JACOBS®

Memorandum

245 Consumers Road Suite 400
Toronto, Ontario, M2J 1R3
Canada
T +1.416.499.9000
F +1.416.499.4687
www.jacobs.com

Subject	**Conceptual Design Update - WP 12 60% Design Submission – Sediment and Debris Management Area Environmental Risk Management Measures**
Project Name	Port Lands Flood Protection and Enabling Infrastructure (PLFP) Environmental and Earthworks Engineering (E3) Services
Attention	Michael Van Valkenburgh Associates, Inc. (MVVA)
Prepared by	Jacobs Engineering Group Inc. (Jacobs)
Date	February 27, 2020

1. Introduction

Jacobs was requested by MVVA to assess the sediment and debris management area (SDMA) (earth works area [EW] 4.3) environmental conditions relative to the revised finished surface grade of 76.0 to 76.20 masl. Jacobs evaluated the available data and theoretical contamination mobility using methods consistent with our approach in the river valley during the Community Based Risk Assessment (CBRA) studies. This memo summarizes the environmental conditions and provides conceptual risk management measures (RMMs) to manage residual contamination within the SDMA interim area.

2. Scope of Work

This memorandum provides an updated understanding of contaminant distribution in the SDMA in relation to the proposed interim flood protection design, and to inform of the RMM requirements. Table 1 lists the completed boreholes by GHD in EW-4.3 (depicted in Figures 1 and 2). GHD's field investigation methodology for the completed boreholes within the SDMA are provided as Attachments 1 and 2. Jacobs evaluated the data relative to the revised "Interim Solution" flood protection design by MVVA. The revised draft design drawings, LI109 and LI111, were received from MVVA on February 28, 2019 (Attachments 3 and 4). The revised grading plans for the SDMA were received from MVVA on April 10 and May 16, 2019.

The specific tasks associated with the update are outlined below:

- Review all available soil and groundwater environmental data from the SDMA (EW-4.1, EW-4.2, and EW-4.3). Locations of soil samples are presented on Figures 1 and 2, while monitoring well locations are presented on Figure 3.
- Compare analytical data to applicable environmental standards established through the project-wide CBRA risk management plan (under Ministry review).
- Map soil chemistry data to identify areas of soil contamination, potential mobile nonaqueous phase liquids (NAPLs), and compare spatial distribution with future grading plans.
- Identify areas where remediation or RMMs should be considered for the protection of applicable receptors.
- Assess environmental quality of soil to be excavated to support soil reuse planning within the PLFP Project Area.

The scope of work was completed under the following assumptions:

- The finished surface grade in this area proposed by MVVA is 76.0 masl. Finish materials consist of 300 mm layer of rock are below typical river levels. Excavation grade required to place the finish materials below the finish grade elevation is 75.7 masl.
- The proposed “Interim Solution” design is in close proximity to the existing Gardiner piers and existing dock wall structure. Remediation and RMM designs involving grading modifications, excavation, or other alterations in this area need to be evaluated by structural and geotechnical engineers to assess implications on nearby existing structures. Jacobs did not evaluate geotechnical or structural information to complete this scope of work.
- Remediation and RMM designs may change based on design of flood protection excavation grade and geometry (by others) in the close proximity to the existing Gardiner piers to support the installation of non-erodible rock cover.
- The proposed “Interim Solution” design is within the Don River flood plain. Remediation and RMM designs involving grading modifications, excavation, or other alterations in this area need to be evaluated by hydrologic engineers to confirm stability under all river flow scenarios. Jacobs did not evaluate river scour forces or other sediment transport mechanism that may be applicable.
- All data made available by Waterfront Toronto was used to complete this assessment.

3. Environmental Conditions

3.1 Applicable Site Condition Standards

Site-specific condition standards were developed during the CBRA (CH2M, 2018a). It is acknowledged that there are additional factors to be considered for site condition standards (SCS) selection, such as future land use, soil pH, proximity to surface water (that is, soil leaching), NAPL, and contaminant source size. These aspects were considered in selection of the applicable standards for three distinct earthwork areas within the SDMA. Table 2 lists applicable standards for each specific earthwork area within the SDMA. Section 3.4 outlines the thresholds used to evaluate potential NAPL impacts.

3.2 Soil Quality Data

The environmental quality of soil and sediment was assessed for three distinct earthwork areas within the SDMA defined by MVVA: EW-4.1, EW-4.2, and EW-4.3.

Tables 3 to 8 summarize sample analytical results. Spatial sample locations are shown on Figures 1 and 2, where Figure 1 shows borehole locations that contain sample intervals that will remain below the excavation grade as provided on revised draft design drawings, LI109 and LI111, and Figure 2 shows borehole locations with sample intervals which are to be excavated. Figures 4 to 6 present plan and cross-sectional views of total petroleum hydrocarbon (PHC) and metal contamination distribution in soil.

3.2.1 Earthwork Area EW-4.1 (Upland Areas)

Within the upland area of the SDMA (EW-4.1), soil samples collected were characterized in accordance with future grading plans. Fill will be placed in certain areas to raise the grades. Consistent with the CBRA, a minimum future cap thickness of 0.5 metres (m) was assumed in this area. Three soil samples were collected from the top 0.5 m of the future grade. Results were compared to the soil IVs developed for the SDMA (CBRA 3B Fill Area) in Attachment 1 of the Soil Management Plan (Jacobs, 2019). Results exceeding the soil IVs included electrical conductivity, cyanide, lead, PAHs, and PHC fractions (F) F2 and F3. Table 3 summarizes the results.

Table 4 summarizes the soil that will remain below 0.5 m of the future grade within EW 4.1. Elevated concentrations of lead were found at BH421-18 between 2.3 to 2.9 mbgs and at Golder BH14 between 2.4 and 3.6 mbgs, with concentrations of 1,310 and 3,700 µg/g, respectively. Total PHC concentrations (the sum of F1 to F3) were compared to 1,500 and 8,000 µg/g, which is indicative of potential NAPL and

potential mobile NAPL, respectively. Concentrations of Total PHC at Golder BH14 and Golder BH15 indicate the presence of potential mobile NAPL, with concentrations of 15,800 and 12,720 µg/g, respectively.

3.2.2 Earthwork Area EW-4.3 (Future Water Lot)

The Interim Solution design for EW-4.3 will require excavation of existing soil to an elevation that achieves flood protection. The excavation grade required to place the finish materials below the finish grade elevation is 75.7 masl. This excavation grade elevation is above the average Lake Ontario water level but below high lake water levels and flood water level elevations. The area, therefore. may be periodically submerged.

Under the proposed grading, the remaining soil in EW-4.3 will be considered sediment within a Water Lot for comparison relative to applicable regulations and standards. The soil to remain was compared to the greater of the Table 1 Site Condition Standards for soil (Table 1 SCS) (Ministry, 2011) and the Sediment Intervention Values (IVs), developed during the CBRA (CH2M, 2018a). Detected exceedances were noted for benzene, toluene, ethylbenzene, and xylenes (BTEX), conductivity, polycyclic aromatic hydrocarbons (PAHs), PHCs, and n-hexane. Elevated concentrations of lead were observed at BHG438-18, between 4.6 and 5.2 metres below existing ground surface (mbgs), with a concentration of 2,590 micrograms per gram (µg/g). Total PHCs indicative of potential NAPL were observed at BH444-18 at a depth of 3.05 to 3.65 mbgs, at BH465-18 at a depth of 3.05 to 3.65 mbgs, and at BHG438-18 at a depth of 4.6 to 5.2 mbgs, with concentrations of 4,715 µg/g, 1,825 µg/g, and 3,508 µg/g, respectively. Table 5 summarizes corresponding analytical results.

For assessment of reuse potential, soil samples collected from the excavation area of EW-4.3 were compared to Table 3 SCS for residential, parkland, and institutional land use for coarse-textured soils and Table 9 SCS for coarse-textured soils (Ministry, 2011). The results are summarized in Table 6. Elevated concentrations of lead exceeding 1,000 µg/g were observed for 16 samples from 23 locations, with the highest concentration observed at BH464-18 at a depth of 3.8 to 4.4 mbgs, with a concentration of 10,300 µg/g. Total PHC concentrations indicative of potential NAPL were observed at four locations, ranging in depth from ground surface to 3.6 mbgs. Two locations, BH464-18 and BHG274-18, showed total PHC concentrations indicative of potential mobile NAPL (22,244 µg/g and 20,550 µg/g, respectively).

3.2.3 Earthwork Area EW-4.2 (Water Lot)

MVVA's grading plan for the Don River riverbed in EW-4.2 indicates that sediment will be dredged to meet final riverbed elevation. Two sediment samples were collected from the riverbed zone that will remain in place following construction. The data was compared to the greater of the Table 1 SCS for soil and Sediment IVs. Detected exceedances were noted for conductivity, sodium adsorption ratio (SAR), and n-hexane. The results are summarized in Table 7.

Within EW 4.2, seven samples from four locations were collected from the riverbed zone that is to be dredged. The data was compared to the greater of the Table 1 SCS for soil and Sediment IVs, consistent with the remainder of the CBRA Water Lot. Detected exceedances of the applicable standards were observed for BTEX, conductivity, SAR, PAHs, PHC F4, 1,4-dichlorobenzene, and n-hexane. All concentrations of lead were below the applicable criteria, and all total PHC concentrations were below the threshold for indication of NAPL. Table 8 summarizes the results.

3.3 Groundwater Quality Data

Groundwater data from EW-4.1 locations within 30 m of future water were compared to Table 9 SCS (Ministry, 2011). Results are summarized in Table 9. PHC exceedances of the Table 9 SCS were identified in seven of the nine samples collected from six locations, with the highest concentrations of individual PHC Fractions identified on March 12, 2018, from MW177S-18. Detected PAH exceedances were identified in five of the nine samples, while detected volatile organic compound exceedances were only identified at Terrapex MW101.

Groundwater data from EW-4.1 locations further than 30 m from the future water were compared to Table 3 SCS (Ministry, 2011). Two locations (Golder BH12 and Golder BH15) fall within this area, and results are summarized in Table 10. Detected PHC exceedances were identified in all samples, with the highest concentrations of F2, F3, and F4 (22,000 micrograms per liter [µg/L], 12,000 µg/L, and 3,700 µg/L, respectively) identified at Golder BH12. Detected concentrations of PAHs above the Table 3 SCS were identified only at Golder BH15.

3.4 Nonaqueous Phase Liquid

A NAPL mobility evaluation study was completed for the PLFP project in October 2018, which concluded that total PHC soil concentrations greater than 8,000 milligrams per kilogram (mg/kg) at the site is generally indicative of mobile NAPL fractions. The study also established a NAPL sheening criteria for soils in close proximity to surface water. Depending on the soil type, it is expected that total PHC concentrations that range from 1,500 to 6,000 mg/kg may have the potential to form surface water sheens (CH2M, 2018b). The fluctuating water table/river level relative to the proposed excavation and finish grades increases the mobility potential of small residual NAPL pockets at lower concentrations.

The interim excavation grade will be periodically submerged. Submergence may last for short durations during flooding events, expected to be in the order of a few days. During high lake levels, the area may be submerged for up to 3 months. Longer submergence periods could be sufficient for small hydrocarbon globules to mobilize vertically to the water surface by gas transport (ebolution).

Figures 4 to 6 present plan view and cross-sectional views of total PHC distribution at the SDMA with respect to proposed flood protection excavation grade and anticipated future groundwater elevation. As illustrated in the figures, a significant amount of soil with potential NAPL contamination will be excavated to achieve the proposed grading plan. However, pockets of NAPL contamination are expected to remain, particularly within soil near the excavation surface at the south revetment slope near Lakeshore Boulevard, the Gardiner Piers and the east dock wall structures.

4. Risk Management Measure Requirements

4.1 Potential Environmental Risks

The SDMA will generally be used for accumulation and removal of sediment and debris from the river by trained operations staff. Public access will be restricted to defined paths and trails. EW 4.3 will be covered with rock for erosion control and scour prevention. There will be no enclosed buildings or public access to the river.

4.1.1 EW 4.1 – Upland Area

Residual contamination within EW 4.1 could present risk to human and terrestrial receptors through direct contact. Erosion should be controlled to prevent soil from being transported to the river by stormwater.

4.1.2 EW 4.3 - Water Lot Area

EW 4.3 will be covered with non-erodible rock. It will not be accessible to the public and is not intended as habitat for terrestrial or aquatic life. Residual soils will be isolated from direct contact via the rock cover, and there will be plants or animals sensitive to porewater quality. The potential environmental impact risk is limited to aesthetic issues of sheen on the water surface from residual hydrocarbons in soil not excavated.

Visible sheens are possible when:

- the water level within EW 4.3 exceeds the finish grade;
- the water level exceeds the excavation grade but is still within the finish materials if water flows through the finishes, transporting sheen to the open water; or

- groundwater carrying NAPL sheen migrates laterally to the river through existing dock walls or new revetments.

The water level within EW 4.3 will vary in response to local groundwater and river flow conditions.

- The water level will be above the finish materials only during flood events.
- The water level could exceed the excavation grade during high lake level periods. The 2019 high lake level was approximately 75.95 masl. At this elevation, the water level would be in the finish materials and NAPL sheens could be transported to the river through the south revetment.

4.2 Risk Management Measures

Excavation of residual contamination within and near the Gardiner Pier and dock wall is not considered practical as the structures are expected to be very sensitive and would not tolerate the ground disturbance needed to remove the residual contamination. Since contamination cannot be excavated to meet the applicable standards, RMMs are required for potential discharge of PHC sheens. The environmental investigations at the SDMA identified two primary groups of contaminants that will require appropriate RMMs for human and ecological receptor protection: hydrocarbons (NAPL) and metals.

The SDMA RMM designs are shown on Figure 7 and discussed in the following subsections.

4.2.1 Nonaqueous Phase Liquid Sheen Containment

4.2.1.1 Vertical migration to surface water within EW 4.3

A layer of rock will be placed in EW 4.3 to isolate residual NAPL and prevent sediment transport by river flows. The rock cover will be designed to prevent suspension of the underlying sediments. New sediments deposited on top of the rock from river flow are not expected to adversely effect the cover; however, sheen detection and management may be influenced by changes to migration pathways through the rock over time.

NAPL sheens could be generated under some water level conditions. To contain sheen generated, a permeable interceptor berm will be constructed at the top of the south end revetment. The berm will be constructed of an absorbent material that will intercept sheen transported by river flows before it leaves EW 4.3. The interceptor will be designed to avoid clogging by suspended river sediments, algae, or other biofilm growths.

In general, the NAPL sheen RMM must be designed based on the NAPL velocity/mobile mass and NAPL load (upgradient extent) and provide safety factors for longevity of the barrier. The barrier should be appropriately tied into adjacent structures to provide complete containment. The RMM layer may consist of an organoclay (OC) reactive core mat (RCM) layer or sand with OC cap layer to block the upward migration of NAPL. The barrier should also consider the other migration pathways.

4.2.1.2 Lateral migration from EW 4.1 and EW 4.3 to the river

A revetment with protective rock cover will be constructed to retain the EW 4.3 sediments at the south end of the interim area. An absorbent barrier will be integrated within or below the revetment rock layer to contain residual NAPL. The RMM layer will be installed at elevations below excavation grade with residual NAPL concentrations above the 8,000 mg/kg near the excavation surface. The top of the barrier will extend above excavation grade and form the sheen interceptor.

The dock walls along the east side of the river will be visually monitored for sheen to identify NAPL sheen resulting from lateral migration from land into the river. If sheens are detected, contingency measures will be deployed from shore to contain and remove sheen. The measures could include a variety of temporary materials based on the severity and duration sheens are detected. Measures could include:

- absorbent booms;
- dispersion agents;

- mechanical skimmers; and/ or
- placing absorbent sand and OC layer directly on top of rock layer in the impacted area.

The contingency measures may be deployed in an adaptive approach based on magnitude of the sheen, effectiveness and operational efficiency. The contingency measures and devices required to deploy should be available on-site for rapid deployment.

A monitoring and response plan should be prepared by qualified professionals for technical guidance describing monitoring methods, trigger conditions to implement contingency measures, appropriate contingency measures, and reporting requirements.

4.3 Upland and Metals Contaminated Soil Barrier

The Interim Solution area is being designed to address the potential for scouring up to a regional storm event. The materials that would be included in the design to prevent scouring is expected to additionally provide a physical barrier to direct contact with sediment, and prevent erosion into underlying contaminated soil by inherently providing for a minimum cap layer thickness of 0.5 m. The conceptual schematic for this direct-contact barrier RMM is presented on Figure 5 of the October 2018 technical memorandum (Jacobs, 2018).

5. Key Design Considerations

The final RMM design should consider the following items:

1. The expected Service Life of the RMMs should be at least 10 years, coinciding with the expected removal of the Gardiner piers.

2. The design of the future buried dock wall will need to account for lateral migration of known contaminants from upland areas. As previously noted in the Due Diligence Study, the Golder BH14 soil samples, located just west of the defined SDMA Interim Solution boundary, indicate that mobile NAPL may be present at this location and may be migrating onto the defined SDMA Interim Solution lands. Alternatively, the NAPL risk behind the dockwall could be addressed in the future as part of the work to excavate EW 4.3 to the ultimate bed depth through mitigation on the land-side if there is risk to river water quality.

3. Minimum RMM thickness for a “wet” area is 300 millimetres as specified in the CBRA.

4. Groundwater uplift forces need to be taken into account for the weight of the surface finish and RMM layer.

5. The rock cover layer is to be designed to prevent suspension of the underlying sediments and be stable under all predicted flow velocities with appropriate factor of safety.

6. The existing sheet pile wall is not expected to prevent lateral migration of groundwater or NAPL contaminants (if any). The proposed surface grade elevation may cause more mobilization of contaminants through the wall.

7. The subsurface condition of the site should be evaluated for the presence of potential geotechnically problematic (week or settlement-prone) soil layers.

8. A geotechnical and environmental instrumentation and monitoring plan should be developed as part of design development for the construction period and long-term implementation.

9. Excavation and construction activities may increase risk of NAPL mobilization during the construction period. Monitoring will be conducted during construction to identify sheens.

Appropriate containment methods with be deployed to contain impacted sediments and NAPL sheen. Construction sequence will be coordinated to reduce risk of sediment suspension and NAPL sheen mobilization.

6. Recommended Design Development

Additional design development is recommended for the following:

- Further coordination of the water levels relative to excavation grade based on hydraulic modeling.
- Coordination of the south revetment with Gardner Pier structural protection and preservation.
- Further evaluate the areas with residual NAPL concentrations above the 8,000 mg/kg that require RMMs based on the final water level estimates, excavation grades and geometry.
- Coordinate with construction sequence to define activities that may increase NAPL mobility risk during contraction and determine mitigation requirements.
- Select barrier performance properties and refine integration with rock vestment design to achieve optima design.
- Integrate sheen monitoring and containment contingency measures with the overall PLFP operations and maintenance plan development.

7. References

CH2M HILL Canada Limited (CH2M). 2018a. *Revised Community Based Risk Assessment*. Prepared for Waterfront Toronto. August.

CH2M HILL Canada Limited (CH2M). 2018b. *Nonaqueous Phase Liquid Mobility Evaluation*, *Port Lands Flood Protection and Enabling Infrastructure Project, Toronto*. October.

Ontario Ministry of the Environment Conservation and Parks (Ministry). 2011. *Records of Site Condition —Part XV.1 of the Act. Environmental Protection Act. Ontario Regulation (O. Reg.) 153/04, as amended*.

Jacobs Engineering Group Inc. (Jacobs). 2018. *Due Diligence Study – Sediment Management Area Interim Solution, Port Lands Flood Protection and Enabling Infrastructure Project.* Prepared for Michael Van Valkenburg Associates. October.

Jacobs Engineering Group Inc. (Jacobs). 2019. *Soil Management Plan, Port Lands Flood Protection and Enabling Infrastructure Project. Prepared for Waterfront Toronto.* June.

Tables

Table 1. Boreholes Completed by GHD at the SDMA in November 2018 and March 2019
Update to SDMA Due Diligence Study, PLFP

	Borehole ID	Earthwork Area	Jacobs Notes
1	BH468-18	EW-4.3	Received on April 3, 2019
2	BHG439-18	EW-4.3	Partial data received on April 3, 2019 Remaining data received April 12, 2019
3	BHG438-18	EW-4.3	Received on April 3, 2019
4	BHG436-18	EW-4.3	Received on April 3, 2019
5	BHG274-18	EW-4.3	Partial data received on April 3, 2019 Remaining data received April 12, 2019
6	BHG435-18	EW-4.3	Received on April 3, 2019
7	BH465-18	EW-4.3	Received on April 3, 2019
8	BH466-18	EW-4.3	Received on April 3, 2019
9	BH464-18	EW-4.3	Received on April 3, 2019
10	BH445-18	EW-4.3	Received on April 12, 2019
11	BH421-18	EW-4.3	Received on Jan 8, 2019

Table 2. Applicable Site Condition Standards for Soil and Sediment Data Analysis

Update to SDMA Due Diligence Study, PLFP

SDMA Earthwork Area	Sample Depth in Relation to Future Grading	Applicable Standards
EW-4.1 (Upland Area)	To remain within 0.5m cap below future grading	CBRA intervention values (IVs) developed for the SDMA (CBRA 3B Fill Area)
EW-4.2 (Water Lot)	To remain below future grading as sediment	The greater of the Table 1 Site Condition Standards for soil (Table 1 SCS) and the Sediment Intervention Values (IVs)
EW-4.2 (Water Lot)	To be dredged	The greater of the Table 1 Site Condition Standards for soil (Table 1 SCS) and the Sediment Intervention Values (IVs)
EW-4.3 (Future Water Lot)	To remain below future grading as sediment	The greater of the Table 1 Site Condition Standards for soil (Table 1 SCS) and the Sediment Intervention Values (IVs)
EW-4.3 (Future Water Lot)	To be excavated	Table 3 and Table 9 SCS

Table 3. Summary of Soil Quality Within the Top 0.5 m of the Future Grade in EW 4.1 (Upland Area)

Update to SDMA Due Diligence Study, PLFP

Analyte	Unit	Soil IV [a]	Location	BH174-18	BH180-16	BH57-15
			Date	23 Jan 2018	29 Mar 2017	19 Nov 2015
			Start Depth (mbgs)	0.76	0.6	1.52
			End Depth (mbgs)	1.37	1.2	2.13
			Sample ID	S-11102463-012318-TA-009	S-0317-GME-BH180-16-0.6-1.2	S-11102463-111915-KMV-191
			Sample Type	N	N	N
BTEX						
Benzene	µg/g	0.29			**0.06**	**0.0217**
Ethylbenzene	µg/g	2			**0.05**	0.018 U
Toluene	µg/g	2.3			**0.16**	0.08 U
Xylene, o	µg/g	NV			**0.05**	0.02 U
Xylenes, m & p	µg/g	NV			**0.16**	**0.035**
Xylenes, Total	µg/g	3.1			**0.22**	0.05 U
Chemistry						
pH	pH UNITS	NV		**7.58**	**7.49**	**7.59**
Inorganic						
Conductivity	mS/cm	0.7		**0.25**	**2.28**	**0.528**
Cyanide	µg/g	0.051		0.05 U	**0.08 J**	0.05 U
Sodium Adsorption Ratio	SAR	5		**0.36**	0.1 U	**1.34**
Metal						
Antimony	µg/g	13		**2.9**	**1**	**3**
Arsenic	µg/g	18		**9.3**	**4.9**	**9.5**
Barium	µg/g	390		**132**	**90.4**	**157**
Beryllium	µg/g	4		**0.61**	0.5 U	**0.52**
Boron	µg/g	120		**11.7**	**5.3**	**9.2**
Boron (hot water extractable)	µg/g	1.5		**0.81**	**0.25**	**1.4**
Cadmium	µg/g	1.9		**0.72**	0.5 U	**0.63**
Chromium	µg/g	160		**32**	**13.6**	**39.8**
Chromium, Hexavalent (Cr6+)	µg/g	NV		**0.38**	0.2 U	**0.29**
Cobalt	µg/g	22		**8.3**	**5.1**	**8.6**
Copper	µg/g	140		**88**	**26.1**	**96.3**
Lead	µg/g	120		**301**	**53.5**	**150**
Mercury	µg/g	4.3		**0.62**	**0.21**	**0.228**
Molybdenum	µg/g	6.9		**1.3**	1 U	**1.3**
Nickel	µg/g	100		**20.4**	**14**	**25.7**
Selenium	µg/g	2.4		1 U	1 U	1 U
Silver	µg/g	20		**0.49**	0.2 U	**0.31**
Thallium	µg/g	1		0.5 U	0.5 U	0.5 U
Uranium	µg/g	NV		1 U	1 U	1 U
Vanadium	µg/g	86		**29.7**	**20.7**	**33.6**
Zinc	µg/g	340		**235**	**67.7**	**230**
PAH						
1+2-Methylnaphthalenes	µg/g	0.99			**0.27**	
1-Methylnaphthalene	µg/g	NV			**0.11**	
2-Methylnaphthalene	µg/g	NV			**0.15**	
Acenaphthene	µg/g	7.9			**0.09**	**3.04**
Acenaphthylene	µg/g	0.51			**0.46**	**1.62**
Anthracene	µg/g	0.67			**0.32**	**3.19**
Benzo(a)anthracene	µg/g	0.5			**1.38**	**6.79**
Benzo(a)pyrene	µg/g	0.57			**1.41**	**7.54**
Benzo(b)fluoranthene	µg/g	NV			**1.87**	**8.57**
Benzo(g,h,i)perylene	µg/g	6.6			**1.21**	**5.29**
Benzo(k)fluoranthene	µg/g	0.78			**0.73**	**2.59**
Chrysene	µg/g	7			**1.57**	**6.95**
Dibenzo(a,h)anthracene	µg/g	0.33			**0.28**	**1.1**
Fluoranthene	µg/g	0.69			**1.94**	**12**
Fluorene	µg/g	NV			**0.14**	**3.52**
Indeno(1,2,3-Cd)Pyrene	µg/g	0.38			**1.26**	**5.79**
Naphthalene	µg/g	0.6			**0.18 J**	**1.66**
Phenanthrene	µg/g	6.2			**1.07**	**2.32**
Pyrene	µg/g	NV			**2.23**	**12.1**
PHC						
F1 (C6-C10)	µg/g	55			5 U	5 U
F1-BTEX	µg/g	NV			5 U	5 U
F2 (C10-C16)	µg/g	150			**19**	**564**
F2-Naphth	µg/g	NV			**19**	**562**
F3 (C16-C34)	µg/g	300			**211**	**463**
F3-PAH	µg/g	NV			**199**	**405**
F4 (C34-C50)	µg/g	NV			**68**	**52**
F4G-SG (GHH-Silica)	µg/g	NV			**340**	
Total Hydrocarbons (C6-C50)	µg/g	NV			**298**	**1080**
VOC						
1,1,1,2-Tetrachloroethane	µg/g	NV			0.05 U	0.05 U
1,1,1-Trichloroethane	µg/g	0.38			0.05 U	0.05 U
1,1,2,2-Tetrachloroethane	µg/g	0.05			0.05 U	0.05 U
1,1,2-Trichloroethane	µg/g	NV			0.05 U	0.05 U
1,1-Dichloroethane	µg/g	3.5			0.05 U	0.05 U
1,1-Dichloroethene	µg/g	NV			0.05 U	0.05 U
1,2-Dibromoethane	µg/g	0.05			0.05 U	0.05 U
1,2-Dichlorobenzene	µg/g	NV			0.05 U	0.05 U
1,2-Dichloroethane	µg/g	0.05			0.05 U	0.05 U
1,2-Dichloropropane	µg/g	NV			0.05 U	0.05 U
1,3-Dichlorobenzene	µg/g	NV			0.05 U	0.05 U
1,3-Dichloropropene	µg/g	NV			0.042 U	0.042 U
1,4-Dichlorobenzene	µg/g	NV			0.05 U	0.05 U
Acetone	µg/g	NV			0.5 U	0.5 U
Bromodichloromethane	µg/g	NV			0.05 U	0.05 U
Bromoform	µg/g	NV			0.05 U	0.05 U
Bromomethane	µg/g	NV			0.05 U	0.05 U
Carbon tetrachloride	µg/g	0.05			0.05 U	0.05 U
Chlorobenzene	µg/g	NV			0.05 U	0.05 U
Chlorodibromomethane	µg/g	9.4			0.05 U	0.05 U
Chloroform	µg/g	0.05			0.05 U	0.05 U
cis-1,2-Dichloroethene	µg/g	NV			0.05 U	0.05 U
cis-1,3-Dichloropropene	µg/g	NV			0.03 U	0.03 U
Dichlorodifluoromethane	µg/g	NV			0.05 U	0.05 U
Dichloromethane	µg/g	0.1			0.05 U	0.05 U
Methyl Ethyl Ketone (2-Butanone)	µg/g	16			0.5 U	0.5 U
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	µg/g	1.7			0.5 U	0.5 U
Methyl tert-butyl ether (MTBE)	µg/g	0.75			0.05 U	0.05 U
n-Hexane	µg/g	2.8			**0.11**	0.05 U
Styrene	µg/g	0.7			0.05 U	0.05 U
Tetrachloroethene	µg/g	0.28			0.05 U	0.05 U
trans-1,2-Dichloroethene	µg/g	0.084			0.05 U	0.05 U
trans-1,3-Dichloropropene	µg/g	NV			0.03 U	0.03 U
Trichloroethylene	µg/g	0.061			0.01 U	**0.026**
Trichlorofluoromethane	µg/g	4			0.05 U	0.05 U
Vinyl Chloride	µg/g	0.02			0.02 U	0.02 U

Notes:

[a] Values from Table 9c of Attachment 1 of the Soil Managemnt Plan (Jacobs, 2019)

Bold text identifies detected results

Shaded cells indicate the result exceeded the soil IV

Blank cells indicate the parameter was not analyzed

µg/g = microgram(s) per gram

% = percent

BTEX = benzene, toluene, ethylbenzene, and xylenes

EW = Earth Works

F = fraction

ID = identification

IV = intervention value

J = the analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample

mbgs = metre(s) below ground surface

mS/cm = millisiemens per centimetre

N =normal

NV = no value available

Napth = napthalene

PAH = polycyclic aromatic hydrocarbon

PHC = petroleum hydrocarbon

U = the analyte was not detected above the reported sample quantitation limit

VOC = volatile organic compound

Source:

Jacobs Engineering Group Inc. (Jacobs). 2019. *Soil Management Plan, Port Lands Flood Protection and Enabling Infrastructure Project*. Prepared for Waterfront Toronto. March.

Table 4. Summary of Soil Quality Below the Top 0.5 m of the Future Grade in EW 4.1 (Upland Area)

Update to SDMA Due Diligence Study, PLFP

Location		BH174-18	BH421-18				BH57-15	
Date		1/23/2018	11/23/2018	11/23/2018	11/23/2018	11/23/2018	11/19/2015	11/19/2015
Start Depth (mbgs)		2.29	2.29	2.29	6.86	6.86	4.57	6.09
End Depth (mbgs)		2.9	2.9	2.9	7.47	7.47	5.18	6.7
Sample ID		S-11102463-012318-TA-010	S-11102463-112318-SM-BH18-421-7.5-9.5	S-11102463-112318-SM-BH18-421-DUP4	S-11102463-112318-SM-BH18-421-22.5-24.5	S-11102463-112318-SM-BH18-421-DUP5	S-11102463-111915-KMV-192	S-11102463-111915-KMV-193
Sample Type		N	N	FD	N	FD	N	N
Analyte	**Unit**							
ABN								
1,1'-Biphenyl	µg/g							
1,2,4-Trichlorobenzene	µg/g							
2,4-Dimethylphenol	µg/g							
2,4-Dinitrophenol	µg/g							
2,4-Dinitrotoluene	µg/g							
3,3`-Dichlorobenzidine	µg/g							
4-Chloroaniline	µg/g							
Bis (2-chloroethyl) ether	µg/g							
bis (2-Chloroisopropyl) ether	µg/g							
Bis (2-ethylhexyl) phthalate	µg/g							
Diethylphthalate	µg/g							
Dimethylphthalate	µg/g							
Phenol	µg/g							
BTEX								
Benzene	µg/g		**0.12**		0.0068 U		0.0068 U	0.0068 U
Ethylbenzene	µg/g		**0.13**		0.018 U		0.018 U	0.018 U
Toluene	µg/g		**0.29**		0.08 U		0.08 U	0.08 U
Xylene, o	µg/g		**0.16**		0.02 U		0.02 U	0.02 U
Xylenes, m & p	µg/g		**0.41**		0.03 U		0.03 U	0.03 U
Xylenes, Total	µg/g		**0.57**		0.05 U		0.05 U	0.05 U
Chemistry								
Ammonia	µg/g							
Nitrate (as N)	µg/g							
Nitrite (as N)	µg/g							
pH	pH UNITS	**7.69**	**7.15**		**7.44**		**7.59**	**7.43**
Phosphorus	µg/g							
Total Kjeldahl Nitrogen	µg/g							
Chlorophenol								
2,4,5-Trichlorophenol	µg/g		0.2 U	0.2 U				
2,4,6-Trichlorophenol	µg/g		0.2 U	0.2 U				
2,4-Dichlorophenol	µg/g		0.2 U	0.2 U				
2-Chlorophenol	µg/g		0.2 U	0.2 U				
Pentachlorophenol	µg/g		0.2 U	0.2 U				
Inorganic								
Conductivity	mS/cm	**0.6**	**0.91**		**0.41**		**0.404**	**0.381**
Cyanide	µg/g	0.05 U	0.05 U		0.05 U		0.05 U	0.05 U
Sodium Adsorption Ratio	SAR	**1.03**	**0.57**		**3.02**		**1.3**	**0.84**
Metal								
Antimony	µg/g	**6.9**	**17.6**		1 U		1 U	1 U
Arsenic	µg/g	**20.7**	**27.9**		**1.9**		**3.1**	**2.9**
Barium	µg/g	**280**	**492**		**108**		**108**	**140**
Beryllium	µg/g	**1.12**	**0.68**		0.5 U		**0.5**	**0.6**
Boron	µg/g	**12.7**	**14.7**		**6.4**		**7.7**	5 U
Boron (hot water extractable)	µg/g	**0.97**	**1.9**		**0.1**		**0.7**	0.1 U
Cadmium	µg/g	**1.25**	**2.38**		0.5 U		0.5 U	0.5 U
Chromium	µg/g	**197**	**108**		**22.1**		**27.4**	**30.5**
Chromium, Hexavalent (Cr6+)	µg/g	**1.54**	0.2 U		0.2 U		0.2 U	0.2 U
Cobalt	µg/g	**9.2**	**9.9**		**8.1**		**8.1**	**10**
Copper	µg/g	**326**	**422**		**17**		**22.8**	**21.4**
Lead	µg/g	**404**	**1310**		**8.2**		**14.1**	**8.5**
Mercury	µg/g	**1.91**	**4.98**		**0.01**		**0.0722**	**0.0236**
Molybdenum	µg/g	**3**	**2.8**		1 U		1 U	1 U
Nickel	µg/g	**28.4**	**34.2**		**16**		**18.2**	**21.9**
Potassium	µg/g							
Selenium	µg/g	**1.4**	**3.1**		1 U		1 U	1 U
Silver	µg/g	**0.59**	**2.93**		0.2 U		0.2 U	0.2 U
Thallium	µg/g	0.5 U	0.5 U		0.5 U		0.5 U	0.5 U
Uranium	µg/g	1 U	1 U		1 U		1 U	1 U
Vanadium	µg/g	**30.3**	**31**		**37.4**		**38.6**	**45.7**
Zinc	µg/g	**453**	**888**		**41.5**		**65**	**55.5**
Organochloro Pesticides								
2,4- & 4,4-DDD	µg/g		0.064 U	0.057 U				
2,4 & 4,4-DDE	µg/g		0.057 U	0.057 U				
2,4- & 4,4-DDT	µg/g		0.057 U	0.057 U				
2,4'-DDD	µg/g		0.04 U	0.04 U				
2,4'-DDE	µg/g		0.04 U	0.04 U				
2,4'-DDT	µg/g		0.04 U	0.04 U				
4,4'-DDD	µg/g		0.05 U	0.04 U				
4,4'-DDE	µg/g		0.04 U	0.04 U				
4,4'-DDT	µg/g		0.04 U	0.04 U				
Aldrin	µg/g		0.04 U	0.04 U				
Alpha-Chlordane	µg/g		0.04 U	0.04 U				
Chlordane	µg/g		0.057 U	0.057 U				
Chlordane (technical)	µg/g		0.04 U	0.04 U				
Dieldrin	µg/g		0.04 U	0.04 U				

Table 4. Summary of Soil Quality Below the Top 0.5 m of the Future Grade in EW 4.1 (Upland Area)

Update to SDMA Due Diligence Study, PLFP

	Location		**BH174-18**	**BH421-18**				**BH57-15**	
	Date		1/23/2018	11/23/2018	11/23/2018	11/23/2018	11/23/2018	11/19/2015	11/19/2015
	Start Depth (mbgs)		2.29	2.29	2.29	6.86	6.86	4.57	6.09
	End Depth (mbgs)		2.9	2.9	2.9	7.47	7.47	5.18	6.7
	Sample ID		S-11102463-012318-TA-010	S-11102463-112318-SM-BH18-421-7.5-9.5	S-11102463-112318-SM-BH18-421-DUP4	S-11102463-112318-SM-BH18-421-22.5-24.5	S-11102463-112318-SM-BH18-421-DUP5	S-11102463-111915-KMV-192	S-11102463-111915-KMV-193
	Sample Type		N	N	FD	N	FD	N	N
Analyte	**Unit**								
Endosulfan	µg/g			0.22 U	0.24 U				
Endosulfan I	µg/g			0.2 U	0.2 U				
Endosulfan II	µg/g			0.08 U	0.14 U				
Endrin	µg/g			0.04 U	0.08 U				
gamma-BHC (Lindane)	µg/g			0.36 U	0.42 U				
Heptachlor	µg/g			0.04 U	0.04 U				
Heptachlor Epoxide	µg/g			0.04 U	0.04 U				
Hexachlorobenzene	µg/g			0.05 U	0.05 U				
Hexachlorobutadiene	µg/g			0.05 U	0.05 U				
Hexachloroethane	µg/g			0.05 U	0.05 U				
Methoxychlor	µg/g			0.26 U	0.48 U				
PAH									
1+2-Methylnaphthalenes	µg/g			**0.44**		0.042 U			0.042 U
1-Methylnaphthalene	µg/g			**0.19**		0.03 U			0.03 U
2-Methylnaphthalene	µg/g			**0.25**		0.03 U			0.03 U
Acenaphthene	µg/g			0.1 U		0.05 U		0.05 U	0.05 U
Acenaphthylene	µg/g			0.1 U		0.05 U		0.05 U	0.05 U
Anthracene	µg/g			**0.25**		0.05 U		0.05 U	0.05 U
Benzo(a)anthracene	µg/g			**1.03**		0.05 U		**0.09 J**	0.05 U
Benzo(a)pyrene	µg/g			**1.09**		0.05 U		**0.089**	0.05 U
Benzo(b)fluoranthene	µg/g			**0.97**		0.05 U		**0.113**	0.05 U
Benzo(g,h,i)perylene	µg/g			**0.81**		0.05 U		**0.059**	0.05 U
Benzo(k)fluoranthene	µg/g			**0.85**		0.05 U		0.05 U	0.05 U
Chrysene	µg/g			**1**		0.05 U		**0.078**	0.05 U
Dibenzo(a,h)anthracene	µg/g			**0.19**		0.05 U		0.05 U	0.05 U
Fluoranthene	µg/g			**1.8**		0.05 U		**0.143**	0.05 U
Fluorene	µg/g			0.1 U		0.05 U		0.05 U	0.05 U
Indeno(1,2,3-Cd)Pyrene	µg/g			**0.85**		0.05 U		**0.071**	0.05 U
Naphthalene	µg/g			**0.38**		0.013 U		**0.062**	0.05 U
Phenanthrene	µg/g			**0.69**		0.046 U		0.05 U	0.05 U
Pyrene	µg/g			**1.69**		0.05 U		**0.137**	0.05 U
PCB									
Aroclor 1242	µg/g			0.016 U					
Aroclor 1248	µg/g			0.01 U					
Aroclor 1254	µg/g			0.01 U					
Aroclor 1260	µg/g			0.02 U					
Total PCBs	µg/g			0.03 U					
PHC									
F1 (C6-C10)	µg/g			**9.9**		5 U	5 U	5 U	5 U
F1-BTEX	µg/g			**8.7**		5 U		5 U	5 U
F2 (C10-C16)	µg/g			**256**		10 U	10 U	10 U	10 U
F2-Naphth	µg/g			**256**		10 U		10 U	10 U
F3 (C16-C34)	µg/g			**731**		50 U	50 U	50 U	50 U
F3-PAH	µg/g			**722**		50 U		50 U	50 U
F4 (C34-C50)	µg/g			**182**		50 U	50 U	50 U	50 U
F4G-SG (GHH-Silica)	µg/g			**710**					
Total Hydrocarbons (C6-C50)	µg/g			**1180**		72 U	72 U	72 U	72 U
VOC									
1,1,1,2-Tetrachloroethane	µg/g			0.05 U		0.05 U		0.05 U	0.05 U
1,1,1-Trichloroethane	µg/g			0.05 U		0.05 U		0.05 U	0.05 U
1,1,2,2-Tetrachloroethane	µg/g			0.24 U		0.05 U		0.05 U	0.05 U
1,1,2-Trichloroethane	µg/g			0.05 U		0.05 U		0.05 U	0.05 U
1,1-Dichloroethane	µg/g			0.05 U		0.05 U		0.05 U	0.05 U
1,1-Dichloroethene	µg/g			0.05 U		0.05 U		0.05 U	0.05 U
1,2-Dibromoethane	µg/g			0.05 U		0.05 U		0.05 U	0.05 U
1,2-Dichlorobenzene	µg/g			0.05 U		0.05 U		0.05 U	0.05 U
1,2-Dichloroethane	µg/g			0.05 U		0.05 U		0.05 U	0.05 U
1,2-Dichloropropane	µg/g			0.05 U		0.05 U		0.05 U	0.05 U
1,3-Dichlorobenzene	µg/g			0.05 U		0.05 U		0.05 U	0.05 U
1,3-Dichloropropene	µg/g			0.042 U		0.042 U		0.042 U	0.042 U
1,4-Dichlorobenzene	µg/g			0.05 U		0.05 U		0.05 U	0.05 U
Acetone	µg/g			**0.57**		0.5 U		0.5 U	0.5 U
Bromodichloromethane	µg/g			0.05 U		0.05 U		0.05 U	0.05 U
Bromoform	µg/g			0.05 U		0.05 U		0.05 U	0.05 U
Bromomethane	µg/g			0.05 U		0.05 U		0.05 U	0.05 U
Carbon tetrachloride	µg/g			0.05 U		0.05 U		0.05 U	0.05 U
Chlorobenzene	µg/g			0.05 U		0.05 U		0.05 U	0.05 U
Chlorodibromomethane	µg/g			0.05 U		0.05 U		0.05 U	0.05 U
Chloroform	µg/g			0.05 U		0.05 U		0.05 U	0.05 U
cis-1,2-Dichloroethene	µg/g			0.05 U		0.05 U		0.05 U	0.05 U
cis-1,3-Dichloropropene	µg/g			0.03 U		0.03 U		0.03 U	0.03 U
Dichlorodifluoromethane	µg/g			0.05 U		0.05 U		0.05 U	0.05 U
Dichloromethane	µg/g			0.05 U		0.05 U		0.05 U	0.05 U
Methyl Ethyl Ketone (2-Butanone)	µg/g			0.5 U		0.5 U		0.5 U	0.5 U
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	µg/g			0.5 U		0.5 U		0.5 U	0.5 U
Methyl tert-butyl ether (MTBE)	µg/g			0.05 U		0.05 U		0.05 U	0.05 U

Table 4. Summary of Soil Quality Below the Top 0.5 m of the Future Grade in EW 4.1 (Upland Area)

Update to SDMA Due Diligence Study, PLFP

Location		BH174-18	BH421-18				BH57-15	
Date		1/23/2018	11/23/2018	11/23/2018	11/23/2018	11/23/2018	11/19/2015	11/19/2015
Start Depth (mbgs)		2.29	2.29	2.29	6.86	6.86	4.57	6.09
End Depth (mbgs)		2.9	2.9	2.9	7.47	7.47	5.18	6.7
Sample ID		S-11102463-012318-TA-010	S-11102463-112318-SM-BH18-421-7.5-9.5	S-11102463-112318-SM-BH18-421-DUP4	S-11102463-112318-SM-BH18-421-22.5-24.5	S-11102463-112318-SM-BH18-421-DUP5	S-11102463-111915-KMV-192	S-11102463-111915-KMV-193
Sample Type		N	N	FD	N	FD	N	N
Analyte	**Unit**							
n-Hexane	µg/g		**0.71**		0.13 U		0.05 U	0.05 U
Styrene	µg/g		0.05 U		0.05 U		0.05 U	0.05 U
Tetrachloroethene	µg/g		0.05 U		0.05 U		0.05 U	0.05 U
trans-1,2-Dichloroethene	µg/g		0.05 U		0.05 U		0.05 U	0.05 U
trans-1,3-Dichloropropene	µg/g		0.03 U		0.03 U		0.03 U	0.03 U
Trichloroethylene	µg/g		0.01 U		0.01 U		0.01 U	0.01 U
Trichlorofluoromethane	µg/g		0.05 U		0.05 U		0.05 U	0.05 U
Vinyl Chloride	µg/g		0.02 U		0.02 U		0.02 U	0.02 U

Notes:
Bold text identifies detected results
Blank cells indicate the parameter was not analyzed
µg/g = microgram(s) per gram
% = percent
BTEX = benzene, toluene, ethylbenzene, and xylenes
EW = Earth Works
F = fraction
FD = field duplicate
ID = identification
J = the analyte was positively identified;
the associated numerical value is the approximate
concentration of the analyte in the sample
mbgs = metre(s) below ground surface
masl = metre(s) above sea level
mS/cm = millisiemens per centimetre
N = normal
Napth = napthalene
PAH = polycyclic aromatic hydrocarbon
PCB = polychlorinated biphenyl
PHC = petroleum hydrocarbon
U = the analyte was not detected above
the reported sample quantitation limit
VOC = volatile organic compound

Table 4. Summary of Soil Quality Below the Top 0.5 m of the Future Grade in EW 4.1 (Upland Are

Update to SDMA Due Diligence Study, PLFP

Location		BH174-18	GOLDER BH12	GOLDER BH13	GOLDER BH14	GOLDER BH15
Date		1/23/2018	5/15/2006	5/15/2006	5/15/2006	5/15/2006
Start Depth (mbgs)		2.29	2.44	2.44	2.44	3.66
End Depth (mbgs)		2.9	3.66	3.66	3.66	4.23
Sample ID		S-11102463-012318-TA-010	BH12	BH13	BH14	BH15
Sample Type		N	N	N	N	N
Analyte	**Unit**					
ABN						
1,1'-Biphenyl	µg/g		1 U			0.09 U
1,2,4-Trichlorobenzene	µg/g		2 U			0.19 U
2,4-Dimethylphenol	µg/g		1 U			0.09 U
2,4-Dinitrophenol	µg/g		2 U			0.19 U
2,4-Dinitrotoluene	µg/g		1 U			0.09 U
3,3`-Dichlorobenzidine	µg/g		4.99 U			0.5 U
4-Chloroaniline	µg/g		2 U			0.19 U
Bis (2-chloroethyl) ether	µg/g		2 U			0.19 U
bis (2-Chloroisopropyl) ether	µg/g		1 U			0.09 U
Bis (2-ethylhexyl) phthalate	µg/g		4.99 U			0.5 U
Diethylphthalate	µg/g		2 U			0.19 U
Dimethylphthalate	µg/g		2 U			0.19 U
Phenol	µg/g		2 U			0.19 U
BTEX						
Benzene	µg/g		**0.39**	**0.3**	**0.09**	**0.005**
Ethylbenzene	µg/g		0.39 U	**0.09**	0.09 U	**0.004**
Toluene	µg/g		0.39 U	**0.3**	0.09 U	0.005 U
Xylene, o	µg/g					
Xylenes, m & p	µg/g					
Xylenes, Total	µg/g		**0.79**	**0.5**	**0.3**	**0.01**
Chemistry						
Ammonia	µg/g		**11.8**			**157**
Nitrate (as N)	µg/g		2 U			2 U
Nitrite (as N)	µg/g		0.5 U			0.5 U
pH	pH UNITS	**7.69**				
Phosphorus	µg/g		**980**			**699.99**
Total Kjeldahl Nitrogen	µg/g		**1630**			**495**
Chlorophenol						
2,4,5-Trichlorophenol	µg/g		1 U			0.09 U
2,4,6-Trichlorophenol	µg/g		1 U			0.09 U
2,4-Dichlorophenol	µg/g		1 U			0.09 U
2-Chlorophenol	µg/g		1 U			0.09 U
Pentachlorophenol	µg/g		2 U			0.19 U
Inorganic						
Conductivity	mS/cm	**0.6**				
Cyanide	µg/g	0.05 U				
Sodium Adsorption Ratio	SAR	**1.03**				
Metal						
Antimony	µg/g	**6.9**	**1**	1 U	**6**	1 U
Arsenic	µg/g	**20.7**	**86**	**21**	**48**	**3**
Barium	µg/g	**280**	**370**	**930**	**870**	**94.99**
Beryllium	µg/g	**1.12**	**1.6**	**0.79**	**0.6**	0.5 U
Boron	µg/g	**12.7**	**1.07**	**2.52**	**2.75**	**0.44**
Boron (hot water extractable)	µg/g	**0.97**				
Cadmium	µg/g	**1.25**	**6.3**	**1.6**	**4**	**0.6**
Chromium	µg/g	**197**	**25**	**48.99**	**130**	**17.99**
Chromium, Hexavalent (Cr6+)	µg/g	**1.54**				
Cobalt	µg/g	**9.2**	**15**	**9.6**	**9.3**	**8.2**
Copper	µg/g	**326**	**1200**	**120**	**1000**	**22**
Lead	µg/g	**404**	**759.99**	**860**	**3700**	**11**
Mercury	µg/g	**1.91**	**1.49**	**1.7**	**5.4**	**0.09**
Molybdenum	µg/g	**3**	**7.19**	**4.4**	**4.8**	0.5 U
Nickel	µg/g	**28.4**	**239.99**	**35**	**50**	**17**
Potassium	µg/g		**690**			**2000**
Selenium	µg/g	**1.4**	**1**	**2**	**12**	1 U
Silver	µg/g	**0.59**	**2.7**	**3.4**	**3.59**	0.3 U
Thallium	µg/g	0.5 U	1 U	1 U	1 U	1 U
Uranium	µg/g	1 U				
Vanadium	µg/g	**30.3**	**43**	**34**	**41**	**28**
Zinc	µg/g	**453**	**1500**	**610**	**1100**	**43**
Organochloro Pesticides						
2,4- & 4,4-DDD	µg/g					
2,4 & 4,4-DDE	µg/g					
2,4- & 4,4-DDT	µg/g					
2,4'-DDD	µg/g					
2,4'-DDE	µg/g					
2,4'-DDT	µg/g					
4,4'-DDD	µg/g					
4,4'-DDE	µg/g					
4,4'-DDT	µg/g					
Aldrin	µg/g					
Alpha-Chlordane	µg/g					
Chlordane	µg/g					
Chlordane (technical)	µg/g					
Dieldrin	µg/g					

Table 4. Summary of Soil Quality Below the Top 0.5 m of the Future Grade in EW 4.1 (Upland Are

Update to SDMA Due Diligence Study, PLFP

Location		BH174-18	GOLDER BH12	GOLDER BH13	GOLDER BH14	GOLDER BH15
Date		1/23/2018	5/15/2006	5/15/2006	5/15/2006	5/15/2006
Start Depth (mbgs)		2.29	2.44	2.44	2.44	3.66
End Depth (mbgs)		2.9	3.66	3.66	3.66	4.23
Sample ID		S-11102463-012318-TA-010	BH12	BH13	BH14	BH15
Sample Type		N	N	N	N	N
Analyte	**Unit**					
Endosulfan	µg/g					
Endosulfan I	µg/g					
Endosulfan II	µg/g					
Endrin	µg/g					
gamma-BHC (Lindane)	µg/g					
Heptachlor	µg/g					
Heptachlor Epoxide	µg/g					
Hexachlorobenzene	µg/g		2 U			0.19 U
Hexachlorobutadiene	µg/g		1 U			0.09 U
Hexachloroethane	µg/g		1 U			0.09 U
Methoxychlor	µg/g					
PAH						
1+2-Methylnaphthalenes	µg/g		1 U	**0.3**	**22.005**	0.09 U
1-Methylnaphthalene	µg/g		1 U	**0.11**	**22**	0.09 U
2-Methylnaphthalene	µg/g		1 U	**0.19**	**0.005**	0.09 U
Acenaphthene	µg/g		1 U	**0.18**	**2.2**	0.09 U
Acenaphthylene	µg/g		1 U	**0.16**	**0.005**	0.09 U
Anthracene	µg/g		1 U	**0.59**	**0.44**	0.09 U
Benzo(a)anthracene	µg/g		1 U	**1.3**	**0.76**	0.09 U
Benzo(a)pyrene	µg/g		1 U	**0.98**	**0.38**	0.09 U
Benzo(b)fluoranthene	µg/g		1 U	**1.2**	**0.73**	0.09 U
Benzo(g,h,i)perylene	µg/g		1 U	**0.56**	**0.29**	0.09 U
Benzo(k)fluoranthene	µg/g		1 U	**0.46**	**0.26**	0.09 U
Chrysene	µg/g		1 U	**0.98**	**0.92**	0.09 U
Dibenzo(a,h)anthracene	µg/g		1 U	**0.13**	**0.07**	0.09 U
Fluoranthene	µg/g		1 U	**3.1**	**1.9**	0.09 U
Fluorene	µg/g		1 U	**0.26**	**3.5**	0.09 U
Indeno(1,2,3-Cd)Pyrene	µg/g		1 U	**0.57**	**0.28**	0.09 U
Naphthalene	µg/g		1 U	**0.47**	**0.005**	0.09 U
Phenanthrene	µg/g		1 U	**2.4**	**0.09**	0.09 U
Pyrene	µg/g		1 U	**2.7**	**1.7**	0.09 U
PCB						
Aroclor 1242	µg/g					
Aroclor 1248	µg/g					
Aroclor 1254	µg/g					
Aroclor 1260	µg/g					
Total PCBs	µg/g					
PHC						
F1 (C6-C10)	µg/g		**410**	10 U	**2800**	**220**
F1-BTEX	µg/g					
F2 (C10-C16)	µg/g		**100**	**289.99**	**8399.99**	**7400**
F2-Naphth	µg/g					
F3 (C16-C34)	µg/g		**1400**	**920**	**4599.99**	**5099.99**
F3-PAH	µg/g					
F4 (C34-C50)	µg/g		**52**	**50**	**150**	**349.99**
F4G-SG (GHH-Silica)	µg/g					
Total Hydrocarbons (C6-C50)	µg/g					
VOC						
1,1,1,2-Tetrachloroethane	µg/g		0.39 U	0.09 U	0.09 U	0.002 U
1,1,1-Trichloroethane	µg/g		0.39 U	0.09 U	0.09 U	0.002 U
1,1,2,2-Tetrachloroethane	µg/g		0.39 U	0.09 U	0.09 U	0.002 U
1,1,2-Trichloroethane	µg/g		0.39 U	0.09 U	0.09 U	0.002 U
1,1-Dichloroethane	µg/g		0.39 U	0.09 U	0.09 U	0.002 U
1,1-Dichloroethene	µg/g		0.39 U	0.09 U	0.09 U	0.002 U
1,2-Dibromoethane	µg/g		0.39 U	0.09 U	0.09 U	0.002 U
1,2-Dichlorobenzene	µg/g		0.39 U	0.09 U	0.09 U	0.002 U
1,2-Dichloroethane	µg/g		0.39 U	0.09 U	0.09 U	0.002 U
1,2-Dichloropropane	µg/g		0.39 U	0.09 U	0.09 U	0.002 U
1,3-Dichlorobenzene	µg/g		0.39 U	0.09 U	0.09 U	0.002 U
1,3-Dichloropropene	µg/g					
1,4-Dichlorobenzene	µg/g		0.39 U	0.09 U	0.09 U	0.002 U
Acetone	µg/g		20 U	4.99 U	4.99 U	**3**
Bromodichloromethane	µg/g		0.39 U	0.09 U	0.09 U	0.002 U
Bromoform	µg/g		0.39 U	0.09 U	0.09 U	0.002 U
Bromomethane	µg/g		0.6 U	0.15 U	0.15 U	0.003 U
Carbon tetrachloride	µg/g		0.39 U	0.09 U	0.09 U	0.002 U
Chlorobenzene	µg/g		0.39 U	0.09 U	0.09 U	0.002 U
Chlorodibromomethane	µg/g		0.39 U	0.09 U	0.09 U	0.002 U
Chloroform	µg/g		0.39 U	0.09 U	0.09 U	0.002 U
cis-1,2-Dichloroethene	µg/g		0.39 U	0.09 U	0.09 U	0.002 U
cis-1,3-Dichloropropene	µg/g		0.39 U	0.09 U	0.09 U	0.002 U
Dichlorodifluoromethane	µg/g					
Dichloromethane	µg/g		0.6 U	0.15 U	0.15 U	0.003 U
Methyl Ethyl Ketone (2-Butanone)	µg/g		4.99 U	1.26 U	1.26 U	0.02 U
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	µg/g					
Methyl tert-butyl ether (MTBE)	µg/g		4.99 U	1.26 U	1.26 U	**0.73**

Table 4. Summary of Soil Quality Below the Top 0.5 m of the Future Grade in EW 4.1 (Upland Are

Update to SDMA Due Diligence Study, PLFP

Location		BH174-18	GOLDER BH12	GOLDER BH13	GOLDER BH14	GOLDER BH15
Date		1/23/2018	5/15/2006	5/15/2006	5/15/2006	5/15/2006
Start Depth (mbgs)		2.29	2.44	2.44	2.44	3.66
End Depth (mbgs)		2.9	3.66	3.66	3.66	4.23
Sample ID		S-11102463-012318-TA-010	BH12	BH13	BH14	BH15
Sample Type		N	N	N	N	N
Analyte	**Unit**					
n-Hexane	µg/g					
Styrene	µg/g		0.39 U	0.09 U	0.09 U	0.002 U
Tetrachloroethene	µg/g		0.39 U	0.09 U	0.09 U	0.002 U
trans-1,2-Dichloroethene	µg/g		0.39 U	0.09 U	0.09 U	0.002 U
trans-1,3-Dichloropropene	µg/g		0.39 U	0.09 U	0.09 U	0.002 U
Trichloroethylene	µg/g		0.39 U	0.09 U	0.09 U	0.002 U
Trichlorofluoromethane	µg/g					
Vinyl Chloride	µg/g		0.39 U	0.09 U	0.09 U	0.002 U

Notes:

Bold text identifies detected results

Blank cells indicate the parameter was not analyzed

µg/g = microgram(s) per gram

% = percent

BTEX = benzene, toluene, ethylbenzene, and xylenes

EW = Earth Works

F = fraction

FD = field duplicate

ID = identification

J = the analyte was positively identified;
the associated numerical value is the approximate
concentration of the analyte in the sample

mbgs = metre(s) below ground surface

masl = metre(s) above sea level

mS/cm = millisiemens per centimetre

N = normal

Napth = napthalene

PAH = polycyclic aromatic hydrocarbon

PCB = polychlorinated biphenyl

PHC = petroleum hydrocarbon

U = the analyte was not detected above
the reported sample quantitation limit

VOC = volatile organic compound

Table 5. Summary of Soil Quality for Soils to Remain in Place in EW 4.3

Update to SDMA Due Diligence Study, PLFP

				Location	BH444-18		BH465-18			
				Date	21 Mar 2019	21 Mar 2019	22 Mar 2019	22 Mar 2019	22 Mar 2019	
				Start Depth (mbgs)	3.05	4.57	0.76	3.05	7.62	
				End Depth (mbgs)	3.66	5.18	1.37	3.66	8.23	
				Sample ID	S-11102463-032119-EN-BH18-444-10-12	S-11102463-032119-EN-BH18-444-15-17	S-11102463-190322-JC-BH18-465-2.5-4.5	S-11102463-190322-JC-BH18-465-10-12	S-11102463-190322-JC-BH18-465-25-27	
				Sample Type	N	N	N	N	N	
Analyte	**Unit**	**Table 1 SCS [a]**	**Sediment IV [b]**	**Selected Criteria [c]**						
BTEX										
Benzene	µg/g	0.02	0.02	0.02	**0.06**	0.0068 U	**0.17**	**0.07**	0.0068 U	
Ethylbenzene	µg/g	0.05	0.05	0.05	**0.02**	0.018 U	**0.15**	0.049 U	0.018 U	
Toluene	µg/g	0.2	0.2	0.2	**0.09**	0.08 U	**0.27**	**0.27**	0.08 U	
Xylene, o	µg/g	NV	NV	NV	**0.03**	0.02 U	**0.11**	0.054 U	0.02 U	
Xylenes, m & p	µg/g	NV	NV	NV	**0.09**	0.03 U	**0.41**	**0.15**	0.03 U	
Xylenes, Total	µg/g	0.05	0.05	0.05	**0.12**	0.05 U	**0.53**	**0.15**	0.05 U	
Chemistry										
pH	pH UNITS	NV	NV	NV	**7.13**	**7.14**	**7.47**	**7.44**	**7.5**	
Chlorophenol										
2,4,5-Trichlorophenol	µg/g	0.1	NV	0.1	0.2 U		0.1 U	0.1 U		
2,4,6-Trichlorophenol	µg/g	0.1	NV	0.1	0.2 U		0.1 U	0.1 U		
2,4-Dichlorophenol	µg/g	0.1	NV	0.1	0.2 U		0.1 U	0.1 U		
2-Chlorophenol	µg/g	0.1	NV	0.1	0.2 U		0.1 U	0.1 U		
Pentachlorophenol	µg/g	0.1	NV	0.1	0.2 U		0.1 U	0.1 U		
Inorganic										
Conductivity	mS/cm	0.57	NV	0.57	**2**	**0.58**	**3.05**	**2.99**	**0.21**	
Cyanide	µg/g	0.051	0.1	0.1	0.05 U	0.05 U	**0.13**	0.05 U	0.05 U	
Sodium Adsorption Ratio	SAR	2.4	NV	2.4	**1.11**	**1.05**	**1.62**	**12.6**	**0.64**	
Metal										
Antimony	µg/g	1.3	1.3	1.3	**4.3**	1 U	**5.7**	**3.4**	1 U	
Arsenic	µg/g	18	6	18	**27.6**	**3.1**	**16.8**	**18**	**2.8**	
Barium	µg/g	220	220	220	**242**	**159**	**194**	**380**	**88.4**	
Beryllium	µg/g	2.5	2.5	2.5	**1**	**0.53**	**0.65**	0.5 U	0.5 U	
Boron	µg/g	36	36	36	**27.3**	**5.3**	**18.6**	**13.2**	**7.2**	
Boron (hot water extractable)	µg/g	NV	NV	NV	**2.11**	**2.32**	**1.45**	**4.54**	**0.12**	
Cadmium	µg/g	1.2	1	1.2	**6.44**	0.5 U	**0.76**	0.5 U	0.5 U	
Chromium	µg/g	70	31	70	**37.6**	**22.5**	**205**	**30.7**	**21.3**	
Chromium, Hexavalent (Cr6+)	µg/g	0.66	NV	0.66	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	
Cobalt	µg/g	21	50	50	**16.3**	**6.2**	**6.8**	**6.2**	**7.5**	
Copper	µg/g	92	25	92	**285**	**29.8**	**133**	**253**	**17.1**	
Lead	µg/g	120	31	120	**783**	**71.3**	**480**	**128**	**6.3**	
Mercury	µg/g	0.27	0.2	0.27	**0.41**	**0.45**	**0.37**	**0.74**	**0.01**	
Molybdenum	µg/g	2	2	2	**3.8**	1 U	**1.5**	**2**	1 U	
Nickel	µg/g	82	31	82	**43.5**	**12.8**	**18.9**	**17.1**	**16.8**	
Selenium	µg/g	1.5	1.5	1.5	**1.7**	1 U	1 U	**2.8**	1 U	
Silver	µg/g	0.5	0.5	0.5	**1.02**	**0.26**	**0.45**	**1.93**	0.2 U	
Thallium	µg/g	1	1	1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
Uranium	µg/g	2.5	NV	2.5	1 U	1 U	1 U	1 U	1 U	
Vanadium	µg/g	86	86	86	**35.7**	**27.9**	**25.4**	**27.7**	**32.5**	
Zinc	µg/g	290	120	290	**2030**	**127**	**367**	**361**	**39.6**	
Organochloro Pesticide										
2,4- & 4,4-DDD	µg/g	0.05	NV	0.05	0.028 U		0.028 U	0.028 U		
2,4 & 4,4-DDE	µg/g	0.05	NV	0.05	0.028 U		0.028 U	0.028 U		
2,4- & 4,4-DDT	µg/g	1.4	NV	1.4	0.1 U		0.14 U	0.14 U		
2,4'-DDD	µg/g	NV	NV	NV	0.02 U		0.02 U	0.02 U		
2,4'-DDE	µg/g	NV	NV	NV	0.02 U		0.02 U	0.02 U		
2,4'-DDT	µg/g	NV	NV	NV	0.02 U		0.1 U	0.1 U		
4,4'-DDD	µg/g	NV	NV	NV	0.02 U		0.02 U	0.02 U		
4,4'-DDE	µg/g	NV	NV	NV	0.02 U		0.02 U	0.02 U		
4,4'-DDT	µg/g	NV	NV	NV	0.1 U		0.1 U	0.1 U		
Aldrin	µg/g	0.05	NV	0.05	0.02 U		0.02 U	0.02 U		
Alpha-Chlordane	µg/g	NV	NV	NV	0.02 U		0.02 U	0.02 U		
Chlordane	µg/g	0.05	NV	0.05	0.028 U		0.028 U	0.028 U		
Chlordane (technical)	µg/g	0.05	NV	0.05	0.02 U		0.02 U	0.02 U		
Dieldrin	µg/g	0.05	NV	0.05	0.02 U		0.02 U	0.02 U		
Endosulfan	µg/g	0.04	NV	0.04	0.028 U		0.1 U	0.1 U		
Endosulfan I	µg/g	NV	NV	NV	0.02 U		0.02 U	0.02 U		
Endosulfan II	µg/g	NV	NV	NV	0.02 U		0.1 U	0.1 U		
Endrin	µg/g	0.04	NV	0.04	0.02 U		0.02 U	0.02 U		
gamma-BHC (Lindane)	µg/g	0.01	NV	0.01	0.05 U		0.1 U	0.1 U		
Heptachlor	µg/g	0.05	NV	0.05	0.02 U		0.02 U	0.02 U		
Heptachlor Epoxide	µg/g	0.05	NV	0.05	0.02 U		0.02 U	0.02 U		
Hexachlorobenzene	µg/g	0.01	NV	0.01	0.05 U		0.1 U	0.1 U		
Hexachlorobutadiene	µg/g	0.01	NV	0.01	0.05 U		0.1 U	0.1 U		
Hexachloroethane	µg/g	0.01	NV	0.01	0.05 U		0.1 U	0.1 U		
Methoxychlor	µg/g	0.05	NV	0.05	0.1 U		0.1 U	0.1 U		
PAH										
1+2-Methylnaphthalenes	µg/g	0.59	0.59	0.59	**0.1**	0.042 U	**0.69**	**0.64**	0.042 U	
1-Methylnaphthalene	µg/g	0.59	NV	0.59	**0.1**	**0.04**	**0.36**	**0.47**	0.03 U	
2-Methylnaphthalene	µg/g	0.59	NV	0.59	0.06 U	0.03 U	**0.33**	**0.16**	0.03 U	
Acenaphthene	µg/g	0.072	0.07	0.072	0.1 U	0.05 U	**0.7**	**0.66**	0.05 U	
Acenaphthylene	µg/g	0.093	0.09	0.093	0.1 U	0.05 U	**0.15**	0.05 U	0.05 U	
Anthracene	µg/g	0.16	0.22	0.22	0.1 U	0.05 U	**2.32**	**0.25**	0.05 U	
Benzo(a)anthracene	µg/g	0.36	0.32	0.36	0.1 U	**0.13**	**4.34**	**0.44**	0.05 U	
Benzo(a)pyrene	µg/g	0.3	0.37	0.37	0.1 U	**0.07**	**4.1**	**0.31**	0.05 U	
Benzo(b)fluoranthene	µg/g	0.47	NV	0.47	0.1 U	**0.17**	**4.07**	**0.32**	0.05 U	
Benzo(g,h,i)perylene	µg/g	0.68	0.17	0.68	0.1 U	**0.07 J**	**2.94**	**0.29**	0.05 U	
Benzo(k)fluoranthene	µg/g	0.48	0.24	0.48	0.1 U	**0.05**	**2.97**	**0.21**	0.05 U	
Chrysene	µg/g	2.8	0.34	2.8	0.1 U	**0.15**	**4.19**	**0.56**	0.05 U	
Dibenzo(a,h)anthracene	µg/g	0.1	0.06	0.1	0.1 U	0.05 U	**0.69**	**0.07**	0.05 U	
Fluoranthene	µg/g	0.56	0.75	0.75	**0.19**	**0.22**	**9.6**	**1.01**	0.05 U	

Table 5. Summary of Soil Quality for Soils to Remain in Place in EW 4.3

Update to SDMA Due Diligence Study, PLFP

				Location	BH444-18		BH465-18		
				Date	21 Mar 2019	21 Mar 2019	22 Mar 2019	22 Mar 2019	22 Mar 2019
				Start Depth (mbgs)	3.05	4.57	0.76	3.05	7.62
				End Depth (mbgs)	3.66	5.18	1.37	3.66	8.23
				Sample ID	S-11102463-032119-EN-BH18-444-10-12	S-11102463-032119-EN-BH18-444-15-17	S-11102463-190322-JC-BH18-465-2.5-4.5	S-11102463-190322-JC-BH18-465-10-12	S-11102463-190322-JC-BH18-465-25-27
				Sample Type	N	N	N	N	N
Analyte	**Unit**	**Table 1 SCS [a]**	**Sediment IV [b]**	**Selected Criteria [c]**					
Fluorene	µg/g	0.12	0.19	0.19	0.1 U	0.05 U	**0.95**	**0.53**	0.05 U
Indeno(1,2,3-Cd)Pyrene	µg/g	0.23	0.2	0.23	0.1 U	**0.06**	**3.17**	**0.28**	0.05 U
Naphthalene	µg/g	0.09	0.09	0.09	0.1 U	**0.03**	**0.48**	0.1 U	0.013 U
Phenanthrene	µg/g	0.69	0.56	0.69	0.1 U	**0.12**	**8.21**	**0.56**	0.046 U
Pyrene	µg/g	1	0.49	1	**0.2**	**0.24**	**7.72**	**1.03**	0.05 U
PCB									
Aroclor 1242	µg/g	NV	NV	NV	0.03 U		0.01 U	0.035 U	
Aroclor 1248	µg/g	NV	NV	NV	0.01 U		0.01 U	0.01 U	
Aroclor 1254	µg/g	NV	NV	NV	0.01 U		0.01 U	0.01 U	
Aroclor 1260	µg/g	NV	NV	NV	0.01 U		0.01 U	0.01 U	
Total PCBs	µg/g	0.3	0.07	0.3	0.035 U		0.02 U	0.04 U	
PHC									
F1 (C6-C10)	µg/g	25	395	395	**45.1**	5 U	**6.2**	**24**	5 U
F1-BTEX	µg/g	25	NV	25	**44.8**	5 U	**5.1**	**23**	5 U
F2 (C10-C16)	µg/g	10	395	395	**3150**	**45**	**30**	**791**	10 U
F2-Naphth	µg/g	10	NV	10	**3150**	**45**	**30**	**791**	10 U
F3 (C16-C34)	µg/g	240	395	395	**1520**	**73**	**327**	**1010**	50 U
F3-PAH	µg/g	240	NV	240	**1520**	**71**	**282**	**1010**	50 U
F4 (C34-C50)	µg/g	120	395	395	**167**	50 U	**146**	**142**	50 U
F4G-SG (GHH-Silica)	µg/g	120	NV	120			**390**		
Total Hydrocarbons (C6-C50)	µg/g	NV	NV	NV	**4890**	**117**	**509**	**1970**	72 U
VOC									
1,1,1,2-Tetrachloroethane	µg/g	0.05	0.05	0.05	0.05 U	0.05 U	0.05 U	0.14 U	0.05 U
1,1,1-Trichloroethane	µg/g	0.05	0.05	0.05	0.05 U	0.05 U	0.05 U	0.14 U	0.05 U
1,1,2,2-Tetrachloroethane	µg/g	0.05	0.05	0.05	0.26 U	0.05 U	0.05 U	0.14 U	0.05 U
1,1,2-Trichloroethane	µg/g	0.05	0.05	0.05	0.05 U	0.05 U	0.05 U	0.14 U	0.05 U
1,1-Dichloroethane	µg/g	0.05	0.05	0.05	0.05 U	0.05 U	0.05 U	0.14 U	0.05 U
1,1-Dichloroethene	µg/g	0.05	0.05	0.05	0.05 U	0.05 U	0.05 U	0.14 U	0.05 U
1,2-Dibromoethane	µg/g	0.05	0.05	0.05	0.05 U	0.05 U	0.05 U	0.14 U	0.05 U
1,2-Dichlorobenzene	µg/g	0.05	NV	0.05	0.8 U	0.05 U	0.05 U	0.14 U	0.05 U
1,2-Dichloroethane	µg/g	0.05	0.05	0.05	0.05 U	0.05 U	0.05 U	0.14 U	0.05 U
1,2-Dichloropropane	µg/g	0.05	NV	0.05	0.05 U	0.05 U	0.05 U	0.14 U	0.05 U
1,3-Dichlorobenzene	µg/g	0.05	NV	0.05	0.8 U	0.05 U	0.05 U	0.14 U	0.05 U
1,3-Dichloropropene	µg/g	0.05	NV	0.05	0.042 U	0.042 U	0.042 U	0.11 U	0.042 U
1,4-Dichlorobenzene	µg/g	0.05	NV	0.05	0.8 U	0.05 U	0.05 U	0.14 U	0.05 U
Acetone	µg/g	0.5	NV	0.5	0.5 U	0.5 U	0.5 U	1.4 U	0.5 U
Bromodichloromethane	µg/g	0.05	NV	0.05	0.05 U	0.05 U	0.05 U	0.14 U	0.05 U
Bromoform	µg/g	0.05	NV	0.05	0.05 U	0.05 U	0.05 U	0.14 U	0.05 U
Bromomethane	µg/g	0.05	NV	0.05	0.05 U	0.05 U	0.05 U	0.14 U	0.05 U
Carbon tetrachloride	µg/g	0.05	0.05	0.05	0.05 U	0.05 U	0.05 U	0.14 U	0.05 U
Chlorobenzene	µg/g	0.05	NV	0.05	0.05 U	0.05 U	0.05 U	0.14 U	0.05 U
Chlorodibromomethane	µg/g	0.05	0.05	0.05	0.05 U	0.05 U	0.05 U	0.14 U	0.05 U
Chloroform	µg/g	0.05	0.05	0.05	0.05 U	0.05 U	0.05 U	0.14 U	0.05 U
cis-1,2-Dichloroethene	µg/g	0.05	0.05	0.05	0.05 U	0.05 U	0.05 U	0.14 U	0.05 U
cis-1,3-Dichloropropene	µg/g	0.05	NV	0.05	0.03 U	0.03 U	0.03 U	0.081 U	0.03 U
Dichlorodifluoromethane	µg/g	0.05	NV	0.05	0.05 U	0.05 U	0.05 U	0.14 U	0.05 U
Dichloromethane	µg/g	0.05	0.05	0.05	0.05 U	0.05 U	0.05 U	0.14 U	0.05 U
Methyl Ethyl Ketone (2-Butanone)	µg/g	0.5	0.5	0.5	0.5 U	0.5 U	0.5 U	1.4 U	0.5 U
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	µg/g	0.5	0.5	0.5	0.5 U	0.5 U	0.5 U	1.4 U	0.5 U
Methyl tert-butyl ether (MTBE)	µg/g	0.05	0.05	0.05	0.05 U	0.05 U	0.05 U	0.14 U	0.05 U
n-Hexane	µg/g	0.05	0.05	0.05	**0.05**	0.05 U	**0.41**	**0.14**	0.05 U
Styrene	µg/g	0.05	0.05	0.05	0.05 U	0.05 U	0.05 U	0.14 U	0.05 U
Tetrachloroethene	µg/g	0.05	0.05	0.05	0.05 U	0.05 U	0.05 U	0.14 U	0.05 U
trans-1,2-Dichloroethene	µg/g	0.05	0.05	0.05	0.05 U	0.05 U	0.05 U	0.14 U	0.05 U
trans-1,3-Dichloropropene	µg/g	0.05	NV	0.05	0.03 U	0.03 U	0.03 U	0.081 U	0.03 U
Trichloroethylene	µg/g	0.05	0.05	0.05	0.01 U	0.01 U	0.01 U	0.027 U	0.01 U
Trichlorofluoromethane	µg/g	0.25	0.25	0.25	0.05 U	0.05 U	0.05 U	0.14 U	0.05 U
Vinyl Chloride	µg/g	0.02	0.02	0.02	0.02 U	0.02 U	0.02 U	0.054 U	0.02 U

Notes:

[a] Table 1: Full Depth Background Site Condition Standards, Residential/ Parkland/ Institutional/ Industrial/ Commercial/ Community Property Use, Coarse Textured Soils (Ministry, 2011)

[b] Developed from the Community Based Risk Assessment (CH2M, 2018)

[c] Greater value between the Sediment IV and the Table 1 SCS

Bold text identifies detected results

Shaded cells indicate the result exceeded the selected criteria

Blank cells indicate the parameter was not analyzed

µg/g = microgram(s) per gram

% = percent

BTEX = benzene, toluene, ethylbenzene, and xylenes

EW = Earth Works

F = fraction

FD = field duplicate

ID = identification

IV = intervention value

J = the analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample

mbgs = metre(s) below ground surface

mS/cm = millisiemens per centimetre

N =normal

NV = no value available

Napth = napthalene

PAH = polycyclic aromatic hydrocarbon

PHC = petroleum hydrocarbon

SCS = site condition standards

U = the analyte was not detected above the reported sample quantitation limit

VOC = volatile organic compound

Sources

Ontario Ministry of the Environment, Conservation and Parks (Ministry). 2011. Rationale for the Development of Soil and Ground Water Standards for Use at Contaminated Sites in Ontario. April 15.

CH2M HILL Canada Limited (CH2M). 2018. Revised Community Based Risk Assessment. Prepared for Waterfront Toronto. August.

Table 5. Summary of Soil Quality for Soils to Remain in Place in EW 4.3

Update to SDMA Due Diligence Study, PLFP

Location					BH468-18			BHG274-18	BHG435-18
Date					20 Mar 2019	20 Mar 2019	20 Mar 2019	21 Mar 2019	15 Mar 2019
Start Depth (mbgs)					3.81	7.62	7.62	7.62	8.5
End Depth (mbgs)					4.42	8.23	8.23	9.14	8.9
Sample ID					S-11102463-032019-EN-BH18-468-12.5-14.5	S-11102463-032019-EN-BH18-468-BH100	S-11102463-032019-EN-BH18-468-25-27	S-11102463-190321-JC-BH18-441-25-30	S-11102463-031519-DD-BH18-442-8.5-8.9
Sample Type					N	FD	N	N	N
Analyte	**Unit**	**Table 1 SCS [a]**	**Sediment IV [b]**	**Selected Criteria [c]**					
BTEX									
Benzene	µg/g	0.02	0.02	0.02	0.0068 U	**0.04**	**0.04**	**0.01**	0.0068 U
Ethylbenzene	µg/g	0.05	0.05	0.05	0.018 U	**0.17**	**0.17**	0.018 U	0.018 U
Toluene	µg/g	0.2	0.2	0.2	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U
Xylene, o	µg/g	NV	NV	NV	0.02 U	**0.19**	**0.19**	0.02 U	0.02 U
Xylenes, m & p	µg/g	NV	NV	NV	0.03 U	**0.43**	**0.42**	**0.05**	0.03 U
Xylenes, Total	µg/g	0.05	0.05	0.05	0.05 U	**0.63**	**0.61**	**0.05**	0.05 U
Chemistry									
pH	pH UNITS	NV	NV	NV	**7.2**	**6.98**	**7.03**	**7.35**	**7.71**
Chlorophenol									
2,4,5-Trichlorophenol	µg/g	0.1	NV	0.1	0.1 U				
2,4,6-Trichlorophenol	µg/g	0.1	NV	0.1	0.1 U				
2,4-Dichlorophenol	µg/g	0.1	NV	0.1	0.1 U				
2-Chlorophenol	µg/g	0.1	NV	0.1	0.1 U				
Pentachlorophenol	µg/g	0.1	NV	0.1	0.1 U				
Inorganic									
Conductivity	mS/cm	0.57	NV	0.57	**0.82**	**0.54**	**0.55**	**0.29**	**0.48**
Cyanide	µg/g	0.051	0.1	0.1	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Sodium Adsorption Ratio	SAR	2.4	NV	2.4	**3.13**	**0.79**	**0.81**	**1.43**	**3.78**
Metal									
Antimony	µg/g	1.3	1.3	1.3	**1.7**	1 U	1 U	1 U	1 U
Arsenic	µg/g	18	6	18	**17.2**	**1.1**	**1.2**	**1**	**1.8**
Barium	µg/g	220	220	220	**269**	**39.3**	**48.9**	**32**	**15.5**
Beryllium	µg/g	2.5	2.5	2.5	**0.99**	0.5 U	0.5 U	0.5 U	0.5 U
Boron	µg/g	36	36	36	**10.6**	5 U	5 U	5 U	5 U
Boron (hot water extractable)	µg/g	NV	NV	NV	**1.82**	**0.65**	**0.75**	**0.14**	**0.15**
Cadmium	µg/g	1.2	1	1.2	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chromium	µg/g	70	31	70	**30.7**	**10**	**11.2**	**6.6**	**5.3**
Chromium, Hexavalent (Cr6+)	µg/g	0.66	NV	0.66	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Cobalt	µg/g	21	50	50	**12.2**	**3.3**	**4**	**2.6**	**2.6**
Copper	µg/g	92	25	92	**47.8**	**7.3**	**9.8**	**4**	**4.2**
Lead	µg/g	120	31	120	**310**	**6.8**	**6.7**	**7.2**	**4.1**
Mercury	µg/g	0.27	0.2	0.27	**0.17**	**0.0093**	**0.01**	**0.01**	**0.0065**
Molybdenum	µg/g	2	2	2	**2.9**	1 U	1 U	1 U	1 U
Nickel	µg/g	82	31	82	**26.7**	**7**	**8.6**	**5.1**	**5**
Selenium	µg/g	1.5	1.5	1.5	**1.6**	1 U	1 U	1 U	1 U
Silver	µg/g	0.5	0.5	0.5	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Thallium	µg/g	1	1	1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Uranium	µg/g	2.5	NV	2.5	1 U	1 U	1 U	1 U	1 U
Vanadium	µg/g	86	86	86	**46**	**15.8**	**16.7**	**9.4**	**10.4**
Zinc	µg/g	290	120	290	**230**	**19.2**	**21.1**	**18.9**	**12.1**
Organochloro Pesticide									
2,4- & 4,4-DDD	µg/g	0.05	NV	0.05	0.028 U				
2,4 & 4,4-DDE	µg/g	0.05	NV	0.05	0.028 U				
2,4- & 4,4-DDT	µg/g	1.4	NV	1.4	0.1 U				
2,4'-DDD	µg/g	NV	NV	NV	0.02 U				
2,4'-DDE	µg/g	NV	NV	NV	0.02 U				
2,4'-DDT	µg/g	NV	NV	NV	0.02 U				
4,4'-DDD	µg/g	NV	NV	NV	0.02 U				
4,4'-DDE	µg/g	NV	NV	NV	0.02 U				
4,4'-DDT	µg/g	NV	NV	NV	0.1 U				
Aldrin	µg/g	0.05	NV	0.05	0.02 U				
Alpha-Chlordane	µg/g	NV	NV	NV	0.02 U				
Chlordane	µg/g	0.05	NV	0.05	0.028 U				
Chlordane (technical)	µg/g	0.05	NV	0.05	0.02 U				
Dieldrin	µg/g	0.05	NV	0.05	0.02 U				
Endosulfan	µg/g	0.04	NV	0.04	0.028 U				
Endosulfan I	µg/g	NV	NV	NV	0.02 U				
Endosulfan II	µg/g	NV	NV	NV	0.02 U				
Endrin	µg/g	0.04	NV	0.04	0.02 U				
gamma-BHC (Lindane)	µg/g	0.01	NV	0.01	0.05 U				
Heptachlor	µg/g	0.05	NV	0.05	0.02 U				
Heptachlor Epoxide	µg/g	0.05	NV	0.05	0.02 U				
Hexachlorobenzene	µg/g	0.01	NV	0.01	0.05 U				
Hexachlorobutadiene	µg/g	0.01	NV	0.01	0.05 U				
Hexachloroethane	µg/g	0.01	NV	0.01	0.05 U				
Methoxychlor	µg/g	0.05	NV	0.05	0.1 U				
PAH									
1+2-Methylnaphthalenes	µg/g	0.59	0.59	0.59	0.042 U	**0.62**	**0.58**	0.042 U	0.042 U
1-Methylnaphthalene	µg/g	0.59	NV	0.59	0.03 U	**0.22**	**0.2**	0.03 U	0.03 U
2-Methylnaphthalene	µg/g	0.59	NV	0.59	0.03 U	**0.4**	**0.37**	0.03 U	0.03 U
Acenaphthene	µg/g	0.072	0.07	0.072	0.05 U	**0.07 J**	**0.06 J**	**0.05**	0.05 U
Acenaphthylene	µg/g	0.093	0.09	0.093	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Anthracene	µg/g	0.16	0.22	0.22	0.05 U	0.05 U	0.05 U	**0.06**	0.05 U
Benzo(a)anthracene	µg/g	0.36	0.32	0.36	0.05 U	0.05 U	0.05 U	**0.11**	0.05 U
Benzo(a)pyrene	µg/g	0.3	0.37	0.37	0.05 U	0.05 U	0.05 U	**0.14**	0.05 U
Benzo(b)fluoranthene	µg/g	0.47	NV	0.47	0.05 U	0.05 U	0.05 U	**0.15**	0.05 U
Benzo(g,h,i)perylene	µg/g	0.68	0.17	0.68	0.05 U	0.05 U	0.05 U	**0.13**	0.05 U
Benzo(k)fluoranthene	µg/g	0.48	0.24	0.48	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Chrysene	µg/g	2.8	0.34	2.8	0.05 U	0.05 U	0.05 U	**0.12**	0.05 U
Dibenzo(a,h)anthracene	µg/g	0.1	0.06	0.1	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Fluoranthene	µg/g	0.56	0.75	0.75	**0.05**	0.05 U	0.05 U	**0.25**	0.05 U

Table 5. Summary of Soil Quality for Soils to Remain in Place in EW 4.3

Update to SDMA Due Diligence Study, PLFP

	Location				BH468-18			BHG274-18	BHG435-18
	Date				20 Mar 2019	20 Mar 2019	20 Mar 2019	21 Mar 2019	15 Mar 2019
	Start Depth (mbgs)				3.81	7.62	7.62	7.62	8.5
	End Depth (mbgs)				4.42	8.23	8.23	9.14	8.9
	Sample ID				S-11102463-032019-EN-BH18-468-12.5-14.5	S-11102463-032019-EN-BH18-468-BH100	S-11102463-032019-EN-BH18-468-25-27	S-11102463-190321-JC-BH18-441-25-30	S-11102463-031519-DD-BH18-442-8.5-8.9
	Sample Type				N	FD	N	N	N
Analyte	**Unit**	**Table 1 SCS [a]**	**Sediment IV [b]**	**Selected Criteria [c]**					
Fluorene	µg/g	0.12	0.19	0.19	0.05 U	0.05 U	0.05 U	**0.05**	0.05 U
Indeno(1,2,3-Cd)Pyrene	µg/g	0.23	0.2	0.23	0.05 U	0.05 U	0.05 U	**0.1**	0.05 U
Naphthalene	µg/g	0.09	0.09	0.09	0.05 U	**21**	**21.4**	**0.03**	**0.01**
Phenanthrene	µg/g	0.69	0.56	0.69	0.05 U	0.046 U	0.046 U	**0.14**	0.046 U
Pyrene	µg/g	1	0.49	1	0.05 U	0.05 U	0.05 U	**0.24**	0.05 U
PCB									
Aroclor 1242	µg/g	NV	NV	NV	0.01 U				
Aroclor 1248	µg/g	NV	NV	NV	0.01 U				
Aroclor 1254	µg/g	NV	NV	NV	0.01 U				
Aroclor 1260	µg/g	NV	NV	NV	0.01 U				
Total PCBs	µg/g	0.3	0.07	0.3	0.02 U				
PHC									
F1 (C6-C10)	µg/g	25	395	395	5 U	5 U	5 U	5 U	5 U
F1-BTEX	µg/g	25	NV	25	5 U	5 U	5 U	5 U	5 U
F2 (C10-C16)	µg/g	10	395	395	10 U	**26**	**33**	**14**	10 U
F2-Naphth	µg/g	10	NV	10	10 U	10 U	**11**	**14**	10 U
F3 (C16-C34)	µg/g	240	395	395	**136**	50 U	50 U	**92**	**96**
F3-PAH	µg/g	240	NV	240	**136**	50 U	50 U	**91**	**96**
F4 (C34-C50)	µg/g	120	395	395	50 U	50 U	50 U	50 U	50 U
F4G-SG (GHH-Silica)	µg/g	120	NV	120					
Total Hydrocarbons (C6-C50)	µg/g	NV	NV	NV	**136**	72 U	72 U	**106**	**96**
VOC									
1,1,1,2-Tetrachloroethane	µg/g	0.05	0.05	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
1,1,1-Trichloroethane	µg/g	0.05	0.05	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
1,1,2,2-Tetrachloroethane	µg/g	0.05	0.05	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
1,1,2-Trichloroethane	µg/g	0.05	0.05	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
1,1-Dichloroethane	µg/g	0.05	0.05	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
1,1-Dichloroethene	µg/g	0.05	0.05	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
1,2-Dibromoethane	µg/g	0.05	0.05	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
1,2-Dichlorobenzene	µg/g	0.05	NV	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
1,2-Dichloroethane	µg/g	0.05	0.05	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
1,2-Dichloropropane	µg/g	0.05	NV	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
1,3-Dichlorobenzene	µg/g	0.05	NV	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
1,3-Dichloropropene	µg/g	0.05	NV	0.05	0.042 U	0.042 U	0.042 U	0.042 U	0.042 U
1,4-Dichlorobenzene	µg/g	0.05	NV	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Acetone	µg/g	0.5	NV	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromodichloromethane	µg/g	0.05	NV	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Bromoform	µg/g	0.05	NV	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Bromomethane	µg/g	0.05	NV	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Carbon tetrachloride	µg/g	0.05	0.05	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Chlorobenzene	µg/g	0.05	NV	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Chlorodibromomethane	µg/g	0.05	0.05	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Chloroform	µg/g	0.05	0.05	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
cis-1,2-Dichloroethene	µg/g	0.05	0.05	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
cis-1,3-Dichloropropene	µg/g	0.05	NV	0.05	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
Dichlorodifluoromethane	µg/g	0.05	NV	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Dichloromethane	µg/g	0.05	0.05	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Methyl Ethyl Ketone (2-Butanone)	µg/g	0.5	0.5	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	µg/g	0.5	0.5	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methyl tert-butyl ether (MTBE)	µg/g	0.05	0.05	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
n-Hexane	µg/g	0.05	0.05	0.05	0.05 U	0.05 U	0.05 U	**0.15**	0.05 U
Styrene	µg/g	0.05	0.05	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Tetrachloroethene	µg/g	0.05	0.05	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
trans-1,2-Dichloroethene	µg/g	0.05	0.05	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
trans-1,3-Dichloropropene	µg/g	0.05	NV	0.05	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
Trichloroethylene	µg/g	0.05	0.05	0.05	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Trichlorofluoromethane	µg/g	0.25	0.25	0.25	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Vinyl Chloride	µg/g	0.02	0.02	0.02	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U

Notes:

[a] Table 1: Full Depth Background Site Condition Standards, Residential/ Parkland/ Institutional/ Industrial/ Commercial/ Community Property Use, Coarse Textured Soils (Ministry, 2011)

[b] Developed from the Community Based Risk Assessment (CH2M, 2018)

[c] Greater value between the Sediment IV and the Table 1 SCS

Bold text identifies detected results

Shaded cells indicate the result exceeded the selected criteria

Blank cells indicate the parameter was not analyzed

µg/g = microgram(s) per gram

% = percent

BTEX = benzene, toluene, ethylbenzene, and xylenes

EW = Earth Works

F = fraction

FD = field duplicate

ID = identification

IV = intervention value

J = the analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample

mbgs = metre(s) below ground surface

mS/cm = millisiemens per centimetre

N =normal

NV = no value available

Napth = napthalene

PAH = polycyclic aromatic hydrocarbon

PHC = petroleum hydrocarbon

SCS = site condition standards

U = the analyte was not detected above the reported sample quantitation limit

VOC = volatile organic compound

Sources

Ontario Ministry of the Environment, Conservation and Parks (Ministry). 2011. Rationale for the Development of Soil and Ground Water Standards for Use at Contaminated Sites in Ontario. April 15.

CH2M HILL Canada Limited (CH2M). 2018. Revised Community Based Risk Assessment. Prepared for Waterfront Toronto. August.

Table 5. Summary of Soil Quality for Soils to Remain in Place in EW 4.3

Update to SDMA Due Diligence Study, PLFP

				Location	BHG436-18		BHG438-18
				Date	21 Mar 2019	21 Mar 2019	19 Mar 2019
				Start Depth (mbgs)	6.1	10.82	4.6
				End Depth (mbgs)	6.71	10.97	5.2
				Sample ID	S-11102463-190321-JC-BH18-443-20-22	S-11102463-190321-JC-BH18-443-35.5-36	S-11102463-031919-DD-BH18-467-4.6-5.2 MBGS
				Sample Type	N	N	N
Analyte	**Unit**	**Table 1 SCS [a]**	**Sediment IV [b]**	**Selected Criteria [c]**			
BTEX							
Benzene	µg/g	0.02	0.02	0.02	0.027 U	0.0068 U	**0.02**
Ethylbenzene	µg/g	0.05	0.05	0.05	0.072 U	0.018 U	0.018 U
Toluene	µg/g	0.2	0.2	0.2	0.32 U	0.08 U	0.08 U
Xylene, o	µg/g	NV	NV	NV	0.08 U	0.02 U	**0.02**
Xylenes, m & p	µg/g	NV	NV	NV	0.12 U	0.03 U	0.051 U
Xylenes, Total	µg/g	0.05	0.05	0.05	0.14 U	0.05 U	0.055 U
Chemistry							
pH	pH UNITS	NV	NV	NV	**7**	**8.07**	**7.27**
Chlorophenol							
2,4,5-Trichlorophenol	µg/g	0.1	NV	0.1	0.5 U		
2,4,6-Trichlorophenol	µg/g	0.1	NV	0.1	0.5 U		
2,4-Dichlorophenol	µg/g	0.1	NV	0.1	0.5 U		
2-Chlorophenol	µg/g	0.1	NV	0.1	0.5 U		
Pentachlorophenol	µg/g	0.1	NV	0.1	0.5 U		
Inorganic							
Conductivity	mS/cm	0.57	NV	0.57	**0.67**	**0.41**	**2.08**
Cyanide	µg/g	0.051	0.1	0.1	**0.24**	0.05 U	0.05 U
Sodium Adsorption Ratio	SAR	2.4	NV	2.4	**1.91**	**2.15**	**2.59**
Metal							
Antimony	µg/g	1.3	1.3	1.3	1 U	1 U	**15.7**
Arsenic	µg/g	18	6	18	**2.9**	1 U	**69**
Barium	µg/g	220	220	220	**82.1**	**16**	**444**
Beryllium	µg/g	2.5	2.5	2.5	0.5 U	0.5 U	**0.77**
Boron	µg/g	36	36	36	**6.9**	5 U	**17.1**
Boron (hot water extractable)	µg/g	NV	NV	NV	**1.69**	0.1 U	**4.26**
Cadmium	µg/g	1.2	1	1.2	0.5 U	0.5 U	**2.43**
Chromium	µg/g	70	31	70	**21.6**	**5.3**	**73.6**
Chromium, Hexavalent (Cr6+)	µg/g	0.66	NV	0.66	2 U	0.2 U	0.2 U
Cobalt	µg/g	21	50	50	**6.7**	**2.3**	**10.8**
Copper	µg/g	92	25	92	**27.2**	**7**	**823**
Lead	µg/g	120	31	120	**24.9**	**3.8**	**2590**
Mercury	µg/g	0.27	0.2	0.27	**0.05**	**0.0063**	**3.27**
Molybdenum	µg/g	2	2	2	**1.5**	1 U	**7.5**
Nickel	µg/g	82	31	82	**15.8**	**4.9**	**38.2**
Selenium	µg/g	1.5	1.5	1.5	1 U	1 U	**4.9**
Silver	µg/g	0.5	0.5	0.5	0.2 U	0.2 U	**5.16**
Thallium	µg/g	1	1	1	0.5 U	0.5 U	**0.51**
Uranium	µg/g	2.5	NV	2.5	1 U	1 U	1 U
Vanadium	µg/g	86	86	86	**24.6**	**9.2**	**30.9**
Zinc	µg/g	290	120	290	**72.8**	**13.8**	**1180**
Organochloro Pesticide							
2,4- & 4,4-DDD	µg/g	0.05	NV	0.05	0.085 U		
2,4 & 4,4-DDE	µg/g	0.05	NV	0.05	0.085 U		
2,4- & 4,4-DDT	µg/g	1.4	NV	1.4	0.42 U		
2,4'-DDD	µg/g	NV	NV	NV	0.06 U		
2,4'-DDE	µg/g	NV	NV	NV	0.06 U		
2,4'-DDT	µg/g	NV	NV	NV	0.3 U		
4,4'-DDD	µg/g	NV	NV	NV	0.06 U		
4,4'-DDE	µg/g	NV	NV	NV	0.06 U		
4,4'-DDT	µg/g	NV	NV	NV	0.3 U		
Aldrin	µg/g	0.05	NV	0.05	0.06 U		
Alpha-Chlordane	µg/g	NV	NV	NV	0.06 U		
Chlordane	µg/g	0.05	NV	0.05	0.085 U		
Chlordane (technical)	µg/g	0.05	NV	0.05	0.06 U		
Dieldrin	µg/g	0.05	NV	0.05	0.06 U		
Endosulfan	µg/g	0.04	NV	0.04	0.085 U		
Endosulfan I	µg/g	NV	NV	NV	0.06 U		
Endosulfan II	µg/g	NV	NV	NV	0.06 U		
Endrin	µg/g	0.04	NV	0.04	0.06 U		
gamma-BHC (Lindane)	µg/g	0.01	NV	0.01	0.15 U		
Heptachlor	µg/g	0.05	NV	0.05	0.06 U		
Heptachlor Epoxide	µg/g	0.05	NV	0.05	0.06 U		
Hexachlorobenzene	µg/g	0.01	NV	0.01	0.15 U		
Hexachlorobutadiene	µg/g	0.01	NV	0.01	0.15 U		
Hexachloroethane	µg/g	0.01	NV	0.01	0.15 U		
Methoxychlor	µg/g	0.05	NV	0.05	0.3 U		
PAH							
1+2-Methylnaphthalenes	µg/g	0.59	0.59	0.59	0.21 U	0.042 U	0.38 U
1-Methylnaphthalene	µg/g	0.59	NV	0.59	0.15 U	0.03 U	0.28 U
2-Methylnaphthalene	µg/g	0.59	NV	0.59	0.15 U	0.03 U	0.25 U
Acenaphthene	µg/g	0.072	0.07	0.072	0.25 U	0.05 U	**1.09**
Acenaphthylene	µg/g	0.093	0.09	0.093	0.25 U	0.05 U	**0.22**
Anthracene	µg/g	0.16	0.22	0.22	0.25 U	0.05 U	**0.53**
Benzo(a)anthracene	µg/g	0.36	0.32	0.36	0.25 U	0.05 U	**2.54**
Benzo(a)pyrene	µg/g	0.3	0.37	0.37	0.25 U	0.05 U	**2.12**
Benzo(b)fluoranthene	µg/g	0.47	NV	0.47	0.25 U	0.05 U	**2.65**
Benzo(g,h,i)perylene	µg/g	0.68	0.17	0.68	0.25 U	0.05 U	**1.41**
Benzo(k)fluoranthene	µg/g	0.48	0.24	0.48	0.25 U	0.05 U	**0.89**
Chrysene	µg/g	2.8	0.34	2.8	0.25 U	0.05 U	**2.21**
Dibenzo(a,h)anthracene	µg/g	0.1	0.06	0.1	0.25 U	0.05 U	**0.36**
Fluoranthene	µg/g	0.56	0.75	0.75	**0.29**	0.05 U	**4.55**

Table 5. Summary of Soil Quality for Soils to Remain in Place in EW 4.3

Update to SDMA Due Diligence Study, PLFP

				Location	BHG436-18		BHG438-18
				Date	21 Mar 2019	21 Mar 2019	19 Mar 2019
				Start Depth (mbgs)	6.1	10.82	4.6
				End Depth (mbgs)	6.71	10.97	5.2
				Sample ID	S-11102463-190321-JC-BH18-443-20-22	S-11102463-190321-JC-BH18-443-35.5-36	S-11102463-031919-DD-BH18-467-4.6-5.2 MBGS
				Sample Type	N	N	N
Analyte	**Unit**	**Table 1 SCS [a]**	**Sediment IV [b]**	**Selected Criteria [c]**			
Fluorene	µg/g	0.12	0.19	0.19	0.25 U	0.05 U	**0.76**
Indeno(1,2,3-Cd)Pyrene	µg/g	0.23	0.2	0.23	0.25 U	0.05 U	**1.1**
Naphthalene	µg/g	0.09	0.09	0.09	0.25 U	0.013 U	0.58 U
Phenanthrene	µg/g	0.69	0.56	0.69	**0.29**	0.046 U	**1.84**
Pyrene	µg/g	1	0.49	1	**0.28**	0.05 U	**4.01**
PCB							
Aroclor 1242	µg/g	NV	NV	NV	0.03 U		
Aroclor 1248	µg/g	NV	NV	NV	0.03 U		
Aroclor 1254	µg/g	NV	NV	NV	0.03 U		
Aroclor 1260	µg/g	NV	NV	NV	0.03 U		
Total PCBs	µg/g	0.3	0.07	0.3	0.06 U		
PHC							
F1 (C6-C10)	µg/g	25	395	395	20 U	5 U	**68.1**
F1-BTEX	µg/g	25	NV	25	20 U	5 U	**68.1**
F2 (C10-C16)	µg/g	10	395	395	**27**	10 U	**1910**
F2-Naphth	µg/g	10	NV	10	30 U	10 U	**1910**
F3 (C16-C34)	µg/g	240	395	395	**193**	50 U	**1550**
F3-PAH	µg/g	240	NV	240	**190**	50 U	**1530**
F4 (C34-C50)	µg/g	120	395	395	**99**	50 U	**215**
F4G-SG (GHH-Silica)	µg/g	120	NV	120			
Total Hydrocarbons (C6-C50)	µg/g	NV	NV	NV	220 U	72 U	**3750**
VOC							
1,1,1,2-Tetrachloroethane	µg/g	0.05	0.05	0.05	0.2 U	0.05 U	0.05 U
1,1,1-Trichloroethane	µg/g	0.05	0.05	0.05	0.2 U	0.05 U	0.05 U
1,1,2,2-Tetrachloroethane	µg/g	0.05	0.05	0.05	0.2 U	0.05 U	0.05 U
1,1,2-Trichloroethane	µg/g	0.05	0.05	0.05	0.2 U	0.05 U	0.11 U
1,1-Dichloroethane	µg/g	0.05	0.05	0.05	0.2 U	0.05 U	0.05 U
1,1-Dichloroethene	µg/g	0.05	0.05	0.05	0.2 U	0.05 U	0.05 U
1,2-Dibromoethane	µg/g	0.05	0.05	0.05	0.2 U	0.05 U	0.05 U
1,2-Dichlorobenzene	µg/g	0.05	NV	0.05	0.2 U	0.05 U	2 U
1,2-Dichloroethane	µg/g	0.05	0.05	0.05	0.2 U	0.05 U	0.05 U
1,2-Dichloropropane	µg/g	0.05	NV	0.05	0.2 U	0.05 U	0.05 U
1,3-Dichlorobenzene	µg/g	0.05	NV	0.05	0.2 U	0.05 U	2 U
1,3-Dichloropropene	µg/g	0.05	NV	0.05	0.17 U	0.042 U	0.042 U
1,4-Dichlorobenzene	µg/g	0.05	NV	0.05	0.2 U	0.05 U	2 U
Acetone	µg/g	0.5	NV	0.5	2 U	0.5 U	0.5 U
Bromodichloromethane	µg/g	0.05	NV	0.05	0.2 U	0.05 U	0.26 U
Bromoform	µg/g	0.05	NV	0.05	0.2 U	0.05 U	0.05 U
Bromomethane	µg/g	0.05	NV	0.05	0.2 U	0.05 U	0.05 U
Carbon tetrachloride	µg/g	0.05	0.05	0.05	0.2 U	0.05 U	0.05 U
Chlorobenzene	µg/g	0.05	NV	0.05	0.2 U	0.05 U	0.05 U
Chlorodibromomethane	µg/g	0.05	0.05	0.05	0.2 U	0.05 U	0.05 U
Chloroform	µg/g	0.05	0.05	0.05	0.2 U	0.05 U	0.05 U
cis-1,2-Dichloroethene	µg/g	0.05	0.05	0.05	0.2 U	0.05 U	0.05 U
cis-1,3-Dichloropropene	µg/g	0.05	NV	0.05	0.12 U	0.03 U	0.03 U
Dichlorodifluoromethane	µg/g	0.05	NV	0.05	0.2 U	0.05 U	0.05 U
Dichloromethane	µg/g	0.05	0.05	0.05	0.2 U	0.05 U	0.05 U
Methyl Ethyl Ketone (2-Butanone)	µg/g	0.5	0.5	0.5	2 U	0.5 U	0.5 U
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	µg/g	0.5	0.5	0.5	2 U	0.5 U	0.5 U
Methyl tert-butyl ether (MTBE)	µg/g	0.05	0.05	0.05	0.2 U	0.05 U	0.05 U
n-Hexane	µg/g	0.05	0.05	0.05	0.2 U	0.05 U	**0.06**
Styrene	µg/g	0.05	0.05	0.05	0.2 U	0.05 U	0.05 U
Tetrachloroethene	µg/g	0.05	0.05	0.05	0.2 U	0.05 U	0.05 U
trans-1,2-Dichloroethene	µg/g	0.05	0.05	0.05	0.2 U	0.05 U	0.05 U
trans-1,3-Dichloropropene	µg/g	0.05	NV	0.05	0.12 U	0.03 U	0.03 U
Trichloroethylene	µg/g	0.05	0.05	0.05	0.04 U	0.01 U	0.01 U
Trichlorofluoromethane	µg/g	0.25	0.25	0.25	0.2 U	0.05 U	0.05 U
Vinyl Chloride	µg/g	0.02	0.02	0.02	0.08 U	0.02 U	0.02 U

Notes:

[a] Table 1: Full Depth Background Site Condition Standards, Residential/ Parkland/ Institutional/ Industrial/ Commercial/ Community Property Use, Coarse Textured Soils (Ministry, 2011)

[b] Developed from the Community Based Risk Assessment (CH2M, 2018)

[c] Greater value between the Sediment IV and the Table 1 SCS

Bold text identifies detected results

Shaded cells indicate the result exceeded the selected criteria

Blank cells indicate the parameter was not analyzed

µg/g = microgram(s) per gram

% = percent

BTEX = benzene, toluene, ethylbenzene, and xylenes

EW = Earth Works

F = fraction

FD = field duplicate

ID = identification

IV = intervention value

J = the analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample

mbgs = metre(s) below ground surface

mS/cm = millisiemens per centimetre

N =normal

NV = no value available

Napth = napthalene

PAH = polycyclic aromatic hydrocarbon

PHC = petroleum hydrocarbon

SCS = site condition standards

U = the analyte was not detected above the reported sample quantitation limit

VOC = volatile organic compound

Sources

Ontario Ministry of the Environment, Conservation and Parks (Ministry). 2011. Rationale for the Development of Soil and Ground Water Standards for Use at Contaminated Sites in Ontario. April 15.

CH2M HILL Canada Limited (CH2M). 2018. Revised Community Based Risk Assessment. Prepared for Waterfront Toronto. August.

Table 6. Summary of Soil Quality for Soils to be Excavated within EW 4.3

Update to SDMA Due Diligence Study, PLFP

Location				BH172-18		BH173-18	
Date				22 Jan 2018	22 Jan 2018	23 Jan 2018	23 Jan 2018
Start Depth (mbgs)				0.76	2.29	0.76	2.29
End Depth (mbgs)				1.37	2.9	1.37	2.9
Sample ID				S-11102463-012218-TA-001	S-11102463-012218-TA-002	S-11102463-012318-TA-005	S-11102463-012318-TA-006
Sample Type				N	N	N	N
Chemical	**Unit**	**Table 3 SCS [a]**	**Table 9 SCS [b]**				
BTEX							
Benzene	µg/g	0.21	0.02				
Ethylbenzene	µg/g	2	0.05				
Toluene	µg/g	2.3	0.2				
Xylene, o	µg/g	NV	NV				
Xylenes, m & p	µg/g	NV	NV				
Xylenes, Total	µg/g	3.1	0.05				
Chemistry							
pH	pH UNITS	NV	NV	**7.07**	**12.02**	**6.99**	**7.07**
Chlorophenol							
2,4,5-Trichlorophenol	µg/g	4.4	0.1				
2,4,6-Trichlorophenol	µg/g	3.8	0.1				
2,4-Dichlorophenol	µg/g	1.7	0.1				
2-Chlorophenol	µg/g	1.6	0.1				
Pentachlorophenol	µg/g	0.1	0.1				
Inorganic							
Conductivity	mS/cm	0.7	0.7	**1.26**	**3.57**	**2.36**	**0.91**
Cyanide	µg/g	0.051	0.051	0.05 U	0.05 U	0.05 U	0.05 U
Sodium Adsorption Ratio	SAR	5	5	**6.81**		**0.12**	**0.22**
Metal							
Antimony	µg/g	7.5	1.3	**13.2**	**2.4**	**11.9**	**14.1**
Arsenic	µg/g	18	18	**21**	**6.4**	**27.2**	**23.8**
Barium	µg/g	390	220	**743**	**114**	**597**	**471**
Beryllium	µg/g	4	2.5	**0.63**	0.5 U	**0.73**	**0.68**
Boron	µg/g	120	36	**25.9**	**16**	**17.4**	**16.4**
Boron (hot water extractable)	µg/g	1.5	1.5	**5.98**	**0.35**	**3.07**	**2.51**
Cadmium	µg/g	1.2	1.2	**9.22**	**0.53**	**2.82**	**2.25**
Chromium	µg/g	160	70	**74.1**	**20.3**	**80.6**	**64.1**
Chromium, Hexavalent (Cr6+)	µg/g	8	0.66	0.2 U	0.2 U	0.2 U	0.2 U
Cobalt	µg/g	22	22	**9.3**	**3.6**	**8.8**	**8.5**
Copper	µg/g	140	92	**275**	**84.3**	**420**	**313**
Lead	µg/g	120	120	**1040**	**374**	**1280**	**1010**
Mercury	µg/g	0.27	0.27	**6.01**	**0.64**	**4.12**	**15.4**
Molybdenum	µg/g	6.9	2	**1.7**	**1.4**	**2.7**	**2.4**
Nickel	µg/g	100	82	**105**	**10**	**31.6**	**28.2**
Selenium	µg/g	2.4	1.5	**1.8**	1 U	**4.7**	**4.3**
Silver	µg/g	20	0.5	**1.03**	**0.23**	**2.54**	**4.02**
Thallium	µg/g	1	1	0.5 U	0.5 U	0.5 U	0.5 U
Uranium (U)	µg/g	23	2.5	1 U	1 U	1 U	1 U
Vanadium	µg/g	86	86	**21.8**	**16.5**	**29.1**	**28**
Zinc	µg/g	340	290	**1620**	**260**	**1260**	**906**
Organochloro Pesticide							
2,4- & 4,4-DDD	µg/g	3.3	0.05				
2,4 & 4,4-DDE	µg/g	0.26	0.05				
2,4- & 4,4-DDT	µg/g	1.4	1.4				
2,4'-DDD	µg/g	NV	NV				
2,4'-DDE	µg/g	NV	NV				
2,4'-DDT	µg/g	NV	NV				
4,4'-DDD	µg/g	NV	NV				
4,4'-DDE	µg/g	NV	NV				
4,4'-DDT	µg/g	NV	NV				
Aldrin	µg/g	0.05	0.05				
Alpha-Chlordane	µg/g	NV	NV				
Chlordane	µg/g	0.05	0.05				

Table 6. Summary of Soil Quality for Soils to be Excavated within EW 4.3

Update to SDMA Due Diligence Study, PLFP

			Location	BH172-18		BH173-18	
			Date	22 Jan 2018	22 Jan 2018	23 Jan 2018	23 Jan 2018
			Start Depth (mbgs)	0.76	2.29	0.76	2.29
			End Depth (mbgs)	1.37	2.9	1.37	2.9
			Sample ID	S-11102463-012218-TA-001	S-11102463-012218-TA-002	S-11102463-012318-TA-005	S-11102463-012318-TA-006
			Sample Type	N	N	N	N
Chemical	**Unit**	**Table 3 SCS [a]**	**Table 9 SCS [b]**				
Chlordane (technical)	µg/g	0.05	0.05				
Dieldrin	µg/g	0.05	0.05				
Endosulfan	µg/g	0.04	0.04				
Endosulfan I	µg/g	NV	NV				
Endosulfan II	µg/g	NV	NV				
Endrin	µg/g	0.04	0.04				
gamma-BHC (Lindane)	µg/g	0.056	0.01				
Heptachlor	µg/g	0.15	0.05				
Heptachlor Epoxide	µg/g	0.05	0.05				
Hexachlorobenzene	µg/g	0.52	0.02				
Hexachlorobutadiene	µg/g	0.012	0.01				
Hexachloroethane	µg/g	0.089	0.01				
Methoxychlor	µg/g	0.13	0.05				
PAH							
1+2-Methylnaphthalenes	µg/g	0.99	0.59				
1-Methylnaphthalene	µg/g	0.99	0.59				
2-Methylnaphthalene	µg/g	0.99	0.59				
Acenaphthene	µg/g	7.9	0.072				
Acenaphthylene	µg/g	0.15	0.093				
Anthracene	µg/g	0.67	0.22				
Benzo(a)anthracene	µg/g	0.5	0.36				
Benzo(a)pyrene	µg/g	0.3	0.3				
Benzo(b)fluoranthene	µg/g	0.78	0.47				
Benzo(g,h,i)perylene	µg/g	6.6	0.68				
Benzo(k)fluoranthene	µg/g	0.78	0.48				
Chrysene	µg/g	7	2.8				
Dibenzo(a,h)anthracene	µg/g	0.1	0.1				
Fluoranthene	µg/g	0.69	0.69				
Fluorene	µg/g	62	0.19				
Indeno(1,2,3-Cd)Pyrene	µg/g	0.38	0.23				
Naphthalene	µg/g	0.6	0.09				
Phenanthrene	µg/g	6.2	0.69				
Pyrene	µg/g	78	1				
PCB							
Aroclor 1242	µg/g	NV	NV				
Aroclor 1248	µg/g	NV	NV				
Aroclor 1254	µg/g	NV	NV				
Aroclor 1260	µg/g	NV	NV				
Total PCBs	µg/g	0.35	0.3				
PHC							
F1 (C6-C10)	µg/g	55	25				
F1-BTEX	µg/g	55	25				
F2 (C10-C16)	µg/g	98	10				
F2-Naphth	µg/g	98	10				
F3 (C16-C34)	µg/g	300	240				
F3-PAH	µg/g	300	240				
F4 (C34-C50)	µg/g	2800	120				
F4G-SG (GHH-Silica)	µg/g	2800	120				
Total Hydrocarbons (C6-C50)	µg/g	NV	NV				
VOC							
1,1,1,2-Tetrachloroethane	µg/g	0.058	0.05				
1,1,1-Trichloroethane	µg/g	0.38	0.05				
1,1,2,2-Tetrachloroethane	µg/g	0.05	0.05				
1,1,2-Trichloroethane	µg/g	0.05	0.05				

Table 6. Summary of Soil Quality for Soils to be Excavated within EW 4.3

Update to SDMA Due Diligence Study, PLFP

				Location	BH172-18		BH173-18	
				Date	22 Jan 2018	22 Jan 2018	23 Jan 2018	23 Jan 2018
				Start Depth (mbgs)	0.76	2.29	0.76	2.29
				End Depth (mbgs)	1.37	2.9	1.37	2.9
				Sample ID	S-11102463-012218-TA-001	S-11102463-012218-TA-002	S-11102463-012318-TA-005	S-11102463-012318-TA-006
				Sample Type	N	N	N	N
Chemical	Unit	Table 3 SCS [a]	Table 9 SCS [b]					
1,1-Dichloroethane	µg/g	3.5	0.05					
1,1-Dichloroethene	µg/g	0.05	0.05					
1,2-Dibromoethane	µg/g	0.05	0.05					
1,2-Dichlorobenzene	µg/g	3.4	0.05					
1,2-Dichloroethane	µg/g	0.05	0.05					
1,2-Dichloropropane	µg/g	0.05	0.05					
1,3-Dichlorobenzene	µg/g	4.8	0.05					
1,3-Dichloropropene	µg/g	0.05	0.05					
1,4-Dichlorobenzene	µg/g	0.083	0.05					
Acetone	µg/g	16	0.5					
Bromodichloromethane	µg/g	13	0.05					
Bromoform	µg/g	0.27	0.05					
Bromomethane	µg/g	0.05	0.05					
Carbon tetrachloride	µg/g	0.05	0.05					
Chlorobenzene	µg/g	2.4	0.05					
Chlorodibromomethane	µg/g	9.4	0.05					
Chloroform	µg/g	0.05	0.05					
cis-1,2-Dichloroethene	µg/g	3.4	0.05					
cis-1,3-Dichloropropene	µg/g	0.05	0.05					
Dichlorodifluoromethane	µg/g	16	0.05					
Dichloromethane	µg/g	0.1	0.05					
Methyl Ethyl Ketone (2-Butanone)	µg/g	16	0.5					
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	µg/g	1.7	0.5					
Methyl tert-butyl ether (MTBE)	µg/g	0.75	0.05					
n-Hexane	µg/g	2.8	0.05					
Styrene	µg/g	0.7	0.05					
Tetrachloroethene	µg/g	0.28	0.05					
trans-1,2-Dichloroethene	µg/g	0.084	0.05					
trans-1,3-Dichloropropene	µg/g	0.05	0.05					
Trichloroethylene	µg/g	0.061	0.05					
Trichlorofluoromethane	µg/g	4	0.25					
Vinyl Chloride	µg/g	0.02	0.02					

Notes:

Bold text identifies detected results

Shaded cells indicate the result exceeded the Table 9 SCS

Red cells indicate the result exceeded the Table 3 SCS

Blank cells indicate the parameter was not analyzed

µg/g = microgram(s) per gram

% = percent

BTEX = benzene, toluene, ethylbenzene, and xylenes

EW = Earth Works

F = fraction

FD = field duplicate

ID = identification

IV = intervention value

J = the analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample

mbgs = metre(s) below ground surface

mS/cm = millisiemens per centimetre

N =normal

NV = no value available

Napth = napthalene

PAH = polycyclic aromatic hydrocarbon

PHC = petroleum hydrocarbon

SCS = site condition standards

U = the analyte was not detected above the reported sample quantitation limit

VOC = volatile organic compound

Sources

Ontario Ministry of the Environment, Conservation and Parks (Ministry). 2011. Rationale for the Development of Soil and Ground Water Standards for Use at Contaminated Sites in Ontario. April 15.

