1	VC-20-3	VC-21-1	RDL	QC Batch

Metals									
Acid Extractable Aluminum (Al)	mg/kg	2000	8200	15000	7700	13000	12000	10	6122421
Acid Extractable Antimony (Sb)	mg/kg	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	6122421
Acid Extractable Arsenic (As)	mg/kg	<2.0	6.0	9.9	5.2	11	7.3	2.0	6122421
Acid Extractable Barium (Ba)	mg/kg	43	68	88	68	77	96	5.0	6122421
Acid Extractable Beryllium (Be)	mg/kg	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	6122421
Acid Extractable Bismuth (Bi)	mg/kg	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	6122421
Acid Extractable Boron (B)	mg/kg	<50	51	94	<50	87	<50	50	6122421
Acid Extractable Cadmium (Cd)	mg/kg	<0.30	<0.30	0.36	<0.30	0.34	<0.30	0.30	6122421
Acid Extractable Chromium (Cr)	mg/kg	4.5	18	28	16	27	23	2.0	6122421
Acid Extractable Cobalt (Co)	mg/kg	2.1	7.9	13	7.5	12	11	1.0	6122421
Acid Extractable Copper (Cu)	mg/kg	<2.0	13	18	9.6	16	14	2.0	6122421
Acid Extractable Iron (Fe)	mg/kg	4900	20000	33000	19000	31000	27000	50	6122421
Acid Extractable Lead (Pb)	mg/kg	2.1	15	22	13	20	22	0.50	6122421
Acid Extractable Lithium (Li)	mg/kg	5.5	23	38	21	35	33	2.0	6122421
Acid Extractable Manganese (Mn)	mg/kg	94	280	520	230	500	370	2.0	6122421
Acid Extractable Mercury (Hg)	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	6122421
Acid Extractable Molybdenum (Mo)	mg/kg	<2.0	3.1	9.1	2.6	9.9	2.4	2.0	6122421
Acid Extractable Nickel (Ni)	mg/kg	4.4	18	32	17	29	26	2.0	6122421
Acid Extractable Rubidium (Rb)	mg/kg	<2.0	9.4	18	9.4	16	13	2.0	6122421
Acid Extractable Selenium (Se)	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	6122421
Acid Extractable Silver (Ag)	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	6122421
Acid Extractable Strontium (Sr)	mg/kg	<5.0	25	29	18	30	27	5.0	6122421
Acid Extractable Thallium (Tl)	mg/kg	<0.10	0.12	0.20	0.10	0.18	0.14	0.10	6122421
Acid Extractable Tin (Sn)	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	6122421
Acid Extractable Uranium (U)	mg/kg	0.20	1.2	2.4	1.1	2.9	1.1	0.10	6122421
Acid Extractable Vanadium (V)	mg/kg	4.9	25	42	22	40	30	2.0	6122421
Acid Extractable Zinc (Zn)	mg/kg	14	70	82	52	74	79	5.0	6122421

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch



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BV Labs Job #: B9C7055
Report Date: 2019/06/06

Stantec Consulting Ltd
Client Project #: 121621877.400

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

BV Labs ID		JRT564	JRT565	JRT566		
Sampling Date		2019/05/05 14:15	2019/05/05 14:15	2019/05/03 15:16		
COC Number		D40478	D40478	D40478		
	UNITS	VC-22-1	VC-22-3	VC-05-1	RDL	QC Batch
Metals						
Acid Extractable Aluminum (Al)	mg/kg	4300	11000	5600	10	6122421
Acid Extractable Antimony (Sb)	mg/kg	<2.0	<2.0	<2.0	2.0	6122421
Acid Extractable Arsenic (As)	mg/kg	2.6	6.0	2.5	2.0	6122421
Acid Extractable Barium (Ba)	mg/kg	47	76	97	5.0	6122421
Acid Extractable Beryllium (Be)	mg/kg	<2.0	<2.0	<2.0	2.0	6122421
Acid Extractable Bismuth (Bi)	mg/kg	<2.0	<2.0	<2.0	2.0	6122421
Acid Extractable Boron (B)	mg/kg	<50	57	<50	50	6122421
Acid Extractable Cadmium (Cd)	mg/kg	<0.30	<0.30	<0.30	0.30	6122421
Acid Extractable Chromium (Cr)	mg/kg	8.7	21	12	2.0	6122421
Acid Extractable Cobalt (Co)	mg/kg	4.3	10	5.6	1.0	6122421
Acid Extractable Copper (Cu)	mg/kg	4.7	12	5.7	2.0	6122421
Acid Extractable Iron (Fe)	mg/kg	10000	24000	14000	50	6122421
Acid Extractable Lead (Pb)	mg/kg	6.4	16	8.2	0.50	6122421
Acid Extractable Lithium (Li)	mg/kg	12	29	16	2.0	6122421
Acid Extractable Manganese (Mn)	mg/kg	140	320	350	2.0	6122421
Acid Extractable Mercury (Hg)	mg/kg	<0.10	<0.10	<0.10	0.10	6122421
Acid Extractable Molybdenum (Mo)	mg/kg	<2.0	2.3	<2.0	2.0	6122421
Acid Extractable Nickel (Ni)	mg/kg	9.5	23	13	2.0	6122421
Acid Extractable Rubidium (Rb)	mg/kg	5.2	13	6.2	2.0	6122421
Acid Extractable Selenium (Se)	mg/kg	<1.0	<1.0	<1.0	1.0	6122421
Acid Extractable Silver (Ag)	mg/kg	<0.50	<0.50	<0.50	0.50	6122421
Acid Extractable Strontium (Sr)	mg/kg	14	21	27	5.0	6122421
Acid Extractable Thallium (Tl)	mg/kg	<0.10	0.14	<0.10	0.10	6122421
Acid Extractable Tin (Sn)	mg/kg	<1.0	<1.0	<1.0	1.0	6122421
Acid Extractable Uranium (U)	mg/kg	0.56	1.1	0.77	0.10	6122421
Acid Extractable Vanadium (V)	mg/kg	11	29	15	2.0	6122421
Acid Extractable Zinc (Zn)	mg/kg	29	60	37	5.0	6122421
RDL = Reportable Detection Limit						
QC Batch = Quality Control Batch						



SEMI-VOLATILE ORGANICS BY GC-MS (SOIL)

BV Labs ID		JRT558	JRT558	JRT559	JRT560	JRT561	JRT562		
Sampling Date		2019/05/04 15:05	2019/05/04 15:05	2019/05/05 11:48	2019/05/05 11:48	2019/05/05 12:36	2019/05/05 12:36		
COC Number		D40478	D40478	D40478	D40478	D40478	D40478		
	UNITS	VC-18	VC-18 Lab-Dup	VC-19-1	VC-19-3	VC-20-1	VC-20-3	RDL	QC Batch

Polyaromatic Hydrocarbons									
1-Methylnaphthalene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6125174
2-Methylnaphthalene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6125174
Acenaphthene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6125174
Acenaphthylene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6125174
Anthracene	mg/kg	<0.0050	<0.0050	0.012	<0.0050	<0.0050	<0.0050	0.0050	6125174
Benzo(a)anthracene	mg/kg	<0.0050	<0.0050	0.038	<0.0050	<0.0050	<0.0050	0.0050	6125174
Benzo(a)pyrene	mg/kg	<0.0050	<0.0050	0.027	<0.0050	<0.0050	<0.0050	0.0050	6125174
Benzo(b)fluoranthene	mg/kg	<0.0050	<0.0050	0.033	<0.0050	0.0090	<0.0050	0.0050	6125174
Benzo(b,j)fluoranthene	mg/kg	<0.010	N/A	0.050	<0.010	<0.010	<0.010	0.010	6118706
Benzo(g,h,i)perylene	mg/kg	<0.0050	<0.0050	0.012	<0.0050	<0.0050	<0.0050	0.0050	6125174
Benzo(j)fluoranthene	mg/kg	<0.0050	<0.0050	0.017	<0.0050	<0.0050	<0.0050	0.0050	6125174
Benzo(k)fluoranthene	mg/kg	<0.0050	<0.0050	0.017	<0.0050	<0.0050	<0.0050	0.0050	6125174
Chrysene	mg/kg	<0.0050	<0.0050	0.051	<0.0050	0.0085	<0.0050	0.0050	6125174
Dibenz(a,h)anthracene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6125174
Fluoranthene	mg/kg	<0.0050	<0.0050	0.12	<0.0050	0.021	<0.0050	0.0050	6125174
Fluorene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6125174
Indeno(1,2,3-cd)pyrene	mg/kg	<0.0050	<0.0050	0.011	<0.0050	<0.0050	<0.0050	0.0050	6125174
Naphthalene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6125174
Perylene	mg/kg	<0.0050	<0.0050	0.088	0.078	0.018	0.052	0.0050	6125174
Phenanthrene	mg/kg	<0.0050	<0.0050	0.016	<0.0050	<0.0050	<0.0050	0.0050	6125174
Pyrene	mg/kg	<0.0050	<0.0050	0.098	<0.0050	0.021	<0.0050	0.0050	6125174
Surrogate Recovery (%)									
D10-Anthracene	%	93	95	93	93	89	85	N/A	6125174
D14-Terphenyl	%	102	98	86	96	94	90	N/A	6125174
D8-Acenaphthylene	%	90	98	92	92	88	85	N/A	6125174

RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch
 Lab-Dup = Laboratory Initiated Duplicate
 N/A = Not Applicable



SEMI-VOLATILE ORGANICS BY GC-MS (SOIL)

BV Labs ID		JRT563	JRT564	JRT565	JRT566		
Sampling Date		2019/05/05 13:30	2019/05/05 14:15	2019/05/05 14:15	2019/05/03 15:16		
COC Number		D40478	D40478	D40478	D40478		
	UNITS	VC-21-1	VC-22-1	VC-22-3	VC-05-1	RDL	QC Batch
Polyaromatic Hydrocarbons							
1-Methylnaphthalene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6125174
2-Methylnaphthalene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6125174
Acenaphthene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6125174
Acenaphthylene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6125174
Anthracene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6125174
Benzo(a)anthracene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6125174
Benzo(a)pyrene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6125174
Benzo(b)fluoranthene	mg/kg	0.011	<0.0050	<0.0050	<0.0050	0.0050	6125174
Benzo(b/j)fluoranthene	mg/kg	0.011	<0.010	<0.010	<0.010	0.010	6118706
Benzo(g,h,i)perylene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6125174
Benzo(j)fluoranthene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6125174
Benzo(k)fluoranthene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6125174
Chrysene	mg/kg	0.0096	<0.0050	<0.0050	<0.0050	0.0050	6125174
Dibenz(a,h)anthracene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6125174
Fluoranthene	mg/kg	0.015	<0.0050	<0.0050	<0.0050	0.0050	6125174
Fluorene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6125174
Indeno(1,2,3-cd)pyrene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6125174
Naphthalene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6125174
Perylene	mg/kg	0.021	0.0085	0.063	<0.0050	0.0050	6125174
Phenanthrene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6125174
Pyrene	mg/kg	0.016	<0.0050	<0.0050	<0.0050	0.0050	6125174
Surrogate Recovery (%)							
D10-Anthracene	%	94	88	94	93	N/A	6125174
D14-Terphenyl	%	100	92	96	95	N/A	6125174
D8-Acenaphthylene	%	90	87	88	86	N/A	6125174
RDL = Reportable Detection Limit QC Batch = Quality Control Batch N/A = Not Applicable							



GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	2.7°C
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Sample JRT560 [VC-19-3] : F2-F4 Analysis: Detection limits were adjusted for high moisture content.

Sample JRT561 [VC-20-1] : F2-F4 Analysis: Detection limits were adjusted for high moisture content.

Sample JRT562 [VC-20-3] : F2-F4 Analysis: Detection limits were adjusted for high moisture content.

Sample JRT563 [VC-21-1] : F2-F4 Analysis: Detection limits were adjusted for high moisture content.

Sample JRT566 [VC-05-1] : VOCF1 Analysis: Greater than 10g of soil was submitted in the field preserved vial. This significantly exceeds the protocol specification of approximately 5g. Additional methanol was added to the vial to ensure extraction efficiency.

Results relate only to the items tested.



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BV Labs Job #: B9C7055
Report Date: 2019/06/06

QUALITY ASSURANCE REPORT

Stantec Consulting Ltd
Client Project #: 121621877.400

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
6122793	4-Bromofluorobenzene	2019/05/16	99	60 - 140	100	60 - 140	93	%				
6122793	D10-o-Xylene	2019/05/16	105	60 - 130	100	60 - 130	86	%				
6122793	D4-1,2-Dichloroethane	2019/05/16	100	60 - 140	101	60 - 140	98	%				
6122793	D8-Toluene	2019/05/16	103	60 - 140	103	60 - 140	97	%				
6125174	D10-Anthracene	2019/05/18	95	50 - 130	115	50 - 130	111	%				
6125174	D14-Terphenyl	2019/05/18	101	50 - 130	112	50 - 130	111	%				
6125174	D8-Acenaphthylene	2019/05/18	93	50 - 130	110	50 - 130	106	%				
6128558	o-Terphenyl	2019/05/21	93	60 - 130	94	60 - 130	97	%				
6133856	2,3,3',4,6-Pentachlorobiphenyl	2019/05/17			90	60 - 130	92	%				
6133856	2',3,5-Trichlorobiphenyl	2019/05/17			94	60 - 130	97	%				
6133856	22'33'44'566'-Nonachlorobiphenyl	2019/05/17			105	60 - 130	103	%				
6120226	Moisture	2019/05/15							13	25		
6122421	Acid Extractable Aluminum (Al)	2019/05/16					<10	mg/kg	24	35		
6122421	Acid Extractable Antimony (Sb)	2019/05/16	NC	75 - 125	110	75 - 125	<2.0	mg/kg	8.6	35		
6122421	Acid Extractable Arsenic (As)	2019/05/16	48 (1)	75 - 125	99	75 - 125	<2.0	mg/kg	84 (2)	35		
6122421	Acid Extractable Barium (Ba)	2019/05/16	NC	75 - 125	101	75 - 125	<5.0	mg/kg	1.2	35		
6122421	Acid Extractable Beryllium (Be)	2019/05/16	98	75 - 125	97	75 - 125	<2.0	mg/kg	NC	35		
6122421	Acid Extractable Bismuth (Bi)	2019/05/16	103	75 - 125	103	75 - 125	<2.0	mg/kg	NC	35		
6122421	Acid Extractable Boron (B)	2019/05/16	90	75 - 125	98	75 - 125	<50	mg/kg	NC	35		
6122421	Acid Extractable Cadmium (Cd)	2019/05/16	95	75 - 125	97	75 - 125	<0.30	mg/kg	3.3	35		
6122421	Acid Extractable Chromium (Cr)	2019/05/16	80	75 - 125	96	75 - 125	<2.0	mg/kg	15	35		
6122421	Acid Extractable Cobalt (Co)	2019/05/16	107	75 - 125	98	75 - 125	<1.0	mg/kg	14	35		
6122421	Acid Extractable Copper (Cu)	2019/05/16	NC	75 - 125	94	75 - 125	<2.0	mg/kg	7.3	35		
6122421	Acid Extractable Iron (Fe)	2019/05/16					<50	mg/kg	25	35		
6122421	Acid Extractable Lead (Pb)	2019/05/16	NC	75 - 125	102	75 - 125	<0.50	mg/kg	12	35		
6122421	Acid Extractable Lithium (Li)	2019/05/16	104	75 - 125	101	75 - 125	<2.0	mg/kg	3.4	35		
6122421	Acid Extractable Manganese (Mn)	2019/05/16	NC	75 - 125	102	75 - 125	<2.0	mg/kg	16	35		
6122421	Acid Extractable Mercury (Hg)	2019/05/16	94	75 - 125	104	75 - 125	<0.10	mg/kg	4.0	35		
6122421	Acid Extractable Molybdenum (Mo)	2019/05/16	NC	75 - 125	103	75 - 125	<2.0	mg/kg	62 (2)	35		
6122421	Acid Extractable Nickel (Ni)	2019/05/16	NC	75 - 125	98	75 - 125	<2.0	mg/kg	119 (2)	35		
6122421	Acid Extractable Rubidium (Rb)	2019/05/16	100	75 - 125	100	75 - 125	<2.0	mg/kg	1.9	35		
6122421	Acid Extractable Selenium (Se)	2019/05/16	96	75 - 125	99	75 - 125	<1.0	mg/kg	NC	35		
6122421	Acid Extractable Silver (Ag)	2019/05/16	96	75 - 125	100	75 - 125	<0.50	mg/kg	19	35		



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VERITAS

BV Labs Job #: B9C7055
Report Date: 2019/06/06

QUALITY ASSURANCE REPORT(CONT'D)

Stantec Consulting Ltd
Client Project #: 121621877.400

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
6122421	Acid Extractable Strontium (Sr)	2019/05/16	NC	75 - 125	106	75 - 125	<5.0	mg/kg	4.9	35		
6122421	Acid Extractable Thallium (Tl)	2019/05/16	99	75 - 125	103	75 - 125	<0.10	mg/kg	6.1	35		
6122421	Acid Extractable Tin (Sn)	2019/05/16	NC	75 - 125	108	75 - 125	<1.0	mg/kg	165 (2)	35		
6122421	Acid Extractable Uranium (U)	2019/05/16	108	75 - 125	109	75 - 125	<0.10	mg/kg	16	35		
6122421	Acid Extractable Vanadium (V)	2019/05/16	NC	75 - 125	97	75 - 125	<2.0	mg/kg	25	35		
6122421	Acid Extractable Zinc (Zn)	2019/05/16	NC	75 - 125	99	75 - 125	<5.0	mg/kg	65 (2)	35		
6122793	Benzene	2019/05/16	97	60 - 140	95	60 - 130	<0.0060	ug/g	NC	50		
6122793	Ethylbenzene	2019/05/16	91	60 - 140	87	60 - 130	<0.010	ug/g	NC	50		
6122793	F1 (C6-C10) - BTEX	2019/05/16					<10	ug/g	NC	30		
6122793	F1 (C6-C10)	2019/05/16	103	60 - 140	95	80 - 120	<10	ug/g	NC	30		
6122793	o-Xylene	2019/05/16	90	60 - 140	87	60 - 130	<0.020	ug/g	NC	50		
6122793	p+m-Xylene	2019/05/16	83	60 - 140	81	60 - 130	<0.020	ug/g	NC	50		
6122793	Toluene	2019/05/16	102	60 - 140	97	60 - 130	<0.020	ug/g	NC	50		
6122793	Total Xylenes	2019/05/16					<0.020	ug/g	NC	50		
6124602	Mercury (Hg)	2019/05/17	96	75 - 125	96	80 - 120	<0.010	mg/kg	NC	30	80	50 - 150
6124603	Mercury (Hg)	2019/05/17	96	75 - 125	97	80 - 120	<0.010	mg/kg	NC	30	80	50 - 150
6125174	1-Methylnaphthalene	2019/05/18	79	50 - 130	92	50 - 130	<0.0050	mg/kg	NC	50		
6125174	2-Methylnaphthalene	2019/05/18	81	50 - 130	92	50 - 130	<0.0050	mg/kg	NC	50		
6125174	Acenaphthene	2019/05/18	87	50 - 130	102	50 - 130	<0.0050	mg/kg	NC	50		
6125174	Acenaphthylene	2019/05/18	87	50 - 130	105	50 - 130	<0.0050	mg/kg	NC	50		
6125174	Anthracene	2019/05/18	85	50 - 130	101	50 - 130	<0.0050	mg/kg	NC	50		
6125174	Benzo(a)anthracene	2019/05/18	83	50 - 130	92	50 - 130	<0.0050	mg/kg	NC	50		
6125174	Benzo(a)pyrene	2019/05/18	76	50 - 130	78	50 - 130	<0.0050	mg/kg	NC	50		
6125174	Benzo(b)fluoranthene	2019/05/18	84	50 - 130	88	50 - 130	<0.0050	mg/kg	NC	50		
6125174	Benzo(g,h,i)perylene	2019/05/18	77	50 - 130	75	50 - 130	<0.0050	mg/kg	NC	50		
6125174	Benzo(j)fluoranthene	2019/05/18	74	50 - 130	79	50 - 130	<0.0050	mg/kg	NC	50		
6125174	Benzo(k)fluoranthene	2019/05/18	77	50 - 130	83	50 - 130	<0.0050	mg/kg	NC	50		
6125174	Chrysene	2019/05/18	100	50 - 130	111	50 - 130	<0.0050	mg/kg	NC	50		
6125174	Dibenz(a,h)anthracene	2019/05/18	76	50 - 130	74	50 - 130	<0.0050	mg/kg	NC	50		
6125174	Fluoranthene	2019/05/18	89	50 - 130	102	50 - 130	<0.0050	mg/kg	NC	50		
6125174	Fluorene	2019/05/18	93	50 - 130	109	50 - 130	<0.0050	mg/kg	NC	50		
6125174	Indeno(1,2,3-cd)pyrene	2019/05/18	75	50 - 130	72	50 - 130	<0.0050	mg/kg	NC	50		
6125174	Naphthalene	2019/05/18	83	50 - 130	96	50 - 130	<0.0050	mg/kg	NC	50		



BUREAU
VERITAS

BV Labs Job #: B9C7055
Report Date: 2019/06/06

QUALITY ASSURANCE REPORT(CONT'D)

Stantec Consulting Ltd
Client Project #: 121621877.400

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
6125174	Perylene	2019/05/18	70	50 - 130	73	50 - 130	<0.0050	mg/kg	NC	50		
6125174	Phenanthrene	2019/05/18	93	50 - 130	113	50 - 130	<0.0050	mg/kg	NC	50		
6125174	Pyrene	2019/05/18	87	50 - 130	98	50 - 130	<0.0050	mg/kg	NC	50		
6128443	Total Organic Carbon	2019/05/21					<500	mg/kg	0.0048	35	107	75 - 125
6128558	F2 (C10-C16 Hydrocarbons)	2019/05/22	101	50 - 130	99	80 - 120	<10	ug/g	NC	30		
6128558	F3 (C16-C34 Hydrocarbons)	2019/05/22	103	50 - 130	101	80 - 120	<50	ug/g	NC	30		
6128558	F4 (C34-C50 Hydrocarbons)	2019/05/22	101	50 - 130	98	80 - 120	<50	ug/g	NC	30		
6130881	Clay	2019/05/31							12	35		
6130881	Gravel	2019/05/31							NC	35		
6130881	Sand	2019/05/31							0.13	35		
6130881	Silt	2019/05/31							NC	35		
6133856	22'33'44'55'6'-NonaCB-(206)	2019/05/17			64	60 - 130	<0.010	mg/kg	NC	N/A		
6133856	22'33'44'55'-OctaCB-(194)	2019/05/17			84	60 - 130	<0.010	mg/kg	NC	N/A		
6133856	22'33'44'56'-OctaCB-(195)	2019/05/17			82	60 - 130	<0.010	mg/kg	NC	N/A		
6133856	22'33'44'5'-HeptaCB-(170)	2019/05/17			88	60 - 130	<0.010	mg/kg	NC	N/A		
6133856	22'33'44'6'-HeptaCB-(171)	2019/05/17			76	60 - 130	<0.010	mg/kg	NC	N/A		
6133856	22'33'44'-HexaCB-(128)	2019/05/17			89	60 - 130	<0.010	mg/kg	NC	N/A		
6133856	22'33'455'66'-NonaCB-(208)	2019/05/17			74	60 - 130	<0.010	mg/kg	NC	N/A		
6133856	22'33'455'6'-OctaCB-(199)	2019/05/17			84	60 - 130	<0.010	mg/kg	NC	N/A		
6133856	22'33'45'6'-HeptaCB-(177)	2019/05/17			66	60 - 130	<0.010	mg/kg	NC	N/A		
6133856	22'33'46'-HexaCB-(132)	2019/05/17			95	60 - 130	<0.010	mg/kg	NC	N/A		
6133856	22'33'4'-PentaCB-(82)	2019/05/17			77	60 - 130	<0.010	mg/kg	NC	N/A		
6133856	22'344'55'-HeptaCB-(180)	2019/05/17			75	60 - 130	<0.010	mg/kg	NC	N/A		
6133856	22'344'5'6'-HeptaCB-(183)	2019/05/17			74	60 - 130	<0.010	mg/kg	NC	N/A		
6133856	22'34'55'6'-HeptaCB-(187)	2019/05/17			75	60 - 130	<0.010	mg/kg	NC	N/A		
6133856	22'34'5'6'-HexaCB-(149)	2019/05/17			96	60 - 130	<0.010	mg/kg	NC	N/A		
6133856	22'345'-PentaCB-(87)	2019/05/17			96	60 - 130	<0.010	mg/kg	NC	N/A		
6133856	22'355'6'-HexaCB-(151)	2019/05/17			106	60 - 130	<0.010	mg/kg	NC	N/A		
6133856	22'35'6'-PentaCB-(95)	2019/05/17			108	60 - 130	<0.010	mg/kg	NC	N/A		
6133856	22'35'-TetraCB-(44)	2019/05/17			102	60 - 130	<0.010	mg/kg	NC	N/A		
6133856	22'44'55'-HexaCB-(153)	2019/05/17			109	60 - 130	<0.010	mg/kg	NC	N/A		
6133856	22'44'5'-PentaCB-(99)	2019/05/17			88	60 - 130	<0.010	mg/kg	NC	N/A		
6133856	22'455'-PentaCB-(101)	2019/05/17			97	60 - 130	<0.010	mg/kg	NC	N/A		



BUREAU
VERITAS

BV Labs Job #: B9C7055
Report Date: 2019/06/06

QUALITY ASSURANCE REPORT(CONT'D)

Stantec Consulting Ltd
Client Project #: 121621877.400

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
6133856	22'45'-TetraCB-(49)	2019/05/17			104	60 - 130	<0.010	mg/kg	NC	N/A		
6133856	22'55'-TetraCB-(52)	2019/05/17			97	60 - 130	<0.010	mg/kg	NC	N/A		
6133856	233'44'55'6-OctaCB-(205)	2019/05/17			85	60 - 130	<0.010	mg/kg	NC	N/A		
6133856	233'44'5'6-HeptaCB-(191)	2019/05/17			75	60 - 130	<0.010	mg/kg	NC	N/A		
6133856	233'44'5-HexaCB-(156)	2019/05/17			103	60 - 130	<0.010	mg/kg	NC	N/A		
6133856	233'44'-PentaCB-(105)	2019/05/17			134 (3)	60 - 130	<0.010	mg/kg	NC	N/A		
6133856	233'4'6-PentaCB-(110)	2019/05/17			110	60 - 130	<0.010	mg/kg	NC	N/A		
6133856	23'44'5-PentaCB-(118)	2019/05/17			112	60 - 130	<0.010	mg/kg	NC	N/A		
6133856	23'4'5-TetraCB-(70)	2019/05/17			102	60 - 130	<0.010	mg/kg	NC	N/A		
6133856	2'34-TriCB-(33)	2019/05/17			96	60 - 130	<0.010	mg/kg	NC	N/A		
6133856	244'5-TetraCB-(74)	2019/05/17			122	60 - 130	<0.010	mg/kg	NC	N/A		
6133856	33'44'55'-HexaCB-(169)	2019/05/17			124	60 - 130	<0.010	mg/kg	NC	N/A		
6133856	DecaCB-(209)	2019/05/17			80	60 - 130	<0.010	mg/kg	NC	N/A		
6133856	Decachlorobiphenyls	2019/05/17					<0.010	mg/kg	NC	30		
6133856	Heptachlorobiphenyls	2019/05/17					<0.010	mg/kg	NC	30		
6133856	HexaCB-(138)+(158)	2019/05/17			117	60 - 130	<0.010	mg/kg	NC	N/A		
6133856	Hexachlorobiphenyls	2019/05/17					<0.010	mg/kg	NC	30		
6133856	Nonachlorobiphenyls	2019/05/17					<0.010	mg/kg	NC	30		
6133856	Octachlorobiphenyls	2019/05/17					<0.010	mg/kg	NC	30		
6133856	Pentachlorobiphenyls	2019/05/17					<0.010	mg/kg	NC	30		
6133856	Tetrachlorobiphenyls	2019/05/17					<0.010	mg/kg	NC	30		
6133856	Total PCB	2019/05/17			94	60 - 130	<0.010	mg/kg	NC	30		
6133856	TriCB-(17)+(18)	2019/05/17			97	60 - 130	<0.010	mg/kg	NC	N/A		
6133856	TriCB-(28)+(31)	2019/05/17			95	60 - 130	<0.010	mg/kg	NC	N/A		



BUREAU
VERITAS

BV Labs Job #: B9C7055
Report Date: 2019/06/06

QUALITY ASSURANCE REPORT(CONT'D)

Stantec Consulting Ltd
Client Project #: 121621877.400

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
6133856	Trichlorobiphenyls	2019/05/17					<0.010	mg/kg	NC	30		

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Spike exceeds acceptance limits, sample inhomogeneity suspected.

(2) Poor RPD due to sample inhomogeneity verified by repeat digestion and analysis.

(3) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.



BUREAU
VERITAS

BV Labs Job #: B9C7055
Report Date: 2019/06/06

Stantec Consulting Ltd
Client Project #: 121621877.400

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Anastassia Hamanov, Scientific Specialist



Sylvain Chevigny, B.Sc., Chemist, Scientific Service Specialist

Gina Thompson, Inorganics General Chemistry Supervisor

Mike MacGillivray, Scientific Specialist (Inorganics)

Rosemarie MacDonald, Scientific Specialist (Organics)

BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

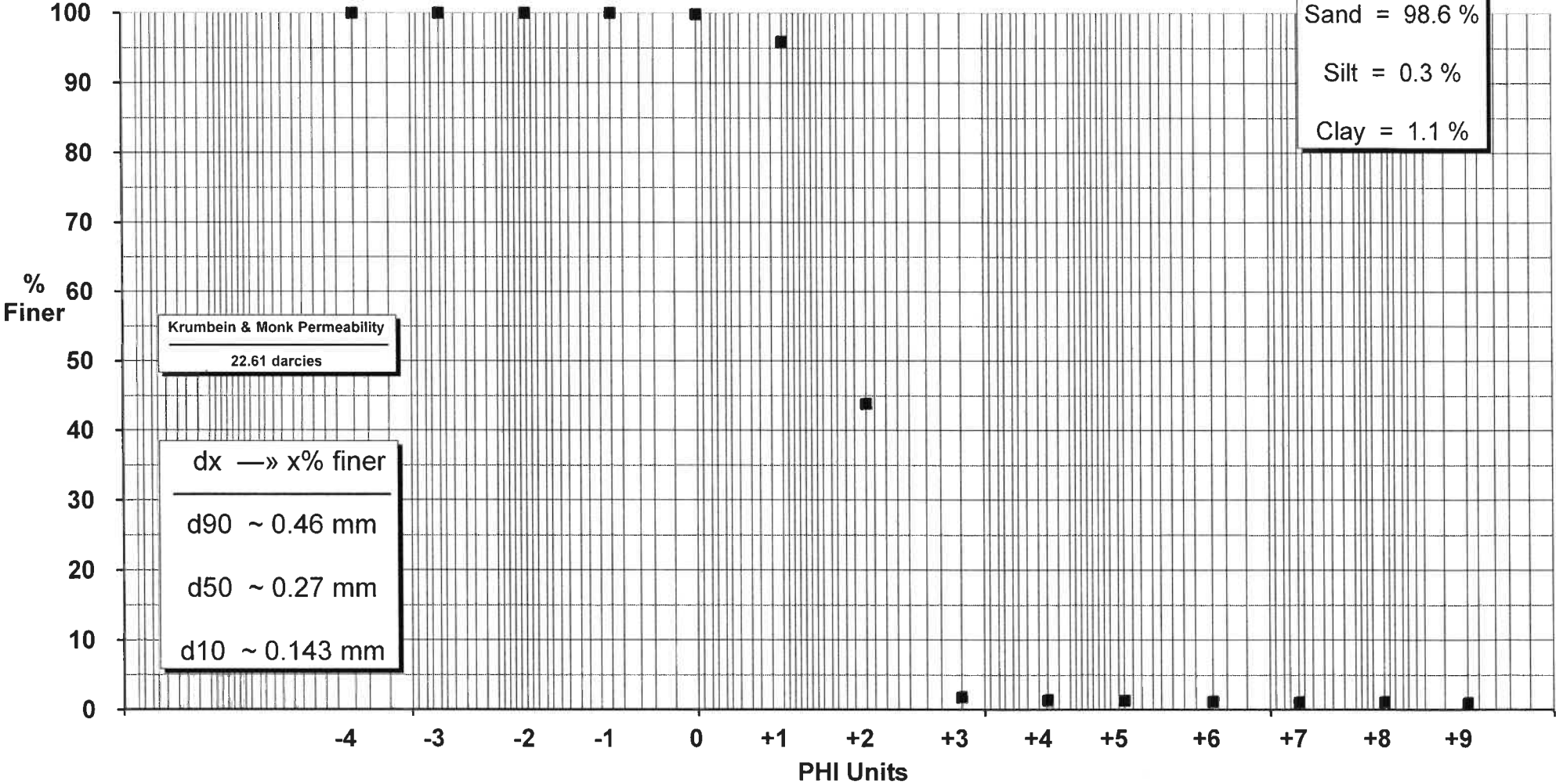


VC-18

Percent Coarser than 75 µm (PHI = 3.737)
—
98.5 %

Percent Coarser than 50 µm (PHI = 4.322)
—
98.7 %

Wentworth
Gravel = 0.0 %
Sand = 98.6 %
Silt = 0.3 %
Clay = 1.1 %



[Signature]
Approved

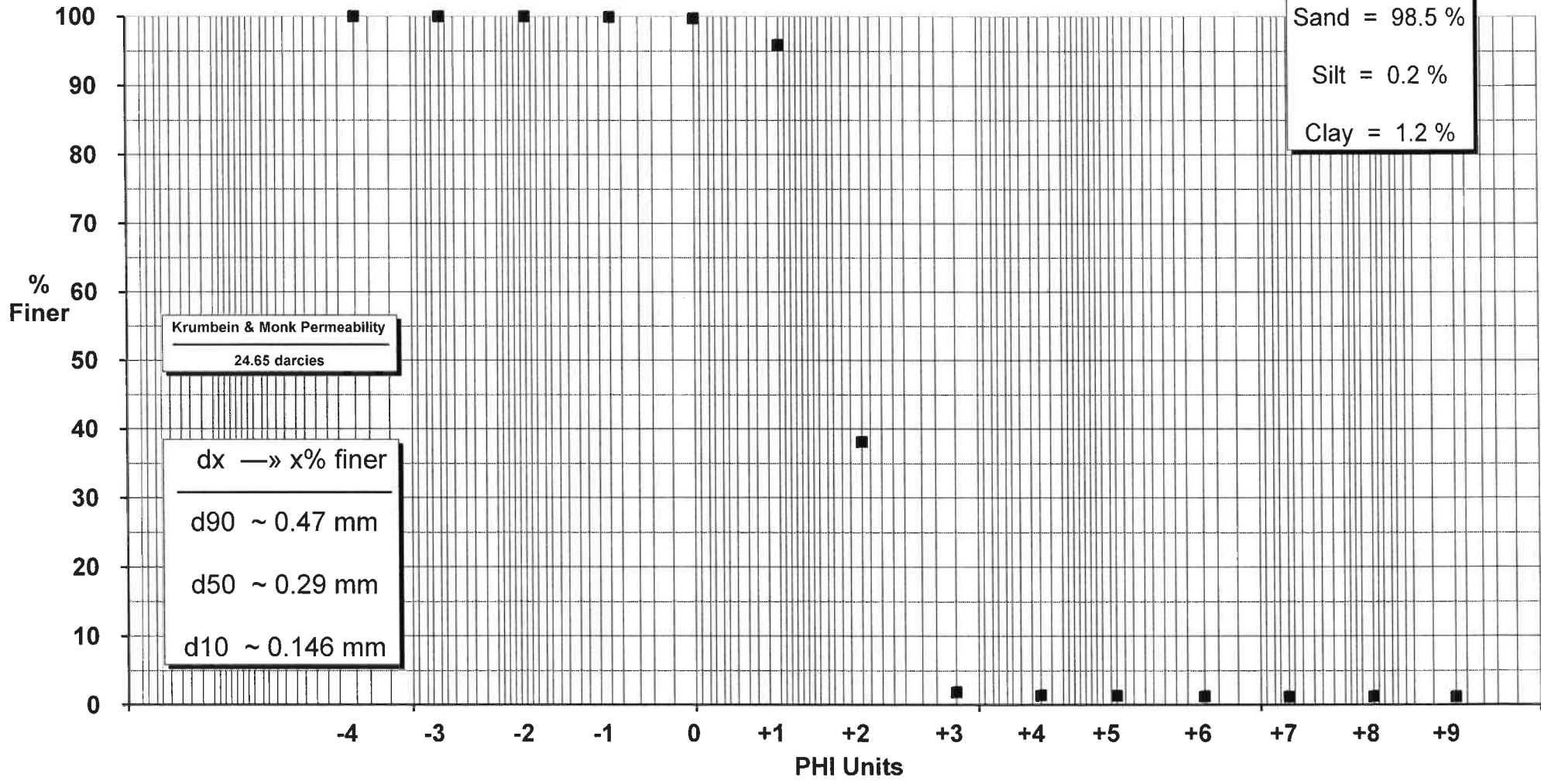


VC-18

Percent Coarser than 75 μm
(PHI = 3.737)
—
98.5 %

Percent Coarser than 50 μm
(PHI = 4.322)
—
98.6 %

Wentworth
Gravel = 0.1 %
Sand = 98.5 %
Silt = 0.2 %
Clay = 1.2 %



Approved

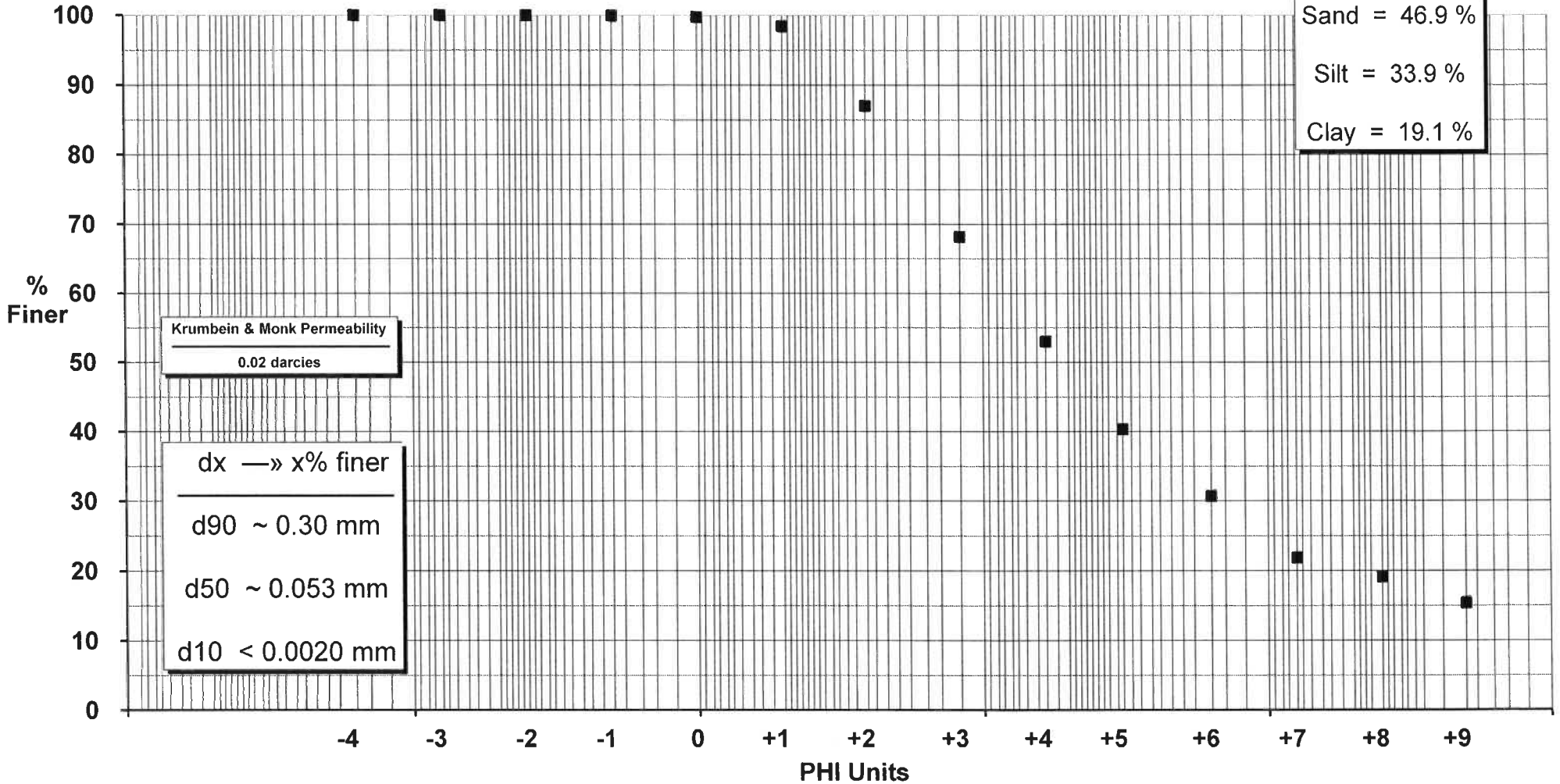


VC-19-1

Percent Coarser than 75 μm
(PHI = 3.737)
—
43.0 %

Percent Coarser than 50 μm
(PHI = 4.322)
—
51.1 %

Wentworth
Gravel = 0.1 %
Sand = 46.9 %
Silt = 33.9 %
Clay = 19.1 %




Approved

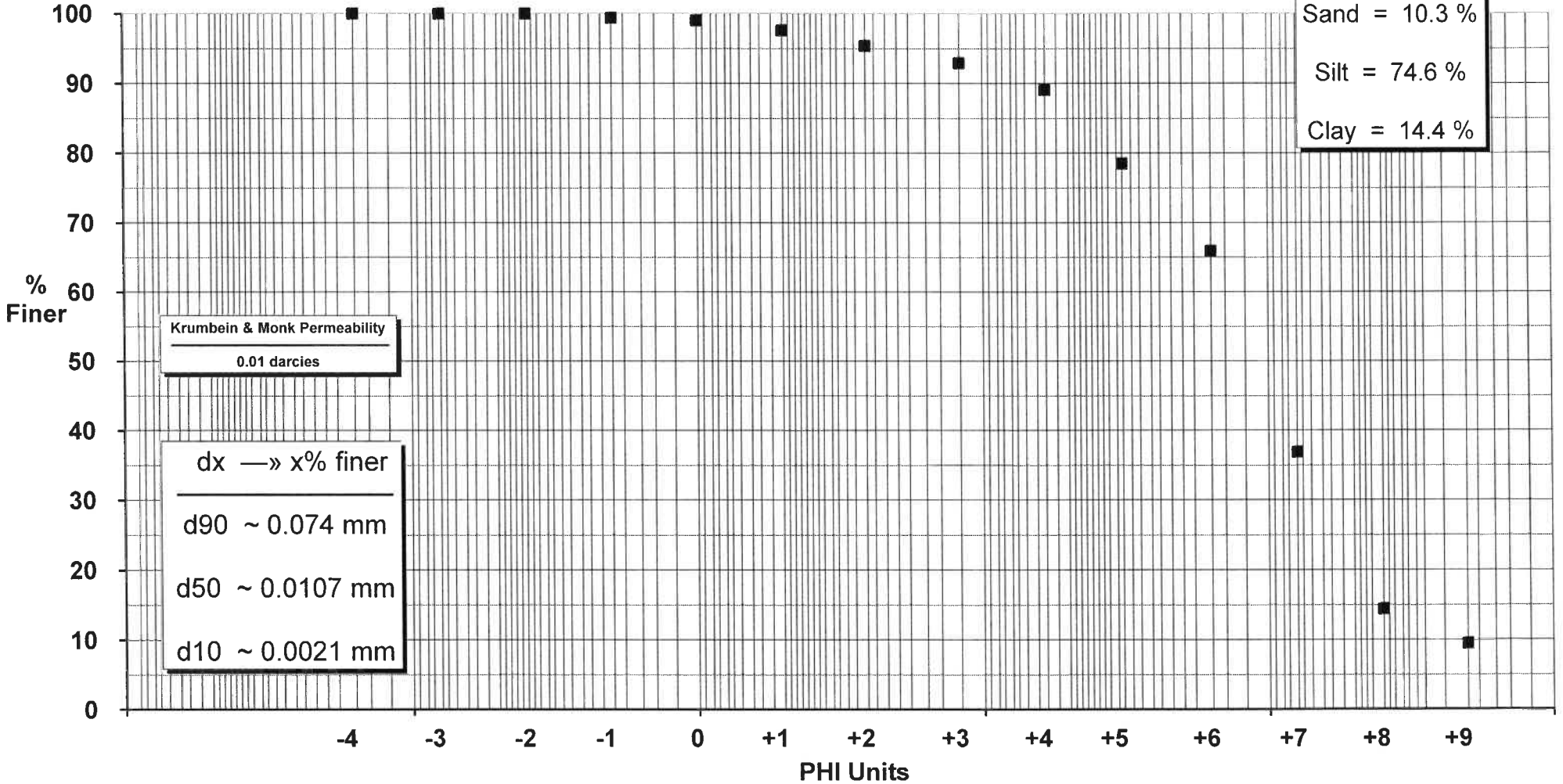


VC-19-3

Percent Coarser than 75 μm
(PHI = 3.737)
—
9.9 %

Percent Coarser than 50 μm
(PHI = 4.322)
—
14.4 %

Wentworth
Gravel = 0.6 %
Sand = 10.3 %
Silt = 74.6 %
Clay = 14.4 %



CSA
Approved

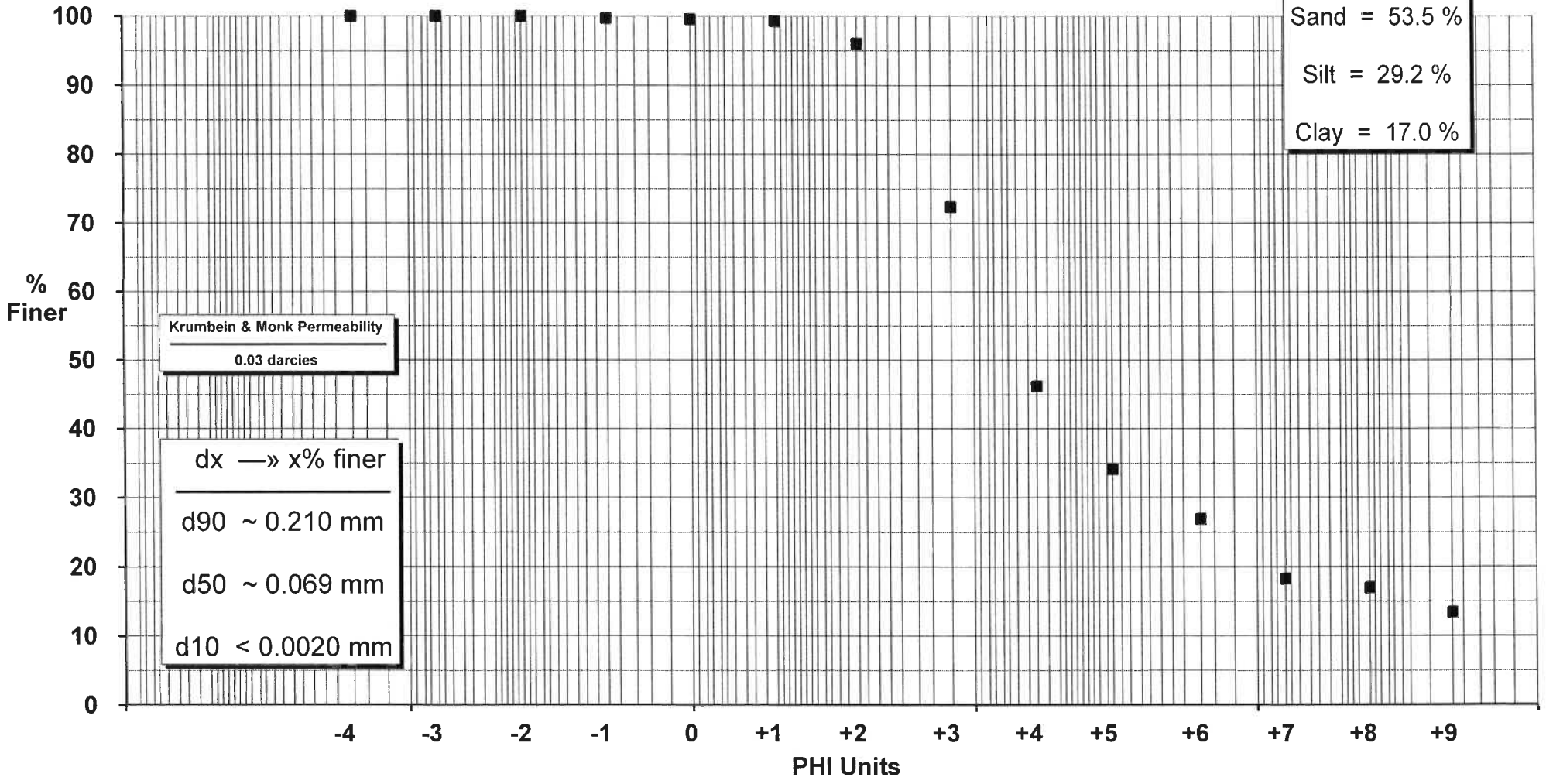


VC-20-1

Percent Coarser than 75 μ m
(PHI = 3.737)
—
46.9 %

Percent Coarser than 50 μ m
(PHI = 4.322)
—
57.7 %

Wentworth
Gravel = 0.3 %
Sand = 53.5 %
Silt = 29.2 %
Clay = 17.0 %



LOJ
Approved

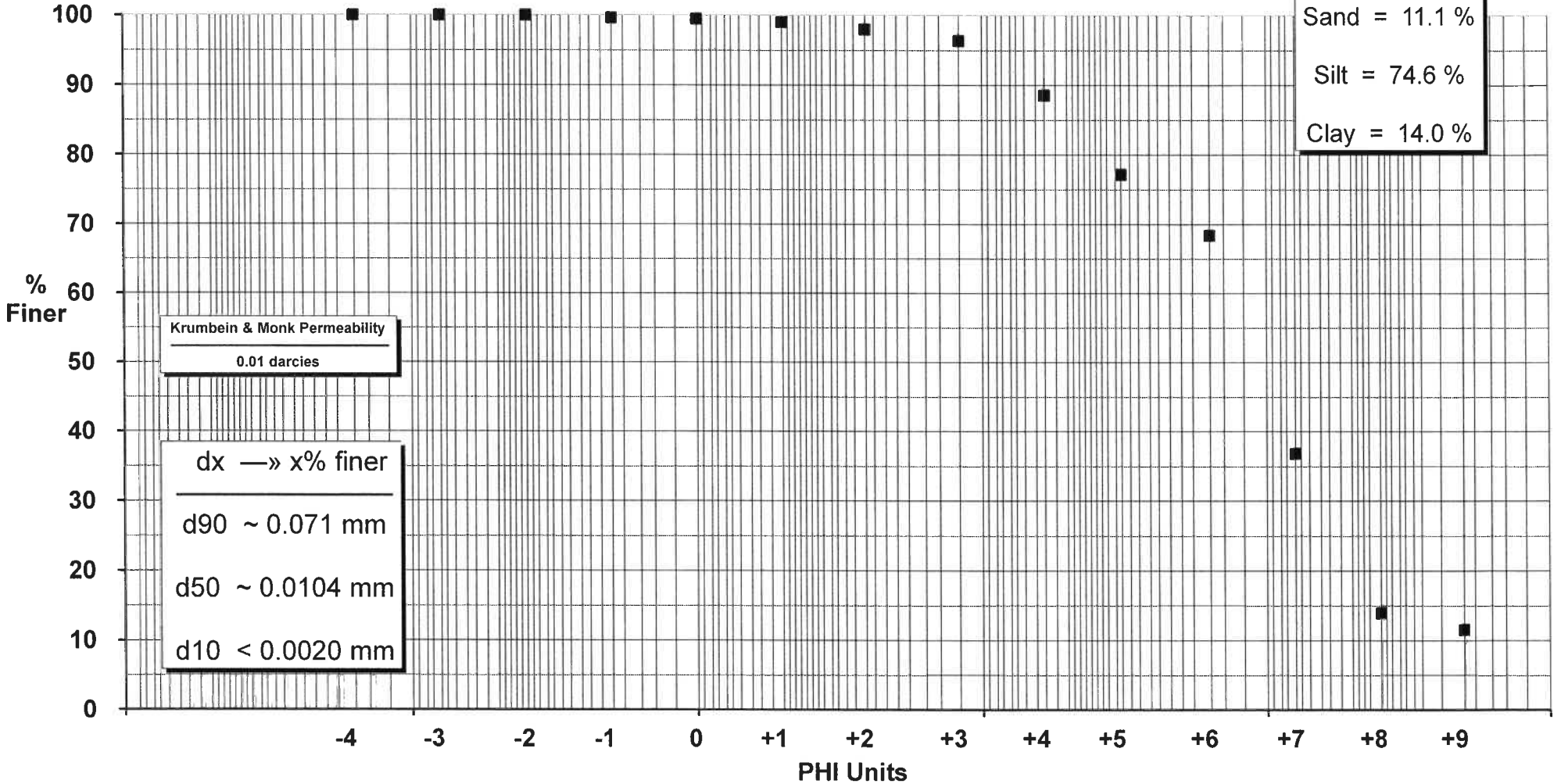


VC-20-3

Percent Coarser than 75 μm
(PHI = 3.737)
—
9.4 %

Percent Coarser than 50 μm
(PHI = 4.322)
—
15.1 %

Wentworth
Gravel = 0.4 %
Sand = 11.1 %
Silt = 74.6 %
Clay = 14.0 %



CJA
Approved

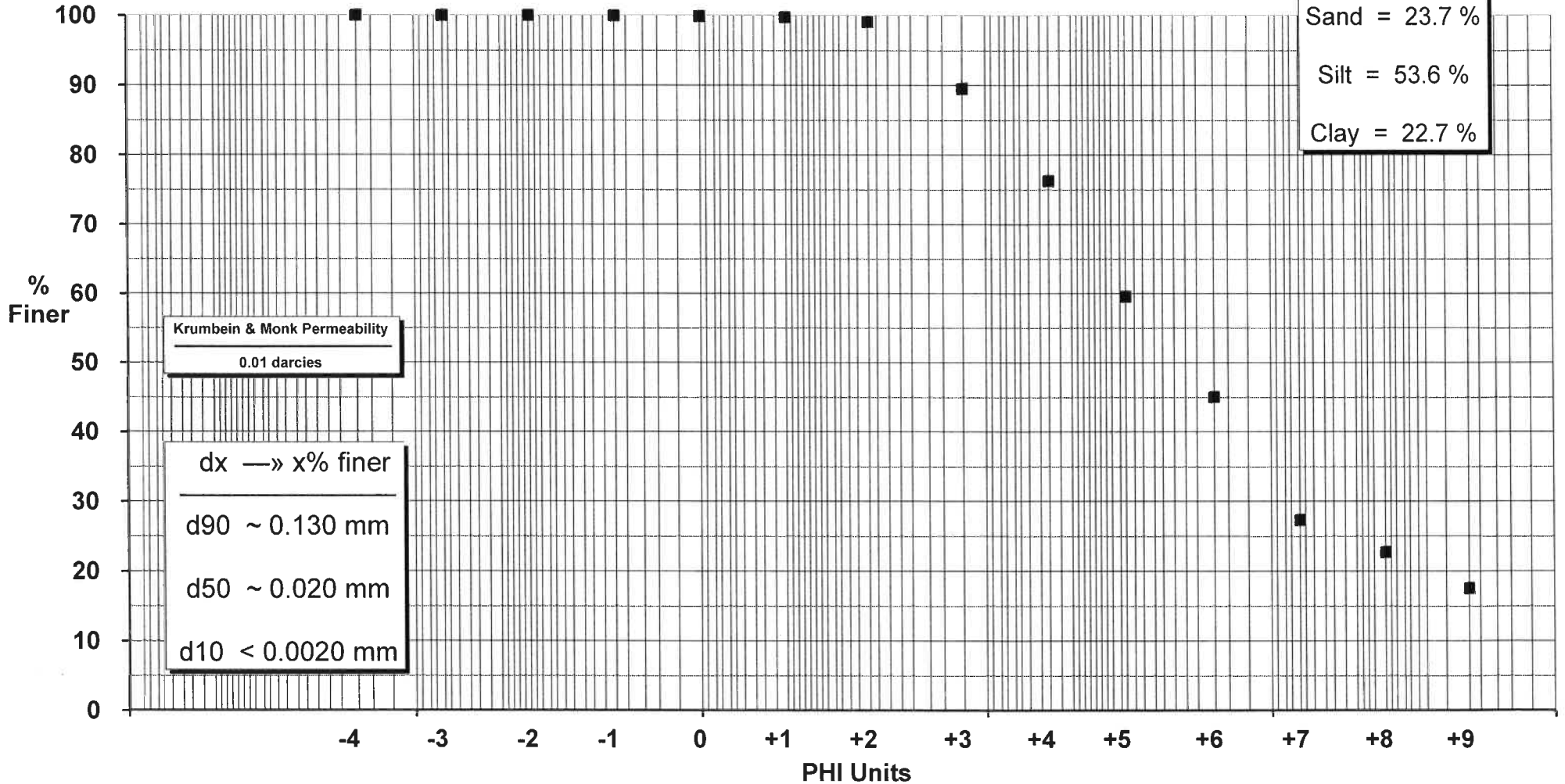


VC-21-1

Percent Coarser than 75 μm
(PHI = 3.737)
—
20.2 %

Percent Coarser than 50 μm
(PHI = 4.322)
—
29.1 %

Wentworth
Gravel = 0.0 %
Sand = 23.7 %
Silt = 53.6 %
Clay = 22.7 %



CPB
Approved

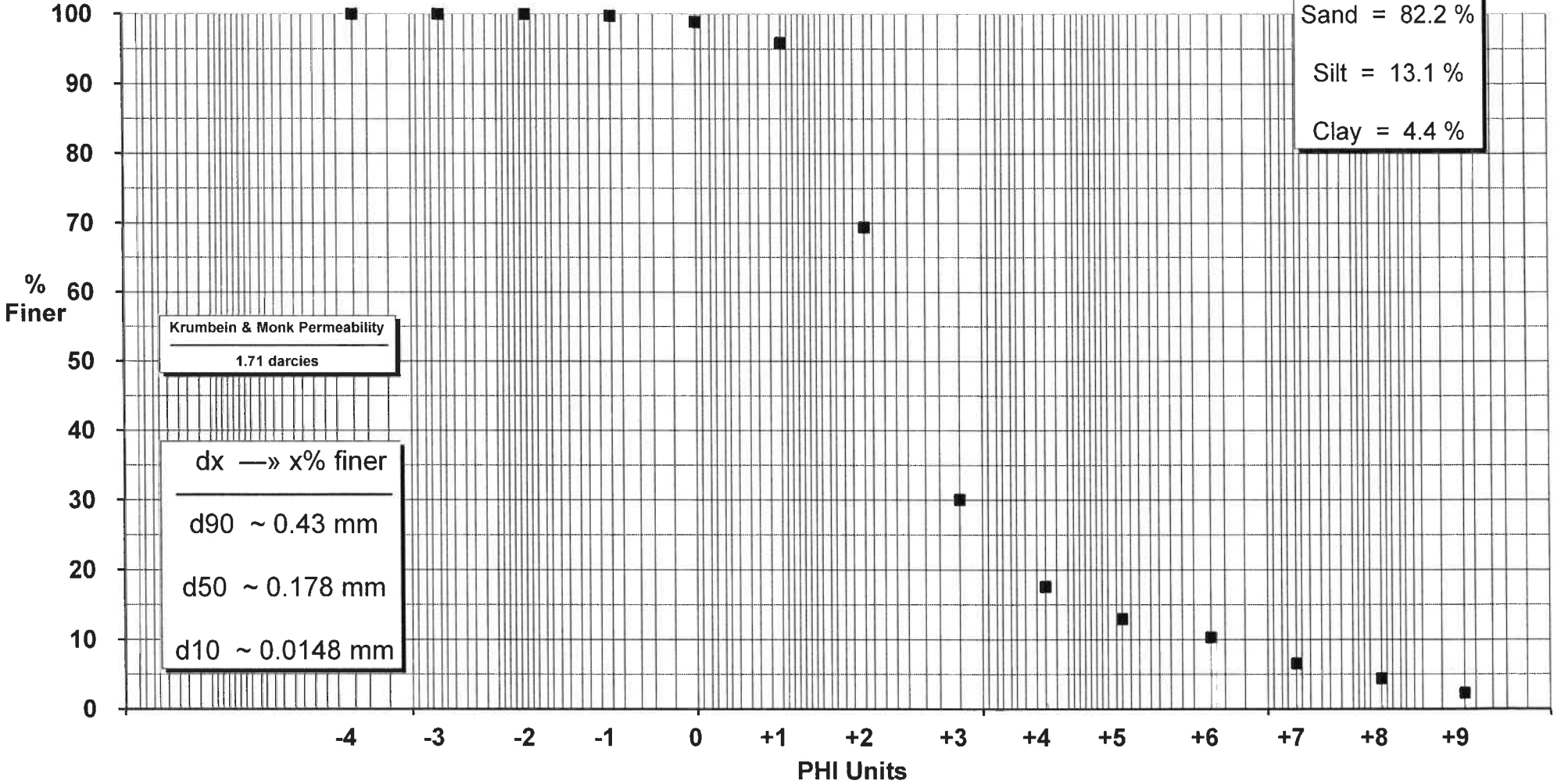


VC-22-1

Percent Coarser than 75 μm
(PHI = 3.737)
79.2 %

Percent Coarser than 50 μm
(PHI = 4.322)
83.9 %

Wentworth
Gravel = 0.2 %
Sand = 82.2 %
Silt = 13.1 %
Clay = 4.4 %



Approved

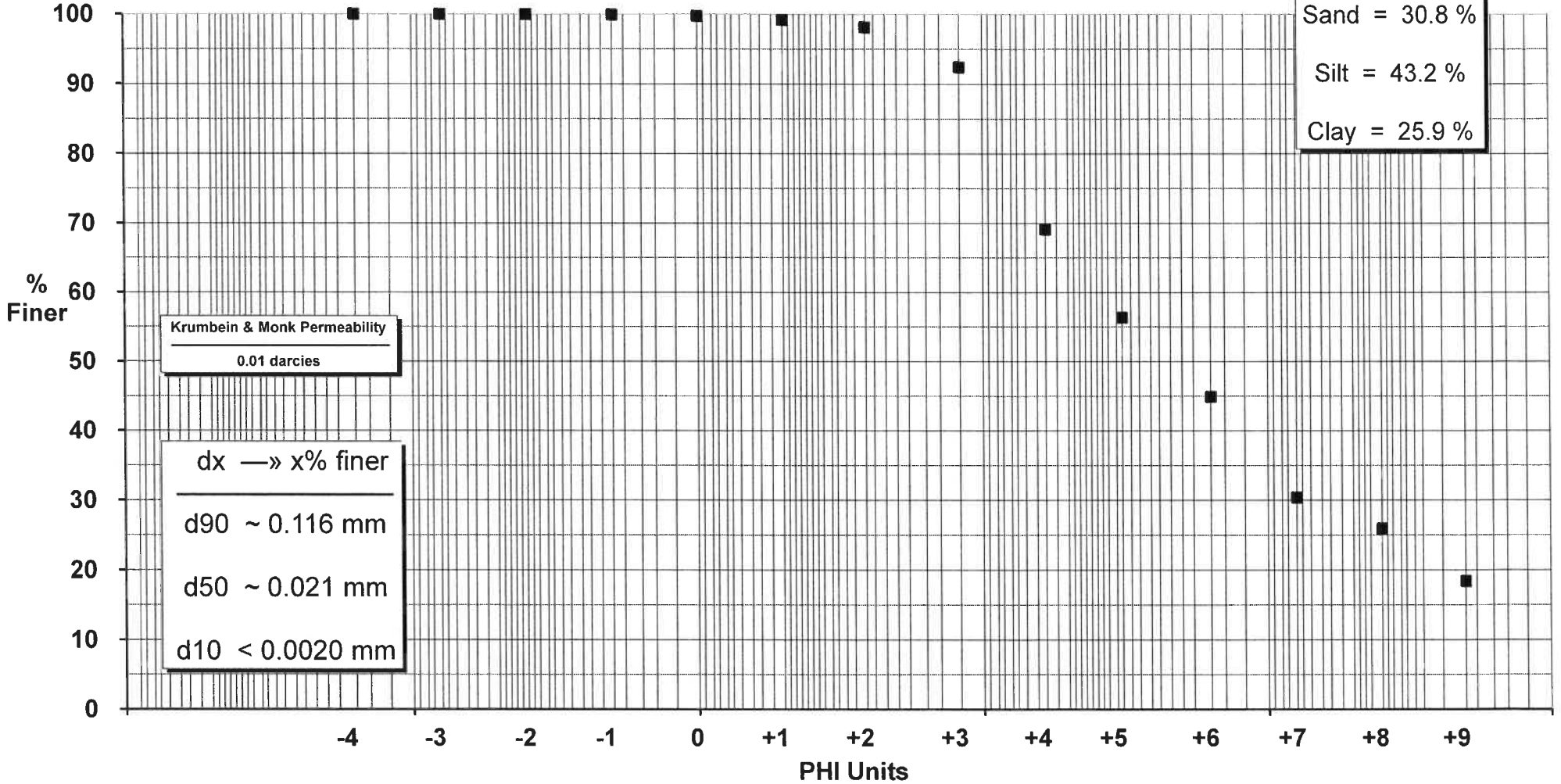


VC-22-3

Percent Coarser than 75 μm
(PHI = 3.737)
—
24.8 %

Percent Coarser than 50 μm
(PHI = 4.322)
—
35.0 %

Wentworth
Gravel = 0.1 %
Sand = 30.8 %
Silt = 43.2 %
Clay = 25.9 %




Approved

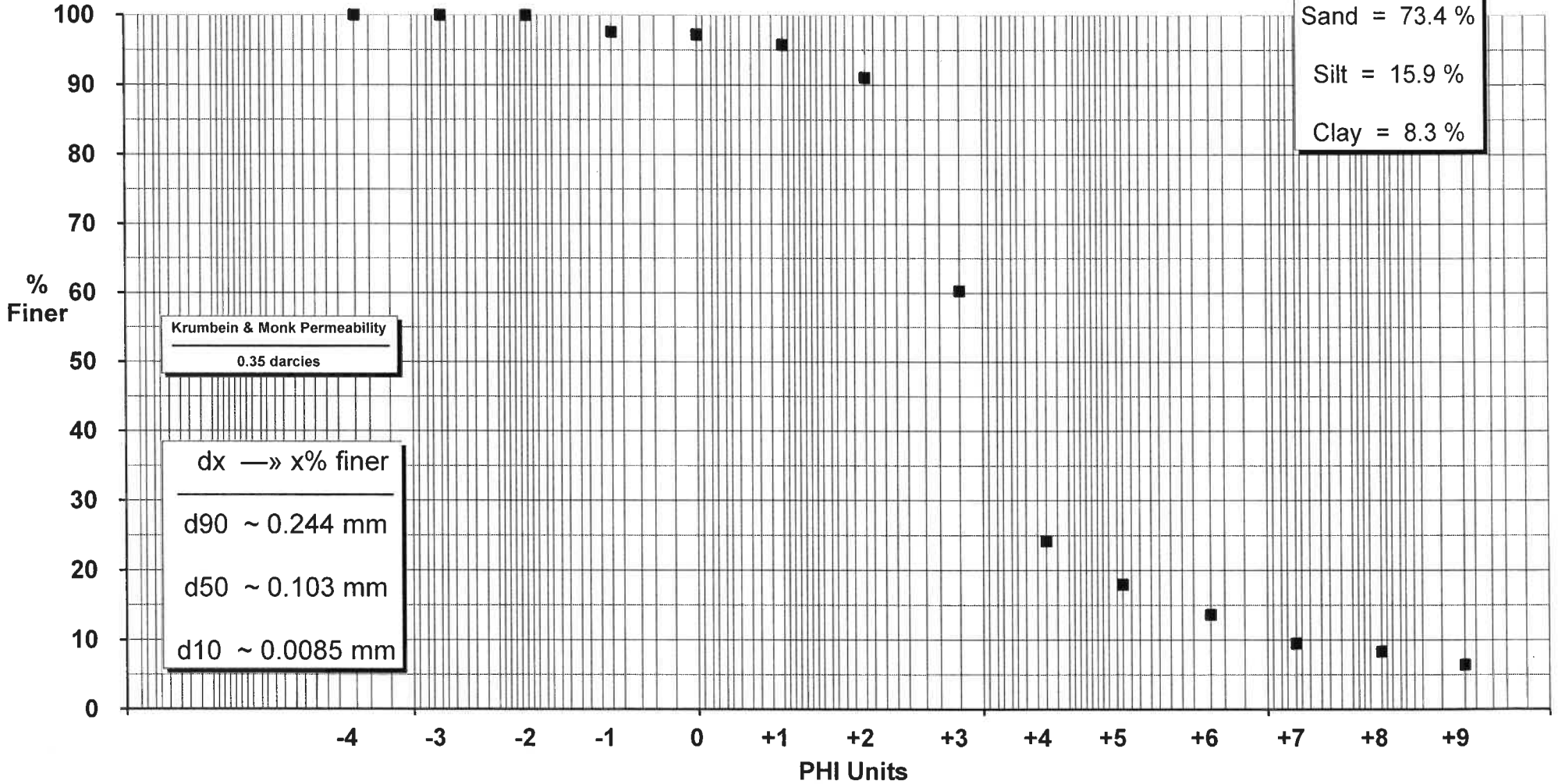


VC-05-1

Percent Coarser than 75 μm
(PHI = 3.737)
—
66.3 %

Percent Coarser than 50 μm
(PHI = 4.322)
—
77.8 %

Wentworth
Gravel = 2.4 %
Sand = 73.4 %
Silt = 15.9 %
Clay = 8.3 %



CSA
Approved



200 Bluewater Road, Suite 105, Bedford, Nova Scotia B4B 1G9 Tel: 902-420-0203 Fax: 902-420-8612 Toll Free: 1-800-565-7227
 49-55 Elizabeth Avenue, St John's, NL A1A 1W9 Tel: 709-754-0203 Fax: 709-754-8612 Toll Free: 1-888-492-7227
 465 George Street, Unit G, Sydney, NS B1P 1K5 Tel: 902-567-1255 Fax: 902-539-6504 Toll Free: 1-888-535-7770
 www.maxxam.ca E-mail: Customerservicebedford@maxxam.ca

ATL FCD 00149 / 23

CHAIN OF CUSTODY RECORD

COC #: **D40478** Page 1 of 1

Invoice Information			Report information (if differs from invoice)			Project Information (where applicable)			Turnaround Time (TAT) Required									
Company Name: _____			Company Name: _____			Quotation #: _____			<input type="checkbox"/> Regular TAT (5 business days) Most analyses <input type="checkbox"/> PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS IF RUSH please specify date (Surcharges will be applied) DATE REQUIRED: _____									
Contact Name: <u>STANTEC</u>			Contact Name: _____			Purchase Order #: _____												
Address: _____ PC: _____			Address: _____ PC: _____			Project #: <u>121621877.400</u>												
Phone: _____			Phone: <u>902-468-7777</u>			Site Location: _____												
Email: _____			Email: <u>Sam.SALLEY@STANTEC.com</u>			Site Province: _____												
Report Copies: _____			Report Copies: _____			Sampled By: _____												
Laboratory Use Only				Analysis Requested														
CUSTODY SEAL		COOLER TEMPERATURES		COOLER TEMPERATURES		Metals (Water)	Metals (Soil)	RBCA Hydrocarbons (BTEX, GC-C32)	CCME Hydrocarbons (CMS-PHC F1/BTEX, F2-F4)	PAHs (Default for water/soil)	PAHs (FWAL /CCME Sediment)	PCBs - Select One: Default or CCME Sediment	VOCs	Total Coliform/E.coli (Presence/Absence)	Total Coliform/E.coli (Count)	Regulatory Requirements (Specify)		
Present	Intact																	
		<u>2, 6, 10</u>																
COOLING MEDIA PRESENT Y / N																		
SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM																		
SAMPLE IDENTIFICATION		DATE SAMPLED (YYYY/MM/DD)	TIME SAMPLED (HH:MM)	MATRIX	# OF CONTAINERS SUBMITTED	FIELD FILTERED & PRESERVED	LAB FILTRATION REQUIRED	RCAP-MS (Total Metals), Well / Surface water	RCAP-MS (Dissolved Metals) Ground waters	Total Digest (Default Method) for well water & surface water	Dissolved for ground water	Mercury (CIRCLE) TOTAL / DISSOLVED	Metals & Mercury Default Acid Extractable (Available) Digest	Hot Water Soluble Boron (required for CCME Agricultural / Landfill)			COMMENTS	
1	<u>VC-18</u>	<u>2019/03/04</u>	<u>15:05</u>	<u>SD</u>	<u>6</u>													<u>SEE ATTACHED ANALYSIS A</u>
2	<u>VC-19-1</u>	<u>2019/05/05</u>	<u>11:48</u>		<u>6</u>													
3	<u>VC-19-3</u>	<u>2019/05/05</u>	<u>11:48</u>		<u>6</u>													
4	<u>VC-20-1</u>	<u>2019/05/05</u>	<u>12:36</u>		<u>6</u>													
5	<u>VC-20-3</u>	<u>2019/05/05</u>	<u>12:36</u>		<u>6</u>													
6	<u>VC-21-1</u>	<u>2019/03/05</u>	<u>13:30</u>		<u>6</u>													
7	<u>VC-22-1</u>	<u>2019/05/05</u>	<u>14:15</u>		<u>6</u>													
8	<u>VC-22-3</u>	<u>↓</u>	<u>↓</u>		<u>6</u>													
9	<u>VC-05-1</u>	<u>2019/05/03</u>	<u>15:16</u>		<u>6</u>													
10																		
RELINQUISHED BY: (Signature/Print)		DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)		DATE: (YYYY/MM/DD)	TIME: (HH:MM)					MAXXAM JOB #						
<u>[Signature]</u> <u>VIA COURIER</u>		<u>2019/05/13</u>		<u>[Signature]</u>								<u>B9C7055</u>						

Unless otherwise agreed to in writing, work submitted on this Chain of Custody is subject to Maxxam's standard Terms and Conditions. Signing of this Chain of Custody document is acknowledgment and acceptance of our terms which are available for viewing at www.maxxam.ca/terms.