[a.] Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition, Residential/ Parkland/ Institutional Property Use, Coarse Textured Soils (Ministry, 2011)

[b.] Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Ground Water Condition, Residential/ Parkland/ Institutional/ Industrial/ Commercial/ Community Property Use, Coarse Textured Soils (Ministry, 2011)

Table 6. Summary of Soil Quality for Soils to be Excavated within EW 4.3

Update to SDMA Due Diligence Study, PLFP

Location				BH175-18		BH176-18		BH179-17
Date				23 Jan 2018	23 Jan 2018	23 Jan 2018	23 Jan 2018	03 Apr 2017
Start Depth (mbgs)				0.76	2.29	0.76	2.29	0
End Depth (mbgs)				1.37	2.9	1.37	2.9	0.61
Sample ID				S-11102463-012318-TA-003	S-11102463-012318-TA-004	S-11102463-012318-TA-007	S-11102463-012318-TA-008	S-11102463-BH179-0 FT-2 FT
Sample Type				N	N	N	N	N
Chemical	**Unit**	**Table 3 SCS [a]**	**Table 9 SCS [b]**					
BTEX								
Benzene	µg/g	0.21	0.02					**0.26**
Ethylbenzene	µg/g	2	0.05					**0.25**
Toluene	µg/g	2.3	0.2					**0.41**
Xylene, o	µg/g	NV	NV					**0.2**
Xylenes, m & p	µg/g	NV	NV					**0.67**
Xylenes, Total	µg/g	3.1	0.05					**0.88**
Chemistry								
pH	pH UNITS	NV	NV	**7.76**	**7.44**	**7.8**	**7.1**	**7.12**
Chlorophenol								
2,4,5-Trichlorophenol	µg/g	4.4	0.1					
2,4,6-Trichlorophenol	µg/g	3.8	0.1					
2,4-Dichlorophenol	µg/g	1.7	0.1					
2-Chlorophenol	µg/g	1.6	0.1					
Pentachlorophenol	µg/g	0.1	0.1					
Inorganic								
Conductivity	mS/cm	0.7	0.7	**0.83**	**2.34**	**0.51**	**0.73**	**0.87**
Cyanide	µg/g	0.051	0.051	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Sodium Adsorption Ratio	SAR	5	5	**1.92**	**1.16**	**0.35**	**0.28**	**10.4**
Metal								
Antimony	µg/g	7.5	1.3	**6.5**	**8.4**	**31**	**13.9**	**16**
Arsenic	µg/g	18	18	**12.8**	**82.6**	**29.6**	**59.8**	**30.4**
Barium	µg/g	390	220	**140**	**445**	**960**	**328**	**412**
Beryllium	µg/g	4	2.5	**0.51**	**1.1**	**0.77**	**0.66**	**0.67**
Boron	µg/g	120	36	**9**	**20.2**	**12.7**	**34.4**	**17.9**
Boron (hot water extractable)	µg/g	1.5	1.5	**0.79**	**1.49**	**1.08**	**7.51**	**3.46**
Cadmium	µg/g	1.2	1.2	**1.09**	**3.25**	**2.96**	**2.1**	**1.79**
Chromium	µg/g	160	70	**25**	**92.3**	**170**	**52**	**28.4**
Chromium, Hexavalent (Cr6+)	µg/g	8	0.66	**0.35**	**0.64**	**0.84**	0.2 U	0.2 U
Cobalt	µg/g	22	22	**6.8**	**14.8**	**9.8**	**13.9**	**10**
Copper	µg/g	140	92	**74.7**	**473**	**460**	**317**	**333**
Lead	µg/g	120	120	**341**	**1290**	**1770**	**1100**	**1180**
Mercury	µg/g	0.27	0.27	**0.58**	**2.12**	**4.87**	**3.9**	**2.02**
Molybdenum	µg/g	6.9	2	**1.2**	**3.9**	**2.7**	**6.1**	**3.9**
Nickel	µg/g	100	82	**20.5**	**497**	**35.4**	**34.9**	**34**
Selenium	µg/g	2.4	1.5	1 U	**11.4**	**3.9**	**1.1**	**4.6**
Silver	µg/g	20	0.5	**0.54**	**5.74**	**3.04**	**0.94**	**1.1**
Thallium	µg/g	1	1	0.5 U	**0.7**	0.5 U	**0.7**	0.5 U
Uranium (U)	µg/g	23	2.5	1 U	1 U	1 U	1 U	1 U
Vanadium	µg/g	86	86	**34.4**	**32**	**31.2**	**17.3**	**27.8**
Zinc	µg/g	340	290	**407**	**1710**	**1210**	**1580**	**811**
Organochloro Pesticide								
2,4- & 4,4-DDD	µg/g	3.3	0.05					
2,4 & 4,4-DDE	µg/g	0.26	0.05					
2,4- & 4,4-DDT	µg/g	1.4	1.4					
2,4'-DDD	µg/g	NV	NV					
2,4'-DDE	µg/g	NV	NV					
2,4'-DDT	µg/g	NV	NV					
4,4'-DDD	µg/g	NV	NV					
4,4'-DDE	µg/g	NV	NV					
4,4'-DDT	µg/g	NV	NV					
Aldrin	µg/g	0.05	0.05					
Alpha-Chlordane	µg/g	NV	NV					
Chlordane	µg/g	0.05	0.05					

Table 6. Summary of Soil Quality for Soils to be Excavated within EW 4.3

Update to SDMA Due Diligence Study, PLFP

Location				BH175-18		BH176-18		BH179-17
Date				23 Jan 2018	23 Jan 2018	23 Jan 2018	23 Jan 2018	03 Apr 2017
Start Depth (mbgs)				0.76	2.29	0.76	2.29	0
End Depth (mbgs)				1.37	2.9	1.37	2.9	0.61
Sample ID				S-11102463-012318-TA-003	S-11102463-012318-TA-004	S-11102463-012318-TA-007	S-11102463-012318-TA-008	S-11102463-BH179-0 FT-2 FT
Sample Type				N	N	N	N	N
Chemical	**Unit**	**Table 3 SCS [a]**	**Table 9 SCS [b]**					
Chlordane (technical)	µg/g	0.05	0.05					
Dieldrin	µg/g	0.05	0.05					
Endosulfan	µg/g	0.04	0.04					
Endosulfan I	µg/g	NV	NV					
Endosulfan II	µg/g	NV	NV					
Endrin	µg/g	0.04	0.04					
gamma-BHC (Lindane)	µg/g	0.056	0.01					
Heptachlor	µg/g	0.15	0.05					
Heptachlor Epoxide	µg/g	0.05	0.05					
Hexachlorobenzene	µg/g	0.52	0.02					
Hexachlorobutadiene	µg/g	0.012	0.01					
Hexachloroethane	µg/g	0.089	0.01					
Methoxychlor	µg/g	0.13	0.05					
PAH								
1+2-Methylnaphthalenes	µg/g	0.99	0.59					**1.64**
1-Methylnaphthalene	µg/g	0.99	0.59					**0.92**
2-Methylnaphthalene	µg/g	0.99	0.59					**0.72**
Acenaphthene	µg/g	7.9	0.072					0.5 U
Acenaphthylene	µg/g	0.15	0.093					0.5 U
Anthracene	µg/g	0.67	0.22					**0.87**
Benzo(a)anthracene	µg/g	0.5	0.36					**2.89**
Benzo(a)pyrene	µg/g	0.3	0.3					**2.79**
Benzo(b)fluoranthene	µg/g	0.78	0.47					**3.07**
Benzo(g,h,i)perylene	µg/g	6.6	0.68					**2.57**
Benzo(k)fluoranthene	µg/g	0.78	0.48					**1.2**
Chrysene	µg/g	7	2.8					**3.43**
Dibenzo(a,h)anthracene	µg/g	0.1	0.1					**0.71**
Fluoranthene	µg/g	0.69	0.69					**3.26**
Fluorene	µg/g	62	0.19					0.5 U
Indeno(1,2,3-Cd)Pyrene	µg/g	0.38	0.23					**2.05**
Naphthalene	µg/g	0.6	0.09					**0.92**
Phenanthrene	µg/g	6.2	0.69					**2.85**
Pyrene	µg/g	78	1					**3.87**
PCB								
Aroclor 1242	µg/g	NV	NV					
Aroclor 1248	µg/g	NV	NV					
Aroclor 1254	µg/g	NV	NV					
Aroclor 1260	µg/g	NV	NV					
Total PCBs	µg/g	0.35	0.3					
PHC								
F1 (C6-C10)	µg/g	55	25					**127**
F1-BTEX	µg/g	55	25					**125**
F2 (C10-C16)	µg/g	98	10					**387**
F2-Naphth	µg/g	98	10					**386**
F3 (C16-C34)	µg/g	300	240					**1030**
F3-PAH	µg/g	300	240					**1010**
F4 (C34-C50)	µg/g	2800	120					**690**
F4G-SG (GHH-Silica)	µg/g	2800	120					**2080**
Total Hydrocarbons (C6-C50)	µg/g	NV	NV					**2240**
VOC								
1,1,1,2-Tetrachloroethane	µg/g	0.058	0.05					0.05 U
1,1,1-Trichloroethane	µg/g	0.38	0.05					0.05 U
1,1,2,2-Tetrachloroethane	µg/g	0.05	0.05					1 U
1,1,2-Trichloroethane	µg/g	0.05	0.05					0.5 U

Table 6. Summary of Soil Quality for Soils to be Excavated within EW 4.3

Update to SDMA Due Diligence Study, PLFP

			Location	BH175-18		BH176-18		BH179-17
			Date	23 Jan 2018	23 Jan 2018	23 Jan 2018	23 Jan 2018	03 Apr 2017
			Start Depth (mbgs)	0.76	2.29	0.76	2.29	0
			End Depth (mbgs)	1.37	2.9	1.37	2.9	0.61
			Sample ID	S-11102463-012318-TA-003	S-11102463-012318-TA-004	S-11102463-012318-TA-007	S-11102463-012318-TA-008	S-11102463-BH179-0 FT-2 FT
			Sample Type	N	N	N	N	N
Chemical	Unit	Table 3 SCS [a]	Table 9 SCS [b]					
1,1-Dichloroethane	µg/g	3.5	0.05					0.05 U
1,1-Dichloroethene	µg/g	0.05	0.05					0.05 U
1,2-Dibromoethane	µg/g	0.05	0.05					0.3 U
1,2-Dichlorobenzene	µg/g	3.4	0.05					0.05 U
1,2-Dichloroethane	µg/g	0.05	0.05					0.05 U
1,2-Dichloropropane	µg/g	0.05	0.05					0.05 U
1,3-Dichlorobenzene	µg/g	4.8	0.05					0.05 U
1,3-Dichloropropene	µg/g	0.05	0.05					0.042 U
1,4-Dichlorobenzene	µg/g	0.083	0.05					0.05 U
Acetone	µg/g	16	0.5					**0.95**
Bromodichloromethane	µg/g	13	0.05					0.4 U
Bromoform	µg/g	0.27	0.05					0.05 U
Bromomethane	µg/g	0.05	0.05					0.05 U
Carbon tetrachloride	µg/g	0.05	0.05					0.05 U
Chlorobenzene	µg/g	2.4	0.05					0.05 U
Chlorodibromomethane	µg/g	9.4	0.05					0.05 U
Chloroform	µg/g	0.05	0.05					0.05 U
cis-1,2-Dichloroethene	µg/g	3.4	0.05					0.05 U
cis-1,3-Dichloropropene	µg/g	0.05	0.05					0.03 U
Dichlorodifluoromethane	µg/g	16	0.05					0.05 U
Dichloromethane	µg/g	0.1	0.05					0.05 U
Methyl Ethyl Ketone (2-Butanone)	µg/g	16	0.5					**0.6 J**
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	µg/g	1.7	0.5					0.5 U
Methyl tert-butyl ether (MTBE)	µg/g	0.75	0.05					0.05 U
n-Hexane	µg/g	2.8	0.05					**0.49**
Styrene	µg/g	0.7	0.05					0.05 U
Tetrachloroethene	µg/g	0.28	0.05					0.05 U
trans-1,2-Dichloroethene	µg/g	0.084	0.05					0.05 U
trans-1,3-Dichloropropene	µg/g	0.05	0.05					0.03 U
Trichloroethylene	µg/g	0.061	0.05					0.01 U
Trichlorofluoromethane	µg/g	4	0.25					0.05 U
Vinyl Chloride	µg/g	0.02	0.02					0.02 U

Notes:

Bold text identifies detected results

Shaded cells indicate the result exceeded the Table 9 SCS

Red cells indicate the result exceeded the Table 3 SCS

Blank cells indicate the parameter was not analyzed

µg/g = microgram(s) per gram

% = percent

BTEX = benzene, toluene, ethylbenzene, and xylenes

EW = Earth Works

F = fraction

FD = field duplicate

ID = identification

IV = intervention value

J = the analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample

mbgs = metre(s) below ground surface

mS/cm = millisiemens per centimetre

N =normal

NV = no value available

Napth = napthalene

PAH = polycyclic aromatic hydrocarbon

PHC = petroleum hydrocarbon

SCS = site condition standards

U = the analyte was not detected above the reported sample quantitation limit

VOC = volatile organic compound

Sources

Ontario Ministry of the Environment, Conservation and Parks (Ministry). 2011. Rationale for the Development of Soil and Ground Water Standards for Use at Contaminated Sites in Ontario. April 15.

[a.] Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition, Residential/ Parkland/ Institutional Property Use, Coarse Textured Soils (Ministry, 2011)

[b.] Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Ground Water Condition, Residential/ Parkland/ Institutional/ Industrial/ Commercial/ Community Property Use, Coarse Textured Soils (Ministry, 2011)

Table 6. Summary of Soil Quality for Soils to be Excavated within EW 4.3

Update to SDMA Due Diligence Study, PLFP

Chemical	Unit	Table 3 SCS [a]	Table 9 SCS [b]	Location	BH444-18	BH463-18		
				Date	20 Mar 2019	20 Mar 2019	21 Mar 2019	21 Mar 2019
				Start Depth (mbgs)	0.3	0.3	3.05	4.57
				End Depth (mbgs)	0.61	0.61	3.66	5.19
				Sample ID	S-11102463-032019-JC-BH18-444-1.0-2.0	S-11102463-032019-EN-BH18-463-1-2	S-11102463-032119-EN-BH18-463-10-12	S-11102463-032119-EN-BH18-463-15-17
				Sample Type	N	N	N	N
BTEX								
Benzene	µg/g	0.21	0.02		0.0068 U	**0.01**	**0.0087**	0.0068 U
Ethylbenzene	µg/g	2	0.05		0.018 U	0.018 U	0.018 U	0.018 U
Toluene	µg/g	2.3	0.2		**0.1**	0.08 U	0.08 U	0.08 U
Xylene, o	µg/g	NV	NV		0.02 U	**0.04**	0.02 U	0.02 U
Xylenes, m & p	µg/g	NV	NV		**0.03**	**0.06**	0.03 U	0.03 U
Xylenes, Total	µg/g	3.1	0.05		0.05 U	**0.1**	0.05 U	0.05 U
Chemistry								
pH	pH UNITS	NV	NV		**7.54**	**6.76**	**6.84**	**7.24**
Chlorophenol								
2,4,5-Trichlorophenol	µg/g	4.4	0.1		0.1 U	0.2 U	0.2 U	
2,4,6-Trichlorophenol	µg/g	3.8	0.1		0.1 U	0.2 U	0.2 U	
2,4-Dichlorophenol	µg/g	1.7	0.1		0.1 U	0.2 U	0.2 U	
2-Chlorophenol	µg/g	1.6	0.1		0.1 U	0.2 U	0.2 U	
Pentachlorophenol	µg/g	0.1	0.1		0.1 U	0.2 U	0.2 U	
Inorganic								
Conductivity	mS/cm	0.7	0.7		**0.2**	**0.19**	**0.35**	**0.58**
Cyanide	µg/g	0.051	0.051		0.05 U	0.05 U	0.05 U	0.05 U
Sodium Adsorption Ratio	SAR	5	5		**0.64**	**0.23**	**0.73**	**3.15**
Metal								
Antimony	µg/g	7.5	1.3		**3**	**2**	**15.9**	1 U
Arsenic	µg/g	18	18		**4.3**	**5.7**	**30.8**	**2.6**
Barium	µg/g	390	220		**98.9**	**106**	**369**	**110**
Beryllium	µg/g	4	2.5		0.5 U	0.5 U	**1.25**	**0.61**
Boron	µg/g	120	36		**5.9**	**6.4**	**11.2**	**11.5**
Boron (hot water extractable)	µg/g	1.5	1.5		**0.4**	**0.35**	**2.54**	**6.85**
Cadmium	µg/g	1.2	1.2		**1.59**	**1.09**	**0.95**	0.5 U
Chromium	µg/g	160	70		**31**	**30.4**	**104**	**30.3**
Chromium, Hexavalent (Cr6+)	µg/g	8	0.66		0.2 U	**6.26**	**0.56**	**2.4**
Cobalt	µg/g	22	22		**6.1**	**7.1**	**14.4**	**8.6**
Copper	µg/g	140	92		**61.3**	**52.9**	**650**	**17.7**
Lead	µg/g	120	120		**190**	**192**	**1370**	**11.8**
Mercury	µg/g	0.27	0.27		**0.3**	**0.33**	**0.81**	**0.03**
Molybdenum	µg/g	6.9	2		**1.3**	1 U	**4.9**	1 U
Nickel	µg/g	100	82		**17.4**	**19.4**	**38.7**	**17.8**
Selenium	µg/g	2.4	1.5		1 U	1 U	**1.1**	1 U
Silver	µg/g	20	0.5		**0.63**	**0.4**	**0.65**	0.2 U
Thallium	µg/g	1	1		0.5 U	0.5 U	0.5 U	0.5 U
Uranium (U)	µg/g	23	2.5		1 U	1 U	1 U	1 U
Vanadium	µg/g	86	86		**23**	**27.8**	**43.1**	**38.9**
Zinc	µg/g	340	290		**151**	**216**	**852**	**51.9**
Organochloro Pesticide								
2,4- & 4,4-DDD	µg/g	3.3	0.05		0.028 U	0.028 U	0.028 U	
2,4 & 4,4-DDE	µg/g	0.26	0.05		0.028 U	0.028 U	0.028 U	
2,4- & 4,4-DDT	µg/g	1.4	1.4		0.1 U	0.1 U	0.1 U	
2,4'-DDD	µg/g	NV	NV		0.02 U	0.02 U	0.02 U	
2,4'-DDE	µg/g	NV	NV		0.02 U	0.02 U	0.02 U	
2,4'-DDT	µg/g	NV	NV		0.02 U	0.02 U	0.02 U	
4,4'-DDD	µg/g	NV	NV		0.02 U	0.02 U	0.02 U	
4,4'-DDE	µg/g	NV	NV		0.02 U	0.02 U	0.02 U	
4,4'-DDT	µg/g	NV	NV		0.1 U	0.1 U	0.1 U	
Aldrin	µg/g	0.05	0.05		0.02 U	0.02 U	0.02 U	
Alpha-Chlordane	µg/g	NV	NV		0.02 U	0.02 U	0.02 U	
Chlordane	µg/g	0.05	0.05		0.028 U	0.028 U	0.028 U	

Table 6. Summary of Soil Quality for Soils to be Excavated within EW 4.3

Update to SDMA Due Diligence Study, PLFP

				Location	BH444-18	BH463-18		
				Date	20 Mar 2019	20 Mar 2019	21 Mar 2019	21 Mar 2019
				Start Depth (mbgs)	0.3	0.3	3.05	4.57
				End Depth (mbgs)	0.61	0.61	3.66	5.19
				Sample ID	S-11102463-032019-JC-BH18-444-1.0-2.0	S-11102463-032019-EN-BH18-463-1-2	S-11102463-032119-EN-BH18-463-10-12	S-11102463-032119-EN-BH18-463-15-17
				Sample Type	N	N	N	N
Chemical	**Unit**	**Table 3 SCS [a]**	**Table 9 SCS [b]**					
Chlordane (technical)	µg/g	0.05	0.05		0.02 U	0.02 U	0.02 U	
Dieldrin	µg/g	0.05	0.05		0.02 U	0.02 U	0.02 U	
Endosulfan	µg/g	0.04	0.04		0.028 U	0.028 U	0.028 U	
Endosulfan I	µg/g	NV	NV		0.02 U	0.02 U	0.02 U	
Endosulfan II	µg/g	NV	NV		0.02 U	0.02 U	0.02 U	
Endrin	µg/g	0.04	0.04		0.02 U	0.02 U	0.02 U	
gamma-BHC (Lindane)	µg/g	0.056	0.01		0.05 U	0.05 U	0.05 U	
Heptachlor	µg/g	0.15	0.05		0.02 U	0.02 U	0.02 U	
Heptachlor Epoxide	µg/g	0.05	0.05		0.02 U	0.02 U	0.02 U	
Hexachlorobenzene	µg/g	0.52	0.02		0.05 U	0.05 U	0.05 U	
Hexachlorobutadiene	µg/g	0.012	0.01		0.05 U	0.05 U	0.05 U	
Hexachloroethane	µg/g	0.089	0.01		0.05 U	0.05 U	0.05 U	
Methoxychlor	µg/g	0.13	0.05		0.1 U	0.1 U	0.1 U	
PAH								
1+2-Methylnaphthalenes	µg/g	0.99	0.59		**0.21**	**0.35**	**1.23**	0.042 U
1-Methylnaphthalene	µg/g	0.99	0.59		**0.09**	**0.14**	**1.02**	0.03 U
2-Methylnaphthalene	µg/g	0.99	0.59		**0.12**	**0.21**	**0.2**	0.03 U
Acenaphthene	µg/g	7.9	0.072		**0.14**	**0.41**	**0.64**	0.05 U
Acenaphthylene	µg/g	0.15	0.093		0.05 U	0.1 U	0.1 U	0.05 U
Anthracene	µg/g	0.67	0.22		**0.12**	**1.27**	**0.67**	0.05 U
Benzo(a)anthracene	µg/g	0.5	0.36		**0.29**	**1.28**	**0.78**	0.05 U
Benzo(a)pyrene	µg/g	0.3	0.3		**0.27**	**0.84**	**0.61**	0.05 U
Benzo(b)fluoranthene	µg/g	0.78	0.47		**0.28**	**0.88**	**0.61**	0.05 U
Benzo(g,h,i)perylene	µg/g	6.6	0.68		**0.23**	**0.57**	**0.43**	0.05 U
Benzo(k)fluoranthene	µg/g	0.78	0.48		**0.19**	**0.62**	**0.42**	0.05 U
Chrysene	µg/g	7	2.8		**0.32**	**1.12**	**0.69**	0.05 U
Dibenzo(a,h)anthracene	µg/g	0.1	0.1		0.05 U	**0.16**	0.1 U	0.05 U
Fluoranthene	µg/g	0.69	0.69		**0.69**	**3.15**	**1.8**	0.05 U
Fluorene	µg/g	62	0.19		**0.15**	**0.7**	**1.03**	0.05 U
Indeno(1,2,3-Cd)Pyrene	µg/g	0.38	0.23		**0.24**	**0.64**	**0.47**	0.05 U
Naphthalene	µg/g	0.6	0.09		**0.08**	**0.33**	0.2 U	0.013 U
Phenanthrene	µg/g	6.2	0.69		**0.65**	**4.34**	**2.13**	**0.04**
Pyrene	µg/g	78	1		**0.61**	**2.37**	**1.38**	0.05 U
PCB								
Aroclor 1242	µg/g	NV	NV		0.01 U	0.01 U	0.02 U	
Aroclor 1248	µg/g	NV	NV		0.01 U	0.01 U	0.01 U	
Aroclor 1254	µg/g	NV	NV		0.015 U	0.025 U	0.02 U	
Aroclor 1260	µg/g	NV	NV		**0.05**	**0.05**	0.01 U	
Total PCBs	µg/g	0.35	0.3		**0.05**	**0.05**	0.035 U	
PHC								
F1 (C6-C10)	µg/g	55	25		5 U	5 U	100 U	5 U
F1-BTEX	µg/g	55	25		5 U	5 U	100 U	5 U
F2 (C10-C16)	µg/g	98	10		10 U	10 U	**2020**	10 U
F2-Naphth	µg/g	98	10		10 U	10 U	**2020**	10 U
F3 (C16-C34)	µg/g	300	240		**79**	**172**	**1180**	50 U
F3-PAH	µg/g	300	240		**76**	**158**	**1170**	50 U
F4 (C34-C50)	µg/g	2800	120		50 U	**348**	50 U	50 U
F4G-SG (GHH-Silica)	µg/g	2800	120			**1280**		
Total Hydrocarbons (C6-C50)	µg/g	NV	NV		**79**	**520**	**3200**	72 U
VOC								
1,1,1,2-Tetrachloroethane	µg/g	0.058	0.05		0.05 U	0.05 U	0.05 U	0.05 U
1,1,1-Trichloroethane	µg/g	0.38	0.05		0.05 U	0.05 U	0.05 U	0.05 U
1,1,2,2-Tetrachloroethane	µg/g	0.05	0.05		0.05 U	0.05 U	0.05 U	0.05 U
1,1,2-Trichloroethane	µg/g	0.05	0.05		0.05 U	0.05 U	0.05 U	0.05 U

Table 6. Summary of Soil Quality for Soils to be Excavated within EW 4.3

Update to SDMA Due Diligence Study, PLFP

Chemical	Unit	Table 3 SCS [a]	Table 9 SCS [b]	Location	BH444-18	BH463-18		
				Date	20 Mar 2019	20 Mar 2019	21 Mar 2019	21 Mar 2019
				Start Depth (mbgs)	0.3	0.3	3.05	4.57
				End Depth (mbgs)	0.61	0.61	3.66	5.19
				Sample ID	S-11102463-032019-JC-BH18-444-1.0-2.0	S-11102463-032019-EN-BH18-463-1-2	S-11102463-032119-EN-BH18-463-10-12	S-11102463-032119-EN-BH18-463-15-17
				Sample Type	N	N	N	N
1,1-Dichloroethane	µg/g	3.5	0.05		0.05 U	0.05 U	0.05 U	0.05 U
1,1-Dichloroethene	µg/g	0.05	0.05		0.05 U	0.05 U	0.05 U	0.05 U
1,2-Dibromoethane	µg/g	0.05	0.05		0.05 U	0.05 U	0.05 U	0.05 U
1,2-Dichlorobenzene	µg/g	3.4	0.05		0.05 U	0.05 U	1 U	0.05 U
1,2-Dichloroethane	µg/g	0.05	0.05		0.05 U	0.05 U	0.05 U	0.05 U
1,2-Dichloropropane	µg/g	0.05	0.05		0.05 U	0.05 U	0.05 U	0.05 U
1,3-Dichlorobenzene	µg/g	4.8	0.05		0.05 U	0.05 U	1 U	0.05 U
1,3-Dichloropropene	µg/g	0.05	0.05		0.042 U	0.042 U	0.042 U	0.042 U
1,4-Dichlorobenzene	µg/g	0.083	0.05		0.05 U	0.05 U	1 U	0.05 U
Acetone	µg/g	16	0.5		0.5 U	0.5 U	0.5 U	0.5 U
Bromodichloromethane	µg/g	13	0.05		0.05 U	0.05 U	0.06 U	0.05 U
Bromoform	µg/g	0.27	0.05		0.05 U	0.05 U	0.05 U	0.05 U
Bromomethane	µg/g	0.05	0.05		0.05 U	0.05 U	0.05 U	0.05 U
Carbon tetrachloride	µg/g	0.05	0.05		0.05 U	0.05 U	0.05 U	0.05 U
Chlorobenzene	µg/g	2.4	0.05		0.05 U	0.05 U	0.05 U	0.05 U
Chlorodibromomethane	µg/g	9.4	0.05		0.05 U	0.05 U	0.05 U	0.05 U
Chloroform	µg/g	0.05	0.05		0.05 U	0.05 U	0.05 U	0.05 U
cis-1,2-Dichloroethene	µg/g	3.4	0.05		0.05 U	0.05 U	0.05 U	0.05 U
cis-1,3-Dichloropropene	µg/g	0.05	0.05		0.03 U	0.03 U	0.03 U	0.03 U
Dichlorodifluoromethane	µg/g	16	0.05		0.05 U	0.05 U	0.05 U	0.05 U
Dichloromethane	µg/g	0.1	0.05		0.05 U	0.05 U	0.05 U	0.05 U
Methyl Ethyl Ketone (2-Butanone)	µg/g	16	0.5		0.5 U	0.5 U	0.5 U	0.5 U
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	µg/g	1.7	0.5		0.5 U	0.5 U	0.5 U	0.5 U
Methyl tert-butyl ether (MTBE)	µg/g	0.75	0.05		0.05 U	0.05 U	0.05 U	0.05 U
n-Hexane	µg/g	2.8	0.05		0.05 U	0.05 U	0.05 U	0.05 U
Styrene	µg/g	0.7	0.05		0.05 U	0.05 U	0.05 U	0.05 U
Tetrachloroethene	µg/g	0.28	0.05		0.05 U	0.05 U	0.05 U	0.05 U
trans-1,2-Dichloroethene	µg/g	0.084	0.05		0.05 U	0.05 U	0.05 U	0.05 U
trans-1,3-Dichloropropene	µg/g	0.05	0.05		0.03 U	0.03 U	0.03 U	0.03 U
Trichloroethylene	µg/g	0.061	0.05		0.01 U	0.01 U	0.01 U	0.01 U
Trichlorofluoromethane	µg/g	4	0.25		0.05 U	0.05 U	0.05 U	0.05 U
Vinyl Chloride	µg/g	0.02	0.02		0.02 U	0.02 U	0.02 U	0.02 U

Notes:

Bold text identifies detected results

Shaded cells indicate the result exceeded the Table 9 SCS

Red cells indicate the result exceeded the Table 3 SCS

Blank cells indicate the parameter was not analyzed

µg/g = microgram(s) per gram

% = percent

BTEX = benzene, toluene, ethylbenzene, and xylenes

EW = Earth Works

F = fraction

FD = field duplicate

ID = identification

IV = intervention value

J = the analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample

mbgs = metre(s) below ground surface

mS/cm = millisiemens per centimetre

N =normal

NV = no value available

Napth = napthalene

PAH = polycyclic aromatic hydrocarbon

PHC = petroleum hydrocarbon

SCS = site condition standards

U = the analyte was not detected above the reported sample quantitation limit

VOC = volatile organic compound

Sources

Ontario Ministry of the Environment, Conservation and Parks (Ministry). 2011. Rationale for the Development of Soil and Ground Water Standards for Use at Contaminated Sites in Ontario. April 15.

[a.] Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition, Residential/ Parkland/ Institutional Property Use, Coarse Textured Soils (Ministry, 2011)

[b.] Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Ground Water Condition, Residential/ Parkland/ Institutional/ Industrial/ Commercial/ Community Property Use, Coarse Textured Soils (Ministry, 2011)

Table 6. Summary of Soil Quality for Soils to be Excavated within EW 4.3

Update to SDMA Due Diligence Study, PLFP

Location				BH464-18		
Date				22 Nov 2018	22 Nov 2018	22 Nov 2018
Start Depth (mbgs)				0.76	0.76	3.81
End Depth (mbgs)				1.37	1.37	4.42
Sample ID				S-11102463-112218-SM-BH18-464-DUP	S-11102463-112218-SM-BH18-464-2.5-4.5	S-11102463-112218-SM-BH18-464-12.5-14.5
Sample Type				FD	N	N
Chemical	**Unit**	**Table 3 SCS [a]**	**Table 9 SCS [b]**			
BTEX						
Benzene	µg/g	0.21	0.02		**0.17**	**0.15**
Ethylbenzene	µg/g	2	0.05		**0.11**	**0.14**
Toluene	µg/g	2.3	0.2		**0.27**	**0.32**
Xylene, o	µg/g	NV	NV		**0.18**	**0.16**
Xylenes, m & p	µg/g	NV	NV		**0.34**	**0.43**
Xylenes, Total	µg/g	3.1	0.05		**0.53**	**0.59**
Chemistry						
pH	pH UNITS	NV	NV	**7.42**	**7.24**	**7.08**
Chlorophenol						
2,4,5-Trichlorophenol	µg/g	4.4	0.1		0.2 U	0.6 U
2,4,6-Trichlorophenol	µg/g	3.8	0.1		0.2 U	0.6 U
2,4-Dichlorophenol	µg/g	1.7	0.1		0.2 U	0.2 U
2-Chlorophenol	µg/g	1.6	0.1		0.2 U	0.2 U
Pentachlorophenol	µg/g	0.1	0.1		0.2 U	0.2 U
Inorganic						
Conductivity	mS/cm	0.7	0.7	**0.27**	**0.47**	**1.54**
Cyanide	µg/g	0.051	0.051	0.05 U	0.05 U	**0.11**
Sodium Adsorption Ratio	SAR	5	5	**0.39**	**0.34**	**1.42**
Metal						
Antimony	µg/g	7.5	1.3	**12.9**	**12.2**	**32.2**
Arsenic	µg/g	18	18	**15.7**	**20.1**	**49**
Barium	µg/g	390	220	**327**	**384**	**167**
Beryllium	µg/g	4	2.5	**0.66**	**0.75**	**0.61**
Boron	µg/g	120	36	**11.7**	**10.7**	**37.4**
Boron (hot water extractable)	µg/g	1.5	1.5	**0.52**	**0.72**	**1.48**
Cadmium	µg/g	1.2	1.2	**1.8**	**2.16**	**8.4**
Chromium	µg/g	160	70	**56.4**	**96**	**72.1**
Chromium, Hexavalent (Cr6+)	µg/g	8	0.66	**0.27 J**	**1.38 J**	0.2 U
Cobalt	µg/g	22	22	**9.4**	**8.2**	**15**
Copper	µg/g	140	92	**270**	**288**	**9310**
Lead	µg/g	120	120	**819**	**1160**	**10300**
Mercury	µg/g	0.27	0.27	**1.66**	**2.83**	**9.65**
Molybdenum	µg/g	6.9	2	**1.9**	**2.1**	**4.2**
Nickel	µg/g	100	82	**52.4**	**28.5**	**49.1**
Selenium	µg/g	2.4	1.5	**1.3**	**2.1**	**2.2**
Silver	µg/g	20	0.5	**2.24**	**4.56**	**2.9**
Thallium	µg/g	1	1	0.5 U	0.5 U	0.5 U
Uranium (U)	µg/g	23	2.5	1 U	1 U	1 U
Vanadium	µg/g	86	86	**32.9**	**27**	**24.6**
Zinc	µg/g	340	290	**648**	**727**	**2260**
Organochloro Pesticide						
2,4- & 4,4-DDD	µg/g	3.3	0.05		0.057 U	0.16 U
2,4 & 4,4-DDE	µg/g	0.26	0.05		0.057 U	0.057 U
2,4- & 4,4-DDT	µg/g	1.4	1.4		0.057 U	0.089 U
2,4'-DDD	µg/g	NV	NV		0.04 U	0.08 U
2,4'-DDE	µg/g	NV	NV		0.04 U	0.04 U
2,4'-DDT	µg/g	NV	NV		0.04 U	0.08 U
4,4'-DDD	µg/g	NV	NV		0.04 U	0.14 U
4,4'-DDE	µg/g	NV	NV		0.04 U	0.04 U
4,4'-DDT	µg/g	NV	NV		0.04 U	0.04 U
Aldrin	µg/g	0.05	0.05		0.04 U	0.08 U
Alpha-Chlordane	µg/g	NV	NV		0.04 U	0.04 U
Chlordane	µg/g	0.05	0.05		0.057 U	0.057 U

Table 6. Summary of Soil Quality for Soils to be Excavated within EW 4.3

Update to SDMA Due Diligence Study, PLFP

Location					BH464-18	
Date				22 Nov 2018	22 Nov 2018	22 Nov 2018
Start Depth (mbgs)				0.76	0.76	3.81
End Depth (mbgs)				1.37	1.37	4.42
Sample ID				S-11102463-112218-SM-BH18-464-DUP	S-11102463-112218-SM-BH18-464-2.5-4.5	S-11102463-112218-SM-BH18-464-12.5-14.5
Sample Type				FD	N	N
Chemical	**Unit**	**Table 3 SCS [a]**	**Table 9 SCS [b]**			
Chlordane (technical)	µg/g	0.05	0.05		0.04 U	0.04 U
Dieldrin	µg/g	0.05	0.05		0.04 U	0.46 U
Endosulfan	µg/g	0.04	0.04		0.081 U	0.55 U
Endosulfan I	µg/g	NV	NV		0.07 U	0.35 U
Endosulfan II	µg/g	NV	NV		0.04 U	0.43 U
Endrin	µg/g	0.04	0.04		0.04 U	0.2 U
gamma-BHC (Lindane)	µg/g	0.056	0.01		0.05 U	7.5 U
Heptachlor	µg/g	0.15	0.05		0.04 U	0.14 U
Heptachlor Epoxide	µg/g	0.05	0.05		0.04 U	0.04 U
Hexachlorobenzene	µg/g	0.52	0.02		0.05 U	0.05 U
Hexachlorobutadiene	µg/g	0.012	0.01		0.05 U	0.05 U
Hexachloroethane	µg/g	0.089	0.01		0.05 U	0.05 U
Methoxychlor	µg/g	0.13	0.05		0.08 U	0.8 U
PAH						
1+2-Methylnaphthalenes	µg/g	0.99	0.59		**0.83**	1.2 U
1-Methylnaphthalene	µg/g	0.99	0.59		**0.35**	0.7 U
2-Methylnaphthalene	µg/g	0.99	0.59		**0.48**	1 U
Acenaphthene	µg/g	7.9	0.072		0.1 U	**2.25**
Acenaphthylene	µg/g	0.15	0.093		0.1 U	0.15 U
Anthracene	µg/g	0.67	0.22		**0.23**	**1.07**
Benzo(a)anthracene	µg/g	0.5	0.36		**0.96**	**1.61**
Benzo(a)pyrene	µg/g	0.3	0.3		**1.05**	**1.76**
Benzo(b)fluoranthene	µg/g	0.78	0.47		**0.79**	**1.58**
Benzo(g,h,i)perylene	µg/g	6.6	0.68		**0.83**	**2.74**
Benzo(k)fluoranthene	µg/g	0.78	0.48		**1.05**	**1.08**
Chrysene	µg/g	7	2.8		**1.11**	**1.9**
Dibenzo(a,h)anthracene	µg/g	0.1	0.1		**0.18**	**0.44**
Fluoranthene	µg/g	0.69	0.69		**1.79**	**2.94**
Fluorene	µg/g	62	0.19		0.1 U	**5.16**
Indeno(1,2,3-Cd)Pyrene	µg/g	0.38	0.23		**0.78**	**2.35**
Naphthalene	µg/g	0.6	0.09		**0.83**	1.2 U
Phenanthrene	µg/g	6.2	0.69		**1.15**	**5.61**
Pyrene	µg/g	78	1		**1.78**	**3.17**
PCB						
Aroclor 1242	µg/g	NV	NV		0.01 U	0.2 U
Aroclor 1248	µg/g	NV	NV		0.01 U	0.02 U
Aroclor 1254	µg/g	NV	NV		0.045 U	0.02 U
Aroclor 1260	µg/g	NV	NV		**0.04**	0.02 U
Total PCBs	µg/g	0.35	0.3		0.05 U	0.21 U
PHC						
F1 (C6-C10)	µg/g	55	25		**5.5**	**14.3**
F1-BTEX	µg/g	55	25		5 U	**13.1**
F2 (C10-C16)	µg/g	98	10		**21**	**14400**
F2-Naphth	µg/g	98	10		**20**	**14400**
F3 (C16-C34)	µg/g	300	240		**358**	**7830**
F3-PAH	µg/g	300	240		**348**	**7800**
F4 (C34-C50)	µg/g	2800	120		**146**	**670**
F4G-SG (GHH-Silica)	µg/g	2800	120		**400**	
Total Hydrocarbons (C6-C50)	µg/g	NV	NV		**531**	**22900**
VOC						
1,1,1,2-Tetrachloroethane	µg/g	0.058	0.05		0.05 U	0.05 U
1,1,1-Trichloroethane	µg/g	0.38	0.05		0.05 U	0.05 U
1,1,2,2-Tetrachloroethane	µg/g	0.05	0.05		0.05 U	1 U
1,1,2-Trichloroethane	µg/g	0.05	0.05		0.05 U	0.05 U

Table 6. Summary of Soil Quality for Soils to be Excavated within EW 4.3

Update to SDMA Due Diligence Study, PLFP

				Location	BH464-18	
				Date	22 Nov 2018	22 Nov 2018
				Start Depth (mbgs)	0.76	0.76
				End Depth (mbgs)	1.37	1.37
				Sample ID	S-11102463-112218-SM-BH18-464-DUP	S-11102463-112218-SM-BH18-464-2.5-4.5
				Sample Type	FD	N
Chemical	Unit	Table 3 SCS [a]	Table 9 SCS [b]			
1,1-Dichloroethane	µg/g	3.5	0.05		0.05 U	0.05 U
1,1-Dichloroethene	µg/g	0.05	0.05		0.05 U	0.05 U
1,2-Dibromoethane	µg/g	0.05	0.05		0.05 U	0.12 U
1,2-Dichlorobenzene	µg/g	3.4	0.05		0.05 U	0.05 U
1,2-Dichloroethane	µg/g	0.05	0.05		0.05 U	0.05 U
1,2-Dichloropropane	µg/g	0.05	0.05		0.05 U	0.05 U
1,3-Dichlorobenzene	µg/g	4.8	0.05		0.05 U	0.05 U
1,3-Dichloropropene	µg/g	0.05	0.05		0.042 U	0.042 U
1,4-Dichlorobenzene	µg/g	0.083	0.05		0.05 U	0.05 U
Acetone	µg/g	16	0.5		0.5 U	0.5 U
Bromodichloromethane	µg/g	13	0.05		0.07 U	0.05 U
Bromoform	µg/g	0.27	0.05		0.05 U	0.05 U
Bromomethane	µg/g	0.05	0.05		0.05 U	0.05 U
Carbon tetrachloride	µg/g	0.05	0.05		0.05 U	0.05 U
Chlorobenzene	µg/g	2.4	0.05		0.05 U	0.05 U
Chlorodibromomethane	µg/g	9.4	0.05		0.05 U	0.05 U
Chloroform	µg/g	0.05	0.05		0.05 U	0.05 U
cis-1,2-Dichloroethene	µg/g	3.4	0.05		0.05 U	0.05 U
cis-1,3-Dichloropropene	µg/g	0.05	0.05		0.03 U	0.03 U
Dichlorodifluoromethane	µg/g	16	0.05		0.05 U	0.05 U
Dichloromethane	µg/g	0.1	0.05		0.05 U	0.05 U
Methyl Ethyl Ketone (2-Butanone)	µg/g	16	0.5		0.5 U	0.5 U
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	µg/g	1.7	0.5		0.5 U	0.5 U
Methyl tert-butyl ether (MTBE)	µg/g	0.75	0.05		0.05 U	0.05 U
n-Hexane	µg/g	2.8	0.05		**0.61**	**0.6**
Styrene	µg/g	0.7	0.05		0.05 U	0.05 U
Tetrachloroethene	µg/g	0.28	0.05		0.05 U	0.05 U
trans-1,2-Dichloroethene	µg/g	0.084	0.05		0.05 U	0.05 U
trans-1,3-Dichloropropene	µg/g	0.05	0.05		0.03 U	0.03 U
Trichloroethylene	µg/g	0.061	0.05		0.01 U	0.01 U
Trichlorofluoromethane	µg/g	4	0.25		0.05 U	0.05 U
Vinyl Chloride	µg/g	0.02	0.02		0.02 U	0.02 U

Notes:

Bold text identifies detected results

Shaded cells indicate the result exceeded the Table 9 SCS

Red cells indicate the result exceeded the Table 3 SCS

Blank cells indicate the parameter was not analyzed

µg/g = microgram(s) per gram

% = percent

BTEX = benzene, toluene, ethylbenzene, and xylenes

EW = Earth Works

F = fraction

FD = field duplicate

ID = identification

IV = intervention value

J = the analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample

mbgs = metre(s) below ground surface

mS/cm = millisiemens per centimetre

N =normal

NV = no value available

Napth = napthalene

PAH = polycyclic aromatic hydrocarbon

PHC = petroleum hydrocarbon

SCS = site condition standards

U = the analyte was not detected above the reported sample quantitation limit

VOC = volatile organic compound

Sources

Ontario Ministry of the Environment, Conservation and Parks (Ministry). 2011. Rationale for the Development of Soil and Ground Water Standards for Use at Contaminated Sites in Ontario. April 15.

[a.] Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition, Residential/ Parkland/ Institutional Property Use, Coarse Textured Soils (Ministry, 2011)

[b.] Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Ground Water Condition, Residential/ Parkland/ Institutional/ Industrial/ Commercial/ Community Property Use, Coarse Textured Soils (Ministry, 2011)

Table 6. Summary of Soil Quality for Soils to be Excavated within EW 4.3

Update to SDMA Due Diligence Study, PLFP

Chemical	Unit	Table 3 SCS [a]	Table 9 SCS [b]	Location		
				Date	22 Nov 2018	22 Nov 2018	22 Nov 2018
				Start Depth (mbgs)	6.1	6.1	0
				End Depth (mbgs)	6.71	6.71	0.61
				Sample ID	S-11102463-112218-SM-BH18-464-DUP2	S-11102463-112218-SM-BH18-464-20-22	S-11102463-112218-SM-BH18-466-0-2
				Sample Type	FD	N	N
BTEX							
Benzene	µg/g	0.21	0.02		0.017 U	**0.01**	**0.1**
Ethylbenzene	µg/g	2	0.05		0.045 U	0.018 U	**0.08**
Toluene	µg/g	2.3	0.2		0.2 U	0.08 U	**0.29**
Xylene, o	µg/g	NV	NV		0.05 U	0.02 U	**0.21**
Xylenes, m & p	µg/g	NV	NV		0.075 U	0.03 U	**0.35**
Xylenes, Total	µg/g	3.1	0.05		0.09 U	0.05 U	**0.56**
Chemistry							
pH	pH UNITS	NV	NV			**6.96**	**7.49**
Chlorophenol							
2,4,5-Trichlorophenol	µg/g	4.4	0.1				0.2 U
2,4,6-Trichlorophenol	µg/g	3.8	0.1				0.2 U
2,4-Dichlorophenol	µg/g	1.7	0.1				0.2 U
2-Chlorophenol	µg/g	1.6	0.1				0.2 U
Pentachlorophenol	µg/g	0.1	0.1				0.2 U
Inorganic							
Conductivity	mS/cm	0.7	0.7			1.14	**0.4**
Cyanide	µg/g	0.051	0.051			0.05 U	0.05 U
Sodium Adsorption Ratio	SAR	5	5			9.2	**0.44**
Metal							
Antimony	µg/g	7.5	1.3			**1.2**	48.1
Arsenic	µg/g	18	18			**3.9**	**16.4**
Barium	µg/g	390	220			**133**	**363**
Beryllium	µg/g	4	2.5			**0.76**	**0.65**
Boron	µg/g	120	36			**5**	**13.1**
Boron (hot water extractable)	µg/g	1.5	1.5			**0.47**	**1.08**
Cadmium	µg/g	1.2	1.2			0.5 U	5.33
Chromium	µg/g	160	70			**29.2**	**48.2**
Chromium, Hexavalent (Cr6+)	µg/g	8	0.66			1 U	0.2 U
Cobalt	µg/g	22	22			**9.2**	**12.5**
Copper	µg/g	140	92			**43**	633
Lead	µg/g	120	120			131	1780
Mercury	µg/g	0.27	0.27			**0.09**	1.82
Molybdenum	µg/g	6.9	2			1 U	**3.9**
Nickel	µg/g	100	82			**18.8**	202
Selenium	µg/g	2.4	1.5			1 U	**1.6**
Silver	µg/g	20	0.5			0.2 U	**2.64**
Thallium	µg/g	1	1			0.5 U	0.5 U
Uranium (U)	µg/g	23	2.5			1 U	**2.2**
Vanadium	µg/g	86	86			**42.5**	**36.1**
Zinc	µg/g	340	290			**86.5**	1380
Organochloro Pesticide							
2,4- & 4,4-DDD	µg/g	3.3	0.05				0.057 U
2,4 & 4,4-DDE	µg/g	0.26	0.05				0.057 U
2,4- & 4,4-DDT	µg/g	1.4	1.4				0.057 U
2,4'-DDD	µg/g	NV	NV				0.04 U
2,4'-DDE	µg/g	NV	NV				0.04 U
2,4'-DDT	µg/g	NV	NV				0.04 U
4,4'-DDD	µg/g	NV	NV				0.04 U
4,4'-DDE	µg/g	NV	NV				0.04 U
4,4'-DDT	µg/g	NV	NV				0.04 U
Aldrin	µg/g	0.05	0.05				0.04 U
Alpha-Chlordane	µg/g	NV	NV				0.04 U
Chlordane	µg/g	0.05	0.05				0.057 U

Table 6. Summary of Soil Quality for Soils to be Excavated within EW 4.3

Update to SDMA Due Diligence Study, PLFP

Chemical	Unit	Table 3 SCS [a]	Table 9 SCS [b]	Location		
				Date	22 Nov 2018	22 Nov 2018	22 Nov 2018
				Start Depth (mbgs)	6.1	6.1	0
				End Depth (mbgs)	6.71	6.71	0.61
				Sample ID	S-11102463-112218-SM-BH18-464-DUP2	S-11102463-112218-SM-BH18-464-20-22	S-11102463-112218-SM-BH18-466-0-2
				Sample Type	FD	N	N
Chlordane (technical)	µg/g	0.05	0.05			0.04 U
Dieldrin	µg/g	0.05	0.05			0.04 U
Endosulfan	µg/g	0.04	0.04			0.73 U
Endosulfan I	µg/g	NV	NV			0.72 U
Endosulfan II	µg/g	NV	NV			0.09 U
Endrin	µg/g	0.04	0.04			0.06 U
gamma-BHC (Lindane)	µg/g	0.056	0.01			0.15 U
Heptachlor	µg/g	0.15	0.05			0.04 U
Heptachlor Epoxide	µg/g	0.05	0.05			0.04 U
Hexachlorobenzene	µg/g	0.52	0.02			0.05 U
Hexachlorobutadiene	µg/g	0.012	0.01			0.05 U
Hexachloroethane	µg/g	0.089	0.01			0.05 U
Methoxychlor	µg/g	0.13	0.05			0.48 U
PAH						
1+2-Methylnaphthalenes	µg/g	0.99	0.59		0.00081 U	**0.32**
1-Methylnaphthalene	µg/g	0.99	0.59		0.075 U	**0.15**
2-Methylnaphthalene	µg/g	0.99	0.59		0.03 U	**0.17**
Acenaphthene	µg/g	7.9	0.072		**0.07**	**0.15**
Acenaphthylene	µg/g	0.15	0.093		0.05 U	**0.16**
Anthracene	µg/g	0.67	0.22		**0.05**	**0.54**
Benzo(a)anthracene	µg/g	0.5	0.36		**0.08**	**1.67**
Benzo(a)pyrene	µg/g	0.3	0.3		**0.07**	**1.88**
Benzo(b)fluoranthene	µg/g	0.78	0.47		**0.09**	**1.31**
Benzo(g,h,i)perylene	µg/g	6.6	0.68		**0.09**	**1.24**
Benzo(k)fluoranthene	µg/g	0.78	0.48		**0.05**	**1.62**
Chrysene	µg/g	7	2.8		**0.1**	**1.58**
Dibenzo(a,h)anthracene	µg/g	0.1	0.1		0.05 U	**0.25**
Fluoranthene	µg/g	0.69	0.69		**0.19**	**3.27**
Fluorene	µg/g	62	0.19		**0.17**	**0.22**
Indeno(1,2,3-Cd)Pyrene	µg/g	0.38	0.23		**0.07**	**1.28**
Naphthalene	µg/g	0.6	0.09		0.06 U	**0.27**
Phenanthrene	µg/g	6.2	0.69		**0.26**	**2.31**
Pyrene	µg/g	78	1		**0.18**	**3.08**
PCB						
Aroclor 1242	µg/g	NV	NV			0.03 U
Aroclor 1248	µg/g	NV	NV			0.01 U
Aroclor 1254	µg/g	NV	NV			**0.68**
Aroclor 1260	µg/g	NV	NV			**0.47**
Total PCBs	µg/g	0.35	0.3			**1.16**
PHC						
F1 (C6-C10)	µg/g	55	25		**8.8**	**5.6**
F1-BTEX	µg/g	55	25		**8.8**	5 U
F2 (C10-C16)	µg/g	98	10		**166**	**13**
F2-Naphth	µg/g	98	10		**166**	**13**
F3 (C16-C34)	µg/g	300	240		**120**	**458**
F3-PAH	µg/g	300	240		**119**	**441**
F4 (C34-C50)	µg/g	2800	120		50 U	**268**
F4G-SG (GHH-Silica)	µg/g	2800	120			**610**
Total Hydrocarbons (C6-C50)	µg/g	NV	NV		**295**	**744**
VOC						
1,1,1,2-Tetrachloroethane	µg/g	0.058	0.05	0.13 U	0.05 U	0.05 U
1,1,1-Trichloroethane	µg/g	0.38	0.05	0.13 U	0.05 U	0.05 U
1,1,2,2-Tetrachloroethane	µg/g	0.05	0.05	0.13 U	0.05 U	0.05 U
1,1,2-Trichloroethane	µg/g	0.05	0.05	0.13 U	0.05 U	0.05 U

Table 6. Summary of Soil Quality for Soils to be Excavated within EW 4.3

Update to SDMA Due Diligence Study, PLFP

Chemical	Unit	Table 3 SCS [a]	Table 9 SCS [b]	Location		
				Date	22 Nov 2018	22 Nov 2018	22 Nov 2018
				Start Depth (mbgs)	6.1	6.1	0
				End Depth (mbgs)	6.71	6.71	0.61
				Sample ID	S-11102463-112218-SM-BH18-464-DUP2	S-11102463-112218-SM-BH18-464-20-22	S-11102463-112218-SM-BH18-466-0-2
				Sample Type	FD	N	N
1,1-Dichloroethane	µg/g	3.5	0.05		0.13 U	0.05 U	0.05 U
1,1-Dichloroethene	µg/g	0.05	0.05		0.13 U	0.05 U	0.05 U
1,2-Dibromoethane	µg/g	0.05	0.05		0.13 U	0.05 U	0.05 U
1,2-Dichlorobenzene	µg/g	3.4	0.05		0.13 U	0.05 U	0.05 U
1,2-Dichloroethane	µg/g	0.05	0.05		0.13 U	0.05 U	0.05 U
1,2-Dichloropropane	µg/g	0.05	0.05		0.13 U	0.05 U	0.05 U
1,3-Dichlorobenzene	µg/g	4.8	0.05		0.13 U	0.05 U	0.05 U
1,3-Dichloropropene	µg/g	0.05	0.05		0.11 U	0.042 U	0.042 U
1,4-Dichlorobenzene	µg/g	0.083	0.05		0.13 U	0.05 U	0.05 U
Acetone	µg/g	16	0.5		**1.3**	**0.65**	0.5 U
Bromodichloromethane	µg/g	13	0.05		0.13 U	**0.06**	0.055 U
Bromoform	µg/g	0.27	0.05		0.13 U	0.05 U	0.05 U
Bromomethane	µg/g	0.05	0.05		0.13 U	0.05 U	0.05 U
Carbon tetrachloride	µg/g	0.05	0.05		0.13 U	0.05 U	0.05 U
Chlorobenzene	µg/g	2.4	0.05		0.13 U	0.05 U	0.05 U
Chlorodibromomethane	µg/g	9.4	0.05		0.13 U	0.05 U	0.05 U
Chloroform	µg/g	0.05	0.05		0.13 U	0.05 U	0.05 U
cis-1,2-Dichloroethene	µg/g	3.4	0.05		0.13 U	0.05 U	0.05 U
cis-1,3-Dichloropropene	µg/g	0.05	0.05		0.075 U	0.03 U	0.03 U
Dichlorodifluoromethane	µg/g	16	0.05		0.13 U	0.05 U	0.05 U
Dichloromethane	µg/g	0.1	0.05		0.13 U	0.05 U	0.05 U
Methyl Ethyl Ketone (2-Butanone)	µg/g	16	0.5		1.3 U	0.5 U	0.5 U
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	µg/g	1.7	0.5		1.3 U	0.5 U	0.5 U
Methyl tert-butyl ether (MTBE)	µg/g	0.75	0.05		0.13 U	0.05 U	0.05 U
n-Hexane	µg/g	2.8	0.05		**0.2 J**	0.05 UJ	**0.42**
Styrene	µg/g	0.7	0.05		0.13 U	0.05 U	0.05 U
Tetrachloroethene	µg/g	0.28	0.05		0.13 U	0.05 U	0.05 U
trans-1,2-Dichloroethene	µg/g	0.084	0.05		0.13 U	0.05 U	0.05 U
trans-1,3-Dichloropropene	µg/g	0.05	0.05		0.075 U	0.03 U	0.03 U
Trichloroethylene	µg/g	0.061	0.05		0.025 U	0.01 U	0.01 U
Trichlorofluoromethane	µg/g	4	0.25		0.13 U	0.05 U	0.05 U
Vinyl Chloride	µg/g	0.02	0.02		0.05 U	0.02 U	0.02 U

Notes:

Bold text identifies detected results

Shaded cells indicate the result exceeded the Table 9 SCS

Red cells indicate the result exceeded the Table 3 SCS

Blank cells indicate the parameter was not analyzed

µg/g = microgram(s) per gram

% = percent

BTEX = benzene, toluene, ethylbenzene, and xylenes

EW = Earth Works

F = fraction

FD = field duplicate

ID = identification

IV = intervention value

J = the analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample

mbgs = metre(s) below ground surface

mS/cm = millisiemens per centimetre

N =normal

NV = no value available

Napth = napthalene

PAH = polycyclic aromatic hydrocarbon

PHC = petroleum hydrocarbon

SCS = site condition standards

U = the analyte was not detected above the reported sample quantitation limit

VOC = volatile organic compound

Sources

Ontario Ministry of the Environment, Conservation and Parks (Ministry). 2011. Rationale for the Development of Soil and Ground Water Standards for Use at Contaminated Sites in Ontario. April 15.

[a.] Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition, Residential/ Parkland/ Institutional Property Use, Coarse Textured Soils (Ministry, 2011)

[b.] Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Ground Water Condition, Residential/ Parkland/ Institutional/ Industrial/ Commercial/ Community Property Use, Coarse Textured Soils (Ministry, 2011)

Table 6. Summary of Soil Quality for Soils to be Excavated within EW 4.3

Update to SDMA Due Diligence Study, PLFP

				Location	BH466-18		
				Date	22 Nov 2018	22 Nov 2018	22 Nov 2018
				Start Depth (mbgs)	3.05	5.33	5.33
				End Depth (mbgs)	3.66	5.94	5.94
				Sample ID	S-11102463-112218-SM-BH18-466-10-12	S-11102463-112218-SM-BH18-466-DUP3	S-11102463-112218-SM-BH18-466-17.5-19.5
				Sample Type	N	FD	N
Chemical	**Unit**	**Table 3 SCS [a]**	**Table 9 SCS [b]**				
BTEX							
Benzene	µg/g	0.21	0.02	0.22		**0.03**
Ethylbenzene	µg/g	2	0.05	**0.19**		0.058 U
Toluene	µg/g	2.3	0.2	**0.36**		0.26 U
Xylene, o	µg/g	NV	NV	**0.18**		0.064 U
Xylenes, m & p	µg/g	NV	NV	**0.57**		0.096 U
Xylenes, Total	µg/g	3.1	0.05	**0.75**		0.12 U
Chemistry						
pH	pH UNITS	NV	NV	**7.05**		**7.2**
Chlorophenol						
2,4,5-Trichlorophenol	µg/g	4.4	0.1	0.2 U		
2,4,6-Trichlorophenol	µg/g	3.8	0.1	0.2 U		
2,4-Dichlorophenol	µg/g	1.7	0.1	0.2 U		
2-Chlorophenol	µg/g	1.6	0.1	0.2 U		
Pentachlorophenol	µg/g	0.1	0.1	0.2 U		
Inorganic						
Conductivity	mS/cm	0.7	0.7	0.9		0.71
Cyanide	µg/g	0.051	0.051	0.05 U		0.05 U
Sodium Adsorption Ratio	SAR	5	5	**1.52**		**2.3**
Metal						
Antimony	µg/g	7.5	1.3	15.7		1 U
Arsenic	µg/g	18	18	24		**4.3**
Barium	µg/g	390	220	529		**116**
Beryllium	µg/g	4	2.5	**0.72**		0.5 U
Boron	µg/g	120	36	**16.2**		**11.4**
Boron (hot water extractable)	µg/g	1.5	1.5	2.04		5.2
Cadmium	µg/g	1.2	1.2	3.11		0.5 U
Chromium	µg/g	160	70	**82**		**18.8**
Chromium, Hexavalent (Cr6+)	µg/g	8	0.66	0.2 U		1 U
Cobalt	µg/g	22	22	**8.9**		**5**
Copper	µg/g	140	92	337		**29.8**
Lead	µg/g	120	120	968		**76.8**
Mercury	µg/g	0.27	0.27	4.16		**0.27**
Molybdenum	µg/g	6.9	2	**2.1**		1 U
Nickel	µg/g	100	82	**31.4**		**12**
Selenium	µg/g	2.4	1.5	**2.3**		1 U
Silver	µg/g	20	0.5	**3.33**		0.2 U
Thallium	µg/g	1	1	0.5 U		0.5 U
Uranium (U)	µg/g	23	2.5	1 U		1 U
Vanadium	µg/g	86	86	**27.1**		**21.9**
Zinc	µg/g	340	290	1030		**122**
Organochloro Pesticide						
2,4- & 4,4-DDD	µg/g	3.3	0.05	0.089 U		
2,4 & 4,4-DDE	µg/g	0.26	0.05	0.072 U		
2,4- & 4,4-DDT	µg/g	1.4	1.4	0.057 U		
2,4'-DDD	µg/g	NV	NV	0.04 U		
2,4'-DDE	µg/g	NV	NV	0.04 U		
2,4'-DDT	µg/g	NV	NV	0.04 U		
4,4'-DDD	µg/g	NV	NV	0.08 U		
4,4'-DDE	µg/g	NV	NV	0.06 U		
4,4'-DDT	µg/g	NV	NV	0.04 U		
Aldrin	µg/g	0.05	0.05	0.04 U		
Alpha-Chlordane	µg/g	NV	NV	0.04 U		
Chlordane	µg/g	0.05	0.05	0.057 U		

Table 6. Summary of Soil Quality for Soils to be Excavated within EW 4.3

Update to SDMA Due Diligence Study, PLFP

				Location	BH466-18		
				Date	22 Nov 2018	22 Nov 2018	22 Nov 2018
				Start Depth (mbgs)	3.05	5.33	5.33
				End Depth (mbgs)	3.66	5.94	5.94
				Sample ID	S-11102463-112218-SM-BH18-466-10-12	S-11102463-112218-SM-BH18-466-DUP3	S-11102463-112218-SM-BH18-466-17.5-19.5
				Sample Type	N	FD	N
Chemical	**Unit**	**Table 3 SCS [a]**	**Table 9 SCS [b]**				
Chlordane (technical)	µg/g	0.05	0.05		0.04 U		
Dieldrin	µg/g	0.05	0.05		0.06 U		
Endosulfan	µg/g	0.04	0.04		0.28 U		
Endosulfan I	µg/g	NV	NV		0.24 U		
Endosulfan II	µg/g	NV	NV		0.14 U		
Endrin	µg/g	0.04	0.04		0.04 U		
gamma-BHC (Lindane)	µg/g	0.056	0.01		1 U		
Heptachlor	µg/g	0.15	0.05		0.06 U		
Heptachlor Epoxide	µg/g	0.05	0.05		0.04 U		
Hexachlorobenzene	µg/g	0.52	0.02		0.05 U		
Hexachlorobutadiene	µg/g	0.012	0.01		0.05 U		
Hexachloroethane	µg/g	0.089	0.01		0.05 U		
Methoxychlor	µg/g	0.13	0.05		0.16 U		
PAH							
1+2-Methylnaphthalenes	µg/g	0.99	0.59		**0.29**	**0.21 J**	0.042 UJ
1-Methylnaphthalene	µg/g	0.99	0.59		**0.13**	**0.13 J**	0.03 UJ
2-Methylnaphthalene	µg/g	0.99	0.59		**0.16**	**0.08**	0.03 U
Acenaphthene	µg/g	7.9	0.072		**0.18**	**0.16 J**	**0.06 J**
Acenaphthylene	µg/g	0.15	0.093		0.1 U	0.075 U	0.05 U
Anthracene	µg/g	0.67	0.22		**0.26**	**0.1**	0.05 U
Benzo(a)anthracene	µg/g	0.5	0.36		**0.86**	**0.26 J**	**0.13 J**
Benzo(a)pyrene	µg/g	0.3	0.3		**0.86**	**0.21**	**0.13**
Benzo(b)fluoranthene	µg/g	0.78	0.47		**0.69**	**0.17**	**0.09**
Benzo(g,h,i)perylene	µg/g	6.6	0.68		**0.48**	**0.13**	**0.08**
Benzo(k)fluoranthene	µg/g	0.78	0.48		**0.9**	**0.14**	**0.1**
Chrysene	µg/g	7	2.8		**0.9**	**0.29 J**	**0.18 J**
Dibenzo(a,h)anthracene	µg/g	0.1	0.1		**0.12**	0.075 U	0.05 U
Fluoranthene	µg/g	0.69	0.69		**1.72**	**0.54**	**0.29**
Fluorene	µg/g	62	0.19		**0.22**	**0.18 J**	**0.07 J**
Indeno(1,2,3-Cd)Pyrene	µg/g	0.38	0.23		**0.52**	**0.11**	**0.06**
Naphthalene	µg/g	0.6	0.09		**0.22**	**0.16 J**	**0.02 J**
Phenanthrene	µg/g	6.2	0.69		**0.89**	**0.35 J**	**0.21 J**
Pyrene	µg/g	78	1		**1.48**	**0.59**	**0.37**
PCB							
Aroclor 1242	µg/g	NV	NV		0.03 U		
Aroclor 1248	µg/g	NV	NV		0.02 U		
Aroclor 1254	µg/g	NV	NV		0.02 U		
Aroclor 1260	µg/g	NV	NV		**0.14**		
Total PCBs	µg/g	0.35	0.3		**0.14**		
PHC							
F1 (C6-C10)	µg/g	55	25		**27**		16 U
F1-BTEX	µg/g	55	25		**25.4**		16 U
F2 (C10-C16)	µg/g	98	10		**683**		**21**
F2-Naphth	µg/g	98	10		**683**		**21**
F3 (C16-C34)	µg/g	300	240		**1030**		**137**
F3-PAH	µg/g	300	240		**1020**		**136**
F4 (C34-C50)	µg/g	2800	120		**177**		50 U
F4G-SG (GHH-Silica)	µg/g	2800	120		**770**		
Total Hydrocarbons (C6-C50)	µg/g	NV	NV		**1920**		**158**
VOC							
1,1,1,2-Tetrachloroethane	µg/g	0.058	0.05		0.05 U		0.16 U
1,1,1-Trichloroethane	µg/g	0.38	0.05		0.05 U		0.16 U
1,1,2,2-Tetrachloroethane	µg/g	0.05	0.05		1.3 U		0.16 U
1,1,2-Trichloroethane	µg/g	0.05	0.05		0.05 U		0.16 U

Table 6. Summary of Soil Quality for Soils to be Excavated within EW 4.3

Update to SDMA Due Diligence Study, PLFP

				Location	BH466-18		
				Date	22 Nov 2018	22 Nov 2018	22 Nov 2018
				Start Depth (mbgs)	3.05	5.33	5.33
				End Depth (mbgs)	3.66	5.94	5.94
				Sample ID	S-11102463-112218-SM-BH18-466-10-12	S-11102463-112218-SM-BH18-466-DUP3	S-11102463-112218-SM-BH18-466-17.5-19.5
				Sample Type	N	FD	N
Chemical	Unit	Table 3 SCS [a]	Table 9 SCS [b]				
1,1-Dichloroethane	µg/g	3.5	0.05		0.05 U		0.16 U
1,1-Dichloroethene	µg/g	0.05	0.05		0.05 U		0.16 U
1,2-Dibromoethane	µg/g	0.05	0.05		0.25 U		0.16 U
1,2-Dichlorobenzene	µg/g	3.4	0.05		0.05 U		0.16 U
1,2-Dichloroethane	µg/g	0.05	0.05		0.05 U		0.16 U
1,2-Dichloropropane	µg/g	0.05	0.05		0.05 U		0.16 U
1,3-Dichlorobenzene	µg/g	4.8	0.05		0.05 U		0.16 U
1,3-Dichloropropene	µg/g	0.05	0.05		0.042 U		0.14 U
1,4-Dichlorobenzene	µg/g	0.083	0.05		0.05 U		0.16 U
Acetone	µg/g	16	0.5		**0.71**		1.6 U
Bromodichloromethane	µg/g	13	0.05		0.05 U		0.16 U
Bromoform	µg/g	0.27	0.05		0.05 U		0.16 U
Bromomethane	µg/g	0.05	0.05		0.05 U		0.16 U
Carbon tetrachloride	µg/g	0.05	0.05		0.05 U		0.16 U
Chlorobenzene	µg/g	2.4	0.05		0.05 U		0.16 U
Chlorodibromomethane	µg/g	9.4	0.05		0.05 U		0.16 U
Chloroform	µg/g	0.05	0.05		0.05 U		0.16 U
cis-1,2-Dichloroethene	µg/g	3.4	0.05		0.05 U		0.16 U
cis-1,3-Dichloropropene	µg/g	0.05	0.05		0.03 U		0.096 U
Dichlorodifluoromethane	µg/g	16	0.05		0.05 U		0.16 U
Dichloromethane	µg/g	0.1	0.05		0.05 U		0.16 U
Methyl Ethyl Ketone (2-Butanone)	µg/g	16	0.5		0.5 U		1.6 U
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	µg/g	1.7	0.5		0.5 U		1.6 U
Methyl tert-butyl ether (MTBE)	µg/g	0.75	0.05		0.05 U		0.16 U
n-Hexane	µg/g	2.8	0.05		**0.63**		0.16 U
Styrene	µg/g	0.7	0.05		0.05 U		0.16 U
Tetrachloroethene	µg/g	0.28	0.05		0.05 U		0.16 U
trans-1,2-Dichloroethene	µg/g	0.084	0.05		0.05 U		0.16 U
trans-1,3-Dichloropropene	µg/g	0.05	0.05		0.03 U		0.096 U
Trichloroethylene	µg/g	0.061	0.05		0.01 U		0.032 U
Trichlorofluoromethane	µg/g	4	0.25		0.05 U		0.16 U
Vinyl Chloride	µg/g	0.02	0.02		0.02 U		0.064 U

Notes:

Bold text identifies detected results

Shaded cells indicate the result exceeded the Table 9 SCS

Red cells indicate the result exceeded the Table 3 SCS

Blank cells indicate the parameter was not analyzed

µg/g = microgram(s) per gram

% = percent

BTEX = benzene, toluene, ethylbenzene, and xylenes

EW = Earth Works

F = fraction

FD = field duplicate

ID = identification

IV = intervention value

J = the analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample

mbgs = metre(s) below ground surface

mS/cm = millisiemens per centimetre

N =normal

NV = no value available

Napth = napthalene

PAH = polycyclic aromatic hydrocarbon

PHC = petroleum hydrocarbon

SCS = site condition standards

U = the analyte was not detected above the reported sample quantitation limit

VOC = volatile organic compound

Sources

Ontario Ministry of the Environment, Conservation and Parks (Ministry). 2011. Rationale for the Development of Soil and Ground Water Standards for Use at Contaminated Sites in Ontario. April 15.

[a.] Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition, Residential/ Parkland/ Institutional Property Use, Coarse Textured Soils (Ministry, 2011)

[b.] Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Ground Water Condition, Residential/ Parkland/ Institutional/ Industrial/ Commercial/ Community Property Use, Coarse Textured Soils (Ministry, 2011)

Table 6. Summary of Soil Quality for Soils to be Excavated within EW 4.3

Update to SDMA Due Diligence Study, PLFP

				Location	BH468-18	BHG274-18	
				Date	20 Mar 2019	20 Mar 2019	20 Mar 2019
				Start Depth (mbgs)	0.1	1	2.8
				End Depth (mbgs)	0.61	1.5	3.4
				Sample ID	S-11102463-032019-EN-BH18-468-4-2	S-11102463-032019-DD-BH18-441-1.0-1.5	S-11102463-032019-DD-BH18-441-2.8-3.4
				Sample Type	N	N	N
Chemical	**Unit**	**Table 3 SCS [a]**	**Table 9 SCS [b]**				
BTEX							
Benzene	µg/g	0.21	0.02		**0.03**	**0.11**	**0.15**
Ethylbenzene	µg/g	2	0.05		**0.03**	**0.08**	**0.16**
Toluene	µg/g	2.3	0.2		**0.11**	**0.36**	**0.2**
Xylene, o	µg/g	NV	NV		**0.08**	**0.22**	**0.13**
Xylenes, m & p	µg/g	NV	NV		**0.13**	**0.44**	**0.63**
Xylenes, Total	µg/g	3.1	0.05		**0.21**	**0.66**	**0.77**
Chemistry							
pH	pH UNITS	NV	NV		**9.12**	**7.9**	**7.84**
Chlorophenol							
2,4,5-Trichlorophenol	µg/g	4.4	0.1		0.2 U	0.1 U	0.4 U
2,4,6-Trichlorophenol	µg/g	3.8	0.1		0.2 U	0.1 U	0.2 U
2,4-Dichlorophenol	µg/g	1.7	0.1		0.2 U	0.1 U	0.2 U
2-Chlorophenol	µg/g	1.6	0.1		0.2 U	0.1 U	0.2 U
Pentachlorophenol	µg/g	0.1	0.1		0.2 U	0.1 U	0.2 U
Inorganic							
Conductivity	mS/cm	0.7	0.7		**0.55**	**2.28**	**10.4**
Cyanide	µg/g	0.051	0.051		0.05 U	0.05 U	0.05 U
Sodium Adsorption Ratio	SAR	5	5		**0.87**	**26.5**	**52.8**
Metal							
Antimony	µg/g	7.5	1.3		**4.3**	**2.4**	**13**
Arsenic	µg/g	18	18		**10.4**	**5.8**	**21.2**
Barium	µg/g	390	220		**141**	**63.2**	**317**
Beryllium	µg/g	4	2.5		**0.5**	0.5 U	**0.72**
Boron	µg/g	120	36		**10.9**	5 U	**11.8**
Boron (hot water extractable)	µg/g	1.5	1.5		**0.61**	**0.5**	**1.28**
Cadmium	µg/g	1.2	1.2		**1.34**	0.5 U	**1.36**
Chromium	µg/g	160	70		**79.5**	**15.7**	**34.9**
Chromium, Hexavalent (Cr6+)	µg/g	8	0.66		0.2 U	0.2 U	0.2 U
Cobalt	µg/g	22	22		**8.3**	**3.8**	**8.3**
Copper	µg/g	140	92		**93**	**31.3**	**419**
Lead	µg/g	120	120		**784**	**126**	**1320**
Mercury	µg/g	0.27	0.27		**0.59**	**0.21**	**1.15**
Molybdenum	µg/g	6.9	2		**2.3**	1 U	**2.7**
Nickel	µg/g	100	82		**24.1**	**10.1**	**31.6**
Selenium	µg/g	2.4	1.5		1 U	1 U	**2.7**
Silver	µg/g	20	0.5		**0.63**	0.2 U	**1.23**
Thallium	µg/g	1	1		0.5 U	0.5 U	0.5 U
Uranium (U)	µg/g	23	2.5		1 U	1 U	1 U
Vanadium	µg/g	86	86		**25.6**	**19.5**	**27.5**
Zinc	µg/g	340	290		**319**	**87.6**	**822**
Organochloro Pesticide							
2,4- & 4,4-DDD	µg/g	3.3	0.05		**0.28**	0.14 U	0.57 U
2,4 & 4,4-DDE	µg/g	0.26	0.05		**0.11**	0.14 U	0.57 U
2,4- & 4,4-DDT	µg/g	1.4	1.4		**0.12**	0.22 U	0.57 U
2,4'-DDD	µg/g	NV	NV		**0.08**	0.1 U	0.4 U
2,4'-DDE	µg/g	NV	NV		0.02 U	0.1 U	0.4 U
2,4'-DDT	µg/g	NV	NV		0.02 U	0.1 U	0.4 U
4,4'-DDD	µg/g	NV	NV		**0.2**	0.1 U	0.4 U
4,4'-DDE	µg/g	NV	NV		**0.11**	0.1 U	0.4 U
4,4'-DDT	µg/g	NV	NV		**0.12**	0.2 U	0.4 U
Aldrin	µg/g	0.05	0.05		0.02 U	0.1 U	0.4 U
Alpha-Chlordane	µg/g	NV	NV		0.02 U	0.1 U	0.4 U
Chlordane	µg/g	0.05	0.05		0.028 U	0.14 U	0.57 U

Table 6. Summary of Soil Quality for Soils to be Excavated within EW 4.3

Update to SDMA Due Diligence Study, PLFP

				Location	BH468-18	BHG274-18	
				Date	20 Mar 2019	20 Mar 2019	20 Mar 2019
				Start Depth (mbgs)	0.1	1	2.8
				End Depth (mbgs)	0.61	1.5	3.4
				Sample ID	S-11102463-032019-EN-BH18-468-4-2	S-11102463-032019-DD-BH18-441-1.0-1.5	S-11102463-032019-DD-BH18-441-2.8-3.4
				Sample Type	N	N	N
Chemical	**Unit**	**Table 3 SCS [a]**	**Table 9 SCS [b]**				
Chlordane (technical)	µg/g	0.05	0.05		0.02 U	0.1 U	0.4 U
Dieldrin	µg/g	0.05	0.05		0.02 U	0.1 U	0.4 U
Endosulfan	µg/g	0.04	0.04		0.028 U	0.14 U	0.57 U
Endosulfan I	µg/g	NV	NV		0.02 U	0.1 U	0.4 U
Endosulfan II	µg/g	NV	NV		0.02 U	0.1 U	0.4 U
Endrin	µg/g	0.04	0.04		0.02 U	0.1 U	0.4 U
gamma-BHC (Lindane)	µg/g	0.056	0.01		0.05 U	0.05 U	1.3 U
Heptachlor	µg/g	0.15	0.05		0.02 U	0.1 U	0.4 U
Heptachlor Epoxide	µg/g	0.05	0.05		0.02 U	0.1 U	0.4 U
Hexachlorobenzene	µg/g	0.52	0.02		0.05 U	0.05 U	0.2 U
Hexachlorobutadiene	µg/g	0.012	0.01		0.05 U	0.05 U	0.2 U
Hexachloroethane	µg/g	0.089	0.01		0.05 U	0.05 U	0.2 U
Methoxychlor	µg/g	0.13	0.05		0.1 U	0.2 U	0.4 U
PAH							
1+2-Methylnaphthalenes	µg/g	0.99	0.59		**1.18**	**0.63**	**11.2**
1-Methylnaphthalene	µg/g	0.99	0.59		**0.62**	**0.27**	**6.8**
2-Methylnaphthalene	µg/g	0.99	0.59		**0.55**	**0.36**	**4.39**
Acenaphthene	µg/g	7.9	0.072		**3.38**	**0.09**	**2.64**
Acenaphthylene	µg/g	0.15	0.093		**1**	**0.05**	**0.17**
Anthracene	µg/g	0.67	0.22		**16.8**	**0.18**	**2.74**
Benzo(a)anthracene	µg/g	0.5	0.36		**27.4**	**0.56**	**5.48**
Benzo(a)pyrene	µg/g	0.3	0.3		**22.1**	**0.63**	**6.61**
Benzo(b)fluoranthene	µg/g	0.78	0.47		**23.7**	**0.61**	**6.61**
Benzo(g,h,i)perylene	µg/g	6.6	0.68		**12.9**	**0.38**	**3.61**
Benzo(k)fluoranthene	µg/g	0.78	0.48		**16.4**	**0.41**	**3.99**
Chrysene	µg/g	7	2.8		**25.2**	**0.67**	**6.56**
Dibenzo(a,h)anthracene	µg/g	0.1	0.1		**3.16**	**0.1**	**0.73**
Fluoranthene	µg/g	0.69	0.69		**68.1**	**0.83**	**10**
Fluorene	µg/g	62	0.19		**8.1**	**0.07**	**4.74**
Indeno(1,2,3-Cd)Pyrene	µg/g	0.38	0.23		**15.4**	**0.39**	**4.36**
Naphthalene	µg/g	0.6	0.09		**0.34**	**0.4**	**2.73**
Phenanthrene	µg/g	6.2	0.69		**59**	**0.83**	**7.6**
Pyrene	µg/g	78	1		**47.9**	**0.77**	**9.48**
PCB							
Aroclor 1242	µg/g	NV	NV		0.015 U	0.01 U	0.3 U
Aroclor 1248	µg/g	NV	NV		0.01 U	0.01 U	0.1 U
Aroclor 1254	µg/g	NV	NV		0.045 U	0.01 U	0.1 U
Aroclor 1260	µg/g	NV	NV		**0.11**	0.02 U	0.1 U
Total PCBs	µg/g	0.35	0.3		**0.11**	0.03 U	0.35 U
PHC							
F1 (C6-C10)	µg/g	55	25		5 U	**7**	**800**
F1-BTEX	µg/g	55	25		5 U	**5.8**	**800**
F2 (C10-C16)	µg/g	98	10		**26**	**19**	**3050**
F2-Naphth	µg/g	98	10		**26**	**18**	**3050**
F3 (C16-C34)	µg/g	300	240		**710**	**326**	**16700**
F3-PAH	µg/g	300	240		**430**	**321**	**16600**
F4 (C34-C50)	µg/g	2800	120		**270**	**349**	**7870**
F4G-SG (GHH-Silica)	µg/g	2800	120		**750**	**890**	**19100**
Total Hydrocarbons (C6-C50)	µg/g	NV	NV		**1000**	**701**	**28400**
VOC							
1,1,1,2-Tetrachloroethane	µg/g	0.058	0.05		0.05 U	0.05 U	0.05 U
1,1,1-Trichloroethane	µg/g	0.38	0.05		0.05 U	0.05 U	0.05 U
1,1,2,2-Tetrachloroethane	µg/g	0.05	0.05		0.05 U	0.05 U	2 U
1,1,2-Trichloroethane	µg/g	0.05	0.05		0.05 U	0.05 U	2.7 U

Table 6. Summary of Soil Quality for Soils to be Excavated within EW 4.3

Update to SDMA Due Diligence Study, PLFP

Chemical	Unit	Table 3 SCS [a]	Table 9 SCS [b]	Location	BH468-18	BHG274-18	
				Date	20 Mar 2019	20 Mar 2019	20 Mar 2019
				Start Depth (mbgs)	0.1	1	2.8
				End Depth (mbgs)	0.61	1.5	3.4
				Sample ID	S-11102463-032019-EN-BH18-468-4-2	S-11102463-032019-DD-BH18-441-1.0-1.5	S-11102463-032019-DD-BH18-441-2.8-3.4
				Sample Type	N	N	N
1,1-Dichloroethane	µg/g	3.5	0.05		0.05 U	0.05 U	0.05 U
1,1-Dichloroethene	µg/g	0.05	0.05		0.05 U	0.05 U	0.05 U
1,2-Dibromoethane	µg/g	0.05	0.05		0.05 U	0.05 U	0.05 U
1,2-Dichlorobenzene	µg/g	3.4	0.05		0.05 U	0.05 U	2 U
1,2-Dichloroethane	µg/g	0.05	0.05		0.05 U	0.05 U	0.05 U
1,2-Dichloropropane	µg/g	0.05	0.05		0.05 U	0.05 U	0.05 U
1,3-Dichlorobenzene	µg/g	4.8	0.05		0.05 U	0.05 U	2 U
1,3-Dichloropropene	µg/g	0.05	0.05		0.042 U	0.042 U	0.042 U
1,4-Dichlorobenzene	µg/g	0.083	0.05		0.05 U	0.05 U	2 U
Acetone	µg/g	16	0.5		0.5 U	0.5 U	0.5 U
Bromodichloromethane	µg/g	13	0.05		0.05 U	0.05 U	6.1 U
Bromoform	µg/g	0.27	0.05		0.05 U	0.05 U	0.05 U
Bromomethane	µg/g	0.05	0.05		0.05 U	0.05 U	0.05 U
Carbon tetrachloride	µg/g	0.05	0.05		0.05 U	0.05 U	0.05 U
Chlorobenzene	µg/g	2.4	0.05		0.05 U	0.05 U	0.14 U
Chlorodibromomethane	µg/g	9.4	0.05		0.05 U	0.05 U	0.05 U
Chloroform	µg/g	0.05	0.05		0.05 U	0.05 U	0.55 U
cis-1,2-Dichloroethene	µg/g	3.4	0.05		0.05 U	0.05 U	0.0011 U
cis-1,3-Dichloropropene	µg/g	0.05	0.05		0.03 U	0.03 U	0.03 U
Dichlorodifluoromethane	µg/g	16	0.05		0.05 U	0.05 U	0.05 U
Dichloromethane	µg/g	0.1	0.05		0.05 U	0.05 U	0.05 U
Methyl Ethyl Ketone (2-Butanone)	µg/g	16	0.5		0.5 U	0.5 U	0.85 U
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	µg/g	1.7	0.5		0.5 U	0.5 U	0.5 U
Methyl tert-butyl ether (MTBE)	µg/g	0.75	0.05		0.05 U	0.05 U	0.05 U
n-Hexane	µg/g	2.8	0.05		**0.07**	**0.29**	**1.24**
Styrene	µg/g	0.7	0.05		0.05 U	0.05 U	0.05 U
Tetrachloroethene	µg/g	0.28	0.05		0.05 U	0.05 U	0.05 U
trans-1,2-Dichloroethene	µg/g	0.084	0.05		0.05 U	0.05 U	0.05 U
trans-1,3-Dichloropropene	µg/g	0.05	0.05		0.03 U	0.03 U	0.03 U
Trichloroethylene	µg/g	0.061	0.05		**0.05**	0.01 U	0.01 U
Trichlorofluoromethane	µg/g	4	0.25		0.05 U	0.05 U	0.05 U
Vinyl Chloride	µg/g	0.02	0.02		0.02 U	0.02 U	0.02 U

Notes:

Bold text identifies detected results

Shaded cells indicate the result exceeded the Table 9 SCS

Red cells indicate the result exceeded the Table 3 SCS

Blank cells indicate the parameter was not analyzed

µg/g = microgram(s) per gram

% = percent

BTEX = benzene, toluene, ethylbenzene, and xylenes

EW = Earth Works

F = fraction

FD = field duplicate

ID = identification

IV = intervention value

J = the analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample

mbgs = metre(s) below ground surface

mS/cm = millisiemens per centimetre

N =normal

NV = no value available

Napth = napthalene

PAH = polycyclic aromatic hydrocarbon

PHC = petroleum hydrocarbon

SCS = site condition standards

U = the analyte was not detected above the reported sample quantitation limit

VOC = volatile organic compound

Sources

Ontario Ministry of the Environment, Conservation and Parks (Ministry). 2011. Rationale for the Development of Soil and Ground Water Standards for Use at Contaminated Sites in Ontario. April 15.

[a.] Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition, Residential/ Parkland/ Institutional Property Use, Coarse Textured Soils (Ministry, 2011)

[b.] Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Ground Water Condition, Residential/ Parkland/ Institutional/ Industrial/ Commercial/ Community Property Use, Coarse Textured Soils (Ministry, 2011)

Table 6. Summary of Soil Quality for Soils to be Excavated within EW 4.3

Update to SDMA Due Diligence Study, PLFP

Location				BHG435-18		BHG436-18
Date				14 Mar 2019	15 Mar 2019	14 Mar 2019
Start Depth (mbgs)				1.4	3	1.2
End Depth (mbgs)				1.5	3.7	1.35
Sample ID				S-11102463-031419-SM-BH18-442-1.4-1.5MBGS	S-11102463-031519-DD-BH18-442-3.0-3.7	S-11102463-031419-SM-BH18-443-1.2-1.35MBGS
Sample Type				N	N	N
Chemical	**Unit**	**Table 3 SCS [a]**	**Table 9 SCS [b]**			
BTEX						
Benzene	µg/g	0.21	0.02	**0.07**	0.0068 U	**0.56**
Ethylbenzene	µg/g	2	0.05	**0.05**	0.018 U	**0.17**
Toluene	µg/g	2.3	0.2	**0.22**	0.08 U	**0.4**
Xylene, o	µg/g	NV	NV	**0.14**	0.02 U	**0.26**
Xylenes, m & p	µg/g	NV	NV	**0.2**	0.03 U	**0.54**
Xylenes, Total	µg/g	3.1	0.05	**0.34**	0.05 U	**0.8**
Chemistry						
pH	pH UNITS	NV	NV	**7.35**	**7.05**	**7.69**
Chlorophenol						
2,4,5-Trichlorophenol	µg/g	4.4	0.1	0.1 U	0.1 U	0.1 U
2,4,6-Trichlorophenol	µg/g	3.8	0.1	0.1 U	0.1 U	0.1 U
2,4-Dichlorophenol	µg/g	1.7	0.1	0.1 U	0.1 U	0.1 U
2-Chlorophenol	µg/g	1.6	0.1	0.1 U	0.1 U	0.1 U
Pentachlorophenol	µg/g	0.1	0.1	0.1 U	0.1 U	0.1 U
Inorganic						
Conductivity	mS/cm	0.7	0.7	**2.36**	**0.66**	**0.72**
Cyanide	µg/g	0.051	0.051	**0.1**	0.05 U	0.05 U
Sodium Adsorption Ratio	SAR	5	5	**15**	**2.4**	**1.38**
Metal						
Antimony	µg/g	7.5	1.3	**37**	**1.9**	**6.5**
Arsenic	µg/g	18	18	**56.1**	**5.8**	**9.7**
Barium	µg/g	390	220	**1030**	**103**	**159**
Beryllium	µg/g	4	2.5	**1.19**	0.5 U	0.5 U
Boron	µg/g	120	36	**17.2**	5 U	**6.6**
Boron (hot water extractable)	µg/g	1.5	1.5	**0.69**	**0.66**	**1.02**
Cadmium	µg/g	1.2	1.2	**1.69**	0.5 U	**0.99**
Chromium	µg/g	160	70	**73.9**	**11.2**	**75.3**
Chromium, Hexavalent (Cr6+)	µg/g	8	0.66	0.2 U	**0.24**	**0.23**
Cobalt	µg/g	22	22	**12.8**	**3**	**5.3**
Copper	µg/g	140	92	**762**	**29**	**98.7**
Lead	µg/g	120	120	**2630**	**142**	**336**
Mercury	µg/g	0.27	0.27	**25.4**	**0.39**	**1.22**
Molybdenum	µg/g	6.9	2	**5.2**	1 U	**1**
Nickel	µg/g	100	82	**41.3**	**6.7**	**18.7**
Selenium	µg/g	2.4	1.5	**4.5**	1 U	1 U
Silver	µg/g	20	0.5	**4.07**	0.2 U	**0.65**
Thallium	µg/g	1	1	**0.56**	0.5 U	0.5 U
Uranium (U)	µg/g	23	2.5	1 U	1 U	1 U
Vanadium	µg/g	86	86	**38.1**	**11.9**	**21.3**
Zinc	µg/g	340	290	**1820**	**112**	**289**
Organochloro Pesticide						
2,4- & 4,4-DDD	µg/g	3.3	0.05	0.028 U	0.028 U	0.028 U
2,4 & 4,4-DDE	µg/g	0.26	0.05	0.028 U	0.028 U	0.028 U
2,4- & 4,4-DDT	µg/g	1.4	1.4	0.028 U	0.1 U	0.028 U
2,4'-DDD	µg/g	NV	NV	0.02 U	0.02 U	0.02 U
2,4'-DDE	µg/g	NV	NV	0.02 U	0.02 U	0.02 U
2,4'-DDT	µg/g	NV	NV	0.02 U	0.02 U	0.02 U
4,4'-DDD	µg/g	NV	NV	0.02 U	0.02 U	0.02 U
4,4'-DDE	µg/g	NV	NV	0.02 U	0.02 U	0.02 U
4,4'-DDT	µg/g	NV	NV	0.02 U	0.1 U	0.02 U
Aldrin	µg/g	0.05	0.05	0.02 U	0.02 U	0.02 U
Alpha-Chlordane	µg/g	NV	NV	0.02 U	0.02 U	0.02 U
Chlordane	µg/g	0.05	0.05	0.028 U	0.028 U	0.028 U

Table 6. Summary of Soil Quality for Soils to be Excavated within EW 4.3

Update to SDMA Due Diligence Study, PLFP

Location				BHG435-18		BHG436-18
Date				14 Mar 2019	15 Mar 2019	14 Mar 2019
Start Depth (mbgs)				1.4	3	1.2
End Depth (mbgs)				1.5	3.7	1.35
Sample ID				S-11102463-031419-SM-BH18-442-1.4-1.5MBGS	S-11102463-031519-DD-BH18-442-3.0-3.7	S-11102463-031419-SM-BH18-443-1.2-1.35MBGS
Sample Type				N	N	N
Chemical	**Unit**	**Table 3 SCS [a]**	**Table 9 SCS [b]**			
Chlordane (technical)	µg/g	0.05	0.05	0.02 U	0.02 U	0.02 U
Dieldrin	µg/g	0.05	0.05	0.02 U	0.02 U	0.02 U
Endosulfan	µg/g	0.04	0.04	0.028 U	0.028 U	0.028 U
Endosulfan I	µg/g	NV	NV	0.02 U	0.02 U	0.02 U
Endosulfan II	µg/g	NV	NV	0.02 U	0.02 U	0.02 U
Endrin	µg/g	0.04	0.04	0.02 U	0.02 U	0.02 U
gamma-BHC (Lindane)	µg/g	0.056	0.01	0.14 U	0.05 U	0.027 U
Heptachlor	µg/g	0.15	0.05	0.02 U	0.02 U	0.02 U
Heptachlor Epoxide	µg/g	0.05	0.05	0.02 U	0.02 U	0.02 U
Hexachlorobenzene	µg/g	0.52	0.02	0.01 U	0.05 U	0.01 U
Hexachlorobutadiene	µg/g	0.012	0.01	0.01 U	0.05 U	0.01 U
Hexachloroethane	µg/g	0.089	0.01	0.01 U	0.05 U	0.01 U
Methoxychlor	µg/g	0.13	0.05	0.02 U	0.1 U	0.02 U
PAH						
1+2-Methylnaphthalenes	µg/g	0.99	0.59	**0.55**	**0.14**	**0.46**
1-Methylnaphthalene	µg/g	0.99	0.59	**0.25**	**0.06**	**0.19**
2-Methylnaphthalene	µg/g	0.99	0.59	**0.3**	**0.07**	**0.27**
Acenaphthene	µg/g	7.9	0.072	**0.31**	**0.2**	**0.08**
Acenaphthylene	µg/g	0.15	0.093	**0.11**	**0.15**	**0.16**
Anthracene	µg/g	0.67	0.22	**0.94**	**0.43**	**0.36**
Benzo(a)anthracene	µg/g	0.5	0.36	**2.82**	**1.71**	**1.35**
Benzo(a)pyrene	µg/g	0.3	0.3	**2.67**	**1.74**	**1.48**
Benzo(b)fluoranthene	µg/g	0.78	0.47	**2.55**	**1.54**	**1.47**
Benzo(g,h,i)perylene	µg/g	6.6	0.68	**2.01**	**1.07**	**1.19**
Benzo(k)fluoranthene	µg/g	0.78	0.48	**1.83**	**1.12**	**1.03**
Chrysene	µg/g	7	2.8	**2.89**	**1.76**	**1.4**
Dibenzo(a,h)anthracene	µg/g	0.1	0.1	**0.4**	**0.22**	**0.26**
Fluoranthene	µg/g	0.69	0.69	**4.69**	**2.92**	**2.08**
Fluorene	µg/g	62	0.19	**0.27**	**0.17**	**0.11**
Indeno(1,2,3-Cd)Pyrene	µg/g	0.38	0.23	**2.12**	**1.17**	**1.18**
Naphthalene	µg/g	0.6	0.09	**0.31**	**0.14**	**0.24**
Phenanthrene	µg/g	6.2	0.69	**3.9**	**1.58**	**1.21**
Pyrene	µg/g	78	1	**4.72**	**2.87**	**1.98**
PCB						
Aroclor 1242	µg/g	NV	NV	0.01 U	0.015 U	0.01 U
Aroclor 1248	µg/g	NV	NV	0.01 U	0.01 U	0.01 U
Aroclor 1254	µg/g	NV	NV	0.01 U	0.01 U	0.01 U
Aroclor 1260	µg/g	NV	NV	0.01 U	0.01 U	0.025 U
Total PCBs	µg/g	0.35	0.3	0.02 U	0.025 U	0.03 U
PHC						
F1 (C6-C10)	µg/g	55	25	5 U	5 U	**9.5**
F1-BTEX	µg/g	55	25	5 U	5 U	**7.5**
F2 (C10-C16)	µg/g	98	10	**176**	10 U	**23**
F2-Naphth	µg/g	98	10	**176**	10 U	**23**
F3 (C16-C34)	µg/g	300	240	**1850**	**190**	**328**
F3-PAH	µg/g	300	240	**1820**	**175**	**316**
F4 (C34-C50)	µg/g	2800	120	**580**	**71**	**165**
F4G-SG (GHH-Silica)	µg/g	2800	120	**1530**		**380**
Total Hydrocarbons (C6-C50)	µg/g	NV	NV	**2600**	**261**	**526**
VOC						
1,1,1,2-Tetrachloroethane	µg/g	0.058	0.05	0.05 U	0.05 U	0.05 U
1,1,1-Trichloroethane	µg/g	0.38	0.05	0.05 U	0.05 U	0.05 U
1,1,2,2-Tetrachloroethane	µg/g	0.05	0.05	0.05 U	0.05 U	0.05 U
1,1,2-Trichloroethane	µg/g	0.05	0.05	0.05 U	0.05 U	0.05 U

Table 6. Summary of Soil Quality for Soils to be Excavated within EW 4.3

Update to SDMA Due Diligence Study, PLFP

				Location	BHG435-18		BHG436-18
				Date	14 Mar 2019	15 Mar 2019	14 Mar 2019
				Start Depth (mbgs)	1.4	3	1.2
				End Depth (mbgs)	1.5	3.7	1.35
				Sample ID	S-11102463-031419-SM-BH18-442-1.4-1.5MBGS	S-11102463-031519-DD-BH18-442-3.0-3.7	S-11102463-031419-SM-BH18-443-1.2-1.35MBGS
				Sample Type	N	N	N
Chemical	Unit	Table 3 SCS [a]	Table 9 SCS [b]				
1,1-Dichloroethane	µg/g	3.5	0.05		0.05 U	0.05 U	0.05 U
1,1-Dichloroethene	µg/g	0.05	0.05		0.05 U	0.05 U	0.05 U
1,2-Dibromoethane	µg/g	0.05	0.05		0.05 U	0.05 U	0.05 U
1,2-Dichlorobenzene	µg/g	3.4	0.05		0.05 U	0.05 U	0.05 U
1,2-Dichloroethane	µg/g	0.05	0.05		0.05 U	0.05 U	0.05 U
1,2-Dichloropropane	µg/g	0.05	0.05		0.05 U	0.05 U	0.05 U
1,3-Dichlorobenzene	µg/g	4.8	0.05		0.05 U	0.05 U	0.05 U
1,3-Dichloropropene	µg/g	0.05	0.05		0.042 U	0.042 U	0.042 U
1,4-Dichlorobenzene	µg/g	0.083	0.05		0.05 U	0.05 U	0.05 U
Acetone	µg/g	16	0.5		0.5 U	0.5 U	0.5 U
Bromodichloromethane	µg/g	13	0.05		0.05 U	0.05 U	0.05 U
Bromoform	µg/g	0.27	0.05		0.05 U	0.05 U	0.05 U
Bromomethane	µg/g	0.05	0.05		0.05 U	0.05 U	0.05 U
Carbon tetrachloride	µg/g	0.05	0.05		0.05 U	0.05 U	0.05 U
Chlorobenzene	µg/g	2.4	0.05		0.05 U	0.05 U	0.05 U
Chlorodibromomethane	µg/g	9.4	0.05		0.05 U	0.05 U	0.05 U
Chloroform	µg/g	0.05	0.05		0.05 U	0.05 U	0.05 U
cis-1,2-Dichloroethene	µg/g	3.4	0.05		0.05 U	0.05 U	0.05 U
cis-1,3-Dichloropropene	µg/g	0.05	0.05		0.03 U	0.03 U	0.03 U
Dichlorodifluoromethane	µg/g	16	0.05		0.05 U	0.05 U	0.05 U
Dichloromethane	µg/g	0.1	0.05		0.05 U	0.05 U	0.05 U
Methyl Ethyl Ketone (2-Butanone)	µg/g	16	0.5		0.5 U	0.5 U	0.5 U
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	µg/g	1.7	0.5		0.5 U	0.5 U	0.5 U
Methyl tert-butyl ether (MTBE)	µg/g	0.75	0.05		0.05 U	0.05 U	0.05 U
n-Hexane	µg/g	2.8	0.05		0.05 U	0.05 U	**0.48**
Styrene	µg/g	0.7	0.05		0.05 U	0.05 U	0.05 U
Tetrachloroethene	µg/g	0.28	0.05		0.05 U	0.05 U	0.05 U
trans-1,2-Dichloroethene	µg/g	0.084	0.05		0.05 U	0.05 U	0.05 U
trans-1,3-Dichloropropene	µg/g	0.05	0.05		0.03 U	0.03 U	0.03 U
Trichloroethylene	µg/g	0.061	0.05		**0.01**	0.01 U	**0.29**
Trichlorofluoromethane	µg/g	4	0.25		0.05 U	0.05 U	0.05 U
Vinyl Chloride	µg/g	0.02	0.02		0.02 U	0.02 U	0.02 U

Notes:

Bold text identifies detected results

Shaded cells indicate the result exceeded the Table 9 SCS

Red cells indicate the result exceeded the Table 3 SCS

Blank cells indicate the parameter was not analyzed

µg/g = microgram(s) per gram

% = percent

BTEX = benzene, toluene, ethylbenzene, and xylenes

EW = Earth Works

F = fraction

FD = field duplicate

ID = identification

IV = intervention value

J = the analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample

mbgs = metre(s) below ground surface

mS/cm = millisiemens per centimetre

N =normal

NV = no value available

Napth = napthalene

PAH = polycyclic aromatic hydrocarbon

PHC = petroleum hydrocarbon

SCS = site condition standards

U = the analyte was not detected above the reported sample quantitation limit

VOC = volatile organic compound

Sources

Ontario Ministry of the Environment, Conservation and Parks (Ministry). 2011. Rationale for the Development of Soil and Ground Water Standards for Use at Contaminated Sites in Ontario. April 15.

[a.] Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition, Residential/ Parkland/ Institutional Property Use, Coarse Textured Soils (Ministry, 2011)

[b.] Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Ground Water Condition, Residential/ Parkland/ Institutional/ Industrial/ Commercial/ Community Property Use, Coarse Textured Soils (Ministry, 2011)

Table 6. Summary of Soil Quality for Soils to be Excavated within EW 4.3

Update to SDMA Due Diligence Study, PLFP

Location				BHG438-18		
Date				13 Mar 2019	19 Mar 2019	21 Mar 2019
Start Depth (mbgs)				1.1	3	0.8
End Depth (mbgs)				1.15	3.5	1.4
Sample ID				S-11102463-031319-SM-BH18-467-1.1-1.15MBGS	S-11102463-031919-DD-BH18-467-3.0-3.5 MBGS	S-11102463-032119-DD-BH18-469-0.8-1.4
Sample Type				N	N	N
Chemical	**Unit**	**Table 3 SCS [a]**	**Table 9 SCS [b]**			
BTEX						
Benzene	µg/g	0.21	0.02	**0.01**	**0.02**	**0.11**
Ethylbenzene	µg/g	2	0.05	**0.03**	**0.05**	**0.07**
Toluene	µg/g	2.3	0.2	**0.08**	**0.17**	**0.2**
Xylene, o	µg/g	NV	NV	**0.07**	**0.15**	**0.13**
Xylenes, m & p	µg/g	NV	NV	**0.09**	**0.2**	**0.24**
Xylenes, Total	µg/g	3.1	0.05	**0.17**	**0.35**	**0.38**
Chemistry						
pH	pH UNITS	NV	NV	**7.58**	**7.96**	**7.64**
Chlorophenol						
2,4,5-Trichlorophenol	µg/g	4.4	0.1	0.1 U	0.1 U	0.1 U
2,4,6-Trichlorophenol	µg/g	3.8	0.1	0.1 U	0.1 U	0.1 U
2,4-Dichlorophenol	µg/g	1.7	0.1	0.1 U	0.1 U	0.1 U
2-Chlorophenol	µg/g	1.6	0.1	0.1 U	0.1 U	0.1 U
Pentachlorophenol	µg/g	0.1	0.1	0.1 U	0.1 U	0.1 U
Inorganic						
Conductivity	mS/cm	0.7	0.7	**0.54**	**0.66**	**0.56**
Cyanide	µg/g	0.051	0.051	0.05 U	0.05 U	0.05 U
Sodium Adsorption Ratio	SAR	5	5	**0.74**	**1.78**	**2.34**
Metal						
Antimony	µg/g	7.5	1.3	**14**	**24.3**	**2.6**
Arsenic	µg/g	18	18	**24.7**	**38**	**7.2**
Barium	µg/g	390	220	**401**	**538**	**137**
Beryllium	µg/g	4	2.5	**0.98**	**0.77**	**0.54**
Boron	µg/g	120	36	**14**	**17.5**	**11.7**
Boron (hot water extractable)	µg/g	1.5	1.5	**1.11**	**2.59**	**1.97**
Cadmium	µg/g	1.2	1.2	**2.25**	**1.82**	**0.54**
Chromium	µg/g	160	70	**1500**	**95.1**	**31.8**
Chromium, Hexavalent (Cr6+)	µg/g	8	0.66	**3.4**	0.2 U	0.2 U
Cobalt	µg/g	22	22	**10.8**	**9.8**	**8**
Copper	µg/g	140	92	**303**	**408**	**59.8**
Lead	µg/g	120	120	**752**	**2630**	**181**
Mercury	µg/g	0.27	0.27	**1.22**	**1.99**	**0.35**
Molybdenum	µg/g	6.9	2	**2.3**	**3.7**	1 U
Nickel	µg/g	100	82	**34**	**31.5**	**20.8**
Selenium	µg/g	2.4	1.5	**1.4**	**4.3**	1 U
Silver	µg/g	20	0.5	**1.57**	**7.43**	**0.31**
Thallium	µg/g	1	1	0.5 U	0.5 U	0.5 U
Uranium (U)	µg/g	23	2.5	1 U	1 U	1 U
Vanadium	µg/g	86	86	**38.9**	**38.4**	**29.2**
Zinc	µg/g	340	290	**746**	**719**	**173**
Organochloro Pesticide						
2,4- & 4,4-DDD	µg/g	3.3	0.05	**0.03**	0.028 U	0.14 U
2,4 & 4,4-DDE	µg/g	0.26	0.05	0.028 U	0.028 U	0.14 U
2,4- & 4,4-DDT	µg/g	1.4	1.4	0.028 U	0.1 U	0.22 U
2,4'-DDD	µg/g	NV	NV	0.02 U	0.02 U	0.1 U
2,4'-DDE	µg/g	NV	NV	0.02 U	0.02 U	0.1 U
2,4'-DDT	µg/g	NV	NV	0.02 U	0.02 U	0.1 U
4,4'-DDD	µg/g	NV	NV	**0.03**	0.02 U	0.1 U
4,4'-DDE	µg/g	NV	NV	0.02 U	0.02 U	0.1 U
4,4'-DDT	µg/g	NV	NV	0.02 U	0.1 U	0.2 U
Aldrin	µg/g	0.05	0.05	0.02 U	0.02 U	0.1 U
Alpha-Chlordane	µg/g	NV	NV	0.02 U	0.02 U	0.1 U
Chlordane	µg/g	0.05	0.05	0.028 U	0.028 U	0.14 U

Table 6. Summary of Soil Quality for Soils to be Excavated within EW 4.3

Update to SDMA Due Diligence Study, PLFP

				Location	BHG438-18		
				Date	13 Mar 2019	19 Mar 2019	21 Mar 2019
				Start Depth (mbgs)	1.1	3	0.8
				End Depth (mbgs)	1.15	3.5	1.4
				Sample ID	S-11102463-031319-SM-BH18-467-1.1-1.15MBGS	S-11102463-031919-DD-BH18-467-3.0-3.5 MBGS	S-11102463-032119-DD-BH18-469-0.8-1.4
				Sample Type	N	N	N
Chemical	**Unit**	**Table 3 SCS [a]**	**Table 9 SCS [b]**				
Chlordane (technical)	µg/g	0.05	0.05		0.02 U	0.02 U	0.1 U
Dieldrin	µg/g	0.05	0.05		0.02 U	0.02 U	0.1 U
Endosulfan	µg/g	0.04	0.04		0.028 U	0.028 U	0.14 U
Endosulfan I	µg/g	NV	NV		0.02 U	0.02 U	0.1 U
Endosulfan II	µg/g	NV	NV		0.02 U	0.02 U	0.1 U
Endrin	µg/g	0.04	0.04		0.02 U	0.02 U	0.1 U
gamma-BHC (Lindane)	µg/g	0.056	0.01		0.15 U	0.05 U	0.05 U
Heptachlor	µg/g	0.15	0.05		0.02 U	0.02 U	0.1 U
Heptachlor Epoxide	µg/g	0.05	0.05		0.02 U	0.02 U	0.1 U
Hexachlorobenzene	µg/g	0.52	0.02		0.01 U	0.05 U	0.05 U
Hexachlorobutadiene	µg/g	0.012	0.01		0.01 U	0.05 U	0.05 U
Hexachloroethane	µg/g	0.089	0.01		0.01 U	0.05 U	0.05 U
Methoxychlor	µg/g	0.13	0.05		0.02 U	0.1 U	0.2 U
PAH							
1+2-Methylnaphthalenes	µg/g	0.99	0.59		**0.45**	**0.28**	**0.66**
1-Methylnaphthalene	µg/g	0.99	0.59		**0.21**	**0.12**	**0.28**
2-Methylnaphthalene	µg/g	0.99	0.59		**0.23**	**0.16**	**0.38**
Acenaphthene	µg/g	7.9	0.072		**0.77**	**0.36**	**0.89**
Acenaphthylene	µg/g	0.15	0.093		**0.13**	**0.22**	**0.11**
Anthracene	µg/g	0.67	0.22		**2.05**	**0.4**	**2.17**
Benzo(a)anthracene	µg/g	0.5	0.36		**4.06**	**2.8**	**2.1**
Benzo(a)pyrene	µg/g	0.3	0.3		**3.46**	**2.66**	**1.96**
Benzo(b)fluoranthene	µg/g	0.78	0.47		**3.5**	**3.39**	**2.05**
Benzo(g,h,i)perylene	µg/g	6.6	0.68		**2.08**	**2.12**	**0.85**
Benzo(k)fluoranthene	µg/g	0.78	0.48		**2.67**	**1.1**	**1.33**
Chrysene	µg/g	7	2.8		**3.9**	**2.51**	**2.11**
Dibenzo(a,h)anthracene	µg/g	0.1	0.1		**0.43**	**0.46**	**0.19**
Fluoranthene	µg/g	0.69	0.69		**8.34**	**4.48**	**3.7**
Fluorene	µg/g	62	0.19		**1.16**	**0.07**	**0.88**
Indeno(1,2,3-Cd)Pyrene	µg/g	0.38	0.23		**2.52**	**1.63**	**1.01**
Naphthalene	µg/g	0.6	0.09		**0.37**	**0.18**	**0.43**
Phenanthrene	µg/g	6.2	0.69		**7.43**	**1.85**	**4.15**
Pyrene	µg/g	78	1		**6.19**	**4.05**	**3.87**
PCB							
Aroclor 1242	µg/g	NV	NV		0.01 U	0.015 U	0.01 U
Aroclor 1248	µg/g	NV	NV		0.01 U	0.015 U	0.01 U
Aroclor 1254	µg/g	NV	NV		0.01 U	0.015 U	0.01 U
Aroclor 1260	µg/g	NV	NV		**0.02**	0.05 U	0.05 U
Total PCBs	µg/g	0.35	0.3		0.02 U	0.06 U	0.055 U
PHC							
F1 (C6-C10)	µg/g	55	25		5 U	**9.8**	**5.6**
F1-BTEX	µg/g	55	25		5 U	**9.2**	5 U
F2 (C10-C16)	µg/g	98	10		50 U	**19**	**26**
F2-Naphth	µg/g	98	10		50 U	**19**	**26**
F3 (C16-C34)	µg/g	300	240		**730**	**222**	**236**
F3-PAH	µg/g	300	240		**690**	**200**	**216**
F4 (C34-C50)	µg/g	2800	120		250 U	**85**	**110**
F4G-SG (GHH-Silica)	µg/g	2800	120			**310**	**470**
Total Hydrocarbons (C6-C50)	µg/g	NV	NV		**730**	**336**	**378**
VOC							
1,1,1,2-Tetrachloroethane	µg/g	0.058	0.05		0.05 U	0.05 U	0.05 U
1,1,1-Trichloroethane	µg/g	0.38	0.05		0.05 U	0.05 U	0.05 U
1,1,2,2-Tetrachloroethane	µg/g	0.05	0.05		0.05 U	0.05 U	0.05 U
1,1,2-Trichloroethane	µg/g	0.05	0.05		0.05 U	0.05 U	0.05 U

Table 6. Summary of Soil Quality for Soils to be Excavated within EW 4.3

Update to SDMA Due Diligence Study, PLFP

			Location	BHG438-18		
			Date	13 Mar 2019	19 Mar 2019	21 Mar 2019
			Start Depth (mbgs)	1.1	3	0.8
			End Depth (mbgs)	1.15	3.5	1.4
			Sample ID	S-11102463-031319-SM-BH18-467-1.1-1.15MBGS	S-11102463-031919-DD-BH18-467-3.0-3.5 MBGS	S-11102463-032119-DD-BH18-469-0.8-1.4
			Sample Type	N	N	N
Chemical	Unit	Table 3 SCS [a]	Table 9 SCS [b]			
1,1-Dichloroethane	µg/g	3.5	0.05	0.05 U	0.05 U	0.05 U
1,1-Dichloroethene	µg/g	0.05	0.05	0.05 U	0.05 U	0.05 U
1,2-Dibromoethane	µg/g	0.05	0.05	0.05 U	0.05 U	0.05 U
1,2-Dichlorobenzene	µg/g	3.4	0.05	0.05 U	0.05 U	0.05 U
1,2-Dichloroethane	µg/g	0.05	0.05	0.05 U	0.05 U	0.05 U
1,2-Dichloropropane	µg/g	0.05	0.05	0.05 U	0.05 U	0.05 U
1,3-Dichlorobenzene	µg/g	4.8	0.05	0.05 U	0.05 U	0.05 U
1,3-Dichloropropene	µg/g	0.05	0.05	0.042 U	0.042 U	0.042 U
1,4-Dichlorobenzene	µg/g	0.083	0.05	0.05 U	0.05 U	0.05 U
Acetone	µg/g	16	0.5	0.5 U	0.5 U	0.5 U
Bromodichloromethane	µg/g	13	0.05	0.05 U	0.05 U	0.05 U
Bromoform	µg/g	0.27	0.05	0.05 U	0.05 U	0.05 U
Bromomethane	µg/g	0.05	0.05	0.05 U	0.05 U	0.05 U
Carbon tetrachloride	µg/g	0.05	0.05	0.05 U	0.05 U	0.05 U
Chlorobenzene	µg/g	2.4	0.05	0.05 U	0.05 U	0.05 U
Chlorodibromomethane	µg/g	9.4	0.05	0.05 U	0.05 U	0.05 U
Chloroform	µg/g	0.05	0.05	0.05 U	0.05 U	0.05 U
cis-1,2-Dichloroethene	µg/g	3.4	0.05	0.05 U	0.05 U	0.05 U
cis-1,3-Dichloropropene	µg/g	0.05	0.05	0.03 U	0.03 U	0.03 U
Dichlorodifluoromethane	µg/g	16	0.05	0.05 U	0.05 U	0.05 U
Dichloromethane	µg/g	0.1	0.05	0.05 U	0.05 U	0.05 U
Methyl Ethyl Ketone (2-Butanone)	µg/g	16	0.5	0.5 U	0.5 U	0.5 U
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	µg/g	1.7	0.5	0.5 U	0.5 U	0.5 U
Methyl tert-butyl ether (MTBE)	µg/g	0.75	0.05	0.05 U	0.05 U	0.05 U
n-Hexane	µg/g	2.8	0.05	**0.07**	**0.05**	**0.28**
Styrene	µg/g	0.7	0.05	0.05 U	0.05 U	0.05 U
Tetrachloroethene	µg/g	0.28	0.05	0.05 U	0.05 U	0.05 U
trans-1,2-Dichloroethene	µg/g	0.084	0.05	0.05 U	0.05 U	0.05 U
trans-1,3-Dichloropropene	µg/g	0.05	0.05	0.03 U	0.03 U	0.03 U
Trichloroethylene	µg/g	0.061	0.05	**0.04**	0.01 U	0.01 U
Trichlorofluoromethane	µg/g	4	0.25	0.05 U	0.05 U	0.05 U
Vinyl Chloride	µg/g	0.02	0.02	0.02 U	0.02 U	0.02 U

Notes:

Bold text identifies detected results

Shaded cells indicate the result exceeded the Table 9 SCS

Red cells indicate the result exceeded the Table 3 SCS

Blank cells indicate the parameter was not analyzed

µg/g = microgram(s) per gram

% = percent

BTEX = benzene, toluene, ethylbenzene, and xylenes

EW = Earth Works

F = fraction

FD = field duplicate

ID = identification

IV = intervention value

J = the analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample

mbgs = metre(s) below ground surface

mS/cm = millisiemens per centimetre

N =normal

NV = no value available

Napth = napthalene

PAH = polycyclic aromatic hydrocarbon

PHC = petroleum hydrocarbon

SCS = site condition standards

U = the analyte was not detected above the reported sample quantitation limit

VOC = volatile organic compound

Sources

Ontario Ministry of the Environment, Conservation and Parks (Ministry). 2011. Rationale for the Development of Soil and Ground Water Standards for Use at Contaminated Sites in Ontario. April 15.

[a.] Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition, Residential/ Parkland/ Institutional Property Use, Coarse Textured Soils (Ministry, 2011)

[b.] Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Ground Water Condition, Residential/ Parkland/ Institutional/ Industrial/ Commercial/ Community Property Use, Coarse Textured Soils (Ministry, 2011)

Table 6. Summary of Soil Quality for Soils to be Excavated within EW 4.3

Update to SDMA Due Diligence Study, PLFP

Location				BHG439-18		
Date				21 Mar 2019	21 Mar 2019	22 Mar 2019
Start Depth (mbgs)				3	3	3.02
End Depth (mbgs)				3.7	3.7	3.2
Sample ID				S-11102463-032119-DD-BH18-469-DUP-001	S-11102463-032119-DD-BH18-469-3.0-3.7	S-11102463-032219-DD-BH18-469-9.9-10.5
Sample Type				FD	N	N
Chemical	**Unit**	**Table 3 SCS [a]**	**Table 9 SCS [b]**			
BTEX						
Benzene	µg/g	0.21	0.02	**0.04**	**0.06**	0.0068 U
Ethylbenzene	µg/g	2	0.05	**0.03**	**0.03**	0.018 U
Toluene	µg/g	2.3	0.2	**0.14**	**0.15**	0.08 U
Xylene, o	µg/g	NV	NV	**0.05**	**0.05**	0.02 U
Xylenes, m & p	µg/g	NV	NV	**0.1**	**0.09**	0.03 U
Xylenes, Total	µg/g	3.1	0.05	**0.15**	**0.14**	0.05 U
Chemistry						
pH	pH UNITS	NV	NV	**8.53**	**8.42**	**7.8**
Chlorophenol						
2,4,5-Trichlorophenol	µg/g	4.4	0.1	0.1 U	0.1 U	
2,4,6-Trichlorophenol	µg/g	3.8	0.1	0.1 U	0.1 U	
2,4-Dichlorophenol	µg/g	1.7	0.1	0.1 U	0.1 U	
2-Chlorophenol	µg/g	1.6	0.1	0.1 U	0.1 U	
Pentachlorophenol	µg/g	0.1	0.1	0.1 U	0.1 U	
Inorganic						
Conductivity	mS/cm	0.7	0.7	**1.27**	**1.33**	**0.27**
Cyanide	µg/g	0.051	0.051	0.05 U	0.05 U	0.05 U
Sodium Adsorption Ratio	SAR	5	5	**1.93**	**1.85**	**2.13**
Metal						
Antimony	µg/g	7.5	1.3	**10.2**	**12.8**	1 U
Arsenic	µg/g	18	18	**79.9**	**82.6**	**2.1**
Barium	µg/g	390	220	**288**	**327**	**31.7**
Beryllium	µg/g	4	2.5	0.5 U	0.5 U	0.5 U
Boron	µg/g	120	36	**10.7**	**10.9**	**5.2**
Boron (hot water extractable)	µg/g	1.5	1.5	**1.22**	**1.84**	**0.23**
Cadmium	µg/g	1.2	1.2	**1.27**	**1.52**	0.5 U
Chromium	µg/g	160	70	**36.4**	**41.4**	**11.9**
Chromium, Hexavalent (Cr6+)	µg/g	8	0.66	0.2 U	0.2 U	0.2 U
Cobalt	µg/g	22	22	**6.4**	**7**	**4.6**
Copper	µg/g	140	92	**219**	**310**	**10.8**
Lead	µg/g	120	120	**3760**	**1520**	**45.4**
Mercury	µg/g	0.27	0.27	**2.83**	**3.09**	**0.01**
Molybdenum	µg/g	6.9	2	**1.5**	**1.6**	1 U
Nickel	µg/g	100	82	**22.4**	**26.7**	**11.3**
Selenium	µg/g	2.4	1.5	**2.2**	**2.6**	1 U
Silver	µg/g	20	0.5	**3.41**	**5**	0.2 U
Thallium	µg/g	1	1	0.5 U	0.5 U	0.5 U
Uranium (U)	µg/g	23	2.5	1 U	1 U	1 U
Vanadium	µg/g	86	86	**22.2**	**24.8**	**15.3**
Zinc	µg/g	340	290	**913**	**990**	**48.6**
Organochloro Pesticide						
2,4- & 4,4-DDD	µg/g	3.3	0.05	0.14 U	0.14 U	
2,4 & 4,4-DDE	µg/g	0.26	0.05	0.14 U	0.14 U	
2,4- & 4,4-DDT	µg/g	1.4	1.4	0.22 U	0.22 U	
2,4'-DDD	µg/g	NV	NV	0.1 U	0.1 U	
2,4'-DDE	µg/g	NV	NV	0.1 U	0.1 U	
2,4'-DDT	µg/g	NV	NV	0.1 U	0.1 U	
4,4'-DDD	µg/g	NV	NV	0.1 U	0.1 U	
4,4'-DDE	µg/g	NV	NV	0.1 U	0.1 U	
4,4'-DDT	µg/g	NV	NV	0.2 U	0.2 U	
Aldrin	µg/g	0.05	0.05	0.1 U	0.1 U	
Alpha-Chlordane	µg/g	NV	NV	0.1 U	0.1 U	
Chlordane	µg/g	0.05	0.05	0.14 U	0.14 U	

Table 6. Summary of Soil Quality for Soils to be Excavated within EW 4.3

Update to SDMA Due Diligence Study, PLFP

Chemical	Unit	Table 3 SCS [a]	Table 9 SCS [b]	Location	BHG439-18		
				Date	21 Mar 2019	21 Mar 2019	22 Mar 2019
				Start Depth (mbgs)	3	3	3.02
				End Depth (mbgs)	3.7	3.7	3.2
				Sample ID	S-11102463-032119-DD-BH18-469-DUP-001	S-11102463-032119-DD-BH18-469-3.0-3.7	S-11102463-032219-DD-BH18-469-9.9-10.5
				Sample Type	FD	N	N
Chlordane (technical)	µg/g	0.05	0.05		0.1 U	0.1 U	
Dieldrin	µg/g	0.05	0.05		0.1 U	0.1 U	
Endosulfan	µg/g	0.04	0.04		0.14 U	0.14 U	
Endosulfan I	µg/g	NV	NV		0.1 U	0.1 U	
Endosulfan II	µg/g	NV	NV		0.1 U	0.1 U	
Endrin	µg/g	0.04	0.04		0.1 U	0.1 U	
gamma-BHC (Lindane)	µg/g	0.056	0.01		0.05 U	0.05 U	
Heptachlor	µg/g	0.15	0.05		0.1 U	0.1 U	
Heptachlor Epoxide	µg/g	0.05	0.05		0.1 U	0.1 U	
Hexachlorobenzene	µg/g	0.52	0.02		0.05 U	0.05 U	
Hexachlorobutadiene	µg/g	0.012	0.01		0.05 U	0.05 U	
Hexachloroethane	µg/g	0.089	0.01		0.05 U	0.05 U	
Methoxychlor	µg/g	0.13	0.05		0.2 U	0.2 U	
PAH							
1+2-Methylnaphthalenes	µg/g	0.99	0.59		**0.36**	**0.17**	0.042 U
1-Methylnaphthalene	µg/g	0.99	0.59		**0.15**	**0.07**	0.03 U
2-Methylnaphthalene	µg/g	0.99	0.59		**0.2**	**0.09**	0.03 U
Acenaphthene	µg/g	7.9	0.072		**0.33**	**0.19**	0.05 U
Acenaphthylene	µg/g	0.15	0.093		**0.07**	0.05 U	0.05 U
Anthracene	µg/g	0.67	0.22		**0.49**	**0.29**	0.05 U
Benzo(a)anthracene	µg/g	0.5	0.36		**1.06**	**0.57**	0.05 U
Benzo(a)pyrene	µg/g	0.3	0.3		**0.95**	**0.52**	0.05 U
Benzo(b)fluoranthene	µg/g	0.78	0.47		**1.03**	**0.55**	0.05 U
Benzo(g,h,i)perylene	µg/g	6.6	0.68		**0.41**	**0.2**	0.05 U
Benzo(k)fluoranthene	µg/g	0.78	0.48		**0.64**	**0.35**	0.05 U
Chrysene	µg/g	7	2.8		**1.08**	**0.57**	0.05 U
Dibenzo(a,h)anthracene	µg/g	0.1	0.1		**0.11**	**0.06**	0.05 U
Fluoranthene	µg/g	0.69	0.69		**1.77**	**1.1**	0.05 U
Fluorene	µg/g	62	0.19		**0.27**	**0.15**	0.05 U
Indeno(1,2,3-Cd)Pyrene	µg/g	0.38	0.23		**0.5**	**0.28**	0.05 U
Naphthalene	µg/g	0.6	0.09		**0.25**	**0.12**	**0.01**
Phenanthrene	µg/g	6.2	0.69		**1.49**	**0.93**	0.046 U
Pyrene	µg/g	78	1		**1.58**	**0.92**	0.05 U
PCB							
Aroclor 1242	µg/g	NV	NV		0.01 U	0.02 U	
Aroclor 1248	µg/g	NV	NV		0.01 U	0.01 U	
Aroclor 1254	µg/g	NV	NV		0.01 U	0.01 U	
Aroclor 1260	µg/g	NV	NV		0.01 U	0.01 U	
Total PCBs	µg/g	0.35	0.3		0.02 U	0.03 U	
PHC							
F1 (C6-C10)	µg/g	55	25		**7.7**	**7.2**	5 U
F1-BTEX	µg/g	55	25		**7.3**	**6.8**	5 U
F2 (C10-C16)	µg/g	98	10		**45**	**42**	10 U
F2-Naphth	µg/g	98	10		**45**	**42**	10 U
F3 (C16-C34)	µg/g	300	240		**565**	**1250**	50 U
F3-PAH	µg/g	300	240		**556**	**1250**	50 U
F4 (C34-C50)	µg/g	2800	120		**183**	**903**	50 U
F4G-SG (GHH-Silica)	µg/g	2800	120		**840**	**1910**	
Total Hydrocarbons (C6-C50)	µg/g	NV	NV		**801**	**2200**	72 U
VOC							
1,1,1,2-Tetrachloroethane	µg/g	0.058	0.05		0.05 U	0.05 U	0.05 U
1,1,1-Trichloroethane	µg/g	0.38	0.05		0.05 U	0.05 U	0.05 U
1,1,2,2-Tetrachloroethane	µg/g	0.05	0.05		0.05 U	0.05 U	0.05 U
1,1,2-Trichloroethane	µg/g	0.05	0.05		0.05 U	0.05 U	0.05 U

Table 6. Summary of Soil Quality for Soils to be Excavated within EW 4.3

Update to SDMA Due Diligence Study, PLFP

				Location	BHG439-18		
				Date	21 Mar 2019	21 Mar 2019	22 Mar 2019
				Start Depth (mbgs)	3	3	3.02
				End Depth (mbgs)	3.7	3.7	3.2
				Sample ID	S-11102463-032119-DD-BH18-469-DUP-001	S-11102463-032119-DD-BH18-469-3.0-3.7	S-11102463-032219-DD-BH18-469-9.9-10.5
				Sample Type	FD	N	N
Chemical	Unit	Table 3 SCS [a]	Table 9 SCS [b]				
1,1-Dichloroethane	µg/g	3.5	0.05		0.05 U	0.05 U	0.05 U
1,1-Dichloroethene	µg/g	0.05	0.05		0.05 U	0.05 U	0.05 U
1,2-Dibromoethane	µg/g	0.05	0.05		0.05 U	0.05 U	0.05 U
1,2-Dichlorobenzene	µg/g	3.4	0.05		0.05 U	0.05 U	0.05 U
1,2-Dichloroethane	µg/g	0.05	0.05		0.05 U	0.05 U	0.05 U
1,2-Dichloropropane	µg/g	0.05	0.05		0.05 U	0.05 U	0.05 U
1,3-Dichlorobenzene	µg/g	4.8	0.05		0.05 U	0.05 U	0.05 U
1,3-Dichloropropene	µg/g	0.05	0.05		0.042 U	0.042 U	0.042 U
1,4-Dichlorobenzene	µg/g	0.083	0.05		0.05 U	0.05 U	0.05 U
Acetone	µg/g	16	0.5		0.5 U	0.5 U	0.5 U
Bromodichloromethane	µg/g	13	0.05		0.05 U	0.05 U	0.05 U
Bromoform	µg/g	0.27	0.05		0.05 U	0.05 U	0.05 U
Bromomethane	µg/g	0.05	0.05		0.05 U	0.05 U	0.05 U
Carbon tetrachloride	µg/g	0.05	0.05		0.05 U	0.05 U	0.05 U
Chlorobenzene	µg/g	2.4	0.05		0.05 U	0.05 U	0.05 U
Chlorodibromomethane	µg/g	9.4	0.05		0.05 U	0.05 U	0.05 U
Chloroform	µg/g	0.05	0.05		0.05 U	0.05 U	0.05 U
cis-1,2-Dichloroethene	µg/g	3.4	0.05		0.05 U	0.05 U	0.05 U
cis-1,3-Dichloropropene	µg/g	0.05	0.05		0.03 U	0.03 U	0.03 U
Dichlorodifluoromethane	µg/g	16	0.05		0.05 U	0.05 U	0.05 U
Dichloromethane	µg/g	0.1	0.05		0.05 U	0.05 U	0.05 U
Methyl Ethyl Ketone (2-Butanone)	µg/g	16	0.5		0.5 U	0.5 U	0.5 U
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	µg/g	1.7	0.5		0.5 U	0.5 U	0.5 U
Methyl tert-butyl ether (MTBE)	µg/g	0.75	0.05		0.05 U	0.05 U	0.05 U
n-Hexane	µg/g	2.8	0.05		**0.08**	**0.06**	0.05 U
Styrene	µg/g	0.7	0.05		0.05 U	0.05 U	0.05 U
Tetrachloroethene	µg/g	0.28	0.05		0.05 U	0.05 U	0.05 U
trans-1,2-Dichloroethene	µg/g	0.084	0.05		0.05 U	0.05 U	0.05 U
trans-1,3-Dichloropropene	µg/g	0.05	0.05		0.03 U	0.03 U	0.03 U
Trichloroethylene	µg/g	0.061	0.05		**0.01**	0.01 U	0.01 U
Trichlorofluoromethane	µg/g	4	0.25		0.05 U	0.05 U	0.05 U
Vinyl Chloride	µg/g	0.02	0.02		0.02 U	0.02 U	0.02 U

Notes:

Bold text identifies detected results

Shaded cells indicate the result exceeded the Table 9 SCS

Red cells indicate the result exceeded the Table 3 SCS

Blank cells indicate the parameter was not analyzed

µg/g = microgram(s) per gram

% = percent

BTEX = benzene, toluene, ethylbenzene, and xylenes

EW = Earth Works

F = fraction

FD = field duplicate

ID = identification

IV = intervention value

J = the analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample

mbgs = metre(s) below ground surface

mS/cm = millisiemens per centimetre

N =normal

NV = no value available

Napth = napthalene

PAH = polycyclic aromatic hydrocarbon

PHC = petroleum hydrocarbon

SCS = site condition standards

U = the analyte was not detected above the reported sample quantitation limit

VOC = volatile organic compound

Sources

Ontario Ministry of the Environment, Conservation and Parks (Ministry). 2011. Rationale for the Development of Soil and Ground Water Standards for Use at Contaminated Sites in Ontario. April 15.

[a.] Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition, Residential/ Parkland/ Institutional Property Use, Coarse Textured Soils (Ministry, 2011)

[b.] Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Ground Water Condition, Residential/ Parkland/ Institutional/ Industrial/ Commercial/ Community Property Use, Coarse Textured Soils (Ministry, 2011)

Table 7. Summary of Sediment Quality to Remain in Place within EW 4.2 (Don River)

Update to SDMA Due Diligence Study, PLFP

				Location	BH432-18	BH435-18
				Date	09 Jul 2018	03 Jul 2018
				Start Depth (mbgs)	6.07	6.07
				End Depth (mbgs)	6.4	6.55
				Sample ID	S-11102463-070918-DB-BH18-432 20-21	S-11102463-070318-DB-18-435-20-21 FT 4INCH
				Sample Type	N	N
Chemical	**Unit**	**Table 1 SCS [a]**	**Sediment IV [b]**	**Selected Criteria [c]**		
BTEX						
Benzene	µg/g	0.02	0.02	0.02	0.0068 U	0.0068 UJ
Ethylbenzene	µg/g	0.05	0.05	0.05	0.018 U	0.018 UJ
Toluene	µg/g	0.2	0.2	0.2	0.08 U	0.08 UJ
Xylene, o	µg/g	NV	NV	NV	0.02 U	0.02 UJ
Xylenes, m & p	µg/g	NV	NV	NV	0.03 U	0.03 UJ
Xylenes, Total	µg/g	0.05	0.05	0.05	0.05 U	0.05 UJ
Chemistry						
pH	pH UNITS	NV	NV	NV	**7.86**	**7.86 J**
Inorganic						
Conductivity	mS/cm	0.57	NV	0.57	**0.58**	**0.28 J**
Cyanide	µg/g	0.051	0.1	0.1	0.05 U	0.05 UJ
Sodium Adsorption Ratio	SAR	2.4	NV	2.4	**6.09**	**0.7 J**
Metal						
Antimony	µg/g	1.3	1.3	1.3	1 U	1 UJ
Arsenic	µg/g	18	6	18	**1.6**	**6.7 J**
Barium	µg/g	220	220	220	**40.9**	**55.4 J**
Beryllium	µg/g	2.5	2.5	2.5	0.5 U	**0.99 J**
Boron	µg/g	36	36	36	5 U	**15.2 J**
Boron (hot water extractable)	µg/g	NV	NV	NV	**0.15**	**0.33 J**
Cadmium	µg/g	1.2	1	1.2	0.5 U	0.5 UJ
Chromium	µg/g	70	31	70	**7.2**	**27.9 J**
Chromium, Hexavalent (Cr6+)	µg/g	0.66	NV	0.66	0.2 U	0.2 UJ
Cobalt	µg/g	21	50	50	**2.9**	**16.2 J**
Copper	µg/g	92	25	92	**8.5**	**26.4 J**
Lead	µg/g	120	31	120	**14.6**	**8.8 J**
Mercury	µg/g	0.27	0.2	0.27	**0.02**	**0.01 J**
Molybdenum	µg/g	2	2	2	1 U	1 UJ
Nickel	µg/g	82	31	82	**7.4**	**34.2 J**
Selenium	µg/g	1.5	1.5	1.5	1 U	1 UJ
Silver	µg/g	0.5	0.5	0.5	0.2 U	0.2 UJ
Thallium	µg/g	1	1	1	0.5 U	0.5 UJ
Uranium (U)	µg/g	2.5	NV	2.5	1 U	1 UJ
Vanadium	µg/g	86	86	86	**8.7**	**34.2 J**
Zinc	µg/g	290	120	290	**29.7**	**63 J**
PAH						
1+2-Methylnaphthalenes	µg/g	0.59	0.59	0.59	0.042 U	0.042 UJ
1-Methylnaphthalene	µg/g	0.59	NV	0.59	0.03 U	0.03 UJ
2-Methylnaphthalene	µg/g	0.59	NV	0.59	0.03 U	0.03 UJ
Acenaphthene	µg/g	0.072	0.07	0.072	0.05 U	0.05 UJ
Acenaphthylene	µg/g	0.093	0.09	0.093	0.05 U	0.05 UJ
Anthracene	µg/g	0.16	0.22	0.22	0.05 U	0.05 UJ
Benzo(a)anthracene	µg/g	0.36	0.32	0.36	0.05 U	0.05 UJ
Benzo(a)pyrene	µg/g	0.3	0.37	0.37	0.05 U	0.05 UJ
Benzo(b)fluoranthene	µg/g	0.47	NV	0.47	0.05 U	0.05 UJ
Benzo(g,h,i)perylene	µg/g	0.68	0.17	0.68	0.05 U	0.05 UJ
Benzo(k)fluoranthene	µg/g	0.48	0.24	0.48	0.05 U	0.05 UJ
Chrysene	µg/g	2.8	0.34	2.8	0.05 U	0.05 UJ
Dibenzo(a,h)anthracene	µg/g	0.1	0.06	0.1	0.05 U	0.05 UJ

Table 7. Summary of Sediment Quality to Remain in Place within EW 4.2 (Don River)

Update to SDMA Due Diligence Study, PLFP

				Location	BH432-18	BH435-18
				Date	09 Jul 2018	03 Jul 2018
				Start Depth (mbgs)	6.07	6.07
				End Depth (mbgs)	6.4	6.55
				Sample ID	S-11102463-070918-DB-BH18-432 20-21	S-11102463-070318-DB-18-435-20-21 FT 4INCH
				Sample Type	N	N
Chemical	**Unit**	**Table 1 SCS [a]**	**Sediment IV [b]**	**Selected Criteria [c]**		
Fluoranthene	µg/g	0.56	0.75	0.75	0.05 U	0.05 UJ
Fluorene	µg/g	0.12	0.19	0.19	0.05 U	0.05 UJ
Indeno(1,2,3-Cd)Pyrene	µg/g	0.23	0.2	0.23	0.05 U	0.05 UJ
Naphthalene	µg/g	0.09	0.09	0.09	0.013 U	0.013 UJ
Phenanthrene	µg/g	0.69	0.56	0.69	**0.06**	**0.06 J**
Pyrene	µg/g	1	0.49	1	0.05 U	0.05 UJ
PHC						
F1 (C6-C10)	µg/g	25	395	395	5 U	5 UJ
F1-BTEX	µg/g	25	NV	25	5 U	5 UJ
F2 (C10-C16)	µg/g	10	395	395	**13**	**14 J**
F2-Naphth	µg/g	10	NV	10	**13**	**14 J**
F3 (C16-C34)	µg/g	240	395	395	50 U	50 UJ
F3-PAH	µg/g	240	NV	240	50 U	50 UJ
F4 (C34-C50)	µg/g	120	395	395	50 U	50 UJ
F4G-SG (GHH-Silica)	µg/g	120	NV	120		
Total Hydrocarbons (C6-C50)	µg/g	NV	NV	NV	72 U	72 UJ
VOC						
1,1,1,2-Tetrachloroethane	µg/g	0.05	0.05	0.05	0.05 U	0.05 UJ
1,1,1-Trichloroethane	µg/g	0.05	0.05	0.05	0.05 U	0.05 UJ
1,1,2,2-Tetrachloroethane	µg/g	0.05	0.05	0.05	0.05 U	0.05 UJ
1,1,2-Trichloroethane	µg/g	0.05	0.05	0.05	0.05 U	0.05 UJ
1,1-Dichloroethane	µg/g	0.05	0.05	0.05	0.05 U	0.05 UJ
1,1-Dichloroethene	µg/g	0.05	0.05	0.05	0.05 U	0.05 UJ
1,2-Dibromoethane	µg/g	0.05	0.05	0.05	0.05 U	0.05 UJ
1,2-Dichlorobenzene	µg/g	0.05	NV	0.05	0.05 U	0.05 UJ
1,2-Dichloroethane	µg/g	0.05	0.05	0.05	0.05 U	0.05 UJ
1,2-Dichloropropane	µg/g	0.05	NV	0.05	0.05 U	0.05 UJ
1,3-Dichlorobenzene	µg/g	0.05	NV	0.05	0.05 U	0.05 UJ
1,3-Dichloropropene	µg/g	0.05	NV	0.05	0.042 U	0.042 UJ
1,4-Dichlorobenzene	µg/g	0.05	NV	0.05	0.05 U	0.05 UJ
Acetone	µg/g	0.5	NV	0.5	0.5 U	0.5 UJ
Bromodichloromethane	µg/g	0.05	NV	0.05	0.05 U	0.05 UJ
Bromoform	µg/g	0.05	NV	0.05	0.05 U	0.05 UJ
Bromomethane	µg/g	0.05	NV	0.05	0.05 U	0.05 UJ
Carbon tetrachloride	µg/g	0.05	0.05	0.05	0.05 U	0.05 UJ
Chlorobenzene	µg/g	0.05	NV	0.05	0.05 U	0.05 UJ
Chlorodibromomethane	µg/g	0.05	0.05	0.05	0.05 U	0.05 UJ
Chloroform	µg/g	0.05	0.05	0.05	0.05 U	0.05 UJ
cis-1,2-Dichloroethene	µg/g	0.05	0.05	0.05	0.05 U	0.05 UJ
cis-1,3-Dichloropropene	µg/g	0.05	NV	0.05	0.03 U	0.03 UJ
Dichlorodifluoromethane	µg/g	0.05	NV	0.05	0.05 UJ	0.05 UJ
Dichloromethane	µg/g	0.05	0.05	0.05	0.05 U	0.05 UJ
Methyl Ethyl Ketone (2-Butanone)	µg/g	0.5	0.5	0.5	0.5 U	0.5 UJ
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	µg/g	0.5	0.5	0.5	0.5 U	0.5 UJ
Methyl tert-butyl ether (MTBE)	µg/g	0.05	0.05	0.05	0.05 U	0.05 UJ
n-Hexane	µg/g	0.05	0.05	0.05	0.05 U	**0.08 J**
Styrene	µg/g	0.05	0.05	0.05	0.05 U	0.05 UJ
Tetrachloroethene	µg/g	0.05	0.05	0.05	0.05 U	0.05 UJ
trans-1,2-Dichloroethene	µg/g	0.05	0.05	0.05	0.05 U	0.05 UJ

Table 7. Summary of Sediment Quality to Remain in Place within EW 4.2 (Don River)

Update to SDMA Due Diligence Study, PLFP

				Location	BH432-18	BH435-18
				Date	09 Jul 2018	03 Jul 2018
				Start Depth (mbgs)	6.07	6.07
				End Depth (mbgs)	6.4	6.55
				Sample ID	S-11102463-070918-DB-BH18-432 20-21	S-11102463-070318-DB-18-435-20-21 FT 4INCH
				Sample Type	N	N
Chemical	**Unit**	**Table 1 SCS [a]**	**Sediment IV [b]**	**Selected Criteria [c]**		
trans-1,3-Dichloropropene	µg/g	0.05	NV	0.05	0.03 U	0.03 UJ
Trichloroethylene	µg/g	0.05	0.05	0.05	0.01 U	0.01 UJ
Trichlorofluoromethane	µg/g	0.25	0.25	0.25	0.05 U	0.05 UJ
Vinyl Chloride	µg/g	0.02	0.02	0.02	0.02 U	0.02 UJ

Notes:

[a] Table 1: Full Depth Background Site Condition Standards, Residential/ Parkland/ Institutional/ Industrial/ Commercial/ Community Property Use, Coarse Textured Soils (Ministry, 2011)

[b] Developed from the Community Based Risk Assessment (CH2M, 2018)

[c] Greater value between the Sediment IV and the Table 1 SCS

Bold text identifies detected results

Shaded cells indicate the result exceeded the selected criteria

Blank cells indicate the parameter was not analyzed

µg/g = microgram(s) per gram

% = percent

BTEX = benzene, toluene, ethylbenzene, and xylenes

EW = Earth Works

F = fraction

FD = field duplicate

ID = identification

IV = intervention value

J = the analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample

mbgs = metre(s) below ground surface

mS/cm = millisiemens per centimetre

N =normal

NV = no value available

Napth = napthalene

PAH = polycyclic aromatic hydrocarbon

PHC = petroleum hydrocarbon

SCS = site condition standards

U = the analyte was not detected above the reported sample quantitation limit

VOC = volatile organic compound

Sources

Ontario Ministry of the Environment, Conservation and Parks (Ministry). 2011. Rationale for the Development of Soil and Ground Water Standards for Use at Contaminated Sites in Ontario. April 15.

CH2M HILL Canada Limited (CH2M). 2018. Revised Community Based Risk Assessment. Prepared for Waterfront Toronto. August.

Table 8. Summary of Sediment Quality to be Dredged from EW 4.2 (Don River)

Update to SDMA Due Diligence Study, PLFP

				Location	BH432-18		BH433-18		BH434-18		BH435-18
				Date	09 Jul 2018	09 Jul 2018	06 Jul 2018	06 Jul 2018	03 Jul 2018	03 Jul 2018	03 Jul 2018
				Start Depth (mbgs)	2.29	2.29	1.52	2.29	3.81	4.57	2.29
				End Depth (mbgs)	2.9	2.9	2.13	2.9	4.42	5.18	2.9
				Sample ID	S-11102463-070918-DB-BH18-432 7.5-9.5 DUP	S-11102463-070918-DB-BH18-432 7.5-9.5	S-11102463-070618-BH18-433 5-7	S-11102463-070618-DB-BH18-433 7.5-9.5	S-11102463-070318-DB-18-434-12.5-14.5 FT	S-11102463-070318-DB-18-434-15-17 FT	S-11102463-070318-DB-18-435-7.5-9.5 FT
				Sample Type	FD	N	N	N	N	N	N
Chemical	Unit	Table 1 SCS[a]	Sediment IV[b]	Selected Criteria[c]							
BTEX											
Benzene	µg/g	0.02	0.02	0.02	0.0068 U	0.0068 U	0.0068 U	0.0068 U	0.0068 UJ	0.0068 UJ	**0.01 J**
Ethylbenzene	µg/g	0.05	0.05	0.05	0.018 U	0.018 U	0.018 U	0.018 U	0.018 UJ	0.018 UJ	0.018 UJ
Toluene	µg/g	0.2	0.2	0.2	0.08 U	0.08 U	0.08 U	0.08 U	0.08 UJ	0.08 UJ	**0.46 J**
Xylene, o	µg/g	NV	NV	NV	0.02 U	0.02 U	0.02 U	0.02 U	0.02 UJ	0.02 UJ	**0.02 J**
Xylenes, m & p	µg/g	NV	NV	NV	0.03 U	0.03 U	0.03 U	0.03 U	0.03 UJ	0.03 UJ	**0.04 J**
Xylenes, Total	µg/g	0.05	0.05	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 UJ	0.05 UJ	**0.06 J**
Chemistry											
pH	pH UNITS	NV	NV	NV	**7.56**	**7.61**	**7.56**	**7.51**	**7.6 J**	**7.82 J**	**7.63 J**
Inorganic											
Conductivity	mS/cm	0.57	NV	0.57	**0.23**	**0.26**	**0.28**	**0.31**	**0.29 J**	**0.18 J**	**1.17 J**
Cyanide	µg/g	0.051	0.1	0.1	0.05 U	0.05 U	0.05 U	0.05 U	0.05 UJ	0.05 UJ	0.05 UJ
Sodium Adsorption Ratio	SAR	2.4	NV	2.4	**1.37**	**1.79**	**2.52**	**2.27**	**1.04 J**	**0.49 J**	**11.5 J**
Metal											
Antimony	µg/g	1.3	1.3	1.3	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 UJ
Arsenic	µg/g	18	6	18	**2.1**	**2**	**2.3**	**3.3**	**1.8 J**	**2.5 J**	**2 J**
Barium	µg/g	220	220	220	**81.1**	**92.2**	**80.1**	**129**	**72.4 J**	**92.3 J**	**82.9 J**
Beryllium	µg/g	2.5	2.5	2.5	0.5 U	0.5 U	0.5 U	**0.53**	0.5 UJ	**0.52 J**	0.5 UJ
Boron	µg/g	36	36	36	**7.7**	**9.1**	**6.2**	**7.9**	**6.8 J**	**9.8 J**	**5.9 J**
Boron (hot water extractable)	µg/g	NV	NV	NV	**0.33 J**	**0.55 J**	**0.27**	**0.28**	**0.11 J**	**0.16 J**	**0.45 J**
Cadmium	µg/g	1.2	1	1.2	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ
Chromium	µg/g	70	31	70	**20.2**	**19.8**	**18.3**	**23.6**	**17.2 J**	**21.8 J**	**16.6 J**
Chromium, Hexavalent (Cr6+)	µg/g	0.66	NV	0.66	**0.36**	**0.33**	**0.29**	**0.3**	**0.25 J**	0.2 UJ	0.2 UJ
Cobalt	µg/g	21	50	50	**6.9**	**6.9**	**7.5**	**11**	**5.3 J**	**7.7 J**	**5.3 J**
Copper	µg/g	92	25	92	**15**	**14.7**	**14.9**	**18.5**	**21 J**	**16.4 J**	**31.6 J**
Lead	µg/g	120	31	120	**8.4**	**9.8**	**6.4**	**8.2**	**7 J**	**9.4 J**	**60.2 J**
Mercury	µg/g	0.27	0.2	0.27	**0.01**	**0.01**	**0.01**	**0.01**	**0.01 J**	**0.01 J**	**0.07 J**
Molybdenum	µg/g	2	2	2	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 UJ
Nickel	µg/g	82	31	82	**15.3**	**15.4**	**16.1**	**24.5**	**12.5 J**	**18.7 J**	**11.9 J**
Selenium	µg/g	1.5	1.5	1.5	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 UJ
Silver	µg/g	0.5	0.5	0.5	0.2 U	0.2 U	0.2 U	0.2 U	0.2 UJ	0.2 UJ	0.2 UJ
Thallium	µg/g	1	1	1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ
Uranium	µg/g	2.5	NV	2.5	1 U	1 U	1 U	1 U	1 UJ	**1.7 J**	1 UJ
Vanadium	µg/g	86	86	86	**24.6**	**25.7**	**27.7**	**34**	**25.9 J**	**29.9 J**	**21.2 J**
Zinc	µg/g	290	120	290	**38.2**	**40.5**	**37**	**47.7**	**38.3 J**	**40.5 J**	**62.7 J**
PAH											
1+2-Methylnaphthalenes	µg/g	0.59	0.59	0.59	0.042 U	0.042 U	0.042 U	0.042 U	0.042 UJ	0.042 UJ	**0.93 J**
1-Methylnaphthalene	µg/g	0.59	NV	0.59	0.03 U	0.03 U	0.03 U	0.03 U	0.03 UJ	0.03 UJ	**0.38 J**
2-Methylnaphthalene	µg/g	0.59	NV	0.59	0.03 U	0.03 U	0.03 U	0.03 U	0.03 UJ	0.03 UJ	**0.54 J**
Acenaphthene	µg/g	0.072	0.07	0.072	0.05 U	0.05 U	0.05 U	0.05 U	0.05 UJ	0.05 UJ	**0.48 J**
Acenaphthylene	µg/g	0.093	0.09	0.093	0.05 U	0.05 U	0.05 U	0.05 U	0.05 UJ	0.05 UJ	**0.09 J**
Anthracene	µg/g	0.16	0.22	0.22	0.05 U	0.05 U	0.05 U	0.05 U	0.05 UJ	0.05 UJ	**0.25 J**
Benzo(a)anthracene	µg/g	0.36	0.32	0.36	0.05 U	0.05 U	0.05 U	0.05 U	0.05 UJ	0.05 UJ	**1.22 J**
Benzo(a)pyrene	µg/g	0.3	0.37	0.37	0.05 U	0.05 U	0.05 U	0.05 U	0.05 UJ	0.05 UJ	**1.12 J**
Benzo(b)fluoranthene	µg/g	0.47	NV	0.47	0.05 U	0.05 U	0.05 U	0.05 U	0.05 UJ	0.05 UJ	**1.35 J**
Benzo(g,h,i)perylene	µg/g	0.68	0.17	0.68	0.05 U	0.05 U	0.05 U	0.05 U	0.05 UJ	0.05 UJ	**0.55 J**
Benzo(k)fluoranthene	µg/g	0.48	0.24	0.48	0.05 U	0.05 U	0.05 U	0.05 U	0.05 UJ	0.05 UJ	**0.54 J**
Chrysene	µg/g	2.8	0.34	2.8	0.05 U	0.05 U	0.05 U	0.05 U	0.05 UJ	0.05 UJ	**1.39 J**
Dibenzo(a,h)anthracene	µg/g	0.1	0.06	0.1	0.05 U	0.05 U	0.05 U	0.05 U	0.05 UJ	0.05 UJ	**0.13 J**
Fluoranthene	µg/g	0.56	0.75	0.75	0.05 U	0.05 U	0.05 U	0.05 U	0.05 UJ	0.05 UJ	**4.49 J**
Fluorene	µg/g	0.12	0.19	0.19	0.05 U	0.05 U	0.05 U	0.05 U	0.05 UJ	0.05 UJ	**0.69 J**
Indeno(1,2,3-Cd)Pyrene	µg/g	0.23	0.2	0.23	0.05 U	0.05 U	0.05 U	0.05 U	0.05 UJ	0.05 UJ	**0.62 J**
Naphthalene	µg/g	0.09	0.09	0.09	0.013 U	0.013 U	0.013 U	0.013 U	0.013 UJ	0.013 UJ	**1.61 J**
Phenanthrene	µg/g	0.69	0.56	0.69	0.046 U	0.046 U	0.046 U	0.046 U	0.046 UJ	0.046 UJ	**5.1 J**
Pyrene	µg/g	1	0.49	1	0.05 U	0.05 U	0.05 U	0.05 U	0.05 UJ	0.05 UJ	**3.28 J**
PHC											
F1 (C6-C10)	µg/g	25	395	395	5 U	5 UJ	5 U	5 U	5 UJ	5 UJ	5 UJ
F1-BTEX	µg/g	25	NV	25	5 U	5 UJ	5 U	5 U	5 UJ	5 UJ	5 UJ
F2 (C10-C16)	µg/g	10	395	395	**10**	10 U	10 U	10 U	10 UJ	**20 J**	**21 J**
F2-Naphth	µg/g	10	NV	10	**10**	10 U	10 U	10 U	10 UJ	**20 J**	**19 J**
F3 (C16-C34)	µg/g	240	395	395	**58**	50 U	50 U	50 U	50 UJ	**82 J**	**206 J**
F3-PAH	µg/g	240	NV	240	**58**	50 U	50 U	50 U	50 UJ	**82 J**	**188 J**
F4 (C34-C50)	µg/g	120	395	395	50 U	50 U	50 U	50 U	50 UJ	50 UJ	**71 J**
F4G-SG (GHH-Silica)	µg/g	120	NV	120							**290 J**
Total Hydrocarbons (C6-C50)	µg/g	NV	NV	NV	72 U	72 U	72 U	72 U	72 UJ	**102 J**	**298 J**
VOC											
1,1,1,2-Tetrachloroethane	µg/g	0.05	0.05	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 UJ	0.05 UJ	0.05 UJ
1,1,1-Trichloroethane	µg/g	0.05	0.05	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 UJ	0.05 UJ	0.05 UJ
1,1,2,2-Tetrachloroethane	µg/g	0.05	0.05	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 UJ	0.05 UJ	0.05 UJ
1,1,2-Trichloroethane	µg/g	0.05	0.05	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 UJ	0.05 UJ	0.05 UJ
1,1-Dichloroethane	µg/g	0.05	0.05	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 UJ	0.05 UJ	0.05 UJ
1,1-Dichloroethene	µg/g	0.05	0.05	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 UJ	0.05 UJ	0.05 UJ
1,2-Dibromoethane	µg/g	0.05	0.05	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 UJ	0.05 UJ	0.05 UJ

Table 8. Summary of Sediment Quality to be Dredged from EW 4.2 (Don River)

Update to SDMA Due Diligence Study, PLFP

				Location	BH432-18		BH433-18		BH434-18		BH435-18
				Date	09 Jul 2018	09 Jul 2018	06 Jul 2018	06 Jul 2018	03 Jul 2018	03 Jul 2018	03 Jul 2018
				Start Depth (mbgs)	2.29	2.29	1.52	2.29	3.81	4.57	2.29
				End Depth (mbgs)	2.9	2.9	2.13	2.9	4.42	5.18	2.9
				Sample ID	S-11102463-070918-DB-BH18-432 7.5-9.5 DUP	S-11102463-070918-DB-BH18-432 7.5-9.5	S-11102463-070618-BH18-433 5-7	S-11102463-070618-DB-BH18-433 7.5-9.5	S-11102463-070318-DB-18-434-12.5-14.5 FT	S-11102463-070318-DB-18-434-15-17 FT	S-11102463-070318-DB-18-435-7.5-9.5 FT
				Sample Type	FD	N	N	N	N	N	N
Chemical	Unit	Table 1 SCS[a]	Sediment IV[b]	Selected Criteria[c]							
1,2-Dichlorobenzene	µg/g	0.05	NV	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 UJ	0.05 UJ	0.05 UJ
1,2-Dichloroethane	µg/g	0.05	0.05	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 UJ	0.05 UJ	0.05 UJ
1,2-Dichloropropane	µg/g	0.05	NV	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 UJ	0.05 UJ	0.05 UJ
1,3-Dichlorobenzene	µg/g	0.05	NV	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 UJ	0.05 UJ	0.05 UJ
1,3-Dichloropropene	µg/g	0.05	NV	0.05	0.042 U	0.042 U	0.042 U	0.042 U	0.042 UJ	0.042 UJ	0.042 UJ
1,4-Dichlorobenzene	µg/g	0.05	NV	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 UJ	0.05 UJ	**0.26 J**
Acetone	µg/g	0.5	NV	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ
Bromodichloromethane	µg/g	0.05	NV	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 UJ	0.05 UJ	0.05 UJ
Bromoform	µg/g	0.05	NV	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 UJ	0.05 UJ	0.05 UJ
Bromomethane	µg/g	0.05	NV	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 UJ	0.05 UJ	0.05 UJ
Carbon tetrachloride	µg/g	0.05	0.05	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 UJ	0.05 UJ	0.05 UJ
Chlorobenzene	µg/g	0.05	NV	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 UJ	0.05 UJ	0.05 UJ
Chlorodibromomethane	µg/g	0.05	0.05	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 UJ	0.05 UJ	0.05 UJ
Chloroform	µg/g	0.05	0.05	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 UJ	0.05 UJ	0.05 UJ
cis-1,2-Dichloroethene	µg/g	0.05	0.05	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 UJ	0.05 UJ	0.05 UJ
cis-1,3-Dichloropropene	µg/g	0.05	NV	0.05	0.03 U	0.03 U	0.03 U	0.03 U	0.03 UJ	0.03 UJ	0.03 UJ
Dichlorodifluoromethane	µg/g	0.05	NV	0.05	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ
Dichloromethane	µg/g	0.05	0.05	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 UJ	0.05 UJ	0.05 UJ
Methyl Ethyl Ketone (2-Butanone)	µg/g	0.5	0.5	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	µg/g	0.5	0.5	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ
Methyl tert-butyl ether (MTBE)	µg/g	0.05	0.05	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 UJ	0.05 UJ	0.05 UJ
n-Hexane	µg/g	0.05	0.05	0.05	0.05 U	0.05 U	**0.07**	**0.11**	**0.1 J**	**0.1 J**	**0.13 J**
Styrene	µg/g	0.05	0.05	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 UJ	0.05 UJ	0.05 UJ
Tetrachloroethene	µg/g	0.05	0.05	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 UJ	0.05 UJ	0.05 UJ
trans-1,2-Dichloroethene	µg/g	0.05	0.05	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 UJ	0.05 UJ	0.05 UJ
trans-1,3-Dichloropropene	µg/g	0.05	NV	0.05	0.03 U	0.03 U	0.03 U	0.03 U	0.03 UJ	0.03 UJ	0.03 UJ
Trichloroethylene	µg/g	0.05	0.05	0.05	0.01 U	0.01 U	0.01 U	0.01 U	0.01 UJ	0.01 UJ	0.01 UJ
Trichlorofluoromethane	µg/g	0.25	0.25	0.25	0.05 U	0.05 U	0.05 U	0.05 U	0.05 UJ	0.05 UJ	0.05 UJ
Vinyl Chloride	µg/g	0.02	0.02	0.02	0.02 U	0.02 U	0.02 U	0.02 U	0.02 UJ	0.02 UJ	0.02 UJ

Notes:

[a] Table 1: Full Depth Background Site Condition Standards, Residential/ Parkland/ Institutional/ Industrial/ Commercial/ Community Property Use, Coarse Textured Soils (Ministry, 2011)

[b] Developed from the Community Based Risk Assessment (CH2M, 2018)

[c] Greater value between the Sediment IV and the Table 1 SCS

Bold text identifies detected results

Shaded cells indicate the result exceeded the selected criteria

Blank cells indicate the parameter was not analyzed

µg/g = microgram(s) per gram

% = percent

BTEX = benzene, toluene, ethylbenzene, and

EW = Earth Works

F = fraction

FD = field duplicate

ID = identification

IV = intervention value

J = the analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample

mbgs = metre(s) below ground surface

mS/cm = millisiemens per centimetre

N =normal

NV = no value available

Napth = napthalene

PAH = polycyclic aromatic hydrocarbon

PHC = petroleum hydrocarbon

SCS = site condition standards

U = the analyte was not detected above the reported sample quantitation l

VOC = volatile organic compound

Sources:

Ontario Ministry of the Environment, Conservation and Parks (Ministry). 2011. *Rationale for the Development of Soil and Ground Water Standards for Use at Contaminated Sites in Ontario*. April 15.

CH2M HILL Canada Limited (CH2M). 2018. *Revised Community Based Risk Assessment*. Prepared for Waterfront Toronto. August.

Table 9. Summary of Groundwater Quality in EW-4.1 within 30 m of future water

Port Lands Sediment and Debris Management Area (SDMA), Toronto, Ontario

Chemical	Unit	Table 9 SCS [a]	GOLDER BH13	GOLDER BH14	GOLDER BH14	GOLDER BH14	GOLDER BH14	MW177D-18
Location			GOLDER BH13	GOLDER BH14	GOLDER BH14	GOLDER BH14	GOLDER BH14	MW177D-18
Date			5/18/2006	5/18/2006	11/25/2015	9/16/2016	9/16/2016	3/12/2018
Start Depth (mbgs)			1.2	1.5	1.5	1.5	1.5	6.71
End Depth (mbgs)			3.66	4.5	4.5	4.5	4.5	9.75
Sample ID			BH13	BH14	GW-11102463-112515-KMV-BH14	GW-11102463-160916-DB-016	GW-11102463-160916-DB-017	GW-11102463-031218-GME-MW18-177D
Sample Type			N	N	N	N	FD	N
BTEX								
Benzene	µg/L	44	**0.5**	0.19 U	0.5 U	0.5 U	0.5 U	0.5 U
Ethylbenzene	µg/L	1800	0.19 U	0.19 U	0.5 U	0.5 U	0.5 U	0.5 U
Toluene	µg/L	14000	0.19 U	0.19 U	0.5 U	0.5 U	0.5 U	0.5 U
Xylene, o	µg/L	NV			0.3 U	**0.33**	**0.34**	0.3 U
Xylenes, m & p	µg/L	NV			0.49	**0.59**	**0.59**	0.4 U
Xylenes, Total	µg/L	3300	**1.6**	**1.1**	0.5 U	**0.92**	**0.93**	0.5 U
Inorganic								
Chrom. to baseline at nC50	None	NV			**1**	**1**	**1**	**1**
Nitrate (as N)	µg/L	NV						
pH	pH UNITS	NV			**7.2**	**7.3**	**7.25**	
Phosphorus	µg/L	NV						
Chloride (Cl)	µg/L	1800000			**360000**	**407000**	**385000**	
Conductivity	mS/cm	NV			**2.25**	**2.63**	**2.64**	
Cyanide	µg/L	52			2 U	2 U	2 U	
Sodium	µg/L	1800000			**168000**	**161000**	**173000**	**174000**
Metal								
Aluminum	µg/L	NV						
Antimony	µg/L	16000	1 U	1 U	**0.15**	1 U	1 U	**1.2**
Arsenic	µg/L	1500	**2**	**1**	**0.94**	1 U	**1.7**	**3.05**
Barium	µg/L	23000	**1300**	**1600**	**1950**	**1580**	**1670**	**480**
Beryllium	µg/L	53	0.5 U	0.5 U	0.1 U	1 U	1 U	0.1 U
Bismuth	µg/L	NV						
Boron	µg/L	36000	**779.99**	**600**	**538**	**460**	**490**	**426**
Cadmium	µg/L	2.1	0.09 U	0.09 U	0.01 U	0.1 U	0.1 U	0.04 U
Calcium	µg/L	NV						
Chromium	µg/L	640	4.99 U	4.99 U	**1.67**	5 U	5 U	0.5 U
Chromium, Hexavalent (Cr6+)	µg/L	110			10 U	1 U	1 U	1 U
Cobalt	µg/L	52	**7.19**	**7.7**	**0.68**	1 U	1 U	**1.62**
Copper	µg/L	69	**1**	**2**	**0.37**	2 U	2 U	**3.96**
Iron	µg/L	NV						
Lead	µg/L	20	**1.4**	**1**	**0.123**	0.5 U	0.5 U	0.05 U
Magnesium	µg/L	NV						
Manganese	µg/L	NV						
Mercury	µg/L	0.29	**0.19**	0.09 U	0.01 U	0.01 U	0.01 U	0.01 U
Molybdenum	µg/L	7300	1 U	1 U	**0.095**	0.5 U	0.5 U	**29.2**
Nickel	µg/L	390	**1**	1 U	0.5 U	5 U	5 U	**6.62**
Potassium	µg/L	NV						
Selenium	µg/L	50	2 U	2 U	**0.34**	0.5 U	0.5 U	**8.6**
Silver	µg/L	1.2	0.09 U	0.09 U	0.05 U	0.5 U	0.5 U	0.05 U
Strontium	µg/L	NV						
Thallium	µg/L	400	0.04 U	0.04 U	0.01 U	0.1 U	0.1 U	**0.04**
Tin	µg/L	NV						
Titanium	µg/L	NV						
Uranium	µg/L	330			0.01 U	0.1 U	0.1 U	**6.8**
Vanadium	µg/L	200	**1**	1 U	0.5 U	5 U	5 U	**1.01**
Zinc	µg/L	890	**9.99**	**11**	**3.9**	10 U	10 U	**26.1**
PAH								
1+2-Methylnaphthalenes	µg/L	1500	**1.1**	**9.3**		**0.829**	**0.878**	**0.423**
1-Methylnaphthalene	µg/L	1500	**0.6**	**9.3**	**0.566**	**0.729**	**0.788**	**0.364**
2-Methylnaphthalene	µg/L	1500	**0.5**	0.04 U		**0.101**	**0.089**	**0.059**
Acenaphthene	µg/L	600	**3**	**2.9**	**2.83**	**3.49**	**3.51**	**0.086**
Acenaphthylene	µg/L	1.4	0.5 U	0.04 U	**0.189**	**0.238**	**0.228**	**0.026**
Anthracene	µg/L	1	**1.3**	**0.63**	**0.589**	**0.937**	**0.822**	**0.057**
Benzo(a)anthracene	µg/L	1.8	**4.8**	**0.47**	**0.218**	**0.323**	**0.268**	**0.102**
Benzo(a)pyrene	µg/L	0.81	**3.1**	**0.25**	**0.126**	**0.104**	**0.094**	**0.064**
Benzo(b)fluoranthene	µg/L	0.75	**4.1**	**0.42**	**0.248**	**0.23**	**0.203**	**0.088**
Benzo(g,h,i)perylene	µg/L	0.2	**2**	**0.19**	**0.077**	**0.071**	**0.068**	**0.034**
Benzo(k)fluoranthene	µg/L	0.4	**1.7**	**0.15**	**0.08**	**0.07**	**0.057**	**0.031**
Chrysene	µg/L	0.7	**3.3**	**0.36**	**0.224**	**0.331**	**0.292**	**0.12**
Dibenzo(a,h)anthracene	µg/L	0.4	1 U	0.09 U	0.02 U	0.02 U	0.02 U	0.02 U
Fluoranthene	µg/L	73	**6.3**	**1.4**	**1.3**	**2.1**	**1.84**	**0.19**
Fluorene	µg/L	290	**2.79**	**3.59**	**1.79**	**3.17**	**2.93**	**0.062**
Indeno(1,2,3-Cd)Pyrene	µg/L	0.2	**2**	**0.3**	**0.073**	**0.065**	**0.064**	**0.036**
Naphthalene	µg/L	1400	**1.4**	**1.7**	1.5 U	1.7 U	**1.8 U**	**0.192**
Phenanthrene	µg/L	380	**5.9**	**2.2**	**0.33**	**0.972**	**0.897**	**0.28**
Pyrene	µg/L	5.7	**5.29**	**1.1**	**1.22**	**1.89**	**1.64**	**0.232**
PCB								
Aroclor 1242	µg/L	NV						0.02 U
Aroclor 1248	µg/L	NV						0.02 U
Aroclor 1254	µg/L	NV						0.02 U

Table 9. Summary of Groundwater Quality in EW-4.1 within 30 m of future water

Port Lands Sediment and Debris Management Area (SDMA), Toronto, Ontario

Chemical	Unit	Table 9 SCS [a]	Location	GOLDER BH13	GOLDER BH14	GOLDER BH14	GOLDER BH14	GOLDER BH14	MW177D-18
			Date	5/18/2006	5/18/2006	11/25/2015	9/16/2016	9/16/2016	3/12/2018
			Start Depth (mbgs)	1.2	1.5	1.5	1.5	1.5	6.71
			End Depth (mbgs)	3.66	4.5	4.5	4.5	4.5	9.75
			Sample ID	BH13	BH14	GW-11102463-112515-KMV-BH14	GW-11102463-160916-DB-016	GW-11102463-160916-DB-017	GW-11102463-031218-GME-MW18-177D
			Sample Type	N	N	N	N	FD	N
Aroclor 1260	µg/L	NV							0.02 U
Total PCBs	µg/L	0.2							0.04 U
PHC									
F1 (C6-C10)	µg/L	420		100 U	100 U	**103**	**100**	**84**	2 U
F1-BTEX	µg/L	420				**102**	**99**	**83**	2 U
F2 (C10-C16)	µg/L	150		**670**	**2300**	**2100**	**3050**	**2210**	**120**
F2-Naphth	µg/L	150				**2100**	**3050**	**2210**	**120**
F3 (C16-C34)	µg/L	500		**389.99**	**810**	**2210**	**3100**	**2110**	**330**
F3-PAH	µg/L	500				**2210**	**3090**	**2110**	**330**
F4 (C34-C50)	µg/L	500		100 U	100 U	**640**	**750**	**430**	2 U
Total Hydrocarbons (C6-C50)	µg/L	NV				**5060**	**7000**	**4830**	**450**
VOC									
1,1,1,2-Tetrachloroethane	µg/L	3.3		4.99 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,1-Trichloroethane	µg/L	640		0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	µg/L	3.2		0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-Trichloroethane	µg/L	4.7		1 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane	µg/L	320		0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethene	µg/L	1.6		0.5 U	0.09 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dibromoethane	µg/L	0.25		1 U	2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,2-Dichlorobenzene	µg/L	4600		1 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane	µg/L	1.6		0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane	µg/L	16		0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dichlorobenzene	µg/L	7600		1 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dichloropropene	µg/L	5.2				0.5 U	0.5 U	0.5 U	0.5 U
1,4-Dichlorobenzene	µg/L	8		1 U	2 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Hexanone	µg/L	NV							
Acetone	µg/L	100000		50 U	100 U	30 U	30 U	30 U	30 U
Bromodichloromethane	µg/L	67000		0.5 U	1 U	2 U	3 U	3.2 U	2 U
Bromoform	µg/L	380		1 U	2 U	5 U	5 U	5 U	5 U
Bromomethane	µg/L	5.6		3 U	4.99 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon tetrachloride	µg/L	0.79		0.5 U	1 U	0.2 U	0.2 U	0.2 U	0.2 U
Chlorobenzene	µg/L	500		0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U
Chlorodibromomethane	µg/L	65000		1 U	2 U	2 U	2 U	2 U	2 U
Chloroethane	µg/L	NV							
Chloroform	µg/L	2.4		0.5 U	1 U	1 U	1 U	1 U	1 U
Chloromethane	µg/L	NV							
cis-1,2-Dichloroethene	µg/L	1.6		0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U
cis-1,3-Dichloropropene	µg/L	5.2		1 U	2 U	0.3 U	0.3 U	0.3 U	0.3 U
Dichlorodifluoromethane	µg/L	3500				2 U	2 U	2 U	2 U
Dichloromethane	µg/L	610		3 U	4.99 U	5 U	5 U	5 U	5 U
Methyl Ethyl Ketone (2-Butanone)	µg/L	470000		29.99 U	50 U	20 U	20 U	20 U	2 U
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	µg/L	140000		29.99 U	50 U	20 U	20 U	20 U	2 U
Methyl tert-butyl ether (MTBE)	µg/L	190		1 U	2 U	2 U	2 U	2 U	2 U
n-Hexane	µg/L	51				0.5 U	0.5 U	0.5 U	0.5 U
Styrene	µg/L	1300		0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U
Tetrachloroethene	µg/L	1.6		0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U
trans-1,2-Dichloroethene	µg/L	1.6		0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U
trans-1,3-Dichloropropene	µg/L	5.2		1 U	2 U	0.3 U	0.3 U	0.3 U	0.3 U
Trichloroethylene	µg/L	1.6		0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichlorofluoromethane	µg/L	2000				5 U	5 U	5 U	5 U
Vinyl Chloride	µg/L	0.5		0.19 U	0.19 U	0.5 U	0.5 U	0.5 U	0.5 U

Notes:

[a] Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Ground Water Condition, Residential/ Parkland/ Institutional/ Industrial/ Commercial/ Community Property Use, Coarse Textured Soils (Ministry, 2011)

Bold text identifies detected results

Shaded cells indicate the result exceeded the Table 9 SCS

Blank cells indicate the parameter was not analyzed

µg/L = microgram(s) per litre

% = percent

BTEX = benzene, toluene, ethylbenzene, and xylenes

FD = field duplicate

ID = identification

mbgs = metre(s) below ground surface

mS/cm = millisiemens per centimetre

N =normal

NV = no value available

Napth = napthalene

PAH = polycyclic aromatic hydrocarbon

PHC = petroleum hydrocarbon

SCS = site condition standards

U = the analyte was not detected above the reported sample quantitation limit

VOC = volatile organic compound

Source:

Ontario Ministry of the Environment, Conservation and Parks (Ministry). 2011. Rationale for the Development of Soil and Ground Water Standards for Use at Contaminated Sites in Ontario. April 15.

Table 9. Summary of Groundwater Quality in EW-4.1 within 30 m of future water

Port Lands Sediment and Debris Management Area (SDMA), Toronto, Ontario

Chemical	Unit	Table 9 SCS [a]	GOLDER BH13	MW177S-18	MW22-15	Terrapex MW101
Location			GOLDER BH13	MW177S-18	MW22-15	Terrapex MW101
Date			5/18/2006	3/12/2018	11/25/2015	10/19/2004
Start Depth (mbgs)			1.2	1.22	7.62	3.1
End Depth (mbgs)			3.66	4.27	9.14	9.1
Sample ID			BH13	GW-11102463-031218-GME-MW18-177S	GW-11102463-112515-KMV-22	MW101
Sample Type			N	N	N	N
BTEX						
Benzene	µg/L	44	**0.5**	5 U	0.5 U	0.002 U
Ethylbenzene	µg/L	1800	0.19 U	5 U	0.5 U	**0.76**
Toluene	µg/L	14000	0.19 U	5 U	**0.74**	**0.0003**
Xylene, o	µg/L	NV		3 U	0.3 U	
Xylenes, m & p	µg/L	NV		4 U	0.4 U	
Xylenes, Total	µg/L	3300	**1.6**	5 U	0.5 U	**57**
Inorganic						
Chrom. to baseline at nC50	None	NV		**1**	**1**	
Nitrate (as N)	µg/L	NV				**147**
pH	pH UNITS	NV			**7.14**	**4**
Phosphorus	µg/L	NV				**4**
Chloride (Cl)	µg/L	1800000			**192000**	**9.99**
Conductivity	mS/cm	NV			**1.78**	
Cyanide	µg/L	52			2 U	
Sodium	µg/L	1800000		**94000**	**103000**	**3**
Metal						
Aluminum	µg/L	NV				**0.34**
Antimony	µg/L	16000	1 U	1 U	**0.97**	0.002 U
Arsenic	µg/L	1500	**2**	**3.6**	**3.25**	0.002 U
Barium	µg/L	23000	**1300**	**366**	**554**	0.002 U
Beryllium	µg/L	53	0.5 U	1 U	0.1 U	**8.99**
Bismuth	µg/L	NV				**11**
Boron	µg/L	36000	**779.99**	**580**	**187**	**11**
Cadmium	µg/L	2.1	0.09 U	0.05 U	0.01 U	**23**
Calcium	µg/L	NV				**12**
Chromium	µg/L	640	4.99 U	5 U	**0.71**	0.005 U
Chromium, Hexavalent (Cr6+)	µg/L	110		1 U	10 U	
Cobalt	µg/L	52	**7.19**	**2.5**	**2.32**	**0.22**
Copper	µg/L	69	**1**	**2**	**0.2**	**7.4**
Iron	µg/L	NV				
Lead	µg/L	20	**1.4**	0.5 U	**0.176**	0.19 U
Magnesium	µg/L	NV				0.002 U
Manganese	µg/L	NV				0.002 U
Mercury	µg/L	0.29	**0.19**	0.01 U	0.01 U	
Molybdenum	µg/L	7300	1 U	**16.1**	**5.49**	0.0001 U
Nickel	µg/L	390	**1**	**5.8**	**2.74**	**11**
Potassium	µg/L	NV				**3**
Selenium	µg/L	50	2 U	**2.59**	**0.47**	**8**
Silver	µg/L	1.2	0.09 U	0.5 U	0.05 U	**4**
Strontium	µg/L	NV				**3**
Thallium	µg/L	400	0.04 U	0.1 U	0.01 U	**51.1**
Tin	µg/L	NV				**40.1**
Titanium	µg/L	NV				**0.0007**
Uranium	µg/L	330		**2.54**	**3.46**	**14**
Vanadium	µg/L	200	**1**	5 U	**1.31**	**2**
Zinc	µg/L	890	**9.99**	**28**	**4.8**	**8.99**
PAH						
1+2-Methylnaphthalenes	µg/L	1500	**1.1**	**405**	**2.62**	
1-Methylnaphthalene	µg/L	1500	**0.6**	**403**	**1.94**	0.001 U
2-Methylnaphthalene	µg/L	1500	**0.5**	**2.2**	**0.68**	0.001 U
Acenaphthene	µg/L	600	**3**	**22**	**4.33**	**1.49**
Acenaphthylene	µg/L	1.4	0.5 U	**8**	**0.62**	**1.49**
Anthracene	µg/L	1	**1.3**	**5**	**2.37**	**0.33**
Benzo(a)anthracene	µg/L	1.8	**4.8**	**2**	**0.76**	**24**
Benzo(a)pyrene	µg/L	0.81	**3.1**	**1.3**	**0.58**	**28**
Benzo(b)fluoranthene	µg/L	0.75	**4.1**	**2.3**	**0.69**	**16**
Benzo(g,h,i)perylene	µg/L	0.2	**2**	1 U	**0.38**	**16**
Benzo(k)fluoranthene	µg/L	0.4	**1.7**	1 U	**0.22**	**6**
Chrysene	µg/L	0.7	**3.3**	**1.8**	**1.26**	0.005 U
Dibenzo(a,h)anthracene	µg/L	0.4	1 U	1 U	**0.077**	**1.88**
Fluoranthene	µg/L	73	**6.3**	**7.6**	**4.17**	0.19 U
Fluorene	µg/L	290	**2.79**	**28.6**	**4.64**	0.19 U
Indeno(1,2,3-Cd)Pyrene	µg/L	0.2	**2**	1 U	**0.34**	0.002 U
Naphthalene	µg/L	1400	**1.4**	**52.8**	2.5 U	0.0001 U
Phenanthrene	µg/L	380	**5.9**	**53.2**	**11.2**	**4**
Pyrene	µg/L	5.7	**5.29**	**8.6**	**4.9**	**8.99**
PCB						
Aroclor 1242	µg/L	NV		5 U		
Aroclor 1248	µg/L	NV		0.4 U		
Aroclor 1254	µg/L	NV		0.4 U		

Table 9. Summary of Groundwater Quality in EW-4.1 within 30 m of future water

Port Lands Sediment and Debris Management Area (SDMA), Toronto, Ontario

Chemical	Unit	Table 9 SCS [a]	GOLDER BH13	MW177S-18	MW22-15	Terrapex MW101
Location			GOLDER BH13	MW177S-18	MW22-15	Terrapex MW101
Date			5/18/2006	3/12/2018	11/25/2015	10/19/2004
Start Depth (mbgs)			1.2	1.22	7.62	3.1
End Depth (mbgs)			3.66	4.27	9.14	9.1
Sample ID			BH13	GW-11102463-031218-GME-MW18-177S	GW-11102463-112515-KMV-22	MW101
Sample Type			N	N	N	N
Aroclor 1260	µg/L	NV		0.4 U		
Total PCBs	µg/L	0.2		5.1 U		**142**
PHC						
F1 (C6-C10)	µg/L	420	100 U	**3900**	25 U	**106**
F1-BTEX	µg/L	420		**3900**	25 U	
F2 (C10-C16)	µg/L	150	**670**	**122000**	**2980**	
F2-Naphth	µg/L	150		**122000**	**2980**	
F3 (C16-C34)	µg/L	500	**389.99**	**208000**	**2850**	**106**
F3-PAH	µg/L	500		**208000**	**2830**	
F4 (C34-C50)	µg/L	500	100 U	**14100**	**440**	
Total Hydrocarbons (C6-C50)	µg/L	NV		**348000**	**6270**	
VOC						
1,1,1,2-Tetrachloroethane	µg/L	3.3	4.99 U	5 U	0.5 U	**0.3**
1,1,1-Trichloroethane	µg/L	640	0.5 U	5 U	0.5 U	**0.3**
1,1,2,2-Tetrachloroethane	µg/L	3.2	0.5 U	1 U	0.5 U	0.005 U
1,1,2-Trichloroethane	µg/L	4.7	1 U	8 U	0.5 U	0.001 U
1,1-Dichloroethane	µg/L	320	0.5 U	5 U	0.5 U	**0.6**
1,1-Dichloroethene	µg/L	1.6	0.5 U	5 U	0.5 U	**0.5**
1,2-Dibromoethane	µg/L	0.25	1 U	3.2 U	0.2 U	0.25 U
1,2-Dichlorobenzene	µg/L	4600	1 U	50 U	0.5 U	0.0005 U
1,2-Dichloroethane	µg/L	1.6	0.5 U	5 U	0.5 U	0.0005 U
1,2-Dichloropropane	µg/L	16	0.5 U	5 U	0.5 U	0.0005 U
1,3-Dichlorobenzene	µg/L	7600	1 U	50 U	0.5 U	0.0005 U
1,3-Dichloropropene	µg/L	5.2		4.2 U	0.5 U	0.0005 U
1,4-Dichlorobenzene	µg/L	8	1 U	50 U	0.5 U	0.001 U
2-Hexanone	µg/L	NV				0.001 U
Acetone	µg/L	100000	50 U	300 U	30 U	**0.31**
Bromodichloromethane	µg/L	67000	0.5 U	30 U	2 U	**12**
Bromoform	µg/L	380	1 U	50 U	5 U	**11**
Bromomethane	µg/L	5.6	3 U	5 U	0.5 U	**24**
Carbon tetrachloride	µg/L	0.79	0.5 U	2 U	0.2 U	**27**
Chlorobenzene	µg/L	500	0.5 U	5 U	0.5 U	**25**
Chlorodibromomethane	µg/L	65000	1 U	2 U	2 U	
Chloroethane	µg/L	NV				**21**
Chloroform	µg/L	2.4	0.5 U	1 U	1 U	0.003 U
Chloromethane	µg/L	NV				0.005 U
cis-1,2-Dichloroethene	µg/L	1.6	0.5 U	5 U	0.5 U	0.005 U
cis-1,3-Dichloropropene	µg/L	5.2	1 U	3 U	0.3 U	
Dichlorodifluoromethane	µg/L	3500		2 U	2 U	
Dichloromethane	µg/L	610	3 U	50 U	5 U	0.0001 U
Methyl Ethyl Ketone (2-Butanone)	µg/L	470000	29.99 U	2 U	20 U	**2.49**
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	µg/L	140000	29.99 U	2 U	20 U	**1.3**
Methyl tert-butyl ether (MTBE)	µg/L	190	1 U	2 U	2 U	0.0001 U
n-Hexane	µg/L	51		5 U	0.5 U	
Styrene	µg/L	1300	0.5 U	5 U	0.5 U	**106**
Tetrachloroethene	µg/L	1.6	0.5 U	5 U	0.5 U	**107**
trans-1,2-Dichloroethene	µg/L	1.6	0.5 U	5 U	0.5 U	**321**
trans-1,3-Dichloropropene	µg/L	5.2	1 U	3 U	0.3 U	
Trichloroethylene	µg/L	1.6	0.5 U	5 U	0.5 U	**100**
Trichlorofluoromethane	µg/L	2000		50 U	5 U	**106**
Vinyl Chloride	µg/L	0.5	0.19 U	5 U	0.5 U	**8.99**

Notes:

[a] Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Ground Water Condition, Resi

Bold text identifies detected results

Shaded cells indicate the result exceeded the Table 9 SCS

Blank cells indicate the parameter was not analyzed

µg/L = microgram(s) per litre

% = percent

BTEX = benzene, toluene, ethylbenzene, and xylenes

FD = field duplicate

ID = identification

mbgs = metre(s) below ground surface

mS/cm = millisiemens per centimetre

N =normal

NV = no value available

Napth = napthalene

PAH = polycyclic aromatic hydrocarbon

PHC = petroleum hydrocarbon

SCS = site condition standards

U = the analyte was not detected above the reported sample quantitation limit

VOC = volatile organic compound

Source:

Ontario Ministry of the Environment, Conservation and Parks (Ministry). 2011. Rationale for the Development of Soil and Ground \

Table 10. Summary of Groundwater Quality in EW-4.1 greater than 30 m from future water

Port Lands Sediment and Debris Management Area (SDMA), Toronto, Ontario

		Location	GOLDER BH12	GOLDER BH15	GOLDER BH15
		Date	5/18/2006	5/18/2006	2/19/2018
		Start Depth (mbgs)	1.2	1.5	1.5
		End Depth (mbgs)	3.66	4.5	4.5
		Sample ID	BH12	BH15	GW-11102463-021918-CC-BH15
		Sample Type	N	N	N
Chemical	**Unit**	**Table 3 SCS [a]**			
ABN					
1,2,4-Trichlorobenzene	µg/L	180	1 U	1 U	
2,4-Dimethylphenol	µg/L	39000	4.99 U	20 U	
2,4-Dinitrophenol	µg/L	11000	20 U	1 U	
2,4-Dinitrotoluene	µg/L	2900	3 U	3 U	
3,3`-Dichlorobenzidine	µg/L	640	4.99 U	4.99 U	
4-Chloroaniline	µg/L	400	10 U	10 U	
Bis (2-chloroethyl) ether	µg/L	300000	4.99 U	4.99 U	
bis (2-Chloroisopropyl) ether	µg/L	20000	4.99 U	4.99 U	
Bis (2-ethylhexyl) phthalate	µg/L	140	10 U	10 U	
Diethylphthalate	µg/L	38	10 U	1 U	
Dimethylphthalate	µg/L	38	1 U	1 U	
Phenol	µg/L	12000	4.99 U	4.99 U	
BTEX					
Benzene	µg/L	44	**1.8**	0.19 U	
Ethylbenzene	µg/L	2300	0.19 U	0.19 U	
Toluene	µg/L	18000	**0.6**	0.19 U	
Xylenes, Total	µg/L	4200	**1.7**	**0.39**	
Inorganic					
Chrom. to baseline at nC50	None	NV			**1**
Chlorophenol					
2,4,5-Trichlorophenol	µg/L	1600	4.99 U	4.99 U	
2,4,6-Trichlorophenol	µg/L	230	4.99 U	4.99 U	
2,4-Dichlorophenol	µg/L	4600	1 U	4.99 U	
2-Chlorophenol	µg/L	3300	1 U	1 U	
Pentachlorophenol	µg/L	62	1 U	4.99 U	
Metal					
Antimony	µg/L	20000	**12**	**1**	
Arsenic	µg/L	1900	**32**	**3**	
Barium	µg/L	29000	**470**	**330**	
Beryllium	µg/L	67	0.5 U	0.5 U	
Boron	µg/L	45000	**400**	**560**	
Cadmium	µg/L	2.7	0.09 U	0.09 U	
Chromium	µg/L	810	4.99 U	4.99 U	
Cobalt	µg/L	66	**20**	**13**	
Copper	µg/L	87	**2**	**0.09**	
Lead	µg/L	25	**1.9**	0.5 U	
Mercury	µg/L	0.29	0.09 U	0.09 U	
Molybdenum	µg/L	9200	**56**	1 U	
Nickel	µg/L	490	**20**	4.99 U	
Selenium	µg/L	63	2 U	2 U	
Silver	µg/L	1.5	0.09 U	0.09 U	
Thallium	µg/L	510	0.04 U	0.04 U	
Vanadium	µg/L	250	**2**	1 U	
Zinc	µg/L	1100	**43**	**8.99**	
Organochloro Pesticide					
Hexachloroethane	µg/L	94	2 U	2 U	
PAH					
1+2-Methylnaphthalenes	µg/L	1800	**25**	2 U	
1-Methylnaphthalene	µg/L	1800	**21**	2 U	
2-Methylnaphthalene	µg/L	1800	**4**	2 U	
Acenaphthene	µg/L	600	**7**	**4.99**	
Acenaphthylene	µg/L	1.8	2 U	2 U	
Anthracene	µg/L	2.4	0.5 U	**1.4**	
Benzo(a)anthracene	µg/L	4.7	**2.49**	**2.7**	
Benzo(a)pyrene	µg/L	0.81	**1.7**	**1.6**	
Benzo(b)fluoranthene	µg/L	0.75	**2.09**	**1.9**	
Benzo(g,h,i)perylene	µg/L	0.2	**1.3**	**0.89**	
Benzo(k)fluoranthene	µg/L	0.4	**0.79**	**0.79**	
Chrysene	µg/L	1	**1.6**	**1.4**	
Dibenzo(a,h)anthracene	µg/L	0.52	1 U	1 U	
Fluoranthene	µg/L	130	**4.99**	**4.99**	
Fluorene	µg/L	400	**9.99**	**4.99**	
Indeno(1,2,3-Cd)Pyrene	µg/L	0.2	1 U	1 U	
Naphthalene	µg/L	1400	2 U	2 U	
Phenanthrene	µg/L	580	**9.99**	**3**	
Pyrene	µg/L	68	**4.1**	**4.6**	
PCB					
Total PCBs	µg/L	7.8	0.04 U	0.04 U	
PHC					
F1 (C6-C10)	µg/L	750	**380**	100 U	25 U
F2 (C10-C16)	µg/L	150	**22000**	**9600**	**330**
F3 (C16-C34)	µg/L	500	**12000**	**4599.99**	250 U
F4 (C34-C50)	µg/L	500	**3700**	100 U	250 U
Total Hydrocarbons (C6-C50)	µg/L	NV			370 U
VOC					
1,1,1,2-Tetrachloroethane	µg/L	3.3	4.99 U	1 U	
1,1,1-Trichloroethane	µg/L	640	0.5 U	1 U	
1,1,2,2-Tetrachloroethane	µg/L	3.2	0.5 U	1 U	
1,1,2-Trichloroethane	µg/L	4.7	1 U	2 U	
1,1-Dichloroethane	µg/L	320	0.5 U	1 U	
1,1-Dichloroethene	µg/L	1.6	0.5 U	0.09 U	
1,2-Dibromoethane	µg/L	0.25	1 U	2 U	
1,2-Dichlorobenzene	µg/L	4600	1 U	2 U	
1,2-Dichloroethane	µg/L	1.6	0.5 U	1 U	
1,2-Dichloropropane	µg/L	16	0.5 U	1 U	
1,3-Dichlorobenzene	µg/L	9600	1 U	2 U	
1,4-Dichlorobenzene	µg/L	8	1 U	2 U	
Acetone	µg/L	130000	50 U	100 U	
Bromodichloromethane	µg/L	85000	0.5 U	1 U	
Bromoform	µg/L	380	1 U	2 U	
Bromomethane	µg/L	5.6	3 U	4.99 U	
Carbon tetrachloride	µg/L	0.79	0.5 U	1 U	
Chlorobenzene	µg/L	630	0.5 U	1 U	
Chlorodibromomethane	µg/L	82000	1 U	2 U	
Chloroform	µg/L	2.4	0.5 U	1 U	
cis-1,2-Dichloroethene	µg/L	1.6	0.5 U	1 U	
cis-1,3-Dichloropropene	µg/L	5.2	1 U	2 U	
Dichloromethane	µg/L	610	3 U	4.99 U	
Methyl Ethyl Ketone (2-Butanone)	µg/L	470000	29.99 U	50 U	
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	µg/L	140000	29.99 U	50 U	
Methyl tert-butyl ether (MTBE)	µg/L	190	1 U	2 U	
Styrene	µg/L	1300	0.5 U	1 U	
Tetrachloroethene	µg/L	1.6	0.5 U	1 U	
trans-1,2-Dichloroethene	µg/L	1.6	0.5 U	1 U	
trans-1,3-Dichloropropene	µg/L	5.2	1 U	2 U	
Trichloroethylene	µg/L	1.6	0.5 U	1 U	
Vinyl Chloride	µg/L	0.5	0.19 U	0.19 U	

Notes:

[a] Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition, Residential/ Parkland/ Institutional Property Use, Coarse Textured Soils (Ministry, 2011)

Bold text identifies detected results

Shaded cells indicate the result exceeded the Table 3 SCS

Blank cells indicate the parameter was not analyzed

µg/L = microgram(s) per litre

% = percent

ABN = acide, base, neutral compound

BTEX = benzene, toluene, ethylbenzene, and xylenes

F = fraction

FD = field duplicate

ID = identification

mbgs = metre(s) below ground surface

mS/cm = millisiemens per centimetre

N =normal

NV = no value available

Napth = napthalene

PAH = polycyclic aromatic hydrocarbon

PHC = petroleum hydrocarbon

SCS = site condition standards

U = the analyte was not detected above the reported sample quantitation limit

VOC = volatile organic compound

Source:

Ontario Ministry of the Environment, Conservation and Parks (Ministry). 2011. Rationale for the Development of Soil and Ground Water Standards for Use at Contaminated Sites in Ontario. April 15.

Figures

Note:
1. Earth works boundaries and design contours from MVVA, April, 2019.
2. Refer to accompanying text and tables for more details.

DRAFT

Figure 1
Soil and Sediment Samples to Remain in Place (Compared to Future Design)
An Update to the Due Diligence Study, Sediment Management Area Interim Solution
Waterfront Toronto
Toronto, Ontario

JACOBS

\\BROOKSIDEFILES\GIS_SHARE\ENBG\00_PROJ\W\WATERFRONTTORONTO\MAPFILES\TECHMEMO\SDMA\JUNE2019\SDMA_SAMPLESREMAINING.MXD ABATES1 6/24/2019 10:54:25 AM

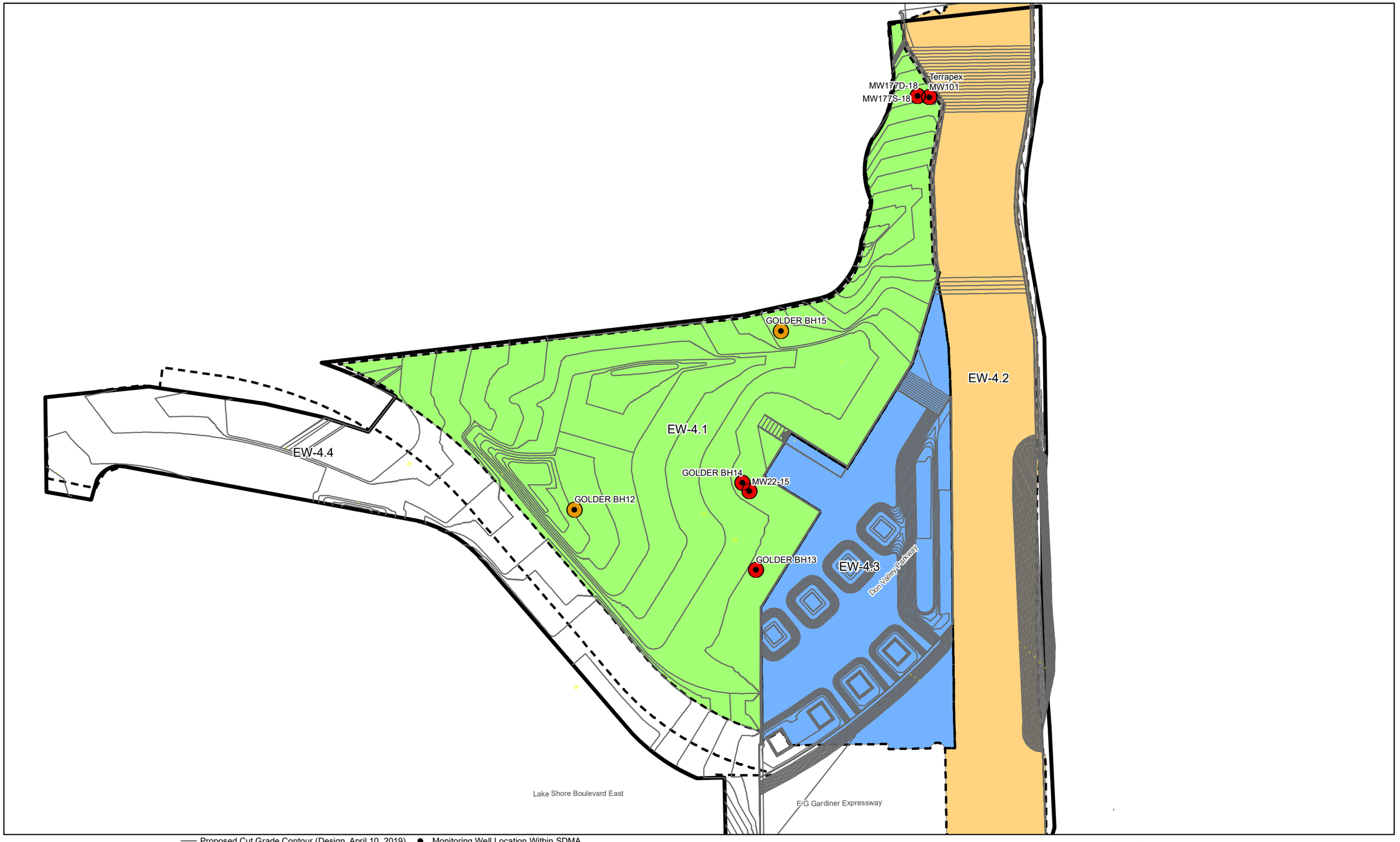
Note:
1. Earth works boundaries and design contours from MVVA, April, 2019.
2. Refer to accompanying text and tables for more details.

DRAFT

Figure 2
Soil and Sediment Samples To Be Excavated (Compared to Future Design)
An Update to the Due Diligence Study, Sediment Management Area Interim Solution
Waterfront Toronto
Toronto, Ontario

JACOBS

\\BROOKSIDEFILES\GIS_SHARE\ENBG\00_PROJ\W\WATERFRONTTORONTO\MAPFILES\TECHMEMO\SDMA\JUNE2019\SDMA_SAMPLESEXCAVATED.MXD ABATES1 6/24/2019 10:53:54 AM



Note:
1. Earth works boundaries and design contours from MVVA, April, 2019.
2. Refer to accompanying text and tables for more details.

DRAFT

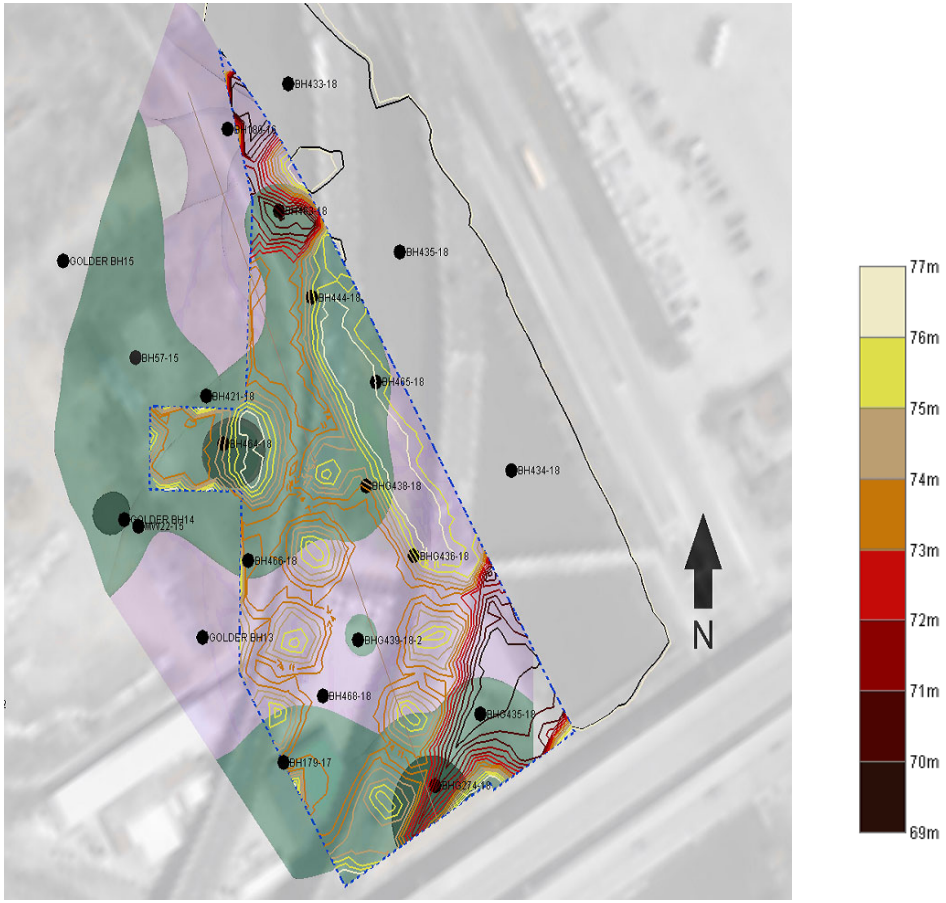
Figure 3
Monitoring Wells with Groundwater Samples
An Update to the Due Diligence Study, Sediment Management Area Interim Solution
Waterfront Toronto
Toronto, Ontario

JACOBS

\\BROOKSIDEFILES\GIS_SHARE\ENBG\00_PROJ\WI\WATERFRONTTORONTO\MAPFILES\TECHMEMO\SDMA\JUNE2019\SDMA_GW_SAMPLES.MXD ABATES1 6/24/2019 10:43:39 AM

Figure 4: Visualized Soil Contamination in Sediment and Debris Management Area (SDMA)

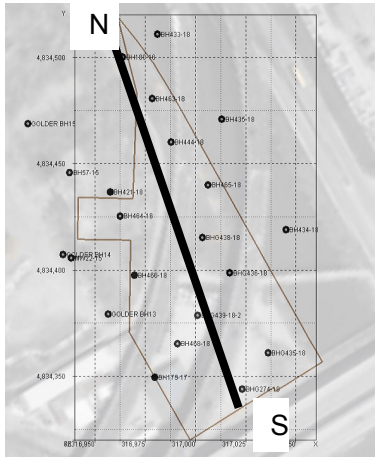
- Potential NAPL (Total Petroleum Hydrocarbon 1,500 mg/kg – 8,000 mg/kg)
- Potential Mobile NAPL (Total Petroleum Hydrocarbon > 8,000 mg/kg)
- Metals exceeding MECP Table 1 Soil Standards
- Soil/Sediment Sample
- EW 4.3 Excavation Area Boundary



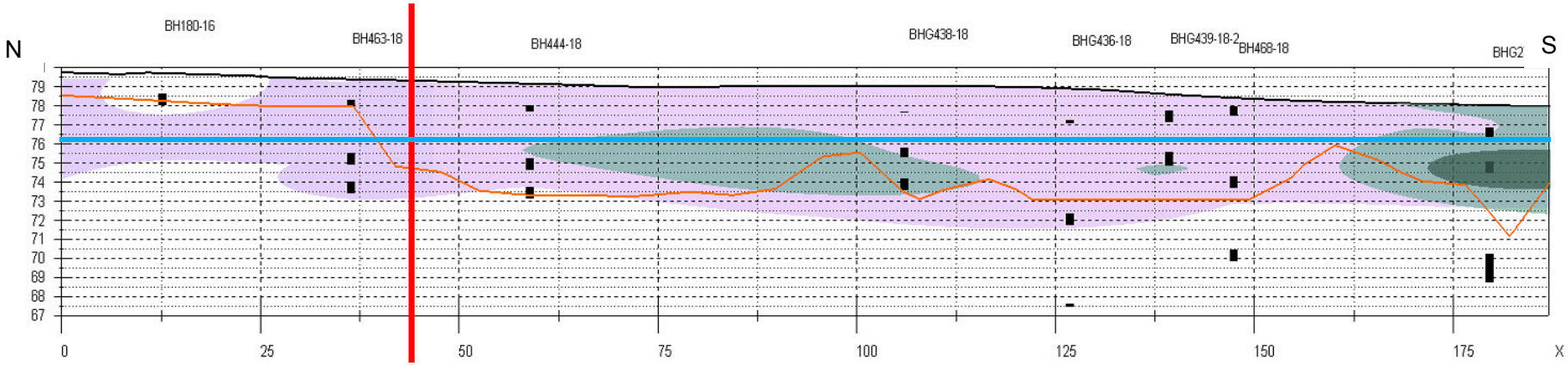
Note: Excavation Grade contours in the current river channel (EW 4.2 area) have been approximated based on current MVVA design.

JACOBS

Figure 5: North-South Cross-Section of Soil Contamination through EW-4.3 (SDMA)



- Potential NAPL (Total Petroleum Hydrocarbon 1,500 mg/kg – 8,000 mg/kg)
- Potential Mobile NAPL (Total Petroleum Hydrocarbon > 8,000 mg/kg)
- Metals exceeding MECP Table 1 Soil Standards
- Maximum Anticipated Groundwater Elevation (76.3 mASL)
- Soil Sample within 20 metres of cross-section line
- Future Grading Plan (May 2019)
- Current Ground Surface
- EW 4.3 Boundary



2:1 Vertical Exaggeration

JACOBS

Figure 6: East-West Cross-Section of Soil Contamination through EW-4.3 (SDMA)

Potential NAPL (Total Petroleum Hydrocarbon 1,500 mg/kg – 8,000 mg/kg)

Potential Mobile NAPL (Total Petroleum Hydrocarbon > 8,000 mg/kg)

Metals exceeding MECP Table 1 Soil Standards

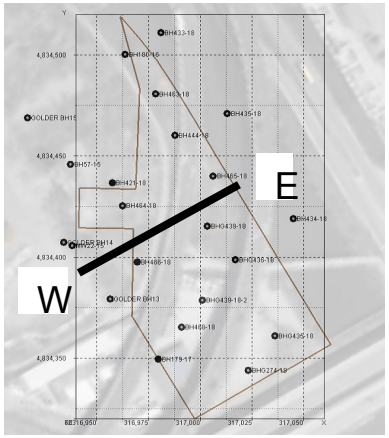
Maximum Anticipated Groundwater Elevation (76.3 mASL)

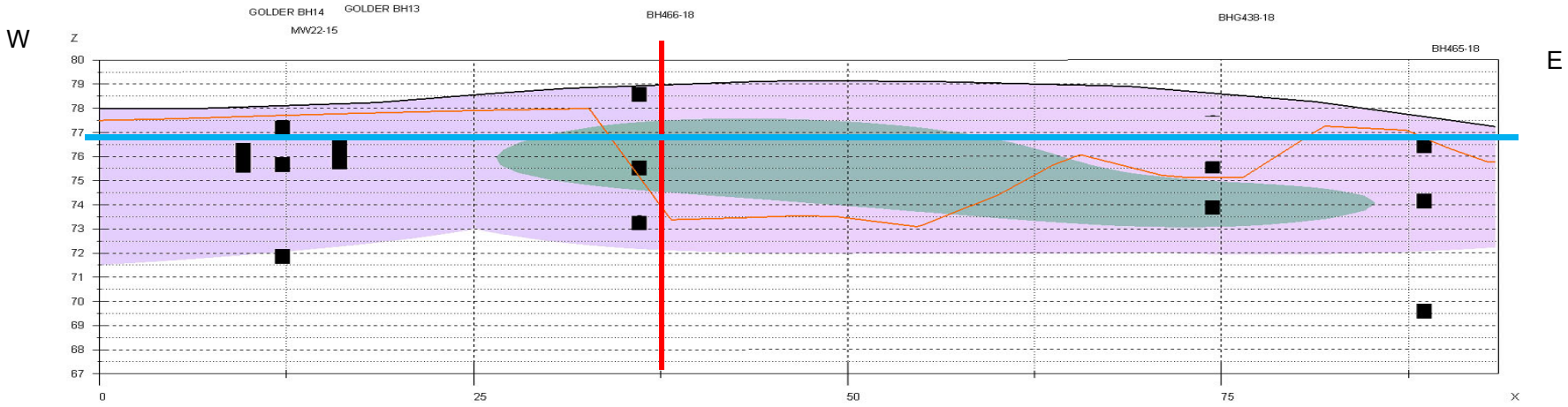
Soil Sample within 20 metres of cross-section line

Future Grading Plan (May 18, 2019)

Current Ground Surface

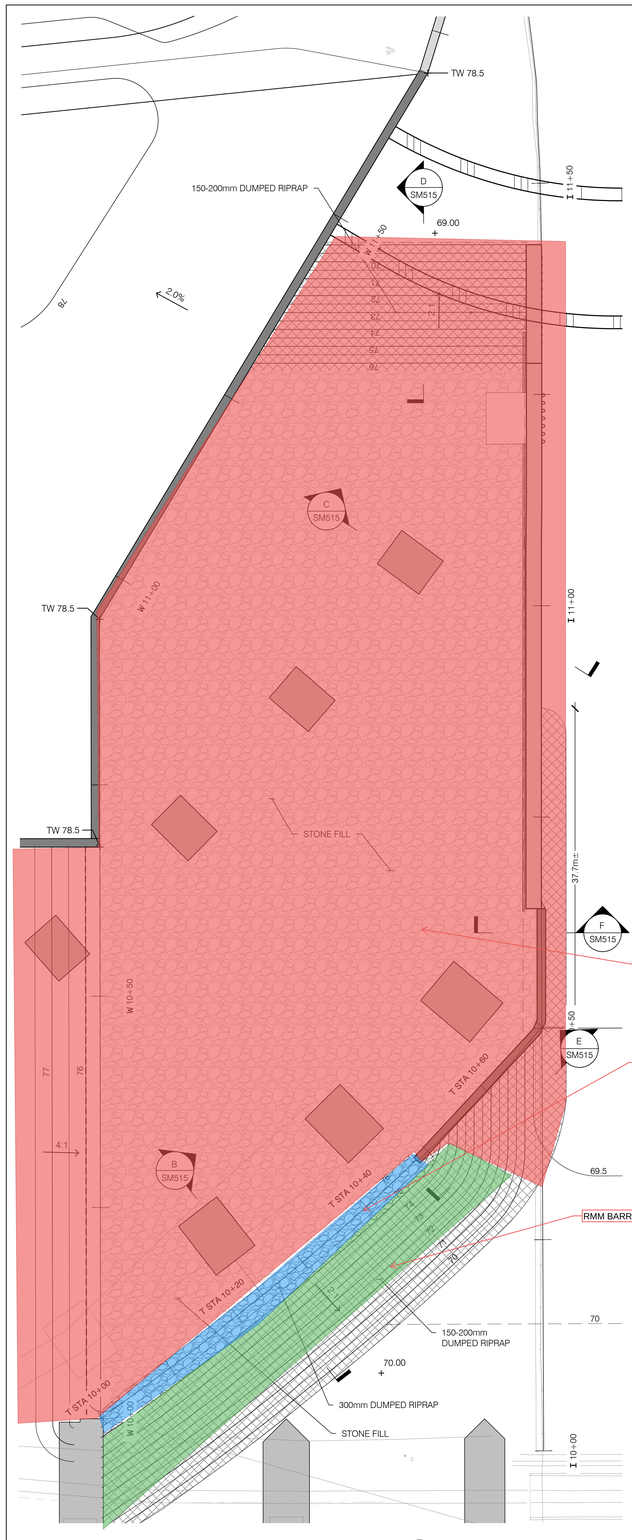
EW 4.3 Boundary



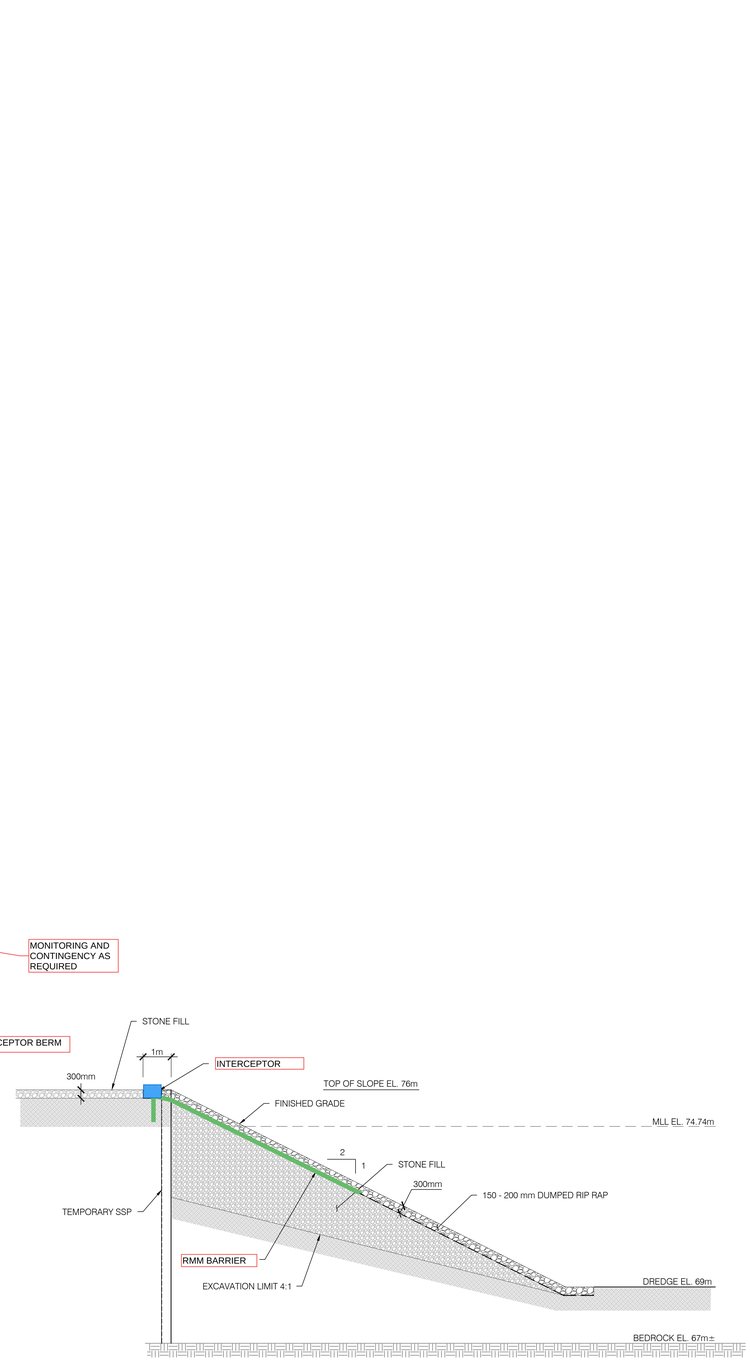


2:1 Vertical Exaggeration

JACOBS



A SM515 LAYOUT PLAN
SCALE: 1:250



D SM515 TYPICAL CROSS SECTION III
SCALE: 1:75

AKE ONTARIO LAKE ELEVATION
HIGH LAKE LEVEL (HLL) 76.09m
MEAN LAKE LEVEL (MLL) 74.74m
LOW LAKE LEVEL (LLL) 74.24m

1.25m 0 1.25m 2.5m
SCALE: 1:25

5m 0 5m 10m
SCALE: 1:100

12.5m 0 12.5m 25m
SCALE: 1:250

Thursday, February 13, 2020 3:31:26 PM

PORTLANDS FLOOD PROTECTION AND ENABLING INFRASTRUCTURE (PLFP)
Toronto, ON

Client
Waterfront Toronto
20 Bay St
Toronto ON, M5J 2N8
Canada
Tel: 416.214.1344

Landscape Architecture and Project Lead
Michael Van Valkenburgh Associates, Inc.
Landscape Architects
231 Concord Ave
Cambridge, MA 02138 USA
Tel: 617-864-2076

Ecology
Inter-Fluve
220 Concord Ave, 2nd Floor
Cambridge, MA 02138 USA
Tel: 617-714-5537

Marine/Coastal Engineering
GEI Consultants
124 Grove Street, Suite 300
Franklin, MA 02038-3156 USA
Tel: 781-721-4043

Geotechnical, Earthwork and Env. Engineering
Jacobs
245 Consumers Road, Suite 400
Toronto, ON M2J 1R3 CANADA
Tel: 416-499-0090

River Geotechnical Engineering
Geosyntec Consultants International
130 Stone Road West
Guelph, ON N1G 3Z2 CANADA
Tel: 416-561-3581

Hydrologic Design
LimnoTech
501 Avis Drive
Ann Arbor, MI 48108 USA
Tel: 734-332-1200

Soil Science
Olsson Associates
1301 Burlington St
North Kansas City, MO 64116 USA
Tel: 402-474-6311

Structural Engineering
RJC Engineers
144 Front Street West, Suite 1301
Toronto, ON M5J 2L7 CANADA
Tel: 416-977-5335

Civil Engineering
WSP Canada Group Limited
100 Commerce Valley Drive West
Thornhill, ON L3T 0A1 CANADA
Tel: 905-882-4211 Ext 6486

Electrical Engineering
Smith + Andersen
1100 - 100 Sheppard Ave. East
Toronto, ON M2N 6N5 CANADA
Tel: 416-487-8151

Irrigation
Hines, Inc
323 West Drake Road, Suite 204
Fort Collins, CO 80526
Tel: 970-282-1800

Wetland and Meadow Consultant
Dougan and Associates
77 Wyndham Street South
Guelph, ON N1E 5R3 CANADA
Tel: 519-822-1609

Operations and Maintenance
ETM Associates, L.L.C.
1202 Raritan Ave
Highland Park, NJ 08904 USA
Tel: 732-572-6626

Cost Estimating
Vermeulens
9835 Leslie St.
Toronto, ON L4B 3Y4 CANADA
Tel: 905-787-1880

Wayfinding and Signage Consultant
Entro Communications
33 Harbour Square, Suite 202
Toronto, ON M5J 2G2 CANADA
Tel: 416-368-6988

Code Consultant
LMDG
300 North Queen St, Suite 206
Toronto, ON M9C 5K4 CANADA
Tel: 416-646-0162

SEAL

60% DESIGN
WORK PACKAGE #12

REVISIONS

NO.	DATE	DESCRIPTION

DRAWING TITLE

REVETMENTS & SCOUR PROTECTION - INTERIM AREA

JOB NUMBER: 07009
DATE: 27 February 2020
SCALE:
DRAWN BY: JSF, ASC, JRB
CHECKED BY:

SM515

Attachment 1

This document is in draft form. A final version of this document may differ from this draft. As such, the contents of this draft document shall not be relied upon. GHD disclaims any responsibility or liability arising from decisions made based on this draft document.

April 30, 2019 Reference No. 11102463-53

Ms. Meggen Janes
Director Soil and Groundwater Management & Brownfield Approvals
Waterfront Toronto
20 Bay Street, Suite 1310
Toronto, Ontario
M5J 2N8

Dear Ms. Janes:

Re: Field Investigation Methodology – RMM – SDMA – IO Lands – Contract No. 2103
Port Lands Environmental, Geotechnical and Hydrogeological Investigation
RFP #2015-23
Waterfront Toronto

1. Introduction

GHD has prepared this letter which presents the methodology for the field activities completed on the Infrastructure Ontario (IO) Lands in the Sediment and Debris Management Area (SDMA) (Site) as part of the Risk Management Measures (RMM) investigation. GHD was retained by Waterfront Toronto to undertake the field activities. GHD completed the field investigations based on the sampling and analysis plans provided to GHD by Jacobs.

2. Scope of Investigation

2.1 Overview of Site Investigation

The scope of work for the Phase Two ESA investigation is presented in the Sampling and Analysis Plan (SAP) provided by Jacobs. The portion of the SAP that applies to this investigation is presented in **Attachment A**. The following presents the investigations completed at the Site in November 2018. The work was completed by or under the supervision of a Qualified Person as defined in Section 5 of Ontario Regulation 153/04 (O. Reg. 153/04).

2.2 Media Investigated

In November 2018, GHD completed the following investigative activities:

- Advancement of three boreholes to a maximum depth of 11.12 metres below ground surface (m BGS) to facilitate soil sample collection.
- Field screening of soil samples during borehole advancement including qualitative observations (i.e., visual and olfactory evidence of impact) and quantitative measurements using a photoionization detector (PID).

- Collection of 14 soil samples (including five field duplicate samples) for laboratory analysis of one or more of the following:
  - Volatile organic compounds (VOCs)
  - Petroleum hydrocarbons (PHCs)
  - Polycyclic aromatic hydrocarbons (PAHs)
  - Polychlorinated biphenyls (PCBs) + Aroclors
  - Metals and inorganics
  - OC pesticides
  - Chlorophenols
- Submission of one trip blank for laboratory analysis of PHC F1 and VOCs.
- Survey of Site features and investigation locations to a geodetic benchmark for lateral and vertical control.

Sediment or surface water sampling was not undertaken as part of this investigation as none was outlined in the SAP.

The investigative locations are presented on **Figure 1**.

2.3 Deviations from Sampling and Analysis Plan

There were no deviations from the sampling and analysis plan.

2.4 Impediments

No impediments were encountered during this investigation.

3. Investigation Method

3.1 General

The followings activities were undertaken during the Phase Two ESA investigation:

- Advancement of boreholes.
- Collection of soil samples for field screening measurements, geologic logging and observations.
- Collection of soil samples for laboratory analysis.
- Analytical testing of soil samples.
- Management of investigation derived waste.
- Quality assurance and quality control (QA/QC) measures including collection and analysis of field duplicates and trip blank samples.

- Elevation surveying.

GHD completed the field activities in accordance with O. Reg. 153/04, as amended.

Prior to completing any of the investigation activities in the Port Lands, GHD prepared and reviewed a Site-specific Health and Safety Plan (HASP). The purpose of the HASP was to provide site specific guidelines and procedures for the protection of personnel performing the Site investigation activities.

3.2 Drilling and Excavating

GHD retained Aardvark Drilling Inc. (Aardvark) of Guelph [a Ontario Ministry of Environment, Conservation and Parks (MECP) licensed driller], to complete the drilling program. Three boreholes were advanced in November 2018 (BH18-421, BH18-464, and BH18-466). Boreholes were advanced to depths ranging from 8.22 to 11.12 m BGS using hollow stem augers (HSA) (4.25-inch (108-millimetre [mm]) inside diameter and 8.5-inch (216-mm) outside diameter hollow stem augers). During advancement of the boreholes, soil samples were collected with 0.61 m long stainless steel split spoons that had an inside diameter of 51-mm. Soil samples were collected at the intervals specified in the SAP.

Augers and spilt-spoons were cleaned between each location by manual scrubbing followed by a water detergent wash using Alconox® soap and water.

Stratigraphic logs for the boreholes are provided in **Attachment B**.

3.2.1 Utility Locates

Prior to the investigation activities, GHD completed the public utility notifications and retained private utility locators (On Site Locates) to assist with on-Site utility clearance.

3.2.2 Geophysical Investigation

A geophysical investigation was not completed as part of this investigation.

3.2.3 Test Pitting

Test pits were not excavated as part of this investigation.

3.2.4 Soil Vapour Investigation

A soil vapour investigation was not completed as part of this investigation.

3.3 Soil Sampling

Soil samples were collected to the final depth of investigation in all boreholes using 0.61 metre long stainless steel split spoons. The soil was logged using the Unified Soil Classification System (USCS), making special note of any visual or olfactory evidence of potential impacts.

GHD personnel collected the soil samples for laboratory analysis from the stainless steel split-spoons in accordance with the SAP. This included collection of samples from the interval with the highest

photoionization reading (PID) reading or the sample exhibiting the strongest visual or olfactory evidence of impact, as well as samples for vertical delineation based on field evidence of impact or in accordance with the SAP. GHD collected soil samples in laboratory supplied glass containers and immediately placed the samples in a cooler for sample preservation. Samples for VOCs and/or PHC F1 analysis were collected using the methanol preservation method. Soil samples were placed in coolers packed with ice and submitted to ALS Laboratory Group (ALS) for analysis using chain-of-custody-procedures. GHD field personnel donned a new pair of disposable nitrile gloves between each soil sample location.

Samples were submitted for analysis of one or more of the following: VOCs, PHCs, PAHs, metals and inorganics, PCBs, OC Pesticides and/or chlorophenols. Field duplicates and soil VOC and PHC F1 trip blanks were submitted for laboratory analysis for QA/QC purposes. Soil samples were packed on ice to ensure proper temperature upon arrival at the laboratory.

Stratigraphic logs are provided in **Attachment B.** A sample identification key is presented as **Table 1**.

3.4 Field Screening Measurements

Immediately upon opening the split spoon, field personnel screened the soils for undifferentiated VOC vapour readings using a PID. A soil sample was collected from stainless steel spoon from each 0.61-m (2-foot) interval and placed into a sealable plastic bag for headspace screening. The soils were allowed to equilibrate prior to measuring headspace readings for organic vapours using a calibrated PID.

Prior to screening, the PID was inspected and calibrated in accordance with the manufacturer's recommendations. Calibrating the PID (MiniRae 2000) is a two-point process using "fresh air" and the standard reference gas (also known as span gas). First, a "fresh air" calibration, which contained no detectable VOCs (0.0 parts per million [ppm]), was used to set the zero point for the sensor. Then, a standard reference gas (isobutylene) that contains a known concentration (100 ppm) was used to set the second reference point.

PID specifications are listed below:

Detector:	Photoionization detector with a 10.6-eV UV lamp
Measurement Accuracy (isobutylene):	0 to 2,000 ppm: ±2 ppm or 10 percent of reading >2,000 ppm: ±20 percent of reading
Calibration:	Two-point field calibration of zero and standard reference gas

The results of the screening and soil classifications are presented on the stratigraphic logs provided in **Attachment B**.

3.5 Groundwater: Monitoring Well Installation

Monitoring wells were not installed during this investigation**.**

3.5.1 Temporary Piezometer Installation

Temporary monitoring wells were not installed during this investigation.

3.6 Groundwater: Field Measurement of Water Quality Parameters and Monitoring Well Development

Groundwater samples were not collected during this investigation as monitoring wells were not installed. Therefore, field measurements of water quality parameters and monitoring well development was not collected during this investigation.

3.6.1 Water Level Measurements

Water levels were not measured during this investigation.

3.7 Groundwater: Sampling

Groundwater sampling was not undertaken during this investigation.

3.8 Sediment: Sampling

Sediment samples were not collected during this investigation.

3.9 Analytical Testing

Soil samples were submitted to ALS, a Canadian Association for Laboratory Accreditation Inc. (CALA) accredited analytical laboratory, for laboratory analysis. Soil samples were submitted for select laboratory analysis of one or more of: VOCs, PAHs, PHCs, metals and inorganics, PCBs, OC Pesticides and/or chlorophenols. The laboratory Certificate of Analysis is presented in **Attachment C**. The soil analytical results are presented in **Table 2**.

3.10 Residue Management Procedures

Soil cuttings, drilling liquids, and equipment decontamination wash water were temporarily contained in 205-litre (55-gallon) metal drums for characterization and subsequent off-Site disposal. All of the drummed soil and water wastes generated during this investigation were/will be removed and disposed of at an MECP-approved waste receiver. Information documenting the removal/disposal of the wastes will be provided at a later date.

3.11 Elevation Surveying

GHD surveyed the locations and elevations of the boreholes. The benchmark used for this surveying was BM CT180, which had an indicated elevation of 77.291 m above mean sea level (AMSL). This benchmark is located on a one storey brick office building at the corner of Villiers Street and Cherry Street. The error is 4 centimetres or less.

3.12 Quality Assurance and Quality Control Measures

A QA/QC program was implemented during GHD's investigation to ensure quality data were generated, as documented in the SAP (**Attachment A**). Soil samples were collected in laboratory supplied containers. Depending on the analysis to be performed, some bottles contained small amounts of preservative. GHD labelled the sample bottles in the field and provided each sample with a unique sample identification number. Samples were submitted under chain-of-custody protocol to the analytical laboratory for chemical analysis. From the time of collection to the time of submission to the laboratory, samples were stored in a cooler to maintain sample integrity.

The QA/QC program also included the collection of field duplicate samples and trip/travel blanks to validate the field analysis. This was completed at a minimum frequency of one per ten samples collected (field duplicates) and one per submission (trip blanks). These samples were analyzed in addition to the analysis of QC samples completed by the laboratory as required by their analytical methods.

The following measures were taken for quality assurance:

- GHD field personnel donned a new pair of disposable nitrile gloves between collection of each soil sample.
- The stainless steel drilling and sampling equipment was thoroughly cleaned using Alconox® soap and potable water prior to use and between each borehole location,.

A data validation memorandum, prepared by a GHD chemist, and is provided in **Attachment D**, was completed to provide a review of the analytical laboratory data. Based on the review and validation provided in the memoranda, the analytical data are of acceptable precision and accuracy for their intended use with the qualifications and exceptions noted in the memoranda.

Should you have any questions, please do not hesitate to contact the undersigned.

Sincerely,

GHD

Jessica Bruce, B.A.Sc. Thomas Guoth, P. Eng.

JB/ps/39

Encl.

cc: Dave Hutchinson, GHD
Julia Serink, GHD
Michael Evans, GHD

Figures

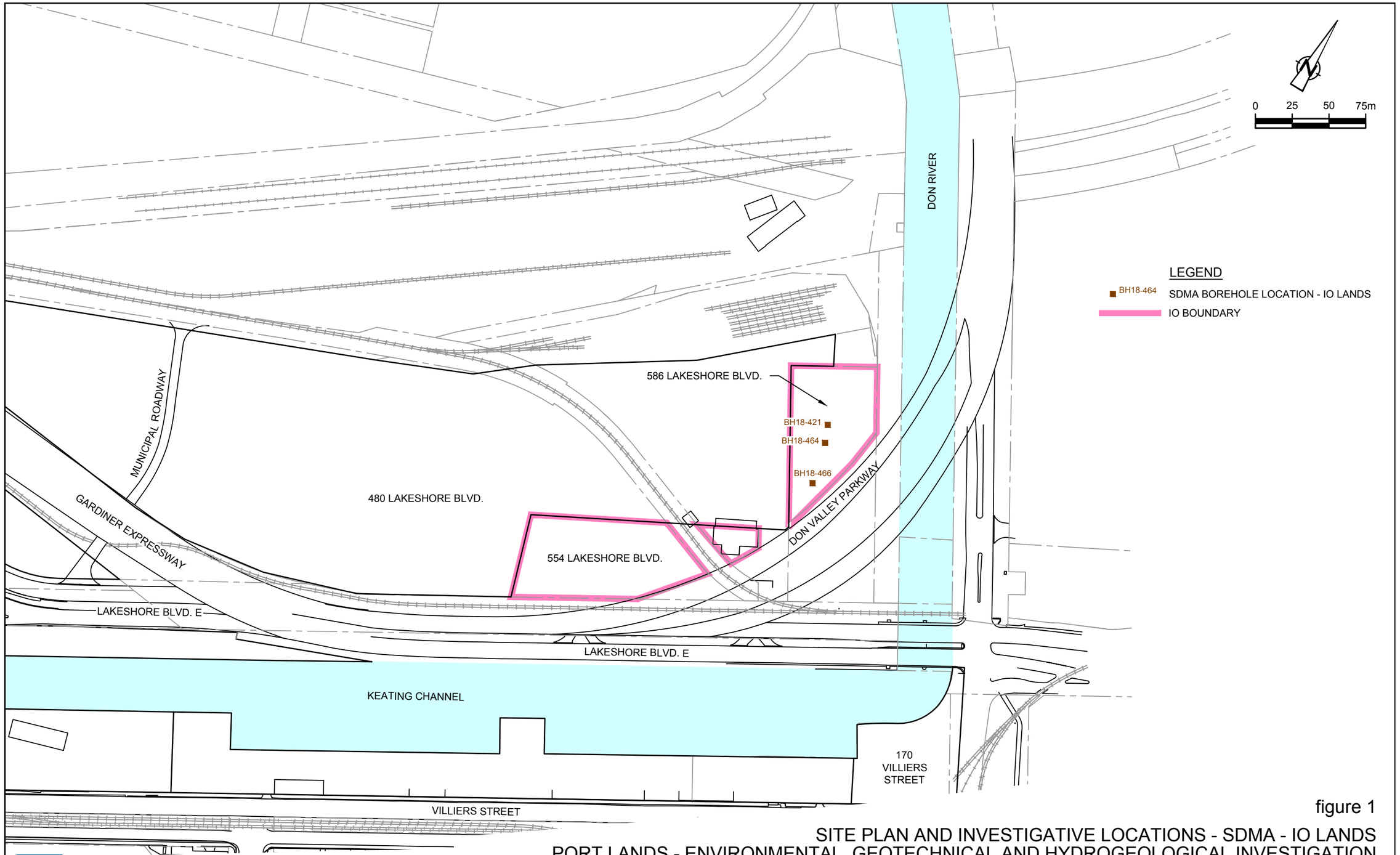


figure 1

SITE PLAN AND INVESTIGATIVE LOCATIONS - SDMA - IO LANDS
PORT LANDS - ENVIRONMENTAL, GEOTECHNICAL AND HYDROGEOLOGICAL INVESTIGATION
CONTRACT No. 2103
Waterfront Toronto

SOURCES:
1. J. D. BARNES SOURCE: 1820 AND 1912 SHORELINE SOURCE, THE ACHEOLOGICAL MASTER PLAN OF THE CENTRAL WATERFRONT, CITY OF TORONTO.

P:\drawings\11100000s\11102463\11102463-CORR\11102463-53(JANE039)\11102463-53(JANE039)GN\11102463-53(JANE039)GN-WA001.dwg Plot Date: APR 26, 2019

Tables

Table 1

Sample Identification Key and Analytical Parameters List
SDMA - IO Lands
Toronto Port Lands
Toronto, Ontario
Waterfront Toronto

Sample Location	Sample Identification [1]	Sample Date	Sample Depth (metres)	Sample Type	COA	Parameters						
						VOCs	PAHs	Metals/ Inorganics	PHCs	PCBs	OC Pesticides	Chlorophenols
BH18-421	S-11102463-112318-SM-BH18-421-0-2	11/23/2018	0-0.61	N	L2201309	√	√	√	√	√	√	√
BH18-421	S-11102463-112318-SM-BH18-421-7.5-9.5	11/23/2018	2.29-2.9	N	L2201309	√	√	√	√	√	√	√
BH18-421	S-11102463-112318-SM-BH18-421-DUP4	11/23/2018	2.29-2.9	FD	L2201309						√	√
BH18-421	S-11102463-112318-SM-BH18-421-22.5-24.5	11/23/2018	6.86-7.47	N	L2201309	√	√	√	√			
BH18-421	S-11102463-112318-SM-BH18-421-DUP5	11/23/2018	6.86-7.47	FD	L2201309				√			
BH18-464	S-11102463-112218-SM-BH18-464-2.5-4.5	11/22/2018	0.76-1.37	N	L2201309	√	√	√	√	√	√	√
BH18-464	S-11102463-112218-SM-BH18-464-DUP	11/22/2018	0.76-1.37	FD	L2201309			√				
BH18-464	S-11102463-112218-SM-BH18-464-12.5-14.5	11/22/2018	3.81-4.42	N	L2201309	√	√	√	√	√	√	√
BH18-464	S-11102463-112218-SM-BH18-464-20-22	11/22/2018	6.1-6.71	N	L2201309	√	√	√	√			
BH18-464	S-11102463-112218-SM-BH18-464-DUP2	11/22/2018	6.1-6.71	FD	L2201309	√						
BH18-466	S-11102463-112218-SM-BH18-466-0-2	11/22/2018	0-0.61	N	L2201309	√	√	√	√	√	√	√
BH18-466	S-11102463-112218-SM-BH18-466-10-12	11/22/2018	3.05-3.66	N	L2201309	√	√	√	√	√	√	√
BH18-466	S-11102463-112218-SM-BH18-466-17.5-19.5	11/22/2018	5.33-5.94	N	L2201309	√	√	√	√			
BH18-466	S-11102463-112218-SM-BH18-466-DUP3	11/22/2018	5.33-5.94	FD	L2201309		√					
-	Trip Blank	11/23/2018	-	TB	L2201309	√			√ [2]			

Notes:

[1] Complete sample identification for S-1102463-032718-GME-001: The first letter (S) denotes soil; the following digits give the project number; the following digits give the sample date; the following letters are the sampler's initials; the following digits give the sample number/well idenfication number.