White: Maxxam

Pink: Client

2019 MAY 13 13:38

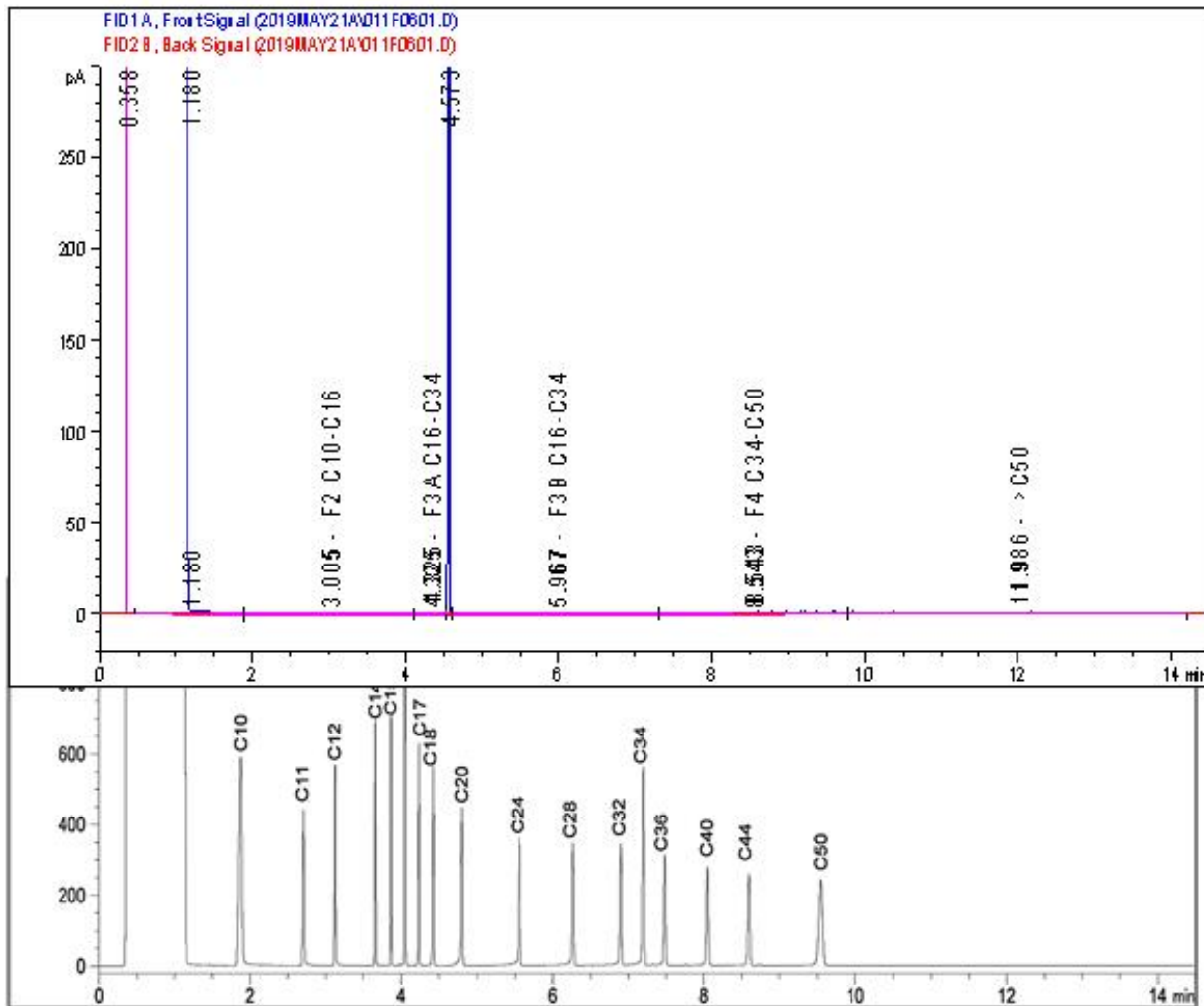
Analysis A Parameters - Disposal at Sea (DAS) Chemicals:

BTEX/TPH (CWS)
Low level mercury
Metals
PAHs (low level)
TOC
PCBs (low res Quebec)
Particle Size

Analysis B Parameters - HHRA Chemicals of Potential Concern:

BTEX/TPH (CWS)
Low level mercury
Metals
PAHs (low level)
TOC
PCBs (low res Quebec)
Particle Size
Total sulphides
Total Carbon
Total Nitrogen
Dioxins and furans
EOX (extractable)
Acid-volatile sulphide
Ammonia
Nitrate
TKN
Orthophosphate
pH
Specific non-chlorinated phenolic compounds (4-AAP phenol)
Chlorinated VOCs
RBCA hydrocarbons
Total oil and grease
Total Cyanide

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline: **C6 - C12**

Diesel: **C10 - C24**

Jet Fuels: **C6 - C16**

Varsol: **C8 - C12**

Fuel Oils: **C6 - C32**

Creosote: **C10 - C26**

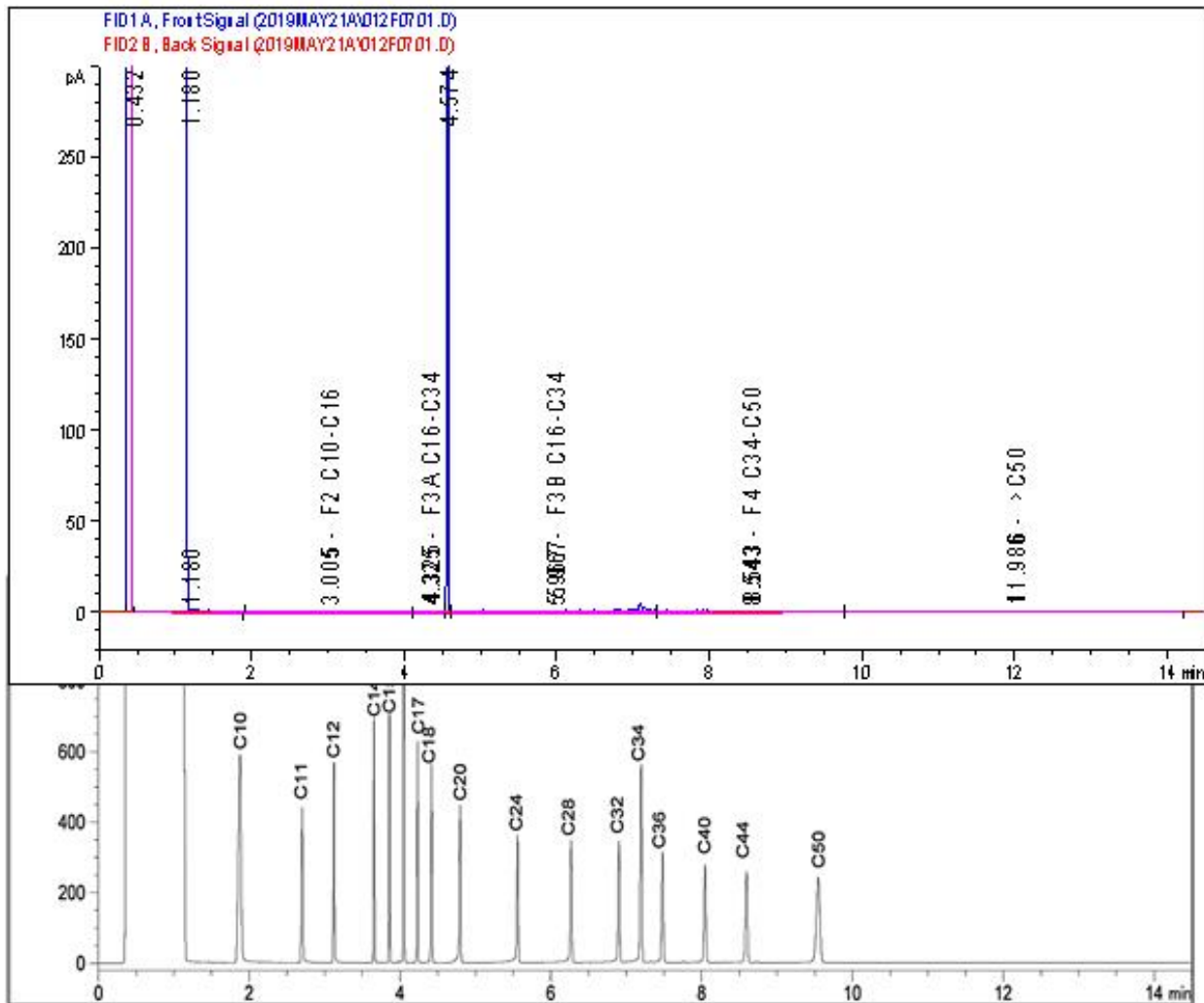
Kerosene: **C8 - C16**

Motor Oils: **C16 - C50**

Asphalt: **C18 - C50+**

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline: **C6 - C12**

Diesel: **C10 - C24**

Jet Fuels: **C6 - C16**

Varsol: **C8 - C12**

Fuel Oils: **C6 - C32**

Creosote: **C10 - C26**

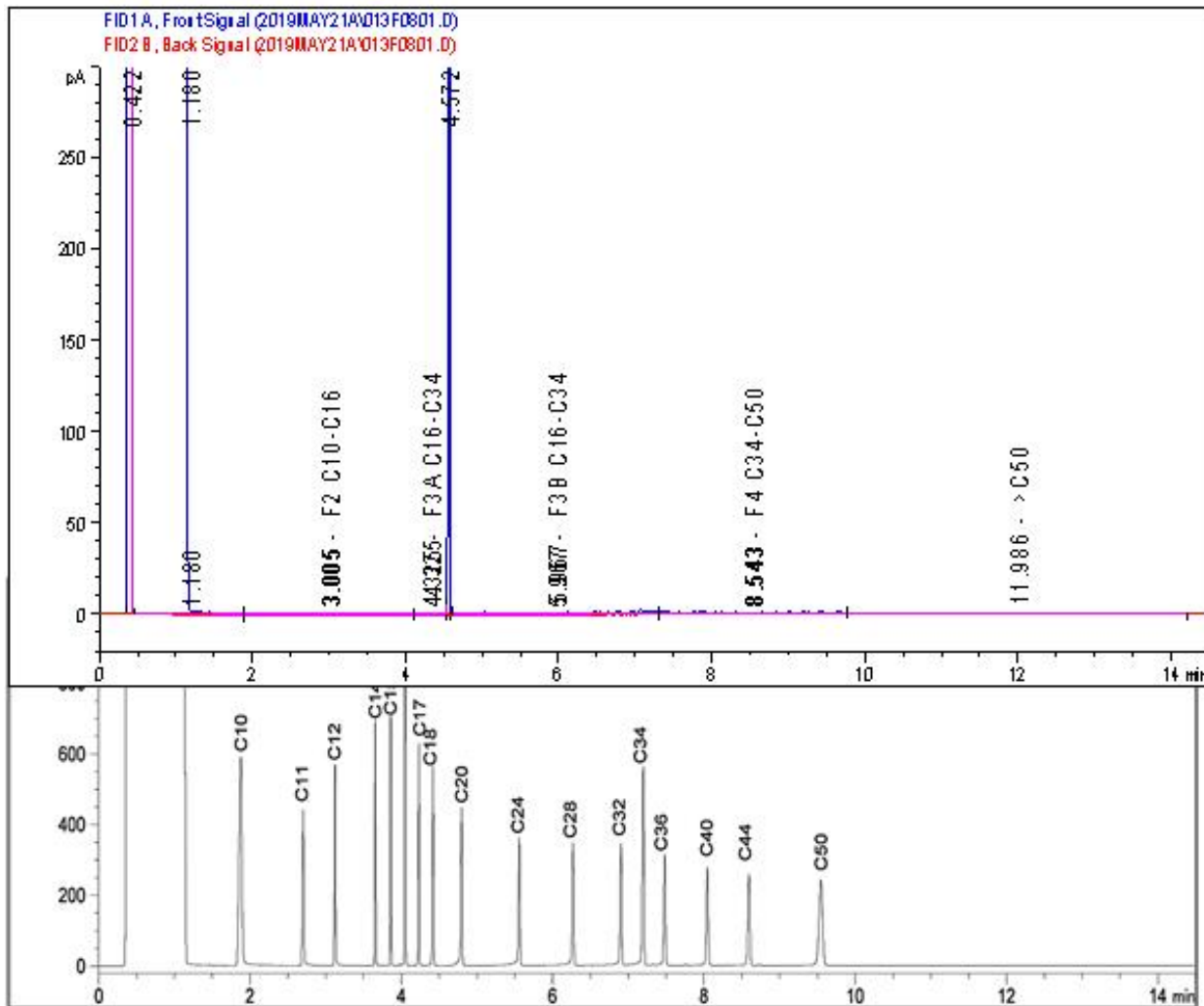
Kerosene: **C8 - C16**

Motor Oils: **C16 - C50**

Asphalt: **C18 - C50+**

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline: **C6 - C12**

Diesel: **C10 - C24**

Jet Fuels: **C6 - C16**

Varsol: **C8 - C12**

Fuel Oils: **C6 - C32**

Creosote: **C10 - C26**

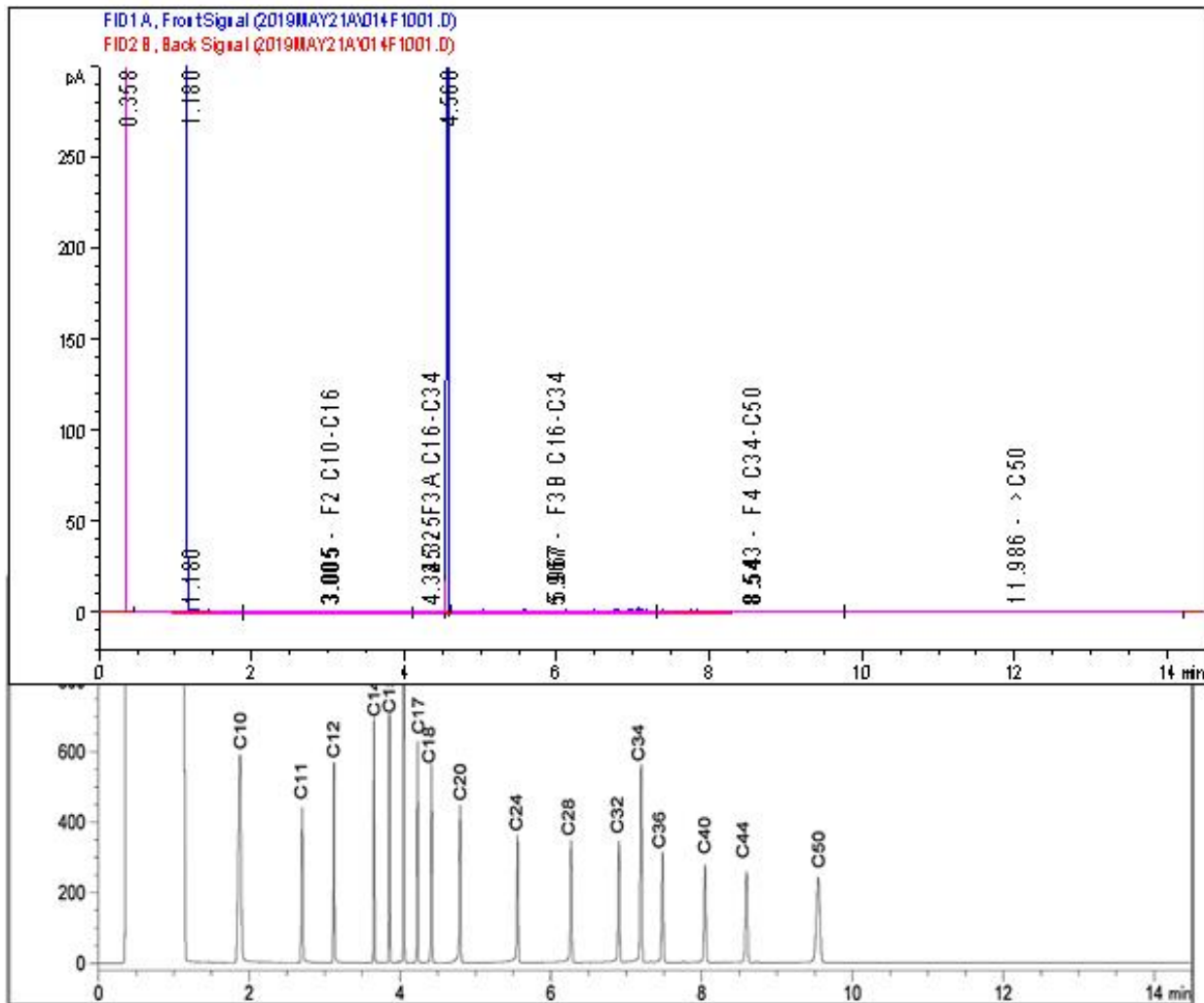
Kerosene: **C8 - C16**

Motor Oils: **C16 - C50**

Asphalt: **C18 - C50+**

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline: **C6 - C12**

Diesel: **C10 - C24**

Jet Fuels: **C6 - C16**

Varsol: **C8 - C12**

Fuel Oils: **C6 - C32**

Creosote: **C10 - C26**

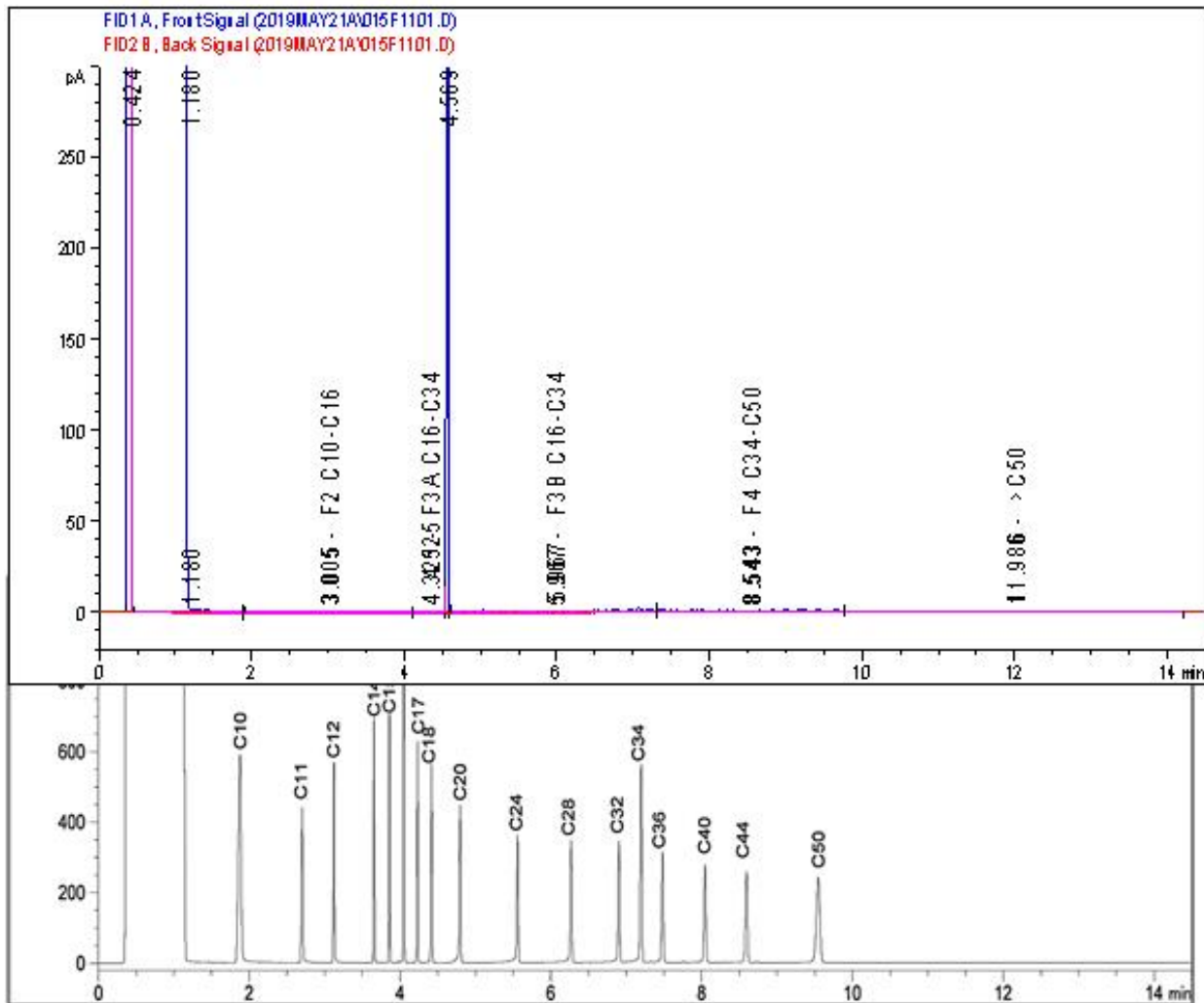
Kerosene: **C8 - C16**

Motor Oils: **C16 - C50**

Asphalt: **C18 - C50+**

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline: **C6 - C12**

Diesel: **C10 - C24**

Jet Fuels: **C6 - C16**

Varsol: **C8 - C12**

Fuel Oils: **C6 - C32**

Creosote: **C10 - C26**

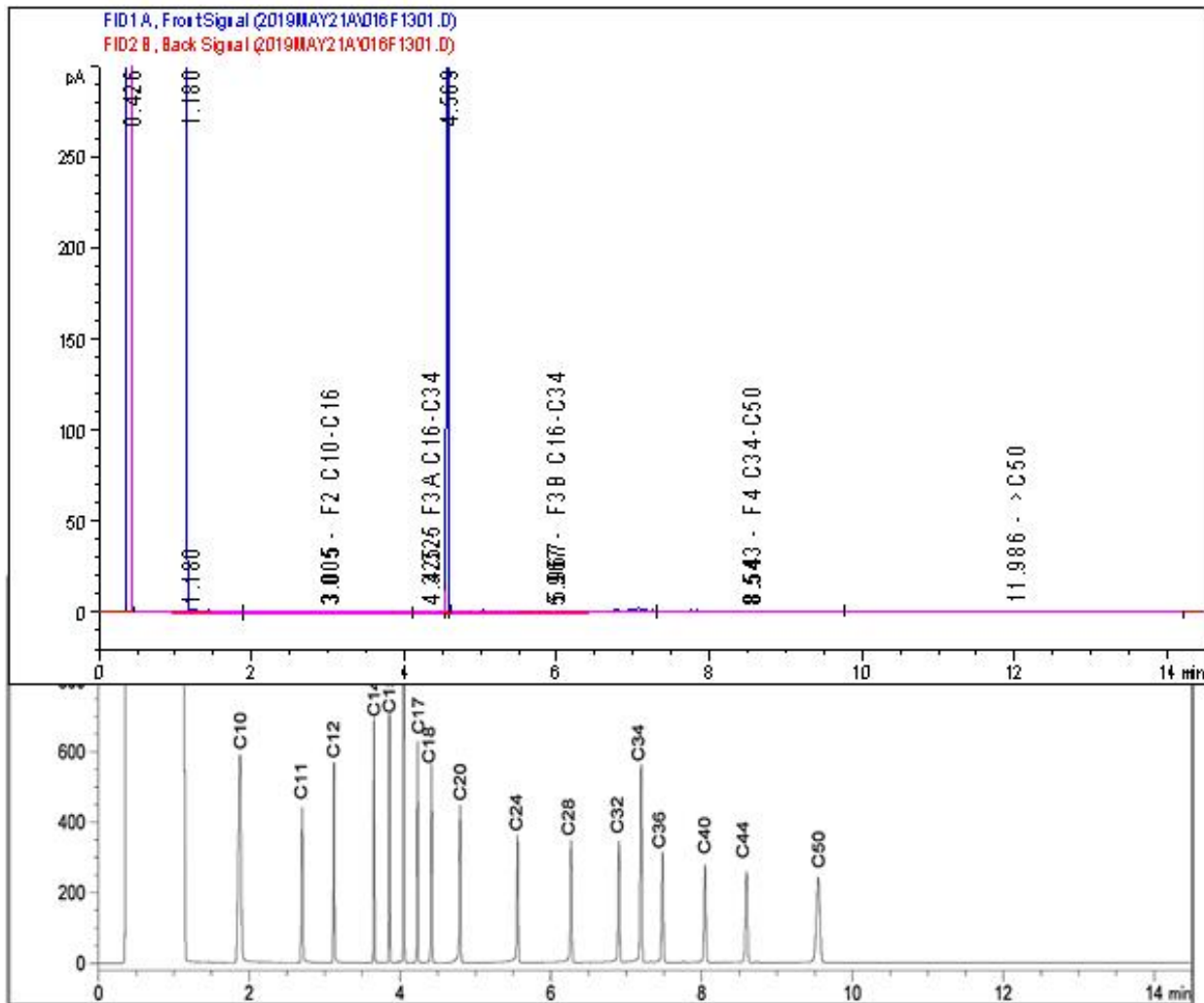
Kerosene: **C8 - C16**

Motor Oils: **C16 - C50**

Asphalt: **C18 - C50+**

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline: **C6 - C12**

Diesel: **C10 - C24**

Jet Fuels: **C6 - C16**

Varsol: **C8 - C12**

Fuel Oils: **C6 - C32**

Creosote: **C10 - C26**

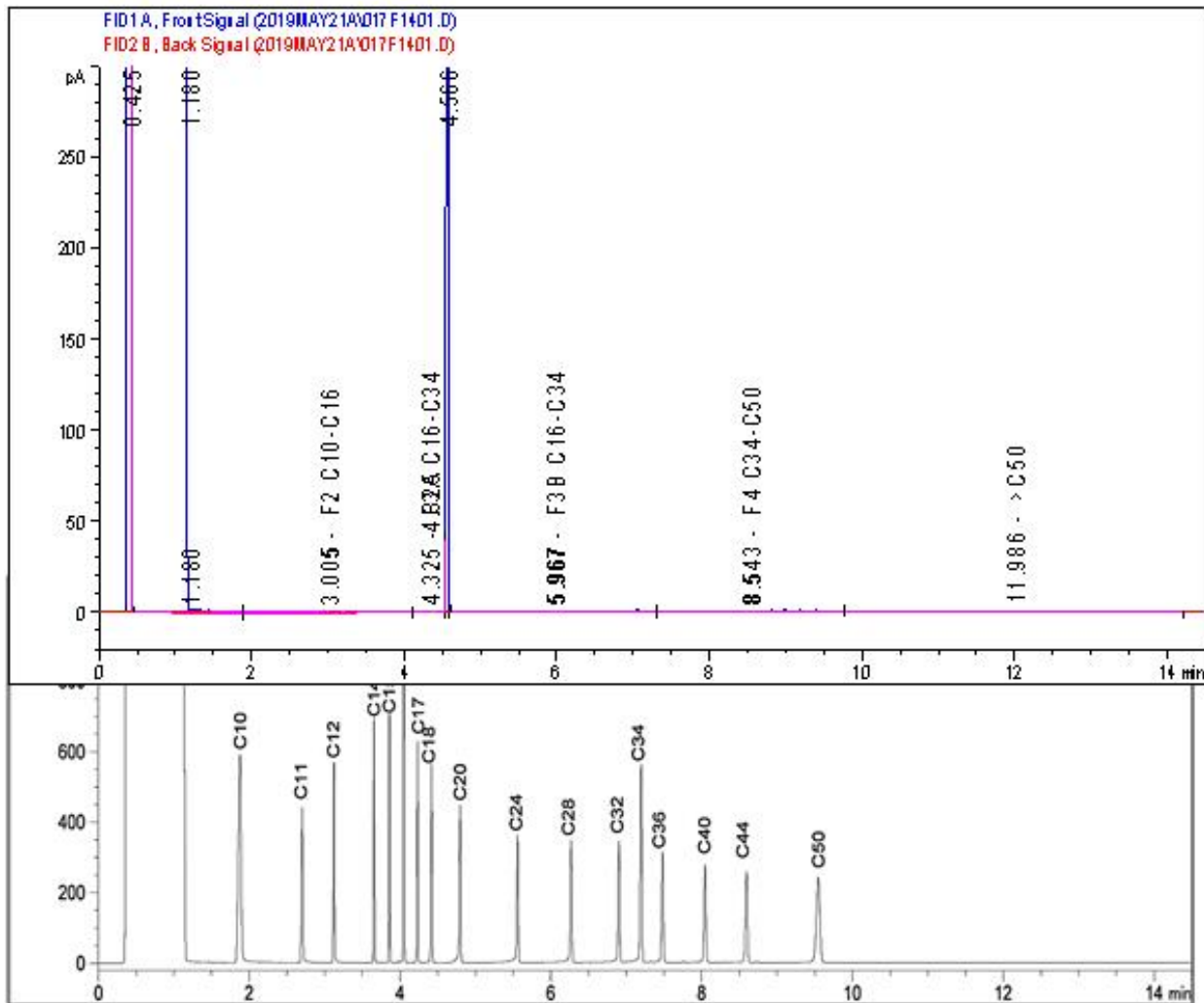
Kerosene: **C8 - C16**

Motor Oils: **C16 - C50**

Asphalt: **C18 - C50+**

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline: **C6 - C12**

Diesel: **C10 - C24**

Jet Fuels: **C6 - C16**

Varsol: **C8 - C12**

Fuel Oils: **C6 - C32**

Creosote: **C10 - C26**

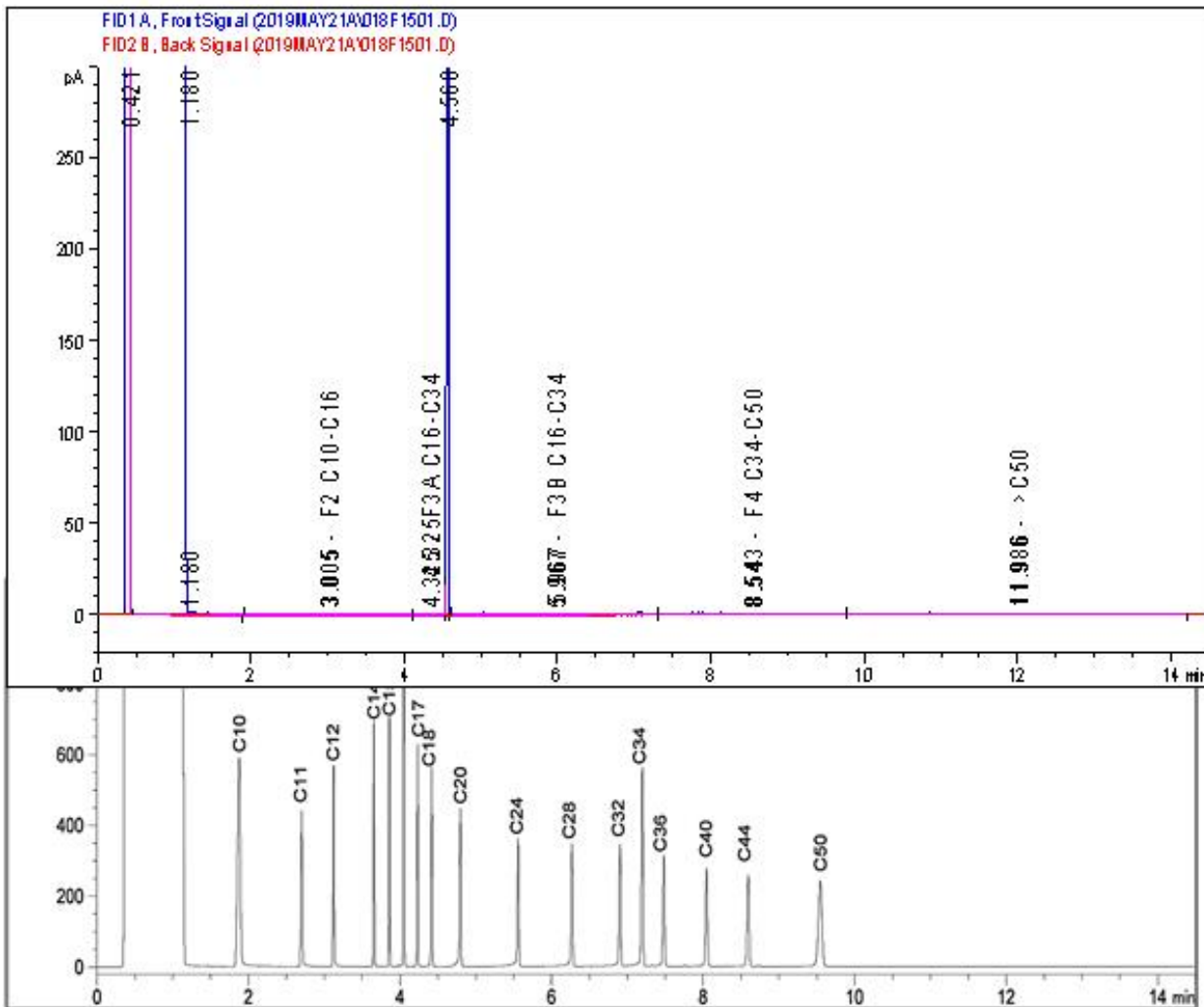
Kerosene: **C8 - C16**

Motor Oils: **C16 - C50**

Asphalt: **C18 - C50+**

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline: **C6 - C12**

Diesel: **C10 - C24**

Jet Fuels: **C6 - C16**

Varsol: **C8 - C12**

Fuel Oils: **C6 - C32**

Creosote: **C10 - C26**

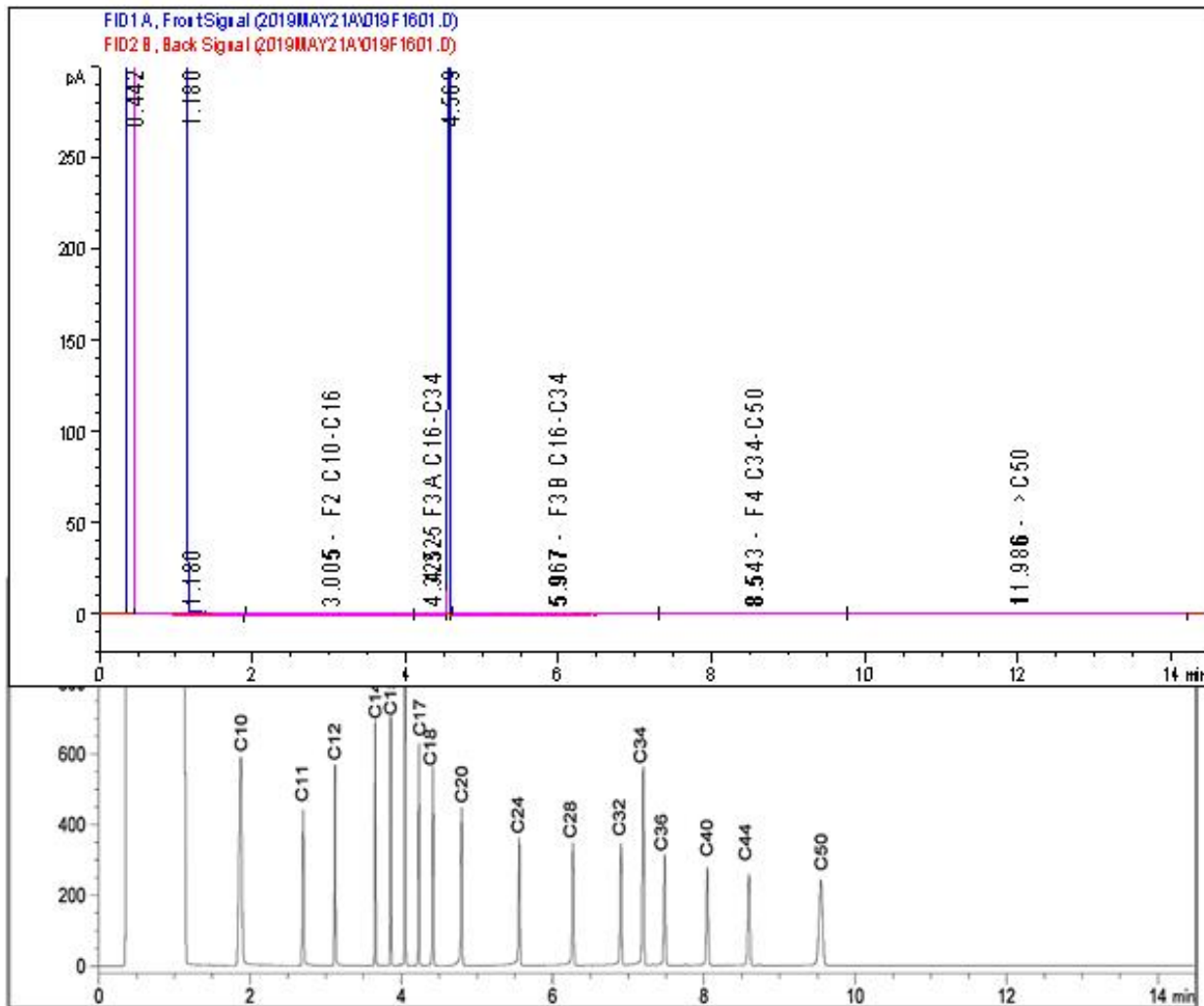
Kerosene: **C8 - C16**

Motor Oils: **C16 - C50**

Asphalt: **C18 - C50+**

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline: **C6 - C12**

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Fuel Oils: **C6 - C32**

Creosote: **C10 - C26**

Kerosene: **C8 - C16**

Motor Oils: **C16 - C50**

Asphalt: **C18 - C50+**

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



Your Project #: 121621877.400
Your C.O.C. #: D40479

Attention: Sam Salley

Stantec Consulting Ltd
40 Highfield Park Drive
Suite 102
Dartmouth, NS
CANADA B3A 0A3

Report Date: 2019/07/31
Report #: R5820856
Version: 7 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BV LABS JOB #: B9B7849

Received: 2019/05/02, 15:27

Sample Matrix: Sediment
Samples Received: 3

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Benzo(b/j)fluoranthene Sum (LL soil)	3	N/A	2019/05/13	N/A	Auto Calc.
Dioxins/Furans in Soil (EPS 1/RM/23) (1, 8)	2	2019/06/19	2019/06/26	BRL SOP-00406 (mod)	EPS 1/RM/23 m
Organic Halogen (Extractable) (2)	2	N/A	2019/05/12		
TEH in Soil (PIRI) (9)	2	2019/05/08	2019/05/08	ATL SOP 00111	Atl. RBCA v3.1 m
Petroleum Hydrocarbons F2-F4 in Soil (1, 10)	3	2019/05/10	2019/05/10	CAM SOP-00316	CCME CWS m
F4G (CCME Hydrocarbons Gravimetric) (1)	2	2019/05/13	2019/05/13	CAM SOP-00316	CCME PHC-CWS m
Mercury (CVAA)	3	2019/05/08	2019/05/08	ATL SOP 00026	EPA 245.5 m
Metals Solids Acid Extr. ICPMS	3	2019/05/09	2019/05/09	ATL SOP 00058	EPA 6020B R2 m
Carbon Nitrogen Ratio (3)	2	2019/05/06	2019/05/12	Auto Calc	Auto Calc
Total Cyanide (4)	2	2019/05/13	2019/05/14	STL SOP-00035	MA300-CN 1.2 R4 m
Carbon, Nitrogen, Sulphur - Combustion (3)	2	N/A	2019/05/12	CAL SOP-00263	AN-A-030609-E-01 m
Water Content (Subcontracted) (4, 11)	2	N/A	2019/05/15	STL SOP-00021	MA.100-S.T. 1.1 R4 m
Moisture (Subcontracted) (5, 11)	2	2019/05/13	2019/05/14	BBY8SOP-00017	BCMOE BCLM Dec2000 m
Total PCB (4, 12)	3	2019/05/13	2019/05/14	STL SOP-00133	MA. 400-BPC 1.0 R5 m
Sulphide in Soil (5)	2	2019/05/13	2019/05/15	BBY6SOP-00052 BBY6SOP-00006	EPA-821-R-91-100 m
Total Kjeldahl Nitrogen (Available) (6)	2	2019/05/09	2019/05/10	AB SOP-00027/AB SOP-00008	EPA 351.1 R 1978 m
Moisture	3	N/A	2019/05/08	ATL SOP 00001	OMOE Handbook 1983 m
Nitrogen Ammonia - soil (as N)	2	2019/05/09	2019/05/14	ATL SOP 00015	EPA 350.1 R2 m
Nitrogen - Nitrate + Nitrite	2	2019/05/09	2019/05/10	ATL SOP 00016	USGS I-2547-11m
Nitrogen - Nitrite by auto colourimetry	2	2019/05/09	2019/05/13	ATL SOP 00017	SM 23 4500-NO2- B m
Nitrogen - Nitrate (as N)	2	N/A	2019/05/14	ATL SOP 00018	ASTM D3867-16
PAH in sediment by GC/MS (Low Level) (9)	1	2019/05/10	2019/05/11	ATL SOP 00102	EPA 8270E R6 m
PAH in sediment by GC/MS (Low Level) (9)	2	2019/05/10	2019/05/13	ATL SOP 00102	EPA 8270E R6 m
Phenols (4AAP) (1)	2	2019/05/10	2019/05/10	CAM SOP-00444	OMOE E3179 m
pH (5:1 DI Water Extract)	2	2019/05/09	2019/05/10	ATL SOP 00003	SM 23 4500-H+ B m
Phosphorus - ortho by auto Colourimetry	2	2019/05/09	2019/05/13	ATL SOP 00021	SM 23 4500-P E m
Particle size in solids (pipette&sieve) (13)	3	N/A	2019/05/16	ATL SOP 00012	MSAMS'78/WREP-125R3m
Acid Vol. Sulphide in S (Sub fr.Bedford) (7)	2	2019/05/07	2019/05/29		



Your Project #: 121621877.400
Your C.O.C. #: D40479

Attention: Sam Salley

Stantec Consulting Ltd
40 Highfield Park Drive
Suite 102
Dartmouth, NS
CANADA B3A 0A3

Report Date: 2019/07/31
Report #: R5820856
Version: 7 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BV LABS JOB #: B9B7849

Received: 2019/05/02, 15:27

Sample Matrix: Sediment
Samples Received: 3

Analyses	Quantity	Date	Date	Laboratory Method	Reference
		Extracted	Analyzed		
Total Organic Carbon in Soil (1)	3	N/A	2019/05/15	CAM SOP-00468	BCMOE TOC Aug 2014
ModTPH (T1) Calc. for Soil	2	N/A	2019/05/09	N/A	Atl. RBCA v3.1 m
Volatile Organic Compounds and F1 PHCs (1)	3	N/A	2019/05/09	CAM SOP-00230	EPA 8260 m
VOCs in Soil - Field Preserved (14)	2	N/A	2019/05/10	ATL SOP 00133	EPA 8260D R4 m
VPH in Soil (PIRI) - Field Preserved (14)	2	N/A	2019/05/08	ATL SOP 00119	Atl. RBCA v3.1 m

Remarks:

Bureau Veritas Laboratories are accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by BV Labs are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in BV Labs profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and BV Labs in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

BV Labs liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. BV Labs has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by BV Labs, unless otherwise agreed in writing. BV Labs is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested. When sampling is not conducted by BV Labs, results relate to the supplied samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

- (1) This test was performed by Bureau Veritas Laboratories Mississauga
- (2) This test was performed by Bedford to Edm Petroleum/Ind
- (3) This test was performed by Bedford to Calgary Offsite
- (4) This test was performed by Bedford To Montreal Offsite
- (5) This test was performed by Bedford to Burnaby - Offsite
- (6) This test was performed by Bedford to Edm Env Offsite
- (7) This test was performed by Bedford to RPC Subcontract
- (8) Soils are reported on a dry weight basis unless otherwise specified.



Your Project #: 121621877.400
Your C.O.C. #: D40479

Attention: Sam Salley

Stantec Consulting Ltd
40 Highfield Park Drive
Suite 102
Dartmouth, NS
CANADA B3A 0A3

Report Date: 2019/07/31
Report #: R5820856
Version: 7 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BV LABS JOB #: B9B7849

Received: 2019/05/02, 15:27

Confirmatory runs for 2,3,7,8-TCDF are performed only if the primary result is greater than the RDL.

(9) Soils are reported on a dry weight basis unless otherwise specified.

(10) All CCME PHC results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Bureau Veritas Laboratories conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following "Alberta Environment's Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil Validation of Performance-Based Alternative Methods September 2003". Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.

(11) Offsite analysis requires that subcontracted moisture be reported.

(12) Please note that the results have been corrected for the surrogate recoveries.

Un-rounded results are used in the total "PCB" calculation. This total result is then rounded to two significant figures.

The total indicated is calculated only for the requested parameters.

(13) Note: Graphical representation of larger fractions (PHI-4, PHI -3 and PHI -2) not applicable unless these optional parameters are specifically requested.

(14) No lab extraction date is given for C6-C10/BTEX and VOC samples that are field preserved with methanol. Extraction date is date sampled unless otherwise stated.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Marie Muise, Key Account Specialist

Email: Marie.MUISE@bvlab.com

Phone# (902)420-0203 Ext:253

=====
BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



BUREAU
VERITAS

BV Labs Job #: B9B7849
Report Date: 2019/07/31

Stantec Consulting Ltd
Client Project #: 121621877.400
Sampler Initials: GSR

RBCA HYDROCARBONS IN SOIL (FIELD PRES.)

BV Labs ID		JPR404	JPR404	JPR405			
Sampling Date		2019/04/28 09:00	2019/04/28 09:00	2019/04/28 10:00			
COC Number		D40479	D40479	D40479			
	UNITS	VC-01-01-SFC	VC-01-01-SFC Lab-Dup	VC-8A	RDL	MDL	QC Batch
Petroleum Hydrocarbons							
Benzene	mg/kg	<0.025	<0.025	<0.025	0.025	N/A	6109960
Toluene	mg/kg	<0.050	<0.050	<0.050	0.050	N/A	6109960
Ethylbenzene	mg/kg	<0.025	<0.025	<0.025	0.025	0.025	6109960
Total Xylenes	mg/kg	<0.050	<0.050	<0.050	0.050	N/A	6109960
C6 - C10 (less BTEX)	mg/kg	<2.5	<2.5	<2.5	2.5	N/A	6109960
>C10-C16 Hydrocarbons	mg/kg	<10	N/A	<10	10	N/A	6109591
>C16-C21 Hydrocarbons	mg/kg	<10	N/A	<10	10	N/A	6109591
>C21-<C32 Hydrocarbons	mg/kg	<15	N/A	<15	15	N/A	6109591
Modified TPH (Tier1)	mg/kg	<15	N/A	<15	15	N/A	6102124
Reached Baseline at C32	mg/kg	NA	N/A	NA	N/A	N/A	6109591
Hydrocarbon Resemblance	mg/kg	NA	N/A	NA	N/A	N/A	6109591
Surrogate Recovery (%)							
Isobutylbenzene - Extractable	%	100	N/A	99	N/A	N/A	6109591
n-Dotriacontane - Extractable	%	87	N/A	96	N/A	N/A	6109591
Isobutylbenzene - Volatile	%	118	115	118	N/A	N/A	6109960
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Lab-Dup = Laboratory Initiated Duplicate N/A = Not Applicable							



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BV Labs Job #: B9B7849
Report Date: 2019/07/31

Stantec Consulting Ltd
Client Project #: 121621877.400
Sampler Initials: GSR

ATLANTIC VOC IN SOIL (FIELD PRES.)

BV Labs ID		JPR404	JPR405			
Sampling Date		2019/04/28 09:00	2019/04/28 10:00			
COC Number		D40479	D40479			
	UNITS	VC-01-01-SFC	VC-8A	RDL	MDL	QC Batch
Volatile Organics						
1,1,1-Trichloroethane	ug/kg	<25	<25	25	0.00010	6109572
1,1,2,2-Tetrachloroethane	ug/kg	<25	<25	25	0.00040	6109572
1,1,2-Trichloroethane	ug/kg	<25	<25	25	0.00040	6109572
1,1-Dichloroethane	ug/kg	<25	<25	25	0.00010	6109572
1,1-Dichloroethylene	ug/kg	<25	<25	25	0.00010	6109572
1,2-Dichlorobenzene	ug/kg	<25	<25	25	0.00020	6109572
1,2-Dichloroethane	ug/kg	<25	<25	25	0.00010	6109572
1,2-Dichloropropane	ug/kg	<25	<25	25	0.00020	6109572
1,3-Dichlorobenzene	ug/kg	<25	<25	25	0.00020	6109572
1,4-Dichlorobenzene	ug/kg	<25	<25	25	0.00030	6109572
Benzene	ug/kg	<25	<25	25	0.00010	6109572
Bromodichloromethane	ug/kg	<25	<25	25	0.00020	6109572
Bromoform	ug/kg	<25	<25	25	0.00030	6109572
Bromomethane	ug/kg	<50	<50	50	0.00040	6109572
Carbon Tetrachloride	ug/kg	<25	<25	25	0.00010	6109572
Chlorobenzene	ug/kg	<25	<25	25	0.00010	6109572
Chloroethane	ug/kg	<200	<200	200	0.00030	6109572
Chloroform	ug/kg	<25	<25	25	0.00010	6109572
cis-1,2-Dichloroethylene	ug/kg	<25	<25	25	0.00010	6109572
cis-1,3-Dichloropropene	ug/kg	<25	<25	25	0.00020	6109572
Dibromochloromethane	ug/kg	<25	<25	25	0.00030	6109572
Ethylbenzene	ug/kg	<25	<25	25	0.00010	6109572
Ethylene Dibromide	ug/kg	<25	<25	25	0.00040	6109572
Methyl t-butyl ether (MTBE)	ug/kg	<25	<25	25	0.00010	6109572
Methylene Chloride(Dichloromethane)	ug/kg	<25	<25	25	0.00020	6109572
o-Xylene	ug/kg	<25	<25	25	0.00010	6109572
p+m-Xylene	ug/kg	<25	<25	25	0.00010	6109572
Styrene	ug/kg	<25	<25	25	0.00020	6109572
Tetrachloroethylene	ug/kg	<25	<25	25	0.00030	6109572
Toluene	ug/kg	<50	<50	50	0.00010	6109572
Total Xylenes	ug/kg	<50	<50	50	N/A	6109572
trans-1,2-Dichloroethylene	ug/kg	<25	<25	25	0.00020	6109572
trans-1,3-Dichloropropene	ug/kg	<25	<25	25	0.00030	6109572
Trichloroethylene	ug/kg	<10	<10	10	0.00020	6109572
RDL = Reportable Detection Limit QC Batch = Quality Control Batch N/A = Not Applicable						



BUREAU
VERITAS

BV Labs Job #: B9B7849
Report Date: 2019/07/31

Stantec Consulting Ltd
Client Project #: 121621877.400
Sampler Initials: GSR

ATLANTIC VOC IN SOIL (FIELD PRES.)

BV Labs ID		JPR404	JPR405			
Sampling Date		2019/04/28 09:00	2019/04/28 10:00			
COC Number		D40479	D40479			
	UNITS	VC-01-01-SFC	VC-8A	RDL	MDL	QC Batch
Trichlorofluoromethane (FREON 11)	ug/kg	<25	<25	25	0.00030	6109572
Vinyl Chloride	ug/kg	<20	<20	20	0.00020	6109572
Surrogate Recovery (%)						
4-Bromofluorobenzene	%	101	102	N/A	N/A	6109572
D10-o-Xylene	%	97	97	N/A	N/A	6109572
D4-1,2-Dichloroethane	%	100	97	N/A	N/A	6109572
D8-Toluene	%	100	100	N/A	N/A	6109572
RDL = Reportable Detection Limit QC Batch = Quality Control Batch N/A = Not Applicable						



BUREAU
VERITAS

BV Labs Job #: B9B7849
Report Date: 2019/07/31

Stantec Consulting Ltd
Client Project #: 121621877.400
Sampler Initials: GSR

CCME PETROLEUM HYDROCARBONS SOIL (SEDIMENT)

BV Labs ID		JPR404	JPR405	JPR405	JQE384			
Sampling Date		2019/04/28 09:00	2019/04/28 10:00	2019/04/28 10:00	2019/04/28 09:00			
COC Number		D40479	D40479	D40479	D40479			
	UNITS	VC-01-01-SFC	VC-8A	VC-8A Lab-Dup	VC-01-01-BTM	RDL	MDL	QC Batch
Volatile Organics								
Benzene	ug/g	<0.0060	<0.0060	N/A	<0.0060	0.0060	0.0060	6111913
Ethylbenzene	ug/g	<0.010	<0.010	N/A	<0.010	0.010	0.010	6111913
Toluene	ug/g	<0.020	<0.020	N/A	0.045	0.020	0.020	6111913
p+m-Xylene	ug/g	<0.020	<0.020	N/A	<0.020	0.020	0.020	6111913
o-Xylene	ug/g	<0.020	<0.020	N/A	<0.020	0.020	0.020	6111913
Total Xylenes	ug/g	<0.020	<0.020	N/A	<0.020	0.020	0.020	6111913
F1 (C6-C10)	ug/g	<10	<10	N/A	<10	10	N/A	6111913
F1 (C6-C10) - BTEX	ug/g	<10	<10	N/A	<10	10	N/A	6111913
F2-F4 Hydrocarbons								
F2 (C10-C16 Hydrocarbons)	ug/g	<10	<10	<10	<10	10	5.0	6115357
F3 (C16-C34 Hydrocarbons)	ug/g	<50	<50	<50	<50	50	5.0	6115357
F4 (C34-C50 Hydrocarbons)	ug/g	<50	<50	<50	<50	50	10	6115357
Reached Baseline at C50	ug/g	Yes	Yes	Yes	Yes	N/A	N/A	6115357
Surrogate Recovery (%)								
o-Terphenyl	%	104	100	104	107	N/A	N/A	6115357
4-Bromofluorobenzene	%	86	86	N/A	85	N/A	N/A	6111913
D10-o-Xylene	%	90	88	N/A	87	N/A	N/A	6111913
D4-1,2-Dichloroethane	%	117	118	N/A	117	N/A	N/A	6111913
D8-Toluene	%	100	100	N/A	100	N/A	N/A	6111913
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Lab-Dup = Laboratory Initiated Duplicate N/A = Not Applicable								



BUREAU
VERITAS

BV Labs Job #: B9B7849
Report Date: 2019/07/31

Stantec Consulting Ltd
Client Project #: 121621877.400
Sampler Initials: GSR

RESULTS OF ANALYSES OF SEDIMENT

BV Labs ID		JPR404						
Sampling Date		2019/04/28 09:00						
COC Number		D40479			TOXIC EQUIVALENCY		# of	
	UNITS	VC-01-01-SFC	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
CONVENTIONALS								
Sulphide	ug/g	<0.30	0.30	0.12	N/A	N/A	N/A	6124031
Inorganics								
Available (KCl) Total Kjeldahl Nitrogen	mg/kg	<5.0	5.0	5.0	N/A	N/A	N/A	6117168
Ammonia-N	mg/kg	<0.30	0.30	N/A	N/A	N/A	N/A	6117904
C:N RATIO	N/A	NC	N/A	N/A	N/A	N/A	N/A	6117720
Moisture	%	15	1.0	0.20	N/A	N/A	N/A	6107588
Nitrate (N)	mg/kg	0.27	0.25	N/A	N/A	N/A	N/A	6105364
Nitrate + Nitrite (N)	mg/kg	0.27	0.25	N/A	N/A	N/A	N/A	6112633
Nitrite (N)	mg/kg	<0.050	0.050	N/A	N/A	N/A	N/A	6115223
Total Organic Carbon	%	<0.050	0.050	0.010	N/A	N/A	N/A	6122849
Orthophosphate (P)	mg/kg	1.3	0.050	N/A	N/A	N/A	N/A	6115221
Soluble (5:1) pH	pH	7.43	N/A	N/A	N/A	N/A	N/A	6114784
Phenols-4AAP	ug/g	<0.04	0.04	0.02	N/A	N/A	N/A	6114457
Total Cyanide (CN)	mg/kg	<5.0	5.0	N/A	N/A	N/A	N/A	6128790
Total Carbon	%	<0.050	0.050	0.050	N/A	N/A	N/A	6117721
Total Sulphur (S)	%	0.17	0.060	0.060	N/A	N/A	N/A	6117721
Total Nitrogen	%	<0.20	0.20	0.20	N/A	N/A	N/A	6117721
< -1 Phi (2 mm)	%	99	0.10	N/A	N/A	N/A	N/A	6112762
< 0 Phi (1 mm)	%	97	0.10	N/A	N/A	N/A	N/A	6112762
< +1 Phi (0.5 mm)	%	87	0.10	N/A	N/A	N/A	N/A	6112762
< +2 Phi (0.25 mm)	%	64	0.10	N/A	N/A	N/A	N/A	6112762
< +3 Phi (0.12 mm)	%	50	0.10	N/A	N/A	N/A	N/A	6112762
< +4 Phi (0.062 mm)	%	18	0.10	N/A	N/A	N/A	N/A	6112762
< +5 Phi (0.031 mm)	%	13	0.10	N/A	N/A	N/A	N/A	6112762
< +6 Phi (0.016 mm)	%	8.9	0.10	N/A	N/A	N/A	N/A	6112762
< +7 Phi (0.0078 mm)	%	5.4	0.10	N/A	N/A	N/A	N/A	6112762
< +8 Phi (0.0039 mm)	%	4.3	0.10	N/A	N/A	N/A	N/A	6112762
< +9 Phi (0.0020 mm)	%	3.6	0.10	N/A	N/A	N/A	N/A	6112762
Gravel	%	1.2	0.10	N/A	N/A	N/A	N/A	6112762
<p>RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.</p> <p>WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds</p> <p>QC Batch = Quality Control Batch N/A = Not Applicable</p>								



BUREAU
VERITAS

BV Labs Job #: B9B7849
Report Date: 2019/07/31

Stantec Consulting Ltd
Client Project #: 121621877.400
Sampler Initials: GSR

RESULTS OF ANALYSES OF SEDIMENT

BV Labs ID		JPR404						
Sampling Date		2019/04/28 09:00						
COC Number		D40479			TOXIC EQUIVALENCY		# of	
	UNITS	VC-01-01-SFC	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Sand	%	81	0.10	N/A	N/A	N/A	N/A	6112762
Silt	%	14	0.10	N/A	N/A	N/A	N/A	6112762
Clay	%	4.3	0.10	N/A	N/A	N/A	N/A	6112762
PCBs								
TriCB-(17)+(18)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
TriCB-(28)+(31)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
2'34'-TriCB-(33)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'55'-TetraCB-(52)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'45'-TetraCB-(49)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'35'-TetraCB-(44)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
244'5'-TetraCB-(74)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
23'4'5'-TetraCB-(70)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'35'6'-PentaCB-(95)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'455'-PentaCB-(101)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'44'5'-PentaCB-(99)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'345'-PentaCB-(87)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
233'4'6'-PentaCB-(110)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'4'-PentaCB-(82)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'355'6'-HexaCB-(151)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'34'5'6'-HexaCB-(149)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
23'44'5'-PentaCB-(118)	mg/kg	<0.010	0.010	N/A	0.000030	0.00000030	N/A	6128789
22'44'55'-HexaCB-(153)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'46'-HexaCB-(132)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
233'44'-PentaCB-(105)	mg/kg	<0.010	0.010	N/A	0.000030	0.00000030	N/A	6128789
HexaCB-(138)+(158)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'34'55'6'-HeptaCB-(187)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'344'5'6'-HeptaCB-(183)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'-HexaCB-(128)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'45'6'-HeptaCB-(177)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'6'-HeptaCB-(171)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
<p>RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.</p> <p>WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds QC Batch = Quality Control Batch N/A = Not Applicable</p>								



BUREAU
VERITAS

BV Labs Job #: B9B7849
Report Date: 2019/07/31

Stantec Consulting Ltd
Client Project #: 121621877.400
Sampler Initials: GSR

RESULTS OF ANALYSES OF SEDIMENT

BV Labs ID		JPR404						
Sampling Date		2019/04/28 09:00						
COC Number		D40479			TOXIC EQUIVALENCY		# of	
	UNITS	VC-01-01-SFC	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
233'44'5-HexaCB-(156)	mg/kg	<0.010	0.010	N/A	0.000030	0.00000030	N/A	6128789
22'344'55'-HeptaCB-(180)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
233'44'5'6-HeptaCB-(191)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
33'44'55'-HexaCB-(169)	mg/kg	<0.010	0.010	N/A	0.030	0.00030	N/A	6128789
22'33'44'5-HeptaCB-(170)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'455'6'-OctaCB-(199)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'455'66'-NonaCB-(208)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'56-OctaCB-(195)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'55'-OctaCB-(194)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
233'44'55'6-OctaCB-(205)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'55'6-NonaCB-(206)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
DecaCB-(209)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Trichlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Tetrachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Pentachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Hexachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Heptachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Octachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Nonachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Decachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Total PCB	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Physical Testing								
Moisture-Subcontracted	%w/w	14	0.50	N/A	N/A	N/A	N/A	6131122
Moisture-Subcontracted	%	13	0.30	N/A	N/A	N/A	N/A	6124032
Subcontracted Analysis								
Subcontract Parameter	N/A	ATTACHED	N/A	N/A	N/A	N/A	N/A	6107968
TOTAL TOXIC EQUIVALENCY	mg/kg	N/A	N/A	N/A	N/A	0.000301	N/A	N/A
Surrogate Recovery (%)								
2,3,3',4,6-Pentachlorobiphenyl	%	90	N/A	N/A	N/A	N/A	N/A	6128789
2',3,5-Trichlorobiphenyl	%	89	N/A	N/A	N/A	N/A	N/A	6128789
RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested. WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds QC Batch = Quality Control Batch N/A = Not Applicable								



RESULTS OF ANALYSES OF SEDIMENT

BV Labs ID		JPR404						
Sampling Date		2019/04/28 09:00						
COC Number		D40479			TOXIC EQUIVALENCY		# of	
	UNITS	VC-01-01-SFC	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
22'33'44'566'-Nonachlorobiphenyl	%	114	N/A	N/A	N/A	N/A	N/A	6128789

RDL = Reportable Detection Limit
 TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
 The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
 WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds
 QC Batch = Quality Control Batch
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RESULTS OF ANALYSES OF SEDIMENT

BV Labs ID		JPR404						
Sampling Date		2019/04/28 09:00						
COC Number		D40479			TOXIC EQUIVALENCY		# of	
	UNITS	VC-01-01-SFC Lab-Dup	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch

Inorganics								
Ammonia-N	mg/kg	<0.30	0.30	N/A	N/A	N/A	N/A	6117904
Nitrate + Nitrite (N)	mg/kg	0.25	0.25	N/A	N/A	N/A	N/A	6112633
Nitrite (N)	mg/kg	<0.050	0.050	N/A	N/A	N/A	N/A	6115223
Orthophosphate (P)	mg/kg	1.3	0.050	N/A	N/A	N/A	N/A	6115221
Phenols-4AAP	ug/g	<0.04	0.04	0.02	N/A	N/A	N/A	6114457
< -1 Phi (2 mm)	%	99	0.10	N/A	N/A	N/A	N/A	6112762
< 0 Phi (1 mm)	%	97	0.10	N/A	N/A	N/A	N/A	6112762
< +1 Phi (0.5 mm)	%	89	0.10	N/A	N/A	N/A	N/A	6112762
< +2 Phi (0.25 mm)	%	70	0.10	N/A	N/A	N/A	N/A	6112762
< +3 Phi (0.12 mm)	%	54	0.10	N/A	N/A	N/A	N/A	6112762
< +4 Phi (0.062 mm)	%	21	0.10	N/A	N/A	N/A	N/A	6112762
< +5 Phi (0.031 mm)	%	15	0.10	N/A	N/A	N/A	N/A	6112762
< +6 Phi (0.016 mm)	%	9.3	0.10	N/A	N/A	N/A	N/A	6112762
< +7 Phi (0.0078 mm)	%	5.4	0.10	N/A	N/A	N/A	N/A	6112762
< +8 Phi (0.0039 mm)	%	4.5	0.10	N/A	N/A	N/A	N/A	6112762
< +9 Phi (0.0020 mm)	%	3.4	0.10	N/A	N/A	N/A	N/A	6112762
Gravel	%	1.1	0.10	N/A	N/A	N/A	N/A	6112762
Sand	%	78	0.10	N/A	N/A	N/A	N/A	6112762
Silt	%	16	0.10	N/A	N/A	N/A	N/A	6112762
Clay	%	4.5	0.10	N/A	N/A	N/A	N/A	6112762
PCBs								
TriCB-(17)+(18)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
TriCB-(28)+(31)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
2'34-TriCB-(33)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'55'-TetraCB-(52)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'45'-TetraCB-(49)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'35'-TetraCB-(44)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789

RDL = Reportable Detection Limit
 TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
 The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
 WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds
 QC Batch = Quality Control Batch
 Lab-Dup = Laboratory Initiated Duplicate
 N/A = Not Applicable



RESULTS OF ANALYSES OF SEDIMENT

BV Labs ID		JPR404						
Sampling Date		2019/04/28 09:00						
COC Number		D40479			TOXIC EQUIVALENCY		# of	
	UNITS	VC-01-01-SFC Lab-Dup	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
244'5-TetraCB-(74)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
23'4'5-TetraCB-(70)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'35'6-PentaCB-(95)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'455'-PentaCB-(101)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'44'5-PentaCB-(99)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'345'-PentaCB-(87)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
233'4'6-PentaCB-(110)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'4-PentaCB-(82)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'355'6-HexaCB-(151)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'34'5'6-HexaCB-(149)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
23'44'5-PentaCB-(118)	mg/kg	<0.010	0.010	N/A	0.000030	0.00000030	N/A	6128789
22'44'55'-HexaCB-(153)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'46'-HexaCB-(132)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
233'44'-PentaCB-(105)	mg/kg	<0.010	0.010	N/A	0.000030	0.00000030	N/A	6128789
HexaCB-(138)+(158)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'34'55'6-HeptaCB-(187)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'344'5'6-HeptaCB-(183)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'-HexaCB-(128)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'45'6'-HeptaCB-(177)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'6-HeptaCB-(171)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
233'44'5-HexaCB-(156)	mg/kg	<0.010	0.010	N/A	0.000030	0.00000030	N/A	6128789
22'344'55'-HeptaCB-(180)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
233'44'5'6-HeptaCB-(191)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
33'44'55'-HexaCB-(169)	mg/kg	<0.010	0.010	N/A	0.030	0.000030	N/A	6128789
22'33'44'5-HeptaCB-(170)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'455'6'-OctaCB-(199)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'455'66'-NonaCB-(208)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'56-OctaCB-(195)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'55'-OctaCB-(194)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789

RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
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RESULTS OF ANALYSES OF SEDIMENT

BV Labs ID		JPR404						
Sampling Date		2019/04/28 09:00						
COC Number		D40479			TOXIC EQUIVALENCY		# of	
	UNITS	VC-01-01-SFC Lab-Dup	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
233'44'55'6-OctaCB-(205)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'55'6-NonaCB-(206)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
DecaCB-(209)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Trichlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Tetrachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Pentachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Hexachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Heptachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Octachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Nonachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Decachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Total PCB	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
TOTAL TOXIC EQUIVALENCY	mg/kg	N/A	N/A	N/A	N/A	0.00030	N/A	N/A
Surrogate Recovery (%)								
2,3,3',4,6-Pentachlorobiphenyl	%	90	N/A	N/A	N/A	N/A	N/A	6128789
2',3,5-Trichlorobiphenyl	%	90	N/A	N/A	N/A	N/A	N/A	6128789
22'33'44'566'-Nonachlorobiphenyl	%	112	N/A	N/A	N/A	N/A	N/A	6128789
<p>RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested. WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds QC Batch = Quality Control Batch Lab-Dup = Laboratory Initiated Duplicate N/A = Not Applicable</p>								



BUREAU
VERITAS

BV Labs Job #: B9B7849
Report Date: 2019/07/31

Stantec Consulting Ltd
Client Project #: 121621877.400
Sampler Initials: GSR

RESULTS OF ANALYSES OF SEDIMENT

BV Labs ID		JPR405						
Sampling Date		2019/04/28 10:00						
COC Number		D40479			TOXIC EQUIVALENCY		# of	
	UNITS	VC-8A	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
CONVENTIONALS								
Sulphide	ug/g	1.74	0.30	0.12	N/A	N/A	N/A	6124031
Inorganics								
Available (KCl) Total Kjeldahl Nitrogen	mg/kg	7.2 (1)	5.0	5.0	N/A	N/A	N/A	6117168
Ammonia-N	mg/kg	<0.31	0.31	N/A	N/A	N/A	N/A	6117904
C:N RATIO	N/A	NC	N/A	N/A	N/A	N/A	N/A	6117720
Moisture	%	18	1.0	0.20	N/A	N/A	N/A	6107588
Nitrate (N)	mg/kg	0.26	0.25	N/A	N/A	N/A	N/A	6105364
Nitrate + Nitrite (N)	mg/kg	0.26	0.25	N/A	N/A	N/A	N/A	6112633
Nitrite (N)	mg/kg	<0.050	0.050	N/A	N/A	N/A	N/A	6115223
Total Organic Carbon	%	<0.050	0.050	0.010	N/A	N/A	N/A	6122849
Orthophosphate (P)	mg/kg	0.16	0.050	N/A	N/A	N/A	N/A	6115221
Soluble (5:1) pH	pH	7.16	N/A	N/A	N/A	N/A	N/A	6114784
Phenols-4AAP	ug/g	<0.04	0.04	0.02	N/A	N/A	N/A	6114457
Total Cyanide (CN)	mg/kg	<0.50	0.50	N/A	N/A	N/A	N/A	6128790
Total Carbon	%	0.090	0.050	0.050	N/A	N/A	N/A	6117721
Total Sulphur (S)	%	0.092	0.060	0.060	N/A	N/A	N/A	6117721
Total Nitrogen	%	<0.20	0.20	0.20	N/A	N/A	N/A	6117721
< -1 Phi (2 mm)	%	100	0.10	N/A	N/A	N/A	N/A	6112762
< 0 Phi (1 mm)	%	100	0.10	N/A	N/A	N/A	N/A	6112762
< +1 Phi (0.5 mm)	%	98	0.10	N/A	N/A	N/A	N/A	6112762
< +2 Phi (0.25 mm)	%	76	0.10	N/A	N/A	N/A	N/A	6112762
< +3 Phi (0.12 mm)	%	7.0	0.10	N/A	N/A	N/A	N/A	6112762
< +4 Phi (0.062 mm)	%	2.4	0.10	N/A	N/A	N/A	N/A	6112762
< +5 Phi (0.031 mm)	%	2.3	0.10	N/A	N/A	N/A	N/A	6112762
< +6 Phi (0.016 mm)	%	2.0	0.10	N/A	N/A	N/A	N/A	6112762
< +7 Phi (0.0078 mm)	%	1.9	0.10	N/A	N/A	N/A	N/A	6112762
< +8 Phi (0.0039 mm)	%	1.7	0.10	N/A	N/A	N/A	N/A	6112762
< +9 Phi (0.0020 mm)	%	1.6	0.10	N/A	N/A	N/A	N/A	6112762
<p>RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.</p> <p>WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds</p> <p>QC Batch = Quality Control Batch N/A = Not Applicable (1) Matrix spike exceeds acceptance limits due to probable matrix interference.</p>								



RESULTS OF ANALYSES OF SEDIMENT

BV Labs ID		JPR405						
Sampling Date		2019/04/28 10:00						
COC Number		D40479			TOXIC EQUIVALENCY		# of	
	UNITS	VC-8A	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Gravel	%	<0.10	0.10	N/A	N/A	N/A	N/A	6112762
Sand	%	98	0.10	N/A	N/A	N/A	N/A	6112762
Silt	%	0.71	0.10	N/A	N/A	N/A	N/A	6112762
Clay	%	1.7	0.10	N/A	N/A	N/A	N/A	6112762
PCBs								
TriCB-(17)+(18)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
TriCB-(28)+(31)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
2'34'-TriCB-(33)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'55'-TetraCB-(52)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'45'-TetraCB-(49)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'35'-TetraCB-(44)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
244'5'-TetraCB-(74)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
23'4'5'-TetraCB-(70)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'35'6'-PentaCB-(95)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'455'6'-PentaCB-(101)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'44'5'-PentaCB-(99)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'345'6'-PentaCB-(87)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
233'4'6'-PentaCB-(110)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'4'-PentaCB-(82)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'355'6'-HexaCB-(151)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'34'5'6'-HexaCB-(149)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
23'44'5'-PentaCB-(118)	mg/kg	<0.010	0.010	N/A	0.000030	0.00000030	N/A	6128789
22'44'55'6'-HexaCB-(153)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'46'6'-HexaCB-(132)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
233'44'6'-PentaCB-(105)	mg/kg	<0.010	0.010	N/A	0.000030	0.00000030	N/A	6128789
HexaCB-(138)+(158)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'34'55'6'-HeptaCB-(187)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'344'5'6'-HeptaCB-(183)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'6'-HexaCB-(128)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'45'6'6'-HeptaCB-(177)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
<p>RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.</p> <p>WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds QC Batch = Quality Control Batch N/A = Not Applicable</p>								



RESULTS OF ANALYSES OF SEDIMENT

BV Labs ID		JPR405						
Sampling Date		2019/04/28 10:00						
COC Number		D40479			TOXIC EQUIVALENCY		# of	
	UNITS	VC-8A	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
22'33'44'6-HeptaCB-(171)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
233'44'5-HexaCB-(156)	mg/kg	<0.010	0.010	N/A	0.000030	0.00000030	N/A	6128789
22'344'55'-HeptaCB-(180)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
233'44'5'6-HeptaCB-(191)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
33'44'55'-HexaCB-(169)	mg/kg	<0.010	0.010	N/A	0.030	0.00030	N/A	6128789
22'33'44'5-HeptaCB-(170)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'455'6'-OctaCB-(199)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'455'66'-NonaCB-(208)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'56-OctaCB-(195)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'55'-OctaCB-(194)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
233'44'55'6-OctaCB-(205)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'55'6-NonaCB-(206)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
DecaCB-(209)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Trichlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Tetrachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Pentachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Hexachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Heptachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Octachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Nonachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Decachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Total PCB	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Physical Testing								
Moisture-Subcontracted	%w/w	16	0.50	N/A	N/A	N/A	N/A	6131122
Moisture-Subcontracted	%	16	0.30	N/A	N/A	N/A	N/A	6124032
Subcontracted Analysis								
Subcontract Parameter	N/A	ATTACHED	N/A	N/A	N/A	N/A	N/A	6107968
TOTAL TOXIC EQUIVALENCY	mg/kg	N/A	N/A	N/A	N/A	0.000301	N/A	N/A
Surrogate Recovery (%)								
2,3,3',4,6-Pentachlorobiphenyl	%	88	N/A	N/A	N/A	N/A	N/A	6128789
RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested. WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds QC Batch = Quality Control Batch N/A = Not Applicable								



RESULTS OF ANALYSES OF SEDIMENT

BV Labs ID		JPR405						
Sampling Date		2019/04/28 10:00						
COC Number		D40479			TOXIC EQUIVALENCY		# of	
	UNITS	VC-8A	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
2',3,5-Trichlorobiphenyl	%	89	N/A	N/A	N/A	N/A	N/A	6128789
22'33'44'566'-Nonachlorobiphenyl	%	110	N/A	N/A	N/A	N/A	N/A	6128789

RDL = Reportable Detection Limit
 TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
 The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
 WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds
 QC Batch = Quality Control Batch
 N/A = Not Applicable

BV Labs ID		JPR405						
Sampling Date		2019/04/28 10:00						
COC Number		D40479			TOXIC EQUIVALENCY		# of	
	UNITS	VC-8A Lab-Dup	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch

Inorganics								
Available (KCl) Total Kjeldahl Nitrogen	mg/kg	<5.0	5.0	5.0	N/A	N/A	N/A	6117168
Total Carbon	%	<0.050	0.050	0.050	N/A	N/A	N/A	6117721
Total Sulphur (S)	%	0.099	0.060	0.060	N/A	N/A	N/A	6117721
Total Nitrogen	%	<0.20	0.20	0.20	N/A	N/A	N/A	6117721
TOTAL TOXIC EQUIVALENCY	mg/kg	N/A	N/A	N/A	N/A	0	N/A	N/A

RDL = Reportable Detection Limit
 TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
 The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
 WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds
 QC Batch = Quality Control Batch
 Lab-Dup = Laboratory Initiated Duplicate
 N/A = Not Applicable



RESULTS OF ANALYSES OF SEDIMENT

BV Labs ID		JQE384						
Sampling Date		2019/04/28 09:00						
COC Number		D40479			TOXIC EQUIVALENCY			# of
	UNITS	VC-01-01-BTM	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Inorganics								
Moisture	%	13	1.0	0.20	N/A	N/A	N/A	6107588
Total Organic Carbon	%	<0.050	0.050	0.010	N/A	N/A	N/A	6122849
< -1 Phi (2 mm)	%	73 (1)	0.10	N/A	N/A	N/A	N/A	6112762
< 0 Phi (1 mm)	%	65	0.10	N/A	N/A	N/A	N/A	6112762
< +1 Phi (0.5 mm)	%	49	0.10	N/A	N/A	N/A	N/A	6112762
< +2 Phi (0.25 mm)	%	16	0.10	N/A	N/A	N/A	N/A	6112762
< +3 Phi (0.12 mm)	%	8.3	0.10	N/A	N/A	N/A	N/A	6112762
< +4 Phi (0.062 mm)	%	6.2	0.10	N/A	N/A	N/A	N/A	6112762
< +5 Phi (0.031 mm)	%	5.7	0.10	N/A	N/A	N/A	N/A	6112762
< +6 Phi (0.016 mm)	%	5.1	0.10	N/A	N/A	N/A	N/A	6112762
< +7 Phi (0.0078 mm)	%	3.8	0.10	N/A	N/A	N/A	N/A	6112762
< +8 Phi (0.0039 mm)	%	3.0	0.10	N/A	N/A	N/A	N/A	6112762
< +9 Phi (0.0020 mm)	%	1.7	0.10	N/A	N/A	N/A	N/A	6112762
Gravel	%	27	0.10	N/A	N/A	N/A	N/A	6112762
Sand	%	67	0.10	N/A	N/A	N/A	N/A	6112762
Silt	%	3.2	0.10	N/A	N/A	N/A	N/A	6112762
Clay	%	3.0	0.10	N/A	N/A	N/A	N/A	6112762
PCBs								
TriCB-(17)+(18)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
TriCB-(28)+(31)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
2'34-TriCB-(33)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'55'-TetraCB-(52)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'45'-TetraCB-(49)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'35'-TetraCB-(44)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
244'5-TetraCB-(74)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
23'4'5-TetraCB-(70)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'35'6-PentaCB-(95)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
<p>RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.</p> <p>WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds</p> <p>QC Batch = Quality Control Batch N/A = Not Applicable (1) PSA sample observation comment: Fraction contained organic matter</p>								



BUREAU
VERITAS

BV Labs Job #: B9B7849
Report Date: 2019/07/31

Stantec Consulting Ltd
Client Project #: 121621877.400
Sampler Initials: GSR

RESULTS OF ANALYSES OF SEDIMENT

BV Labs ID		JQE384						
Sampling Date		2019/04/28 09:00						
COC Number		D40479			TOXIC EQUIVALENCY			# of
	UNITS	VC-01-01-BTM	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
22'455'-PentaCB-(101)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'44'5'-PentaCB-(99)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'345'-PentaCB-(87)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
233'4'6'-PentaCB-(110)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'4'-PentaCB-(82)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'355'6'-HexaCB-(151)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'34'5'6'-HexaCB-(149)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
23'44'5'-PentaCB-(118)	mg/kg	<0.010	0.010	N/A	0.000030	0.00000030	N/A	6128789
22'44'55'-HexaCB-(153)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'46'-HexaCB-(132)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
233'44'-PentaCB-(105)	mg/kg	<0.010	0.010	N/A	0.000030	0.00000030	N/A	6128789
HexaCB-(138)+(158)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'34'55'6'-HeptaCB-(187)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'344'5'6'-HeptaCB-(183)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'-HexaCB-(128)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'45'6'-HeptaCB-(177)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'6'-HeptaCB-(171)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
233'44'5'-HexaCB-(156)	mg/kg	<0.010	0.010	N/A	0.000030	0.00000030	N/A	6128789
22'344'55'-HeptaCB-(180)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
233'44'5'6'-HeptaCB-(191)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
33'44'55'-HexaCB-(169)	mg/kg	<0.010	0.010	N/A	0.030	0.00030	N/A	6128789
22'33'44'5'-HeptaCB-(170)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'455'6'-OctaCB-(199)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'455'66'-NonaCB-(208)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'56'-OctaCB-(195)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'55'-OctaCB-(194)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
233'44'55'6'-OctaCB-(205)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'55'6'-NonaCB-(206)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
DecaCB-(209)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Trichlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789

RDL = Reportable Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,

The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

QC Batch = Quality Control Batch

N/A = Not Applicable



RESULTS OF ANALYSES OF SEDIMENT

BV Labs ID		JQE384						
Sampling Date		2019/04/28 09:00						
COC Number		D40479			TOXIC EQUIVALENCY			# of
	UNITS	VC-01-01-BTM	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Tetrachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Pentachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Hexachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Heptachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Octachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Nonachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Decachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Total PCB	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
TOTAL TOXIC EQUIVALENCY	mg/kg	N/A	N/A	N/A	N/A	0.00030	N/A	N/A
Surrogate Recovery (%)								
2,3,3',4,6-Pentachlorobiphenyl	%	90	N/A	N/A	N/A	N/A	N/A	6128789
2',3,5-Trichlorobiphenyl	%	89	N/A	N/A	N/A	N/A	N/A	6128789
22'33'44'566'-Nonachlorobiphenyl	%	111	N/A	N/A	N/A	N/A	N/A	6128789
<p>RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested. WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds QC Batch = Quality Control Batch N/A = Not Applicable</p>								



RESULTS OF ANALYSES OF SEDIMENT

BV Labs ID		JQE384						
Sampling Date		2019/04/28 09:00						
COC Number		D40479			TOXIC EQUIVALENCY		# of	
	UNITS	VC-01-01-BTM Lab-Dup	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Inorganics								
Total Organic Carbon	%	0.050	0.050	0.010	N/A	N/A	N/A	6122849
TOTAL TOXIC EQUIVALENCY	mg/kg	N/A	N/A	N/A	N/A	0	N/A	N/A
<p>RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested. WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds QC Batch = Quality Control Batch Lab-Dup = Laboratory Initiated Duplicate N/A = Not Applicable</p>								



BUREAU
VERITAS

BV Labs Job #: B9B7849
Report Date: 2019/07/31

Stantec Consulting Ltd
Client Project #: 121621877.400
Sampler Initials: GSR

MERCURY BY COLD VAPOUR AA (SEDIMENT)

BV Labs ID		JPR404	JPR405	JQE384			
Sampling Date		2019/04/28 09:00	2019/04/28 10:00	2019/04/28 09:00			
COC Number		D40479	D40479	D40479			
	UNITS	VC-01-01-SFC	VC-8A	VC-01-01-BTM	RDL	MDL	QC Batch
Metals							
Mercury (Hg)	mg/kg	0.012	<0.010	<0.010	0.010	N/A	6107760
RDL = Reportable Detection Limit QC Batch = Quality Control Batch N/A = Not Applicable							



ELEMENTS BY ATOMIC SPECTROSCOPY (SEDIMENT)

BV Labs ID		JPR404	JPR404	JPR405	JQE384			
Sampling Date		2019/04/28 09:00	2019/04/28 09:00	2019/04/28 10:00	2019/04/28 09:00			
COC Number		D40479	D40479	D40479	D40479			
	UNITS	VC-01-01-SFC	VC-01-01-SFC Lab-Dup	VC-8A	VC-01-01-BTM	RDL	MDL	QC Batch
Metals								
Acid Extractable Aluminum (Al)	mg/kg	5100	5100	2300	1900	10	N/A	6111815
Acid Extractable Antimony (Sb)	mg/kg	<2.0	<2.0	<2.0	<2.0	2.0	N/A	6111815
Acid Extractable Arsenic (As)	mg/kg	<2.0	<2.0	<2.0	<2.0	2.0	N/A	6111815
Acid Extractable Barium (Ba)	mg/kg	11	11	34	8.2	5.0	N/A	6111815
Acid Extractable Beryllium (Be)	mg/kg	<2.0	<2.0	<2.0	<2.0	2.0	N/A	6111815
Acid Extractable Bismuth (Bi)	mg/kg	<2.0	<2.0	<2.0	<2.0	2.0	N/A	6111815
Acid Extractable Boron (B)	mg/kg	<50	<50	<50	<50	50	N/A	6111815
Acid Extractable Cadmium (Cd)	mg/kg	<0.30	<0.30	<0.30	<0.30	0.30	N/A	6111815
Acid Extractable Chromium (Cr)	mg/kg	11	11	5.8	8.0	2.0	N/A	6111815
Acid Extractable Cobalt (Co)	mg/kg	4.7	4.5	2.5	2.0	1.0	N/A	6111815
Acid Extractable Copper (Cu)	mg/kg	6.0	6.2	<2.0	2.4	2.0	N/A	6111815
Acid Extractable Iron (Fe)	mg/kg	12000	12000	5500	4600	50	N/A	6111815
Acid Extractable Lead (Pb)	mg/kg	7.7	7.9	4.5	2.4	0.50	N/A	6111815
Acid Extractable Lithium (Li)	mg/kg	22	21	6.7	6.2	2.0	N/A	6111815
Acid Extractable Manganese (Mn)	mg/kg	200	190	99	98	2.0	N/A	6111815
Acid Extractable Molybdenum (Mo)	mg/kg	<2.0	<2.0	<2.0	<2.0	2.0	N/A	6111815
Acid Extractable Nickel (Ni)	mg/kg	10	9.9	5.6	6.2	2.0	N/A	6111815
Acid Extractable Rubidium (Rb)	mg/kg	5.1	5.2	<2.0	<2.0	2.0	N/A	6111815
Acid Extractable Selenium (Se)	mg/kg	<1.0	<1.0	<1.0	<1.0	1.0	N/A	6111815
Acid Extractable Silver (Ag)	mg/kg	<0.50	<0.50	<0.50	<0.50	0.50	N/A	6111815
Acid Extractable Strontium (Sr)	mg/kg	5.8	12	<5.0	79	5.0	N/A	6111815
Acid Extractable Thallium (Tl)	mg/kg	<0.10	<0.10	<0.10	<0.10	0.10	N/A	6111815
Acid Extractable Tin (Sn)	mg/kg	<1.0	<1.0	<1.0	<1.0	1.0	N/A	6111815
Acid Extractable Uranium (U)	mg/kg	0.53	0.52	0.22	0.51	0.10	N/A	6111815
Acid Extractable Vanadium (V)	mg/kg	9.7	11	4.8	5.5	2.0	N/A	6111815
Acid Extractable Zinc (Zn)	mg/kg	25	24	17	12	5.0	N/A	6111815
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Lab-Dup = Laboratory Initiated Duplicate N/A = Not Applicable								



SEMI-VOLATILE ORGANICS BY GC-MS (SEDIMENT)

BV Labs ID		JPR404	JPR404	JPR405		JQE384			
Sampling Date		2019/04/28 09:00	2019/04/28 09:00	2019/04/28 10:00		2019/04/28 09:00			
COC Number		D40479	D40479	D40479		D40479			
	UNITS	VC-01-01-SFC	VC-01-01-SFC Lab-Dup	VC-8A	QC Batch	VC-01-01-BTM	RDL	MDL	QC Batch
Polyaromatic Hydrocarbons									
1-Methylnaphthalene	mg/kg	<0.0050	<0.0050	<0.0050	6114474	<0.0050	0.0050	N/A	6114474
2-Methylnaphthalene	mg/kg	<0.0050	<0.0050	<0.0050	6114474	<0.0050	0.0050	N/A	6114474
Acenaphthene	mg/kg	<0.0050	<0.0050	<0.0050	6114474	<0.0050	0.0050	N/A	6114474
Acenaphthylene	mg/kg	<0.0050	<0.0050	<0.0050	6114474	<0.0050	0.0050	N/A	6114474
Anthracene	mg/kg	<0.0050	<0.0050	<0.0050	6114474	<0.0050	0.0050	N/A	6114474
Benzo(a)anthracene	mg/kg	<0.0050	<0.0050	<0.0050	6114474	<0.0050	0.0050	N/A	6114474
Benzo(a)pyrene	mg/kg	<0.0050	<0.0050	<0.0050	6114474	<0.0050	0.0050	N/A	6114474
Benzo(b)fluoranthene	mg/kg	<0.0050	<0.0050	<0.0050	6114474	<0.0050	0.0050	N/A	6114474
Benzo(b/j)fluoranthene	mg/kg	<0.010	N/A	<0.010	6105363	<0.010	0.010	N/A	6107383
Benzo(g,h,i)perylene	mg/kg	<0.0050	<0.0050	<0.0050	6114474	<0.0050	0.0050	N/A	6114474
Benzo(j)fluoranthene	mg/kg	<0.0050	<0.0050	<0.0050	6114474	<0.0050	0.0050	N/A	6114474
Benzo(k)fluoranthene	mg/kg	<0.0050	<0.0050	<0.0050	6114474	<0.0050	0.0050	N/A	6114474
Chrysene	mg/kg	<0.0050	<0.0050	<0.0050	6114474	<0.0050	0.0050	N/A	6114474
Dibenz(a,h)anthracene	mg/kg	<0.0050	<0.0050	<0.0050	6114474	<0.0050	0.0050	N/A	6114474
Fluoranthene	mg/kg	<0.0050	<0.0050	<0.0050	6114474	<0.0050	0.0050	N/A	6114474
Fluorene	mg/kg	<0.0050	<0.0050	<0.0050	6114474	<0.0050	0.0050	N/A	6114474
Indeno(1,2,3-cd)pyrene	mg/kg	<0.0050	<0.0050	<0.0050	6114474	<0.0050	0.0050	N/A	6114474
Naphthalene	mg/kg	<0.0050	<0.0050	<0.0050	6114474	<0.0050	0.0050	N/A	6114474
Perylene	mg/kg	<0.0050	<0.0050	<0.0050	6114474	<0.0050	0.0050	N/A	6114474
Phenanthrene	mg/kg	<0.0050	<0.0050	<0.0050	6114474	<0.0050	0.0050	N/A	6114474
Pyrene	mg/kg	<0.0050	<0.0050	<0.0050	6114474	<0.0050	0.0050	N/A	6114474
Surrogate Recovery (%)									
D10-Anthracene	%	94	95	87	6114474	85	N/A	N/A	6114474
D14-Terphenyl	%	95	94	87	6114474	87	N/A	N/A	6114474
D8-Acenaphthylene	%	89	90	85	6114474	81	N/A	N/A	6114474
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Lab-Dup = Laboratory Initiated Duplicate N/A = Not Applicable									



BUREAU
VERITAS

BV Labs Job #: B9B7849
Report Date: 2019/07/31

Stantec Consulting Ltd
Client Project #: 121621877.400
Sampler Initials: GSR

PETROLEUM HYDROCARBONS (CCME)

BV Labs ID		JPR404	JPR405			
Sampling Date		2019/04/28 09:00	2019/04/28 10:00			
COC Number		D40479	D40479			
	UNITS	VC-01-01-SFC	VC-8A	RDL	MDL	QC Batch
F2-F4 Hydrocarbons						
Total Oil and Grease	ug/g	<100	<100	100	N/A	6117791
RDL = Reportable Detection Limit QC Batch = Quality Control Batch N/A = Not Applicable						



BUREAU
VERITAS

BV Labs Job #: B9B7849
Report Date: 2019/07/31

Stantec Consulting Ltd
Client Project #: 121621877.400
Sampler Initials: GSR

DIOXINS AND FURANS BY HRMS (SEDIMENT)

BV Labs ID		JPR404							
Sampling Date		2019/04/28 09:00							
COC Number		D40479				TOXIC EQUIVALENCY		# of	
	UNITS	VC-01-01-SFC	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Dioxins & Furans									
2,3,7,8-Tetra CDD *	pg/g	<0.106	0.106	0.991	N/A	1.00	0.106	N/A	6186144
1,2,3,7,8-Penta CDD *	pg/g	<0.106	0.106	0.991	N/A	1.00	0.106	N/A	6186144
1,2,3,4,7,8-Hexa CDD *	pg/g	<0.113	0.113	0.991	N/A	0.100	0.0113	N/A	6186144
1,2,3,6,7,8-Hexa CDD *	pg/g	<0.101	0.101	0.991	N/A	0.100	0.0101	N/A	6186144
1,2,3,7,8,9-Hexa CDD *	pg/g	<0.106	0.106	0.991	N/A	0.100	0.0106	N/A	6186144
1,2,3,4,6,7,8-Hepta CDD *	pg/g	0.641	0.110	0.991	N/A	0.0100	0.00641	N/A	6186144
Octa CDD *	pg/g	36.8	0.190	9.91	N/A	0.000300	0.0110	N/A	6186144
Total Tetra CDD *	pg/g	0.262	0.106	0.991	N/A	N/A	N/A	1	6186144
Total Penta CDD *	pg/g	0.256	0.106	0.991	N/A	N/A	N/A	1	6186144
Total Hexa CDD *	pg/g	1.13	0.107	0.991	N/A	N/A	N/A	1	6186144
Total Hepta CDD *	pg/g	4.29	0.110	0.991	N/A	N/A	N/A	2	6186144
2,3,7,8-Tetra CDF **	pg/g	<0.111	0.111	0.991	N/A	0.100	0.0111	N/A	6186144
1,2,3,7,8-Penta CDF **	pg/g	<0.106	0.106	0.991	N/A	0.0300	0.00318	N/A	6186144
2,3,4,7,8-Penta CDF **	pg/g	<0.109	0.109	0.991	N/A	0.300	0.0327	N/A	6186144
1,2,3,4,7,8-Hexa CDF **	pg/g	<0.0927	0.0927	0.991	N/A	0.100	0.00927	N/A	6186144
1,2,3,6,7,8-Hexa CDF **	pg/g	<0.0862	0.0862	0.991	N/A	0.100	0.00862	N/A	6186144
2,3,4,6,7,8-Hexa CDF **	pg/g	<0.105	0.105	0.991	N/A	0.100	0.0105	N/A	6186144
1,2,3,7,8,9-Hexa CDF **	pg/g	<0.120	0.120	0.991	N/A	0.100	0.0120	N/A	6186144
1,2,3,4,6,7,8-Hepta CDF **	pg/g	<0.102	0.102	0.991	N/A	0.0100	0.00102	N/A	6186144
1,2,3,4,7,8,9-Hepta CDF **	pg/g	<0.138	0.138	0.991	N/A	0.0100	0.00138	N/A	6186144
Octa CDF **	pg/g	0.357	0.151	9.91	N/A	0.000300	0.000107	N/A	6186144
Total Tetra CDF **	pg/g	<0.111	0.111	0.991	N/A	N/A	N/A	0	6186144
Total Penta CDF **	pg/g	<0.107	0.107	0.991	N/A	N/A	N/A	0	6186144
Total Hexa CDF **	pg/g	<0.0994	0.0994	0.991	N/A	N/A	N/A	0	6186144
Total Hepta CDF **	pg/g	<0.161 (1)	0.161	0.991	N/A	N/A	N/A	0	6186144
TOTAL TOXIC EQUIVALENCY	pg/g	N/A	N/A	N/A	N/A	N/A	0.351	N/A	N/A
EDL = Estimated Detection Limit RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested. WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds QC Batch = Quality Control Batch * CDD = Chloro Dibenzo-p-Dioxin N/A = Not Applicable ** CDF = Chloro Dibenzo-p-Furan (1) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.									