[2] Analyzed for PHC fraction F1 only

N Normal
FD Field Duplicate
TB Trip Blank
COA Certificate of Analysis
VOCs Volatile Organic Compounds
PAHs Polycyclic Aromatic Hydrocarbons
PHC Petroleum Hydrocarbon
PCBs Polychlorinated Biphenyls

Table 2

Soil Analytical Results
SDMA - IO Lands
Toronto Port Lands
Toronto, Ontario
Waterfront Toronto

Location ID:		**BH18-421**	**BH18-421**	**BH18-421**	**BH18-421**	**BH18-421**
Sample Name:		**S-11102463-112318-SM-BH18-421-0-2**	**S-11102463-112318-SM-BH18-421-7.5-9.5**	**S-11102463-112318-SM-BH18-421-DUP4**	**S-11102463-112318-SM-BH18-421-22.5-24.5**	**S-11102463-112318-SM-BH18-421-DUP5**
Sample Date:		**11/23/2018**	**11/23/2018**	**11/23/2018**	**11/23/2018**	**11/23/2018**
Depth:		**0-0.61 m BGS**	**2.29-2.9 m BGS**	**2.29-2.9 m BGS**	**6.86-7.47 m BGS**	**6.86-7.47 m BGS**
						Duplicate
Parameters	**Unit**					
Volatile Organic Compounds						
1,1,1,2-Tetrachloroethane	µg/g	ND(0.050)	ND(0.050)	--	ND(0.050)	--
1,1,1-Trichloroethane	µg/g	ND(0.050)	ND(0.050)	--	ND(0.050)	--
1,1,2,2-Tetrachloroethane	µg/g	ND(0.050)	ND(0.24) DLVH	--	ND(0.050)	--
1,1,2-Trichloroethane	µg/g	ND(0.050)	ND(0.050)	--	ND(0.050)	--
1,1-Dichloroethane	µg/g	ND(0.050)	ND(0.050)	--	ND(0.050)	--
1,1-Dichloroethene	µg/g	ND(0.050)	ND(0.050)	--	ND(0.050)	--
1,2-Dibromoethane (Ethylene dibromide)	µg/g	ND(0.050)	ND(0.050)	--	ND(0.050)	--
1,2-Dichlorobenzene	µg/g	ND(0.050)	ND(0.050)	--	ND(0.050)	--
1,2-Dichloroethane	µg/g	ND(0.050)	ND(0.050)	--	ND(0.050)	--
1,2-Dichloropropane	µg/g	ND(0.050)	ND(0.050)	--	ND(0.050)	--
1,3-Dichlorobenzene	µg/g	ND(0.050)	ND(0.050)	--	ND(0.050)	--
1,4-Dichlorobenzene	µg/g	ND(0.050)	ND(0.050)	--	ND(0.050)	--
2-Butanone (Methyl ethyl ketone) (MEK)	µg/g	ND(0.50)	ND(0.50)	--	ND(0.50)	--
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/g	ND(0.50)	ND(0.50)	--	ND(0.50)	--
Acetone	µg/g	ND(0.50)	0.57	--	ND(0.50)	--
Benzene	µg/g	0.0321	0.125	--	ND(0.0068)	--
Bromodichloromethane	µg/g	ND(0.050)	ND(0.050)	--	ND(0.050)	--
Bromoform	µg/g	ND(0.050)	ND(0.050)	--	ND(0.050)	--
Bromomethane (Methyl bromide)	µg/g	ND(0.050)	ND(0.050)	--	ND(0.050)	--
Carbon tetrachloride	µg/g	ND(0.050)	ND(0.050)	--	ND(0.050)	--
Chlorobenzene	µg/g	ND(0.050)	ND(0.050)	--	ND(0.050)	--
Chloroform (Trichloromethane)	µg/g	ND(0.050)	ND(0.050)	--	ND(0.050)	--
cis-1,2-Dichloroethene	µg/g	ND(0.050)	ND(0.050)	--	ND(0.050)	--
cis-1,3-Dichloropropene	µg/g	ND(0.030)	ND(0.030)	--	ND(0.030)	--
cis-1,3-Dichloropropene/trans-1,3-Dichloropropene	µg/g	ND(0.042)	ND(0.042)	--	ND(0.042)	--
Dibromochloromethane	µg/g	ND(0.050)	ND(0.050)	--	ND(0.050)	--
Dichlorodifluoromethane (CFC-12)	µg/g	ND(0.050)	ND(0.050)	--	ND(0.050)	--
Ethylbenzene	µg/g	0.048	0.131	--	ND(0.018)	--
Hexane	µg/g	0.172	0.717	--	ND(0.13) RRR	--
m&p-Xylenes	µg/g	0.209	0.410	--	ND(0.030)	--
Methyl tert butyl ether (MTBE)	µg/g	ND(0.050)	ND(0.050)	--	ND(0.050)	--
Methylene chloride	µg/g	ND(0.050)	ND(0.050)	--	ND(0.050)	--
o-Xylene	µg/g	0.143	0.167	--	ND(0.020)	--
Styrene	µg/g	ND(0.050)	ND(0.050)	--	ND(0.050)	--
Tetrachloroethene	µg/g	ND(0.050)	ND(0.050)	--	ND(0.050)	--
Toluene	µg/g	0.131	0.293	--	ND(0.080)	--
trans-1,2-Dichloroethene	µg/g	ND(0.050)	ND(0.050)	--	ND(0.050)	--
trans-1,3-Dichloropropene	µg/g	ND(0.030)	ND(0.030)	--	ND(0.030)	--
Trichloroethene	µg/g	ND(0.010)	ND(0.010)	--	ND(0.010)	--
Trichlorofluoromethane (CFC-11)	µg/g	ND(0.050)	ND(0.050)	--	ND(0.050)	--
Vinyl chloride	µg/g	ND(0.020)	ND(0.020)	--	ND(0.020)	--
Xylenes (total)	µg/g	0.351	0.577	--	ND(0.050)	--
Polycyclic Aromatic Hydrocarbons						
1-Methylnaphthalene	µg/g	0.177 DLM	0.194 DLM	--	ND(0.030)	--
1-Methylnaphthalene/2-Methylnaphthalene	µg/g	0.372	0.446	--	ND(0.042)	--
2-Methylnaphthalene	µg/g	0.195 DLM	0.252 DLM	--	ND(0.030)	--
Acenaphthene	µg/g	0.34 DLM	ND(0.10) DLM	--	ND(0.050)	--
Acenaphthylene	µg/g	0.27 DLM	ND(0.10) DLM	--	ND(0.050)	--
Anthracene	µg/g	0.95 DLM	0.25 DLM	--	ND(0.050)	--
Benzo(a)anthracene	µg/g	3.41 DLM	1.03 DLM	--	ND(0.050)	--
Benzo(a)pyrene	µg/g	3.42 DLM	1.09 DLM	--	ND(0.050)	--
Benzo(b)fluoranthene	µg/g	2.70 DLM	0.97 DLM	--	ND(0.050)	--
Benzo(g,h,i)perylene	µg/g	2.01 DLM	0.81 DLM	--	ND(0.050)	--
Benzo(k)fluoranthene	µg/g	3.31 DLM	0.85 DLM	--	ND(0.050)	--
Chrysene	µg/g	3.38 DLM	1.00 DLM	--	ND(0.050)	--
Dibenz(a,h)anthracene	µg/g	0.46 DLM	0.19 DLM	--	ND(0.050)	--
Fluoranthene	µg/g	6.87 DLM	1.80 DLM	--	ND(0.050)	--
Fluorene	µg/g	0.35 DLM	ND(0.10) DLM	--	ND(0.050)	--

Table 2

Soil Analytical Results
SDMA - IO Lands
Toronto Port Lands
Toronto, Ontario
Waterfront Toronto

Location ID:		**BH18-421**	**BH18-421**	**BH18-421**	**BH18-421**	**BH18-421**
Sample Name:		**S-11102463-112318-SM-BH18-421-0-2**	**S-11102463-112318-SM-BH18-421-7.5-9.5**	**S-11102463-112318-SM-BH18-421-DUP4**	**S-11102463-112318-SM-BH18-421-22.5-24.5**	**S-11102463-112318-SM-BH18-421-DUP5**
Sample Date:		**11/23/2018**	**11/23/2018**	**11/23/2018**	**11/23/2018**	**11/23/2018**
Depth:		**0-0.61 m BGS**	**2.29-2.9 m BGS**	**2.29-2.9 m BGS**	**6.86-7.47 m BGS**	**6.86-7.47 m BGS**
						Duplicate
Parameters	**Unit**					
Indeno(1,2,3-cd)pyrene	µg/g	2.29 DLM	0.85 DLM	--	ND(0.050)	--
Naphthalene	µg/g	0.29 DLM	0.38 DLM	--	ND(0.013)	--
Phenanthrene	µg/g	4.05 DLM	0.69 DLM	--	ND(0.046)	--
Pyrene	µg/g	6.17 DLM	1.69 DLM	--	ND(0.050)	--
Petroleum Hydrocarbons						
Petroleum hydrocarbons F1 (C6-C10)	µg/g	ND(5.0)	9.9	--	ND(5.0)	ND(5.0)
Petroleum hydrocarbons F1 (C6-C10) - less BTEX	µg/g	ND(5.0)	8.7	--	ND(5.0)	--
Petroleum hydrocarbons F2 (C10-C16)	µg/g	ND(50) DLM	256	--	ND(10)	ND(10)
Petroleum hydrocarbons F2 minus Naphthalene	µg/g	ND(50)	256	--	ND(10)	--
Petroleum hydrocarbons F3 (C16-C34)	µg/g	780 DLM	731	--	ND(50)	ND(50)
Petroleum hydrocarbons F3 minus PAH	µg/g	750	722	--	ND(50)	--
Petroleum hydrocarbons F4 (C34-C50)	µg/g	420 DLM	182	--	ND(50)	ND(50)
Petroleum hydrocarbons F4 gravimetric - silica gell (GHH)	µg/g	1330	710	--	--	--
Chromatogram to baseline at nC50	none	ND(0) NO	ND(0) NO	--	ND(0) YES	ND(0) YES
Total Petroleum Hydrocarbons (C6-C50)	µg/g	1200	1180	--	ND(72)	ND(72)
Polychlorinated Biphenyls (PCBs)						
Aroclor-1242 (PCB-1242)	µg/g	ND(0.020) DLM	ND(0.016) DLM	--	--	--
Aroclor-1248 (PCB-1248)	µg/g	ND(0.020) DLM	ND(0.010)	--	--	--
Aroclor-1254 (PCB-1254)	µg/g	ND(0.15) DLM	ND(0.010)	--	--	--
Aroclor-1260 (PCB-1260)	µg/g	ND(0.12) DLM	ND(0.020) DLM	--	--	--
Total PCBs	µg/g	ND(0.20) DLM	ND(0.030) DLM	--	--	--
Pesticides						
Aldrin	µg/g	ND(0.040) DLM	ND(0.040) DLM	ND(0.040) DLM	--	--
alpha-Chlordane	µg/g	ND(0.040) DLM	ND(0.040) DLM	ND(0.040) DLM	--	--
Chlordane, technical	µg/g	ND(0.040) DLM	ND(0.040) DLM	ND(0.040) DLM	--	--
2,4'-DDD	µg/g	ND(0.040) DLM	ND(0.040) DLM	ND(0.040) DLM	--	--
2,4'-DDE	µg/g	ND(0.040) DLM	ND(0.040) DLM	ND(0.040) DLM	--	--
2,4'-DDT	µg/g	ND(0.040) DLM	ND(0.040) DLM	ND(0.040) DLM	--	--
4,4'-DDD	µg/g	ND(0.040) DLM	ND(0.050) DLM	ND(0.040) DLM	--	--
4,4'-DDE	µg/g	ND(0.040) DLM	ND(0.040) DLM	ND(0.040) DLM	--	--
4,4'-DDT	µg/g	ND(0.040) DLM	ND(0.040) DLM	ND(0.040) DLM	--	--
Dieldrin	µg/g	ND(0.040) DLM	ND(0.040) DLM	ND(0.040) DLM	--	--
Endosulfan I	µg/g	ND(0.28) DLM	ND(0.20) DLM	ND(0.20) DLM	--	--
Endosulfan II	µg/g	ND(0.040) DLM	ND(0.080) DLM	ND(0.14) DLM	--	--
Endrin	µg/g	ND(0.040) DLM	ND(0.040) DLM	ND(0.080) DLM	--	--
Chlordane	µg/g	ND(0.057)	ND(0.057)	ND(0.057)	--	--
Endosulfan	µg/g	ND(0.28)	ND(0.22)	ND(0.24)	--	--
Total DDD	µg/g	ND(0.057)	ND(0.064)	ND(0.057)	--	--
Total DDE	µg/g	ND(0.057)	ND(0.057)	ND(0.057)	--	--
Total DDT	µg/g	ND(0.057)	ND(0.057)	ND(0.057)	--	--
gamma-BHC (lindane)	µg/g	ND(0.080) DLM	ND(0.36) DLM	ND(0.42) DLM	--	--
Heptachlor	µg/g	ND(0.040) DLM	ND(0.040) DLM	ND(0.040) DLM	--	--
Heptachlor epoxide	µg/g	ND(0.040) DLM	ND(0.040) DLM	ND(0.040) DLM	--	--
Hexachlorobenzene	µg/g	ND(0.050) DLM	ND(0.050) DLM	ND(0.050) DLM	--	--
Hexachlorobutadiene	µg/g	ND(0.050) DLM	ND(0.050) DLM	ND(0.050) DLM	--	--
Hexachloroethane	µg/g	ND(0.050) DLM	ND(0.050) DLM	ND(0.050) DLM	--	--
Methoxychlor	µg/g	ND(0.38) DLM	ND(0.26) DLM	ND(0.48) DLM	--	--
Chlorophenols						
2-Chlorophenol	µg/g	ND(0.20) DLM	ND(0.20) DLM	ND(0.20) DLM	--	--
2,4-Dichlorophenol	µg/g	ND(0.20) DLM	ND(0.20) DLM	ND(0.20) DLM	--	--
Pentachlorophenol	µg/g	ND(0.20) DLM	ND(0.20) DLM	ND(0.20) DLM	--	--
2,4,5-Trichlorophenol	µg/g	ND(0.20) DLM	ND(0.20) DLM	ND(0.20) DLM	--	--
2,4,6-Trichlorophenol	µg/g	ND(0.20) DLM	ND(0.20) DLM	ND(0.20) DLM	--	--
Metals & Inorganics						
Antimony	µg/g	7.7	17.6	--	ND(1.0)	--

Table 2

Soil Analytical Results
SDMA - IO Lands
Toronto Port Lands
Toronto, Ontario
Waterfront Toronto

Location ID:		**BH18-421**	**BH18-421**	**BH18-421**	**BH18-421**	**BH18-421**
Sample Name:		**S-11102463-112318-SM-BH18-421-0-2**	**S-11102463-112318-SM-BH18-421-7.5-9.5**	**S-11102463-112318-SM-BH18-421-DUP4**	**S-11102463-112318-SM-BH18-421-22.5-24.5**	**S-11102463-112318-SM-BH18-421-DUP5**
Sample Date:		**11/23/2018**	**11/23/2018**	**11/23/2018**	**11/23/2018**	**11/23/2018**
Depth:		**0-0.61 m BGS**	**2.29-2.9 m BGS**	**2.29-2.9 m BGS**	**6.86-7.47 m BGS**	**6.86-7.47 m BGS**
						Duplicate
Parameters	**Unit**					
Arsenic	µg/g	10.6	27.9	--	1.9	--
Barium	µg/g	113	492	--	108	--
Beryllium	µg/g	0.56	0.68	--	ND(0.50)	--
Boron	µg/g	8.7	14.7	--	6.4	--
Boron (hot water extractable)	µg/g	0.54	1.90	--	0.10	--
Cadmium	µg/g	0.69	2.38	--	ND(0.50)	--
Chromium	µg/g	23.8	108	--	22.1	--
Cobalt	µg/g	7.9	9.9	--	8.1	--
Copper	µg/g	98.5	422	--	17.0	--
Lead	µg/g	323	1310	--	8.2	--
Mercury	µg/g	0.473	4.98 DLHC	--	0.0130	--
Molybdenum	µg/g	1.2	2.8	--	ND(1.0)	--
Nickel	µg/g	27.9	34.2	--	16.0	--
Selenium	µg/g	ND(1.0)	3.1	--	ND(1.0)	--
Silver	µg/g	0.56	2.93	--	ND(0.20)	--
Thallium	µg/g	ND(0.50)	ND(0.50)	--	ND(0.50)	--
Uranium	µg/g	ND(1.0)	ND(1.0)	--	ND(1.0)	--
Vanadium	µg/g	31.8	31.0	--	37.4	--
Zinc	µg/g	232	888	--	41.5	--
Moisture	%	13.6	19.8	18.7	19.6	21.7
Conductivity	mS/cm	0.242	0.914	--	0.411	--
pH, lab	s.u.	7.58	7.15	--	7.44	--
Chromium VI (hexavalent)	µg/g	0.21	ND(0.20)	--	ND(0.20)	--
Cyanide, weak acid dissociable	µg/g	ND(0.050)	ND(0.050)	--	ND(0.050)	--
Calcium (available)	mg/L	18.6	124	--	12.4	--
Magnesium (available)	mg/L	1.2	11.7	--	1.6	--
Sodium (available)	mg/L	4.4	24.8	--	42.5	--
Sodium adsorption ratio (SAR)	none	0.26	0.57	--	3.02	--

Notes:

ND(0.050)	Not detected at the associated reporting limit, indicated in brackets
DLHC	Detection limit raised; dilution required
DLM	Detection limit adjusted due to sample matrix effects
DLVH	Detection limit raised due to interference from volatile hydrocarbons
µg/g	micrograms per gram
s.u.	standard units
mS/cm	milliSiemens per centimeter
mg/L	milligrams per litre

Table 2

Soil Analytical Results
SDMA - IO Lands
Toronto Port Lands
Toronto, Ontario
Waterfront Toronto

Location ID:		**BH18-464**	**BH18-464**	**BH18-464**	**BH18-464**	**BH18-464**
Sample Name:		**S-11102463-112218-SM-BH18-464-2.5-4.5**	**S-11102463-112218-SM-BH18-464-DUP**	**S-11102463-112218-SM-BH18-464-12.5-14.5**	**S-11102463-112218-SM-BH18-464-20-22**	**S-11102463-112218-SM-BH18-464-DUP2**
Sample Date:		**11/22/2018**	**11/22/2018**	**11/22/2018**	**11/22/2018**	**11/22/2018**
Depth:		**0.76-1.37 m BGS**	**0.76-1.37 m BGS Duplicate**	**3.81-4.42 m BGS**	**6.1-6.71 m BGS**	**6.1-6.71 m BGS Duplicate**
Parameters	**Unit**					
Volatile Organic Compounds						
1,1,1,2-Tetrachloroethane	µg/g	ND(0.050)	--	ND(0.050)	ND(0.050)	ND(0.13) DLIS
1,1,1-Trichloroethane	µg/g	ND(0.050)	--	ND(0.050)	ND(0.050)	ND(0.13) DLIS
1,1,2,2-Tetrachloroethane	µg/g	ND(0.050)	--	ND(1.0) DLVH	ND(0.050)	ND(0.13) DLIS
1,1,2-Trichloroethane	µg/g	ND(0.050)	--	ND(0.050)	ND(0.050)	ND(0.13) DLIS
1,1-Dichloroethane	µg/g	ND(0.050)	--	ND(0.050)	ND(0.050)	ND(0.13) DLIS
1,1-Dichloroethene	µg/g	ND(0.050)	--	ND(0.050)	ND(0.050)	ND(0.13) DLIS
1,2-Dibromoethane (Ethylene dibromide)	µg/g	ND(0.050)	--	ND(0.12) DLVH	ND(0.050)	ND(0.13) DLIS
1,2-Dichlorobenzene	µg/g	ND(0.050)	--	ND(0.050)	ND(0.050)	ND(0.13) DLIS
1,2-Dichloroethane	µg/g	ND(0.050)	--	ND(0.050)	ND(0.050)	ND(0.13) DLIS
1,2-Dichloropropane	µg/g	ND(0.050)	--	ND(0.050)	ND(0.050)	ND(0.13) DLIS
1,3-Dichlorobenzene	µg/g	ND(0.050)	--	ND(0.050)	ND(0.050)	ND(0.13) DLIS
1,4-Dichlorobenzene	µg/g	ND(0.050)	--	ND(0.050)	ND(0.050)	ND(0.13) DLIS
2-Butanone (Methyl ethyl ketone) (MEK)	µg/g	ND(0.50)	--	ND(0.50)	ND(0.50)	ND(1.3) DLIS
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/g	ND(0.50)	--	ND(0.50)	ND(0.50)	ND(1.3) DLIS
Acetone	µg/g	ND(0.50)	--	ND(0.50)	0.65	1.3 DLIS
Benzene	µg/g	0.170	--	0.156	0.0132	ND(0.017) DLIS
Bromodichloromethane	µg/g	ND(0.070) DLVH	--	ND(0.050)	0.068	ND(0.13) DLIS
Bromoform	µg/g	ND(0.050)	--	ND(0.050)	ND(0.050)	ND(0.13) DLIS
Bromomethane (Methyl bromide)	µg/g	ND(0.050)	--	ND(0.050)	ND(0.050)	ND(0.13) DLIS
Carbon tetrachloride	µg/g	ND(0.050)	--	ND(0.050)	ND(0.050)	ND(0.13) DLIS
Chlorobenzene	µg/g	ND(0.050)	--	ND(0.050)	ND(0.050)	ND(0.13) DLIS
Chloroform (Trichloromethane)	µg/g	ND(0.050)	--	ND(0.050)	ND(0.050)	ND(0.13) DLIS
cis-1,2-Dichloroethene	µg/g	ND(0.050)	--	ND(0.050)	ND(0.050)	ND(0.13) DLIS
cis-1,3-Dichloropropene	µg/g	ND(0.030)	--	ND(0.030)	ND(0.030)	ND(0.075) DLIS
cis-1,3-Dichloropropene/trans-1,3-Dichloropropene	µg/g	ND(0.042)	--	ND(0.042)	ND(0.042)	ND(0.11)
Dibromochloromethane	µg/g	ND(0.050)	--	ND(0.050)	ND(0.050)	ND(0.13) DLIS
Dichlorodifluoromethane (CFC-12)	µg/g	ND(0.050)	--	ND(0.050)	ND(0.050)	ND(0.13) DLIS
Ethylbenzene	µg/g	0.112	--	0.146	ND(0.018)	ND(0.045) DLIS
Hexane	µg/g	0.611	--	0.606	ND(0.050)	0.20 DLIS
m&p-Xylenes	µg/g	0.346	--	0.433	ND(0.030)	ND(0.075) DLIS
Methyl tert butyl ether (MTBE)	µg/g	ND(0.050)	--	ND(0.050)	ND(0.050)	ND(0.13) DLIS
Methylene chloride	µg/g	ND(0.050)	--	ND(0.050)	ND(0.050)	ND(0.13) DLIS
o-Xylene	µg/g	0.185	--	0.163	ND(0.020)	ND(0.050) DLIS
Styrene	µg/g	ND(0.050)	--	ND(0.050)	ND(0.050)	ND(0.13) DLIS
Tetrachloroethene	µg/g	ND(0.050)	--	ND(0.050)	ND(0.050)	ND(0.13) DLIS
Toluene	µg/g	0.279	--	0.323	ND(0.080)	ND(0.20) DLIS
trans-1,2-Dichloroethene	µg/g	ND(0.050)	--	ND(0.050)	ND(0.050)	ND(0.13) DLIS
trans-1,3-Dichloropropene	µg/g	ND(0.030)	--	ND(0.030)	ND(0.030)	ND(0.075) DLIS
Trichloroethene	µg/g	ND(0.010)	--	ND(0.010)	ND(0.010)	ND(0.025) DLIS
Trichlorofluoromethane (CFC-11)	µg/g	ND(0.050)	--	ND(0.050)	ND(0.050)	ND(0.13) DLIS
Vinyl chloride	µg/g	ND(0.020)	--	ND(0.020)	ND(0.020)	ND(0.050) DLIS
Xylenes (total)	µg/g	0.531	--	0.596	ND(0.050)	ND(0.090)
Polycyclic Aromatic Hydrocarbons						
1-Methylnaphthalene	µg/g	0.350 DLM	--	ND(0.70) DLQ	ND(0.075) DLM	--
1-Methylnaphthalene/2-Methylnaphthalene	µg/g	0.832	--	ND(1.2)	ND(0.00081)	--
2-Methylnaphthalene	µg/g	0.482 DLM	--	ND(1.0) DLQ	ND(0.030)	--
Acenaphthene	µg/g	ND(0.10) DLM	--	2.25 DLM	0.072	--
Acenaphthylene	µg/g	ND(0.10) DLM	--	ND(0.15) DLQ	ND(0.050)	--
Anthracene	µg/g	0.23 DLM	--	1.07 DLM	0.050	--
Benzo(a)anthracene	µg/g	0.96 DLM	--	1.61 DLM	0.084	--
Benzo(a)pyrene	µg/g	1.05 DLM	--	1.76 DLM	0.070	--
Benzo(b)fluoranthene	µg/g	0.79 DLM	--	1.58 DLM	0.091	--
Benzo(g,h,i)perylene	µg/g	0.83 DLM	--	2.74 DLM	0.091	--
Benzo(k)fluoranthene	µg/g	1.05 DLM	--	1.08 DLM	0.056	--
Chrysene	µg/g	1.11 DLM	--	1.90 DLM	0.108	--
Dibenz(a,h)anthracene	µg/g	0.18 DLM	--	0.44 DLM	ND(0.050)	--
Fluoranthene	µg/g	1.79 DLM	--	2.94 DLM	0.194	--
Fluorene	µg/g	ND(0.10) DLM	--	5.16 DLM	0.179	--

Table 2

Soil Analytical Results
SDMA - IO Lands
Toronto Port Lands
Toronto, Ontario
Waterfront Toronto

Location ID:		BH18-464	BH18-464	BH18-464	BH18-464	BH18-464
Sample Name:		S-11102463-112218-SM-BH18-464-2.5-4.5	S-11102463-112218-SM-BH18-464-DUP	S-11102463-112218-SM-BH18-464-12.5-14.5	S-11102463-112218-SM-BH18-464-20-22	S-11102463-112218-SM-BH18-464-DUP2
Sample Date:		11/22/2018	11/22/2018	11/22/2018	11/22/2018	11/22/2018
Depth:		0.76-1.37 m BGS	0.76-1.37 m BGS Duplicate	3.81-4.42 m BGS	6.1-6.71 m BGS	6.1-6.71 m BGS Duplicate
Parameters	**Unit**					
Indeno(1,2,3-cd)pyrene	µg/g	0.78 DLM	--	2.35 DLM	0.074	--
Naphthalene	µg/g	0.83 DLM	--	ND(1.2) DLQ	ND(0.060) DLM	--
Phenanthrene	µg/g	1.15 DLM	--	5.61 DLM	0.264	--
Pyrene	µg/g	1.78 DLM	--	3.17 DLM	0.184	--
Petroleum Hydrocarbons						
Petroleum hydrocarbons F1 (C6-C10)	µg/g	5.5	--	14.3	8.8	--
Petroleum hydrocarbons F1 (C6-C10) - less BTEX	µg/g	ND(5.0)	--	13.1	8.8	--
Petroleum hydrocarbons F2 (C10-C16)	µg/g	21	--	14400	166	--
Petroleum hydrocarbons F2 minus Naphthalene	µg/g	20	--	14400	166	--
Petroleum hydrocarbons F3 (C16-C34)	µg/g	358	--	7830	120	--
Petroleum hydrocarbons F3 minus PAH	µg/g	348	--	7800	119	--
Petroleum hydrocarbons F4 (C34-C50)	µg/g	146	--	670	ND(50)	--
Petroleum hydrocarbons F4 gravimetric - silica gell (GHH)	µg/g	400	--	--	--	--
Chromatogram to baseline at nC50	none	ND(0) NO	--	ND(0) YES	ND(0) YES	--
Total Petroleum Hydrocarbons (C6-C50)	µg/g	531	--	22900	295	--
Polychlorinated Biphenyls (PCBs)						
Aroclor-1242 (PCB-1242)	µg/g	ND(0.010)	--	ND(0.20) DLM	--	--
Aroclor-1248 (PCB-1248)	µg/g	ND(0.010)	--	ND(0.020) DLM	--	--
Aroclor-1254 (PCB-1254)	µg/g	ND(0.045) DLM	--	ND(0.020) DLM	--	--
Aroclor-1260 (PCB-1260)	µg/g	0.045 PRAR	--	ND(0.020) DLM	--	--
Total PCBs	µg/g	ND(0.050) DLM	--	ND(0.21) DLM	--	--
Pesticides						
Aldrin	µg/g	ND(0.040) DLM	--	ND(0.080) DLM	--	--
alpha-Chlordane	µg/g	ND(0.040) DLM	--	ND(0.040) DLM	--	--
Chlordane, technical	µg/g	ND(0.040) DLM	--	ND(0.040) DLM	--	--
2,4'-DDD	µg/g	ND(0.040) DLM	--	ND(0.080) DLM	--	--
2,4'-DDE	µg/g	ND(0.040) DLM	--	ND(0.040) DLM	--	--
2,4'-DDT	µg/g	ND(0.040) DLM	--	ND(0.080) DLM	--	--
4,4'-DDD	µg/g	ND(0.040) DLM	--	ND(0.14) DLM	--	--
4,4'-DDE	µg/g	ND(0.040) DLM	--	ND(0.040) DLM	--	--
4,4'-DDT	µg/g	ND(0.040) DLM	--	ND(0.040) DLM	--	--
Dieldrin	µg/g	ND(0.040) DLM	--	ND(0.46) DLM	--	--
Endosulfan I	µg/g	ND(0.070) DLQ	--	ND(0.35) DLM	--	--
Endosulfan II	µg/g	ND(0.040) DLM	--	ND(0.43) DLM	--	--
Endrin	µg/g	ND(0.040) DLM	--	ND(0.20) DLM	--	--
Chlordane	µg/g	ND(0.057)	--	ND(0.057)	--	--
Endosulfan	µg/g	ND(0.081)	--	ND(0.55)	--	--
Total DDD	µg/g	ND(0.057)	--	ND(0.16)	--	--
Total DDE	µg/g	ND(0.057)	--	ND(0.057)	--	--
Total DDT	µg/g	ND(0.057)	--	ND(0.089)	--	--
gamma-BHC (lindane)	µg/g	ND(0.050) DLM	--	ND(7.5) DLM	--	--
Heptachlor	µg/g	ND(0.040) DLM	--	ND(0.14) DLM	--	--
Heptachlor epoxide	µg/g	ND(0.040) DLM	--	ND(0.040) DLM	--	--
Hexachlorobenzene	µg/g	ND(0.050) DLM	--	ND(0.050) DLM	--	--
Hexachlorobutadiene	µg/g	ND(0.050) DLM	--	ND(0.050) DLM	--	--
Hexachloroethane	µg/g	ND(0.050) DLM	--	ND(0.050) DLM	--	--
Methoxychlor	µg/g	ND(0.080) DLQ	--	ND(0.80) DLM	--	--
Chlorophenols						
2-Chlorophenol	µg/g	ND(0.20) DLM	--	ND(0.20) DLM	--	--
2,4-Dichlorophenol	µg/g	ND(0.20) DLM	--	ND(0.20) DLM	--	--
Pentachlorophenol	µg/g	ND(0.20) DLM	--	ND(0.20) DLM	--	--
2,4,5-Trichlorophenol	µg/g	ND(0.20) DLM	--	ND(0.60) DLQ	--	--
2,4,6-Trichlorophenol	µg/g	ND(0.20) DLM	--	ND(0.60) DLQ	--	--
Metals & Inorganics						
Antimony	µg/g	12.2	12.9	32.2 DLHC	1.2	--

Table 2

Soil Analytical Results
SDMA - IO Lands
Toronto Port Lands
Toronto, Ontario
Waterfront Toronto

Location ID:		**BH18-464**	**BH18-464**	**BH18-464**	**BH18-464**	**BH18-464**
Sample Name:		**S-11102463-112218-SM-BH18-464-2.5-4.5**	**S-11102463-112218-SM-BH18-464-DUP**	**S-11102463-112218-SM-BH18-464-12.5-14.5**	**S-11102463-112218-SM-BH18-464-20-22**	**S-11102463-112218-SM-BH18-464-DUP2**
Sample Date:		**11/22/2018**	**11/22/2018**	**11/22/2018**	**11/22/2018**	**11/22/2018**
Depth:		**0.76-1.37 m BGS**	**0.76-1.37 m BGS Duplicate**	**3.81-4.42 m BGS**	**6.1-6.71 m BGS**	**6.1-6.71 m BGS Duplicate**
Parameters	**Unit**					
Arsenic	µg/g	20.1	15.7	49.0	3.9	--
Barium	µg/g	384	327	167	133	--
Beryllium	µg/g	0.75	0.66	0.61	0.76	--
Boron	µg/g	10.7	11.7	37.4	5.0	--
Boron (hot water extractable)	µg/g	0.72	0.52	1.48	0.47	--
Cadmium	µg/g	2.16	1.80	8.40	ND(0.50)	--
Chromium	µg/g	96.0	56.4	72.1	29.2	--
Cobalt	µg/g	8.2	9.4	15.0	9.2	--
Copper	µg/g	288	270	9310 DLHC	43.0	--
Lead	µg/g	1160 DLHC	819	10300 DLHC	131	--
Mercury	µg/g	2.83 DLHC	1.66 DLHC	9.65 DLHC	0.0993	--
Molybdenum	µg/g	2.1	1.9	4.2	ND(1.0)	--
Nickel	µg/g	28.5	52.4	49.1	18.8	--
Selenium	µg/g	2.1	1.3	2.2	ND(1.0)	--
Silver	µg/g	4.56	2.24	2.90	ND(0.20)	--
Thallium	µg/g	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	--
Uranium	µg/g	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	--
Vanadium	µg/g	27.0	32.9	24.6	42.5	--
Zinc	µg/g	727	648	2260 DLHC	86.5	--
Moisture	%	10.3	10.7	35.4	33.6	33.6
Conductivity	mS/cm	0.477	0.276	1.54	1.14	--
pH, lab	s.u.	7.24	7.42	7.08	6.96	--
Chromium VI (hexavalent)	µg/g	1.38	0.27	ND(0.20)	ND(1.0) DLM	--
Cyanide, weak acid dissociable	µg/g	ND(0.050)	ND(0.050)	0.110	ND(0.050)	--
Calcium (available)	mg/L	58.6	24.2	203	17.9	--
Magnesium (available)	mg/L	3.1	1.2	18.5	2.7	--
Sodium (available)	mg/L	9.8	7.2	78.6	158	--
Sodium adsorption ratio (SAR)	none	0.34	0.39	1.42	9.20	--

Notes:

ND(0.050)	Not detected at the associated reporting limit, indicated in brackets
DLHC	Detection limit raised; dilution required
DLM	Detection limit adjusted due to sample matrix effects
DLVH	Detection limit raised due to interference from volatile hydrocarbons
µg/g	micrograms per gram
s.u.	standard units
mS/cm	milliSiemens per centimeter
mg/L	milligrams per litre

Table 2

Soil Analytical Results
SDMA - IO Lands
Toronto Port Lands
Toronto, Ontario
Waterfront Toronto

Location ID:		**BH18-466**	**BH18-466**	**BH18-466**	**BH18-466**	**Trip Blank**
Sample Name:		**S-11102463-112218-SM-BH18-466-0-2**	**S-11102463-112218-SM-BH18-466-10-12**	**S-11102463-112218-SM-BH18-466-17.5-19.5**	**S-11102463-112218-SM-BH18-466-DUP3**	**TRIP BLANK**
Sample Date:		**11/22/2018**	**11/22/2018**	**11/22/2018**	**11/22/2018**	**11/23/2018**
Depth:		**0-0.61 m BGS**	**3.05-3.66 m BGS**	**5.33-5.94 m BGS**	**5.33-5.94 m BGS Duplicate**	**--**
Parameters	**Unit**					
Volatile Organic Compounds						
1,1,1,2-Tetrachloroethane	µg/g	ND(0.050)	ND(0.050)	ND(0.16) DLIS	--	ND(0.050)
1,1,1-Trichloroethane	µg/g	ND(0.050)	ND(0.050)	ND(0.16) DLIS	--	ND(0.050)
1,1,2,2-Tetrachloroethane	µg/g	ND(0.050)	ND(1.3) DLVH	ND(0.16) DLIS	--	ND(0.050)
1,1,2-Trichloroethane	µg/g	ND(0.050)	ND(0.050)	ND(0.16) DLIS	--	ND(0.050)
1,1-Dichloroethane	µg/g	ND(0.050)	ND(0.050)	ND(0.16) DLIS	--	ND(0.050)
1,1-Dichloroethene	µg/g	ND(0.050)	ND(0.050)	ND(0.16) DLIS	--	ND(0.050)
1,2-Dibromoethane (Ethylene dibromide)	µg/g	ND(0.050)	ND(0.25) DLVH	ND(0.16) DLIS	--	ND(0.050)
1,2-Dichlorobenzene	µg/g	ND(0.050)	ND(0.050)	ND(0.16) DLIS	--	ND(0.050)
1,2-Dichloroethane	µg/g	ND(0.050)	ND(0.050)	ND(0.16) DLIS	--	ND(0.050)
1,2-Dichloropropane	µg/g	ND(0.050)	ND(0.050)	ND(0.16) DLIS	--	ND(0.050)
1,3-Dichlorobenzene	µg/g	ND(0.050)	ND(0.050)	ND(0.16) DLIS	--	ND(0.050)
1,4-Dichlorobenzene	µg/g	ND(0.050)	ND(0.050)	ND(0.16) DLIS	--	ND(0.050)
2-Butanone (Methyl ethyl ketone) (MEK)	µg/g	ND(0.50)	ND(0.50)	ND(1.6) DLIS	--	ND(0.50)
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/g	ND(0.50)	ND(0.50)	ND(1.6) DLIS	--	ND(0.50)
Acetone	µg/g	ND(0.50)	0.71	ND(1.6) DLIS	--	ND(0.50)
Benzene	µg/g	0.109	0.221	0.033 DLIS	--	ND(0.0068)
Bromodichloromethane	µg/g	ND(0.055) DLVH	ND(0.050)	ND(0.16) DLIS	--	ND(0.050)
Bromoform	µg/g	ND(0.050)	ND(0.050)	ND(0.16) DLIS	--	ND(0.050)
Bromomethane (Methyl bromide)	µg/g	ND(0.050)	ND(0.050)	ND(0.16) DLIS	--	ND(0.050)
Carbon tetrachloride	µg/g	ND(0.050)	ND(0.050)	ND(0.16) DLIS	--	ND(0.050)
Chlorobenzene	µg/g	ND(0.050)	ND(0.050)	ND(0.16) DLIS	--	ND(0.050)
Chloroform (Trichloromethane)	µg/g	ND(0.050)	ND(0.050)	ND(0.16) DLIS	--	ND(0.050)
cis-1,2-Dichloroethene	µg/g	ND(0.050)	ND(0.050)	ND(0.16) DLIS	--	ND(0.050)
cis-1,3-Dichloropropene	µg/g	ND(0.030)	ND(0.030)	ND(0.096) DLIS	--	ND(0.030)
cis-1,3-Dichloropropene/trans-1,3-Dichloropropene	µg/g	ND(0.042)	ND(0.042)	ND(0.14)	--	ND(0.042)
Dibromochloromethane	µg/g	ND(0.050)	ND(0.050)	ND(0.16) DLIS	--	ND(0.050)
Dichlorodifluoromethane (CFC-12)	µg/g	ND(0.050)	ND(0.050)	ND(0.16) DLIS	--	ND(0.050)
Ethylbenzene	µg/g	0.086	0.194	ND(0.058) DLIS	--	ND(0.018)
Hexane	µg/g	0.422	0.633	ND(0.16) DLIS	--	ND(0.050)
m&p-Xylenes	µg/g	0.355	0.575	ND(0.096) DLIS	--	ND(0.030)
Methyl tert butyl ether (MTBE)	µg/g	ND(0.050)	ND(0.050)	ND(0.16) DLIS	--	ND(0.050)
Methylene chloride	µg/g	ND(0.050)	ND(0.050)	ND(0.16) DLIS	--	ND(0.050)
o-Xylene	µg/g	0.215	0.181	ND(0.064) DLIS	--	ND(0.020)
Styrene	µg/g	ND(0.050)	ND(0.050)	ND(0.16) DLIS	--	ND(0.050)
Tetrachloroethene	µg/g	ND(0.050)	ND(0.050)	ND(0.16) DLIS	--	ND(0.050)
Toluene	µg/g	0.292	0.365	ND(0.26) DLIS	--	ND(0.080)
trans-1,2-Dichloroethene	µg/g	ND(0.050)	ND(0.050)	ND(0.16) DLIS	--	ND(0.050)
trans-1,3-Dichloropropene	µg/g	ND(0.030)	ND(0.030)	ND(0.096) DLIS	--	ND(0.030)
Trichloroethene	µg/g	ND(0.010)	ND(0.010)	ND(0.032) DLIS	--	ND(0.010)
Trichlorofluoromethane (CFC-11)	µg/g	ND(0.050)	ND(0.050)	ND(0.16) DLIS	--	ND(0.050)
Vinyl chloride	µg/g	ND(0.020)	ND(0.020)	ND(0.064) DLIS	--	ND(0.020)
Xylenes (total)	µg/g	0.569	0.756	ND(0.12)	--	ND(0.050)
Polycyclic Aromatic Hydrocarbons						
1-Methylnaphthalene	µg/g	0.152 DLM	0.138 DLM	ND(0.030)	0.130 DLHM	--
1-Methylnaphthalene/2-Methylnaphthalene	µg/g	0.323	0.299	ND(0.042)	0.213	--
2-Methylnaphthalene	µg/g	0.171 DLM	0.160 DLM	ND(0.030)	0.083 DLHM	--
Acenaphthene	µg/g	0.15 DLM	0.18 DLM	0.068	0.169 DLHM	--
Acenaphthylene	µg/g	0.16 DLM	ND(0.10) DLM	ND(0.050)	ND(0.075) DLHM	--
Anthracene	µg/g	0.54 DLM	0.26 DLM	ND(0.050)	0.101 DLHM	--
Benzo(a)anthracene	µg/g	1.67 DLM	0.86 DLM	0.138	0.261 DLHM	--
Benzo(a)pyrene	µg/g	1.88 DLM	0.86 DLM	0.130	0.214 DLHM	--
Benzo(b)fluoranthene	µg/g	1.31 DLM	0.69 DLM	0.091	0.171 DLHM	--
Benzo(g,h,i)perylene	µg/g	1.24 DLM	0.48 DLM	0.084	0.136 DLHM	--
Benzo(k)fluoranthene	µg/g	1.62 DLM	0.90 DLM	0.100	0.143 DLHM	--
Chrysene	µg/g	1.58 DLM	0.90 DLM	0.180	0.293 DLHM	--
Dibenz(a,h)anthracene	µg/g	0.25 DLM	0.12 DLM	ND(0.050)	ND(0.075) DLHM	--
Fluoranthene	µg/g	3.27 DLM	1.72 DLM	0.295	0.540 DLHM	--
Fluorene	µg/g	0.22 DLM	0.22 DLM	0.070	0.187 DLHM	--

Table 2

Soil Analytical Results
SDMA - IO Lands
Toronto Port Lands
Toronto, Ontario
Waterfront Toronto

	Location ID:	BH18-466	BH18-466	BH18-466	BH18-466	Trip Blank
	Sample Name:	S-11102463-112218-SM-BH18-466-0-2	S-11102463-112218-SM-BH18-466-10-12	S-11102463-112218-SM-BH18-466-17.5-19.5	S-11102463-112218-SM-BH18-466-DUP3	TRIP BLANK
	Sample Date:	11/22/2018	11/22/2018	11/22/2018	11/22/2018	11/23/2018
	Depth:	0-0.61 m BGS	3.05-3.66 m BGS	5.33-5.94 m BGS	5.33-5.94 m BGS Duplicate	--
Parameters	**Unit**					
Indeno(1,2,3-cd)pyrene	µg/g	1.28 DLM	0.52 DLM	0.069	0.113 DLHM	--
Naphthalene	µg/g	0.27 DLM	0.22 DLM	0.027	0.164 DLHM	--
Phenanthrene	µg/g	2.31 DLM	0.89 DLM	0.210	0.357 DLHM	--
Pyrene	µg/g	3.08 DLM	1.48 DLM	0.376	0.590 DLHM	--
Petroleum Hydrocarbons						
Petroleum hydrocarbons F1 (C6-C10)	µg/g	5.6	27.0	ND(16) DLIS	--	ND(5.0)
Petroleum hydrocarbons F1 (C6-C10) - less BTEX	µg/g	ND(5.0)	25.4	ND(16)	--	--
Petroleum hydrocarbons F2 (C10-C16)	µg/g	13	683	21	--	--
Petroleum hydrocarbons F2 minus Naphthalene	µg/g	13	683	21	--	--
Petroleum hydrocarbons F3 (C16-C34)	µg/g	458	1030	137	--	--
Petroleum hydrocarbons F3 minus PAH	µg/g	441	1020	136	--	--
Petroleum hydrocarbons F4 (C34-C50)	µg/g	268	177	ND(50)	--	--
Petroleum hydrocarbons F4 gravimetric - silica gell (GHH)	µg/g	610	770	--	--	--
Chromatogram to baseline at nC50	none	ND(0) NO	ND(0) NO	ND(0) YES	--	--
Total Petroleum Hydrocarbons (C6-C50)	µg/g	744	1920	158	--	--
Polychlorinated Biphenyls (PCBs)						
Aroclor-1242 (PCB-1242)	µg/g	ND(0.030) DLM	ND(0.030) DLM	--	--	--
Aroclor-1248 (PCB-1248)	µg/g	ND(0.010)	ND(0.020) DLM	--	--	--
Aroclor-1254 (PCB-1254)	µg/g	0.682	ND(0.020) DLM	--	--	--
Aroclor-1260 (PCB-1260)	µg/g	0.479	0.143 PRAR	--	--	--
Total PCBs	µg/g	1.161 DLM	0.143 DLM	--	--	--
Pesticides						
Aldrin	µg/g	ND(0.040) DLM	ND(0.040) DLM	--	--	--
alpha-Chlordane	µg/g	ND(0.040) DLM	ND(0.040) DLM	--	--	--
Chlordane, technical	µg/g	ND(0.040) DLM	ND(0.040) DLM	--	--	--
2,4'-DDD	µg/g	ND(0.040) DLM	ND(0.040) DLM	--	--	--
2,4'-DDE	µg/g	ND(0.040) DLM	ND(0.040) DLM	--	--	--
2,4'-DDT	µg/g	ND(0.040) DLM	ND(0.040) DLM	--	--	--
4,4'-DDD	µg/g	ND(0.040) DLM	ND(0.080) DLM	--	--	--
4,4'-DDE	µg/g	ND(0.040) DLM	ND(0.060) DLM	--	--	--
4,4'-DDT	µg/g	ND(0.040) DLM	ND(0.040) DLM	--	--	--
Dieldrin	µg/g	ND(0.040) DLM	ND(0.060) DLM	--	--	--
Endosulfan I	µg/g	ND(0.72) DLM	ND(0.24) DLM	--	--	--
Endosulfan II	µg/g	ND(0.090) DLM	ND(0.14) DLM	--	--	--
Endrin	µg/g	ND(0.060) DLM	ND(0.040) DLM	--	--	--
Chlordane	µg/g	ND(0.057)	ND(0.057)	--	--	--
Endosulfan	µg/g	ND(0.73)	ND(0.28)	--	--	--
Total DDD	µg/g	ND(0.057)	ND(0.089)	--	--	--
Total DDE	µg/g	ND(0.057)	ND(0.072)	--	--	--
Total DDT	µg/g	ND(0.057)	ND(0.057)	--	--	--
gamma-BHC (lindane)	µg/g	ND(0.15) DLM	ND(1.0) DLM	--	--	--
Heptachlor	µg/g	ND(0.040) DLM	ND(0.060) DLM	--	--	--
Heptachlor epoxide	µg/g	ND(0.040) DLM	ND(0.040) DLM	--	--	--
Hexachlorobenzene	µg/g	ND(0.050) DLM	ND(0.050) DLM	--	--	--
Hexachlorobutadiene	µg/g	ND(0.050) DLM	ND(0.050) DLM	--	--	--
Hexachloroethane	µg/g	ND(0.050) DLM	ND(0.050) DLM	--	--	--
Methoxychlor	µg/g	ND(0.48) DLM	ND(0.16) DLM	--	--	--
Chlorophenols						
2-Chlorophenol	µg/g	ND(0.20) DLM	ND(0.20) DLM	--	--	--
2,4-Dichlorophenol	µg/g	ND(0.20) DLM	ND(0.20) DLM	--	--	--
Pentachlorophenol	µg/g	ND(0.20) DLM	ND(0.20) DLM	--	--	--
2,4,5-Trichlorophenol	µg/g	ND(0.20) DLM	ND(0.20) DLM	--	--	--
2,4,6-Trichlorophenol	µg/g	ND(0.20) DLM	ND(0.20) DLM	--	--	--
Metals & Inorganics						
Antimony	µg/g	48.1	15.7	ND(1.0)	--	--

Table 2

Soil Analytical Results
SDMA - IO Lands
Toronto Port Lands
Toronto, Ontario
Waterfront Toronto

	Location ID:	BH18-466	BH18-466	BH18-466	BH18-466	Trip Blank
	Sample Name:	S-11102463-112218-SM-BH18-466-0-2	S-11102463-112218-SM-BH18-466-10-12	S-11102463-112218-SM-BH18-466-17.5-19.5	S-11102463-112218-SM-BH18-466-DUP3	TRIP BLANK
	Sample Date:	11/22/2018	11/22/2018	11/22/2018	11/22/2018	11/23/2018
	Depth:	0-0.61 m BGS	3.05-3.66 m BGS	5.33-5.94 m BGS	5.33-5.94 m BGS Duplicate	--
Parameters	**Unit**					
Arsenic	µg/g	16.4	24.0	4.3	--	--
Barium	µg/g	363	529	116	--	--
Beryllium	µg/g	0.65	0.72	ND(0.50)	--	--
Boron	µg/g	13.1	16.2	11.4	--	--
Boron (hot water extractable)	µg/g	1.08	2.04	5.20	--	--
Cadmium	µg/g	5.33	3.11	ND(0.50)	--	--
Chromium	µg/g	48.2	82.0	18.8	--	--
Cobalt	µg/g	12.5	8.9	5.0	--	--
Copper	µg/g	633	337	29.8	--	--
Lead	µg/g	1780	968	76.8	--	--
Mercury	µg/g	1.82 DLHC	4.16 DLHC	0.275	--	--
Molybdenum	µg/g	3.9	2.1	ND(1.0)	--	--
Nickel	µg/g	202	31.4	12.0	--	--
Selenium	µg/g	1.6	2.3	ND(1.0)	--	--
Silver	µg/g	2.64	3.33	ND(0.20)	--	--
Thallium	µg/g	ND(0.50)	ND(0.50)	ND(0.50)	--	--
Uranium	µg/g	2.2	ND(1.0)	ND(1.0)	--	--
Vanadium	µg/g	36.1	27.1	21.9	--	--
Zinc	µg/g	1380	1030	122	--	--
Moisture	%	13.7	26.3	42.7	50.6	ND(0.10)
Conductivity	mS/cm	0.402	0.904	0.713	--	--
pH, lab	s.u.	7.49	7.05	7.20	--	--
Chromium VI (hexavalent)	µg/g	ND(0.20)	ND(0.20)	ND(1.0) DLM	--	--
Cyanide, weak acid dissociable	µg/g	ND(0.050)	ND(0.050)	ND(0.050)	--	--
Calcium (available)	mg/L	39.0	83.4	35.2	--	--
Magnesium (available)	mg/L	3.6	9.3	4.9	--	--
Sodium (available)	mg/L	10.8	55.0	55.0	--	--
Sodium adsorption ratio (SAR)	none	0.44	1.52	2.30	--	--

Notes:

ND(0.050)	Not detected at the associated reporting limit, indicated in brackets
DLHC	Detection limit raised; dilution required
DLM	Detection limit adjusted due to sample matrix effects
DLVH	Detection limit raised due to interference from volatile hydrocarbons
µg/g	micrograms per gram
s.u.	standard units
mS/cm	milliSiemens per centimeter
mg/L	milligrams per litre

Attachments

Attachment A
Sampling and Analysis Plan

Attachment A

Sampling and Analysis Plan
SDMA - IO Lands
Toronto Port Lands
Toronto, Ontario
Waterfront Toronto

Proposed Location	Media	Depth of BH (m)	O. Reg. 153 Metals & Inorganics	PAHs	PHCs	VOCs	OC Pesticides	Chlorophenols	PCBs	Sampling and Analytical Scope
BH18-421	Soil	Top of bedrock	x	x	x	x	x	x	x	Collect first sample from a depth between surface and 1.5mbgs. Collect second sample from a depth between 1.5 to 4.0 mbgs. Collect third sample from a depth between 4.0 to 10.0 mbgs. Samples to be collected based on highest PID reading and/or visual evidence (staining, odours) of contamination. Collect OCP, CP, and PCB from the first two intervals only.
BH18-464	Soil	8m	x	x	x	x	x	x	x	Collect first sample from a depth between surface and 1.5mbgs. Collect second sample from a depth between 1.5 to 4.0 mbgs. Collect third sample from a depth between 4.0 to 8.0 mbgs. Samples to be collected based on highest PID reading and/or visual evidence (staining, odours) of contamination. Collect OCP, CP, and PCB from the first two intervals only.
BH18-466	Soil	8m	x	x	x	x	x	x	x	Collect first sample from a depth between surface and 1.5mbgs. Collect second sample from a depth between 1.5 to 4.0 mbgs. Collect third sample from a depth between 4.0 to 8.0 mbgs. Samples to be collected based on highest PID reading and/or visual evidence (staining, odours) of contamination. Collect OCP, CP, and PCB from the first two intervals only.

Attachment B
Stratigraphic Logs

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: RMM Data Gap Investigation
PROJECT NUMBER: 11102463-53
CLIENT: Waterfront Toronto
LOCATION: 586 Lakeshore Blvd. E., Toronto, Ontario

HOLE DESIGNATION: BH18-421
DATE COMPLETED: November 23, 2018
DRILLING METHOD: 216mm OD HSA
FIELD PERSONNEL: S. Meneses/J. Bigioni

NORTHING: 4834437
EASTING: 316957.5
GROUND SURFACE ELEV. 79.28 m BGS

DEPTH m BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. m BGS	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	REC (%)	'N' VALUE	PID (ppm)
0	TOPSOIL	79.16						
	SILTY SAND (FILL), with gravel, loose, medium grained, brown, moist, few rootlets, shell fragments			1		83	7	0.4
1.0				2		75	15	0.3
	- slight petroleum hydrocarbon odour, black, trace glass pieces from 1.82 to 3.66m BGS			3		75	15	6.5
2.5				4		25	4	7.7
3.0	- wet at 3.05m BGS		▽	5		20	2	3.7
4.0				6		20	3	-
4.5	- medium to coarse grained, slight petroleum hydrocarbon odour and staining, wood chips from 4.57 to 5.33m BGS			7		30	6	1
	CL/ML-CLAYEY SILT (NATIVE), few peat, very soft, low plasticity, grey/black	73.95	BENTONITE	8		20	2	0.7
5.5	- slight petroleum hydrocarbon odour and staining from 5.33 to 5.70m BGS							
6.0				9		30	5	0.4
6.5	- grey from 6.85 to 7.62m BGS							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ November 23, 2018
CHEMICAL ANALYSIS (1)

OVERBURDEN LOG 11102463-53-586 LAKESHORE.GPJ CRA_CORP.GDT 4/30/19

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: RMM Data Gap Investigation
PROJECT NUMBER: 11102463-53
CLIENT: Waterfront Toronto
LOCATION: 586 Lakeshore Blvd. E., Toronto, Ontario

HOLE DESIGNATION: BH18-421
DATE COMPLETED: November 23, 2018
DRILLING METHOD: 216mm OD HSA
FIELD PERSONNEL: S. Meneses/J. Bigioni

DEPTH m BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. m BGS	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
7.5	- light brown/grey from 7.62 to 10.66m BGS			10		30	4	-
8.0				11		40	8	0.5
8.5								
9.0	- trace gravel, oxidation from 9.14 to 10.00m BGS							
9.5				12		50	12	1.2
10.0								
10.5	- grey from 10.66 to 11.12m BGS							
11.0	- Refusal, bedrock at 11.12m BGS	68.16		13			-	1.3
	END OF BOREHOLE @ 11.12m BGS							
11.5								
12.0								
12.5								
13.0								
13.5								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ November 23, 2018
CHEMICAL ANALYSIS (10)

OVERBURDEN LOG 11102463-53-586 LAKESHORE.GPJ CRA_CORP.GDT 4/30/19

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: RMM Data Gap Investigation
PROJECT NUMBER: 11102463-53
CLIENT: Waterfront Toronto
LOCATION: 586 Lakeshore Blvd. E., Toronto, Ontario

HOLE DESIGNATION: BH18-464
DATE COMPLETED: November 22, 2018
DRILLING METHOD: 216mm OD HSA
FIELD PERSONNEL: S. Meneses/J. Bigioni

NORTHING: 4834425
EASTING: 316962.4

GROUND SURFACE 79.40

DEPTH m BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. m BGS	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	REC (%)	'N' VALUE	PID (ppm)
0.0	TOPSOIL	79.31						
	SILTY SAND (FILL), with clay and gravel, loose, medium to fine grained, brown, moist, few shell fragments, few glass fragments			1		85	8	0.1
1.0	- trace clay, brick fragments, rootlets from 0.91 to 1.52m BGS			2		85	12	0.1
1.5	GRAVELLY SAND (FILL), with silt, loose, medium to coarse grained, brown, moist, trace asphalt fragments, rootlets, trace glass shards	77.88		3		50	5	0.1
2.5				4		0	3	-
3.0	- wet at 3.05m BGS		▽	5		0	3	-
4.0	- strong petroleum hydrocarbon odour, evidence of petroleum hydrocarbon product from 3.81 to 6.10m BGS		BENTONITE	6		50	1	99
5.0				7		25	5	50.5
5.5				8		20	2	-
6.0	ML-SILT (NATIVE), with clay, with peat, soft, brown/grey, moist, petroleum hydrocarbon odour	73.31		9		50	3	35.0
6.5	- clayey from 6.85 to 8.22m BGS							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ November 22, 2018
CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 11102463-53-586 LAKESHORE.GPJ CRA_CORP.GDT 4/30/19

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: RMM Data Gap Investigation
PROJECT NUMBER: 11102463-53
CLIENT: Waterfront Toronto
LOCATION: 586 Lakeshore Blvd. E., Toronto, Ontario

HOLE DESIGNATION: BH18-464
DATE COMPLETED: November 22, 2018
DRILLING METHOD: 216mm OD HSA
FIELD PERSONNEL: S. Meneses/J. Bigioni

DEPTH m BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. m BGS	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
7.5	- some fine grained sand, light brown from 7.62 to 8.22m BGS			10		100	9	13.5
8.0				11			9	4.0
	END OF BOREHOLE @ 8.22m BGS	71.18						
8.5								
9.0								
9.5								
10.0								
10.5								
11.0								
11.5								
12.0								
12.5								
13.0								
13.5								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ November 22, 2018
CHEMICAL ANALYSIS (O)

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: RMM Data Gap Investigation
PROJECT NUMBER: 11102463-53
CLIENT: Waterfront Toronto
LOCATION: 586 Lakeshore Blvd. E., Toronto, Ontario

HOLE DESIGNATION: BH18-466
DATE COMPLETED: November 22, 2018
DRILLING METHOD: 216mm OD HSA
FIELD PERSONNEL: S. Meneses/J. Bigioni

DEPTH m BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. m BGS	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	REC (%)	'N' VALUE	PID (ppm)
	NORTHING: 4834398 EASTING: 316969.5 GROUND SURFACE	78.88						
0	SILTY SAND (FILL), with gravel, loose, medium grained, brown, moist, with brick fragments, shell fragments			1		75	6	0.2
0.5								
1.0	- few clay, trace oxidation, trace glass fragments from 0.76 to 3.04m BGS			2		85	9	1.5
1.5								
2.0				3		75	4	0.7
2.5				4		100	3	2.6
3.0	- wet at 3.05m BGS	75.84	▽					
3.5	GRAVELLY SAND (FILL), with silt, loose, medium to coarse grained, brown, moist, slight petroleum hydrocarbon staining and odour, trace glass shards			5		85	2	36
4.0			BENTONITE	6		60	2	36.2
4.5	- strong petroleum hydrocarbon odour from 4.57 to 5.33m BGS			7		50	3	40
5.0								
5.5	SILTY CLAY (FILL), soft, fine grained, brown, moist	73.55		8		60	4	8.2
6.0								
6.5				9		0	3	-
	ML-CLAYEY SILT (NATIVE), soft, low plasticity,	72.03						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ November 22, 2018
CHEMICAL ANALYSIS (1)

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: RMM Data Gap Investigation
PROJECT NUMBER: 11102463-53
CLIENT: Waterfront Toronto
LOCATION: 586 Lakeshore Blvd. E., Toronto, Ontario

HOLE DESIGNATION: BH18-466
DATE COMPLETED: November 22, 2018
DRILLING METHOD: 216mm OD HSA
FIELD PERSONNEL: S. Meneses/J. Bigioni

DEPTH m BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. m BGS	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
7.5	brown/light brown, moist			10		85	2	0.5
8.0				11		85	1	0.3
	END OF BOREHOLE @ 8.22m BGS	70.66						
8.5								
9.0								
9.5								
10.0								
10.5								
11.0								
11.5								
12.0								
12.5								
13.0								
13.5								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ November 22, 2018
CHEMICAL ANALYSIS

Attachment C
Laboratory Certificates of Analysis

GHD Limited (Waterloo)
ATTN: JENNIFER BALKWILL
455 PHILLIP ST
WATERLOO ON N2L 3X2

Date Received: 23-NOV-18
Report Date: 14-DEC-18 12:26 (MT)
Version: FINAL REV. 2

Client Phone: 519-884-0510

Certificate of Analysis

Lab Work Order #: L2201309

Project P.O. #: 73509898-7
Job Reference: 11102463-53
C of C Numbers:
Legal Site Desc: WATERFRONT TORONTO

Comments:

14-DEC-2018 Revised sample 12 ID to S-11102463-112318-SM-BH18-421-22.5-24.5 as per correspondence.

Rick Hawthorne
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2201309-1 S-11102463-112218-SM-BH18-464-2.5-4.5								
Sampled By: S. MENESES on 22-NOV-18								
Matrix: SOIL								
Physical Tests								
Conductivity	0.477		0.0040	mS/cm	29-NOV-18	0.7	0.7	0.7
% Moisture	10.3		0.10	%	27-NOV-18			
pH	7.24		0.10	pH units	27-NOV-18			
Cyanides								
Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	28-NOV-18	0.051	0.051	0.051
Saturated Paste Extractables								
SAR	0.34		0.10	SAR	28-NOV-18	5	5	5
Calcium (Ca)	58.6		1.0	mg/L	28-NOV-18			
Magnesium (Mg)	3.1		1.0	mg/L	28-NOV-18			
Sodium (Na)	9.8		1.0	mg/L	28-NOV-18			
Metals								
Antimony (Sb)	12.2		1.0	ug/g	28-NOV-18	*7.5	*7.5	*1.3
Arsenic (As)	20.1		1.0	ug/g	28-NOV-18	*18	*18	*18
Barium (Ba)	384		1.0	ug/g	28-NOV-18	390	390	*220
Beryllium (Be)	0.75		0.50	ug/g	28-NOV-18	4	5	2.5
Boron (B)	10.7		5.0	ug/g	28-NOV-18	120	120	36
Boron (B), Hot Water Ext.	0.72		0.10	ug/g	28-NOV-18	1.5	1.5	1.5
Cadmium (Cd)	2.16		0.50	ug/g	28-NOV-18	*1.2	*1.2	*1.2
Chromium (Cr)	96.0		1.0	ug/g	28-NOV-18	160	160	*70
Cobalt (Co)	8.2		1.0	ug/g	28-NOV-18	22	22	22
Copper (Cu)	288		1.0	ug/g	28-NOV-18	*140	*180	*92
Lead (Pb)	1160	DLHC	10	ug/g	28-NOV-18	*120	*120	*120
Mercury (Hg)	2.83	DLHC	0.50	ug/g	29-NOV-18	*0.27	*1.8	*0.27
Molybdenum (Mo)	2.1		1.0	ug/g	28-NOV-18	6.9	6.9	*2
Nickel (Ni)	28.5		1.0	ug/g	28-NOV-18	100	130	82
Selenium (Se)	2.1		1.0	ug/g	28-NOV-18	2.4	2.4	*1.5
Silver (Ag)	4.56		0.20	ug/g	28-NOV-18	20	25	*0.5
Thallium (Tl)	<0.50		0.50	ug/g	28-NOV-18	1	1	1
Uranium (U)	<1.0		1.0	ug/g	28-NOV-18	23	23	2.5
Vanadium (V)	27.0		1.0	ug/g	28-NOV-18	86	86	86
Zinc (Zn)	727		5.0	ug/g	28-NOV-18	*340	*340	*290
Speciated Metals								
Chromium, Hexavalent	1.38		0.20	ug/g	27-NOV-18	8	10	*0.66
Volatile Organic Compounds								
Acetone	<0.50		0.50	ug/g	29-NOV-18	16	28	0.5
Benzene	0.170		0.0068	ug/g	29-NOV-18	0.21	0.17	*0.02
Bromodichloromethane	<0.070	DLVH	0.070	ug/g	29-NOV-18	13	13	**0.05
Bromoform	<0.050		0.050	ug/g	29-NOV-18	0.27	0.26	0.05
Bromomethane	<0.050		0.050	ug/g	29-NOV-18	0.05	0.05	0.05
Carbon tetrachloride	<0.050		0.050	ug/g	29-NOV-18	0.05	0.12	0.05
Chlorobenzene	<0.050		0.050	ug/g	29-NOV-18	2.4	2.7	0.05
Dibromochloromethane	<0.050		0.050	ug/g	29-NOV-18	9.4	9.4	0.05
Chloroform	<0.050		0.050	ug/g	29-NOV-18	0.05	0.18	0.05
1,2-Dibromoethane	<0.050		0.050	ug/g	29-NOV-18	0.05	0.05	0.05
1,2-Dichlorobenzene	<0.050		0.050	ug/g	29-NOV-18	3.4	4.3	0.05

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping	Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2201309-1	S-11102463-112218-SM-BH18-464-2.5-4.5								
Sampled By:	S. MENESES on 22-NOV-18								
Matrix:	SOIL								
Volatile Organic Compounds									
	1,3-Dichlorobenzene	<0.050		0.050	ug/g	29-NOV-18	4.8	6	0.05
	1,4-Dichlorobenzene	<0.050		0.050	ug/g	29-NOV-18	0.083	0.097	0.05
	Dichlorodifluoromethane	<0.050		0.050	ug/g	29-NOV-18	16	25	0.05
	1,1-Dichloroethane	<0.050		0.050	ug/g	29-NOV-18	3.5	11	0.05
	1,2-Dichloroethane	<0.050		0.050	ug/g	29-NOV-18	0.05	0.05	0.05
	1,1-Dichloroethylene	<0.050		0.050	ug/g	29-NOV-18	0.05	0.05	0.05
	cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	29-NOV-18	3.4	30	0.05
	trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	29-NOV-18	0.084	0.75	0.05
	Methylene Chloride	<0.050		0.050	ug/g	29-NOV-18	0.1	0.96	0.05
	1,2-Dichloropropane	<0.050		0.050	ug/g	29-NOV-18	0.05	0.085	0.05
	cis-1,3-Dichloropropene	<0.030		0.030	ug/g	29-NOV-18			
	trans-1,3-Dichloropropene	<0.030		0.030	ug/g	29-NOV-18			
	1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g	29-NOV-18	0.05	0.083	0.05
	Ethylbenzene	0.112		0.018	ug/g	29-NOV-18	2	15	*0.05
	n-Hexane	0.611		0.050	ug/g	29-NOV-18	2.8	34	*0.05
	Methyl Ethyl Ketone	<0.50		0.50	ug/g	29-NOV-18	16	44	0.5
	Methyl Isobutyl Ketone	<0.50		0.50	ug/g	29-NOV-18	1.7	4.3	0.5
	MTBE	<0.050		0.050	ug/g	29-NOV-18	0.75	1.4	0.05
	Styrene	<0.050		0.050	ug/g	29-NOV-18	0.7	2.2	0.05
	1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	29-NOV-18	0.058	0.05	0.05
	1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	29-NOV-18	0.05	0.05	0.05
	Tetrachloroethylene	<0.050		0.050	ug/g	29-NOV-18	0.28	2.3	0.05
	Toluene	0.279		0.080	ug/g	29-NOV-18	2.3	6	*0.2
	1,1,1-Trichloroethane	<0.050		0.050	ug/g	29-NOV-18	0.38	3.4	0.05
	1,1,2-Trichloroethane	<0.050		0.050	ug/g	29-NOV-18	0.05	0.05	0.05
	Trichloroethylene	<0.010		0.010	ug/g	29-NOV-18	0.061	0.52	0.05
	Trichlorofluoromethane	<0.050		0.050	ug/g	29-NOV-18	4	5.8	0.25
	Vinyl chloride	<0.020		0.020	ug/g	29-NOV-18	0.02	0.022	0.02
	o-Xylene	0.185		0.020	ug/g	29-NOV-18			
	m+p-Xylenes	0.346		0.030	ug/g	29-NOV-18			
	Xylenes (Total)	0.531		0.050	ug/g	29-NOV-18	3.1	25	*0.05
	Surrogate: 4-Bromofluorobenzene	104.7		50-140	%	29-NOV-18			
	Surrogate: 1,4-Difluorobenzene	118.4		50-140	%	29-NOV-18			
Hydrocarbons									
	F1 (C6-C10)	5.5		5.0	ug/g	29-NOV-18	55	65	25
	F1-BTEX	<5.0		5.0	ug/g	29-NOV-18	55	65	25
	F2 (C10-C16)	21		10	ug/g	27-NOV-18	98	150	*10
	F2-Naphth	20		10	ug/g	29-NOV-18			
	F3 (C16-C34)	358		50	ug/g	27-NOV-18	*300	1300	*240
	F3-PAH	348		50	ug/g	29-NOV-18			
	F4 (C34-C50)	146		50	ug/g	27-NOV-18	2800	5600	*120
	F4G-SG (GHH-Silica)	400		250	ug/g	26-NOV-18	2800	5600	*120
	Total Hydrocarbons (C6-C50)	531		72	ug/g	29-NOV-18			
	Chrom. to baseline at nC50	NO			No Unit	27-NOV-18			
	Surrogate: 2-Bromobenzotrifluoride	103.5		60-140	%	27-NOV-18			
	Surrogate: 3,4-Dichlorotoluene	72.1		60-140	%	29-NOV-18			

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2201309-1 S-11102463-112218-SM-BH18-464-2.5-4.5								
Sampled By: S. MENESES on 22-NOV-18								
Matrix: SOIL								
Polycyclic Aromatic Hydrocarbons								
1+2-Methylnaphthalenes	0.832		0.085	ug/g	29-NOV-18	0.99	3.4	*0.59
Semi-Volatile Organics								
Acenaphthene	<0.10	DLM	0.10	ug/g	28-NOV-18	7.9	58	**0.072
Acenaphthylene	<0.10	DLM	0.10	ug/g	28-NOV-18	0.15	0.17	**0.093
Anthracene	0.23	DLM	0.10	ug/g	28-NOV-18	0.67	0.74	*0.22
Benzo(a)anthracene	0.96	DLM	0.10	ug/g	28-NOV-18	*0.5	*0.63	*0.36
Benzo(a)pyrene	1.05	DLM	0.10	ug/g	28-NOV-18	*0.3	*0.3	*0.3
Benzo(b)fluoranthene	0.79	DLM	0.10	ug/g	28-NOV-18	*0.78	*0.78	*0.47
Benzo(ghi)perylene	0.83	DLM	0.10	ug/g	28-NOV-18	6.6	7.8	*0.68
Benzo(k)fluoranthene	1.05	DLM	0.10	ug/g	28-NOV-18	*0.78	*0.78	*0.48
2-Chlorophenol	<0.20	DLM	0.20	ug/g	28-NOV-18	1.6	2	**0.1
Chrysene	1.11	DLM	0.10	ug/g	28-NOV-18	7	7.8	2.8
Dibenzo(a,h)anthracene	0.18	DLM	0.10	ug/g	28-NOV-18	*0.1	*0.1	*0.1
2,4-Dichlorophenol	<0.20	DLM	0.20	ug/g	28-NOV-18	1.7	2.1	**0.1
Fluoranthene	1.79	DLM	0.10	ug/g	28-NOV-18	*0.69	*0.69	*0.69
Fluorene	<0.10	DLM	0.10	ug/g	28-NOV-18	62	69	0.19
Indeno(1,2,3-cd)pyrene	0.78	DLM	0.10	ug/g	28-NOV-18	*0.38	*0.48	*0.23
1-Methylnaphthalene	0.350	DLM	0.060	ug/g	28-NOV-18	0.99	3.4	0.59
2-Methylnaphthalene	0.482	DLM	0.060	ug/g	28-NOV-18	0.99	3.4	0.59
Naphthalene	0.83	DLM	0.10	ug/g	28-NOV-18	*0.6	*0.75	*0.09
Pentachlorophenol	<0.20	DLM	0.20	ug/g	28-NOV-18	**0.1	**0.1	**0.1
Phenanthrene	1.15	DLM	0.10	ug/g	28-NOV-18	6.2	7.8	*0.69
Pyrene	1.78	DLM	0.10	ug/g	28-NOV-18	78	78	*1
2,4,5-Trichlorophenol	<0.20	DLM	0.20	ug/g	28-NOV-18	4.4	5.5	**0.1
2,4,6-Trichlorophenol	<0.20	DLM	0.20	ug/g	28-NOV-18	3.8	4.2	**0.1
Surrogate: 2-Fluorobiphenyl	90.1		50-140	%	28-NOV-18			
Surrogate: Phenol d5	91.3		30-130	%	28-NOV-18			
Surrogate: p-Terphenyl d14	115.2		50-140	%	28-NOV-18			
Surrogate: 2,4,6-Tribromophenol	74.0		50-140	%	28-NOV-18			
Polychlorinated Biphenyls								
Aroclor 1242	<0.010		0.010	ug/g	30-NOV-18			
Aroclor 1248	<0.010		0.010	ug/g	30-NOV-18			
Aroclor 1254	<0.045	DLM	0.045	ug/g	30-NOV-18			
Aroclor 1260	0.045	PRAR	0.010	ug/g	30-NOV-18			
Total PCBs	<0.050	DLM	0.050	ug/g	30-NOV-18	0.35	0.35	0.3
Surrogate: d14-Terphenyl	94.9		60-140	%	30-NOV-18			
Organochlorine Pesticides								
Aldrin	<0.040	DLM	0.040	ug/g	30-NOV-18	0.05	0.05	0.05
gamma-hexachlorocyclohexane	<0.050	DLM	0.050	ug/g	30-NOV-18	0.056	0.063	
a-chlordane	<0.040	DLM	0.040	ug/g	30-NOV-18			
Chlordane (Total)	<0.057		0.057	ug/g	30-NOV-18	**0.05	**0.05	**0.05
g-chlordane	<0.040	DLM	0.040	ug/g	30-NOV-18			
op-DDD	<0.040	DLM	0.040	ug/g	30-NOV-18			
pp-DDD	<0.040	DLM	0.040	ug/g	30-NOV-18			
Total DDD	<0.057		0.057	ug/g	30-NOV-18	3.3	3.3	**0.05
o,p-DDE	<0.040	DLM	0.040	ug/g	30-NOV-18			

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping	Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2201309-1	S-11102463-112218-SM-BH18-464-2.5-4.5								
Sampled By:	S. MENESES on 22-NOV-18								
Matrix:	SOIL								
Organochlorine Pesticides									
	pp-DDE	<0.040	DLM	0.040	ug/g	30-NOV-18			
	Total DDE	<0.057		0.057	ug/g	30-NOV-18	0.26	0.33	**0.05
	op-DDT	<0.040	DLM	0.040	ug/g	30-NOV-18			
	pp-DDT	<0.040	DLM	0.040	ug/g	30-NOV-18			
	Total DDT	<0.057		0.057	ug/g	30-NOV-18	1.4	1.4	1.4
	Dieldrin	<0.040	DLM	0.040	ug/g	30-NOV-18	0.05	0.05	0.05
	Endosulfan I	<0.070	DLQ	0.070	ug/g	30-NOV-18			
	Endosulfan II	<0.040	DLM	0.040	ug/g	30-NOV-18			
	Endosulfan (Total)	<0.081		0.081	ug/g	30-NOV-18	**0.04	**0.04	**0.04
	Endrin	<0.040	DLM	0.040	ug/g	30-NOV-18	0.04	0.04	0.04
	Heptachlor	<0.040	DLM	0.040	ug/g	30-NOV-18	0.15	0.15	0.05
	Heptachlor Epoxide	<0.040	DLM	0.040	ug/g	30-NOV-18	0.05	0.05	0.05
	Hexachlorobenzene	<0.050	DLM	0.050	ug/g	30-NOV-18	0.52	0.52	**0.02
	Hexachlorobutadiene	<0.050	DLM	0.050	ug/g	30-NOV-18	**0.012	**0.014	**0.01
	Hexachloroethane	<0.050	DLM	0.050	ug/g	30-NOV-18	0.089	0.07	**0.01
	Methoxychlor	<0.080	DLQ	0.080	ug/g	30-NOV-18	0.13	0.13	**0.05
	Surrogate: 2-Fluorobiphenyl	94.9		50-140	%	30-NOV-18			
	Surrogate: d14-Terphenyl	91.6		50-140	%	30-NOV-18			
L2201309-2	S-11102463-112218-SM-BH18-464-12.5-14.5								
Sampled By:	S. MENESES on 22-NOV-18								
Matrix:	SOIL								
Physical Tests									
	Conductivity	1.54		0.0040	mS/cm	29-NOV-18	*0.7	*0.7	*0.7
	% Moisture	35.4		0.10	%	27-NOV-18			
	pH	7.08		0.10	pH units	27-NOV-18			
Cyanides									
	Cyanide, Weak Acid Diss	0.110		0.050	ug/g	28-NOV-18	*0.051	*0.051	*0.051
Saturated Paste Extractables									
	SAR	1.42		0.10	SAR	28-NOV-18	5	5	5
	Calcium (Ca)	203		1.0	mg/L	28-NOV-18			
	Magnesium (Mg)	18.5		1.0	mg/L	28-NOV-18			
	Sodium (Na)	78.6		1.0	mg/L	28-NOV-18			
Metals									
	Antimony (Sb)	32.2	DLHC	2.0	ug/g	28-NOV-18	*7.5	*7.5	*1.3
	Arsenic (As)	49.0		1.0	ug/g	28-NOV-18	*18	*18	*18
	Barium (Ba)	167		1.0	ug/g	28-NOV-18	390	390	220
	Beryllium (Be)	0.61		0.50	ug/g	28-NOV-18	4	5	2.5
	Boron (B)	37.4		5.0	ug/g	28-NOV-18	120	120	*36
	Boron (B), Hot Water Ext.	1.48		0.10	ug/g	28-NOV-18	1.5	1.5	1.5
	Cadmium (Cd)	8.40		0.50	ug/g	28-NOV-18	*1.2	*1.2	*1.2
	Chromium (Cr)	72.1		1.0	ug/g	28-NOV-18	160	160	*70
	Cobalt (Co)	15.0		1.0	ug/g	28-NOV-18	22	22	22
	Copper (Cu)	9310	DLHC	10	ug/g	28-NOV-18	*140	*180	*92
	Lead (Pb)	10300	DLHC	10	ug/g	28-NOV-18	*120	*120	*120
	Mercury (Hg)	9.65	DLHC	0.50	ug/g	29-NOV-18	*0.27	*1.8	*0.27

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2201309-2 S-11102463-112218-SM-BH18-464-12.5-14.5								
Sampled By: S. MENESES on 22-NOV-18								
Matrix: SOIL								
Metals								
Molybdenum (Mo)	4.2		1.0	ug/g	28-NOV-18	6.9	6.9	*2
Nickel (Ni)	49.1		1.0	ug/g	28-NOV-18	100	130	82
Selenium (Se)	2.2		1.0	ug/g	28-NOV-18	2.4	2.4	*1.5
Silver (Ag)	2.90		0.20	ug/g	28-NOV-18	20	25	*0.5
Thallium (Tl)	<0.50		0.50	ug/g	28-NOV-18	1	1	1
Uranium (U)	<1.0		1.0	ug/g	28-NOV-18	23	23	2.5
Vanadium (V)	24.6		1.0	ug/g	28-NOV-18	86	86	86
Zinc (Zn)	2260	DLHC	40	ug/g	28-NOV-18	*340	*340	*290
Speciated Metals								
Chromium, Hexavalent	<0.20		0.20	ug/g	27-NOV-18	8	10	0.66
Volatile Organic Compounds								
Acetone	<0.50		0.50	ug/g	29-NOV-18	16	28	0.5
Benzene	0.156		0.0068	ug/g	29-NOV-18	0.21	0.17	*0.02
Bromodichloromethane	<0.050		0.050	ug/g	29-NOV-18	13	13	0.05
Bromoform	<0.050		0.050	ug/g	29-NOV-18	0.27	0.26	0.05
Bromomethane	<0.050		0.050	ug/g	29-NOV-18	0.05	0.05	0.05
Carbon tetrachloride	<0.050		0.050	ug/g	29-NOV-18	0.05	0.12	0.05
Chlorobenzene	<0.050		0.050	ug/g	29-NOV-18	2.4	2.7	0.05
Dibromochloromethane	<0.050		0.050	ug/g	29-NOV-18	9.4	9.4	0.05
Chloroform	<0.050		0.050	ug/g	29-NOV-18	0.05	0.18	0.05
1,2-Dibromoethane	<0.12	DLVH	0.12	ug/g	29-NOV-18	**0.05	**0.05	**0.05
1,2-Dichlorobenzene	<0.050		0.050	ug/g	29-NOV-18	3.4	4.3	0.05
1,3-Dichlorobenzene	<0.050		0.050	ug/g	29-NOV-18	4.8	6	0.05
1,4-Dichlorobenzene	<0.050		0.050	ug/g	29-NOV-18	0.083	0.097	0.05
Dichlorodifluoromethane	<0.050		0.050	ug/g	29-NOV-18	16	25	0.05
1,1-Dichloroethane	<0.050		0.050	ug/g	29-NOV-18	3.5	11	0.05
1,2-Dichloroethane	<0.050		0.050	ug/g	29-NOV-18	0.05	0.05	0.05
1,1-Dichloroethylene	<0.050		0.050	ug/g	29-NOV-18	0.05	0.05	0.05
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	29-NOV-18	3.4	30	0.05
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	29-NOV-18	0.084	0.75	0.05
Methylene Chloride	<0.050		0.050	ug/g	29-NOV-18	0.1	0.96	0.05
1,2-Dichloropropane	<0.050		0.050	ug/g	29-NOV-18	0.05	0.085	0.05
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	29-NOV-18			
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	29-NOV-18			
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g	29-NOV-18	0.05	0.083	0.05
Ethylbenzene	0.146		0.018	ug/g	29-NOV-18	2	15	*0.05
n-Hexane	0.606		0.050	ug/g	29-NOV-18	2.8	34	*0.05
Methyl Ethyl Ketone	<0.50		0.50	ug/g	29-NOV-18	16	44	0.5
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	29-NOV-18	1.7	4.3	0.5
MTBE	<0.050		0.050	ug/g	29-NOV-18	0.75	1.4	0.05
Styrene	<0.050		0.050	ug/g	29-NOV-18	0.7	2.2	0.05
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	29-NOV-18	0.058	0.05	0.05
1,1,2,2-Tetrachloroethane	<1.0	DLVH	1.0	ug/g	29-NOV-18	**0.05	**0.05	**0.05
Tetrachloroethylene	<0.050		0.050	ug/g	29-NOV-18	0.28	2.3	0.05
Toluene	0.323		0.080	ug/g	29-NOV-18	2.3	6	*0.2

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2201309-2 S-11102463-112218-SM-BH18-464-12.5-14.5								
Sampled By: S. MENESES on 22-NOV-18								
Matrix: SOIL								
Volatile Organic Compounds								
1,1,1-Trichloroethane	<0.050		0.050	ug/g	29-NOV-18	0.38	3.4	0.05
1,1,2-Trichloroethane	<0.050		0.050	ug/g	29-NOV-18	0.05	0.05	0.05
Trichloroethylene	<0.010		0.010	ug/g	29-NOV-18	0.061	0.52	0.05
Trichlorofluoromethane	<0.050		0.050	ug/g	29-NOV-18	4	5.8	0.25
Vinyl chloride	<0.020		0.020	ug/g	29-NOV-18	0.02	0.022	0.02
o-Xylene	0.163		0.020	ug/g	29-NOV-18			
m+p-Xylenes	0.433		0.030	ug/g	29-NOV-18			
Xylenes (Total)	0.596		0.050	ug/g	29-NOV-18	3.1	25	*0.05
Surrogate: 4-Bromofluorobenzene	103.2		50-140	%	29-NOV-18			
Surrogate: 1,4-Difluorobenzene	114.8		50-140	%	29-NOV-18			
Hydrocarbons								
F1 (C6-C10)	14.3		5.0	ug/g	29-NOV-18	55	65	25
F1-BTEX	13.1		5.0	ug/g	29-NOV-18	55	65	25
F2 (C10-C16)	14400		10	ug/g	27-NOV-18	*98	*150	*10
F2-Naphth	14400		10	ug/g	29-NOV-18			
F3 (C16-C34)	7830		50	ug/g	27-NOV-18	*300	*1300	*240
F3-PAH	7800		50	ug/g	29-NOV-18			
F4 (C34-C50)	670		50	ug/g	27-NOV-18	2800	5600	*120
Total Hydrocarbons (C6-C50)	22900		72	ug/g	29-NOV-18			
Chrom. to baseline at nC50	YES			No Unit	27-NOV-18			
Surrogate: 2-Bromobenzotrifluoride	138.9		60-140	%	27-NOV-18			
Surrogate: 3,4-Dichlorotoluene	82.8		60-140	%	29-NOV-18			
Polycyclic Aromatic Hydrocarbons								
1+2-Methylnaphthalenes	<1.2		1.2	ug/g	29-NOV-18	**0.99	3.4	**0.59
Semi-Volatile Organics								
Acenaphthene	2.25	DLM	0.10	ug/g	28-NOV-18	7.9	58	*0.072
Acenaphthylene	<0.15	DLQ	0.15	ug/g	28-NOV-18	0.15	0.17	**0.093
Anthracene	1.07	DLM	0.10	ug/g	28-NOV-18	*0.67	*0.74	*0.22
Benzo(a)anthracene	1.61	DLM	0.10	ug/g	28-NOV-18	*0.5	*0.63	*0.36
Benzo(a)pyrene	1.76	DLM	0.10	ug/g	28-NOV-18	*0.3	*0.3	*0.3
Benzo(b)fluoranthene	1.58	DLM	0.10	ug/g	28-NOV-18	*0.78	*0.78	*0.47
Benzo(ghi)perylene	2.74	DLM	0.10	ug/g	28-NOV-18	6.6	7.8	*0.68
Benzo(k)fluoranthene	1.08	DLM	0.10	ug/g	28-NOV-18	*0.78	*0.78	*0.48
2-Chlorophenol	<0.20	DLM	0.20	ug/g	28-NOV-18	1.6	2	**0.1
Chrysene	1.90	DLM	0.10	ug/g	28-NOV-18	7	7.8	2.8
Dibenzo(a,h)anthracene	0.44	DLM	0.10	ug/g	28-NOV-18	*0.1	*0.1	*0.1
2,4-Dichlorophenol	<0.20	DLM	0.20	ug/g	28-NOV-18	1.7	2.1	**0.1
Fluoranthene	2.94	DLM	0.10	ug/g	28-NOV-18	*0.69	*0.69	*0.69
Fluorene	5.16	DLM	0.10	ug/g	28-NOV-18	62	69	*0.19
Indeno(1,2,3-cd)pyrene	2.35	DLM	0.10	ug/g	28-NOV-18	*0.38	*0.48	*0.23
1-Methylnaphthalene	<0.70	DLQ	0.70	ug/g	28-NOV-18	0.99	3.4	**0.59
2-Methylnaphthalene	<1.0	DLQ	1.0	ug/g	28-NOV-18	**0.99	3.4	**0.59
Naphthalene	<1.2	DLQ	1.2	ug/g	28-NOV-18	**0.6	**0.75	**0.09
Pentachlorophenol	<0.20	DLM	0.20	ug/g	28-NOV-18	**0.1	**0.1	**0.1
Phenanthrene	5.61	DLM	0.10	ug/g	28-NOV-18	6.2	7.8	*0.69
Pyrene	3.17	DLM	0.10	ug/g	28-NOV-18	78	78	*1

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping	Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2201309-2	S-11102463-112218-SM-BH18-464-12.5-14.5								
Sampled By:	S. MENESES on 22-NOV-18								
Matrix:	SOIL								
Semi-Volatile Organics									
	2,4,5-Trichlorophenol	<0.60	DLQ	0.60	ug/g	28-NOV-18	4.4	5.5	**0.1
	2,4,6-Trichlorophenol	<0.60	DLQ	0.60	ug/g	28-NOV-18	3.8	4.2	**0.1
	Surrogate: 2-Fluorobiphenyl	93.3		50-140	%	28-NOV-18			
	Surrogate: Phenol d5	87.8		30-130	%	28-NOV-18			
	Surrogate: p-Terphenyl d14	101.6		50-140	%	28-NOV-18			
	Surrogate: 2,4,6-Tribromophenol	82.7		50-140	%	28-NOV-18			
Polychlorinated Biphenyls									
	Aroclor 1242	<0.20	DLM	0.20	ug/g	30-NOV-18			
	Aroclor 1248	<0.020	DLM	0.020	ug/g	30-NOV-18			
	Aroclor 1254	<0.020	DLM	0.020	ug/g	30-NOV-18			
	Aroclor 1260	<0.020	DLM	0.020	ug/g	30-NOV-18			
	Total PCBs	<0.210	DLM	0.21	ug/g	30-NOV-18	0.35	0.35	0.3
	Surrogate: d14-Terphenyl	90.4		60-140	%	30-NOV-18			
Organochlorine Pesticides									
	Aldrin	<0.080	DLM	0.080	ug/g	30-NOV-18	**0.05	**0.05	**0.05
	gamma-hexachlorocyclohexane	<7.5	DLM	7.5	ug/g	30-NOV-18	**0.056	**0.063	
	a-chlordane	<0.040	DLM	0.040	ug/g	30-NOV-18			
	Chlordane (Total)	<0.057		0.057	ug/g	30-NOV-18	**0.05	**0.05	**0.05
	g-chlordane	<0.040	DLM	0.040	ug/g	30-NOV-18			
	op-DDD	<0.080	DLM	0.080	ug/g	30-NOV-18			
	pp-DDD	<0.14	DLM	0.14	ug/g	30-NOV-18			
	Total DDD	<0.16		0.16	ug/g	30-NOV-18	3.3	3.3	**0.05
	o,p-DDE	<0.040	DLM	0.040	ug/g	30-NOV-18			
	pp-DDE	<0.040	DLM	0.040	ug/g	30-NOV-18			
	Total DDE	<0.057		0.057	ug/g	30-NOV-18	0.26	0.33	**0.05
	op-DDT	<0.080	DLM	0.080	ug/g	30-NOV-18			
	pp-DDT	<0.040	DLM	0.040	ug/g	30-NOV-18			
	Total DDT	<0.089		0.089	ug/g	30-NOV-18	1.4	1.4	1.4
	Dieldrin	<0.46	DLM	0.46	ug/g	30-NOV-18	**0.05	**0.05	**0.05
	Endosulfan I	<0.35	DLM	0.35	ug/g	30-NOV-18			
	Endosulfan II	<0.43	DLM	0.43	ug/g	30-NOV-18			
	Endosulfan (Total)	<0.55		0.55	ug/g	30-NOV-18	**0.04	**0.04	**0.04
	Endrin	<0.20	DLM	0.20	ug/g	30-NOV-18	**0.04	**0.04	**0.04
	Heptachlor	<0.14	DLM	0.14	ug/g	30-NOV-18	0.15	0.15	**0.05
	Heptachlor Epoxide	<0.040	DLM	0.040	ug/g	30-NOV-18	0.05	0.05	0.05
	Hexachlorobenzene	<0.050	DLM	0.050	ug/g	30-NOV-18	0.52	0.52	**0.02
	Hexachlorobutadiene	<0.050	DLM	0.050	ug/g	30-NOV-18	**0.012	**0.014	**0.01
	Hexachloroethane	<0.050	DLM	0.050	ug/g	30-NOV-18	0.089	0.07	**0.01
	Methoxychlor	<0.80	DLM	0.80	ug/g	30-NOV-18	**0.13	**0.13	**0.05
	Surrogate: 2-Fluorobiphenyl	103.9		50-140	%	30-NOV-18			
	Surrogate: d14-Terphenyl	95.3		50-140	%	30-NOV-18			
L2201309-3	S-11102463-112218-SM-BH18-464-20-22								
Sampled By:	S. MENESES on 22-NOV-18								
Matrix:	SOIL						#1	#2	#3
Physical Tests									

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2201309-3 S-11102463-112218-SM-BH18-464-20-22								
Sampled By: S. MENESES on 22-NOV-18								
Matrix: SOIL								
Physical Tests								
Conductivity	1.14		0.0040	mS/cm	29-NOV-18	*0.7	*0.7	*0.7
% Moisture	33.6		0.10	%	27-NOV-18			
pH	6.96		0.10	pH units	27-NOV-18			
Cyanides								
Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	28-NOV-18	0.051	0.051	0.051
Saturated Paste Extractables								
SAR	9.20		0.10	SAR	28-NOV-18	*5	*5	*5
Calcium (Ca)	17.9		1.0	mg/L	28-NOV-18			
Magnesium (Mg)	2.7		1.0	mg/L	28-NOV-18			
Sodium (Na)	158		1.0	mg/L	28-NOV-18			
Metals								
Antimony (Sb)	1.2		1.0	ug/g	28-NOV-18	7.5	7.5	1.3
Arsenic (As)	3.9		1.0	ug/g	28-NOV-18	18	18	18
Barium (Ba)	133		1.0	ug/g	28-NOV-18	390	390	220
Beryllium (Be)	0.76		0.50	ug/g	28-NOV-18	4	5	2.5
Boron (B)	5.0		5.0	ug/g	28-NOV-18	120	120	36
Boron (B), Hot Water Ext.	0.47		0.10	ug/g	28-NOV-18	1.5	1.5	1.5
Cadmium (Cd)	<0.50		0.50	ug/g	28-NOV-18	1.2	1.2	1.2
Chromium (Cr)	29.2		1.0	ug/g	28-NOV-18	160	160	70
Cobalt (Co)	9.2		1.0	ug/g	28-NOV-18	22	22	22
Copper (Cu)	43.0		1.0	ug/g	28-NOV-18	140	180	92
Lead (Pb)	131		1.0	ug/g	28-NOV-18	*120	*120	*120
Mercury (Hg)	0.0993		0.0050	ug/g	29-NOV-18	0.27	1.8	0.27
Molybdenum (Mo)	<1.0		1.0	ug/g	28-NOV-18	6.9	6.9	2
Nickel (Ni)	18.8		1.0	ug/g	28-NOV-18	100	130	82
Selenium (Se)	<1.0		1.0	ug/g	28-NOV-18	2.4	2.4	1.5
Silver (Ag)	<0.20		0.20	ug/g	28-NOV-18	20	25	0.5
Thallium (Tl)	<0.50		0.50	ug/g	28-NOV-18	1	1	1
Uranium (U)	<1.0		1.0	ug/g	28-NOV-18	23	23	2.5
Vanadium (V)	42.5		1.0	ug/g	28-NOV-18	86	86	86
Zinc (Zn)	86.5		5.0	ug/g	28-NOV-18	340	340	290
Speciated Metals								
Chromium, Hexavalent	<1.0	DLM	1.0	ug/g	29-NOV-18	8	10	**0.66
Volatile Organic Compounds								
Acetone	0.65		0.50	ug/g	29-NOV-18	16	28	*0.5
Benzene	0.0132		0.0068	ug/g	29-NOV-18	0.21	0.17	0.02
Bromodichloromethane	0.068		0.050	ug/g	29-NOV-18	13	13	*0.05
Bromoform	<0.050		0.050	ug/g	29-NOV-18	0.27	0.26	0.05
Bromomethane	<0.050		0.050	ug/g	29-NOV-18	0.05	0.05	0.05
Carbon tetrachloride	<0.050		0.050	ug/g	29-NOV-18	0.05	0.12	0.05
Chlorobenzene	<0.050		0.050	ug/g	29-NOV-18	2.4	2.7	0.05
Dibromochloromethane	<0.050		0.050	ug/g	29-NOV-18	9.4	9.4	0.05
Chloroform	<0.050		0.050	ug/g	29-NOV-18	0.05	0.18	0.05
1,2-Dibromoethane	<0.050		0.050	ug/g	29-NOV-18	0.05	0.05	0.05
1,2-Dichlorobenzene	<0.050		0.050	ug/g	29-NOV-18	3.4	4.3	0.05

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2201309-3 S-11102463-112218-SM-BH18-464-20-22								
Sampled By: S. MENESES on 22-NOV-18								
Matrix: SOIL								
Volatile Organic Compounds								
1,3-Dichlorobenzene	<0.050		0.050	ug/g	29-NOV-18	4.8	6	0.05
1,4-Dichlorobenzene	<0.050		0.050	ug/g	29-NOV-18	0.083	0.097	0.05
Dichlorodifluoromethane	<0.050		0.050	ug/g	29-NOV-18	16	25	0.05
1,1-Dichloroethane	<0.050		0.050	ug/g	29-NOV-18	3.5	11	0.05
1,2-Dichloroethane	<0.050		0.050	ug/g	29-NOV-18	0.05	0.05	0.05
1,1-Dichloroethylene	<0.050		0.050	ug/g	29-NOV-18	0.05	0.05	0.05
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	29-NOV-18	3.4	30	0.05
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	29-NOV-18	0.084	0.75	0.05
Methylene Chloride	<0.050		0.050	ug/g	29-NOV-18	0.1	0.96	0.05
1,2-Dichloropropane	<0.050		0.050	ug/g	29-NOV-18	0.05	0.085	0.05
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	29-NOV-18			
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	29-NOV-18			
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g	29-NOV-18	0.05	0.083	0.05
Ethylbenzene	<0.018		0.018	ug/g	29-NOV-18	2	15	0.05
n-Hexane	<0.050		0.050	ug/g	29-NOV-18	2.8	34	0.05
Methyl Ethyl Ketone	<0.50		0.50	ug/g	29-NOV-18	16	44	0.5
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	29-NOV-18	1.7	4.3	0.5
MTBE	<0.050		0.050	ug/g	29-NOV-18	0.75	1.4	0.05
Styrene	<0.050		0.050	ug/g	29-NOV-18	0.7	2.2	0.05
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	29-NOV-18	0.058	0.05	0.05
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	29-NOV-18	0.05	0.05	0.05
Tetrachloroethylene	<0.050		0.050	ug/g	29-NOV-18	0.28	2.3	0.05
Toluene	<0.080		0.080	ug/g	29-NOV-18	2.3	6	0.2
1,1,1-Trichloroethane	<0.050		0.050	ug/g	29-NOV-18	0.38	3.4	0.05
1,1,2-Trichloroethane	<0.050		0.050	ug/g	29-NOV-18	0.05	0.05	0.05
Trichloroethylene	<0.010		0.010	ug/g	29-NOV-18	0.061	0.52	0.05
Trichlorofluoromethane	<0.050		0.050	ug/g	29-NOV-18	4	5.8	0.25
Vinyl chloride	<0.020		0.020	ug/g	29-NOV-18	0.02	0.022	0.02
o-Xylene	<0.020		0.020	ug/g	29-NOV-18			
m+p-Xylenes	<0.030		0.030	ug/g	29-NOV-18			
Xylenes (Total)	<0.050		0.050	ug/g	29-NOV-18	3.1	25	0.05
Surrogate: 4-Bromofluorobenzene	123.8		50-140	%	29-NOV-18			
Surrogate: 1,4-Difluorobenzene	136.0		50-140	%	29-NOV-18			
Hydrocarbons								
F1 (C6-C10)	8.8		5.0	ug/g	29-NOV-18	55	65	25
F1-BTEX	8.8		5.0	ug/g	30-NOV-18	55	65	25
F2 (C10-C16)	166		10	ug/g	27-NOV-18	*98	*150	*10
F2-Naphth	166		10	ug/g	30-NOV-18			
F3 (C16-C34)	120		50	ug/g	27-NOV-18	300	1300	240
F3-PAH	119		50	ug/g	30-NOV-18			
F4 (C34-C50)	<50		50	ug/g	27-NOV-18	2800	5600	120
Total Hydrocarbons (C6-C50)	295		72	ug/g	30-NOV-18			
Chrom. to baseline at nC50	YES			No Unit	27-NOV-18			
Surrogate: 2-Bromobenzotrifluoride	101.6		60-140	%	27-NOV-18			
Surrogate: 3,4-Dichlorotoluene	94.5		60-140	%	29-NOV-18			
Polycyclic Aromatic Hydrocarbons								

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2201309-3 S-11102463-112218-SM-BH18-464-20-22								
Sampled By: S. MENESES on 22-NOV-18								
Matrix: SOIL								
Polycyclic Aromatic Hydrocarbons								
Acenaphthene	0.072		0.050	ug/g	29-NOV-18	7.9	58	0.072
Acenaphthylene	<0.050		0.050	ug/g	29-NOV-18	0.15	0.17	0.093
Anthracene	0.050		0.050	ug/g	29-NOV-18	0.67	0.74	0.22
Benzo(a)anthracene	0.084		0.050	ug/g	29-NOV-18	0.5	0.63	0.36
Benzo(a)pyrene	0.070		0.050	ug/g	29-NOV-18	0.3	0.3	0.3
Benzo(b)fluoranthene	0.091		0.050	ug/g	29-NOV-18	0.78	0.78	0.47
Benzo(g,h,i)perylene	0.091		0.050	ug/g	29-NOV-18	6.6	7.8	0.68
Benzo(k)fluoranthene	0.056		0.050	ug/g	29-NOV-18	0.78	0.78	0.48
Chrysene	0.108		0.050	ug/g	29-NOV-18	7	7.8	2.8
Dibenzo(ah)anthracene	<0.050		0.050	ug/g	29-NOV-18	0.1	0.1	0.1
Fluoranthene	0.194		0.050	ug/g	29-NOV-18	0.69	0.69	0.69
Fluorene	0.179		0.050	ug/g	29-NOV-18	62	69	0.19
Indeno(1,2,3-cd)pyrene	0.074		0.050	ug/g	29-NOV-18	0.38	0.48	0.23
1+2-Methylnaphthalenes	<0.081		0.081	ug/g	30-NOV-18	0.99	3.4	0.59
1-Methylnaphthalene	<0.075	DLM	0.075	ug/g	29-NOV-18	0.99	3.4	0.59
2-Methylnaphthalene	<0.030		0.030	ug/g	29-NOV-18	0.99	3.4	0.59
Naphthalene	<0.060	DLM	0.060	ug/g	29-NOV-18	0.6	0.75	0.09
Phenanthrene	0.264		0.046	ug/g	29-NOV-18	6.2	7.8	0.69
Pyrene	0.184		0.050	ug/g	29-NOV-18	78	78	1
Surrogate: 2-Fluorobiphenyl	74.4		50-140	%	29-NOV-18			
Surrogate: p-Terphenyl d14	74.3		50-140	%	29-NOV-18			
L2201309-4 S-11102463-112218-SM-BH18-464-DUP								
Sampled By: S. MENESES on 22-NOV-18								
Matrix: SOIL								
Physical Tests								
Conductivity	0.276		0.0040	mS/cm	29-NOV-18	0.7	0.7	0.7
% Moisture	10.7		0.10	%	27-NOV-18			
pH	7.42		0.10	pH units	27-NOV-18			
Cyanides								
Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	28-NOV-18	0.051	0.051	0.051
Saturated Paste Extractables								
SAR	0.39		0.10	SAR	29-NOV-18	5	5	5
Calcium (Ca)	24.2		1.0	mg/L	29-NOV-18			
Magnesium (Mg)	1.2		1.0	mg/L	29-NOV-18			
Sodium (Na)	7.2		1.0	mg/L	29-NOV-18			
Metals								
Antimony (Sb)	12.9		1.0	ug/g	29-NOV-18	*7.5	*7.5	*1.3
Arsenic (As)	15.7		1.0	ug/g	29-NOV-18	18	18	18
Barium (Ba)	327		1.0	ug/g	29-NOV-18	390	390	*220
Beryllium (Be)	0.66		0.50	ug/g	29-NOV-18	4	5	2.5
Boron (B)	11.7		5.0	ug/g	29-NOV-18	120	120	36
Boron (B), Hot Water Ext.	0.52		0.10	ug/g	29-NOV-18	1.5	1.5	1.5
Cadmium (Cd)	1.80		0.50	ug/g	29-NOV-18	*1.2	*1.2	*1.2
Chromium (Cr)	56.4		1.0	ug/g	29-NOV-18	160	160	70

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2201309-4 S-11102463-112218-SM-BH18-464-DUP								
Sampled By: S. MENESES on 22-NOV-18								
Matrix: SOIL								
Metals								
Cobalt (Co)	9.4		1.0	ug/g	29-NOV-18	22	22	22
Copper (Cu)	270		1.0	ug/g	29-NOV-18	*140	*180	*92
Lead (Pb)	819		1.0	ug/g	29-NOV-18	*120	*120	*120
Mercury (Hg)	1.66	DLHC	0.050	ug/g	29-NOV-18	*0.27	1.8	*0.27
Molybdenum (Mo)	1.9		1.0	ug/g	29-NOV-18	6.9	6.9	2
Nickel (Ni)	52.4		1.0	ug/g	29-NOV-18	100	130	82
Selenium (Se)	1.3		1.0	ug/g	29-NOV-18	2.4	2.4	1.5
Silver (Ag)	2.24		0.20	ug/g	29-NOV-18	20	25	*0.5
Thallium (Tl)	<0.50		0.50	ug/g	29-NOV-18	1	1	1
Uranium (U)	<1.0		1.0	ug/g	29-NOV-18	23	23	2.5
Vanadium (V)	32.9		1.0	ug/g	29-NOV-18	86	86	86
Zinc (Zn)	648		5.0	ug/g	29-NOV-18	*340	*340	*290
Speciated Metals								
Chromium, Hexavalent	0.27		0.20	ug/g	27-NOV-18	8	10	0.66
L2201309-5 S-11102463-112218-SM-BH18-464-DUP2								
Sampled By: S. MENESES on 22-NOV-18								
Matrix: SOIL								
Physical Tests								
% Moisture	33.6		0.10	%	28-NOV-18			
Volatile Organic Compounds								
Acetone	1.3	DLIS	1.3	ug/g	28-NOV-18	16	28	*0.5
Benzene	<0.017	DLIS	0.017	ug/g	28-NOV-18	0.21	0.17	0.02
Bromodichloromethane	<0.13	DLIS	0.13	ug/g	28-NOV-18	13	13	**0.05
Bromoform	<0.13	DLIS	0.13	ug/g	28-NOV-18	0.27	0.26	**0.05
Bromomethane	<0.13	DLIS	0.13	ug/g	28-NOV-18	**0.05	**0.05	**0.05
Carbon tetrachloride	<0.13	DLIS	0.13	ug/g	28-NOV-18	**0.05	**0.12	**0.05
Chlorobenzene	<0.13	DLIS	0.13	ug/g	28-NOV-18	2.4	2.7	**0.05
Dibromochloromethane	<0.13	DLIS	0.13	ug/g	28-NOV-18	9.4	9.4	**0.05
Chloroform	<0.13	DLIS	0.13	ug/g	28-NOV-18	**0.05	0.18	**0.05
1,2-Dibromoethane	<0.13	DLIS	0.13	ug/g	28-NOV-18	**0.05	**0.05	**0.05
1,2-Dichlorobenzene	<0.13	DLIS	0.13	ug/g	28-NOV-18	3.4	4.3	**0.05
1,3-Dichlorobenzene	<0.13	DLIS	0.13	ug/g	28-NOV-18	4.8	6	**0.05
1,4-Dichlorobenzene	<0.13	DLIS	0.13	ug/g	28-NOV-18	**0.083	**0.097	**0.05
Dichlorodifluoromethane	<0.13	DLIS	0.13	ug/g	28-NOV-18	16	25	**0.05
1,1-Dichloroethane	<0.13	DLIS	0.13	ug/g	28-NOV-18	3.5	11	**0.05
1,2-Dichloroethane	<0.13	DLIS	0.13	ug/g	28-NOV-18	**0.05	**0.05	**0.05
1,1-Dichloroethylene	<0.13	DLIS	0.13	ug/g	28-NOV-18	**0.05	**0.05	**0.05
cis-1,2-Dichloroethylene	<0.13	DLIS	0.13	ug/g	28-NOV-18	3.4	30	**0.05
trans-1,2-Dichloroethylene	<0.13	DLIS	0.13	ug/g	28-NOV-18	**0.084	0.75	**0.05
Methylene Chloride	<0.13	DLIS	0.13	ug/g	28-NOV-18	**0.1	0.96	**0.05
1,2-Dichloropropane	<0.13	DLIS	0.13	ug/g	28-NOV-18	**0.05	**0.085	**0.05
cis-1,3-Dichloropropene	<0.075	DLIS	0.075	ug/g	28-NOV-18			
trans-1,3-Dichloropropene	<0.075	DLIS	0.075	ug/g	28-NOV-18			
1,3-Dichloropropene (cis & trans)	<0.11		0.11	ug/g	28-NOV-18	**0.05	**0.083	**0.05

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2201309-5 S-11102463-112218-SM-BH18-464-DUP2								
Sampled By: S. MENESES on 22-NOV-18								
Matrix: SOIL								
Volatile Organic Compounds								
Ethylbenzene	<0.045	DLIS	0.045	ug/g	28-NOV-18	2	15	0.05
n-Hexane	0.20	DLIS	0.13	ug/g	28-NOV-18	2.8	34	*0.05
Methyl Ethyl Ketone	<1.3	DLIS	1.3	ug/g	28-NOV-18	16	44	**0.5
Methyl Isobutyl Ketone	<1.3	DLIS	1.3	ug/g	28-NOV-18	1.7	4.3	**0.5
MTBE	<0.13	DLIS	0.13	ug/g	28-NOV-18	0.75	1.4	**0.05
Styrene	<0.13	DLIS	0.13	ug/g	28-NOV-18	0.7	2.2	**0.05
1,1,1,2-Tetrachloroethane	<0.13	DLIS	0.13	ug/g	28-NOV-18	**0.058	**0.05	**0.05
1,1,2,2-Tetrachloroethane	<0.13	DLIS	0.13	ug/g	28-NOV-18	**0.05	**0.05	**0.05
Tetrachloroethylene	<0.13	DLIS	0.13	ug/g	28-NOV-18	0.28	2.3	**0.05
Toluene	<0.20	DLIS	0.20	ug/g	28-NOV-18	2.3	6	0.2
1,1,1-Trichloroethane	<0.13	DLIS	0.13	ug/g	28-NOV-18	0.38	3.4	**0.05
1,1,2-Trichloroethane	<0.13	DLIS	0.13	ug/g	28-NOV-18	**0.05	**0.05	**0.05
Trichloroethylene	<0.025	DLIS	0.025	ug/g	28-NOV-18	0.061	0.52	0.05
Trichlorofluoromethane	<0.13	DLIS	0.13	ug/g	28-NOV-18	4	5.8	0.25
Vinyl chloride	<0.050	DLIS	0.050	ug/g	28-NOV-18	**0.02	**0.022	**0.02
o-Xylene	<0.050	DLIS	0.050	ug/g	28-NOV-18			
m+p-Xylenes	<0.075	DLIS	0.075	ug/g	28-NOV-18			
Xylenes (Total)	<0.090		0.090	ug/g	28-NOV-18	3.1	25	**0.05
Surrogate: 4-Bromofluorobenzene	99.2		50-140	%	28-NOV-18			
Surrogate: 1,4-Difluorobenzene	112.8		50-140	%	28-NOV-18			
L2201309-6 S-11102463-112218-SM-BH18-466-0-2								
Sampled By: S. MENESES on 22-NOV-18 @ 12								
Matrix: SOIL								
Physical Tests								
Conductivity	0.402		0.0040	mS/cm	29-NOV-18	0.7	0.7	0.7
% Moisture	13.7		0.10	%	27-NOV-18			
pH	7.49		0.10	pH units	27-NOV-18			
Cyanides								
Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	28-NOV-18	0.051	0.051	0.051
Saturated Paste Extractables								
SAR	0.44		0.10	SAR	29-NOV-18	5	5	5
Calcium (Ca)	39.0		1.0	mg/L	29-NOV-18			
Magnesium (Mg)	3.6		1.0	mg/L	29-NOV-18			
Sodium (Na)	10.8		1.0	mg/L	29-NOV-18			
Metals								
Antimony (Sb)	48.1		1.0	ug/g	29-NOV-18	*7.5	*7.5	*1.3
Arsenic (As)	16.4		1.0	ug/g	29-NOV-18	18	18	18
Barium (Ba)	363		1.0	ug/g	29-NOV-18	390	390	*220
Beryllium (Be)	0.65		0.50	ug/g	29-NOV-18	4	5	2.5
Boron (B)	13.1		5.0	ug/g	29-NOV-18	120	120	36
Boron (B), Hot Water Ext.	1.08		0.10	ug/g	29-NOV-18	1.5	1.5	1.5
Cadmium (Cd)	5.33		0.50	ug/g	29-NOV-18	*1.2	*1.2	*1.2
Chromium (Cr)	48.2		1.0	ug/g	29-NOV-18	160	160	70
Cobalt (Co)	12.5		1.0	ug/g	29-NOV-18	22	22	22
Copper (Cu)	633		1.0	ug/g	29-NOV-18	*140	*180	*92

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2201309-6 S-11102463-112218-SM-BH18-466-0-2								
Sampled By: S. MENESES on 22-NOV-18 @ 12								
Matrix: SOIL								
Metals								
Lead (Pb)	1780		1.0	ug/g	29-NOV-18	*120	*120	*120
Mercury (Hg)	1.82	DLHC	0.050	ug/g	29-NOV-18	*0.27	*1.8	*0.27
Molybdenum (Mo)	3.9		1.0	ug/g	29-NOV-18	6.9	6.9	*2
Nickel (Ni)	202		1.0	ug/g	29-NOV-18	*100	*130	*82
Selenium (Se)	1.6		1.0	ug/g	29-NOV-18	2.4	2.4	*1.5
Silver (Ag)	2.64		0.20	ug/g	29-NOV-18	20	25	*0.5
Thallium (Tl)	<0.50		0.50	ug/g	29-NOV-18	1	1	1
Uranium (U)	2.2		1.0	ug/g	29-NOV-18	23	23	2.5
Vanadium (V)	36.1		1.0	ug/g	29-NOV-18	86	86	86
Zinc (Zn)	1380		5.0	ug/g	29-NOV-18	*340	*340	*290
Speciated Metals								
Chromium, Hexavalent	<0.20		0.20	ug/g	27-NOV-18	8	10	0.66
Volatile Organic Compounds								
Acetone	<0.50		0.50	ug/g	29-NOV-18	16	28	0.5
Benzene	0.109		0.0068	ug/g	29-NOV-18	0.21	0.17	*0.02
Bromodichloromethane	<0.055	DLVH	0.055	ug/g	29-NOV-18	13	13	**0.05
Bromoform	<0.050		0.050	ug/g	29-NOV-18	0.27	0.26	0.05
Bromomethane	<0.050		0.050	ug/g	29-NOV-18	0.05	0.05	0.05
Carbon tetrachloride	<0.050		0.050	ug/g	29-NOV-18	0.05	0.12	0.05
Chlorobenzene	<0.050		0.050	ug/g	29-NOV-18	2.4	2.7	0.05
Dibromochloromethane	<0.050		0.050	ug/g	29-NOV-18	9.4	9.4	0.05
Chloroform	<0.050		0.050	ug/g	29-NOV-18	0.05	0.18	0.05
1,2-Dibromoethane	<0.050		0.050	ug/g	29-NOV-18	0.05	0.05	0.05
1,2-Dichlorobenzene	<0.050		0.050	ug/g	29-NOV-18	3.4	4.3	0.05
1,3-Dichlorobenzene	<0.050		0.050	ug/g	29-NOV-18	4.8	6	0.05
1,4-Dichlorobenzene	<0.050		0.050	ug/g	29-NOV-18	0.083	0.097	0.05
Dichlorodifluoromethane	<0.050		0.050	ug/g	29-NOV-18	16	25	0.05
1,1-Dichloroethane	<0.050		0.050	ug/g	29-NOV-18	3.5	11	0.05
1,2-Dichloroethane	<0.050		0.050	ug/g	29-NOV-18	0.05	0.05	0.05
1,1-Dichloroethylene	<0.050		0.050	ug/g	29-NOV-18	0.05	0.05	0.05
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	29-NOV-18	3.4	30	0.05
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	29-NOV-18	0.084	0.75	0.05
Methylene Chloride	<0.050		0.050	ug/g	29-NOV-18	0.1	0.96	0.05
1,2-Dichloropropane	<0.050		0.050	ug/g	29-NOV-18	0.05	0.085	0.05
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	29-NOV-18			
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	29-NOV-18			
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g	29-NOV-18	0.05	0.083	0.05
Ethylbenzene	0.086		0.018	ug/g	29-NOV-18	2	15	*0.05
n-Hexane	0.422		0.050	ug/g	29-NOV-18	2.8	34	*0.05
Methyl Ethyl Ketone	<0.50		0.50	ug/g	29-NOV-18	16	44	0.5
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	29-NOV-18	1.7	4.3	0.5
MTBE	<0.050		0.050	ug/g	29-NOV-18	0.75	1.4	0.05
Styrene	<0.050		0.050	ug/g	29-NOV-18	0.7	2.2	0.05
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	29-NOV-18	0.058	0.05	0.05
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	29-NOV-18	0.05	0.05	0.05

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2201309-6 S-11102463-112218-SM-BH18-466-0-2								
Sampled By: S. MENESES on 22-NOV-18 @ 12								
Matrix: SOIL								
Volatile Organic Compounds								
Tetrachloroethylene	<0.050		0.050	ug/g	29-NOV-18	0.28	2.3	0.05
Toluene	0.292		0.080	ug/g	29-NOV-18	2.3	6	*0.2
1,1,1-Trichloroethane	<0.050		0.050	ug/g	29-NOV-18	0.38	3.4	0.05
1,1,2-Trichloroethane	<0.050		0.050	ug/g	29-NOV-18	0.05	0.05	0.05
Trichloroethylene	<0.010		0.010	ug/g	29-NOV-18	0.061	0.52	0.05
Trichlorofluoromethane	<0.050		0.050	ug/g	29-NOV-18	4	5.8	0.25
Vinyl chloride	<0.020		0.020	ug/g	29-NOV-18	0.02	0.022	0.02
o-Xylene	0.215		0.020	ug/g	29-NOV-18			
m+p-Xylenes	0.355		0.030	ug/g	29-NOV-18			
Xylenes (Total)	0.569		0.050	ug/g	29-NOV-18	3.1	25	*0.05
Surrogate: 4-Bromofluorobenzene	110.8		50-140	%	29-NOV-18			
Surrogate: 1,4-Difluorobenzene	124.4		50-140	%	29-NOV-18			
Hydrocarbons								
F1 (C6-C10)	5.6		5.0	ug/g	29-NOV-18	55	65	25
F1-BTEX	<5.0		5.0	ug/g	29-NOV-18	55	65	25
F2 (C10-C16)	13		10	ug/g	27-NOV-18	98	150	*10
F2-Naphth	13		10	ug/g	29-NOV-18			
F3 (C16-C34)	458		50	ug/g	27-NOV-18	*300	1300	*240
F3-PAH	441		50	ug/g	29-NOV-18			
F4 (C34-C50)	268		50	ug/g	27-NOV-18	2800	5600	*120
F4G-SG (GHH-Silica)	610		250	ug/g	26-NOV-18	2800	5600	*120
Total Hydrocarbons (C6-C50)	744		72	ug/g	29-NOV-18			
Chrom. to baseline at nC50	NO			No Unit	27-NOV-18			
Surrogate: 2-Bromobenzotrifluoride	102.1		60-140	%	27-NOV-18			
Surrogate: 3,4-Dichlorotoluene	76.2		60-140	%	29-NOV-18			
Polycyclic Aromatic Hydrocarbons								
1+2-Methylnaphthalenes	0.323		0.085	ug/g	29-NOV-18	0.99	3.4	0.59
Semi-Volatile Organics								
Acenaphthene	0.15	DLM	0.10	ug/g	28-NOV-18	7.9	58	*0.072
Acenaphthylene	0.16	DLM	0.10	ug/g	28-NOV-18	*0.15	0.17	*0.093
Anthracene	0.54	DLM	0.10	ug/g	28-NOV-18	0.67	0.74	*0.22
Benzo(a)anthracene	1.67	DLM	0.10	ug/g	28-NOV-18	*0.5	*0.63	*0.36
Benzo(a)pyrene	1.88	DLM	0.10	ug/g	28-NOV-18	*0.3	*0.3	*0.3
Benzo(b)fluoranthene	1.31	DLM	0.10	ug/g	28-NOV-18	*0.78	*0.78	*0.47
Benzo(ghi)perylene	1.24	DLM	0.10	ug/g	28-NOV-18	6.6	7.8	*0.68
Benzo(k)fluoranthene	1.62	DLM	0.10	ug/g	28-NOV-18	*0.78	*0.78	*0.48
2-Chlorophenol	<0.20	DLM	0.20	ug/g	28-NOV-18	1.6	2	**0.1
Chrysene	1.58	DLM	0.10	ug/g	28-NOV-18	7	7.8	2.8
Dibenzo(a,h)anthracene	0.25	DLM	0.10	ug/g	28-NOV-18	*0.1	*0.1	*0.1
2,4-Dichlorophenol	<0.20	DLM	0.20	ug/g	28-NOV-18	1.7	2.1	**0.1
Fluoranthene	3.27	DLM	0.10	ug/g	28-NOV-18	*0.69	*0.69	*0.69
Fluorene	0.22	DLM	0.10	ug/g	28-NOV-18	62	69	*0.19
Indeno(1,2,3-cd)pyrene	1.28	DLM	0.10	ug/g	28-NOV-18	*0.38	*0.48	*0.23
1-Methylnaphthalene	0.152	DLM	0.060	ug/g	28-NOV-18	0.99	3.4	0.59
2-Methylnaphthalene	0.171	DLM	0.060	ug/g	28-NOV-18	0.99	3.4	0.59
Naphthalene	0.27	DLM	0.10	ug/g	28-NOV-18	0.6	0.75	*0.09

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2201309-6 S-11102463-112218-SM-BH18-466-0-2								
Sampled By: S. MENESES on 22-NOV-18 @ 12								
Matrix: SOIL								
Semi-Volatile Organics								
Pentachlorophenol	<0.20	DLM	0.20	ug/g	28-NOV-18	**0.1	**0.1	**0.1
Phenanthrene	2.31	DLM	0.10	ug/g	28-NOV-18	6.2	7.8	*0.69
Pyrene	3.08	DLM	0.10	ug/g	28-NOV-18	78	78	*1
2,4,5-Trichlorophenol	<0.20	DLM	0.20	ug/g	28-NOV-18	4.4	5.5	**0.1
2,4,6-Trichlorophenol	<0.20	DLM	0.20	ug/g	28-NOV-18	3.8	4.2	**0.1
Surrogate: 2-Fluorobiphenyl	86.6		50-140	%	28-NOV-18			
Surrogate: Phenol d5	87.4		30-130	%	28-NOV-18			
Surrogate: p-Terphenyl d14	106.1		50-140	%	28-NOV-18			
Surrogate: 2,4,6-Tribromophenol	73.7		50-140	%	28-NOV-18			
Polychlorinated Biphenyls								
Aroclor 1242	<0.030	DLM	0.030	ug/g	30-NOV-18			
Aroclor 1248	<0.010		0.010	ug/g	30-NOV-18			
Aroclor 1254	0.682		0.010	ug/g	30-NOV-18			
Aroclor 1260	0.479		0.010	ug/g	30-NOV-18			
Total PCBs	1.161	DLM	0.035	ug/g	30-NOV-18	*0.35	*0.35	*0.3
Surrogate: d14-Terphenyl	99.4		60-140	%	30-NOV-18			
Organochlorine Pesticides								
Aldrin	<0.040	DLM	0.040	ug/g	30-NOV-18	0.05	0.05	0.05
gamma-hexachlorocyclohexane	<0.15	DLM	0.15	ug/g	30-NOV-18	**0.056	**0.063	
a-chlordane	<0.040	DLM	0.040	ug/g	30-NOV-18			
Chlordane (Total)	<0.057		0.057	ug/g	30-NOV-18	**0.05	**0.05	**0.05
g-chlordane	<0.040	DLM	0.040	ug/g	30-NOV-18			
op-DDD	<0.040	DLM	0.040	ug/g	30-NOV-18			
pp-DDD	<0.040	DLM	0.040	ug/g	30-NOV-18			
Total DDD	<0.057		0.057	ug/g	30-NOV-18	3.3	3.3	**0.05
o,p-DDE	<0.040	DLM	0.040	ug/g	30-NOV-18			
pp-DDE	<0.040	DLM	0.040	ug/g	30-NOV-18			
Total DDE	<0.057		0.057	ug/g	30-NOV-18	0.26	0.33	**0.05
op-DDT	<0.040	DLM	0.040	ug/g	30-NOV-18			
pp-DDT	<0.040	DLM	0.040	ug/g	30-NOV-18			
Total DDT	<0.057		0.057	ug/g	30-NOV-18	1.4	1.4	1.4
Dieldrin	<0.040	DLM	0.040	ug/g	30-NOV-18	0.05	0.05	0.05
Endosulfan I	<0.72	DLM	0.72	ug/g	30-NOV-18			
Endosulfan II	<0.090	DLM	0.090	ug/g	30-NOV-18			
Endosulfan (Total)	<0.73		0.73	ug/g	30-NOV-18	**0.04	**0.04	**0.04
Endrin	<0.060	DLM	0.060	ug/g	30-NOV-18	**0.04	**0.04	**0.04
Heptachlor	<0.040	DLM	0.040	ug/g	30-NOV-18	0.15	0.15	0.05
Heptachlor Epoxide	<0.040	DLM	0.040	ug/g	30-NOV-18	0.05	0.05	0.05
Hexachlorobenzene	<0.050	DLM	0.050	ug/g	30-NOV-18	0.52	0.52	**0.02
Hexachlorobutadiene	<0.050	DLM	0.050	ug/g	30-NOV-18	**0.012	**0.014	**0.01
Hexachloroethane	<0.050	DLM	0.050	ug/g	30-NOV-18	0.089	0.07	**0.01
Methoxychlor	<0.48	DLM	0.48	ug/g	30-NOV-18	**0.13	**0.13	**0.05
Surrogate: 2-Fluorobiphenyl	94.6		50-140	%	30-NOV-18			
Surrogate: d14-Terphenyl	92.9		50-140	%	30-NOV-18			