DIOXINS AND FURANS BY HRMS (SEDIMENT)

BV Labs ID		JPR404							
Sampling Date		2019/04/28 09:00							
COC Number		D40479				TOXIC EQUIVALENCY		# of	
	UNITS	VC-01-01-SFC	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Surrogate Recovery (%)									
C13-1234678 HeptaCDD *	%	140 (1)	N/A	N/A	N/A	N/A	N/A	N/A	6186144
C13-1234678 HeptaCDF **	%	129	N/A	N/A	N/A	N/A	N/A	N/A	6186144
C13-123678 HexaCDD *	%	118	N/A	N/A	N/A	N/A	N/A	N/A	6186144
C13-123678 HexaCDF **	%	84	N/A	N/A	N/A	N/A	N/A	N/A	6186144
C13-12378 PentaCDD *	%	91	N/A	N/A	N/A	N/A	N/A	N/A	6186144
C13-12378 PentaCDF **	%	61	N/A	N/A	N/A	N/A	N/A	N/A	6186144
C13-2378 TetraCDD *	%	113	N/A	N/A	N/A	N/A	N/A	N/A	6186144
C13-2378 TetraCDF **	%	74	N/A	N/A	N/A	N/A	N/A	N/A	6186144
C13-OCDD *	%	144 (1)	N/A	N/A	N/A	N/A	N/A	N/A	6186144
<p>EDL = Estimated Detection Limit RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested. WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds QC Batch = Quality Control Batch * CDD = Chloro Dibenzo-p-Dioxin N/A = Not Applicable ** CDF = Chloro Dibenzo-p-Furan (1) Recovery does not meet method criteria</p>									



BUREAU
VERITAS

BV Labs Job #: B9B7849
Report Date: 2019/07/31

Stantec Consulting Ltd
Client Project #: 121621877.400
Sampler Initials: GSR

DIOXINS AND FURANS BY HRMS (SEDIMENT)

BV Labs ID		JPR405							
Sampling Date		2019/04/28 10:00							
COC Number		D40479				TOXIC EQUIVALENCY		# of	
	UNITS	VC-8A	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Dioxins & Furans									
2,3,7,8-Tetra CDD *	pg/g	<0.104	0.104	0.999	N/A	1.00	0.104	N/A	6186144
1,2,3,7,8-Penta CDD *	pg/g	<0.113	0.113	0.999	N/A	1.00	0.113	N/A	6186144
1,2,3,4,7,8-Hexa CDD *	pg/g	<0.125	0.125	0.999	N/A	0.100	0.0125	N/A	6186144
1,2,3,6,7,8-Hexa CDD *	pg/g	<0.111	0.111	0.999	N/A	0.100	0.0111	N/A	6186144
1,2,3,7,8,9-Hexa CDD *	pg/g	<0.117	0.117	0.999	N/A	0.100	0.0117	N/A	6186144
1,2,3,4,6,7,8-Hepta CDD *	pg/g	<0.262 (1)	0.262	0.999	N/A	0.0100	0.00262	N/A	6186144
Octa CDD *	pg/g	6.36	0.124	9.99	N/A	0.000300	0.00191	N/A	6186144
Total Tetra CDD *	pg/g	<0.104	0.104	0.999	N/A	N/A	N/A	0	6186144
Total Penta CDD *	pg/g	<0.113	0.113	0.999	N/A	N/A	N/A	0	6186144
Total Hexa CDD *	pg/g	<0.118	0.118	0.999	N/A	N/A	N/A	0	6186144
Total Hepta CDD *	pg/g	<0.296 (1)	0.296	0.999	N/A	N/A	N/A	0	6186144
2,3,7,8-Tetra CDF **	pg/g	<0.109	0.109	0.999	N/A	0.100	0.0109	N/A	6186144
1,2,3,7,8-Penta CDF **	pg/g	<0.111	0.111	0.999	N/A	0.0300	0.00333	N/A	6186144
2,3,4,7,8-Penta CDF **	pg/g	<0.114	0.114	0.999	N/A	0.300	0.0342	N/A	6186144
1,2,3,4,7,8-Hexa CDF **	pg/g	<0.102	0.102	0.999	N/A	0.100	0.0102	N/A	6186144
1,2,3,6,7,8-Hexa CDF **	pg/g	<0.0953	0.0953	0.999	N/A	0.100	0.00953	N/A	6186144
2,3,4,6,7,8-Hexa CDF **	pg/g	<0.117	0.117	0.999	N/A	0.100	0.0117	N/A	6186144
1,2,3,7,8,9-Hexa CDF **	pg/g	<0.132	0.132	0.999	N/A	0.100	0.0132	N/A	6186144
1,2,3,4,6,7,8-Hepta CDF **	pg/g	<0.0977	0.0977	0.999	N/A	0.0100	0.000977	N/A	6186144
1,2,3,4,7,8,9-Hepta CDF **	pg/g	<0.132	0.132	0.999	N/A	0.0100	0.00132	N/A	6186144
Octa CDF **	pg/g	0.941	0.127	9.99	N/A	0.000300	0.000282	N/A	6186144
Total Tetra CDF **	pg/g	<0.109	0.109	0.999	N/A	N/A	N/A	0	6186144
Total Penta CDF **	pg/g	<0.112	0.112	0.999	N/A	N/A	N/A	0	6186144
Total Hexa CDF **	pg/g	<0.110	0.110	0.999	N/A	N/A	N/A	0	6186144
Total Hepta CDF **	pg/g	0.372	0.112	0.999	N/A	N/A	N/A	1	6186144
TOTAL TOXIC EQUIVALENCY	pg/g	N/A	N/A	N/A	N/A	N/A	0.352	N/A	N/A

EDL = Estimated Detection Limit

RDL = Reportable Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,

The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

QC Batch = Quality Control Batch

* CDD = Chloro Dibenzo-p-Dioxin

N/A = Not Applicable

** CDF = Chloro Dibenzo-p-Furan

(1) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.



DIOXINS AND FURANS BY HRMS (SEDIMENT)

BV Labs ID		JPR405							
Sampling Date		2019/04/28 10:00							
COC Number		D40479				TOXIC EQUIVALENCY		# of	
	UNITS	VC-8A	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Surrogate Recovery (%)									
C13-1234678 HeptaCDD *	%	135 (1)	N/A	N/A	N/A	N/A	N/A	N/A	6186144
C13-1234678 HeptaCDF **	%	118	N/A	N/A	N/A	N/A	N/A	N/A	6186144
C13-123678 HexaCDD *	%	108	N/A	N/A	N/A	N/A	N/A	N/A	6186144
C13-123678 HexaCDF **	%	79	N/A	N/A	N/A	N/A	N/A	N/A	6186144
C13-12378 PentaCDD *	%	90	N/A	N/A	N/A	N/A	N/A	N/A	6186144
C13-12378 PentaCDF **	%	58	N/A	N/A	N/A	N/A	N/A	N/A	6186144
C13-2378 TetraCDD *	%	111	N/A	N/A	N/A	N/A	N/A	N/A	6186144
C13-2378 TetraCDF **	%	82	N/A	N/A	N/A	N/A	N/A	N/A	6186144
C13-OCDD *	%	132 (1)	N/A	N/A	N/A	N/A	N/A	N/A	6186144

EDL = Estimated Detection Limit
RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds
QC Batch = Quality Control Batch
* CDD = Chloro Dibenzo-p-Dioxin
N/A = Not Applicable
** CDF = Chloro Dibenzo-p-Furan
(1) Recovery does not meet method criteria



BUREAU
VERITAS

BV Labs Job #: B9B7849
Report Date: 2019/07/31

Stantec Consulting Ltd
Client Project #: 121621877.400
Sampler Initials: GSR

TEST SUMMARY

BV Labs ID: JPR404
Sample ID: VC-01-01-SFC
Matrix: Sediment

Collected: 2019/04/28
Shipped:
Received: 2019/05/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Benzo(b/j)fluoranthene Sum (LL soil)	CALC	6105363	N/A	2019/05/13	Automated Statchk
Dioxins/Furans in Soil (EPS 1/RM/23)	HRMS/MS	6186144	2019/06/19	2019/06/26	Angel Guerrero
Organic Halogen (Extractable)		6107966	N/A	2019/05/12	Eric Dearman
TEH in Soil (PIRI)	GC/FID	6109591	2019/05/08	2019/05/08	Brittany Matthews
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	6115357	2019/05/10	2019/05/10	Prabhjot Gulati
F4G (CCME Hydrocarbons Gravimetric)	BAL	6117791	2019/05/13	2019/05/13	Simarpreet Kaur
Mercury (CVAA)	CV/AA	6107760	2019/05/08	2019/05/08	Cody Cleary
Metals Solids Acid Extr. ICPMS	ICP/MS	6111815	2019/05/09	2019/05/09	Bryon Angevine
Carbon Nitrogen Ratio	CALC	6117720	2019/05/12	2019/05/12	Automated Statchk
Total Cyanide	SKAL	6128790	2019/05/13	2019/05/14	Gustavo Garcia Casado
Carbon, Nitrogen, Sulphur - Combustion	COMB	6117721	N/A	2019/05/12	Harry (Peng) Liang
Water Content (Subcontracted)	BAL	6131122	N/A	2019/05/15	Automated Status Check
Moisture (Subcontracted)	BAL	6124032	2019/05/13	2019/05/14	Lolita Obusan
Total PCB	GC/MS	6128789	2019/05/13	2019/05/14	Corina Tue
Sulphide in Soil	SPEC/UVVS	6124031	2019/05/13	2019/05/15	David Huang
Total Kjeldahl Nitrogen (Available)	KONE	6117168	2019/05/09	2019/05/10	Anna Lebowa
Moisture	BAL	6107588	N/A	2019/05/08	Selina Dunbar
Nitrogen Ammonia - soil (as N)	KONE	6117904	2019/05/09	2019/05/14	Nancy Rogers
Nitrogen - Nitrate + Nitrite	KONE	6112633	2019/05/09	2019/05/10	Nancy Rogers
Nitrogen - Nitrite by auto colourimetry	KONE	6115223	2019/05/09	2019/05/13	Sarah Mitchell
Nitrogen - Nitrate (as N)	CALC	6105364	N/A	2019/05/14	Automated Statchk
PAH in sediment by GC/MS (Low Level)	GC/MS	6114474	2019/05/10	2019/05/11	Lisa Gates
Phenols (4AAP)	TECH	6114457	2019/05/10	2019/05/10	Bramdeo Motiram
pH (5:1 DI Water Extract)	PH/PH	6114784	2019/05/09	2019/05/10	Steven Smith
Phosphorus - ortho by auto Colourimetry	KONE	6115221	2019/05/09	2019/05/13	Sarah Mitchell
Particle size in solids (pipette&sieve)	PSIV	6112762	N/A	2019/05/16	Tammy Peters
Acid Vol. Sulphide in S (Sub fr.Bedford)		6107968	2019/05/07	2019/05/29	Eric Dearman
Total Organic Carbon in Soil	COMB	6122849	N/A	2019/05/15	Dhruvik Modh
ModTPH (T1) Calc. for Soil	CALC	6102124	N/A	2019/05/09	Automated Statchk
Volatile Organic Compounds and F1 PHCs	GC/MS	6111913	N/A	2019/05/09	Rebecca McClean
VOCs in Soil - Field Preserved	HS/MS	6109572	N/A	2019/05/10	Amanda Swales
VPH in Soil (PIRI) - Field Preserved	PTGC/MS	6109960	N/A	2019/05/08	Shawn Helmkey

BV Labs ID: JPR404 Dup
Sample ID: VC-01-01-SFC
Matrix: Sediment

Collected: 2019/04/28
Shipped:
Received: 2019/05/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Metals Solids Acid Extr. ICPMS	ICP/MS	6111815	2019/05/09	2019/05/09	Bryon Angevine
Total PCB	GC/MS	6128789	2019/05/13	2019/05/14	Corina Tue
Nitrogen Ammonia - soil (as N)	KONE	6117904	2019/05/13	2019/05/14	Nancy Rogers
Nitrogen - Nitrate + Nitrite	KONE	6112633	2019/05/09	2019/05/10	Nancy Rogers
Nitrogen - Nitrite by auto colourimetry	KONE	6115223	2019/05/10	2019/05/13	Sarah Mitchell
PAH in sediment by GC/MS (Low Level)	GC/MS	6114474	2019/05/10	2019/05/11	Lisa Gates
Phenols (4AAP)	TECH	6114457	2019/05/10	2019/05/10	Bramdeo Motiram
Phosphorus - ortho by auto Colourimetry	KONE	6115221	2019/05/09	2019/05/13	Sarah Mitchell



BUREAU
VERITAS

BV Labs Job #: B9B7849
Report Date: 2019/07/31

Stantec Consulting Ltd
Client Project #: 121621877.400
Sampler Initials: GSR

TEST SUMMARY

BV Labs ID: JPR404 Dup
Sample ID: VC-01-01-SFC
Matrix: Sediment

Collected: 2019/04/28
Shipped:
Received: 2019/05/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Particle size in solids (pipette&sieve)	PSIV	6112762	N/A	2019/05/16	Tammy Peters
VPH in Soil (PIRI) - Field Preserved	PTGC/MS	6109960	N/A	2019/05/08	Shawn Helmkey

BV Labs ID: JPR405
Sample ID: VC-8A
Matrix: Sediment

Collected: 2019/04/28
Shipped:
Received: 2019/05/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Benzo(b/j)fluoranthene Sum (LL soil)	CALC	6105363	N/A	2019/05/13	Automated Statchk
Dioxins/Furans in Soil (EPS 1/RM/23)	HRMS/MS	6186144	2019/06/19	2019/06/26	Angel Guerrero
Organic Halogen (Extractable)		6107966	N/A	2019/05/12	Eric Dearman
TEH in Soil (PIRI)	GC/FID	6109591	2019/05/08	2019/05/08	Brittany Matthews
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	6115357	2019/05/10	2019/05/10	Prabhjot Gulati
F4G (CCME Hydrocarbons Gravimetric)	BAL	6117791	2019/05/13	2019/05/13	Simarpreet Kaur
Mercury (CVAA)	CV/AA	6107760	2019/05/08	2019/05/08	Cody Cleary
Metals Solids Acid Extr. ICPMS	ICP/MS	6111815	2019/05/09	2019/05/09	Bryon Angevine
Carbon Nitrogen Ratio	CALC	6117720	2019/05/12	2019/05/12	Automated Statchk
Total Cyanide	SKAL	6128790	2019/05/13	2019/05/14	Gustavo Garcia Casado
Carbon, Nitrogen, Sulphur - Combustion	COMB	6117721	N/A	2019/05/12	Harry (Peng) Liang
Water Content (Subcontracted)	BAL	6131122	N/A	2019/05/15	Automated Status Check
Moisture (Subcontracted)	BAL	6124032	2019/05/13	2019/05/14	Lolita Obusan
Total PCB	GC/MS	6128789	2019/05/13	2019/05/14	Corina Tue
Sulphide in Soil	SPEC/UVVS	6124031	2019/05/13	2019/05/15	David Huang
Total Kjeldahl Nitrogen (Available)	KONE	6117168	2019/05/09	2019/05/10	Anna Lebowa
Moisture	BAL	6107588	N/A	2019/05/08	Selina Dunbar
Nitrogen Ammonia - soil (as N)	KONE	6117904	2019/05/09	2019/05/14	Nancy Rogers
Nitrogen - Nitrate + Nitrite	KONE	6112633	2019/05/09	2019/05/10	Nancy Rogers
Nitrogen - Nitrite by auto colourimetry	KONE	6115223	2019/05/09	2019/05/13	Sarah Mitchell
Nitrogen - Nitrate (as N)	CALC	6105364	N/A	2019/05/14	Automated Statchk
PAH in sediment by GC/MS (Low Level)	GC/MS	6114474	2019/05/10	2019/05/13	Lisa Gates
Phenols (4AAP)	TECH	6114457	2019/05/10	2019/05/10	Bramdeo Motiram
pH (5:1 DI Water Extract)	PH/PH	6114784	2019/05/09	2019/05/10	Steven Smith
Phosphorus - ortho by auto Colourimetry	KONE	6115221	2019/05/09	2019/05/13	Sarah Mitchell
Particle size in solids (pipette&sieve)	PSIV	6112762	N/A	2019/05/16	Tammy Peters
Acid Vol. Sulphide in S (Sub fr.Bedford)		6107968	2019/05/07	2019/05/29	Eric Dearman
Total Organic Carbon in Soil	COMB	6122849	N/A	2019/05/15	Dhruvik Modh
ModTPH (T1) Calc. for Soil	CALC	6102124	N/A	2019/05/09	Automated Statchk
Volatile Organic Compounds and F1 PHCs	GC/MS	6111913	N/A	2019/05/09	Rebecca McClean
VOCs in Soil - Field Preserved	HS/MS	6109572	N/A	2019/05/10	Amanda Swales
VPH in Soil (PIRI) - Field Preserved	PTGC/MS	6109960	N/A	2019/05/08	Shawn Helmkey



BUREAU
VERITAS

BV Labs Job #: B9B7849
Report Date: 2019/07/31

Stantec Consulting Ltd
Client Project #: 121621877.400
Sampler Initials: GSR

TEST SUMMARY

BV Labs ID: JPR405 Dup
Sample ID: VC-8A
Matrix: Sediment

Collected: 2019/04/28
Shipped:
Received: 2019/05/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	6115357	2019/05/10	2019/05/10	Prabhjot Gulati
Carbon, Nitrogen, Sulphur - Combustion	COMB	6117721	N/A	2019/05/12	Harry (Peng) Liang
Total Kjeldahl Nitrogen (Available)	KONE	6117168	2019/05/09	2019/05/10	Anna Lebowa

BV Labs ID: JQE384
Sample ID: VC-01-01-BTM
Matrix: Sediment

Collected: 2019/04/28
Shipped:
Received: 2019/05/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Benzo(b/j)fluoranthene Sum (LL soil)	CALC	6107383	N/A	2019/05/13	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	6115357	2019/05/10	2019/05/10	Prabhjot Gulati
Mercury (CVAA)	CV/AA	6107760	2019/05/08	2019/05/08	Cody Cleary
Metals Solids Acid Extr. ICPMS	ICP/MS	6111815	2019/05/09	2019/05/09	Bryon Angevine
Total PCB	GC/MS	6128789	2019/05/13	2019/05/14	Corina Tue
Moisture	BAL	6107588	N/A	2019/05/08	Selina Dunbar
PAH in sediment by GC/MS (Low Level)	GC/MS	6114474	2019/05/10	2019/05/13	Lisa Gates
Particle size in solids (pipette&sieve)	PSIV	6112762	N/A	2019/05/16	Tammy Peters
Total Organic Carbon in Soil	COMB	6122849	N/A	2019/05/15	Dhruvik Modh
Volatile Organic Compounds and F1 PHCs	GC/MS	6111913	N/A	2019/05/09	Rebecca McClean

BV Labs ID: JQE384 Dup
Sample ID: VC-01-01-BTM
Matrix: Sediment

Collected: 2019/04/28
Shipped:
Received: 2019/05/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Total Organic Carbon in Soil	COMB	6122849	N/A	2019/05/15	Dhruvik Modh



GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	3.0°C
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Revised Report – Reissued to report the TOC in %, as requested by Joanne Whalen-Gayton. MDN 2019-07-31

Sample JPR404 [VC-01-01-SFC] : VOCF1 Analysis: Greater than 10g of soil was submitted in the field preserved vial. This significantly exceeds the protocol specification of approximately 5g. Additional methanol was added to the vial to ensure extraction efficiency.

Sample analyzed past method specified hold time for Moisture. Sample analyzed past method specified hold time for Sulphide in Soil. Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised.

Sample JPR405 [VC-8A] : Sample analyzed past method specified hold time for Moisture. Sample analyzed past method specified hold time for Sulphide in Soil. Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised.

Sample JQE384 [VC-01-01-BTM] : VOCF1 Analysis: Greater than 10g of soil was submitted in the field preserved vial. This significantly exceeds the protocol specification of approximately 5g. Additional methanol was added to the vial to ensure extraction efficiency.

Results relate only to the items tested.



BUREAU
VERITAS

BV Labs Job #: B9B7849

Report Date: 2019/07/31

QUALITY ASSURANCE REPORT

Stantec Consulting Ltd
Client Project #: 121621877.400
Sampler Initials: GSR

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
6109572	4-Bromofluorobenzene	2019/05/10	104	60 - 140	103	60 - 140	101	%				
6109572	D10-o-Xylene	2019/05/10	98 (1)	60 - 130	102	60 - 130	96	%				
6109572	D4-1,2-Dichloroethane	2019/05/10	98	60 - 140	97	60 - 140	98	%				
6109572	D8-Toluene	2019/05/10	99	60 - 140	99	60 - 140	100	%				
6109591	Isobutylbenzene - Extractable	2019/05/08	99	60 - 130	100	60 - 130	99	%				
6109591	n-Dotriacontane - Extractable	2019/05/08	84 (2)	60 - 130	85	60 - 130	88	%				
6109960	Isobutylbenzene - Volatile	2019/05/08	107	60 - 130	106	60 - 130	108	%				
6111913	4-Bromofluorobenzene	2019/05/09	90	60 - 140	90	60 - 140	86	%				
6111913	D10-o-Xylene	2019/05/09	98	60 - 130	89	60 - 130	85	%				
6111913	D4-1,2-Dichloroethane	2019/05/09	114	60 - 140	114	60 - 140	116	%				
6111913	D8-Toluene	2019/05/09	106	60 - 140	107	60 - 140	100	%				
6114474	D10-Anthracene	2019/05/11	93	50 - 130	94	50 - 130	99	%				
6114474	D14-Terphenyl	2019/05/11	93	50 - 130	94	50 - 130	95	%				
6114474	D8-Acenaphthylene	2019/05/11	87	50 - 130	90	50 - 130	91	%				
6115357	o-Terphenyl	2019/05/10	107	60 - 130	107	60 - 130	112	%				
6128789	2,3,3',4,6-Pentachlorobiphenyl	2019/05/14			91	60 - 130	90	%				
6128789	2',3,5-Trichlorobiphenyl	2019/05/14			91	60 - 130	90	%				
6128789	2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl	2019/05/14			114	60 - 130	111	%				
6186144	C13-1234678 HeptaCDD	2019/06/26	135 (5)	30 - 130	136 (5)	30 - 130	128	%				
6186144	C13-1234678 HeptaCDF	2019/06/26	90	30 - 130	106	30 - 130	103	%				
6186144	C13-123678 HexaCDD	2019/06/26	104	30 - 130	102	30 - 130	115	%				
6186144	C13-123678 HexaCDF	2019/06/26	56	30 - 130	76	30 - 130	78	%				
6186144	C13-12378 PentaCDD	2019/06/26	88	30 - 130	85	30 - 130	100	%				
6186144	C13-12378 PentaCDF	2019/06/26	61	30 - 130	63	30 - 130	66	%				
6186144	C13-2378 TetraCDD	2019/06/26	115	30 - 130	127	30 - 130	112	%				
6186144	C13-2378 TetraCDF	2019/06/26	77	30 - 130	90	30 - 130	77	%				
6186144	C13-OCDD	2019/06/26	154 (5)	30 - 130	148 (5)	30 - 130	125	%				
6107588	Moisture	2019/05/08							4.7	25		
6107760	Mercury (Hg)	2019/05/08	83	75 - 125	98	80 - 120	<0.010	mg/kg	3.5	30	78	50 - 150
6109572	1,1,1-Trichloroethane	2019/05/10	106	60 - 140	110	60 - 130	<25	ug/kg	NC	50		
6109572	1,1,2,2-Tetrachloroethane	2019/05/10	97	60 - 140	99	60 - 130	<25	ug/kg	NC	50		
6109572	1,1,2-Trichloroethane	2019/05/10	99	60 - 140	102	60 - 130	<25	ug/kg	NC	50		



BUREAU
VERITAS

BV Labs Job #: B9B7849
Report Date: 2019/07/31

QUALITY ASSURANCE REPORT(CONT'D)

Stantec Consulting Ltd
Client Project #: 121621877.400
Sampler Initials: GSR

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
6109572	1,1-Dichloroethane	2019/05/10	103	60 - 140	108	60 - 130	<25	ug/kg	NC	50		
6109572	1,1-Dichloroethylene	2019/05/10	105	60 - 140	112	60 - 130	<25	ug/kg	NC	50		
6109572	1,2-Dichlorobenzene	2019/05/10	94	60 - 140	100	60 - 130	<25	ug/kg	NC	50		
6109572	1,2-Dichloroethane	2019/05/10	94	60 - 140	98	60 - 130	<25	ug/kg	NC	50		
6109572	1,2-Dichloropropane	2019/05/10	102	60 - 140	106	60 - 130	<25	ug/kg	NC	50		
6109572	1,3-Dichlorobenzene	2019/05/10	95	60 - 140	102	60 - 130	<25	ug/kg	NC	50		
6109572	1,4-Dichlorobenzene	2019/05/10	94	60 - 140	100	60 - 130	<25	ug/kg	NC	50		
6109572	Benzene	2019/05/10	100	60 - 140	105	60 - 130	<25	ug/kg	NC	50		
6109572	Bromodichloromethane	2019/05/10	100	60 - 140	104	60 - 130	<25	ug/kg	NC	50		
6109572	Bromoform	2019/05/10	93	60 - 140	95	60 - 130	<25	ug/kg	NC	50		
6109572	Bromomethane	2019/05/10	94	60 - 140	96	60 - 140	<50	ug/kg	NC	50		
6109572	Carbon Tetrachloride	2019/05/10	104	60 - 140	109	60 - 130	<25	ug/kg	NC	50		
6109572	Chlorobenzene	2019/05/10	96	60 - 140	100	60 - 130	<25	ug/kg	NC	50		
6109572	Chloroethane	2019/05/10	91	60 - 140	97	60 - 140	<200	ug/kg	NC	50		
6109572	Chloroform	2019/05/10	91	60 - 140	96	60 - 130	<25	ug/kg	NC	50		
6109572	cis-1,2-Dichloroethylene	2019/05/10	103	60 - 140	108	60 - 130	<25	ug/kg	NC	50		
6109572	cis-1,3-Dichloropropene	2019/05/10	94	60 - 140	97	60 - 130	<25	ug/kg	NC	50		
6109572	Dibromochloromethane	2019/05/10	100	60 - 140	104	60 - 130	<25	ug/kg	NC	50		
6109572	Ethylbenzene	2019/05/10	103	60 - 140	107	60 - 130	<25	ug/kg	NC	50		
6109572	Ethylene Dibromide	2019/05/10	102	60 - 140	107	60 - 130	<25	ug/kg	NC	50		
6109572	Methyl t-butyl ether (MTBE)	2019/05/10	98	60 - 140	104	60 - 130	<25	ug/kg	NC	50		
6109572	Methylene Chloride(Dichloromethane)	2019/05/10	98	60 - 140	103	60 - 130	<25	ug/kg	NC	50		
6109572	o-Xylene	2019/05/10	108	60 - 140	114	60 - 130	<25	ug/kg	NC	50		
6109572	p+m-Xylene	2019/05/10	106	60 - 140	111	60 - 130	<25	ug/kg	NC	50		
6109572	Styrene	2019/05/10	103	60 - 140	107	60 - 130	<25	ug/kg	NC	50		
6109572	Tetrachloroethylene	2019/05/10	110	60 - 140	116	60 - 130	<25	ug/kg	NC	50		
6109572	Toluene	2019/05/10	101	60 - 140	107	60 - 130	<50	ug/kg	NC	50		
6109572	Total Xylenes	2019/05/10					<50	ug/kg	NC	50		
6109572	trans-1,2-Dichloroethylene	2019/05/10	106	60 - 140	112	60 - 130	<25	ug/kg	NC	50		
6109572	trans-1,3-Dichloropropene	2019/05/10	91	60 - 140	92	60 - 130	<25	ug/kg	NC	50		
6109572	Trichloroethylene	2019/05/10	108	60 - 140	114	60 - 130	<10	ug/kg	NC	50		
6109572	Trichlorofluoromethane (FREON 11)	2019/05/10	97	60 - 140	104	60 - 140	<25	ug/kg	NC	50		



BUREAU
VERITAS

BV Labs Job #: B9B7849
Report Date: 2019/07/31

QUALITY ASSURANCE REPORT(CONT'D)

Stantec Consulting Ltd
Client Project #: 121621877.400
Sampler Initials: GSR

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
6109572	Vinyl Chloride	2019/05/10	86	60 - 140	93	60 - 140	<20	ug/kg	NC	50		
6109591	>C10-C16 Hydrocarbons	2019/05/08	100	30 - 130	101	60 - 130	<10	mg/kg	NC	50		
6109591	>C16-C21 Hydrocarbons	2019/05/08	97	30 - 130	97	60 - 130	<10	mg/kg	NC	50		
6109591	>C21-<C32 Hydrocarbons	2019/05/08	101	30 - 130	102	60 - 130	<15	mg/kg	NC	50		
6109960	Benzene	2019/05/08	105	60 - 130	101	60 - 140	<0.025	mg/kg	NC	50		
6109960	C6 - C10 (less BTEX)	2019/05/08					<2.5	mg/kg	NC	50		
6109960	Ethylbenzene	2019/05/08	109	60 - 130	103	60 - 140	<0.025	mg/kg	NC	50		
6109960	Toluene	2019/05/08	103	60 - 130	102	60 - 140	<0.050	mg/kg	NC	50		
6109960	Total Xylenes	2019/05/08	104	60 - 130	101	60 - 140	<0.050	mg/kg	NC	50		
6111815	Acid Extractable Aluminum (Al)	2019/05/09					<10	mg/kg	1.0	35		
6111815	Acid Extractable Antimony (Sb)	2019/05/09	100	75 - 125	99	75 - 125	<2.0	mg/kg	NC	35		
6111815	Acid Extractable Arsenic (As)	2019/05/09	100	75 - 125	99	75 - 125	<2.0	mg/kg	NC	35		
6111815	Acid Extractable Barium (Ba)	2019/05/09	105	75 - 125	103	75 - 125	<5.0	mg/kg	1.4	35		
6111815	Acid Extractable Beryllium (Be)	2019/05/09	101	75 - 125	99	75 - 125	<2.0	mg/kg	NC	35		
6111815	Acid Extractable Bismuth (Bi)	2019/05/09	100	75 - 125	96	75 - 125	<2.0	mg/kg	NC	35		
6111815	Acid Extractable Boron (B)	2019/05/09	102	75 - 125	106	75 - 125	<50	mg/kg	NC	35		
6111815	Acid Extractable Cadmium (Cd)	2019/05/09	101	75 - 125	99	75 - 125	<0.30	mg/kg	NC	35		
6111815	Acid Extractable Chromium (Cr)	2019/05/09	106	75 - 125	102	75 - 125	<2.0	mg/kg	0.072	35		
6111815	Acid Extractable Cobalt (Co)	2019/05/09	100	75 - 125	99	75 - 125	<1.0	mg/kg	3.6	35		
6111815	Acid Extractable Copper (Cu)	2019/05/09	100	75 - 125	96	75 - 125	<2.0	mg/kg	3.6	35		
6111815	Acid Extractable Iron (Fe)	2019/05/09					<50	mg/kg	1.7	35		
6111815	Acid Extractable Lead (Pb)	2019/05/09	100	75 - 125	99	75 - 125	<0.50	mg/kg	1.8	35		
6111815	Acid Extractable Lithium (Li)	2019/05/09	113	75 - 125	100	75 - 125	<2.0	mg/kg	4.7	35		
6111815	Acid Extractable Manganese (Mn)	2019/05/09	NC	75 - 125	102	75 - 125	<2.0	mg/kg	8.9	35		
6111815	Acid Extractable Molybdenum (Mo)	2019/05/09	99	75 - 125	104	75 - 125	<2.0	mg/kg	NC	35		
6111815	Acid Extractable Nickel (Ni)	2019/05/09	102	75 - 125	100	75 - 125	<2.0	mg/kg	0.92	35		
6111815	Acid Extractable Rubidium (Rb)	2019/05/09	102	75 - 125	100	75 - 125	<2.0	mg/kg	3.6	35		
6111815	Acid Extractable Selenium (Se)	2019/05/09	102	75 - 125	103	75 - 125	<1.0	mg/kg	NC	35		
6111815	Acid Extractable Silver (Ag)	2019/05/09	99	75 - 125	99	75 - 125	<0.50	mg/kg	NC	35		
6111815	Acid Extractable Strontium (Sr)	2019/05/09	102	75 - 125	98	75 - 125	<5.0	mg/kg	NC	35		
6111815	Acid Extractable Thallium (Tl)	2019/05/09	103	75 - 125	100	75 - 125	<0.10	mg/kg	NC	35		
6111815	Acid Extractable Tin (Sn)	2019/05/09	103	75 - 125	103	75 - 125	<1.0	mg/kg	NC	35		



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			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
6111815	Acid Extractable Uranium (U)	2019/05/09	100	75 - 125	99	75 - 125	<0.10	mg/kg	1.9	35		
6111815	Acid Extractable Vanadium (V)	2019/05/09	103	75 - 125	99	75 - 125	<2.0	mg/kg	12	35		
6111815	Acid Extractable Zinc (Zn)	2019/05/09	105	75 - 125	99	75 - 125	<5.0	mg/kg	4.2	35		
6111913	Benzene	2019/05/09	105	60 - 140	104	60 - 130	<0.0060	ug/g	NC	50		
6111913	Ethylbenzene	2019/05/09	93	60 - 140	93	60 - 130	<0.010	ug/g	NC	50		
6111913	F1 (C6-C10) - BTEX	2019/05/09					<10	ug/g	NC	30		
6111913	F1 (C6-C10)	2019/05/09	101	60 - 140	97	80 - 120	<10	ug/g	NC	30		
6111913	o-Xylene	2019/05/09	90	60 - 140	89	60 - 130	<0.020	ug/g	NC	50		
6111913	p+m-Xylene	2019/05/09	88	60 - 140	88	60 - 130	<0.020	ug/g	NC	50		
6111913	Toluene	2019/05/09	95	60 - 140	95	60 - 130	<0.020	ug/g	NC	50		
6111913	Total Xylenes	2019/05/09					<0.020	ug/g	NC	50		
6112633	Nitrate + Nitrite (N)	2019/05/10	90	75 - 125	93	80 - 120	<0.25	mg/kg	6.8	35		
6112762	Clay	2019/05/16							5.0	35		
6112762	Gravel	2019/05/16							14	35		
6112762	Sand	2019/05/16							3.4	35		
6112762	Silt	2019/05/16							18	35		
6114457	Phenols-4AAP	2019/05/10	96	75 - 125	99	80 - 120	<0.04	ug/g	NC	20		
6114474	1-Methylnaphthalene	2019/05/11	80	50 - 130	85	50 - 130	<0.0050	mg/kg	NC	50		
6114474	2-Methylnaphthalene	2019/05/11	80	50 - 130	87	50 - 130	<0.0050	mg/kg	NC	50		
6114474	Acenaphthene	2019/05/11	86	50 - 130	91	50 - 130	<0.0050	mg/kg	NC	50		
6114474	Acenaphthylene	2019/05/11	86	50 - 130	91	50 - 130	<0.0050	mg/kg	NC	50		
6114474	Anthracene	2019/05/11	82	50 - 130	85	50 - 130	<0.0050	mg/kg	NC	50		
6114474	Benzo(a)anthracene	2019/05/11	81	50 - 130	81	50 - 130	<0.0050	mg/kg	NC	50		
6114474	Benzo(a)pyrene	2019/05/11	72	50 - 130	70	50 - 130	<0.0050	mg/kg	NC	50		
6114474	Benzo(b)fluoranthene	2019/05/11	78	50 - 130	77	50 - 130	<0.0050	mg/kg	NC	50		
6114474	Benzo(g,h,i)perylene	2019/05/11	76	50 - 130	70	50 - 130	<0.0050	mg/kg	NC	50		
6114474	Benzo(j)fluoranthene	2019/05/11	71	50 - 130	71	50 - 130	<0.0050	mg/kg	NC	50		
6114474	Benzo(k)fluoranthene	2019/05/11	77	50 - 130	75	50 - 130	<0.0050	mg/kg	NC	50		
6114474	Chrysene	2019/05/11	94	50 - 130	94	50 - 130	<0.0050	mg/kg	NC	50		
6114474	Dibenz(a,h)anthracene	2019/05/11	74	50 - 130	68	50 - 130	<0.0050	mg/kg	NC	50		
6114474	Fluoranthene	2019/05/11	87	50 - 130	89	50 - 130	<0.0050	mg/kg	NC	50		
6114474	Fluorene	2019/05/11	91	50 - 130	96	50 - 130	<0.0050	mg/kg	NC	50		



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			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
6114474	Indeno(1,2,3-cd)pyrene	2019/05/11	73	50 - 130	66	50 - 130	<0.0050	mg/kg	NC	50		
6114474	Naphthalene	2019/05/11	84	50 - 130	91	50 - 130	<0.0050	mg/kg	NC	50		
6114474	Perylene	2019/05/11	68	50 - 130	67	50 - 130	<0.0050	mg/kg	NC	50		
6114474	Phenanthrene	2019/05/11	96	50 - 130	99	50 - 130	<0.0050	mg/kg	NC	50		
6114474	Pyrene	2019/05/11	87	50 - 130	89	50 - 130	<0.0050	mg/kg	NC	50		
6114784	Soluble (5:1) pH	2019/05/10							2.7	N/A		
6115221	Orthophosphate (P)	2019/05/13	90	80 - 120	103	80 - 120	<0.050	mg/kg	2.0	25		
6115223	Nitrite (N)	2019/05/13	97	70 - 130	106	70 - 130	<0.050	mg/kg	NC	30		
6115357	F2 (C10-C16 Hydrocarbons)	2019/05/10	111	50 - 130	111	80 - 120	<10	ug/g	NC	30		
6115357	F3 (C16-C34 Hydrocarbons)	2019/05/10	107	50 - 130	106	80 - 120	<50	ug/g	NC	30		
6115357	F4 (C34-C50 Hydrocarbons)	2019/05/10	107	50 - 130	102	80 - 120	<50	ug/g	NC	30		
6117168	Available (KCl) Total Kjeldahl Nitrogen	2019/05/10	11 (3)	75 - 125	102	80 - 120	<5.0	mg/kg	NC	30	97	75 - 125
6117721	Total Carbon	2019/05/12			105	75 - 125	<0.050	%	NC	30	99	75 - 125
6117721	Total Nitrogen	2019/05/12			99	75 - 125	<0.20	%	NC	30	110	75 - 125
6117721	Total Sulphur (S)	2019/05/12			97	75 - 125	<0.060	%	7.3	30	100	75 - 125
6117791	Total Oil and Grease	2019/05/13	120	65 - 135	101	65 - 135	<100	ug/g	20	50		
6117904	Ammonia-N	2019/05/14	67 (4)	75 - 125	99	80 - 120	<0.25	mg/kg	NC	30		
6122849	Total Organic Carbon	2019/05/15					<0.050	%	0.80	35	110	75 - 125
6124031	Sulphide	2019/05/15	NC	75 - 125	84	75 - 125	<0.50	ug/g	NC	30		
6124032	Moisture-Subcontracted	2019/05/14					<0.30	%	4.0	20		
6128789	22'33'44'55'6'-NonaCB-(206)	2019/05/14			62	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	22'33'44'55'1'-OctaCB-(194)	2019/05/14			84	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	22'33'44'56'-OctaCB-(195)	2019/05/14			86	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	22'33'44'5'-HeptaCB-(170)	2019/05/14			86	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	22'33'44'6'-HeptaCB-(171)	2019/05/14			82	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	22'33'44'1'-HexaCB-(128)	2019/05/14			101	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	22'33'45'5'6'-NonaCB-(208)	2019/05/14			75	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	22'33'45'5'6'-OctaCB-(199)	2019/05/14			86	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	22'33'45'6'-HeptaCB-(177)	2019/05/14			70	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	22'33'46'1'-HexaCB-(132)	2019/05/14			96	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	22'33'4'-PentaCB-(82)	2019/05/14			82	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	22'344'55'1'-HeptaCB-(180)	2019/05/14			74	60 - 130	<0.010	mg/kg	NC	N/A		



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			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
6128789	22'344'5'6-HeptaCB-(183)	2019/05/14			77	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	22'34'55'6-HeptaCB-(187)	2019/05/14			82	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	22'34'5'6-HexaCB-(149)	2019/05/14			96	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	22'345'-PentaCB-(87)	2019/05/14			99	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	22'355'6-HexaCB-(151)	2019/05/14			107	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	22'35'6-PentaCB-(95)	2019/05/14			103	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	22'35'-TetraCB-(44)	2019/05/14			100	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	22'44'55'-HexaCB-(153)	2019/05/14			105	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	22'44'5-PentaCB-(99)	2019/05/14			78	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	22'455'-PentaCB-(101)	2019/05/14			89	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	22'45'-TetraCB-(49)	2019/05/14			101	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	22'55'-TetraCB-(52)	2019/05/14			93	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	233'44'55'6-OctaCB-(205)	2019/05/14			82	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	233'44'5'6-HeptaCB-(191)	2019/05/14			76	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	233'44'5-HexaCB-(156)	2019/05/14			106	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	233'44'-PentaCB-(105)	2019/05/14			112	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	233'4'6-PentaCB-(110)	2019/05/14			109	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	23'44'5-PentaCB-(118)	2019/05/14			100	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	23'4'5-TetraCB-(70)	2019/05/14			96	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	2'34-TriCB-(33)	2019/05/14			95	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	244'5-TetraCB-(74)	2019/05/14			101	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	33'44'55'-HexaCB-(169)	2019/05/14			118	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	DecaCB-(209)	2019/05/14			77	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	Decachlorobiphenyls	2019/05/14					<0.010	mg/kg	NC	30		
6128789	Heptachlorobiphenyls	2019/05/14					<0.010	mg/kg	NC	30		
6128789	HexaCB-(138)+(158)	2019/05/14			113	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	Hexachlorobiphenyls	2019/05/14					<0.010	mg/kg	NC	30		
6128789	Nonachlorobiphenyls	2019/05/14					<0.010	mg/kg	NC	30		
6128789	Octachlorobiphenyls	2019/05/14					<0.010	mg/kg	NC	30		
6128789	Pentachlorobiphenyls	2019/05/14					<0.010	mg/kg	NC	30		
6128789	Tetrachlorobiphenyls	2019/05/14					<0.010	mg/kg	NC	30		
6128789	Total PCB	2019/05/14			93	60 - 130	<0.010	mg/kg	NC	30		



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			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
6128789	TriCB-(17)+(18)	2019/05/14			99	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	TriCB-(28)+(31)	2019/05/14			99	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	Trichlorobiphenyls	2019/05/14					<0.010	mg/kg	NC	30		
6128790	Total Cyanide (CN)	2019/05/14			80	75 - 125	<0.50	mg/kg			89	75 - 125
6186144	1,2,3,4,6,7,8-Hepta CDD	2019/06/27	93	80 - 140	90	80 - 140	<0.498, EDL=0.498 (6)	pg/g	NC	25		
6186144	1,2,3,4,6,7,8-Hepta CDF	2019/06/27	97	80 - 140	95	80 - 140	<0.0954, EDL=0.0954	pg/g	NC	25		
6186144	1,2,3,4,7,8,9-Hepta CDF	2019/06/27	137	80 - 140	103	80 - 140	<0.129, EDL=0.129	pg/g	NC	25		
6186144	1,2,3,4,7,8-Hexa CDD	2019/06/27	89	80 - 140	98	80 - 140	<0.119, EDL=0.119	pg/g	NC	25		
6186144	1,2,3,4,7,8-Hexa CDF	2019/06/27	88	80 - 140	92	80 - 140	<0.102, EDL=0.102	pg/g	NC	25		
6186144	1,2,3,6,7,8-Hexa CDD	2019/06/27	87	80 - 140	86	80 - 140	<0.106, EDL=0.106	pg/g	NC	25		
6186144	1,2,3,6,7,8-Hexa CDF	2019/06/27	92	80 - 140	90	80 - 140	<0.0949, EDL=0.0949	pg/g	NC	25		
6186144	1,2,3,7,8,9-Hexa CDD	2019/06/27	103	80 - 140	96	80 - 140	<0.111, EDL=0.111	pg/g	NC	25		
6186144	1,2,3,7,8,9-Hexa CDF	2019/06/27	128	80 - 140	87	80 - 140	<0.132, EDL=0.132	pg/g	NC	25		
6186144	1,2,3,7,8-Penta CDD	2019/06/27	91	80 - 140	87	80 - 140	<0.112, EDL=0.112	pg/g	NC	25		
6186144	1,2,3,7,8-Penta CDF	2019/06/27	98	80 - 140	87	80 - 140	<0.111, EDL=0.111	pg/g	NC	25		
6186144	2,3,4,6,7,8-Hexa CDF	2019/06/27	131	80 - 140	87	80 - 140	<0.116, EDL=0.116	pg/g	NC	25		
6186144	2,3,4,7,8-Penta CDF	2019/06/27	90	80 - 140	90	80 - 140	<0.114, EDL=0.114	pg/g	NC	25		
6186144	2,3,7,8-Tetra CDD	2019/06/27	86	80 - 140	81	80 - 140	<0.102, EDL=0.102	pg/g	NC	25		
6186144	2,3,7,8-Tetra CDF	2019/06/27	88	80 - 140	82	80 - 140	<0.111, EDL=0.111	pg/g	NC	25		



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			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
6186144	Octa CDD	2019/06/27	90	80 - 140	90	80 - 140	3.34, EDL=0.112	pg/g	10	25		
6186144	Octa CDF	2019/06/27	84	80 - 140	84	80 - 140	<0.963, EDL=0.963 (7)	pg/g	NC	25		
6186144	Total Hepta CDD	2019/06/27					<0.498, EDL=0.498 (6)	pg/g	NC	25		
6186144	Total Hepta CDF	2019/06/27					0.438, EDL=0.110	pg/g	NC	25		
6186144	Total Hexa CDD	2019/06/27					<0.112, EDL=0.112	pg/g	NC	25		
6186144	Total Hexa CDF	2019/06/27					<0.109, EDL=0.109	pg/g	NC	25		
6186144	Total Penta CDD	2019/06/27					<0.112, EDL=0.112	pg/g	NC	25		
6186144	Total Penta CDF	2019/06/27					<0.113, EDL=0.113	pg/g	NC	25		
6186144	Total Tetra CDD	2019/06/27					<0.102, EDL=0.102	pg/g	NC	25		



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QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
6186144	Total Tetra CDF	2019/06/27					<0.111, EDL=0.111	pg/g	NC	25		

N/A = Not Applicable

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) VOC samples were extracted using a flat-bed shaker instead of the accelerated mechanical shaker due to matrix incompatibility.

(2) TEH samples were extracted using a flat-bed shaker instead of the accelerated mechanical shaker due to matrix incompatibility.

(3) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

(4) Poor spike recovery due to sample matrix, results confirmed by repeat analysis.

(5) Recovery does not meet method criteria

(6) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

(7) RT>2 seconds - PCDD/DF analysis-Peak maxima of monitored ions exceeds 2 seconds



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VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

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Harry (Peng) Liang, Senior Analyst



Veronic Beausejour, B.Sc., Chemist, Supervisor

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Client Project #: 121621877.400
Sampler Initials: GSR

VALIDATION SIGNATURE PAGE(CONT'D)

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Gina Thompson, Inorganics General Chemistry Supervisor

Mike MacGillivray, Scientific Specialist (Inorganics)



Nouredine Chafiaai, B.Sc., Chemist

Owen Cosby, BSc.C.Chem, Supervisor, HRMS Services

Rosemarie MacDonald, Scientific Specialist (Organics)

Winnie Au, B.Sc., QP, Scientific Specialist

BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

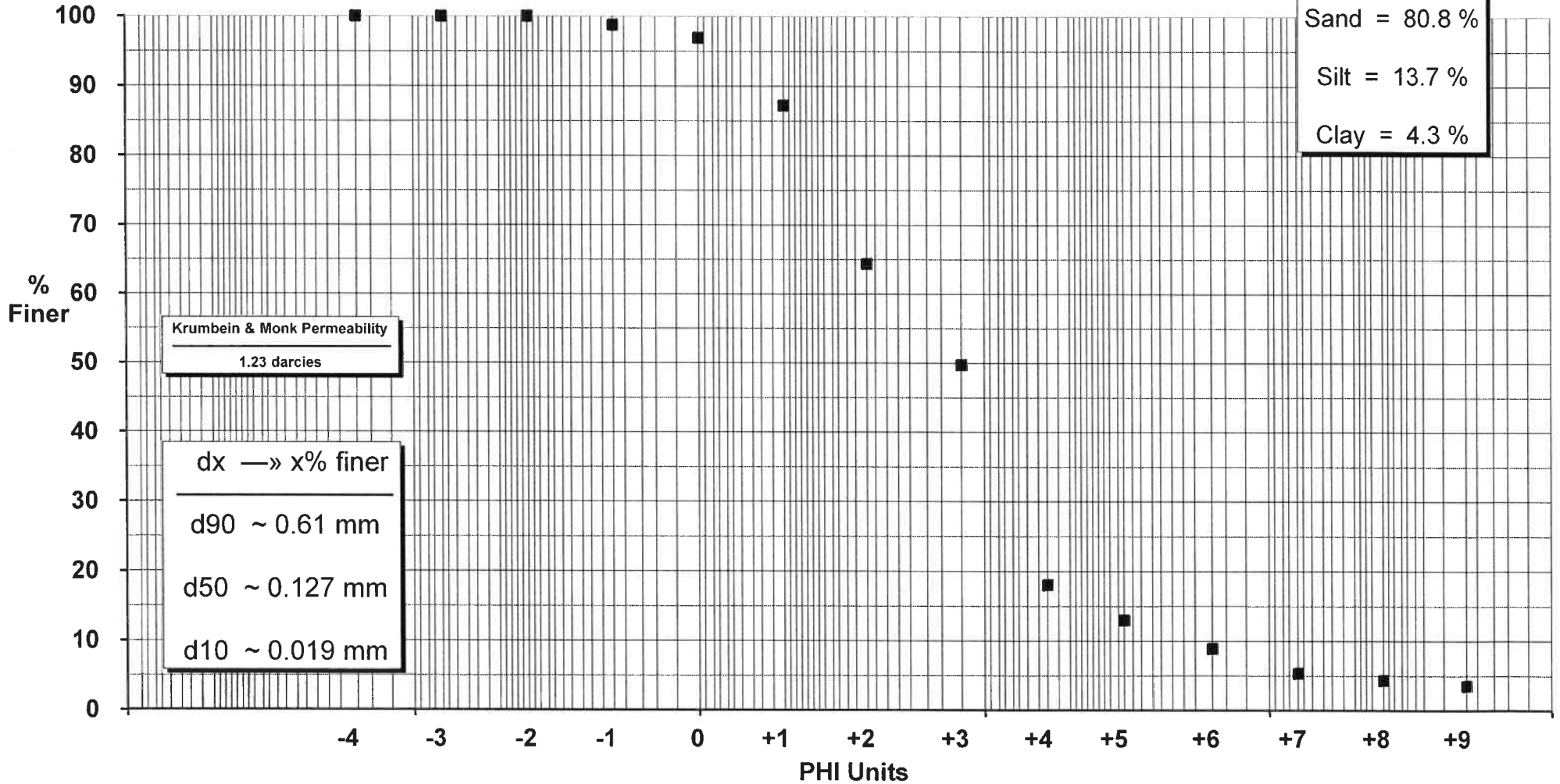


VC-01-01-SFC

Percent Coarser than 75 μm
(PHI = 3.737)
—
73.6 %

Percent Coarser than 50 μm
(PHI = 4.322)
—
83.6 %

Wentworth
Gravel = 1.2 %
Sand = 80.8 %
Silt = 13.7 %
Clay = 4.3 %



CMA
Approved

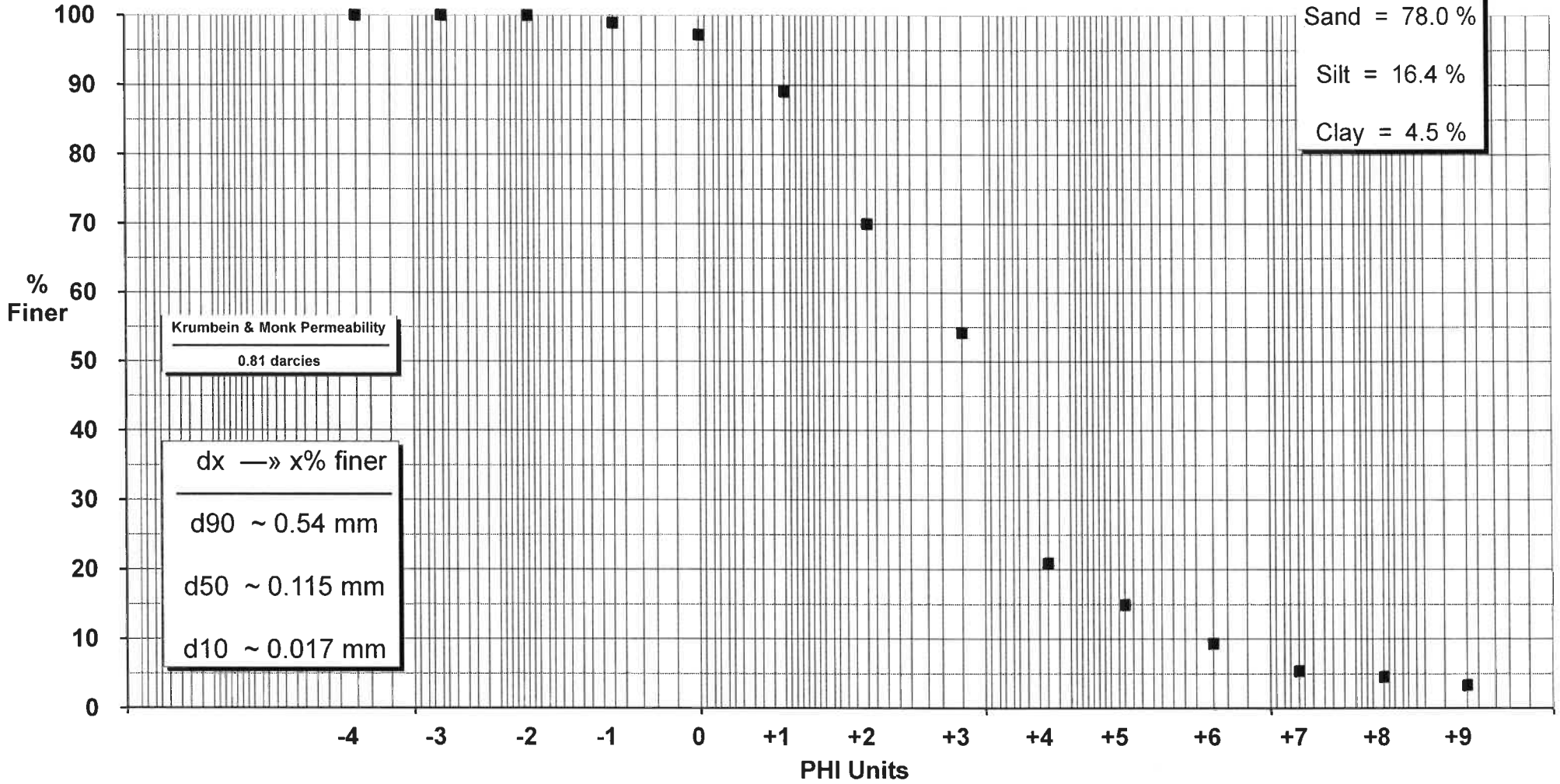


VC-01-01-SFC

Percent Coarser than 75 μm
(PHI = 3.737)
—
70.3 %

Percent Coarser than 50 μm
(PHI = 4.322)
—
81.0 %

Wentworth
—
Gravel = 1.1 %
Sand = 78.0 %
Silt = 16.4 %
Clay = 4.5 %



CDX
Approved

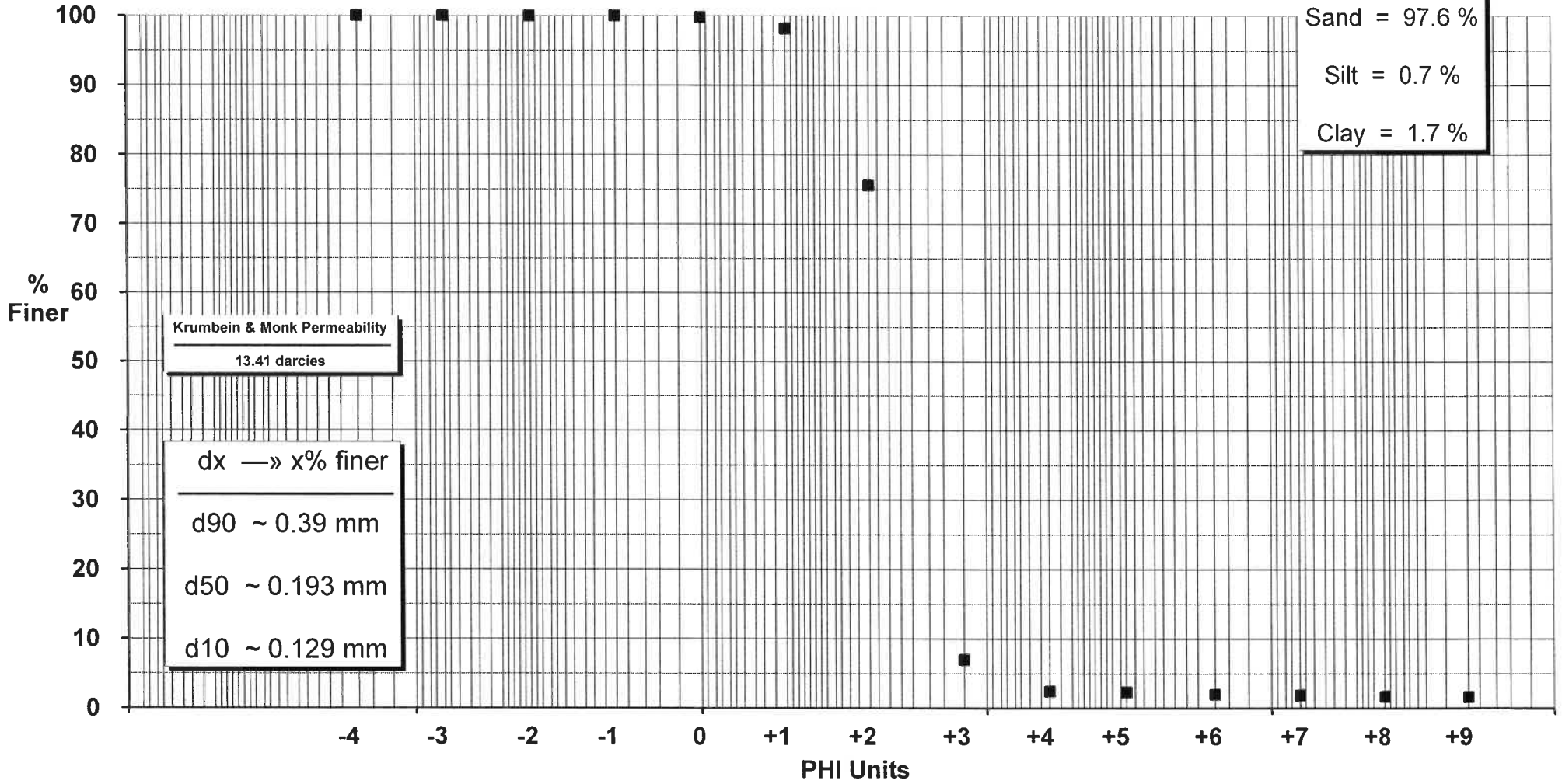


VC-8A

Percent Coarser than 75 μm
(PHI = 3.737)
—
96.4 %

Percent Coarser than 50 μm
(PHI = 4.322)
—
97.6 %

Wentworth
Gravel = 0.0 %
Sand = 97.6 %
Silt = 0.7 %
Clay = 1.7 %



[Signature]
Approved

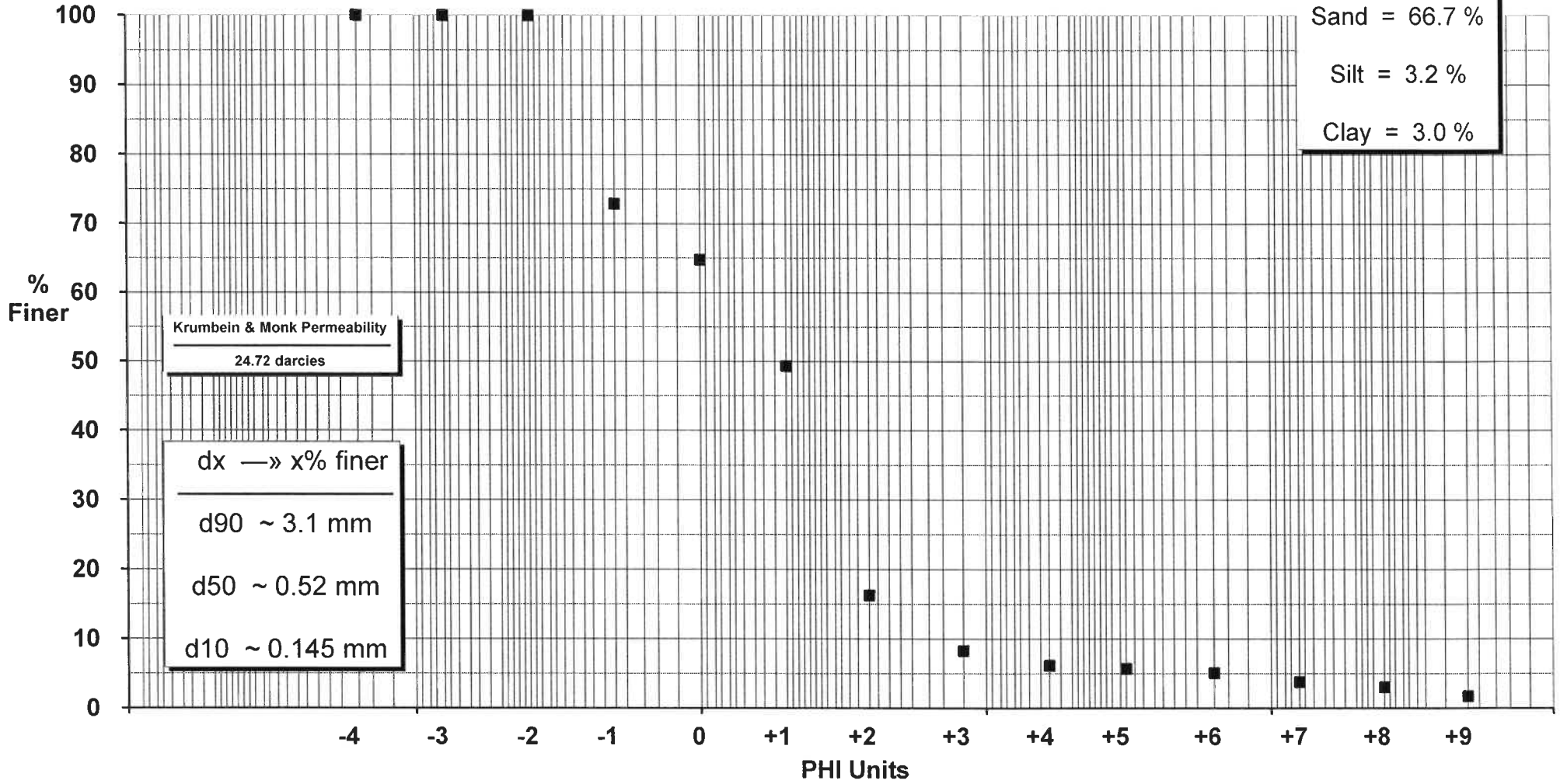


VC-01-01-BTM

Percent Coarser than 75 μm
(PHI = 3.737)
—
93.3 %

Percent Coarser than 50 μm
(PHI = 4.322)
—
94.0 %

Wentworth
Gravel = 27.2 %
Sand = 66.7 %
Silt = 3.2 %
Clay = 3.0 %



CSA
Approved



200 Bluelwater Road, Suite 105, Bedford, Nova Scotia B4B 1G9 Tel: 902-420-0203 Fax: 902-420-8612 Toll Free: 1-800-565-7227
 48-55 Elizabeth Avenue, St John's, NL A1A 1W9 Tel: 709-754-0203 Fax: 709-754-8612 Toll Free: 1-888-492-7227
 465 George Street, Unit G, Sydney, NS B1P 1K5 Tel: 902-567-1255 Fax: 902-539-6504 Toll Free: 1-888-535-7770

ATL FCD 00149 / 23

www.maxxam.ca E-mail: Customerservicebedford@maxxam.ca

CHAIN OF CUSTODY RECORD

COC #: **D40479** Page **1** of **7**

Invoice Information				Report Information (if differs from invoice)				Project Information (where applicable)				Turnaround Time (TAT) Required																									
Company Name: STANTEC				Company Name:				Quotation #: B77460				<input checked="" type="checkbox"/> Regular TAT (5 business days) Most analyses PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS IF RUSH please specify date (Surcharges will be applied) DATE REQUIRED:																									
Contact Name:				Contact Name: SAM SALEY				Purchase Order #:																													
Address:				Address:				Project #: 12621877, 400																													
PC:				PC:				Site Location:																													
Phone:				Phone: 902-468-7117				Site Province: NS																													
Email:				Email: SAM.SALEY@STANTEC.CO				Site #:																													
Report Copies:				Report Copies:				Sampled By: GSL																													
Laboratory Use Only								Analysis Requested																													
CUSTODY SEAL		COOLER TEMPERATURES		COOLER TEMPERATURES		FIELD FILTERED & PRESERVED	LAB FILTRATION REQUIRED	RCAP-MS (Total Metals) Well / Surface water	RCAP-MS (Dissolved Metals) Ground waters	Total Digest (Default Method) for well water & surface water	Dissolved for ground water	Mercury (CIRCLE) TOTAL / DISSOLVED	Metals & Mercury	Default Acid Extractable (Available) Digest	Metals (Water)	Metals (Soil)	Hot Water Soluble Boron (required for CCME Agricultural/Landfill)	RBCA Hydrocarbons (BTEX, C6-C31)	CCME Hydrocarbons (CWS-PHC F1/BTEX, F2-F4)	PAHs (Default for water/soil)	PAHs (FWAL/CCME Sediment)	PCBS - Select One: Default or CCME Sediment	VOCs	Total Coliform/E.coli (Presence/Absence)	Total Coliform/E. Coli (Count)	Regulatory Requirements (Specify)											
Present	Intact	1, 0, 8																																			
COOLING MEDIA PRESENT Y / N																																					
SAMPLES MUST BE KEPT COOL (<10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM																																					
SAMPLE IDENTIFICATION		DATE SAMPLED (YYYY/MM/DD)	TIME SAMPLED (HH:MM)	MATRIX	# OF CONTAINERS SUBMITTED																			COMMENTS													
1	VC-01	2019/04/28	09:00	sed	17																			ANALYSIS B - SEE ATTACHED													
2	VC-8A	2019/04/28	10:00	✓	17																																
3																																					
4																																					
5																																					
6																																					
7																																					
8																																					
9																																					
10																																					
RELINQUISHED BY: (Signature/Print)		DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)		DATE: (YYYY/MM/DD)	TIME: (HH:MM)															MAXXAM JOB #															
<i>Dan Lee</i>				<i>DLW</i>																		B9B7849															

Unless otherwise agreed to in writing, work submitted on this Chain of Custody is subject to Maxxam's standard Terms and Conditions. Signing of this Chain of Custody document is acknowledgment and acceptance of our terms which are available for viewing at www.maxxam.ca/terms.

White: Maxxam

Pink: Client

2019 MAY 2 15:27

Analysis A Parameters - Disposal at Sea (DAS) Chemicals:

BTEX/TPH (CWS)
Low level mercury
Metals
PAHs (low level)
TOC
PCBs (low res Quebec)
Particle Size

Analysis B Parameters - HHRA Chemicals of Potential Concern:

BTEX/TPH (CWS)
Low level mercury
Metals
PAHs (low level)
TOC
PCBs (low res Quebec)
Particle Size
Total sulphides
Total Carbon
Total Nitrogen
Dioxins and furans
EOX (extractable)
Acid-volatile sulphide
Ammonia
Nitrate
TKN
Orthophosphate
pH
Specific non-chlorinated phenolic compounds (4-AAP phenol)
Chlorinated VOCs
RBCA hydrocarbons
Total oil and grease
Total Cyanide

200 Bluewater Road Suite 105 / Bedford, NS Canada B4B 1G9
Office 902 420 0203 ext. 253
Mobile 902 220 8399
Toll free 800 565 7227
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My office hours are 8:30am to 4:30pm Monday to Friday.

SAMPLE RECEPTION HOURS:

Monday-Friday 9 am – 5 pm. Closed on Saturday & Sunday.

Contact your Project Manager for afterhours drop off information

For emergency service after hours, call our National Emergency Support Line at 1-855-629-9261

From: Salley, Sam [<mailto:Sam.Salley@stantec.com>]

Sent: Monday, May 06, 2019 2:24 PM

To: Marie Muise <MMuise@maxxam.ca>

Cc: Lee, Dan (Dartmouth) <Dan.Lee@stantec.com>; Colpron, Emile <Emile.Colpron@stantec.com>

Subject: RE: Chemistry analysis of marine sediment samples

Hi Marie,

For our recent job 121621877.400 for Northern Pulp, we had two groups of analyses to perform on the marine sediment as per the below depending on the locations. In our recent submission of samples with the Chain of Custody form, including today's samples, we attached the list. I think some parameters for **Analysis B** were truncated. Can you please confirm that the parameters will be as the below?

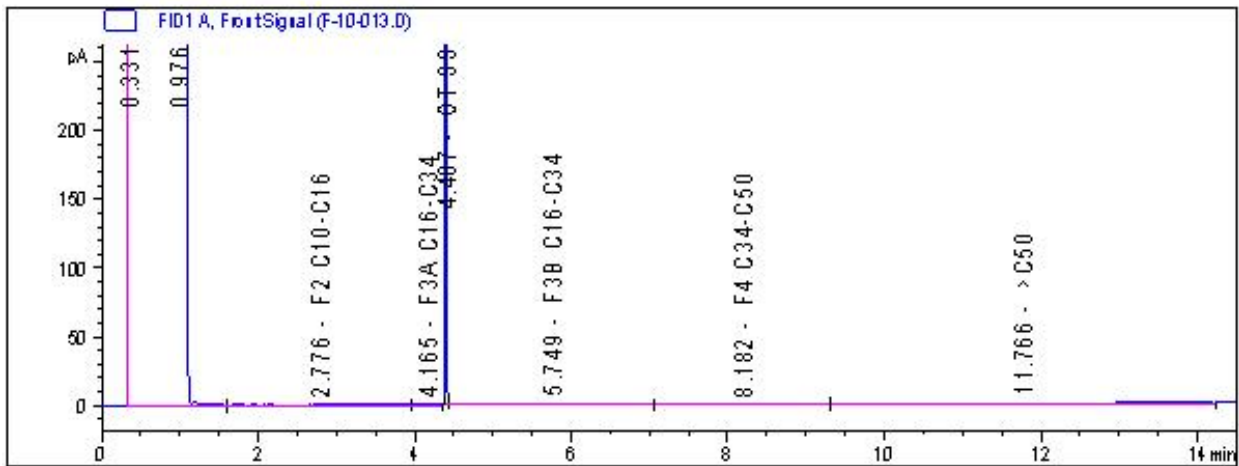
Thank you.

Sam

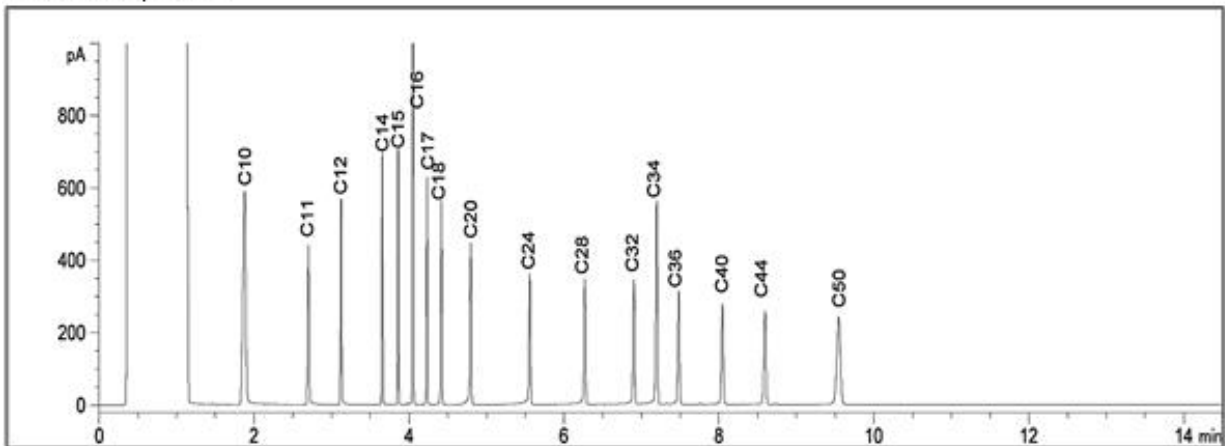
Analysis A Parameters - Disposal at Sea (DAS) Chemicals:

BTEX/TPH (CWS)
Low level mercury
Metals
PAHs (low level)
TOC
PCBs (low res Quebec)
Particle Size

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Reference Spectrum



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline: **C6 - C12**

Diesel: **C10 - C24**

Jet Fuels: **C6 - C16**

Varsol: **C8 - C12**

Fuel Oils: **C6 - C32**

Creosote: **C10 - C26**

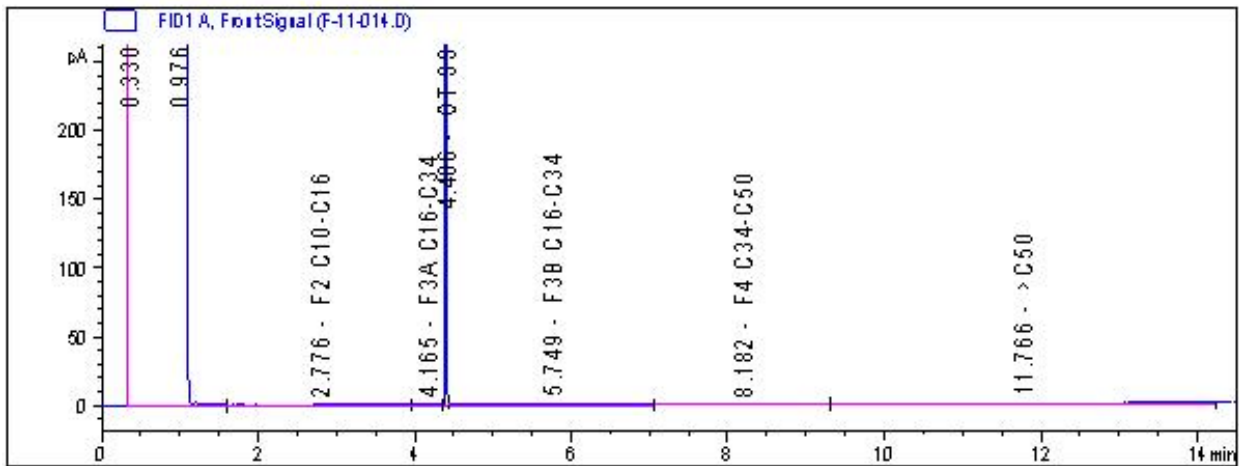
Kerosene: **C8 - C16**

Motor Oils: **C16 - C50**

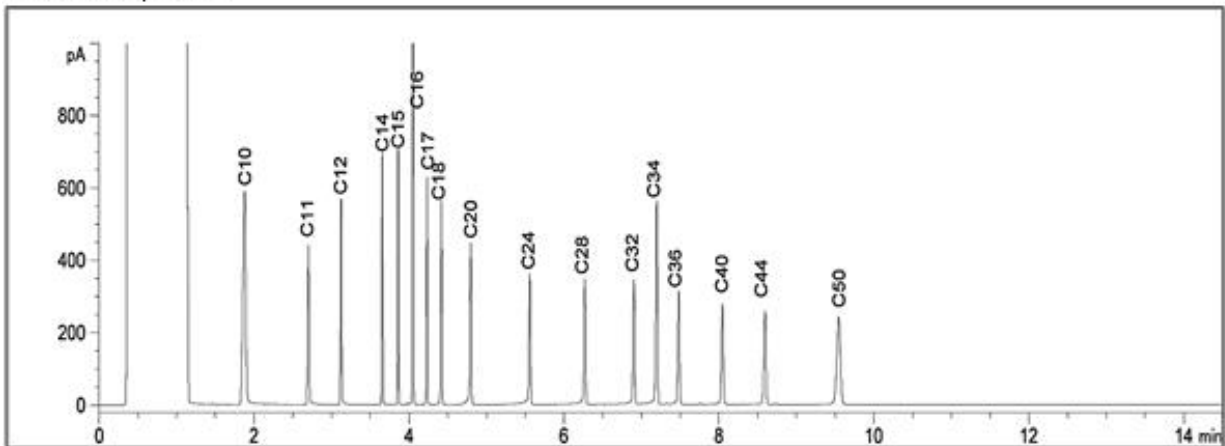
Asphalt: **C18 - C50+**

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Reference Spectrum



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline: **C6 - C12**

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Fuel Oils: **C6 - C32**

Creosote: **C10 - C26**

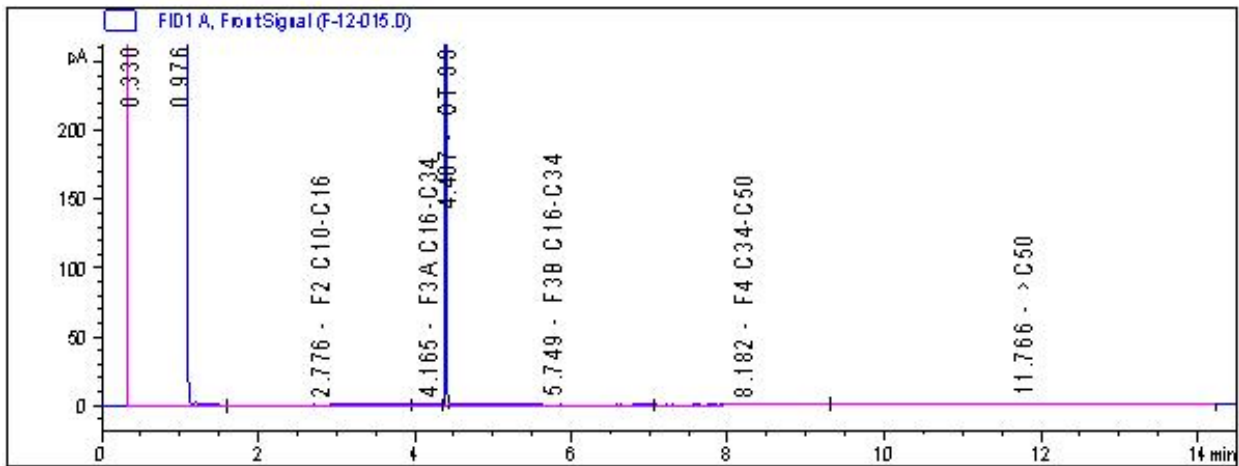
Kerosene: **C8 - C16**

Motor Oils: **C16 - C50**

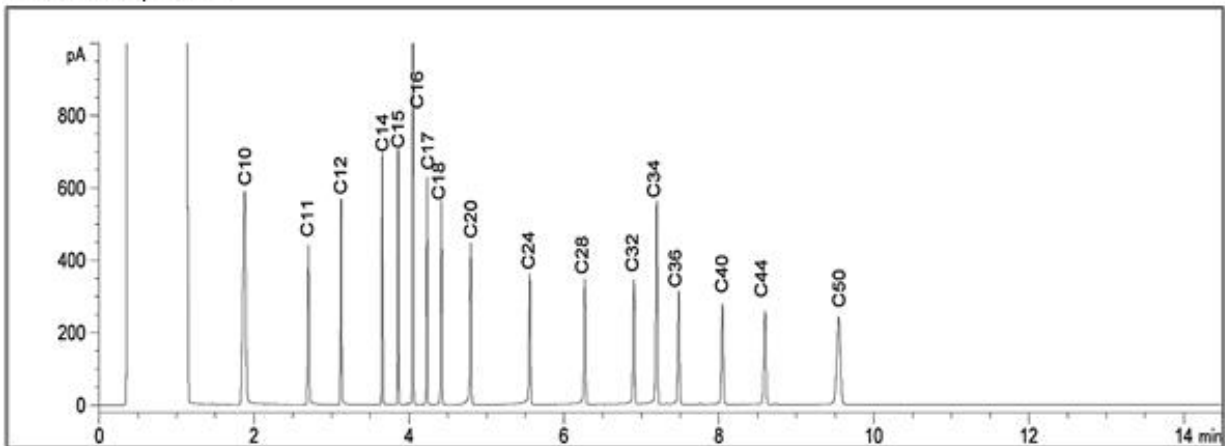
Asphalt: **C18 - C50+**

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Reference Spectrum



TYPICAL PRODUCT CARBON NUMBER RANGES

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Diesel: **C10 - C24**

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Fuel Oils: **C6 - C32**

Creosote: **C10 - C26**

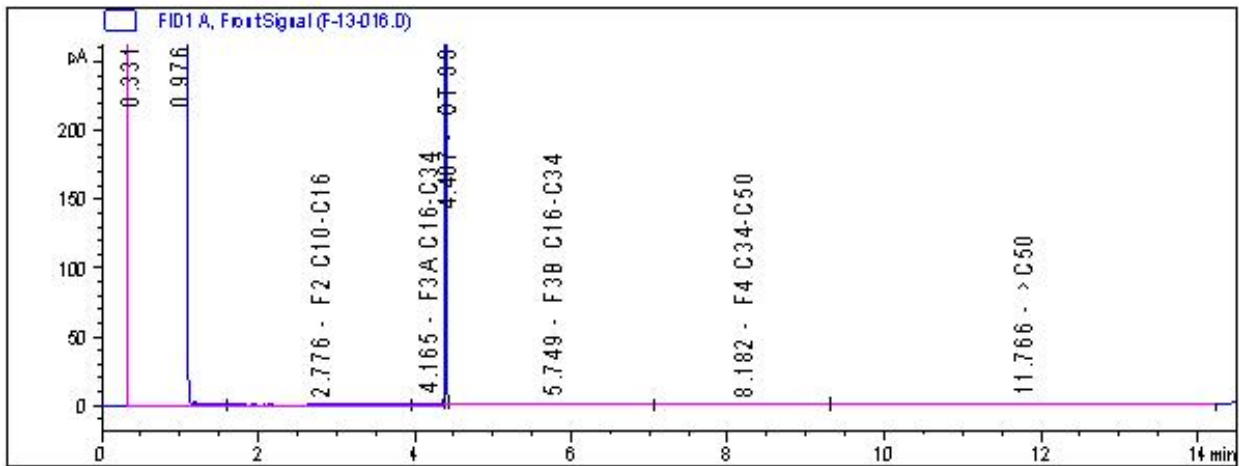
Kerosene: **C8 - C16**

Motor Oils: **C16 - C50**

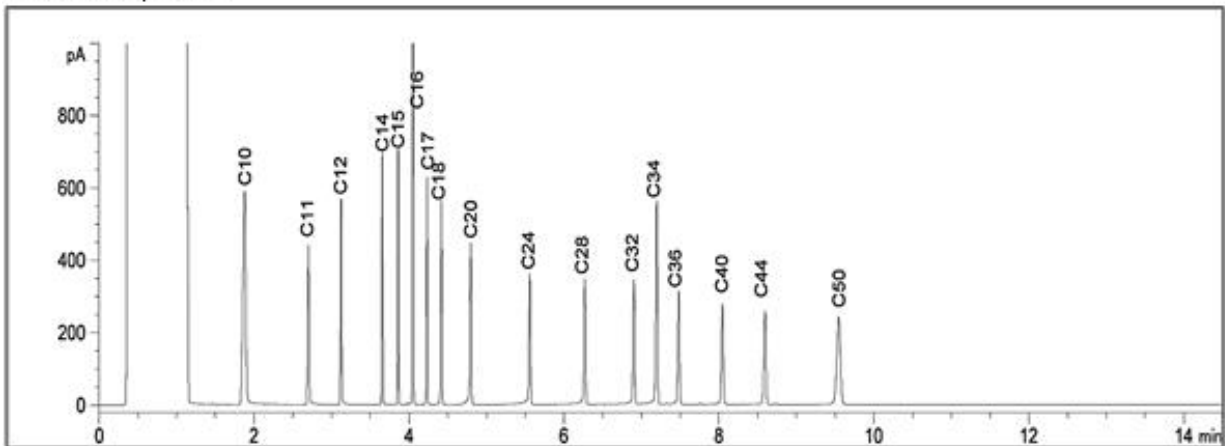
Asphalt: **C18 - C50+**

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Reference Spectrum



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline: **C6 - C12**

Diesel: **C10 - C24**

Jet Fuels: **C6 - C16**

Varsol: **C8 - C12**

Fuel Oils: **C6 - C32**

Creosote: **C10 - C26**

Kerosene: **C8 - C16**

Motor Oils: **C16 - C50**

Asphalt: **C18 - C50+**

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Report ID: 312586-IAS Rev01
Report Date: 29-May-19
Date Received: 08-May-19

CERTIFICATE OF ANALYSIS

for
Maxxam Analytics Inc
200 Bluewater Road, Suite 105
Bedford, NS B4B 1G9

rpc

921 College Hill Rd
Fredericton NB
Canada E3B 6Z9
Tel: 506.452.1212
Fax: 506.452.0594
www.rpc.ca

*** Revised Report ***

Attention: Marie Muise

Project #: B9B7849

Analysis of Samples

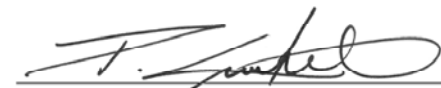
RPC Sample ID:	312586-1	312586-2
Client Sample ID:	JPR404-06R\ VC-01-01-SFC	JPR405-06R\ VC-8A
Date Sampled:	28-Apr-19	28-Apr-19
Analytes	Units	RL
Acid Volatile Sulfide	mg/kg	1
	< 1	< 1

This report relates only to the sample(s) and information provided to the laboratory.

RL = Reporting Limit



Ross Kean
Department Head
Inorganic Analytical Chemistry



Peter Crowhurst
Analytical Chemist
Inorganic Analytical Chemistry

CHEMISTRY

Page 1 of 2

Report ID: 312586-IAS Rev01
Report Date: 29-May-19
Date Received: 08-May-19

CERTIFICATE OF ANALYSIS

for
Maxxam Analytics Inc
200 Bluewater Road, Suite 105
Bedford, NS B4B 1G9

rpc

921 College Hill Rd
Fredericton NB
Canada E3B 6Z9
Tel: 506.452.1212
Fax: 506.452.0594
www.rpc.ca

General Report Comments

Acid Volatile Sulfide was determined according to EPA-821-R-91-100.
Results are reported on an "as received" (wet weight) basis.

Revision Comments

312586-1
Revised the Client Sample ID as requested by the client.

COMMENTS

Page 2 of 2

Your Project #: B9B7849
Site Location: B9B7849

Attention: BEDFORD CLIENT SERVICE

MAXXAM ANALYTICS
200 BLUEWATER ROAD, SUITE 105
BEDFORD, NS
CANADA B4B 1G9

Report Date: 2019/05/31
Report #: R2730463
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

MAXXAM JOB #: B934211
Received: 2019/05/08, 08:30

Sample Matrix: Solid
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Organic Halogen (Extractable)	2	N/A	2019/05/12	PTC SOP-00054	Coulometric-Titr.

Remarks:

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2017 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as ASTM, CGSB, EN, GPA and/or SM. If not provided with the results, identification of the reference method or Maxxam SOP is available upon request.

Maxxam Analytics' liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Maxxam has been retained to provide analysis of the samples provided by the Client using the testing methodology referenced in this report.

Measurement Uncertainty has not been accounted for when stating conformity to any referenced standard. Interpretation and use of the test results are the sole responsibility of the Client and are not within the scope of services provided by Maxxam, unless otherwise agreed in writing. When sampling is not conducted by Maxxam, results apply only to the sample(s) as received. Maxxam is not responsible for the accuracy or any data impacts that result from the information provided by the customer or on the clients behalf by their agent.

This report shall not be reproduced except in full, without the written approval of the laboratory.
Results relate only to the items tested.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Kristen Sywolos, PM supervisor
Email: KSywolos@maxxam.ca
Phone# (780)378-8522

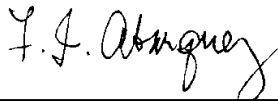
=====
Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

GENERAL COMMENTS

Results relate only to the items tested.

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Filomena Abarquez, Senior Analyst

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

CERTIFICATE OF ANALYSIS

B934211:VQ3620-01

MaxxID

Client ID

Meter Number

Laboratory Number

MAXXAM ANALYTICS

Operator Name

LSD

Well ID

JPR404 / VC-01-01-SFC

N/A

STANTEC CONSULTING LTD

Well/Plant/Facility

Initials of Sampler

Sampling Company

JPR404 / VC-01-01-SFC

GLASS BOTTLE

Field or Area

Pool or Zone

Sample Point

Container Identity

Percent Full

Test Recovery

Interval

Elevations (m)

Sample Gathering Point

Solution Gas

Test Type

No.

Multiple Recovery

From:
To:

KB

GRD

Well Fluid Status

Well Status Mode

Production Rates

Gauge Pressures kPa

Temperature °C

Well Status Type

Well Type

Water m³/d

Oil m³/d

Gas 1000m³/d

Source

As Received

Source

As Received

Gas or Condensate Project

Licence No.

2019/04/28 09:00

2019/05/08

2019/05/13

2019/05/31

MN2

Date Sampled Start

Date Sampled End

Date Received

Date Reported

Date Reissued

Analyst

PARAMETER DESCRIPTION	RESULT	UNIT	METHOD	RDL
Misc. Organics				
Extractable Organic halogen	<2	mg/kg	Coulometric-Titr.	2

Results relate only to items tested

Remarks:

CERTIFICATE OF ANALYSIS

B934211:VQ3621-01

MaxxID

Client ID

Meter Number

Laboratory Number

MAXXAM ANALYTICS

Operator Name

JPR405 / VC-8A

Well/Plant/Facility

LSD

N/A

Initials of Sampler

Well ID

STANTEC CONSULTING LTD

Sampling Company

GLASS BOTTLE

Container Identity

Percent Full

Field or Area

Pool or Zone

JPR405 / VC-8A

Sample Point

Test Recovery

Interval

Elevations (m)

Sample Gathering Point

Solution Gas

Test Type

No.

Multiple Recovery

From:

To:

KB

GRD

Well Fluid Status

Well Status Mode

Production Rates

Gauge Pressures kPa

Temperature °C

Well Status Type

Well Type

Water m³/d

Oil m³/d

Gas 1000m³/d

Source

As Received

Source

As Received

Gas or Condensate Project

Licence No.

2019/04/28 10:00

Date Sampled Start

Date Sampled End

2019/05/08

Date Received

2019/05/13

Date Reported

2019/05/31

Date Reissued

MN2

Analyst

PARAMETER DESCRIPTION	RESULT	UNIT	METHOD	RDL
Misc. Organics				
Extractable Organic halogen	<2	mg/kg	Coulometric-Titr.	2

Results relate only to items tested

Remarks:



Your Project #: 121621877
 Site Location: CARIBOU
 Your C.O.C. #: D40469

Attention: Sam Salley

Stantec Consulting Ltd
 40 Highfield Park Drive
 Suite 102
 Dartmouth, NS
 CANADA B3A 0A3

Report Date: 2019/07/31
 Report #: R5820948
 Version: 6 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BV LABS JOB #: B9C3232

Received: 2019/05/07, 16:10

Sample Matrix: Sediment
 # Samples Received: 5

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Benzo(b/j)fluoranthene Sum (LL soil)	5	N/A	2019/05/15	N/A	Auto Calc.
Dioxins/Furans in Soil (EPS 1/RM/23) (1, 8)	1	2019/06/19	2019/06/26	BRL SOP-00406 (mod)	EPS 1/RM/23 m
Dioxins/Furans in Soil (EPS 1/RM/23) (1, 8)	2	2019/06/19	2019/06/27	BRL SOP-00406 (mod)	EPS 1/RM/23 m
Organic Halogen (Extractable) (2)	3	N/A	2019/05/16		
TEH in Soil (PIRI) (9)	3	2019/05/10	2019/05/10	ATL SOP 00111	Atl. RBCA v3.1 m
Petroleum Hydrocarbons F2-F4 in Soil (1, 10)	5	2019/05/15	2019/05/16	CAM SOP-00316	CCME CWS m
F4G (CCME Hydrocarbons Gravimetric) (1)	3	2019/05/13	2019/05/13	CAM SOP-00316	CCME PHC-CWS m
Mercury (CVAA)	5	2019/05/13	2019/05/13	ATL SOP 00026	EPA 245.5 m
Metals Solids Acid Extr. ICPMS	5	2019/05/13	2019/05/13	ATL SOP 00058	EPA 6020B R2 m
Carbon Nitrogen Ratio (3)	3	2019/05/09	2019/05/15	Auto Calc	Auto Calc
Total Cyanide (4)	3	2019/05/13	2019/05/14	STL SOP-00035	MA300-CN 1.2 R4 m
Carbon, Nitrogen, Sulphur - Combustion (3)	3	N/A	2019/05/15	CAL SOP-00263	AN-A-030609-E-01 m
Water Content (Subcontracted) (4, 11)	3	N/A	2019/05/15	STL SOP-00021	MA.100-S.T. 1.1 R4 m
Moisture (Subcontracted) (5, 11)	3	2019/05/13	2019/05/14	BBY8SOP-00017	BCMOE BCLM Dec2000 m
Total PCB (4, 12)	3	2019/05/13	2019/05/15	STL SOP-00133	MA. 400-BPC 1.0 R5 m
Total PCB (4, 12)	2	2019/05/17	2019/05/17	STL SOP-00133	MA. 400-BPC 1.0 R5 m
Sulphide in Soil (5)	3	2019/05/13	2019/05/15	BBY6SOP-00052 BBY6SOP-00006	EPA-821-R-91-100 m
Total Kjeldahl Nitrogen (Available) (6)	3	2019/05/13	2019/05/14	AB SOP-00027/AB SOP-00008	EPA 351.1 R 1978 m
Moisture	5	N/A	2019/05/10	ATL SOP 00001	OMOE Handbook 1983 m
Nitrogen Ammonia - soil (as N)	3	2019/05/13	2019/05/14	ATL SOP 00015	EPA 350.1 R2 m
Nitrogen - Nitrate + Nitrite	3	2019/05/13	2019/05/15	ATL SOP 00016	USGS I-2547-11m
Nitrogen - Nitrite by auto colourimetry	3	2019/05/13	2019/05/14	ATL SOP 00017	SM 23 4500-NO2- B m
Nitrogen - Nitrate (as N)	3	N/A	2019/05/15	ATL SOP 00018	ASTM D3867-16
PAH in sediment by GC/MS (Low Level) (9)	5	2019/05/10	2019/05/15	ATL SOP 00102	EPA 8270E R6 m
Phenols (4AAP) (1)	3	2019/05/13	2019/05/14	CAM SOP-00444	OMOE E3179 m
pH (5:1 DI Water Extract)	3	2019/05/13	2019/05/13	ATL SOP 00003	SM 23 4500-H+ B m
Phosphorus - ortho by auto Colourimetry	3	2019/05/13	2019/05/14	ATL SOP 00021	SM 23 4500-P E m
Particle size in solids (pipette& sieve) (13)	5	N/A	2019/05/23	ATL SOP 00012	MSAMS'78/WREP-125R3m



Your Project #: 121621877
 Site Location: CARIBOU
 Your C.O.C. #: D40469

Attention: Sam Salley

Stantec Consulting Ltd
 40 Highfield Park Drive
 Suite 102
 Dartmouth, NS
 CANADA B3A 0A3

Report Date: 2019/07/31
 Report #: R5820948
 Version: 6 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BV LABS JOB #: B9C3232

Received: 2019/05/07, 16:10

Sample Matrix: Sediment
 # Samples Received: 5

Analyses	Quantity	Date	Date	Laboratory Method	Reference
		Extracted	Analyzed		
Acid Vol. Sulphide in S (Sub fr.Bedford) (7)	3	2019/05/13	2019/05/29		
Total Organic Carbon in Soil (1)	5	N/A	2019/05/16	CAM SOP-00468	BCMOE TOC Aug 2014
ModTPH (T1) Calc. for Soil	3	N/A	2019/05/13	N/A	Atl. RBCA v3.1 m
Volatile Organic Compounds and F1 PHCs (1)	5	N/A	2019/05/14	CAM SOP-00230	EPA 8260 m
VOCs in Soil - Field Preserved (14)	3	N/A	2019/05/10	ATL SOP 00133	EPA 8260D R4 m
VPH in Soil (PIRI) - Field Preserved (14)	3	N/A	2019/05/09	ATL SOP 00119	Atl. RBCA v3.1 m

Remarks:

Bureau Veritas Laboratories are accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by BV Labs are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in BV Labs profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and BV Labs in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

BV Labs liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. BV Labs has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by BV Labs, unless otherwise agreed in writing. BV Labs is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested. When sampling is not conducted by BV Labs, results relate to the supplied samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

- (1) This test was performed by Bureau Veritas Laboratories Mississauga
- (2) This test was performed by Bedford to Edm Petroleum/Ind
- (3) This test was performed by Bedford to Calgary Offsite
- (4) This test was performed by Bedford To Montreal Offsite
- (5) This test was performed by Bedford to Burnaby - Offsite
- (6) This test was performed by Bedford to Edm Env Offsite
- (7) This test was performed by Bedford to RPC Subcontract



Your Project #: 121621877
Site Location: CARIBOU
Your C.O.C. #: D40469

Attention: Sam Salley

Stantec Consulting Ltd
40 Highfield Park Drive
Suite 102
Dartmouth, NS
CANADA B3A 0A3

Report Date: 2019/07/31
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(8) Soils are reported on a dry weight basis unless otherwise specified.

Confirmatory runs for 2,3,7,8-TCDF are performed only if the primary result is greater than the RDL.

(9) Soils are reported on a dry weight basis unless otherwise specified.

(10) All CCME PHC results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Bureau Veritas Laboratories conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following "Alberta Environment's Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil Validation of Performance-Based Alternative Methods September 2003". Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.

(11) Offsite analysis requires that subcontracted moisture be reported.

(12) Please note that the results have been corrected for the surrogate recoveries.

Un-rounded results are used in the total "PCB" calculation. This total result is then rounded to two significant figures.

The total indicated is calculated only for the requested parameters.

(13) Note: Graphical representation of larger fractions (PHI-4, PHI -3 and PHI -2) not applicable unless these optional parameters are specifically requested.

(14) No lab extraction date is given for C6-C10/BTEX and VOC samples that are field preserved with methanol. Extraction date is date sampled unless otherwise stated.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Marie Muise, Key Account Specialist

Email: Marie.MUISE@bvlab.com

Phone# (902)420-0203 Ext:253

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BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



RBCA HYDROCARBONS IN SOIL (FIELD PRES.)

BV Labs ID		JQW588	JQW589	JQW590			
Sampling Date		2019/05/06	2019/05/06	2019/05/06			
COC Number		D40469	D40469	D40469			
	UNITS	S1	S1-DUP	S2	RDL	MDL	QC Batch
Inorganics							
Moisture	%	18	16	22	1.0	0.20	6112397
Petroleum Hydrocarbons							
Benzene	mg/kg	<0.025	<0.025	<0.025	0.025	N/A	6112673
Toluene	mg/kg	<0.050	<0.050	<0.050	0.050	N/A	6112673
Ethylbenzene	mg/kg	<0.025	<0.025	<0.025	0.025	0.025	6112673
Total Xylenes	mg/kg	<0.050	<0.050	<0.050	0.050	N/A	6112673
C6 - C10 (less BTEX)	mg/kg	<2.5	<2.5	<2.5	2.5	N/A	6112673
>C10-C16 Hydrocarbons	mg/kg	<10	<10	<10	10	N/A	6114660
>C16-C21 Hydrocarbons	mg/kg	<10	<10	<10	10	N/A	6114660
>C21-<C32 Hydrocarbons	mg/kg	<15	<15	<15	15	N/A	6114660
Modified TPH (Tier1)	mg/kg	<15	<15	<15	15	N/A	6112129
Reached Baseline at C32	mg/kg	NA	NA	NA	N/A	N/A	6114660
Hydrocarbon Resemblance	mg/kg	NA	NA	NA	N/A	N/A	6114660
Surrogate Recovery (%)							
Isobutylbenzene - Extractable	%	91	95	96	N/A	N/A	6114660
n-Dotriacontane - Extractable	%	117	122	124	N/A	N/A	6114660
Isobutylbenzene - Volatile	%	100	89	107 (1)	N/A	N/A	6112673
RDL = Reportable Detection Limit QC Batch = Quality Control Batch N/A = Not Applicable (1) VPH samples were extracted using a flat-bed shaker instead of the accelerated mechanical shaker due to matrix incompatibility.							



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BV Labs Job #: B9C3232
Report Date: 2019/07/31

Stantec Consulting Ltd
Client Project #: 121621877
Site Location: CARIBOU
Sampler Initials: EC

ATLANTIC VOC IN SOIL (FIELD PRES.)

BV Labs ID		JQW588	JQW589	JQW590			
Sampling Date		2019/05/06	2019/05/06	2019/05/06			
COC Number		D40469	D40469	D40469			
	UNITS	S1	S1-DUP	S2	RDL	MDL	QC Batch
Volatile Organics							
1,1,1-Trichloroethane	ug/kg	<25	<25	<25	25	0.00010	6109572
1,1,2,2-Tetrachloroethane	ug/kg	<25	<25	<25	25	0.00040	6109572
1,1,2-Trichloroethane	ug/kg	<25	<25	<25	25	0.00040	6109572
1,1-Dichloroethane	ug/kg	<25	<25	<25	25	0.00010	6109572
1,1-Dichloroethylene	ug/kg	<25	<25	<25	25	0.00010	6109572
1,2-Dichlorobenzene	ug/kg	<25	<25	<25	25	0.00020	6109572
1,2-Dichloroethane	ug/kg	<25	<25	<25	25	0.00010	6109572
1,2-Dichloropropane	ug/kg	<25	<25	<25	25	0.00020	6109572
1,3-Dichlorobenzene	ug/kg	<25	<25	<25	25	0.00020	6109572
1,4-Dichlorobenzene	ug/kg	<25	<25	<25	25	0.00030	6109572
Benzene	ug/kg	<25	<25	<25	25	0.00010	6109572
Bromodichloromethane	ug/kg	<25	<25	<25	25	0.00020	6109572
Bromoform	ug/kg	<25	<25	<25	25	0.00030	6109572
Bromomethane	ug/kg	<50	<50	<50	50	0.00040	6109572
Carbon Tetrachloride	ug/kg	<25	<25	<25	25	0.00010	6109572
Chlorobenzene	ug/kg	<25	<25	<25	25	0.00010	6109572
Chloroethane	ug/kg	<200	<200	<200	200	0.00030	6109572
Chloroform	ug/kg	<25	<25	<25	25	0.00010	6109572
cis-1,2-Dichloroethylene	ug/kg	<25	<25	<25	25	0.00010	6109572
cis-1,3-Dichloropropene	ug/kg	<25	<25	<25	25	0.00020	6109572
Dibromochloromethane	ug/kg	<25	<25	<25	25	0.00030	6109572
Ethylbenzene	ug/kg	<25	<25	<25	25	0.00010	6109572
Ethylene Dibromide	ug/kg	<25	<25	<25	25	0.00040	6109572
Methyl t-butyl ether (MTBE)	ug/kg	<25	<25	<25	25	0.00010	6109572
Methylene Chloride(Dichloromethane)	ug/kg	<25	<25	<25	25	0.00020	6109572
o-Xylene	ug/kg	<25	<25	<25	25	0.00010	6109572
p+m-Xylene	ug/kg	<25	<25	<25	25	0.00010	6109572
Styrene	ug/kg	<25	<25	<25	25	0.00020	6109572
Tetrachloroethylene	ug/kg	<25	<25	<25	25	0.00030	6109572
Toluene	ug/kg	<50	<50	<50	50	0.00010	6109572
Total Xylenes	ug/kg	<50	<50	<50	50	N/A	6109572
trans-1,2-Dichloroethylene	ug/kg	<25	<25	<25	25	0.00020	6109572
trans-1,3-Dichloropropene	ug/kg	<25	<25	<25	25	0.00030	6109572
Trichloroethylene	ug/kg	<10	<10	<10	10	0.00020	6109572
RDL = Reportable Detection Limit QC Batch = Quality Control Batch N/A = Not Applicable							



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BV Labs Job #: B9C3232
Report Date: 2019/07/31

Stantec Consulting Ltd
Client Project #: 121621877
Site Location: CARIBOU
Sampler Initials: EC

ATLANTIC VOC IN SOIL (FIELD PRES.)

BV Labs ID		JQW588	JQW589	JQW590			
Sampling Date		2019/05/06	2019/05/06	2019/05/06			
COC Number		D40469	D40469	D40469			
	UNITS	S1	S1-DUP	S2	RDL	MDL	QC Batch
Trichlorofluoromethane (FREON 11)	ug/kg	<25	<25	<25	25	0.00030	6109572
Vinyl Chloride	ug/kg	<20	<20	<20	20	0.00020	6109572
Surrogate Recovery (%)							
4-Bromofluorobenzene	%	98	101	99	N/A	N/A	6109572
D10-o-Xylene	%	94	87	98	N/A	N/A	6109572
D4-1,2-Dichloroethane	%	101	101	107	N/A	N/A	6109572
D8-Toluene	%	99	98	97	N/A	N/A	6109572
RDL = Reportable Detection Limit QC Batch = Quality Control Batch N/A = Not Applicable							



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Site Location: CARIBOU
Sampler Initials: EC

CCME PETROLEUM HYDROCARBONS SOIL (SEDIMENT)

BV Labs ID		JQW588	JQW589	JQW590			JQW591	JQW592			
Sampling Date		2019/05/06	2019/05/06	2019/05/06			2019/05/06	2019/05/06			
COC Number		D40469	D40469	D40469			D40469	D40469			
	UNITS	S1	S1-DUP	S2	RDL	MDL	S3	S4	RDL	MDL	QC Batch

Volatile Organics											
Benzene	ug/g	<0.0060	<0.0060	<0.0060	0.0060	0.0060	<0.0060	<0.0060	0.0060	0.0060	6118044
Ethylbenzene	ug/g	<0.010	<0.010	<0.010	0.010	0.010	<0.010	<0.010	0.010	0.010	6118044
Toluene	ug/g	<0.020	<0.020	<0.020	0.020	0.020	<0.020	0.030	0.020	0.020	6118044
p+m-Xylene	ug/g	<0.020	<0.020	<0.020	0.020	0.020	<0.020	<0.020	0.020	0.020	6118044
o-Xylene	ug/g	<0.020	<0.020	<0.020	0.020	0.020	<0.020	<0.020	0.020	0.020	6118044
Total Xylenes	ug/g	<0.020	<0.020	<0.020	0.020	0.020	<0.020	<0.020	0.020	0.020	6118044
F1 (C6-C10)	ug/g	<10	<10	<10	10	N/A	<10	<10	10	N/A	6118044
F1 (C6-C10) - BTEX	ug/g	<10	<10	<10	10	N/A	<10	<10	10	N/A	6118044

F2-F4 Hydrocarbons											
F2 (C10-C16 Hydrocarbons)	ug/g	<10	<10	<10	10	5.0	<20	<20	20	10	6123946
F3 (C16-C34 Hydrocarbons)	ug/g	<50	<50	<50	50	5.0	<100	<100	100	10	6123946
F4 (C34-C50 Hydrocarbons)	ug/g	<50	<50	<50	50	10	<100	<100	100	20	6123946
Reached Baseline at C50	ug/g	Yes	Yes	Yes	N/A	N/A	Yes	Yes	N/A	N/A	6123946

Surrogate Recovery (%)											
o-Terphenyl	%	92	93	94	N/A	N/A	98	96	N/A	N/A	6123946
4-Bromofluorobenzene	%	96	95	93	N/A	N/A	96	95	N/A	N/A	6118044
D10-o-Xylene	%	107	97	112	N/A	N/A	104	107	N/A	N/A	6118044
D4-1,2-Dichloroethane	%	98	99	98	N/A	N/A	99	100	N/A	N/A	6118044
D8-Toluene	%	99	100	99	N/A	N/A	99	100	N/A	N/A	6118044

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable



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BV Labs Job #: B9C3232
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Stantec Consulting Ltd
Client Project #: 121621877
Site Location: CARIBOU
Sampler Initials: EC

RESULTS OF ANALYSES OF SEDIMENT

BV Labs ID		JQW588						
Sampling Date		2019/05/06						
COC Number		D40469			TOXIC EQUIVALENCY		# of	
	UNITS	S1	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
CONVENTIONALS								
Sulphide	ug/g	<0.30	0.30	0.12	N/A	N/A	N/A	6124052
Inorganics								
Available (KCl) Total Kjeldahl Nitrogen	mg/kg	6.2	5.0	5.0	N/A	N/A	N/A	6123731
Ammonia-N	mg/kg	0.62	0.31	N/A	N/A	N/A	N/A	6118113
C:N RATIO	N/A	NC	N/A	N/A	N/A	N/A	N/A	6125795
Nitrate (N)	mg/kg	<0.25	0.25	N/A	N/A	N/A	N/A	6112179
Nitrate + Nitrite (N)	mg/kg	<0.25	0.25	N/A	N/A	N/A	N/A	6119805
Nitrite (N)	mg/kg	<0.050	0.050	N/A	N/A	N/A	N/A	6119806
Total Organic Carbon	%	<0.050	0.050	0.010	N/A	N/A	N/A	6122751
Orthophosphate (P)	mg/kg	2.5	0.50	N/A	N/A	N/A	N/A	6119804
Soluble (5:1) pH	pH	7.91	N/A	N/A	N/A	N/A	N/A	6118394
Phenols-4AAP	ug/g	<0.04	0.04	0.02	N/A	N/A	N/A	6118071
Total Cyanide (CN)	mg/kg	<0.50	0.50	N/A	N/A	N/A	N/A	6128790
Total Carbon	%	0.34	0.050	0.050	N/A	N/A	N/A	6117721
Total Sulphur (S)	%	<0.060	0.060	0.060	N/A	N/A	N/A	6117721
Total Nitrogen	%	<0.20	0.20	0.20	N/A	N/A	N/A	6117721
< -1 Phi (2 mm)	%	99 (1)	0.10	N/A	N/A	N/A	N/A	6114613
< 0 Phi (1 mm)	%	93 (1)	0.10	N/A	N/A	N/A	N/A	6114613
< +1 Phi (0.5 mm)	%	65 (1)	0.10	N/A	N/A	N/A	N/A	6114613
< +2 Phi (0.25 mm)	%	3.7	0.10	N/A	N/A	N/A	N/A	6114613
< +3 Phi (0.12 mm)	%	0.99	0.10	N/A	N/A	N/A	N/A	6114613
< +4 Phi (0.062 mm)	%	0.96	0.10	N/A	N/A	N/A	N/A	6114613
< +5 Phi (0.031 mm)	%	0.93	0.10	N/A	N/A	N/A	N/A	6114613
< +6 Phi (0.016 mm)	%	0.98	0.10	N/A	N/A	N/A	N/A	6114613
< +7 Phi (0.0078 mm)	%	0.98	0.10	N/A	N/A	N/A	N/A	6114613
< +8 Phi (0.0039 mm)	%	0.94	0.10	N/A	N/A	N/A	N/A	6114613
< +9 Phi (0.0020 mm)	%	0.94	0.10	N/A	N/A	N/A	N/A	6114613
Gravel	%	1.2	0.10	N/A	N/A	N/A	N/A	6114613
<p>RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.</p> <p>WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds</p> <p>QC Batch = Quality Control Batch N/A = Not Applicable (1) PSA sample observation comment: Fraction contained shells</p>								



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BV Labs Job #: B9C3232
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Stantec Consulting Ltd
Client Project #: 121621877
Site Location: CARIBOU
Sampler Initials: EC

RESULTS OF ANALYSES OF SEDIMENT

BV Labs ID		JQW588						
Sampling Date		2019/05/06						
COC Number		D40469			TOXIC EQUIVALENCY		# of	
	UNITS	S1	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Sand	%	98	0.10	N/A	N/A	N/A	N/A	6114613
Silt	%	<0.10	0.10	N/A	N/A	N/A	N/A	6114613
Clay	%	0.94	0.10	N/A	N/A	N/A	N/A	6114613
PCBs								
TriCB-(17)+(18)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
TriCB-(28)+(31)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
2'34'-TriCB-(33)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'55'-TetraCB-(52)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'45'-TetraCB-(49)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'35'-TetraCB-(44)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
244'5'-TetraCB-(74)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
23'4'5'-TetraCB-(70)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'35'6'-PentaCB-(95)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'455'-PentaCB-(101)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'44'5'-PentaCB-(99)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'345'-PentaCB-(87)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
233'4'6'-PentaCB-(110)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'4'-PentaCB-(82)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'355'6'-HexaCB-(151)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'34'5'6'-HexaCB-(149)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
23'44'5'-PentaCB-(118)	mg/kg	<0.010	0.010	N/A	0.000030	0.00000030	N/A	6128789
22'44'55'-HexaCB-(153)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'46'-HexaCB-(132)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
233'44'-PentaCB-(105)	mg/kg	<0.010	0.010	N/A	0.000030	0.00000030	N/A	6128789
HexaCB-(138)+(158)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'34'55'6'-HeptaCB-(187)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'344'5'6'-HeptaCB-(183)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'-HexaCB-(128)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'45'6'-HeptaCB-(177)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'6'-HeptaCB-(171)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
<p>RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.</p> <p>WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds</p> <p>QC Batch = Quality Control Batch N/A = Not Applicable</p>								



BUREAU
VERITAS

BV Labs Job #: B9C3232
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Stantec Consulting Ltd
Client Project #: 121621877
Site Location: CARIBOU
Sampler Initials: EC

RESULTS OF ANALYSES OF SEDIMENT

BV Labs ID		JQW588						
Sampling Date		2019/05/06						
COC Number		D40469			TOXIC EQUIVALENCY		# of	
	UNITS	S1	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
233'44'5'-HexaCB-(156)	mg/kg	<0.010	0.010	N/A	0.000030	0.00000030	N/A	6128789
22'344'55'-HeptaCB-(180)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
233'44'5'6'-HeptaCB-(191)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
33'44'55'-HexaCB-(169)	mg/kg	<0.010	0.010	N/A	0.030	0.00030	N/A	6128789
22'33'44'5'-HeptaCB-(170)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'45'6'-OctaCB-(199)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'45'6'6'-NonaCB-(208)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'56'-OctaCB-(195)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'55'-OctaCB-(194)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
233'44'55'6'-OctaCB-(205)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'55'6'-NonaCB-(206)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
DecaCB-(209)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Trichlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Tetrachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Pentachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Hexachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Heptachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Octachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Nonachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Decachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Total PCB	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Physical Testing								
Moisture-Subcontracted	%w/w	18	0.50	N/A	N/A	N/A	N/A	6133308
Moisture-Subcontracted	%	20	0.30	N/A	N/A	N/A	N/A	6124032
Subcontracted Analysis								
Subcontract Parameter	N/A	ATTACHED	N/A	N/A	N/A	N/A	N/A	6117816
TOTAL TOXIC EQUIVALENCY	mg/kg	N/A	N/A	N/A	N/A	0.000301	N/A	N/A
Surrogate Recovery (%)								
2,3,3',4,6-Pentachlorobiphenyl	%	88	N/A	N/A	N/A	N/A	N/A	6128789
2',3,5-Trichlorobiphenyl	%	88	N/A	N/A	N/A	N/A	N/A	6128789
RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested. WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds QC Batch = Quality Control Batch N/A = Not Applicable								



BUREAU
VERITAS

BV Labs Job #: B9C3232
Report Date: 2019/07/31

Stantec Consulting Ltd
Client Project #: 121621877
Site Location: CARIBOU
Sampler Initials: EC

RESULTS OF ANALYSES OF SEDIMENT

BV Labs ID		JQW588						
Sampling Date		2019/05/06						
COC Number		D40469			TOXIC EQUIVALENCY		# of	
	UNITS	S1	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
22'33'44'566'-Nonachlorobiphenyl	%	108	N/A	N/A	N/A	N/A	N/A	6128789

RDL = Reportable Detection Limit
 TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
 The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
 WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds
 QC Batch = Quality Control Batch
 N/A = Not Applicable



BUREAU
VERITAS

BV Labs Job #: B9C3232
Report Date: 2019/07/31

Stantec Consulting Ltd
Client Project #: 121621877
Site Location: CARIBOU
Sampler Initials: EC

RESULTS OF ANALYSES OF SEDIMENT

BV Labs ID		JQW588						
Sampling Date		2019/05/06						
COC Number		D40469			TOXIC EQUIVALENCY		# of	
	UNITS	S1 Lab-Dup	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Inorganics								
Ammonia-N	mg/kg	0.49	0.31	N/A	N/A	N/A	N/A	6118113
< -1 Phi (2 mm)	%	87 (1)	0.10	N/A	N/A	N/A	N/A	6114613
< 0 Phi (1 mm)	%	82 (1)	0.10	N/A	N/A	N/A	N/A	6114613
< +1 Phi (0.5 mm)	%	60 (1)	0.10	N/A	N/A	N/A	N/A	6114613
< +2 Phi (0.25 mm)	%	4.3	0.10	N/A	N/A	N/A	N/A	6114613
< +3 Phi (0.12 mm)	%	0.95	0.10	N/A	N/A	N/A	N/A	6114613
< +4 Phi (0.062 mm)	%	0.91	0.10	N/A	N/A	N/A	N/A	6114613
< +5 Phi (0.031 mm)	%	0.81	0.10	N/A	N/A	N/A	N/A	6114613
< +6 Phi (0.016 mm)	%	0.85	0.10	N/A	N/A	N/A	N/A	6114613
< +7 Phi (0.0078 mm)	%	0.88	0.10	N/A	N/A	N/A	N/A	6114613
< +8 Phi (0.0039 mm)	%	0.85	0.10	N/A	N/A	N/A	N/A	6114613
< +9 Phi (0.0020 mm)	%	0.86	0.10	N/A	N/A	N/A	N/A	6114613
Gravel	%	13 (2)	0.10	N/A	N/A	N/A	N/A	6114613
Sand	%	86	0.10	N/A	N/A	N/A	N/A	6114613
Silt	%	<0.10	0.10	N/A	N/A	N/A	N/A	6114613
Clay	%	0.85	0.10	N/A	N/A	N/A	N/A	6114613
Physical Testing								
Moisture-Subcontracted	%	20	0.30	N/A	N/A	N/A	N/A	6124032
TOTAL TOXIC EQUIVALENCY	mg/kg	N/A	N/A	N/A	N/A	0	N/A	N/A
<p>RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.</p> <p>WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds</p> <p>QC Batch = Quality Control Batch Lab-Dup = Laboratory Initiated Duplicate N/A = Not Applicable</p> <p>(1) PSA sample observation comment: Fraction contained shells (2) Poor duplicate agreement due to sample inhomogeneity. Additional rocky material in duplicate aliquot.</p>								



BUREAU
VERITAS

BV Labs Job #: B9C3232
Report Date: 2019/07/31

Stantec Consulting Ltd
Client Project #: 121621877
Site Location: CARIBOU
Sampler Initials: EC

RESULTS OF ANALYSES OF SEDIMENT

BV Labs ID		JQW589						
Sampling Date		2019/05/06						
COC Number		D40469			TOXIC EQUIVALENCY		# of	
	UNITS	S1-DUP	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
CONVENTIONALS								
Sulphide	ug/g	<0.30	0.30	0.12	N/A	N/A	N/A	6124052
Inorganics								
Available (KCl) Total Kjeldahl Nitrogen	mg/kg	<5.0	5.0	5.0	N/A	N/A	N/A	6123731
Ammonia-N	mg/kg	0.58	0.31	N/A	N/A	N/A	N/A	6118113
C:N RATIO	N/A	NC	N/A	N/A	N/A	N/A	N/A	6125795
Nitrate (N)	mg/kg	<0.25	0.25	N/A	N/A	N/A	N/A	6112179
Nitrate + Nitrite (N)	mg/kg	<0.25	0.25	N/A	N/A	N/A	N/A	6119805
Nitrite (N)	mg/kg	<0.050	0.050	N/A	N/A	N/A	N/A	6119806
Total Organic Carbon	%	<0.050	0.050	0.010	N/A	N/A	N/A	6122751
Orthophosphate (P)	mg/kg	2.6	1.3	N/A	N/A	N/A	N/A	6119804
Soluble (5:1) pH	pH	7.94	N/A	N/A	N/A	N/A	N/A	6118394
Phenols-4AAP	ug/g	<0.04	0.04	0.02	N/A	N/A	N/A	6118071
Total Cyanide (CN)	mg/kg	<0.50	0.50	N/A	N/A	N/A	N/A	6128790
Total Carbon	%	0.24	0.050	0.050	N/A	N/A	N/A	6117721
Total Sulphur (S)	%	<0.060	0.060	0.060	N/A	N/A	N/A	6117721
Total Nitrogen	%	<0.20	0.20	0.20	N/A	N/A	N/A	6117721
< -1 Phi (2 mm)	%	98 (1)	0.10	N/A	N/A	N/A	N/A	6114613
< 0 Phi (1 mm)	%	90 (1)	0.10	N/A	N/A	N/A	N/A	6114613
< +1 Phi (0.5 mm)	%	59 (1)	0.10	N/A	N/A	N/A	N/A	6114613
< +2 Phi (0.25 mm)	%	3.1	0.10	N/A	N/A	N/A	N/A	6114613
< +3 Phi (0.12 mm)	%	1.1	0.10	N/A	N/A	N/A	N/A	6114613
< +4 Phi (0.062 mm)	%	1.1	0.10	N/A	N/A	N/A	N/A	6114613
< +5 Phi (0.031 mm)	%	1.1	0.10	N/A	N/A	N/A	N/A	6114613
< +6 Phi (0.016 mm)	%	1.1	0.10	N/A	N/A	N/A	N/A	6114613
< +7 Phi (0.0078 mm)	%	1.1	0.10	N/A	N/A	N/A	N/A	6114613
< +8 Phi (0.0039 mm)	%	1.1	0.10	N/A	N/A	N/A	N/A	6114613
< +9 Phi (0.0020 mm)	%	1.1	0.10	N/A	N/A	N/A	N/A	6114613
Gravel	%	2.4	0.10	N/A	N/A	N/A	N/A	6114613
<p>RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.</p> <p>WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds</p> <p>QC Batch = Quality Control Batch N/A = Not Applicable (1) PSA sample observation comment: Fraction contained shells</p>								



BUREAU
VERITAS

BV Labs Job #: B9C3232
Report Date: 2019/07/31

Stantec Consulting Ltd
Client Project #: 121621877
Site Location: CARIBOU
Sampler Initials: EC

RESULTS OF ANALYSES OF SEDIMENT

BV Labs ID		JQW589						
Sampling Date		2019/05/06						
COC Number		D40469			TOXIC EQUIVALENCY		# of	
	UNITS	S1-DUP	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Sand	%	96	0.10	N/A	N/A	N/A	N/A	6114613
Silt	%	<0.10	0.10	N/A	N/A	N/A	N/A	6114613
Clay	%	1.1	0.10	N/A	N/A	N/A	N/A	6114613
PCBs								
TriCB-(17)+(18)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
TriCB-(28)+(31)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
2'34'-TriCB-(33)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'55'-TetraCB-(52)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'45'-TetraCB-(49)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'35'-TetraCB-(44)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
244'5'-TetraCB-(74)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
23'4'5'-TetraCB-(70)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'35'6'-PentaCB-(95)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'455'-PentaCB-(101)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'44'5'-PentaCB-(99)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'345'-PentaCB-(87)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
233'4'6'-PentaCB-(110)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'4'-PentaCB-(82)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'355'6'-HexaCB-(151)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'34'5'6'-HexaCB-(149)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
23'44'5'-PentaCB-(118)	mg/kg	<0.010	0.010	N/A	0.000030	0.00000030	N/A	6128789
22'44'55'-HexaCB-(153)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'46'-HexaCB-(132)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
233'44'-PentaCB-(105)	mg/kg	<0.010	0.010	N/A	0.000030	0.00000030	N/A	6128789
HexaCB-(138)+(158)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'34'55'6'-HeptaCB-(187)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'344'5'6'-HeptaCB-(183)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'-HexaCB-(128)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'45'6'-HeptaCB-(177)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'6'-HeptaCB-(171)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
<p>RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.</p> <p>WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds</p> <p>QC Batch = Quality Control Batch N/A = Not Applicable</p>								



BUREAU
VERITAS

BV Labs Job #: B9C3232
Report Date: 2019/07/31

Stantec Consulting Ltd
Client Project #: 121621877
Site Location: CARIBOU
Sampler Initials: EC

RESULTS OF ANALYSES OF SEDIMENT

BV Labs ID		JQW589						
Sampling Date		2019/05/06						
COC Number		D40469			TOXIC EQUIVALENCY		# of	
	UNITS	S1-DUP	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
233'44'5'-HexaCB-(156)	mg/kg	<0.010	0.010	N/A	0.000030	0.00000030	N/A	6128789
22'344'55'-HeptaCB-(180)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
233'44'5'6'-HeptaCB-(191)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
33'44'55'-HexaCB-(169)	mg/kg	<0.010	0.010	N/A	0.030	0.00030	N/A	6128789
22'33'44'5'-HeptaCB-(170)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'45'6'-OctaCB-(199)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'45'6'6'-NonaCB-(208)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'56'-OctaCB-(195)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'55'-OctaCB-(194)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
233'44'55'6'-OctaCB-(205)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'55'6'-NonaCB-(206)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
DecaCB-(209)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Trichlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Tetrachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Pentachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Hexachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Heptachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Octachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Nonachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Decachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Total PCB	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Physical Testing								
Moisture-Subcontracted	%w/w	19	0.50	N/A	N/A	N/A	N/A	6133308
Moisture-Subcontracted	%	20	0.30	N/A	N/A	N/A	N/A	6124032
Subcontracted Analysis								
Subcontract Parameter	N/A	ATTACHED	N/A	N/A	N/A	N/A	N/A	6117816
TOTAL TOXIC EQUIVALENCY	mg/kg	N/A	N/A	N/A	N/A	0.000301	N/A	N/A
Surrogate Recovery (%)								
2,3,3',4,6-Pentachlorobiphenyl	%	89	N/A	N/A	N/A	N/A	N/A	6128789
2',3,5-Trichlorobiphenyl	%	88	N/A	N/A	N/A	N/A	N/A	6128789
RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested. WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds QC Batch = Quality Control Batch N/A = Not Applicable								



BUREAU
VERITAS

BV Labs Job #: B9C3232
Report Date: 2019/07/31

Stantec Consulting Ltd
Client Project #: 121621877
Site Location: CARIBOU
Sampler Initials: EC

RESULTS OF ANALYSES OF SEDIMENT

BV Labs ID		JQW589						
Sampling Date		2019/05/06						
COC Number		D40469			TOXIC EQUIVALENCY		# of	
	UNITS	S1-DUP	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
22'33'44'566'-Nonachlorobiphenyl	%	111	N/A	N/A	N/A	N/A	N/A	6128789

RDL = Reportable Detection Limit
 TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
 The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
 WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds
 QC Batch = Quality Control Batch
 N/A = Not Applicable



BUREAU
VERITAS

BV Labs Job #: B9C3232
Report Date: 2019/07/31

Stantec Consulting Ltd
Client Project #: 121621877
Site Location: CARIBOU
Sampler Initials: EC

RESULTS OF ANALYSES OF SEDIMENT

BV Labs ID		JQW590						
Sampling Date		2019/05/06						
COC Number		D40469			TOXIC EQUIVALENCY		# of	
	UNITS	S2	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
CONVENTIONALS								
Sulphide	ug/g	<0.30	0.30	0.12	N/A	N/A	N/A	6124052
Inorganics								
Available (KCl) Total Kjeldahl Nitrogen	mg/kg	15	5.0	5.0	N/A	N/A	N/A	6123731
Ammonia-N	mg/kg	1.0	0.33	N/A	N/A	N/A	N/A	6118113
C:N RATIO	N/A	NC	N/A	N/A	N/A	N/A	N/A	6125795
Nitrate (N)	mg/kg	0.39	0.25	N/A	N/A	N/A	N/A	6112179
Nitrate + Nitrite (N)	mg/kg	0.39	0.25	N/A	N/A	N/A	N/A	6119805
Nitrite (N)	mg/kg	<0.050	0.050	N/A	N/A	N/A	N/A	6119806
Total Organic Carbon	%	0.053	0.050	0.010	N/A	N/A	N/A	6122751
Orthophosphate (P)	mg/kg	2.9	1.3	N/A	N/A	N/A	N/A	6119804
Soluble (5:1) pH	pH	8.06	N/A	N/A	N/A	N/A	N/A	6118394
Phenols-4AAP	ug/g	<0.04	0.04	0.02	N/A	N/A	N/A	6118071
Total Cyanide (CN)	mg/kg	<0.50	0.50	N/A	N/A	N/A	N/A	6128790
Total Carbon	%	0.42	0.050	0.050	N/A	N/A	N/A	6117721
Total Sulphur (S)	%	0.084	0.060	0.060	N/A	N/A	N/A	6117721
Total Nitrogen	%	<0.20	0.20	0.20	N/A	N/A	N/A	6117721
< -1 Phi (2 mm)	%	80 (1)	0.10	N/A	N/A	N/A	N/A	6114613
< 0 Phi (1 mm)	%	77 (1)	0.10	N/A	N/A	N/A	N/A	6114613
< +1 Phi (0.5 mm)	%	73 (1)	0.10	N/A	N/A	N/A	N/A	6114613
< +2 Phi (0.25 mm)	%	37	0.10	N/A	N/A	N/A	N/A	6114613
< +3 Phi (0.12 mm)	%	4.7	0.10	N/A	N/A	N/A	N/A	6114613
< +4 Phi (0.062 mm)	%	2.5	0.10	N/A	N/A	N/A	N/A	6114613
< +5 Phi (0.031 mm)	%	2.4	0.10	N/A	N/A	N/A	N/A	6114613
< +6 Phi (0.016 mm)	%	2.1	0.10	N/A	N/A	N/A	N/A	6114613
< +7 Phi (0.0078 mm)	%	1.7	0.10	N/A	N/A	N/A	N/A	6114613
< +8 Phi (0.0039 mm)	%	1.7	0.10	N/A	N/A	N/A	N/A	6114613
< +9 Phi (0.0020 mm)	%	1.7	0.10	N/A	N/A	N/A	N/A	6114613
Gravel	%	20	0.10	N/A	N/A	N/A	N/A	6114613
<p>RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.</p> <p>WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds</p> <p>QC Batch = Quality Control Batch N/A = Not Applicable (1) PSA sample observation comment: Fraction contained shells</p>								



BUREAU
VERITAS

BV Labs Job #: B9C3232
Report Date: 2019/07/31

Stantec Consulting Ltd
Client Project #: 121621877
Site Location: CARIBOU
Sampler Initials: EC

RESULTS OF ANALYSES OF SEDIMENT

BV Labs ID		JQW590						
Sampling Date		2019/05/06						
COC Number		D40469			TOXIC EQUIVALENCY		# of	
	UNITS	S2	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Sand	%	78	0.10	N/A	N/A	N/A	N/A	6114613
Silt	%	0.76	0.10	N/A	N/A	N/A	N/A	6114613
Clay	%	1.7	0.10	N/A	N/A	N/A	N/A	6114613
PCBs								
TriCB-(17)+(18)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
TriCB-(28)+(31)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
2'34'-TriCB-(33)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'55'-TetraCB-(52)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'45'-TetraCB-(49)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'35'-TetraCB-(44)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
244'5'-TetraCB-(74)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
23'4'5'-TetraCB-(70)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'35'6'-PentaCB-(95)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'455'-PentaCB-(101)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'44'5'-PentaCB-(99)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'345'-PentaCB-(87)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
233'4'6'-PentaCB-(110)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'4'-PentaCB-(82)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'355'6'-HexaCB-(151)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'34'5'6'-HexaCB-(149)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
23'44'5'-PentaCB-(118)	mg/kg	<0.010	0.010	N/A	0.000030	0.00000030	N/A	6128789
22'44'55'-HexaCB-(153)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'46'-HexaCB-(132)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
233'44'-PentaCB-(105)	mg/kg	<0.010	0.010	N/A	0.000030	0.00000030	N/A	6128789
HexaCB-(138)+(158)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'34'55'6'-HeptaCB-(187)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'344'5'6'-HeptaCB-(183)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'-HexaCB-(128)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'45'6'-HeptaCB-(177)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'6'-HeptaCB-(171)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
<p>RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.</p> <p>WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds</p> <p>QC Batch = Quality Control Batch N/A = Not Applicable</p>								



RESULTS OF ANALYSES OF SEDIMENT

BV Labs ID		JQW590						
Sampling Date		2019/05/06						
COC Number		D40469			TOXIC EQUIVALENCY		# of	
	UNITS	S2	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
233'44'5'-HexaCB-(156)	mg/kg	<0.010	0.010	N/A	0.000030	0.00000030	N/A	6128789
22'344'55'-HeptaCB-(180)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
233'44'5'6'-HeptaCB-(191)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
33'44'55'-HexaCB-(169)	mg/kg	<0.010	0.010	N/A	0.030	0.00030	N/A	6128789
22'33'44'5'-HeptaCB-(170)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'45'6'-OctaCB-(199)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'45'6'6'-NonaCB-(208)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'56'-OctaCB-(195)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'55'-OctaCB-(194)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
233'44'55'6'-OctaCB-(205)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
22'33'44'55'6'-NonaCB-(206)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
DecaCB-(209)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Trichlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Tetrachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Pentachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Hexachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Heptachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Octachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Nonachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Decachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Total PCB	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6128789
Physical Testing								
Moisture-Subcontracted	%w/w	23	0.50	N/A	N/A	N/A	N/A	6133308
Moisture-Subcontracted	%	18	0.30	N/A	N/A	N/A	N/A	6124032
Subcontracted Analysis								
Subcontract Parameter	N/A	ATTACHED	N/A	N/A	N/A	N/A	N/A	6117816
TOTAL TOXIC EQUIVALENCY	mg/kg	N/A	N/A	N/A	N/A	0.000301	N/A	N/A
Surrogate Recovery (%)								
2,3,3',4,6-Pentachlorobiphenyl	%	95	N/A	N/A	N/A	N/A	N/A	6128789
2',3,5-Trichlorobiphenyl	%	92	N/A	N/A	N/A	N/A	N/A	6128789
RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested. WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds QC Batch = Quality Control Batch N/A = Not Applicable								



BUREAU
VERITAS

BV Labs Job #: B9C3232
Report Date: 2019/07/31

Stantec Consulting Ltd
Client Project #: 121621877
Site Location: CARIBOU
Sampler Initials: EC

RESULTS OF ANALYSES OF SEDIMENT

BV Labs ID		JQW590						
Sampling Date		2019/05/06						
COC Number		D40469			TOXIC EQUIVALENCY		# of	
	UNITS	S2	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
22'33'44'566'-Nonachlorobiphenyl	%	117	N/A	N/A	N/A	N/A	N/A	6128789

RDL = Reportable Detection Limit
 TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
 The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
 WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds
 QC Batch = Quality Control Batch
 N/A = Not Applicable



RESULTS OF ANALYSES OF SEDIMENT

BV Labs ID		JQW591						
Sampling Date		2019/05/06						
COC Number		D40469			TOXIC EQUIVALENCY		# of	
	UNITS	S3	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Inorganics								
Moisture	%	49	1.0	0.20	N/A	N/A	N/A	6112397
Total Organic Carbon	%	1.4	0.050	0.010	N/A	N/A	N/A	6122751
< -1 Phi (2 mm)	%	100	0.10	N/A	N/A	N/A	N/A	6114613
< 0 Phi (1 mm)	%	100	0.10	N/A	N/A	N/A	N/A	6114613
< +1 Phi (0.5 mm)	%	99	0.10	N/A	N/A	N/A	N/A	6114613
< +2 Phi (0.25 mm)	%	98	0.10	N/A	N/A	N/A	N/A	6114613
< +3 Phi (0.12 mm)	%	95	0.10	N/A	N/A	N/A	N/A	6114613
< +4 Phi (0.062 mm)	%	74	0.10	N/A	N/A	N/A	N/A	6114613
< +5 Phi (0.031 mm)	%	42	0.10	N/A	N/A	N/A	N/A	6114613
< +6 Phi (0.016 mm)	%	28	0.10	N/A	N/A	N/A	N/A	6114613
< +7 Phi (0.0078 mm)	%	18	0.10	N/A	N/A	N/A	N/A	6114613
< +8 Phi (0.0039 mm)	%	16	0.10	N/A	N/A	N/A	N/A	6114613
< +9 Phi (0.0020 mm)	%	13	0.10	N/A	N/A	N/A	N/A	6114613
Gravel	%	0.32	0.10	N/A	N/A	N/A	N/A	6114613
Sand	%	26	0.10	N/A	N/A	N/A	N/A	6114613
Silt	%	58	0.10	N/A	N/A	N/A	N/A	6114613
Clay	%	16	0.10	N/A	N/A	N/A	N/A	6114613
PCBs								
TriCB-(17)+(18)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
TriCB-(28)+(31)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
2'34'-TriCB-(33)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
22'55'-TetraCB-(52)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
22'45'-TetraCB-(49)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
22'35'-TetraCB-(44)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
244'5'-TetraCB-(74)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
23'4'5'-TetraCB-(70)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
22'35'6'-PentaCB-(95)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
22'455'6'-PentaCB-(101)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
<p>RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.</p> <p>WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds QC Batch = Quality Control Batch N/A = Not Applicable</p>								



BUREAU
VERITAS

BV Labs Job #: B9C3232
Report Date: 2019/07/31

Stantec Consulting Ltd
Client Project #: 121621877
Site Location: CARIBOU
Sampler Initials: EC

RESULTS OF ANALYSES OF SEDIMENT

BV Labs ID		JQW591						
Sampling Date		2019/05/06						
COC Number		D40469			TOXIC EQUIVALENCY		# of	
	UNITS	S3	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
22'44'5-PentaCB-(99)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
22'345'-PentaCB-(87)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
233'4'6-PentaCB-(110)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
22'33'4-PentaCB-(82)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
22'355'6-HexaCB-(151)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
22'34'5'6-HexaCB-(149)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
23'44'5-PentaCB-(118)	mg/kg	<0.010	0.010	N/A	0.000030	0.00000030	N/A	6133856
22'44'55'-HexaCB-(153)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
22'33'46'-HexaCB-(132)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
233'44'-PentaCB-(105)	mg/kg	<0.010	0.010	N/A	0.000030	0.00000030	N/A	6133856
HexaCB-(138)+(158)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
22'34'55'6-HeptaCB-(187)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
22'344'5'6-HeptaCB-(183)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
22'33'44'-HexaCB-(128)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
22'33'45'6'-HeptaCB-(177)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
22'33'44'6-HeptaCB-(171)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
233'44'5-HexaCB-(156)	mg/kg	<0.010	0.010	N/A	0.000030	0.00000030	N/A	6133856
22'344'55'-HeptaCB-(180)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
233'44'5'6-HeptaCB-(191)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
33'44'55'-HexaCB-(169)	mg/kg	<0.010	0.010	N/A	0.030	0.00030	N/A	6133856
22'33'44'5-HeptaCB-(170)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
22'33'455'6'-OctaCB-(199)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
22'33'455'66'-NonaCB-(208)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
22'33'44'56-OctaCB-(195)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
22'33'44'55'-OctaCB-(194)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
233'44'55'6-OctaCB-(205)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
22'33'44'55'6-NonaCB-(206)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
DecaCB-(209)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
Trichlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
Tetrachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856

RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds
QC Batch = Quality Control Batch
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BUREAU
VERITAS

BV Labs Job #: B9C3232
Report Date: 2019/07/31

Stantec Consulting Ltd
Client Project #: 121621877
Site Location: CARIBOU
Sampler Initials: EC

RESULTS OF ANALYSES OF SEDIMENT

BV Labs ID		JQW591						
Sampling Date		2019/05/06						
COC Number		D40469			TOXIC EQUIVALENCY		# of	
	UNITS	S3	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Pentachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
Hexachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
Heptachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
Octachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
Nonachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
Decachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
Total PCB	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
TOTAL TOXIC EQUIVALENCY	mg/kg	N/A	N/A	N/A	N/A	0.00030	N/A	N/A
Surrogate Recovery (%)								
2,3,3',4,6-Pentachlorobiphenyl	%	99	N/A	N/A	N/A	N/A	N/A	6133856
2',3,5-Trichlorobiphenyl	%	99	N/A	N/A	N/A	N/A	N/A	6133856
22'33'44'566'-Nonachlorobiphenyl	%	108	N/A	N/A	N/A	N/A	N/A	6133856
<p>RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested. WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds QC Batch = Quality Control Batch N/A = Not Applicable</p>								



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BV Labs Job #: B9C3232
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Site Location: CARIBOU
Sampler Initials: EC

RESULTS OF ANALYSES OF SEDIMENT

BV Labs ID		JQW592						
Sampling Date		2019/05/06						
COC Number		D40469			TOXIC EQUIVALENCY		# of	
	UNITS	S4	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Inorganics								
Moisture	%	50	1.0	0.20	N/A	N/A	N/A	6112397
Total Organic Carbon	%	1.0	0.050	0.010	N/A	N/A	N/A	6122751
< -1 Phi (2 mm)	%	100	0.10	N/A	N/A	N/A	N/A	6114613
< 0 Phi (1 mm)	%	100	0.10	N/A	N/A	N/A	N/A	6114613
< +1 Phi (0.5 mm)	%	99	0.10	N/A	N/A	N/A	N/A	6114613
< +2 Phi (0.25 mm)	%	99	0.10	N/A	N/A	N/A	N/A	6114613
< +3 Phi (0.12 mm)	%	96	0.10	N/A	N/A	N/A	N/A	6114613
< +4 Phi (0.062 mm)	%	64	0.10	N/A	N/A	N/A	N/A	6114613
< +5 Phi (0.031 mm)	%	30	0.10	N/A	N/A	N/A	N/A	6114613
< +6 Phi (0.016 mm)	%	18	0.10	N/A	N/A	N/A	N/A	6114613
< +7 Phi (0.0078 mm)	%	12	0.10	N/A	N/A	N/A	N/A	6114613
< +8 Phi (0.0039 mm)	%	10	0.10	N/A	N/A	N/A	N/A	6114613
< +9 Phi (0.0020 mm)	%	8.2	0.10	N/A	N/A	N/A	N/A	6114613
Gravel	%	<0.10	0.10	N/A	N/A	N/A	N/A	6114613
Sand	%	36	0.10	N/A	N/A	N/A	N/A	6114613
Silt	%	54	0.10	N/A	N/A	N/A	N/A	6114613
Clay	%	10	0.10	N/A	N/A	N/A	N/A	6114613
PCBs								
TriCB-(17)+(18)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
TriCB-(28)+(31)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
2'34'-TriCB-(33)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
22'55'-TetraCB-(52)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
22'45'-TetraCB-(49)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
22'35'-TetraCB-(44)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
244'5'-TetraCB-(74)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
23'4'5'-TetraCB-(70)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
22'35'6'-PentaCB-(95)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
22'455'6'-PentaCB-(101)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
RDL = Reportable Detection Limit								
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,								
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.								
WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds								
QC Batch = Quality Control Batch								
N/A = Not Applicable								



RESULTS OF ANALYSES OF SEDIMENT

BV Labs ID		JQW592						
Sampling Date		2019/05/06						
COC Number		D40469			TOXIC EQUIVALENCY		# of	
	UNITS	S4	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
22'44'5'-PentaCB-(99)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
22'345'-PentaCB-(87)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
233'4'6'-PentaCB-(110)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
22'33'4'-PentaCB-(82)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
22'355'6'-HexaCB-(151)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
22'34'5'6'-HexaCB-(149)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
23'44'5'-PentaCB-(118)	mg/kg	<0.010	0.010	N/A	0.000030	0.00000030	N/A	6133856
22'44'55'-HexaCB-(153)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
22'33'46'-HexaCB-(132)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
233'44'-PentaCB-(105)	mg/kg	<0.010	0.010	N/A	0.000030	0.00000030	N/A	6133856
HexaCB-(138)+(158)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
22'34'55'6'-HeptaCB-(187)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
22'344'5'6'-HeptaCB-(183)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
22'33'44'-HexaCB-(128)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
22'33'45'6'-HeptaCB-(177)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
22'33'44'6'-HeptaCB-(171)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
233'44'5'-HexaCB-(156)	mg/kg	<0.010	0.010	N/A	0.000030	0.00000030	N/A	6133856
22'344'55'-HeptaCB-(180)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
233'44'5'6'-HeptaCB-(191)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
33'44'55'-HexaCB-(169)	mg/kg	<0.010	0.010	N/A	0.030	0.00030	N/A	6133856
22'33'44'5'-HeptaCB-(170)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
22'33'455'6'-OctaCB-(199)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
22'33'455'66'-NonaCB-(208)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
22'33'44'56'-OctaCB-(195)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
22'33'44'55'-OctaCB-(194)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
233'44'55'6'-OctaCB-(205)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
22'33'44'55'6'-NonaCB-(206)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
DecaCB-(209)	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
Trichlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
Tetrachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856

RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds
QC Batch = Quality Control Batch
N/A = Not Applicable



RESULTS OF ANALYSES OF SEDIMENT

BV Labs ID		JQW592						
Sampling Date		2019/05/06						
COC Number		D40469			TOXIC EQUIVALENCY		# of	
	UNITS	S4	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Pentachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
Hexachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
Heptachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
Octachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
Nonachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
Decachlorobiphenyls	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
Total PCB	mg/kg	<0.010	0.010	N/A	N/A	N/A	N/A	6133856
TOTAL TOXIC EQUIVALENCY	mg/kg	N/A	N/A	N/A	N/A	0.00030	N/A	N/A
Surrogate Recovery (%)								
2,3,3',4,6-Pentachlorobiphenyl	%	95	N/A	N/A	N/A	N/A	N/A	6133856
2',3,5-Trichlorobiphenyl	%	95	N/A	N/A	N/A	N/A	N/A	6133856
22'33'44'566'-Nonachlorobiphenyl	%	103	N/A	N/A	N/A	N/A	N/A	6133856
<p>RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested. WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds QC Batch = Quality Control Batch N/A = Not Applicable</p>								



BUREAU
VERITAS

BV Labs Job #: B9C3232
Report Date: 2019/07/31

Stantec Consulting Ltd
Client Project #: 121621877
Site Location: CARIBOU
Sampler Initials: EC

MERCURY BY COLD VAPOUR AA (SEDIMENT)

BV Labs ID		JQW588	JQW589	JQW590	JQW591	JQW591	JQW592			
Sampling Date		2019/05/06	2019/05/06	2019/05/06	2019/05/06	2019/05/06	2019/05/06			
COC Number		D40469	D40469	D40469	D40469	D40469	D40469			
	UNITS	S1	S1-DUP	S2	S3	S3 Lab-Dup	S4	RDL	MDL	QC Batch

Metals										
Mercury (Hg)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	N/A	6114567

RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch
 Lab-Dup = Laboratory Initiated Duplicate
 N/A = Not Applicable



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VERITAS

BV Labs Job #: B9C3232
Report Date: 2019/07/31

Stantec Consulting Ltd
Client Project #: 121621877
Site Location: CARIBOU
Sampler Initials: EC

ELEMENTS BY ATOMIC SPECTROSCOPY (SEDIMENT)

BV Labs ID		JQW588	JQW589	JQW590	JQW591	JQW592			
Sampling Date		2019/05/06	2019/05/06	2019/05/06	2019/05/06	2019/05/06			
COC Number		D40469	D40469	D40469	D40469	D40469			
	UNITS	S1	S1-DUP	S2	S3	S4	RDL	MDL	QC Batch
Metals									
Acid Extractable Aluminum (Al)	mg/kg	830	800	1900	8500	7700	10	N/A	6117751
Acid Extractable Antimony (Sb)	mg/kg	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	N/A	6117751
Acid Extractable Arsenic (As)	mg/kg	<2.0	<2.0	2.6	4.9	4.5	2.0	N/A	6117751
Acid Extractable Barium (Ba)	mg/kg	<5.0	8.6	17	90	97	5.0	N/A	6117751
Acid Extractable Beryllium (Be)	mg/kg	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	N/A	6117751
Acid Extractable Bismuth (Bi)	mg/kg	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	N/A	6117751
Acid Extractable Boron (B)	mg/kg	<50	<50	<50	77	62	50	N/A	6117751
Acid Extractable Cadmium (Cd)	mg/kg	<0.30	<0.30	<0.30	<0.30	<0.30	0.30	N/A	6117751
Acid Extractable Chromium (Cr)	mg/kg	<2.0	<2.0	4.5	19	16	2.0	N/A	6117751
Acid Extractable Cobalt (Co)	mg/kg	1.3	1.2	2.5	9.1	8.4	1.0	N/A	6117751
Acid Extractable Copper (Cu)	mg/kg	<2.0	<2.0	2.1	14	11	2.0	N/A	6117751
Acid Extractable Iron (Fe)	mg/kg	2500	2400	5900	22000	19000	50	N/A	6117751
Acid Extractable Lead (Pb)	mg/kg	1.4	1.4	3.4	14	12	0.50	N/A	6117751
Acid Extractable Lithium (Li)	mg/kg	2.2	2.2	5.3	24	22	2.0	N/A	6117751
Acid Extractable Manganese (Mn)	mg/kg	330	310	360	330	320	2.0	N/A	6117751
Acid Extractable Molybdenum (Mo)	mg/kg	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	N/A	6117751
Acid Extractable Nickel (Ni)	mg/kg	2.2	2.1	4.5	20	18	2.0	N/A	6117751
Acid Extractable Rubidium (Rb)	mg/kg	<2.0	<2.0	<2.0	9.6	8.4	2.0	N/A	6117751
Acid Extractable Selenium (Se)	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	N/A	6117751
Acid Extractable Silver (Ag)	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	N/A	6117751
Acid Extractable Strontium (Sr)	mg/kg	8.9	35	42	28	26	5.0	N/A	6117751
Acid Extractable Thallium (Tl)	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	N/A	6117751
Acid Extractable Tin (Sn)	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	N/A	6117751
Acid Extractable Uranium (U)	mg/kg	0.10	0.39	0.18	0.86	0.87	0.10	N/A	6117751
Acid Extractable Vanadium (V)	mg/kg	3.8	3.6	8.1	26	23	2.0	N/A	6117751
Acid Extractable Zinc (Zn)	mg/kg	6.8	6.8	17	63	54	5.0	N/A	6117751
RDL = Reportable Detection Limit QC Batch = Quality Control Batch N/A = Not Applicable									



BUREAU
VERITAS

BV Labs Job #: B9C3232
Report Date: 2019/07/31

Stantec Consulting Ltd
Client Project #: 121621877
Site Location: CARIBOU
Sampler Initials: EC

SEMI-VOLATILE ORGANICS BY GC-MS (SEDIMENT)

BV Labs ID		JQW588	JQW588	JQW589	JQW590	JQW591	JQW592			
Sampling Date		2019/05/06	2019/05/06	2019/05/06	2019/05/06	2019/05/06	2019/05/06			
COC Number		D40469	D40469	D40469	D40469	D40469	D40469			
	UNITS	S1	S1 Lab-Dup	S1-DUP	S2	S3	S4	RDL	MDL	QC Batch

Polyaromatic Hydrocarbons										
1-Methylnaphthalene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	N/A	6114865
2-Methylnaphthalene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	N/A	6114865
Acenaphthene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0060	0.0050	N/A	6114865
Acenaphthylene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	N/A	6114865
Anthracene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	N/A	6114865
Benzo(a)anthracene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	N/A	6114865
Benzo(a)pyrene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	N/A	6114865
Benzo(b)fluoranthene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	N/A	6114865
Benzo(b,j)fluoranthene	mg/kg	<0.010	N/A	<0.010	<0.010	<0.010	<0.010	0.010	N/A	6112177
Benzo(g,h,i)perylene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	N/A	6114865
Benzo(j)fluoranthene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	N/A	6114865
Benzo(k)fluoranthene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	N/A	6114865
Chrysene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	N/A	6114865
Dibenz(a,h)anthracene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	N/A	6114865
Fluoranthene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	0.017	<0.0050	0.0050	N/A	6114865
Fluorene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	N/A	6114865
Indeno(1,2,3-cd)pyrene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	N/A	6114865
Naphthalene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	N/A	6114865
Perylene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	0.014	<0.0050	0.0050	N/A	6114865
Phenanthrene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	0.013	<0.0050	0.0050	N/A	6114865
Pyrene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	0.012	<0.0050	0.0050	N/A	6114865

Surrogate Recovery (%)										
D10-Anthracene	%	95	91	95	94	90	92	N/A	N/A	6114865
D14-Terphenyl	%	95	89	92	93	88	93	N/A	N/A	6114865
D8-Acenaphthylene	%	91	86	90	89	87	89	N/A	N/A	6114865

RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch
 Lab-Dup = Laboratory Initiated Duplicate
 N/A = Not Applicable



BUREAU
VERITAS

BV Labs Job #: B9C3232
Report Date: 2019/07/31

Stantec Consulting Ltd
Client Project #: 121621877
Site Location: CARIBOU
Sampler Initials: EC

PETROLEUM HYDROCARBONS (CCME)

BV Labs ID		JQW588	JQW589	JQW590			
Sampling Date		2019/05/06	2019/05/06	2019/05/06			
COC Number		D40469	D40469	D40469			
	UNITS	S1	S1-DUP	S2	RDL	MDL	QC Batch
F2-F4 Hydrocarbons							
Total Oil and Grease	ug/g	<100	<100	<100	100	N/A	6117791
RDL = Reportable Detection Limit							
QC Batch = Quality Control Batch							
N/A = Not Applicable							



BUREAU
VERITAS

BV Labs Job #: B9C3232
Report Date: 2019/07/31

Stantec Consulting Ltd
Client Project #: 121621877
Site Location: CARIBOU
Sampler Initials: EC

DIOXINS AND FURANS BY HRMS (SEDIMENT)

BV Labs ID		JQW588							
Sampling Date		2019/05/06							
COC Number		D40469				TOXIC EQUIVALENCY		# of	
	UNITS	S1	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Dioxins & Furans									
2,3,7,8-Tetra CDD *	pg/g	<0.110	0.110	0.998	N/A	1.00	0.110	N/A	6186144
1,2,3,7,8-Penta CDD *	pg/g	<0.114	0.114	0.998	N/A	1.00	0.114	N/A	6186144
1,2,3,4,7,8-Hexa CDD *	pg/g	<0.116	0.116	0.998	N/A	0.100	0.0116	N/A	6186144
1,2,3,6,7,8-Hexa CDD *	pg/g	<0.103	0.103	0.998	N/A	0.100	0.0103	N/A	6186144
1,2,3,7,8,9-Hexa CDD *	pg/g	<0.109	0.109	0.998	N/A	0.100	0.0109	N/A	6186144
1,2,3,4,6,7,8-Hepta CDD *	pg/g	0.521	0.114	0.998	N/A	0.0100	0.00521	N/A	6186144
Octa CDD *	pg/g	<4.10 (1)	4.10	9.98	N/A	0.000300	0.00123	N/A	6186144
Total Tetra CDD *	pg/g	<0.110	0.110	0.998	N/A	N/A	N/A	0	6186144
Total Penta CDD *	pg/g	<0.114	0.114	0.998	N/A	N/A	N/A	0	6186144
Total Hexa CDD *	pg/g	<0.114 (2)	0.114	0.998	N/A	N/A	N/A	0	6186144
Total Hepta CDD *	pg/g	0.876	0.114	0.998	N/A	N/A	N/A	2	6186144
2,3,7,8-Tetra CDF **	pg/g	<0.100	0.100	0.998	N/A	0.100	0.0100	N/A	6186144
1,2,3,7,8-Penta CDF **	pg/g	<0.120	0.120	0.998	N/A	0.0300	0.00360	N/A	6186144
2,3,4,7,8-Penta CDF **	pg/g	<0.123	0.123	0.998	N/A	0.300	0.0369	N/A	6186144
1,2,3,4,7,8-Hexa CDF **	pg/g	<0.101	0.101	0.998	N/A	0.100	0.0101	N/A	6186144
1,2,3,6,7,8-Hexa CDF **	pg/g	<0.0938	0.0938	0.998	N/A	0.100	0.00938	N/A	6186144
2,3,4,6,7,8-Hexa CDF **	pg/g	<0.115	0.115	0.998	N/A	0.100	0.0115	N/A	6186144
1,2,3,7,8,9-Hexa CDF **	pg/g	<0.130	0.130	0.998	N/A	0.100	0.0130	N/A	6186144
1,2,3,4,6,7,8-Hepta CDF **	pg/g	<0.228 (2)	0.228	0.998	N/A	0.0100	0.00228	N/A	6186144
1,2,3,4,7,8,9-Hepta CDF **	pg/g	<0.158	0.158	0.998	N/A	0.0100	0.00158	N/A	6186144
Octa CDF **	pg/g	<2.00	2.00	9.98	N/A	0.000300	0.000600	N/A	6186144
Total Tetra CDF **	pg/g	<0.100	0.100	0.998	N/A	N/A	N/A	0	6186144
Total Penta CDF **	pg/g	<0.121	0.121	0.998	N/A	N/A	N/A	0	6186144
Total Hexa CDF **	pg/g	0.147	0.108	0.998	N/A	N/A	N/A	1	6186144
Total Hepta CDF **	pg/g	1.27	0.134	0.998	N/A	N/A	N/A	1	6186144
EDL = Estimated Detection Limit									
RDL = Reportable Detection Limit									
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,									
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.									
WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds									
QC Batch = Quality Control Batch									
* CDD = Chloro Dibenzo-p-Dioxin									
N/A = Not Applicable									
** CDF = Chloro Dibenzo-p-Furan									
(1) RT>2 seconds - PCDD/DF analysis-Peak maxima of monitored ions exceeds 2 seconds									
(2) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.									