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2201309-7 S-11102463-112218-SM-BH18-466-10-12								
Sampled By: S. MENESES on 22-NOV-18 @ 12								
Matrix: SOIL								
Physical Tests								
Conductivity	0.904		0.0040	mS/cm	29-NOV-18	*0.7	*0.7	*0.7
% Moisture	26.3		0.10	%	27-NOV-18			
pH	7.05		0.10	pH units	27-NOV-18			
Cyanides								
Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	28-NOV-18	0.051	0.051	0.051
Saturated Paste Extractables								
SAR	1.52		0.10	SAR	29-NOV-18	5	5	5
Calcium (Ca)	83.4		1.0	mg/L	29-NOV-18			
Magnesium (Mg)	9.3		1.0	mg/L	29-NOV-18			
Sodium (Na)	55.0		1.0	mg/L	29-NOV-18			
Metals								
Antimony (Sb)	15.7		1.0	ug/g	29-NOV-18	*7.5	*7.5	*1.3
Arsenic (As)	24.0		1.0	ug/g	29-NOV-18	*18	*18	*18
Barium (Ba)	529		1.0	ug/g	29-NOV-18	*390	*390	*220
Beryllium (Be)	0.72		0.50	ug/g	29-NOV-18	4	5	2.5
Boron (B)	16.2		5.0	ug/g	29-NOV-18	120	120	36
Boron (B), Hot Water Ext.	2.04		0.10	ug/g	29-NOV-18	*1.5	*1.5	*1.5
Cadmium (Cd)	3.11		0.50	ug/g	29-NOV-18	*1.2	*1.2	*1.2
Chromium (Cr)	82.0		1.0	ug/g	29-NOV-18	160	160	*70
Cobalt (Co)	8.9		1.0	ug/g	29-NOV-18	22	22	22
Copper (Cu)	337		1.0	ug/g	29-NOV-18	*140	*180	*92
Lead (Pb)	968		1.0	ug/g	29-NOV-18	*120	*120	*120
Mercury (Hg)	4.16	DLHC	0.50	ug/g	29-NOV-18	*0.27	*1.8	*0.27
Molybdenum (Mo)	2.1		1.0	ug/g	29-NOV-18	6.9	6.9	*2
Nickel (Ni)	31.4		1.0	ug/g	29-NOV-18	100	130	82
Selenium (Se)	2.3		1.0	ug/g	29-NOV-18	2.4	2.4	*1.5
Silver (Ag)	3.33		0.20	ug/g	29-NOV-18	20	25	*0.5
Thallium (Tl)	<0.50		0.50	ug/g	29-NOV-18	1	1	1
Uranium (U)	<1.0		1.0	ug/g	29-NOV-18	23	23	2.5
Vanadium (V)	27.1		1.0	ug/g	29-NOV-18	86	86	86
Zinc (Zn)	1030		5.0	ug/g	29-NOV-18	*340	*340	*290
Speciated Metals								
Chromium, Hexavalent	<0.20		0.20	ug/g	27-NOV-18	8	10	0.66
Volatile Organic Compounds								
Acetone	0.71		0.50	ug/g	29-NOV-18	16	28	*0.5
Benzene	0.221		0.0068	ug/g	29-NOV-18	*0.21	*0.17	*0.02
Bromodichloromethane	<0.050		0.050	ug/g	29-NOV-18	13	13	0.05
Bromoform	<0.050		0.050	ug/g	29-NOV-18	0.27	0.26	0.05
Bromomethane	<0.050		0.050	ug/g	29-NOV-18	0.05	0.05	0.05
Carbon tetrachloride	<0.050		0.050	ug/g	29-NOV-18	0.05	0.12	0.05
Chlorobenzene	<0.050		0.050	ug/g	29-NOV-18	2.4	2.7	0.05
Dibromochloromethane	<0.050		0.050	ug/g	29-NOV-18	9.4	9.4	0.05
Chloroform	<0.050		0.050	ug/g	29-NOV-18	0.05	0.18	0.05
1,2-Dibromoethane	<0.25	DLVH	0.25	ug/g	29-NOV-18	**0.05	**0.05	**0.05
1,2-Dichlorobenzene	<0.050		0.050	ug/g	29-NOV-18	3.4	4.3	0.05

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2201309-7 S-11102463-112218-SM-BH18-466-10-12								
Sampled By: S. MENESES on 22-NOV-18 @ 12								
Matrix: SOIL								
Volatile Organic Compounds								
1,3-Dichlorobenzene	<0.050		0.050	ug/g	29-NOV-18	4.8	6	0.05
1,4-Dichlorobenzene	<0.050		0.050	ug/g	29-NOV-18	0.083	0.097	0.05
Dichlorodifluoromethane	<0.050		0.050	ug/g	29-NOV-18	16	25	0.05
1,1-Dichloroethane	<0.050		0.050	ug/g	29-NOV-18	3.5	11	0.05
1,2-Dichloroethane	<0.050		0.050	ug/g	29-NOV-18	0.05	0.05	0.05
1,1-Dichloroethylene	<0.050		0.050	ug/g	29-NOV-18	0.05	0.05	0.05
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	29-NOV-18	3.4	30	0.05
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	29-NOV-18	0.084	0.75	0.05
Methylene Chloride	<0.050		0.050	ug/g	29-NOV-18	0.1	0.96	0.05
1,2-Dichloropropane	<0.050		0.050	ug/g	29-NOV-18	0.05	0.085	0.05
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	29-NOV-18			
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	29-NOV-18			
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g	30-NOV-18	0.05	0.083	0.05
Ethylbenzene	0.194		0.018	ug/g	29-NOV-18	2	15	*0.05
n-Hexane	0.633		0.050	ug/g	29-NOV-18	2.8	34	*0.05
Methyl Ethyl Ketone	<0.50		0.50	ug/g	30-NOV-18	16	44	0.5
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	29-NOV-18	1.7	4.3	0.5
MTBE	<0.050		0.050	ug/g	29-NOV-18	0.75	1.4	0.05
Styrene	<0.050		0.050	ug/g	29-NOV-18	0.7	2.2	0.05
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	29-NOV-18	0.058	0.05	0.05
1,1,2,2-Tetrachloroethane	<1.3	DLVH	1.3	ug/g	29-NOV-18	**0.05	**0.05	**0.05
Tetrachloroethylene	<0.050		0.050	ug/g	29-NOV-18	0.28	2.3	0.05
Toluene	0.365		0.080	ug/g	29-NOV-18	2.3	6	*0.2
1,1,1-Trichloroethane	<0.050		0.050	ug/g	29-NOV-18	0.38	3.4	0.05
1,1,2-Trichloroethane	<0.050		0.050	ug/g	29-NOV-18	0.05	0.05	0.05
Trichloroethylene	<0.010		0.010	ug/g	29-NOV-18	0.061	0.52	0.05
Trichlorofluoromethane	<0.050		0.050	ug/g	29-NOV-18	4	5.8	0.25
Vinyl chloride	<0.020		0.020	ug/g	29-NOV-18	0.02	0.022	0.02
o-Xylene	0.181		0.020	ug/g	29-NOV-18			
m+p-Xylenes	0.575		0.030	ug/g	29-NOV-18			
Xylenes (Total)	0.756		0.050	ug/g	30-NOV-18	3.1	25	*0.05
Surrogate: 4-Bromofluorobenzene	101.9		50-140	%	29-NOV-18			
Surrogate: 1,4-Difluorobenzene	114.9		50-140	%	29-NOV-18			
Hydrocarbons								
F1 (C6-C10)	27.0		5.0	ug/g	29-NOV-18	55	65	*25
F1-BTEX	25.4		5.0	ug/g	30-NOV-18	55	65	*25
F2 (C10-C16)	683		10	ug/g	27-NOV-18	*98	*150	*10
F2-Naphth	683		10	ug/g	30-NOV-18			
F3 (C16-C34)	1030		50	ug/g	27-NOV-18	*300	1300	*240
F3-PAH	1020		50	ug/g	30-NOV-18			
F4 (C34-C50)	177		50	ug/g	27-NOV-18	2800	5600	*120
F4G-SG (GHH-Silica)	770		250	ug/g	26-NOV-18	2800	5600	*120
Total Hydrocarbons (C6-C50)	1920		72	ug/g	30-NOV-18			
Chrom. to baseline at nC50	NO			No Unit	27-NOV-18			
Surrogate: 2-Bromobenzotrifluoride	93.3		60-140	%	27-NOV-18			
Surrogate: 3,4-Dichlorotoluene	70.0		60-140	%	29-NOV-18			

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2201309-7 S-11102463-112218-SM-BH18-466-10-12								
Sampled By: S. MENESES on 22-NOV-18 @ 12								
Matrix: SOIL								
Polycyclic Aromatic Hydrocarbons								
1+2-Methylnaphthalenes	0.299		0.085	ug/g	29-NOV-18	0.99	3.4	0.59
Semi-Volatile Organics								
Acenaphthene	0.18	DLM	0.10	ug/g	29-NOV-18	7.9	58	*0.072
Acenaphthylene	<0.10	DLM	0.10	ug/g	29-NOV-18	0.15	0.17	**0.093
Anthracene	0.26	DLM	0.10	ug/g	29-NOV-18	0.67	0.74	*0.22
Benzo(a)anthracene	0.86	DLM	0.10	ug/g	29-NOV-18	*0.5	*0.63	*0.36
Benzo(a)pyrene	0.86	DLM	0.10	ug/g	29-NOV-18	*0.3	*0.3	*0.3
Benzo(b)fluoranthene	0.69	DLM	0.10	ug/g	29-NOV-18	0.78	0.78	*0.47
Benzo(ghi)perylene	0.48	DLM	0.10	ug/g	29-NOV-18	6.6	7.8	0.68
Benzo(k)fluoranthene	0.90	DLM	0.10	ug/g	29-NOV-18	*0.78	*0.78	*0.48
2-Chlorophenol	<0.20	DLM	0.20	ug/g	29-NOV-18	1.6	2	**0.1
Chrysene	0.90	DLM	0.10	ug/g	29-NOV-18	7	7.8	2.8
Dibenzo(a,h)anthracene	0.12	DLM	0.10	ug/g	29-NOV-18	*0.1	*0.1	*0.1
2,4-Dichlorophenol	<0.20	DLM	0.20	ug/g	29-NOV-18	1.7	2.1	**0.1
Fluoranthene	1.72	DLM	0.10	ug/g	29-NOV-18	*0.69	*0.69	*0.69
Fluorene	0.22	DLM	0.10	ug/g	29-NOV-18	62	69	*0.19
Indeno(1,2,3-cd)pyrene	0.52	DLM	0.10	ug/g	29-NOV-18	*0.38	*0.48	*0.23
1-Methylnaphthalene	0.138	DLM	0.060	ug/g	29-NOV-18	0.99	3.4	0.59
2-Methylnaphthalene	0.160	DLM	0.060	ug/g	29-NOV-18	0.99	3.4	0.59
Naphthalene	0.22	DLM	0.10	ug/g	29-NOV-18	0.6	0.75	*0.09
Pentachlorophenol	<0.20	DLM	0.20	ug/g	29-NOV-18	**0.1	**0.1	**0.1
Phenanthrene	0.89	DLM	0.10	ug/g	29-NOV-18	6.2	7.8	*0.69
Pyrene	1.48	DLM	0.10	ug/g	29-NOV-18	78	78	*1
2,4,5-Trichlorophenol	<0.20	DLM	0.20	ug/g	29-NOV-18	4.4	5.5	**0.1
2,4,6-Trichlorophenol	<0.20	DLM	0.20	ug/g	29-NOV-18	3.8	4.2	**0.1
Surrogate: 2-Fluorobiphenyl	85.8		50-140	%	29-NOV-18			
Surrogate: Phenol d5	82.1		30-130	%	29-NOV-18			
Surrogate: p-Terphenyl d14	106.8		50-140	%	29-NOV-18			
Surrogate: 2,4,6-Tribromophenol	68.6		50-140	%	29-NOV-18			
Polychlorinated Biphenyls								
Aroclor 1242	<0.030	DLM	0.030	ug/g	30-NOV-18			
Aroclor 1248	<0.020	DLM	0.020	ug/g	30-NOV-18			
Aroclor 1254	<0.030	DLM	0.020	ug/g	30-NOV-18			
Aroclor 1260	0.143	PRAR	0.020	ug/g	30-NOV-18			
Total PCBs	0.143	DLM	0.035	ug/g	30-NOV-18	0.35	0.35	0.3
Surrogate: d14-Terphenyl	91.4		60-140	%	30-NOV-18			
Organochlorine Pesticides								
Aldrin	<0.040	DLM	0.040	ug/g	30-NOV-18	0.05	0.05	0.05
gamma-hexachlorocyclohexane	<1.0	DLM	1.0	ug/g	30-NOV-18	**0.056	**0.063	
a-chlordane	<0.040	DLM	0.040	ug/g	30-NOV-18			
Chlordane (Total)	<0.057		0.057	ug/g	30-NOV-18	**0.05	**0.05	**0.05
g-chlordane	<0.040	DLM	0.040	ug/g	30-NOV-18			
op-DDD	<0.040	DLM	0.040	ug/g	30-NOV-18			
pp-DDD	<0.080	DLM	0.080	ug/g	30-NOV-18			
Total DDD	<0.089		0.089	ug/g	30-NOV-18	3.3	3.3	**0.05
o,p-DDE	<0.040	DLM	0.040	ug/g	30-NOV-18			

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2201309-7 S-11102463-112218-SM-BH18-466-10-12								
Sampled By: S. MENESES on 22-NOV-18 @ 12								
Matrix: SOIL								
Organochlorine Pesticides								
pp-DDE	<0.060	DLM	0.060	ug/g	30-NOV-18			
Total DDE	<0.072		0.072	ug/g	30-NOV-18	0.26	0.33	**0.05
op-DDT	<0.040	DLM	0.040	ug/g	30-NOV-18			
pp-DDT	<0.040	DLM	0.040	ug/g	30-NOV-18			
Total DDT	<0.057		0.057	ug/g	30-NOV-18	1.4	1.4	1.4
Dieldrin	<0.060	DLM	0.060	ug/g	30-NOV-18	**0.05	**0.05	**0.05
Endosulfan I	<0.24	DLM	0.24	ug/g	30-NOV-18			
Endosulfan II	<0.14	DLM	0.14	ug/g	30-NOV-18			
Endosulfan (Total)	<0.28		0.28	ug/g	30-NOV-18	**0.04	**0.04	**0.04
Endrin	<0.040	DLM	0.040	ug/g	30-NOV-18	0.04	0.04	0.04
Heptachlor	<0.060	DLM	0.060	ug/g	30-NOV-18	0.15	0.15	**0.05
Heptachlor Epoxide	<0.040	DLM	0.040	ug/g	30-NOV-18	0.05	0.05	0.05
Hexachlorobenzene	<0.050	DLM	0.050	ug/g	30-NOV-18	0.52	0.52	**0.02
Hexachlorobutadiene	<0.050	DLM	0.050	ug/g	30-NOV-18	**0.012	**0.014	**0.01
Hexachloroethane	<0.050	DLM	0.050	ug/g	30-NOV-18	0.089	0.07	**0.01
Methoxychlor	<0.16	DLM	0.16	ug/g	30-NOV-18	**0.13	**0.13	**0.05
Surrogate: 2-Fluorobiphenyl	92.3		50-140	%	30-NOV-18			
Surrogate: d14-Terphenyl	91.0		50-140	%	30-NOV-18			
L2201309-8 S-11102463-112218-SM-BH18-466-17.5-19.5								
Sampled By: S. MENESES on 22-NOV-18 @ 12								
Matrix: SOIL								
Physical Tests								
Conductivity	0.713		0.0040	mS/cm	29-NOV-18	*0.7	*0.7	*0.7
% Moisture	42.7		0.10	%	27-NOV-18			
pH	7.20		0.10	pH units	27-NOV-18			
Cyanides								
Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	28-NOV-18	0.051	0.051	0.051
Saturated Paste Extractables								
SAR	2.30		0.10	SAR	29-NOV-18	5	5	5
Calcium (Ca)	35.2		1.0	mg/L	29-NOV-18			
Magnesium (Mg)	4.9		1.0	mg/L	29-NOV-18			
Sodium (Na)	55.0		1.0	mg/L	29-NOV-18			
Metals								
Antimony (Sb)	<1.0		1.0	ug/g	29-NOV-18	7.5	7.5	1.3
Arsenic (As)	4.3		1.0	ug/g	29-NOV-18	18	18	18
Barium (Ba)	116		1.0	ug/g	29-NOV-18	390	390	220
Beryllium (Be)	<0.50		0.50	ug/g	29-NOV-18	4	5	2.5
Boron (B)	11.4		5.0	ug/g	29-NOV-18	120	120	36
Boron (B), Hot Water Ext.	5.20		0.10	ug/g	30-NOV-18	*1.5	*1.5	*1.5
Cadmium (Cd)	<0.50		0.50	ug/g	29-NOV-18	1.2	1.2	1.2
Chromium (Cr)	18.8		1.0	ug/g	29-NOV-18	160	160	70
Cobalt (Co)	5.0		1.0	ug/g	29-NOV-18	22	22	22
Copper (Cu)	29.8		1.0	ug/g	29-NOV-18	140	180	92
Lead (Pb)	76.8		1.0	ug/g	29-NOV-18	120	120	120
Mercury (Hg)	0.275		0.0050	ug/g	29-NOV-18	*0.27	1.8	*0.27

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2201309-8 S-11102463-112218-SM-BH18-466-17.5-19.5								
Sampled By: S. MENESES on 22-NOV-18 @ 12								
Matrix: SOIL								
Metals								
Molybdenum (Mo)	<1.0		1.0	ug/g	29-NOV-18	6.9	6.9	2
Nickel (Ni)	12.0		1.0	ug/g	29-NOV-18	100	130	82
Selenium (Se)	<1.0		1.0	ug/g	29-NOV-18	2.4	2.4	1.5
Silver (Ag)	<0.20		0.20	ug/g	29-NOV-18	20	25	0.5
Thallium (Tl)	<0.50		0.50	ug/g	29-NOV-18	1	1	1
Uranium (U)	<1.0		1.0	ug/g	29-NOV-18	23	23	2.5
Vanadium (V)	21.9		1.0	ug/g	29-NOV-18	86	86	86
Zinc (Zn)	122		5.0	ug/g	29-NOV-18	340	340	290
Speciated Metals								
Chromium, Hexavalent	<1.0	DLM	1.0	ug/g	29-NOV-18	8	10	**0.66
Volatile Organic Compounds								
Acetone	<1.6	DLIS	1.6	ug/g	28-NOV-18	16	28	**0.5
Benzene	0.033	DLIS	0.022	ug/g	28-NOV-18	0.21	0.17	*0.02
Bromodichloromethane	<0.16	DLIS	0.16	ug/g	28-NOV-18	13	13	**0.05
Bromoform	<0.16	DLIS	0.16	ug/g	28-NOV-18	0.27	0.26	**0.05
Bromomethane	<0.16	DLIS	0.16	ug/g	28-NOV-18	**0.05	**0.05	**0.05
Carbon tetrachloride	<0.16	DLIS	0.16	ug/g	28-NOV-18	**0.05	**0.12	**0.05
Chlorobenzene	<0.16	DLIS	0.16	ug/g	28-NOV-18	2.4	2.7	**0.05
Dibromochloromethane	<0.16	DLIS	0.16	ug/g	28-NOV-18	9.4	9.4	**0.05
Chloroform	<0.16	DLIS	0.16	ug/g	28-NOV-18	**0.05	0.18	**0.05
1,2-Dibromoethane	<0.16	DLIS	0.16	ug/g	28-NOV-18	**0.05	**0.05	**0.05
1,2-Dichlorobenzene	<0.16	DLIS	0.16	ug/g	28-NOV-18	3.4	4.3	**0.05
1,3-Dichlorobenzene	<0.16	DLIS	0.16	ug/g	28-NOV-18	4.8	6	**0.05
1,4-Dichlorobenzene	<0.16	DLIS	0.16	ug/g	28-NOV-18	**0.083	**0.097	**0.05
Dichlorodifluoromethane	<0.16	DLIS	0.16	ug/g	28-NOV-18	16	25	**0.05
1,1-Dichloroethane	<0.16	DLIS	0.16	ug/g	28-NOV-18	3.5	11	**0.05
1,2-Dichloroethane	<0.16	DLIS	0.16	ug/g	28-NOV-18	**0.05	**0.05	**0.05
1,1-Dichloroethylene	<0.16	DLIS	0.16	ug/g	28-NOV-18	**0.05	**0.05	**0.05
cis-1,2-Dichloroethylene	<0.16	DLIS	0.16	ug/g	28-NOV-18	3.4	30	**0.05
trans-1,2-Dichloroethylene	<0.16	DLIS	0.16	ug/g	28-NOV-18	**0.084	0.75	**0.05
Methylene Chloride	<0.16	DLIS	0.16	ug/g	28-NOV-18	**0.1	0.96	**0.05
1,2-Dichloropropane	<0.16	DLIS	0.16	ug/g	28-NOV-18	**0.05	**0.085	**0.05
cis-1,3-Dichloropropene	<0.096	DLIS	0.096	ug/g	28-NOV-18			
trans-1,3-Dichloropropene	<0.096	DLIS	0.096	ug/g	28-NOV-18			
1,3-Dichloropropene (cis & trans)	<0.14		0.14	ug/g	28-NOV-18	**0.05	**0.083	**0.05
Ethylbenzene	<0.058	DLIS	0.058	ug/g	28-NOV-18	2	15	**0.05
n-Hexane	<0.16	DLIS	0.16	ug/g	28-NOV-18	2.8	34	**0.05
Methyl Ethyl Ketone	<1.6	DLIS	1.6	ug/g	28-NOV-18	16	44	**0.5
Methyl Isobutyl Ketone	<1.6	DLIS	1.6	ug/g	28-NOV-18	1.7	4.3	**0.5
MTBE	<0.16	DLIS	0.16	ug/g	28-NOV-18	0.75	1.4	**0.05
Styrene	<0.16	DLIS	0.16	ug/g	28-NOV-18	0.7	2.2	**0.05
1,1,1,2-Tetrachloroethane	<0.16	DLIS	0.16	ug/g	28-NOV-18	**0.058	**0.05	**0.05
1,1,2,2-Tetrachloroethane	<0.16	DLIS	0.16	ug/g	28-NOV-18	**0.05	**0.05	**0.05
Tetrachloroethylene	<0.16	DLIS	0.16	ug/g	28-NOV-18	0.28	2.3	**0.05
Toluene	<0.26	DLIS	0.26	ug/g	28-NOV-18	2.3	6	**0.2

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2201309-8 S-11102463-112218-SM-BH18-466-17.5-19.5								
Sampled By: S. MENESES on 22-NOV-18 @ 12								
Matrix: SOIL								
Volatile Organic Compounds								
1,1,1-Trichloroethane	<0.16	DLIS	0.16	ug/g	28-NOV-18	0.38	3.4	**0.05
1,1,2-Trichloroethane	<0.16	DLIS	0.16	ug/g	28-NOV-18	**0.05	**0.05	**0.05
Trichloroethylene	<0.032	DLIS	0.032	ug/g	28-NOV-18	0.061	0.52	0.05
Trichlorofluoromethane	<0.16	DLIS	0.16	ug/g	28-NOV-18	4	5.8	0.25
Vinyl chloride	<0.064	DLIS	0.064	ug/g	28-NOV-18	**0.02	**0.022	**0.02
o-Xylene	<0.064	DLIS	0.064	ug/g	28-NOV-18			
m+p-Xylenes	<0.096	DLIS	0.096	ug/g	28-NOV-18			
Xylenes (Total)	<0.12		0.12	ug/g	28-NOV-18	3.1	25	**0.05
Surrogate: 4-Bromofluorobenzene	116.9		50-140	%	28-NOV-18			
Surrogate: 1,4-Difluorobenzene	130.6		50-140	%	28-NOV-18			
Hydrocarbons								
F1 (C6-C10)	<16	DLIS	16	ug/g	28-NOV-18	55	65	25
F1-BTEX	<16		16	ug/g	30-NOV-18	55	65	25
F2 (C10-C16)	21		10	ug/g	27-NOV-18	98	150	*10
F2-Naphth	21		10	ug/g	30-NOV-18			
F3 (C16-C34)	137		50	ug/g	27-NOV-18	300	1300	240
F3-PAH	136		50	ug/g	30-NOV-18			
F4 (C34-C50)	<50		50	ug/g	27-NOV-18	2800	5600	120
Total Hydrocarbons (C6-C50)	158		73	ug/g	30-NOV-18			
Chrom. to baseline at nC50	YES			No Unit	27-NOV-18			
Surrogate: 2-Bromobenzotrifluoride	98.1		60-140	%	27-NOV-18			
Surrogate: 3,4-Dichlorotoluene	98.9		60-140	%	28-NOV-18			
Polycyclic Aromatic Hydrocarbons								
Acenaphthene	0.068		0.050	ug/g	29-NOV-18	7.9	58	0.072
Acenaphthylene	<0.050		0.050	ug/g	29-NOV-18	0.15	0.17	0.093
Anthracene	<0.050		0.050	ug/g	29-NOV-18	0.67	0.74	0.22
Benzo(a)anthracene	0.138		0.050	ug/g	29-NOV-18	0.5	0.63	0.36
Benzo(a)pyrene	0.130		0.050	ug/g	29-NOV-18	0.3	0.3	0.3
Benzo(b)fluoranthene	0.091		0.050	ug/g	29-NOV-18	0.78	0.78	0.47
Benzo(g,h,i)perylene	0.084		0.050	ug/g	29-NOV-18	6.6	7.8	0.68
Benzo(k)fluoranthene	0.100		0.050	ug/g	29-NOV-18	0.78	0.78	0.48
Chrysene	0.180		0.050	ug/g	29-NOV-18	7	7.8	2.8
Dibenzo(ah)anthracene	<0.050		0.050	ug/g	29-NOV-18	0.1	0.1	0.1
Fluoranthene	0.295		0.050	ug/g	29-NOV-18	0.69	0.69	0.69
Fluorene	0.070		0.050	ug/g	29-NOV-18	62	69	0.19
Indeno(1,2,3-cd)pyrene	0.069		0.050	ug/g	29-NOV-18	0.38	0.48	0.23
1+2-Methylnaphthalenes	<0.042		0.042	ug/g	30-NOV-18	0.99	3.4	0.59
1-Methylnaphthalene	<0.030		0.030	ug/g	29-NOV-18	0.99	3.4	0.59
2-Methylnaphthalene	<0.030		0.030	ug/g	29-NOV-18	0.99	3.4	0.59
Naphthalene	0.027		0.013	ug/g	29-NOV-18	0.6	0.75	0.09
Phenanthrene	0.210		0.046	ug/g	29-NOV-18	6.2	7.8	0.69
Pyrene	0.376		0.050	ug/g	29-NOV-18	78	78	1
Surrogate: 2-Fluorobiphenyl	73.2		50-140	%	29-NOV-18			
Surrogate: p-Terphenyl d14	70.9		50-140	%	29-NOV-18			

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2201309-9 S-11102463-112218-SM-BH18-466-DUP3								
Sampled By: S. MENESES on 22-NOV-18 @ 12								
Matrix: SOIL								
Physical Tests								
% Moisture	50.6		0.10	%	27-NOV-18			
Polycyclic Aromatic Hydrocarbons								
Acenaphthene	0.169	DLHM	0.075	ug/g	29-NOV-18	7.9	58	*0.072
Acenaphthylene	<0.075	DLHM	0.075	ug/g	29-NOV-18	0.15	0.17	0.093
Anthracene	0.101	DLHM	0.075	ug/g	29-NOV-18	0.67	0.74	0.22
Benzo(a)anthracene	0.261	DLHM	0.075	ug/g	29-NOV-18	0.5	0.63	0.36
Benzo(a)pyrene	0.214	DLHM	0.075	ug/g	29-NOV-18	0.3	0.3	0.3
Benzo(b)fluoranthene	0.171	DLHM	0.075	ug/g	29-NOV-18	0.78	0.78	0.47
Benzo(g,h,i)perylene	0.136	DLHM	0.075	ug/g	29-NOV-18	6.6	7.8	0.68
Benzo(k)fluoranthene	0.143	DLHM	0.075	ug/g	29-NOV-18	0.78	0.78	0.48
Chrysene	0.293	DLHM	0.075	ug/g	29-NOV-18	7	7.8	2.8
Dibenzo(ah)anthracene	<0.075	DLHM	0.075	ug/g	29-NOV-18	0.1	0.1	0.1
Fluoranthene	0.540	DLHM	0.075	ug/g	29-NOV-18	0.69	0.69	0.69
Fluorene	0.187	DLHM	0.075	ug/g	29-NOV-18	62	69	0.19
Indeno(1,2,3-cd)pyrene	0.113	DLHM	0.075	ug/g	29-NOV-18	0.38	0.48	0.23
1+2-Methylnaphthalenes	0.213		0.064	ug/g	30-NOV-18	0.99	3.4	0.59
1-Methylnaphthalene	0.130	DLHM	0.045	ug/g	29-NOV-18	0.99	3.4	0.59
2-Methylnaphthalene	0.083	DLHM	0.045	ug/g	29-NOV-18	0.99	3.4	0.59
Naphthalene	0.164	DLHM	0.020	ug/g	29-NOV-18	0.6	0.75	*0.09
Phenanthrene	0.357	DLHM	0.069	ug/g	29-NOV-18	6.2	7.8	0.69
Pyrene	0.590	DLHM	0.075	ug/g	29-NOV-18	78	78	1
Surrogate: 2-Fluorobiphenyl	73.7		50-140	%	29-NOV-18			
Surrogate: p-Terphenyl d14	72.2		50-140	%	29-NOV-18			
L2201309-10 S-11102463-112318-SM-BH18-421-0-2								
Sampled By: S. MENESES on 23-NOV-18								
Matrix: SOIL						#1	#2	#3
Physical Tests								
Conductivity	0.242		0.0040	mS/cm	29-NOV-18	0.7	0.7	0.7
% Moisture	13.6		0.10	%	27-NOV-18			
pH	7.58		0.10	pH units	27-NOV-18			
Cyanides								
Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	28-NOV-18	0.051	0.051	0.051
Saturated Paste Extractables								
SAR	0.26		0.10	SAR	29-NOV-18	5	5	5
Calcium (Ca)	18.6		1.0	mg/L	29-NOV-18			
Magnesium (Mg)	1.2		1.0	mg/L	29-NOV-18			
Sodium (Na)	4.4		1.0	mg/L	29-NOV-18			
Metals								
Antimony (Sb)	7.7		1.0	ug/g	29-NOV-18	*7.5	*7.5	*1.3
Arsenic (As)	10.6		1.0	ug/g	29-NOV-18	18	18	18
Barium (Ba)	113		1.0	ug/g	29-NOV-18	390	390	220
Beryllium (Be)	0.56		0.50	ug/g	29-NOV-18	4	5	2.5
Boron (B)	8.7		5.0	ug/g	29-NOV-18	120	120	36
Boron (B), Hot Water Ext.	0.54		0.10	ug/g	29-NOV-18	1.5	1.5	1.5

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2201309-10 S-11102463-112318-SM-BH18-421-0-2								
Sampled By: S. MENESES on 23-NOV-18								
Matrix: SOIL								
Metals								
Cadmium (Cd)	0.69		0.50	ug/g	29-NOV-18	1.2	1.2	1.2
Chromium (Cr)	23.8		1.0	ug/g	29-NOV-18	160	160	70
Cobalt (Co)	7.9		1.0	ug/g	29-NOV-18	22	22	22
Copper (Cu)	98.5		1.0	ug/g	29-NOV-18	140	180	*92
Lead (Pb)	323		1.0	ug/g	29-NOV-18	*120	*120	*120
Mercury (Hg)	0.473		0.0050	ug/g	29-NOV-18	*0.27	1.8	*0.27
Molybdenum (Mo)	1.2		1.0	ug/g	29-NOV-18	6.9	6.9	2
Nickel (Ni)	27.9		1.0	ug/g	29-NOV-18	100	130	82
Selenium (Se)	<1.0		1.0	ug/g	29-NOV-18	2.4	2.4	1.5
Silver (Ag)	0.56		0.20	ug/g	29-NOV-18	20	25	*0.5
Thallium (Tl)	<0.50		0.50	ug/g	29-NOV-18	1	1	1
Uranium (U)	<1.0		1.0	ug/g	29-NOV-18	23	23	2.5
Vanadium (V)	31.8		1.0	ug/g	29-NOV-18	86	86	86
Zinc (Zn)	232		5.0	ug/g	29-NOV-18	340	340	290
Speciated Metals								
Chromium, Hexavalent	0.21		0.20	ug/g	27-NOV-18	8	10	0.66
Volatile Organic Compounds								
Acetone	<0.50		0.50	ug/g	29-NOV-18	16	28	0.5
Benzene	0.0321		0.0068	ug/g	29-NOV-18	0.21	0.17	*0.02
Bromodichloromethane	<0.050		0.050	ug/g	29-NOV-18	13	13	0.05
Bromoform	<0.050		0.050	ug/g	29-NOV-18	0.27	0.26	0.05
Bromomethane	<0.050		0.050	ug/g	29-NOV-18	0.05	0.05	0.05
Carbon tetrachloride	<0.050		0.050	ug/g	29-NOV-18	0.05	0.12	0.05
Chlorobenzene	<0.050		0.050	ug/g	29-NOV-18	2.4	2.7	0.05
Dibromochloromethane	<0.050		0.050	ug/g	29-NOV-18	9.4	9.4	0.05
Chloroform	<0.050		0.050	ug/g	29-NOV-18	0.05	0.18	0.05
1,2-Dibromoethane	<0.050		0.050	ug/g	29-NOV-18	0.05	0.05	0.05
1,2-Dichlorobenzene	<0.050		0.050	ug/g	29-NOV-18	3.4	4.3	0.05
1,3-Dichlorobenzene	<0.050		0.050	ug/g	29-NOV-18	4.8	6	0.05
1,4-Dichlorobenzene	<0.050		0.050	ug/g	29-NOV-18	0.083	0.097	0.05
Dichlorodifluoromethane	<0.050		0.050	ug/g	29-NOV-18	16	25	0.05
1,1-Dichloroethane	<0.050		0.050	ug/g	29-NOV-18	3.5	11	0.05
1,2-Dichloroethane	<0.050		0.050	ug/g	29-NOV-18	0.05	0.05	0.05
1,1-Dichloroethylene	<0.050		0.050	ug/g	29-NOV-18	0.05	0.05	0.05
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	29-NOV-18	3.4	30	0.05
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	29-NOV-18	0.084	0.75	0.05
Methylene Chloride	<0.050		0.050	ug/g	29-NOV-18	0.1	0.96	0.05
1,2-Dichloropropane	<0.050		0.050	ug/g	29-NOV-18	0.05	0.085	0.05
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	29-NOV-18			
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	29-NOV-18			
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g	29-NOV-18	0.05	0.083	0.05
Ethylbenzene	0.048		0.018	ug/g	29-NOV-18	2	15	0.05
n-Hexane	0.172		0.050	ug/g	29-NOV-18	2.8	34	*0.05
Methyl Ethyl Ketone	<0.50		0.50	ug/g	29-NOV-18	16	44	0.5
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	29-NOV-18	1.7	4.3	0.5

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2201309-10 S-11102463-112318-SM-BH18-421-0-2								
Sampled By: S. MENESES on 23-NOV-18								
Matrix: SOIL								
Volatile Organic Compounds								
MTBE	<0.050		0.050	ug/g	29-NOV-18	0.75	1.4	0.05
Styrene	<0.050		0.050	ug/g	29-NOV-18	0.7	2.2	0.05
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	29-NOV-18	0.058	0.05	0.05
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	29-NOV-18	0.05	0.05	0.05
Tetrachloroethylene	<0.050		0.050	ug/g	29-NOV-18	0.28	2.3	0.05
Toluene	0.131		0.080	ug/g	29-NOV-18	2.3	6	0.2
1,1,1-Trichloroethane	<0.050		0.050	ug/g	29-NOV-18	0.38	3.4	0.05
1,1,2-Trichloroethane	<0.050		0.050	ug/g	29-NOV-18	0.05	0.05	0.05
Trichloroethylene	<0.010		0.010	ug/g	29-NOV-18	0.061	0.52	0.05
Trichlorofluoromethane	<0.050		0.050	ug/g	29-NOV-18	4	5.8	0.25
Vinyl chloride	<0.020		0.020	ug/g	29-NOV-18	0.02	0.022	0.02
o-Xylene	0.143		0.020	ug/g	29-NOV-18			
m+p-Xylenes	0.209		0.030	ug/g	29-NOV-18			
Xylenes (Total)	0.351		0.050	ug/g	29-NOV-18	3.1	25	*0.05
Surrogate: 4-Bromofluorobenzene	112.1		50-140	%	29-NOV-18			
Surrogate: 1,4-Difluorobenzene	124.1		50-140	%	29-NOV-18			
Hydrocarbons								
F1 (C6-C10)	<5.0		5.0	ug/g	29-NOV-18	55	65	25
F1-BTEX	<5.0		5.0	ug/g	29-NOV-18	55	65	25
F2 (C10-C16)	<50	DLM	50	ug/g	27-NOV-18	98	150	**10
F2-Naphth	<50		50	ug/g	29-NOV-18			
F3 (C16-C34)	780	DLM	250	ug/g	27-NOV-18	*300	1300	*240
F3-PAH	750		250	ug/g	29-NOV-18			
F4 (C34-C50)	420	DLM	250	ug/g	27-NOV-18	2800	5600	*120
F4G-SG (GHH-Silica)	1330		250	ug/g	26-NOV-18	2800	5600	*120
Total Hydrocarbons (C6-C50)	1200		360	ug/g	29-NOV-18			
Chrom. to baseline at nC50	NO			No Unit	27-NOV-18			
Surrogate: 2-Bromobenzotrifluoride	96.7		60-140	%	27-NOV-18			
Surrogate: 3,4-Dichlorotoluene	75.9		60-140	%	29-NOV-18			
Polycyclic Aromatic Hydrocarbons								
1+2-Methylnaphthalenes	0.372		0.085	ug/g	29-NOV-18	0.99	3.4	0.59
Semi-Volatile Organics								
Acenaphthene	0.34	DLM	0.10	ug/g	29-NOV-18	7.9	58	*0.072
Acenaphthylene	0.27	DLM	0.10	ug/g	29-NOV-18	*0.15	*0.17	*0.093
Anthracene	0.95	DLM	0.10	ug/g	29-NOV-18	*0.67	*0.74	*0.22
Benzo(a)anthracene	3.41	DLM	0.10	ug/g	29-NOV-18	*0.5	*0.63	*0.36
Benzo(a)pyrene	3.42	DLM	0.10	ug/g	29-NOV-18	*0.3	*0.3	*0.3
Benzo(b)fluoranthene	2.70	DLM	0.10	ug/g	29-NOV-18	*0.78	*0.78	*0.47
Benzo(ghi)perylene	2.01	DLM	0.10	ug/g	29-NOV-18	6.6	7.8	*0.68
Benzo(k)fluoranthene	3.31	DLM	0.10	ug/g	29-NOV-18	*0.78	*0.78	*0.48
2-Chlorophenol	<0.20	DLM	0.20	ug/g	29-NOV-18	1.6	2	**0.1
Chrysene	3.38	DLM	0.10	ug/g	29-NOV-18	7	7.8	*2.8
Dibenzo(a,h)anthracene	0.46	DLM	0.10	ug/g	29-NOV-18	*0.1	*0.1	*0.1
2,4-Dichlorophenol	<0.20	DLM	0.20	ug/g	29-NOV-18	1.7	2.1	**0.1
Fluoranthene	6.87	DLM	0.10	ug/g	29-NOV-18	*0.69	*0.69	*0.69
Fluorene	0.35	DLM	0.10	ug/g	29-NOV-18	62	69	*0.19

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2201309-10 S-11102463-112318-SM-BH18-421-0-2								
Sampled By: S. MENESES on 23-NOV-18								
Matrix: SOIL								
Semi-Volatile Organics								
Indeno(1,2,3-cd)pyrene	2.29	DLM	0.10	ug/g	29-NOV-18	*0.38	*0.48	*0.23
1-Methylnaphthalene	0.177	DLM	0.060	ug/g	29-NOV-18	0.99	3.4	0.59
2-Methylnaphthalene	0.195	DLM	0.060	ug/g	29-NOV-18	0.99	3.4	0.59
Naphthalene	0.29	DLM	0.10	ug/g	29-NOV-18	0.6	0.75	*0.09
Pentachlorophenol	<0.20	DLM	0.20	ug/g	29-NOV-18	**0.1	**0.1	**0.1
Phenanthrene	4.05	DLM	0.10	ug/g	29-NOV-18	6.2	7.8	*0.69
Pyrene	6.17	DLM	0.10	ug/g	29-NOV-18	78	78	*1
2,4,5-Trichlorophenol	<0.20	DLM	0.20	ug/g	29-NOV-18	4.4	5.5	**0.1
2,4,6-Trichlorophenol	<0.20	DLM	0.20	ug/g	29-NOV-18	3.8	4.2	**0.1
Surrogate: 2-Fluorobiphenyl	82.9		50-140	%	29-NOV-18			
Surrogate: Phenol d5	77.2		30-130	%	29-NOV-18			
Surrogate: p-Terphenyl d14	99.0		50-140	%	29-NOV-18			
Surrogate: 2,4,6-Tribromophenol	60.3		50-140	%	29-NOV-18			
Polychlorinated Biphenyls								
Aroclor 1242	<0.020	DLM	0.020	ug/g	30-NOV-18			
Aroclor 1248	<0.020	DLM	0.020	ug/g	30-NOV-18			
Aroclor 1254	<0.150	DLM	0.15	ug/g	30-NOV-18			
Aroclor 1260	<0.120	DLM	0.12	ug/g	30-NOV-18			
Total PCBs	<0.20	DLM	0.20	ug/g	30-NOV-18	0.35	0.35	0.3
Surrogate: d14-Terphenyl	96.2		60-140	%	30-NOV-18			
Organochlorine Pesticides								
Aldrin	<0.040	DLM	0.040	ug/g	30-NOV-18	0.05	0.05	0.05
gamma-hexachlorocyclohexane	<0.080	DLM	0.080	ug/g	30-NOV-18	**0.056	**0.063	
a-chlordane	<0.040	DLM	0.040	ug/g	30-NOV-18			
Chlordane (Total)	<0.057		0.057	ug/g	30-NOV-18	**0.05	**0.05	**0.05
g-chlordane	<0.040	DLM	0.040	ug/g	30-NOV-18			
op-DDD	<0.040	DLM	0.040	ug/g	30-NOV-18			
pp-DDD	<0.040	DLM	0.040	ug/g	30-NOV-18			
Total DDD	<0.057		0.057	ug/g	30-NOV-18	3.3	3.3	**0.05
o,p-DDE	<0.040	DLM	0.040	ug/g	30-NOV-18			
pp-DDE	<0.040	DLM	0.040	ug/g	30-NOV-18			
Total DDE	<0.057		0.057	ug/g	30-NOV-18	0.26	0.33	**0.05
op-DDT	<0.040	DLM	0.040	ug/g	30-NOV-18			
pp-DDT	<0.040	DLM	0.040	ug/g	30-NOV-18			
Total DDT	<0.057		0.057	ug/g	30-NOV-18	1.4	1.4	1.4
Dieldrin	<0.040	DLM	0.040	ug/g	30-NOV-18	0.05	0.05	0.05
Endosulfan I	<0.28	DLM	0.28	ug/g	30-NOV-18			
Endosulfan II	<0.040	DLM	0.040	ug/g	30-NOV-18			
Endosulfan (Total)	<0.28		0.28	ug/g	30-NOV-18	**0.04	**0.04	**0.04
Endrin	<0.040	DLM	0.040	ug/g	30-NOV-18	0.04	0.04	0.04
Heptachlor	<0.040	DLM	0.040	ug/g	30-NOV-18	0.15	0.15	0.05
Heptachlor Epoxide	<0.040	DLM	0.040	ug/g	30-NOV-18	0.05	0.05	0.05
Hexachlorobenzene	<0.050	DLM	0.050	ug/g	30-NOV-18	0.52	0.52	**0.02
Hexachlorobutadiene	<0.050	DLM	0.050	ug/g	30-NOV-18	**0.012	**0.014	**0.01
Hexachloroethane	<0.050	DLM	0.050	ug/g	30-NOV-18	0.089	0.07	**0.01
Methoxychlor	<0.38	DLM	0.38	ug/g	30-NOV-18	**0.13	**0.13	**0.05

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2201309-10 S-11102463-112318-SM-BH18-421-0-2								
Sampled By: S. MENESES on 23-NOV-18								
Matrix: SOIL								
Organochlorine Pesticides								
Surrogate: 2-Fluorobiphenyl	93.4		50-140	%	30-NOV-18			
Surrogate: d14-Terphenyl	91.5		50-140	%	30-NOV-18			
L2201309-11 S-11102463-112318-SM-BH18-421-7.5-9.5								
Sampled By: S. MENESES on 23-NOV-18								
Matrix: SOIL						#1	#2	#3
Physical Tests								
Conductivity	0.914		0.0040	mS/cm	29-NOV-18	*0.7	*0.7	*0.7
% Moisture	19.8		0.10	%	27-NOV-18			
pH	7.15		0.10	pH units	27-NOV-18			
Cyanides								
Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	28-NOV-18	0.051	0.051	0.051
Saturated Paste Extractables								
SAR	0.57		0.10	SAR	29-NOV-18	5	5	5
Calcium (Ca)	124		1.0	mg/L	29-NOV-18			
Magnesium (Mg)	11.7		1.0	mg/L	29-NOV-18			
Sodium (Na)	24.8		1.0	mg/L	29-NOV-18			
Metals								
Antimony (Sb)	17.6		1.0	ug/g	29-NOV-18	*7.5	*7.5	*1.3
Arsenic (As)	27.9		1.0	ug/g	29-NOV-18	*18	*18	*18
Barium (Ba)	492		1.0	ug/g	29-NOV-18	*390	*390	*220
Beryllium (Be)	0.68		0.50	ug/g	29-NOV-18	4	5	2.5
Boron (B)	14.7		5.0	ug/g	29-NOV-18	120	120	36
Boron (B), Hot Water Ext.	1.90		0.10	ug/g	29-NOV-18	*1.5	*1.5	*1.5
Cadmium (Cd)	2.38		0.50	ug/g	29-NOV-18	*1.2	*1.2	*1.2
Chromium (Cr)	108		1.0	ug/g	29-NOV-18	160	160	*70
Cobalt (Co)	9.9		1.0	ug/g	29-NOV-18	22	22	22
Copper (Cu)	422		1.0	ug/g	29-NOV-18	*140	*180	*92
Lead (Pb)	1310		1.0	ug/g	29-NOV-18	*120	*120	*120
Mercury (Hg)	4.98	DLHC	0.50	ug/g	29-NOV-18	*0.27	*1.8	*0.27
Molybdenum (Mo)	2.8		1.0	ug/g	29-NOV-18	6.9	6.9	*2
Nickel (Ni)	34.2		1.0	ug/g	29-NOV-18	100	130	82
Selenium (Se)	3.1		1.0	ug/g	29-NOV-18	*2.4	*2.4	*1.5
Silver (Ag)	2.93		0.20	ug/g	29-NOV-18	20	25	*0.5
Thallium (Tl)	<0.50		0.50	ug/g	29-NOV-18	1	1	1
Uranium (U)	<1.0		1.0	ug/g	29-NOV-18	23	23	2.5
Vanadium (V)	31.0		1.0	ug/g	29-NOV-18	86	86	86
Zinc (Zn)	888		5.0	ug/g	29-NOV-18	*340	*340	*290
Speciated Metals								
Chromium, Hexavalent	<0.20		0.20	ug/g	27-NOV-18	8	10	0.66
Volatile Organic Compounds								
Acetone	0.57		0.50	ug/g	29-NOV-18	16	28	*0.5
Benzene	0.125		0.0068	ug/g	29-NOV-18	0.21	0.17	*0.02
Bromodichloromethane	<0.050		0.050	ug/g	29-NOV-18	13	13	0.05
Bromoform	<0.050		0.050	ug/g	29-NOV-18	0.27	0.26	0.05

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2201309-11 S-11102463-112318-SM-BH18-421-7.5-9.5								
Sampled By: S. MENESES on 23-NOV-18								
Matrix: SOIL								
Volatile Organic Compounds								
Bromomethane	<0.050		0.050	ug/g	29-NOV-18	0.05	0.05	0.05
Carbon tetrachloride	<0.050		0.050	ug/g	29-NOV-18	0.05	0.12	0.05
Chlorobenzene	<0.050		0.050	ug/g	29-NOV-18	2.4	2.7	0.05
Dibromochloromethane	<0.050		0.050	ug/g	29-NOV-18	9.4	9.4	0.05
Chloroform	<0.050		0.050	ug/g	29-NOV-18	0.05	0.18	0.05
1,2-Dibromoethane	<0.050		0.050	ug/g	29-NOV-18	0.05	0.05	0.05
1,2-Dichlorobenzene	<0.050		0.050	ug/g	29-NOV-18	3.4	4.3	0.05
1,3-Dichlorobenzene	<0.050		0.050	ug/g	29-NOV-18	4.8	6	0.05
1,4-Dichlorobenzene	<0.050		0.050	ug/g	29-NOV-18	0.083	0.097	0.05
Dichlorodifluoromethane	<0.050		0.050	ug/g	29-NOV-18	16	25	0.05
1,1-Dichloroethane	<0.050		0.050	ug/g	29-NOV-18	3.5	11	0.05
1,2-Dichloroethane	<0.050		0.050	ug/g	29-NOV-18	0.05	0.05	0.05
1,1-Dichloroethylene	<0.050		0.050	ug/g	29-NOV-18	0.05	0.05	0.05
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	29-NOV-18	3.4	30	0.05
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	29-NOV-18	0.084	0.75	0.05
Methylene Chloride	<0.050		0.050	ug/g	29-NOV-18	0.1	0.96	0.05
1,2-Dichloropropane	<0.050		0.050	ug/g	29-NOV-18	0.05	0.085	0.05
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	29-NOV-18			
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	29-NOV-18			
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g	30-NOV-18	0.05	0.083	0.05
Ethylbenzene	0.131		0.018	ug/g	29-NOV-18	2	15	*0.05
n-Hexane	0.717		0.050	ug/g	29-NOV-18	2.8	34	*0.05
Methyl Ethyl Ketone	<0.50		0.50	ug/g	30-NOV-18	16	44	0.5
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	29-NOV-18	1.7	4.3	0.5
MTBE	<0.050		0.050	ug/g	29-NOV-18	0.75	1.4	0.05
Styrene	<0.050		0.050	ug/g	29-NOV-18	0.7	2.2	0.05
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	29-NOV-18	0.058	0.05	0.05
1,1,2,2-Tetrachloroethane	<0.24	DLVH	0.24	ug/g	29-NOV-18	**0.05	**0.05	**0.05
Tetrachloroethylene	<0.050		0.050	ug/g	29-NOV-18	0.28	2.3	0.05
Toluene	0.293		0.080	ug/g	29-NOV-18	2.3	6	*0.2
1,1,1-Trichloroethane	<0.050		0.050	ug/g	29-NOV-18	0.38	3.4	0.05
1,1,2-Trichloroethane	<0.050		0.050	ug/g	29-NOV-18	0.05	0.05	0.05
Trichloroethylene	<0.010		0.010	ug/g	29-NOV-18	0.061	0.52	0.05
Trichlorofluoromethane	<0.050		0.050	ug/g	29-NOV-18	4	5.8	0.25
Vinyl chloride	<0.020		0.020	ug/g	29-NOV-18	0.02	0.022	0.02
o-Xylene	0.167		0.020	ug/g	29-NOV-18			
m+p-Xylenes	0.410		0.030	ug/g	29-NOV-18			
Xylenes (Total)	0.577		0.050	ug/g	30-NOV-18	3.1	25	*0.05
Surrogate: 4-Bromofluorobenzene	109.4		50-140	%	29-NOV-18			
Surrogate: 1,4-Difluorobenzene	122.1		50-140	%	29-NOV-18			
Hydrocarbons								
F1 (C6-C10)	9.9		5.0	ug/g	29-NOV-18	55	65	25
F1-BTEX	8.7		5.0	ug/g	30-NOV-18	55	65	25
F2 (C10-C16)	256		10	ug/g	27-NOV-18	*98	*150	*10
F2-Naphth	256		10	ug/g	30-NOV-18			
F3 (C16-C34)	731		50	ug/g	27-NOV-18	*300	1300	*240

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2201309-11 S-11102463-112318-SM-BH18-421-7.5-9.5								
Sampled By: S. MENESES on 23-NOV-18								
Matrix: SOIL								
Hydrocarbons								
F3-PAH	722		50	ug/g	30-NOV-18			
F4 (C34-C50)	182		50	ug/g	27-NOV-18	2800	5600	*120
F4G-SG (GHH-Silica)	710		250	ug/g	27-NOV-18	2800	5600	*120
Total Hydrocarbons (C6-C50)	1180		72	ug/g	30-NOV-18			
Chrom. to baseline at nC50	NO			No Unit	27-NOV-18			
Surrogate: 2-Bromobenzotrifluoride	96.1		60-140	%	27-NOV-18			
Surrogate: 3,4-Dichlorotoluene	82.1		60-140	%	29-NOV-18			
Polycyclic Aromatic Hydrocarbons								
1+2-Methylnaphthalenes	0.446		0.085	ug/g	29-NOV-18	0.99	3.4	0.59
Semi-Volatile Organics								
Acenaphthene	<0.10	DLM	0.10	ug/g	29-NOV-18	7.9	58	**0.072
Acenaphthylene	<0.10	DLM	0.10	ug/g	29-NOV-18	0.15	0.17	**0.093
Anthracene	0.25	DLM	0.10	ug/g	29-NOV-18	0.67	0.74	*0.22
Benzo(a)anthracene	1.03	DLM	0.10	ug/g	29-NOV-18	*0.5	*0.63	*0.36
Benzo(a)pyrene	1.09	DLM	0.10	ug/g	29-NOV-18	*0.3	*0.3	*0.3
Benzo(b)fluoranthene	0.97	DLM	0.10	ug/g	29-NOV-18	*0.78	*0.78	*0.47
Benzo(ghi)perylene	0.81	DLM	0.10	ug/g	29-NOV-18	6.6	7.8	*0.68
Benzo(k)fluoranthene	0.85	DLM	0.10	ug/g	29-NOV-18	*0.78	*0.78	*0.48
2-Chlorophenol	<0.20	DLM	0.20	ug/g	29-NOV-18	1.6	2	**0.1
Chrysene	1.00	DLM	0.10	ug/g	29-NOV-18	7	7.8	2.8
Dibenzo(a,h)anthracene	0.19	DLM	0.10	ug/g	29-NOV-18	*0.1	*0.1	*0.1
2,4-Dichlorophenol	<0.20	DLM	0.20	ug/g	29-NOV-18	1.7	2.1	**0.1
Fluoranthene	1.80	DLM	0.10	ug/g	29-NOV-18	*0.69	*0.69	*0.69
Fluorene	<0.10	DLM	0.10	ug/g	29-NOV-18	62	69	0.19
Indeno(1,2,3-cd)pyrene	0.85	DLM	0.10	ug/g	29-NOV-18	*0.38	*0.48	*0.23
1-Methylnaphthalene	0.194	DLM	0.060	ug/g	29-NOV-18	0.99	3.4	0.59
2-Methylnaphthalene	0.252	DLM	0.060	ug/g	29-NOV-18	0.99	3.4	0.59
Naphthalene	0.38	DLM	0.10	ug/g	29-NOV-18	0.6	0.75	*0.09
Pentachlorophenol	<0.20	DLM	0.20	ug/g	29-NOV-18	**0.1	**0.1	**0.1
Phenanthrene	0.69	DLM	0.10	ug/g	29-NOV-18	6.2	7.8	0.69
Pyrene	1.69	DLM	0.10	ug/g	29-NOV-18	78	78	*1
2,4,5-Trichlorophenol	<0.20	DLM	0.20	ug/g	29-NOV-18	4.4	5.5	**0.1
2,4,6-Trichlorophenol	<0.20	DLM	0.20	ug/g	29-NOV-18	3.8	4.2	**0.1
Surrogate: 2-Fluorobiphenyl	85.4		50-140	%	29-NOV-18			
Surrogate: Phenol d5	82.1		30-130	%	29-NOV-18			
Surrogate: p-Terphenyl d14	99.2		50-140	%	29-NOV-18			
Surrogate: 2,4,6-Tribromophenol	74.9		50-140	%	29-NOV-18			
Polychlorinated Biphenyls								
Aroclor 1242	<0.016	DLM	0.016	ug/g	30-NOV-18			
Aroclor 1248	<0.010		0.010	ug/g	30-NOV-18			
Aroclor 1254	<0.010		0.010	ug/g	30-NOV-18			
Aroclor 1260	<0.020	DLM	0.020	ug/g	30-NOV-18			
Total PCBs	<0.030	DLM	0.030	ug/g	30-NOV-18	0.35	0.35	0.3
Surrogate: d14-Terphenyl	91.8		60-140	%	30-NOV-18			
Organochlorine Pesticides								
Aldrin	<0.040	DLM	0.040	ug/g	30-NOV-18	0.05	0.05	0.05

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2201309-11 S-11102463-112318-SM-BH18-421-7.5-9.5								
Sampled By: S. MENESES on 23-NOV-18								
Matrix: SOIL								
Organochlorine Pesticides								
gamma-hexachlorocyclohexane	<0.36	DLM	0.36	ug/g	30-NOV-18	**0.056	**0.063	
a-chlordane	<0.040	DLM	0.040	ug/g	30-NOV-18			
Chlordane (Total)	<0.057		0.057	ug/g	30-NOV-18	**0.05	**0.05	**0.05
g-chlordane	<0.040	DLM	0.040	ug/g	30-NOV-18			
op-DDD	<0.040	DLM	0.040	ug/g	30-NOV-18			
pp-DDD	<0.050	DLM	0.050	ug/g	30-NOV-18			
Total DDD	<0.064		0.064	ug/g	30-NOV-18	3.3	3.3	**0.05
o,p-DDE	<0.040	DLM	0.040	ug/g	30-NOV-18			
pp-DDE	<0.040	DLM	0.040	ug/g	30-NOV-18			
Total DDE	<0.057		0.057	ug/g	30-NOV-18	0.26	0.33	**0.05
op-DDT	<0.040	DLM	0.040	ug/g	30-NOV-18			
pp-DDT	<0.040	DLM	0.040	ug/g	30-NOV-18			
Total DDT	<0.057		0.057	ug/g	30-NOV-18	1.4	1.4	1.4
Dieldrin	<0.040	DLM	0.040	ug/g	30-NOV-18	0.05	0.05	0.05
Endosulfan I	<0.20	DLM	0.20	ug/g	30-NOV-18			
Endosulfan II	<0.080	DLM	0.080	ug/g	30-NOV-18			
Endosulfan (Total)	<0.22		0.22	ug/g	30-NOV-18	**0.04	**0.04	**0.04
Endrin	<0.040	DLM	0.040	ug/g	30-NOV-18	0.04	0.04	0.04
Heptachlor	<0.040	DLM	0.040	ug/g	30-NOV-18	0.15	0.15	0.05
Heptachlor Epoxide	<0.040	DLM	0.040	ug/g	30-NOV-18	0.05	0.05	0.05
Hexachlorobenzene	<0.050	DLM	0.050	ug/g	30-NOV-18	0.52	0.52	**0.02
Hexachlorobutadiene	<0.050	DLM	0.050	ug/g	30-NOV-18	**0.012	**0.014	**0.01
Hexachloroethane	<0.050	DLM	0.050	ug/g	30-NOV-18	0.089	0.07	**0.01
Methoxychlor	<0.26	DLM	0.26	ug/g	30-NOV-18	**0.13	**0.13	**0.05
Surrogate: 2-Fluorobiphenyl	87.9		50-140	%	30-NOV-18			
Surrogate: d14-Terphenyl	90.0		50-140	%	30-NOV-18			
L2201309-12 S-11102463-112318-SM-BH18-421-22.5-24.5								
Sampled By: S. MENESES on 23-NOV-18								
Matrix: SOIL								
Physical Tests								
Conductivity	0.411		0.0040	mS/cm	29-NOV-18	0.7	0.7	0.7
% Moisture	19.6		0.10	%	27-NOV-18			
pH	7.44		0.10	pH units	27-NOV-18			
Cyanides								
Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	28-NOV-18	0.051	0.051	0.051
Saturated Paste Extractables								
SAR	3.02		0.10	SAR	29-NOV-18	5	5	5
Calcium (Ca)	12.4		1.0	mg/L	29-NOV-18			
Magnesium (Mg)	1.6		1.0	mg/L	29-NOV-18			
Sodium (Na)	42.5		1.0	mg/L	29-NOV-18			
Metals								
Antimony (Sb)	<1.0		1.0	ug/g	29-NOV-18	7.5	7.5	1.3
Arsenic (As)	1.9		1.0	ug/g	29-NOV-18	18	18	18
Barium (Ba)	108		1.0	ug/g	29-NOV-18	390	390	220
Beryllium (Be)	<0.50		0.50	ug/g	29-NOV-18	4	5	2.5

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2201309-12 S-11102463-112318-SM-BH18-421-22.5-24.5								
Sampled By: S. MENESES on 23-NOV-18								
Matrix: SOIL								
Metals								
Boron (B)	6.4		5.0	ug/g	29-NOV-18	120	120	36
Boron (B), Hot Water Ext.	0.10		0.10	ug/g	29-NOV-18	1.5	1.5	1.5
Cadmium (Cd)	<0.50		0.50	ug/g	29-NOV-18	1.2	1.2	1.2
Chromium (Cr)	22.1		1.0	ug/g	29-NOV-18	160	160	70
Cobalt (Co)	8.1		1.0	ug/g	29-NOV-18	22	22	22
Copper (Cu)	17.0		1.0	ug/g	29-NOV-18	140	180	92
Lead (Pb)	8.2		1.0	ug/g	29-NOV-18	120	120	120
Mercury (Hg)	0.0130		0.0050	ug/g	29-NOV-18	0.27	1.8	0.27
Molybdenum (Mo)	<1.0		1.0	ug/g	29-NOV-18	6.9	6.9	2
Nickel (Ni)	16.0		1.0	ug/g	29-NOV-18	100	130	82
Selenium (Se)	<1.0		1.0	ug/g	29-NOV-18	2.4	2.4	1.5
Silver (Ag)	<0.20		0.20	ug/g	29-NOV-18	20	25	0.5
Thallium (Tl)	<0.50		0.50	ug/g	29-NOV-18	1	1	1
Uranium (U)	<1.0		1.0	ug/g	29-NOV-18	23	23	2.5
Vanadium (V)	37.4		1.0	ug/g	29-NOV-18	86	86	86
Zinc (Zn)	41.5		5.0	ug/g	29-NOV-18	340	340	290
Speciated Metals								
Chromium, Hexavalent	<0.20		0.20	ug/g	27-NOV-18	8	10	0.66
Volatile Organic Compounds								
Acetone	<0.50		0.50	ug/g	29-NOV-18	16	28	0.5
Benzene	<0.0068		0.0068	ug/g	29-NOV-18	0.21	0.17	0.02
Bromodichloromethane	<0.050		0.050	ug/g	29-NOV-18	13	13	0.05
Bromoform	<0.050		0.050	ug/g	29-NOV-18	0.27	0.26	0.05
Bromomethane	<0.050		0.050	ug/g	29-NOV-18	0.05	0.05	0.05
Carbon tetrachloride	<0.050		0.050	ug/g	29-NOV-18	0.05	0.12	0.05
Chlorobenzene	<0.050		0.050	ug/g	29-NOV-18	2.4	2.7	0.05
Dibromochloromethane	<0.050		0.050	ug/g	29-NOV-18	9.4	9.4	0.05
Chloroform	<0.050		0.050	ug/g	29-NOV-18	0.05	0.18	0.05
1,2-Dibromoethane	<0.050		0.050	ug/g	29-NOV-18	0.05	0.05	0.05
1,2-Dichlorobenzene	<0.050		0.050	ug/g	29-NOV-18	3.4	4.3	0.05
1,3-Dichlorobenzene	<0.050		0.050	ug/g	29-NOV-18	4.8	6	0.05
1,4-Dichlorobenzene	<0.050		0.050	ug/g	29-NOV-18	0.083	0.097	0.05
Dichlorodifluoromethane	<0.050		0.050	ug/g	29-NOV-18	16	25	0.05
1,1-Dichloroethane	<0.050		0.050	ug/g	29-NOV-18	3.5	11	0.05
1,2-Dichloroethane	<0.050		0.050	ug/g	29-NOV-18	0.05	0.05	0.05
1,1-Dichloroethylene	<0.050		0.050	ug/g	29-NOV-18	0.05	0.05	0.05
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	29-NOV-18	3.4	30	0.05
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	29-NOV-18	0.084	0.75	0.05
Methylene Chloride	<0.050		0.050	ug/g	29-NOV-18	0.1	0.96	0.05
1,2-Dichloropropane	<0.050		0.050	ug/g	29-NOV-18	0.05	0.085	0.05
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	29-NOV-18			
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	29-NOV-18			
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g	03-DEC-18	0.05	0.083	0.05
Ethylbenzene	<0.018		0.018	ug/g	29-NOV-18	2	15	0.05
n-Hexane	<0.13	RRR	0.13	ug/g	29-NOV-18	2.8	34	**0.05

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2201309-12 S-11102463-112318-SM-BH18-421-22.5-24.5								
Sampled By: S. MENESES on 23-NOV-18								
Matrix: SOIL								
Volatile Organic Compounds								
Methyl Ethyl Ketone	<0.50		0.50	ug/g	29-NOV-18	16	44	0.5
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	29-NOV-18	1.7	4.3	0.5
MTBE	<0.050		0.050	ug/g	29-NOV-18	0.75	1.4	0.05
Styrene	<0.050		0.050	ug/g	29-NOV-18	0.7	2.2	0.05
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	29-NOV-18	0.058	0.05	0.05
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	29-NOV-18	0.05	0.05	0.05
Tetrachloroethylene	<0.050		0.050	ug/g	29-NOV-18	0.28	2.3	0.05
Toluene	<0.080		0.080	ug/g	29-NOV-18	2.3	6	0.2
1,1,1-Trichloroethane	<0.050		0.050	ug/g	29-NOV-18	0.38	3.4	0.05
1,1,2-Trichloroethane	<0.050		0.050	ug/g	29-NOV-18	0.05	0.05	0.05
Trichloroethylene	<0.010		0.010	ug/g	29-NOV-18	0.061	0.52	0.05
Trichlorofluoromethane	<0.050		0.050	ug/g	29-NOV-18	4	5.8	0.25
Vinyl chloride	<0.020		0.020	ug/g	29-NOV-18	0.02	0.022	0.02
o-Xylene	<0.020		0.020	ug/g	29-NOV-18			
m+p-Xylenes	<0.030		0.030	ug/g	29-NOV-18			
Xylenes (Total)	<0.050		0.050	ug/g	03-DEC-18	3.1	25	0.05
Surrogate: 4-Bromofluorobenzene	123.3		50-140	%	29-NOV-18			
Surrogate: 1,4-Difluorobenzene	134.8		50-140	%	29-NOV-18			
Hydrocarbons								
F1 (C6-C10)	<5.0		5.0	ug/g	29-NOV-18	55	65	25
F1-BTEX	<5.0		5.0	ug/g	03-DEC-18	55	65	25
F2 (C10-C16)	<10		10	ug/g	27-NOV-18	98	150	10
F2-Naphth	<10		10	ug/g	03-DEC-18			
F3 (C16-C34)	<50		50	ug/g	27-NOV-18	300	1300	240
F3-PAH	<50		50	ug/g	03-DEC-18			
F4 (C34-C50)	<50		50	ug/g	27-NOV-18	2800	5600	120
Total Hydrocarbons (C6-C50)	<72		72	ug/g	03-DEC-18			
Chrom. to baseline at nC50	YES			No Unit	27-NOV-18			
Surrogate: 2-Bromobenzotrifluoride	99.4		60-140	%	27-NOV-18			
Surrogate: 3,4-Dichlorotoluene	82.3		60-140	%	29-NOV-18			
Polycyclic Aromatic Hydrocarbons								
Acenaphthene	<0.050		0.050	ug/g	29-NOV-18	7.9	58	0.072
Acenaphthylene	<0.050		0.050	ug/g	29-NOV-18	0.15	0.17	0.093
Anthracene	<0.050		0.050	ug/g	29-NOV-18	0.67	0.74	0.22
Benzo(a)anthracene	<0.050		0.050	ug/g	29-NOV-18	0.5	0.63	0.36
Benzo(a)pyrene	<0.050		0.050	ug/g	29-NOV-18	0.3	0.3	0.3
Benzo(b)fluoranthene	<0.050		0.050	ug/g	29-NOV-18	0.78	0.78	0.47
Benzo(g,h,i)perylene	<0.050		0.050	ug/g	29-NOV-18	6.6	7.8	0.68
Benzo(k)fluoranthene	<0.050		0.050	ug/g	29-NOV-18	0.78	0.78	0.48
Chrysene	<0.050		0.050	ug/g	29-NOV-18	7	7.8	2.8
Dibenzo(ah)anthracene	<0.050		0.050	ug/g	29-NOV-18	0.1	0.1	0.1
Fluoranthene	<0.050		0.050	ug/g	29-NOV-18	0.69	0.69	0.69
Fluorene	<0.050		0.050	ug/g	29-NOV-18	62	69	0.19
Indeno(1,2,3-cd)pyrene	<0.050		0.050	ug/g	29-NOV-18	0.38	0.48	0.23
1+2-Methylnaphthalenes	<0.042		0.042	ug/g	30-NOV-18	0.99	3.4	0.59
1-Methylnaphthalene	<0.030		0.030	ug/g	29-NOV-18	0.99	3.4	0.59

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2201309-12 S-11102463-112318-SM-BH18-421-22.5-24.5								
Sampled By: S. MENESES on 23-NOV-18								
Matrix: SOIL								
Polycyclic Aromatic Hydrocarbons								
2-Methylnaphthalene	<0.030		0.030	ug/g	29-NOV-18	0.99	3.4	0.59
Naphthalene	<0.013		0.013	ug/g	29-NOV-18	0.6	0.75	0.09
Phenanthrene	<0.046		0.046	ug/g	29-NOV-18	6.2	7.8	0.69
Pyrene	<0.050		0.050	ug/g	29-NOV-18	78	78	1
Surrogate: 2-Fluorobiphenyl	74.1		50-140	%	29-NOV-18			
Surrogate: p-Terphenyl d14	73.6		50-140	%	29-NOV-18			
L2201309-13 S-11102463-112318-SM-BH18-421-DUP4								
Sampled By: S. MENESES on 23-NOV-18								
Matrix: SOIL								
Physical Tests								
% Moisture	18.7		0.10	%	27-NOV-18			
Semi-Volatile Organics								
2-Chlorophenol	<0.20	DLM	0.20	ug/g	29-NOV-18	1.6	2	**0.1
2,4-Dichlorophenol	<0.20	DLM	0.20	ug/g	29-NOV-18	1.7	2.1	**0.1
Pentachlorophenol	<0.20	DLM	0.20	ug/g	29-NOV-18	**0.1	**0.1	**0.1
2,4,5-Trichlorophenol	<0.20	DLM	0.20	ug/g	29-NOV-18	4.4	5.5	**0.1
2,4,6-Trichlorophenol	<0.20	DLM	0.20	ug/g	29-NOV-18	3.8	4.2	**0.1
Surrogate: Phenol d5	81.2		30-130	%	29-NOV-18			
Surrogate: 2,4,6-Tribromophenol	76.2		50-140	%	29-NOV-18			
Organochlorine Pesticides								
Aldrin	<0.040	DLM	0.040	ug/g	30-NOV-18	0.05	0.05	0.05
gamma-hexachlorocyclohexane	<0.42	DLM	0.42	ug/g	30-NOV-18	**0.056	**0.063	
a-chlordane	<0.040	DLM	0.040	ug/g	30-NOV-18			
Chlordane (Total)	<0.057		0.057	ug/g	30-NOV-18	**0.05	**0.05	**0.05
g-chlordane	<0.040	DLM	0.040	ug/g	30-NOV-18			
op-DDD	<0.040	DLM	0.040	ug/g	30-NOV-18			
pp-DDD	<0.040	DLM	0.040	ug/g	30-NOV-18			
Total DDD	<0.057		0.057	ug/g	30-NOV-18	3.3	3.3	**0.05
o,p-DDE	<0.040	DLM	0.040	ug/g	30-NOV-18			
pp-DDE	<0.040	DLM	0.040	ug/g	30-NOV-18			
Total DDE	<0.057		0.057	ug/g	30-NOV-18	0.26	0.33	**0.05
op-DDT	<0.040	DLM	0.040	ug/g	30-NOV-18			
pp-DDT	<0.040	DLM	0.040	ug/g	30-NOV-18			
Total DDT	<0.057		0.057	ug/g	30-NOV-18	1.4	1.4	1.4
Dieldrin	<0.040	DLM	0.040	ug/g	30-NOV-18	0.05	0.05	0.05
Endosulfan I	<0.20	DLM	0.20	ug/g	30-NOV-18			
Endosulfan II	<0.14	DLM	0.14	ug/g	30-NOV-18			
Endosulfan (Total)	<0.24		0.24	ug/g	30-NOV-18	**0.04	**0.04	**0.04
Endrin	<0.080	DLM	0.080	ug/g	30-NOV-18	**0.04	**0.04	**0.04
Heptachlor	<0.040	DLM	0.040	ug/g	30-NOV-18	0.15	0.15	0.05
Heptachlor Epoxide	<0.040	DLM	0.040	ug/g	30-NOV-18	0.05	0.05	0.05
Hexachlorobenzene	<0.050	DLM	0.050	ug/g	30-NOV-18	0.52	0.52	**0.02
Hexachlorobutadiene	<0.050	DLM	0.050	ug/g	30-NOV-18	**0.012	**0.014	**0.01
Hexachloroethane	<0.050	DLM	0.050	ug/g	30-NOV-18	0.089	0.07	**0.01
Methoxychlor	<0.48	DLM	0.48	ug/g	30-NOV-18	**0.13	**0.13	**0.05

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3	
L2201309-13 S-11102463-112318-SM-BH18-421-DUP4									
Sampled By: S. MENESES on 23-NOV-18									
Matrix: SOIL									
Organochlorine Pesticides									
Surrogate: 2-Fluorobiphenyl	89.8		50-140	%	30-NOV-18				
Surrogate: d14-Terphenyl	89.1		50-140	%	30-NOV-18				
L2201309-14 S-11102463-112318-SM-BH18-421-DUP5									
Sampled By: S. MENESES on 23-NOV-18									
Matrix: SOIL						#1	#2	#3	
Physical Tests									
% Moisture	21.7		0.10	%	27-NOV-18				
Hydrocarbons									
F1 (C6-C10)	<5.0		5.0	ug/g	27-NOV-18	55	65	25	
F2 (C10-C16)	<10		10	ug/g	27-NOV-18	98	150	10	
F3 (C16-C34)	<50		50	ug/g	27-NOV-18	300	1300	240	
F4 (C34-C50)	<50		50	ug/g	27-NOV-18	2800	5600	120	
Total Hydrocarbons (C6-C50)	<72		72	ug/g	27-NOV-18				
Chrom. to baseline at nC50	YES			No Unit	27-NOV-18				
Surrogate: 2-Bromobenzotrifluoride	101.9		60-140	%	27-NOV-18				
Surrogate: 3,4-Dichlorotoluene	87.5		60-140	%	27-NOV-18				
L2201309-15 TRIP BLANK									
Sampled By: S. MENESES on 23-NOV-18									
Matrix: SOIL						#1	#2	#3	
Physical Tests									
% Moisture	<0.10		0.10	%	27-NOV-18				
Volatile Organic Compounds									
Acetone	<0.50		0.50	ug/g	29-NOV-18	16	28	0.5	
Benzene	<0.0068		0.0068	ug/g	29-NOV-18	0.21	0.17	0.02	
Bromodichloromethane	<0.050		0.050	ug/g	29-NOV-18	13	13	0.05	
Bromoform	<0.050		0.050	ug/g	29-NOV-18	0.27	0.26	0.05	
Bromomethane	<0.050		0.050	ug/g	29-NOV-18	0.05	0.05	0.05	
Carbon tetrachloride	<0.050		0.050	ug/g	29-NOV-18	0.05	0.12	0.05	
Chlorobenzene	<0.050		0.050	ug/g	29-NOV-18	2.4	2.7	0.05	
Dibromochloromethane	<0.050		0.050	ug/g	29-NOV-18	9.4	9.4	0.05	
Chloroform	<0.050		0.050	ug/g	29-NOV-18	0.05	0.18	0.05	
1,2-Dibromoethane	<0.050		0.050	ug/g	29-NOV-18	0.05	0.05	0.05	
1,2-Dichlorobenzene	<0.050		0.050	ug/g	29-NOV-18	3.4	4.3	0.05	
1,3-Dichlorobenzene	<0.050		0.050	ug/g	29-NOV-18	4.8	6	0.05	
1,4-Dichlorobenzene	<0.050		0.050	ug/g	29-NOV-18	0.083	0.097	0.05	
Dichlorodifluoromethane	<0.050		0.050	ug/g	29-NOV-18	16	25	0.05	
1,1-Dichloroethane	<0.050		0.050	ug/g	29-NOV-18	3.5	11	0.05	
1,2-Dichloroethane	<0.050		0.050	ug/g	29-NOV-18	0.05	0.05	0.05	
1,1-Dichloroethylene	<0.050		0.050	ug/g	29-NOV-18	0.05	0.05	0.05	
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	29-NOV-18	3.4	30	0.05	
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	29-NOV-18	0.084	0.75	0.05	
Methylene Chloride	<0.050		0.050	ug/g	29-NOV-18	0.1	0.96	0.05	
1,2-Dichloropropane	<0.050		0.050	ug/g	29-NOV-18	0.05	0.085	0.05	

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3	
L2201309-15 TRIP BLANK Sampled By: S. MENESES on 23-NOV-18 Matrix: SOIL									
Volatile Organic Compounds									
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	29-NOV-18				
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	29-NOV-18				
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g	29-NOV-18	0.05	0.083	0.05	
Ethylbenzene	<0.018		0.018	ug/g	29-NOV-18	2	15	0.05	
n-Hexane	<0.050		0.050	ug/g	29-NOV-18	2.8	34	0.05	
Methyl Ethyl Ketone	<0.50		0.50	ug/g	29-NOV-18	16	44	0.5	
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	29-NOV-18	1.7	4.3	0.5	
MTBE	<0.050		0.050	ug/g	29-NOV-18	0.75	1.4	0.05	
Styrene	<0.050		0.050	ug/g	29-NOV-18	0.7	2.2	0.05	
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	29-NOV-18	0.058	0.05	0.05	
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	29-NOV-18	0.05	0.05	0.05	
Tetrachloroethylene	<0.050		0.050	ug/g	29-NOV-18	0.28	2.3	0.05	
Toluene	<0.080		0.080	ug/g	29-NOV-18	2.3	6	0.2	
1,1,1-Trichloroethane	<0.050		0.050	ug/g	29-NOV-18	0.38	3.4	0.05	
1,1,2-Trichloroethane	<0.050		0.050	ug/g	29-NOV-18	0.05	0.05	0.05	
Trichloroethylene	<0.010		0.010	ug/g	29-NOV-18	0.061	0.52	0.05	
Trichlorofluoromethane	<0.050		0.050	ug/g	29-NOV-18	4	5.8	0.25	
Vinyl chloride	<0.020		0.020	ug/g	29-NOV-18	0.02	0.022	0.02	
o-Xylene	<0.020		0.020	ug/g	29-NOV-18				
m+p-Xylenes	<0.030		0.030	ug/g	29-NOV-18				
Xylenes (Total)	<0.050		0.050	ug/g	29-NOV-18	3.1	25	0.05	
Surrogate: 4-Bromofluorobenzene	116.3		50-140	%	29-NOV-18				
Surrogate: 1,4-Difluorobenzene	129.0		50-140	%	29-NOV-18				
Hydrocarbons									
F1 (C6-C10)	<5.0		5.0	ug/g	29-NOV-18	55	65	25	
Surrogate: 3,4-Dichlorotoluene	78.4		60-140	%	29-NOV-18				

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Reference Information

Sample Parameter Qualifier key listed:

Qualifier	Description
DLQ	Detection Limit raised due to co-eluting interference. GCMS qualifier ion ratio did not meet acceptance criteria.
DLVH	Detection Limit raised due to interference from Volatile Hydrocarbons on VOC method. Chromatographic elution of interfering peaks in the same region as test analytes prevents a determination of whether VOC analyte is present or absent (above/below regular detection limits).
PRAR	PCB Pattern Most Closely Resembles Aroclor Reported
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
DLHM	Detection Limit Adjusted: Sample has High Moisture Content
DLHC	Detection Limit Raised: Dilution required due to high concentration of test analyte(s).
DLIS	Detection Limit Adjusted: Insufficient Sample
RRR	Refer to Report Remarks for issues regarding this analysis

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference***
625-511-WT	Soil	ABN-O.Reg 153/04 (July 2011)	SW846 8270 (511)

Soil and sediment samples are dried by mixing with a desiccant prior to extraction. The extracts are dried, concentrated and exchanged into a solvent and analyzed by GC/MS. Depending on the analytical GC/MS column used benzo(j)fluoranthene may chromatographically co-elute with benzo(b)fluoranthene or benzo(k)fluoranthene.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

B-HWS-R511-WT	Soil	Boron-HWE-O.Reg 153/04 (July 2011)	HW EXTR, EPA 6010B

A dried solid sample is extracted with calcium chloride, the sample undergoes a heating process. After cooling the sample is filtered and analyzed by ICP/OES.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

CHLORDANE-T-CALC-WT	Soil	Chlordane Total sums	CALCULATION

Aqueous sample is extracted by liquid/liquid extraction with a solvent mix. After extraction, a number of clean up techniques may be applied, depending on the sample matrix and analyzed by GC/MS.

CN-WAD-R511-WT	Soil	Cyanide (WAD)-O.Reg 153/04 (July 2011)	MOE 3015/APHA 4500CN I-WAD

The sample is extracted with a strong base for 16 hours, and then filtered. The filtrate is then distilled where the cyanide is converted to cyanogen chloride by reacting with chloramine-T, the cyanogen chloride then reacts with a combination of barbituric acid and isonicotinic acid to form a highly colored complex.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

CR-CR6-IC-WT	Soil	Hexavalent Chromium in Soil	SW846 3060A/7199

This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, Method 7199, published by the United States Environmental Protection Agency (EPA). The procedure involves analysis for chromium (VI) by ion chromatography using diphenylcarbazide in a sulphuric acid solution.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

DDD-DDE-DDT-CALC-WT	Soil	DDD, DDE, DDT sums	CALCULATION

Aqueous sample is extracted by liquid/liquid extraction with a solvent mix. After extraction, a number of clean up techniques may be applied, depending on the sample matrix and analyzed by GC/MS.

EC-WT	Soil	Conductivity (EC)	MOEE E3138

A representative subsample is tumbled with de-ionized (DI) water. The ratio of water to soil is 2:1 v/w. After tumbling the sample is then analyzed by a conductivity meter.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

Reference Information

ENDOSULFAN-T-CALC-WT	Soil	Endosulfan Total sums	CALCULATION

Aqueous sample is extracted by liquid/liquid extraction with a solvent mix. After extraction, a number of clean up techniques may be applied, depending on the sample matrix and analyzed by GC/MS.

F1-F4-511-CALC-WT	Soil	F1-F4 Hydrocarbon Calculated Parameters	CCME CWS-PHC, Pub #1310, Dec 2001-S

Analytical methods used for analysis of CCME Petroleum Hydrocarbons have been validated and comply with the Reference Method for the CWS PHC.

Hydrocarbon results are expressed on a dry weight basis.

In cases where results for both F4 and F4G are reported, the greater of the two results must be used in any application of the CWS PHC guidelines and the gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.
In samples where BTEX and F1 were analyzed , F1-BTEX represents a value where the sum of Benzene, Toluene, Ethylbenzene and total Xylenes has been subtracted from F1.

In samples where PAHs, F2 and F3 were analyzed, F2-Naphth represents the result where Naphthalene has been subtracted from F2. F3-PAH represents a result where the sum of Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenzo(a,h)anthracene, Fluoranthene, Indeno(1,2,3-cd)pyrene, Phenanthrene, and Pyrene has been subtracted from F3.

Unless otherwise qualified, the following quality control criteria have been met for the F1 hydrocarbon range:
1. All extraction and analysis holding times were met.
2. Instrument performance showing response factors for C6 and C10 within 30% of the response factor for toluene.
3. Linearity of gasoline response within 15% throughout the calibration range.

Unless otherwise qualified, the following quality control criteria have been met for the F2-F4 hydrocarbon ranges:
1. All extraction and analysis holding times were met.
2. Instrument performance showing C10, C16 and C34 response factors within 10% of their average.
3. Instrument performance showing the C50 response factor within 30% of the average of the C10, C16 and C34 response factors.
4. Linearity of diesel or motor oil response within 15% throughout the calibration range.

F1-HS-511-WT	Soil	F1-O.Reg 153/04 (July 2011)	E3398/CCME TIER 1-HS

Fraction F1 is determined by extracting a soil or sediment sample as received with methanol, then analyzing by headspace-GC/FID.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

F2-F4-511-WT	Soil	F2-F4-O.Reg 153/04 (July 2011)	CCME Tier 1

Petroleum Hydrocarbons (F2-F4 fractions) are extracted from soil with 1:1 hexane:acetone using a rotary extractor. Extracts are treated with silica gel to remove polar organic interferences. F2, F3, & F4 are analyzed by GC-FID. F4G-sg is analyzed gravimetrically.

Notes:
1. F2 (C10-C16): Sum of all hydrocarbons that elute between nC10 and nC16.
2. F3 (C16-C34): Sum of all hydrocarbons that elute between nC16 and nC34.
3. F4 (C34-C50): Sum of all hydrocarbons that elute between nC34 and nC50.
4. F4G: Gravimetric Heavy Hydrocarbons
5. F4G-sg: Gravimetric Heavy Hydrocarbons (F4G) after silica gel treatment.
6. Where both F4 (C34-C50) and F4G-sg are reported for a sample, the larger of the two values is used for comparison against the relevant CCME guideline for F4.
7. F4G-sg cannot be added to the C6 to C50 hydrocarbon results to obtain an estimate of total extractable hydrocarbons.
8. This method is validated for use.
9. Data from analysis of validation and quality control samples is available upon request.
10. Reported results are expressed as milligrams per dry kilogram, unless otherwise indicated.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

F4G-ADD-511-WT	Soil	F4G SG-O.Reg 153/04 (July 2011)	MOE DECPH-E3398/CCME TIER 1

F4G, gravimetric analysis, is determined if the chromatogram does not return to baseline at or before C50. A soil sample is extracted with a solvent mix, the solvent is evaporated and the weight of the residue is determined.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

HG-200.2-CVAA-WT	Soil	Mercury in Soil by CVAAS	EPA 200.2/1631E (mod)

Soil samples are digested with nitric and hydrochloric acids, followed by analysis by CVAAS.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

Reference Information

MET-200.2-CCMS-WT	Soil	Metals in Soil by CRC ICPMS	EPA 200.2/6020A (mod)

Soil/sediment is dried, disaggregated, and sieved (2 mm). For tests intended to support Ontario regulations, the <2mm fraction is ground to pass through a 0.355 mm sieve. Strong Acid Leachable Metals in the <2mm fraction are solubilized by heated digestion with nitric and hydrochloric acids. Instrumental analysis is by Collision / Reaction Cell ICPMS.

Limitations: This method is intended to liberate environmentally available metals. Silicate minerals are not solubilized. Some metals may be only partially recovered (matrix dependent), including Al, Ba, Be, Cr, S, Sr, Ti, Tl, V, W, and Zr. Elemental Sulfur may be poorly recovered by this method. Volatile forms of sulfur (e.g. sulfide, H2S) may be excluded if lost during sampling, storage, or digestion.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

METHYLNAPS-CALC-WT	Soil	ABN-Calculated Parameters	SW846 8270
MOISTURE-WT	Soil	% Moisture	CCME PHC in Soil - Tier 1 (mod)
PAH-511-WT	Soil	PAH-O.Reg 153/04 (July 2011)	SW846 3510/8270

A representative sub-sample of soil is fortified with deuterium-labelled surrogates and a mechanical shaking techniqueis used to extract the sample with a mixture of methanol and toluene. The extracts are concentrated and analyzed by GC/MS. Results for benzo(b) fluoranthene may include contributions from benzo(j)fluoranthene, if also present in the sample.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

PCB-511-WT	Soil	PCB-O.Reg 153/04 (July 2011)	SW846 3510/8082

An aliquot of a solid sample is extracted with a solvent, extract is cleaned up and analyzed on the GC/MS.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

PEST-OC-511-WT	Soil	OC Pesticides-O.Reg 153/04 (July 2011)	SW846 8270 (511)

Soil sample is extracted in a solvent, after extraction a number of clean up techniques may be applied, depending on the sample matrix and analyzed by GC/MS.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

PH-WT	Soil	pH	MOEE E3137A

A minimum 10g portion of the sample is extracted with 20mL of 0.01M calcium chloride solution by shaking for at least 30 minutes. The aqueous layer is separated from the soil and then analyzed using a pH meter and electrode.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

SAR-R511-WT	Soil	SAR-O.Reg 153/04 (July 2011)	SW846 6010C

A dried, disaggregated solid sample is extracted with deionized water, the aqueous extract is separated from the solid, acidified and then analyzed using a ICP/OES. The concentrations of Na, Ca and Mg are reported as per CALA requirements for calculated parameters. These individual parameters are not for comparison to any guideline.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

VOC-1,3-DCP-CALC-WT	Soil	Regulation 153 VOCs	SW8260B/SW8270C
VOC-511-HS-WT	Soil	VOC-O.Reg 153/04 (July 2011)	SW846 8260 (511)

Soil and sediment samples are extracted in methanol and analyzed by headspace-GC/MS.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

XYLENES-SUM-CALC-WT	Soil	Sum of Xylene Isomer Concentrations	CALCULATION

Total xylenes represents the sum of o-xylene and m&p-xylene.

*** ALS test methods may incorporate modifications from specified reference methods to improve performance.

Chain of Custody numbers:

Reference Information

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location	Laboratory Definition Code	Laboratory Location
WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA		

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.
mg/kg - milligrams per kilogram based on dry weight of sample
mg/kg wwt - milligrams per kilogram based on wet weight of sample
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight
mg/L - unit of concentration based on volume, parts per million.
< - Less than.
D.L. - The reporting limit.
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, fitness for a particular purpose, or non-infringement. ALS assumes no responsibility for errors or omissions in the information. Guideline limits are not adjusted for the hardness, pH or temperature of the sample (the most conservative values are used). Measurement uncertainty is not applied to test results prior to comparison with specified criteria values.

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
625-511-WT	**Soil**							
Batch R4364197								
WG2939418-3 DUP		**WG2939418-5**						
1-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	28-NOV-18
2-Chlorophenol		<0.10	<0.10	RPD-NA	ug/g	N/A	40	28-NOV-18
2-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	28-NOV-18
2,4-Dichlorophenol		<0.10	<0.10	RPD-NA	ug/g	N/A	40	28-NOV-18
2,4,5-Trichlorophenol		<0.10	<0.10	RPD-NA	ug/g	N/A	40	28-NOV-18
2,4,6-Trichlorophenol		<0.10	<0.10	RPD-NA	ug/g	N/A	40	28-NOV-18
Acenaphthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-NOV-18
Acenaphthylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-NOV-18
Anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-NOV-18
Benzo(a)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-NOV-18
Benzo(a)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-NOV-18
Benzo(b)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-NOV-18
Benzo(ghi)perylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-NOV-18
Benzo(k)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-NOV-18
Chrysene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-NOV-18
Dibenzo(a,h)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-NOV-18
Fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-NOV-18
Fluorene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-NOV-18
Indeno(1,2,3-cd)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-NOV-18
Naphthalene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-NOV-18
Pentachlorophenol		<0.10	<0.10	RPD-NA	ug/g	N/A	40	28-NOV-18
Phenanthrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-NOV-18
Pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-NOV-18
WG2939418-2 LCS								
1-Methylnaphthalene			91.0		%		50-140	28-NOV-18
2-Chlorophenol			100.2		%		50-140	28-NOV-18
2-Methylnaphthalene			91.0		%		50-140	28-NOV-18
2,4-Dichlorophenol			99.0		%		50-140	28-NOV-18
2,4,5-Trichlorophenol			97.0		%		50-140	28-NOV-18
2,4,6-Trichlorophenol			97.9		%		50-140	28-NOV-18
Acenaphthene			95.1		%		50-140	28-NOV-18
Acenaphthylene			97.5		%		50-140	28-NOV-18
Anthracene			92.9		%		50-140	28-NOV-18

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
625-511-WT	**Soil**							
Batch R4364197								
WG2939418-2 LCS								
Benzo(a)anthracene			93.5		%		50-140	28-NOV-18
Benzo(a)pyrene			98.5		%		50-140	28-NOV-18
Benzo(b)fluoranthene			98.8		%		50-140	28-NOV-18
Benzo(ghi)perylene			82.1		%		50-140	28-NOV-18
Benzo(k)fluoranthene			105.7		%		50-140	28-NOV-18
Chrysene			96.2		%		50-140	28-NOV-18
Dibenzo(a,h)anthracene			84.4		%		50-140	28-NOV-18
Fluoranthene			106.0		%		50-140	28-NOV-18
Fluorene			95.2		%		50-140	28-NOV-18
Indeno(1,2,3-cd)pyrene			84.7		%		50-140	28-NOV-18
Naphthalene			97.4		%		50-140	28-NOV-18
Pentachlorophenol			79.8		%		50-140	28-NOV-18
Phenanthrene			95.9		%		50-140	28-NOV-18
Pyrene			102.3		%		50-140	28-NOV-18
WG2939418-1 MB								
1-Methylnaphthalene			<0.030		ug/g		0.03	28-NOV-18
2-Chlorophenol			<0.10		ug/g		0.1	28-NOV-18
2-Methylnaphthalene			<0.030		ug/g		0.03	28-NOV-18
2,4-Dichlorophenol			<0.10		ug/g		0.1	28-NOV-18
2,4,5-Trichlorophenol			<0.10		ug/g		0.1	28-NOV-18
2,4,6-Trichlorophenol			<0.10		ug/g		0.1	28-NOV-18
Acenaphthene			<0.050		ug/g		0.05	28-NOV-18
Acenaphthylene			<0.050		ug/g		0.05	28-NOV-18
Anthracene			<0.050		ug/g		0.05	28-NOV-18
Benzo(a)anthracene			<0.050		ug/g		0.05	28-NOV-18
Benzo(a)pyrene			<0.050		ug/g		0.05	28-NOV-18
Benzo(b)fluoranthene			<0.050		ug/g		0.05	28-NOV-18
Benzo(ghi)perylene			<0.050		ug/g		0.05	28-NOV-18
Benzo(k)fluoranthene			<0.050		ug/g		0.05	28-NOV-18
Chrysene			<0.050		ug/g		0.05	28-NOV-18
Dibenzo(a,h)anthracene			<0.050		ug/g		0.05	28-NOV-18
Fluoranthene			<0.050		ug/g		0.05	28-NOV-18
Fluorene			<0.050		ug/g		0.05	28-NOV-18
Indeno(1,2,3-cd)pyrene			<0.050		ug/g		0.05	28-NOV-18

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
625-511-WT	**Soil**							
Batch R4364197								
WG2939418-1 MB								
Naphthalene			<0.050		ug/g		0.05	28-NOV-18
Pentachlorophenol			<0.10		ug/g		0.1	28-NOV-18
Phenanthrene			<0.050		ug/g		0.05	28-NOV-18
Pyrene			<0.050		ug/g		0.05	28-NOV-18
Surrogate: 2-Fluorobiphenyl			75.8		%		50-140	28-NOV-18
Surrogate: 2,4,6-Tribromophenol			58.5		%		50-140	28-NOV-18
Surrogate: p-Terphenyl d14			112.8		%		50-140	28-NOV-18
Surrogate: Phenol d5			95.1		%		30-130	28-NOV-18
WG2939418-4 MS		**WG2939418-5**						
1-Methylnaphthalene			90.4		%		50-140	28-NOV-18
2-Chlorophenol			100.7		%		50-140	28-NOV-18
2-Methylnaphthalene			90.7		%		50-140	28-NOV-18
2,4-Dichlorophenol			98.5		%		50-140	28-NOV-18
2,4,5-Trichlorophenol			98.9		%		50-140	28-NOV-18
2,4,6-Trichlorophenol			98.1		%		50-140	28-NOV-18
Acenaphthene			94.1		%		50-140	28-NOV-18
Acenaphthylene			96.5		%		50-140	28-NOV-18
Anthracene			91.8		%		50-140	28-NOV-18
Benzo(a)anthracene			93.2		%		50-140	28-NOV-18
Benzo(a)pyrene			93.4		%		50-140	28-NOV-18
Benzo(b)fluoranthene			98.0		%		50-140	28-NOV-18
Benzo(ghi)perylene			75.5		%		50-140	28-NOV-18
Benzo(k)fluoranthene			97.5		%		50-140	28-NOV-18
Chrysene			96.9		%		50-140	28-NOV-18
Dibenzo(a,h)anthracene			79.3		%		50-140	28-NOV-18
Fluoranthene			111.5		%		50-140	28-NOV-18
Fluorene			94.1		%		50-140	28-NOV-18
Indeno(1,2,3-cd)pyrene			80.1		%		50-140	28-NOV-18
Naphthalene			95.7		%		50-140	28-NOV-18
Pentachlorophenol			78.4		%		50-140	28-NOV-18
Phenanthrene			92.3		%		50-140	28-NOV-18
Pyrene			107.6		%		50-140	28-NOV-18
B-HWS-R511-WT	**Soil**							

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
B-HWS-R511-WT	**Soil**							
Batch R4365264								
WG2941266-4 DUP		**L2201298-2**						
Boron (B), Hot Water Ext.		<0.10	<0.10	RPD-NA	ug/g	N/A	30	28-NOV-18
WG2941266-2 IRM		**HOTB-SAL_SOIL5**						
Boron (B), Hot Water Ext.			92.4		%		70-130	28-NOV-18
WG2941266-3 LCS								
Boron (B), Hot Water Ext.			98.5		%		70-130	28-NOV-18
WG2941266-1 MB								
Boron (B), Hot Water Ext.			<0.10		ug/g		0.1	28-NOV-18
Batch R4365618								
WG2942041-4 DUP		**L2201718-3**						
Boron (B), Hot Water Ext.		0.12	0.11		ug/g	1.2	30	29-NOV-18
WG2942041-2 IRM		**HOTB-SAL_SOIL5**						
Boron (B), Hot Water Ext.			103.2		%		70-130	29-NOV-18
WG2942041-3 LCS								
Boron (B), Hot Water Ext.			107.7		%		70-130	29-NOV-18
WG2942041-1 MB								
Boron (B), Hot Water Ext.			<0.10		ug/g		0.1	29-NOV-18
Batch R4366398								
WG2943089-4 DUP		**L2203554-6**						
Boron (B), Hot Water Ext.		0.11	0.11		ug/g	3.7	30	30-NOV-18
WG2943089-2 IRM		**HOTB-SAL_SOIL5**						
Boron (B), Hot Water Ext.			106.2		%		70-130	30-NOV-18
WG2943089-3 LCS								
Boron (B), Hot Water Ext.			107.4		%		70-130	30-NOV-18
WG2943089-1 MB								
Boron (B), Hot Water Ext.			<0.10		ug/g		0.1	30-NOV-18
CN-WAD-R511-WT	**Soil**							
Batch R4365328								
WG2939649-3 DUP		**L2201298-1**						
Cyanide, Weak Acid Diss		<0.050	<0.050	RPD-NA	ug/g	N/A	35	28-NOV-18
WG2940008-3 DUP		**L2201711-5**						
Cyanide, Weak Acid Diss		<0.050	<0.050	RPD-NA	ug/g	N/A	35	28-NOV-18
WG2939649-2 LCS								
Cyanide, Weak Acid Diss			101.4		%		80-120	28-NOV-18
WG2940008-2 LCS								
Cyanide, Weak Acid Diss			95.8		%		80-120	28-NOV-18
WG2939649-1 MB								
Cyanide, Weak Acid Diss			<0.050		ug/g		0.05	28-NOV-18

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
CN-WAD-R511-WT	**Soil**							
Batch R4365328								
WG2940008-1 MB								
Cyanide, Weak Acid Diss			<0.050		ug/g		0.05	28-NOV-18
WG2939649-4 MS		**L2201298-1**						
Cyanide, Weak Acid Diss			97.7		%		70-130	28-NOV-18
WG2940008-4 MS		**L2201711-5**						
Cyanide, Weak Acid Diss			96.3		%		70-130	28-NOV-18
CR-CR6-IC-WT	**Soil**							
Batch R4362167								
WG2939576-4 CRM		**WT-SQC012**						
Chromium, Hexavalent			93.5		%		70-130	27-NOV-18
WG2939576-3 DUP		**L2201300-1**						
Chromium, Hexavalent		0.27	0.20		ug/g	29	35	27-NOV-18
WG2939576-2 LCS								
Chromium, Hexavalent			95.8		%		80-120	27-NOV-18
WG2939576-1 MB								
Chromium, Hexavalent			<0.20		ug/g		0.2	27-NOV-18
Batch R4366384								
WG2940327-4 CRM		**WT-SQC012**						
Chromium, Hexavalent			89.6		%		70-130	29-NOV-18
WG2940327-3 DUP		**L2201838-5**						
Chromium, Hexavalent		0.43	0.41		ug/g	4.1	35	29-NOV-18
WG2940327-2 LCS								
Chromium, Hexavalent			95.4		%		80-120	29-NOV-18
WG2940327-1 MB								
Chromium, Hexavalent			<0.20		ug/g		0.2	29-NOV-18
EC-WT	**Soil**							
Batch R4365783								
WG2941458-4 DUP		**WG2941458-3**						
Conductivity		0.496	0.506		mS/cm	2.0	20	29-NOV-18
WG2941458-2 IRM		**WT SAR2**						
Conductivity			92.5		%		70-130	29-NOV-18
WG2942391-1 LCS								
Conductivity			101.5		%		90-110	29-NOV-18
WG2941458-1 MB								
Conductivity			<0.0040		mS/cm		0.004	29-NOV-18

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
EC-WT	**Soil**							
Batch R4365868								
WG2942090-4 DUP		**WG2942090-3**						
Conductivity		1.02	1.02		mS/cm	0.5	20	29-NOV-18
WG2942090-2 IRM		**WT SAR2**						
Conductivity			100.5		%		70-130	29-NOV-18
WG2942387-1 LCS								
Conductivity			98.2		%		90-110	29-NOV-18
WG2942090-1 MB								
Conductivity			<0.0040		mS/cm		0.004	29-NOV-18
F1-HS-511-WT	**Soil**							
Batch R4360844								
WG2939556-10 DUP		**WG2939556-9**						
F1 (C6-C10)		<5.0	<5.0	RPD-NA	ug/g	N/A	30	27-NOV-18
WG2939556-8 LCS								
F1 (C6-C10)			89.3		%		80-120	27-NOV-18
WG2939556-7 MB								
F1 (C6-C10)			<5.0		ug/g		5	27-NOV-18
Surrogate: 3,4-Dichlorotoluene			104.3		%		60-140	27-NOV-18
WG2939556-11 MS		**L2201046-1**						
F1 (C6-C10)			92.2		%		60-140	27-NOV-18
Batch R4364115								
WG2940519-10 DUP		**WG2940519-9**						
F1 (C6-C10)		<5.0	<5.0	RPD-NA	ug/g	N/A	30	28-NOV-18
WG2940519-8 LCS								
F1 (C6-C10)			101.3		%		80-120	28-NOV-18
WG2940519-7 MB								
F1 (C6-C10)			<5.0		ug/g		5	28-NOV-18
Surrogate: 3,4-Dichlorotoluene			97.3		%		60-140	28-NOV-18
WG2940519-12 MS		**L2201695-1**						
F1 (C6-C10)			90.0		%		60-140	28-NOV-18
Batch R4365235								
WG2939611-4 DUP		**WG2939611-3**						
F1 (C6-C10)		<5.0	<5.0	RPD-NA	ug/g	N/A	30	29-NOV-18
WG2939611-2 LCS								
F1 (C6-C10)			97.7		%		80-120	29-NOV-18
WG2939611-1 MB								
F1 (C6-C10)			<5.0		ug/g		5	29-NOV-18
Surrogate: 3,4-Dichlorotoluene			91.4		%		60-140	29-NOV-18
		L2201294-2						

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F1-HS-511-WT	**Soil**							
Batch R4365235								
WG2939611-6 MS		**L2201294-2**						
F1 (C6-C10)			86.4		%		60-140	29-NOV-18
F2-F4-511-WT	**Soil**							
Batch R4362508								
WG2939166-3 DUP		**WG2939166-5**						
F2 (C10-C16)		<10	<10	RPD-NA	ug/g	N/A	30	27-NOV-18
F3 (C16-C34)		84	58	J	ug/g	26	100	27-NOV-18
F4 (C34-C50)		123	87	J	ug/g	36	100	27-NOV-18
WG2939166-2 LCS								
F2 (C10-C16)			113.6		%		80-120	27-NOV-18
F3 (C16-C34)			119.4		%		80-120	27-NOV-18
F4 (C34-C50)			113.8		%		80-120	27-NOV-18
WG2939166-1 MB								
F2 (C10-C16)			<10		ug/g		10	27-NOV-18
F3 (C16-C34)			<50		ug/g		50	27-NOV-18
F4 (C34-C50)			<50		ug/g		50	27-NOV-18
Surrogate: 2-Bromobenzotrifluoride			81.4		%		60-140	27-NOV-18
WG2939166-4 MS		**WG2939166-5**						
F2 (C10-C16)			120.8		%		60-140	27-NOV-18
F3 (C16-C34)			112.7		%		60-140	27-NOV-18
F4 (C34-C50)			113.2		%		60-140	27-NOV-18
Batch R4363209								
WG2939717-3 DUP		**WG2939717-5**						
F2 (C10-C16)		<10	<10	RPD-NA	ug/g	N/A	30	27-NOV-18
F3 (C16-C34)		<50	<50	RPD-NA	ug/g	N/A	30	27-NOV-18
F4 (C34-C50)		<50	<50	RPD-NA	ug/g	N/A	30	27-NOV-18
WG2939717-2 LCS								
F2 (C10-C16)			106.4		%		80-120	27-NOV-18
F3 (C16-C34)			108.7		%		80-120	27-NOV-18
F4 (C34-C50)			106.1		%		80-120	27-NOV-18
WG2939717-1 MB								
F2 (C10-C16)			<10		ug/g		10	27-NOV-18
F3 (C16-C34)			<50		ug/g		50	27-NOV-18
F4 (C34-C50)			<50		ug/g		50	27-NOV-18
Surrogate: 2-Bromobenzotrifluoride			96.0		%		60-140	27-NOV-18

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F2-F4-511-WT	**Soil**							
Batch R4363209								
WG2939717-4 MS		**WG2939717-5**						
F2 (C10-C16)			102.3		%		60-140	27-NOV-18
F3 (C16-C34)			107.2		%		60-140	27-NOV-18
F4 (C34-C50)			104.8		%		60-140	27-NOV-18
F4G-ADD-511-WT	**Soil**							
Batch R4363208								
WG2940913-3 DUP		**L2201260-10**						
F4G-SG (GHH-Silica)		350	<250	RPD-NA	ug/g	N/A	40	26-NOV-18
WG2940913-2 LCS								
F4G-SG (GHH-Silica)			87.0		%		60-140	26-NOV-18
WG2940913-1 MB								
F4G-SG (GHH-Silica)			<250		ug/g		250	26-NOV-18
Batch R4363650								
WG2941100-2 LCS								
F4G-SG (GHH-Silica)			67.1		%		60-140	27-NOV-18
WG2941100-1 MB								
F4G-SG (GHH-Silica)			<250		ug/g		250	27-NOV-18
HG-200.2-CVAA-WT	**Soil**							
Batch R4365620								
WG2941181-2 CRM		**WT-CANMET-TILL1**						
Mercury (Hg)			102.6		%		70-130	29-NOV-18
WG2941181-6 DUP		**WG2941181-5**						
Mercury (Hg)		0.0157	0.0151		ug/g	4.2	40	29-NOV-18
WG2941181-3 LCS								
Mercury (Hg)			103.0		%		80-120	29-NOV-18
WG2941181-1 MB								
Mercury (Hg)			<0.0050		mg/kg		0.005	29-NOV-18
Batch R4365627								
WG2942007-2 CRM		**WT-CANMET-TILL1**						
Mercury (Hg)			107.4		%		70-130	29-NOV-18
WG2942007-6 DUP		**WG2942007-5**						
Mercury (Hg)		0.0137	0.0118		ug/g	15	40	29-NOV-18
WG2942007-3 LCS								
Mercury (Hg)			103.0		%		80-120	29-NOV-18
WG2942007-1 MB								
Mercury (Hg)			<0.0050		mg/kg		0.005	29-NOV-18
MET-200.2-CCMS-WT	**Soil**							

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R4365556								
WG2941181-2 CRM		**WT-CANMET-TILL1**						
Antimony (Sb)			122.5		%		70-130	28-NOV-18
Arsenic (As)			117.8		%		70-130	28-NOV-18
Barium (Ba)			103.6		%		70-130	28-NOV-18
Beryllium (Be)			123.3		%		70-130	28-NOV-18
Boron (B)			3.2		mg/kg		0-8.2	28-NOV-18
Cadmium (Cd)			109.8		%		70-130	28-NOV-18
Chromium (Cr)			112.7		%		70-130	28-NOV-18
Cobalt (Co)			110.9		%		70-130	28-NOV-18
Copper (Cu)			113.4		%		70-130	28-NOV-18
Lead (Pb)			124.9		%		70-130	28-NOV-18
Molybdenum (Mo)			113.3		%		70-130	28-NOV-18
Nickel (Ni)			112.2		%		70-130	28-NOV-18
Selenium (Se)			0.31		mg/kg		0.11-0.51	28-NOV-18
Silver (Ag)			0.29		mg/kg		0.13-0.33	28-NOV-18
Thallium (Tl)			0.153		mg/kg		0.077-0.18	28-NOV-18
Uranium (U)			124.1		%		70-130	28-NOV-18
Vanadium (V)			85.2		%		70-130	28-NOV-18
Zinc (Zn)			113.8		%		70-130	28-NOV-18
WG2941181-6 DUP		**WG2941181-5**						
Antimony (Sb)		0.11	0.18	J	ug/g	0.07	0.2	28-NOV-18
Arsenic (As)		3.44	3.34		ug/g	3.0	30	28-NOV-18
Barium (Ba)		106	104		ug/g	2.0	40	28-NOV-18
Beryllium (Be)		0.63	0.66		ug/g	3.6	30	28-NOV-18
Boron (B)		9.6	9.1		ug/g	5.7	30	28-NOV-18
Cadmium (Cd)		0.098	0.088		ug/g	9.9	30	28-NOV-18
Chromium (Cr)		26.4	25.1		ug/g	4.9	30	28-NOV-18
Cobalt (Co)		9.80	9.49		ug/g	3.1	30	28-NOV-18
Copper (Cu)		21.0	22.2		ug/g	5.2	30	28-NOV-18
Lead (Pb)		11.1	10.5		ug/g	5.7	40	28-NOV-18
Molybdenum (Mo)		0.47	0.46		ug/g	1.7	40	28-NOV-18
Nickel (Ni)		23.2	22.6		ug/g	2.9	30	28-NOV-18
Selenium (Se)		<0.20	<0.20	RPD-NA	ug/g	N/A	30	28-NOV-18
Silver (Ag)		<0.10	<0.10	RPD-NA	ug/g	N/A	40	28-NOV-18

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R4365556								
WG2941181-6 DUP		**WG2941181-5**						
Thallium (Tl)		0.137	0.136		ug/g	0.9	30	28-NOV-18
Uranium (U)		0.883	0.869		ug/g	1.6	30	28-NOV-18
Vanadium (V)		33.9	32.2		ug/g	5.0	30	28-NOV-18
Zinc (Zn)		54.5	49.8		ug/g	8.9	30	28-NOV-18
WG2941181-4 LCS								
Antimony (Sb)			105.9		%		80-120	28-NOV-18
Arsenic (As)			108.2		%		80-120	28-NOV-18
Barium (Ba)			108.4		%		80-120	28-NOV-18
Beryllium (Be)			109.5		%		80-120	28-NOV-18
Boron (B)			103.0		%		80-120	28-NOV-18
Cadmium (Cd)			102.7		%		80-120	28-NOV-18
Chromium (Cr)			104.5		%		80-120	28-NOV-18
Cobalt (Co)			102.1		%		80-120	28-NOV-18
Copper (Cu)			100.8		%		80-120	28-NOV-18
Lead (Pb)			106.3		%		80-120	28-NOV-18
Molybdenum (Mo)			104.8		%		80-120	28-NOV-18
Nickel (Ni)			102.4		%		80-120	28-NOV-18
Selenium (Se)			100.8		%		80-120	28-NOV-18
Silver (Ag)			112.6		%		80-120	28-NOV-18
Thallium (Tl)			102.9		%		80-120	28-NOV-18
Uranium (U)			115.5		%		80-120	28-NOV-18
Vanadium (V)			108.1		%		80-120	28-NOV-18
Zinc (Zn)			100.2		%		80-120	28-NOV-18
WG2941181-1 MB								
Antimony (Sb)			<0.10		mg/kg		0.1	28-NOV-18
Arsenic (As)			<0.10		mg/kg		0.1	28-NOV-18
Barium (Ba)			<0.50		mg/kg		0.5	28-NOV-18
Beryllium (Be)			<0.10		mg/kg		0.1	28-NOV-18
Boron (B)			<5.0		mg/kg		5	28-NOV-18
Cadmium (Cd)			<0.020		mg/kg		0.02	28-NOV-18
Chromium (Cr)			<0.50		mg/kg		0.5	28-NOV-18
Cobalt (Co)			<0.10		mg/kg		0.1	28-NOV-18
Copper (Cu)			<0.50		mg/kg		0.5	28-NOV-18
Lead (Pb)			<0.50		mg/kg		0.5	28-NOV-18

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R4365556								
WG2941181-1 MB								
Molybdenum (Mo)			<0.10		mg/kg		0.1	28-NOV-18
Nickel (Ni)			<0.50		mg/kg		0.5	28-NOV-18
Selenium (Se)			<0.20		mg/kg		0.2	28-NOV-18
Silver (Ag)			<0.10		mg/kg		0.1	28-NOV-18
Thallium (Tl)			<0.050		mg/kg		0.05	28-NOV-18
Uranium (U)			<0.050		mg/kg		0.05	28-NOV-18
Vanadium (V)			<0.20		mg/kg		0.2	28-NOV-18
Zinc (Zn)			<2.0		mg/kg		2	28-NOV-18
Batch R4365617								
WG2942007-2 CRM		**WT-CANMET-TILL1**						
Antimony (Sb)			100.0		%		70-130	29-NOV-18
Arsenic (As)			100.2		%		70-130	29-NOV-18
Barium (Ba)			97.6		%		70-130	29-NOV-18
Beryllium (Be)			95.5		%		70-130	29-NOV-18
Boron (B)			2.7		mg/kg		0-8.2	29-NOV-18
Cadmium (Cd)			92.4		%		70-130	29-NOV-18
Chromium (Cr)			98.8		%		70-130	29-NOV-18
Cobalt (Co)			99.4		%		70-130	29-NOV-18
Copper (Cu)			102.5		%		70-130	29-NOV-18
Lead (Pb)			96.6		%		70-130	29-NOV-18
Molybdenum (Mo)			96.8		%		70-130	29-NOV-18
Nickel (Ni)			100.1		%		70-130	29-NOV-18
Selenium (Se)			0.33		mg/kg		0.11-0.51	29-NOV-18
Silver (Ag)			0.22		mg/kg		0.13-0.33	29-NOV-18
Thallium (Tl)			0.115		mg/kg		0.077-0.18	29-NOV-18
Uranium (U)			88.0		%		70-130	29-NOV-18
Vanadium (V)			99.2		%		70-130	29-NOV-18
Zinc (Zn)			95.9		%		70-130	29-NOV-18
WG2942007-6 DUP		**WG2942007-5**						
Antimony (Sb)		0.14	0.12		ug/g	12	30	29-NOV-18
Arsenic (As)		2.04	2.05		ug/g	0.2	30	29-NOV-18
Barium (Ba)		114	116		ug/g	2.2	40	29-NOV-18
Beryllium (Be)		0.51	0.51		ug/g	0.3	30	29-NOV-18
Boron (B)		6.7	6.6		ug/g	1.7	30	29-NOV-18

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R4365617								
WG2942007-6 DUP		**WG2942007-5**						
Cadmium (Cd)		0.065	0.066		ug/g	1.5	30	29-NOV-18
Chromium (Cr)		23.3	23.0		ug/g	1.1	30	29-NOV-18
Cobalt (Co)		8.53	8.83		ug/g	3.5	30	29-NOV-18
Copper (Cu)		17.9	18.1		ug/g	1.6	30	29-NOV-18
Lead (Pb)		8.62	8.06		ug/g	6.7	40	29-NOV-18
Molybdenum (Mo)		0.18	0.14		ug/g	22	40	29-NOV-18
Nickel (Ni)		16.8	17.3		ug/g	3.0	30	29-NOV-18
Selenium (Se)		<0.20	<0.20	RPD-NA	ug/g	N/A	30	29-NOV-18
Silver (Ag)		<0.10	<0.10	RPD-NA	ug/g	N/A	40	29-NOV-18
Thallium (Tl)		0.139	0.139		ug/g	0.1	30	29-NOV-18
Uranium (U)		0.483	0.489		ug/g	1.1	30	29-NOV-18
Vanadium (V)		39.2	40.3		ug/g	2.6	30	29-NOV-18
Zinc (Zn)		43.6	43.6		ug/g	0.0	30	29-NOV-18
WG2942007-4 LCS								
Antimony (Sb)			100.5		%		80-120	29-NOV-18
Arsenic (As)			98.9		%		80-120	29-NOV-18
Barium (Ba)			105.4		%		80-120	29-NOV-18
Beryllium (Be)			97.8		%		80-120	29-NOV-18
Boron (B)			95.3		%		80-120	29-NOV-18
Cadmium (Cd)			99.99		%		80-120	29-NOV-18
Chromium (Cr)			103.3		%		80-120	29-NOV-18
Cobalt (Co)			100.5		%		80-120	29-NOV-18
Copper (Cu)			99.7		%		80-120	29-NOV-18
Lead (Pb)			98.2		%		80-120	29-NOV-18
Molybdenum (Mo)			95.3		%		80-120	29-NOV-18
Nickel (Ni)			103.1		%		80-120	29-NOV-18
Selenium (Se)			95.0		%		80-120	29-NOV-18
Silver (Ag)			101.8		%		80-120	29-NOV-18
Thallium (Tl)			97.3		%		80-120	29-NOV-18
Uranium (U)			98.0		%		80-120	29-NOV-18
Vanadium (V)			104.9		%		80-120	29-NOV-18
Zinc (Zn)			94.3		%		80-120	29-NOV-18
WG2942007-1 MB								
							0.1	

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R4365617								
WG2942007-1 MB								
Antimony (Sb)			<0.10		mg/kg		0.1	29-NOV-18
Arsenic (As)			<0.10		mg/kg		0.1	29-NOV-18
Barium (Ba)			<0.50		mg/kg		0.5	29-NOV-18
Beryllium (Be)			<0.10		mg/kg		0.1	29-NOV-18
Boron (B)			<5.0		mg/kg		5	29-NOV-18
Cadmium (Cd)			<0.020		mg/kg		0.02	29-NOV-18
Chromium (Cr)			<0.50		mg/kg		0.5	29-NOV-18
Cobalt (Co)			<0.10		mg/kg		0.1	29-NOV-18
Copper (Cu)			<0.50		mg/kg		0.5	29-NOV-18
Lead (Pb)			<0.50		mg/kg		0.5	29-NOV-18
Molybdenum (Mo)			<0.10		mg/kg		0.1	29-NOV-18
Nickel (Ni)			<0.50		mg/kg		0.5	29-NOV-18
Selenium (Se)			<0.20		mg/kg		0.2	29-NOV-18
Silver (Ag)			<0.10		mg/kg		0.1	29-NOV-18
Thallium (Tl)			<0.050		mg/kg		0.05	29-NOV-18
Uranium (U)			<0.050		mg/kg		0.05	29-NOV-18
Vanadium (V)			<0.20		mg/kg		0.2	29-NOV-18
Zinc (Zn)			<2.0		mg/kg		2	29-NOV-18
MOISTURE-WT	**Soil**							
Batch R4360566								
WG2939786-3 DUP		**L2201142-3**						
% Moisture		8.65	8.39		%	3.0	20	27-NOV-18
WG2939786-2 LCS								
% Moisture			99.9		%		90-110	27-NOV-18
WG2939786-1 MB								
% Moisture			<0.10		%		0.1	27-NOV-18
Batch R4360568								
WG2939509-3 DUP		**L2201298-1**						
% Moisture		11.0	11.1		%	0.4	20	27-NOV-18
WG2939509-2 LCS								
% Moisture			99.99		%		90-110	27-NOV-18
WG2939509-1 MB								
% Moisture			<0.10		%		0.1	27-NOV-18