DIOXINS AND FURANS BY HRMS (SEDIMENT)

BV Labs ID		JQW588							
Sampling Date		2019/05/06							
COC Number		D40469				TOXIC EQUIVALENCY		# of	
	UNITS	S1	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
TOTAL TOXIC EQUIVALENCY	pg/g	N/A	N/A	N/A	N/A	N/A	0.362	N/A	N/A
Surrogate Recovery (%)									
C13-1234678 HeptaCDD *	%	128	N/A	N/A	N/A	N/A	N/A	N/A	6186144
C13-1234678 HeptaCDF **	%	106	N/A	N/A	N/A	N/A	N/A	N/A	6186144
C13-123678 HexaCDD *	%	109	N/A	N/A	N/A	N/A	N/A	N/A	6186144
C13-123678 HexaCDF **	%	73	N/A	N/A	N/A	N/A	N/A	N/A	6186144
C13-12378 PentaCDD *	%	114	N/A	N/A	N/A	N/A	N/A	N/A	6186144
C13-12378 PentaCDF **	%	79	N/A	N/A	N/A	N/A	N/A	N/A	6186144
C13-2378 TetraCDD *	%	126	N/A	N/A	N/A	N/A	N/A	N/A	6186144
C13-2378 TetraCDF **	%	89	N/A	N/A	N/A	N/A	N/A	N/A	6186144
C13-OCDD *	%	121	N/A	N/A	N/A	N/A	N/A	N/A	6186144

EDL = Estimated Detection Limit
 RDL = Reportable Detection Limit
 TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
 The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
 WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds
 QC Batch = Quality Control Batch
 N/A = Not Applicable
 * CDD = Chloro Dibenzo-p-Dioxin
 ** CDF = Chloro Dibenzo-p-Furan



BUREAU
VERITAS

BV Labs Job #: B9C3232
Report Date: 2019/07/31

Stantec Consulting Ltd
Client Project #: 121621877
Site Location: CARIBOU
Sampler Initials: EC

DIOXINS AND FURANS BY HRMS (SEDIMENT)

BV Labs ID		JQW589							
Sampling Date		2019/05/06							
COC Number		D40469				TOXIC EQUIVALENCY		# of	
	UNITS	S1-DUP	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Dioxins & Furans									
2,3,7,8-Tetra CDD *	pg/g	<0.112	0.112	0.998	N/A	1.00	0.112	N/A	6186144
1,2,3,7,8-Penta CDD *	pg/g	<0.114	0.114	0.998	N/A	1.00	0.114	N/A	6186144
1,2,3,4,7,8-Hexa CDD *	pg/g	<0.114	0.114	0.998	N/A	0.100	0.0114	N/A	6186144
1,2,3,6,7,8-Hexa CDD *	pg/g	<0.101	0.101	0.998	N/A	0.100	0.0101	N/A	6186144
1,2,3,7,8,9-Hexa CDD *	pg/g	<0.106	0.106	0.998	N/A	0.100	0.0106	N/A	6186144
1,2,3,4,6,7,8-Hepta CDD *	pg/g	0.448	0.109	0.998	N/A	0.0100	0.00448	N/A	6186144
Octa CDD *	pg/g	3.73	0.182	9.98	N/A	0.000300	0.00112	N/A	6186144
Total Tetra CDD *	pg/g	<0.112	0.112	0.998	N/A	N/A	N/A	0	6186144
Total Penta CDD *	pg/g	<0.114	0.114	0.998	N/A	N/A	N/A	0	6186144
Total Hexa CDD *	pg/g	<0.107	0.107	0.998	N/A	N/A	N/A	0	6186144
Total Hepta CDD *	pg/g	0.859	0.109	0.998	N/A	N/A	N/A	2	6186144
2,3,7,8-Tetra CDF **	pg/g	<0.114	0.114	0.998	N/A	0.100	0.0114	N/A	6186144
1,2,3,7,8-Penta CDF **	pg/g	<0.110	0.110	0.998	N/A	0.0300	0.00330	N/A	6186144
2,3,4,7,8-Penta CDF **	pg/g	<0.114	0.114	0.998	N/A	0.300	0.0342	N/A	6186144
1,2,3,4,7,8-Hexa CDF **	pg/g	<0.108	0.108	0.998	N/A	0.100	0.0108	N/A	6186144
1,2,3,6,7,8-Hexa CDF **	pg/g	<0.101	0.101	0.998	N/A	0.100	0.0101	N/A	6186144
2,3,4,6,7,8-Hexa CDF **	pg/g	<0.123	0.123	0.998	N/A	0.100	0.0123	N/A	6186144
1,2,3,7,8,9-Hexa CDF **	pg/g	<0.140	0.140	0.998	N/A	0.100	0.0140	N/A	6186144
1,2,3,4,6,7,8-Hepta CDF **	pg/g	<0.167 (1)	0.167	0.998	N/A	0.0100	0.00167	N/A	6186144
1,2,3,4,7,8,9-Hepta CDF **	pg/g	<0.139	0.139	0.998	N/A	0.0100	0.00139	N/A	6186144
Octa CDF **	pg/g	1.35	0.222	9.98	N/A	0.000300	0.000405	N/A	6186144
Total Tetra CDF **	pg/g	<0.114	0.114	0.998	N/A	N/A	N/A	0	6186144
Total Penta CDF **	pg/g	<0.112	0.112	0.998	N/A	N/A	N/A	0	6186144
Total Hexa CDF **	pg/g	<0.116	0.116	0.998	N/A	N/A	N/A	0	6186144
Total Hepta CDF **	pg/g	0.872	0.118	0.998	N/A	N/A	N/A	1	6186144
EDL = Estimated Detection Limit RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested. WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds QC Batch = Quality Control Batch * CDD = Chloro Dibenzo-p-Dioxin N/A = Not Applicable ** CDF = Chloro Dibenzo-p-Furan (1) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.									



DIOXINS AND FURANS BY HRMS (SEDIMENT)

BV Labs ID		JQW589							
Sampling Date		2019/05/06							
COC Number		D40469				TOXIC EQUIVALENCY		# of	
	UNITS	S1-DUP	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
TOTAL TOXIC EQUIVALENCY	pg/g	N/A	N/A	N/A	N/A	N/A	0.363	N/A	N/A
Surrogate Recovery (%)									
C13-1234678 HeptaCDD *	%	130	N/A	N/A	N/A	N/A	N/A	N/A	6186144
C13-1234678 HeptaCDF **	%	112	N/A	N/A	N/A	N/A	N/A	N/A	6186144
C13-123678 HexaCDD *	%	103	N/A	N/A	N/A	N/A	N/A	N/A	6186144
C13-123678 HexaCDF **	%	71	N/A	N/A	N/A	N/A	N/A	N/A	6186144
C13-12378 PentaCDD *	%	82	N/A	N/A	N/A	N/A	N/A	N/A	6186144
C13-12378 PentaCDF **	%	63	N/A	N/A	N/A	N/A	N/A	N/A	6186144
C13-2378 TetraCDD *	%	122	N/A	N/A	N/A	N/A	N/A	N/A	6186144
C13-2378 TetraCDF **	%	81	N/A	N/A	N/A	N/A	N/A	N/A	6186144
C13-OCDD *	%	114	N/A	N/A	N/A	N/A	N/A	N/A	6186144
<p>EDL = Estimated Detection Limit RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested. WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds QC Batch = Quality Control Batch N/A = Not Applicable * CDD = Chloro Dibenzo-p-Dioxin ** CDF = Chloro Dibenzo-p-Furan</p>									



BUREAU
VERITAS

BV Labs Job #: B9C3232
Report Date: 2019/07/31

Stantec Consulting Ltd
Client Project #: 121621877
Site Location: CARIBOU
Sampler Initials: EC

DIOXINS AND FURANS BY HRMS (SEDIMENT)

BV Labs ID		JQW589							
Sampling Date		2019/05/06							
COC Number		D40469				TOXIC EQUIVALENCY		# of	
	UNITS	S1-DUP Lab-Dup	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Dioxins & Furans									
2,3,7,8-Tetra CDD *	pg/g	<0.116	0.116	0.996	N/A	1.00	0.116	N/A	6186144
1,2,3,7,8-Penta CDD *	pg/g	<0.195	0.195	0.996	N/A	1.00	0.195	N/A	6186144
1,2,3,4,7,8-Hexa CDD *	pg/g	<0.223	0.223	0.996	N/A	0.100	0.0223	N/A	6186144
1,2,3,6,7,8-Hexa CDD *	pg/g	<0.199	0.199	0.996	N/A	0.100	0.0199	N/A	6186144
1,2,3,7,8,9-Hexa CDD *	pg/g	<0.209	0.209	0.996	N/A	0.100	0.0209	N/A	6186144
1,2,3,4,6,7,8-Hepta CDD *	pg/g	<0.421	0.421	0.996	N/A	0.0100	0.00421	N/A	6186144
Octa CDD *	pg/g	11.0	0.407	9.96	N/A	0.000300	0.00330	N/A	6186144
Total Tetra CDD *	pg/g	<0.116	0.116	0.996	N/A	N/A	N/A	0	6186144
Total Penta CDD *	pg/g	<0.195	0.195	0.996	N/A	N/A	N/A	0	6186144
Total Hexa CDD *	pg/g	<0.210	0.210	0.996	N/A	N/A	N/A	0	6186144
Total Hepta CDD *	pg/g	0.967	0.421	0.996	N/A	N/A	N/A	1	6186144
2,3,7,8-Tetra CDF **	pg/g	<0.111	0.111	0.996	N/A	0.100	0.0111	N/A	6186144
1,2,3,7,8-Penta CDF **	pg/g	<0.162	0.162	0.996	N/A	0.0300	0.00486	N/A	6186144
2,3,4,7,8-Penta CDF **	pg/g	<0.167	0.167	0.996	N/A	0.300	0.0501	N/A	6186144
1,2,3,4,7,8-Hexa CDF **	pg/g	<0.259	0.259	0.996	N/A	0.100	0.0259	N/A	6186144
1,2,3,6,7,8-Hexa CDF **	pg/g	<0.241	0.241	0.996	N/A	0.100	0.0241	N/A	6186144
2,3,4,6,7,8-Hexa CDF **	pg/g	<0.295	0.295	0.996	N/A	0.100	0.0295	N/A	6186144
1,2,3,7,8,9-Hexa CDF **	pg/g	<0.335	0.335	0.996	N/A	0.100	0.0335	N/A	6186144
1,2,3,4,6,7,8-Hepta CDF **	pg/g	<0.589	0.589	0.996	N/A	0.0100	0.00589	N/A	6186144
1,2,3,4,7,8,9-Hepta CDF **	pg/g	<0.797	0.797	0.996	N/A	0.0100	0.00797	N/A	6186144
Octa CDF **	pg/g	<0.405	0.405	9.96	N/A	0.000300	0.000122	N/A	6186144
Total Tetra CDF **	pg/g	<0.111	0.111	0.996	N/A	N/A	N/A	0	6186144
Total Penta CDF **	pg/g	<0.164	0.164	0.996	N/A	N/A	N/A	0	6186144
Total Hexa CDF **	pg/g	<0.278	0.278	0.996	N/A	N/A	N/A	0	6186144
Total Hepta CDF **	pg/g	<0.677	0.677	0.996	N/A	N/A	N/A	0	6186144
TOTAL TOXIC EQUIVALENCY	pg/g	N/A	N/A	N/A	N/A	N/A	0.575	N/A	N/A
EDL = Estimated Detection Limit RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested. WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds QC Batch = Quality Control Batch Lab-Dup = Laboratory Initiated Duplicate * CDD = Chloro Dibenzo-p-Dioxin N/A = Not Applicable ** CDF = Chloro Dibenzo-p-Furan									



BUREAU
VERITAS

BV Labs Job #: B9C3232
Report Date: 2019/07/31

Stantec Consulting Ltd
Client Project #: 121621877
Site Location: CARIBOU
Sampler Initials: EC

DIOXINS AND FURANS BY HRMS (SEDIMENT)

BV Labs ID		JQW589							
Sampling Date		2019/05/06							
COC Number		D40469				TOXIC EQUIVALENCY		# of	
	UNITS	S1-DUP Lab-Dup	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Surrogate Recovery (%)									
C13-1234678 HeptaCDD *	%	32	N/A	N/A	N/A	N/A	N/A	N/A	6186144
C13-1234678 HeptaCDF **	%	39 (1)	N/A	N/A	N/A	N/A	N/A	N/A	6186144
C13-123678 HexaCDD *	%	33 (1)	N/A	N/A	N/A	N/A	N/A	N/A	6186144
C13-123678 HexaCDF **	%	32 (1)	N/A	N/A	N/A	N/A	N/A	N/A	6186144
C13-12378 PentaCDD *	%	31	N/A	N/A	N/A	N/A	N/A	N/A	6186144
C13-12378 PentaCDF **	%	30 (1)	N/A	N/A	N/A	N/A	N/A	N/A	6186144
C13-2378 TetraCDD *	%	54	N/A	N/A	N/A	N/A	N/A	N/A	6186144
C13-2378 TetraCDF **	%	37	N/A	N/A	N/A	N/A	N/A	N/A	6186144
C13-OCDD *	%	34	N/A	N/A	N/A	N/A	N/A	N/A	6186144
EDL = Estimated Detection Limit RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested. WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds QC Batch = Quality Control Batch Lab-Dup = Laboratory Initiated Duplicate * CDD = Chloro Dibenzo-p-Dioxin N/A = Not Applicable ** CDF = Chloro Dibenzo-p-Furan (1) Recovery is below method criteria									



BUREAU
VERITAS

BV Labs Job #: B9C3232
Report Date: 2019/07/31

Stantec Consulting Ltd
Client Project #: 121621877
Site Location: CARIBOU
Sampler Initials: EC

DIOXINS AND FURANS BY HRMS (SEDIMENT)

BV Labs ID		JQW590							
Sampling Date		2019/05/06							
COC Number		D40469				TOXIC EQUIVALENCY		# of	
	UNITS	S2	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Dioxins & Furans									
2,3,7,8-Tetra CDD *	pg/g	<0.110	0.110	0.995	N/A	1.00	0.110	N/A	6186144
1,2,3,7,8-Penta CDD *	pg/g	<0.101	0.101	0.995	N/A	1.00	0.101	N/A	6186144
1,2,3,4,7,8-Hexa CDD *	pg/g	<0.126	0.126	0.995	N/A	0.100	0.0126	N/A	6186144
1,2,3,6,7,8-Hexa CDD *	pg/g	<0.113	0.113	0.995	N/A	0.100	0.0113	N/A	6186144
1,2,3,7,8,9-Hexa CDD *	pg/g	<0.118	0.118	0.995	N/A	0.100	0.0118	N/A	6186144
1,2,3,4,6,7,8-Hepta CDD *	pg/g	0.378	0.115	0.995	N/A	0.0100	0.00378	N/A	6186144
Octa CDD *	pg/g	6.12	0.114	9.95	N/A	0.000300	0.00184	N/A	6186144
Total Tetra CDD *	pg/g	<0.110	0.110	0.995	N/A	N/A	N/A	0	6186144
Total Penta CDD *	pg/g	<0.101	0.101	0.995	N/A	N/A	N/A	0	6186144
Total Hexa CDD *	pg/g	<0.119	0.119	0.995	N/A	N/A	N/A	0	6186144
Total Hepta CDD *	pg/g	0.971	0.115	0.995	N/A	N/A	N/A	2	6186144
2,3,7,8-Tetra CDF **	pg/g	<0.113	0.113	0.995	N/A	0.100	0.0113	N/A	6186144
1,2,3,7,8-Penta CDF **	pg/g	<0.102	0.102	0.995	N/A	0.0300	0.00306	N/A	6186144
2,3,4,7,8-Penta CDF **	pg/g	<0.105	0.105	0.995	N/A	0.300	0.0315	N/A	6186144
1,2,3,4,7,8-Hexa CDF **	pg/g	<0.100	0.100	0.995	N/A	0.100	0.0100	N/A	6186144
1,2,3,6,7,8-Hexa CDF **	pg/g	<0.0932	0.0932	0.995	N/A	0.100	0.00932	N/A	6186144
2,3,4,6,7,8-Hexa CDF **	pg/g	<0.114	0.114	0.995	N/A	0.100	0.0114	N/A	6186144
1,2,3,7,8,9-Hexa CDF **	pg/g	<0.129	0.129	0.995	N/A	0.100	0.0129	N/A	6186144
1,2,3,4,6,7,8-Hepta CDF **	pg/g	0.175	0.101	0.995	N/A	0.0100	0.00175	N/A	6186144
1,2,3,4,7,8,9-Hepta CDF **	pg/g	<0.137	0.137	0.995	N/A	0.0100	0.00137	N/A	6186144
Octa CDF **	pg/g	0.690	0.108	9.95	N/A	0.000300	0.000207	N/A	6186144
Total Tetra CDF **	pg/g	<0.113	0.113	0.995	N/A	N/A	N/A	0	6186144
Total Penta CDF **	pg/g	<0.103	0.103	0.995	N/A	N/A	N/A	0	6186144
Total Hexa CDF **	pg/g	<0.107	0.107	0.995	N/A	N/A	N/A	0	6186144
Total Hepta CDF **	pg/g	0.175	0.116	0.995	N/A	N/A	N/A	1	6186144
TOTAL TOXIC EQUIVALENCY	pg/g	N/A	N/A	N/A	N/A	N/A	0.345	N/A	N/A
EDL = Estimated Detection Limit RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested. WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds QC Batch = Quality Control Batch * CDD = Chloro Dibenzo-p-Dioxin N/A = Not Applicable ** CDF = Chloro Dibenzo-p-Furan									



DIOXINS AND FURANS BY HRMS (SEDIMENT)

BV Labs ID		JQW590							
Sampling Date		2019/05/06							
COC Number		D40469				TOXIC EQUIVALENCY		# of	
	UNITS	S2	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Surrogate Recovery (%)									
C13-1234678 HeptaCDD *	%	126	N/A	N/A	N/A	N/A	N/A	N/A	6186144
C13-1234678 HeptaCDF **	%	111	N/A	N/A	N/A	N/A	N/A	N/A	6186144
C13-123678 HexaCDD *	%	99	N/A	N/A	N/A	N/A	N/A	N/A	6186144
C13-123678 HexaCDF **	%	68	N/A	N/A	N/A	N/A	N/A	N/A	6186144
C13-12378 PentaCDD *	%	81	N/A	N/A	N/A	N/A	N/A	N/A	6186144
C13-12378 PentaCDF **	%	57	N/A	N/A	N/A	N/A	N/A	N/A	6186144
C13-2378 TetraCDD *	%	105	N/A	N/A	N/A	N/A	N/A	N/A	6186144
C13-2378 TetraCDF **	%	67	N/A	N/A	N/A	N/A	N/A	N/A	6186144
C13-OCDD *	%	115	N/A	N/A	N/A	N/A	N/A	N/A	6186144

EDL = Estimated Detection Limit
RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds
QC Batch = Quality Control Batch
* CDD = Chloro Dibenzo-p-Dioxin
N/A = Not Applicable
** CDF = Chloro Dibenzo-p-Furan



BUREAU
VERITAS

BV Labs Job #: B9C3232
Report Date: 2019/07/31

Stantec Consulting Ltd
Client Project #: 121621877
Site Location: CARIBOU
Sampler Initials: EC

TEST SUMMARY

BV Labs ID: JQW588
Sample ID: S1
Matrix: Sediment

Collected: 2019/05/06
Shipped:
Received: 2019/05/07

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Benzo(b/j)fluoranthene Sum (LL soil)	CALC	6112177	N/A	2019/05/15	Automated Statchk
Dioxins/Furans in Soil (EPS 1/RM/23)	HRMS/MS	6186144	2019/06/19	2019/06/26	Angel Guerrero
Organic Halogen (Extractable)		6117816	N/A	2019/05/16	Eric Dearman
TEH in Soil (PIRI)	GC/FID	6114660	2019/05/10	2019/05/10	Brittany Matthews
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	6123946	2019/05/15	2019/05/16	Prabhjot Gulati
F4G (CCME Hydrocarbons Gravimetric)	BAL	6117791	2019/05/13	2019/05/13	Simarpreet Kaur
Mercury (CVAA)	CV/AA	6114567	2019/05/13	2019/05/13	Cody Cleary
Metals Solids Acid Extr. ICPMS	ICP/MS	6117751	2019/05/13	2019/05/13	Bryon Angevine
Carbon Nitrogen Ratio	CALC	6125795	2019/05/15	2019/05/15	Automated Statchk
Total Cyanide	SKAL	6128790	2019/05/13	2019/05/14	Gustavo Garcia Casado
Carbon, Nitrogen, Sulphur - Combustion	COMB	6117721	N/A	2019/05/15	Harry (Peng) Liang
Water Content (Subcontracted)	BAL	6133308	N/A	2019/05/15	Automated Status Check
Moisture (Subcontracted)	BAL	6124032	2019/05/13	2019/05/14	Lolita Obusan
Total PCB	GC/MS	6128789	2019/05/13	2019/05/15	Corina Tue
Sulphide in Soil	SPEC/UVVS	6124052	2019/05/13	2019/05/15	David Huang
Total Kjeldahl Nitrogen (Available)	KONE	6123731	2019/05/13	2019/05/14	Anna Lebowa
Moisture	BAL	6112397	N/A	2019/05/10	Selina Dunbar
Nitrogen Ammonia - soil (as N)	KONE	6118113	2019/05/13	2019/05/14	Nancy Rogers
Nitrogen - Nitrate + Nitrite	KONE	6119805	2019/05/13	2019/05/15	Sarah Mitchell
Nitrogen - Nitrite by auto colourimetry	KONE	6119806	2019/05/13	2019/05/14	Sarah Mitchell
Nitrogen - Nitrate (as N)	CALC	6112179	N/A	2019/05/15	Automated Statchk
PAH in sediment by GC/MS (Low Level)	GC/MS	6114865	2019/05/10	2019/05/15	Lisa Gates
Phenols (4AAP)	TECH	6118071	2019/05/13	2019/05/14	Bramdeo Motiram
pH (5:1 DI Water Extract)	PH/PH	6118394	2019/05/13	2019/05/13	Steven Smith
Phosphorus - ortho by auto Colourimetry	KONE	6119804	2019/05/13	2019/05/14	Sarah Mitchell
Particle size in solids (pipette&sieve)	PSIV	6114613	N/A	2019/05/23	Tammy Peters
Acid Vol. Sulphide in S (Sub fr.Bedford)		6117818	2019/05/13	2019/05/29	Eric Dearman
Total Organic Carbon in Soil	COMB	6122751	N/A	2019/05/16	Godwin Okereke
ModTPH (T1) Calc. for Soil	CALC	6112129	N/A	2019/05/13	Automated Statchk
Volatile Organic Compounds and F1 PHCs	GC/MS	6118044	N/A	2019/05/14	Rebecca McClean
VOCs in Soil - Field Preserved	HS/MS	6109572	N/A	2019/05/10	Amanda Swales
VPH in Soil (PIRI) - Field Preserved	PTGC/MS	6112673	N/A	2019/05/09	Shawn Helmkey

BV Labs ID: JQW588 Dup
Sample ID: S1
Matrix: Sediment

Collected: 2019/05/06
Shipped:
Received: 2019/05/07

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Moisture (Subcontracted)	BAL	6124032	2019/05/13	2019/05/14	Lolita Obusan
Nitrogen Ammonia - soil (as N)	KONE	6118113	2019/05/13	2019/05/14	Nancy Rogers
PAH in sediment by GC/MS (Low Level)	GC/MS	6114865	2019/05/10	2019/05/15	Lisa Gates
Particle size in solids (pipette&sieve)	PSIV	6114613	N/A	2019/05/23	Tammy Peters



BUREAU
VERITAS

BV Labs Job #: B9C3232
Report Date: 2019/07/31

Stantec Consulting Ltd
Client Project #: 121621877
Site Location: CARIBOU
Sampler Initials: EC

TEST SUMMARY

BV Labs ID: JQW589
Sample ID: S1-DUP
Matrix: Sediment

Collected: 2019/05/06
Shipped:
Received: 2019/05/07

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Benzo(b/j)fluoranthene Sum (LL soil)	CALC	6112177	N/A	2019/05/15	Automated Statchk
Dioxins/Furans in Soil (EPS 1/RM/23)	HRMS/MS	6186144	2019/06/19	2019/06/27	Angel Guerrero
Organic Halogen (Extractable)		6117816	N/A	2019/05/16	Eric Dearman
TEH in Soil (PIRI)	GC/FID	6114660	2019/05/10	2019/05/10	Brittany Matthews
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	6123946	2019/05/15	2019/05/16	Prabhjot Gulati
F4G (CCME Hydrocarbons Gravimetric)	BAL	6117791	2019/05/13	2019/05/13	Simarpreet Kaur
Mercury (CVAA)	CV/AA	6114567	2019/05/13	2019/05/13	Cody Cleary
Metals Solids Acid Extr. ICPMS	ICP/MS	6117751	2019/05/13	2019/05/13	Bryon Angevine
Carbon Nitrogen Ratio	CALC	6125795	2019/05/15	2019/05/15	Report Automation Engine
Total Cyanide	SKAL	6128790	2019/05/13	2019/05/14	Gustavo Garcia Casado
Carbon, Nitrogen, Sulphur - Combustion	COMB	6117721	N/A	2019/05/15	Harry (Peng) Liang
Water Content (Subcontracted)	BAL	6133308	N/A	2019/05/15	Automated Status Check
Moisture (Subcontracted)	BAL	6124032	2019/05/13	2019/05/14	Lolita Obusan
Total PCB	GC/MS	6128789	2019/05/13	2019/05/15	Corina Tue
Sulphide in Soil	SPEC/UVVS	6124052	2019/05/13	2019/05/15	David Huang
Total Kjeldahl Nitrogen (Available)	KONE	6123731	2019/05/13	2019/05/14	Anna Lebowa
Moisture	BAL	6112397	N/A	2019/05/10	Selina Dunbar
Nitrogen Ammonia - soil (as N)	KONE	6118113	2019/05/13	2019/05/14	Nancy Rogers
Nitrogen - Nitrate + Nitrite	KONE	6119805	2019/05/13	2019/05/15	Sarah Mitchell
Nitrogen - Nitrite by auto colourimetry	KONE	6119806	2019/05/13	2019/05/14	Sarah Mitchell
Nitrogen - Nitrate (as N)	CALC	6112179	N/A	2019/05/15	Automated Statchk
PAH in sediment by GC/MS (Low Level)	GC/MS	6114865	2019/05/10	2019/05/15	Lisa Gates
Phenols (4AAP)	TECH	6118071	2019/05/13	2019/05/14	Bramdeo Motiram
pH (5:1 DI Water Extract)	PH/PH	6118394	2019/05/13	2019/05/13	Steven Smith
Phosphorus - ortho by auto Colourimetry	KONE	6119804	2019/05/13	2019/05/14	Sarah Mitchell
Particle size in solids (pipette&sieve)	PSIV	6114613	N/A	2019/05/23	Tammy Peters
Acid Vol. Sulphide in S (Sub fr.Bedford)		6117818	2019/05/13	2019/05/29	Eric Dearman
Total Organic Carbon in Soil	COMB	6122751	N/A	2019/05/16	Godwin Okereke
ModTPH (T1) Calc. for Soil	CALC	6112129	N/A	2019/05/13	Automated Statchk
Volatile Organic Compounds and F1 PHCs	GC/MS	6118044	N/A	2019/05/14	Rebecca McClean
VOCs in Soil - Field Preserved	HS/MS	6109572	N/A	2019/05/10	Amanda Swales
VPH in Soil (PIRI) - Field Preserved	PTGC/MS	6112673	N/A	2019/05/09	Shawn Helmkey

BV Labs ID: JQW589 Dup
Sample ID: S1-DUP
Matrix: Sediment

Collected: 2019/05/06
Shipped:
Received: 2019/05/07

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Dioxins/Furans in Soil (EPS 1/RM/23)	HRMS/MS	6186144	2019/06/19	2019/06/27	Angel Guerrero



BUREAU
VERITAS

BV Labs Job #: B9C3232
Report Date: 2019/07/31

Stantec Consulting Ltd
Client Project #: 121621877
Site Location: CARIBOU
Sampler Initials: EC

TEST SUMMARY

BV Labs ID: JQW590
Sample ID: S2
Matrix: Sediment

Collected: 2019/05/06
Shipped:
Received: 2019/05/07

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Benzo(b/j)fluoranthene Sum (LL soil)	CALC	6112177	N/A	2019/05/15	Automated Statchk
Dioxins/Furans in Soil (EPS 1/RM/23)	HRMS/MS	6186144	2019/06/19	2019/06/27	Angel Guerrero
Organic Halogen (Extractable)		6117816	N/A	2019/05/16	Eric Dearman
TEH in Soil (PIRI)	GC/FID	6114660	2019/05/10	2019/05/10	Brittany Matthews
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	6123946	2019/05/15	2019/05/16	Prabhjot Gulati
F4G (CCME Hydrocarbons Gravimetric)	BAL	6117791	2019/05/13	2019/05/13	Simarpreet Kaur
Mercury (CVAA)	CV/AA	6114567	2019/05/13	2019/05/13	Cody Cleary
Metals Solids Acid Extr. ICPMS	ICP/MS	6117751	2019/05/13	2019/05/13	Bryon Angevine
Carbon Nitrogen Ratio	CALC	6125795	2019/05/15	2019/05/15	Automated Statchk
Total Cyanide	SKAL	6128790	2019/05/13	2019/05/14	Gustavo Garcia Casado
Carbon, Nitrogen, Sulphur - Combustion	COMB	6117721	N/A	2019/05/15	Harry (Peng) Liang
Water Content (Subcontracted)	BAL	6133308	N/A	2019/05/15	Automated Status Check
Moisture (Subcontracted)	BAL	6124032	2019/05/13	2019/05/14	Lolita Obusan
Total PCB	GC/MS	6128789	2019/05/13	2019/05/15	Corina Tue
Sulphide in Soil	SPEC/UVVS	6124052	2019/05/13	2019/05/15	David Huang
Total Kjeldahl Nitrogen (Available)	KONE	6123731	2019/05/13	2019/05/14	Anna Lebowa
Moisture	BAL	6112397	N/A	2019/05/10	Selina Dunbar
Nitrogen Ammonia - soil (as N)	KONE	6118113	2019/05/13	2019/05/14	Nancy Rogers
Nitrogen - Nitrate + Nitrite	KONE	6119805	2019/05/13	2019/05/15	Sarah Mitchell
Nitrogen - Nitrite by auto colourimetry	KONE	6119806	2019/05/13	2019/05/14	Sarah Mitchell
Nitrogen - Nitrate (as N)	CALC	6112179	N/A	2019/05/15	Automated Statchk
PAH in sediment by GC/MS (Low Level)	GC/MS	6114865	2019/05/10	2019/05/15	Lisa Gates
Phenols (4AAP)	TECH	6118071	2019/05/13	2019/05/14	Bramdeo Motiram
pH (5:1 DI Water Extract)	PH/PH	6118394	2019/05/13	2019/05/13	Steven Smith
Phosphorus - ortho by auto Colourimetry	KONE	6119804	2019/05/13	2019/05/14	Sarah Mitchell
Particle size in solids (pipette&sieve)	PSIV	6114613	N/A	2019/05/23	Tammy Peters
Acid Vol. Sulphide in S (Sub fr.Bedford)		6117818	2019/05/13	2019/05/29	Eric Dearman
Total Organic Carbon in Soil	COMB	6122751	N/A	2019/05/16	Godwin Okereke
ModTPH (T1) Calc. for Soil	CALC	6112129	N/A	2019/05/13	Automated Statchk
Volatile Organic Compounds and F1 PHCs	GC/MS	6118044	N/A	2019/05/14	Rebecca McClean
VOCs in Soil - Field Preserved	HS/MS	6109572	N/A	2019/05/10	Amanda Swales
VPH in Soil (PIRI) - Field Preserved	PTGC/MS	6112673	N/A	2019/05/09	Shawn Helmkey

BV Labs ID: JQW591
Sample ID: S3
Matrix: Sediment

Collected: 2019/05/06
Shipped:
Received: 2019/05/07

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Benzo(b/j)fluoranthene Sum (LL soil)	CALC	6112177	N/A	2019/05/15	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	6123946	2019/05/15	2019/05/16	Prabhjot Gulati
Mercury (CVAA)	CV/AA	6114567	2019/05/13	2019/05/13	Cody Cleary
Metals Solids Acid Extr. ICPMS	ICP/MS	6117751	2019/05/13	2019/05/13	Bryon Angevine
Total PCB	GC/MS	6133856	2019/05/17	2019/05/17	Corina Tue
Moisture	BAL	6112397	N/A	2019/05/10	Selina Dunbar
PAH in sediment by GC/MS (Low Level)	GC/MS	6114865	2019/05/10	2019/05/15	Lisa Gates



BUREAU
VERITAS

BV Labs Job #: B9C3232
Report Date: 2019/07/31

Stantec Consulting Ltd
Client Project #: 121621877
Site Location: CARIBOU
Sampler Initials: EC

TEST SUMMARY

BV Labs ID: JQW591
Sample ID: S3
Matrix: Sediment

Collected: 2019/05/06
Shipped:
Received: 2019/05/07

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Particle size in solids (pipette&sieve)	PSIV	6114613	N/A	2019/05/23	Tammy Peters
Total Organic Carbon in Soil	COMB	6122751	N/A	2019/05/16	Godwin Okereke
Volatile Organic Compounds and F1 PHCs	GC/MS	6118044	N/A	2019/05/14	Rebecca McClean

BV Labs ID: JQW591 Dup
Sample ID: S3
Matrix: Sediment

Collected: 2019/05/06
Shipped:
Received: 2019/05/07

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Mercury (CVAA)	CV/AA	6114567	2019/05/13	2019/05/13	Cody Cleary

BV Labs ID: JQW592
Sample ID: S4
Matrix: Sediment

Collected: 2019/05/06
Shipped:
Received: 2019/05/07

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Benzo(b/j)fluoranthene Sum (LL soil)	CALC	6112177	N/A	2019/05/15	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	6123946	2019/05/15	2019/05/16	Prabhjot Gulati
Mercury (CVAA)	CV/AA	6114567	2019/05/13	2019/05/13	Cody Cleary
Metals Solids Acid Extr. ICPMS	ICP/MS	6117751	2019/05/13	2019/05/13	Bryon Angevine
Total PCB	GC/MS	6133856	2019/05/17	2019/05/17	Corina Tue
Moisture	BAL	6112397	N/A	2019/05/10	Selina Dunbar
PAH in sediment by GC/MS (Low Level)	GC/MS	6114865	2019/05/10	2019/05/15	Lisa Gates
Particle size in solids (pipette&sieve)	PSIV	6114613	N/A	2019/05/23	Tammy Peters
Total Organic Carbon in Soil	COMB	6122751	N/A	2019/05/16	Godwin Okereke
Volatile Organic Compounds and F1 PHCs	GC/MS	6118044	N/A	2019/05/14	Rebecca McClean



GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	6.3°C
Package 2	8.3°C
Package 3	13.7°C
Package 4	4.3°C

One cooler was received with an average temperature above 10°C. 2019/05/09 MMC

Revised Report – Reissued to report the TOC in %, as requested by Joanne Whalen-Gayton. MDN 2019-07-31

Sample JQW588 [S1] : Sample was analyzed past method specified hold time for Total Sulphide. Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised.

Sample JQW589 [S1-DUP] : VOCF1 Analysis: Greater than 10g of soil was submitted in the field preserved vial. This significantly exceeds the protocol specification of approximately 5g. Additional methanol was added to the vial to ensure extraction efficiency.
Sample was analyzed past method specified hold time for Total Sulphide. Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised.

Sample JQW590 [S2] : Sample was analyzed past method specified hold time for Total Sulphide. Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised.

Sample JQW591 [S3] : F2-F4 Analysis: Detection limits were adjusted for high moisture content.

Sample JQW592 [S4] : F2-F4 Analysis: Detection limits were adjusted for high moisture content.

Results relate only to the items tested.



BUREAU
VERITAS

BV Labs Job #: B9C3232

Report Date: 2019/07/31

QUALITY ASSURANCE REPORT

Stantec Consulting Ltd

Client Project #: 121621877

Site Location: CARIBOU

Sampler Initials: EC

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
6109572	4-Bromofluorobenzene	2019/05/10	104	60 - 140	103	60 - 140	101	%				
6109572	D10-o-Xylene	2019/05/10	98 (1)	60 - 130	102	60 - 130	96	%				
6109572	D4-1,2-Dichloroethane	2019/05/10	98	60 - 140	97	60 - 140	98	%				
6109572	D8-Toluene	2019/05/10	99	60 - 140	99	60 - 140	100	%				
6112673	Isobutylbenzene - Volatile	2019/05/09	95 (2)	60 - 130	91	60 - 130	93	%				
6114660	Isobutylbenzene - Extractable	2019/05/10	94	60 - 130	91	60 - 130	101	%				
6114660	n-Dotriacontane - Extractable	2019/05/10	123	60 - 130	106	60 - 130	116	%				
6114865	D10-Anthracene	2019/05/15	95	50 - 130	98	50 - 130	100	%				
6114865	D14-Terphenyl	2019/05/15	95	50 - 130	99	50 - 130	97	%				
6114865	D8-Acenaphthylene	2019/05/15	91	50 - 130	94	50 - 130	91	%				
6118044	4-Bromofluorobenzene	2019/05/14	100	60 - 140	99	60 - 140	95	%				
6118044	D10-o-Xylene	2019/05/14	107	60 - 130	95	60 - 130	89	%				
6118044	D4-1,2-Dichloroethane	2019/05/14	101	60 - 140	100	60 - 140	100	%				
6118044	D8-Toluene	2019/05/14	100	60 - 140	101	60 - 140	101	%				
6123946	o-Terphenyl	2019/05/16	90	60 - 130	94	60 - 130	96	%				
6128789	2,3,3',4,6-Pentachlorobiphenyl	2019/05/14			91	60 - 130	90	%				
6128789	2',3,5-Trichlorobiphenyl	2019/05/14			91	60 - 130	90	%				
6128789	22'33'44'566'-Nonachlorobiphenyl	2019/05/14			114	60 - 130	111	%				
6133856	2,3,3',4,6-Pentachlorobiphenyl	2019/05/17			90	60 - 130	92	%				
6133856	2',3,5-Trichlorobiphenyl	2019/05/17			94	60 - 130	97	%				
6133856	22'33'44'566'-Nonachlorobiphenyl	2019/05/17			105	60 - 130	103	%				
6186144	C13-1234678 HeptaCDD	2019/06/26	135 (5)	30 - 130	136 (5)	30 - 130	128	%				
6186144	C13-1234678 HeptaCDF	2019/06/26	90	30 - 130	106	30 - 130	103	%				
6186144	C13-123678 HexaCDD	2019/06/26	104	30 - 130	102	30 - 130	115	%				
6186144	C13-123678 HexaCDF	2019/06/26	56	30 - 130	76	30 - 130	78	%				
6186144	C13-12378 PentaCDD	2019/06/26	88	30 - 130	85	30 - 130	100	%				
6186144	C13-12378 PentaCDF	2019/06/26	61	30 - 130	63	30 - 130	66	%				
6186144	C13-2378 TetraCDD	2019/06/26	115	30 - 130	127	30 - 130	112	%				
6186144	C13-2378 TetraCDF	2019/06/26	77	30 - 130	90	30 - 130	77	%				
6186144	C13-OCDD	2019/06/26	154 (5)	30 - 130	148 (5)	30 - 130	125	%				
6109572	1,1,1-Trichloroethane	2019/05/10	106	60 - 140	110	60 - 130	<25	ug/kg	NC	50		
6109572	1,1,2,2-Tetrachloroethane	2019/05/10	97	60 - 140	99	60 - 130	<25	ug/kg	NC	50		



BUREAU
VERITAS

BV Labs Job #: B9C3232

Report Date: 2019/07/31

QUALITY ASSURANCE REPORT(CONT'D)

Stantec Consulting Ltd

Client Project #: 121621877

Site Location: CARIBOU

Sampler Initials: EC

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
6109572	1,1,2-Trichloroethane	2019/05/10	99	60 - 140	102	60 - 130	<25	ug/kg	NC	50		
6109572	1,1-Dichloroethane	2019/05/10	103	60 - 140	108	60 - 130	<25	ug/kg	NC	50		
6109572	1,1-Dichloroethylene	2019/05/10	105	60 - 140	112	60 - 130	<25	ug/kg	NC	50		
6109572	1,2-Dichlorobenzene	2019/05/10	94	60 - 140	100	60 - 130	<25	ug/kg	NC	50		
6109572	1,2-Dichloroethane	2019/05/10	94	60 - 140	98	60 - 130	<25	ug/kg	NC	50		
6109572	1,2-Dichloropropane	2019/05/10	102	60 - 140	106	60 - 130	<25	ug/kg	NC	50		
6109572	1,3-Dichlorobenzene	2019/05/10	95	60 - 140	102	60 - 130	<25	ug/kg	NC	50		
6109572	1,4-Dichlorobenzene	2019/05/10	94	60 - 140	100	60 - 130	<25	ug/kg	NC	50		
6109572	Benzene	2019/05/10	100	60 - 140	105	60 - 130	<25	ug/kg	NC	50		
6109572	Bromodichloromethane	2019/05/10	100	60 - 140	104	60 - 130	<25	ug/kg	NC	50		
6109572	Bromoform	2019/05/10	93	60 - 140	95	60 - 130	<25	ug/kg	NC	50		
6109572	Bromomethane	2019/05/10	94	60 - 140	96	60 - 140	<50	ug/kg	NC	50		
6109572	Carbon Tetrachloride	2019/05/10	104	60 - 140	109	60 - 130	<25	ug/kg	NC	50		
6109572	Chlorobenzene	2019/05/10	96	60 - 140	100	60 - 130	<25	ug/kg	NC	50		
6109572	Chloroethane	2019/05/10	91	60 - 140	97	60 - 140	<200	ug/kg	NC	50		
6109572	Chloroform	2019/05/10	91	60 - 140	96	60 - 130	<25	ug/kg	NC	50		
6109572	cis-1,2-Dichloroethylene	2019/05/10	103	60 - 140	108	60 - 130	<25	ug/kg	NC	50		
6109572	cis-1,3-Dichloropropene	2019/05/10	94	60 - 140	97	60 - 130	<25	ug/kg	NC	50		
6109572	Dibromochloromethane	2019/05/10	100	60 - 140	104	60 - 130	<25	ug/kg	NC	50		
6109572	Ethylbenzene	2019/05/10	103	60 - 140	107	60 - 130	<25	ug/kg	NC	50		
6109572	Ethylene Dibromide	2019/05/10	102	60 - 140	107	60 - 130	<25	ug/kg	NC	50		
6109572	Methyl t-butyl ether (MTBE)	2019/05/10	98	60 - 140	104	60 - 130	<25	ug/kg	NC	50		
6109572	Methylene Chloride(Dichloromethane)	2019/05/10	98	60 - 140	103	60 - 130	<25	ug/kg	NC	50		
6109572	o-Xylene	2019/05/10	108	60 - 140	114	60 - 130	<25	ug/kg	NC	50		
6109572	p+m-Xylene	2019/05/10	106	60 - 140	111	60 - 130	<25	ug/kg	NC	50		
6109572	Styrene	2019/05/10	103	60 - 140	107	60 - 130	<25	ug/kg	NC	50		
6109572	Tetrachloroethylene	2019/05/10	110	60 - 140	116	60 - 130	<25	ug/kg	NC	50		
6109572	Toluene	2019/05/10	101	60 - 140	107	60 - 130	<50	ug/kg	NC	50		
6109572	Total Xylenes	2019/05/10					<50	ug/kg	NC	50		
6109572	trans-1,2-Dichloroethylene	2019/05/10	106	60 - 140	112	60 - 130	<25	ug/kg	NC	50		
6109572	trans-1,3-Dichloropropene	2019/05/10	91	60 - 140	92	60 - 130	<25	ug/kg	NC	50		
6109572	Trichloroethylene	2019/05/10	108	60 - 140	114	60 - 130	<10	ug/kg	NC	50		



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Sampler Initials: EC

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
6109572	Trichlorofluoromethane (FREON 11)	2019/05/10	97	60 - 140	104	60 - 140	<25	ug/kg	NC	50		
6109572	Vinyl Chloride	2019/05/10	86	60 - 140	93	60 - 140	<20	ug/kg	NC	50		
6112397	Moisture	2019/05/10							0.97	25		
6112673	Benzene	2019/05/09	92	60 - 130	87	60 - 140	<0.025	mg/kg	NC	50		
6112673	C6 - C10 (less BTEX)	2019/05/09					<2.5	mg/kg	NC	50		
6112673	Ethylbenzene	2019/05/09	96	60 - 130	88	60 - 140	<0.025	mg/kg	NC	50		
6112673	Toluene	2019/05/09	92	60 - 130	88	60 - 140	<0.050	mg/kg	NC	50		
6112673	Total Xylenes	2019/05/09	93	60 - 130	87	60 - 140	<0.050	mg/kg	NC	50		
6114567	Mercury (Hg)	2019/05/13	90	75 - 125	97	80 - 120	<0.010	mg/kg	NC	30	80	N/A
6114613	Clay	2019/05/23							11	35		
6114613	Gravel	2019/05/23							166 (3)	35		
6114613	Sand	2019/05/23							13	35		
6114613	Silt	2019/05/23							NC	35		
6114660	>C10-C16 Hydrocarbons	2019/05/10	91	30 - 130	95	60 - 130	<10	mg/kg	1.8	50		
6114660	>C16-C21 Hydrocarbons	2019/05/10	85	30 - 130	88	60 - 130	<10	mg/kg	6.3	50		
6114660	>C21-<C32 Hydrocarbons	2019/05/10	NC	30 - 130	106	60 - 130	<15	mg/kg	11	50		
6114865	1-Methylnaphthalene	2019/05/15	82	50 - 130	87	50 - 130	<0.0050	mg/kg	NC	50		
6114865	2-Methylnaphthalene	2019/05/15	83	50 - 130	89	50 - 130	<0.0050	mg/kg	NC	50		
6114865	Acenaphthene	2019/05/15	89	50 - 130	98	50 - 130	<0.0050	mg/kg	NC	50		
6114865	Acenaphthylene	2019/05/15	92	50 - 130	95	50 - 130	<0.0050	mg/kg	NC	50		
6114865	Anthracene	2019/05/15	89	50 - 130	93	50 - 130	<0.0050	mg/kg	NC	50		
6114865	Benzo(a)anthracene	2019/05/15	85	50 - 130	84	50 - 130	<0.0050	mg/kg	NC	50		
6114865	Benzo(a)pyrene	2019/05/15	72	50 - 130	71	50 - 130	<0.0050	mg/kg	NC	50		
6114865	Benzo(b)fluoranthene	2019/05/15	80	50 - 130	82	50 - 130	<0.0050	mg/kg	NC	50		
6114865	Benzo(g,h,i)perylene	2019/05/15	77	50 - 130	70	50 - 130	<0.0050	mg/kg	NC	50		
6114865	Benzo(j)fluoranthene	2019/05/15	72	50 - 130	73	50 - 130	<0.0050	mg/kg	NC	50		
6114865	Benzo(k)fluoranthene	2019/05/15	78	50 - 130	77	50 - 130	<0.0050	mg/kg	NC	50		
6114865	Chrysene	2019/05/15	103	50 - 130	102	50 - 130	<0.0050	mg/kg	NC	50		
6114865	Dibenz(a,h)anthracene	2019/05/15	75	50 - 130	68	50 - 130	<0.0050	mg/kg	NC	50		
6114865	Fluoranthene	2019/05/15	91	50 - 130	92	50 - 130	<0.0050	mg/kg	NC	50		
6114865	Fluorene	2019/05/15	95	50 - 130	100	50 - 130	<0.0050	mg/kg	NC	50		
6114865	Indeno(1,2,3-cd)pyrene	2019/05/15	74	50 - 130	66	50 - 130	<0.0050	mg/kg	NC	50		



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QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
6114865	Naphthalene	2019/05/15	87	50 - 130	94	50 - 130	<0.0050	mg/kg	NC	50		
6114865	Perylene	2019/05/15	69	50 - 130	68	50 - 130	<0.0050	mg/kg	NC	50		
6114865	Phenanthrene	2019/05/15	96	50 - 130	102	50 - 130	<0.0050	mg/kg	NC	50		
6114865	Pyrene	2019/05/15	90	50 - 130	91	50 - 130	<0.0050	mg/kg	NC	50		
6117721	Total Carbon	2019/05/12			105	75 - 125	<0.050	%	NC	30	99	75 - 125
6117721	Total Nitrogen	2019/05/12			99	75 - 125	<0.20	%	NC	30	110	75 - 125
6117721	Total Sulphur (S)	2019/05/12			97	75 - 125	<0.060	%	7.3	30	100	75 - 125
6117751	Acid Extractable Aluminum (Al)	2019/05/13					<10	mg/kg	4.4	35		
6117751	Acid Extractable Antimony (Sb)	2019/05/13	90	75 - 125	100	75 - 125	<2.0	mg/kg	NC	35		
6117751	Acid Extractable Arsenic (As)	2019/05/13	102	75 - 125	100	75 - 125	<2.0	mg/kg	3.6	35		
6117751	Acid Extractable Barium (Ba)	2019/05/13	NC	75 - 125	99	75 - 125	<5.0	mg/kg	1.0	35		
6117751	Acid Extractable Beryllium (Be)	2019/05/13	100	75 - 125	97	75 - 125	<2.0	mg/kg	NC	35		
6117751	Acid Extractable Bismuth (Bi)	2019/05/13	105	75 - 125	100	75 - 125	<2.0	mg/kg	NC	35		
6117751	Acid Extractable Boron (B)	2019/05/13	105	75 - 125	92	75 - 125	<50	mg/kg	NC	35		
6117751	Acid Extractable Cadmium (Cd)	2019/05/13	99	75 - 125	98	75 - 125	<0.30	mg/kg	2.4	35		
6117751	Acid Extractable Chromium (Cr)	2019/05/13	105	75 - 125	100	75 - 125	<2.0	mg/kg	0.020	35		
6117751	Acid Extractable Cobalt (Co)	2019/05/13	104	75 - 125	102	75 - 125	<1.0	mg/kg	0.60	35		
6117751	Acid Extractable Copper (Cu)	2019/05/13	99	75 - 125	99	75 - 125	<2.0	mg/kg	2.1	35		
6117751	Acid Extractable Iron (Fe)	2019/05/13					<50	mg/kg	0.72	35		
6117751	Acid Extractable Lead (Pb)	2019/05/13	102	75 - 125	98	75 - 125	<0.50	mg/kg	1.8	35		
6117751	Acid Extractable Lithium (Li)	2019/05/13	107	75 - 125	99	75 - 125	<2.0	mg/kg	1.0	35		
6117751	Acid Extractable Manganese (Mn)	2019/05/13	NC	75 - 125	100	75 - 125	<2.0	mg/kg	0.81	35		
6117751	Acid Extractable Molybdenum (Mo)	2019/05/13	105	75 - 125	103	75 - 125	<2.0	mg/kg	3.3	35		
6117751	Acid Extractable Nickel (Ni)	2019/05/13	104	75 - 125	101	75 - 125	<2.0	mg/kg	0.66	35		
6117751	Acid Extractable Rubidium (Rb)	2019/05/13	98	75 - 125	98	75 - 125	<2.0	mg/kg	2.2	35		
6117751	Acid Extractable Selenium (Se)	2019/05/13	103	75 - 125	103	75 - 125	<1.0	mg/kg	NC	35		
6117751	Acid Extractable Silver (Ag)	2019/05/13	100	75 - 125	98	75 - 125	<0.50	mg/kg	NC	35		
6117751	Acid Extractable Strontium (Sr)	2019/05/13	88	75 - 125	98	75 - 125	<5.0	mg/kg	22	35		
6117751	Acid Extractable Thallium (Tl)	2019/05/13	102	75 - 125	101	75 - 125	<0.10	mg/kg	5.8	35		
6117751	Acid Extractable Tin (Sn)	2019/05/13	104	75 - 125	97	75 - 125	<1.0	mg/kg	2.2	35		
6117751	Acid Extractable Uranium (U)	2019/05/13	106	75 - 125	96	75 - 125	<0.10	mg/kg	1.9	35		
6117751	Acid Extractable Vanadium (V)	2019/05/13	104	75 - 125	100	75 - 125	<2.0	mg/kg	1.5	35		



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QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
6117751	Acid Extractable Zinc (Zn)	2019/05/13	NC	75 - 125	100	75 - 125	<5.0	mg/kg	1.4	35		
6117791	Total Oil and Grease	2019/05/13	120	65 - 135	101	65 - 135	<100	ug/g	20	50		
6118044	Benzene	2019/05/14	95	60 - 140	94	60 - 130	<0.0060	ug/g	NC	50		
6118044	Ethylbenzene	2019/05/14	97	60 - 140	98	60 - 130	<0.010	ug/g	NC	50		
6118044	F1 (C6-C10) - BTEX	2019/05/14					<10	ug/g	NC	30		
6118044	F1 (C6-C10)	2019/05/14	111	60 - 140	98	80 - 120	<10	ug/g	NC	30		
6118044	o-Xylene	2019/05/14	94	60 - 140	95	60 - 130	<0.020	ug/g	NC	50		
6118044	p+m-Xylene	2019/05/14	94	60 - 140	95	60 - 130	<0.020	ug/g	NC	50		
6118044	Toluene	2019/05/14	92	60 - 140	93	60 - 130	<0.020	ug/g	1.9	50		
6118044	Total Xylenes	2019/05/14					<0.020	ug/g	NC	50		
6118071	Phenols-4AAP	2019/05/14	96	75 - 125	98	80 - 120	<0.04	ug/g	NC	20		
6118113	Ammonia-N	2019/05/14	82	75 - 125	99	80 - 120	<0.25	mg/kg	23	30		
6118394	Soluble (5:1) pH	2019/05/13							1.9	N/A		
6119804	Orthophosphate (P)	2019/05/14	86	80 - 120	100	80 - 120	<0.050	mg/kg	18	25		
6119805	Nitrate + Nitrite (N)	2019/05/15	95	75 - 125	108	80 - 120	<0.25	mg/kg	11	35		
6119806	Nitrite (N)	2019/05/14	91	70 - 130	99	70 - 130	<0.050	mg/kg	NC	30		
6122751	Total Organic Carbon	2019/05/16					<0.050	%	4.1	35	110	75 - 125
6123731	Available (KCl) Total Kjeldahl Nitrogen	2019/05/15	91	75 - 125	115	80 - 120	<5.0	mg/kg	104 (4)	30	104	75 - 125
6123946	F2 (C10-C16 Hydrocarbons)	2019/05/16	88	50 - 130	92	80 - 120	<10	ug/g	NC	30		
6123946	F3 (C16-C34 Hydrocarbons)	2019/05/16	88	50 - 130	92	80 - 120	<50	ug/g	NC	30		
6123946	F4 (C34-C50 Hydrocarbons)	2019/05/16	87	50 - 130	89	80 - 120	<50	ug/g	NC	30		
6124032	Moisture-Subcontracted	2019/05/14					<0.30	%	4.0	20		
6124052	Sulphide	2019/05/15	NC	75 - 125	98	75 - 125	<0.50	ug/g	86 (4)	30		
6128789	22'33'44'55'6'-NonaCB-(206)	2019/05/14			62	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	22'33'44'55'-OctaCB-(194)	2019/05/14			84	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	22'33'44'56'-OctaCB-(195)	2019/05/14			86	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	22'33'44'5'-HeptaCB-(170)	2019/05/14			86	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	22'33'44'6'-HeptaCB-(171)	2019/05/14			82	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	22'33'44'1'-HexaCB-(128)	2019/05/14			101	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	22'33'45'5'6'-NonaCB-(208)	2019/05/14			75	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	22'33'45'5'6'-OctaCB-(199)	2019/05/14			86	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	22'33'45'6'-HeptaCB-(177)	2019/05/14			70	60 - 130	<0.010	mg/kg	NC	N/A		



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QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
6128789	22'33'46'-HexaCB-(132)	2019/05/14			96	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	22'33'4-PentaCB-(82)	2019/05/14			82	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	22'344'55'-HeptaCB-(180)	2019/05/14			74	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	22'344'5'6-HeptaCB-(183)	2019/05/14			77	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	22'34'55'6-HeptaCB-(187)	2019/05/14			82	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	22'34'5'6-HexaCB-(149)	2019/05/14			96	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	22'345'-PentaCB-(87)	2019/05/14			99	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	22'355'6-HexaCB-(151)	2019/05/14			107	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	22'35'6-PentaCB-(95)	2019/05/14			103	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	22'35'-TetraCB-(44)	2019/05/14			100	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	22'44'55'-HexaCB-(153)	2019/05/14			105	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	22'44'5-PentaCB-(99)	2019/05/14			78	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	22'455'-PentaCB-(101)	2019/05/14			89	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	22'45'-TetraCB-(49)	2019/05/14			101	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	22'55'-TetraCB-(52)	2019/05/14			93	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	233'44'55'6-OctaCB-(205)	2019/05/14			82	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	233'44'5'6-HeptaCB-(191)	2019/05/14			76	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	233'44'5-HexaCB-(156)	2019/05/14			106	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	233'44'-PentaCB-(105)	2019/05/14			112	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	233'4'6-PentaCB-(110)	2019/05/14			109	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	23'44'5-PentaCB-(118)	2019/05/14			100	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	23'4'5-TetraCB-(70)	2019/05/14			96	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	2'34-TriCB-(33)	2019/05/14			95	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	244'5-TetraCB-(74)	2019/05/14			101	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	33'44'55'-HexaCB-(169)	2019/05/14			118	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	DecaCB-(209)	2019/05/14			77	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	Decachlorobiphenyls	2019/05/14					<0.010	mg/kg	NC	30		
6128789	Heptachlorobiphenyls	2019/05/14					<0.010	mg/kg	NC	30		
6128789	HexaCB-(138)+(158)	2019/05/14			113	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	Hexachlorobiphenyls	2019/05/14					<0.010	mg/kg	NC	30		
6128789	Nonachlorobiphenyls	2019/05/14					<0.010	mg/kg	NC	30		
6128789	Octachlorobiphenyls	2019/05/14					<0.010	mg/kg	NC	30		



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QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
6128789	Pentachlorobiphenyls	2019/05/14					<0.010	mg/kg	NC	30		
6128789	Tetrachlorobiphenyls	2019/05/14					<0.010	mg/kg	NC	30		
6128789	Total PCB	2019/05/14			93	60 - 130	<0.010	mg/kg	NC	30		
6128789	TriCB-(17)+(18)	2019/05/14			99	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	TriCB-(28)+(31)	2019/05/14			99	60 - 130	<0.010	mg/kg	NC	N/A		
6128789	Trichlorobiphenyls	2019/05/14					<0.010	mg/kg	NC	30		
6128790	Total Cyanide (CN)	2019/05/14			80	75 - 125	<0.50	mg/kg			89	75 - 125
6133856	22'33'44'55'6'-NonaCB-(206)	2019/05/17			64	60 - 130	<0.010	mg/kg	NC	N/A		
6133856	22'33'44'55'-OctaCB-(194)	2019/05/17			84	60 - 130	<0.010	mg/kg	NC	N/A		
6133856	22'33'44'56'-OctaCB-(195)	2019/05/17			82	60 - 130	<0.010	mg/kg	NC	N/A		
6133856	22'33'44'5'-HeptaCB-(170)	2019/05/17			88	60 - 130	<0.010	mg/kg	NC	N/A		
6133856	22'33'44'6'-HeptaCB-(171)	2019/05/17			76	60 - 130	<0.010	mg/kg	NC	N/A		
6133856	22'33'44'-HexaCB-(128)	2019/05/17			89	60 - 130	<0.010	mg/kg	NC	N/A		
6133856	22'33'455'66'-NonaCB-(208)	2019/05/17			74	60 - 130	<0.010	mg/kg	NC	N/A		
6133856	22'33'455'6'-OctaCB-(199)	2019/05/17			84	60 - 130	<0.010	mg/kg	NC	N/A		
6133856	22'33'45'6'-HeptaCB-(177)	2019/05/17			66	60 - 130	<0.010	mg/kg	NC	N/A		
6133856	22'33'46'-HexaCB-(132)	2019/05/17			95	60 - 130	<0.010	mg/kg	NC	N/A		
6133856	22'33'4'-PentaCB-(82)	2019/05/17			77	60 - 130	<0.010	mg/kg	NC	N/A		
6133856	22'344'55'-HeptaCB-(180)	2019/05/17			75	60 - 130	<0.010	mg/kg	NC	N/A		
6133856	22'344'5'6'-HeptaCB-(183)	2019/05/17			74	60 - 130	<0.010	mg/kg	NC	N/A		
6133856	22'34'55'6'-HeptaCB-(187)	2019/05/17			75	60 - 130	<0.010	mg/kg	NC	N/A		
6133856	22'34'5'6'-HexaCB-(149)	2019/05/17			96	60 - 130	<0.010	mg/kg	NC	N/A		
6133856	22'345'-PentaCB-(87)	2019/05/17			96	60 - 130	<0.010	mg/kg	NC	N/A		
6133856	22'355'6'-HexaCB-(151)	2019/05/17			106	60 - 130	<0.010	mg/kg	NC	N/A		
6133856	22'35'6'-PentaCB-(95)	2019/05/17			108	60 - 130	<0.010	mg/kg	NC	N/A		
6133856	22'35'-TetraCB-(44)	2019/05/17			102	60 - 130	<0.010	mg/kg	NC	N/A		
6133856	22'44'55'-HexaCB-(153)	2019/05/17			109	60 - 130	<0.010	mg/kg	NC	N/A		
6133856	22'44'5'-PentaCB-(99)	2019/05/17			88	60 - 130	<0.010	mg/kg	NC	N/A		
6133856	22'455'-PentaCB-(101)	2019/05/17			97	60 - 130	<0.010	mg/kg	NC	N/A		
6133856	22'45'-TetraCB-(49)	2019/05/17			104	60 - 130	<0.010	mg/kg	NC	N/A		
6133856	22'55'-TetraCB-(52)	2019/05/17			97	60 - 130	<0.010	mg/kg	NC	N/A		
6133856	233'44'55'6'-OctaCB-(205)	2019/05/17			85	60 - 130	<0.010	mg/kg	NC	N/A		



BUREAU
VERITAS

BV Labs Job #: B9C3232
Report Date: 2019/07/31

QUALITY ASSURANCE REPORT(CONT'D)

Stantec Consulting Ltd
Client Project #: 121621877
Site Location: CARIBOU
Sampler Initials: EC

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
6133856	233'44'5'6-HeptaCB-(191)	2019/05/17			75	60 - 130	<0.010	mg/kg	NC	N/A		
6133856	233'44'5-HexaCB-(156)	2019/05/17			103	60 - 130	<0.010	mg/kg	NC	N/A		
6133856	233'44'1-PentaCB-(105)	2019/05/17			134 (4)	60 - 130	<0.010	mg/kg	NC	N/A		
6133856	233'4'6-PentaCB-(110)	2019/05/17			110	60 - 130	<0.010	mg/kg	NC	N/A		
6133856	23'44'5-PentaCB-(118)	2019/05/17			112	60 - 130	<0.010	mg/kg	NC	N/A		
6133856	23'4'5-TetraCB-(70)	2019/05/17			102	60 - 130	<0.010	mg/kg	NC	N/A		
6133856	2'34-TriCB-(33)	2019/05/17			96	60 - 130	<0.010	mg/kg	NC	N/A		
6133856	244'5-TetraCB-(74)	2019/05/17			122	60 - 130	<0.010	mg/kg	NC	N/A		
6133856	33'44'55'-HexaCB-(169)	2019/05/17			124	60 - 130	<0.010	mg/kg	NC	N/A		
6133856	DecaCB-(209)	2019/05/17			80	60 - 130	<0.010	mg/kg	NC	N/A		
6133856	Decachlorobiphenyls	2019/05/17					<0.010	mg/kg	NC	30		
6133856	Heptachlorobiphenyls	2019/05/17					<0.010	mg/kg	NC	30		
6133856	HexaCB-(138)+(158)	2019/05/17			117	60 - 130	<0.010	mg/kg	NC	N/A		
6133856	Hexachlorobiphenyls	2019/05/17					<0.010	mg/kg	NC	30		
6133856	Nonachlorobiphenyls	2019/05/17					<0.010	mg/kg	NC	30		
6133856	Octachlorobiphenyls	2019/05/17					<0.010	mg/kg	NC	30		
6133856	Pentachlorobiphenyls	2019/05/17					<0.010	mg/kg	NC	30		
6133856	Tetrachlorobiphenyls	2019/05/17					<0.010	mg/kg	NC	30		
6133856	Total PCB	2019/05/17			94	60 - 130	<0.010	mg/kg	NC	30		
6133856	TriCB-(17)+(18)	2019/05/17			97	60 - 130	<0.010	mg/kg	NC	N/A		
6133856	TriCB-(28)+(31)	2019/05/17			95	60 - 130	<0.010	mg/kg	NC	N/A		
6133856	Trichlorobiphenyls	2019/05/17					<0.010	mg/kg	NC	30		
6186144	1,2,3,4,6,7,8-Hepta CDD	2019/06/27	93	80 - 140	90	80 - 140	<0.498, EDL=0.498 (6)	pg/g	NC	25		
6186144	1,2,3,4,6,7,8-Hepta CDF	2019/06/27	97	80 - 140	95	80 - 140	<0.0954, EDL=0.0954	pg/g	NC	25		
6186144	1,2,3,4,7,8,9-Hepta CDF	2019/06/27	137	80 - 140	103	80 - 140	<0.129, EDL=0.129	pg/g	NC	25		
6186144	1,2,3,4,7,8-Hexa CDD	2019/06/27	89	80 - 140	98	80 - 140	<0.119, EDL=0.119	pg/g	NC	25		
6186144	1,2,3,4,7,8-Hexa CDF	2019/06/27	88	80 - 140	92	80 - 140	<0.102, EDL=0.102	pg/g	NC	25		



BUREAU
VERITAS

BV Labs Job #: B9C3232
Report Date: 2019/07/31

QUALITY ASSURANCE REPORT(CONT'D)

Stantec Consulting Ltd
Client Project #: 121621877
Site Location: CARIBOU
Sampler Initials: EC

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
6186144	1,2,3,6,7,8-Hexa CDD	2019/06/27	87	80 - 140	86	80 - 140	<0.106, EDL=0.106	pg/g	NC	25		
6186144	1,2,3,6,7,8-Hexa CDF	2019/06/27	92	80 - 140	90	80 - 140	<0.0949, EDL=0.0949	pg/g	NC	25		
6186144	1,2,3,7,8,9-Hexa CDD	2019/06/27	103	80 - 140	96	80 - 140	<0.111, EDL=0.111	pg/g	NC	25		
6186144	1,2,3,7,8,9-Hexa CDF	2019/06/27	128	80 - 140	87	80 - 140	<0.132, EDL=0.132	pg/g	NC	25		
6186144	1,2,3,7,8-Penta CDD	2019/06/27	91	80 - 140	87	80 - 140	<0.112, EDL=0.112	pg/g	NC	25		
6186144	1,2,3,7,8-Penta CDF	2019/06/27	98	80 - 140	87	80 - 140	<0.111, EDL=0.111	pg/g	NC	25		
6186144	2,3,4,6,7,8-Hexa CDF	2019/06/27	131	80 - 140	87	80 - 140	<0.116, EDL=0.116	pg/g	NC	25		
6186144	2,3,4,7,8-Penta CDF	2019/06/27	90	80 - 140	90	80 - 140	<0.114, EDL=0.114	pg/g	NC	25		
6186144	2,3,7,8-Tetra CDD	2019/06/27	86	80 - 140	81	80 - 140	<0.102, EDL=0.102	pg/g	NC	25		
6186144	2,3,7,8-Tetra CDF	2019/06/27	88	80 - 140	82	80 - 140	<0.111, EDL=0.111	pg/g	NC	25		
6186144	Octa CDD	2019/06/27	90	80 - 140	90	80 - 140	3.34, EDL=0.112	pg/g	10	25		
6186144	Octa CDF	2019/06/27	84	80 - 140	84	80 - 140	<0.963, EDL=0.963 (7)	pg/g	NC	25		
6186144	Total Hepta CDD	2019/06/27					<0.498, EDL=0.498 (6)	pg/g	NC	25		
6186144	Total Hepta CDF	2019/06/27					0.438, EDL=0.110	pg/g	NC	25		
6186144	Total Hexa CDD	2019/06/27					<0.112, EDL=0.112	pg/g	NC	25		
6186144	Total Hexa CDF	2019/06/27					<0.109, EDL=0.109	pg/g	NC	25		
6186144	Total Penta CDD	2019/06/27					<0.112, EDL=0.112	pg/g	NC	25		



BUREAU
VERITAS

BV Labs Job #: B9C3232

Report Date: 2019/07/31

QUALITY ASSURANCE REPORT(CONT'D)

Stantec Consulting Ltd

Client Project #: 121621877

Site Location: CARIBOU

Sampler Initials: EC

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
6186144	Total Penta CDF	2019/06/27					<0.113, EDL=0.113	pg/g	NC	25		
6186144	Total Tetra CDD	2019/06/27					<0.102, EDL=0.102	pg/g	NC	25		
6186144	Total Tetra CDF	2019/06/27					<0.111, EDL=0.111	pg/g	NC	25		

N/A = Not Applicable

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) VOC samples were extracted using a flat-bed shaker instead of the accelerated mechanical shaker due to matrix incompatibility.

(2) VPH samples were extracted using a flat-bed shaker instead of the accelerated mechanical shaker due to matrix incompatibility.

(3) Poor duplicate agreement due to sample inhomogeneity. Additional rocky material in duplicate aliquot.

(4) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

(5) Recovery does not meet method criteria

(6) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

(7) RT>2 seconds - PCDD/DF analysis-Peak maxima of monitored ions exceeds 2 seconds



BUREAU
VERITAS

BV Labs Job #: B9C3232
Report Date: 2019/07/31

Stantec Consulting Ltd
Client Project #: 121621877
Site Location: CARIBOU
Sampler Initials: EC

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Angel Guerrero, Team Leader, VOC Air

Anastassia Hamanov, Scientific Specialist

David Huang, BBY Scientific Specialist



Veronic Beausejour, B.Sc., Chemist, Supervisor

Ghayasuddin Khan, M.Sc., P.Chem., QP, Scientific Specialist, Inorganics

Eric Dearman, Scientific Specialist



Sylvain Chevigny, B.Sc., Chemist, Scientific Service Specialist



BUREAU
VERITAS

BV Labs Job #: B9C3232
Report Date: 2019/07/31

Stantec Consulting Ltd
Client Project #: 121621877
Site Location: CARIBOU
Sampler Initials: EC

VALIDATION SIGNATURE PAGE(CONT'D)

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Gina Thompson, Inorganics General Chemistry Supervisor



Nouredine Chafiaai, B.Sc., Chemist

Owen Cosby, BSc.C.Chem, Supervisor, HRMS Services

Rosemarie MacDonald, Scientific Specialist (Organics)

Winnie Au, B.Sc., QP, Scientific Specialist

BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Your Project #: B9C3232
Site Location: B9C3232

Attention: BEDFORD CLIENT SERVICE

MAXXAM ANALYTICS
200 BLUEWATER ROAD, SUITE 105
BEDFORD, NS
CANADA B4B 1G9

Report Date: 2019/05/16
Report #: R2723784
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B935168
Received: 2019/05/10, 08:30

Sample Matrix: Solid
Samples Received: 3

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Organic Halogen (Extractable)	3	N/A	2019/05/12	PTC SOP-00054	Coulometric-Titr.

Remarks:

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2017 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as ASTM, CGSB, EN, GPA and/or SM. If not provided with the results, identification of the reference method or Maxxam SOP is available upon request.

Maxxam Analytics' liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Maxxam has been retained to provide analysis of the samples provided by the Client using the testing methodology referenced in this report.

Measurement Uncertainty has not been accounted for when stating conformity to any referenced standard. Interpretation and use of the test results are the sole responsibility of the Client and are not within the scope of services provided by Maxxam, unless otherwise agreed in writing. When sampling is not conducted by Maxxam, results apply only to the sample(s) as received. Maxxam is not responsible for the accuracy or any data impacts that result from the information provided by the customer or on the clients behalf by their agent.

This report shall not be reproduced except in full, without the written approval of the laboratory.
Results relate only to the items tested.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Kristen Sywolos, PM supervisor
Email: KSywolos@maxxam.ca
Phone# (780)378-8522

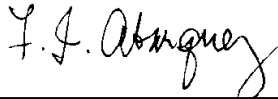
=====
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GENERAL COMMENTS

Results relate only to the items tested.

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Filomena Abarquez, Senior Analyst

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

CERTIFICATE OF ANALYSIS

	B9C3232 <small>Client ID</small>		B935168:VQ7965-01 <small>Laboratory Number</small>
<small>MaxxID</small>		<small>Meter Number</small>	
MAXXAM ANALYTICS <small>Operator Name</small>		LSD <small>Initials of Sampler</small>	Well ID STANTEC CONSULTING
JQW588-03R\S1 <small>Well/Plant/Facility</small>		N/A	Sampling Company STANTEC CONSULTING
		JQW588-03R\S1 <small>Sample Point</small>	GLASS BOTTLE <small>Container Identity</small>
<small>Field or Area</small>	<small>Pool or Zone</small>		<small>Percent Full</small>
<small>Test Recovery</small>		<small>Sample Gathering Point</small>	
<small>Test Type</small>	<small>No.</small>	<small>Multiple Recovery</small>	<small>Solution Gas</small>
<small>Production Rates</small>			<small>Well Fluid Status</small>
<small>Water m³/d</small>	<small>Oil m³/d</small>	<small>Gas 1000m³/d</small>	<small>Well Status Mode</small>
<small>Interval</small>			<small>Well Status Type</small>
<small>From:</small>	<small>To:</small>	<small>Elevations (m)</small>	<small>Well Type</small>
		<small>KB</small> <small>GRD</small>	<small>Gas or Condensate Project</small>
<small>Gauge Pressures kPa</small>			<small>Licence No.</small>
<small>Source</small>	<small>As Received</small>	<small>Temperature °C</small>	
		23.0	
<small>Source</small>	<small>As Received</small>	<small>Source</small>	<small>As Received</small>
2019/05/06 <small>Date Sampled Start</small>	2019/05/10 <small>Date Sampled End</small>	2019/05/16 <small>Date Reported</small>	MN2 <small>Analyst</small>
		<small>Date Reissued</small>	

PARAMETER DESCRIPTION	RESULT	UNIT	METHOD	RDL
Misc. Organics				
Extractable Organic halogen	<2	mg/kg	Coulometric-Titr.	2
Results relate only to items tested				

Remarks:

Reference Method suffix "M" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

CERTIFICATE OF ANALYSIS

	B9C3232 <small>Client ID</small>		B935168:VQ7966-01 <small>Laboratory Number</small>
<small>MaxxID</small>		<small>Meter Number</small>	
MAXXAM ANALYTICS <small>Operator Name</small>		LSD <small>Initials of Sampler</small>	Well ID STANTEC CONSULTING
JQW589-03R\S1-DUP <small>Well/Plant/Facility</small>		N/A	Sampling Company STANTEC CONSULTING
		JQW589-03R\S1-DUP <small>Sample Point</small>	GLASS BOTTLE <small>Container Identity</small>
<small>Field or Area</small>	<small>Pool or Zone</small>		<small>Percent Full</small>
<small>Test Recovery</small>		<small>Interval</small>	<small>Sample Gathering Point</small>
<small>Test Type</small>	<small>No.</small>	<small>Multiple Recovery</small>	<small>Solution Gas</small>
<small>Production Rates</small>			<small>Well Fluid Status</small>
<small>Water m³/d</small>	<small>Oil m³/d</small>	<small>Gas 1000m³/d</small>	<small>Well Status Mode</small>
<small>Gauge Pressures kPa</small>			<small>Well Status Type</small>
<small>From:</small>	<small>To:</small>	<small>Elevations (m)</small>	<small>Well Type</small>
<small>Source</small>	<small>As Received</small>	<small>KB</small> <small>GRD</small>	<small>Gas or Condensate Project</small>
<small>Temperature °C</small>			<small>Licence No.</small>
<small>2019/05/06</small>	<small>2019/05/10</small>	<small>2019/05/16</small>	<small>MN2</small>
<small>Date Sampled Start</small>	<small>Date Sampled End</small>	<small>Date Received</small>	<small>Date Reported</small>
			<small>Date Reissued</small>
			<small>Analyst</small>

PARAMETER DESCRIPTION	RESULT	UNIT	METHOD	RDL
Misc. Organics				
Extractable Organic halogen	<2	mg/kg	Coulometric-Titr.	2
Results relate only to items tested				

Remarks:

Reference Method suffix "M" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

CERTIFICATE OF ANALYSIS

	B9C3232 <small>Client ID</small>		B935168:VQ7967-01 <small>Laboratory Number</small>
<small>MaxxID</small>		<small>Meter Number</small>	
MAXXAM ANALYTICS <small>Operator Name</small>		LSD <small>Initials of Sampler</small>	Well ID STANTEC CONSULTING
JQW590-03R\S2 <small>Well/Plant/Facility</small>		N/A	Sampling Company STANTEC CONSULTING
		JQW590-03R\S2 <small>Sample Point</small>	GLASS BOTTLE <small>Container Identity</small>
<small>Field or Area</small>	<small>Pool or Zone</small>		<small>Percent Full</small>
<small>Test Recovery</small>		<small>Interval</small>	<small>Sample Gathering Point</small>
<small>Test Type</small>	<small>No.</small>	<small>Multiple Recovery</small>	<small>Solution Gas</small>
<small>Production Rates</small>		<small>Gauge Pressures kPa</small>	<small>Well Fluid Status</small>
<small>Water m³/d</small>	<small>Oil m³/d</small>	<small>Source</small>	<small>Well Status Mode</small>
		<small>As Received</small>	<small>Well Type</small>
		<small>Temperature °C</small>	<small>Gas or Condensate Project</small>
		23.0	<small>Licence No.</small>
		<small>Source</small>	
2019/05/06 <small>Date Sampled Start</small>	2019/05/10 <small>Date Sampled End</small>	2019/05/16 <small>Date Reported</small>	MN2 <small>Analyst</small>

PARAMETER DESCRIPTION	RESULT	UNIT	METHOD	RDL
Misc. Organics				
Extractable Organic halogen	<2	mg/kg	Coulometric-Titr.	2
Results relate only to items tested				

Remarks:

Reference Method suffix "M" indicates test methods incorporate validated modifications from specific reference methods to improve performance.



200 Bluewater Road, Suite 105, Bedford, Nova Scotia B4B 1G9 Tel: 902-420-0203 Fax: 902-420-8612 Toll Free: 1-800-565-7227
 49-55 Elizabeth Avenue, St John's, NL A1A 1W9 Tel: 709-754-0203 Fax: 709-754-8612 Toll Free: 1-888-492-7227
 465 George Street, Unit G, Sydney, NS B1P 1K5 Tel: 902-567-1255 Fax: 902-539-8504 Toll Free: 1-888-535-7770

ATL FCD 00149 / 23

www.maxxam.ca E-mail: Customerservicebedford@maxxam.ca

CHAIN OF CUSTODY RECORD

COC #: **D40469** Page **1** of **1**

Invoice Information			Report Information (if differs from invoice)			Project Information (where applicable)			Turnaround Time (TAT) Required																				
Company Name: STANTEC			Company Name:			Quotation #:			<input checked="" type="checkbox"/> Regular TAT (5 business days) Most analyses																				
Contact Name: SAM SALLEY			Contact Name:			Purchase Order #:			PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS																				
Address:			Address:			Project #: 121021877			IF RUSH please specify date (Surcharges will be applied)																				
Phone: 902-468-7777			Phone:			Site Location: CARIBOU			DATE REQUIRED:																				
Email: Sam.Salley@stantec.com			Email:			Site Province: NS																							
Report Copies:			Report Copies:			Site #: _____																							
Report Copies:			Report Copies:			Sampled By: EMILE COLARON																							
Laboratory Use Only				Analysis Requested																									
CUSTODY SEAL		COOLER TEMPERATURES		COOLER TEMPERATURES		FIELD FILTERED & PRESERVED	LAB FILTRATION REQUIRED	RCAP-MS (Total Metals) Well / Surface water	RCAP-MS (Dissolved Metals) Ground waters	Metals (Water)	Metals (Soil)	Total Digest (Default Method) for well water & surface water	Disolved for ground water	Mercury (CIRCLE) TOTAL / DISSOLVED	Metals & Mercury Default Acid Extractable (Available) Digest	Hot Water Soluble Boron (required for CCME Agricultural / Landfill)	RBCA Hydrocarbons (BTEX, C6-C12)	CCME Hydrocarbons (CMS-PHC F1/BTEX, F2-F4)	PAHs (Default for water/soil)	PAHs (FWAL / CCME Sediment)	PCBs - Select One: Default or CCME Sediment	VOCs	Total Coliform/E.coli (Presence/Absence)	Total Coliform/E.Coli (Count)	HOLD- DO NOT ANALYZE	Regulatory Requirements (Specify)			
Present	Intact																												
COOLING MEDIA PRESENT Y / N				SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM																									
SAMPLE IDENTIFICATION		DATE SAMPLED (YYYY/MM/DD)	TIME SAMPLED (HH:MM)	MATRIX																							COMMENTS		
1	S1	2019/05/06		MARINE SED:	17																						SEE ATTACHED		
2	S1-DUP	"	"	" "	17																						ANALYSIS B		
3	S2	"	"	" "	17																						ANALYSIS B		
4	S3	"	"	" "	6																						ANALYSIS A		
5	S4	"	"	" "	6																						ANALYSIS A		
6																													
7																													
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9																													
10																													
RELINQUISHED BY: (Signature/Print)		DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)		DATE: (YYYY/MM/DD)	TIME: (HH:MM)	MAXXAM JOB #																					
EMILE COLARON <i>Elk</i>		2019/05/07						B9C3232																					

Unless otherwise agreed to in writing, work submitted on this Chain of Custody is subject to Maxxam's standard Terms and Conditions. Signing of this Chain of Custody document is acknowledgment and acceptance of our terms which are available for viewing at www.maxxam.ca/terms.

White: Maxxam

Pink: Client

Analysis A Parameters - Disposal at Sea (DAS) Chemicals:

BTEX/TPH (CWS)
Low level mercury
Metals
PAHs (low level)
TOC
PCBs (low res Quebec)
Particle Size

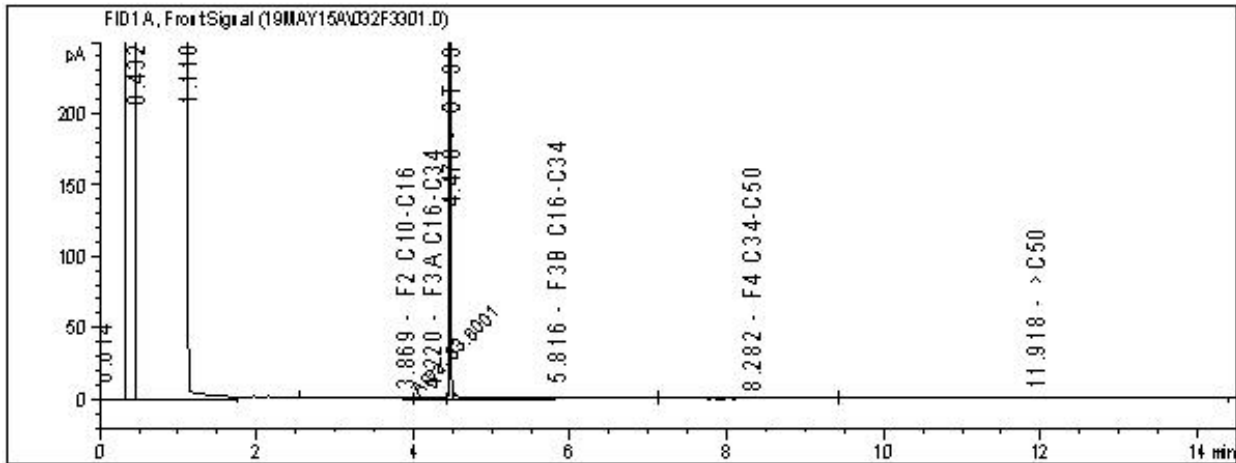
Group 9

Analysis B Parameters - HHRA Chemicals of Potential Concern:

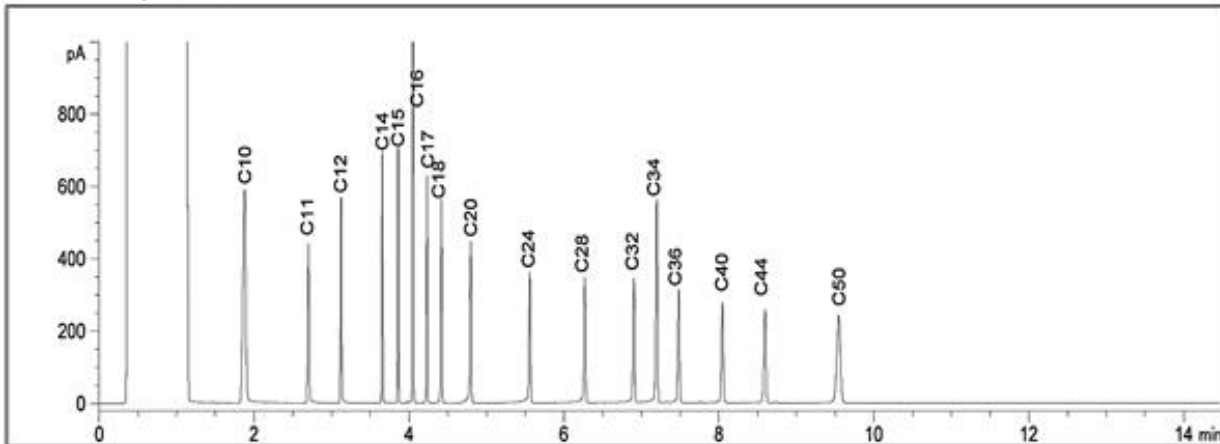
BTEX/TPH (CWS)
Low level mercury
Metals
PAHs (low level)
TOC
PCBs (low res Quebec)
Particle Size
Total sulphides
Total Carbon
Total Nitrogen
Dioxins and furans
EOX (extractable)
Acid-volatile sulphide
Ammonia
Nitrate
TKN
Orthophosphate
pH
Specific non-chlorinated phenolic compounds (4-AAP phenol)
Chlorinated VOCs
RBCA hydrocarbons
Total oil and grease
Total Cyanide

Group 11

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Reference Spectrum



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline: **C6 - C12**

Diesel: **C10 - C24**

Jet Fuels: **C6 - C16**

Varsol: **C8 - C12**

Fuel Oils: **C6 - C32**

Creosote: **C10 - C26**

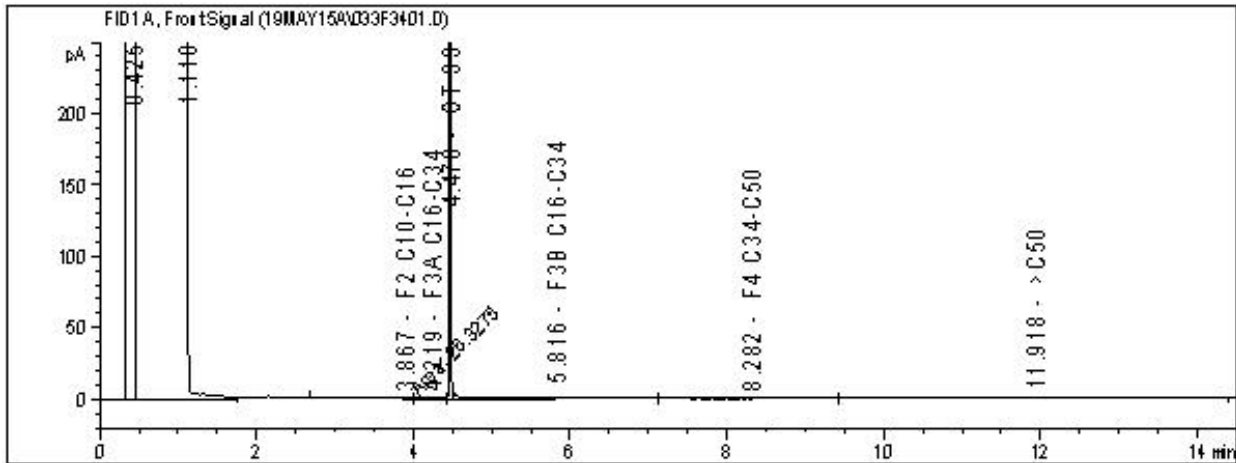
Kerosene: **C8 - C16**

Motor Oils: **C16 - C50**

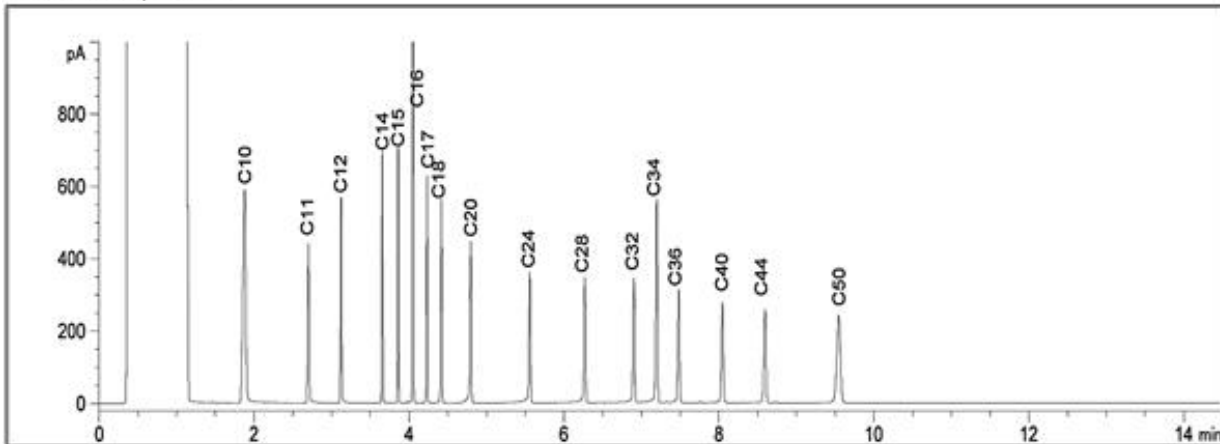
Asphalt: **C18 - C50+**

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Reference Spectrum



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline: **C6 - C12**

Diesel: **C10 - C24**

Jet Fuels: **C6 - C16**

Varsol: **C8 - C12**

Fuel Oils: **C6 - C32**

Creosote: **C10 - C26**

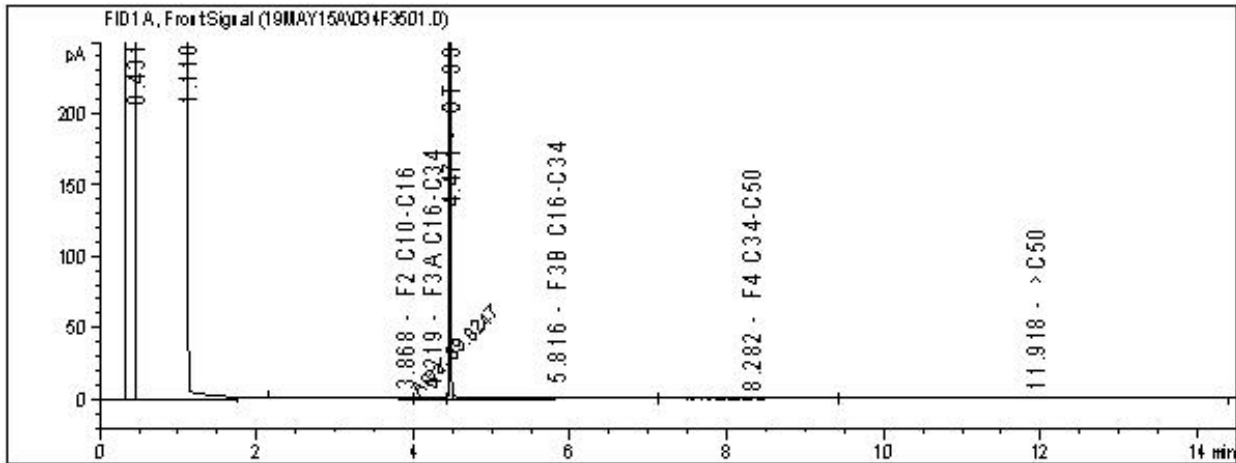
Kerosene: **C8 - C16**

Motor Oils: **C16 - C50**

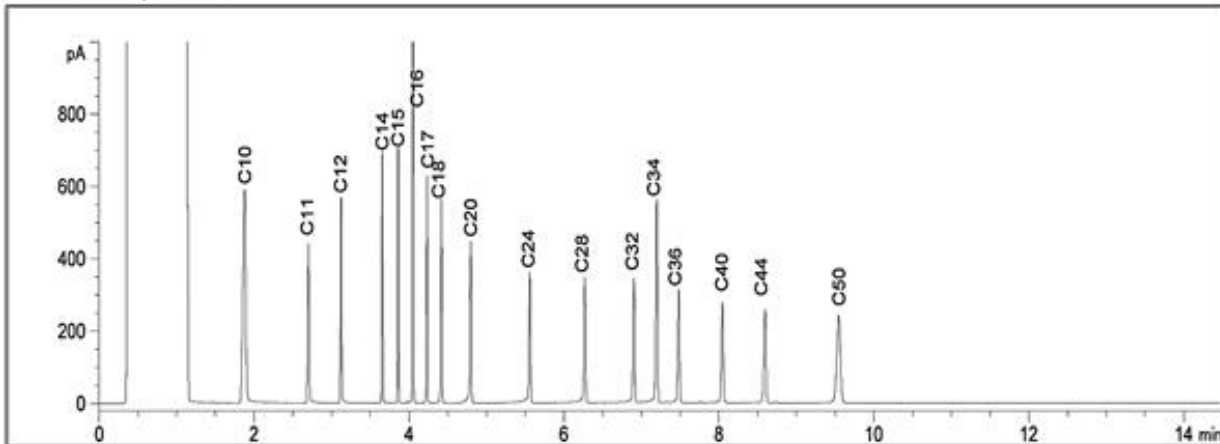
Asphalt: **C18 - C50+**

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Reference Spectrum



TYPICAL PRODUCT CARBON NUMBER RANGES

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Fuel Oils: **C6 - C32**

Creosote: **C10 - C26**

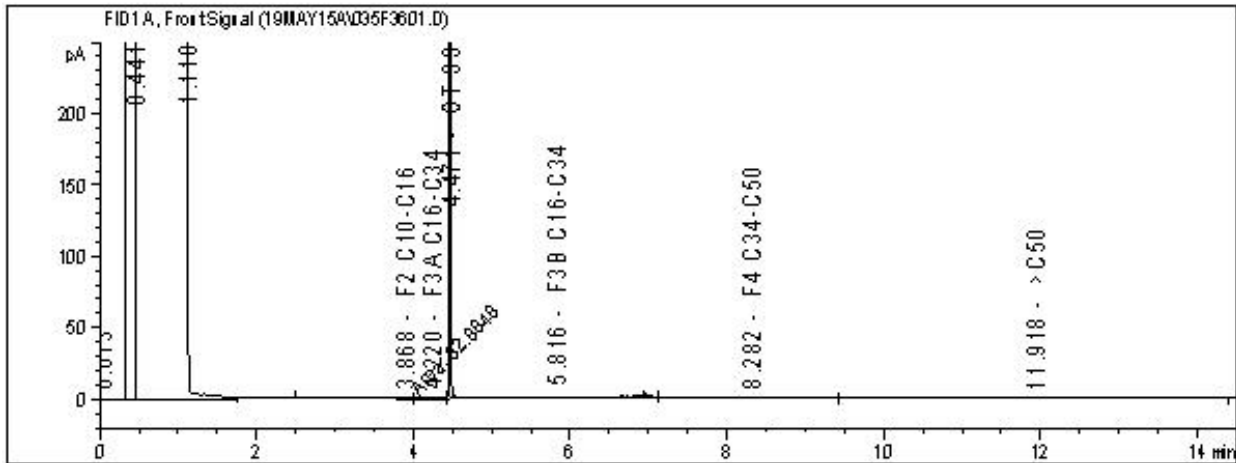
Kerosene: **C8 - C16**

Motor Oils: **C16 - C50**

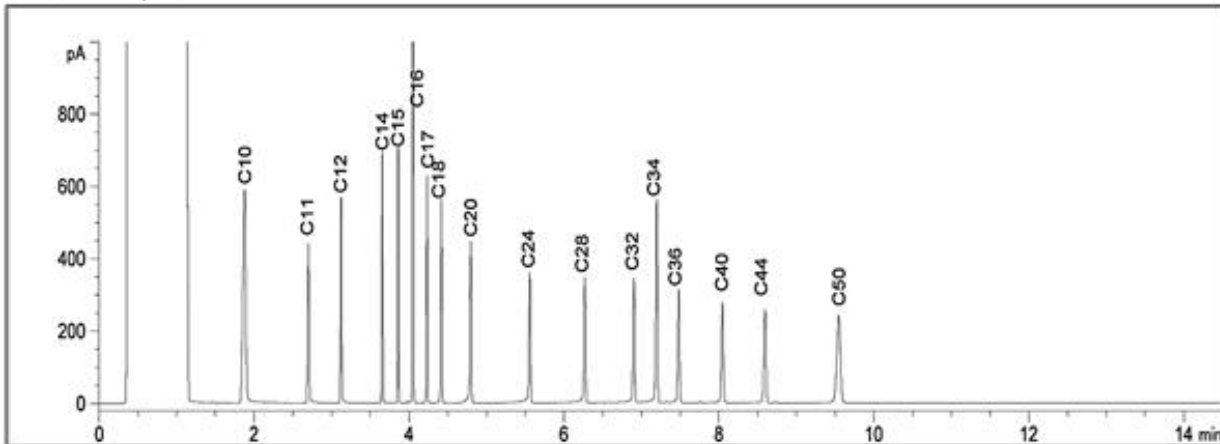
Asphalt: **C18 - C50+**

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Reference Spectrum



TYPICAL PRODUCT CARBON NUMBER RANGES

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Jet Fuels: **C6 - C16**

Varsol: **C8 - C12**

Fuel Oils: **C6 - C32**

Creosote: **C10 - C26**

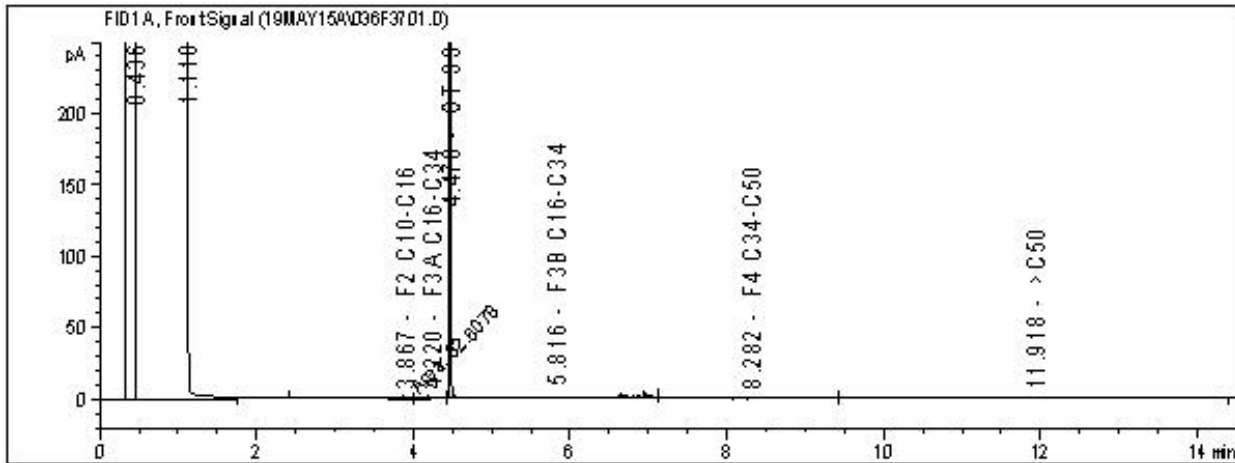
Kerosene: **C8 - C16**

Motor Oils: **C16 - C50**

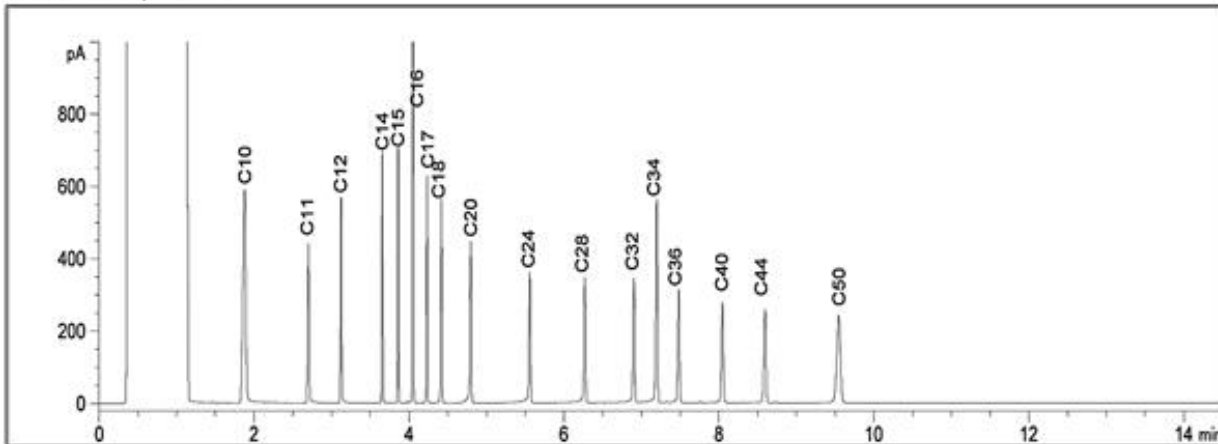
Asphalt: **C18 - C50+**

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Reference Spectrum



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline: **C6 - C12**

Diesel: **C10 - C24**

Jet Fuels: **C6 - C16**

Varsol: **C8 - C12**

Fuel Oils: **C6 - C32**

Creosote: **C10 - C26**

Kerosene: **C8 - C16**

Motor Oils: **C16 - C50**

Asphalt: **C18 - C50+**

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

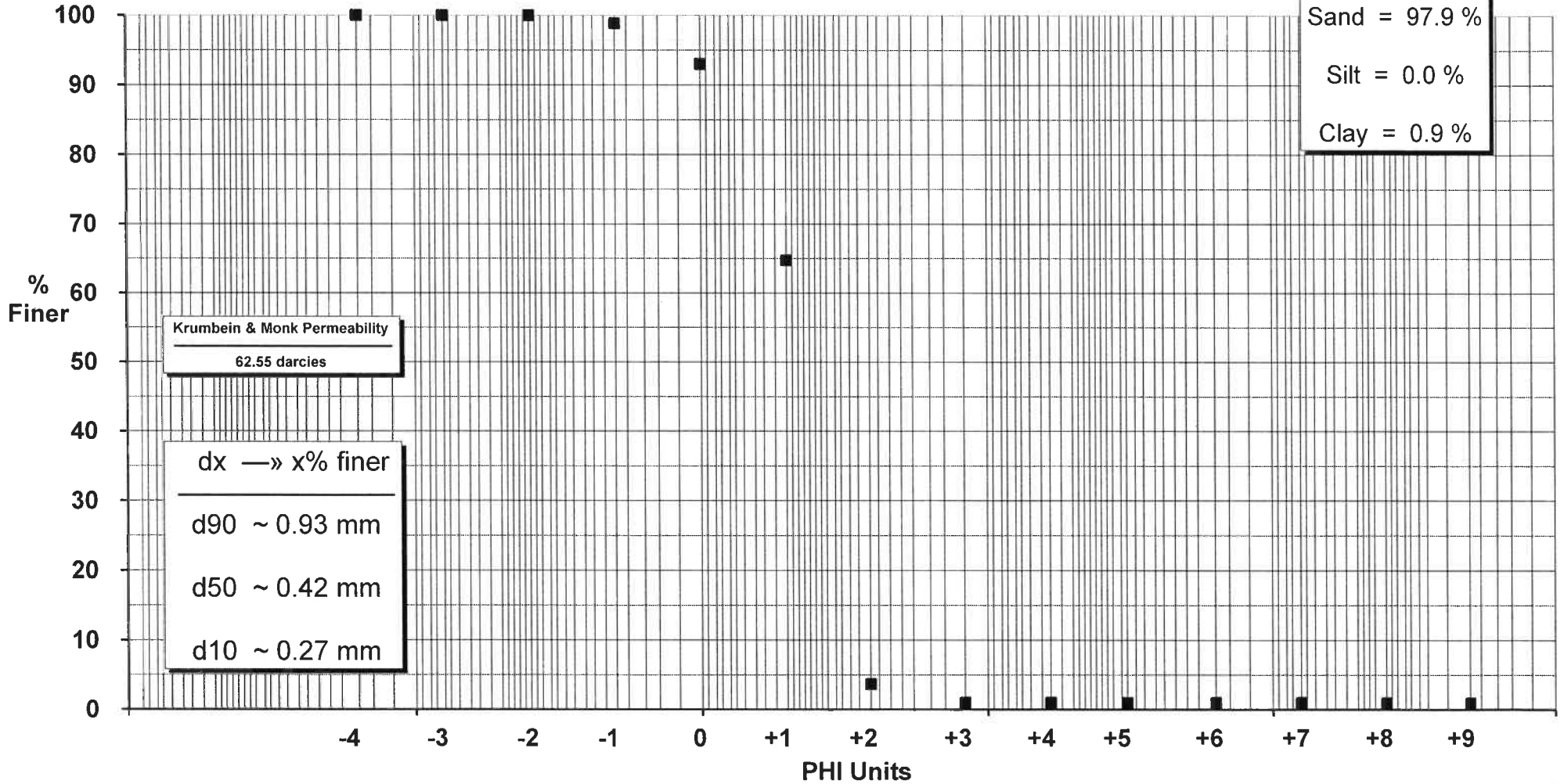


S1

Percent Coarser than 75 μm
(PHI = 3.737)
99.0 %

Percent Coarser than 50 μm
(PHI = 4.322)
99.0 %

Wentworth
Gravel = 1.2 %
Sand = 97.9 %
Silt = 0.0 %
Clay = 0.9 %



673
Approved

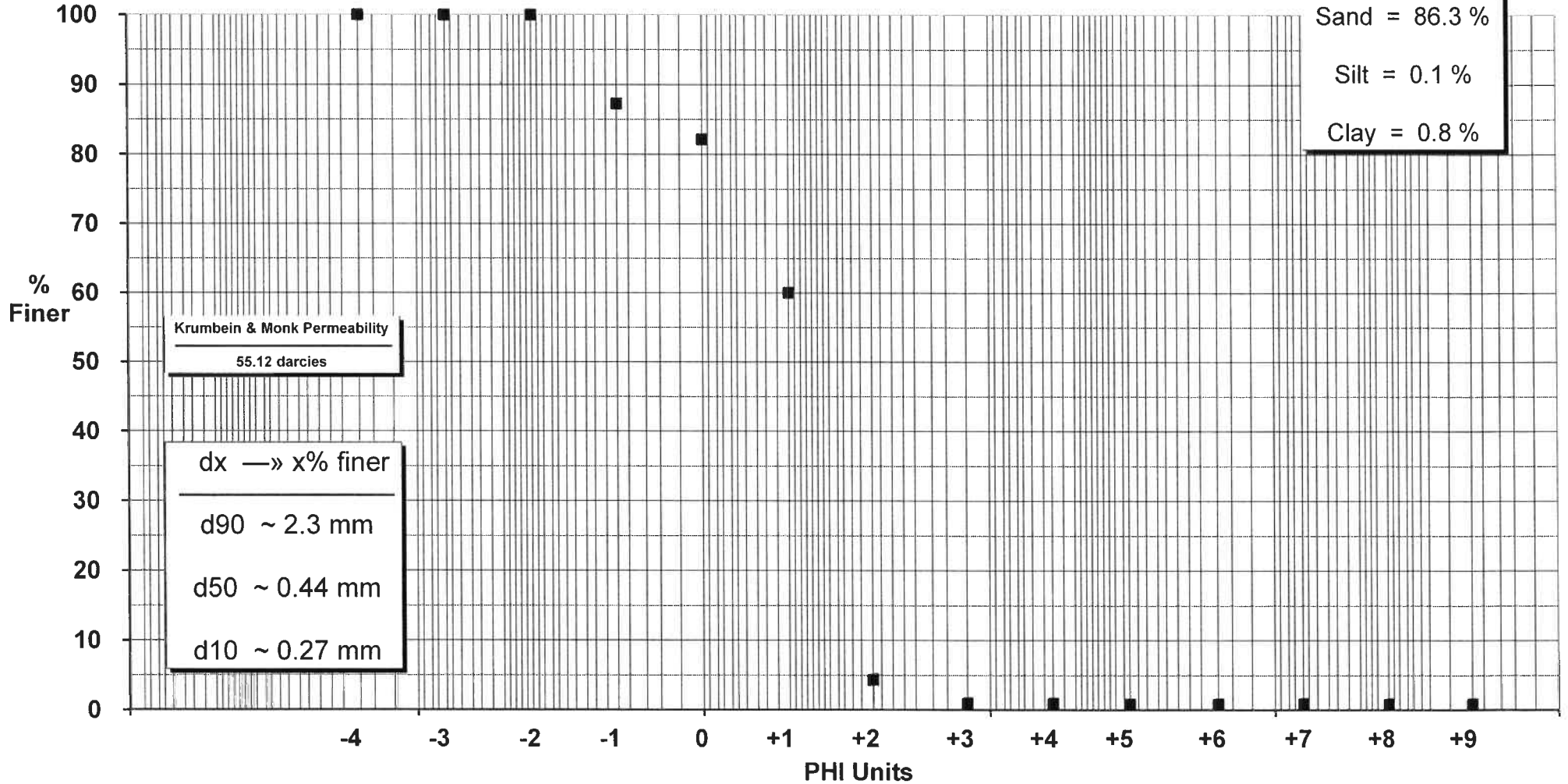


S1

Percent Coarser than 75 μm
(PHI = 3.737)
—
99.1 %

Percent Coarser than 50 μm
(PHI = 4.322)
—
99.1 %

Wentworth
—
Gravel = 12.7 %
Sand = 86.3 %
Silt = 0.1 %
Clay = 0.8 %



CVJ
Approved

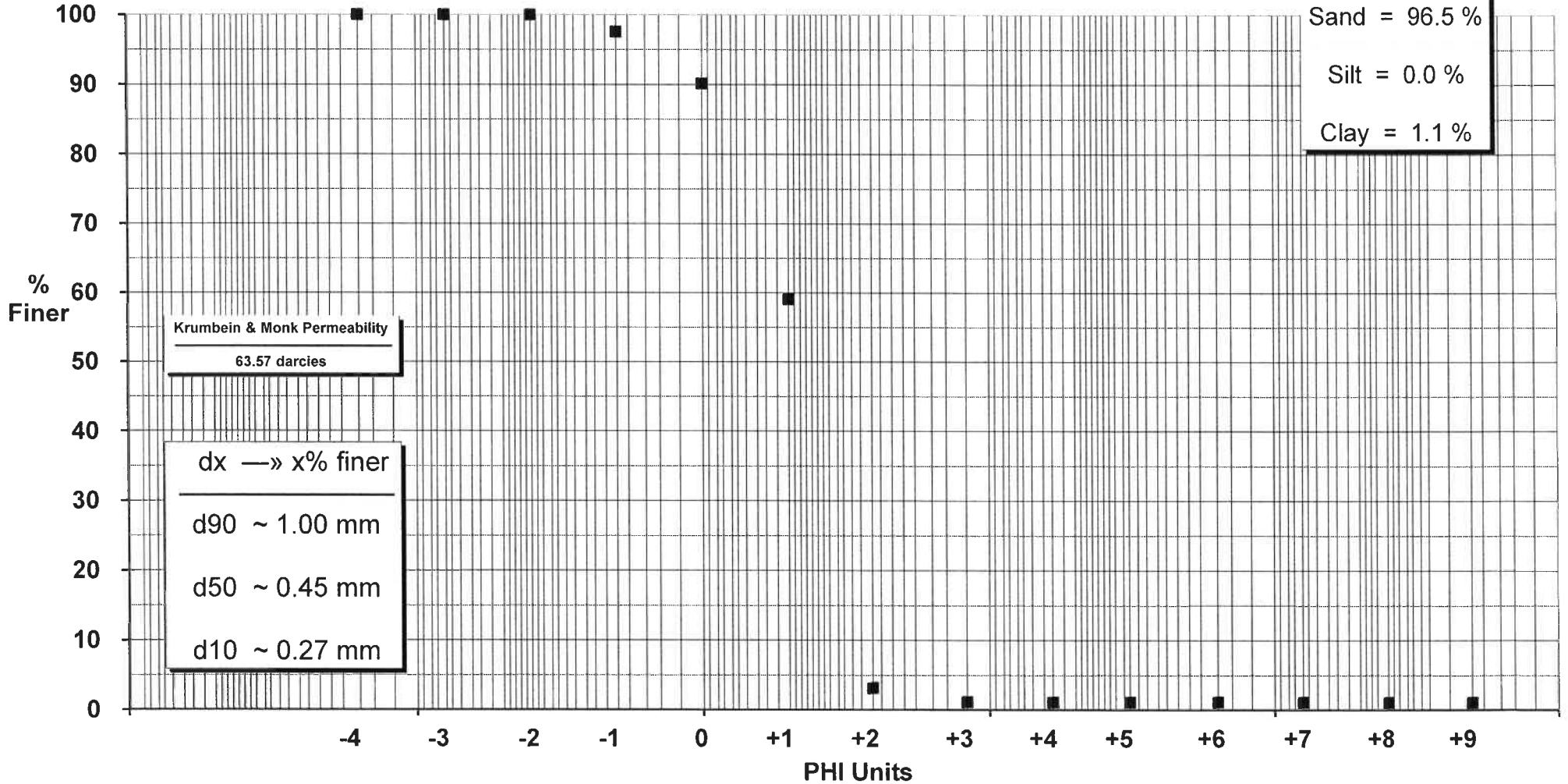


S1-DUP

Percent Coarser than 75 μm
(PHI = 3.737)
—
98.9 %

Percent Coarser than 50 μm
(PHI = 4.322)
—
98.9 %

Wentworth
Gravel = 2.4 %
Sand = 96.5 %
Silt = 0.0 %
Clay = 1.1 %



CSH
Approved

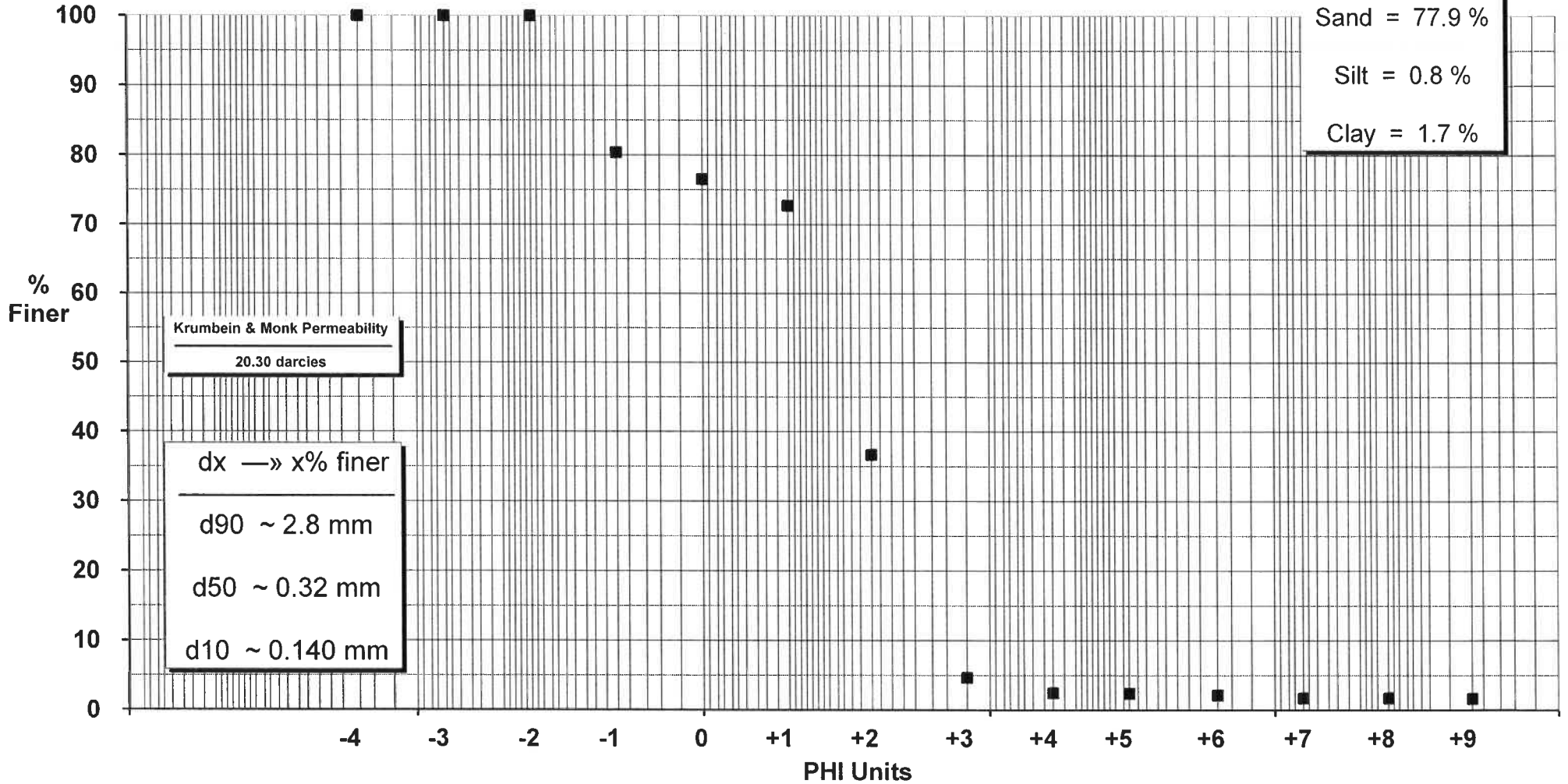


S2

Percent Coarser than 75 μm
(PHI = 3.737)
—
97.0 %

Percent Coarser than 50 μm
(PHI = 4.322)
—
97.6 %

Wentworth
—
Gravel = 19.6 %
Sand = 77.9 %
Silt = 0.8 %
Clay = 1.7 %



Approved

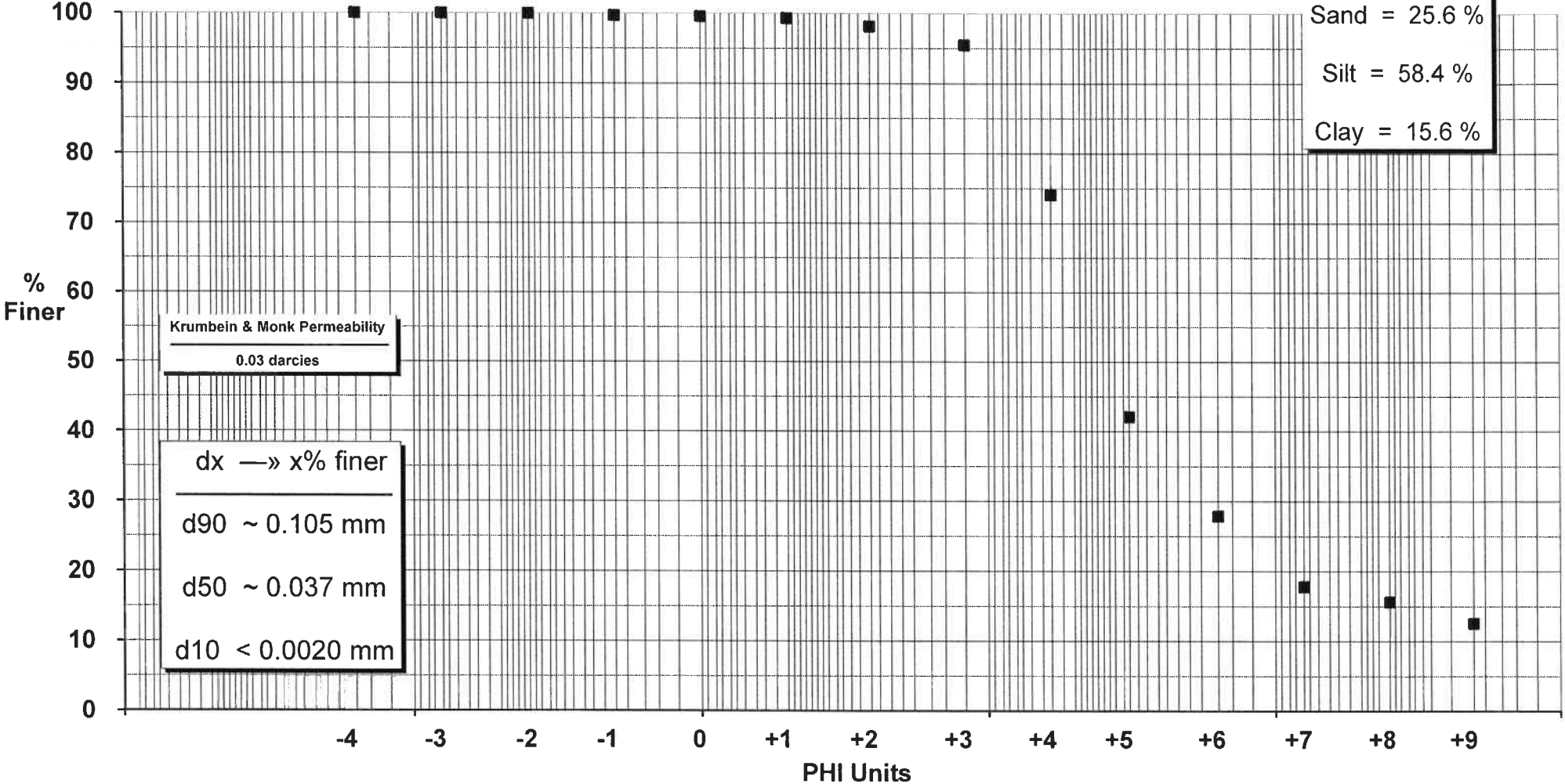


S3

Percent Coarser than 75 µm (PHI = 3.737)
—
20.3 %

Percent Coarser than 50 µm (PHI = 4.322)
—
36.2 %

Wentworth
Gravel = 0.3 %
Sand = 25.6 %
Silt = 58.4 %
Clay = 15.6 %



[Signature]

 Approved

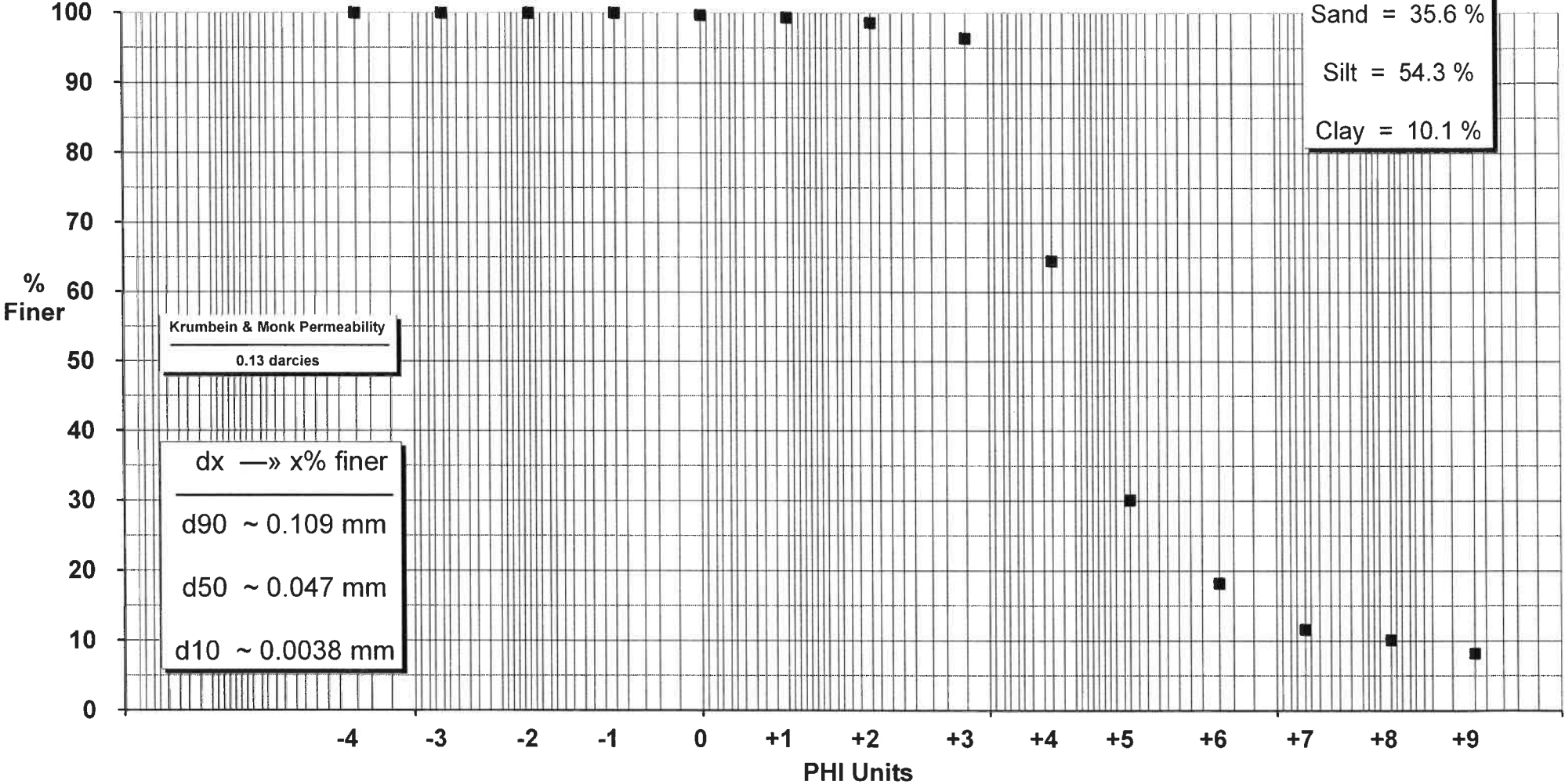


S4

Percent Coarser than 75 μ m (PHI = 3.737)
—
27.1 %

Percent Coarser than 50 μ m (PHI = 4.322)
—
46.6 %

Wentworth
Gravel = 0.0 %
Sand = 35.6 %
Silt = 54.3 %
Clay = 10.1 %



ETD
Approved

Report ID: 312757-IAS Rev01
Report Date: 29-May-19
Date Received: 10-May-19

CERTIFICATE OF ANALYSIS

for
Maxxam Analytics Inc
200 Bluewater Road, Suite 105
Bedford, NS B4B 1G9

rpc

921 College Hill Rd
Fredericton NB
Canada E3B 6Z9
Tel: 506.452.1212
Fax: 506.452.0594
www.rpc.ca

*** Revised Report ***

Attention: Marie Muise
Project #: B9C3232

Analysis of Samples

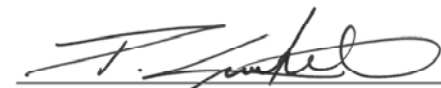
Analytes:			Acid Volatile Sulfide
Units:			mg/kg
RL:			1
RPC Sample ID	Client Sample ID	Date Sampled	
312757-1	JQW588-11R; S1	6-May-19	< 1
312757-2	JQW589-11R; S1-DUP	6-May-19	< 1
312757-3	JQW590-11R; S2	6-May-19	< 1

This report relates only to the sample(s) and information provided to the laboratory.
RL = Reporting Limit



Ross Kean
Department Head
Inorganic Analytical Chemistry

CHEMISTRY
Page 1 of 2



Peter Crowhurst
Analytical Chemist
Inorganic Analytical Chemistry

Report ID: 312757-IAS Rev01
Report Date: 29-May-19
Date Received: 10-May-19

CERTIFICATE OF ANALYSIS

for
Maxxam Analytics Inc
200 Bluewater Road, Suite 105
Bedford, NS B4B 1G9

rpc

921 College Hill Rd
Fredericton NB
Canada E3B 6Z9
Tel: 506.452.1212
Fax: 506.452.0594
www.rpc.ca

General Report Comments

Acid Volatile Sulfide was determined according to EPA-821-R-91-100.
Results are reported on an "as received" (wet weight) basis.

Revision Comments

Added Units to the report.

COMMENTS

Page 2 of 2



Your Project #: 121621877.400
 Site Location: NS
 Your C.O.C. #: D40473

Attention: Sam Salley

Stantec Consulting Ltd
 40 Highfield Park Drive
 Suite 102
 Dartmouth, NS
 CANADA B3A 0A3

Report Date: 2019/07/31
 Report #: R5820854
 Version: 6 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BV LABS JOB #: B9C3282

Received: 2019/05/07, 16:10

Sample Matrix: Soil
 # Samples Received: 10

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Benzo(b/j)fluoranthene Sum (LL soil)	10	N/A	2019/05/14	N/A	Auto Calc.
Dioxins/Furans in Soil (EPS 1/RM/23) (1, 8)	1	2019/06/19	2019/06/27	BRL SOP-00406 (mod)	EPS 1/RM/23 m
Organic Halogen (Extractable) (2)	1	N/A	2019/05/13		
TEH in Soil (PIRI) (9)	1	2019/05/10	2019/05/13	ATL SOP 00111	Atl. RBCA v3.1 m
Petroleum Hydrocarbons F2-F4 in Soil (1, 10)	10	2019/05/13	2019/05/14	CAM SOP-00316	CCME CWS m
F4G (CCME Hydrocarbons Gravimetric) (1)	1	2019/05/13	2019/05/13	CAM SOP-00316	CCME PHC-CWS m
Mercury (CVAA)	10	2019/05/13	2019/05/13	ATL SOP 00026	EPA 245.5 m
Metals Solids Acid Extr. ICPMS	10	2019/05/13	2019/05/13	ATL SOP 00058	EPA 6020B R2 m
Carbon Nitrogen Ratio (3)	1	2019/05/09	2019/05/15	Auto Calc	Auto Calc
Total Cyanide (4)	1	2019/05/13	2019/05/14	STL SOP-00035	MA300-CN 1.2 R4 m
Carbon, Nitrogen, Sulphur - Combustion (3)	1	N/A	2019/05/12	CAL SOP-00263	AN-A-030609-E-01 m
Water Content (Subcontracted) (4, 11)	1	N/A	2019/05/15	STL SOP-00021	MA.100-S.T. 1.1 R4 m
Moisture (Subcontracted) (5, 11)	1	2019/05/13	2019/05/14	BBY8SOP-00017	BCMOE BCLM Dec2000 m
Total PCB (4, 12)	10	2019/05/13	2019/05/15	STL SOP-00133	MA. 400-BPC 1.0 R5 m
Sulphide in Soil (5)	1	2019/05/13	2019/05/15	BBY6SOP-00052 BBY6SOP-00006	EPA-821-R-91-100 m
Total Kjeldahl Nitrogen (Available) (6)	1	2019/05/13	2019/05/14	AB SOP-00027/AB SOP-00008	EPA 351.1 R 1978 m
Moisture	10	N/A	2019/05/10	ATL SOP 00001	OMOE Handbook 1983 m
Nitrogen Ammonia - soil (as N)	1	2019/05/13	2019/05/14	ATL SOP 00015	EPA 350.1 R2 m
Nitrogen - Nitrate + Nitrite	1	2019/05/13	2019/05/15	ATL SOP 00016	USGS I-2547-11m
Nitrogen - Nitrite by auto colourimetry	1	2019/05/13	2019/05/14	ATL SOP 00017	SM 23 4500-NO2- B m
Nitrogen - Nitrate (as N)	1	N/A	2019/05/15	ATL SOP 00018	ASTM D3867-16
PAH in sediment by GC/MS (Low Level) (9)	10	2019/05/10	2019/05/14	ATL SOP 00102	EPA 8270E R6 m
Phenols (4AAP) (1)	1	2019/05/13	2019/05/14	CAM SOP-00444	OMOE E3179 m
pH (5:1 DI Water Extract)	1	2019/05/13	2019/05/13	ATL SOP 00003	SM 23 4500-H+ B m
Phosphorus - ortho by auto Colourimetry	1	2019/05/13	2019/05/14	ATL SOP 00021	SM 23 4500-P E m
Particle size in solids (pipette& sieve) (13)	10	N/A	2019/05/23	ATL SOP 00012	MSAMS'78/WREP-125R3m
Acid Vol. Sulphide in S (Sub fr.Bedford) (7)	1	2019/05/13	2019/05/29		
Total Organic Carbon in Soil (1)	10	N/A	2019/05/15	CAM SOP-00468	BCMOE TOC Aug 2014



Your Project #: 121621877.400
 Site Location: NS
 Your C.O.C. #: D40473

Attention: Sam Salley

Stantec Consulting Ltd
 40 Highfield Park Drive
 Suite 102
 Dartmouth, NS
 CANADA B3A 0A3

Report Date: 2019/07/31
 Report #: R5820854
 Version: 6 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BV LABS JOB #: B9C3282

Received: 2019/05/07, 16:10

Sample Matrix: Soil
 # Samples Received: 10

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
ModTPH (T1) Calc. for Soil	1	N/A	2019/05/13	N/A	Atl. RBCA v3.1 m
Volatile Organic Compounds and F1 PHCs (1)	10	N/A	2019/05/13	CAM SOP-00230	EPA 8260 m
VOCs in Soil - Field Preserved (14)	1	N/A	2019/05/10	ATL SOP 00133	EPA 8260D R4 m
VPH in Soil (PIRI) - Field Preserved (14)	1	N/A	2019/05/09	ATL SOP 00119	Atl. RBCA v3.1 m

Remarks:

Bureau Veritas Laboratories are accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by BV Labs are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in BV Labs profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and BV Labs in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

BV Labs liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. BV Labs has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by BV Labs, unless otherwise agreed in writing. BV Labs is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested. When sampling is not conducted by BV Labs, results relate to the supplied samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

- (1) This test was performed by Bureau Veritas Laboratories Mississauga
- (2) This test was performed by Bedford to Edm Petroleum/Ind
- (3) This test was performed by Bedford to Calgary Offsite
- (4) This test was performed by Bedford To Montreal Offsite
- (5) This test was performed by Bedford to Burnaby - Offsite
- (6) This test was performed by Bedford to Edm Env Offsite
- (7) This test was performed by Bedford to RPC Subcontract
- (8) Soils are reported on a dry weight basis unless otherwise specified.

Confirmatory runs for 2,3,7,8-TCDF are performed only if the primary result is greater than the RDL.



Your Project #: 121621877.400
Site Location: NS
Your C.O.C. #: D40473

Attention: Sam Salley
Stantec Consulting Ltd
40 Highfield Park Drive
Suite 102
Dartmouth, NS
CANADA B3A 0A3

Report Date: 2019/07/31
Report #: R5820854
Version: 6 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BV LABS JOB #: B9C3282

Received: 2019/05/07, 16:10

- (9) Soils are reported on a dry weight basis unless otherwise specified.
- (10) All CCME PHC results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Bureau Veritas Laboratories conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following "Alberta Environment's Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil Validation of Performance-Based Alternative Methods September 2003". Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.
- (11) Offsite analysis requires that subcontracted moisture be reported.
- (12) Please note that the results have been corrected for the surrogate recoveries. Un-rounded results are used in the total "PCB" calculation. This total result is then rounded to two significant figures. The total indicated is calculated only for the requested parameters.
- (13) Note: Graphical representation of larger fractions (PHI-4, PHI -3 and PHI -2) not applicable unless these optional parameters are specifically requested.
- (14) No lab extraction date is given for C6-C10/BTEX and VOC samples that are field preserved with methanol. Extraction date is date sampled unless otherwise stated.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Marie Muise, Key Account Specialist
Email: Marie.MUISE@bvlabs.com
Phone# (902)420-0203 Ext:253

=====

BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



BUREAU
VERITAS

BV Labs Job #: B9C3282
Report Date: 2019/07/31

Stantec Consulting Ltd
Client Project #: 121621877.400
Site Location: NS
Sampler Initials: CSR

RBCA HYDROCARBONS IN SOIL (FIELD PRES.)

BV Labs ID		JQW880		
Sampling Date		2019/05/03 16:14		
COC Number		D40473		
	UNITS	VC-04B	RDL	QC Batch
Petroleum Hydrocarbons				
Benzene	mg/kg	<0.025	0.025	6112673
Toluene	mg/kg	<0.050	0.050	6112673
Ethylbenzene	mg/kg	<0.025	0.025	6112673
Total Xylenes	mg/kg	<0.050	0.050	6112673
C6 - C10 (less BTEX)	mg/kg	<2.5	2.5	6112673
>C10-C16 Hydrocarbons	mg/kg	<10	10	6114660
>C16-C21 Hydrocarbons	mg/kg	<10	10	6114660
>C21-<C32 Hydrocarbons	mg/kg	<15	15	6114660
Modified TPH (Tier1)	mg/kg	<15	15	6112129
Reached Baseline at C32	mg/kg	NA	N/A	6114660
Hydrocarbon Resemblance	mg/kg	NA	N/A	6114660
Surrogate Recovery (%)				
Isobutylbenzene - Extractable	%	105	N/A	6114660
n-Dotriacontane - Extractable	%	112	N/A	6114660
Isobutylbenzene - Volatile	%	91	N/A	6112673
RDL = Reportable Detection Limit QC Batch = Quality Control Batch N/A = Not Applicable				



BUREAU
VERITAS

BV Labs Job #: B9C3282
Report Date: 2019/07/31

Stantec Consulting Ltd
Client Project #: 121621877.400
Site Location: NS
Sampler Initials: CSR

ATLANTIC VOC IN SOIL (FIELD PRES.)

BV Labs ID		JQW880		
Sampling Date		2019/05/03 16:14		
COC Number		D40473		
	UNITS	VC-04B	RDL	QC Batch
Volatile Organics				
1,1,1-Trichloroethane	ug/kg	<25	25	6109572
1,1,2,2-Tetrachloroethane	ug/kg	<25	25	6109572
1,1,2-Trichloroethane	ug/kg	<25	25	6109572
1,1-Dichloroethane	ug/kg	<25	25	6109572
1,1-Dichloroethylene	ug/kg	<25	25	6109572
1,2-Dichlorobenzene	ug/kg	<25	25	6109572
1,2-Dichloroethane	ug/kg	<25	25	6109572
1,2-Dichloropropane	ug/kg	<25	25	6109572
1,3-Dichlorobenzene	ug/kg	<25	25	6109572
1,4-Dichlorobenzene	ug/kg	<25	25	6109572
Benzene	ug/kg	<25	25	6109572
Bromodichloromethane	ug/kg	<25	25	6109572
Bromoform	ug/kg	<25	25	6109572
Bromomethane	ug/kg	<50	50	6109572
Carbon Tetrachloride	ug/kg	<25	25	6109572
Chlorobenzene	ug/kg	<25	25	6109572
Chloroethane	ug/kg	<200	200	6109572
Chloroform	ug/kg	<25	25	6109572
cis-1,2-Dichloroethylene	ug/kg	<25	25	6109572
cis-1,3-Dichloropropene	ug/kg	<25	25	6109572
Dibromochloromethane	ug/kg	<25	25	6109572
Ethylbenzene	ug/kg	<25	25	6109572
Ethylene Dibromide	ug/kg	<25	25	6109572
Methyl t-butyl ether (MTBE)	ug/kg	<25	25	6109572
Methylene Chloride(Dichloromethane)	ug/kg	<25	25	6109572
o-Xylene	ug/kg	<25	25	6109572
p+m-Xylene	ug/kg	<25	25	6109572
Styrene	ug/kg	<25	25	6109572
Tetrachloroethylene	ug/kg	<25	25	6109572
Toluene	ug/kg	<50	50	6109572
Total Xylenes	ug/kg	<50	50	6109572
trans-1,2-Dichloroethylene	ug/kg	<25	25	6109572
trans-1,3-Dichloropropene	ug/kg	<25	25	6109572
RDL = Reportable Detection Limit QC Batch = Quality Control Batch				



BUREAU
VERITAS

BV Labs Job #: B9C3282
Report Date: 2019/07/31

Stantec Consulting Ltd
Client Project #: 121621877.400
Site Location: NS
Sampler Initials: CSR

ATLANTIC VOC IN SOIL (FIELD PRES.)

BV Labs ID		JQW880		
Sampling Date		2019/05/03 16:14		
COC Number		D40473		
	UNITS	VC-04B	RDL	QC Batch
Trichloroethylene	ug/kg	<10	10	6109572
Trichlorofluoromethane (FREON 11)	ug/kg	<25	25	6109572
Vinyl Chloride	ug/kg	<20	20	6109572
Surrogate Recovery (%)				
4-Bromofluorobenzene	%	101	N/A	6109572
D10-o-Xylene	%	95	N/A	6109572
D4-1,2-Dichloroethane	%	100	N/A	6109572
D8-Toluene	%	100	N/A	6109572
RDL = Reportable Detection Limit QC Batch = Quality Control Batch N/A = Not Applicable				



BUREAU
VERITAS

BV Labs Job #: B9C3282
Report Date: 2019/07/31

Stantec Consulting Ltd
Client Project #: 121621877.400
Site Location: NS
Sampler Initials: CSR

CCME PETROLEUM HYDROCARBONS SOIL (SOIL)

BV Labs ID		JQW880	JQW881		JQW882		JQW883	JQW883		
Sampling Date		2019/05/03 16:14	2019/05/03 15:55		2019/05/02 11:35		2019/05/02 11:35	2019/05/02 11:35		
COC Number		D40473	D40473		D40473		D40473	D40473		
	UNITS	VC-04B	VC-04A	RDL	VC-14-1	RDL	VC-14-2	VC-14-2 Lab-Dup	RDL	QC Batch

Volatile Organics										
Benzene	ug/g	<0.0060	<0.0060	0.0060	<0.0060	0.0060	<0.0060	<0.0060	0.0060	6115126
Ethylbenzene	ug/g	<0.010	<0.010	0.010	<0.010	0.010	<0.010	<0.010	0.010	6115126
Toluene	ug/g	<0.020	<0.020	0.020	0.023	0.020	<0.020	<0.020	0.020	6115126
p+m-Xylene	ug/g	<0.020	<0.020	0.020	<0.020	0.020	<0.020	<0.020	0.020	6115126
o-Xylene	ug/g	<0.020	<0.020	0.020	<0.020	0.020	<0.020	<0.020	0.020	6115126
Total Xylenes	ug/g	<0.020	<0.020	0.020	<0.020	0.020	<0.020	<0.020	0.020	6115126
F1 (C6-C10)	ug/g	<10	<10	10	<10	10	<10	<10	10	6115126
F1 (C6-C10) - BTEX	ug/g	<10	<10	10	<10	10	<10	<10	10	6115126
F2-F4 Hydrocarbons										
F2 (C10-C16 Hydrocarbons)	ug/g	<10	<10	10	<30	30	<20	N/A	20	6118763
F3 (C16-C34 Hydrocarbons)	ug/g	<50	<50	50	<150	150	<100	N/A	100	6118763
F4 (C34-C50 Hydrocarbons)	ug/g	<50	<50	50	<150	150	<100	N/A	100	6118763
Reached Baseline at C50	ug/g	Yes	Yes	N/A	Yes	N/A	Yes	N/A	N/A	6118763
Surrogate Recovery (%)										
o-Terphenyl	%	90	92	N/A	93	N/A	97	N/A	N/A	6118763
4-Bromofluorobenzene	%	102	103	N/A	102	N/A	101	101	N/A	6115126
D10-o-Xylene	%	96	100	N/A	98	N/A	96	96	N/A	6115126
D4-1,2-Dichloroethane	%	92	90	N/A	93	N/A	92	93	N/A	6115126
D8-Toluene	%	87	89	N/A	87	N/A	88	91	N/A	6115126
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Lab-Dup = Laboratory Initiated Duplicate N/A = Not Applicable										



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VERITAS

BV Labs Job #: B9C3282
Report Date: 2019/07/31

Stantec Consulting Ltd
Client Project #: 121621877.400
Site Location: NS
Sampler Initials: CSR

CCME PETROLEUM HYDROCARBONS SOIL (SOIL)

BV Labs ID		JQW884		JQW885	JQW886		JQW887	JQW888		
Sampling Date		2019/05/02 11:35		2019/05/02 13:32	2019/05/02 13:32		2019/04/29 13:10	2019/04/29 13:10		
COC Number		D40473		D40473	D40473		D40473	D40473		
	UNITS	VC-14-3	RDL	VC-12-1	VC-12-2	RDL	VC-52-1	VC-52-2	RDL	QC Batch
Volatile Organics										
Benzene	ug/g	<0.0060	0.0060	<0.0060	<0.0060	0.0060	<0.0060	<0.0060	0.0060	6115126
Ethylbenzene	ug/g	<0.010	0.010	<0.010	<0.010	0.010	<0.010	<0.010	0.010	6115126
Toluene	ug/g	<0.020	0.020	<0.020	<0.020	0.020	<0.020	<0.020	0.020	6115126
p+m-Xylene	ug/g	<0.020	0.020	<0.020	<0.020	0.020	<0.020	<0.020	0.020	6115126
o-Xylene	ug/g	<0.020	0.020	<0.020	<0.020	0.020	<0.020	<0.020	0.020	6115126
Total Xylenes	ug/g	<0.020	0.020	<0.020	<0.020	0.020	<0.020	<0.020	0.020	6115126
F1 (C6-C10)	ug/g	<10	10	<10	<10	10	<10	<10	10	6115126
F1 (C6-C10) - BTEX	ug/g	<10	10	<10	<10	10	<10	<10	10	6115126
F2-F4 Hydrocarbons										
F2 (C10-C16 Hydrocarbons)	ug/g	<20	20	<10	<10	10	<20	<20	20	6118763
F3 (C16-C34 Hydrocarbons)	ug/g	<100	100	<50	<50	50	<100	<100	100	6118763
F4 (C34-C50 Hydrocarbons)	ug/g	<100	100	<50	<50	50	<100	<100	100	6118763
Reached Baseline at C50	ug/g	Yes	N/A	Yes	Yes	N/A	Yes	Yes	N/A	6118763
Surrogate Recovery (%)										
o-Terphenyl	%	94	N/A	92	99	N/A	97	98	N/A	6118763
4-Bromofluorobenzene	%	103	N/A	102	102	N/A	101	101	N/A	6115126
D10-o-Xylene	%	96	N/A	91	91	N/A	90	92	N/A	6115126
D4-1,2-Dichloroethane	%	94	N/A	93	95	N/A	94	95	N/A	6115126
D8-Toluene	%	90	N/A	88	84	N/A	90	87	N/A	6115126
RDL = Reportable Detection Limit QC Batch = Quality Control Batch N/A = Not Applicable										



CCME PETROLEUM HYDROCARBONS SOIL (SOIL)

BV Labs ID		JQW889		
Sampling Date		2019/04/29 13:10		
COC Number		D40473		
	UNITS	VC-52-3	RDL	QC Batch
Volatile Organics				
Benzene	ug/g	<0.0060	0.0060	6115126
Ethylbenzene	ug/g	<0.010	0.010	6115126
Toluene	ug/g	<0.020	0.020	6115126
p+m-Xylene	ug/g	<0.020	0.020	6115126
o-Xylene	ug/g	<0.020	0.020	6115126
Total Xylenes	ug/g	<0.020	0.020	6115126
F1 (C6-C10)	ug/g	<10	10	6115126
F1 (C6-C10) - BTEX	ug/g	<10	10	6115126
F2-F4 Hydrocarbons				
F2 (C10-C16 Hydrocarbons)	ug/g	<20	20	6118763
F3 (C16-C34 Hydrocarbons)	ug/g	<100	100	6118763
F4 (C34-C50 Hydrocarbons)	ug/g	<100	100	6118763
Reached Baseline at C50	ug/g	Yes	N/A	6118763
Surrogate Recovery (%)				
o-Terphenyl	%	94	N/A	6118763
4-Bromofluorobenzene	%	101	N/A	6115126
D10-o-Xylene	%	94	N/A	6115126
D4-1,2-Dichloroethane	%	94	N/A	6115126
D8-Toluene	%	87	N/A	6115126
RDL = Reportable Detection Limit QC Batch = Quality Control Batch N/A = Not Applicable				



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VERITAS

BV Labs Job #: B9C3282
Report Date: 2019/07/31

Stantec Consulting Ltd
Client Project #: 121621877.400
Site Location: NS
Sampler Initials: CSR

RESULTS OF ANALYSES OF SOIL

BV Labs ID		JQW880	JQW880	JQW881	JQW882	JQW883	JQW884		
Sampling Date		2019/05/03 16:14	2019/05/03 16:14	2019/05/03 15:55	2019/05/02 11:35	2019/05/02 11:35	2019/05/02 11:35		
COC Number		D40473	D40473	D40473	D40473	D40473	D40473		
	UNITS	VC-04B	VC-04B Lab-Dup	VC-04A	VC-14-1	VC-14-2	VC-14-3	RDL	QC Batch

CONVENTIONALS									
Sulphide	ug/g	2.51 (1)	6.33 (2)	N/A	N/A	N/A	N/A	0.50	6124052
Inorganics									
Available (KCl) Total Kjeldahl Nitrogen	mg/kg	<5.0	N/A	N/A	N/A	N/A	N/A	5.0	6123731
Ammonia-N	mg/kg	0.41	N/A	N/A	N/A	N/A	N/A	0.30	6118113
C:N RATIO	N/A	NC	N/A	N/A	N/A	N/A	N/A	N/A	6125795
Moisture	%	15	16	19	62	51	43	1.0	6112975
Nitrate (N)	mg/kg	<0.25	N/A	N/A	N/A	N/A	N/A	0.25	6112179
Nitrate + Nitrite (N)	mg/kg	<0.25	N/A	N/A	N/A	N/A	N/A	0.25	6119805
Nitrite (N)	mg/kg	<0.050	N/A	N/A	N/A	N/A	N/A	0.050	6119806
Total Organic Carbon	%	<0.050	N/A	<0.050	1.5	1.6	1.4	0.050	6122643
Orthophosphate (P)	mg/kg	0.34	N/A	N/A	N/A	N/A	N/A	0.050	6119804
Soluble (5:1) pH	pH	8.83	N/A	N/A	N/A	N/A	N/A	N/A	6118394
Phenols-4AAP	ug/g	<0.04	<0.04	N/A	N/A	N/A	N/A	0.04	6118071
Total Cyanide (CN)	mg/kg	<0.50	N/A	N/A	N/A	N/A	N/A	0.50	6128790
Total Carbon	%	0.21	N/A	N/A	N/A	N/A	N/A	0.050	6117721
Total Sulphur (S)	%	0.077	N/A	N/A	N/A	N/A	N/A	0.060	6117721
Total Nitrogen	%	<0.20	N/A	N/A	N/A	N/A	N/A	0.20	6117721
< -1 Phi (2 mm)	%	98 (3)	N/A	95 (3)	100	100	100	0.10	6114613
< 0 Phi (1 mm)	%	91 (3)	N/A	83 (3)	100	100	100	0.10	6114613
< +1 Phi (0.5 mm)	%	66 (3)	N/A	64 (3)	100	100	100	0.10	6114613
< +2 Phi (0.25 mm)	%	12	N/A	19	99	100	99	0.10	6114613
< +3 Phi (0.12 mm)	%	3.5	N/A	5.7	94	97	98	0.10	6114613
< +4 Phi (0.062 mm)	%	2.4	N/A	3.8	86	90	90	0.10	6114613
< +5 Phi (0.031 mm)	%	2.3	N/A	3.3	75	82	76	0.10	6114613
< +6 Phi (0.016 mm)	%	2.1	N/A	2.8	60	65	58	0.10	6114613
< +7 Phi (0.0078 mm)	%	1.6	N/A	2.1	33	27	35	0.10	6114613
< +8 Phi (0.0039 mm)	%	1.3	N/A	1.6	19	16	29	0.10	6114613
< +9 Phi (0.0020 mm)	%	1.4	N/A	1.6	10	7.9	20	0.10	6114613

RDL = Reportable Detection Limit

QC Batch = Quality Control Batch

Lab-Dup = Laboratory Initiated Duplicate

N/A = Not Applicable

(1) Duplicate exceeds acceptance criteria due to sample non homogeneity.