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MOISTURE-WT	**Soil**							
Batch R4361849								
WG2940346-3 DUP		**L2201840-12**						
% Moisture		16.7	16.5		%	1.1	20	28-NOV-18
WG2940346-2 LCS								
% Moisture			101.7		%		90-110	28-NOV-18
WG2940346-1 MB								
% Moisture			<0.10		%		0.1	28-NOV-18
PAH-511-WT	**Soil**							
Batch R4365326								
WG2939103-3 DUP		**WG2939103-5**						
1-Methylnaphthalene		N/A	<0.030	RPD-NA	ug/g	N/A	40	29-NOV-18
2-Methylnaphthalene		N/A	<0.030	RPD-NA	ug/g	N/A	40	29-NOV-18
Acenaphthene		N/A	<0.050	RPD-NA	ug/g	N/A	40	29-NOV-18
Acenaphthylene		N/A	0.201		ug/g	12	40	29-NOV-18
Anthracene		N/A	0.092		ug/g	6.1	40	29-NOV-18
Benzo(a)anthracene		N/A	0.324		ug/g	36	40	29-NOV-18
Benzo(a)pyrene		N/A	0.424		ug/g	18	40	29-NOV-18
Benzo(b)fluoranthene		N/A	0.457		ug/g	13	40	29-NOV-18
Benzo(g,h,i)perylene		N/A	0.387		ug/g	21	40	29-NOV-18
Benzo(k)fluoranthene		N/A	0.450		ug/g	21	40	29-NOV-18
Chrysene		N/A	0.407		ug/g	21	40	29-NOV-18
Dibenzo(ah)anthracene		N/A	0.103		ug/g	29	40	29-NOV-18
Fluoranthene		N/A	0.513		ug/g	5.0	40	29-NOV-18
Fluorene		N/A	<0.050	RPD-NA	ug/g	N/A	40	29-NOV-18
Indeno(1,2,3-cd)pyrene		N/A	0.333		ug/g	10	40	29-NOV-18
Naphthalene		N/A	0.028	DUP-H	ug/g	117	40	29-NOV-18
Phenanthrene		N/A	0.187	DUP-H	ug/g	54	40	29-NOV-18
Pyrene		N/A	0.442		ug/g	6.7	40	29-NOV-18
WG2939103-2 LCS								
1-Methylnaphthalene			85.7		%		50-140	30-NOV-18
2-Methylnaphthalene			86.3		%		50-140	30-NOV-18
Acenaphthene			87.2		%		50-140	30-NOV-18
Acenaphthylene			86.4		%		50-140	30-NOV-18
Anthracene			84.4		%		50-140	30-NOV-18
Benzo(a)anthracene			86.3		%		50-140	30-NOV-18
Benzo(a)pyrene			85.6		%		50-140	30-NOV-18

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R4365326								
WG2939103-2 LCS								
Benzo(b)fluoranthene			79.6		%		50-140	30-NOV-18
Benzo(g,h,i)perylene			79.3		%		50-140	30-NOV-18
Benzo(k)fluoranthene			93.4		%		50-140	30-NOV-18
Chrysene			90.0		%		50-140	30-NOV-18
Dibenzo(ah)anthracene			81.8		%		50-140	30-NOV-18
Fluoranthene			83.9		%		50-140	30-NOV-18
Fluorene			84.6		%		50-140	30-NOV-18
Indeno(1,2,3-cd)pyrene			78.5		%		50-140	30-NOV-18
Naphthalene			84.2		%		50-140	30-NOV-18
Phenanthrene			82.6		%		50-140	30-NOV-18
Pyrene			85.0		%		50-140	30-NOV-18
WG2939103-1 MB								
1-Methylnaphthalene			<0.030		ug/g		0.03	29-NOV-18
2-Methylnaphthalene			<0.030		ug/g		0.03	29-NOV-18
Acenaphthene			<0.050		ug/g		0.05	29-NOV-18
Acenaphthylene			<0.050		ug/g		0.05	29-NOV-18
Anthracene			<0.050		ug/g		0.05	29-NOV-18
Benzo(a)anthracene			<0.050		ug/g		0.05	29-NOV-18
Benzo(a)pyrene			<0.050		ug/g		0.05	29-NOV-18
Benzo(b)fluoranthene			<0.050		ug/g		0.05	29-NOV-18
Benzo(g,h,i)perylene			<0.050		ug/g		0.05	29-NOV-18
Benzo(k)fluoranthene			<0.050		ug/g		0.05	29-NOV-18
Chrysene			<0.050		ug/g		0.05	29-NOV-18
Dibenzo(ah)anthracene			<0.050		ug/g		0.05	29-NOV-18
Fluoranthene			<0.050		ug/g		0.05	29-NOV-18
Fluorene			<0.050		ug/g		0.05	29-NOV-18
Indeno(1,2,3-cd)pyrene			<0.050		ug/g		0.05	29-NOV-18
Naphthalene			<0.013		ug/g		0.013	29-NOV-18
Phenanthrene			<0.046		ug/g		0.046	29-NOV-18
Pyrene			<0.050		ug/g		0.05	29-NOV-18
Surrogate: 2-Fluorobiphenyl			75.1		%		50-140	29-NOV-18
Surrogate: p-Terphenyl d14			73.6		%		50-140	29-NOV-18
WG2939103-4 MS		**WG2939103-5**						
1-Methylnaphthalene			90.0		%		50-140	29-NOV-18

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R4365326								
WG2939103-4 MS		**WG2939103-5**						
2-Methylnaphthalene			90.0		%		50-140	29-NOV-18
Acenaphthene			91.1		%		50-140	29-NOV-18
Acenaphthylene			81.7		%		50-140	29-NOV-18
Anthracene			86.1		%		50-140	29-NOV-18
Benzo(a)anthracene			92.7		%		50-140	29-NOV-18
Benzo(a)pyrene			91.7		%		50-140	29-NOV-18
Benzo(b)fluoranthene			99.0		%		50-140	29-NOV-18
Benzo(g,h,i)perylene			90.1		%		50-140	29-NOV-18
Benzo(k)fluoranthene			80.5		%		50-140	29-NOV-18
Chrysene			93.6		%		50-140	29-NOV-18
Dibenzo(ah)anthracene			93.9		%		50-140	29-NOV-18
Fluoranthene			78.5		%		50-140	29-NOV-18
Fluorene			88.6		%		50-140	29-NOV-18
Indeno(1,2,3-cd)pyrene			82.5		%		50-140	29-NOV-18
Naphthalene			79.8		%		50-140	29-NOV-18
Phenanthrene			70.0		%		50-140	29-NOV-18
Pyrene			84.1		%		50-140	29-NOV-18
PCB-511-WT	**Soil**							
Batch R4366376								
WG2939725-3 DUP		**WG2939725-5**						
Aroclor 1242		<0.010	<0.010	RPD-NA	ug/g	N/A	40	30-NOV-18
Aroclor 1248		<0.010	<0.010	RPD-NA	ug/g	N/A	40	30-NOV-18
Aroclor 1254		<0.010	<0.010	RPD-NA	ug/g	N/A	40	30-NOV-18
Aroclor 1260		<0.010	<0.010	RPD-NA	ug/g	N/A	40	30-NOV-18
WG2939725-2 LCS								
Aroclor 1242			97.2		%		60-140	30-NOV-18
Aroclor 1248			97.2		%		60-140	30-NOV-18
Aroclor 1254			101.7		%		60-140	30-NOV-18
Aroclor 1260			106.1		%		60-140	30-NOV-18
WG2939725-1 MB								
Aroclor 1242			<0.010		ug/g		0.01	30-NOV-18
Aroclor 1248			<0.010		ug/g		0.01	30-NOV-18
Aroclor 1254			<0.010		ug/g		0.01	30-NOV-18
Aroclor 1260			<0.010		ug/g		0.01	30-NOV-18

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PCB-511-WT	**Soil**							
Batch R4366376								
WG2939725-1 MB								
Surrogate: d14-Terphenyl			86.5		%		60-140	30-NOV-18
WG2939725-4 MS		**WG2939725-5**						
Aroclor 1242			96.7		%		60-140	30-NOV-18
Aroclor 1254			106.6		%		60-140	30-NOV-18
Aroclor 1260			115.9		%		60-140	30-NOV-18
PEST-OC-511-WT	**Soil**							
Batch R4366779								
WG2939128-3 DUP		**WG2939128-5**						
Aldrin		<0.040	<0.040	RPD-NA	ug/g	N/A	40	30-NOV-18
a-chlordane		<0.040	<0.040	RPD-NA	ug/g	N/A	40	30-NOV-18
g-chlordane		<0.040	<0.040	RPD-NA	ug/g	N/A	40	30-NOV-18
op-DDD		<0.040	<0.040	RPD-NA	ug/g	N/A	40	30-NOV-18
pp-DDD		<0.040	0.042	RPD-NA	ug/g	N/A	40	30-NOV-18
o,p-DDE		<0.040	<0.040	RPD-NA	ug/g	N/A	40	30-NOV-18
pp-DDE		<0.040	<0.040	RPD-NA	ug/g	N/A	40	30-NOV-18
op-DDT		<0.040	<0.040	RPD-NA	ug/g	N/A	40	30-NOV-18
pp-DDT		<0.040	<0.040	RPD-NA	ug/g	N/A	40	30-NOV-18
Dieldrin		<0.040	<0.040	RPD-NA	ug/g	N/A	40	30-NOV-18
Endosulfan I		<0.070	<0.070	RPD-NA	ug/g	N/A	40	30-NOV-18
Endosulfan II		<0.040	0.051	RPD-NA	ug/g	N/A	40	30-NOV-18
Endrin		<0.040	<0.040	RPD-NA	ug/g	N/A	40	30-NOV-18
gamma-hexachlorocyclohexane		<0.050	0.067	RPD-NA	ug/g	N/A	40	30-NOV-18
Heptachlor		<0.040	<0.040	RPD-NA	ug/g	N/A	40	30-NOV-18
Heptachlor Epoxide		<0.040	<0.040	RPD-NA	ug/g	N/A	40	30-NOV-18
Hexachlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-NOV-18
Hexachlorobutadiene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-NOV-18
Hexachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	30-NOV-18
Methoxychlor		<0.080	<0.080	RPD-NA	ug/g	N/A	40	30-NOV-18
WG2939128-2 LCS								
Aldrin			119.5		%		50-140	30-NOV-18
a-chlordane			101.1		%		50-140	30-NOV-18
g-chlordane			104.1		%		50-140	30-NOV-18
op-DDD			99.8		%		50-140	30-NOV-18

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PEST-OC-511-WT	**Soil**							
Batch R4366779								
WG2939128-2 LCS								
pp-DDD			101.2		%		50-140	30-NOV-18
o,p-DDE			102.8		%		50-140	30-NOV-18
pp-DDE			100.2		%		50-140	30-NOV-18
op-DDT			105.9		%		50-140	30-NOV-18
pp-DDT			109.6		%		50-140	30-NOV-18
Dieldrin			102.4		%		50-140	30-NOV-18
Endosulfan I			106.1		%		50-140	30-NOV-18
Endosulfan II			106.9		%		50-140	30-NOV-18
Endrin			111.3		%		50-140	30-NOV-18
gamma-hexachlorocyclohexane			104.2		%		50-140	30-NOV-18
Heptachlor			107.7		%		50-140	30-NOV-18
Heptachlor Epoxide			106.7		%		50-140	30-NOV-18
Hexachlorobenzene			105.7		%		50-140	30-NOV-18
Hexachlorobutadiene			102.6		%		50-140	30-NOV-18
Hexachloroethane			110.7		%		50-140	30-NOV-18
Methoxychlor			118.4		%		50-140	30-NOV-18
WG2939128-1 MB								
Aldrin			<0.020		ug/g		0.02	30-NOV-18
a-chlordane			<0.020		ug/g		0.02	30-NOV-18
g-chlordane			<0.020		ug/g		0.02	30-NOV-18
op-DDD			<0.020		ug/g		0.02	30-NOV-18
pp-DDD			<0.020		ug/g		0.02	30-NOV-18
o,p-DDE			<0.020		ug/g		0.02	30-NOV-18
pp-DDE			<0.020		ug/g		0.02	30-NOV-18
op-DDT			<0.020		ug/g		0.02	30-NOV-18
pp-DDT			<0.020		ug/g		0.02	30-NOV-18
Dieldrin			<0.020		ug/g		0.02	30-NOV-18
Endosulfan I			<0.020		ug/g		0.02	30-NOV-18
Endosulfan II			<0.020		ug/g		0.02	30-NOV-18
Endrin			<0.020		ug/g		0.02	30-NOV-18
gamma-hexachlorocyclohexane			<0.010		ug/g		0.01	30-NOV-18
Heptachlor			<0.020		ug/g		0.02	30-NOV-18
Heptachlor Epoxide			<0.020		ug/g		0.02	30-NOV-18
Hexachlorobenzene			<0.010		ug/g		0.01	30-NOV-18

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PEST-OC-511-WT	**Soil**							
Batch R4366779								
WG2939128-1 MB								
Hexachlorobutadiene			<0.010		ug/g		0.01	30-NOV-18
Hexachloroethane			<0.010		ug/g		0.01	30-NOV-18
Methoxychlor			<0.020		ug/g		0.02	30-NOV-18
Surrogate: 2-Fluorobiphenyl			106.0		%		50-140	30-NOV-18
Surrogate: d14-Terphenyl			100.1		%		50-140	30-NOV-18
WG2939128-4 MS		**WG2939128-5**						
Aldrin			118.4		%		50-140	30-NOV-18
a-chlordane			93.1		%		50-140	30-NOV-18
g-chlordane			96.2		%		50-140	30-NOV-18
op-DDD			96.8		%		50-140	30-NOV-18
pp-DDD			103.7		%		50-140	30-NOV-18
o,p-DDE			98.5		%		50-140	30-NOV-18
pp-DDE			102.8		%		50-140	30-NOV-18
op-DDT			103.9		%		50-140	30-NOV-18
pp-DDT			92.6		%		50-140	30-NOV-18
Dieldrin			94.9		%		50-140	30-NOV-18
Endosulfan I			105.8		%		50-140	30-NOV-18
Endosulfan II			104.7		%		50-140	30-NOV-18
Endrin			116.5		%		50-140	30-NOV-18
gamma-hexachlorocyclohexane			110.4		%		50-140	30-NOV-18
Heptachlor			123.6		%		50-140	30-NOV-18
Heptachlor Epoxide			92.5		%		50-140	30-NOV-18
Hexachlorobenzene			102.5		%		50-140	30-NOV-18
Hexachlorobutadiene			97.6		%		50-140	30-NOV-18
Hexachloroethane			103.4		%		50-140	30-NOV-18
Methoxychlor			137.8		%		50-140	30-NOV-18
PH-WT	**Soil**							
Batch R4363659								
WG2939429-1 DUP		**L2201300-1**						
pH		7.61	7.58	J	pH units	0.03	0.3	27-NOV-18
WG2940204-1 LCS								
pH			6.96		pH units		6.9-7.1	27-NOV-18

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PH-WT	**Soil**							
Batch R4363667								
WG2940029-1 DUP		**L2201711-3**						
pH		8.02	8.06	J	pH units	0.04	0.3	27-NOV-18
WG2940201-1 LCS								
pH			6.97		pH units		6.9-7.1	27-NOV-18
SAR-R511-WT	**Soil**							
Batch R4365266								
WG2941458-4 DUP		**WG2941458-3**						
Calcium (Ca)		14.6	15.2		mg/L	3.5	30	28-NOV-18
Sodium (Na)		55.7	56.0		mg/L	0.6	30	28-NOV-18
Magnesium (Mg)		4.4	4.6		mg/L	4.1	30	28-NOV-18
WG2941458-2 IRM		**WT SAR2**						
Calcium (Ca)			82.7		%		70-130	28-NOV-18
Sodium (Na)			94.2		%		70-130	28-NOV-18
Magnesium (Mg)			87.3		%		70-130	28-NOV-18
WG2941458-1 MB								
Calcium (Ca)			<1.0		mg/L		1	28-NOV-18
Sodium (Na)			<1.0		mg/L		1	28-NOV-18
Magnesium (Mg)			<1.0		mg/L		1	28-NOV-18
Batch R4365836								
WG2942090-4 DUP		**WG2942090-3**						
Calcium (Ca)		26.7	27.2		mg/L	1.9	30	29-NOV-18
Sodium (Na)		174	174		mg/L	0.2	30	29-NOV-18
Magnesium (Mg)		5.8	5.9		mg/L	1.2	30	29-NOV-18
WG2942090-2 IRM		**WT SAR2**						
Calcium (Ca)			97.9		%		70-130	29-NOV-18
Sodium (Na)			100.6		%		70-130	29-NOV-18
Magnesium (Mg)			99.1		%		70-130	29-NOV-18
WG2942090-1 MB								
Calcium (Ca)			<1.0		mg/L		1	29-NOV-18
Sodium (Na)			<1.0		mg/L		1	29-NOV-18
Magnesium (Mg)			<1.0		mg/L		1	29-NOV-18
VOC-511-HS-WT	**Soil**							
Batch R4364115								
WG2940519-10 DUP		**WG2940519-9**						
1,1,1,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-NOV-18
1,1,2,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-NOV-18

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4364115								
WG2940519-10 DUP		**WG2940519-9**						
1,1,1-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-NOV-18
1,1,2-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-NOV-18
1,1-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-NOV-18
1,1-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-NOV-18
1,2-Dibromoethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-NOV-18
1,2-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-NOV-18
1,2-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-NOV-18
1,2-Dichloropropane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-NOV-18
1,3-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-NOV-18
1,4-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-NOV-18
Acetone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	28-NOV-18
Benzene		<0.0068	<0.0068	RPD-NA	ug/g	N/A	40	28-NOV-18
Bromodichloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-NOV-18
Bromoform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-NOV-18
Bromomethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-NOV-18
Carbon tetrachloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-NOV-18
Chlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-NOV-18
Chloroform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-NOV-18
cis-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-NOV-18
cis-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	28-NOV-18
Dibromochloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-NOV-18
Dichlorodifluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-NOV-18
Ethylbenzene		<0.018	<0.018	RPD-NA	ug/g	N/A	40	28-NOV-18
n-Hexane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-NOV-18
Methylene Chloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-NOV-18
MTBE		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-NOV-18
m+p-Xylenes		<0.030	<0.030	RPD-NA	ug/g	N/A	40	28-NOV-18
Methyl Ethyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	28-NOV-18
Methyl Isobutyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	28-NOV-18
o-Xylene		<0.020	<0.020	RPD-NA	ug/g	N/A	40	28-NOV-18
Styrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-NOV-18
Tetrachloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-NOV-18
Toluene		<0.080	<0.080		ug/g			28-NOV-18

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4364115								
WG2940519-10 DUP		**WG2940519-9**						
Toluene		<0.080	<0.080	RPD-NA	ug/g	N/A	40	28-NOV-18
trans-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-NOV-18
trans-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	28-NOV-18
Trichloroethylene		<0.010	<0.010	RPD-NA	ug/g	N/A	40	28-NOV-18
Trichlorofluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-NOV-18
Vinyl chloride		<0.020	<0.020	RPD-NA	ug/g	N/A	40	28-NOV-18
WG2940519-8 LCS								
1,1,1,2-Tetrachloroethane			116.8		%		60-130	28-NOV-18
1,1,2,2-Tetrachloroethane			116.2		%		60-130	28-NOV-18
1,1,1-Trichloroethane			119.2		%		60-130	28-NOV-18
1,1,2-Trichloroethane			117.3		%		60-130	28-NOV-18
1,1-Dichloroethane			121.7		%		60-130	28-NOV-18
1,1-Dichloroethylene			113.8		%		60-130	28-NOV-18
1,2-Dibromoethane			115.0		%		70-130	28-NOV-18
1,2-Dichlorobenzene			124.8		%		70-130	28-NOV-18
1,2-Dichloroethane			115.7		%		60-130	28-NOV-18
1,2-Dichloropropane			119.2		%		70-130	28-NOV-18
1,3-Dichlorobenzene			126.7		%		70-130	28-NOV-18
1,4-Dichlorobenzene			125.5		%		70-130	28-NOV-18
Acetone			121.9		%		60-140	28-NOV-18
Benzene			122.9		%		70-130	28-NOV-18
Bromodichloromethane			117.4		%		50-140	28-NOV-18
Bromoform			107.5		%		70-130	28-NOV-18
Bromomethane			125.3		%		50-140	28-NOV-18
Carbon tetrachloride			118.2		%		70-130	28-NOV-18
Chlorobenzene			122.0		%		70-130	28-NOV-18
Chloroform			118.7		%		70-130	28-NOV-18
cis-1,2-Dichloroethylene			118.0		%		70-130	28-NOV-18
cis-1,3-Dichloropropene			118.2		%		70-130	28-NOV-18
Dibromochloromethane			113.0		%		60-130	28-NOV-18
Dichlorodifluoromethane			87.1		%		50-140	28-NOV-18
Ethylbenzene			119.2		%		70-130	28-NOV-18
n-Hexane			108.4		%		70-130	28-NOV-18

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4364115								
WG2940519-8 LCS								
Methylene Chloride			118.6		%		70-130	28-NOV-18
MTBE			131.4	MES	%		70-130	28-NOV-18
m+p-Xylenes			119.4		%		70-130	28-NOV-18
Methyl Ethyl Ketone			121.6		%		60-140	28-NOV-18
Methyl Isobutyl Ketone			118.4		%		60-140	28-NOV-18
o-Xylene			117.0		%		70-130	28-NOV-18
Styrene			118.0		%		70-130	28-NOV-18
Tetrachloroethylene			117.0		%		60-130	28-NOV-18
Toluene			119.2		%		70-130	28-NOV-18
trans-1,2-Dichloroethylene			118.7		%		60-130	28-NOV-18
trans-1,3-Dichloropropene			113.5		%		70-130	28-NOV-18
Trichloroethylene			123.7		%		60-130	28-NOV-18
Trichlorofluoromethane			116.2		%		50-140	28-NOV-18
Vinyl chloride			89.5		%		60-140	28-NOV-18
WG2940519-7 MB								
1,1,1,2-Tetrachloroethane			<0.050		ug/g		0.05	28-NOV-18
1,1,2,2-Tetrachloroethane			<0.050		ug/g		0.05	28-NOV-18
1,1,1-Trichloroethane			<0.050		ug/g		0.05	28-NOV-18
1,1,2-Trichloroethane			<0.050		ug/g		0.05	28-NOV-18
1,1-Dichloroethane			<0.050		ug/g		0.05	28-NOV-18
1,1-Dichloroethylene			<0.050		ug/g		0.05	28-NOV-18
1,2-Dibromoethane			<0.050		ug/g		0.05	28-NOV-18
1,2-Dichlorobenzene			<0.050		ug/g		0.05	28-NOV-18
1,2-Dichloroethane			<0.050		ug/g		0.05	28-NOV-18
1,2-Dichloropropane			<0.050		ug/g		0.05	28-NOV-18
1,3-Dichlorobenzene			<0.050		ug/g		0.05	28-NOV-18
1,4-Dichlorobenzene			<0.050		ug/g		0.05	28-NOV-18
Acetone			<0.50		ug/g		0.5	28-NOV-18
Benzene			<0.0068		ug/g		0.0068	28-NOV-18
Bromodichloromethane			<0.050		ug/g		0.05	28-NOV-18
Bromoform			<0.050		ug/g		0.05	28-NOV-18
Bromomethane			<0.050		ug/g		0.05	28-NOV-18
Carbon tetrachloride			<0.050		ug/g		0.05	28-NOV-18
Chlorobenzene			<0.050		ug/g		0.05	28-NOV-18

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4364115								
WG2940519-7 MB								
Chloroform			<0.050		ug/g		0.05	28-NOV-18
cis-1,2-Dichloroethylene			<0.050		ug/g		0.05	28-NOV-18
cis-1,3-Dichloropropene			<0.030		ug/g		0.03	28-NOV-18
Dibromochloromethane			<0.050		ug/g		0.05	28-NOV-18
Dichlorodifluoromethane			<0.050		ug/g		0.05	28-NOV-18
Ethylbenzene			<0.018		ug/g		0.018	28-NOV-18
n-Hexane			<0.050		ug/g		0.05	28-NOV-18
Methylene Chloride			<0.050		ug/g		0.05	28-NOV-18
MTBE			<0.050		ug/g		0.05	28-NOV-18
m+p-Xylenes			<0.030		ug/g		0.03	28-NOV-18
Methyl Ethyl Ketone			<0.50		ug/g		0.5	28-NOV-18
Methyl Isobutyl Ketone			<0.50		ug/g		0.5	28-NOV-18
o-Xylene			<0.020		ug/g		0.02	28-NOV-18
Styrene			<0.050		ug/g		0.05	28-NOV-18
Tetrachloroethylene			<0.050		ug/g		0.05	28-NOV-18
Toluene			<0.080		ug/g		0.08	28-NOV-18
trans-1,2-Dichloroethylene			<0.050		ug/g		0.05	28-NOV-18
trans-1,3-Dichloropropene			<0.030		ug/g		0.03	28-NOV-18
Trichloroethylene			<0.010		ug/g		0.01	28-NOV-18
Trichlorofluoromethane			<0.050		ug/g		0.05	28-NOV-18
Vinyl chloride			<0.020		ug/g		0.02	28-NOV-18
Surrogate: 1,4-Difluorobenzene			129.3		%		50-140	28-NOV-18
Surrogate: 4-Bromofluorobenzene			117.2		%		50-140	28-NOV-18
WG2940519-11 MS		**L2201614-4**						
1,1,1,2-Tetrachloroethane			121.9		%		50-140	28-NOV-18
1,1,2,2-Tetrachloroethane			124.3		%		50-140	28-NOV-18
1,1,1-Trichloroethane			121.7		%		50-140	28-NOV-18
1,1,2-Trichloroethane			123.7		%		50-140	28-NOV-18
1,1-Dichloroethane			125.8		%		50-140	28-NOV-18
1,1-Dichloroethylene			114.7		%		50-140	28-NOV-18
1,2-Dibromoethane			121.9		%		50-140	28-NOV-18
1,2-Dichlorobenzene			126.4		%		50-140	28-NOV-18
1,2-Dichloroethane			121.4		%		50-140	28-NOV-18
1,2-Dichloropropane			123.8		%		50-140	28-NOV-18

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4364115								
WG2940519-11 MS		**L2201614-4**						
1,3-Dichlorobenzene			127.2		%		50-140	28-NOV-18
1,4-Dichlorobenzene			126.5		%		50-140	28-NOV-18
Acetone			130.7		%		50-140	28-NOV-18
Benzene			126.9		%		50-140	28-NOV-18
Bromodichloromethane			122.7		%		50-140	28-NOV-18
Bromoform			113.6		%		50-140	28-NOV-18
Bromomethane			122.7		%		50-140	28-NOV-18
Carbon tetrachloride			120.4		%		50-140	28-NOV-18
Chlorobenzene			126.3		%		50-140	28-NOV-18
Chloroform			123.4		%		50-140	28-NOV-18
cis-1,2-Dichloroethylene			121.6		%		50-140	28-NOV-18
cis-1,3-Dichloropropene			118.9		%		50-140	28-NOV-18
Dibromochloromethane			119.2		%		50-140	28-NOV-18
Dichlorodifluoromethane			77.1		%		50-140	28-NOV-18
Ethylbenzene			122.3		%		50-140	28-NOV-18
n-Hexane			107.9		%		50-140	28-NOV-18
Methylene Chloride			123.7		%		50-140	28-NOV-18
MTBE			134.9		%		50-140	28-NOV-18
m+p-Xylenes			122.1		%		50-140	28-NOV-18
Methyl Ethyl Ketone			129.2		%		50-140	28-NOV-18
Methyl Isobutyl Ketone			126.1		%		50-140	28-NOV-18
o-Xylene			120.4		%		50-140	28-NOV-18
Styrene			121.4		%		50-140	28-NOV-18
Tetrachloroethylene			118.3		%		50-140	28-NOV-18
Toluene			123.1		%		50-140	28-NOV-18
trans-1,2-Dichloroethylene			120.6		%		50-140	28-NOV-18
trans-1,3-Dichloropropene			114.1		%		50-140	28-NOV-18
Trichloroethylene			126.6		%		50-140	28-NOV-18
Trichlorofluoromethane			115.7		%		50-140	28-NOV-18
Vinyl chloride			87.0		%		50-140	28-NOV-18
Batch R4365235								
WG2939611-4 DUP		**WG2939611-3**						
1,1,1,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-NOV-18
1,1,2,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-NOV-18

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4365235								
WG2939611-4 DUP		**WG2939611-3**						
1,1,1-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-NOV-18
1,1,2-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-NOV-18
1,1-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-NOV-18
1,1-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-NOV-18
1,2-Dibromoethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-NOV-18
1,2-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-NOV-18
1,2-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-NOV-18
1,2-Dichloropropane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-NOV-18
1,3-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-NOV-18
1,4-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-NOV-18
Acetone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	29-NOV-18
Benzene		<0.0068	<0.0068	RPD-NA	ug/g	N/A	40	29-NOV-18
Bromodichloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-NOV-18
Bromoform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-NOV-18
Bromomethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-NOV-18
Carbon tetrachloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-NOV-18
Chlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-NOV-18
Chloroform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-NOV-18
cis-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-NOV-18
cis-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	29-NOV-18
Dibromochloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-NOV-18
Dichlorodifluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-NOV-18
Ethylbenzene		<0.018	<0.018	RPD-NA	ug/g	N/A	40	29-NOV-18
n-Hexane		<0.090	<0.090	RPD-NA	ug/g	N/A	40	29-NOV-18
Methylene Chloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-NOV-18
MTBE		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-NOV-18
m+p-Xylenes		<0.030	<0.030	RPD-NA	ug/g	N/A	40	29-NOV-18
Methyl Ethyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	29-NOV-18
Methyl Isobutyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	29-NOV-18
o-Xylene		<0.020	<0.020	RPD-NA	ug/g	N/A	40	29-NOV-18
Styrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-NOV-18
Tetrachloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-NOV-18
Toluene		<0.080	<0.080		ug/g			29-NOV-18

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4365235								
WG2939611-4 DUP		**WG2939611-3**						
Toluene		<0.080	<0.080	RPD-NA	ug/g	N/A	40	29-NOV-18
trans-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-NOV-18
trans-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	29-NOV-18
Trichloroethylene		<0.010	<0.010	RPD-NA	ug/g	N/A	40	29-NOV-18
Trichlorofluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-NOV-18
Vinyl chloride		<0.020	<0.020	RPD-NA	ug/g	N/A	40	29-NOV-18
WG2939611-2 LCS								
1,1,1,2-Tetrachloroethane			114.0		%		60-130	29-NOV-18
1,1,2,2-Tetrachloroethane			120.4		%		60-130	29-NOV-18
1,1,1-Trichloroethane			111.3		%		60-130	29-NOV-18
1,1,2-Trichloroethane			124.6		%		60-130	29-NOV-18
1,1-Dichloroethane			118.5		%		60-130	29-NOV-18
1,1-Dichloroethylene			103.5		%		60-130	29-NOV-18
1,2-Dibromoethane			126.6		%		70-130	29-NOV-18
1,2-Dichlorobenzene			122.5		%		70-130	29-NOV-18
1,2-Dichloroethane			126.7		%		60-130	29-NOV-18
1,2-Dichloropropane			120.0		%		70-130	29-NOV-18
1,3-Dichlorobenzene			124.1		%		70-130	29-NOV-18
1,4-Dichlorobenzene			124.5		%		70-130	29-NOV-18
Acetone			139.7		%		60-140	29-NOV-18
Benzene			119.8		%		70-130	29-NOV-18
Bromodichloromethane			120.3		%		50-140	29-NOV-18
Bromoform			113.0		%		70-130	29-NOV-18
Bromomethane			123.3		%		50-140	29-NOV-18
Carbon tetrachloride			109.0		%		70-130	29-NOV-18
Chlorobenzene			119.7		%		70-130	29-NOV-18
Chloroform			117.9		%		70-130	29-NOV-18
cis-1,2-Dichloroethylene			117.9		%		70-130	29-NOV-18
cis-1,3-Dichloropropene			125.2		%		70-130	29-NOV-18
Dibromochloromethane			116.9		%		60-130	29-NOV-18
Dichlorodifluoromethane			65.4		%		50-140	29-NOV-18
Ethylbenzene			111.7		%		70-130	29-NOV-18
n-Hexane			95.8		%		70-130	29-NOV-18

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4365235								
WG2939611-2 LCS								
Methylene Chloride			123.7		%		70-130	29-NOV-18
MTBE			128.6		%		70-130	29-NOV-18
m+p-Xylenes			112.7		%		70-130	29-NOV-18
Methyl Ethyl Ketone			149.2	MES	%		60-140	29-NOV-18
Methyl Isobutyl Ketone			131.2		%		60-140	29-NOV-18
o-Xylene			110.8		%		70-130	29-NOV-18
Styrene			114.4		%		70-130	29-NOV-18
Tetrachloroethylene			110.0		%		60-130	29-NOV-18
Toluene			113.2		%		70-130	29-NOV-18
trans-1,2-Dichloroethylene			114.2		%		60-130	29-NOV-18
trans-1,3-Dichloropropene			122.9		%		70-130	29-NOV-18
Trichloroethylene			119.4		%		60-130	29-NOV-18
Trichlorofluoromethane			103.7		%		50-140	29-NOV-18
Vinyl chloride			79.3		%		60-140	29-NOV-18
WG2939611-1 MB								
1,1,1,2-Tetrachloroethane			<0.050		ug/g		0.05	29-NOV-18
1,1,2,2-Tetrachloroethane			<0.050		ug/g		0.05	29-NOV-18
1,1,1-Trichloroethane			<0.050		ug/g		0.05	29-NOV-18
1,1,2-Trichloroethane			<0.050		ug/g		0.05	29-NOV-18
1,1-Dichloroethane			<0.050		ug/g		0.05	29-NOV-18
1,1-Dichloroethylene			<0.050		ug/g		0.05	29-NOV-18
1,2-Dibromoethane			<0.050		ug/g		0.05	29-NOV-18
1,2-Dichlorobenzene			<0.050		ug/g		0.05	29-NOV-18
1,2-Dichloroethane			<0.050		ug/g		0.05	29-NOV-18
1,2-Dichloropropane			<0.050		ug/g		0.05	29-NOV-18
1,3-Dichlorobenzene			<0.050		ug/g		0.05	29-NOV-18
1,4-Dichlorobenzene			<0.050		ug/g		0.05	29-NOV-18
Acetone			<0.50		ug/g		0.5	29-NOV-18
Benzene			<0.0068		ug/g		0.0068	29-NOV-18
Bromodichloromethane			<0.050		ug/g		0.05	29-NOV-18
Bromoform			<0.050		ug/g		0.05	29-NOV-18
Bromomethane			<0.050		ug/g		0.05	29-NOV-18
Carbon tetrachloride			<0.050		ug/g		0.05	29-NOV-18
Chlorobenzene			<0.050		ug/g		0.05	29-NOV-18

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4365235								
WG2939611-1 MB								
Chloroform			<0.050		ug/g		0.05	29-NOV-18
cis-1,2-Dichloroethylene			<0.050		ug/g		0.05	29-NOV-18
cis-1,3-Dichloropropene			<0.030		ug/g		0.03	29-NOV-18
Dibromochloromethane			<0.050		ug/g		0.05	29-NOV-18
Dichlorodifluoromethane			<0.050		ug/g		0.05	29-NOV-18
Ethylbenzene			<0.018		ug/g		0.018	29-NOV-18
n-Hexane			<0.050		ug/g		0.05	29-NOV-18
Methylene Chloride			<0.050		ug/g		0.05	29-NOV-18
MTBE			<0.050		ug/g		0.05	29-NOV-18
m+p-Xylenes			<0.030		ug/g		0.03	29-NOV-18
Methyl Ethyl Ketone			<0.50		ug/g		0.5	29-NOV-18
Methyl Isobutyl Ketone			<0.50		ug/g		0.5	29-NOV-18
o-Xylene			<0.020		ug/g		0.02	29-NOV-18
Styrene			<0.050		ug/g		0.05	29-NOV-18
Tetrachloroethylene			<0.050		ug/g		0.05	29-NOV-18
Toluene			<0.080		ug/g		0.08	29-NOV-18
trans-1,2-Dichloroethylene			<0.050		ug/g		0.05	29-NOV-18
trans-1,3-Dichloropropene			<0.030		ug/g		0.03	29-NOV-18
Trichloroethylene			<0.010		ug/g		0.01	29-NOV-18
Trichlorofluoromethane			<0.050		ug/g		0.05	29-NOV-18
Vinyl chloride			<0.020		ug/g		0.02	29-NOV-18
Surrogate: 1,4-Difluorobenzene			116.5		%		50-140	29-NOV-18
Surrogate: 4-Bromofluorobenzene			105.3		%		50-140	29-NOV-18
WG2939611-5 MS		**L2201260-3**						
1,1,1,2-Tetrachloroethane			128.4		%		50-140	30-NOV-18
1,1,2,2-Tetrachloroethane			132.6		%		50-140	30-NOV-18
1,1,1-Trichloroethane			134.3		%		50-140	30-NOV-18
1,1,2-Trichloroethane			128.0		%		50-140	30-NOV-18
1,1-Dichloroethane			133.3		%		50-140	30-NOV-18
1,1-Dichloroethylene			130.1		%		50-140	30-NOV-18
1,2-Dibromoethane			122.9		%		50-140	30-NOV-18
1,2-Dichlorobenzene			142.4	MES	%		50-140	30-NOV-18
1,2-Dichloroethane			128.7		%		50-140	30-NOV-18
1,2-Dichloropropane			135.4		%		50-140	30-NOV-18

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4365235								
WG2939611-5 MS		**L2201260-3**						
1,3-Dichlorobenzene			147.0	MES	%		50-140	30-NOV-18
1,4-Dichlorobenzene			145.4	MES	%		50-140	30-NOV-18
Acetone			116.3		%		50-140	30-NOV-18
Benzene			142.7	MES	%		50-140	30-NOV-18
Bromodichloromethane			129.8		%		50-140	30-NOV-18
Bromoform			111.4		%		50-140	30-NOV-18
Bromomethane			141.3	MES	%		50-140	30-NOV-18
Carbon tetrachloride			133.3		%		50-140	30-NOV-18
Chlorobenzene			137.7		%		50-140	30-NOV-18
Chloroform			134.3		%		50-140	30-NOV-18
cis-1,2-Dichloroethylene			135.2		%		50-140	30-NOV-18
cis-1,3-Dichloropropene			126.7		%		50-140	30-NOV-18
Dibromochloromethane			119.8		%		50-140	30-NOV-18
Dichlorodifluoromethane			89.0		%		50-140	30-NOV-18
Ethylbenzene			139.7		%		50-140	30-NOV-18
n-Hexane			127.0		%		50-140	30-NOV-18
Methylene Chloride			130.9		%		50-140	30-NOV-18
MTBE			148.0	MES	%		50-140	30-NOV-18
m+p-Xylenes			138.6		%		50-140	30-NOV-18
Methyl Ethyl Ketone			117.5		%		50-140	30-NOV-18
Methyl Isobutyl Ketone			125.3		%		50-140	30-NOV-18
o-Xylene			133.9		%		50-140	30-NOV-18
Styrene			133.9		%		50-140	30-NOV-18
Tetrachloroethylene			141.8	MES	%		50-140	30-NOV-18
Toluene			139.6		%		50-140	30-NOV-18
trans-1,2-Dichloroethylene			136.9		%		50-140	30-NOV-18
trans-1,3-Dichloropropene			116.9		%		50-140	30-NOV-18
Trichloroethylene			142.3	MES	%		50-140	30-NOV-18
Trichlorofluoromethane			129.5		%		50-140	30-NOV-18
Vinyl chloride			104.4		%		50-140	30-NOV-18

Quality Control Report

Workorder: L2201309 Report Date: 14-DEC-18

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
DUP-H	Duplicate results outside ALS DQO, due to sample heterogeneity.
J	Duplicate results and limits are expressed in terms of absolute difference.
MES	Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

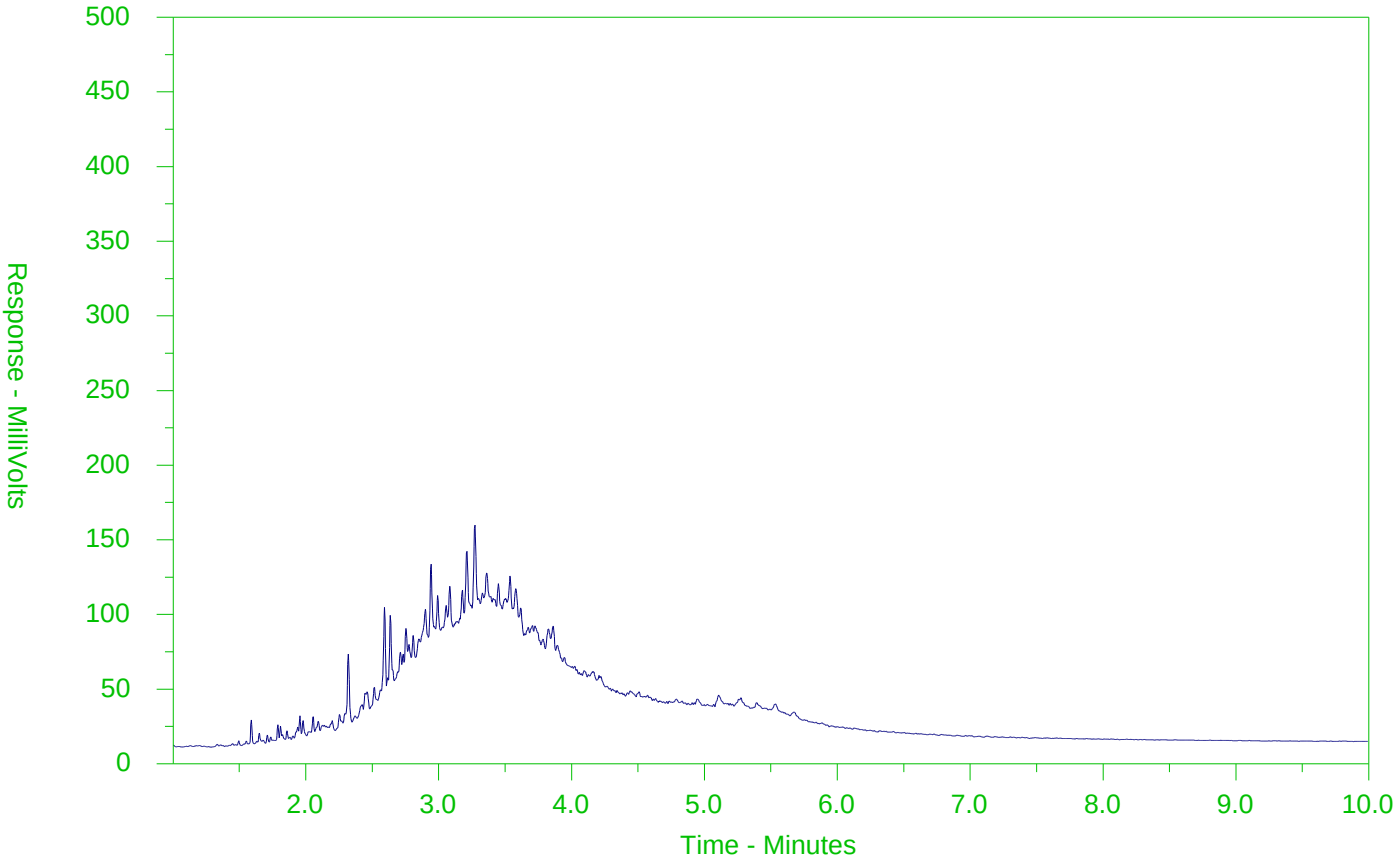
ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2201309-1
Client Sample ID: S-11102463-112218-SM-BH18-464-2.5-4.5



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

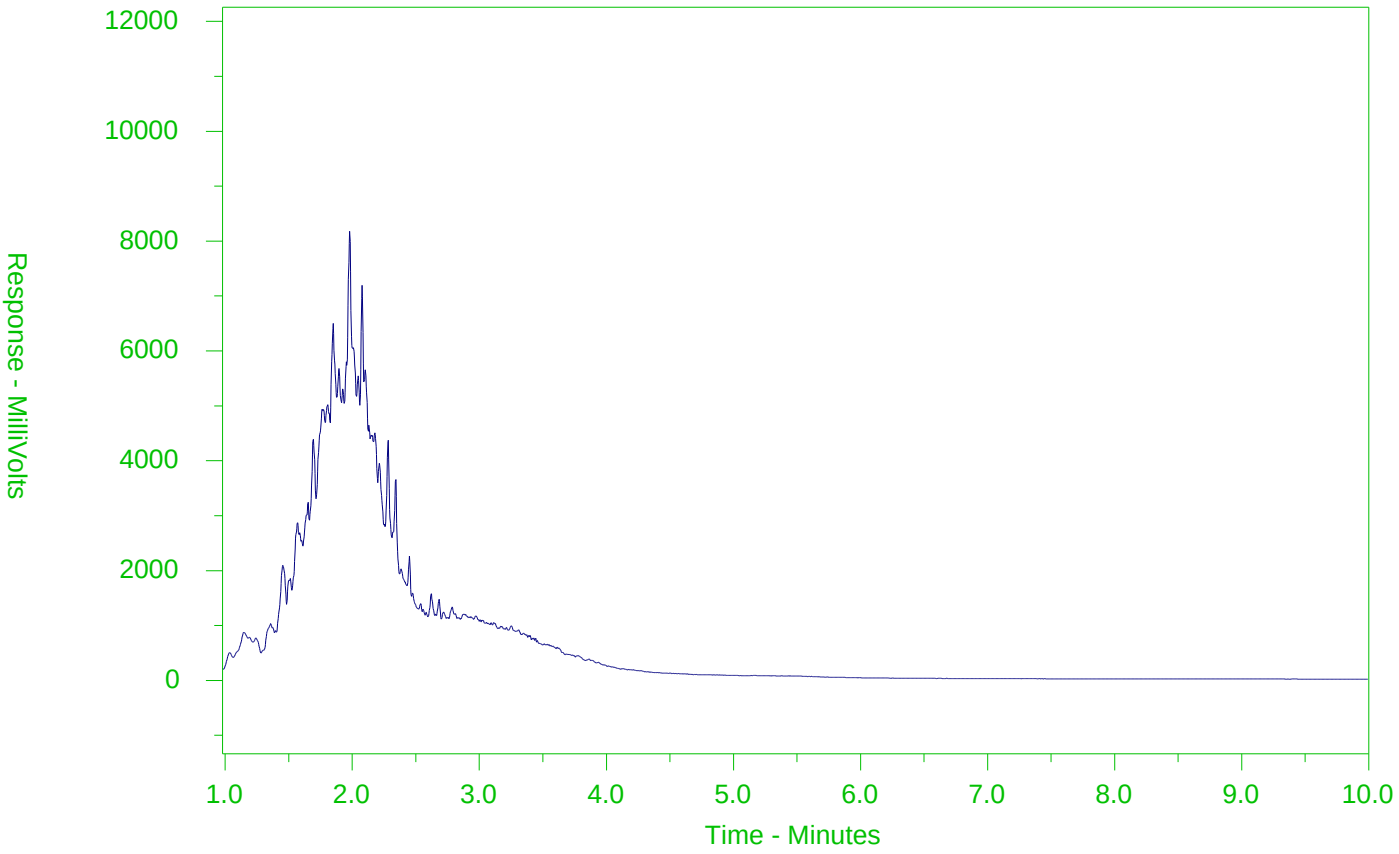
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2201309-2
Client Sample ID: S-11102463-112218-SM-BH18-464-12.5-14.5



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

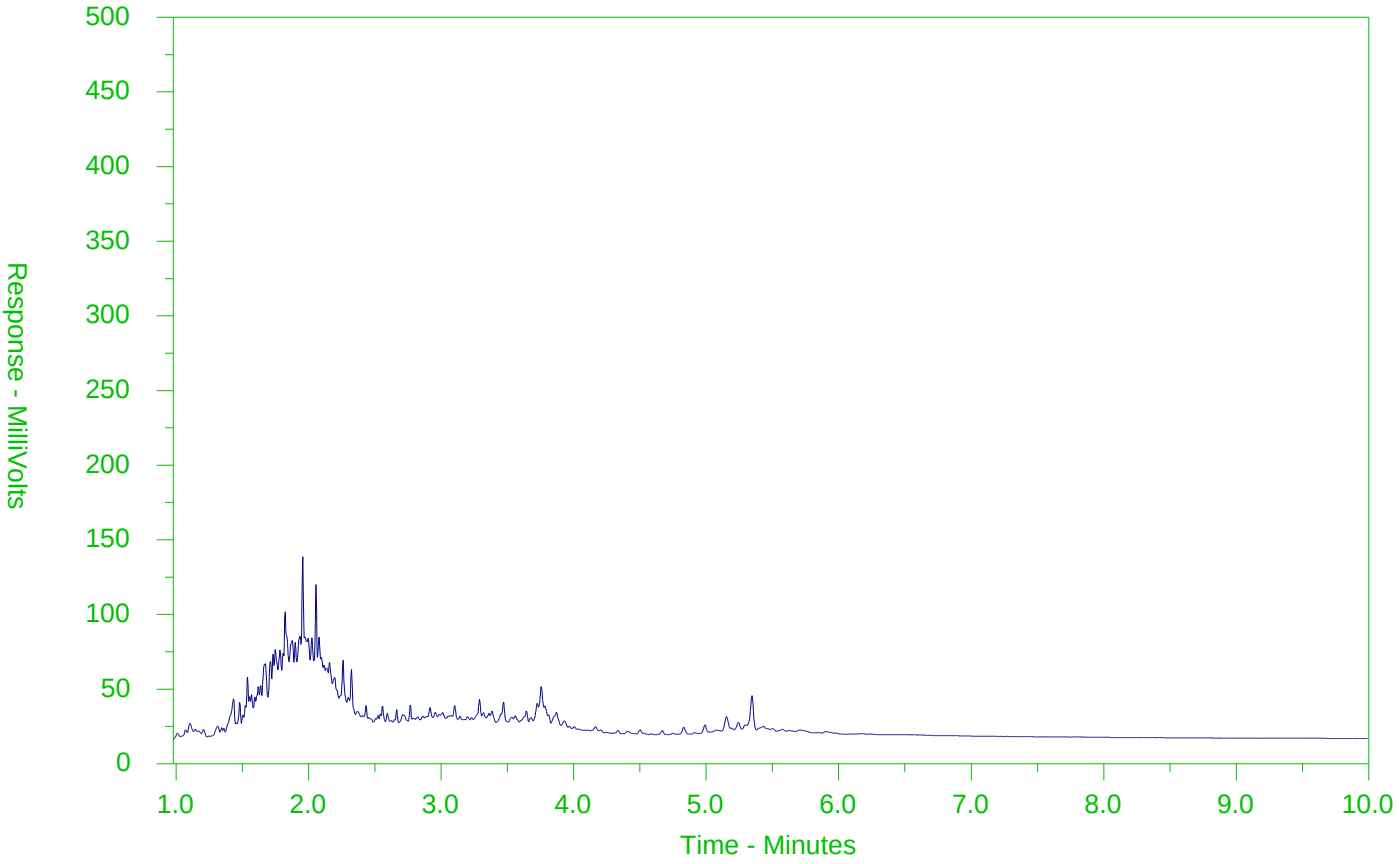
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2201309-3
Client Sample ID: S-11102463-112218-SM-BH18-464-20-22



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

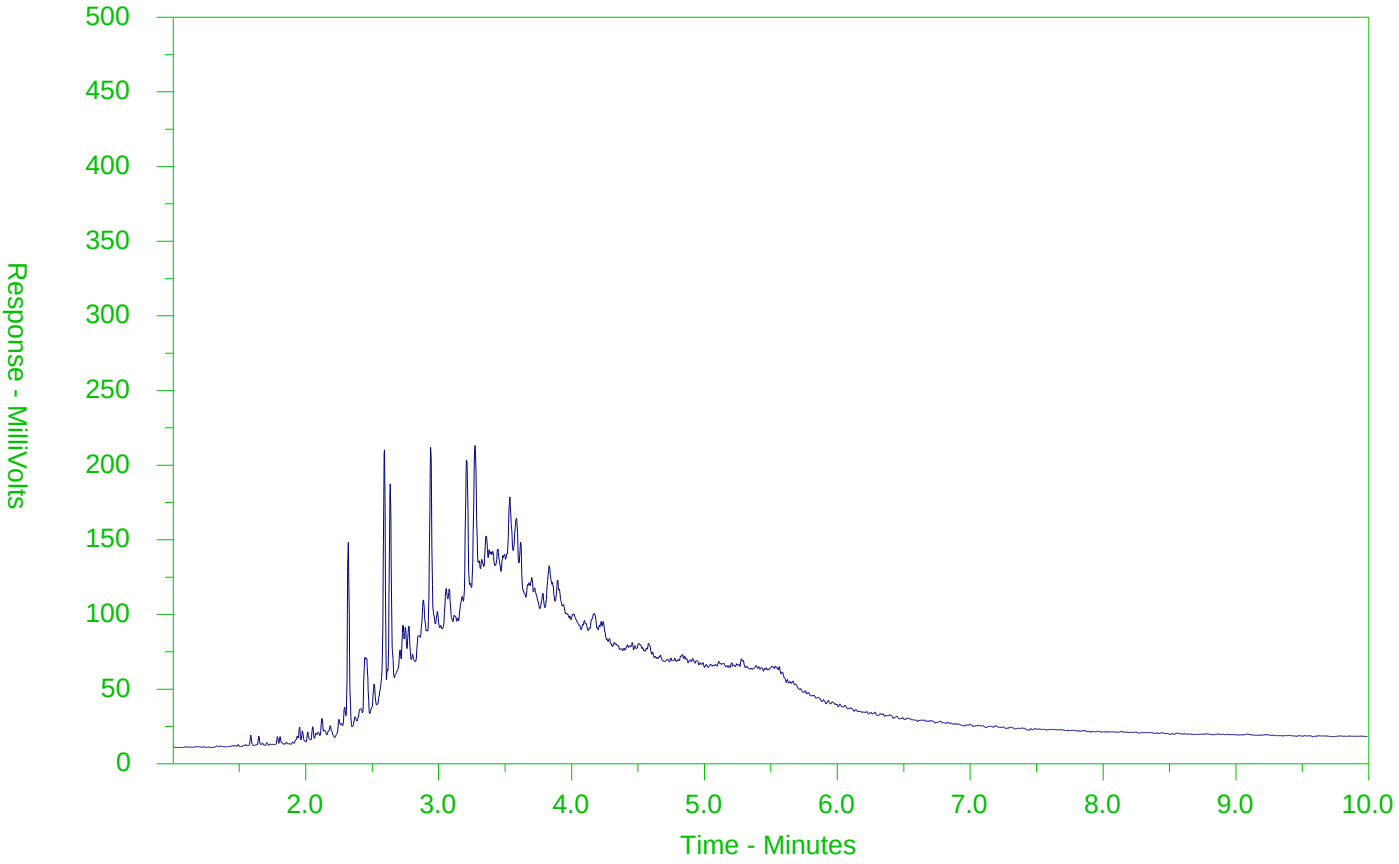
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2201309-6
Client Sample ID: S-11102463-112218-SM-BH18-466-0-2



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →	← Motor Oils/Lube Oils/Grease →		
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

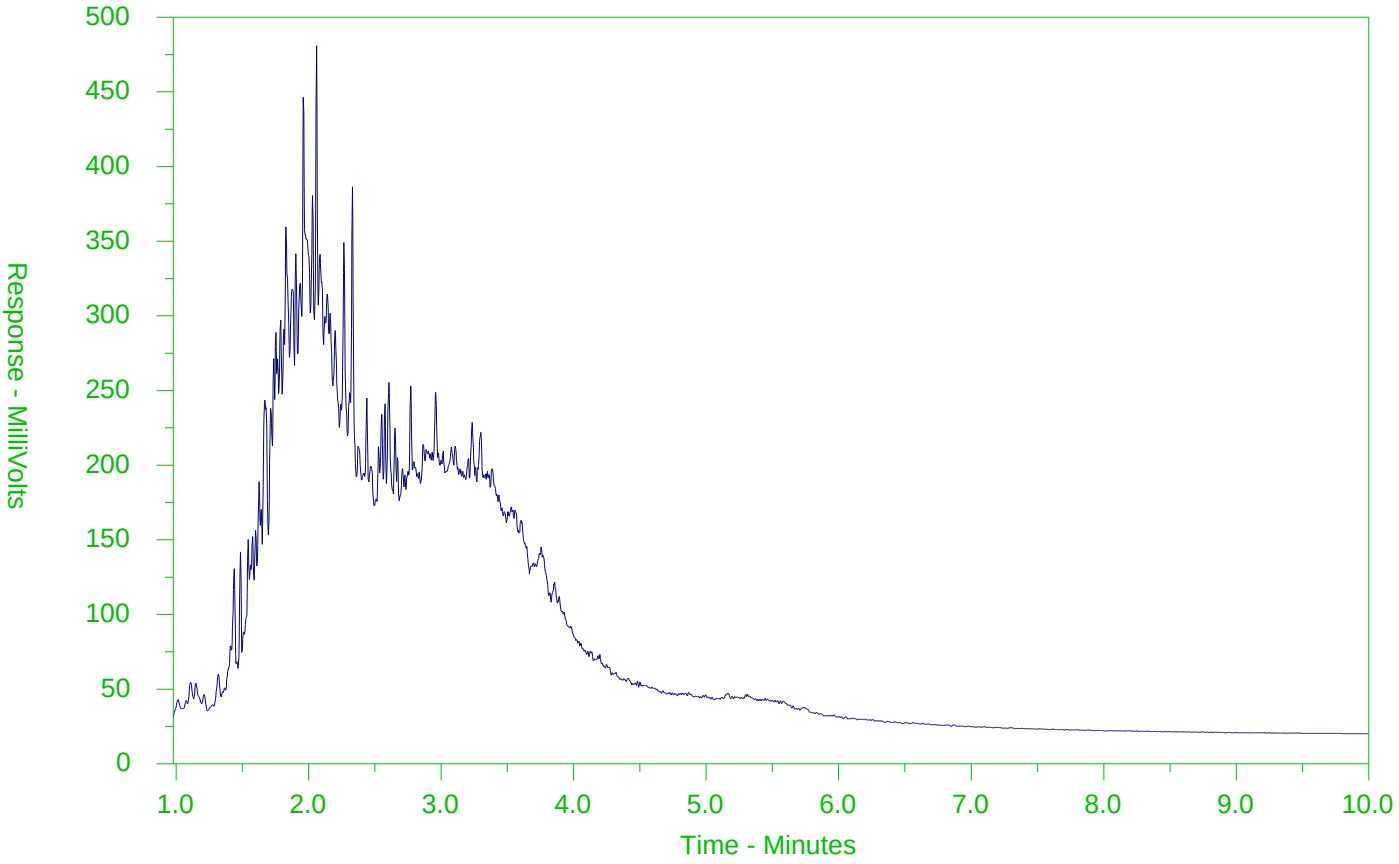
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2201309-7
Client Sample ID: S-11102463-112218-SM-BH18-466-10-12



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

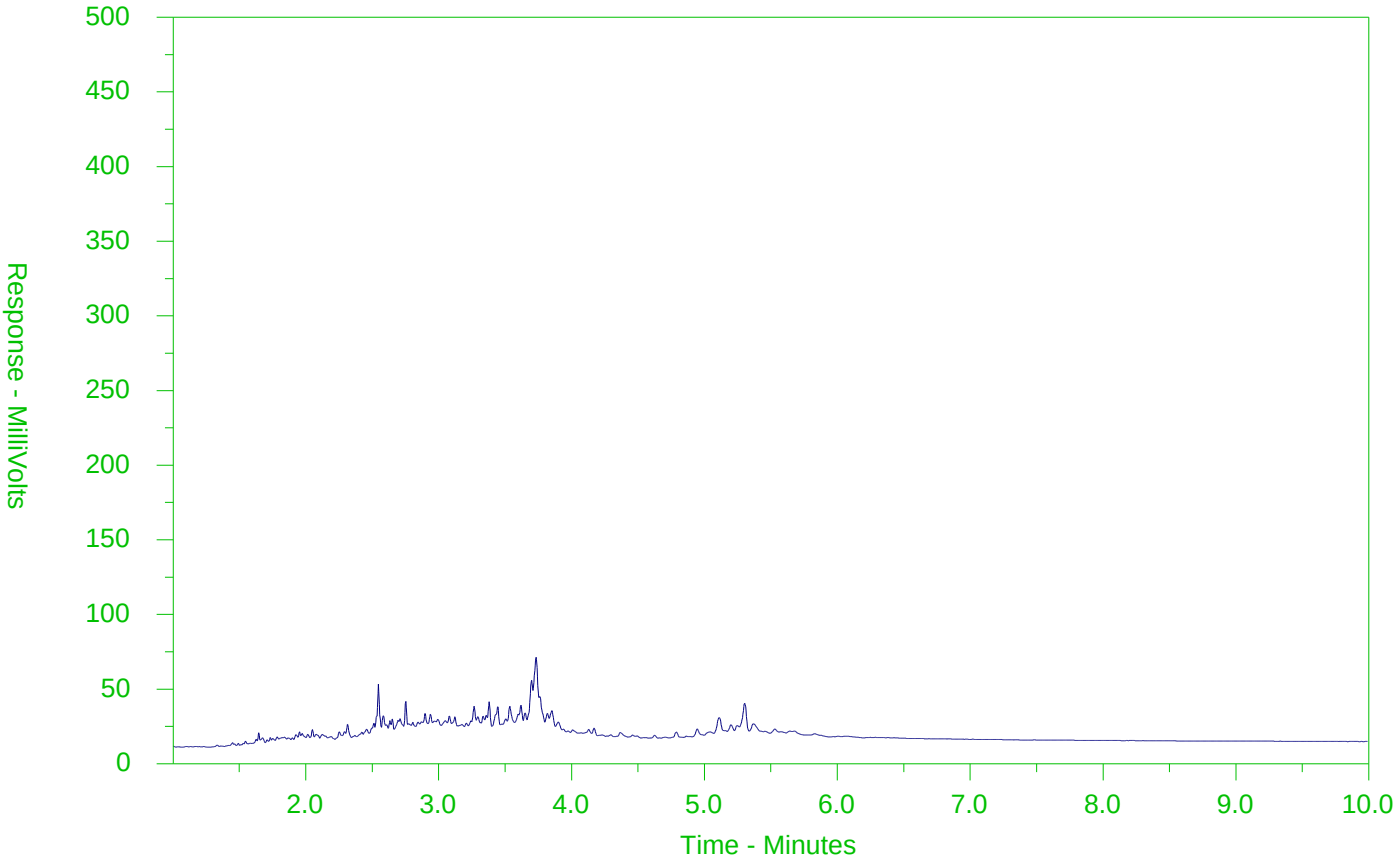
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2201309-8
Client Sample ID: S-11102463-112218-SM-BH18-466-17.5-19.5



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

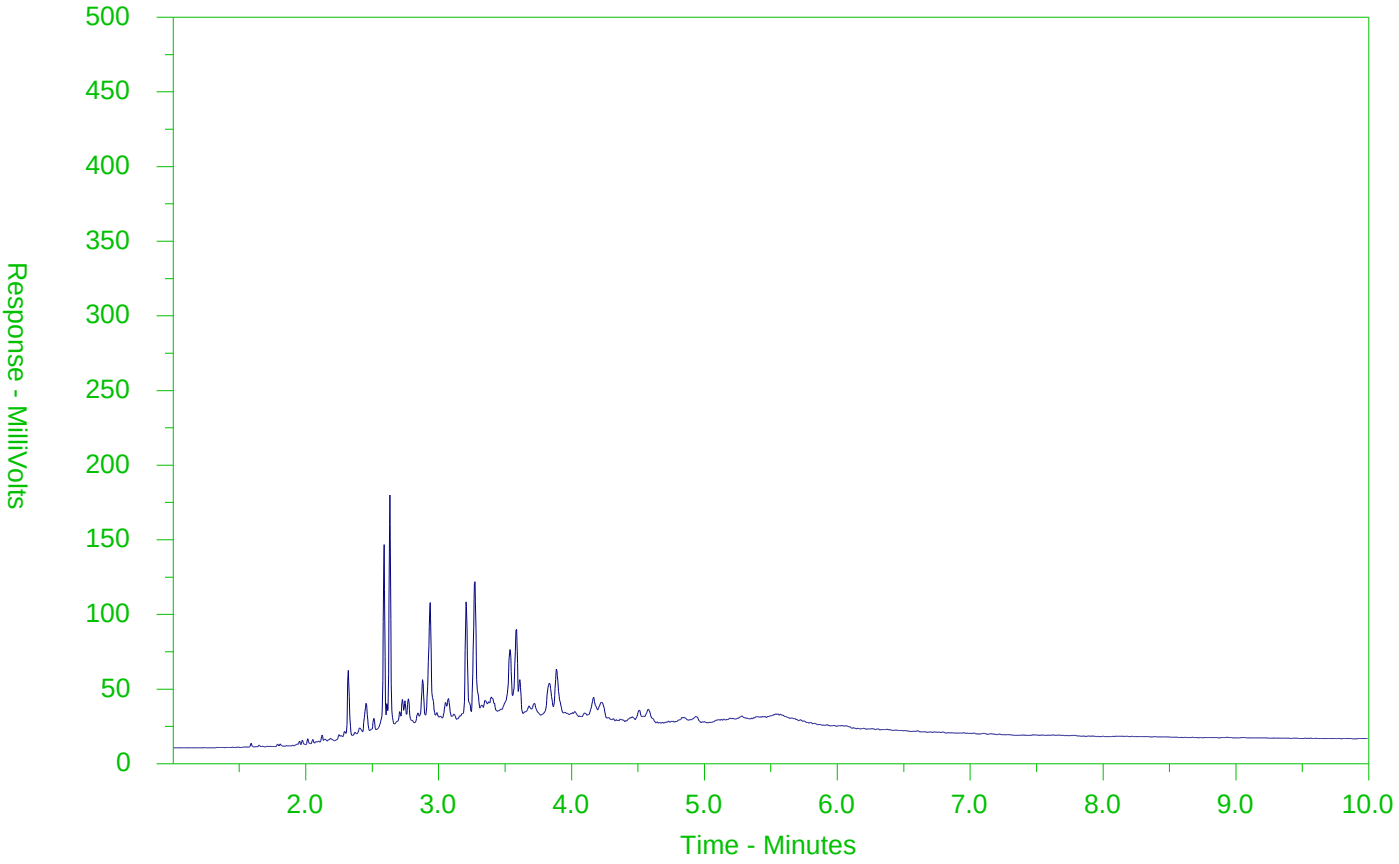
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2201309-10
Client Sample ID: S-11102463-112318-SM-BH18-421-0-2



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

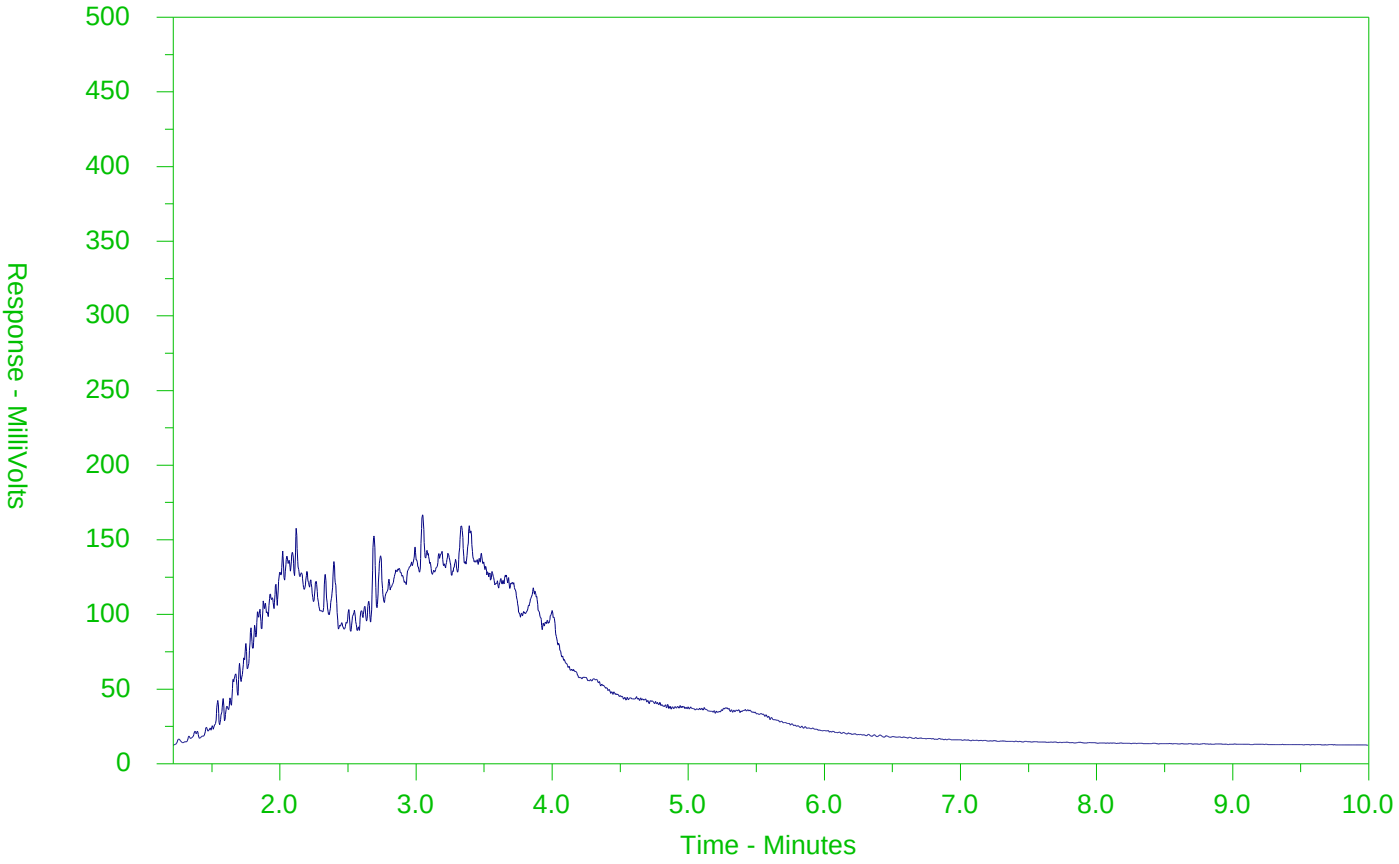
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2201309-11
Client Sample ID: S-11102463-112318-SM-BH18-421-7.5-9.5



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

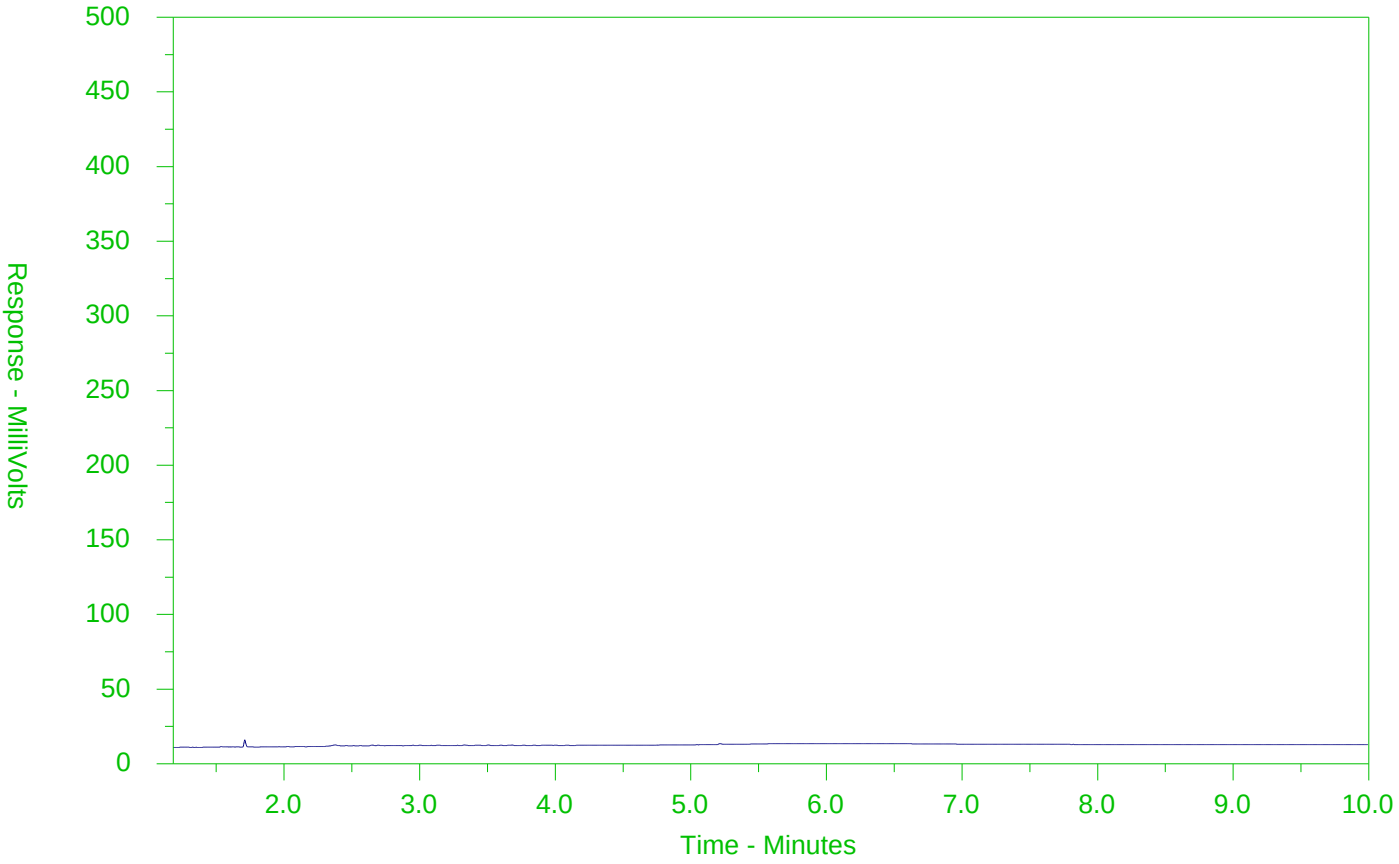
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2201309-12
Client Sample ID: S-11102463-112318-SM-BH18-421-24.5-25.5



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →	← Motor Oils/Lube Oils/Grease →		
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

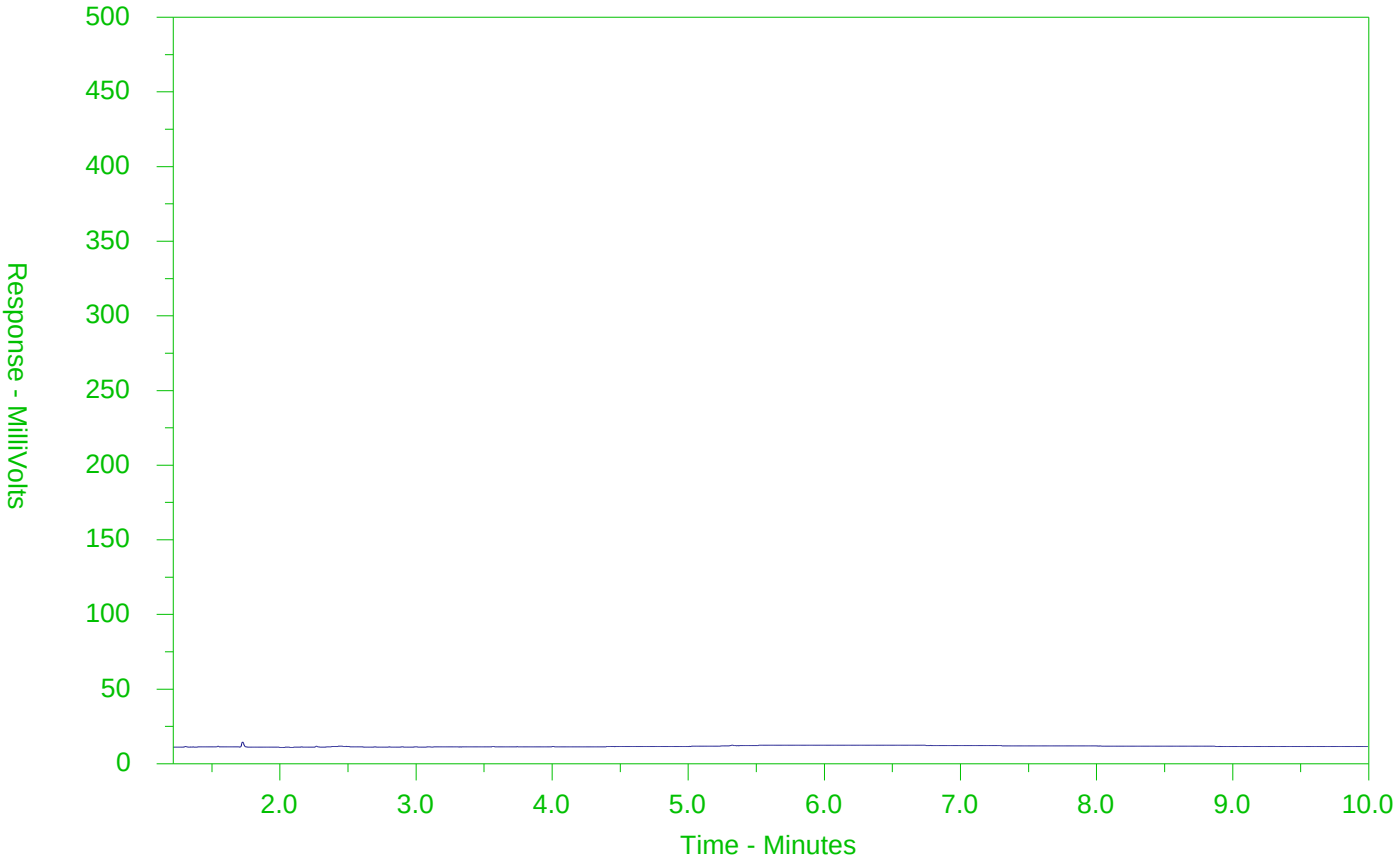
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2201309-14
Client Sample ID: S-11102463-112318-SM-BH18-421-DUP5



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2201309-COFC

COC Number: 17 -

Page 1 of 2

Report To	Contact and company name below will appear on the final report
Company:	GHD Limited - Account #13791
Contact:	Jennifer Balkwill
Phone:	519-340-4286
	Company address below will appear on the final report
Street:	455 Phillip St.
City/Province:	Waterloo/ON
Postal Code:	N2L 3X2
Invoice To	Same as Report To ☑ YES ☐ NO
	Copy of Invoice with Report ☐ YES ☑ NO
Company:	GHD Limited
Contact:	Jennifer Balkwill

Report Format / D	
Select Report Format:	☑ PDF ☑ EXCEL ☑ EDD (DIGITAL)
Quality Control (QC) Report with Report	☑ YES ☐ NO
☑ Compare Results to Criteria on Report - provide details below if box checked	
Select Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	jennifer.balkwill@ghd.com
Email 2	AS PER PO
Email 3	

Invoice Distribution	
Select Invoice Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	jennifer.balkwill@ghd.com
Email 2	

Project Information	
ALS Account # / Quote #:	13791, Q51987
Job #:	11102463-~~1~~53
PO / AFE:	73509898-4
LSD:	Waterfront Toronto

Oil and Gas Required Fields (client use)		
AFE/Cost Center:		PO#
Major/Minor Code:		Routing Code:
Requisitioner:		
Location:		

ALS Lab Work Order # (lab use only): L2201309 23E

ALS Contact: Rick H

Sampler: S. Meneses

...ontact your AM to confirm all E&P TATs (surcharges may apply)

Regular [R] ☑ Standard TAT if received by 3 pm - business days - no surcharges apply

PRIORITY (Business Days): 4 day [P4-20%] ☐ | 3 day [P3-25%] ☐ | 2 day [P2-50%] ☐

EMERGENCY: 1 Business day [E1 - 100%] ☐ | Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)] ☐

Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm

For tests that can not be performed according to the service level selected, you will be contacted.

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	153 Metals and Inorganics	PHCs	VOCs	PAHs	ABNs	CPs	OC Pesticides	SVOCs (includes PAH,ABN and CPs)	Full Grain Size	TOC (r511) (includes FOC)	PCBs (4 Aroclors)	PCBs CONGENERS (Burlington)	Methyl Mercury (Vancouver)	Dioxins and Furans (Burlington)	PFAS/PFOA	SAMPLES ON HOLD	Sample is hazardous (please provide further detail)	NUMBER OF CONTAINERS
1	S-11102463- 112218-SM-BH18-464-2.5-4.5	12-NOV-18	AM	Soil	✓	✓	✓	✓		✓	✓				✓	✓						16
2	S-11102463- " " " " -12.5-14.5	22-NOV-18	AM	Soil	✓	✓	✓	✓		✓	✓				✓							6
3	S-11102463- " " " " -20-22	22-NOV18	AM	Soil	✓	✓	✓	✓														4
4	S-11102463- " " " " -DUP	"	AM	Soil	✓																	1
5	S-11102463- -DUP2	"	AM	Soil			✓															2
6	S-11102463- 112218-SM-BH18-466-0-2	"	PM	Soil	✓	✓	✓	✓		✓	✓				✓							6
7	S-11102463- " " " " -10-12	"	PM	Soil	✓	✓	✓	✓		✓	✓				✓							6
8	S-11102463- " " " " -17.5-19.5	"	PM	Soil	✓	✓	✓	✓														4
9	S-11102463- 112218-SM-BH18-466-DUP3	"	PM	Soil				✓														1
10	S-11102463- 112318-SM-BH18-421-0-2	23-NOV-18	AM	Soil	✓	✓	✓	✓		✓	✓				✓							6
11	S-11102463- -7.5-9.5	"	AM	Soil	✓	✓	✓	✓		✓	✓				✓							6
12	S-11102463- -21.5-25.5	"	AM	Soil	✓	✓	✓	✓														4

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? ☐ YES ☐ NO	GUIDEQC_ON-511-T3/T9-SOIL-RPI/RPIICC-C/F
Are samples for human consumption/ use? ☐ YES ☐ NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ | SIF Observations Yes ☐ No ☐

Ice Packs ☐ Ice Cubes ☑ | Custody seal intact Yes ☐ No ☐

Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
0.4				3.5			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by: Sarah Meneses	Date: Nov 23, 2018	Time:	Received by: Ramnell	Date: NOV 23	Time: 13:40	Received by:	Date: Nov 23/18	Time: 17:45

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

SEPT 2017 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

SIF

Chain of Custody (COC) / Analytical Request Form

L2201309-COFC

COC Number: 17 -

Page 2 of 2

ALS Environmental

Canada Toll Free: 1 800 668 9878

www.alsglobal.com

Report To	Contact and company name below will appear on the final report
Company:	GHD Limited - Account #13791
Contact:	Jennifer Balkwill
Phone:	519-340-4286
	Company address below will appear on the final report
Street:	455 Phillip St.
City/Province:	Waterloo/ON
Postal Code:	N2L 3X2

Report Format / Distribution	
Select Report Format:	☑ PDF ☑ EXCEL ☑ EDD (DIGITAL)
Quality Control (QC) Report with Report	☑ YES ☐ NO
☑ Compare Results to Criteria on Report - provide details below if box checked	
Select Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	jennifer.balkwill@ghd.com
Email 2	AS PER PO
Email 3	

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)			
Regular [R]	☑ Standard TAT if received by 3 pm - business days - no surcharges apply		
PRIORITY (Business Days)	4 day [P4-20%] ☐	EMERGENCY	1 Business day [E1 - 100%] ☐
	3 day [P3-25%] ☐		Same Day, Weekend or Statutory holiday [E2 -200%] ☐ (Laboratory opening fees may apply)]
	2 day [P2-50%] ☐		
Date and Time Required for all E&P TATs:		dd-mmm-yy hh:mm	
For tests that can not be performed according to the service level selected, you will be contacted.			

Invoice To		
	Same as Report To	☑ YES ☐ NO
	Copy of Invoice with Report	☐ YES ☑ NO
Company:	GHD Limited	
Contact:	Jennifer Balkwill	

Invoice Distribution	
Select Invoice Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	jennifer.balkwill@ghd.com
Email 2	

Project Information	
ALS Account # / Quote #:	13791, Q51987
Job #:	11102463-~~47~~ 53
PO / AFE:	73509898-4
LSD:	Waterfront Toronto

Oil and Gas Required Fields (client use)		
AFE/Cost Center:		PO#
Major/Minor Code:		Routing Code:
Requisitioner:		
Location:		

ALS Lab Work Order # (lab use only): L2201309 ~~23~~ 28

ALS Contact: Rick H

Sampler: S. Meneses

Analysis Request — Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	153 Metals and Inorganics	PHCs	VOCs	PAHs	ABNs	CPs	OC Pesticides	SVOCs (includes PAH,ABN and CPs)	Full Grain Size VOC/F1	TOC (-511) (includes FOC)	PCBs (4 Aroclors)	PCBs CONGENERS (Burlington)	Methyl Mercury (Vancouver)	Dioxins and Furans (Burlington)	PFAS/PFOA	SAMPLES ON HOLD	Sample is hazardous (please provide further detail)	NUMBER OF CONTAINERS
13	S-11102463- 112318-SM-BH18-421-DUP4	23-NOV-18	AM	Soil						✓	✓											2
14	S-11102463- " " " " -DUP5	"	AM	Soil		✓																3
	S-11102463-			Soil																		
15	~~S-11102463-~~ Trip Blank			Soil									X									
	S-11102463-			Soil																		
	S-11102463-			Soil																		
	S-11102463-			Soil																		
	S-11102463-			Soil																		
	S-11102463-			Soil																		
	S-11102463-			Soil																		
	S-11102463-			Soil																		
	S-11102463-			Soil																		

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? ☐ YES ☐ NO	
Are samples for human consumption/ use? ☐ YES ☐ NO	GUIDEQC_ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐

Ice Packs ☐ Ice Cubes ☑ Custody seal intact Yes ☐ No ☐

Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
0-4				3.5			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by: Sarah Meneses	Date: NOV23, 2018	Time:	Received by: Ramneeli	Date: NOV23	Time: 13:40	Received by:	Date: Nov 23/18	Time: 17:45

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

SEPT 2017 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

SIF.

Attachment D
Memorandum

Memorandum

April 29, 2019

To:	Jessica Bruce; David Hutchinson; Mike Evans; Jennifer Balkwill	Ref. No.:	11102463-53
From:	Stephanie Berton/ev/20		

Subject: **Analytical Data Verification**
Environmental Investigation – SDMA – IO Lands
Waterfront Toronto – Toronto Port Lands
Toronto, Ontario
November 2018

1. Introduction

The following document details an analytical data verification of results for soil samples collected in support of the Environmental Investigation at the Waterfront Toronto – Toronto Port Lands Site in November 2018. Samples were submitted to ALS Canada Ltd. (ALS) located in Waterloo, Ontario. A sample collection and analysis summary is presented in Table 1. A summary of the analytical methodology is presented in Table 2.

Standard GHD Limited (GHD) report deliverables were submitted by the laboratory. The final results and supporting quality assurance/quality control (QA/QC) data were assessed. Evaluation of the data was based on information obtained from the chain of custody forms, finished report forms, method blank data, duplicate data, recovery data from surrogate spikes, laboratory control samples (LCS), matrix spikes (MS), and field QC samples.

The QA/QC criteria by which these data have been assessed are outlined in the analytical methods referenced in Table 2 and applicable guidance from the documents entitled:

i) "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review", United States Environmental Protection Agency (USEPA) 540/R-99-008, October 1999

ii) "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review", USEPA 540/R-94-013, February 1994

iii) "Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act", Laboratory Services Branch, Ministry of the Environment. March 9, 2004, amended as of July 1, 2011

Items i) and ii) will subsequently be referred to as the "Guidelines" in this Memorandum. Item iii) will subsequently be referred to as the "O. Reg. 153 Analytical Protocols".

2. Sample Holding Time and Preservation

The sample holding time criteria for the analyses are summarized in Table 2. Sample chain of custody documents and analytical reports were used to determine sample holding times. All samples were prepared and analyzed within the required holding times.

All samples were properly preserved, delivered on ice, and stored by the laboratory at the required temperature (<10°C).

3. Laboratory Method Blank Analyses

Method blanks are prepared from a purified matrix and analyzed with investigative samples to determine the existence and magnitude of sample contamination introduced during the analytical procedures.

For this study, laboratory method blanks were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

All method blank results were non-detect indicating that laboratory contamination was not a factor for this investigation.

4. Surrogate Spike Recoveries

In accordance with the methods employed, all samples, blanks, and QC samples analyzed for organics are spiked with surrogate compounds prior to sample extraction and/or analysis. Surrogate recoveries provide a means to evaluate the effects of laboratory performance on individual sample matrices.

All samples submitted for petroleum hydrocarbon (PHC), volatile organic compound (VOC), polycyclic aromatic hydrocarbon (PAH), chlorophenol, polychlorinated biphenyl (PCB), and organochlorine (OC) pesticide determinations were spiked with the appropriate number of surrogate compounds prior to sample analysis.

Surrogate recoveries were assessed against laboratory control limits. All surrogate recoveries met the above criteria.

5. Laboratory Control Sample Analyses

LCS are prepared and analyzed as samples to assess the analytical efficiencies of the methods employed, independent of sample matrix effects.

For this study, LCS were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

Organic Analyses

The LCS contained all compounds of interest. Most LCS recoveries were within the laboratory control limits, demonstrating acceptable analytical accuracy. Non−detect results associated with high LCS recoveries were not qualified. The indicated high bias would not impact the data.

Inorganic Analyses

The LCS contained all analytes of interest. LCS recoveries were assessed per the “Guidelines”. All LCS recoveries were within the control limits, demonstrating acceptable analytical accuracy.

6. Matrix Spike Analyses

To evaluate the effects of sample matrices on the extraction or digestion process, measurement procedures, and accuracy of a particular analysis, samples are spiked with a known concentration of the analyte of concern and analyzed as MS samples. If the original sample concentration is significantly greater than the spike concentration, the recovery is not assessed.

The MS samples were spiked with all compounds of interest. All percent recoveries were within the laboratory control limits, demonstrating acceptable analytical accuracy.

7. Duplicate Sample Analyses

Analytical precision is evaluated based on the analysis of laboratory duplicate samples. For this study, duplicate samples were prepared and analyzed by the laboratory. The laboratory performed additional site-specific duplicate analyses internally. The relative percent differences (RPDs) associated with these duplicate samples must be less than 35 percent for soil samples. If the reported concentration in either the investigative sample or its duplicate is less than five times the reporting limit (RL), then the evaluation criteria is a difference of two times the RL for soil samples. All duplicate analyses performed were acceptable, demonstrating acceptable analytical precision.

8. Field QA/QC Samples

The field QA/QC consisted of one trip blank and five field duplicate sample sets.

Trip Blank Sample Analysis

To evaluate contamination from sample collection, transportation, storage, and analytical activities, one trip blank was submitted to the laboratory for VOC/PHC F1 analysis as outlined in Table 1. All results were non-detect for the compounds of interest.

Field Duplicate Sample Analysis

To assess the analytical and sampling protocol precision, five field duplicate sample sets were collected and submitted "blind" to the laboratory, as specified in Table 1. The RPDs associated with these duplicate samples must be less than 100 percent for soil samples. If the reported concentration in either the

investigative sample or its duplicate is less than five times the reporting limit (RL), then the evaluation criteria is a difference of two times the RL for soil samples.

Most field duplicate results were within acceptable agreement, demonstrating acceptable sampling and analytical precision. Results that showed variability were qualified as estimated (see Table 3).

9. Conclusion

Based on the assessment detailed in the foregoing, the data are acceptable with the specific qualifications noted herein.

Table 1

Sample Collection and Analysis Summary
Environmental Investigation - SDMA - IO Lands
Waterfront Toronto - Toronto Port Lands
Toronto, Ontario
November 2018

Lab Report #	Sample Identification	Location	Matrix	Start Depth mBGS	End Depth mBGS	Collection Date (mm/dd/yyyy)	Analysis/Parameters																	Comments
							Organochlorine Pesticides	Volatile Organic Compounds	Petroleum Hydrocarbons (F1)	Petroleum Hydrocarbons (F2-F4)	Petroleum Hydrocarbons (F4G)	Conductivity	pH	Sodium Adsorption Ratio	Cyanide, Weak Acid Dissociable	Hot Water Soluble Boron	Metals	Mercury	Hexavalent Chromium	PCB Aroclors	Polycyclic Aromatic Hydrocarbons	O. Reg. 153 Chlorophenols	
L2201309	S-11102463-112218-SM-BH18-464-2.5-4.5	BH18-464	Soil	0.76	1.37	11/22/2018	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
L2201309	S-11102463-112218-SM-BH18-464-DUP	BH18-464	Soil	0.76	1.37	11/22/2018	-	-	-	-	-	X	X	X	X	X	X	X	X	-	-	-		FD(S-11102463-112218-SM-BH18-464-2.5-4.5)
L2201309	S-11102463-112218-SM-BH18-464-12.5-14.5	BH18-464	Soil	3.81	4.42	11/22/2018	X	X	X	X	-	X	X	X	X	X	X	X	X	X	X	X		
L2201309	S-11102463-112218-SM-BH18-464-20-22	BH18-464	Soil	6.1	6.71	11/22/2018	-	X	X	X	-	X	X	X	X	X	X	X	X	-	X	-		
L2201309	S-11102463-112218-SM-BH18-464-DUP2	BH18-464	Soil	6.1	6.71	11/22/2018	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-		FD(S-11102463-112218-SM-BH18-464-20-22)
L2201309	S-11102463-112218-SM-BH18-466-10-12	BH18-466	Soil	3.05	3.66	11/22/2018	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
L2201309	S-11102463-112218-SM-BH18-466-17.5-19.5	BH18-466	Soil	5.33	5.94	11/22/2018	-	X	X	X	-	X	X	X	X	X	X	X	X	-	X	-		
L2201309	S-11102463-112218-SM-BH18-466-DUP3	BH18-466	Soil	5.33	5.94	11/22/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-		FD(S-11102463-112218-SM-BH18-466-17.5-19.5)
L2201309	S-11102463-112218-SM-BH18-466-0-2	BH18-466	Soil	0	0.61	11/22/2018	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
L2201309	S-11102463-112318-SM-BH18-421-7.5-9.5	BH18-421	Soil	2.29	2.9	11/23/2018	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
L2201309	S-11102463-112318-SM-BH18-421-DUP4	BH18-421	Soil	2.29	2.9	11/23/2018	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X		FD(S-11102463-112318-SM-BH18-421-7.5-9.5)
L2201309	S-11102463-112318-SM-BH18-421-22.5-24.5	BH18-421	Soil	6.86	7.47	11/23/2018	-	X	X	X	-	X	X	X	X	X	X	X	X	-	X	-		
L2201309	S-11102463-112318-SM-BH18-421-DUP5	BH18-421	Soil	6.86	7.47	11/23/2018	-	-	X	X	-	-	-	-	-	-	-	-	-	-	-	-		FD(S-11102463-112318-SM-BH18-421-22.5-24.5)
L2201309	S-11102463-112318-SM-BH18-421-0-2	BH18-421	Soil	0	0.61	11/23/2018	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
L2201309	TRIP BLANK	-	Methanol	-	-	11/23/2018	-	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	Trip Blank	

Notes:

FD - Field Duplicate Sample of sample in parenthesis
PCB - Polychlorinated Biphenyl
mBGS - metres Below Ground Surface

Table 2

Analytical Method and Holding Time Criteria
Environmental Investigation - SDMA - IO Lands
Waterfront Toronto - Toronto Port Lands
Toronto, Ontario
November 2018

Parameters	Methodology [1]	Holding Time Criteria[2]
	Soil	Soil
Organochlorine Pesticides	SW846 8270	60 days
Volatile Organic Compounds - methanol-preserved	CCME CWS Tier 1	14/40[3]
Petroleum Hydrocarbons (F1)- methanol-preserved	CCME CWS Tier 1	14/40[3]
Petroleum Hydrocarbons (F2-F4)	CCME CWS Tier 1	14 days
Petroleum Hydrocarbons (F4G)	CCME CWS Tier 1	14 days
Cyanide, Weak-Acid Dissociable	MOE 3015/APHA 4500CN I-WAD	14 days
Conductivity	MOEE E3138	30 days
pH	MOEE E3137A	30 days
Sodium Adsorption Ratio	SW846 6010C	180 days
Metals	EPA 200.2/6020A	180 days
Mercury	EPA 200.2/1631E	28 days
Hexavalent Chromium	SW846 3060A/7199	30 days
Hot Water Soluble Boron	EPA 6010B	180 days
PCB Aroclors	SW846 8082	Indefinite
Polycyclic Aromatic Hydrocarbons	SW846 8270	60 days
O. Reg. 153 Chlorophenols	SW846 8270	60 days

Notes:

(1) Methods referenced from the following:
SW846 - "Test Method for Evaluating Solid Waste Physical/Chemical Methods", EPA, November 1986 with promulgated updates
CCME CWS - Canadian Council of Ministers of the Environment - Canadian Wide Standards
MOEE - Ministry of the Environment and Energy
MOE - Ministry of the Environment
EPA - U.S. Environmental Protection Agency. Analytical Methodology (October, 2007)

(2) Holding times differing from those defined in the indicated methodology were obtained from the O. Reg. 153 Analytical Protocols

(3) x/y - x days to extract/y days to analyze

PCB - Polychlorinated Biphenyl

Table 3

Qualified Sample Data Due To Variability in Field Duplicate Results
Environmental Investigation - SDMA - IO Lands
Waterfront Toronto - Toronto Port Lands
Toronto, Ontario
November 2018

Lab Report #	Parameter	Analyte	Diff	Sample ID	Qualified Result	Field Duplicate Sample ID	Qualified Result	Units
L2201309	SVOCs	1-Methylnaphthalene	>2xRL	S-11102463-112218-SM-BH18-466-17.5-19.5	0.030 UJ	S-11102463-112218-SM-BH18-466-DUP3	0.130 J	µg/g
L2201309	SVOCs	1-Methylnaphthalene/2-Methylnaphthalene	>2xRL	S-11102463-112218-SM-BH18-466-17.5-19.5	0.042 UJ	S-11102463-112218-SM-BH18-466-DUP3	0.213 J	µg/g
L2201309	SVOCs	Acenaphthene	>2xRL	S-11102463-112218-SM-BH18-466-17.5-19.5	0.068 J	S-11102463-112218-SM-BH18-466-DUP3	0.169 J	µg/g
L2201309	SVOCs	Benzo(a)anthracene	>2xRL	S-11102463-112218-SM-BH18-466-17.5-19.5	0.138 J	S-11102463-112218-SM-BH18-466-DUP3	0.261 J	µg/g
L2201309	SVOCs	Chrysene	>2xRL	S-11102463-112218-SM-BH18-466-17.5-19.5	0.180 J	S-11102463-112218-SM-BH18-466-DUP3	0.293 J	µg/g
L2201309	SVOCs	Fluorene	>2xRL	S-11102463-112218-SM-BH18-466-17.5-19.5	0.070 J	S-11102463-112218-SM-BH18-466-DUP3	0.187 J	µg/g
L2201309	SVOCs	Naphthalene	>2xRL	S-11102463-112218-SM-BH18-466-17.5-19.5	0.027 J	S-11102463-112218-SM-BH18-466-DUP3	0.164 J	µg/g
L2201309	SVOCs	Phenanthrene	>2xRL	S-11102463-112218-SM-BH18-466-17.5-19.5	0.210 J	S-11102463-112218-SM-BH18-466-DUP3	0.357 J	µg/g
L2201309	Metals	Chromium VI (hexavalent)	>2xRL	S-11102463-112218-SM-BH18-464-2.5-4.5	1.38 J	S-11102463-112218-SM-BH18-464-DUP	0.27 J	µg/g
L2201309	VOCs	Hexane	>2xRL	S-11102463-112218-SM-BH18-464-20-22	0.050 UJ	S-11102463-112218-SM-BH18-464-DUP2	0.20 J	µg/g

Notes:

Diff - Difference (i.e., >2XRL for soils)
RL - Reporting limit
J - Estimated concentration
UJ - Not detected; associated reporting limit is estimated
SVOCs - Semi-volatile Organic Compounds

Attachment 2

This document is in draft form. A final version of this document may differ from this draft. As such, the contents of this draft document shall not be relied upon. GHD disclaims any responsibility or liability arising from decisions made based on this draft document.

June 6, 2019 Reference No. 11102463-53

Ms. Meggen Janes
Director Soil and Groundwater Management & Brownfield Approvals
Waterfront Toronto
20 Bay Street, Suite 1310
Toronto, Ontario
M5J 2N8

Dear Ms. Janes:

Re: Field Investigation Methodology – RMM – SDMA – City Lands – Contract No. 2103
Port Lands Environmental, Geotechnical and Hydrogeological Investigation
RFP #2015-23
Waterfront Toronto

1. Introduction

GHD has prepared this letter which presents the methodology for the field activities completed in the City of Toronto (City) Lands in the Sediment and Debris Management Area (SDMA) as part of the Risk Management Measures (RMM) investigation. GHD was retained by Waterfront Toronto to undertake the field activities. GHD completed the field investigations based on the sampling and analysis plans provided to GHD by Jacobs.

2. Scope of Investigation

2.1 Overview of Site Investigation

The scope of work for the Phase Two ESA investigation is presented in the Sampling and Analysis Plan (SAP) provided by Jacobs, and can be found in **Attachment A**. The following presents the investigations completed at the Site in March 2019. The work was completed by or under the supervision of a Qualified Person as defined Section 5 of Ontario Regulation 153/04.

2.2 Media Investigated

The media sampled is presented in the SAP in **Attachment A**.

In March 2019, GHD completed the following investigative activities:

- Advancement of 10 boreholes to a maximum depth of 11.88 metres below ground surface (m BGS) to facilitate collection and logging of soil samples. At six of the locations, drilling continued deeper as required for the geotechnical investigation (BH18-441, BH18-442, BH18-443, BH18-465, BH18-467, and BH18-469).

GHD
111 Brunel Road Suite 200 Mississauga Ontario L4Z 1X3 Canada
T 905 712 0510 **F** 905 712 0515 **W** www.ghd.com

REGISTERED COMPANY FOR ISO 9001 ENGINEERING DESIGN

- Field screening of soil samples during borehole advancement including qualitative observations (i.e., visual and olfactory evidence of impact) and quantitative measurements using a photoionization detector (PID).
- Collection of 32 soil samples (including 2 field duplicate samples) for laboratory analysis of one or more of the following:
  - Volatile organic compounds (VOCs)
  - Petroleum hydrocarbons (PHCs)
  - Polycyclic aromatic hydrocarbons (PAHs)
  - Polychlorinated biphenyls (PCBs) + Aroclors
  - Metals and inorganics
  - Organochlorine (OC) pesticides
  - Chlorophenols
- Survey of investigation locations to a geodetic benchmark for lateral and vertical control.

Sediment or surface water sampling was not undertaken as part of this investigation as none was outlined in the SAP.

The investigative locations are presented on **Figure 1**.

2.3 Deviations from Sampling and Analysis Plan

There were no deviations from the sampling and analysis plan.

2.4 Impediments

No impediments were encountered during this investigation.

3. Investigation Method

3.1 General

The followings activities were undertaken during the Phase Two ESA investigation:

- Advancement of boreholes.
- Collection of soil samples for field screening measurements, geologic logging and observations.
- Collection of soil samples for laboratory analysis.
- Submission of soil samples for analysis.
- Management of investigation derived waste.

- Quality assurance and quality control (QA/QC) measures including collection and analysis of field duplicates and trip blank samples.
- Elevation surveying.

GHD completed the field sampling in accordance with O. Reg. 153/04, as amended.

Prior to completing any of the investigation activities in the Port Lands, GHD prepared and reviewed a Site-specific Health and Safety Plan (HASP). The purpose of the HASP was to provide site specific guidelines and procedures for the protection of personnel performing the Site investigation activities.

3.2 Drilling and Excavating

GHD retained Pontil Drilling (Pontil), Aardvark Drilling Inc. of Guelph (Aardvark), Geo-Environmental Drilling of Acton (Geo-Environmental), Marathon Underground Constructors Corporation of Greely (Marathon), to complete the drilling program. All drillers are Ontario Ministry of the Environment, Conservation and Parks (MECP) licensed. The drillers advanced the following 10 boreholes in March 2019:

- BH18-441
- BH18-442
- BH18-443
- BH18-444
- BH18-445
- BH18-463
- BH18-465
- BH18-467
- BH18-468
- BH18-469

Boreholes were advanced to depths ranging from 8.22 to 11.88 m BGS. Boreholes were advanced using hollow stem augers (HSA) (4.25-inch (108-millimetre [mm]) inside diameter and 8.5-inch (216-mm) outside diameter hollow stem augers). In addition, at BH18-442, BH18-444, BH18-463, and BH18-467, a combination of hydrovac and hand sampling was completed to depths of approximately 3 meters. During advancement of the boreholes using HSA, soil samples were collected with 0.61 m long stainless steel split spoons that had an inside diameter of 51-mm. Soil samples were collected at the intervals specified in the SAP.

Augers and spilt-spoons were cleaned between each location by manual scrubbing followed by a water detergent wash using Alconox® soap and water.

Stratigraphic logs for the boreholes are provided in **Attachment B**.

3.2.1 Utility Locates

Prior to the investigation activities, GHD completed the appropriate public utility notifications and retained private utility locators (On Site Locates) to assist with on-Site utility clearance.

3.2.2 Geophysical Investigation

A geophysical investigation was not completed as part of this investigation.

3.2.3 Test Pitting

Test pits were not excavated as part of this investigation.

3.2.4 Soil Vapour Investigation

A soil vapour investigation was not completed as part of this investigation.

3.3 Soil Sampling

Soil samples were collected to the final depth of investigation in all boreholes using 0.61 metre long stainless steel split spoons. At the locations where hydrovac was completed, samples were collected by hand, using a sampling trowel or hand auger. The soil was logged using the Unified Soil Classification System (USCS), making special note of any visual or olfactory evidence of potential impacts.

GHD personnel collected the soil samples from the stainless steel split-spoons or by hand for laboratory analysis in accordance with the SAP. This included collection of samples from the interval with the highest photoionization (PID) reading or the sample exhibiting the strongest visual or olfactory evidence of impact, as well as samples for vertical delineation. Soil samples were collected in laboratory supplied glass containers and immediately placed the samples in a cooler for sample preservation. Samples for VOCs and/or PHC F1 analysis were collected using the methanol preservation method. Soil samples were placed in coolers packed with ice and submitted to ALS Laboratory Group (ALS) for analysis using chain-of-custody-procedures. GHD field personnel donned a new pair of disposable nitrile gloves between each soil sample location.

Samples were submitted for analysis of one or more of the following: VOCs, PHCs, PAHs, metals and inorganics, PCBs, OC Pesticides and/or chlorophenols. Field duplicates and soil VOC and PHC F1 trip blanks were submitted for laboratory analysis for QA/QC purposes. Soil samples were packed on ice to ensure proper temperature upon arrival at the laboratory.

Stratigraphic logs are provided in **Attachment B.** A sample identification key is presented in **Table 1**.

3.4 Field Screening Measurements

Immediately upon opening the split spoon, field personnel screened the soils for undifferentiated VOC vapour readings using a PID. A soil sample was collected from the stainless steel spoon from each 0.61-m (2-foot) interval and placed into a sealable plastic bag for headspace screening. During hydrovac, soil samples were collected by hand and placed into a sealable plastic bag for headspace screening. The soils were allowed to equilibrate prior to measuring headspace readings for organic vapours using a calibrated PID.

Prior to screening, the PID was inspected and calibrated in accordance with the manufacturer's recommendations. Calibrating the PID (MiniRae 2000) is a two-point process using "fresh air" and the standard reference gas (also known as span gas). First, a "fresh air" calibration, which contained no detectable VOCs (0.0 parts per million [ppm]), was used to set the zero point for the sensor. Then, a standard reference gas (isobutylene) that contains a known concentration (100 ppm) was used to set the second reference point.

PID specifications are listed below:

Detector:	Photoionization detector with a 10.6-eV UV lamp
Measurement Accuracy (isobutylene):	0 to 2,000 ppm: ±2 ppm or 10 percent of reading >2,000 ppm: ±20 percent of reading
Calibration:	Two-point field calibration of zero and standard reference gas

The results of the screening and soil classifications are presented on the stratigraphic logs provided in **Attachment B**.

3.5 Groundwater: Monitoring Well Installation

Monitoring wells were not installed during this investigation**.**

3.5.1 Temporary Piezometer Installation

Temporary monitoring wells were not installed during this investigation.

3.6 Groundwater: Field Measurement of Water Quality Parameters and Monitoring Well Development

Groundwater samples were not collected during this investigation as monitoring wells were not installed. Therefore, field measurements of water quality parameters and monitoring well development were not collected during this investigation.

3.6.1 Water Level Measurements

Water levels were not measured during this investigation.

3.7 Groundwater: Sampling

Groundwater sampling was not undertaken during this investigation.

3.8 Sediment: Sampling

Sediment samples were not collected during this investigation.

3.9 Analytical Testing

Soil samples were submitted to ALS, a Canadian Association for Laboratory Accreditation Inc. (CALA) accredited analytical laboratory, for laboratory analysis. Soil samples were submitted for select laboratory analysis of one or more of: VOCs, PAHs, PHCs, metals and inorganics, PCBs, OC Pesticides and/or chlorophenols. The laboratory Certificates of Analysis is presented as **Attachment C**. The soil analytical results are presented in **Table 2**.

3.10 Residue Management Procedures

Soil cuttings, drilling liquids, and equipment decontamination wash water were temporarily contained in 205-litre (55-gallon) metal drums for characterization and subsequent off-Site disposal. All of the drummed soil and groundwater wastes generated during this investigation were/will be removed and disposed of at an MECP-approved waste receiver.

3.11 Elevation Surveying

GHD surveyed the locations and elevations of the boreholes. The benchmark used for this surveying was BM CT180, which had an indicated elevation of 77.291 m above mean sea level (AMSL). This benchmark is located on a one storey brick office building at the corner of Villiers Street and Cherry Street. The error is 4 cm or less.

3.12 Quality Assurance and Quality Control Measures

A QA/QC program was implemented during GHD's investigation to ensure quality data were generated, as documented in the SAP (**Attachment A**). Soil samples were collected in laboratory supplied containers. Depending on the analysis to be performed, some bottles contained small amounts of preservative. GHD labelled the sample bottles in the field and provided each sample with a unique sample identification number. Samples were submitted under chain-of-custody protocol to the analytical laboratory for chemical analysis. From the time of collection to the time of submission to the laboratory, samples were stored in a cooler to maintain sample integrity.

The QA/QC program also included the collection of field duplicate samples and trip/travel blanks to validate the field analysis. This was completed at an approximate frequency of one per ten samples collected (field duplicates) and one per submission (trip blanks). These samples were analyzed in addition to the analysis of QC samples completed by the laboratory as required by their analytical methods.

The following measures were taken for quality assurance:

- Between collection of each soil and groundwater sample, GHD field personnel donned a new pair of disposable nitrile gloves.
- The stainless steel drilling and sampling equipment was thoroughly cleaned using Alconox® soap and potable water prior to use and between each borehole location.

A data validation memorandum, prepared by a GHD chemist, was completed to provide a review of the analytical laboratory data. The validation memo is presented in **Attachment D**. Based on the data validation, the analytical data are of acceptable precision and accuracy for their intended use with the qualifications and exceptions noted in the memoranda.

Should you have any questions, please do not hesitate to contact the undersigned.

Sincerely,

GHD

Michael Evans, P. Eng. Jessica Bruce, B.A.Sc.

Thomas Guoth, P. Eng.

JB/ps/40

Encl.

cc: Dave Hutchinson, GHD
Julia Serink, GHD

Figures

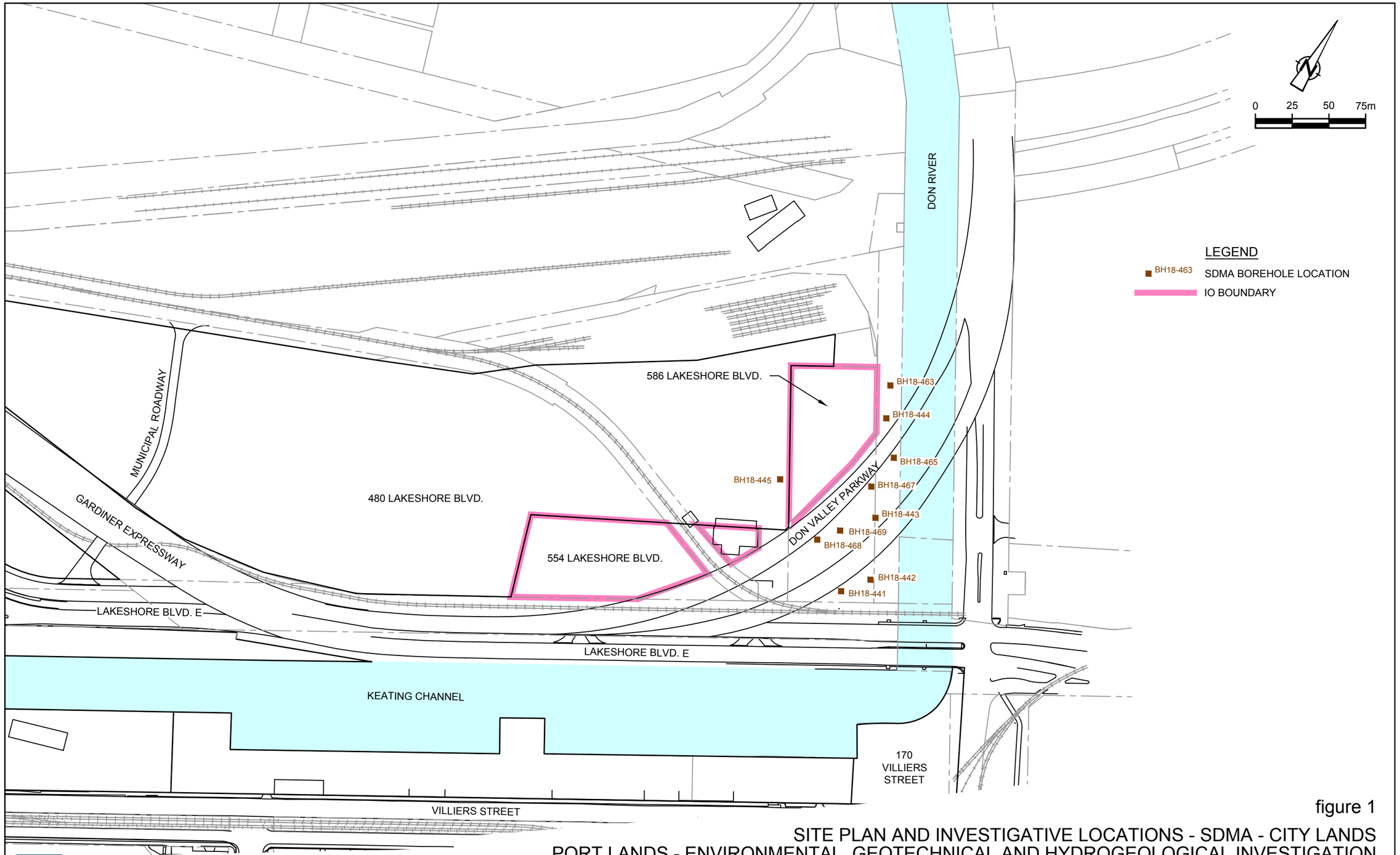


figure 1

SITE PLAN AND INVESTIGATIVE LOCATIONS - SDMA - CITY LANDS
PORT LANDS - ENVIRONMENTAL, GEOTECHNICAL AND HYDROGEOLOGICAL INVESTIGATION
CONTRACT No. 2103
Waterfront Toronto

SOURCES:
1. J. D. BARNES SOURCE: 1820 AND 1912 SHORELINE SOURCE, THE ACHEOLOGICAL MASTER PLAN OF THE CENTRAL WATERFRONT, CITY OF TORONTO.

P:\drawings\11100000s\11102463\11102463-CORR\11102463-71(JANE040)\11102463-71(JANE040)GN\11102463-71(JANE040)GN-WA001.dwg Plot Date: JUN 05, 2019

Tables

Table 1

Sample Identification Key and Analytical Parameters List
Field Investigation Methodology - RMM - SDMA - City Lands
Toronto Port Lands
Toronto, Ontario
Waterfront Toronto

Sample Location	Sample Identification [1]	Sample Date	Depth (mBGS)	Sample Type	Lab COA	VOCs	BTEX	PAHs	Metals/ Inorganics	PHCs	PCBs	OC Pesticides	Chlorophenols
BH18-441	S-11102463-032019-DD-BH18-441-1-1.5	2019-03-20	1.00-1.50	normal	L2248321	√		√	√	√	√	√	√
BH18-441	S-11102463-032019-DD-BH18-441-2.8-3.4	2019-03-20	2.80-3.40	normal	L2248321	√		√	√	√	√	√	√
BH18-441	S-11102463-190321-JC-BH18-441-25-30'	2019-03-21	7.62-9.14	normal	L2248320	√		√	√	√	√		
BH18-442	S-11102463-031419-SM-BH18-442-1.4-1.5mbgs	2019-03-14	1.40-1.50	normal	L2245079	√		√	√	√	√	√	√
BH18-442	S-11102463-031519-DD-BH18-442-3-3.7m	2019-03-15	3.00-3.70	normal	L2245528	√		√	√	√	√	√	√
BH18-442	S-11102463-031519-DD-BH18-442-8.5-8.9m	2019-03-15	8.50-8.90	normal	L2245528	√		√	√	√	√	√	√
BH18-443	S-11102463-031419-SM-BH18-443-1.2-1.35mbgs	2019-03-14	1.20-1.35	normal	L2245079	√		√	√	√	√	√	√
BH18-443	S-11102463-190321-JC-BH18-443-20-22'	2019-03-21	6.10-6.71	normal	L2248319	√		√	√	√	√	√	√
BH18-443	S-11102463-190321-JC-BH18-443-35'5"-36'11"	2019-03-21	10.79-11.25	normal	L2248319	√		√	√	√			
BH18-444	S-11102463-032019-JC-BH18-444-1-2	2019-03-20	0.30-0.61	normal	L2247725	√		√	√	√	√	√	√
BH18-444	S-11102463-032019-JC-BH18-444-10-12'	2019-03-20	3.05-3.66	normal	L2247725	√		√	√	√	√	√	√
BH18-444	S-11102463-032019-JC-BH18-444-15-17'	2019-03-20	4.57-5.18	normal	L2247725	√		√	√	√			
BH18-445	S-11102463-031919-EN-BH18-445-2.5-4.5'	2019-03-19	0.76-1.37	normal	L2247121	√		√	√	√	√	√	√
BH18-445	S-11102463-031919-EN-BH18-445-17.5-19.5'	2019-03-19	5.33-5.94	normal	L2247121	√		√	√	√			
BH18-445	S-11102463-031919-EN-BH18-445-27.5-29.5'	2019-03-19	8.38-8.99	normal	L2247121	√		√	√	√			
BH18-463	S-11102463-032019-EN-BH18-463-1-2'	2019-03-20	0.30-0.61	normal	L2247735	√		√	√	√	√	√	√
BH18-463	S-11102463-032019-EN-BH18-463-10-12'	2019-03-20	3.05-3.66	normal	L2247735	√		√	√	√	√	√	√
BH18-463	S-11102463-032019-EN-BH18-463-15-17'	2019-03-20	4.57-5.18	normal	L2247735	√		√	√	√			
BH18-465	S-11102463-190322-JC-BH18-465-2.5-4.5'	2019-03-22	0.76-1.37	normal	L2248315	√		√	√	√	√	√	√
BH18-465	S-11102463-190322-JC-BH18-465-10-12'	2019-03-22	3.05-3.66	normal	L2248315	√		√	√	√	√	√	√
BH18-465	S-11102463-190322-JC-BH18-465-25-27'	2019-03-22	7.62-8.22	normal	L2248315	√		√	√	√			
BH18-467	S-11102463-031319-SM-BH18-467-1.1-1.15mbgs	2019-03-13	1.10-1.15	normal	L2244522	√		√	√	√	√	√	√
BH18-467	S-11102463-031919-DD-BH18-467-3.0-3.5mbgs	2019-03-19	3,00-3.50	normal	L2247122	√		√	√	√	√	√	√
BH18-467	S-11102463-031919-DD-BH18-467-4.6-5.2mbgs	2019-03-19	4.60-5.20	normal	L2247122	√		√	√	√			
BH18-468	S-11102463-032019-EN-BH18-468-4"-2'	2019-03-20	0.10-0.61	normal	L2247715	√		√	√	√	√	√	√
BH18-468	S-11102463-032019-EN-BH18-468-12.5-14.5'	2019-03-20	3.81-4.42	normal	L2247715	√		√	√	√	√	√	√
BH18-468	S-11102463-032019-EN-BH18-468-25-27'	2019-03-20	7.62-8.22	normal	L2247715	√		√	√	√			
BH18-468	S-11102463-032019-EN-BH18-468-BH100	2019-03-20	7.62-8.22	field duplicate	L2247715	√		√	√	√			
BH18-469	S-11102463-032019-DD-BH18-469-0.8-1.4	2019-03-20	0.80-1.40	normal	L2248321	√		√	√	√	√	√	√
BH18-469	S-11102463-032019-DD-BH18-469-3.0-3.7	2019-03-20	3.00-3.70	normal	L2248321	√		√	√	√	√	√	√
BH18-469	S-11102463-032019-DD-BH18-469-DUP-001	2019-03-20	3.00-3.70	field duplicate	L2248321	√		√	√	√	√	√	√
BH18-469	S-11102463-032219-DD-BH18-469-9.9-10.5	2019-03-22	9.90-10.50	normal	L2248786	√		√	√	√			
Trip Blank	Trip Blank	2019-03-13	-	trip blank	L2244522	√				√[2]			
Trip Blank	Trip Blank	2019-03-14	-	trip blank	L2245079	√				√[2]			
Trip Blank	Trip Blank	2019-03-15	-	trip blank	L2245528		√			√[2]			
Trip Blank	S-11102463-031919-EN-BH18-445-Trip Blank	2019-03-19	-	trip blank	L2247121	√				√[2]			
Trip Blank	Trip Blank	2019-03-19	-	trip blank	L2247122	√				√[2]			
Trip Blank	Trip Blank	2019-03-20	-	trip blank	L2248321	√				√[2]			
Trip Blank	S-11102463-032019-EN-Trip-Blank	2019-03-20	-	trip blank	L2247735	√				√[2]			
Trip Blank	S-11102463-032019-JC-BH18-444-Trip Blank	2019-03-20	-	trip blank	L2247725	√				√[2]			
Trip Blank	S-11102463-032019-EN-BH18-468-Trip Blank	2019-03-20	-	trip blank	L2247715	√				√[2]			
Trip Blank	Trip Blank	2019-03-21	-	trip blank	L2248319	√				√[2]			
Trip Blank	Trip Blank	2019-03-22	-	trip blank	L2248315	√				√[2]			
Trip Blank	Trip Blank	2019-03-22	-	trip blank	L2248786	√				√[2]			

Notes:

(1) Complete sample identification for S-11102463-052318-CV-BH18-18-0-2: The first letter (S) denotes soil; the following digits give the project number; the following digits give the sample date; the following letters are the sampler's initials; the following digits give the sample location.