(2) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

(3) PSA sample observation comment: Fraction contained shells



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VERITAS

BV Labs Job #: B9C3282
Report Date: 2019/07/31

Stantec Consulting Ltd
Client Project #: 121621877.400
Site Location: NS
Sampler Initials: CSR

RESULTS OF ANALYSES OF SOIL

BV Labs ID		JQW880	JQW880	JQW881	JQW882	JQW883	JQW884		
Sampling Date		2019/05/03 16:14	2019/05/03 16:14	2019/05/03 15:55	2019/05/02 11:35	2019/05/02 11:35	2019/05/02 11:35		
COC Number		D40473	D40473	D40473	D40473	D40473	D40473		
	UNITS	VC-04B	VC-04B Lab-Dup	VC-04A	VC-14-1	VC-14-2	VC-14-3	RDL	QC Batch
Gravel	%	1.7	N/A	5.5	<0.10	<0.10	<0.10	0.10	6114613
Sand	%	96	N/A	91	14	10	10	0.10	6114613
Silt	%	1.1	N/A	2.1	67	74	61	0.10	6114613
Clay	%	1.3	N/A	1.6	19	16	29	0.10	6114613
PCBs									
TriCB-(17)+(18)	mg/kg	<0.010	N/A	<0.010	<0.010	<0.010	<0.010	0.010	6133309
TriCB-(28)+(31)	mg/kg	<0.010	N/A	<0.010	<0.010	<0.010	<0.010	0.010	6133309
2'34-TriCB-(33)	mg/kg	<0.010	N/A	<0.010	<0.010	<0.010	<0.010	0.010	6133309
22'55'-TetraCB-(52)	mg/kg	<0.010	N/A	<0.010	<0.010	<0.010	<0.010	0.010	6133309
22'45'-TetraCB-(49)	mg/kg	<0.010	N/A	<0.010	<0.010	<0.010	<0.010	0.010	6133309
22'35'-TetraCB-(44)	mg/kg	<0.010	N/A	<0.010	<0.010	<0.010	<0.010	0.010	6133309
244'5-TetraCB-(74)	mg/kg	<0.010	N/A	<0.010	<0.010	<0.010	<0.010	0.010	6133309
23'4'5-TetraCB-(70)	mg/kg	<0.010	N/A	<0.010	<0.010	<0.010	<0.010	0.010	6133309
22'35'6-PentaCB-(95)	mg/kg	<0.010	N/A	<0.010	<0.010	<0.010	<0.010	0.010	6133309
22'45'5'-PentaCB-(101)	mg/kg	<0.010	N/A	<0.010	<0.010	<0.010	<0.010	0.010	6133309
22'44'5-PentaCB-(99)	mg/kg	<0.010	N/A	<0.010	<0.010	<0.010	<0.010	0.010	6133309
22'345'-PentaCB-(87)	mg/kg	<0.010	N/A	<0.010	<0.010	<0.010	<0.010	0.010	6133309
233'4'6-PentaCB-(110)	mg/kg	<0.010	N/A	<0.010	<0.010	<0.010	<0.010	0.010	6133309
22'33'4-PentaCB-(82)	mg/kg	<0.010	N/A	<0.010	<0.010	<0.010	<0.010	0.010	6133309
22'355'6-HexaCB-(151)	mg/kg	<0.010	N/A	<0.010	<0.010	<0.010	<0.010	0.010	6133309
22'34'5'6-HexaCB-(149)	mg/kg	<0.010	N/A	<0.010	<0.010	<0.010	<0.010	0.010	6133309
23'44'5-PentaCB-(118)	mg/kg	<0.010	N/A	<0.010	<0.010	<0.010	<0.010	0.010	6133309
22'44'55'-HexaCB-(153)	mg/kg	<0.010	N/A	<0.010	<0.010	<0.010	<0.010	0.010	6133309
22'33'46'-HexaCB-(132)	mg/kg	<0.010	N/A	<0.010	<0.010	<0.010	<0.010	0.010	6133309
233'44'-PentaCB-(105)	mg/kg	<0.010	N/A	<0.010	<0.010	<0.010	<0.010	0.010	6133309
HexaCB-(138)+(158)	mg/kg	<0.010	N/A	<0.010	<0.010	<0.010	<0.010	0.010	6133309
22'34'55'6-HeptaCB-(187)	mg/kg	<0.010	N/A	<0.010	<0.010	<0.010	<0.010	0.010	6133309
22'344'5'6-HeptaCB-(183)	mg/kg	<0.010	N/A	<0.010	<0.010	<0.010	<0.010	0.010	6133309
22'33'44'-HexaCB-(128)	mg/kg	<0.010	N/A	<0.010	<0.010	<0.010	<0.010	0.010	6133309
22'33'45'6'-HeptaCB-(177)	mg/kg	<0.010	N/A	<0.010	<0.010	<0.010	<0.010	0.010	6133309
22'33'44'6-HeptaCB-(171)	mg/kg	<0.010	N/A	<0.010	<0.010	<0.010	<0.010	0.010	6133309
233'44'5-HexaCB-(156)	mg/kg	<0.010	N/A	<0.010	<0.010	<0.010	<0.010	0.010	6133309
22'344'55'-HeptaCB-(180)	mg/kg	<0.010	N/A	<0.010	<0.010	<0.010	<0.010	0.010	6133309
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Lab-Dup = Laboratory Initiated Duplicate N/A = Not Applicable									



BUREAU
VERITAS

BV Labs Job #: B9C3282
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Stantec Consulting Ltd
Client Project #: 121621877.400
Site Location: NS
Sampler Initials: CSR

RESULTS OF ANALYSES OF SOIL

BV Labs ID		JQW880	JQW880	JQW881	JQW882	JQW883	JQW884		
Sampling Date		2019/05/03 16:14	2019/05/03 16:14	2019/05/03 15:55	2019/05/02 11:35	2019/05/02 11:35	2019/05/02 11:35		
COC Number		D40473	D40473	D40473	D40473	D40473	D40473		
	UNITS	VC-04B	VC-04B Lab-Dup	VC-04A	VC-14-1	VC-14-2	VC-14-3	RDL	QC Batch
233'44'5'6-HeptaCB-(191)	mg/kg	<0.010	N/A	<0.010	<0.010	<0.010	<0.010	0.010	6133309
33'44'55'-HexaCB-(169)	mg/kg	<0.010	N/A	<0.010	<0.010	<0.010	<0.010	0.010	6133309
22'33'44'5-HeptaCB-(170)	mg/kg	<0.010	N/A	<0.010	<0.010	<0.010	<0.010	0.010	6133309
22'33'455'6'-OctaCB-(199)	mg/kg	<0.010	N/A	<0.010	<0.010	<0.010	<0.010	0.010	6133309
22'33'455'66'-NonaCB-(208)	mg/kg	<0.010	N/A	<0.010	<0.010	<0.010	<0.010	0.010	6133309
22'33'44'56-OctaCB-(195)	mg/kg	<0.010	N/A	<0.010	<0.010	<0.010	<0.010	0.010	6133309
22'33'44'55'-OctaCB-(194)	mg/kg	<0.010	N/A	<0.010	<0.010	<0.010	<0.010	0.010	6133309
233'44'55'6-OctaCB-(205)	mg/kg	<0.010	N/A	<0.010	<0.010	<0.010	<0.010	0.010	6133309
22'33'44'55'6-NonaCB-(206)	mg/kg	<0.010	N/A	<0.010	<0.010	<0.010	<0.010	0.010	6133309
DecaCB-(209)	mg/kg	<0.010	N/A	<0.010	<0.010	<0.010	<0.010	0.010	6133309
Trichlorobiphenyls	mg/kg	<0.010	N/A	<0.010	<0.010	<0.010	<0.010	0.010	6133309
Tetrachlorobiphenyls	mg/kg	<0.010	N/A	<0.010	<0.010	<0.010	<0.010	0.010	6133309
Pentachlorobiphenyls	mg/kg	<0.010	N/A	<0.010	<0.010	<0.010	<0.010	0.010	6133309
Hexachlorobiphenyls	mg/kg	<0.010	N/A	<0.010	<0.010	<0.010	<0.010	0.010	6133309
Heptachlorobiphenyls	mg/kg	<0.010	N/A	<0.010	<0.010	<0.010	<0.010	0.010	6133309
Octachlorobiphenyls	mg/kg	<0.010	N/A	<0.010	<0.010	<0.010	<0.010	0.010	6133309
Nonachlorobiphenyls	mg/kg	<0.010	N/A	<0.010	<0.010	<0.010	<0.010	0.010	6133309
Decachlorobiphenyls	mg/kg	<0.010	N/A	<0.010	<0.010	<0.010	<0.010	0.010	6133309
Total PCB	mg/kg	<0.010	N/A	<0.010	<0.010	<0.010	<0.010	0.010	6133309
Physical Testing									
Moisture-Subcontracted	%w/w	16	N/A	N/A	N/A	N/A	N/A	0.50	6133308
Moisture-Subcontracted	%	18	N/A	N/A	N/A	N/A	N/A	0.30	6124032
Subcontracted Analysis									
Subcontract Parameter	N/A	ATTACHED	N/A	N/A	N/A	N/A	N/A	N/A	6117817
Surrogate Recovery (%)									
2,3,3',4,6-Pentachlorobiphenyl	%	93	N/A	94	91	99	98	N/A	6133309
2',3,5-Trichlorobiphenyl	%	95	N/A	95	89	97	97	N/A	6133309
22'33'44'566'-Nonachlorobiphenyl	%	115	N/A	118	119	119	119	N/A	6133309
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Lab-Dup = Laboratory Initiated Duplicate N/A = Not Applicable									



BUREAU
VERITAS

BV Labs Job #: B9C3282
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Stantec Consulting Ltd
Client Project #: 121621877.400
Site Location: NS
Sampler Initials: CSR

RESULTS OF ANALYSES OF SOIL

BV Labs ID		JQW885	JQW886	JQW887	JQW888	JQW889		
Sampling Date		2019/05/02 13:32	2019/05/02 13:32	2019/04/29 13:10	2019/04/29 13:10	2019/04/29 13:10		
COC Number		D40473	D40473	D40473	D40473	D40473		
	UNITS	VC-12-1	VC-12-2	VC-52-1	VC-52-2	VC-52-3	RDL	QC Batch
Inorganics								
Moisture	%	14	14	53	53	50	1.0	6112975
Total Organic Carbon	%	<0.050	<0.050	2.2	2.6	2.5	0.050	6122643
< -1 Phi (2 mm)	%	94	99	100	100	100	0.10	6114613
< 0 Phi (1 mm)	%	90	98	100	100	100 (1)	0.10	6114613
< +1 Phi (0.5 mm)	%	82	95	100	100	100	0.10	6114613
< +2 Phi (0.25 mm)	%	51	83	99	99	99	0.10	6114613
< +3 Phi (0.12 mm)	%	23	64	98	99	98	0.10	6114613
< +4 Phi (0.062 mm)	%	17	44	93	95	94	0.10	6114613
< +5 Phi (0.031 mm)	%	13	26	81	86	85	0.10	6114613
< +6 Phi (0.016 mm)	%	9.7	16	69	73	77	0.10	6114613
< +7 Phi (0.0078 mm)	%	5.6	6.2	19	49	16	0.10	6114613
< +8 Phi (0.0039 mm)	%	4.4	4.5	13	20	14	0.10	6114613
< +9 Phi (0.0020 mm)	%	2.9	2.6	12	13	13	0.10	6114613
Gravel	%	6.2	0.74	<0.10	<0.10	<0.10	0.10	6114613
Sand	%	77	55	7.5	4.8	5.9	0.10	6114613
Silt	%	13	39	79	75	80	0.10	6114613
Clay	%	4.4	4.5	13	20	14	0.10	6114613
PCBs								
TriCB-(17)+(18)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133309
TriCB-(28)+(31)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133309
2'34'-TriCB-(33)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133309
22'55'-TetraCB-(52)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133309
22'45'-TetraCB-(49)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133309
22'35'-TetraCB-(44)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133309
244'5'-TetraCB-(74)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133309
23'4'5'-TetraCB-(70)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133309
22'35'6'-PentaCB-(95)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133309
22'45'5'-PentaCB-(101)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133309
22'44'5'-PentaCB-(99)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133309
22'345'-PentaCB-(87)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133309
233'4'6'-PentaCB-(110)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133309
22'33'4'-PentaCB-(82)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133309
RDL = Reportable Detection Limit								
QC Batch = Quality Control Batch								
(1) PSA sample observation comment: Fraction contained unknown material								



BUREAU
VERITAS

BV Labs Job #: B9C3282
Report Date: 2019/07/31

Stantec Consulting Ltd
Client Project #: 121621877.400
Site Location: NS
Sampler Initials: CSR

RESULTS OF ANALYSES OF SOIL

BV Labs ID		JQW885	JQW886	JQW887	JQW888	JQW889		
Sampling Date		2019/05/02 13:32	2019/05/02 13:32	2019/04/29 13:10	2019/04/29 13:10	2019/04/29 13:10		
COC Number		D40473	D40473	D40473	D40473	D40473		
	UNITS	VC-12-1	VC-12-2	VC-52-1	VC-52-2	VC-52-3	RDL	QC Batch
22'355'6-HexaCB-(151)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133309
22'34'5'6-HexaCB-(149)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133309
23'44'5-PentaCB-(118)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133309
22'44'55'-HexaCB-(153)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133309
22'33'46'-HexaCB-(132)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133309
233'44'-PentaCB-(105)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133309
HexaCB-(138)+(158)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133309
22'34'55'6-HeptaCB-(187)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133309
22'344'5'6-HeptaCB-(183)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133309
22'33'44'-HexaCB-(128)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133309
22'33'45'6'-HeptaCB-(177)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133309
22'33'44'6-HeptaCB-(171)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133309
233'44'5-HexaCB-(156)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133309
22'344'55'-HeptaCB-(180)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133309
233'44'5'6-HeptaCB-(191)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133309
33'44'55'-HexaCB-(169)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133309
22'33'44'5-HeptaCB-(170)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133309
22'33'455'6'-OctaCB-(199)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133309
22'33'455'66'-NonaCB-(208)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133309
22'33'44'56-OctaCB-(195)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133309
22'33'44'55'-OctaCB-(194)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133309
233'44'55'6-OctaCB-(205)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133309
22'33'44'55'6-NonaCB-(206)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133309
DecaCB-(209)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133309
Trichlorobiphenyls	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133309
Tetrachlorobiphenyls	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133309
Pentachlorobiphenyls	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133309
Hexachlorobiphenyls	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133309
Heptachlorobiphenyls	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133309
Octachlorobiphenyls	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133309
Nonachlorobiphenyls	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133309
Decachlorobiphenyls	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133309
Total PCB	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6133309
RDL = Reportable Detection Limit								
QC Batch = Quality Control Batch								



BUREAU
VERITAS

BV Labs Job #: B9C3282
Report Date: 2019/07/31

Stantec Consulting Ltd
Client Project #: 121621877.400
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Sampler Initials: CSR

RESULTS OF ANALYSES OF SOIL

BV Labs ID		JQW885	JQW886	JQW887	JQW888	JQW889		
Sampling Date		2019/05/02 13:32	2019/05/02 13:32	2019/04/29 13:10	2019/04/29 13:10	2019/04/29 13:10		
COC Number		D40473	D40473	D40473	D40473	D40473		
	UNITS	VC-12-1	VC-12-2	VC-52-1	VC-52-2	VC-52-3	RDL	QC Batch
Surrogate Recovery (%)								
2,3,3',4,6-Pentachlorobiphenyl	%	94	94	97	96	95	N/A	6133309
2',3,5-Trichlorobiphenyl	%	94	94	98	94	95	N/A	6133309
22'33'44'566'-Nonachlorobiphenyl	%	117	115	118	115	113	N/A	6133309
RDL = Reportable Detection Limit QC Batch = Quality Control Batch N/A = Not Applicable								



**BUREAU
VERITAS**

BV Labs Job #: B9C3282
Report Date: 2019/07/31

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MERCURY BY COLD VAPOUR AA (SOIL)

BV Labs ID		JQW880	JQW881	JQW882	JQW883	JQW884	JQW885	JQW886		
Sampling Date		2019/05/03 16:14	2019/05/03 15:55	2019/05/02 11:35	2019/05/02 11:35	2019/05/02 11:35	2019/05/02 13:32	2019/05/02 13:32		
COC Number		D40473	D40473	D40473	D40473	D40473	D40473	D40473		
	UNITS	VC-04B	VC-04A	VC-14-1	VC-14-2	VC-14-3	VC-12-1	VC-12-2	RDL	QC Batch

Metals										
Mercury (Hg)	mg/kg	<0.010	<0.010	0.012	0.015	0.012	<0.010	<0.010	0.010	6114563
RDL = Reportable Detection Limit										
QC Batch = Quality Control Batch										

BV Labs ID		JQW887	JQW888		JQW889		
Sampling Date		2019/04/29 13:10	2019/04/29 13:10		2019/04/29 13:10		
COC Number		D40473	D40473		D40473		
	UNITS	VC-52-1	VC-52-2	QC Batch	VC-52-3	RDL	QC Batch
Metals							
Mercury (Hg)	mg/kg	0.015	0.013	6114563	0.012	0.010	6114567
RDL = Reportable Detection Limit							
QC Batch = Quality Control Batch							



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VERITAS

BV Labs Job #: B9C3282
Report Date: 2019/07/31

Stantec Consulting Ltd
Client Project #: 121621877.400
Site Location: NS
Sampler Initials: CSR

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

BV Labs ID		JQW880		JQW881	JQW882	JQW883	JQW884	JQW885		
Sampling Date		2019/05/03 16:14		2019/05/03 15:55	2019/05/02 11:35	2019/05/02 11:35	2019/05/02 11:35	2019/05/02 13:32		
COC Number		D40473		D40473	D40473	D40473	D40473	D40473		
	UNITS	VC-04B	QC Batch	VC-04A	VC-14-1	VC-14-2	VC-14-3	VC-12-1	RDL	QC Batch
Metals										
Acid Extractable Aluminum (Al)	mg/kg	1100	6117751	1400	13000	13000	13000	3000	10	6117753
Acid Extractable Antimony (Sb)	mg/kg	<2.0	6117751	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	6117753
Acid Extractable Arsenic (As)	mg/kg	<2.0	6117751	2.1	8.5	8.4	8.1	3.4	2.0	6117753
Acid Extractable Barium (Ba)	mg/kg	13	6117751	11	92	99	100	11	5.0	6117753
Acid Extractable Beryllium (Be)	mg/kg	<2.0	6117751	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	6117753
Acid Extractable Bismuth (Bi)	mg/kg	<2.0	6117751	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	6117753
Acid Extractable Boron (B)	mg/kg	<50	6117751	<50	52	56	56	<50	50	6117753
Acid Extractable Cadmium (Cd)	mg/kg	<0.30	6117751	<0.30	<0.30	<0.30	<0.30	<0.30	0.30	6117753
Acid Extractable Chromium (Cr)	mg/kg	7.1	6117751	5.8	27	29	29	8.1	2.0	6117753
Acid Extractable Cobalt (Co)	mg/kg	1.4	6117751	1.8	13	14	14	3.2	1.0	6117753
Acid Extractable Copper (Cu)	mg/kg	<2.0	6117751	<2.0	17	18	17	13	2.0	6117753
Acid Extractable Iron (Fe)	mg/kg	3200	6117751	6700	31000	33000	33000	7300	50	6117753
Acid Extractable Lead (Pb)	mg/kg	1.5	6117751	4.9	24	25	23	3.8	0.50	6117753
Acid Extractable Lithium (Li)	mg/kg	2.7	6117751	3.5	35	36	37	8.9	2.0	6117753
Acid Extractable Manganese (Mn)	mg/kg	230	6117751	140	450	480	480	89	2.0	6117753
Acid Extractable Molybdenum (Mo)	mg/kg	<2.0	6117751	<2.0	2.1	2.1	<2.0	<2.0	2.0	6117753
Acid Extractable Nickel (Ni)	mg/kg	4.8	6117751	3.8	30	32	32	7.2	2.0	6117753
Acid Extractable Rubidium (Rb)	mg/kg	<2.0	6117751	<2.0	15	15	16	2.4	2.0	6117753
Acid Extractable Selenium (Se)	mg/kg	<1.0	6117751	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	6117753
Acid Extractable Silver (Ag)	mg/kg	<0.50	6117751	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	6117753
Acid Extractable Strontium (Sr)	mg/kg	110	6117751	33	39	39	30	<5.0	5.0	6117753
Acid Extractable Thallium (Tl)	mg/kg	<0.10	6117751	<0.10	0.13	0.15	0.14	<0.10	0.10	6117753
Acid Extractable Tin (Sn)	mg/kg	<1.0	6117751	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	6117753
Acid Extractable Uranium (U)	mg/kg	0.16	6117751	0.25	1.1	1.1	0.97	0.59	0.10	6117753
Acid Extractable Vanadium (V)	mg/kg	4.3	6117751	8.7	37	41	37	7.0	2.0	6117753
Acid Extractable Zinc (Zn)	mg/kg	7.8	6117751	11	89	93	84	19	5.0	6117753
RDL = Reportable Detection Limit										
QC Batch = Quality Control Batch										



BUREAU
VERITAS

BV Labs Job #: B9C3282
Report Date: 2019/07/31

Stantec Consulting Ltd
Client Project #: 121621877.400
Site Location: NS
Sampler Initials: CSR

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

BV Labs ID		JQW886	JQW886	JQW887	JQW888	JQW889		
Sampling Date		2019/05/02 13:32	2019/05/02 13:32	2019/04/29 13:10	2019/04/29 13:10	2019/04/29 13:10		
COC Number		D40473	D40473	D40473	D40473	D40473		
	UNITS	VC-12-2	VC-12-2 Lab-Dup	VC-52-1	VC-52-2	VC-52-3	RDL	QC Batch
Metals								
Acid Extractable Aluminum (Al)	mg/kg	5100	5100	13000	13000	15000	10	6117753
Acid Extractable Antimony (Sb)	mg/kg	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	6117753
Acid Extractable Arsenic (As)	mg/kg	4.1	4.6	11	11	12	2.0	6117753
Acid Extractable Barium (Ba)	mg/kg	9.7	12	59	59	64	5.0	6117753
Acid Extractable Beryllium (Be)	mg/kg	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	6117753
Acid Extractable Bismuth (Bi)	mg/kg	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	6117753
Acid Extractable Boron (B)	mg/kg	<50	<50	89	110	110	50	6117753
Acid Extractable Cadmium (Cd)	mg/kg	<0.30	<0.30	0.45	0.47	0.52	0.30	6117753
Acid Extractable Chromium (Cr)	mg/kg	9.9	9.8	27	29	31	2.0	6117753
Acid Extractable Cobalt (Co)	mg/kg	5.2	5.1	13	13	14	1.0	6117753
Acid Extractable Copper (Cu)	mg/kg	41	42	17	17	19	2.0	6117753
Acid Extractable Iron (Fe)	mg/kg	13000	13000	31000	32000	35000	50	6117753
Acid Extractable Lead (Pb)	mg/kg	6.2	6.3	20	20	21	0.50	6117753
Acid Extractable Lithium (Li)	mg/kg	14	14	34	36	39	2.0	6117753
Acid Extractable Manganese (Mn)	mg/kg	200	200	470	470	490	2.0	6117753
Acid Extractable Molybdenum (Mo)	mg/kg	<2.0	<2.0	8.9	11	13	2.0	6117753
Acid Extractable Nickel (Ni)	mg/kg	11	11	30	31	35	2.0	6117753
Acid Extractable Rubidium (Rb)	mg/kg	3.6	3.7	14	15	17	2.0	6117753
Acid Extractable Selenium (Se)	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	6117753
Acid Extractable Silver (Ag)	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	6117753
Acid Extractable Strontium (Sr)	mg/kg	<5.0	<5.0	61	53	34	5.0	6117753
Acid Extractable Thallium (Tl)	mg/kg	<0.10	<0.10	0.19	0.19	0.22	0.10	6117753
Acid Extractable Tin (Sn)	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	6117753
Acid Extractable Uranium (U)	mg/kg	0.42	0.42	2.5	2.8	3.2	0.10	6117753
Acid Extractable Vanadium (V)	mg/kg	9.6	9.4	39	42	44	2.0	6117753
Acid Extractable Zinc (Zn)	mg/kg	27	27	84	82	92	5.0	6117753
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Lab-Dup = Laboratory Initiated Duplicate								



BUREAU
VERITAS

BV Labs Job #: B9C3282
Report Date: 2019/07/31

Stantec Consulting Ltd
Client Project #: 121621877.400
Site Location: NS
Sampler Initials: CSR

SEMI-VOLATILE ORGANICS BY GC-MS (SOIL)

BV Labs ID		JQW880	JQW881	JQW882	JQW883	JQW884	JQW885		
Sampling Date		2019/05/03 16:14	2019/05/03 15:55	2019/05/02 11:35	2019/05/02 11:35	2019/05/02 11:35	2019/05/02 13:32		
COC Number		D40473	D40473	D40473	D40473	D40473	D40473		
	UNITS	VC-04B	VC-04A	VC-14-1	VC-14-2	VC-14-3	VC-12-1	RDL	QC Batch
Polyaromatic Hydrocarbons									
1-Methylnaphthalene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6114474
2-Methylnaphthalene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6114474
Acenaphthene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6114474
Acenaphthylene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6114474
Anthracene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6114474
Benzo(a)anthracene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6114474
Benzo(a)pyrene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6114474
Benzo(b)fluoranthene	mg/kg	<0.0050	<0.0050	<0.0050	0.013	0.010	<0.0050	0.0050	6114474
Benzo(b/j)fluoranthene	mg/kg	<0.010	<0.010	<0.010	0.013	0.010	<0.010	0.010	6112177
Benzo(g,h,i)perylene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6114474
Benzo(j)fluoranthene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6114474
Benzo(k)fluoranthene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6114474
Chrysene	mg/kg	<0.0050	<0.0050	<0.0050	0.012	<0.0050	<0.0050	0.0050	6114474
Dibenz(a,h)anthracene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6114474
Fluoranthene	mg/kg	<0.0050	0.0065	0.014	0.024	0.015	<0.0050	0.0050	6114474
Fluorene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6114474
Indeno(1,2,3-cd)pyrene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6114474
Naphthalene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6114474
Perylene	mg/kg	<0.0050	<0.0050	0.13	0.16	0.16	<0.0050	0.0050	6114474
Phenanthrene	mg/kg	<0.0050	0.010	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6114474
Pyrene	mg/kg	<0.0050	<0.0050	<0.0050	0.015	0.010	<0.0050	0.0050	6114474
Surrogate Recovery (%)									
D10-Anthracene	%	87	90	88	84	82	86	N/A	6114474
D14-Terphenyl	%	90	92	88	81	77	91	N/A	6114474
D8-Acenaphthylene	%	84	86	84	78	78	85	N/A	6114474
RDL = Reportable Detection Limit QC Batch = Quality Control Batch N/A = Not Applicable									



BUREAU
VERITAS

BV Labs Job #: B9C3282
Report Date: 2019/07/31

Stantec Consulting Ltd
Client Project #: 121621877.400
Site Location: NS
Sampler Initials: CSR

SEMI-VOLATILE ORGANICS BY GC-MS (SOIL)

BV Labs ID		JQW886	JQW887	JQW888	JQW889		
Sampling Date		2019/05/02 13:32	2019/04/29 13:10	2019/04/29 13:10	2019/04/29 13:10		
COC Number		D40473	D40473	D40473	D40473		
	UNITS	VC-12-2	VC-52-1	VC-52-2	VC-52-3	RDL	QC Batch
Polyaromatic Hydrocarbons							
1-Methylnaphthalene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6114474
2-Methylnaphthalene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6114474
Acenaphthene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6114474
Acenaphthylene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6114474
Anthracene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6114474
Benzo(a)anthracene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6114474
Benzo(a)pyrene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6114474
Benzo(b)fluoranthene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6114474
Benzo(b/j)fluoranthene	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	6112177
Benzo(g,h,i)perylene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6114474
Benzo(j)fluoranthene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6114474
Benzo(k)fluoranthene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6114474
Chrysene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6114474
Dibenz(a,h)anthracene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6114474
Fluoranthene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6114474
Fluorene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6114474
Indeno(1,2,3-cd)pyrene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6114474
Naphthalene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6114474
Perylene	mg/kg	<0.0050	0.040	0.094	0.085	0.0050	6114474
Phenanthrene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6114474
Pyrene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6114474
Surrogate Recovery (%)							
D10-Anthracene	%	87	89	84	81	N/A	6114474
D14-Terphenyl	%	90	94	84	81	N/A	6114474
D8-Acenaphthylene	%	85	82	76	75	N/A	6114474
RDL = Reportable Detection Limit QC Batch = Quality Control Batch N/A = Not Applicable							



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VERITAS

BV Labs Job #: B9C3282

Report Date: 2019/07/31

Stantec Consulting Ltd

Client Project #: 121621877.400

Site Location: NS

Sampler Initials: CSR

PETROLEUM HYDROCARBONS (CCME)

BV Labs ID		JQW880		
Sampling Date		2019/05/03 16:14		
COC Number		D40473		
	UNITS	VC-04B	RDL	QC Batch
F2-F4 Hydrocarbons				
Total Oil and Grease	ug/g	<100	100	6117791
RDL = Reportable Detection Limit				
QC Batch = Quality Control Batch				



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VERITAS

BV Labs Job #: B9C3282
Report Date: 2019/07/31

Stantec Consulting Ltd
Client Project #: 121621877.400
Site Location: NS
Sampler Initials: CSR

DIOXINS AND FURANS BY HRMS (SOIL)

BV Labs ID		JQW880						
Sampling Date		2019/05/03 16:14						
COC Number		D40473			TOXIC EQUIVALENCY		# of	
	UNITS	VC-04B	EDL	RDL	TEF (CAL. 503 BIOSOLID)	TEQ(DL)	Isomers	QC Batch
Dioxins & Furans								
2,3,7,8-Tetra CDD *	pg/g	<0.114	0.114	0.999	1.00	0.114	N/A	6186144
1,2,3,7,8-Penta CDD *	pg/g	<0.119	0.119	0.999	0.500	0.0595	N/A	6186144
1,2,3,4,7,8-Hexa CDD *	pg/g	<0.111	0.111	0.999	0.100	0.0111	N/A	6186144
1,2,3,6,7,8-Hexa CDD *	pg/g	<0.0991	0.0991	0.999	0.100	0.00991	N/A	6186144
1,2,3,7,8,9-Hexa CDD *	pg/g	<0.104	0.104	0.999	0.100	0.0104	N/A	6186144
1,2,3,4,6,7,8-Hepta CDD *	pg/g	0.218	0.114	0.999	0.0100	0.00218	N/A	6186144
Octa CDD *	pg/g	2.61	0.145	9.99	0.00100	0.00261	N/A	6186144
Total Tetra CDD *	pg/g	<0.114	0.114	0.999	N/A	N/A	0	6186144
Total Penta CDD *	pg/g	<0.119	0.119	0.999	N/A	N/A	0	6186144
Total Hexa CDD *	pg/g	<0.104	0.104	0.999	N/A	N/A	0	6186144
Total Hepta CDD *	pg/g	0.471	0.114	0.999	N/A	N/A	2	6186144
2,3,7,8-Tetra CDF **	pg/g	<0.112	0.112	0.999	0.100	0.0112	N/A	6186144
1,2,3,7,8-Penta CDF **	pg/g	<0.115	0.115	0.999	0.0500	0.00575	N/A	6186144
2,3,4,7,8-Penta CDF **	pg/g	<0.118	0.118	0.999	0.500	0.0590	N/A	6186144
1,2,3,4,7,8-Hexa CDF **	pg/g	<0.104	0.104	0.999	0.100	0.0104	N/A	6186144
1,2,3,6,7,8-Hexa CDF **	pg/g	<0.0972	0.0972	0.999	0.100	0.00972	N/A	6186144
2,3,4,6,7,8-Hexa CDF **	pg/g	<0.119	0.119	0.999	0.100	0.0119	N/A	6186144
1,2,3,7,8,9-Hexa CDF **	pg/g	<0.135	0.135	0.999	0.100	0.0135	N/A	6186144
1,2,3,4,6,7,8-Hepta CDF **	pg/g	<0.104	0.104	0.999	0.0100	0.00104	N/A	6186144
1,2,3,4,7,8,9-Hepta CDF **	pg/g	<0.141	0.141	0.999	0.0100	0.00141	N/A	6186144
Octa CDF **	pg/g	0.347	0.174	9.99	0.00100	0.000347	N/A	6186144
Total Tetra CDF **	pg/g	<0.112	0.112	0.999	N/A	N/A	0	6186144
Total Penta CDF **	pg/g	<0.117	0.117	0.999	N/A	N/A	0	6186144
Total Hexa CDF **	pg/g	<0.112	0.112	0.999	N/A	N/A	0	6186144
Total Hepta CDF **	pg/g	<0.120	0.120	0.999	N/A	N/A	0	6186144
TOTAL TOXIC EQUIVALENCY	pg/g	N/A	N/A	N/A	N/A	0.334	N/A	N/A
EDL = Estimated Detection Limit RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested. QC Batch = Quality Control Batch * CDD = Chloro Dibenzo-p-Dioxin N/A = Not Applicable ** CDF = Chloro Dibenzo-p-Furan								



BUREAU
VERITAS

BV Labs Job #: B9C3282
Report Date: 2019/07/31

Stantec Consulting Ltd
Client Project #: 121621877.400
Site Location: NS
Sampler Initials: CSR

DIOXINS AND FURANS BY HRMS (SOIL)

BV Labs ID		JQW880						
Sampling Date		2019/05/03 16:14						
COC Number		D40473	TOXIC EQUIVALENCY				# of	
	UNITS	VC-04B	EDL	RDL	TEF (CAL. 503 BIOSOLID)	TEQ(DL)	Isomers	QC Batch
Surrogate Recovery (%)								
C13-1234678 HeptaCDD *	%	119	N/A	N/A	N/A	N/A	N/A	6186144
C13-1234678 HeptaCDF **	%	114	N/A	N/A	N/A	N/A	N/A	6186144
C13-123678 HexaCDD *	%	99	N/A	N/A	N/A	N/A	N/A	6186144
C13-123678 HexaCDF **	%	71	N/A	N/A	N/A	N/A	N/A	6186144
C13-12378 PentaCDD *	%	81	N/A	N/A	N/A	N/A	N/A	6186144
C13-12378 PentaCDF **	%	57	N/A	N/A	N/A	N/A	N/A	6186144
C13-2378 TetraCDD *	%	110	N/A	N/A	N/A	N/A	N/A	6186144
C13-2378 TetraCDF **	%	79	N/A	N/A	N/A	N/A	N/A	6186144
C13-OCDD *	%	110	N/A	N/A	N/A	N/A	N/A	6186144
EDL = Estimated Detection Limit RDL = Reportable Detection Limit TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient, The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested. QC Batch = Quality Control Batch * CDD = Chloro Dibenzo-p-Dioxin N/A = Not Applicable ** CDF = Chloro Dibenzo-p-Furan								



BUREAU
VERITAS

BV Labs Job #: B9C3282
Report Date: 2019/07/31

Stantec Consulting Ltd
Client Project #: 121621877.400
Site Location: NS
Sampler Initials: CSR

TEST SUMMARY

BV Labs ID: JQW880
Sample ID: VC-04B
Matrix: Soil

Collected: 2019/05/03
Shipped:
Received: 2019/05/07

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Benzo(b/j)fluoranthene Sum (LL soil)	CALC	6112177	N/A	2019/05/14	Automated Statchk
Dioxins/Furans in Soil (EPS 1/RM/23)	HRMS/MS	6186144	2019/06/19	2019/06/27	Angel Guerrero
Organic Halogen (Extractable)		6117817	N/A	2019/05/13	Eric Dearman
TEH in Soil (PIRI)	GC/FID	6114660	2019/05/10	2019/05/13	Brittany Matthews
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	6118763	2019/05/13	2019/05/14	Prabhjot Gulati
F4G (CCME Hydrocarbons Gravimetric)	BAL	6117791	2019/05/13	2019/05/13	Simarpreet Kaur
Mercury (CVAA)	CV/AA	6114563	2019/05/13	2019/05/13	Cody Cleary
Metals Solids Acid Extr. ICPMS	ICP/MS	6117751	2019/05/13	2019/05/13	Bryon Angevine
Carbon Nitrogen Ratio	CALC	6125795	2019/05/15	2019/05/15	Automated Statchk
Total Cyanide	SKAL	6128790	2019/05/13	2019/05/14	Gustavo Garcia Casado
Carbon, Nitrogen, Sulphur - Combustion	COMB	6117721	N/A	2019/05/12	Harry (Peng) Liang
Water Content (Subcontracted)	BAL	6133308	N/A	2019/05/15	Automated Status Check
Moisture (Subcontracted)	BAL	6124032	2019/05/13	2019/05/14	Lolita Obusan
Total PCB	GC/MS	6133309	2019/05/13	2019/05/15	Corina Tue
Sulphide in Soil	SPEC/UVVS	6124052	2019/05/13	2019/05/15	David Huang
Total Kjeldahl Nitrogen (Available)	KONE	6123731	2019/05/13	2019/05/14	Anna Lebowa
Moisture	BAL	6112975	N/A	2019/05/10	Selina Dunbar
Nitrogen Ammonia - soil (as N)	KONE	6118113	2019/05/13	2019/05/14	Nancy Rogers
Nitrogen - Nitrate + Nitrite	KONE	6119805	2019/05/13	2019/05/15	Sarah Mitchell
Nitrogen - Nitrite by auto colourimetry	KONE	6119806	2019/05/13	2019/05/14	Sarah Mitchell
Nitrogen - Nitrate (as N)	CALC	6112179	N/A	2019/05/15	Automated Statchk
PAH in sediment by GC/MS (Low Level)	GC/MS	6114474	2019/05/10	2019/05/14	Lisa Gates
Phenols (4AAP)	TECH	6118071	2019/05/13	2019/05/14	Bramdeo Motiram
pH (5:1 DI Water Extract)	PH/PH	6118394	2019/05/13	2019/05/13	Steven Smith
Phosphorus - ortho by auto Colourimetry	KONE	6119804	2019/05/13	2019/05/14	Sarah Mitchell
Particle size in solids (pipette&sieve)	PSIV	6114613	N/A	2019/05/23	Tammy Peters
Acid Vol. Sulphide in S (Sub fr.Bedford)		6117821	2019/05/13	2019/05/29	Eric Dearman
Total Organic Carbon in Soil	COMB	6122643	N/A	2019/05/15	Dhruvik Modh
ModTPH (T1) Calc. for Soil	CALC	6112129	N/A	2019/05/13	Automated Statchk
Volatile Organic Compounds and F1 PHCs	GC/MS	6115126	N/A	2019/05/13	Denis Reid
VOCs in Soil - Field Preserved	HS/MS	6109572	N/A	2019/05/10	Amanda Swales
VPH in Soil (PIRI) - Field Preserved	PTGC/MS	6112673	N/A	2019/05/09	Shawn Helmkey

BV Labs ID: JQW880 Dup
Sample ID: VC-04B
Matrix: Soil

Collected: 2019/05/03
Shipped:
Received: 2019/05/07

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Sulphide in Soil	SPEC/UVVS	6124052	2019/05/13	2019/05/15	David Huang
Moisture	BAL	6112975	N/A	2019/05/10	Selina Dunbar
Phenols (4AAP)	TECH	6118071	2019/05/13	2019/05/14	Bramdeo Motiram



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VERITAS

BV Labs Job #: B9C3282
Report Date: 2019/07/31

Stantec Consulting Ltd
Client Project #: 121621877.400
Site Location: NS
Sampler Initials: CSR

TEST SUMMARY

BV Labs ID: JQW881
Sample ID: VC-04A
Matrix: Soil

Collected: 2019/05/03
Shipped:
Received: 2019/05/07

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Benzo(b/j)fluoranthene Sum (LL soil)	CALC	6112177	N/A	2019/05/14	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	6118763	2019/05/13	2019/05/14	Prabhjot Gulati
Mercury (CVAA)	CV/AA	6114563	2019/05/13	2019/05/13	Cody Cleary
Metals Solids Acid Extr. ICPMS	ICP/MS	6117753	2019/05/13	2019/05/13	Bryon Angevine
Total PCB	GC/MS	6133309	2019/05/13	2019/05/15	Corina Tue
Moisture	BAL	6112975	N/A	2019/05/10	Selina Dunbar
PAH in sediment by GC/MS (Low Level)	GC/MS	6114474	2019/05/10	2019/05/14	Lisa Gates
Particle size in solids (pipette&sieve)	PSIV	6114613	N/A	2019/05/23	Tammy Peters
Total Organic Carbon in Soil	COMB	6122643	N/A	2019/05/15	Dhruvik Modh
Volatile Organic Compounds and F1 PHCs	GC/MS	6115126	N/A	2019/05/13	Denis Reid

BV Labs ID: JQW882
Sample ID: VC-14-1
Matrix: Soil

Collected: 2019/05/02
Shipped:
Received: 2019/05/07

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Benzo(b/j)fluoranthene Sum (LL soil)	CALC	6112177	N/A	2019/05/14	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	6118763	2019/05/13	2019/05/14	Prabhjot Gulati
Mercury (CVAA)	CV/AA	6114563	2019/05/13	2019/05/13	Cody Cleary
Metals Solids Acid Extr. ICPMS	ICP/MS	6117753	2019/05/13	2019/05/13	Bryon Angevine
Total PCB	GC/MS	6133309	2019/05/13	2019/05/15	Corina Tue
Moisture	BAL	6112975	N/A	2019/05/10	Selina Dunbar
PAH in sediment by GC/MS (Low Level)	GC/MS	6114474	2019/05/10	2019/05/14	Lisa Gates
Particle size in solids (pipette&sieve)	PSIV	6114613	N/A	2019/05/23	Tammy Peters
Total Organic Carbon in Soil	COMB	6122643	N/A	2019/05/15	Dhruvik Modh
Volatile Organic Compounds and F1 PHCs	GC/MS	6115126	N/A	2019/05/13	Denis Reid

BV Labs ID: JQW883
Sample ID: VC-14-2
Matrix: Soil

Collected: 2019/05/02
Shipped:
Received: 2019/05/07

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Benzo(b/j)fluoranthene Sum (LL soil)	CALC	6112177	N/A	2019/05/14	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	6118763	2019/05/13	2019/05/14	Prabhjot Gulati
Mercury (CVAA)	CV/AA	6114563	2019/05/13	2019/05/13	Cody Cleary
Metals Solids Acid Extr. ICPMS	ICP/MS	6117753	2019/05/13	2019/05/13	Bryon Angevine
Total PCB	GC/MS	6133309	2019/05/13	2019/05/15	Corina Tue
Moisture	BAL	6112975	N/A	2019/05/10	Selina Dunbar
PAH in sediment by GC/MS (Low Level)	GC/MS	6114474	2019/05/10	2019/05/14	Lisa Gates
Particle size in solids (pipette&sieve)	PSIV	6114613	N/A	2019/05/23	Tammy Peters
Total Organic Carbon in Soil	COMB	6122643	N/A	2019/05/15	Dhruvik Modh
Volatile Organic Compounds and F1 PHCs	GC/MS	6115126	N/A	2019/05/13	Denis Reid



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VERITAS

BV Labs Job #: B9C3282
Report Date: 2019/07/31

Stantec Consulting Ltd
Client Project #: 121621877.400
Site Location: NS
Sampler Initials: CSR

TEST SUMMARY

BV Labs ID: JQW883 Dup
Sample ID: VC-14-2
Matrix: Soil

Collected: 2019/05/02
Shipped:
Received: 2019/05/07

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Volatile Organic Compounds and F1 PHCs	GC/MS	6115126	N/A	2019/05/13	Denis Reid

BV Labs ID: JQW884
Sample ID: VC-14-3
Matrix: Soil

Collected: 2019/05/02
Shipped:
Received: 2019/05/07

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Benzo(b/j)fluoranthene Sum (LL soil)	CALC	6112177	N/A	2019/05/14	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	6118763	2019/05/13	2019/05/14	Prabhjot Gulati
Mercury (CVAA)	CV/AA	6114563	2019/05/13	2019/05/13	Cody Cleary
Metals Solids Acid Extr. ICPMS	ICP/MS	6117753	2019/05/13	2019/05/13	Bryon Angevine
Total PCB	GC/MS	6133309	2019/05/13	2019/05/15	Corina Tue
Moisture	BAL	6112975	N/A	2019/05/10	Selina Dunbar
PAH in sediment by GC/MS (Low Level)	GC/MS	6114474	2019/05/10	2019/05/14	Lisa Gates
Particle size in solids (pipette&sieve)	PSIV	6114613	N/A	2019/05/23	Tammy Peters
Total Organic Carbon in Soil	COMB	6122643	N/A	2019/05/15	Dhruvik Modh
Volatile Organic Compounds and F1 PHCs	GC/MS	6115126	N/A	2019/05/13	Denis Reid

BV Labs ID: JQW885
Sample ID: VC-12-1
Matrix: Soil

Collected: 2019/05/02
Shipped:
Received: 2019/05/07

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Benzo(b/j)fluoranthene Sum (LL soil)	CALC	6112177	N/A	2019/05/14	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	6118763	2019/05/13	2019/05/14	Prabhjot Gulati
Mercury (CVAA)	CV/AA	6114563	2019/05/13	2019/05/13	Cody Cleary
Metals Solids Acid Extr. ICPMS	ICP/MS	6117753	2019/05/13	2019/05/13	Bryon Angevine
Total PCB	GC/MS	6133309	2019/05/13	2019/05/15	Corina Tue
Moisture	BAL	6112975	N/A	2019/05/10	Selina Dunbar
PAH in sediment by GC/MS (Low Level)	GC/MS	6114474	2019/05/10	2019/05/14	Lisa Gates
Particle size in solids (pipette&sieve)	PSIV	6114613	N/A	2019/05/23	Tammy Peters
Total Organic Carbon in Soil	COMB	6122643	N/A	2019/05/15	Dhruvik Modh
Volatile Organic Compounds and F1 PHCs	GC/MS	6115126	N/A	2019/05/13	Denis Reid

BV Labs ID: JQW886
Sample ID: VC-12-2
Matrix: Soil

Collected: 2019/05/02
Shipped:
Received: 2019/05/07

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Benzo(b/j)fluoranthene Sum (LL soil)	CALC	6112177	N/A	2019/05/14	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	6118763	2019/05/13	2019/05/14	Prabhjot Gulati
Mercury (CVAA)	CV/AA	6114563	2019/05/13	2019/05/13	Cody Cleary
Metals Solids Acid Extr. ICPMS	ICP/MS	6117753	2019/05/13	2019/05/13	Bryon Angevine
Total PCB	GC/MS	6133309	2019/05/13	2019/05/15	Corina Tue
Moisture	BAL	6112975	N/A	2019/05/10	Selina Dunbar



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BV Labs Job #: B9C3282
Report Date: 2019/07/31

Stantec Consulting Ltd
Client Project #: 121621877.400
Site Location: NS
Sampler Initials: CSR

TEST SUMMARY

BV Labs ID: JQW886
Sample ID: VC-12-2
Matrix: Soil

Collected: 2019/05/02
Shipped:
Received: 2019/05/07

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
PAH in sediment by GC/MS (Low Level)	GC/MS	6114474	2019/05/10	2019/05/14	Lisa Gates
Particle size in solids (pipette&sieve)	PSIV	6114613	N/A	2019/05/23	Tammy Peters
Total Organic Carbon in Soil	COMB	6122643	N/A	2019/05/15	Dhruvik Modh
Volatile Organic Compounds and F1 PHCs	GC/MS	6115126	N/A	2019/05/13	Denis Reid

BV Labs ID: JQW886 Dup
Sample ID: VC-12-2
Matrix: Soil

Collected: 2019/05/02
Shipped:
Received: 2019/05/07

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Metals Solids Acid Extr. ICPMS	ICP/MS	6117753	2019/05/13	2019/05/13	Bryon Angevine

BV Labs ID: JQW887
Sample ID: VC-52-1
Matrix: Soil

Collected: 2019/04/29
Shipped:
Received: 2019/05/07

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Benzo(b/j)fluoranthene Sum (LL soil)	CALC	6112177	N/A	2019/05/14	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	6118763	2019/05/13	2019/05/14	Prabhjot Gulati
Mercury (CVAA)	CV/AA	6114563	2019/05/13	2019/05/13	Cody Cleary
Metals Solids Acid Extr. ICPMS	ICP/MS	6117753	2019/05/13	2019/05/13	Bryon Angevine
Total PCB	GC/MS	6133309	2019/05/13	2019/05/15	Corina Tue
Moisture	BAL	6112975	N/A	2019/05/10	Selina Dunbar
PAH in sediment by GC/MS (Low Level)	GC/MS	6114474	2019/05/10	2019/05/14	Lisa Gates
Particle size in solids (pipette&sieve)	PSIV	6114613	N/A	2019/05/23	Tammy Peters
Total Organic Carbon in Soil	COMB	6122643	N/A	2019/05/15	Dhruvik Modh
Volatile Organic Compounds and F1 PHCs	GC/MS	6115126	N/A	2019/05/13	Denis Reid

BV Labs ID: JQW888
Sample ID: VC-52-2
Matrix: Soil

Collected: 2019/04/29
Shipped:
Received: 2019/05/07

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Benzo(b/j)fluoranthene Sum (LL soil)	CALC	6112177	N/A	2019/05/14	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	6118763	2019/05/13	2019/05/14	Prabhjot Gulati
Mercury (CVAA)	CV/AA	6114563	2019/05/13	2019/05/13	Cody Cleary
Metals Solids Acid Extr. ICPMS	ICP/MS	6117753	2019/05/13	2019/05/13	Bryon Angevine
Total PCB	GC/MS	6133309	2019/05/13	2019/05/15	Corina Tue
Moisture	BAL	6112975	N/A	2019/05/10	Selina Dunbar
PAH in sediment by GC/MS (Low Level)	GC/MS	6114474	2019/05/10	2019/05/14	Lisa Gates
Particle size in solids (pipette&sieve)	PSIV	6114613	N/A	2019/05/23	Tammy Peters
Total Organic Carbon in Soil	COMB	6122643	N/A	2019/05/15	Dhruvik Modh
Volatile Organic Compounds and F1 PHCs	GC/MS	6115126	N/A	2019/05/13	Denis Reid



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BV Labs Job #: B9C3282
Report Date: 2019/07/31

Stantec Consulting Ltd
Client Project #: 121621877.400
Site Location: NS
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TEST SUMMARY

BV Labs ID: JQW889
Sample ID: VC-52-3
Matrix: Soil

Collected: 2019/04/29
Shipped:
Received: 2019/05/07

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Benzo(b/j)fluoranthene Sum (LL soil)	CALC	6112177	N/A	2019/05/14	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	6118763	2019/05/13	2019/05/14	Prabhjot Gulati
Mercury (CVAA)	CV/AA	6114567	2019/05/13	2019/05/13	Cody Cleary
Metals Solids Acid Extr. ICPMS	ICP/MS	6117753	2019/05/13	2019/05/13	Bryon Angevine
Total PCB	GC/MS	6133309	2019/05/13	2019/05/15	Corina Tue
Moisture	BAL	6112975	N/A	2019/05/10	Selina Dunbar
PAH in sediment by GC/MS (Low Level)	GC/MS	6114474	2019/05/10	2019/05/14	Lisa Gates
Particle size in solids (pipette&sieve)	PSIV	6114613	N/A	2019/05/23	Tammy Peters
Total Organic Carbon in Soil	COMB	6122643	N/A	2019/05/15	Dhruvik Modh
Volatile Organic Compounds and F1 PHCs	GC/MS	6115126	N/A	2019/05/13	Denis Reid



GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	6.3°C
Package 2	8.3°C
Package 3	13.7°C
Package 4	4.3°C

Revised Report – Reissued to report the TOC in %, as requested by Joanne Whalen-Gayton. MDN 2019-07-31

Sample JQW880 [VC-04B] : Sample analyzed past method specified hold time for Sulphide in Soil. Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised.

Sample JQW882 [VC-14-1] : F2-F4 Analysis: Detection limits were adjusted for high moisture content.

Sample JQW883 [VC-14-2] : F2-F4 Analysis: Detection limits were adjusted for high moisture content.

Sample JQW884 [VC-14-3] : F2-F4 Analysis: Detection limits were adjusted for high moisture content.

Sample JQW885 [VC-12-1] : VOCF1 Analysis: Greater than 10g of soil was submitted in the field preserved vial. This significantly exceeds the protocol specification of approximately 5g. Additional methanol was added to the vial to ensure extraction efficiency.

Sample JQW886 [VC-12-2] : VOCF1 Analysis: Greater than 10g of soil was submitted in the field preserved vial. This significantly exceeds the protocol specification of approximately 5g. Additional methanol was added to the vial to ensure extraction efficiency.

Sample JQW887 [VC-52-1] : F2-F4 Analysis: Detection limits were adjusted for high moisture content.

Sample JQW888 [VC-52-2] : F2-F4 Analysis: Detection limits were adjusted for high moisture content.

Sample JQW889 [VC-52-3] : F2-F4 Analysis: Detection limits were adjusted for high moisture content.

Results relate only to the items tested.



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QUALITY ASSURANCE REPORT

Stantec Consulting Ltd
Client Project #: 121621877.400
Site Location: NS
Sampler Initials: CSR

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
6109572	4-Bromofluorobenzene	2019/05/10	104	60 - 140	103	60 - 140	101	%				
6109572	D10-o-Xylene	2019/05/10	98 (1)	60 - 130	102	60 - 130	96	%				
6109572	D4-1,2-Dichloroethane	2019/05/10	98	60 - 140	97	60 - 140	98	%				
6109572	D8-Toluene	2019/05/10	99	60 - 140	99	60 - 140	100	%				
6112673	Isobutylbenzene - Volatile	2019/05/09	95 (2)	60 - 130	91	60 - 130	93	%				
6114474	D10-Anthracene	2019/05/11	93	50 - 130	94	50 - 130	99	%				
6114474	D14-Terphenyl	2019/05/11	93	50 - 130	94	50 - 130	95	%				
6114474	D8-Acenaphthylene	2019/05/11	87	50 - 130	90	50 - 130	91	%				
6114660	Isobutylbenzene - Extractable	2019/05/10	94	60 - 130	91	60 - 130	101	%				
6114660	n-Dotriacontane - Extractable	2019/05/10	123	60 - 130	106	60 - 130	116	%				
6115126	4-Bromofluorobenzene	2019/05/13	111	60 - 140	112	60 - 140	103	%				
6115126	D10-o-Xylene	2019/05/13	114	60 - 130	108	60 - 130	94	%				
6115126	D4-1,2-Dichloroethane	2019/05/13	91	60 - 140	87	60 - 140	92	%				
6115126	D8-Toluene	2019/05/13	99	60 - 140	105	60 - 140	89	%				
6118763	o-Terphenyl	2019/05/13	94	60 - 130	100	60 - 130	94	%				
6133309	2,3,3',4,6-Pentachlorobiphenyl	2019/05/15			91	60 - 130	94	%				
6133309	2',3,5-Trichlorobiphenyl	2019/05/15			92	60 - 130	96	%				
6133309	22'33'44'566'-Nonachlorobiphenyl	2019/05/15			113	60 - 130	116	%				
6186144	C13-1234678 HeptaCDD	2019/06/26	135 (5)	30 - 130	136 (5)	30 - 130	128	%				
6186144	C13-1234678 HeptaCDF	2019/06/26	90	30 - 130	106	30 - 130	103	%				
6186144	C13-123678 HexaCDD	2019/06/26	104	30 - 130	102	30 - 130	115	%				
6186144	C13-123678 HexaCDF	2019/06/26	56	30 - 130	76	30 - 130	78	%				
6186144	C13-12378 PentaCDD	2019/06/26	88	30 - 130	85	30 - 130	100	%				
6186144	C13-12378 PentaCDF	2019/06/26	61	30 - 130	63	30 - 130	66	%				
6186144	C13-2378 TetraCDD	2019/06/26	115	30 - 130	127	30 - 130	112	%				
6186144	C13-2378 TetraCDF	2019/06/26	77	30 - 130	90	30 - 130	77	%				
6186144	C13-OCDD	2019/06/26	154 (5)	30 - 130	148 (5)	30 - 130	125	%				
6109572	1,1,1-Trichloroethane	2019/05/10	106	60 - 140	110	60 - 130	<25	ug/kg	NC	50		
6109572	1,1,2,2-Tetrachloroethane	2019/05/10	97	60 - 140	99	60 - 130	<25	ug/kg	NC	50		
6109572	1,1,2-Trichloroethane	2019/05/10	99	60 - 140	102	60 - 130	<25	ug/kg	NC	50		
6109572	1,1-Dichloroethane	2019/05/10	103	60 - 140	108	60 - 130	<25	ug/kg	NC	50		
6109572	1,1-Dichloroethylene	2019/05/10	105	60 - 140	112	60 - 130	<25	ug/kg	NC	50		



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Stantec Consulting Ltd

Client Project #: 121621877.400

Site Location: NS

Sampler Initials: CSR

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
6109572	1,2-Dichlorobenzene	2019/05/10	94	60 - 140	100	60 - 130	<25	ug/kg	NC	50		
6109572	1,2-Dichloroethane	2019/05/10	94	60 - 140	98	60 - 130	<25	ug/kg	NC	50		
6109572	1,2-Dichloropropane	2019/05/10	102	60 - 140	106	60 - 130	<25	ug/kg	NC	50		
6109572	1,3-Dichlorobenzene	2019/05/10	95	60 - 140	102	60 - 130	<25	ug/kg	NC	50		
6109572	1,4-Dichlorobenzene	2019/05/10	94	60 - 140	100	60 - 130	<25	ug/kg	NC	50		
6109572	Benzene	2019/05/10	100	60 - 140	105	60 - 130	<25	ug/kg	NC	50		
6109572	Bromodichloromethane	2019/05/10	100	60 - 140	104	60 - 130	<25	ug/kg	NC	50		
6109572	Bromoform	2019/05/10	93	60 - 140	95	60 - 130	<25	ug/kg	NC	50		
6109572	Bromomethane	2019/05/10	94	60 - 140	96	60 - 140	<50	ug/kg	NC	50		
6109572	Carbon Tetrachloride	2019/05/10	104	60 - 140	109	60 - 130	<25	ug/kg	NC	50		
6109572	Chlorobenzene	2019/05/10	96	60 - 140	100	60 - 130	<25	ug/kg	NC	50		
6109572	Chloroethane	2019/05/10	91	60 - 140	97	60 - 140	<200	ug/kg	NC	50		
6109572	Chloroform	2019/05/10	91	60 - 140	96	60 - 130	<25	ug/kg	NC	50		
6109572	cis-1,2-Dichloroethylene	2019/05/10	103	60 - 140	108	60 - 130	<25	ug/kg	NC	50		
6109572	cis-1,3-Dichloropropene	2019/05/10	94	60 - 140	97	60 - 130	<25	ug/kg	NC	50		
6109572	Dibromochloromethane	2019/05/10	100	60 - 140	104	60 - 130	<25	ug/kg	NC	50		
6109572	Ethylbenzene	2019/05/10	103	60 - 140	107	60 - 130	<25	ug/kg	NC	50		
6109572	Ethylene Dibromide	2019/05/10	102	60 - 140	107	60 - 130	<25	ug/kg	NC	50		
6109572	Methyl t-butyl ether (MTBE)	2019/05/10	98	60 - 140	104	60 - 130	<25	ug/kg	NC	50		
6109572	Methylene Chloride(Dichloromethane)	2019/05/10	98	60 - 140	103	60 - 130	<25	ug/kg	NC	50		
6109572	o-Xylene	2019/05/10	108	60 - 140	114	60 - 130	<25	ug/kg	NC	50		
6109572	p+m-Xylene	2019/05/10	106	60 - 140	111	60 - 130	<25	ug/kg	NC	50		
6109572	Styrene	2019/05/10	103	60 - 140	107	60 - 130	<25	ug/kg	NC	50		
6109572	Tetrachloroethylene	2019/05/10	110	60 - 140	116	60 - 130	<25	ug/kg	NC	50		
6109572	Toluene	2019/05/10	101	60 - 140	107	60 - 130	<50	ug/kg	NC	50		
6109572	Total Xylenes	2019/05/10					<50	ug/kg	NC	50		
6109572	trans-1,2-Dichloroethylene	2019/05/10	106	60 - 140	112	60 - 130	<25	ug/kg	NC	50		
6109572	trans-1,3-Dichloropropene	2019/05/10	91	60 - 140	92	60 - 130	<25	ug/kg	NC	50		
6109572	Trichloroethylene	2019/05/10	108	60 - 140	114	60 - 130	<10	ug/kg	NC	50		
6109572	Trichlorofluoromethane (FREON 11)	2019/05/10	97	60 - 140	104	60 - 140	<25	ug/kg	NC	50		
6109572	Vinyl Chloride	2019/05/10	86	60 - 140	93	60 - 140	<20	ug/kg	NC	50		
6112673	Benzene	2019/05/09	92	60 - 130	87	60 - 140	<0.025	mg/kg	NC	50		



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BV Labs Job #: B9C3282
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QUALITY ASSURANCE REPORT(CONT'D)

Stantec Consulting Ltd
Client Project #: 121621877.400
Site Location: NS
Sampler Initials: CSR

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
6112673	C6 - C10 (less BTEX)	2019/05/09					<2.5	mg/kg	NC	50		
6112673	Ethylbenzene	2019/05/09	96	60 - 130	88	60 - 140	<0.025	mg/kg	NC	50		
6112673	Toluene	2019/05/09	92	60 - 130	88	60 - 140	<0.050	mg/kg	NC	50		
6112673	Total Xylenes	2019/05/09	93	60 - 130	87	60 - 140	<0.050	mg/kg	NC	50		
6112975	Moisture	2019/05/10							9.2	25		
6114474	1-Methylnaphthalene	2019/05/11	80	50 - 130	85	50 - 130	<0.0050	mg/kg	NC	50		
6114474	2-Methylnaphthalene	2019/05/11	80	50 - 130	87	50 - 130	<0.0050	mg/kg	NC	50		
6114474	Acenaphthene	2019/05/11	86	50 - 130	91	50 - 130	<0.0050	mg/kg	NC	50		
6114474	Acenaphthylene	2019/05/11	86	50 - 130	91	50 - 130	<0.0050	mg/kg	NC	50		
6114474	Anthracene	2019/05/11	82	50 - 130	85	50 - 130	<0.0050	mg/kg	NC	50		
6114474	Benzo(a)anthracene	2019/05/11	81	50 - 130	81	50 - 130	<0.0050	mg/kg	NC	50		
6114474	Benzo(a)pyrene	2019/05/11	72	50 - 130	70	50 - 130	<0.0050	mg/kg	NC	50		
6114474	Benzo(b)fluoranthene	2019/05/11	78	50 - 130	77	50 - 130	<0.0050	mg/kg	NC	50		
6114474	Benzo(g,h,i)perylene	2019/05/11	76	50 - 130	70	50 - 130	<0.0050	mg/kg	NC	50		
6114474	Benzo(j)fluoranthene	2019/05/11	71	50 - 130	71	50 - 130	<0.0050	mg/kg	NC	50		
6114474	Benzo(k)fluoranthene	2019/05/11	77	50 - 130	75	50 - 130	<0.0050	mg/kg	NC	50		
6114474	Chrysene	2019/05/11	94	50 - 130	94	50 - 130	<0.0050	mg/kg	NC	50		
6114474	Dibenz(a,h)anthracene	2019/05/11	74	50 - 130	68	50 - 130	<0.0050	mg/kg	NC	50		
6114474	Fluoranthene	2019/05/11	87	50 - 130	89	50 - 130	<0.0050	mg/kg	NC	50		
6114474	Fluorene	2019/05/11	91	50 - 130	96	50 - 130	<0.0050	mg/kg	NC	50		
6114474	Indeno(1,2,3-cd)pyrene	2019/05/11	73	50 - 130	66	50 - 130	<0.0050	mg/kg	NC	50		
6114474	Naphthalene	2019/05/11	84	50 - 130	91	50 - 130	<0.0050	mg/kg	NC	50		
6114474	Perylene	2019/05/11	68	50 - 130	67	50 - 130	<0.0050	mg/kg	NC	50		
6114474	Phenanthrene	2019/05/11	96	50 - 130	99	50 - 130	<0.0050	mg/kg	NC	50		
6114474	Pyrene	2019/05/11	87	50 - 130	89	50 - 130	<0.0050	mg/kg	NC	50		
6114563	Mercury (Hg)	2019/05/13	89	75 - 125	96	80 - 120	<0.010	mg/kg	2.4	30	79	50 - 150
6114567	Mercury (Hg)	2019/05/13	90	75 - 125	97	80 - 120	<0.010	mg/kg	NC	30	80	N/A
6114613	Clay	2019/05/23							11	35		
6114613	Gravel	2019/05/23							166 (3)	35		
6114613	Sand	2019/05/23							13	35		
6114613	Silt	2019/05/23							NC	35		
6114660	>C10-C16 Hydrocarbons	2019/05/10	91	30 - 130	95	60 - 130	<10	mg/kg	1.8	50		



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QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
6114660	>C16-C21 Hydrocarbons	2019/05/10	85	30 - 130	88	60 - 130	<10	mg/kg	6.3	50		
6114660	>C21-<C32 Hydrocarbons	2019/05/10	NC	30 - 130	106	60 - 130	<15	mg/kg	11	50		
6115126	Benzene	2019/05/13	90	60 - 140	89	60 - 130	<0.0060	ug/g	NC	50		
6115126	Ethylbenzene	2019/05/13	90	60 - 140	91	60 - 130	<0.010	ug/g	NC	50		
6115126	F1 (C6-C10) - BTEX	2019/05/13					<10	ug/g	NC	30		
6115126	F1 (C6-C10)	2019/05/13	92	60 - 140	97	80 - 120	<10	ug/g	NC	30		
6115126	o-Xylene	2019/05/13	93	60 - 140	94	60 - 130	<0.020	ug/g	NC	50		
6115126	p+m-Xylene	2019/05/13	91	60 - 140	92	60 - 130	<0.020	ug/g	NC	50		
6115126	Toluene	2019/05/13	89	60 - 140	95	60 - 130	<0.020	ug/g	NC	50		
6115126	Total Xylenes	2019/05/13					<0.020	ug/g	NC	50		
6117721	Total Carbon	2019/05/12			105	75 - 125	<0.050	%	NC	30	99	75 - 125
6117721	Total Nitrogen	2019/05/12			99	75 - 125	<0.20	%	NC	30	110	75 - 125
6117721	Total Sulphur (S)	2019/05/12			97	75 - 125	<0.060	%	7.3	30	100	75 - 125
6117751	Acid Extractable Aluminum (Al)	2019/05/13					<10	mg/kg	4.4	35		
6117751	Acid Extractable Antimony (Sb)	2019/05/13	90	75 - 125	100	75 - 125	<2.0	mg/kg	NC	35		
6117751	Acid Extractable Arsenic (As)	2019/05/13	102	75 - 125	100	75 - 125	<2.0	mg/kg	3.6	35		
6117751	Acid Extractable Barium (Ba)	2019/05/13	NC	75 - 125	99	75 - 125	<5.0	mg/kg	1.0	35		
6117751	Acid Extractable Beryllium (Be)	2019/05/13	100	75 - 125	97	75 - 125	<2.0	mg/kg	NC	35		
6117751	Acid Extractable Bismuth (Bi)	2019/05/13	105	75 - 125	100	75 - 125	<2.0	mg/kg	NC	35		
6117751	Acid Extractable Boron (B)	2019/05/13	105	75 - 125	92	75 - 125	<50	mg/kg	NC	35		
6117751	Acid Extractable Cadmium (Cd)	2019/05/13	99	75 - 125	98	75 - 125	<0.30	mg/kg	2.4	35		
6117751	Acid Extractable Chromium (Cr)	2019/05/13	105	75 - 125	100	75 - 125	<2.0	mg/kg	0.020	35		
6117751	Acid Extractable Cobalt (Co)	2019/05/13	104	75 - 125	102	75 - 125	<1.0	mg/kg	0.60	35		
6117751	Acid Extractable Copper (Cu)	2019/05/13	99	75 - 125	99	75 - 125	<2.0	mg/kg	2.1	35		
6117751	Acid Extractable Iron (Fe)	2019/05/13					<50	mg/kg	0.72	35		
6117751	Acid Extractable Lead (Pb)	2019/05/13	102	75 - 125	98	75 - 125	<0.50	mg/kg	1.8	35		
6117751	Acid Extractable Lithium (Li)	2019/05/13	107	75 - 125	99	75 - 125	<2.0	mg/kg	1.0	35		
6117751	Acid Extractable Manganese (Mn)	2019/05/13	NC	75 - 125	100	75 - 125	<2.0	mg/kg	0.81	35		
6117751	Acid Extractable Molybdenum (Mo)	2019/05/13	105	75 - 125	103	75 - 125	<2.0	mg/kg	3.3	35		
6117751	Acid Extractable Nickel (Ni)	2019/05/13	104	75 - 125	101	75 - 125	<2.0	mg/kg	0.66	35		
6117751	Acid Extractable Rubidium (Rb)	2019/05/13	98	75 - 125	98	75 - 125	<2.0	mg/kg	2.2	35		
6117751	Acid Extractable Selenium (Se)	2019/05/13	103	75 - 125	103	75 - 125	<1.0	mg/kg	NC	35		



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Site Location: NS

Sampler Initials: CSR

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
6117751	Acid Extractable Silver (Ag)	2019/05/13	100	75 - 125	98	75 - 125	<0.50	mg/kg	NC	35		
6117751	Acid Extractable Strontium (Sr)	2019/05/13	88	75 - 125	98	75 - 125	<5.0	mg/kg	22	35		
6117751	Acid Extractable Thallium (Tl)	2019/05/13	102	75 - 125	101	75 - 125	<0.10	mg/kg	5.8	35		
6117751	Acid Extractable Tin (Sn)	2019/05/13	104	75 - 125	97	75 - 125	<1.0	mg/kg	2.2	35		
6117751	Acid Extractable Uranium (U)	2019/05/13	106	75 - 125	96	75 - 125	<0.10	mg/kg	1.9	35		
6117751	Acid Extractable Vanadium (V)	2019/05/13	104	75 - 125	100	75 - 125	<2.0	mg/kg	1.5	35		
6117751	Acid Extractable Zinc (Zn)	2019/05/13	NC	75 - 125	100	75 - 125	<5.0	mg/kg	1.4	35		
6117753	Acid Extractable Aluminum (Al)	2019/05/13					<10	mg/kg	1.0	35		
6117753	Acid Extractable Antimony (Sb)	2019/05/13	97	75 - 125	99	75 - 125	<2.0	mg/kg	NC	35		
6117753	Acid Extractable Arsenic (As)	2019/05/13	104	75 - 125	99	75 - 125	<2.0	mg/kg	11	35		
6117753	Acid Extractable Barium (Ba)	2019/05/13	104	75 - 125	97	75 - 125	<5.0	mg/kg	25	35		
6117753	Acid Extractable Beryllium (Be)	2019/05/13	100	75 - 125	97	75 - 125	<2.0	mg/kg	NC	35		
6117753	Acid Extractable Bismuth (Bi)	2019/05/13	102	75 - 125	100	75 - 125	<2.0	mg/kg	NC	35		
6117753	Acid Extractable Boron (B)	2019/05/13	100	75 - 125	93	75 - 125	<50	mg/kg	NC	35		
6117753	Acid Extractable Cadmium (Cd)	2019/05/13	99	75 - 125	96	75 - 125	<0.30	mg/kg	NC	35		
6117753	Acid Extractable Chromium (Cr)	2019/05/13	101	75 - 125	98	75 - 125	<2.0	mg/kg	0.91	35		
6117753	Acid Extractable Cobalt (Co)	2019/05/13	101	75 - 125	99	75 - 125	<1.0	mg/kg	1.6	35		
6117753	Acid Extractable Copper (Cu)	2019/05/13	119	75 - 125	96	75 - 125	<2.0	mg/kg	0.80	35		
6117753	Acid Extractable Iron (Fe)	2019/05/13					<50	mg/kg	0.84	35		
6117753	Acid Extractable Lead (Pb)	2019/05/13	100	75 - 125	96	75 - 125	<0.50	mg/kg	1.6	35		
6117753	Acid Extractable Lithium (Li)	2019/05/13	107	75 - 125	98	75 - 125	<2.0	mg/kg	0.99	35		
6117753	Acid Extractable Manganese (Mn)	2019/05/13	NC	75 - 125	98	75 - 125	<2.0	mg/kg	1.7	35		
6117753	Acid Extractable Molybdenum (Mo)	2019/05/13	110	75 - 125	101	75 - 125	<2.0	mg/kg	NC	35		
6117753	Acid Extractable Nickel (Ni)	2019/05/13	102	75 - 125	99	75 - 125	<2.0	mg/kg	4.5	35		
6117753	Acid Extractable Rubidium (Rb)	2019/05/13	99	75 - 125	98	75 - 125	<2.0	mg/kg	1.5	35		
6117753	Acid Extractable Selenium (Se)	2019/05/13	103	75 - 125	103	75 - 125	<1.0	mg/kg	NC	35		
6117753	Acid Extractable Silver (Ag)	2019/05/13	100	75 - 125	99	75 - 125	<0.50	mg/kg	NC	35		
6117753	Acid Extractable Strontium (Sr)	2019/05/13	104	75 - 125	97	75 - 125	<5.0	mg/kg	NC	35		
6117753	Acid Extractable Thallium (Tl)	2019/05/13	102	75 - 125	98	75 - 125	<0.10	mg/kg	NC	35		
6117753	Acid Extractable Tin (Sn)	2019/05/13	103	75 - 125	97	75 - 125	<1.0	mg/kg	NC	35		
6117753	Acid Extractable Uranium (U)	2019/05/13	106	75 - 125	94	75 - 125	<0.10	mg/kg	0.079	35		
6117753	Acid Extractable Vanadium (V)	2019/05/13	101	75 - 125	99	75 - 125	<2.0	mg/kg	1.6	35		



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QUALITY ASSURANCE REPORT(CONT'D)

Stantec Consulting Ltd

Client Project #: 121621877.400

Site Location: NS

Sampler Initials: CSR

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
6117753	Acid Extractable Zinc (Zn)	2019/05/13	110	75 - 125	101	75 - 125	<5.0	mg/kg	1.9	35		
6117791	Total Oil and Grease	2019/05/13	120	65 - 135	101	65 - 135	<100	ug/g	20	50		
6118071	Phenols-4AAP	2019/05/14	96	75 - 125	98	80 - 120	<0.04	ug/g	NC	20		
6118113	Ammonia-N	2019/05/14	82	75 - 125	99	80 - 120	<0.25	mg/kg	23	30		
6118394	Soluble (5:1) pH	2019/05/13							1.9	N/A		
6118763	F2 (C10-C16 Hydrocarbons)	2019/05/14	89	50 - 130	94	80 - 120	<10	ug/g	NC	30		
6118763	F3 (C16-C34 Hydrocarbons)	2019/05/14	90	50 - 130	83	80 - 120	<50	ug/g	NC	30		
6118763	F4 (C34-C50 Hydrocarbons)	2019/05/14	89	50 - 130	85	80 - 120	<50	ug/g	NC	30		
6119804	Orthophosphate (P)	2019/05/14	86	80 - 120	100	80 - 120	<0.050	mg/kg	18	25		
6119805	Nitrate + Nitrite (N)	2019/05/15	95	75 - 125	108	80 - 120	<0.25	mg/kg	11	35		
6119806	Nitrite (N)	2019/05/14	91	70 - 130	99	70 - 130	<0.050	mg/kg	NC	30		
6122643	Total Organic Carbon	2019/05/15					<0.050	%	5.5	35	107	75 - 125
6123731	Available (KCl) Total Kjeldahl Nitrogen	2019/05/15	91	75 - 125	115	80 - 120	<5.0	mg/kg	104 (4)	30	104	75 - 125
6124032	Moisture-Subcontracted	2019/05/14					<0.30	%	4.0	20		
6124052	Sulphide	2019/05/15	NC	75 - 125	98	75 - 125	<0.50	ug/g	86 (4)	30		
6128790	Total Cyanide (CN)	2019/05/14			80	75 - 125	<0.50	mg/kg			89	75 - 125
6133309	22'33'44'55'6'-NonaCB-(206)	2019/05/15			59 (4)	60 - 130	<0.010	mg/kg				
6133309	22'33'44'55'-OctaCB-(194)	2019/05/15			80	60 - 130	<0.010	mg/kg				
6133309	22'33'44'56'-OctaCB-(195)	2019/05/15			82	60 - 130	<0.010	mg/kg				
6133309	22'33'44'5'-HeptaCB-(170)	2019/05/15			81	60 - 130	<0.010	mg/kg				
6133309	22'33'44'6'-HeptaCB-(171)	2019/05/15			77	60 - 130	<0.010	mg/kg				
6133309	22'33'44'-HexaCB-(128)	2019/05/15			94	60 - 130	<0.010	mg/kg				
6133309	22'33'455'66'-NonaCB-(208)	2019/05/15			73	60 - 130	<0.010	mg/kg				
6133309	22'33'455'6'-OctaCB-(199)	2019/05/15			82	60 - 130	<0.010	mg/kg				
6133309	22'33'45'6'-HeptaCB-(177)	2019/05/15			67	60 - 130	<0.010	mg/kg				
6133309	22'33'46'-HexaCB-(132)	2019/05/15			92	60 - 130	<0.010	mg/kg				
6133309	22'33'4'-PentaCB-(82)	2019/05/15			78	60 - 130	<0.010	mg/kg				
6133309	22'344'55'-HeptaCB-(180)	2019/05/15			71	60 - 130	<0.010	mg/kg				
6133309	22'344'5'6'-HeptaCB-(183)	2019/05/15			73	60 - 130	<0.010	mg/kg				
6133309	22'34'55'6'-HeptaCB-(187)	2019/05/15			78	60 - 130	<0.010	mg/kg				
6133309	22'34'5'6'-HexaCB-(149)	2019/05/15			92	60 - 130	<0.010	mg/kg				
6133309	22'345'-PentaCB-(87)	2019/05/15			94	60 - 130	<0.010	mg/kg				



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QUALITY ASSURANCE REPORT(CONT'D)

Stantec Consulting Ltd

Client Project #: 121621877.400

Site Location: NS

Sampler Initials: CSR

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
6133309	22'355'6-HexaCB-(151)	2019/05/15			103	60 - 130	<0.010	mg/kg				
6133309	22'35'6-PentaCB-(95)	2019/05/15			96	60 - 130	<0.010	mg/kg				
6133309	22'35'-TetraCB-(44)	2019/05/15			94	60 - 130	<0.010	mg/kg				
6133309	22'44'55'-HexaCB-(153)	2019/05/15			100	60 - 130	<0.010	mg/kg				
6133309	22'44'5-PentaCB-(99)	2019/05/15			74	60 - 130	<0.010	mg/kg				
6133309	22'455'-PentaCB-(101)	2019/05/15			84	60 - 130	<0.010	mg/kg				
6133309	22'45'-TetraCB-(49)	2019/05/15			96	60 - 130	<0.010	mg/kg				
6133309	22'55'-TetraCB-(52)	2019/05/15			88	60 - 130	<0.010	mg/kg				
6133309	233'44'55'6-OctaCB-(205)	2019/05/15			78	60 - 130	<0.010	mg/kg				
6133309	233'44'5'6-HeptaCB-(191)	2019/05/15			72	60 - 130	<0.010	mg/kg				
6133309	233'44'5-HexaCB-(156)	2019/05/15			100	60 - 130	<0.010	mg/kg				
6133309	233'44'-PentaCB-(105)	2019/05/15			106	60 - 130	<0.010	mg/kg				
6133309	233'4'6-PentaCB-(110)	2019/05/15			104	60 - 130	<0.010	mg/kg				
6133309	23'44'5-PentaCB-(118)	2019/05/15			98	60 - 130	<0.010	mg/kg				
6133309	23'4'5-TetraCB-(70)	2019/05/15			90	60 - 130	<0.010	mg/kg				
6133309	2'34-TriCB-(33)	2019/05/15			92	60 - 130	<0.010	mg/kg				
6133309	244'5-TetraCB-(74)	2019/05/15			96	60 - 130	<0.010	mg/kg				
6133309	33'44'55'-HexaCB-(169)	2019/05/15			111	60 - 130	<0.010	mg/kg				
6133309	DecaCB-(209)	2019/05/15			73	60 - 130	<0.010	mg/kg				
6133309	Decachlorobiphenyls	2019/05/15					<0.010	mg/kg				
6133309	Heptachlorobiphenyls	2019/05/15					<0.010	mg/kg				
6133309	HexaCB-(138)+(158)	2019/05/15			109	60 - 130	<0.010	mg/kg				
6133309	Hexachlorobiphenyls	2019/05/15					<0.010	mg/kg				
6133309	Nonachlorobiphenyls	2019/05/15					<0.010	mg/kg				
6133309	Octachlorobiphenyls	2019/05/15					<0.010	mg/kg				
6133309	Pentachlorobiphenyls	2019/05/15					<0.010	mg/kg				
6133309	Tetrachlorobiphenyls	2019/05/15					<0.010	mg/kg				
6133309	Total PCB	2019/05/15			89	60 - 130	<0.010	mg/kg				
6133309	TriCB-(17)+(18)	2019/05/15			95	60 - 130	<0.010	mg/kg				
6133309	TriCB-(28)+(31)	2019/05/15			96	60 - 130	<0.010	mg/kg				
6133309	Trichlorobiphenyls	2019/05/15					<0.010	mg/kg				



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QUALITY ASSURANCE REPORT(CONT'D)

Stantec Consulting Ltd
Client Project #: 121621877.400
Site Location: NS
Sampler Initials: CSR

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
6186144	1,2,3,4,6,7,8-Hepta CDD	2019/06/27	93	80 - 140	90	80 - 140	<0.498, EDL=0.498 (6)	pg/g	NC	25		
6186144	1,2,3,4,6,7,8-Hepta CDF	2019/06/27	97	80 - 140	95	80 - 140	<0.0954, EDL=0.0954	pg/g	NC	25		
6186144	1,2,3,4,7,8,9-Hepta CDF	2019/06/27	137	80 - 140	103	80 - 140	<0.129, EDL=0.129	pg/g	NC	25		
6186144	1,2,3,4,7,8-Hexa CDD	2019/06/27	89	80 - 140	98	80 - 140	<0.119, EDL=0.119	pg/g	NC	25		
6186144	1,2,3,4,7,8-Hexa CDF	2019/06/27	88	80 - 140	92	80 - 140	<0.102, EDL=0.102	pg/g	NC	25		
6186144	1,2,3,6,7,8-Hexa CDD	2019/06/27	87	80 - 140	86	80 - 140	<0.106, EDL=0.106	pg/g	NC	25		
6186144	1,2,3,6,7,8-Hexa CDF	2019/06/27	92	80 - 140	90	80 - 140	<0.0949, EDL=0.0949	pg/g	NC	25		
6186144	1,2,3,7,8,9-Hexa CDD	2019/06/27	103	80 - 140	96	80 - 140	<0.111, EDL=0.111	pg/g	NC	25		
6186144	1,2,3,7,8,9-Hexa CDF	2019/06/27	128	80 - 140	87	80 - 140	<0.132, EDL=0.132	pg/g	NC	25		
6186144	1,2,3,7,8-Penta CDD	2019/06/27	91	80 - 140	87	80 - 140	<0.112, EDL=0.112	pg/g	NC	25		
6186144	1,2,3,7,8-Penta CDF	2019/06/27	98	80 - 140	87	80 - 140	<0.111, EDL=0.111	pg/g	NC	25		
6186144	2,3,4,6,7,8-Hexa CDF	2019/06/27	131	80 - 140	87	80 - 140	<0.116, EDL=0.116	pg/g	NC	25		
6186144	2,3,4,7,8-Penta CDF	2019/06/27	90	80 - 140	90	80 - 140	<0.114, EDL=0.114	pg/g	NC	25		
6186144	2,3,7,8-Tetra CDD	2019/06/27	86	80 - 140	81	80 - 140	<0.102, EDL=0.102	pg/g	NC	25		
6186144	2,3,7,8-Tetra CDF	2019/06/27	88	80 - 140	82	80 - 140	<0.111, EDL=0.111	pg/g	NC	25		
6186144	Octa CDD	2019/06/27	90	80 - 140	90	80 - 140	3.34, EDL=0.112	pg/g	10	25		
6186144	Octa CDF	2019/06/27	84	80 - 140	84	80 - 140	<0.963, EDL=0.963 (7)	pg/g	NC	25		



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QUALITY ASSURANCE REPORT(CONT'D)

Stantec Consulting Ltd
Client Project #: 121621877.400
Site Location: NS
Sampler Initials: CSR

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
6186144	Total Hepta CDD	2019/06/27					<0.498, EDL=0.498 (6)	pg/g	NC	25		
6186144	Total Hepta CDF	2019/06/27					0.438, EDL=0.110	pg/g	NC	25		
6186144	Total Hexa CDD	2019/06/27					<0.112, EDL=0.112	pg/g	NC	25		
6186144	Total Hexa CDF	2019/06/27					<0.109, EDL=0.109	pg/g	NC	25		
6186144	Total Penta CDD	2019/06/27					<0.112, EDL=0.112	pg/g	NC	25		
6186144	Total Penta CDF	2019/06/27					<0.113, EDL=0.113	pg/g	NC	25		
6186144	Total Tetra CDD	2019/06/27					<0.102, EDL=0.102	pg/g	NC	25		



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QUALITY ASSURANCE REPORT(CONT'D)

Stantec Consulting Ltd

Client Project #: 121621877.400

Site Location: NS

Sampler Initials: CSR

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
6186144	Total Tetra CDF	2019/06/27					<0.111, EDL=0.111	pg/g	NC	25		

N/A = Not Applicable

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) VOC samples were extracted using a flat-bed shaker instead of the accelerated mechanical shaker due to matrix incompatibility.

(2) VPH samples were extracted using a flat-bed shaker instead of the accelerated mechanical shaker due to matrix incompatibility.

(3) Poor duplicate agreement due to sample inhomogeneity. Additional rocky material in duplicate aliquot.

(4) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

(5) Recovery does not meet method criteria

(6) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

(7) RT>2 seconds - PCDD/DF analysis-Peak maxima of monitored ions exceeds 2 seconds



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BV Labs Job #: B9C3282
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Stantec Consulting Ltd
Client Project #: 121621877.400
Site Location: NS
Sampler Initials: CSR

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Angel Guerrero, Team Leader, VOC Air

Anastassia Hamanov, Scientific Specialist

David Huang, BBY Scientific Specialist

Harry (Peng) Liang, Senior Analyst



Veronic Beausejour, B.Sc., Chemist, Supervisor

Eric Dearman, Scientific Specialist



Sylvain Chevigny, B.Sc., Chemist, Scientific Service Specialist





BUREAU
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BV Labs Job #: B9C3282
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Stantec Consulting Ltd
Client Project #: 121621877.400
Site Location: NS
Sampler Initials: CSR

VALIDATION SIGNATURE PAGE(CONT'D)

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Ewa Pranjic, M.Sc., C.Chem, Scientific Specialist



Gina Thompson, Inorganics General Chemistry Supervisor

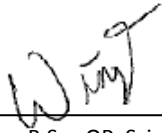




Nouredine Chafiaai, B.Sc., Chemist



Rosemarie MacDonald, Scientific Specialist (Organics)



Winnie Au, B.Sc., QP, Scientific Specialist

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Your Project #: B9C3282
Site Location: B9C3282

Attention: BEDFORD CLIENT SERVICE

MAXXAM ANALYTICS
200 BLUEWATER ROAD, SUITE 105
BEDFORD, NS
CANADA B4B 1G9

Report Date: 2019/05/13
Report #: R2721470
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B935173
Received: 2019/05/10, 08:30

Sample Matrix: Solid
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Organic Halogen (Extractable)	1	N/A	2019/05/12	PTC SOP-00054	Coulometric-Titr.

Remarks:

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2017 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as ASTM, CGSB, EN, GPA and/or SM. If not provided with the results, identification of the reference method or Maxxam SOP is available upon request.

Maxxam Analytics' liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Maxxam has been retained to provide analysis of the samples provided by the Client using the testing methodology referenced in this report.

Measurement Uncertainty has not been accounted for when stating conformity to any referenced standard. Interpretation and use of the test results are the sole responsibility of the Client and are not within the scope of services provided by Maxxam, unless otherwise agreed in writing. When sampling is not conducted by Maxxam, results apply only to the sample(s) as received. Maxxam is not responsible for the accuracy or any data impacts that result from the information provided by the customer or on the clients behalf by their agent.

This report shall not be reproduced except in full, without the written approval of the laboratory.
Results relate only to the items tested.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Kristen Sywolos, PM supervisor
Email: KSywolos@maxxam.ca
Phone# (780)378-8522

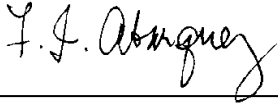
=====
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GENERAL COMMENTS

Results relate only to the items tested.

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Filomena Abarquez, Senior Analyst

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

CERTIFICATE OF ANALYSIS

B935173:VQ7992-01

Laboratory Number

MaxxID

Client ID

Meter Number

MAXXAM ANALYTICS

Operator Name

LSD

Well ID

VC-04B

N/A

MAXXAM ANALYTICS

Well/Plant/Facility

Initials of Sampler

Sampling Company

VC-04B

GLASS BOTTLE

Field or Area

Pool or Zone

Sample Point

Container Identity

Percent Full

Test Recovery

Interval

Elevations (m)

Sample Gathering Point

Solution Gas

Test Type

No.

Multiple Recovery

From:
To:

KB

GRD

Well Fluid Status

Well Status Mode

Production Rates

Gauge Pressures kPa

Temperature °C

Well Status Type

Well Type

Water m³/d

Oil m³/d

Gas 1000m³/d

Source

As Received

Source

As Received

Gas or Condensate Project

Licence No.

2019/05/03 16:14

2019/05/10

2019/05/13

MN2

Date Sampled Start

Date Sampled End

Date Received

Date Reported

Date Reissued

Analyst

PARAMETER DESCRIPTION	RESULT	UNIT	METHOD	RDL
Misc. Organics				
Extractable Organic halogen	<2	mg/kg	Coulometric-Titr.	2

Results relate only to items tested

Remarks:



200 Bluewater Road, Suite 105, Bedford, Nova Scotia B4B 1G9 Tel: 902-420-0203 Fax: 902-420-8612 Toll Free: 1-800-565-7227
 49-55 Elizabeth Avenue, St John's, NL A1A 1W9 Tel: 709-754-0203 Fax: 709-754-8612 Toll Free: 1-888-492-7227
 465 George Street, Unit G, Sydney, NS B1P 1K5 Tel: 902-567-1255 Fax: 902-539-6504 Toll Free: 1-888-535-7770

ATL FCD 00149 / 23

www.maxxam.ca

E-mail: Customerservicebedford@maxxam.ca

CHAIN OF CUSTODY RECORD

COC #: **D40473**

Page 1 of

Invoice Information			Report Information (if differs from invoice)			Project Information (where applicable)			Turnaround Time (TAT) Required																
Company Name: <u>STANTEC</u>			Company Name: <u>SAM SAWYER</u>			Quotation #: <u> </u>			<input checked="" type="checkbox"/> Regular TAT (5 business days) Most analyses																
Contact Name: <u> </u>			Contact Name: <u> </u>			Purchase Order #: <u> </u>			PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS																
Address: <u> </u> PC: <u> </u>			Address: <u> </u> PC: <u> </u>			Project #: <u>121621877.400</u>			IF RUSH please specify date (Surcharges will be applied)																
Phone: <u> </u>			Phone: <u>902-468-7177</u>			Site Location: <u>NS</u>			DATE REQUIRED: <u> </u>																
Email: <u> </u>			Email: <u>SAM.SAWYER@STANTEC.CO</u>			Site Province: <u> </u>																			
Report Copies: <u> </u>			Report Copies: <u> </u>			Site #: <u> </u>																			
Reported By: <u> </u>			Reported By: <u> </u>			Sampled By: <u>CSL</u>																			
Laboratory Use Only						Analysis Requested																			
CUSTODY SEAL		COOLER TEMPERATURES		COOLER TEMPERATURES		Metals (Water)	Metals (Soil)	Regulatory Requirements (Specify)																	
Present	Intact																								
COOLING MEDIA PRESENT Y / N																									
SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM																									
SAMPLE IDENTIFICATION		DATE SAMPLED (YYYY/MM/DD)	TIME SAMPLED (HH:MM)	MATRIX	# OF CONTAINERS SUBMITTED	FIELD FILTERED & PRESERVED	LAB FILTRATION REQUIRED	RCAP-MS (Total Metals) Well / Surface water	RCAP-MS (Dissolved Metals) Ground waters	Total Digest (Default Method) for well water & surface water	Dissolved for ground water	Mercury (CIRCLE) TOTAL / DISSOLVED	Metals & Mercury Default: Acid Extractable (Available) Digest	Hot Water Soluble Boron (required for CCME Agricultural/Landfill)	RBCA Hydrocarbons (BTEX, C6-C32)	CCME Hydrocarbons (CWS-PHC F1/BTEX, F2-F4)	PAHs (Default for water/soil)	PAHs (FWAL/CCME Sediment)	PCBs - Select One: Default or CCME Sediment	VOCS	Total Coliform/E.coli (Presence/Absence)	Total Coliform/E.coli (Count)	HOLD - DO NOT ANALYZE	COMMENTS	
1	VC-04B	2019/05/03	16:14	SD	17																				SEE ATTACHED
2	VC-07A	2019/05/03	15:55	SD	6																				ANALYSIS B
3	VC-14-1	2019/05/02	11:35		6																				ANALYSIS A
4	VC-14-2	↓	↓		6																				" A
5	VC-14-3	↓	↓		6																				" A
6	VC-12-1	2019/05/02	13:32		6																				" A
7	VC-12-2	↓	↓		6																				" A
8	VC-52-1	2019/04/29	13:10		6																				" A
9	VC-52-2	↓	↓		6																				" A
10	VC-52-3	↓	↓		6																				" A
RELINQUISHED BY: (Signature/Print)		DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)		DATE: (YYYY/MM/DD)	TIME: (HH:MM)	MAXXAM JOB #																	
<u>Dan Lee</u> VIA COURIER		2019/05/07	15:00					B9C3282																	
Unless otherwise agreed to in writing, work submitted on this Chain of Custody is subject to Maxxam's standard Terms and Conditions. Signing of this Chain of Custody document is acknowledgment and acceptance of our terms which are available for viewing at www.maxxam.ca/terms.																									

White: Maxxam

Pink: Client

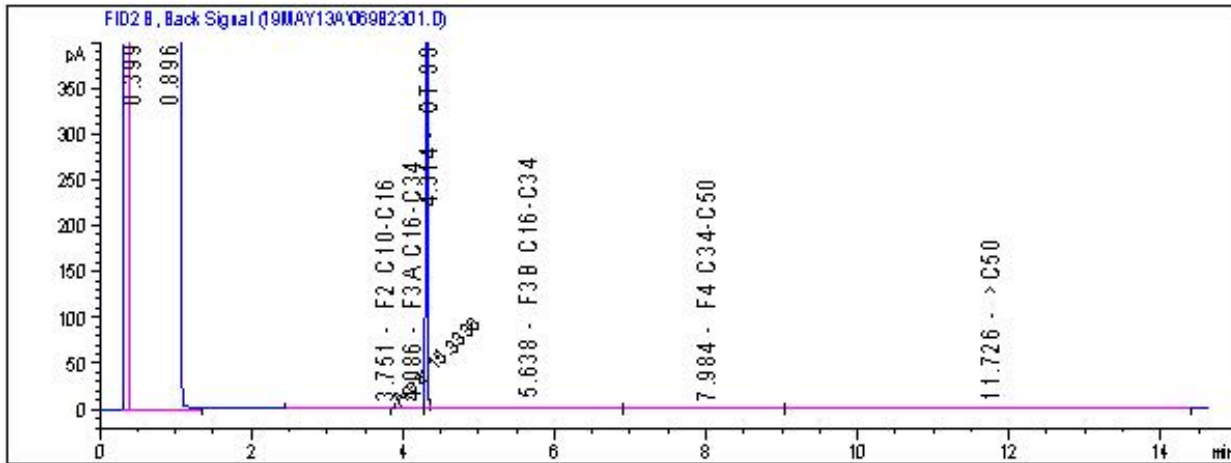
Analysis A Parameters - Disposal at Sea (DAS) Chemicals:

BTEX/TPH (CWS)
Low level mercury
Metals
PAHs (low level)
TOC
PCBs (low res Quebec)
Particle Size

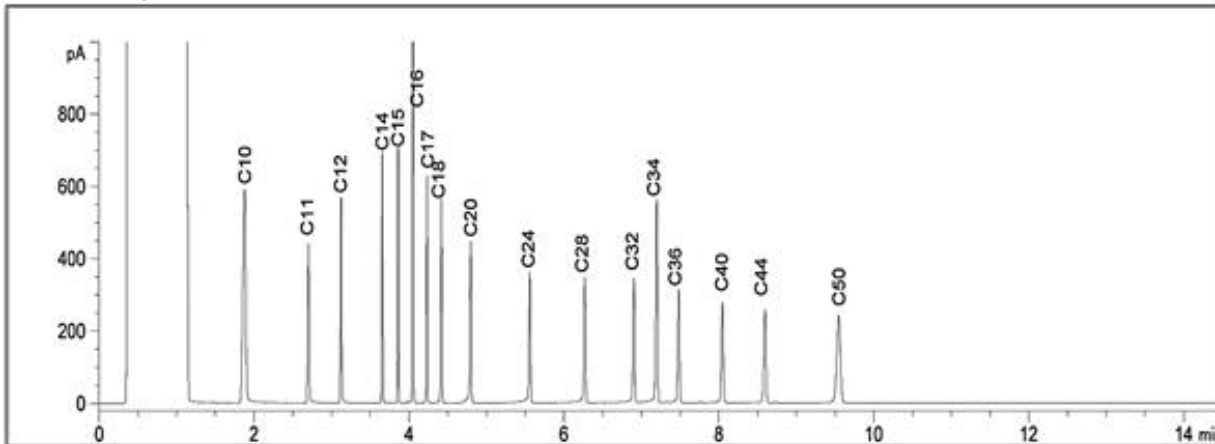
Analysis B Parameters - HHRA Chemicals of Potential Concern:

BTEX/TPH (CWS)
Low level mercury
Metals
PAHs (low level)
TOC
PCBs (low res Quebec)
Particle Size
Total sulphides
Total Carbon
Total Nitrogen
Dioxins and furans
EOX (extractable)
Acid-volatile sulphide
Ammonia
Nitrate
TKN
Orthophosphate
pH
Specific non-chlorinated phenolic compounds (4-AAP phenol)
Chlorinated VOCs
RBCA hydrocarbons
Total oil and grease
Total Cyanide

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Reference Spectrum



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline: **C6 - C12**

Diesel: **C10 - C24**

Jet Fuels: **C6 - C16**

Varsol: **C8 - C12**

Fuel Oils: **C6 - C32**

Creosote: **C10 - C26**

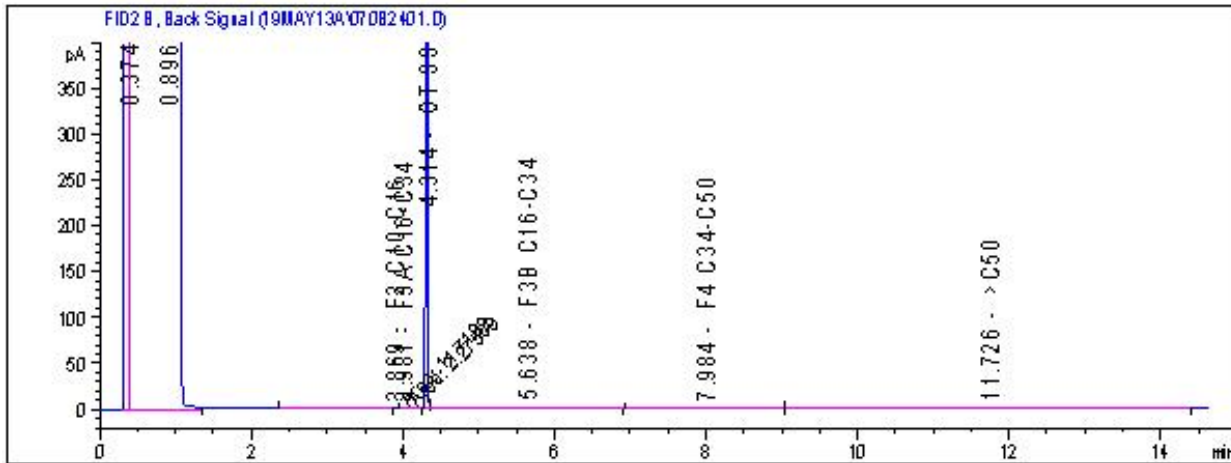
Kerosene: **C8 - C16**

Motor Oils: **C16 - C50**

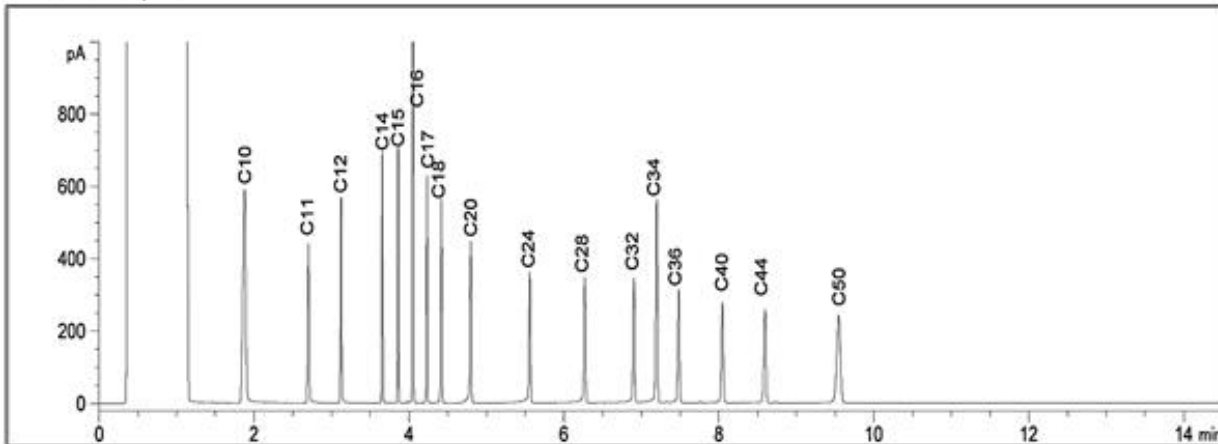
Asphalt: **C18 - C50+**

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Reference Spectrum



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Fuel Oils: **C6 - C32**

Creosote: **C10 - C26**

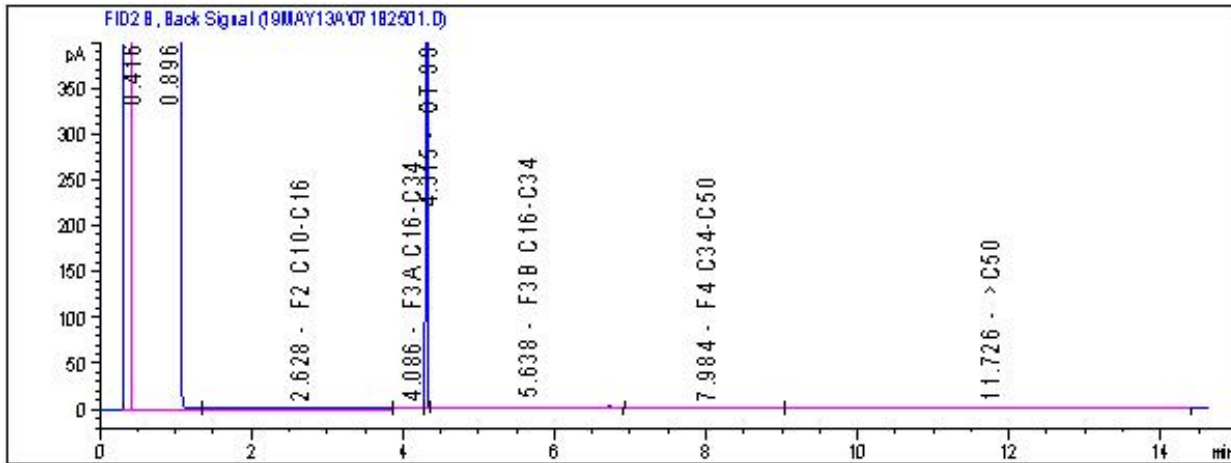
Kerosene: **C8 - C16**

Motor Oils: **C16 - C50**

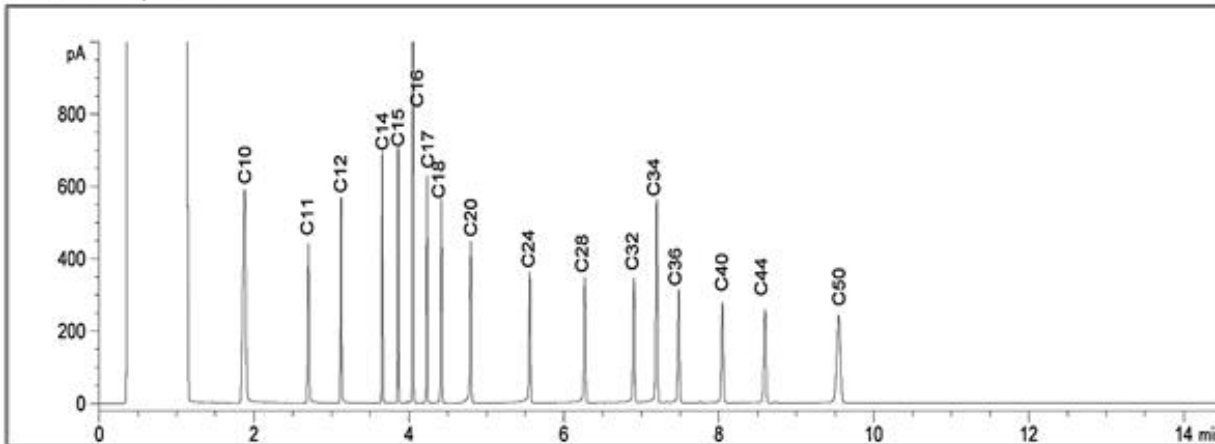
Asphalt: **C18 - C50+**

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Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Reference Spectrum



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Diesel: **C10 - C24**

Jet Fuels: **C6 - C16**

Varsol: **C8 - C12**

Fuel Oils: **C6 - C32**

Creosote: **C10 - C26**

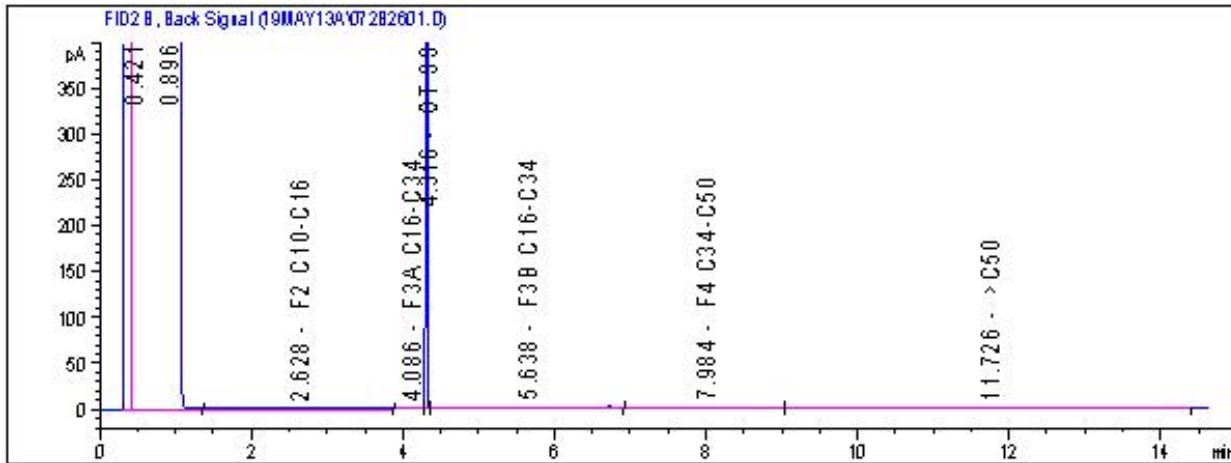
Kerosene: **C8 - C16**

Motor Oils: **C16 - C50**

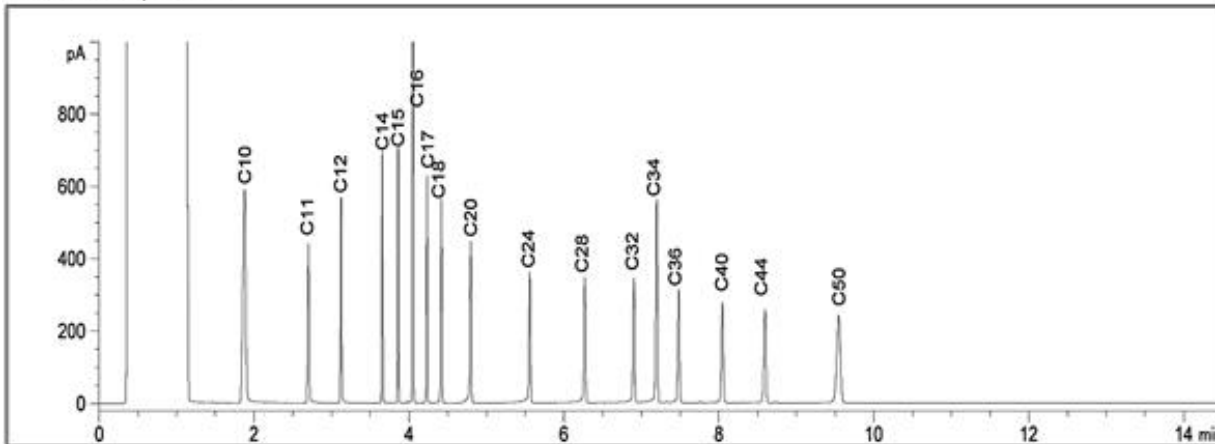
Asphalt: **C18 - C50+**

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Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Reference Spectrum



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Jet Fuels: **C6 - C16**

Varsol: **C8 - C12**

Fuel Oils: **C6 - C32**

Creosote: **C10 - C26**

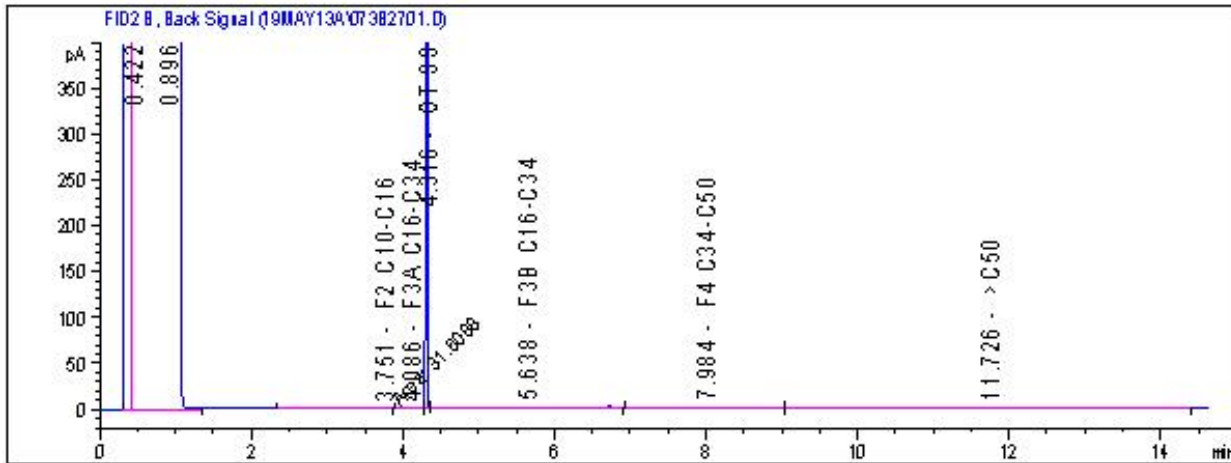
Kerosene: **C8 - C16**

Motor Oils: **C16 - C50**

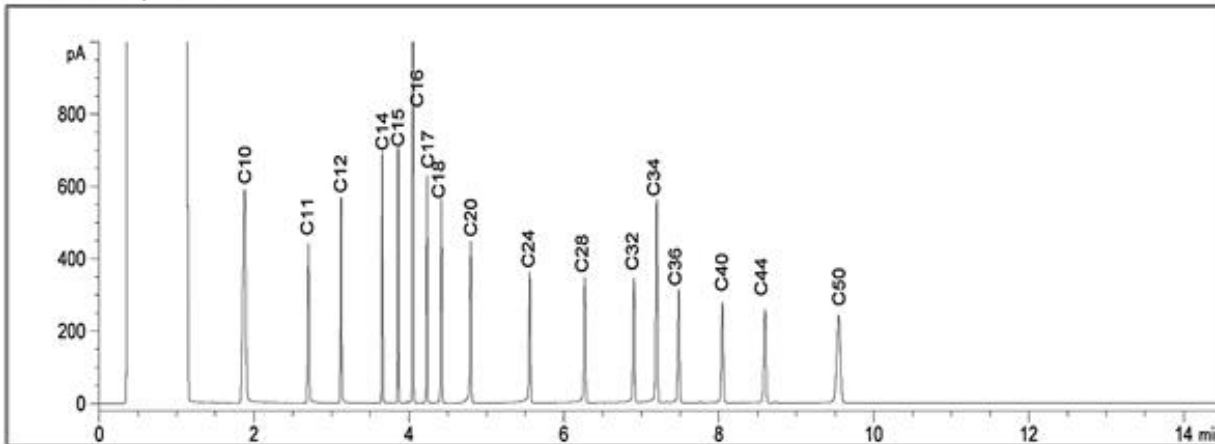
Asphalt: **C18 - C50+**

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Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Reference Spectrum



TYPICAL PRODUCT CARBON NUMBER RANGES

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Jet Fuels: **C6 - C16**

Varsol: **C8 - C12**

Fuel Oils: **C6 - C32**

Creosote: **C10 - C26**

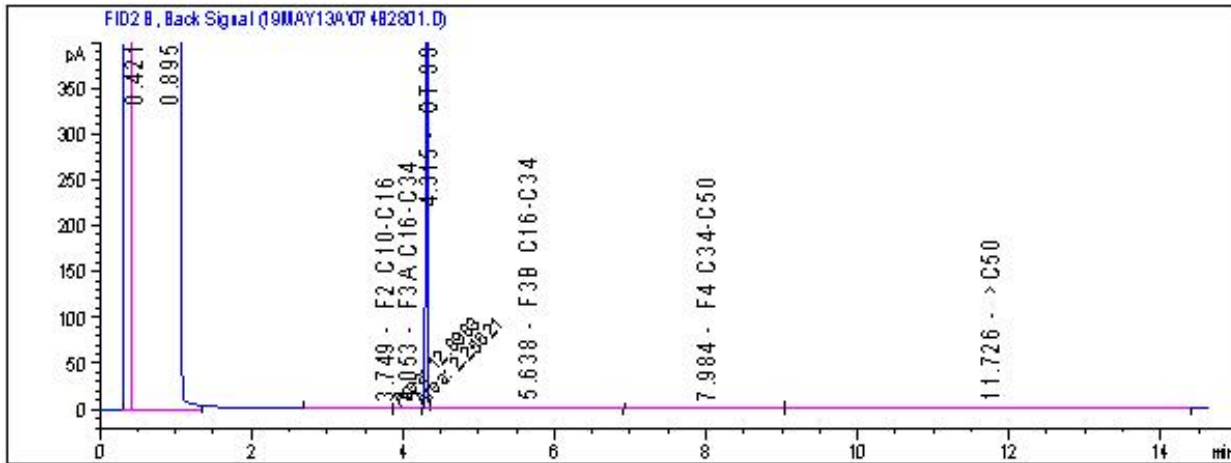
Kerosene: **C8 - C16**

Motor Oils: **C16 - C50**

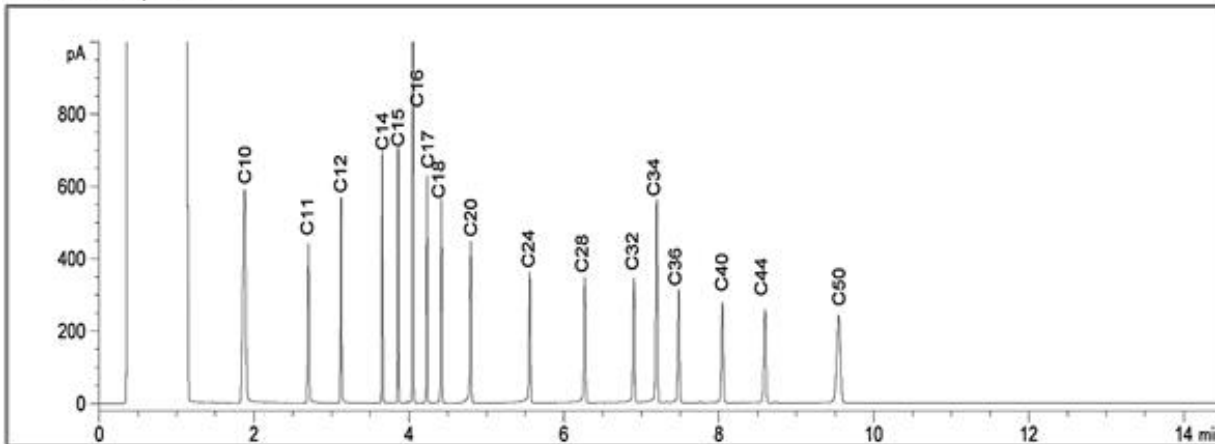
Asphalt: **C18 - C50+**

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Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Reference Spectrum



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Jet Fuels: **C6 - C16**

Varsol: **C8 - C12**

Fuel Oils: **C6 - C32**

Creosote: **C10 - C26**

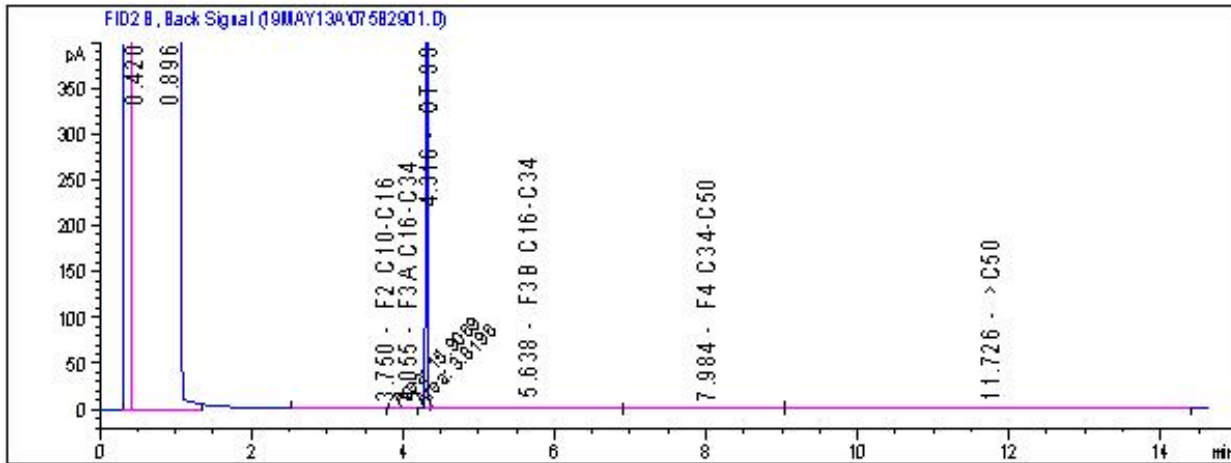
Kerosene: **C8 - C16**

Motor Oils: **C16 - C50**

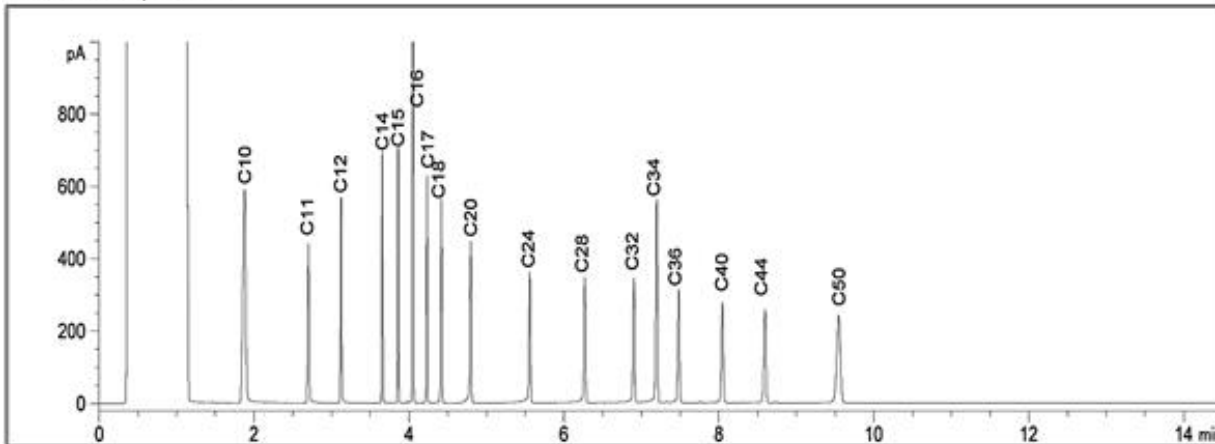
Asphalt: **C18 - C50+**

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Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Reference Spectrum



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Jet Fuels: **C6 - C16**

Varsol: **C8 - C12**

Fuel Oils: **C6 - C32**

Creosote: **C10 - C26**

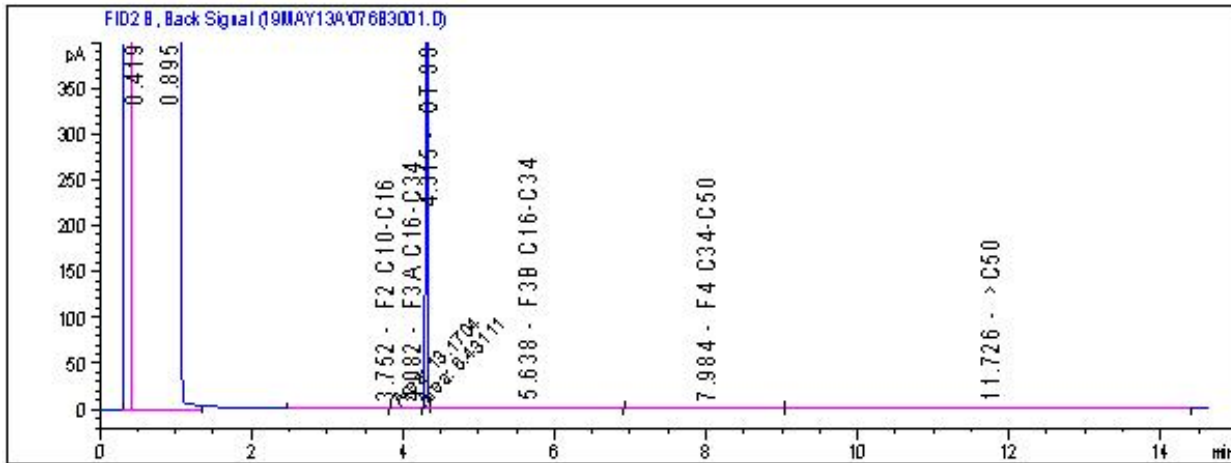
Kerosene: **C8 - C16**

Motor Oils: **C16 - C50**

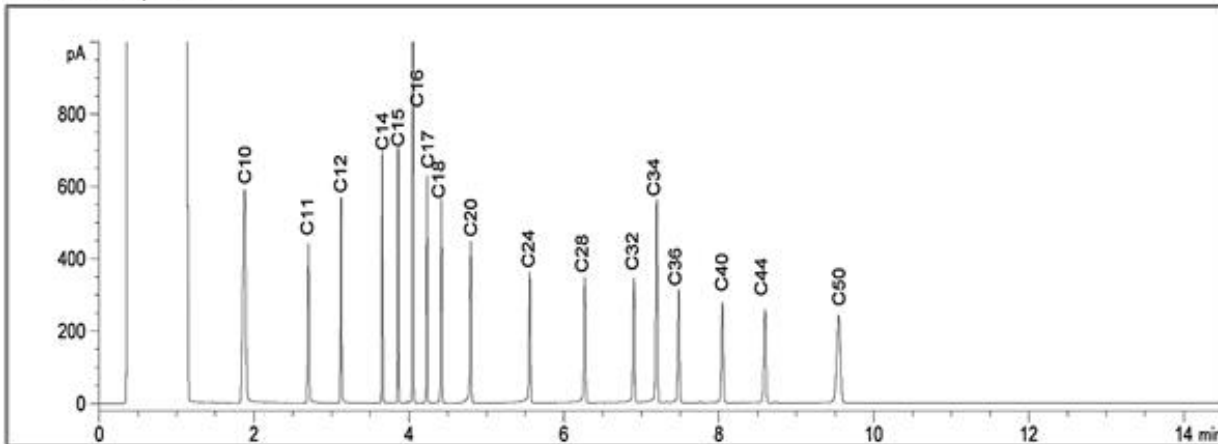
Asphalt: **C18 - C50+**

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Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Reference Spectrum



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Diesel: **C10 - C24**

Jet Fuels: **C6 - C16**

Varsol: **C8 - C12**

Fuel Oils: **C6 - C32**

Creosote: **C10 - C26**

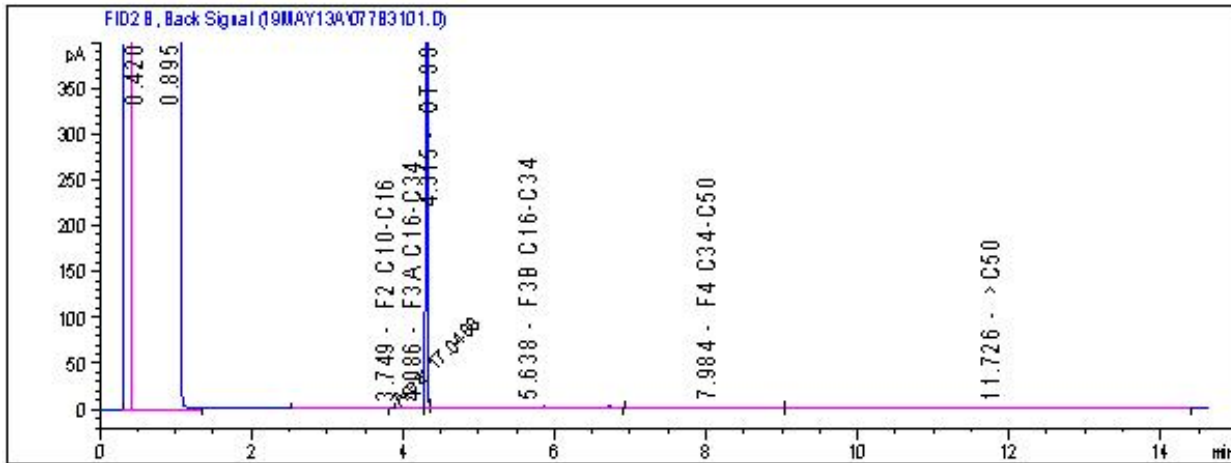
Kerosene: **C8 - C16**

Motor Oils: **C16 - C50**

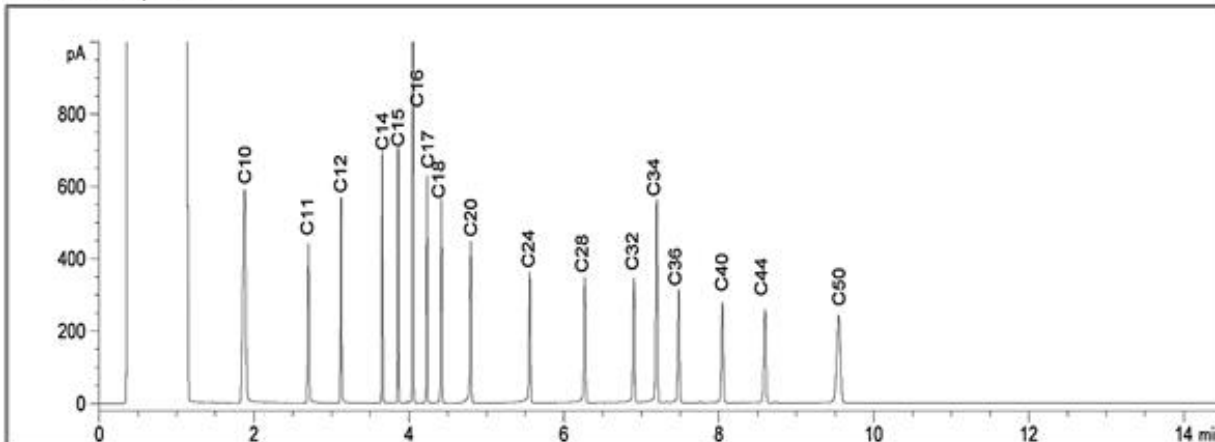
Asphalt: **C18 - C50+**

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Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Reference Spectrum



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline: **C6 - C12**

Diesel: **C10 - C24**

Jet Fuels: **C6 - C16**

Varsol: **C8 - C12**

Fuel Oils: **C6 - C32**

Creosote: **C10 - C26**

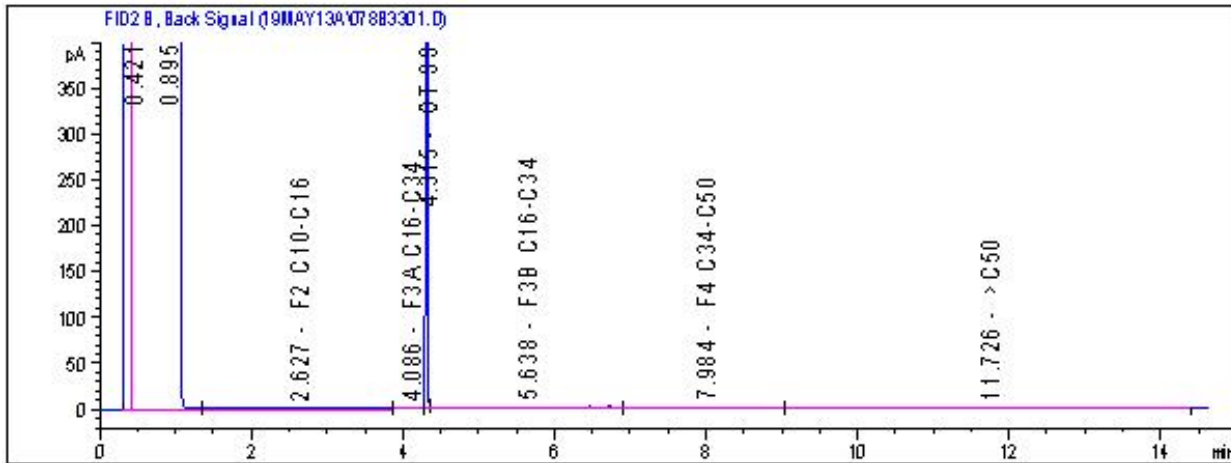
Kerosene: **C8 - C16**

Motor Oils: **C16 - C50**

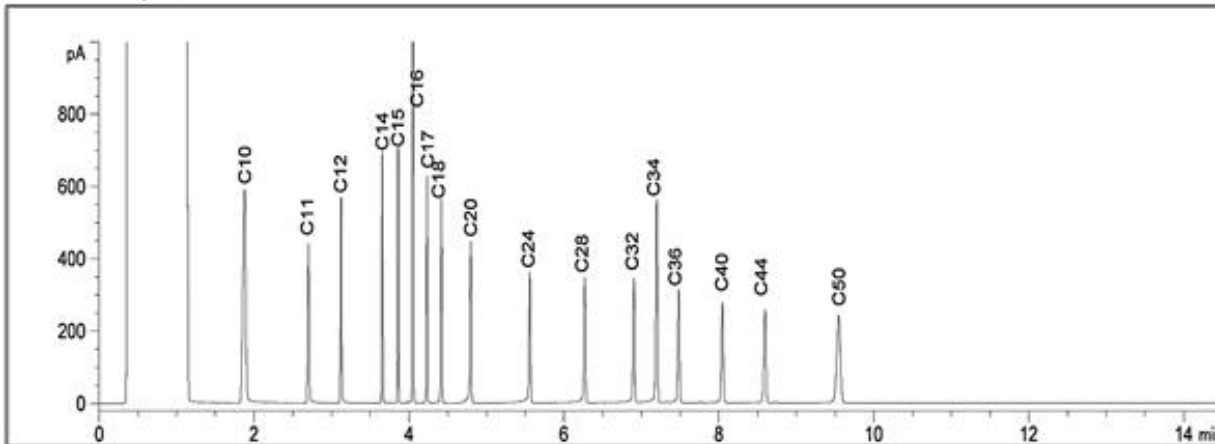
Asphalt: **C18 - C50+**

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Reference Spectrum



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline: **C6 - C12**

Diesel: **C10 - C24**

Jet Fuels: **C6 - C16**

Varsol: **C8 - C12**

Fuel Oils: **C6 - C32**

Creosote: **C10 - C26**

Kerosene: **C8 - C16**

Motor Oils: **C16 - C50**

Asphalt: **C18 - C50+**

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

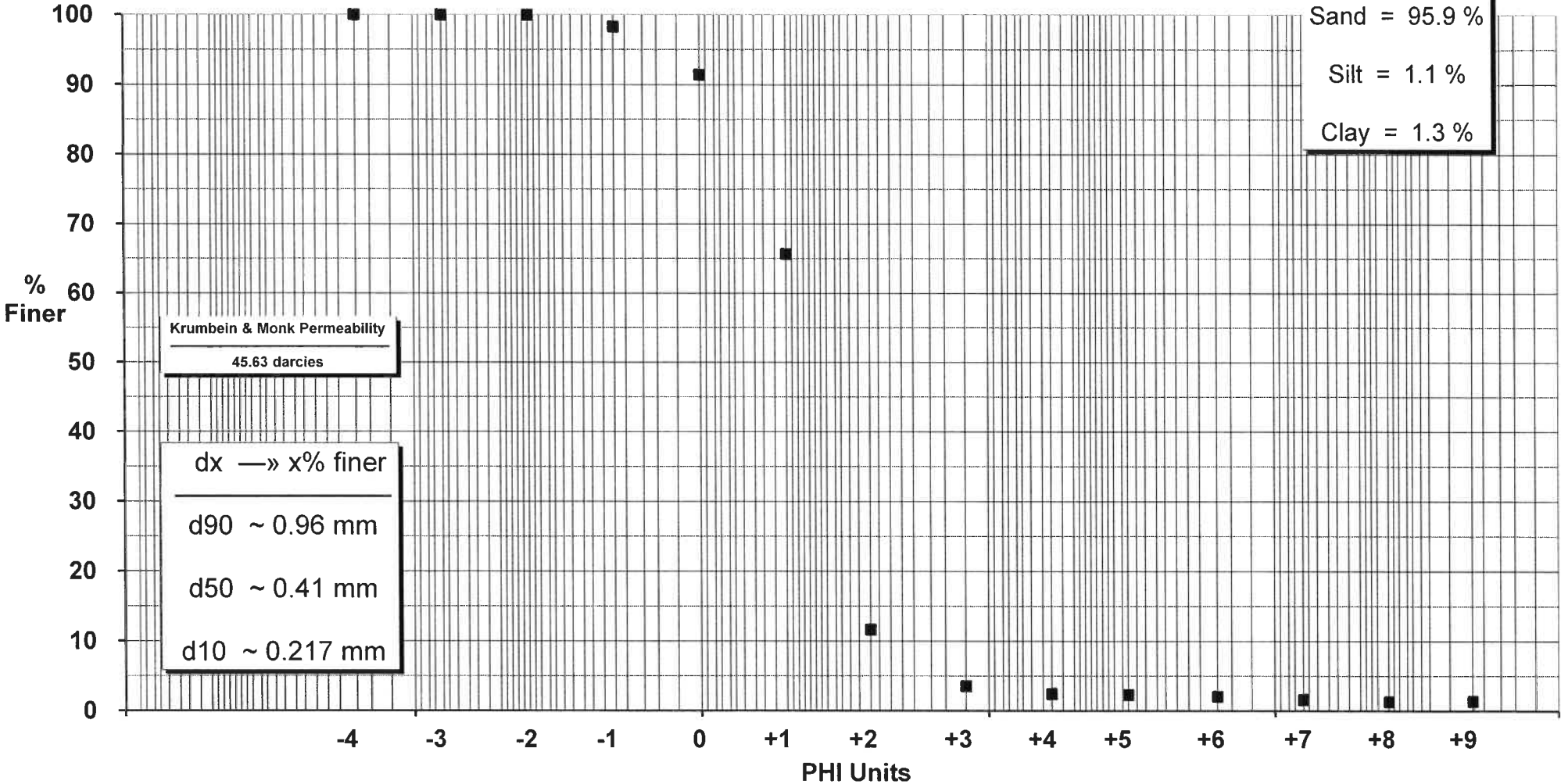


VC-04B

Percent Coarser than 75 µm (PHI = 3.737)
—
97.3 %

Percent Coarser than 50 µm (PHI = 4.322)
—
97.6 %

Wentworth
Gravel = 1.7 %
Sand = 95.9 %
Silt = 1.1 %
Clay = 1.3 %



Approved

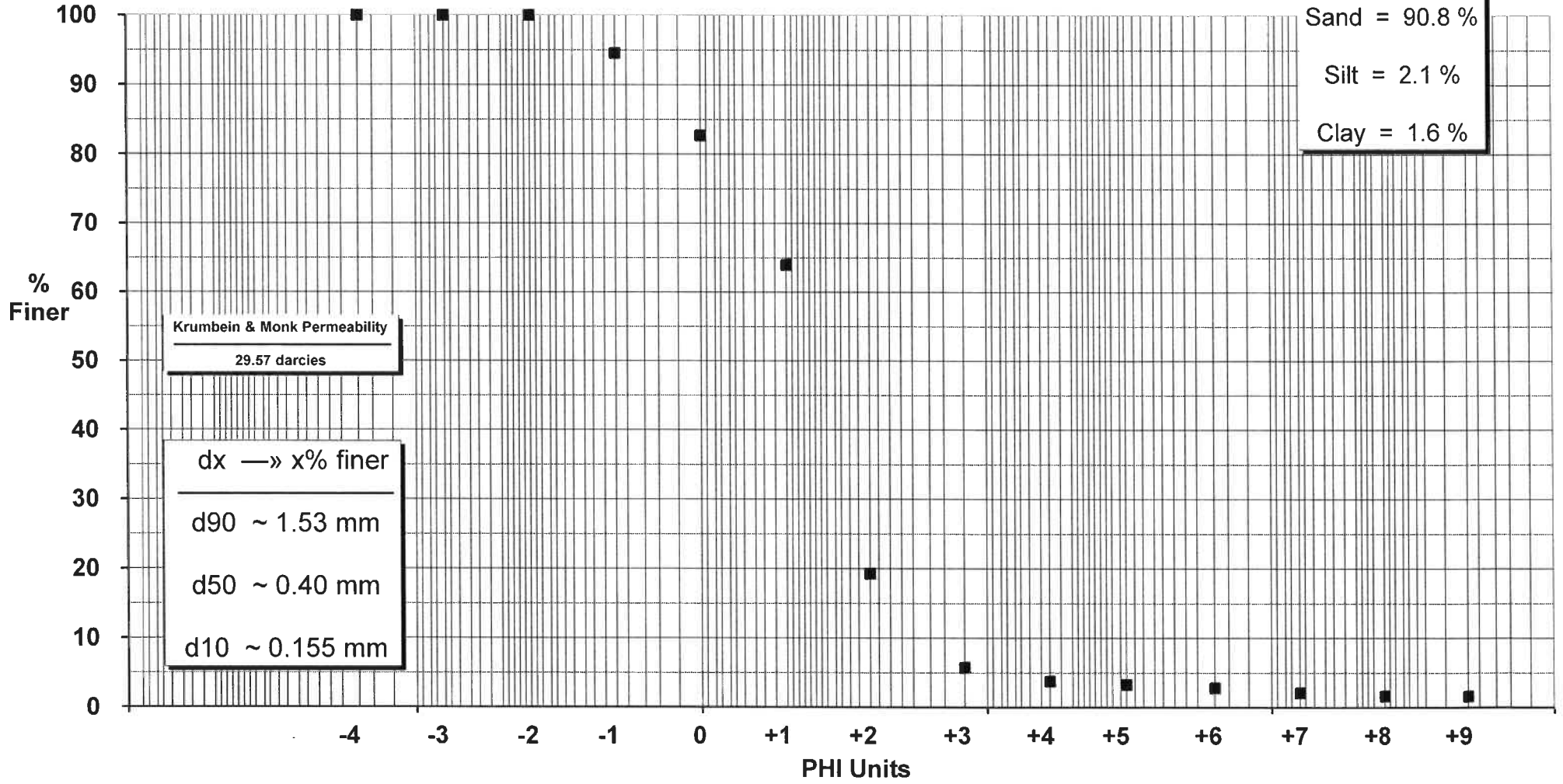



VC-04A

Percent Coarser than 75 μm
(PHI = 3.737)
—
95.7 %

Percent Coarser than 50 μm
(PHI = 4.322)
—
96.4 %

Wentworth
Gravel = 5.5 %
Sand = 90.8 %
Silt = 2.1 %
Clay = 1.6 %




Approved

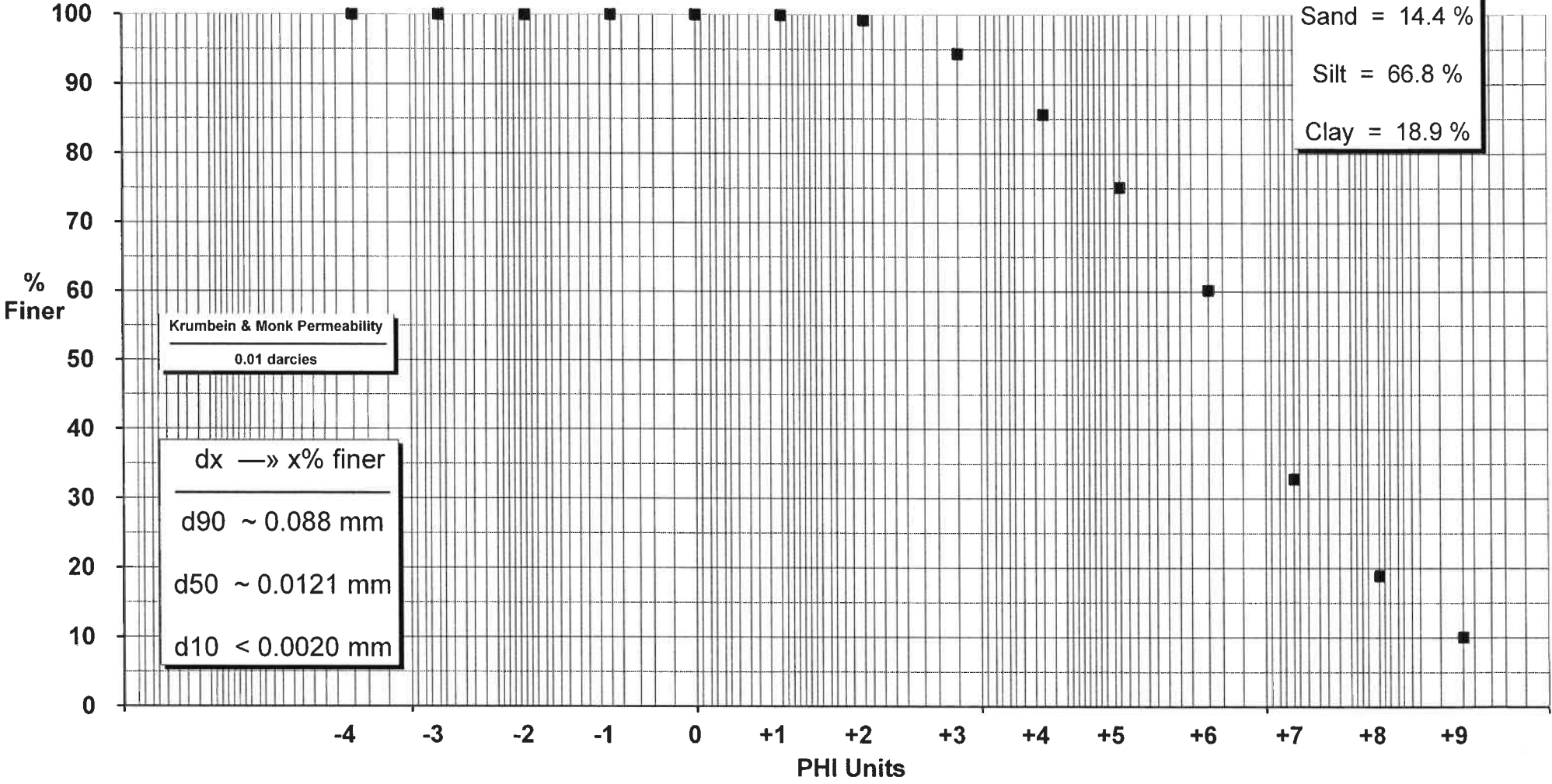



VC-14-1

Percent Coarser than 75 µm (PHI = 3.737)
—
12.1 %

Percent Coarser than 50 µm (PHI = 4.322)
—
17.7 %

Wentworth
Gravel = 0.0 %
Sand = 14.4 %
Silt = 66.8 %
Clay = 18.9 %




Approved

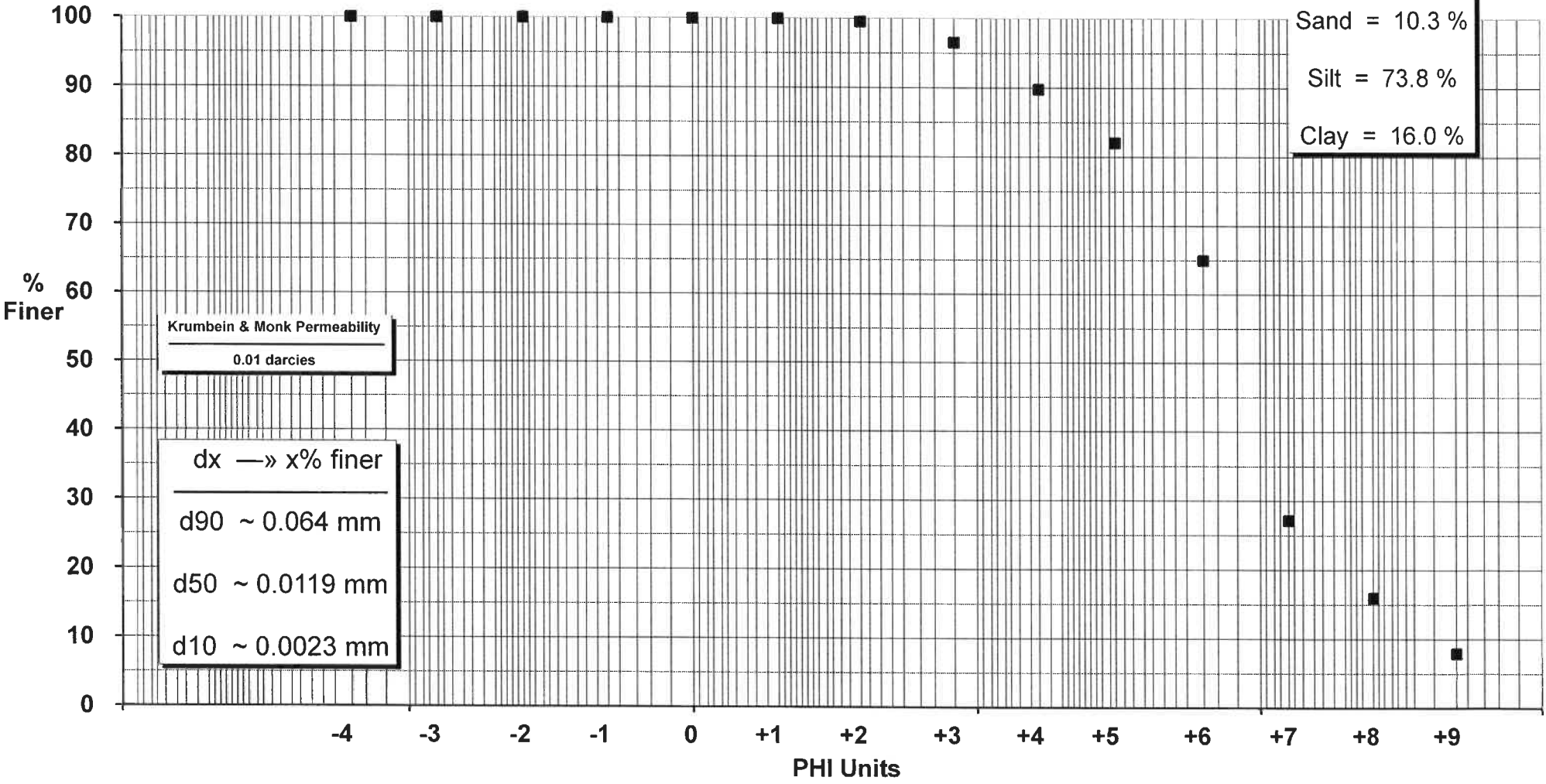


VC-14-2

Percent Coarser than 75 µm
(PHI = 3.737)
8.5 %

Percent Coarser than 50 µm
(PHI = 4.322)
12.7 %

Wentworth
Gravel = 0.0 %
Sand = 10.3 %
Silt = 73.8 %
Clay = 16.0 %



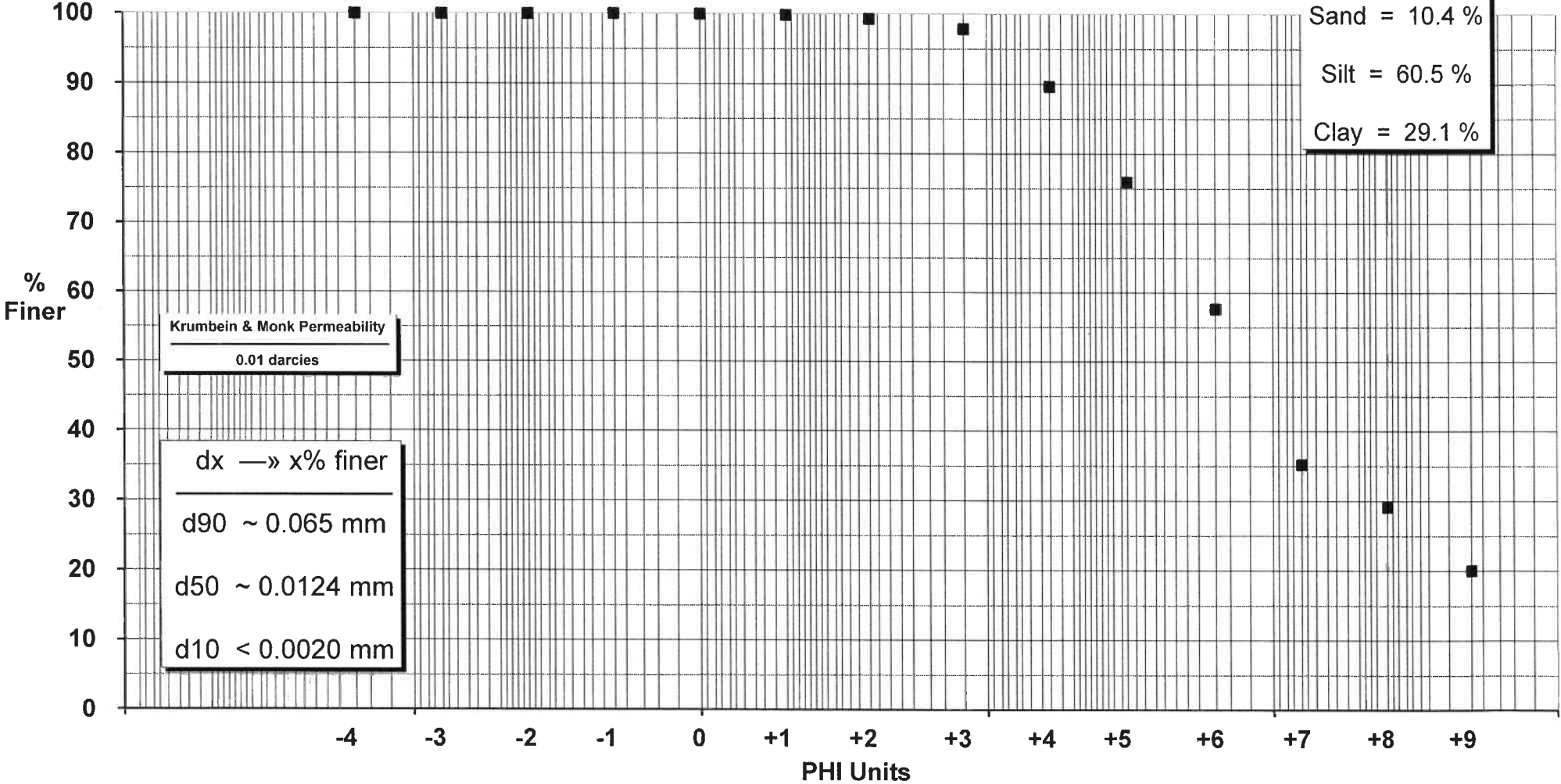

Approved


VC-14-3

Percent Coarser than 75 μ m (PHI = 3.737)
—
8.2 %

Percent Coarser than 50 μ m (PHI = 4.322)
—
14.8 %

Wentworth
Gravel = 0.0 %
Sand = 10.4 %
Silt = 60.5 %
Clay = 29.1 %




Approved

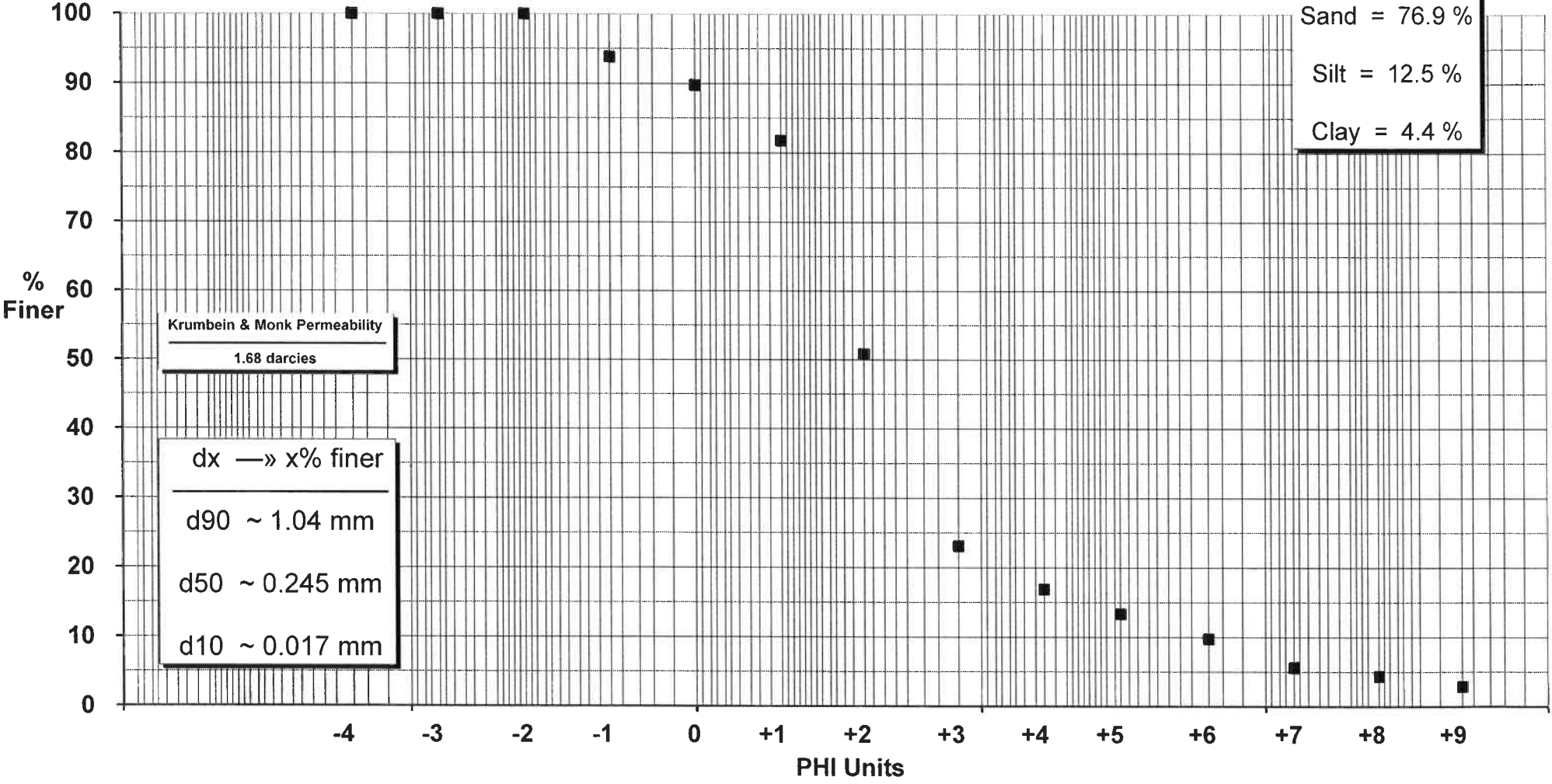


VC-12-1

Percent Coarser than 75 µm (PHI = 3.737)
—
81.5 %

Percent Coarser than 50 µm (PHI = 4.322)
—
84.2 %

Wentworth
Gravel = 6.2 %
Sand = 76.9 %
Silt = 12.5 %
Clay = 4.4 %



Approved

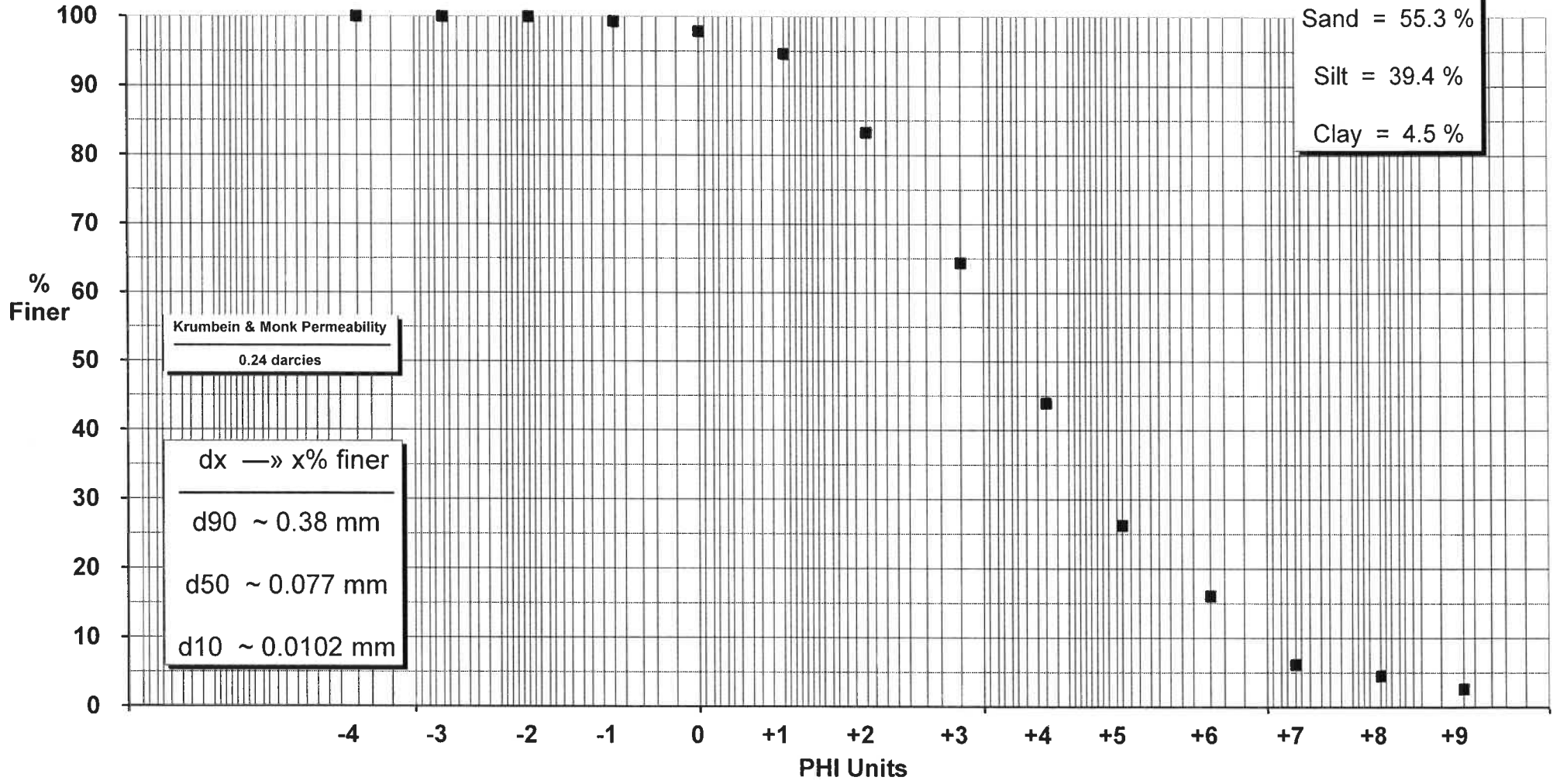



VC-12-2

Percent Coarser than 75 μm
(PHI = 3.737)
—
50.7 %

Percent Coarser than 50 μm
(PHI = 4.322)
—
61.8 %

Wentworth
—
Gravel = 0.7 %
Sand = 55.3 %
Silt = 39.4 %
Clay = 4.5 %




Approved

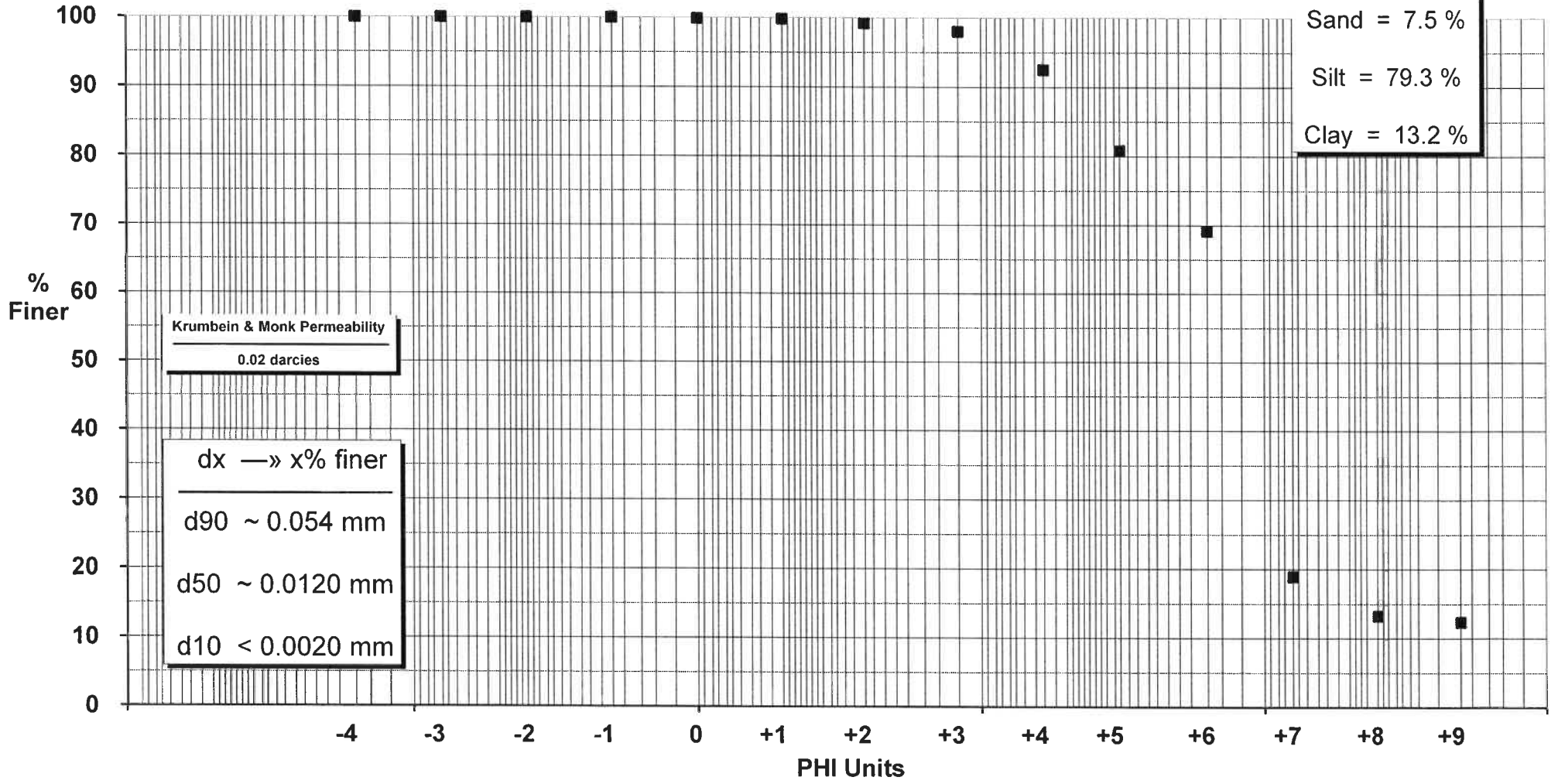


VC-52-1

Percent Coarser than 75 μm
(PHI = 3.737)
—
6.0 %

Percent Coarser than 50 μm
(PHI = 4.322)
—
11.3 %

Wentworth
—
Gravel = 0.0 %
Sand = 7.5 %
Silt = 79.3 %
Clay = 13.2 %



Approved

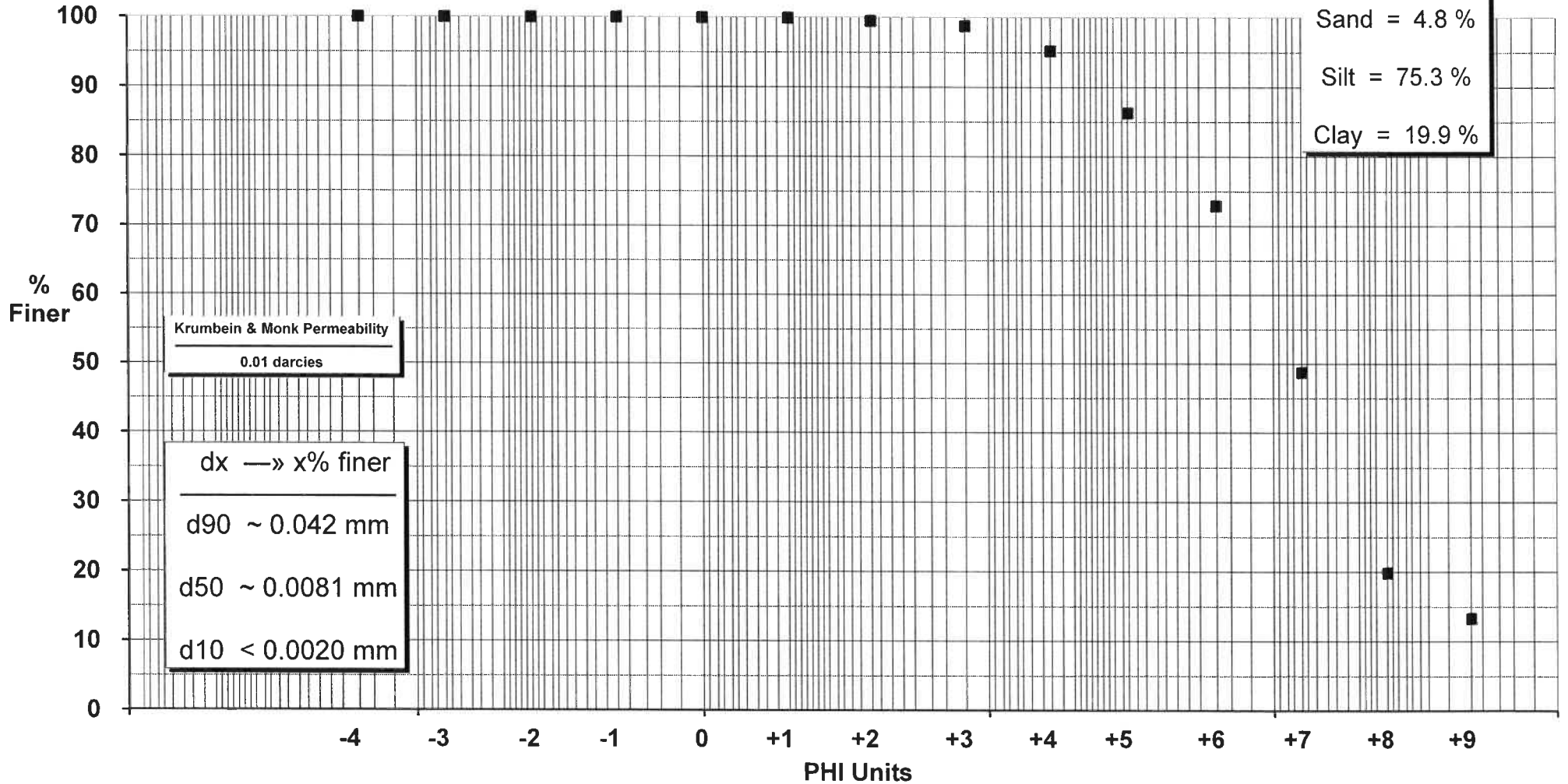



VC-52-2

Percent Coarser than 75 μm
(PHI = 3.737)
—
3.9 %

Percent Coarser than 50 μm
(PHI = 4.322)
—
7.7 %

Wentworth
—
Gravel = 0.0 %
Sand = 4.8 %
Silt = 75.3 %
Clay = 19.9 %




Approved

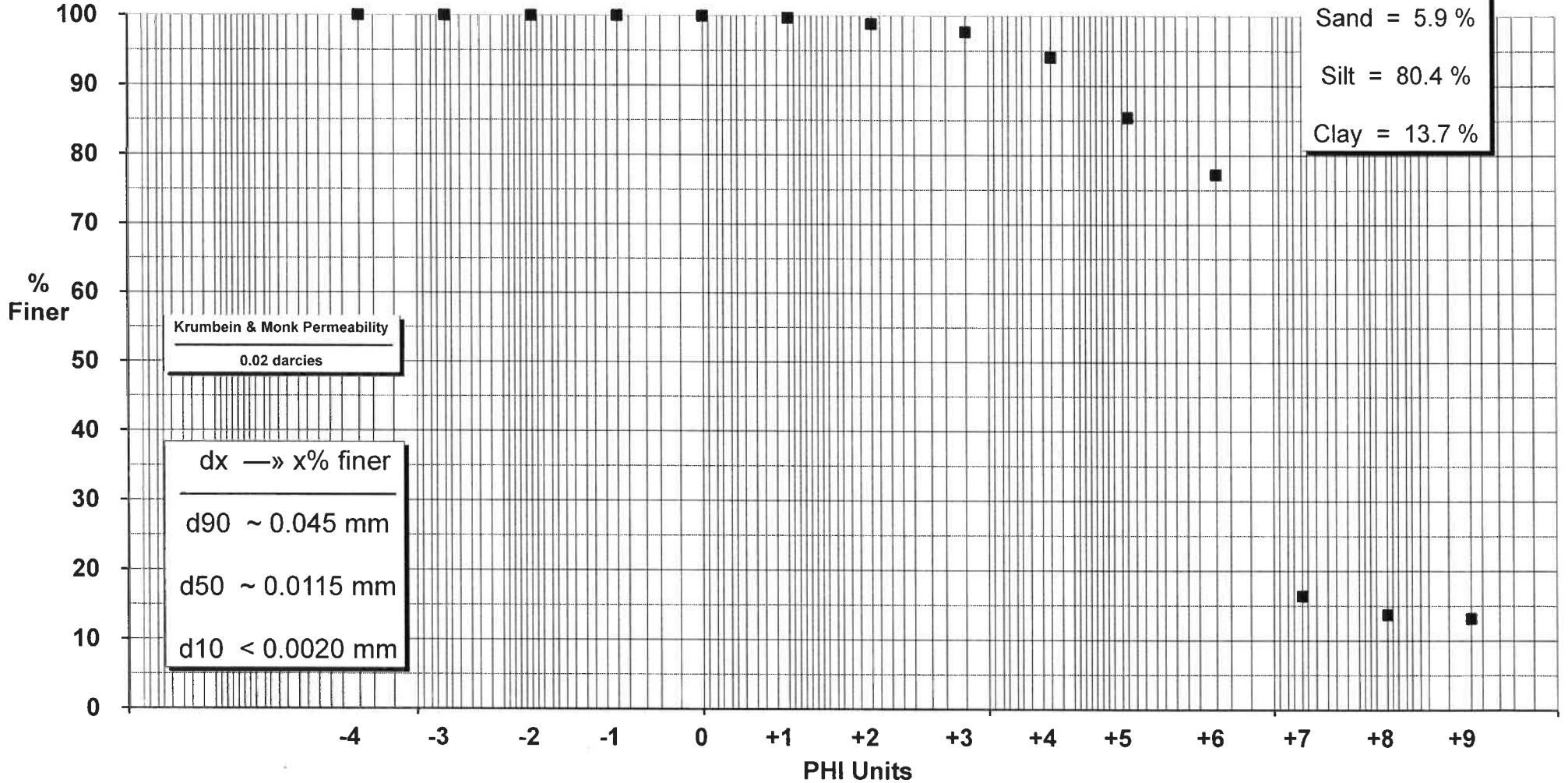


VC-52-3

Percent Coarser than 75 μm
(PHI = 3.737)
—
4.9 %

Percent Coarser than 50 μm
(PHI = 4.322)
—
8.7 %

Wentworth
Gravel = 0.0 %
Sand = 5.9 %
Silt = 80.4 %
Clay = 13.7 %



lmj
Approved

Report ID: 312756-IAS Rev01
Report Date: 29-May-19
Date Received: 10-May-19

CERTIFICATE OF ANALYSIS

for
Maxxam Analytics Inc
200 Bluewater Road, Suite 105
Bedford, NS B4B 1G9

rpc

921 College Hill Rd
Fredericton NB
Canada E3B 6Z9
Tel: 506.452.1212
Fax: 506.452.0594
www.rpc.ca

*** Revised Report ***

Attention: Marie Muise
Project #: B9C3282

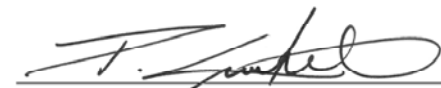
Analysis of Samples

Analytes:			Acid Volatile Sulfide
Units:			mg/kg
RL:			1
RPC Sample ID	Client Sample ID	Date Sampled	
312756-1	JQW880-14R\; VC-04B	3-May-19	1

This report relates only to the sample(s) and information provided to the laboratory.
RL = Reporting Limit



Ross Kean
Department Head
Inorganic Analytical Chemistry



Peter Crowhurst
Analytical Chemist
Inorganic Analytical Chemistry

Report ID: 312756-IAS Rev01
Report Date: 29-May-19
Date Received: 10-May-19

CERTIFICATE OF ANALYSIS

for
Maxxam Analytics Inc
200 Bluewater Road, Suite 105
Bedford, NS B4B 1G9

rpc

921 College Hill Rd
Fredericton NB
Canada E3B 6Z9
Tel: 506.452.1212
Fax: 506.452.0594
www.rpc.ca

General Report Comments

Acid Volatile Sulfide was determined according to EPA-821-R-91-100.
Results are reported on an "as received" (wet weight) basis.

Revision Comments

Added Units to the report.

COMMENTS

Page 2 of 2