(2) Analyzed for PHC fraction F1 only.

BTEX Benzene, Toluene, Ethylbenzene and Xylene
COA Certificate of Analysis
PAH Polycyclic Aromatic Hydrocarbons
PHC Petroleum Hydrocarbons
VOC Volatile Organic Compounds
PCB Polychlorinated Biphenyls

Table 2

Soil Analytical Results
SDMA - City Lands
Toronto Port Lands
Toronto, Ontario
Waterfront Toronto

Sample Location:		BH18-441	BH18-441	BH18-441	BH18-442	BH18-442	BH18-442	BH18-443
Sample ID:		S-11102463-032019-DD-BH18-441-1.0-1.5	S-11102463-032019-DD-BH18-441-2.8-3.4	S-11102463-190321-JC-BH18-441-25-30	S-11102463-031419-SM-BH18-442-1.4-1.5MBGS	S-11102463-031519-DD-BH18-442-3.0-3.7	S-11102463-031519-DD-BH18-442-8.5-8.9	S-11102463-031419-SM-BH18-443-1.2-1.35MBGS
Sample Date:		3/20/2019	3/20/2019	3/21/2019	3/14/2019	3/15/2019	3/15/2019	3/14/2019
Sample Depth (m):		1.00-1.50	2.80-3.40	7.62-9.14	1.40-1.50	3.00-3.70	8.50-8.90	1.20-1.35
ALS COA:		L2248321	L2248321	L2248320	L2245079	L2245528	L2245528	L2245079
	Units							
Volatile Organic Compounds								
1,1,1,2-Tetrachloroethane	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
1,1,1-Trichloroethane	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
1,1,2,2-Tetrachloroethane	ug/g	ND(0.050)	ND(2.0)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
1,1,2-Trichloroethane	ug/g	ND(0.050)	ND(2.7)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
1,1-Dichloroethane	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
1,1-Dichloroethene	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
1,2-Dibromoethane (Ethylene dibromide)	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
1,2-Dichlorobenzene	ug/g	ND(0.050)	ND(2.0)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
1,2-Dichloroethane	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
1,2-Dichloropropane	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
1,3-Dichlorobenzene	ug/g	ND(0.050)	ND(2.0)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
1,4-Dichlorobenzene	ug/g	ND(0.050)	ND(2.0)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
2-Butanone (Methyl ethyl ketone) (MEK)	ug/g	ND(0.50)	ND(0.85)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	ug/g	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)
Acetone	ug/g	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)
Benzene	ug/g	0.119	0.150	0.0126	0.0752	ND(0.0068)	ND(0.0068)	0.568
Bromodichloromethane	ug/g	ND(0.050)	ND(6.1)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
Bromoform	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
Bromomethane (Methyl bromide)	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
Carbon tetrachloride	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
Chlordane	ug/g	ND(0.14)	ND(0.57)	-	-	ND(0.028)	-	-
Chlorobenzene	ug/g	ND(0.050)	ND(0.14)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
Chloroform (Trichloromethane)	ug/g	ND(0.050)	ND(0.55)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
cis-1,2-Dichloroethene	ug/g	ND(0.050)	ND(0.0011)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
cis-1,3-Dichloropropene	ug/g	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)
cis-1,3-Dichloropropene/trans-1,3-Dichloropropene	ug/g	ND(0.042)	ND(0.042)	ND(0.042)	ND(0.042)	ND(0.042)	ND(0.042)	ND(0.042)
Dibromochloromethane	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
Dichlorodifluoromethane (CFC-12)	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
Endosulfan	ug/g	ND(0.14)	ND(0.57)	-	-	ND(0.028)	-	-
Ethylbenzene	ug/g	0.089	0.166	ND(0.018)	0.057	ND(0.018)	ND(0.018)	0.175
Hexane	ug/g	0.294	1.24	0.150	ND(0.050)	ND(0.050)	ND(0.050)	0.483
m&p-Xylenes	ug/g	0.441	0.637	0.052	0.202	ND(0.030)	ND(0.030)	0.540
Methyl tert butyl ether (MTBE)	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
Methylene chloride	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
o-Xylene	ug/g	0.227	0.136	ND(0.020)	0.145	ND(0.020)	ND(0.020)	0.260
Styrene	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
Tetrachloroethene	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
Toluene	ug/g	0.360	0.203	ND(0.080)	0.226	ND(0.080)	ND(0.080)	0.403
trans-1,2-Dichloroethene	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
trans-1,3-Dichloropropene	ug/g	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)
Trichloroethene	ug/g	ND(0.010)	ND(0.010)	ND(0.010)	0.017	ND(0.010)	ND(0.010)	0.290
Trichlorofluoromethane (CFC-11)	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
Vinyl chloride	ug/g	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)
Xylenes (total)	ug/g	0.667	0.772	0.052	0.348	ND(0.050)	ND(0.050)	0.801
Semi-volatiles								
1-Methylnaphthalene	ug/g	0.270	6.80	ND(0.030)	0.250	0.065	ND(0.030)	0.194
2-Methylnaphthalene	ug/g	0.366	4.39	ND(0.030)	0.309	0.078	ND(0.030)	0.271
1-Methylnaphthalene/2-Methylnaphthalene	ug/g	0.636	11.2	ND(0.042)	0.559	0.143	ND(0.042)	0.464
2,4,5-Trichlorophenol	ug/g	ND(0.10)	ND(0.40)	-	ND(0.10)	ND(0.10)	-	ND(0.10)
2,4,6-Trichlorophenol	ug/g	ND(0.10)	ND(0.20)	-	ND(0.10)	ND(0.10)	-	ND(0.10)
2,4'-DDD	ug/g	ND(0.10)	ND(0.40)	-	ND(0.020)	ND(0.020)	-	ND(0.020)
2,4'-DDE	ug/g	ND(0.10)	ND(0.40)	-	ND(0.020)	ND(0.020)	-	ND(0.020)
2,4'-DDT	ug/g	ND(0.10)	ND(0.40)	-	ND(0.020)	ND(0.020)	-	ND(0.020)
2,4-Dichlorophenol	ug/g	ND(0.10)	ND(0.20)	-	ND(0.10)	ND(0.10)	-	ND(0.10)
2-Chlorophenol	ug/g	ND(0.10)	ND(0.20)	-	ND(0.10)	ND(0.10)	-	ND(0.10)
4,4'-DDD	ug/g	ND(0.10)	ND(0.40)	-	ND(0.020)	ND(0.020)	-	ND(0.020)
4,4'-DDE	ug/g	ND(0.10)	ND(0.40)	-	ND(0.020)	ND(0.020)	-	ND(0.020)
4,4'-DDT	ug/g	ND(0.20)	ND(0.40)	-	ND(0.020)	ND(0.10)	-	ND(0.020)
Acenaphthene	ug/g	0.092	2.64	0.050	0.318	0.205	ND(0.050)	0.083
Acenaphthylene	ug/g	0.057	0.17	ND(0.050)	0.113	0.152	ND(0.050)	0.162
Aldrin	ug/g	ND(0.10)	ND(0.40)	-	ND(0.020)	ND(0.020)	-	ND(0.020)
alpha-Chlordane	ug/g	ND(0.10)	ND(0.40)	-	ND(0.020)	ND(0.020)	-	ND(0.020)
Anthracene	ug/g	0.183	2.74	0.065	0.949	0.439	ND(0.050)	0.363
Benzo(a)anthracene	ug/g	0.565	5.48	0.116	2.82	1.71	ND(0.050)	1.35
Benzo(a)pyrene	ug/g	0.635	6.61	0.144	2.67	1.74	ND(0.050)	1.48
Benzo(b)fluoranthene	ug/g	0.611	6.61	0.154	2.55	1.54	ND(0.050)	1.47
Benzo(g,h,i)perylene	ug/g	0.383	3.61	0.130	2.01	1.07	ND(0.050)	1.19
Benzo(k)fluoranthene	ug/g	0.416	3.99	ND(0.050)	1.83	1.12	ND(0.050)	1.03
Chlordane	ug/g	-	-	-	ND(0.028)	-	-	ND(0.028)
Chlordane, technical	ug/g	ND(0.10)	ND(0.40)	-	ND(0.020)	ND(0.020)	-	ND(0.020)
Chrysene	ug/g	0.675	6.56	0.124	2.89	1.76	ND(0.050)	1.40
Dibenz(a,h)anthracene	ug/g	0.109	0.73	ND(0.050)	0.404	0.222	ND(0.050)	0.268
Dieldrin	ug/g	ND(0.10)	ND(0.40)	-	ND(0.020)	ND(0.020)	-	ND(0.020)
Endosulfan	ug/g	-	-	-	ND(0.028)	-	-	ND(0.028)
Endosulfan I	ug/g	ND(0.10)	ND(0.40)	-	ND(0.020)	ND(0.020)	-	ND(0.020)

Table 2

Soil Analytical Results
SDMA - City Lands
Toronto Port Lands
Toronto, Ontario
Waterfront Toronto

Sample Location:		BH18-441	BH18-441	BH18-441	BH18-442	BH18-442	BH18-442	BH18-443
Sample ID:		S-11102463-032019-DD-BH18-441-1.0-1.5	S-11102463-032019-DD-BH18-441-2.8-3.4	S-11102463-190321-JC-BH18-441-25-30	S-11102463-031419-SM-BH18-442-1.4-1.5MBGS	S-11102463-031519-DD-BH18-442-3.0-3.7	S-11102463-031519-DD-BH18-442-8.5-8.9	S-11102463-031419-SM-BH18-443-1.2-1.35MBGS
Sample Date:		3/20/2019	3/20/2019	3/21/2019	3/14/2019	3/15/2019	3/15/2019	3/14/2019
Sample Depth (m):		1.00-1.50	2.80-3.40	7.62-9.14	1.40-1.50	3.00-3.70	8.50-8.90	1.20-1.35
ALS COA:		L2248321	L2248321	L2248320	L2245079	L2245528	L2245528	L2245079
	Units							
Endosulfan II	ug/g	ND(0.10)	ND(0.40)	-	ND(0.020)	ND(0.020)	-	ND(0.020)
Endrin	ug/g	ND(0.10)	ND(0.40)	-	ND(0.020)	ND(0.020)	-	ND(0.020)
Fluoranthene	ug/g	0.835	10.0	0.252	4.69	2.92	ND(0.050)	2.08
Fluorene	ug/g	0.071	4.74	0.051	0.278	0.174	ND(0.050)	0.115
gamma-BHC (lindane)	ug/g	ND(0.050)	ND(1.3)	-	ND(0.14)	ND(0.050)	-	ND(0.027)
Heptachlor	ug/g	ND(0.10)	ND(0.40)	-	ND(0.020)	ND(0.020)	-	ND(0.020)
Heptachlor epoxide	ug/g	ND(0.10)	ND(0.40)	-	ND(0.020)	ND(0.020)	-	ND(0.020)
Hexachlorobenzene	ug/g	ND(0.050)	ND(0.20)	-	ND(0.010)	ND(0.050)	-	ND(0.010)
Hexachlorobutadiene	ug/g	ND(0.050)	ND(0.20)	-	ND(0.010)	ND(0.050)	-	ND(0.010)
Hexachloroethane	ug/g	ND(0.050)	ND(0.20)	-	ND(0.010)	ND(0.050)	-	ND(0.010)
Indeno(1,2,3-cd)pyrene	ug/g	0.390	4.36	0.100	2.12	1.17	ND(0.050)	1.18
Methoxychlor	ug/g	ND(0.20)	ND(0.40)	-	ND(0.020)	ND(0.10)	-	ND(0.020)
Naphthalene	ug/g	0.400	2.73	0.035	0.311	0.143	0.018	0.241
Pentachlorophenol	ug/g	ND(0.10)	ND(0.20)	-	ND(0.10)	ND(0.10)	-	ND(0.10)
Phenanthrene	ug/g	0.835	7.60	0.149	3.90	1.58	ND(0.046)	1.21
Pyrene	ug/g	0.775	9.48	0.241	4.72	2.87	ND(0.050)	1.98
Total DDD	ug/g	ND(0.14)	ND(0.57)	-	ND(0.028)	ND(0.028)	-	ND(0.028)
Total DDE	ug/g	ND(0.14)	ND(0.57)	-	ND(0.028)	ND(0.028)	-	ND(0.028)
Total DDT	ug/g	ND(0.22)	ND(0.57)	-	ND(0.028)	ND(0.10)	-	ND(0.028)
Metals								
Antimony	ug/g	2.4	13.0	ND(1.0)	37.0	1.9	ND(1.0)	6.5
Arsenic	ug/g	5.8	21.2	1.0	56.1	5.8	1.8	9.7
Barium	ug/g	63.2	317	32.0	1030	103	15.5	159
Beryllium	ug/g	ND(0.50)	0.72	ND(0.50)	1.19	ND(0.50)	ND(0.50)	ND(0.50)
Boron	ug/g	ND(5.0)	11.8	ND(5.0)	17.2	ND(5.0)	ND(5.0)	6.6
Boron (hot water extractable)	ug/g	0.50	1.28	0.14	0.69	0.66	0.15	1.02
Cadmium	ug/g	ND(0.50)	1.36	ND(0.50)	1.69	ND(0.50)	ND(0.50)	0.99
Calcium (available)	ug/L	14400	119000	22000	57300	43700	19400	85700
Chromium	ug/g	15.7	34.9	6.6	73.9	11.2	5.3	75.3
Chromium VI (hexavalent)	ug/g	ND(0.20)	ND(0.20)	ND(0.20)	ND(0.20)	0.24	ND(0.20)	0.23
Cobalt	ug/g	3.8	8.3	2.6	12.8	3.0	2.6	5.3
Copper	ug/g	31.3	419	4.0	762	29.0	4.2	98.7
Lead	ug/g	126	1320	7.2	2630	142	4.1	336
Magnesium (available)	ug/L	3180	10000	1920	1470	6540	1550	3470
Mercury	ug/g	0.213	1.15	0.0120	25.4	0.396	0.0065	1.22
Molybdenum	ug/g	ND(1.0)	2.7	ND(1.0)	5.2	ND(1.0)	ND(1.0)	1.0
Nickel	ug/g	10.1	31.6	5.1	41.3	6.7	5.0	18.7
Selenium	ug/g	ND(1.0)	2.7	ND(1.0)	4.5	ND(1.0)	ND(1.0)	ND(1.0)
Silver	ug/g	ND(0.20)	1.23	ND(0.20)	4.07	ND(0.20)	ND(0.20)	0.65
Sodium (available)	ug/L	426000	2240000	26000	421000	64400	64400	47900
Thallium	ug/g	ND(0.50)	ND(0.50)	ND(0.50)	0.56	ND(0.50)	ND(0.50)	ND(0.50)
Uranium	ug/g	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Vanadium	ug/g	19.5	27.5	9.4	38.1	11.9	10.4	21.3
Zinc	ug/g	87.6	822	18.9	1820	112	12.1	289
Petroleum Hydrocarbons								
Petroleum hydrocarbons F1 (C6-C10)	ug/g	7.0	800	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	9.5
Petroleum hydrocarbons F1 (C6-C10) - less BTEX	ug/g	5.8	800	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	7.5
Petroleum hydrocarbons F2 (C10-C16)	ug/g	19	3050	14	176	ND(10)	ND(10)	23
Petroleum hydrocarbons F2 minus Naphthalene	ug/g	18	3050	14	176	ND(10)	ND(10)	23
Petroleum hydrocarbons F3 (C16-C34)	ug/g	326	16700	92	1850	190	96	328
Petroleum hydrocarbons F3 minus PAH	ug/g	321	16600	91	1820	175	96	316
Petroleum hydrocarbons F4 (C34-C50)	ug/g	349	7870	ND(50)	580	71	ND(50)	165
Petroleum hydrocarbons F4 gravimetric - silica gel (GHH)	ug/g	890	19100	-	1530	-	-	380
Total Petroleum Hydrocarbons (C6-C50)	ug/g	701	28400	106	2600	261	96	526
PCBs								
Aroclor-1242 (PCB-1242)	ug/g	ND(0.010)	ND(0.30)	-	ND(0.010)	ND(0.015)	-	ND(0.010)
Aroclor-1248 (PCB-1248)	ug/g	ND(0.010)	ND(0.10)	-	ND(0.010)	ND(0.010)	-	ND(0.010)
Aroclor-1254 (PCB-1254)	ug/g	ND(0.010)	ND(0.10)	-	ND(0.010)	ND(0.010)	-	ND(0.010)
Aroclor-1260 (PCB-1260)	ug/g	ND(0.020)	ND(0.10)	-	ND(0.010)	ND(0.010)	-	ND(0.025)
Total PCBs	ug/g	ND(0.030)	ND(0.35)	-	ND(0.020)	ND(0.025)	-	ND(0.030)
General Chemistry								
Conductivity	mS/cm	2.28	10.4	0.291	2.36	0.665	0.483	0.727
Cyanide, weak acid dissociable	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	0.102	ND(0.050)	ND(0.050)	ND(0.050)
Moisture	%	9.30	33.1	18.4	30.2	30.4	15.1	11.7
pH, lab	s.u.	7.90	7.84	7.35	7.35	7.05	7.71	7.69
Sodium adsorption ratio (SAR)	none	26.5	52.8	1.43	15.0	2.40	3.78	1.38

Notes:

ND(0.050) Not detected at the associated reporting limit, indicated in brackets
COA Certificate of Analysis
µg/g micrograms per gram
s.u. standard units
mS/cm milliSiemens per centimeter
J Estimated concentration.

Table 2

Soil Analytical Results
SDMA - City Lands
Toronto Port Lands
Toronto, Ontario
Waterfront Toronto

Sample Location:		BH18-443	BH18-443	BH18-444	BH18-444	BH18-444	BH18-445	BH18-445	BH18-445
Sample ID:		S-11102463-190321-JC-BH18-443-20-22	S-11102463-190321-JC-BH18-443-35.5-36	S-11102463-032019-JC-BH18-444-1.0-2.0	S-11102463-032119-EN-BH18-444-10-12	S-11102463-032119-EN-BH18-444-15-17	S-031919-EN-BH-18-445-2.5-4.5	S-031919-EN-BH-18-445-17.5-19.5	S-031919-EN-BH-18-445-27.5-29.5
Sample Date:		3/21/2019	3/21/2019	3/20/2019	3/21/2019	3/21/2019	3/19/2019	3/19/2019	3/19/2019
Sample Depth (m):		6.10-6.71	10.82-10.97	0.30-0.61	3.05-3.66	4.57-5.18	0.76-1.37	5.33-5.94	8.38-8.99
ALS COA:		L2248319	L2248319	L2247725	L2247725	L2247725	L2247121	L2247121	L2247121
	Units								
Volatile Organic Compounds									
1,1,1,2-Tetrachloroethane	ug/g	ND(0.20)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.26)	ND(0.050)
1,1,1-Trichloroethane	ug/g	ND(0.20)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.26)	ND(0.050)
1,1,2,2-Tetrachloroethane	ug/g	ND(0.20)	ND(0.050)	ND(0.050)	ND(0.26)	ND(0.050)	ND(0.050)	ND(0.26)	ND(0.050)
1,1,2-Trichloroethane	ug/g	ND(0.20)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.26)	ND(0.050)
1,1-Dichloroethane	ug/g	ND(0.20)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.26)	ND(0.050)
1,1-Dichloroethene	ug/g	ND(0.20)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.26)	ND(0.050)
1,2-Dibromoethane (Ethylene dibromide)	ug/g	ND(0.20)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.26)	ND(0.050)
1,2-Dichlorobenzene	ug/g	ND(0.20)	ND(0.050)	ND(0.050)	ND(0.80)	ND(0.050)	ND(0.050)	ND(0.26)	ND(0.050)
1,2-Dichloroethane	ug/g	ND(0.20)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.26)	ND(0.050)
1,2-Dichloropropane	ug/g	ND(0.20)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.26)	ND(0.050)
1,3-Dichlorobenzene	ug/g	ND(0.20)	ND(0.050)	ND(0.050)	ND(0.80)	ND(0.050)	ND(0.050)	ND(0.26)	ND(0.050)
1,4-Dichlorobenzene	ug/g	ND(0.20)	ND(0.050)	ND(0.050)	ND(0.80)	ND(0.050)	ND(0.050)	ND(0.26)	ND(0.050)
2-Butanone (Methyl ethyl ketone) (MEK)	ug/g	ND(2.0)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(2.5)	ND(0.50)
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	ug/g	ND(2.0)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(2.5)	ND(0.50)
Acetone	ug/g	ND(2.0)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(2.5)	ND(0.50)
Benzene	ug/g	ND(0.027)	ND(0.0068)	ND(0.0068)	0.0633	ND(0.0068)	ND(0.0068)	ND(0.035)	ND(0.0068)
Bromodichloromethane	ug/g	ND(0.20)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.26)	ND(0.050)
Bromoform	ug/g	ND(0.20)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.26)	ND(0.050)
Bromomethane (Methyl bromide)	ug/g	ND(0.20)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.26)	ND(0.050)
Carbon tetrachloride	ug/g	ND(0.20)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.26)	ND(0.050)
Chlordane	ug/g	ND(0.085)	-	ND(0.028)	ND(0.028)	-	ND(0.028)	-	-
Chlorobenzene	ug/g	ND(0.20)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.26)	ND(0.050)
Chloroform (Trichloromethane)	ug/g	ND(0.20)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.26)	ND(0.050)
cis-1,2-Dichloroethene	ug/g	ND(0.20)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.26)	ND(0.050)
cis-1,3-Dichloropropene	ug/g	ND(0.12)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.15)	ND(0.030)
cis-1,3-Dichloropropene/trans-1,3-Dichloropropene	ug/g	ND(0.17)	ND(0.042)	ND(0.042)	ND(0.042)	ND(0.042)	ND(0.042)	ND(0.22)	ND(0.042)
Dibromochloromethane	ug/g	ND(0.20)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.26)	ND(0.050)
Dichlorodifluoromethane (CFC-12)	ug/g	ND(0.20)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.26)	ND(0.050)
Endosulfan	ug/g	ND(0.085)	-	ND(0.028)	ND(0.028)	-	ND(0.028)	-	-
Ethylbenzene	ug/g	ND(0.072)	ND(0.018)	ND(0.018)	0.022	ND(0.018)	ND(0.018)	ND(0.092)	ND(0.018)
Hexane	ug/g	ND(0.20)	ND(0.050)	ND(0.050)	0.058	ND(0.050)	ND(0.050)	ND(0.26)	ND(0.050)
m&p-Xylenes	ug/g	ND(0.12)	ND(0.030)	0.031	0.090	ND(0.030)	ND(0.030)	ND(0.15)	ND(0.030)
Methyl tert butyl ether (MTBE)	ug/g	ND(0.20)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.26)	ND(0.050)
Methylene chloride	ug/g	ND(0.20)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.26)	ND(0.050)
o-Xylene	ug/g	ND(0.080)	ND(0.020)	ND(0.020)	0.034	ND(0.020)	ND(0.020)	ND(0.0010)	ND(0.020)
Styrene	ug/g	ND(0.20)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.26)	ND(0.050)
Tetrachloroethene	ug/g	ND(0.20)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.26)	ND(0.050)
Toluene	ug/g	ND(0.32)	ND(0.080)	0.103	0.098	ND(0.080)	ND(0.080)	ND(0.0041)	ND(0.080)
trans-1,2-Dichloroethene	ug/g	ND(0.20)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.26)	ND(0.050)
trans-1,3-Dichloropropene	ug/g	ND(0.12)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.15)	ND(0.030)
Trichloroethene	ug/g	ND(0.040)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.051)	ND(0.010)
Trichlorofluoromethane (CFC-11)	ug/g	ND(0.20)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.26)	ND(0.050)
Vinyl chloride	ug/g	ND(0.080)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.0010)	ND(0.020)
Xylenes (total)	ug/g	ND(0.14)	ND(0.050)	ND(0.050)	0.124	ND(0.050)	ND(0.050)	ND(0.18)	ND(0.050)
Semi-volatiles									
1-Methylnaphthalene	ug/g	ND(0.15)	ND(0.030)	0.092	0.101	0.040	ND(0.030)	ND(0.090)	ND(0.030)
2-Methylnaphthalene	ug/g	ND(0.15)	ND(0.030)	0.126	ND(0.060)	ND(0.030)	ND(0.030)	ND(0.090)	ND(0.030)
1-Methylnaphthalene/2-Methylnaphthalene	ug/g	ND(0.21)	ND(0.042)	0.218	0.101	ND(0.042)	ND(0.042)	ND(0.13)	ND(0.042)
2,4,5-Trichlorophenol	ug/g	ND(0.50)	-	ND(0.10)	ND(0.20)	-	ND(0.10)	-	-
2,4,6-Trichlorophenol	ug/g	ND(0.50)	-	ND(0.10)	ND(0.20)	-	ND(0.10)	-	-
2,4'-DDD	ug/g	ND(0.060)	-	ND(0.020)	ND(0.020)	-	ND(0.020)	-	-
2,4'-DDE	ug/g	ND(0.060)	-	ND(0.020)	ND(0.020)	-	ND(0.020)	-	-
2,4'-DDT	ug/g	ND(0.30)	-	ND(0.020)	ND(0.020)	-	ND(0.020)	-	-
2,4-Dichlorophenol	ug/g	ND(0.50)	-	ND(0.10)	ND(0.20)	-	ND(0.10)	-	-
2-Chlorophenol	ug/g	ND(0.50)	-	ND(0.10)	ND(0.20)	-	ND(0.10)	-	-
4,4'-DDD	ug/g	ND(0.060)	-	ND(0.020)	ND(0.020)	-	ND(0.020)	-	-
4,4'-DDE	ug/g	ND(0.060)	-	ND(0.020)	ND(0.020)	-	ND(0.020)	-	-
4,4'-DDT	ug/g	ND(0.30)	-	ND(0.10)	ND(0.10)	-	ND(0.10)	-	-
Acenaphthene	ug/g	ND(0.25)	ND(0.050)	0.141	ND(0.10)	ND(0.050)	ND(0.050)	0.19	ND(0.050)
Acenaphthylene	ug/g	ND(0.25)	ND(0.050)	ND(0.050)	ND(0.10)	ND(0.050)	ND(0.050)	ND(0.15)	ND(0.050)
Aldrin	ug/g	ND(0.060)	-	ND(0.020)	ND(0.020)	-	ND(0.020)	-	-
alpha-Chlordane	ug/g	ND(0.060)	-	ND(0.020)	ND(0.020)	-	ND(0.020)	-	-
Anthracene	ug/g	ND(0.25)	ND(0.050)	0.128	ND(0.10)	ND(0.050)	ND(0.050)	0.17	ND(0.050)
Benzo(a)anthracene	ug/g	ND(0.25)	ND(0.050)	0.293	ND(0.10)	0.135	ND(0.050)	0.62	ND(0.050)
Benzo(a)pyrene	ug/g	ND(0.25)	ND(0.050)	0.275	ND(0.10)	0.078	ND(0.050)	0.47	ND(0.050)
Benzo(b)fluoranthene	ug/g	ND(0.25)	ND(0.050)	0.288	ND(0.10)	0.171	ND(0.050)	0.67	ND(0.050)
Benzo(g,h,i)perylene	ug/g	ND(0.25)	ND(0.050)	0.236	ND(0.10)	0.075 J	ND(0.050)	0.32	ND(0.050)
Benzo(k)fluoranthene	ug/g	ND(0.25)	ND(0.050)	0.190	ND(0.10)	0.051	ND(0.050)	0.19	ND(0.050)
Chlordane	ug/g	-	-	-	-	-	-	-	-
Chlordane, technical	ug/g	ND(0.060)	-	ND(0.020)	ND(0.020)	-	ND(0.020)	-	-
Chrysene	ug/g	ND(0.25)	ND(0.050)	0.322	ND(0.10)	0.158	ND(0.050)	0.54	ND(0.050)
Dibenz(a,h)anthracene	ug/g	ND(0.25)	ND(0.050)	ND(0.050)	ND(0.10)	ND(0.050)	ND(0.050)	ND(0.15)	ND(0.050)
Dieldrin	ug/g	ND(0.060)	-	ND(0.020)	ND(0.020)	-	ND(0.020)	-	-
Endosulfan	ug/g	-	-	-	-	-	-	-	-
Endosulfan I	ug/g	ND(0.060)	-	ND(0.020)	ND(0.020)	-	ND(0.020)	-	-

Table 2

Soil Analytical Results
SDMA - City Lands
Toronto Port Lands
Toronto, Ontario
Waterfront Toronto

Sample Location:		**BH18-443**	**BH18-443**	**BH18-444**	**BH18-444**	**BH18-444**	**BH18-445**	**BH18-445**	**BH18-445**
Sample ID:		**S-11102463-190321-JC-BH18-443-20-22**	**S-11102463-190321-JC-BH18-443-35.5-36**	**S-11102463-032019-JC-BH18-444-1.0-2.0**	**S-11102463-032119-EN-BH18-444-10-12**	**S-11102463-032119-EN-BH18-444-15-17**	**S-031919-EN-BH-18-445-2.5-4.5**	**S-031919-EN-BH-18-445-17.5-19.5**	**S-031919-EN-BH-18-445-27.5-29.5**
Sample Date:		**3/21/2019**	**3/21/2019**	**3/20/2019**	**3/21/2019**	**3/21/2019**	**3/19/2019**	**3/19/2019**	**3/19/2019**
Sample Depth (m):		**6.10-6.71**	**10.82-10.97**	**0.30-0.61**	**3.05-3.66**	**4.57-5.18**	**0.76-1.37**	**5.33-5.94**	**8.38-8.99**
ALS COA:		**L2248319**	**L2248319**	**L2247725**	**L2247725**	**L2247725**	**L2247121**	**L2247121**	**L2247121**
	Units								
Endosulfan II	ug/g	ND(0.060)	-	ND(0.020)	ND(0.020)	-	ND(0.020)	-	-
Endrin	ug/g	ND(0.060)	-	ND(0.020)	ND(0.020)	-	ND(0.020)	-	-
Fluoranthene	ug/g	0.29	ND(0.050)	0.698	0.19	0.226	ND(0.050)	1.19	ND(0.050)
Fluorene	ug/g	ND(0.25)	ND(0.050)	0.151	ND(0.10)	ND(0.050)	ND(0.050)	0.25	ND(0.050)
gamma-BHC (lindane)	ug/g	ND(0.15)	-	ND(0.050)	ND(0.050)	-	ND(0.050)	-	-
Heptachlor	ug/g	ND(0.060)	-	ND(0.020)	ND(0.020)	-	ND(0.020)	-	-
Heptachlor epoxide	ug/g	ND(0.060)	-	ND(0.020)	ND(0.020)	-	ND(0.020)	-	-
Hexachlorobenzene	ug/g	ND(0.15)	-	ND(0.050)	ND(0.050)	-	ND(0.050)	-	-
Hexachlorobutadiene	ug/g	ND(0.15)	-	ND(0.050)	ND(0.050)	-	ND(0.050)	-	-
Hexachloroethane	ug/g	ND(0.15)	-	ND(0.050)	ND(0.050)	-	ND(0.050)	-	-
Indeno(1,2,3-cd)pyrene	ug/g	ND(0.25)	ND(0.050)	0.242	ND(0.10)	0.063	ND(0.050)	0.26	ND(0.050)
Methoxychlor	ug/g	ND(0.30)	-	ND(0.10)	ND(0.10)	-	ND(0.10)	-	-
Naphthalene	ug/g	ND(0.25)	ND(0.013)	0.083	ND(0.10)	0.033	ND(0.013)	0.112	ND(0.013)
Pentachlorophenol	ug/g	ND(0.50)	-	ND(0.10)	ND(0.20)	-	ND(0.10)	-	-
Phenanthrene	ug/g	0.29	ND(0.046)	0.650	ND(0.10)	0.128	ND(0.046)	0.72	ND(0.046)
Pyrene	ug/g	0.28	ND(0.050)	0.619	0.20	0.244	ND(0.050)	1.02	ND(0.050)
Total DDD	ug/g	ND(0.085)	-	ND(0.028)	ND(0.028)	-	ND(0.028)	-	-
Total DDE	ug/g	ND(0.085)	-	ND(0.028)	ND(0.028)	-	ND(0.028)	-	-
Total DDT	ug/g	ND(0.42)	-	ND(0.10)	ND(0.10)	-	ND(0.10)	-	-
Metals									
Antimony	ug/g	ND(1.0)	ND(1.0)	3.0	4.3	ND(1.0)	ND(1.0)	1.3	ND(1.0)
Arsenic	ug/g	2.9	ND(1.0)	4.3	27.6	3.1	2.3	9.7	1.4
Barium	ug/g	82.1	16.0	98.9	242	159	56.0	486	21.5
Beryllium	ug/g	ND(0.50)	ND(0.50)	ND(0.50)	1.00	0.53	ND(0.50)	ND(0.50)	ND(0.50)
Boron	ug/g	6.9	ND(5.0)	5.9	27.3	5.3	5.8	14.0	ND(5.0)
Boron (hot water extractable)	ug/g	1.69	ND(0.10)	0.40	2.11	2.32	0.13	0.77	0.11
Cadmium	ug/g	ND(0.50)	ND(0.50)	1.59	6.44	ND(0.50)	ND(0.50)	2.42	ND(0.50)
Calcium (available)	ug/L	44000	22300	26000	347000	59000	35100	40000	24800
Chromium	ug/g	21.6	5.3	31.0	37.6	22.5	15.4	21.0	5.9
Chromium VI (hexavalent)	ug/g	ND(2.0)	ND(0.20)	ND(0.20)	ND(0.20)	ND(0.20)	ND(0.20)	ND(2.0)	ND(0.20)
Cobalt	ug/g	6.7	2.3	6.1	16.3	6.2	4.9	5.3	2.0
Copper	ug/g	27.2	7.0	61.3	285	29.8	11.5	82.3	5.7
Lead	ug/g	24.9	3.8	190	783	71.3	10.3	275	16.4
Magnesium (available)	ug/L	5720	2370	1200	23700	3740	8500	5300	2200
Mercury	ug/g	0.0544	0.0063	0.302	0.417	0.459	1.48	0.570	0.0260
Molybdenum	ug/g	1.5	ND(1.0)	1.3	3.8	ND(1.0)	ND(1.0)	1.7	ND(1.0)
Nickel	ug/g	15.8	4.9	17.4	43.5	12.8	10.6	14.5	4.7
Selenium	ug/g	ND(1.0)	ND(1.0)	ND(1.0)	1.7	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Silver	ug/g	ND(0.20)	ND(0.20)	0.63	1.02	0.26	ND(0.20)	0.30	ND(0.20)
Sodium (available)	ug/L	50800	39900	12300	78900	30700	87900	66500	17700
Thallium	ug/g	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)
Uranium	ug/g	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Vanadium	ug/g	24.6	9.2	23.0	35.7	27.9	25.3	20.5	8.4
Zinc	ug/g	72.8	13.8	151	2030	127	32.7	895	42.7
Petroleum Hydrocarbons									
Petroleum hydrocarbons F1 (C6-C10)	ug/g	ND(20)	ND(5.0)	ND(5.0)	45.1	ND(5.0)	ND(5.0)	ND(26)	ND(5.0)
Petroleum hydrocarbons F1 (C6-C10) - less BTEX	ug/g	ND(20)	ND(5.0)	ND(5.0)	44.8	ND(5.0)	ND(5.0)	ND(26)	ND(5.0)
Petroleum hydrocarbons F2 (C10-C16)	ug/g	27	ND(10)	ND(10)	3150	45	14	206	ND(10)
Petroleum hydrocarbons F2 minus Naphthalene	ug/g	ND(30)	ND(10)	ND(10)	3150	45	14	206	ND(10)
Petroleum hydrocarbons F3 (C16-C34)	ug/g	193	ND(50)	79	1520	73	94	540	ND(50)
Petroleum hydrocarbons F3 minus PAH	ug/g	190	ND(50)	76	1520	71	94	540	ND(50)
Petroleum hydrocarbons F4 (C34-C50)	ug/g	99	ND(50)	ND(50)	167	ND(50)	129	ND(150)	ND(50)
Petroleum hydrocarbons F4 gravimetric - silica gel (GHH)	ug/g	-	-	-	-	-	520	-	-
Total Petroleum Hydrocarbons (C6-C50)	ug/g	ND(220)	ND(72)	79	4890	117	236	750	ND(72)
PCBs									
Aroclor-1242 (PCB-1242)	ug/g	ND(0.030)	-	ND(0.010)	ND(0.030)	-	ND(0.010)	-	-
Aroclor-1248 (PCB-1248)	ug/g	ND(0.030)	-	ND(0.010)	ND(0.010)	-	ND(0.010)	-	-
Aroclor-1254 (PCB-1254)	ug/g	ND(0.030)	-	ND(0.015)	ND(0.010)	-	ND(0.010)	-	-
Aroclor-1260 (PCB-1260)	ug/g	ND(0.030)	-	0.051	ND(0.010)	-	ND(0.050)	-	-
Total PCBs	ug/g	ND(0.060)	-	0.051	ND(0.035)	-	ND(0.060)	-	-
General Chemistry									
Conductivity	mS/cm	0.671	0.417	0.207	2.00	0.584	0.379	1.26	0.272
Cyanide, weak acid dissociable	ug/g	0.245	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	0.211	ND(0.050)
Moisture	%	72.2	13.4	11.3	42.6	35.3	9.03	74.3	18.4
pH, lab	s.u.	7.00	8.07	7.54	7.13	7.14	7.77	6.99	7.50
Sodium adsorption ratio (SAR)	none	1.91	2.15	0.64	1.11	1.05	3.45	2.62	0.91

Notes:

ND(0.050) Not detected at the associated reporting limit, indicated in brackets
COA Certificate of Analysis
µg/g micrograms per gram
s.u. standard units
mS/cm milliSiemens per centimeter
J Estimated concentration.

Table 2

Soil Analytical Results
SDMA - City Lands
Toronto Port Lands
Toronto, Ontario
Waterfront Toronto

Sample Location:		BH18-463	BH18-463	BH18-463	BH18-465	BH18-465	BH18-465	BH18-467
Sample ID:		S-11102463-032019-EN-BH18-463-1-2	S-11102463-032119-EN-BH18-463-10-12	S-11102463-032119-EN-BH18-463-15-17	S-11102463-190322-JC-BH18-465-2.5-4.5	S-11102463-190322-JC-BH18-465-10-12	S-11102463-190322-JC-BH18-465-25-27	S-11102463-031319-SM-BH18-467-1.1-1.15MBGS
Sample Date:		3/20/2019	3/21/2019	3/21/2019	3/22/2019	3/22/2019	3/22/2019	3/13/2019
Sample Depth (m):		0.30-0.61	3.05-3.66	4.57-5.19	0.76-1.37	3.05-3.66	7.62-8.23	1.10-1.15
ALS COA:		L2247735	L2247735	L2247735	L2248315	L2248315	L2248315	L2244522
	Units							
Volatile Organic Compounds								
1,1,1,2-Tetrachloroethane	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.14)	ND(0.050)	ND(0.050)
1,1,1-Trichloroethane	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.14)	ND(0.050)	ND(0.050)
1,1,2,2-Tetrachloroethane	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.14)	ND(0.050)	ND(0.050)
1,1,2-Trichloroethane	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.14)	ND(0.050)	ND(0.050)
1,1-Dichloroethane	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.14)	ND(0.050)	ND(0.050)
1,1-Dichloroethene	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.14)	ND(0.050)	ND(0.050)
1,2-Dibromoethane (Ethylene dibromide)	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.14)	ND(0.050)	ND(0.050)
1,2-Dichlorobenzene	ug/g	ND(0.050)	ND(1.0)	ND(0.050)	ND(0.050)	ND(0.14)	ND(0.050)	ND(0.050)
1,2-Dichloroethane	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.14)	ND(0.050)	ND(0.050)
1,2-Dichloropropane	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.14)	ND(0.050)	ND(0.050)
1,3-Dichlorobenzene	ug/g	ND(0.050)	ND(1.0)	ND(0.050)	ND(0.050)	ND(0.14)	ND(0.050)	ND(0.050)
1,4-Dichlorobenzene	ug/g	ND(0.050)	ND(1.0)	ND(0.050)	ND(0.050)	ND(0.14)	ND(0.050)	ND(0.050)
2-Butanone (Methyl ethyl ketone) (MEK)	ug/g	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(1.4)	ND(0.50)	ND(0.50)
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	ug/g	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(1.4)	ND(0.50)	ND(0.50)
Acetone	ug/g	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(1.4)	ND(0.50)	ND(0.50)
Benzene	ug/g	0.0168	0.0087	ND(0.0068)	0.176	0.071	ND(0.0068)	0.0194
Bromodichloromethane	ug/g	ND(0.050)	ND(0.060)	ND(0.050)	ND(0.050)	ND(0.14)	ND(0.050)	ND(0.050)
Bromoform	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.14)	ND(0.050)	ND(0.050)
Bromomethane (Methyl bromide)	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.14)	ND(0.050)	ND(0.050)
Carbon tetrachloride	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.14)	ND(0.050)	ND(0.050)
Chlordane	ug/g	ND(0.028)	ND(0.028)	-	ND(0.028)	ND(0.028)	-	-
Chlorobenzene	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.14)	ND(0.050)	ND(0.050)
Chloroform (Trichloromethane)	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.14)	ND(0.050)	ND(0.050)
cis-1,2-Dichloroethene	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.14)	ND(0.050)	ND(0.050)
cis-1,3-Dichloropropene	ug/g	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.081)	ND(0.030)	ND(0.030)
cis-1,3-Dichloropropene/trans-1,3-Dichloropropene	ug/g	ND(0.042)	ND(0.042)	ND(0.042)	ND(0.042)	ND(0.11)	ND(0.042)	ND(0.042)
Dibromochloromethane	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.14)	ND(0.050)	ND(0.050)
Dichlorodifluoromethane (CFC-12)	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.14)	ND(0.050)	ND(0.050)
Endosulfan	ug/g	ND(0.028)	ND(0.028)	-	ND(0.10)	ND(0.10)	-	-
Ethylbenzene	ug/g	ND(0.018)	ND(0.018)	ND(0.018)	0.158	ND(0.049)	ND(0.018)	0.030
Hexane	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	0.415	0.14	ND(0.050)	0.072
m&p-Xylenes	ug/g	0.068	ND(0.030)	ND(0.030)	0.417	0.154	ND(0.030)	0.098
Methyl tert butyl ether (MTBE)	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.14)	ND(0.050)	ND(0.050)
Methylene chloride	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.14)	ND(0.050)	ND(0.050)
o-Xylene	ug/g	0.040	ND(0.020)	ND(0.020)	0.115	ND(0.054)	ND(0.020)	0.073
Styrene	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.14)	ND(0.050)	ND(0.050)
Tetrachloroethene	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.14)	ND(0.050)	ND(0.050)
Toluene	ug/g	ND(0.080)	ND(0.080)	ND(0.080)	0.277	0.27	ND(0.080)	0.085
trans-1,2-Dichloroethene	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.14)	ND(0.050)	ND(0.050)
trans-1,3-Dichloropropene	ug/g	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.081)	ND(0.030)	ND(0.030)
Trichloroethene	ug/g	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.027)	ND(0.010)	0.044
Trichlorofluoromethane (CFC-11)	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.14)	ND(0.050)	ND(0.050)
Vinyl chloride	ug/g	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.054)	ND(0.020)	ND(0.020)
Xylenes (total)	ug/g	0.108	ND(0.050)	ND(0.050)	0.533	0.154	ND(0.050)	0.172
Semi-volatiles								
1-Methylnaphthalene	ug/g	0.147	1.02	ND(0.030)	0.366	0.477	ND(0.030)	0.219
2-Methylnaphthalene	ug/g	0.210	0.209	ND(0.030)	0.331	0.165	ND(0.030)	0.239
1-Methylnaphthalene/2-Methylnaphthalene	ug/g	0.357	1.23	ND(0.042)	0.697	0.642	ND(0.042)	0.458
2,4,5-Trichlorophenol	ug/g	ND(0.20)	ND(0.20)	-	ND(0.10)	ND(0.10)	-	ND(0.10)
2,4,6-Trichlorophenol	ug/g	ND(0.20)	ND(0.20)	-	ND(0.10)	ND(0.10)	-	ND(0.10)
2,4'-DDD	ug/g	ND(0.020)	ND(0.020)	-	ND(0.020)	ND(0.020)	-	ND(0.020)
2,4'-DDE	ug/g	ND(0.020)	ND(0.020)	-	ND(0.020)	ND(0.020)	-	ND(0.020)
2,4'-DDT	ug/g	ND(0.020)	ND(0.020)	-	ND(0.10)	ND(0.10)	-	ND(0.020)
2,4-Dichlorophenol	ug/g	ND(0.20)	ND(0.20)	-	ND(0.10)	ND(0.10)	-	ND(0.10)
2-Chlorophenol	ug/g	ND(0.20)	ND(0.20)	-	ND(0.10)	ND(0.10)	-	ND(0.10)
4,4'-DDD	ug/g	ND(0.020)	ND(0.020)	-	ND(0.020)	ND(0.020)	-	0.039
4,4'-DDE	ug/g	ND(0.020)	ND(0.020)	-	ND(0.020)	ND(0.020)	-	ND(0.020)
4,4'-DDT	ug/g	ND(0.10)	ND(0.10)	-	ND(0.10)	ND(0.10)	-	ND(0.020)
Acenaphthene	ug/g	0.41	0.64	ND(0.050)	0.700	0.664	ND(0.050)	0.777
Acenaphthylene	ug/g	ND(0.10)	ND(0.10)	ND(0.050)	0.150	ND(0.050)	ND(0.050)	0.134
Aldrin	ug/g	ND(0.020)	ND(0.020)	-	ND(0.020)	ND(0.020)	-	ND(0.020)
alpha-Chlordane	ug/g	ND(0.020)	ND(0.020)	-	ND(0.020)	ND(0.020)	-	ND(0.020)
Anthracene	ug/g	1.27	0.67	ND(0.050)	2.32	0.256	ND(0.050)	2.05
Benzo(a)anthracene	ug/g	1.28	0.78	ND(0.050)	4.34	0.441	ND(0.050)	4.06
Benzo(a)pyrene	ug/g	0.84	0.61	ND(0.050)	4.10	0.318	ND(0.050)	3.46
Benzo(b)fluoranthene	ug/g	0.88	0.61	ND(0.050)	4.07	0.321	ND(0.050)	3.50
Benzo(g,h,i)perylene	ug/g	0.57	0.43	ND(0.050)	2.94	0.291	ND(0.050)	2.08
Benzo(k)fluoranthene	ug/g	0.62	0.42	ND(0.050)	2.97	0.217	ND(0.050)	2.67
Chlordane	ug/g	-	-	-	-	-	-	ND(0.028)
Chlordane, technical	ug/g	ND(0.020)	ND(0.020)	-	ND(0.020)	ND(0.020)	-	ND(0.020)
Chrysene	ug/g	1.12	0.69	ND(0.050)	4.19	0.569	ND(0.050)	3.90
Dibenz(a,h)anthracene	ug/g	0.16	ND(0.10)	ND(0.050)	0.690	0.075	ND(0.050)	0.435
Dieldrin	ug/g	ND(0.020)	ND(0.020)	-	ND(0.020)	ND(0.020)	-	ND(0.020)
Endosulfan	ug/g	-	-	-	-	-	-	ND(0.028)
Endosulfan I	ug/g	ND(0.020)	ND(0.020)	-	ND(0.020)	ND(0.020)	-	ND(0.020)

Table 2

Soil Analytical Results
SDMA - City Lands
Toronto Port Lands
Toronto, Ontario
Waterfront Toronto

Sample Location:		BH18-463	BH18-463	BH18-463	BH18-465	BH18-465	BH18-465	BH18-467
Sample ID:		S-11102463-032019-EN-BH18-463-1-2	S-11102463-032119-EN-BH18-463-10-12	S-11102463-032119-EN-BH18-463-15-17	S-11102463-190322-JC-BH18-465-2.5-4.5	S-11102463-190322-JC-BH18-465-10-12	S-11102463-190322-JC-BH18-465-25-27	S-11102463-031319-SM-BH18-467-1.1-1.15MBGS
Sample Date:		3/20/2019	3/21/2019	3/21/2019	3/22/2019	3/22/2019	3/22/2019	3/13/2019
Sample Depth (m):		0.30-0.61	3.05-3.66	4.57-5.19	0.76-1.37	3.05-3.66	7.62-8.23	1.10-1.15
ALS COA:		L2247735	L2247735	L2247735	L2248315	L2248315	L2248315	L2244522
	Units							
Endosulfan II	ug/g	ND(0.020)	ND(0.020)	-	ND(0.10)	ND(0.10)	-	ND(0.020)
Endrin	ug/g	ND(0.020)	ND(0.020)	-	ND(0.020)	ND(0.020)	-	ND(0.020)
Fluoranthene	ug/g	3.15	1.80	ND(0.050)	9.60	1.01	ND(0.050)	8.34
Fluorene	ug/g	0.70	1.03	ND(0.050)	0.958	0.532	ND(0.050)	1.16
gamma-BHC (lindane)	ug/g	ND(0.050)	ND(0.050)	-	ND(0.10)	ND(0.10)	-	ND(0.15)
Heptachlor	ug/g	ND(0.020)	ND(0.020)	-	ND(0.020)	ND(0.020)	-	ND(0.020)
Heptachlor epoxide	ug/g	ND(0.020)	ND(0.020)	-	ND(0.020)	ND(0.020)	-	ND(0.020)
Hexachlorobenzene	ug/g	ND(0.050)	ND(0.050)	-	ND(0.10)	ND(0.10)	-	ND(0.010)
Hexachlorobutadiene	ug/g	ND(0.050)	ND(0.050)	-	ND(0.10)	ND(0.10)	-	ND(0.010)
Hexachloroethane	ug/g	ND(0.050)	ND(0.050)	-	ND(0.10)	ND(0.10)	-	ND(0.010)
Indeno(1,2,3-cd)pyrene	ug/g	0.64	0.47	ND(0.050)	3.17	0.280	ND(0.050)	2.52
Methoxychlor	ug/g	ND(0.10)	ND(0.10)	-	ND(0.10)	ND(0.10)	-	ND(0.020)
Naphthalene	ug/g	0.33	ND(0.20)	ND(0.013)	0.488	ND(0.10)	ND(0.013)	0.378
Pentachlorophenol	ug/g	ND(0.20)	ND(0.20)	-	ND(0.10)	ND(0.10)	-	ND(0.10)
Phenanthrene	ug/g	4.34	2.13	0.049	8.21	0.566	ND(0.046)	7.43
Pyrene	ug/g	2.37	1.38	ND(0.050)	7.72	1.03	ND(0.050)	6.19
Total DDD	ug/g	ND(0.028)	ND(0.028)	-	ND(0.028)	ND(0.028)	-	0.039
Total DDE	ug/g	ND(0.028)	ND(0.028)	-	ND(0.028)	ND(0.028)	-	ND(0.028)
Total DDT	ug/g	ND(0.10)	ND(0.10)	-	ND(0.14)	ND(0.14)	-	ND(0.028)
Metals								
Antimony	ug/g	2.0	15.9	ND(1.0)	5.7	3.4	ND(1.0)	14.0
Arsenic	ug/g	5.7	30.8	2.6	16.8	18.0	2.8	24.7
Barium	ug/g	106	369	110	194	380	88.4	401
Beryllium	ug/g	ND(0.50)	1.25	0.61	0.65	ND(0.50)	ND(0.50)	0.98
Boron	ug/g	6.4	11.2	11.5	18.6	13.2	7.2	14.0
Boron (hot water extractable)	ug/g	0.35	2.54	6.85	1.45	4.54	0.12	1.11
Cadmium	ug/g	1.09	0.95	ND(0.50)	0.76	ND(0.50)	ND(0.50)	2.25
Calcium (available)	ug/L	33200	30300	22800	619000	77100	18000	70000
Chromium	ug/g	30.4	104	30.3	205	30.7	21.3	1500
Chromium VI (hexavalent)	ug/g	6.26	0.56	2.4	ND(0.20)	ND(0.20)	ND(0.20)	3.40
Cobalt	ug/g	7.1	14.4	8.6	6.8	6.2	7.5	10.8
Copper	ug/g	52.9	650	17.7	133	253	17.1	303
Lead	ug/g	192	1370	11.8	480	128	6.3	752
Magnesium (available)	ug/L	1460	4650	4560	8550	13900	5160	5160
Mercury	ug/g	0.332	0.810	0.0300	0.375	0.749	0.0138	1.22
Molybdenum	ug/g	ND(1.0)	4.9	ND(1.0)	1.5	2.0	ND(1.0)	2.3
Nickel	ug/g	19.4	38.7	17.8	18.9	17.1	16.8	34.0
Selenium	ug/g	ND(1.0)	1.1	ND(1.0)	ND(1.0)	2.8	ND(1.0)	1.4
Silver	ug/g	0.40	0.65	ND(0.20)	0.45	1.93	ND(0.20)	1.57
Sodium (available)	ug/L	4930	16400	62900	148000	456000	11900	23900
Thallium	ug/g	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)
Uranium	ug/g	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Vanadium	ug/g	27.8	43.1	38.9	25.4	27.7	32.5	38.9
Zinc	ug/g	216	852	51.9	367	361	39.6	746
Petroleum Hydrocarbons								
Petroleum hydrocarbons F1 (C6-C10)	ug/g	ND(5.0)	ND(100)	ND(5.0)	6.2	24	ND(5.0)	ND(5.0)
Petroleum hydrocarbons F1 (C6-C10) - less BTEX	ug/g	ND(5.0)	ND(100)	ND(5.0)	5.1	23	ND(5.0)	ND(5.0)
Petroleum hydrocarbons F2 (C10-C16)	ug/g	ND(10)	2020	ND(10)	30	791	ND(10)	ND(50)
Petroleum hydrocarbons F2 minus Naphthalene	ug/g	ND(10)	2020	ND(10)	30	791	ND(10)	ND(50)
Petroleum hydrocarbons F3 (C16-C34)	ug/g	172	1180	ND(50)	327	1010	ND(50)	730
Petroleum hydrocarbons F3 minus PAH	ug/g	158	1170	ND(50)	282	1010	ND(50)	690
Petroleum hydrocarbons F4 (C34-C50)	ug/g	348	ND(50)	ND(50)	146	142	ND(50)	ND(250)
Petroleum hydrocarbons F4 gravimetric - silica gel (GHH)	ug/g	1280	-	-	390	-	-	-
Total Petroleum Hydrocarbons (C6-C50)	ug/g	520	3200	ND(72)	509	1970	ND(72)	730
PCBs								
Aroclor-1242 (PCB-1242)	ug/g	ND(0.010)	ND(0.020)	-	ND(0.010)	ND(0.035)	-	ND(0.010)
Aroclor-1248 (PCB-1248)	ug/g	ND(0.010)	ND(0.010)	-	ND(0.010)	ND(0.010)	-	ND(0.010)
Aroclor-1254 (PCB-1254)	ug/g	ND(0.025)	ND(0.020)	-	ND(0.010)	ND(0.010)	-	ND(0.010)
Aroclor-1260 (PCB-1260)	ug/g	0.059	ND(0.010)	-	ND(0.010)	ND(0.010)	-	0.020
Total PCBs	ug/g	0.059	ND(0.035)	-	ND(0.020)	ND(0.040)	-	ND(0.020)
General Chemistry								
Conductivity	mS/cm	0.191	0.351	0.585	3.05	2.99	0.216	0.545
Cyanide, weak acid dissociable	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	0.133	ND(0.050)	ND(0.050)	ND(0.050)
Moisture	%	18.0	37.0	26.4	19.5	48.5	20.5	20.1
pH, lab	s.u.	6.76	6.84	7.24	7.47	7.44	7.50	7.58
Sodium adsorption ratio (SAR)	none	0.23	0.73	3.15	1.62	12.6	0.64	0.74

Notes:

ND(0.050) Not detected at the associated reporting limit, indicated in brackets
COA Certificate of Analysis
µg/g micrograms per gram
s.u. standard units
mS/cm milliSiemens per centimeter
J Estimated concentration.

Table 2

Soil Analytical Results
SDMA - City Lands
Toronto Port Lands
Toronto, Ontario
Waterfront Toronto

Sample Location:		BH18-467	BH18-467	BH18-468	BH18-468	BH18-468	BH18-468	BH18-469
Sample ID:		S-11102463-031919-DD-BH18-467-3.0-3.5 MBGS	S-11102463-031919-DD-BH18-467-4.6-5.2 MBGS	S-11102463-032019-EN-BH18-468-4-2	S-11102463-032019-EN-BH18-468-12.5-14.5	S-11102463-032019-EN-BH18-468-25-27	S-11102463-032019-EN-BH18-468-BH100	S-11102463-032119-DD-BH18-469-0.8-1.4
Sample Date:		3/19/2019	3/19/2019	3/20/2019	3/20/2019	3/20/2019	3/20/2019	3/21/2019
Sample Depth (m):		3.00-3.50	4.60-5.20	0.10-0.61	3.81-4.42	7.62-8.23	7.62-8.23	0.80-1.40
ALS COA:		L2247122	L2247122	L2247715	L2247715	L2247715	L2247715	L2248321
	Units						Duplicate	
Volatile Organic Compounds								
1,1,1,2-Tetrachloroethane	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
1,1,1-Trichloroethane	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
1,1,2,2-Tetrachloroethane	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
1,1,2-Trichloroethane	ug/g	ND(0.050)	ND(0.11)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
1,1-Dichloroethane	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
1,1-Dichloroethene	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
1,2-Dibromoethane (Ethylene dibromide)	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
1,2-Dichlorobenzene	ug/g	ND(0.050)	ND(2.0)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
1,2-Dichloroethane	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
1,2-Dichloropropane	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
1,3-Dichlorobenzene	ug/g	ND(0.050)	ND(2.0)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
1,4-Dichlorobenzene	ug/g	ND(0.050)	ND(2.0)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
2-Butanone (Methyl ethyl ketone) (MEK)	ug/g	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	ug/g	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)
Acetone	ug/g	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)
Benzene	ug/g	0.0296	0.0225	0.0363	ND(0.0068)	0.0466	0.0453	0.110
Bromodichloromethane	ug/g	ND(0.050)	ND(0.26)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
Bromoform	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
Bromomethane (Methyl bromide)	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
Carbon tetrachloride	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
Chlordane	ug/g	ND(0.028)	-	ND(0.028)	ND(0.028)	-	-	ND(0.14)
Chlorobenzene	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
Chloroform (Trichloromethane)	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
cis-1,2-Dichloroethene	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
cis-1,3-Dichloropropene	ug/g	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)
cis-1,3-Dichloropropene/trans-1,3-Dichloropropene	ug/g	ND(0.042)	ND(0.042)	ND(0.042)	ND(0.042)	ND(0.042)	ND(0.042)	ND(0.042)
Dibromochloromethane	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
Dichlorodifluoromethane (CFC-12)	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
Endosulfan	ug/g	ND(0.028)	-	ND(0.028)	ND(0.028)	-	-	ND(0.14)
Ethylbenzene	ug/g	0.054	ND(0.018)	0.036	ND(0.018)	0.170	0.176	0.070
Hexane	ug/g	0.051	0.068	0.071	ND(0.050)	ND(0.050)	ND(0.050)	0.289
m&p-Xylenes	ug/g	0.204	ND(0.051)	0.134	ND(0.030)	0.422	0.437	0.246
Methyl tert butyl ether (MTBE)	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
Methylene chloride	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
o-Xylene	ug/g	0.153	0.020	0.083	ND(0.020)	0.191	0.198	0.136
Styrene	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
Tetrachloroethene	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
Toluene	ug/g	0.172	ND(0.080)	0.114	ND(0.080)	ND(0.080)	ND(0.080)	0.202
trans-1,2-Dichloroethene	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
trans-1,3-Dichloropropene	ug/g	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)
Trichloroethene	ug/g	ND(0.010)	ND(0.010)	0.050	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Trichlorofluoromethane (CFC-11)	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
Vinyl chloride	ug/g	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)
Xylenes (total)	ug/g	0.357	ND(0.055)	0.217	ND(0.050)	0.613	0.635	0.382
Semi-volatiles								
1-Methylnaphthalene	ug/g	0.123	ND(0.28)	0.629	ND(0.030)	0.208	0.224	0.281
2-Methylnaphthalene	ug/g	0.162	ND(0.25)	0.554	ND(0.030)	0.372	0.404	0.384
1-Methylnaphthalene/2-Methylnaphthalene	ug/g	0.285	ND(0.38)	1.18	ND(0.042)	0.580	0.628	0.665
2,4,5-Trichlorophenol	ug/g	ND(0.10)	-	ND(0.20)	ND(0.10)	-	-	ND(0.10)
2,4,6-Trichlorophenol	ug/g	ND(0.10)	-	ND(0.20)	ND(0.10)	-	-	ND(0.10)
2,4'-DDD	ug/g	ND(0.020)	-	0.083	ND(0.020)	-	-	ND(0.10)
2,4'-DDE	ug/g	ND(0.020)	-	ND(0.020)	ND(0.020)	-	-	ND(0.10)
2,4'-DDT	ug/g	ND(0.020)	-	ND(0.020)	ND(0.020)	-	-	ND(0.10)
2,4-Dichlorophenol	ug/g	ND(0.10)	-	ND(0.20)	ND(0.10)	-	-	ND(0.10)
2-Chlorophenol	ug/g	ND(0.10)	-	ND(0.20)	ND(0.10)	-	-	ND(0.10)
4,4'-DDD	ug/g	ND(0.020)	-	0.202	ND(0.020)	-	-	ND(0.10)
4,4'-DDE	ug/g	ND(0.020)	-	0.114	ND(0.020)	-	-	ND(0.10)
4,4'-DDT	ug/g	ND(0.10)	-	0.12	ND(0.10)	-	-	ND(0.20)
Acenaphthene	ug/g	0.364	1.09	3.38	ND(0.050)	0.061 J	0.070 J	0.896
Acenaphthylene	ug/g	0.223	0.229	1.00	ND(0.050)	ND(0.050)	ND(0.050)	0.119
Aldrin	ug/g	ND(0.020)	-	ND(0.020)	ND(0.020)	-	-	ND(0.10)
alpha-Chlordane	ug/g	ND(0.020)	-	ND(0.020)	ND(0.020)	-	-	ND(0.10)
Anthracene	ug/g	0.403	0.539	16.8	ND(0.050)	ND(0.050)	ND(0.050)	2.17
Benzo(a)anthracene	ug/g	2.80	2.54	27.4	ND(0.050)	ND(0.050)	ND(0.050)	2.10
Benzo(a)pyrene	ug/g	2.66	2.12	22.1	ND(0.050)	ND(0.050)	ND(0.050)	1.96
Benzo(b)fluoranthene	ug/g	3.39	2.65	23.7	ND(0.050)	ND(0.050)	ND(0.050)	2.05
Benzo(g,h,i)perylene	ug/g	2.12	1.41	12.9	ND(0.050)	ND(0.050)	ND(0.050)	0.855
Benzo(k)fluoranthene	ug/g	1.10	0.899	16.4	ND(0.050)	ND(0.050)	ND(0.050)	1.33
Chlordane	ug/g	-	-	-	-	-	-	-
Chlordane, technical	ug/g	ND(0.020)	-	ND(0.020)	ND(0.020)	-	-	ND(0.10)
Chrysene	ug/g	2.51	2.21	25.2	ND(0.050)	ND(0.050)	ND(0.050)	2.11
Dibenz(a,h)anthracene	ug/g	0.462	0.360	3.16	ND(0.050)	ND(0.050)	ND(0.050)	0.193
Dieldrin	ug/g	ND(0.020)	-	ND(0.020)	ND(0.020)	-	-	ND(0.10)
Endosulfan	ug/g	-	-	-	-	-	-	-
Endosulfan I	ug/g	ND(0.020)	-	ND(0.020)	ND(0.020)	-	-	ND(0.10)

Table 2

Soil Analytical Results
SDMA - City Lands
Toronto Port Lands
Toronto, Ontario
Waterfront Toronto

Sample Location:		**BH18-467**	**BH18-467**	**BH18-468**	**BH18-468**	**BH18-468**	**BH18-468**	**BH18-469**
Sample ID:		**S-11102463-031919-DD-BH18-467-3.0-3.5 MBGS**	**S-11102463-031919-DD-BH18-467-4.6-5.2 MBGS**	**S-11102463-032019-EN-BH18-468-4-2**	**S-11102463-032019-EN-BH18-468-12.5-14.5**	**S-11102463-032019-EN-BH18-468-25-27**	**S-11102463-032019-EN-BH18-468-BH100**	**S-11102463-032119-DD-BH18-469-0.8-1.4**
Sample Date:		**3/19/2019**	**3/19/2019**	**3/20/2019**	**3/20/2019**	**3/20/2019**	**3/20/2019**	**3/21/2019**
Sample Depth (m):		**3.00-3.50**	**4.60-5.20**	**0.10-0.61**	**3.81-4.42**	**7.62-8.23**	**7.62-8.23**	**0.80-1.40**
ALS COA:		**L2247122**	**L2247122**	**L2247715**	**L2247715**	**L2247715**	**L2247715**	**L2248321**
							Duplicate	
	Units							
Endosulfan II	ug/g	ND(0.020)	-	ND(0.020)	ND(0.020)	-	-	ND(0.10)
Endrin	ug/g	ND(0.020)	-	ND(0.020)	ND(0.020)	-	-	ND(0.10)
Fluoranthene	ug/g	4.48	4.55	68.1	0.052	ND(0.050)	ND(0.050)	3.70
Fluorene	ug/g	0.075	0.760	8.1	ND(0.050)	ND(0.050)	ND(0.050)	0.885
gamma-BHC (lindane)	ug/g	ND(0.050)	-	ND(0.050)	ND(0.050)	-	-	ND(0.050)
Heptachlor	ug/g	ND(0.020)	-	ND(0.020)	ND(0.020)	-	-	ND(0.10)
Heptachlor epoxide	ug/g	ND(0.020)	-	ND(0.020)	ND(0.020)	-	-	ND(0.10)
Hexachlorobenzene	ug/g	ND(0.050)	-	ND(0.050)	ND(0.050)	-	-	ND(0.050)
Hexachlorobutadiene	ug/g	ND(0.050)	-	ND(0.050)	ND(0.050)	-	-	ND(0.050)
Hexachloroethane	ug/g	ND(0.050)	-	ND(0.050)	ND(0.050)	-	-	ND(0.050)
Indeno(1,2,3-cd)pyrene	ug/g	1.63	1.10	15.4	ND(0.050)	ND(0.050)	ND(0.050)	1.01
Methoxychlor	ug/g	ND(0.10)	-	ND(0.10)	ND(0.10)	-	-	ND(0.20)
Naphthalene	ug/g	0.184	ND(0.58)	0.34	ND(0.050)	21.4	21.0	0.432
Pentachlorophenol	ug/g	ND(0.10)	-	ND(0.20)	ND(0.10)	-	-	ND(0.10)
Phenanthrene	ug/g	1.85	1.84	59.0	ND(0.050)	ND(0.046)	ND(0.046)	4.15
Pyrene	ug/g	4.05	4.01	47.9	ND(0.050)	ND(0.050)	ND(0.050)	3.87
Total DDD	ug/g	ND(0.028)	-	0.285	ND(0.028)	-	-	ND(0.14)
Total DDE	ug/g	ND(0.028)	-	0.114	ND(0.028)	-	-	ND(0.14)
Total DDT	ug/g	ND(0.10)	-	0.12	ND(0.10)	-	-	ND(0.22)
Metals								
Antimony	ug/g	24.3	15.7	4.3	1.7	ND(1.0)	ND(1.0)	2.6
Arsenic	ug/g	38.0	69.0	10.4	17.2	1.2	1.1	7.2
Barium	ug/g	538	444	141	269	48.9	39.3	137
Beryllium	ug/g	0.77	0.77	0.50	0.99	ND(0.50)	ND(0.50)	0.54
Boron	ug/g	17.5	17.1	10.9	10.6	ND(5.0)	ND(5.0)	11.7
Boron (hot water extractable)	ug/g	2.59	4.26	0.61	1.82	0.75	0.65	1.97
Cadmium	ug/g	1.82	2.43	1.34	ND(0.50)	ND(0.50)	ND(0.50)	0.54
Calcium (available)	ug/L	65700	245000	72200	48000	67800	67300	39500
Chromium	ug/g	95.1	73.6	79.5	30.7	11.2	10.0	31.8
Chromium VI (hexavalent)	ug/g	ND(0.20)	ND(0.20)	ND(0.20)	ND(0.20)	ND(0.20)	ND(0.20)	ND(0.20)
Cobalt	ug/g	9.8	10.8	8.3	12.2	4.0	3.3	8.0
Copper	ug/g	408	823	93.0	47.8	9.8	7.3	59.8
Lead	ug/g	2630	2590	784	310	6.7	6.8	181
Magnesium (available)	ug/L	3580	31400	510	5640	3630	3520	4790
Mercury	ug/g	1.99	3.27	0.590	0.177	0.0116	0.0093	0.357
Molybdenum	ug/g	3.7	7.5	2.3	2.9	ND(1.0)	ND(1.0)	ND(1.0)
Nickel	ug/g	31.5	38.2	24.1	26.7	8.6	7.0	20.8
Selenium	ug/g	4.3	4.9	ND(1.0)	1.6	ND(1.0)	ND(1.0)	ND(1.0)
Silver	ug/g	7.43	5.16	0.63	ND(0.20)	ND(0.20)	ND(0.20)	0.31
Sodium (available)	ug/L	54700	162000	27100	86100	25400	24400	58500
Thallium	ug/g	ND(0.50)	0.51	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)
Uranium	ug/g	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Vanadium	ug/g	38.4	30.9	25.6	46.0	16.7	15.8	29.2
Zinc	ug/g	719	1180	319	230	21.1	19.2	173
Petroleum Hydrocarbons								
Petroleum hydrocarbons F1 (C6-C10)	ug/g	9.8	68.1	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	5.6
Petroleum hydrocarbons F1 (C6-C10) - less BTEX	ug/g	9.2	68.1	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Petroleum hydrocarbons F2 (C10-C16)	ug/g	19	1910	26	ND(10)	33	26	26
Petroleum hydrocarbons F2 minus Naphthalene	ug/g	19	1910	26	ND(10)	11	ND(10)	26
Petroleum hydrocarbons F3 (C16-C34)	ug/g	222	1550	710	136	ND(50)	ND(50)	236
Petroleum hydrocarbons F3 minus PAH	ug/g	200	1530	430	136	ND(50)	ND(50)	216
Petroleum hydrocarbons F4 (C34-C50)	ug/g	85	215	270	ND(50)	ND(50)	ND(50)	110
Petroleum hydrocarbons F4 gravimetric - silica gel (GHH)	ug/g	310	-	750	-	-	-	470
Total Petroleum Hydrocarbons (C6-C50)	ug/g	336	3750	1000	136	ND(72)	ND(72)	378
PCBs								
Aroclor-1242 (PCB-1242)	ug/g	ND(0.015)	-	ND(0.015)	ND(0.010)	-	-	ND(0.010)
Aroclor-1248 (PCB-1248)	ug/g	ND(0.015)	-	ND(0.010)	ND(0.010)	-	-	ND(0.010)
Aroclor-1254 (PCB-1254)	ug/g	ND(0.015)	-	ND(0.045)	ND(0.010)	-	-	ND(0.010)
Aroclor-1260 (PCB-1260)	ug/g	ND(0.050)	-	0.112	ND(0.010)	-	-	ND(0.050)
Total PCBs	ug/g	ND(0.060)	-	0.112	ND(0.020)	-	-	ND(0.055)
General Chemistry								
Conductivity	mS/cm	0.665	2.08	0.554	0.821	0.551	0.543	0.564
Cyanide, weak acid dissociable	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
Moisture	%	29.6	30.2	12.9	31.2	30.0	30.3	18.1
pH, lab	s.u.	7.96	7.27	9.12	7.20	7.03	6.98	7.64
Sodium adsorption ratio (SAR)	none	1.78	2.59	0.87	3.13	0.81	0.79	2.34

Notes:

ND(0.050) Not detected at the associated reporting limit, indicated in brackets
COA Certificate of Analysis
µg/g micrograms per gram
s.u. standard units
mS/cm milliSiemens per centimeter
J Estimated concentration.

Table 2

Soil Analytical Results
SDMA - City Lands
Toronto Port Lands
Toronto, Ontario
Waterfront Toronto

Sample Location:		BH18-469	BH18-469	BH18-469	Trip Blank	Trip Blank	Trip Blank	Trip Blank	Trip Blank	Trip Blank
Sample ID:		S-11102463-032119-DD-BH18-469-3.0-3.7	S-11102463-032119-DD-BH18-469-DUP-001	S-11102463-032219-DD-BH18-469-9.9-10.5	TRIP BLANK	S-031919-EN-BH-18-445-TRIP BLANK	TRIP BLANK	S-11102463-032019-EN-BH18-444-TRIP BLANK	S-11102463-032019-EN-BH18-468-TRIP BLANK	S-11102463-032019-EN-TRIP-BLANK
Sample Date:		3/21/2019	3/21/2019	3/22/2019	3/15/2019	3/19/2019	3/19/2019	3/20/2019	3/20/2019	3/20/2019
Sample Depth (m):		3.00-3.70	3.00-3.70	3.02-3.20	-	-	-	-	-	-
ALS COA:		L2248321	L2248321	L2248786	L2245528	L2247121	L2247122	L2247725	L2247715	L2247735
	Units		Duplicate		(other)	(other)	(other)	(other)	(other)	(other)
Volatile Organic Compounds										
1,1,1,2-Tetrachloroethane	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
1,1,1-Trichloroethane	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
1,1,2,2-Tetrachloroethane	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
1,1,2-Trichloroethane	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
1,1-Dichloroethane	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
1,1-Dichloroethene	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
1,2-Dibromoethane (Ethylene dibromide)	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
1,2-Dichlorobenzene	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
1,2-Dichloroethane	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
1,2-Dichloropropane	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
1,3-Dichlorobenzene	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
1,4-Dichlorobenzene	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
2-Butanone (Methyl ethyl ketone) (MEK)	ug/g	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	ug/g	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)
Acetone	ug/g	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)	ND(0.50)
Benzene	ug/g	0.0639	0.0478	ND(0.0068)	ND(0.0068)	ND(0.0068)	ND(0.0068)	ND(0.0068)	ND(0.0068)	ND(0.0068)
Bromodichloromethane	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
Bromoform	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
Bromomethane (Methyl bromide)	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
Carbon tetrachloride	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
Chlordane	ug/g	ND(0.14)	ND(0.14)	-	-	-	-	-	-	-
Chlorobenzene	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
Chloroform (Trichloromethane)	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
cis-1,2-Dichloroethene	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
cis-1,3-Dichloropropene	ug/g	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)
cis-1,3-Dichloropropene/trans-1,3-Dichloropropene	ug/g	ND(0.042)	ND(0.042)	ND(0.042)	ND(0.042)	ND(0.042)	ND(0.042)	ND(0.042)	ND(0.042)	ND(0.042)
Dibromochloromethane	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
Dichlorodifluoromethane (CFC-12)	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
Endosulfan	ug/g	ND(0.14)	ND(0.14)	-	-	-	-	-	-	-
Ethylbenzene	ug/g	0.030	0.031	ND(0.018)	ND(0.018)	ND(0.018)	ND(0.018)	ND(0.018)	ND(0.018)	ND(0.018)
Hexane	ug/g	0.069	0.085	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
m&p-Xylenes	ug/g	0.099	0.103	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)
Methyl tert butyl ether (MTBE)	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
Methylene chloride	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
o-Xylene	ug/g	0.050	0.051	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)
Styrene	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
Tetrachloroethene	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
Toluene	ug/g	0.158	0.144	ND(0.080)	ND(0.080)	ND(0.080)	ND(0.080)	ND(0.080)	ND(0.080)	ND(0.080)
trans-1,2-Dichloroethene	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
trans-1,3-Dichloropropene	ug/g	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)	ND(0.030)
Trichloroethene	ug/g	ND(0.010)	0.011	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)	ND(0.010)
Trichlorofluoromethane (CFC-11)	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
Vinyl chloride	ug/g	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)	ND(0.020)
Xylenes (total)	ug/g	0.149	0.154	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)	ND(0.050)
Semi-volatiles										
1-Methylnaphthalene	ug/g	0.076 J	0.156 J	ND(0.030)	-	-	-	-	-	-
2-Methylnaphthalene	ug/g	0.095 J	0.205 J	ND(0.030)	-	-	-	-	-	-
1-Methylnaphthalene/2-Methylnaphthalene	ug/g	0.171 J	0.361 J	ND(0.042)	-	-	-	-	-	-
2,4,5-Trichlorophenol	ug/g	ND(0.10)	ND(0.10)	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	ug/g	ND(0.10)	ND(0.10)	-	-	-	-	-	-	-
2,4'-DDD	ug/g	ND(0.10)	ND(0.10)	-	-	-	-	-	-	-
2,4'-DDE	ug/g	ND(0.10)	ND(0.10)	-	-	-	-	-	-	-
2,4'-DDT	ug/g	ND(0.10)	ND(0.10)	-	-	-	-	-	-	-
2,4-Dichlorophenol	ug/g	ND(0.10)	ND(0.10)	-	-	-	-	-	-	-
2-Chlorophenol	ug/g	ND(0.10)	ND(0.10)	-	-	-	-	-	-	-
4,4'-DDD	ug/g	ND(0.10)	ND(0.10)	-	-	-	-	-	-	-
4,4'-DDE	ug/g	ND(0.10)	ND(0.10)	-	-	-	-	-	-	-
4,4'-DDT	ug/g	ND(0.20)	ND(0.20)	-	-	-	-	-	-	-
Acenaphthene	ug/g	0.191 J	0.331 J	ND(0.050)	-	-	-	-	-	-
Acenaphthylene	ug/g	ND(0.050)	0.072	ND(0.050)	-	-	-	-	-	-
Aldrin	ug/g	ND(0.10)	ND(0.10)	-	-	-	-	-	-	-
alpha-Chlordane	ug/g	ND(0.10)	ND(0.10)	-	-	-	-	-	-	-
Anthracene	ug/g	0.299	0.499	ND(0.050)	-	-	-	-	-	-
Benzo(a)anthracene	ug/g	0.578	1.06	ND(0.050)	-	-	-	-	-	-
Benzo(a)pyrene	ug/g	0.520	0.951	ND(0.050)	-	-	-	-	-	-
Benzo(b)fluoranthene	ug/g	0.551	1.03	ND(0.050)	-	-	-	-	-	-
Benzo(g,h,i)perylene	ug/g	0.207 J	0.411 J	ND(0.050)	-	-	-	-	-	-
Benzo(k)fluoranthene	ug/g	0.351	0.643	ND(0.050)	-	-	-	-	-	-
Chlordane	ug/g	-	-	-	-	-	-	-	-	-
Chlordane, technical	ug/g	ND(0.10)	ND(0.10)	-	-	-	-	-	-	-
Chrysene	ug/g	0.577	1.08	ND(0.050)	-	-	-	-	-	-
Dibenz(a,h)anthracene	ug/g	0.060	0.112	ND(0.050)	-	-	-	-	-	-
Dieldrin	ug/g	ND(0.10)	ND(0.10)	-	-	-	-	-	-	-
Endosulfan	ug/g	-	-	-	-	-	-	-	-	-
Endosulfan I	ug/g	ND(0.10)	ND(0.10)	-	-	-	-	-	-	-

Table 2

Soil Analytical Results
SDMA - City Lands
Toronto Port Lands
Toronto, Ontario
Waterfront Toronto

Sample Location:		BH18-469	BH18-469	BH18-469	Trip Blank	Trip Blank	Trip Blank	Trip Blank	Trip Blank	Trip Blank
Sample ID:		S-11102463-032119-DD-BH18-469-3.0-3.7	S-11102463-032119-DD-BH18-469-DUP-001	S-11102463-032219-DD-BH18-469-9.9-10.5	TRIP BLANK	S-031919-EN-BH-18-445-TRIP BLANK	TRIP BLANK	S-11102463-032019-EN-BH18-444-TRIP BLANK	S-11102463-032019-EN-BH18-468-TRIP BLANK	S-11102463-032019-EN-TRIP-BLANK
Sample Date:		3/21/2019	3/21/2019	3/22/2019	3/15/2019	3/19/2019	3/19/2019	3/20/2019	3/20/2019	3/20/2019
Sample Depth (m):		3.00-3.70	3.00-3.70	3.02-3.20	-	-	-	-	-	-
ALS COA:		L2248321	L2248321 Duplicate	L2248786	L2245528 (other)	L2247121 (other)	L2247122 (other)	L2247725 (other)	L2247715 (other)	L2247735 (other)
	Units									
Endosulfan II	ug/g	ND(0.10)	ND(0.10)	-	-	-	-	-	-	-
Endrin	ug/g	ND(0.10)	ND(0.10)	-	-	-	-	-	-	-
Fluoranthene	ug/g	1.10	1.77	ND(0.050)	-	-	-	-	-	-
Fluorene	ug/g	0.159 J	0.270 J	ND(0.050)	-	-	-	-	-	-
gamma-BHC (lindane)	ug/g	ND(0.050)	ND(0.050)	-	-	-	-	-	-	-
Heptachlor	ug/g	ND(0.10)	ND(0.10)	-	-	-	-	-	-	-
Heptachlor epoxide	ug/g	ND(0.10)	ND(0.10)	-	-	-	-	-	-	-
Hexachlorobenzene	ug/g	ND(0.050)	ND(0.050)	-	-	-	-	-	-	-
Hexachlorobutadiene	ug/g	ND(0.050)	ND(0.050)	-	-	-	-	-	-	-
Hexachloroethane	ug/g	ND(0.050)	ND(0.050)	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	ug/g	0.281	0.506	ND(0.050)	-	-	-	-	-	-
Methoxychlor	ug/g	ND(0.20)	ND(0.20)	-	-	-	-	-	-	-
Naphthalene	ug/g	0.124 J	0.251 J	0.019	-	-	-	-	-	-
Pentachlorophenol	ug/g	ND(0.10)	ND(0.10)	-	-	-	-	-	-	-
Phenanthrene	ug/g	0.939	1.49	ND(0.046)	-	-	-	-	-	-
Pyrene	ug/g	0.925	1.58	ND(0.050)	-	-	-	-	-	-
Total DDD	ug/g	ND(0.14)	ND(0.14)	-	-	-	-	-	-	-
Total DDE	ug/g	ND(0.14)	ND(0.14)	-	-	-	-	-	-	-
Total DDT	ug/g	ND(0.22)	ND(0.22)	-	-	-	-	-	-	-
Metals										
Antimony	ug/g	12.8	10.2	ND(1.0)	-	-	-	-	-	-
Arsenic	ug/g	82.6	79.9	2.1	-	-	-	-	-	-
Barium	ug/g	327	288	31.7	-	-	-	-	-	-
Beryllium	ug/g	ND(0.50)	ND(0.50)	ND(0.50)	-	-	-	-	-	-
Boron	ug/g	10.9	10.7	5.2	-	-	-	-	-	-
Boron (hot water extractable)	ug/g	1.84	1.22	0.23	-	-	-	-	-	-
Cadmium	ug/g	1.52	1.27	ND(0.50)	-	-	-	-	-	-
Calcium (available)	ug/L	154000	141000	13600	-	-	-	-	-	-
Chromium	ug/g	41.4	36.4	11.9	-	-	-	-	-	-
Chromium VI (hexavalent)	ug/g	ND(0.20)	ND(0.20)	ND(0.20)	-	-	-	-	-	-
Cobalt	ug/g	7.0	6.4	4.6	-	-	-	-	-	-
Copper	ug/g	310	219	10.8	-	-	-	-	-	-
Lead	ug/g	1520	3760	45.4	-	-	-	-	-	-
Magnesium (available)	ug/L	6530	7850	960	-	-	-	-	-	-
Mercury	ug/g	3.09	2.83	0.0152	-	-	-	-	-	-
Molybdenum	ug/g	1.6	1.5	ND(1.0)	-	-	-	-	-	-
Nickel	ug/g	26.7	22.4	11.3	-	-	-	-	-	-
Selenium	ug/g	2.6	2.2	ND(1.0)	-	-	-	-	-	-
Silver	ug/g	5.00	3.41	ND(0.20)	-	-	-	-	-	-
Sodium (available)	ug/L	86400	87000	30200	-	-	-	-	-	-
Thallium	ug/g	ND(0.50)	ND(0.50)	ND(0.50)	-	-	-	-	-	-
Uranium	ug/g	ND(1.0)	ND(1.0)	ND(1.0)	-	-	-	-	-	-
Vanadium	ug/g	24.8	22.2	15.3	-	-	-	-	-	-
Zinc	ug/g	990	913	48.6	-	-	-	-	-	-
Petroleum Hydrocarbons										
Petroleum hydrocarbons F1 (C6-C10)	ug/g	7.2	7.7	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Petroleum hydrocarbons F1 (C6-C10) - less BTEX	ug/g	6.8	7.3	ND(5.0)	-	-	ND(5.0)	-	-	-
Petroleum hydrocarbons F2 (C10-C16)	ug/g	42	45	ND(10)	-	-	-	-	-	-
Petroleum hydrocarbons F2 minus Naphthalene	ug/g	42	45	ND(10)	-	-	-	-	-	-
Petroleum hydrocarbons F3 (C16-C34)	ug/g	1250	565	ND(50)	-	-	-	-	-	-
Petroleum hydrocarbons F3 minus PAH	ug/g	1250	556	ND(50)	-	-	-	-	-	-
Petroleum hydrocarbons F4 (C34-C50)	ug/g	903 J	183 J	ND(50)	-	-	-	-	-	-
Petroleum hydrocarbons F4 gravimetric - silica gel (GHH)	ug/g	1910 J	840 J	-	-	-	-	-	-	-
Total Petroleum Hydrocarbons (C6-C50)	ug/g	2200	801	ND(72)	-	-	-	-	-	-
PCBs										
Aroclor-1242 (PCB-1242)	ug/g	ND(0.020)	ND(0.010)	-	-	-	-	-	-	-
Aroclor-1248 (PCB-1248)	ug/g	ND(0.010)	ND(0.010)	-	-	-	-	-	-	-
Aroclor-1254 (PCB-1254)	ug/g	ND(0.010)	ND(0.010)	-	-	-	-	-	-	-
Aroclor-1260 (PCB-1260)	ug/g	ND(0.010)	ND(0.010)	-	-	-	-	-	-	-
Total PCBs	ug/g	ND(0.030)	ND(0.020)	-	-	-	-	-	-	-
General Chemistry										
Conductivity	mS/cm	1.33	1.27	0.274	-	-	-	-	-	-
Cyanide, weak acid dissociable	ug/g	ND(0.050)	ND(0.050)	ND(0.050)	-	-	-	-	-	-
Moisture	%	27.4	26.7	14.9	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)
pH, lab	s.u.	8.42	8.53	7.80	-	-	-	-	-	-
Sodium adsorption ratio (SAR)	none	1.85	1.93	2.13	-	-	-	-	-	-

Notes:

ND(0.050) Not detected at the associated reporting limit, indicated in brackets
COA Certificate of Analysis
µg/g micrograms per gram
s.u. standard units
mS/cm milliSiemens per centimeter
J Estimated concentration.

Table 2

Soil Analytical Results
SDMA - City Lands
Toronto Port Lands
Toronto, Ontario
Waterfront Toronto

Sample Location:		Trip Blank	Trip Blank	Trip Blank
Sample ID:		TRIP BLANK	TRIP BLANK	TRIP BLANK
Sample Date:		3/21/2019	3/22/2019	3/22/2019
Sample Depth (m):		-	-	-
ALS COA:		L2248319 (other)	L2248315 (other)	L2248786 (other)
	Units			
Volatile Organic Compounds				
1,1,1,2-Tetrachloroethane	ug/g	-	-	ND(0.050)
1,1,1-Trichloroethane	ug/g	-	-	ND(0.050)
1,1,2,2-Tetrachloroethane	ug/g	-	-	ND(0.050)
1,1,2-Trichloroethane	ug/g	-	-	ND(0.050)
1,1-Dichloroethane	ug/g	-	-	ND(0.050)
1,1-Dichloroethene	ug/g	-	-	ND(0.050)
1,2-Dibromoethane (Ethylene dibromide)	ug/g	-	-	ND(0.050)
1,2-Dichlorobenzene	ug/g	-	-	ND(0.050)
1,2-Dichloroethane	ug/g	-	-	ND(0.050)
1,2-Dichloropropane	ug/g	-	-	ND(0.050)
1,3-Dichlorobenzene	ug/g	-	-	ND(0.050)
1,4-Dichlorobenzene	ug/g	-	-	ND(0.050)
2-Butanone (Methyl ethyl ketone) (MEK)	ug/g	-	-	ND(0.50)
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	ug/g	-	-	ND(0.50)
Acetone	ug/g	-	-	ND(0.50)
Benzene	ug/g	ND(0.0068)	ND(0.0068)	ND(0.0068)
Bromodichloromethane	ug/g	-	-	ND(0.050)
Bromoform	ug/g	-	-	ND(0.050)
Bromomethane (Methyl bromide)	ug/g	-	-	ND(0.050)
Carbon tetrachloride	ug/g	-	-	ND(0.050)
Chlordane	ug/g	-	-	-
Chlorobenzene	ug/g	-	-	ND(0.050)
Chloroform (Trichloromethane)	ug/g	-	-	ND(0.050)
cis-1,2-Dichloroethene	ug/g	-	-	ND(0.050)
cis-1,3-Dichloropropene	ug/g	-	-	ND(0.030)
cis-1,3-Dichloropropene/trans-1,3-Dichloropropene	ug/g	-	-	ND(0.042)
Dibromochloromethane	ug/g	-	-	ND(0.050)
Dichlorodifluoromethane (CFC-12)	ug/g	-	-	ND(0.050)
Endosulfan	ug/g	-	-	-
Ethylbenzene	ug/g	ND(0.018)	ND(0.018)	ND(0.018)
Hexane	ug/g	-	-	ND(0.050)
m&p-Xylenes	ug/g	ND(0.030)	ND(0.030)	ND(0.030)
Methyl tert butyl ether (MTBE)	ug/g	-	-	ND(0.050)
Methylene chloride	ug/g	-	-	ND(0.050)
o-Xylene	ug/g	ND(0.020)	ND(0.020)	ND(0.020)
Styrene	ug/g	-	-	ND(0.050)
Tetrachloroethene	ug/g	-	-	ND(0.050)
Toluene	ug/g	ND(0.080)	ND(0.080)	ND(0.080)
trans-1,2-Dichloroethene	ug/g	-	-	ND(0.050)
trans-1,3-Dichloropropene	ug/g	-	-	ND(0.030)
Trichloroethene	ug/g	-	-	ND(0.010)
Trichlorofluoromethane (CFC-11)	ug/g	-	-	ND(0.050)
Vinyl chloride	ug/g	-	-	ND(0.020)
Xylenes (total)	ug/g	ND(0.050)	ND(0.050)	ND(0.050)
Semi-volatiles				
1-Methylnaphthalene	ug/g	-	-	-
2-Methylnaphthalene	ug/g	-	-	-
1-Methylnaphthalene/2-Methylnaphthalene	ug/g	-	-	-
2,4,5-Trichlorophenol	ug/g	-	-	-
2,4,6-Trichlorophenol	ug/g	-	-	-
2,4'-DDD	ug/g	-	-	-
2,4'-DDE	ug/g	-	-	-
2,4'-DDT	ug/g	-	-	-
2,4-Dichlorophenol	ug/g	-	-	-
2-Chlorophenol	ug/g	-	-	-
4,4'-DDD	ug/g	-	-	-
4,4'-DDE	ug/g	-	-	-
4,4'-DDT	ug/g	-	-	-
Acenaphthene	ug/g	-	-	-
Acenaphthylene	ug/g	-	-	-
Aldrin	ug/g	-	-	-
alpha-Chlordane	ug/g	-	-	-
Anthracene	ug/g	-	-	-
Benzo(a)anthracene	ug/g	-	-	-
Benzo(a)pyrene	ug/g	-	-	-
Benzo(b)fluoranthene	ug/g	-	-	-
Benzo(g,h,i)perylene	ug/g	-	-	-
Benzo(k)fluoranthene	ug/g	-	-	-
Chlordane	ug/g	-	-	-
Chlordane, technical	ug/g	-	-	-
Chrysene	ug/g	-	-	-
Dibenz(a,h)anthracene	ug/g	-	-	-
Dieldrin	ug/g	-	-	-
Endosulfan	ug/g	-	-	-
Endosulfan I	ug/g	-	-	-

Table 2

Soil Analytical Results
SDMA - City Lands
Toronto Port Lands
Toronto, Ontario
Waterfront Toronto

Sample Location:		**Trip Blank**	**Trip Blank**	**Trip Blank**
Sample ID:		**TRIP BLANK**	**TRIP BLANK**	**TRIP BLANK**
Sample Date:		**3/21/2019**	**3/22/2019**	**3/22/2019**
Sample Depth (m):		**-**	**-**	**-**
ALS COA:		**L2248319 (other)**	**L2248315 (other)**	**L2248786 (other)**
	Units			
Endosulfan II	ug/g	-	-	-
Endrin	ug/g	-	-	-
Fluoranthene	ug/g	-	-	-
Fluorene	ug/g	-	-	-
gamma-BHC (lindane)	ug/g	-	-	-
Heptachlor	ug/g	-	-	-
Heptachlor epoxide	ug/g	-	-	-
Hexachlorobenzene	ug/g	-	-	-
Hexachlorobutadiene	ug/g	-	-	-
Hexachloroethane	ug/g	-	-	-
Indeno(1,2,3-cd)pyrene	ug/g	-	-	-
Methoxychlor	ug/g	-	-	-
Naphthalene	ug/g	-	-	-
Pentachlorophenol	ug/g	-	-	-
Phenanthrene	ug/g	-	-	-
Pyrene	ug/g	-	-	-
Total DDD	ug/g	-	-	-
Total DDE	ug/g	-	-	-
Total DDT	ug/g	-	-	-
Metals				
Antimony	ug/g	-	-	-
Arsenic	ug/g	-	-	-
Barium	ug/g	-	-	-
Beryllium	ug/g	-	-	-
Boron	ug/g	-	-	-
Boron (hot water extractable)	ug/g	-	-	-
Cadmium	ug/g	-	-	-
Calcium (available)	ug/L	-	-	-
Chromium	ug/g	-	-	-
Chromium VI (hexavalent)	ug/g	-	-	-
Cobalt	ug/g	-	-	-
Copper	ug/g	-	-	-
Lead	ug/g	-	-	-
Magnesium (available)	ug/L	-	-	-
Mercury	ug/g	-	-	-
Molybdenum	ug/g	-	-	-
Nickel	ug/g	-	-	-
Selenium	ug/g	-	-	-
Silver	ug/g	-	-	-
Sodium (available)	ug/L	-	-	-
Thallium	ug/g	-	-	-
Uranium	ug/g	-	-	-
Vanadium	ug/g	-	-	-
Zinc	ug/g	-	-	-
Petroleum Hydrocarbons				
Petroleum hydrocarbons F1 (C6-C10)	ug/g	ND(5.0)	ND(5.0)	ND(5.0)
Petroleum hydrocarbons F1 (C6-C10) - less BTEX	ug/g	ND(5.0)	ND(5.0)	-
Petroleum hydrocarbons F2 (C10-C16)	ug/g	-	-	-
Petroleum hydrocarbons F2 minus Naphthalene	ug/g	-	-	-
Petroleum hydrocarbons F3 (C16-C34)	ug/g	-	-	-
Petroleum hydrocarbons F3 minus PAH	ug/g	-	-	-
Petroleum hydrocarbons F4 (C34-C50)	ug/g	-	-	-
Petroleum hydrocarbons F4 gravimetric - silica gel (GHH)	ug/g	-	-	-
Total Petroleum Hydrocarbons (C6-C50)	ug/g	-	-	-
PCBs				
Aroclor-1242 (PCB-1242)	ug/g	-	-	-
Aroclor-1248 (PCB-1248)	ug/g	-	-	-
Aroclor-1254 (PCB-1254)	ug/g	-	-	-
Aroclor-1260 (PCB-1260)	ug/g	-	-	-
Total PCBs	ug/g	-	-	-
General Chemistry				
Conductivity	mS/cm	-	-	-
Cyanide, weak acid dissociable	ug/g	-	-	-
Moisture	%	ND(0.10)	ND(0.10)	ND(0.10)
pH, lab	s.u.	-	-	-
Sodium adsorption ratio (SAR)	none	-	-	-

Notes:

ND(0.050)	Not detected at the associated reporting limit, indicated in brackets
COA	Certificate of Analysis
µg/g	micrograms per gram
s.u.	standard units
mS/cm	milliSiemens per centimeter
J	Estimated concentration.

Attachments

Attachment A
Sampling and Analysis Plan

Sampling and Analysis Plan
SDMA - City Lands
Toronto Port Lands
Toronto, Ontario
Waterfront Toronto

Proposed Location	Media	Proposed Depth of BH (m)	O. Reg. 153 Metals & Inorganics	PAHs	PHCs	VOCs	OC Pesticides	Chlorophenols	PCBs	Sampling and Analytical Scope
BH18-441	Soil	8	x	x	x	x	x	x	x	Collect first sample from a depth between surface and 1.5 mbgs Collect second sample from a depth between 1.5 and 4.0 mbgs Collect third sample from a depth between 4.0 and 8.0 mbgs Samples to be collected based on highest PID reading and/or visual evidence (staining, odours) of contamination. Collect OCP, CP, and PCB from the first two intervals only.
BH18-442	Soil	10	x	x	x	x	x	x	x	Collect first sample from a depth between surface and 1.5 mbgs Collect second sample from a depth between 1.5 and 4.0 mbgs Collect third sample from a depth between 4.0 and 10.0 mbgs Samples to be collected based on highest PID reading and/or visual evidence (staining, odours) of contamination. Collect OCP, CP, and PCB from the first two intervals only.
BH18-443	Soil	10	x	x	x	x	x	x	x	Collect first sample from a depth between surface and 1.5 mbgs Collect second sample from a depth between 1.5 and 4.0 mbgs Collect third sample from a depth between 4.0 and 10.0 mbgs Samples to be collected based on highest PID reading and/or visual evidence (staining, odours) of contamination. Collect OCP, CP, and PCB from the first two intervals only.
BH18-444	Soil	8	x	x	x	x	x	x	x	Collect first sample from a depth between surface and 1.5 mbgs Collect second sample from a depth between 1.5 and 4.0 mbgs Collect third sample from a depth between 4.0 and 8.0 mbgs Samples to be collected based on highest PID reading and/or visual evidence (staining, odours) of contamination. Collect OCP, CP, and PCB from the first two intervals only.

Sampling and Analysis Plan
SDMA - City Lands
Toronto Port Lands
Toronto, Ontario
Waterfront Toronto

Proposed Location	Media	Proposed Depth of BH (m)	O. Reg. 153 Metals & Inorganics	PAHs	PHCs	VOCs	OC Pesticides	Chlorophenols	PCBs	Sampling and Analytical Scope
BH18-445	Soil	10	x	x	x	x	x	x	x	Collect first sample from a depth between surface and 1.5 mbgs Collect second sample from a depth between 1.5 and 4.0 mbgs Collect third sample from a depth between 4.0 and 10.0 mbgs Samples to be collected based on highest PID reading and/or visual evidence (staining, odours) of contamination. Collect OCP, CP, and PCB from the first two intervals only.
BH18-463	Soil	8	x	x	x	x	x	x	x	Collect first sample from a depth between surface and 1.5 mbgs Collect second sample from a depth between 1.5 and 4.0 mbgs Collect third sample from a depth between 4.0 and 8.0 mbgs Samples to be collected based on highest PID reading and/or visual evidence (staining, odours) of contamination. Collect OCP, CP, and PCB from the first two intervals only.
BH18-465	Soil	10	x	x	x	x	x	x	x	Collect first sample from a depth between surface and 1.5 mbgs Collect second sample from a depth between 1.5 and 4.0 mbgs Collect third sample from a depth between 4.0 and 10.0 mbgs Samples to be collected based on highest PID reading and/or visual evidence (staining, odours) of contamination. Collect OCP, CP, and PCB from the first two intervals only.
BH18-467	Soil	8	x	x	x	x	x	x	x	Collect first sample from a depth between surface and 1.5 mbgs Collect second sample from a depth between 1.5 and 4.0 mbgs Collect third sample from a depth between 4.0 and 8.0 mbgs Samples to be collected based on highest PID reading and/or visual evidence (staining, odours) of contamination. Collect OCP, CP, and PCB from the first two intervals only.

Sampling and Analysis Plan
SDMA - City Lands
Toronto Port Lands
Toronto, Ontario
Waterfront Toronto

Proposed Location	Media	Proposed Depth of BH (m)	O. Reg. 153 Metals & Inorganics	PAHs	PHCs	VOCs	OC Pesticides	Chlorophenols	PCBs	Sampling and Analytical Scope
BH18-468	Soil	8	x	x	x	x	x	x	x	Collect first sample from a depth between surface and 1.5 mbgs Collect second sample from a depth between 1.5 and 4.0 mbgs Collect third sample from a depth between 4.0 and 8.0 mbgs Samples to be collected based on highest PID reading and/or visual evidence (staining, odours) of contamination. Collect OCP, CP, and PCB from the first two intervals only.
BH18-469	Soil	8	x	x	x	x	x	x	x	Collect first sample from a depth between surface and 1.5 mbgs Collect second sample from a depth between 1.5 and 4.0 mbgs Collect third sample from a depth between 4.0 and 8.0 mbgs Samples to be collected based on highest PID reading and/or visual evidence (staining, odours) of contamination. Collect OCP, CP, and PCB from the first two intervals only.

Attachment B
Stratigraphic and Instrumentation Logs

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: RMM Data Gap Investigation
PROJECT NUMBER: 11102463-53
CLIENT: Waterfront Toronto
LOCATION: SDMA - City Lands
DRILLER: Pontil

HOLE DESIGNATION: BH18-441
DATE COMPLETED: March 20, 2019
DRILLING METHOD: 216mm OD HSA
FIELD PERSONNEL: Dan Deitner

NORTHING: 4834344.01
EASTING: 317023.2
GROUND SURFACE ELEV. m BGS: 77.85

DEPTH m BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. m BGS	Borehole	SAMPLE NUMBER	SAMPLE INTERVAL	REC (%)	'N' VALUE	PID (ppm)
0.5	SAND (FILL), gravel, trace silt and clay, compact, fine grained, poorly graded, brown, moist			1		75	30	2.0
1.0	- with silt and gravel, trace clay, slight hydrocarbon odour at 0.76m BGS			2		50	10	5.0
1.5	- with weathered red brick debris, dark brown, faint hydrocarbon odour at 1.52m BGS			3		60	14	5.4
2.0								
2.5	- sand and gravel with silt, trace clay, very loose, wet, moderate hydrocarbon odour at 2.28m BGS			4		25	3	440
3.0								
3.5	ML-SILT, with peat and clay, trace organics, soft, low plasticity, grey, wet	74.50		5		83	3	102
4.0				6		0		
4.5			Borehole					
5.0								
5.5								
6.0								
6.5	- trace concrete, slag and brick at 6.85m BGS							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 11102463-53-2019.GPJ CRA_CORP.GDT 6/4/19

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: RMM Data Gap Investigation
PROJECT NUMBER: 11102463-53
CLIENT: Waterfront Toronto
LOCATION: SDMA - City Lands
DRILLER: Pontil

HOLE DESIGNATION: BH18-441
DATE COMPLETED: March 20, 2019
DRILLING METHOD: 216mm OD HSA
FIELD PERSONNEL: Dan Deitner

DEPTH m BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. m BGS	Borehole	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
				7		10	5	
7.5	SILTY SAND (NATIVE)	70.39						
8.0								
8.5				8				
9.0	END OF BOREHOLE @ 9.14m BGS	68.71						
9.5								
10.0								
10.5								
11.0								
11.5								
12.0								
12.5								
13.0								
13.5								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (8)

OVERBURDEN LOG 11102463-53-2019.GPJ CRA_CORP.GDT 6/4/19

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: RMM Data Gap Investigation
PROJECT NUMBER: 11102463-53
CLIENT: Waterfront Toronto
LOCATION: SDMA - City Lands
DRILLER: Pontil

HOLE DESIGNATION: BH18-442
DATE COMPLETED: March 14, 2019
DRILLING METHOD: Hydrovac/216mm OD HSA
FIELD PERSONNEL: Dan Deitner

NORTHING: 4834361.1
EASTING: 317036.1

DEPTH m BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. m BGS	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	REC (%)	'N' VALUE	PID (ppm)
	GROUND SURFACE	77.74						
0.0	SAND AND GRAVEL (FILL), with silt, trace clay, compact, fine to medium grained sand, moist, trace debris, bricks, wood, glass, concrete			1	G			0.0
0.5								
1.0				2	G			0.0
1.5								
2.0				3	G			0.0
2.5				4	G			0.0
3.0	- very loose, grey, wet, faint petroleum hydrocarbon odour at 3.04m BGS							
3.5				5		42	5	44.0
4.0	- sand, silt, very loose, fine sand, grey, wet, faint odour at 3.81m BGS							
	CL-SILTY CLAY, trace organics, very soft, moderate plasticity, grey, wet, no odour	73.69		6		75		2.2
4.5				7		83		0.0
5.0								
5.5			Bentonite					
6.0	- trace gravel at 6.09m BGS							
6.5				8		33	7	0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 11102463-53-2019.GPJ CRA_CORP.GDT 6/4/19

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: RMM Data Gap Investigation
PROJECT NUMBER: 11102463-53
CLIENT: Waterfront Toronto
LOCATION: SDMA - City Lands
DRILLER: Pontil

HOLE DESIGNATION: BH18-442
DATE COMPLETED: March 14, 2019
DRILLING METHOD: Hydrovac/216mm OD HSA
FIELD PERSONNEL: Dan Deitner

DEPTH m BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. m BGS	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
7.5								
8.0	SM-SILTY SAND, trace gravel, trace organic wood fibres, loose, fine grained, grey, wet, no odour, few brick fragments	70.12		9		38	7	0.0
8.5								
9.0	- no bricks or wood, well graded at 9.14m BGS							
9.5				10		50	18	0.0
10.0								
10.5	- dense, fine grained, grey, wet at 10.66m BGS							
11.0				11		63	33	
11.5	END OF BOREHOLE FOR ENVIRONMENTAL INVESTIGATION @ 11.20m BGS	66.54						
12.0								
12.5								
13.0								
13.5								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: RMM Data Gap Investigation
PROJECT NUMBER: 11102463-53
CLIENT: Waterfront Toronto
LOCATION: SDMA - City Lands

HOLE DESIGNATION: BH18-443
DATE COMPLETED: March 20, 2019
DRILLING METHOD: 216mm OD HSA
FIELD PERSONNEL: Dan Deitner

NORTHING: 4834398.73
EASTING: 317016.97
GROUND SURFACE 78.45

DEPTH m BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. m BGS	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
0.5	SAND (FILL), with gravel, dense, poorly graded, find to medium grained, coarse angular to sub-angular gravel, dark brown, moist, with wood, brick, glass, concrete debris throughout							
1.0								
1.5								
2.0								
	- concrete, brick and rebar debris at 2.13m BGS							
		76.17						
2.5	SILTY GRAVELLY SAND (FILL), some brick and concrete debris			1		1	18	1.4
3.0		75.41						
	No recovery			2		0		-
3.5								
4.0								
4.5								
5.0								
5.5			Bentonite					
6.0		72.36						
	PT-PEAT, reddish brown, moist, with wood and rootlets			3				0.0
6.5								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: RMM Data Gap Investigation
PROJECT NUMBER: 11102463-53
CLIENT: Waterfront Toronto
LOCATION: SDMA - City Lands

HOLE DESIGNATION: BH18-443
DATE COMPLETED: March 20, 2019
DRILLING METHOD: 216mm OD HSA
FIELD PERSONNEL: Dan Deitner

DEPTH m BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. m BGS	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
7.5								
8.0	SM-SILTY SAND (NATIVE), very loose, fine grained, poorly graded, grey, with wood	70.68		4			2	0.0
8.5								
9.0	- with gravel at 9.14m BGS							
9.5								
10.0								
10.5								
11.0	- Bedrock at 11.20m BGS	67.25		5			38	0.0
11.5	END OF BOREHOLE @ 11.20m BGS							
12.0								
12.5								
13.0								
13.5								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: RMM Data Gap Investigation
PROJECT NUMBER: 11102463-53
CLIENT: Waterfront Toronto
LOCATION: SDMA - City Lands
DRILLER: Aardvark

HOLE DESIGNATION: BH18-444
DATE COMPLETED: March 21, 2019
DRILLING METHOD: Hydrovac/216mm OD HSA
FIELD PERSONNEL: Emma Nussli

NORTHING: 4834460.24
EASTING: 316987.77

DEPTH m BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. m BGS	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	REC (%)	'N' VALUE	PID (ppm)
	GROUND SURFACE	78.31						
0.5	SAND (FILL), trace clay and gravel, fine to medium grained, poorly graded, brown, moist - trace gravel, fine grained from 0.15 to 1.28m BGS		Sand			0.15		3.0
						0.15		2.0
						0.15		1.0
				1		0.15		0.0
1.0				2		0.15		1.0
	- trace wood and clay from 1.11 to 1.27m BGS			3		0.15		1.0
				4		0.15		1.0
				5		0.15		0.0
		77.04		6		0.15		0.0
1.5	SAND AND GRAVEL (FILL), with coal, fine to coarse grained, poorly graded, dark brown, wet - trace metal fragments at 1.51m BGS			7		0.15		0.0
				8		0.15		1.0
				9		0.15		3.0
2.0				10		0.15		1.0
				11		0.15		2.0
				12		0.15		8.0
				13		0.15		8.0
2.5				14		0.15		32.0
				15		0.15		34.0
				16		0.15		57.0
3.0				17		0.15		-
	COAL (FILL), some sand and gravel, loose, well graded, fine to coarse grained, black, wet, strong odour, sheen	75.27		18		17	7	84.8
3.5								
		74.50						
	No Recovery			19		0	-	-
4.0			Bentonite					
		73.90						
4.5	COAL (FILL), some sand and gravel, loose, well graded, fine to coarse grained, black, wet, strong odour, sheen	73.67						
	PT-PEAT, compact to firm, dark brown, moist, odour, fibrous organics throughout			20		50	13	22.8
5.0								
		73.13						
	CH-CLAY, soft to firm, high plasticity, grey, wet	72.98						
5.5	CL/ML-SILTY CLAY, high plasticity, firm to soft, grey, wet, trace organics, sheen on water			21		75	2	11.6
6.0		72.22						
	ML-SANDY SILT, some clay, medium plasticity, light brown and grey, wet, very slight odour, trace organics throughout			22		100	3	2.9
6.5	- medium to high plasticity, no odour at 6.85m BGS							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (ellipse)

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: RMM Data Gap Investigation
PROJECT NUMBER: 11102463-53
CLIENT: Waterfront Toronto
LOCATION: SDMA - City Lands
DRILLER: Aardvark

HOLE DESIGNATION: BH18-444
DATE COMPLETED: March 21, 2019
DRILLING METHOD: Hydrovac/216mm OD HSA
FIELD PERSONNEL: Emma Nussli

DEPTH m BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. m BGS	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
7.5	- increase in sand content at 7.62m BGS			23		100	4	2.6
8.0				24		100	11	2.0
	END OF BOREHOLE @ 8.22m BGS	70.09						
8.5								
9.0								
9.5								
10.0								
10.5								
11.0								
11.5								
12.0								
12.5								
13.0								
13.5								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: RMM Data Gap Investigation
PROJECT NUMBER: 11102463-53
CLIENT: Waterfront Toronto
LOCATION: SDMA - City Lands
DRILLER: Aardvark

HOLE DESIGNATION: BH18-445
DATE COMPLETED: March 19, 2019
DRILLING METHOD: 216mm OD HSA
FIELD PERSONNEL: Emma Nussli

NORTHING: 4834387.08
EASTING: 316947.98
GROUND SURFACE ELEV. m BGS: 77.73

DEPTH m BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. m BGS	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	REC (%)	'N' VALUE	PID (ppm)
0.5	SANDY SILT (FILL), loose to compact, fine to coarse grained sand, low to medium plasticity, dark brown, moist, trace cobbles and gravel			1		50	25	1.0
		76.97						
1.0	SILT (FILL), trace sand and trace to some clay, low to medium plasticity, grey, moist - 0.051m seam of coal pieces at 0.91m BGS - 0.051m seam of coal pieces at 1.21m BGS			2		75	13	2.7
1.5	- 0.051m seam of coal pieces at 1.52m BGS	76.16						
2.0	COAL (FILL), loose, black, trace glass fragments			3		50	7	4.0
2.5	- becomes wet, strong odour, sheen on water at 2.28m BGS			4		17	4	7.9
3.0	- strong odour, sheen on water from 3.04 to 3.65m BGS			5		8.5	3	-
4.0				6		8.5	20	-
4.5	- no recovery from 4.57 to 5.18m BGS			7		0	4	-
5.0		72.40	Bentonite					
5.5	PT-PEAT, with organics, soft to firm, dark brown, moist, fibrous, odour, sheen			8		50	4	22.6
6.0	- soft, wet at 6.09m BGS							
6.5				9		50	4	20.4

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (2)

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: RMM Data Gap Investigation
PROJECT NUMBER: 11102463-53
CLIENT: Waterfront Toronto
LOCATION: SDMA - City Lands
DRILLER: Aardvark

HOLE DESIGNATION: BH18-445
DATE COMPLETED: March 19, 2019
DRILLING METHOD: 216mm OD HSA
FIELD PERSONNEL: Emma Nussli

DEPTH m BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. m BGS	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	REC (%)	'N' VALUE	PID (ppm)
7.5	- compact to dense, trace wood at 7.01m BGS			10		100	3	11.0
8.0	- increase in silt content, slightly less odour at 7.62m BGS			11		100	3	4.1
8.5	SP-SAND, loose, medium to coarse grained, poorly graded, grey/brown, wet, no odour	69.35		12		75	6	8.4
9.0								
9.5	- 0.15m gravel seam at 9.44m BGS - becomes fine to medium grained at 9.60m BGS			13		100	-	6.0
10.0	- becomes medium to coarse grained at 9.90m BGS							
10.5	CH-CLAY, stiff, high plasticity, grey, wet	67.52		14		100	18	3.5
11.0	END OF BOREHOLE @ 10.51m BGS	67.22						
11.5								
12.0								
12.5								
13.0								
13.5								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (12)

OVERBURDEN LOG 11102463-53-2019.GPJ CRA_CORP.GDT 6/4/19

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: RMM Data Gap Investigation
PROJECT NUMBER: 11102463-53
CLIENT: Waterfront Toronto
LOCATION: SDMA - City Lands
DRILLER: Aardvark

HOLE DESIGNATION: BH18-463
DATE COMPLETED: March 21, 2019
DRILLING METHOD: Hydrovac/216mm OD HSA
FIELD PERSONNEL: Emma Nussli

NORTHING: 4834480.74
EASTING: 316978.39

GROUND SURFACE 78.59

DEPTH m BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. m BGS
0	TOPSOIL - SAND AND GRAVEL, with organics, fine to coarse grained, well graded, brown	78.29
0.5	SANDY SILT (FILL), soft - cobbles at 0.45m BGS	77.99
1.0	SAND (FILL), with silt and some gravel, loose, medium to coarse grained, poorly graded, brown - cobbles, rock pieces, gravel at 0.91m BGS - increase in silt content at 1.37m BGS	
1.5	COAL (FILL), with asphalt pieces, loose, black, strong odour, wet	77.07
2.0		
2.5		
3.0	- large coal pieces at 2.89m BGS	75.50
3.5	SAND AND GRAVEL (FILL), with coal pieces, loose, coarse grained, well graded, grey, wet, strong odour	
4.0	- 0.051m coal seam with sand and gravel at 3.81m BGS	74.73
	SAND, compact, fine grained, poorly graded, grey, moist	74.63
4.5	CLAY, soft to firm, high plasticity, grey, moist to wet	74.33
	SILTY SAND, trace clay, compact to dense, dark brown/black, moist, fibrous organics throughout	73.97
5.0	PT-PEAT, dense, dark brown/black, moist, fibrous organics throughout	73.82
5.5	CH/ML-SILTY CLAY, high plasticity, grey, moist to wet, fibrous organics throughout - increase in sand, becomes medium to high plasticity at 5.33m BGS	
6.0	ML-SANDY SILT some clay, medium plasticity, light brown/grey throughout, wet	72.50
6.5		

BOREHOLE: Sand; Bentonite

SAMPLE NUMBER	INTERVAL	REC (%)	'N' VALUE	PID (ppm)
				5.0
				5.5
				5.9
				4.3
				4.5
				3.7
				3.2
				4.9
				4.8
				4.1
				6.2
				6.3
				7.6
				7.7
				13.4
				6.1
				10.1
⬭		50	3	96.8
		100	4	3.1
⬭		100	4	6.8
		100	3	0.7
		100	5	2.1

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: RMM Data Gap Investigation
PROJECT NUMBER: 11102463-53
CLIENT: Waterfront Toronto
LOCATION: SDMA - City Lands
DRILLER: Aardvark

HOLE DESIGNATION: BH18-463
DATE COMPLETED: March 21, 2019
DRILLING METHOD: Hydrovac/216mm OD HSA
FIELD PERSONNEL: Emma Nussli

DEPTH m BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. m BGS	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
7.5						100	6	1.9
8.0						100	12	1.7
	END OF BOREHOLE @ 8.22m BGS	70.37						
8.5								
9.0								
9.5								
10.0								
10.5								
11.0								
11.5								
12.0								
12.5								
13.0								
13.5								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: RMM Data Gap Investigation
PROJECT NUMBER: 11102463-53
CLIENT: Waterfront Toronto
LOCATION: SDMA - City Lands
DRILLER: Geo-Environmental Drilling

HOLE DESIGNATION: BH18-465
DATE COMPLETED: March 21, 2019
DRILLING METHOD: 216mm OD HSA
FIELD PERSONNEL: Jacquelyn Cummings

NORTHING: 4834440.05
EASTING: 317006.15

DEPTH m BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. m BGS	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	77.51						
0	TOPSOIL	77.44		1			6	0.0
0.5	SILTY SAND (FILL), with gravel, loose, fine grained, poorly graded, brown, moist - gravel, brick, concrete and slag/coal throughout from 0.45 to 2.28m BGS							
1.0				2			7	0.0
1.5								
2.0				3			4	0.0
2.5	COAL (FILL), few silt and sand, very loose, fine grained, poorly graded, dark brown to black, wet	75.23		4			3	40
3.0	PT-PEAT, trace clay, very soft, fine grained, poorly graded, black, moist	74.47						
3.5				5			2	87
4.0	CLAYEY SILT, soft, fine grained, grey, wet	73.70	Bentonite	6			3	12
4.5								
5.0				7			-	3.0
5.5								
6.0								
6.5				8			12	0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (2)

OVERBURDEN LOG 11102463-53-2019.GPJ CRA_CORP.GDT 6/4/19

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: RMM Data Gap Investigation
PROJECT NUMBER: 11102463-53
CLIENT: Waterfront Toronto
LOCATION: SDMA - City Lands
DRILLER: Geo-Environmental Drilling

HOLE DESIGNATION: BH18-465
DATE COMPLETED: March 21, 2019
DRILLING METHOD: 216mm OD HSA
FIELD PERSONNEL: Jacquelyn Cummings

DEPTH m BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. m BGS	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
7.5								
8.0				9			12	0.0
	END OF BOREHOLE FOR ENVIRONMENTAL INVESTIGATION @ 8.22m BGS	69.29						
8.5								
9.0								
9.5								
10.0								
10.5								
11.0								
11.5								
12.0								
12.5								
13.0								
13.5								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (9)

OVERBURDEN LOG 11102463-53-2019.GPJ CRA_CORP.GDT 6/4/19

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: RMM Data Gap Investigation
PROJECT NUMBER: 11102463-53
CLIENT: Waterfront Toronto
LOCATION: SDMA - City Lands
DRILLER: Geo-Environmental Drilling

HOLE DESIGNATION: BH18-467
DATE COMPLETED: March 19, 2019
DRILLING METHOD: Hydrovac/216mm OD HSA
FIELD PERSONNEL: Dan Deitner

NORTHING: 4834415.33
EASTING: 317003.39

DEPTH m BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. m BGS	SAMPLE NUMBER	SAMPLE INTERVAL	REC (%)	'N' VALUE	PID (ppm)
	GROUND SURFACE	78.79					
0.5	SILTY SAND (FILL), with gravel and clay, compact, fine grained, brown, wet, no odour, glass, brick and concrete		1	G			0.0
1.0	- trace clay at 0.76m BGS		2	G			0.0
1.5		77.27					
2.0	SAND (FILL), with gravel, trace silt and clay, compact, fine grained, moist, no odour, concrete and rebar throughout		3	G			0.0
2.5		76.51	4	G			0.0
3.0	GRAVELLY SAND (FILL), with silt, trace clay, loose, fine grained, brown, wet, no odour, brick, rubble throughout	75.75	5		25	3	3.0
3.5	SILTY GRAVELLY SAND (FILL), loose, fine grained, poorly graded, grey, moist, faint odour, trace concrete debris						
4.0		75.05	6		29	4	3.5
4.5	SANDY SILT (FILL), trace gravel, wet, wood and plastic debris, increase in odour						
5.0	- strong odour at 4.57m BGS		7		16	2	14.0
5.5							
6.0		72.70					
6.5	ORGANIC SANDY SILT (NATIVE), very loose, grey, wet, fine peat fibres throughout		8		66	3	1.0

Bentonite

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (5)

OVERBURDEN LOG 11102463-53-2019.GPJ CRA_CORP.GDT 6/4/19

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: RMM Data Gap Investigation
PROJECT NUMBER: 11102463-53
CLIENT: Waterfront Toronto
LOCATION: SDMA - City Lands
DRILLER: Geo-Environmental Drilling

HOLE DESIGNATION: BH18-467
DATE COMPLETED: March 19, 2019
DRILLING METHOD: Hydrovac/216mm OD HSA
FIELD PERSONNEL: Dan Deitner

DEPTH m BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. m BGS	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
7.5	SILTY CLAY (NATIVE), very soft, low plasticity, grey, wet	71.48		9		100	3	1.0
8.0								
8.5				10		100		
9.0	- brown mottling at 9.14m BGS			11				
9.5				12		100	7	1.0
10.0								
10.5								
11.0	- trace gravel at 11.20m BGS			13			10	1.0
11.5				14		0		
12.0	- Refusal, Bedrock at 11.88m BGS END OF BOREHOLE FOR ENVIRONMENTAL INVESTIGATION @ 11.88m BGS	66.91						
12.5								
13.0								
13.5								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 11102463-53-2019.GPJ CRA_CORP.GDT 6/4/19

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: RMM Data Gap Investigation
PROJECT NUMBER: 11102463-53
CLIENT: Waterfront Toronto
LOCATION: SDMA - City Lands
DRILLER: Aardvark

HOLE DESIGNATION: BH18-468
DATE COMPLETED: March 20, 2019
DRILLING METHOD: 216mm OD HSA
FIELD PERSONNEL: Emma Nussli

NORTHING: 4834365.37
EASTING: 316990.97

DEPTH m BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. m BGS	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	78.10						
0	CONCRETE	78.00						
	SAND AND GRAVEL (FILL), loose, coarse grained, well graded, brown, moist	77.95		1		75	-	5.0
0.5	SANDY SILT (FILL), with gravel and some cobbles, compact, well graded, dark grey/black, trace debris	77.65						
	- 0.051m gravel and cobble seam at 0.30m BGS							
1.0	SILTY SAND (FILL), trace cobbles, compact, fine grained, poorly graded, black, moist, trace debris			2		25	7	6.5
1.5	- broken glass and brick fragments throughout at 0.76m BGS	76.58						
	COAL (FILL), with sand and gravel, loose, well graded, black with brown sand			3		25	2	7.3
2.0	- becomes wet, black at 2.13m BGS							
2.5				4		25	2	5.7
3.0								
3.5				5		50	1	4.4
	- increase in sand content at 3.81m BGS							
4.0	- 0.051m clay seam, high plasiticity, soft, grey, wet at 4.11m BGS	73.94	Bentonite	6		50	3	9.9
4.5	SP-SAND, with silt, trace clay, compact, fine grained, poorly graded, grey, wet, some fibrous organics throughout	73.53						
	ML-SILT, firm, brown/grey, wet, trace fibrous organics throughout, spongey	73.38		7		75	3	7.3
5.0	PT-PEAT, some silt, firm, dark brown, moist, fibrous woody organics throughout, 2mm fine grained sand lense throughout	72.92						
5.5	ML-SILT, some clay, firm, low to medium plasticity, dark grey/black, moist to wet, odour, trace organics			8		100	-	6.0
	SP-SAND, compact, fine grained, poorly graded, grey, moist	72.31						
6.0	ML-SILT, firm, dark brown, moist, fibrous organics throughout	72.01						
6.5				9		100	3	7.6
	SM-SILTY SAND, loose to compact, fine	71.25						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (1)

OVERBURDEN LOG 11102463-53-2019.GPJ CRA_CORP.GDT 6/4/19

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: RMM Data Gap Investigation
PROJECT NUMBER: 11102463-53
CLIENT: Waterfront Toronto
LOCATION: SDMA - City Lands
DRILLER: Aardvark

HOLE DESIGNATION: BH18-468
DATE COMPLETED: March 20, 2019
DRILLING METHOD: 216mm OD HSA
FIELD PERSONNEL: Emma Nussli

DEPTH m BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. m BGS	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	grained, poorly graded, grey, moist	71.02		10		100	2	6.6
	- 0.076m clay seam, high plasticity, grey, moist to wet, odour at 7.01m BGS							
7.5	SP-SILTY SAND, compact, fine to medium grained, poorly graded, brown, wet, odour							
8.0				11		100	1	7.8
	END OF BOREHOLE @ 8.22m BGS	69.88						
8.5								
9.0								
9.5								
10.0								
10.5								
11.0								
11.5								
12.0								
12.5								
13.0								
13.5								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (11)

OVERBURDEN LOG 11102463-53-2019.GPJ CRA_CORP.GDT 6/4/19

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: RMM Data Gap Investigation
PROJECT NUMBER: 11102463-53
CLIENT: Waterfront Toronto
LOCATION: SDMA - City Lands
DRILLER: Marathon

HOLE DESIGNATION: BH18-469
DATE COMPLETED: March 25, 2019
DRILLING METHOD: 216mm OD HSA
FIELD PERSONNEL: Dan Deitner

NORTHING: 4834378.72
EASTING: 317001.01
GROUND SURFACE 78.56

DEPTH m BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. m BGS	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	REC (%)	'N' VALUE	PID (ppm)
0.0	Concrete slab	78.49						
	SAND AND GRAVEL (FILL), trace silt, compact, fine to medium grained sand, fine grained granular gravel, well graded, grey, wet	78.40		1		37	17	0.0
0.5	SILTY CLAY (FILL), stiff, low plasticity, brown, moist, trace bricks and concrete	77.96						
1.0	SILTY SAND (FILL), trace clay and gravel, compact, fine grained, brown to grey, moist			2		42	22	1.2
1.5	- trace slag, trace concrete, dark grey at 1.52m BGS			3		63	12	2.2
2.0	CLAYEY SILT (FILL), trace sand, very loose, grey, wet	76.43						
	SILTY SAND (FILL), trace gravel and concrete, loose, dark grey, very moist	76.20		4		25	>50	0.9
2.5	SANDY SILT (FILL), trace clay, bricks, and concrete, loose, dark grey, moist	75.82						
3.0				5		25	2	2.4
3.5	- wet at 3.81m BGS							
4.0				6		16	0	1.2
4.5	ML-SILT, trace sand, very loose, grey, wet, brown fibrous peat	73.99						
	SP-SAND, trace silt, very loose, fine grained, poorly graded, grey, wet	73.90		7		58	4	0.3
5.0			Bentonite					
5.5	CL/ML-SILTY CLAY, very soft, low plasticity, grey, wet, occasional sand laminations - sand lens at 5.71m BGS	73.15		8		71	2	1.5
6.0	SP-SAND, trace silt, loose, fine grained, poorly graded, grey, wet	72.47		9		13		
6.5	CL/ML-SILTY CLAY, soft, low plasticity, grey,	71.71						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 11102463-53-2019.GPJ CRA_CORP.GDT 6/4/19

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: RMM Data Gap Investigation
PROJECT NUMBER: 11102463-53
CLIENT: Waterfront Toronto
LOCATION: SDMA - City Lands
DRILLER: Marathon

HOLE DESIGNATION: BH18-469
DATE COMPLETED: March 25, 2019
DRILLING METHOD: 216mm OD HSA
FIELD PERSONNEL: Dan Deitner

DEPTH m BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. m BGS	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
7.5	wet							
8.0				10		33	3	0.8
8.5	- sandy silty clay at 8.38m BGS			11		96		0.8
9.0	- clayey silty sand at 8.99m BGS	69.57						
	END OF BOREHOLE FOR ENVIRONMENTAL INVESTIGATION @ 8.99m BGS							
9.5								
10.0								
10.5								
11.0								
11.5								
12.0								
12.5								
13.0								
13.5								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (10)

OVERBURDEN LOG 11102463-53-2019.GPJ CRA_CORP.GDT 6/4/19

Attachment C
Laboratory Certificates of Analysis

GHD Limited (Waterloo)
ATTN: JENNIFER BALKWILL
455 PHILLIP ST
WATERLOO ON N2L 3X2

Date Received: 14-MAR-19
Report Date: 22-MAR-19 13:50 (MT)
Version: FINAL

Client Phone: 519-884-0510

Certificate of Analysis

Lab Work Order #: L2244522

Project P.O. #: 73509898-7
Job Reference: 11102463-53
C of C Numbers:
Legal Site Desc: WATERFRONT TORONTO

Rick Hawthorne
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2244522-1 S-11102463-031319-SM-BH18-467-1.1-1.15MBGS								
Sampled By: S.MOLONEY on 13-MAR-19 @ 12:								
Matrix: SOIL								
Physical Tests								
Conductivity	0.545		0.0040	mS/cm	21-MAR-19	0.7	0.7	0.7
% Moisture	20.1		0.10	%	16-MAR-19			
pH	7.58		0.10	pH units	19-MAR-19			
Cyanides								
Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	20-MAR-19	0.051	0.051	0.051
Saturated Paste Extractables								
SAR	0.74		0.10	SAR	21-MAR-19	5	5	5
Calcium (Ca)	70.0		0.50	mg/L	21-MAR-19			
Magnesium (Mg)	5.16		0.50	mg/L	21-MAR-19			
Sodium (Na)	23.9		0.50	mg/L	21-MAR-19			
Metals								
Antimony (Sb)	14.0		1.0	ug/g	20-MAR-19	*7.5	*7.5	*1.3
Arsenic (As)	24.7		1.0	ug/g	20-MAR-19	*18	*18	*18
Barium (Ba)	401		1.0	ug/g	20-MAR-19	*390	*390	*220
Beryllium (Be)	0.98		0.50	ug/g	20-MAR-19	4	5	2.5
Boron (B)	14.0		5.0	ug/g	20-MAR-19	120	120	36
Boron (B), Hot Water Ext.	1.11		0.10	ug/g	20-MAR-19	1.5	1.5	1.5
Cadmium (Cd)	2.25		0.50	ug/g	20-MAR-19	*1.2	*1.2	*1.2
Chromium (Cr)	1500	DLHC	10	ug/g	20-MAR-19	*160	*160	*70
Cobalt (Co)	10.8		1.0	ug/g	20-MAR-19	22	22	22
Copper (Cu)	303		1.0	ug/g	20-MAR-19	*140	*180	*92
Lead (Pb)	752		1.0	ug/g	20-MAR-19	*120	*120	*120
Mercury (Hg)	1.22	DLHC	0.050	ug/g	20-MAR-19	*0.27	1.8	*0.27
Molybdenum (Mo)	2.3		1.0	ug/g	20-MAR-19	6.9	6.9	*2
Nickel (Ni)	34.0		1.0	ug/g	20-MAR-19	100	130	82
Selenium (Se)	1.4		1.0	ug/g	20-MAR-19	2.4	2.4	1.5
Silver (Ag)	1.57		0.20	ug/g	20-MAR-19	20	25	*0.5
Thallium (Tl)	<0.50		0.50	ug/g	20-MAR-19	1	1	1
Uranium (U)	<1.0		1.0	ug/g	20-MAR-19	23	23	2.5
Vanadium (V)	38.9		1.0	ug/g	20-MAR-19	86	86	86
Zinc (Zn)	746		5.0	ug/g	20-MAR-19	*340	*340	*290
Speciated Metals								
Chromium, Hexavalent	3.40		0.20	ug/g	20-MAR-19	8	10	*0.66
Volatile Organic Compounds								
Acetone	<0.50		0.50	ug/g	21-MAR-19	16	28	0.5
Benzene	0.0194		0.0068	ug/g	21-MAR-19	0.21	0.17	0.02
Bromodichloromethane	<0.050		0.050	ug/g	21-MAR-19	13	13	0.05
Bromoform	<0.050		0.050	ug/g	21-MAR-19	0.27	0.26	0.05
Bromomethane	<0.050		0.050	ug/g	21-MAR-19	0.05	0.05	0.05
Carbon tetrachloride	<0.050		0.050	ug/g	21-MAR-19	0.05	0.12	0.05
Chlorobenzene	<0.050		0.050	ug/g	21-MAR-19	2.4	2.7	0.05
Dibromochloromethane	<0.050		0.050	ug/g	21-MAR-19	9.4	9.4	0.05
Chloroform	<0.050		0.050	ug/g	21-MAR-19	0.05	0.18	0.05
1,2-Dibromoethane	<0.050		0.050	ug/g	21-MAR-19	0.05	0.05	0.05
1,2-Dichlorobenzene	<0.050		0.050	ug/g	21-MAR-19	3.4	4.3	0.05

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2244522-1 S-11102463-031319-SM-BH18-467-1.1-1.15MBGS								
Sampled By: S.MOLONEY on 13-MAR-19 @ 12:								
Matrix: SOIL								
Volatile Organic Compounds								
1,3-Dichlorobenzene	<0.050		0.050	ug/g	21-MAR-19	4.8	6	0.05
1,4-Dichlorobenzene	<0.050		0.050	ug/g	21-MAR-19	0.083	0.097	0.05
Dichlorodifluoromethane	<0.050		0.050	ug/g	21-MAR-19	16	25	0.05
1,1-Dichloroethane	<0.050		0.050	ug/g	21-MAR-19	3.5	11	0.05
1,2-Dichloroethane	<0.050		0.050	ug/g	21-MAR-19	0.05	0.05	0.05
1,1-Dichloroethylene	<0.050		0.050	ug/g	21-MAR-19	0.05	0.05	0.05
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	21-MAR-19	3.4	30	0.05
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	21-MAR-19	0.084	0.75	0.05
Methylene Chloride	<0.050		0.050	ug/g	21-MAR-19	0.1	0.96	0.05
1,2-Dichloropropane	<0.050		0.050	ug/g	21-MAR-19	0.05	0.085	0.05
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	21-MAR-19			
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	21-MAR-19			
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g	21-MAR-19	0.05	0.083	0.05
Ethylbenzene	0.030		0.018	ug/g	21-MAR-19	2	15	0.05
n-Hexane	0.072		0.050	ug/g	21-MAR-19	2.8	34	*0.05
Methyl Ethyl Ketone	<0.50		0.50	ug/g	21-MAR-19	16	44	0.5
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	21-MAR-19	1.7	4.3	0.5
MTBE	<0.050		0.050	ug/g	21-MAR-19	0.75	1.4	0.05
Styrene	<0.050		0.050	ug/g	21-MAR-19	0.7	2.2	0.05
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	21-MAR-19	0.058	0.05	0.05
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	21-MAR-19	0.05	0.05	0.05
Tetrachloroethylene	<0.050		0.050	ug/g	21-MAR-19	0.28	2.3	0.05
Toluene	0.085		0.080	ug/g	21-MAR-19	2.3	6	0.2
1,1,1-Trichloroethane	<0.050		0.050	ug/g	21-MAR-19	0.38	3.4	0.05
1,1,2-Trichloroethane	<0.050		0.050	ug/g	21-MAR-19	0.05	0.05	0.05
Trichloroethylene	0.044		0.010	ug/g	21-MAR-19	0.061	0.52	0.05
Trichlorofluoromethane	<0.050		0.050	ug/g	21-MAR-19	4	5.8	0.25
Vinyl chloride	<0.020		0.020	ug/g	21-MAR-19	0.02	0.022	0.02
o-Xylene	0.073		0.020	ug/g	21-MAR-19			
m+p-Xylenes	0.098		0.030	ug/g	21-MAR-19			
Xylenes (Total)	0.172		0.050	ug/g	21-MAR-19	3.1	25	*0.05
Surrogate: 4-Bromofluorobenzene	100.7		50-140	%	21-MAR-19			
Surrogate: 1,4-Difluorobenzene	107.6		50-140	%	21-MAR-19			
Hydrocarbons								
F1 (C6-C10)	<5.0		5.0	ug/g	21-MAR-19	55	65	25
F1-BTEX	<5.0		5.0	ug/g	22-MAR-19	55	65	25
F2 (C10-C16)	<50	DLM	50	ug/g	20-MAR-19	98	150	**10
F2-Naphth	<50		50	ug/g	22-MAR-19			
F3 (C16-C34)	730	DLM	250	ug/g	20-MAR-19	*300	1300	*240
F3-PAH	690		250	ug/g	22-MAR-19			
F4 (C34-C50)	<250	DLM	250	ug/g	20-MAR-19	2800	5600	**120
Total Hydrocarbons (C6-C50)	730		360	ug/g	22-MAR-19			
Chrom. to baseline at nC50	YES			No Unit	20-MAR-19			
Surrogate: 2-Bromobenzotrifluoride	98.5		60-140	%	20-MAR-19			
Surrogate: 3,4-Dichlorotoluene	116.3		60-140	%	21-MAR-19			
Polycyclic Aromatic Hydrocarbons								

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2244522-1 S-11102463-031319-SM-BH18-467-1.1-1.15MBGS								
Sampled By: S.MOLONEY on 13-MAR-19 @ 12:								
Matrix: SOIL								
Polycyclic Aromatic Hydrocarbons								
1+2-Methylnaphthalenes	0.458		0.042	ug/g	22-MAR-19	0.99	3.4	0.59
Semi-Volatile Organics								
Acenaphthene	0.777		0.050	ug/g	21-MAR-19	7.9	58	*0.072
Acenaphthylene	0.134		0.050	ug/g	21-MAR-19	0.15	0.17	*0.093
Anthracene	2.05		0.050	ug/g	21-MAR-19	*0.67	*0.74	*0.22
Benzo(a)anthracene	4.06		0.050	ug/g	21-MAR-19	*0.5	*0.63	*0.36
Benzo(a)pyrene	3.46		0.050	ug/g	21-MAR-19	*0.3	*0.3	*0.3
Benzo(b)fluoranthene	3.50		0.050	ug/g	21-MAR-19	*0.78	*0.78	*0.47
Benzo(ghi)perylene	2.08		0.050	ug/g	21-MAR-19	6.6	7.8	*0.68
Benzo(k)fluoranthene	2.67		0.050	ug/g	21-MAR-19	*0.78	*0.78	*0.48
2-Chlorophenol	<0.10		0.10	ug/g	21-MAR-19	1.6	2	0.1
Chrysene	3.90		0.050	ug/g	21-MAR-19	7	7.8	*2.8
Dibenzo(a,h)anthracene	0.435		0.050	ug/g	21-MAR-19	*0.1	*0.1	*0.1
2,4-Dichlorophenol	<0.10		0.10	ug/g	21-MAR-19	1.7	2.1	0.1
Fluoranthene	8.34	DLHC	0.25	ug/g	22-MAR-19	*0.69	*0.69	*0.69
Fluorene	1.16		0.050	ug/g	21-MAR-19	62	69	*0.19
Indeno(1,2,3-cd)pyrene	2.52		0.050	ug/g	21-MAR-19	*0.38	*0.48	*0.23
1-Methylnaphthalene	0.219		0.030	ug/g	21-MAR-19	0.99	3.4	0.59
2-Methylnaphthalene	0.239		0.030	ug/g	21-MAR-19	0.99	3.4	0.59
Naphthalene	0.378		0.050	ug/g	21-MAR-19	0.6	0.75	*0.09
Pentachlorophenol	<0.10		0.10	ug/g	21-MAR-19	0.1	0.1	0.1
Phenanthrene	7.43	DLHC	0.25	ug/g	22-MAR-19	*6.2	7.8	*0.69
Pyrene	6.19	DLHC	0.25	ug/g	22-MAR-19	78	78	*1
2,4,5-Trichlorophenol	<0.10		0.10	ug/g	21-MAR-19	4.4	5.5	0.1
2,4,6-Trichlorophenol	<0.10		0.10	ug/g	21-MAR-19	3.8	4.2	0.1
Surrogate: 2-Fluorobiphenyl	94.2		50-140	%	21-MAR-19			
Surrogate: Phenol d5	95.6		30-130	%	21-MAR-19			
Surrogate: p-Terphenyl d14	102.7		50-140	%	21-MAR-19			
Surrogate: 2,4,6-Tribromophenol	82.6		50-140	%	21-MAR-19			
Polychlorinated Biphenyls								
Aroclor 1242	<0.010		0.010	ug/g	21-MAR-19			
Aroclor 1248	<0.010		0.010	ug/g	21-MAR-19			
Aroclor 1254	<0.010		0.010	ug/g	21-MAR-19			
Aroclor 1260	0.020	PRAR	0.010	ug/g	21-MAR-19			
Total PCBs	<0.020		0.020	ug/g	21-MAR-19	0.35	0.35	0.3
Surrogate: d14-Terphenyl	93.9		60-140	%	21-MAR-19			
Organochlorine Pesticides								
Aldrin	<0.020		0.020	ug/g	22-MAR-19	0.05	0.05	0.05
gamma-hexachlorocyclohexane	<0.150	DLQ	0.15	ug/g	22-MAR-19	**0.056	**0.063	
a-chlordane	<0.020		0.020	ug/g	22-MAR-19			
Chlordane (Total)	<0.028		0.028	ug/g	22-MAR-19	0.05	0.05	0.05
g-chlordane	<0.020		0.020	ug/g	22-MAR-19			
op-DDD	<0.020		0.020	ug/g	22-MAR-19			
pp-DDD	0.039		0.020	ug/g	22-MAR-19			
Total DDD	0.039		0.028	ug/g	22-MAR-19	3.3	3.3	0.05
o,p-DDE	<0.020		0.020	ug/g	22-MAR-19			

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3	
L2244522-1 S-11102463-031319-SM-BH18-467-1.1-1.15MBGS									
Sampled By: S.MOLONEY on 13-MAR-19 @ 12:									
Matrix: SOIL									
Organochlorine Pesticides									
pp-DDE	<0.020		0.020	ug/g	22-MAR-19				
Total DDE	<0.028		0.028	ug/g	22-MAR-19	0.26	0.33	0.05	
op-DDT	<0.020		0.020	ug/g	22-MAR-19				
pp-DDT	<0.020		0.020	ug/g	22-MAR-19				
Total DDT	<0.028		0.028	ug/g	22-MAR-19	1.4	1.4	1.4	
Dieldrin	<0.020		0.020	ug/g	22-MAR-19	0.05	0.05	0.05	
Endosulfan I	<0.020		0.020	ug/g	22-MAR-19				
Endosulfan II	<0.020		0.020	ug/g	22-MAR-19				
Endosulfan (Total)	<0.028		0.028	ug/g	22-MAR-19	0.04	0.04	0.04	
Endrin	<0.020		0.020	ug/g	22-MAR-19	0.04	0.04	0.04	
Heptachlor	<0.020		0.020	ug/g	22-MAR-19	0.15	0.15	0.05	
Heptachlor Epoxide	<0.020		0.020	ug/g	22-MAR-19	0.05	0.05	0.05	
Hexachlorobenzene	<0.010		0.010	ug/g	22-MAR-19	0.52	0.52	0.02	
Hexachlorobutadiene	<0.010		0.010	ug/g	22-MAR-19	0.012	0.014	0.01	
Hexachloroethane	<0.010		0.010	ug/g	22-MAR-19	0.089	0.07	0.01	
Methoxychlor	<0.020		0.020	ug/g	22-MAR-19	0.13	0.13	0.05	
Surrogate: 2-Fluorobiphenyl	72.1		50-140	%	22-MAR-19				
Surrogate: d14-Terphenyl	77.8		50-140	%	22-MAR-19				

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Reference Information

Sample Parameter Qualifier key listed:

Qualifier	Description
DLQ	Detection Limit raised due to co-eluting interference. GCMS qualifier ion ratio did not meet acceptance criteria.
PRAR	PCB Pattern Most Closely Resembles Aroclor Reported
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
DLHC	Detection Limit Raised: Dilution required due to high concentration of test analyte(s).

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference***
625-511-WT	Soil	ABN-O.Reg 153/04 (July 2011)	SW846 8270 (511)

Soil and sediment samples are dried by mixing with a desiccant prior to extraction. The extracts are dried, concentrated and exchanged into a solvent and analyzed by GC/MS. Depending on the analytical GC/MS column used benzo(j)fluoranthene may chromatographically co-elute with benzo(b)fluoranthene or benzo(k)fluoranthene.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

B-HWS-R511-WT	Soil	Boron-HWE-O.Reg 153/04 (July 2011)	HW EXTR, EPA 6010B

A dried solid sample is extracted with calcium chloride, the sample undergoes a heating process. After cooling the sample is filtered and analyzed by ICP/OES.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

CHLORDANE-T-CALC-WT	Soil	Chlordane Total sums	CALCULATION

Aqueous sample is extracted by liquid/liquid extraction with a solvent mix. After extraction, a number of clean up techniques may be applied, depending on the sample matrix and analyzed by GC/MS.

CN-WAD-R511-WT	Soil	Cyanide (WAD)-O.Reg 153/04 (July 2011)	MOE 3015/APHA 4500CN I-WAD

The sample is extracted with a strong base for 16 hours, and then filtered. The filtrate is then distilled where the cyanide is converted to cyanogen chloride by reacting with chloramine-T, the cyanogen chloride then reacts with a combination of barbituric acid and isonicotinic acid to form a highly colored complex.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

CR-CR6-IC-WT	Soil	Hexavalent Chromium in Soil	SW846 3060A/7199

This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, Method 7199, published by the United States Environmental Protection Agency (EPA). The procedure involves analysis for chromium (VI) by ion chromatography using diphenylcarbazide in a sulphuric acid solution.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

DDD-DDE-DDT-CALC-WT	Soil	DDD, DDE, DDT sums	CALCULATION

Aqueous sample is extracted by liquid/liquid extraction with a solvent mix. After extraction, a number of clean up techniques may be applied, depending on the sample matrix and analyzed by GC/MS.

EC-WT	Soil	Conductivity (EC)	MOEE E3138

A representative subsample is tumbled with de-ionized (DI) water. The ratio of water to soil is 2:1 v/w. After tumbling the sample is then analyzed by a conductivity meter.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

ENDOSULFAN-T-CALC-WT	Soil	Endosulfan Total sums	CALCULATION

Aqueous sample is extracted by liquid/liquid extraction with a solvent mix. After extraction, a number of clean up techniques may be applied, depending on the sample matrix and analyzed by GC/MS.

Reference Information

F1-F4-511-CALC-WT	Soil	F1-F4 Hydrocarbon Calculated Parameters	CCME CWS-PHC, Pub #1310, Dec 2001-S

Analytical methods used for analysis of CCME Petroleum Hydrocarbons have been validated and comply with the Reference Method for the CWS PHC.

Hydrocarbon results are expressed on a dry weight basis.

In cases where results for both F4 and F4G are reported, the greater of the two results must be used in any application of the CWS PHC guidelines and the gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.
In samples where BTEX and F1 were analyzed , F1-BTEX represents a value where the sum of Benzene, Toluene, Ethylbenzene and total Xylenes has been subtracted from F1.

In samples where PAHs, F2 and F3 were analyzed, F2-Naphth represents the result where Naphthalene has been subtracted from F2. F3-PAH represents a result where the sum of Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenzo(a,h)anthracene, Fluoranthene, Indeno(1,2,3-cd)pyrene, Phenanthrene, and Pyrene has been subtracted from F3.

Unless otherwise qualified, the following quality control criteria have been met for the F1 hydrocarbon range:
1. All extraction and analysis holding times were met.
2. Instrument performance showing response factors for C6 and C10 within 30% of the response factor for toluene.
3. Linearity of gasoline response within 15% throughout the calibration range.

Unless otherwise qualified, the following quality control criteria have been met for the F2-F4 hydrocarbon ranges:
1. All extraction and analysis holding times were met.
2. Instrument performance showing C10, C16 and C34 response factors within 10% of their average.
3. Instrument performance showing the C50 response factor within 30% of the average of the C10, C16 and C34 response factors.
4. Linearity of diesel or motor oil response within 15% throughout the calibration range.

F1-HS-511-WT	Soil	F1-O.Reg 153/04 (July 2011)	E3398/CCME TIER 1-HS

Fraction F1 is determined by extracting a soil or sediment sample as received with methanol, then analyzing by headspace-GC/FID.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

F2-F4-511-WT	Soil	F2-F4-O.Reg 153/04 (July 2011)	CCME Tier 1

Petroleum Hydrocarbons (F2-F4 fractions) are extracted from soil with 1:1 hexane:acetone using a rotary extractor. Extracts are treated with silica gel to remove polar organic interferences. F2, F3, & F4 are analyzed by GC-FID. F4G-sg is analyzed gravimetrically.

Notes:
1. F2 (C10-C16): Sum of all hydrocarbons that elute between nC10 and nC16.
2. F3 (C16-C34): Sum of all hydrocarbons that elute between nC16 and nC34.
3. F4 (C34-C50): Sum of all hydrocarbons that elute between nC34 and nC50.
4. F4G: Gravimetric Heavy Hydrocarbons
5. F4G-sg: Gravimetric Heavy Hydrocarbons (F4G) after silica gel treatment.
6. Where both F4 (C34-C50) and F4G-sg are reported for a sample, the larger of the two values is used for comparison against the relevant CCME guideline for F4.
7. F4G-sg cannot be added to the C6 to C50 hydrocarbon results to obtain an estimate of total extractable hydrocarbons.
8. This method is validated for use.
9. Data from analysis of validation and quality control samples is available upon request.
10. Reported results are expressed as milligrams per dry kilogram, unless otherwise indicated.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

HG-200.2-CVAA-WT	Soil	Mercury in Soil by CVAAS	EPA 200.2/1631E (mod)

Soil samples are digested with nitric and hydrochloric acids, followed by analysis by CVAAS.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

Reference Information

MET-200.2-CCMS-WT	Soil	Metals in Soil by CRC ICPMS	EPA 200.2/6020A (mod)

Soil/sediment is dried, disaggregated, and sieved (2 mm). For tests intended to support Ontario regulations, the <2mm fraction is ground to pass through a 0.355 mm sieve. Strong Acid Leachable Metals in the <2mm fraction are solubilized by heated digestion with nitric and hydrochloric acids. Instrumental analysis is by Collision / Reaction Cell ICPMS.

Limitations: This method is intended to liberate environmentally available metals. Silicate minerals are not solubilized. Some metals may be only partially recovered (matrix dependent), including Al, Ba, Be, Cr, S, Sr, Ti, Tl, V, W, and Zr. Elemental Sulfur may be poorly recovered by this method. Volatile forms of sulfur (e.g. sulfide, H2S) may be excluded if lost during sampling, storage, or digestion.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

METHYLNAPS-CALC-WT	Soil	ABN-Calculated Parameters	SW846 8270
MOISTURE-WT	Soil	% Moisture	CCME PHC in Soil - Tier 1 (mod)
PCB-511-WT	Soil	PCB-O.Reg 153/04 (July 2011)	SW846 3510/8082

An aliquot of a solid sample is extracted with a solvent, extract is cleaned up and analyzed on the GC/MS.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

PEST-OC-511-WT	Soil	OC Pesticides-O.Reg 153/04 (July 2011)	SW846 8270 (511)

Soil sample is extracted in a solvent, after extraction a number of clean up techniques may be applied, depending on the sample matrix and analyzed by GC/MS.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

PH-WT	Soil	pH	MOEE E3137A

A minimum 10g portion of the sample is extracted with 20mL of 0.01M calcium chloride solution by shaking for at least 30 minutes. The aqueous layer is separated from the soil and then analyzed using a pH meter and electrode.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

SAR-R511-WT	Soil	SAR-O.Reg 153/04 (July 2011)	SW846 6010C

A dried, disaggregated solid sample is extracted with deionized water, the aqueous extract is separated from the solid, acidified and then analyzed using a ICP/OES. The concentrations of Na, Ca and Mg are reported as per CALA requirements for calculated parameters. These individual parameters are not for comparison to any guideline.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

VOC-1,3-DCP-CALC-WT	Soil	Regulation 153 VOCs	SW8260B/SW8270C
VOC-511-HS-WT	Soil	VOC-O.Reg 153/04 (July 2011)	SW846 8260 (511)

Soil and sediment samples are extracted in methanol and analyzed by headspace-GC/MS.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

XYLENES-SUM-CALC-WT	Soil	Sum of Xylene Isomer Concentrations	CALCULATION

Total xylenes represents the sum of o-xylene and m&p-xylene.

*** ALS test methods may incorporate modifications from specified reference methods to improve performance.

Chain of Custody numbers:

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location	Laboratory Definition Code	Laboratory Location
WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA		

Reference Information

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.
mg/kg - milligrams per kilogram based on dry weight of sample
mg/kg wwt - milligrams per kilogram based on wet weight of sample
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight
mg/L - unit of concentration based on volume, parts per million.
< - Less than.
D.L. - The reporting limit.
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, fitness for a particular purpose, or non-infringement. ALS assumes no responsibility for errors or omissions in the information. Guideline limits are not adjusted for the hardness, pH or temperature of the sample (the most conservative values are used). Measurement uncertainty is not applied to test results prior to comparison with specified criteria values.

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
625-511-WT	**Soil**							
Batch R4573968								
WG3008839-3 DUP		**WG3008839-5**						
1-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	20-MAR-19
2-Chlorophenol		<0.10	<0.10	RPD-NA	ug/g	N/A	40	20-MAR-19
2-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	20-MAR-19
2,4-Dichlorophenol		<0.10	<0.10	RPD-NA	ug/g	N/A	40	20-MAR-19
2,4,5-Trichlorophenol		<0.10	<0.10	RPD-NA	ug/g	N/A	40	20-MAR-19
2,4,6-Trichlorophenol		<0.10	<0.10	RPD-NA	ug/g	N/A	40	20-MAR-19
Acenaphthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-MAR-19
Acenaphthylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-MAR-19
Anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-MAR-19
Benzo(a)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-MAR-19
Benzo(a)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-MAR-19
Benzo(b)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-MAR-19
Benzo(ghi)perylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-MAR-19
Benzo(k)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-MAR-19
Chrysene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-MAR-19
Dibenzo(a,h)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-MAR-19
Fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-MAR-19
Fluorene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-MAR-19
Indeno(1,2,3-cd)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-MAR-19
Naphthalene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-MAR-19
Pentachlorophenol		<0.10	<0.10	RPD-NA	ug/g	N/A	40	20-MAR-19
Phenanthrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-MAR-19
Pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-MAR-19
WG3008839-2 LCS								
1-Methylnaphthalene			95.6		%		50-140	20-MAR-19
2-Chlorophenol			109.6		%		50-140	20-MAR-19
2-Methylnaphthalene			99.4		%		50-140	20-MAR-19
2,4-Dichlorophenol			107.2		%		50-140	20-MAR-19
2,4,5-Trichlorophenol			100.9		%		50-140	20-MAR-19
2,4,6-Trichlorophenol			101.7		%		50-140	20-MAR-19
Acenaphthene			101.9		%		50-140	20-MAR-19
Acenaphthylene			107.1		%		50-140	20-MAR-19
Anthracene			103.4		%		50-140	20-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
625-511-WT	**Soil**							
Batch R4573968								
WG3008839-2 LCS								
Benzo(a)anthracene			103.8		%		50-140	20-MAR-19
Benzo(a)pyrene			102.9		%		50-140	20-MAR-19
Benzo(b)fluoranthene			102.2		%		50-140	20-MAR-19
Benzo(ghi)perylene			106.1		%		50-140	20-MAR-19
Benzo(k)fluoranthene			109.5		%		50-140	20-MAR-19
Chrysene			111.6		%		50-140	20-MAR-19
Dibenzo(a,h)anthracene			103.3		%		50-140	20-MAR-19
Fluoranthene			111.8		%		50-140	20-MAR-19
Fluorene			106.6		%		50-140	20-MAR-19
Indeno(1,2,3-cd)pyrene			100.8		%		50-140	20-MAR-19
Naphthalene			104.6		%		50-140	20-MAR-19
Pentachlorophenol			81.2		%		50-140	20-MAR-19
Phenanthrene			104.6		%		50-140	20-MAR-19
Pyrene			109.2		%		50-140	20-MAR-19
WG3008839-1 MB								
1-Methylnaphthalene			<0.030		ug/g		0.03	20-MAR-19
2-Chlorophenol			<0.10		ug/g		0.1	20-MAR-19
2-Methylnaphthalene			<0.030		ug/g		0.03	20-MAR-19
2,4-Dichlorophenol			<0.10		ug/g		0.1	20-MAR-19
2,4,5-Trichlorophenol			<0.10		ug/g		0.1	20-MAR-19
2,4,6-Trichlorophenol			<0.10		ug/g		0.1	20-MAR-19
Acenaphthene			<0.050		ug/g		0.05	20-MAR-19
Acenaphthylene			<0.050		ug/g		0.05	20-MAR-19
Anthracene			<0.050		ug/g		0.05	20-MAR-19
Benzo(a)anthracene			<0.050		ug/g		0.05	20-MAR-19
Benzo(a)pyrene			<0.050		ug/g		0.05	20-MAR-19
Benzo(b)fluoranthene			<0.050		ug/g		0.05	20-MAR-19
Benzo(ghi)perylene			<0.050		ug/g		0.05	20-MAR-19
Benzo(k)fluoranthene			<0.050		ug/g		0.05	20-MAR-19
Chrysene			<0.050		ug/g		0.05	20-MAR-19
Dibenzo(a,h)anthracene			<0.050		ug/g		0.05	20-MAR-19
Fluoranthene			<0.050		ug/g		0.05	20-MAR-19
Fluorene			<0.050		ug/g		0.05	20-MAR-19
Indeno(1,2,3-cd)pyrene			<0.050		ug/g		0.05	20-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
625-511-WT	**Soil**							
Batch R4573968								
WG3008839-1 MB								
Naphthalene			<0.050		ug/g		0.05	20-MAR-19
Pentachlorophenol			<0.10		ug/g		0.1	20-MAR-19
Phenanthrene			<0.050		ug/g		0.05	20-MAR-19
Pyrene			<0.050		ug/g		0.05	20-MAR-19
Surrogate: 2-Fluorobiphenyl			78.9		%		50-140	20-MAR-19
Surrogate: 2,4,6-Tribromophenol			67.2		%		50-140	20-MAR-19
Surrogate: p-Terphenyl d14			106.5		%		50-140	20-MAR-19
Surrogate: Phenol d5			95.3		%		30-130	20-MAR-19
WG3008839-4 MS		**WG3008839-5**						
1-Methylnaphthalene			102.7		%		50-140	20-MAR-19
2-Chlorophenol			116.1		%		50-140	20-MAR-19
2-Methylnaphthalene			108.9		%		50-140	20-MAR-19
2,4-Dichlorophenol			115.2		%		50-140	20-MAR-19
2,4,5-Trichlorophenol			111.8		%		50-140	20-MAR-19
2,4,6-Trichlorophenol			109.3		%		50-140	20-MAR-19
Acenaphthene			107.5		%		50-140	20-MAR-19
Acenaphthylene			113.4		%		50-140	20-MAR-19
Anthracene			107.9		%		50-140	20-MAR-19
Benzo(a)anthracene			113.2		%		50-140	20-MAR-19
Benzo(a)pyrene			106.4		%		50-140	20-MAR-19
Benzo(b)fluoranthene			113.2		%		50-140	20-MAR-19
Benzo(ghi)perylene			97.8		%		50-140	20-MAR-19
Benzo(k)fluoranthene			118.3		%		50-140	20-MAR-19
Chrysene			116.7		%		50-140	20-MAR-19
Dibenzo(a,h)anthracene			96.5		%		50-140	20-MAR-19
Fluoranthene			128.7		%		50-140	20-MAR-19
Fluorene			113.8		%		50-140	20-MAR-19
Indeno(1,2,3-cd)pyrene			94.1		%		50-140	20-MAR-19
Naphthalene			114.2		%		50-140	20-MAR-19
Pentachlorophenol			77.3		%		50-140	20-MAR-19
Phenanthrene			108.7		%		50-140	20-MAR-19
Pyrene			125.5		%		50-140	20-MAR-19

COMMENTS: RRQC: Recovery is outside ALS control limits. Associated sample results have not been affected.

B-HWS-R511-WT **Soil**

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
B-HWS-R511-WT	**Soil**							
Batch R4574247								
WG3009859-4 DUP		**L2244468-3**						
Boron (B), Hot Water Ext.		<0.10	<0.10	RPD-NA	ug/g	N/A	30	20-MAR-19
WG3009859-2 IRM		**HOTB-SAL_SOIL5**						
Boron (B), Hot Water Ext.			104.1		%		70-130	20-MAR-19
WG3009859-3 LCS								
Boron (B), Hot Water Ext.			96.7		%		70-130	20-MAR-19
WG3009859-1 MB								
Boron (B), Hot Water Ext.			<0.10		ug/g		0.1	20-MAR-19
CN-WAD-R511-WT	**Soil**							
Batch R4573316								
WG3009011-3 DUP		**L2244705-1**						
Cyanide, Weak Acid Diss		<0.050	<0.050	RPD-NA	ug/g	N/A	35	20-MAR-19
WG3009011-2 LCS								
Cyanide, Weak Acid Diss			93.1		%		80-120	20-MAR-19
WG3009011-1 MB								
Cyanide, Weak Acid Diss			<0.050		ug/g		0.05	20-MAR-19
WG3009011-4 MS		**L2244705-1**						
Cyanide, Weak Acid Diss			104.2		%		70-130	20-MAR-19
CR-CR6-IC-WT	**Soil**							
Batch R4575531								
WG3009211-7 CRM		**WT-SQC012**						
Chromium, Hexavalent			84.9		%		70-130	20-MAR-19
WG3009211-6 DUP		**L2244407-1**						
Chromium, Hexavalent		0.36	0.31		ug/g	15	35	20-MAR-19
WG3009211-5 LCS								
Chromium, Hexavalent			101.3		%		80-120	20-MAR-19
WG3009211-4 MB								
Chromium, Hexavalent			<0.20		ug/g		0.2	20-MAR-19
EC-WT	**Soil**							
Batch R4576169								
WG3010462-4 DUP		**WG3010462-3**						
Conductivity		0.919	0.897		mS/cm	2.4	20	21-MAR-19
WG3010462-2 IRM		**WT SAR2**						
Conductivity			101.9		%		70-130	21-MAR-19
WG3010945-1 LCS								
Conductivity			100.3		%		90-110	21-MAR-19
WG3010462-1 MB								

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
EC-WT	**Soil**							
Batch R4576169								
WG3010462-1 MB								
Conductivity			<0.0040		mS/cm		0.004	21-MAR-19
F1-HS-511-WT	**Soil**							
Batch R4572867								
WG3009623-4 DUP		**WG3009623-3**						
F1 (C6-C10)		<5.0	<5.0	RPD-NA	ug/g	N/A	30	21-MAR-19
WG3009623-2 LCS								
F1 (C6-C10)			104.9		%		80-120	20-MAR-19
WG3009623-1 MB								
F1 (C6-C10)			<5.0		ug/g		5	20-MAR-19
Surrogate: 3,4-Dichlorotoluene			137.7		%		60-140	20-MAR-19
WG3009623-6 MS		**L2244522-1**						
F1 (C6-C10)			104.4		%		60-140	21-MAR-19
F2-F4-511-WT	**Soil**							
Batch R4575388								
WG3008850-3 DUP		**WG3008850-5**						
F2 (C10-C16)		<10	<10	RPD-NA	ug/g	N/A	30	20-MAR-19
F3 (C16-C34)		<50	<50	RPD-NA	ug/g	N/A	30	20-MAR-19
F4 (C34-C50)		<50	<50	RPD-NA	ug/g	N/A	30	20-MAR-19
WG3008850-2 LCS								
F2 (C10-C16)			102.2		%		80-120	20-MAR-19
F3 (C16-C34)			104.4		%		80-120	20-MAR-19
F4 (C34-C50)			110.7		%		80-120	20-MAR-19
WG3008850-1 MB								
F2 (C10-C16)			<10		ug/g		10	20-MAR-19
F3 (C16-C34)			<50		ug/g		50	20-MAR-19
F4 (C34-C50)			<50		ug/g		50	20-MAR-19
Surrogate: 2-Bromobenzotrifluoride			92.3		%		60-140	20-MAR-19
WG3008850-4 MS		**WG3008850-5**						
F2 (C10-C16)			102.6		%		60-140	20-MAR-19
F3 (C16-C34)			99.2		%		60-140	20-MAR-19
F4 (C34-C50)			107.5		%		60-140	20-MAR-19
HG-200.2-CVAA-WT	**Soil**							

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
HG-200.2-CVAA-WT	**Soil**							
Batch R4573246								
WG3009845-2 CRM		**WT-CANMET-TILL1**						
Mercury (Hg)			102.8		%		70-130	20-MAR-19
WG3009845-6 DUP		**WG3009845-5**						
Mercury (Hg)		0.0377	0.0400		ug/g	5.8	40	20-MAR-19
WG3009845-3 LCS								
Mercury (Hg)			104.5		%		80-120	20-MAR-19
WG3009845-1 MB								
Mercury (Hg)			<0.0050		mg/kg		0.005	20-MAR-19
MET-200.2-CCMS-WT	**Soil**							
Batch R4575180								
WG3009845-2 CRM		**WT-CANMET-TILL1**						
Antimony (Sb)			116.0		%		70-130	20-MAR-19
Arsenic (As)			118.0		%		70-130	20-MAR-19
Barium (Ba)			118.7		%		70-130	20-MAR-19
Beryllium (Be)			112.6		%		70-130	20-MAR-19
Boron (B)			2.9		mg/kg		0-8.2	20-MAR-19
Cadmium (Cd)			117.0		%		70-130	20-MAR-19
Chromium (Cr)			113.3		%		70-130	20-MAR-19
Cobalt (Co)			112.5		%		70-130	20-MAR-19
Copper (Cu)			114.2		%		70-130	20-MAR-19
Lead (Pb)			115.0		%		70-130	20-MAR-19
Molybdenum (Mo)			116.1		%		70-130	20-MAR-19
Nickel (Ni)			112.7		%		70-130	20-MAR-19
Selenium (Se)			0.36		mg/kg		0.11-0.51	20-MAR-19
Silver (Ag)			0.26		mg/kg		0.13-0.33	20-MAR-19
Thallium (Tl)			0.134		mg/kg		0.077-0.18	20-MAR-19
Uranium (U)			111.9		%		70-130	20-MAR-19
Vanadium (V)			113.2		%		70-130	20-MAR-19
Zinc (Zn)			110.3		%		70-130	20-MAR-19
WG3009845-6 DUP		**WG3009845-5**						
Antimony (Sb)		0.17	0.17		ug/g	2.8	30	20-MAR-19
Arsenic (As)		6.55	7.08		ug/g	7.9	30	20-MAR-19
Barium (Ba)		199	217		ug/g	9.1	40	20-MAR-19
Beryllium (Be)		1.40	1.58		ug/g	13	30	20-MAR-19
Boron (B)		6.9	8.7		ug/g	23	30	20-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R4575180								
WG3009845-6 DUP		**WG3009845-5**						
Cadmium (Cd)		0.131	0.143		ug/g	8.6	30	20-MAR-19
Chromium (Cr)		41.1	44.9		ug/g	9.0	30	20-MAR-19
Cobalt (Co)		19.2	21.0		ug/g	9.2	30	20-MAR-19
Copper (Cu)		29.0	31.7		ug/g	8.6	30	20-MAR-19
Lead (Pb)		16.2	17.2		ug/g	5.6	40	20-MAR-19
Molybdenum (Mo)		0.45	0.49		ug/g	7.9	40	20-MAR-19
Nickel (Ni)		38.2	41.9		ug/g	9.2	30	20-MAR-19
Selenium (Se)		0.28	0.32		ug/g	12	30	20-MAR-19
Silver (Ag)		<0.10	<0.10	RPD-NA	ug/g	N/A	40	20-MAR-19
Thallium (Tl)		0.234	0.275		ug/g	16	30	20-MAR-19
Uranium (U)		0.663	0.739		ug/g	11	30	20-MAR-19
Vanadium (V)		54.5	59.7		ug/g	9.1	30	20-MAR-19
Zinc (Zn)		94.0	100		ug/g	6.4	30	20-MAR-19
WG3009845-4 LCS								
Antimony (Sb)			104.5		%		80-120	20-MAR-19
Arsenic (As)			112.3		%		80-120	20-MAR-19
Barium (Ba)			111.6		%		80-120	20-MAR-19
Beryllium (Be)			102.9		%		80-120	20-MAR-19
Boron (B)			100.2		%		80-120	20-MAR-19
Cadmium (Cd)			104.8		%		80-120	20-MAR-19
Chromium (Cr)			107.1		%		80-120	20-MAR-19
Cobalt (Co)			104.3		%		80-120	20-MAR-19
Copper (Cu)			101.7		%		80-120	20-MAR-19
Lead (Pb)			108.1		%		80-120	20-MAR-19
Molybdenum (Mo)			114.5		%		80-120	20-MAR-19
Nickel (Ni)			103.3		%		80-120	20-MAR-19
Selenium (Se)			111.5		%		80-120	20-MAR-19
Silver (Ag)			110.1		%		80-120	20-MAR-19
Thallium (Tl)			107.2		%		80-120	20-MAR-19
Uranium (U)			106.6		%		80-120	20-MAR-19
Vanadium (V)			108.4		%		80-120	20-MAR-19
Zinc (Zn)			101.2		%		80-120	20-MAR-19
WG3009845-1 MB								
							0.1	

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R4575180								
WG3009845-1 MB								
Antimony (Sb)			<0.10		mg/kg		0.1	20-MAR-19
Arsenic (As)			<0.10		mg/kg		0.1	20-MAR-19
Barium (Ba)			<0.50		mg/kg		0.5	20-MAR-19
Beryllium (Be)			<0.10		mg/kg		0.1	20-MAR-19
Boron (B)			<5.0		mg/kg		5	20-MAR-19
Cadmium (Cd)			<0.020		mg/kg		0.02	20-MAR-19
Chromium (Cr)			<0.50		mg/kg		0.5	20-MAR-19
Cobalt (Co)			<0.10		mg/kg		0.1	20-MAR-19
Copper (Cu)			<0.50		mg/kg		0.5	20-MAR-19
Lead (Pb)			<0.50		mg/kg		0.5	20-MAR-19
Molybdenum (Mo)			<0.10		mg/kg		0.1	20-MAR-19
Nickel (Ni)			<0.50		mg/kg		0.5	20-MAR-19
Selenium (Se)			<0.20		mg/kg		0.2	20-MAR-19
Silver (Ag)			<0.10		mg/kg		0.1	20-MAR-19
Thallium (Tl)			<0.050		mg/kg		0.05	20-MAR-19
Uranium (U)			<0.050		mg/kg		0.05	20-MAR-19
Vanadium (V)			<0.20		mg/kg		0.2	20-MAR-19
Zinc (Zn)			<2.0		mg/kg		2	20-MAR-19
MOISTURE-WT	**Soil**							
Batch R4567919								
WG3007422-3 DUP		**L2244464-11**						
% Moisture		18.5	18.6		%	0.3	20	16-MAR-19
WG3007422-2 LCS								
% Moisture			100.4		%		90-110	16-MAR-19
WG3007422-1 MB								
% Moisture			<0.10		%		0.1	16-MAR-19
PCB-511-WT	**Soil**							
Batch R4575678								
WG3008837-3 DUP		**WG3008837-5**						
Aroclor 1242		<0.010	<0.010	RPD-NA	ug/g	N/A	40	21-MAR-19
Aroclor 1248		<0.010	<0.010	RPD-NA	ug/g	N/A	40	21-MAR-19
Aroclor 1254		<0.010	<0.010	RPD-NA	ug/g	N/A	40	21-MAR-19
Aroclor 1260		<0.010	<0.010	RPD-NA	ug/g	N/A	40	21-MAR-19
WG3008837-2 LCS								

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PCB-511-WT	**Soil**							
Batch R4575678								
WG3008837-2 LCS								
Aroclor 1242			110.3		%		60-140	21-MAR-19
Aroclor 1248			95.3		%		60-140	21-MAR-19
Aroclor 1254			114.2		%		60-140	21-MAR-19
Aroclor 1260			111.1		%		60-140	21-MAR-19
WG3008837-1 MB								
Aroclor 1242			<0.010		ug/g		0.01	21-MAR-19
Aroclor 1248			<0.010		ug/g		0.01	21-MAR-19
Aroclor 1254			<0.010		ug/g		0.01	21-MAR-19
Aroclor 1260			<0.010		ug/g		0.01	21-MAR-19
Surrogate: d14-Terphenyl			86.2		%		60-140	21-MAR-19
WG3008837-4 MS		**WG3008837-5**						
Aroclor 1242			109.2		%		60-140	21-MAR-19
Aroclor 1254			122.2		%		60-140	21-MAR-19
Aroclor 1260			119.7		%		60-140	21-MAR-19
PEST-OC-511-WT	**Soil**							
Batch R4573449								
WG3008701-8 DUP		**WG3008701-10**						
Aldrin		<0.020	<0.020	RPD-NA	ug/g	N/A	40	20-MAR-19
a-chlordane		<0.020	<0.020	RPD-NA	ug/g	N/A	40	20-MAR-19
g-chlordane		<0.020	<0.020	RPD-NA	ug/g	N/A	40	20-MAR-19
op-DDD		<0.020	<0.020	RPD-NA	ug/g	N/A	40	20-MAR-19
pp-DDD		<0.020	<0.020	RPD-NA	ug/g	N/A	40	20-MAR-19
o,p-DDE		<0.020	<0.020	RPD-NA	ug/g	N/A	40	20-MAR-19
pp-DDE		<0.020	<0.020	RPD-NA	ug/g	N/A	40	20-MAR-19
op-DDT		<0.020	<0.020	RPD-NA	ug/g	N/A	40	20-MAR-19
pp-DDT		<0.020	<0.020	RPD-NA	ug/g	N/A	40	20-MAR-19
Dieldrin		<0.020	<0.020	RPD-NA	ug/g	N/A	40	20-MAR-19
Endosulfan I		<0.020	<0.020	RPD-NA	ug/g	N/A	40	20-MAR-19
Endosulfan II		<0.020	<0.020	RPD-NA	ug/g	N/A	40	20-MAR-19
Endrin		<0.020	<0.020	RPD-NA	ug/g	N/A	40	20-MAR-19
gamma-hexachlorocyclohexane		<0.010	0.014	RPD-NA	ug/g	N/A	40	20-MAR-19
Heptachlor		<0.020	<0.020	RPD-NA	ug/g	N/A	40	20-MAR-19
Heptachlor Epoxide		<0.020	<0.020	RPD-NA	ug/g	N/A	40	20-MAR-19
Hexachlorobenzene		<0.010	<0.010		ug/g			20-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PEST-OC-511-WT	**Soil**							
Batch R4573449								
WG3008701-8 DUP		**WG3008701-10**						
Hexachlorobenzene		<0.010	<0.010	RPD-NA	ug/g	N/A	40	20-MAR-19
Hexachlorobutadiene		<0.010	<0.010	RPD-NA	ug/g	N/A	40	20-MAR-19
Hexachloroethane		<0.010	<0.010	RPD-NA	ug/g	N/A	40	20-MAR-19
Methoxychlor		<0.020	<0.020	RPD-NA	ug/g	N/A	40	20-MAR-19
WG3008701-7 LCS								
Aldrin			88.4		%		50-140	20-MAR-19
a-chlordane			81.2		%		50-140	20-MAR-19
g-chlordane			82.4		%		50-140	20-MAR-19
op-DDD			86.4		%		50-140	20-MAR-19
pp-DDD			95.1		%		50-140	20-MAR-19
o,p-DDE			81.2		%		50-140	20-MAR-19
pp-DDE			80.8		%		50-140	20-MAR-19
op-DDT			52.4		%		50-140	20-MAR-19
pp-DDT			52.1		%		50-140	20-MAR-19
Dieldrin			79.4		%		50-140	20-MAR-19
Endosulfan I			78.6		%		50-140	20-MAR-19
Endosulfan II			82.9		%		50-140	20-MAR-19
Endrin			90.5		%		50-140	20-MAR-19
gamma-hexachlorocyclohexane			88.8		%		50-140	20-MAR-19
Heptachlor			75.1		%		50-140	20-MAR-19
Heptachlor Epoxide			80.5		%		50-140	20-MAR-19
Hexachlorobenzene			91.3		%		50-140	20-MAR-19
Hexachlorobutadiene			90.4		%		50-140	20-MAR-19
Hexachloroethane			87.3		%		50-140	20-MAR-19
Methoxychlor			65.2		%		50-140	20-MAR-19
WG3008701-6 MB								
Aldrin			<0.020		ug/g		0.02	20-MAR-19
a-chlordane			<0.020		ug/g		0.02	20-MAR-19
g-chlordane			<0.020		ug/g		0.02	20-MAR-19
op-DDD			<0.020		ug/g		0.02	20-MAR-19
pp-DDD			<0.020		ug/g		0.02	20-MAR-19
o,p-DDE			<0.020		ug/g		0.02	20-MAR-19
pp-DDE			<0.020		ug/g		0.02	20-MAR-19
op-DDT			<0.020		ug/g		0.02	20-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PEST-OC-511-WT	**Soil**							
Batch R4573449								
WG3008701-6 MB								
pp-DDT			<0.020		ug/g		0.02	20-MAR-19
Dieldrin			<0.020		ug/g		0.02	20-MAR-19
Endosulfan I			<0.020		ug/g		0.02	20-MAR-19
Endosulfan II			<0.020		ug/g		0.02	20-MAR-19
Endrin			<0.020		ug/g		0.02	20-MAR-19
gamma-hexachlorocyclohexane			<0.010		ug/g		0.01	20-MAR-19
Heptachlor			<0.020		ug/g		0.02	20-MAR-19
Heptachlor Epoxide			<0.020		ug/g		0.02	20-MAR-19
Hexachlorobenzene			<0.010		ug/g		0.01	20-MAR-19
Hexachlorobutadiene			<0.010		ug/g		0.01	20-MAR-19
Hexachloroethane			<0.010		ug/g		0.01	20-MAR-19
Methoxychlor			<0.020		ug/g		0.02	20-MAR-19
Surrogate: 2-Fluorobiphenyl			100.0		%		50-140	20-MAR-19
Surrogate: d14-Terphenyl			96.5		%		50-140	20-MAR-19
WG3008701-9 MS		**WG3008701-10**						
Aldrin			94.0		%		50-140	20-MAR-19
a-chlordane			57.9		%		50-140	20-MAR-19
g-chlordane			55.9		%		50-140	20-MAR-19
op-DDD			57.8		%		50-140	20-MAR-19
pp-DDD			66.2		%		50-140	20-MAR-19
o,p-DDE			66.9		%		50-140	20-MAR-19
pp-DDE			62.4		%		50-140	20-MAR-19
op-DDT			62.6		%		50-140	20-MAR-19
pp-DDT			79.5		%		50-140	20-MAR-19
Dieldrin			58.4		%		50-140	20-MAR-19
Endosulfan I			68.0		%		50-140	20-MAR-19
Endosulfan II			66.6		%		50-140	20-MAR-19
Endrin			83.5		%		50-140	20-MAR-19
gamma-hexachlorocyclohexane			77.8		%		50-140	20-MAR-19
Heptachlor			89.5		%		50-140	20-MAR-19
Heptachlor Epoxide			64.7		%		50-140	20-MAR-19
Hexachlorobenzene			86.1		%		50-140	20-MAR-19
Hexachlorobutadiene			96.3		%		50-140	20-MAR-19
Hexachloroethane			102.5		%		50-140	20-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PEST-OC-511-WT	**Soil**							
Batch R4573449								
WG3008701-9 MS		**WG3008701-10**						
Methoxychlor			110.3		%		50-140	20-MAR-19
PH-WT	**Soil**							
Batch R4572642								
WG3007589-1 DUP		**L2238549-1**						
pH		7.57	7.66	J	pH units	0.09	0.3	19-MAR-19
WG3008409-1 LCS								
pH			7.02		pH units		6.9-7.1	19-MAR-19
SAR-R511-WT	**Soil**							
Batch R4576589								
WG3010462-4 DUP		**WG3010462-3**						
Calcium (Ca)		10.4	9.57		mg/L	8.3	30	21-MAR-19
Sodium (Na)		154	148		mg/L	4.0	30	21-MAR-19
Magnesium (Mg)		0.70	0.53		mg/L	28	30	21-MAR-19
WG3010462-2 IRM		**WT SAR2**						
Calcium (Ca)			103.7		%		70-130	21-MAR-19
Sodium (Na)			100.3		%		70-130	21-MAR-19
Magnesium (Mg)			101.2		%		70-130	21-MAR-19
WG3010462-5 LCS								
Calcium (Ca)			103.3		%		70-130	21-MAR-19
Sodium (Na)			99.8		%		70-130	21-MAR-19
Magnesium (Mg)			99.2		%		70-130	21-MAR-19
WG3010462-1 MB								
Calcium (Ca)			<0.50		mg/L		0.5	21-MAR-19
Sodium (Na)			<0.50		mg/L		0.5	21-MAR-19
Magnesium (Mg)			<0.50		mg/L		0.5	21-MAR-19
VOC-511-HS-WT	**Soil**							
Batch R4572867								
WG3009623-4 DUP		**WG3009623-3**						
1,1,1,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-MAR-19
1,1,2,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-MAR-19
1,1,1-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-MAR-19
1,1,2-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-MAR-19
1,1-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-MAR-19
1,1-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4572867								
WG3009623-4 DUP		**WG3009623-3**						
1,2-Dibromoethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-MAR-19
1,2-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-MAR-19
1,2-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-MAR-19
1,2-Dichloropropane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-MAR-19
1,3-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-MAR-19
1,4-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-MAR-19
Acetone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	21-MAR-19
Benzene		0.151	0.151		ug/g	0.4	40	22-MAR-19
Bromodichloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-MAR-19
Bromoform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-MAR-19
Bromomethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-MAR-19
Carbon tetrachloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-MAR-19
Chlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-MAR-19
Chloroform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-MAR-19
cis-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-MAR-19
cis-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	21-MAR-19
Dibromochloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-MAR-19
Dichlorodifluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-MAR-19
Ethylbenzene		<0.018	<0.018	RPD-NA	ug/g	N/A	40	22-MAR-19
n-Hexane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	22-MAR-19
Methylene Chloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-MAR-19
MTBE		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-MAR-19
m+p-Xylenes		0.039	0.038		ug/g	1.6	40	22-MAR-19
Methyl Ethyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	21-MAR-19
Methyl Isobutyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	21-MAR-19
o-Xylene		<0.020	<0.020	RPD-NA	ug/g	N/A	40	21-MAR-19
Styrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-MAR-19
Tetrachloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-MAR-19
Toluene		<0.080	<0.080	RPD-NA	ug/g	N/A	40	21-MAR-19
trans-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-MAR-19
trans-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	21-MAR-19
Trichloroethylene		<0.010	<0.010	RPD-NA	ug/g	N/A	40	21-MAR-19
Trichlorofluoromethane		<0.050	<0.050		ug/g			21-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4572867								
WG3009623-4 DUP		**WG3009623-3**						
Trichlorofluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-MAR-19
Vinyl chloride		<0.020	<0.020	RPD-NA	ug/g	N/A	40	21-MAR-19
WG3009623-2 LCS								
1,1,1,2-Tetrachloroethane			101.6		%		60-130	20-MAR-19
1,1,2,2-Tetrachloroethane			108.1		%		60-130	20-MAR-19
1,1,1-Trichloroethane			103.7		%		60-130	20-MAR-19
1,1,2-Trichloroethane			106.8		%		60-130	20-MAR-19
1,1-Dichloroethane			109.2		%		60-130	20-MAR-19
1,1-Dichloroethylene			103.4		%		60-130	20-MAR-19
1,2-Dibromoethane			105.3		%		70-130	20-MAR-19
1,2-Dichlorobenzene			104.4		%		70-130	20-MAR-19
1,2-Dichloroethane			108.7		%		60-130	20-MAR-19
1,2-Dichloropropane			107.3		%		70-130	20-MAR-19
1,3-Dichlorobenzene			106.4		%		70-130	20-MAR-19
1,4-Dichlorobenzene			104.9		%		70-130	20-MAR-19
Acetone			100.9		%		60-140	20-MAR-19
Benzene			108.2		%		70-130	20-MAR-19
Bromodichloromethane			102.9		%		50-140	20-MAR-19
Bromoform			97.6		%		70-130	20-MAR-19
Bromomethane			116.6		%		50-140	20-MAR-19
Carbon tetrachloride			102.0		%		70-130	20-MAR-19
Chlorobenzene			105.9		%		70-130	20-MAR-19
Chloroform			106.7		%		70-130	20-MAR-19
cis-1,2-Dichloroethylene			104.8		%		70-130	20-MAR-19
cis-1,3-Dichloropropene			112.8		%		70-130	20-MAR-19
Dibromochloromethane			100.5		%		60-130	20-MAR-19
Dichlorodifluoromethane			87.9		%		50-140	20-MAR-19
Ethylbenzene			103.0		%		70-130	20-MAR-19
n-Hexane			99.0		%		70-130	20-MAR-19
Methylene Chloride			108.3		%		70-130	20-MAR-19
MTBE			103.7		%		70-130	20-MAR-19
m+p-Xylenes			103.8		%		70-130	20-MAR-19
Methyl Ethyl Ketone			109.8		%		60-140	20-MAR-19
Methyl Isobutyl Ketone			101.5		%		60-140	20-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4572867								
WG3009623-2 LCS								
o-Xylene			101.6		%		70-130	20-MAR-19
Styrene			103.3		%		70-130	20-MAR-19
Tetrachloroethylene			105.6		%		60-130	20-MAR-19
Toluene			104.8		%		70-130	20-MAR-19
trans-1,2-Dichloroethylene			107.4		%		60-130	20-MAR-19
trans-1,3-Dichloropropene			114.0		%		70-130	20-MAR-19
Trichloroethylene			107.0		%		60-130	20-MAR-19
Trichlorofluoromethane			98.9		%		50-140	20-MAR-19
Vinyl chloride			87.0		%		60-140	20-MAR-19
WG3009623-1 MB								
1,1,1,2-Tetrachloroethane			<0.050		ug/g		0.05	20-MAR-19
1,1,2,2-Tetrachloroethane			<0.050		ug/g		0.05	20-MAR-19
1,1,1-Trichloroethane			<0.050		ug/g		0.05	20-MAR-19
1,1,2-Trichloroethane			<0.050		ug/g		0.05	20-MAR-19
1,1-Dichloroethane			<0.050		ug/g		0.05	20-MAR-19
1,1-Dichloroethylene			<0.050		ug/g		0.05	20-MAR-19
1,2-Dibromoethane			<0.050		ug/g		0.05	20-MAR-19
1,2-Dichlorobenzene			<0.050		ug/g		0.05	20-MAR-19
1,2-Dichloroethane			<0.050		ug/g		0.05	20-MAR-19
1,2-Dichloropropane			<0.050		ug/g		0.05	20-MAR-19
1,3-Dichlorobenzene			<0.050		ug/g		0.05	20-MAR-19
1,4-Dichlorobenzene			<0.050		ug/g		0.05	20-MAR-19
Acetone			<0.50		ug/g		0.5	20-MAR-19
Benzene			<0.0068		ug/g		0.0068	20-MAR-19
Bromodichloromethane			<0.050		ug/g		0.05	20-MAR-19
Bromoform			<0.050		ug/g		0.05	20-MAR-19
Bromomethane			<0.050		ug/g		0.05	20-MAR-19
Carbon tetrachloride			<0.050		ug/g		0.05	20-MAR-19
Chlorobenzene			<0.050		ug/g		0.05	20-MAR-19
Chloroform			<0.050		ug/g		0.05	20-MAR-19
cis-1,2-Dichloroethylene			<0.050		ug/g		0.05	20-MAR-19
cis-1,3-Dichloropropene			<0.030		ug/g		0.03	20-MAR-19
Dibromochloromethane			<0.050		ug/g		0.05	20-MAR-19
Dichlorodifluoromethane			<0.050		ug/g		0.05	20-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4572867								
WG3009623-1 MB								
Ethylbenzene			<0.018		ug/g		0.018	20-MAR-19
n-Hexane			<0.050		ug/g		0.05	20-MAR-19
Methylene Chloride			<0.050		ug/g		0.05	20-MAR-19
MTBE			<0.050		ug/g		0.05	20-MAR-19
m+p-Xylenes			<0.030		ug/g		0.03	20-MAR-19
Methyl Ethyl Ketone			<0.50		ug/g		0.5	20-MAR-19
Methyl Isobutyl Ketone			<0.50		ug/g		0.5	20-MAR-19
o-Xylene			<0.020		ug/g		0.02	20-MAR-19
Styrene			<0.050		ug/g		0.05	20-MAR-19
Tetrachloroethylene			<0.050		ug/g		0.05	20-MAR-19
Toluene			<0.080		ug/g		0.08	20-MAR-19
trans-1,2-Dichloroethylene			<0.050		ug/g		0.05	20-MAR-19
trans-1,3-Dichloropropene			<0.030		ug/g		0.03	20-MAR-19
Trichloroethylene			<0.010		ug/g		0.01	20-MAR-19
Trichlorofluoromethane			<0.050		ug/g		0.05	20-MAR-19
Vinyl chloride			<0.020		ug/g		0.02	20-MAR-19
Surrogate: 1,4-Difluorobenzene			136.2		%		50-140	20-MAR-19
Surrogate: 4-Bromofluorobenzene			126.6		%		50-140	20-MAR-19
WG3009623-5 MS		**L2244468-3**						
1,1,1,2-Tetrachloroethane			96.8		%		50-140	21-MAR-19
1,1,2,2-Tetrachloroethane			107.4		%		50-140	21-MAR-19
1,1,1-Trichloroethane			96.2		%		50-140	21-MAR-19
1,1,2-Trichloroethane			102.5		%		50-140	21-MAR-19
1,1-Dichloroethane			100.3		%		50-140	21-MAR-19
1,1-Dichloroethylene			94.4		%		50-140	21-MAR-19
1,2-Dibromoethane			100.7		%		50-140	21-MAR-19
1,2-Dichlorobenzene			97.7		%		50-140	21-MAR-19
1,2-Dichloroethane			101.0		%		50-140	21-MAR-19
1,2-Dichloropropane			98.2		%		50-140	21-MAR-19
1,3-Dichlorobenzene			97.7		%		50-140	21-MAR-19
1,4-Dichlorobenzene			97.8		%		50-140	21-MAR-19
Acetone			93.5		%		50-140	21-MAR-19
Benzene			98.7		%		50-140	21-MAR-19
Bromodichloromethane			95.3		%		50-140	21-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4572867								
WG3009623-5 MS		**L2244468-3**						
Bromoform			93.5		%		50-140	21-MAR-19
Bromomethane			106.9		%		50-140	21-MAR-19
Carbon tetrachloride			94.6		%		50-140	21-MAR-19
Chlorobenzene			99.9		%		50-140	21-MAR-19
Chloroform			98.2		%		50-140	21-MAR-19
cis-1,2-Dichloroethylene			97.1		%		50-140	21-MAR-19
cis-1,3-Dichloropropene			100.1		%		50-140	21-MAR-19
Dibromochloromethane			97.1		%		50-140	21-MAR-19
Dichlorodifluoromethane			85.9		%		50-140	21-MAR-19
Ethylbenzene			96.6		%		50-140	21-MAR-19
n-Hexane			88.9		%		50-140	21-MAR-19
Methylene Chloride			99.6		%		50-140	21-MAR-19
MTBE			101.4		%		50-140	21-MAR-19
m+p-Xylenes			96.2		%		50-140	21-MAR-19
Methyl Ethyl Ketone			98.7		%		50-140	21-MAR-19
Methyl Isobutyl Ketone			95.1		%		50-140	21-MAR-19
o-Xylene			95.6		%		50-140	21-MAR-19
Styrene			97.8		%		50-140	21-MAR-19
Tetrachloroethylene			99.4		%		50-140	21-MAR-19
Toluene			98.9		%		50-140	21-MAR-19
trans-1,2-Dichloroethylene			97.4		%		50-140	21-MAR-19
trans-1,3-Dichloropropene			103.8		%		50-140	21-MAR-19
Trichloroethylene			97.7		%		50-140	21-MAR-19
Trichlorofluoromethane			92.3		%		50-140	21-MAR-19
Vinyl chloride			80.6		%		50-140	21-MAR-19

Quality Control Report

Workorder: L2244522 Report Date: 22-MAR-19

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
J	Duplicate results and limits are expressed in terms of absolute difference.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

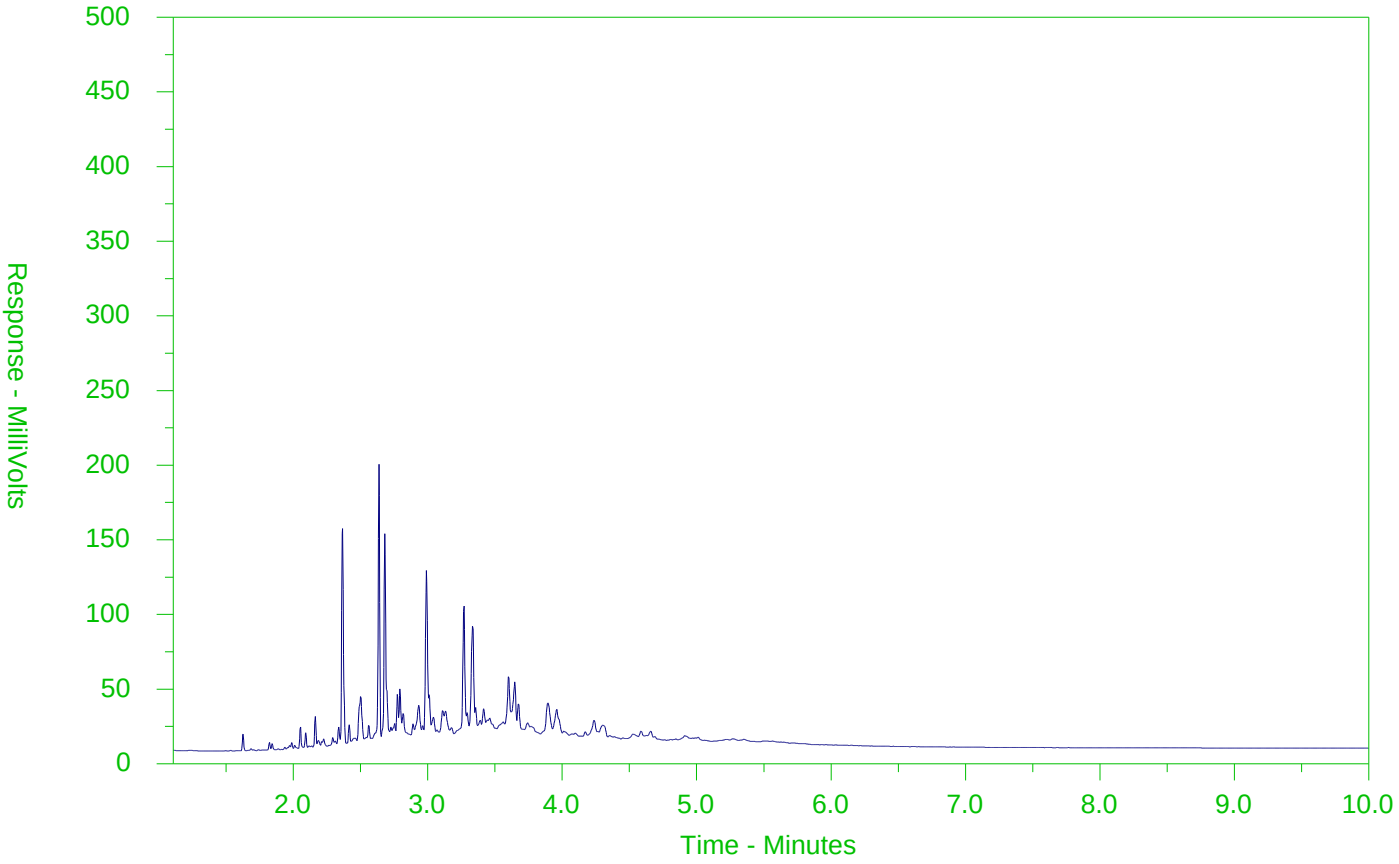
ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2244522-1
Client Sample ID: S-11102463-031319-SM-BH18-467-1.1-1.15MBGS



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental

Canada Toll Free: 1 800 668 9878

www.alsglobal.com

L2244522-COFC

COC Number: 17 -

Page 1 of 1

Report To	Contact and company name below will appear on the final report	Report Format / Distribution	Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)
Company:	GHD LIMITED - ACCT #13791	Select Report Format: ☑ PDF ☑ EXCEL ☑ EDD (DIGITAL)	Regular [R] ☑ Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:	Jennifer Balkwill	Quality Control (QC) Report with Report ☑ YES ☐ NO	PRIORITY (Business Days): 4 day [P4-20%] ☐ / 3 day [P3-25%] ☐ / 2 day [P2-50%] ☐
Phone:	519-884-0510	☐ Compare Results to Criteria on Report - provide details below if box checked	EMERGENCY: 1 Business day [E - 100%] ☐ / Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)] ☐
	Company address below will appear on the final report	Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX	Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm
Street:	455 Phillip St	Email 1 or Fax jennifer.balkwill@ghd.com	For tests that can not be performed according to the service level selected, you will be contacted.
City/Province:	Waterloo, Ontario	Email 2 See PO	
Postal Code:	N2L 3X2	Email 3	

Invoice To		Invoice Distribution	
	Same as Report To ☑ YES ☐ NO	Select Invoice Distribution: ☐ EMAIL ☐ MAIL ☐ FAX	
	Copy of Invoice with Report ☐ YES ☑ NO	Email 1 or Fax jennifer.balkwill@ghd.com	
Company:	GHD Limited	Email 2	
Contact:	Jennifer Balkwill		

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	13791, Q51987	AFE/Cost Center:	PO#
Job #:	11102463-71	Major/Minor Code:	Routing Code:
PO / AFE:	73509898-7	Requisitioner:	
LSD:	Waterfront Toronto L2244522	Location:	
ALS Lab Work Order # (lab use only):	L2244297	ALS Contact: Rick H	Sampler: SHAWN MoLONEY

Analysis Request — Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	BTEX,F1-F4-511-P-WT	TOC-WT (confirmed Triplicate 511 not neces	BTEX,F1 (Trip Blank)	o. Reg 153 Metals + Inorganics	PAHs	PHCs	OC Pesticides	Chlorophenols	PCB Aroclors	VOCs	SAMPLES ON HOLD	SUSPECTED HAZARD (see Special Instructions)
	S-11102463- 031319-SM- BH18-467-1.1-1.15mbgs	13-03-19	12:00	Soil	10				X	X	X	X	X	X	X		
	~~S-11102463-~~ TRIP BLANK	13-03-19	12:30	Soil	1			X									
	S-11102463-			Soil													
	S-11102463-			Soil													
	S-11102463-			Soil													
	S-11102463-			Soil													
	S-11102463-			Soil													
	S-11102463-			Soil													
	S-11102463-			Soil													
	S-11102463-			Soil													
	S-11102463-			Soil													
	S-11102463-			Soil													

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? ☐ YES ☑ NO	
Are samples for human consumption/ use? ☐ YES ☑ NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐

Ice Packs ☐ Ice Cubes ☒ Custody seal intact Yes ☐ No ☐

Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C	FINAL COOLER TEMPERATURES °C
	6.4

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by: SHAWN MoLONEY	Date: 13-03-19	Time: 17:40	Received by:	Date:	Time:	Received by:	Date: 14/Mar/2019	Time: 17:45

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

JUNE 2018 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

GHD Limited (Waterloo)
ATTN: JENNIFER BALKWILL
455 PHILLIP ST
WATERLOO ON N2L 3X2

Date Received: 15-MAR-19
Report Date: 25-MAR-19 14:28 (MT)
Version: FINAL

Client Phone: 519-884-0510

Certificate of Analysis

Lab Work Order #: L2245079

Project P.O. #: 73509898-7
Job Reference: 11102463-53
C of C Numbers:
Legal Site Desc: WATERFRONT TORONTO

Rick Hawthorne
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2245079-1 S-11102463-031419-SM-BH18-443-1.2-1.35MBGS								
Sampled By: S.MOLONEY on 14-MAR-19 @ 10:								
Matrix: SOIL								
Physical Tests								
Conductivity	0.727		0.0040	mS/cm	25-MAR-19	*0.7	*0.7	*0.7
% Moisture	11.7		0.10	%	19-MAR-19			
pH	7.69		0.10	pH units	21-MAR-19			
Cyanides								
Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	20-MAR-19	0.051	0.051	0.051
Saturated Paste Extractables								
SAR	1.38		0.10	SAR	25-MAR-19	5	5	5
Calcium (Ca)	85.7		0.50	mg/L	25-MAR-19			
Magnesium (Mg)	3.47		0.50	mg/L	25-MAR-19			
Sodium (Na)	47.9		0.50	mg/L	25-MAR-19			
Metals								
Antimony (Sb)	6.5		1.0	ug/g	25-MAR-19	7.5	7.5	*1.3
Arsenic (As)	9.7		1.0	ug/g	25-MAR-19	18	18	18
Barium (Ba)	159		1.0	ug/g	25-MAR-19	390	390	220
Beryllium (Be)	<0.50		0.50	ug/g	25-MAR-19	4	5	2.5
Boron (B)	6.6		5.0	ug/g	25-MAR-19	120	120	36
Boron (B), Hot Water Ext.	1.02		0.10	ug/g	25-MAR-19	1.5	1.5	1.5
Cadmium (Cd)	0.99		0.50	ug/g	25-MAR-19	1.2	1.2	1.2
Chromium (Cr)	75.3		1.0	ug/g	25-MAR-19	160	160	*70
Cobalt (Co)	5.3		1.0	ug/g	25-MAR-19	22	22	22
Copper (Cu)	98.7		1.0	ug/g	25-MAR-19	140	180	*92
Lead (Pb)	336		1.0	ug/g	25-MAR-19	*120	*120	*120
Mercury (Hg)	1.22	DLHC	0.050	ug/g	25-MAR-19	*0.27	1.8	*0.27
Molybdenum (Mo)	1.0		1.0	ug/g	25-MAR-19	6.9	6.9	2
Nickel (Ni)	18.7		1.0	ug/g	25-MAR-19	100	130	82
Selenium (Se)	<1.0		1.0	ug/g	25-MAR-19	2.4	2.4	1.5
Silver (Ag)	0.65		0.20	ug/g	25-MAR-19	20	25	*0.5
Thallium (Tl)	<0.50		0.50	ug/g	25-MAR-19	1	1	1
Uranium (U)	<1.0		1.0	ug/g	25-MAR-19	23	23	2.5
Vanadium (V)	21.3		1.0	ug/g	25-MAR-19	86	86	86
Zinc (Zn)	289		5.0	ug/g	25-MAR-19	340	340	290
Speciated Metals								
Chromium, Hexavalent	0.23		0.20	ug/g	21-MAR-19	8	10	0.66
Volatile Organic Compounds								
Acetone	<0.50		0.50	ug/g	22-MAR-19	16	28	0.5
Benzene	0.568		0.0068	ug/g	22-MAR-19	*0.21	*0.17	*0.02
Bromodichloromethane	<0.050		0.050	ug/g	22-MAR-19	13	13	0.05
Bromoform	<0.050		0.050	ug/g	22-MAR-19	0.27	0.26	0.05
Bromomethane	<0.050		0.050	ug/g	22-MAR-19	0.05	0.05	0.05
Carbon tetrachloride	<0.050		0.050	ug/g	22-MAR-19	0.05	0.12	0.05
Chlorobenzene	<0.050		0.050	ug/g	22-MAR-19	2.4	2.7	0.05
Dibromochloromethane	<0.050		0.050	ug/g	22-MAR-19	9.4	9.4	0.05
Chloroform	<0.050		0.050	ug/g	22-MAR-19	0.05	0.18	0.05
1,2-Dibromoethane	<0.050		0.050	ug/g	22-MAR-19	0.05	0.05	0.05
1,2-Dichlorobenzene	<0.050		0.050	ug/g	22-MAR-19	3.4	4.3	0.05

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2245079-1 S-11102463-031419-SM-BH18-443-1.2-1.35MBGS								
Sampled By: S.MOLONEY on 14-MAR-19 @ 10:								
Matrix: SOIL								
Volatile Organic Compounds								
1,3-Dichlorobenzene	<0.050		0.050	ug/g	22-MAR-19	4.8	6	0.05
1,4-Dichlorobenzene	<0.050		0.050	ug/g	22-MAR-19	0.083	0.097	0.05
Dichlorodifluoromethane	<0.050		0.050	ug/g	22-MAR-19	16	25	0.05
1,1-Dichloroethane	<0.050		0.050	ug/g	22-MAR-19	3.5	11	0.05
1,2-Dichloroethane	<0.050		0.050	ug/g	22-MAR-19	0.05	0.05	0.05
1,1-Dichloroethylene	<0.050		0.050	ug/g	22-MAR-19	0.05	0.05	0.05
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	22-MAR-19	3.4	30	0.05
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	22-MAR-19	0.084	0.75	0.05
Methylene Chloride	<0.050		0.050	ug/g	22-MAR-19	0.1	0.96	0.05
1,2-Dichloropropane	<0.050		0.050	ug/g	22-MAR-19	0.05	0.085	0.05
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	22-MAR-19			
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	22-MAR-19			
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g	22-MAR-19	0.05	0.083	0.05
Ethylbenzene	0.175		0.018	ug/g	22-MAR-19	2	15	*0.05
n-Hexane	0.483		0.050	ug/g	22-MAR-19	2.8	34	*0.05
Methyl Ethyl Ketone	<0.50		0.50	ug/g	22-MAR-19	16	44	0.5
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	22-MAR-19	1.7	4.3	0.5
MTBE	<0.050		0.050	ug/g	22-MAR-19	0.75	1.4	0.05
Styrene	<0.050		0.050	ug/g	22-MAR-19	0.7	2.2	0.05
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	22-MAR-19	0.058	0.05	0.05
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	22-MAR-19	0.05	0.05	0.05
Tetrachloroethylene	<0.050		0.050	ug/g	22-MAR-19	0.28	2.3	0.05
Toluene	0.403		0.080	ug/g	22-MAR-19	2.3	6	*0.2
1,1,1-Trichloroethane	<0.050		0.050	ug/g	22-MAR-19	0.38	3.4	0.05
1,1,2-Trichloroethane	<0.050		0.050	ug/g	22-MAR-19	0.05	0.05	0.05
Trichloroethylene	0.290		0.010	ug/g	22-MAR-19	*0.061	0.52	*0.05
Trichlorofluoromethane	<0.050		0.050	ug/g	22-MAR-19	4	5.8	0.25
Vinyl chloride	<0.020		0.020	ug/g	22-MAR-19	0.02	0.022	0.02
o-Xylene	0.260		0.020	ug/g	22-MAR-19			
m+p-Xylenes	0.540		0.030	ug/g	22-MAR-19			
Xylenes (Total)	0.801		0.050	ug/g	22-MAR-19	3.1	25	*0.05
Surrogate: 4-Bromofluorobenzene	92.2		50-140	%	22-MAR-19			
Surrogate: 1,4-Difluorobenzene	103.4		50-140	%	22-MAR-19			
Hydrocarbons								
F1 (C6-C10)	9.5		5.0	ug/g	22-MAR-19	55	65	25
F1-BTEX	7.5		5.0	ug/g	22-MAR-19	55	65	25
F2 (C10-C16)	23		10	ug/g	20-MAR-19	98	150	*10
F2-Naphth	23		10	ug/g	22-MAR-19			
F3 (C16-C34)	328		50	ug/g	20-MAR-19	*300	1300	*240
F3-PAH	316		50	ug/g	22-MAR-19			
F4 (C34-C50)	165		50	ug/g	20-MAR-19	2800	5600	*120
F4G-SG (GHH-Silica)	380		250	ug/g	19-MAR-19	2800	5600	*120
Total Hydrocarbons (C6-C50)	526		72	ug/g	22-MAR-19			
Chrom. to baseline at nC50	NO			No Unit	20-MAR-19			
Surrogate: 2-Bromobenzotrifluoride	93.7		60-140	%	20-MAR-19			
Surrogate: 3,4-Dichlorotoluene	98.5		60-140	%	22-MAR-19			

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2245079-1 S-11102463-031419-SM-BH18-443-1.2-1.35MBGS								
Sampled By: S.MOLONEY on 14-MAR-19 @ 10:								
Matrix: SOIL								
Polycyclic Aromatic Hydrocarbons								
1+2-Methylnaphthalenes	0.464		0.042	ug/g	21-MAR-19	0.99	3.4	0.59
Semi-Volatile Organics								
Acenaphthene	0.083		0.050	ug/g	21-MAR-19	7.9	58	*0.072
Acenaphthylene	0.162		0.050	ug/g	21-MAR-19	*0.15	0.17	*0.093
Anthracene	0.363		0.050	ug/g	21-MAR-19	0.67	0.74	*0.22
Benzo(a)anthracene	1.35		0.050	ug/g	21-MAR-19	*0.5	*0.63	*0.36
Benzo(a)pyrene	1.48		0.050	ug/g	21-MAR-19	*0.3	*0.3	*0.3
Benzo(b)fluoranthene	1.47		0.050	ug/g	21-MAR-19	*0.78	*0.78	*0.47
Benzo(ghi)perylene	1.19		0.050	ug/g	21-MAR-19	6.6	7.8	*0.68
Benzo(k)fluoranthene	1.03		0.050	ug/g	21-MAR-19	*0.78	*0.78	*0.48
2-Chlorophenol	<0.10		0.10	ug/g	21-MAR-19	1.6	2	0.1
Chrysene	1.40		0.050	ug/g	21-MAR-19	7	7.8	2.8
Dibenzo(a,h)anthracene	0.268		0.050	ug/g	21-MAR-19	*0.1	*0.1	*0.1
2,4-Dichlorophenol	<0.10		0.10	ug/g	21-MAR-19	1.7	2.1	0.1
Fluoranthene	2.08		0.050	ug/g	21-MAR-19	*0.69	*0.69	*0.69
Fluorene	0.115		0.050	ug/g	21-MAR-19	62	69	0.19
Indeno(1,2,3-cd)pyrene	1.18		0.050	ug/g	21-MAR-19	*0.38	*0.48	*0.23
1-Methylnaphthalene	0.194		0.030	ug/g	21-MAR-19	0.99	3.4	0.59
2-Methylnaphthalene	0.271		0.030	ug/g	21-MAR-19	0.99	3.4	0.59
Naphthalene	0.241		0.050	ug/g	21-MAR-19	0.6	0.75	*0.09
Pentachlorophenol	<0.10		0.10	ug/g	21-MAR-19	0.1	0.1	0.1
Phenanthrene	1.21		0.050	ug/g	21-MAR-19	6.2	7.8	*0.69
Pyrene	1.98		0.050	ug/g	21-MAR-19	78	78	*1
2,4,5-Trichlorophenol	<0.10		0.10	ug/g	21-MAR-19	4.4	5.5	0.1
2,4,6-Trichlorophenol	<0.10		0.10	ug/g	21-MAR-19	3.8	4.2	0.1
Surrogate: 2-Fluorobiphenyl	97.2		50-140	%	21-MAR-19			
Surrogate: Phenol d5	99.1		30-130	%	21-MAR-19			
Surrogate: p-Terphenyl d14	102.5		50-140	%	21-MAR-19			
Surrogate: 2,4,6-Tribromophenol	93.6		50-140	%	21-MAR-19			
Polychlorinated Biphenyls								
Aroclor 1242	<0.010		0.010	ug/g	25-MAR-19			
Aroclor 1248	<0.010		0.010	ug/g	25-MAR-19			
Aroclor 1254	<0.010		0.010	ug/g	25-MAR-19			
Aroclor 1260	<0.0250	DLM	0.025	ug/g	25-MAR-19			
Total PCBs	<0.030	DLM	0.030	ug/g	25-MAR-19	0.35	0.35	0.3
Surrogate: d14-Terphenyl	90.2		60-140	%	25-MAR-19			
Organochlorine Pesticides								
Aldrin	<0.020		0.020	ug/g	21-MAR-19	0.05	0.05	0.05
gamma-hexachlorocyclohexane	<0.027	DLQ	0.027	ug/g	21-MAR-19	0.056	0.063	
a-chlordane	<0.020		0.020	ug/g	21-MAR-19			
Chlordane (Total)	<0.028		0.028	ug/g	21-MAR-19	0.05	0.05	0.05
g-chlordane	<0.020		0.020	ug/g	21-MAR-19			
op-DDD	<0.020		0.020	ug/g	21-MAR-19			
pp-DDD	<0.020		0.020	ug/g	21-MAR-19			
Total DDD	<0.028		0.028	ug/g	21-MAR-19	3.3	3.3	0.05
o,p-DDE	<0.020		0.020	ug/g	21-MAR-19			

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2245079-1 S-11102463-031419-SM-BH18-443-1.2-1.35MBGS								
Sampled By: S.MOLONEY on 14-MAR-19 @ 10:								
Matrix: SOIL								
Organochlorine Pesticides								
pp-DDE	<0.020		0.020	ug/g	21-MAR-19			
Total DDE	<0.028		0.028	ug/g	21-MAR-19	0.26	0.33	0.05
op-DDT	<0.020		0.020	ug/g	21-MAR-19			
pp-DDT	<0.020		0.020	ug/g	21-MAR-19			
Total DDT	<0.028		0.028	ug/g	21-MAR-19	1.4	1.4	1.4
Dieldrin	<0.020		0.020	ug/g	21-MAR-19	0.05	0.05	0.05
Endosulfan I	<0.020		0.020	ug/g	21-MAR-19			
Endosulfan II	<0.020		0.020	ug/g	21-MAR-19			
Endosulfan (Total)	<0.028		0.028	ug/g	21-MAR-19	0.04	0.04	0.04
Endrin	<0.020		0.020	ug/g	21-MAR-19	0.04	0.04	0.04
Heptachlor	<0.020		0.020	ug/g	21-MAR-19	0.15	0.15	0.05
Heptachlor Epoxide	<0.020		0.020	ug/g	21-MAR-19	0.05	0.05	0.05
Hexachlorobenzene	<0.010		0.010	ug/g	21-MAR-19	0.52	0.52	0.02
Hexachlorobutadiene	<0.010		0.010	ug/g	21-MAR-19	0.012	0.014	0.01
Hexachloroethane	<0.010		0.010	ug/g	21-MAR-19	0.089	0.07	0.01
Methoxychlor	<0.020		0.020	ug/g	21-MAR-19	0.13	0.13	0.05
Surrogate: 2-Fluorobiphenyl	82.0		50-140	%	21-MAR-19			
Surrogate: d14-Terphenyl	84.7		50-140	%	21-MAR-19			
L2245079-2 S-11102463-031419-SM-BH18-442-1.4-1.5MBGS								
Sampled By: S.MOLONEY on 14-MAR-19 @ 14:								
Matrix: SOIL								
Physical Tests								
Conductivity	2.36		0.0040	mS/cm	25-MAR-19	*0.7	*0.7	*0.7
% Moisture	30.2		0.10	%	19-MAR-19			
pH	7.35		0.10	pH units	22-MAR-19			
Cyanides								
Cyanide, Weak Acid Diss	0.102		0.050	ug/g	20-MAR-19	*0.051	*0.051	*0.051
Saturated Paste Extractables								
SAR	15.0		0.10	SAR	25-MAR-19	*5	*5	*5
Calcium (Ca)	57.3		0.50	mg/L	25-MAR-19			
Magnesium (Mg)	1.47		0.50	mg/L	25-MAR-19			
Sodium (Na)	421		0.50	mg/L	25-MAR-19			
Metals								
Antimony (Sb)	37.0		1.0	ug/g	25-MAR-19	*7.5	*7.5	*1.3
Arsenic (As)	56.1		1.0	ug/g	25-MAR-19	*18	*18	*18
Barium (Ba)	1030		1.0	ug/g	25-MAR-19	*390	*390	*220
Beryllium (Be)	1.19		0.50	ug/g	25-MAR-19	4	5	2.5
Boron (B)	17.2		5.0	ug/g	25-MAR-19	120	120	36
Boron (B), Hot Water Ext.	0.69		0.10	ug/g	25-MAR-19	1.5	1.5	1.5
Cadmium (Cd)	1.69		0.50	ug/g	25-MAR-19	*1.2	*1.2	*1.2
Chromium (Cr)	73.9		1.0	ug/g	25-MAR-19	160	160	*70
Cobalt (Co)	12.8		1.0	ug/g	25-MAR-19	22	22	22
Copper (Cu)	762		1.0	ug/g	25-MAR-19	*140	*180	*92
Lead (Pb)	2630	DLHC	10	ug/g	25-MAR-19	*120	*120	*120
Mercury (Hg)	25.4	DLHC	0.50	ug/g	25-MAR-19	*0.27	*1.8	*0.27

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2245079-2 S-11102463-031419-SM-BH18-442-1.4-1.5MBGS								
Sampled By: S.MOLONEY on 14-MAR-19 @ 14:								
Matrix: SOIL								
Metals								
Molybdenum (Mo)	5.2		1.0	ug/g	25-MAR-19	6.9	6.9	*2
Nickel (Ni)	41.3		1.0	ug/g	25-MAR-19	100	130	82
Selenium (Se)	4.5		1.0	ug/g	25-MAR-19	*2.4	*2.4	*1.5
Silver (Ag)	4.07		0.20	ug/g	25-MAR-19	20	25	*0.5
Thallium (Tl)	0.56		0.50	ug/g	25-MAR-19	1	1	1
Uranium (U)	<1.0		1.0	ug/g	25-MAR-19	23	23	2.5
Vanadium (V)	38.1		1.0	ug/g	25-MAR-19	86	86	86
Zinc (Zn)	1820		5.0	ug/g	25-MAR-19	*340	*340	*290
Speciated Metals								
Chromium, Hexavalent	<0.20		0.20	ug/g	21-MAR-19	8	10	0.66
Volatile Organic Compounds								
Acetone	<0.50		0.50	ug/g	22-MAR-19	16	28	0.5
Benzene	0.0752		0.0068	ug/g	22-MAR-19	0.21	0.17	*0.02
Bromodichloromethane	<0.050		0.050	ug/g	22-MAR-19	13	13	0.05
Bromoform	<0.050		0.050	ug/g	22-MAR-19	0.27	0.26	0.05
Bromomethane	<0.050		0.050	ug/g	22-MAR-19	0.05	0.05	0.05
Carbon tetrachloride	<0.050		0.050	ug/g	22-MAR-19	0.05	0.12	0.05
Chlorobenzene	<0.050		0.050	ug/g	22-MAR-19	2.4	2.7	0.05
Dibromochloromethane	<0.050		0.050	ug/g	22-MAR-19	9.4	9.4	0.05
Chloroform	<0.050		0.050	ug/g	22-MAR-19	0.05	0.18	0.05
1,2-Dibromoethane	<0.050		0.050	ug/g	22-MAR-19	0.05	0.05	0.05
1,2-Dichlorobenzene	<0.050		0.050	ug/g	22-MAR-19	3.4	4.3	0.05
1,3-Dichlorobenzene	<0.050		0.050	ug/g	22-MAR-19	4.8	6	0.05
1,4-Dichlorobenzene	<0.050		0.050	ug/g	22-MAR-19	0.083	0.097	0.05
Dichlorodifluoromethane	<0.050		0.050	ug/g	22-MAR-19	16	25	0.05
1,1-Dichloroethane	<0.050		0.050	ug/g	22-MAR-19	3.5	11	0.05
1,2-Dichloroethane	<0.050		0.050	ug/g	22-MAR-19	0.05	0.05	0.05
1,1-Dichloroethylene	<0.050		0.050	ug/g	22-MAR-19	0.05	0.05	0.05
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	22-MAR-19	3.4	30	0.05
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	22-MAR-19	0.084	0.75	0.05
Methylene Chloride	<0.050		0.050	ug/g	22-MAR-19	0.1	0.96	0.05
1,2-Dichloropropane	<0.050		0.050	ug/g	22-MAR-19	0.05	0.085	0.05
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	22-MAR-19			
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	22-MAR-19			
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g	22-MAR-19	0.05	0.083	0.05
Ethylbenzene	0.057		0.018	ug/g	22-MAR-19	2	15	*0.05
n-Hexane	<0.050		0.050	ug/g	22-MAR-19	2.8	34	0.05
Methyl Ethyl Ketone	<0.50		0.50	ug/g	22-MAR-19	16	44	0.5
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	22-MAR-19	1.7	4.3	0.5
MTBE	<0.050		0.050	ug/g	22-MAR-19	0.75	1.4	0.05
Styrene	<0.050		0.050	ug/g	22-MAR-19	0.7	2.2	0.05
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	22-MAR-19	0.058	0.05	0.05
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	22-MAR-19	0.05	0.05	0.05
Tetrachloroethylene	<0.050		0.050	ug/g	22-MAR-19	0.28	2.3	0.05
Toluene	0.226		0.080	ug/g	22-MAR-19	2.3	6	*0.2

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2245079-2 S-11102463-031419-SM-BH18-442-1.4-1.5MBGS								
Sampled By: S.MOLONEY on 14-MAR-19 @ 14:								
Matrix: SOIL								
Volatile Organic Compounds								
1,1,1-Trichloroethane	<0.050		0.050	ug/g	22-MAR-19	0.38	3.4	0.05
1,1,2-Trichloroethane	<0.050		0.050	ug/g	22-MAR-19	0.05	0.05	0.05
Trichloroethylene	0.017		0.010	ug/g	22-MAR-19	0.061	0.52	0.05
Trichlorofluoromethane	<0.050		0.050	ug/g	22-MAR-19	4	5.8	0.25
Vinyl chloride	<0.020		0.020	ug/g	22-MAR-19	0.02	0.022	0.02
o-Xylene	0.145		0.020	ug/g	22-MAR-19			
m+p-Xylenes	0.202		0.030	ug/g	22-MAR-19			
Xylenes (Total)	0.348		0.050	ug/g	22-MAR-19	3.1	25	*0.05
Surrogate: 4-Bromofluorobenzene	84.7		50-140	%	22-MAR-19			
Surrogate: 1,4-Difluorobenzene	95.5		50-140	%	22-MAR-19			
Hydrocarbons								
F1 (C6-C10)	<5.0		5.0	ug/g	22-MAR-19	55	65	25
F1-BTEX	<5.0		5.0	ug/g	22-MAR-19	55	65	25
F2 (C10-C16)	176	DLM	50	ug/g	20-MAR-19	*98	*150	*10
F2-Naphth	176		50	ug/g	22-MAR-19			
F3 (C16-C34)	1850	DLM	250	ug/g	20-MAR-19	*300	*1300	*240
F3-PAH	1820		250	ug/g	22-MAR-19			
F4 (C34-C50)	580	DLM	250	ug/g	20-MAR-19	2800	5600	*120
F4G-SG (GHH-Silica)	1530		250	ug/g	19-MAR-19	2800	5600	*120
Total Hydrocarbons (C6-C50)	2600		360	ug/g	22-MAR-19			
Chrom. to baseline at nC50	NO			No Unit	20-MAR-19			
Surrogate: 2-Bromobenzotrifluoride	88.0		60-140	%	20-MAR-19			
Surrogate: 3,4-Dichlorotoluene	91.6		60-140	%	22-MAR-19			
Polycyclic Aromatic Hydrocarbons								
1+2-Methylnaphthalenes	0.559		0.042	ug/g	21-MAR-19	0.99	3.4	0.59
Semi-Volatile Organics								
Acenaphthene	0.318		0.050	ug/g	21-MAR-19	7.9	58	*0.072
Acenaphthylene	0.113		0.050	ug/g	21-MAR-19	0.15	0.17	*0.093
Anthracene	0.949		0.050	ug/g	21-MAR-19	*0.67	*0.74	*0.22
Benzo(a)anthracene	2.82		0.050	ug/g	21-MAR-19	*0.5	*0.63	*0.36
Benzo(a)pyrene	2.67		0.050	ug/g	21-MAR-19	*0.3	*0.3	*0.3
Benzo(b)fluoranthene	2.55		0.050	ug/g	21-MAR-19	*0.78	*0.78	*0.47
Benzo(ghi)perylene	2.01		0.050	ug/g	21-MAR-19	6.6	7.8	*0.68
Benzo(k)fluoranthene	1.83		0.050	ug/g	21-MAR-19	*0.78	*0.78	*0.48
2-Chlorophenol	<0.10		0.10	ug/g	21-MAR-19	1.6	2	0.1
Chrysene	2.89		0.050	ug/g	21-MAR-19	7	7.8	*2.8
Dibenzo(a,h)anthracene	0.404		0.050	ug/g	21-MAR-19	*0.1	*0.1	*0.1
2,4-Dichlorophenol	<0.10		0.10	ug/g	21-MAR-19	1.7	2.1	0.1
Fluoranthene	4.69		0.050	ug/g	21-MAR-19	*0.69	*0.69	*0.69
Fluorene	0.278		0.050	ug/g	21-MAR-19	62	69	*0.19
Indeno(1,2,3-cd)pyrene	2.12		0.050	ug/g	21-MAR-19	*0.38	*0.48	*0.23
1-Methylnaphthalene	0.250		0.030	ug/g	21-MAR-19	0.99	3.4	0.59
2-Methylnaphthalene	0.309		0.030	ug/g	21-MAR-19	0.99	3.4	0.59
Naphthalene	0.311		0.050	ug/g	21-MAR-19	0.6	0.75	*0.09
Pentachlorophenol	<0.10		0.10	ug/g	21-MAR-19	0.1	0.1	0.1
Phenanthrene	3.90		0.050	ug/g	21-MAR-19	6.2	7.8	*0.69

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2245079-2 S-11102463-031419-SM-BH18-442-1.4-1.5MBGS								
Sampled By: S.MOLONEY on 14-MAR-19 @ 14:								
Matrix: SOIL								
Semi-Volatile Organics								
Pyrene	4.72		0.050	ug/g	21-MAR-19	78	78	*1
2,4,5-Trichlorophenol	<0.10		0.10	ug/g	21-MAR-19	4.4	5.5	0.1
2,4,6-Trichlorophenol	<0.10		0.10	ug/g	21-MAR-19	3.8	4.2	0.1
Surrogate: 2-Fluorobiphenyl	98.8		50-140	%	21-MAR-19			
Surrogate: Phenol d5	98.7		30-130	%	21-MAR-19			
Surrogate: p-Terphenyl d14	93.2		50-140	%	21-MAR-19			
Surrogate: 2,4,6-Tribromophenol	93.8		50-140	%	21-MAR-19			
Polychlorinated Biphenyls								
Aroclor 1242	<0.010		0.010	ug/g	25-MAR-19			
Aroclor 1248	<0.010		0.010	ug/g	25-MAR-19			
Aroclor 1254	<0.010		0.010	ug/g	25-MAR-19			
Aroclor 1260	<0.010		0.010	ug/g	25-MAR-19			
Total PCBs	<0.020		0.020	ug/g	25-MAR-19	0.35	0.35	0.3
Surrogate: d14-Terphenyl	88.0		60-140	%	25-MAR-19			
Organochlorine Pesticides								
Aldrin	<0.020		0.020	ug/g	20-MAR-19	0.05	0.05	0.05
gamma-hexachlorocyclohexane	<0.140	DLQ	0.14	ug/g	20-MAR-19	**0.056	**0.063	
a-chlordane	<0.020		0.020	ug/g	20-MAR-19			
Chlordane (Total)	<0.028		0.028	ug/g	21-MAR-19	0.05	0.05	0.05
g-chlordane	<0.020		0.020	ug/g	20-MAR-19			
op-DDD	<0.020		0.020	ug/g	20-MAR-19			
pp-DDD	<0.020		0.020	ug/g	20-MAR-19			
Total DDD	<0.028		0.028	ug/g	21-MAR-19	3.3	3.3	0.05
o,p-DDE	<0.020		0.020	ug/g	20-MAR-19			
pp-DDE	<0.020		0.020	ug/g	20-MAR-19			
Total DDE	<0.028		0.028	ug/g	21-MAR-19	0.26	0.33	0.05
op-DDT	<0.020		0.020	ug/g	20-MAR-19			
pp-DDT	<0.020		0.020	ug/g	20-MAR-19			
Total DDT	<0.028		0.028	ug/g	21-MAR-19	1.4	1.4	1.4
Dieldrin	<0.020		0.020	ug/g	20-MAR-19	0.05	0.05	0.05
Endosulfan I	<0.020		0.020	ug/g	20-MAR-19			
Endosulfan II	<0.020		0.020	ug/g	20-MAR-19			
Endosulfan (Total)	<0.028		0.028	ug/g	21-MAR-19	0.04	0.04	0.04
Endrin	<0.020		0.020	ug/g	20-MAR-19	0.04	0.04	0.04
Heptachlor	<0.020		0.020	ug/g	20-MAR-19	0.15	0.15	0.05
Heptachlor Epoxide	<0.020		0.020	ug/g	20-MAR-19	0.05	0.05	0.05
Hexachlorobenzene	<0.010		0.010	ug/g	20-MAR-19	0.52	0.52	0.02
Hexachlorobutadiene	<0.010		0.010	ug/g	20-MAR-19	0.012	0.014	0.01
Hexachloroethane	<0.010		0.010	ug/g	20-MAR-19	0.089	0.07	0.01
Methoxychlor	<0.020		0.020	ug/g	20-MAR-19	0.13	0.13	0.05
Surrogate: 2-Fluorobiphenyl	81.2		50-140	%	20-MAR-19			
Surrogate: d14-Terphenyl	74.6		50-140	%	20-MAR-19			

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Reference Information

Sample Parameter Qualifier key listed:

Qualifier	Description
DLQ	Detection Limit raised due to co-eluting interference. GCMS qualifier ion ratio did not meet acceptance criteria.
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
DLHC	Detection Limit Raised: Dilution required due to high concentration of test analyte(s).

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference***
625-511-WT	Soil	ABN-O.Reg 153/04 (July 2011)	SW846 8270 (511)

Soil and sediment samples are dried by mixing with a desiccant prior to extraction. The extracts are dried, concentrated and exchanged into a solvent and analyzed by GC/MS. Depending on the analytical GC/MS column used benzo(j)fluoranthene may chromatographically co-elute with benzo(b)fluoranthene or benzo(k)fluoranthene.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

B-HWS-R511-WT	Soil	Boron-HWE-O.Reg 153/04 (July 2011)	HW EXTR, EPA 6010B

A dried solid sample is extracted with calcium chloride, the sample undergoes a heating process. After cooling the sample is filtered and analyzed by ICP/OES.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

CHLORDANE-T-CALC-WT	Soil	Chlordane Total sums	CALCULATION

Aqueous sample is extracted by liquid/liquid extraction with a solvent mix. After extraction, a number of clean up techniques may be applied, depending on the sample matrix and analyzed by GC/MS.

CN-WAD-R511-WT	Soil	Cyanide (WAD)-O.Reg 153/04 (July 2011)	MOE 3015/APHA 4500CN I-WAD

The sample is extracted with a strong base for 16 hours, and then filtered. The filtrate is then distilled where the cyanide is converted to cyanogen chloride by reacting with chloramine-T, the cyanogen chloride then reacts with a combination of barbituric acid and isonicotinic acid to form a highly colored complex.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

CR-CR6-IC-WT	Soil	Hexavalent Chromium in Soil	SW846 3060A/7199

This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, Method 7199, published by the United States Environmental Protection Agency (EPA). The procedure involves analysis for chromium (VI) by ion chromatography using diphenylcarbazide in a sulphuric acid solution.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

DDD-DDE-DDT-CALC-WT	Soil	DDD, DDE, DDT sums	CALCULATION

Aqueous sample is extracted by liquid/liquid extraction with a solvent mix. After extraction, a number of clean up techniques may be applied, depending on the sample matrix and analyzed by GC/MS.

EC-WT	Soil	Conductivity (EC)	MOEE E3138

A representative subsample is tumbled with de-ionized (DI) water. The ratio of water to soil is 2:1 v/w. After tumbling the sample is then analyzed by a conductivity meter.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

ENDOSULFAN-T-CALC-WT	Soil	Endosulfan Total sums	CALCULATION

Aqueous sample is extracted by liquid/liquid extraction with a solvent mix. After extraction, a number of clean up techniques may be applied, depending on the sample matrix and analyzed by GC/MS.

Reference Information

F1-F4-511-CALC-WT	Soil	F1-F4 Hydrocarbon Calculated Parameters	CCME CWS-PHC, Pub #1310, Dec 2001-S

Analytical methods used for analysis of CCME Petroleum Hydrocarbons have been validated and comply with the Reference Method for the CWS PHC.

Hydrocarbon results are expressed on a dry weight basis.

In cases where results for both F4 and F4G are reported, the greater of the two results must be used in any application of the CWS PHC guidelines and the gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.
In samples where BTEX and F1 were analyzed , F1-BTEX represents a value where the sum of Benzene, Toluene, Ethylbenzene and total Xylenes has been subtracted from F1.

In samples where PAHs, F2 and F3 were analyzed, F2-Naphth represents the result where Naphthalene has been subtracted from F2. F3-PAH represents a result where the sum of Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenzo(a,h)anthracene, Fluoranthene, Indeno(1,2,3-cd)pyrene, Phenanthrene, and Pyrene has been subtracted from F3.

Unless otherwise qualified, the following quality control criteria have been met for the F1 hydrocarbon range:
1. All extraction and analysis holding times were met.
2. Instrument performance showing response factors for C6 and C10 within 30% of the response factor for toluene.
3. Linearity of gasoline response within 15% throughout the calibration range.

Unless otherwise qualified, the following quality control criteria have been met for the F2-F4 hydrocarbon ranges:
1. All extraction and analysis holding times were met.
2. Instrument performance showing C10, C16 and C34 response factors within 10% of their average.
3. Instrument performance showing the C50 response factor within 30% of the average of the C10, C16 and C34 response factors.
4. Linearity of diesel or motor oil response within 15% throughout the calibration range.

F1-HS-511-WT	Soil	F1-O.Reg 153/04 (July 2011)	E3398/CCME TIER 1-HS

Fraction F1 is determined by extracting a soil or sediment sample as received with methanol, then analyzing by headspace-GC/FID.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

F2-F4-511-WT	Soil	F2-F4-O.Reg 153/04 (July 2011)	CCME Tier 1

Petroleum Hydrocarbons (F2-F4 fractions) are extracted from soil with 1:1 hexane:acetone using a rotary extractor. Extracts are treated with silica gel to remove polar organic interferences. F2, F3, & F4 are analyzed by GC-FID. F4G-sg is analyzed gravimetrically.

Notes:
1. F2 (C10-C16): Sum of all hydrocarbons that elute between nC10 and nC16.
2. F3 (C16-C34): Sum of all hydrocarbons that elute between nC16 and nC34.
3. F4 (C34-C50): Sum of all hydrocarbons that elute between nC34 and nC50.
4. F4G: Gravimetric Heavy Hydrocarbons
5. F4G-sg: Gravimetric Heavy Hydrocarbons (F4G) after silica gel treatment.
6. Where both F4 (C34-C50) and F4G-sg are reported for a sample, the larger of the two values is used for comparison against the relevant CCME guideline for F4.
7. F4G-sg cannot be added to the C6 to C50 hydrocarbon results to obtain an estimate of total extractable hydrocarbons.
8. This method is validated for use.
9. Data from analysis of validation and quality control samples is available upon request.
10. Reported results are expressed as milligrams per dry kilogram, unless otherwise indicated.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

F4G-ADD-511-WT	Soil	F4G SG-O.Reg 153/04 (July 2011)	MOE DECPH-E3398/CCME TIER 1

F4G, gravimetric analysis, is determined if the chromatogram does not return to baseline at or before C50. A soil sample is extracted with a solvent mix, the solvent is evaporated and the weight of the residue is determined.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

HG-200.2-CVAA-WT	Soil	Mercury in Soil by CVAAS	EPA 200.2/1631E (mod)

Soil samples are digested with nitric and hydrochloric acids, followed by analysis by CVAAS.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

Reference Information

MET-200.2-CCMS-WT	Soil	Metals in Soil by CRC ICPMS	EPA 200.2/6020A (mod)

Soil/sediment is dried, disaggregated, and sieved (2 mm). For tests intended to support Ontario regulations, the <2mm fraction is ground to pass through a 0.355 mm sieve. Strong Acid Leachable Metals in the <2mm fraction are solubilized by heated digestion with nitric and hydrochloric acids. Instrumental analysis is by Collision / Reaction Cell ICPMS.

Limitations: This method is intended to liberate environmentally available metals. Silicate minerals are not solubilized. Some metals may be only partially recovered (matrix dependent), including Al, Ba, Be, Cr, S, Sr, Ti, Tl, V, W, and Zr. Elemental Sulfur may be poorly recovered by this method. Volatile forms of sulfur (e.g. sulfide, H2S) may be excluded if lost during sampling, storage, or digestion.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

METHYLNAPS-CALC-WT	Soil	ABN-Calculated Parameters	SW846 8270
MOISTURE-WT	Soil	% Moisture	CCME PHC in Soil - Tier 1 (mod)
PCB-511-WT	Soil	PCB-O.Reg 153/04 (July 2011)	SW846 3510/8082

An aliquot of a solid sample is extracted with a solvent, extract is cleaned up and analyzed on the GC/MS.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

PEST-OC-511-WT	Soil	OC Pesticides-O.Reg 153/04 (July 2011)	SW846 8270 (511)

Soil sample is extracted in a solvent, after extraction a number of clean up techniques may be applied, depending on the sample matrix and analyzed by GC/MS.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

PH-WT	Soil	pH	MOEE E3137A

A minimum 10g portion of the sample is extracted with 20mL of 0.01M calcium chloride solution by shaking for at least 30 minutes. The aqueous layer is separated from the soil and then analyzed using a pH meter and electrode.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

SAR-R511-WT	Soil	SAR-O.Reg 153/04 (July 2011)	SW846 6010C

A dried, disaggregated solid sample is extracted with deionized water, the aqueous extract is separated from the solid, acidified and then analyzed using a ICP/OES. The concentrations of Na, Ca and Mg are reported as per CALA requirements for calculated parameters. These individual parameters are not for comparison to any guideline.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

VOC-1,3-DCP-CALC-WT	Soil	Regulation 153 VOCs	SW8260B/SW8270C
VOC-511-HS-WT	Soil	VOC-O.Reg 153/04 (July 2011)	SW846 8260 (511)

Soil and sediment samples are extracted in methanol and analyzed by headspace-GC/MS.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

XYLENES-SUM-CALC-WT	Soil	Sum of Xylene Isomer Concentrations	CALCULATION

Total xylenes represents the sum of o-xylene and m&p-xylene.

*** ALS test methods may incorporate modifications from specified reference methods to improve performance.

Chain of Custody numbers:

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location	Laboratory Definition Code	Laboratory Location
WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA		

Reference Information

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.
mg/kg - milligrams per kilogram based on dry weight of sample
mg/kg wwt - milligrams per kilogram based on wet weight of sample
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight
mg/L - unit of concentration based on volume, parts per million.
< - Less than.
D.L. - The reporting limit.
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, fitness for a particular purpose, or non-infringement. ALS assumes no responsibility for errors or omissions in the information. Guideline limits are not adjusted for the hardness, pH or temperature of the sample (the most conservative values are used). Measurement uncertainty is not applied to test results prior to comparison with specified criteria values.

Quality Control Report

Workorder: L2245079 Report Date: 25-MAR-19

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
625-511-WT	**Soil**							
Batch R4573968								
WG3008839-3 DUP		**WG3008839-5**						
1-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	20-MAR-19
2-Chlorophenol		<0.10	<0.10	RPD-NA	ug/g	N/A	40	20-MAR-19
2-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	20-MAR-19
2,4-Dichlorophenol		<0.10	<0.10	RPD-NA	ug/g	N/A	40	20-MAR-19
2,4,5-Trichlorophenol		<0.10	<0.10	RPD-NA	ug/g	N/A	40	20-MAR-19
2,4,6-Trichlorophenol		<0.10	<0.10	RPD-NA	ug/g	N/A	40	20-MAR-19
Acenaphthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-MAR-19
Acenaphthylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-MAR-19
Anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-MAR-19
Benzo(a)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-MAR-19
Benzo(a)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-MAR-19
Benzo(b)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-MAR-19
Benzo(ghi)perylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-MAR-19
Benzo(k)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-MAR-19
Chrysene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-MAR-19
Dibenzo(a,h)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-MAR-19
Fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-MAR-19
Fluorene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-MAR-19
Indeno(1,2,3-cd)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-MAR-19
Naphthalene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-MAR-19
Pentachlorophenol		<0.10	<0.10	RPD-NA	ug/g	N/A	40	20-MAR-19
Phenanthrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-MAR-19
Pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-MAR-19
WG3008839-2 LCS								
1-Methylnaphthalene			95.6		%		50-140	20-MAR-19
2-Chlorophenol			109.6		%		50-140	20-MAR-19
2-Methylnaphthalene			99.4		%		50-140	20-MAR-19
2,4-Dichlorophenol			107.2		%		50-140	20-MAR-19
2,4,5-Trichlorophenol			100.9		%		50-140	20-MAR-19
2,4,6-Trichlorophenol			101.7		%		50-140	20-MAR-19
Acenaphthene			101.9		%		50-140	20-MAR-19
Acenaphthylene			107.1		%		50-140	20-MAR-19
Anthracene			103.4		%		50-140	20-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
625-511-WT	**Soil**							
Batch R4573968								
WG3008839-2 LCS								
Benzo(a)anthracene			103.8		%		50-140	20-MAR-19
Benzo(a)pyrene			102.9		%		50-140	20-MAR-19
Benzo(b)fluoranthene			102.2		%		50-140	20-MAR-19
Benzo(ghi)perylene			106.1		%		50-140	20-MAR-19
Benzo(k)fluoranthene			109.5		%		50-140	20-MAR-19
Chrysene			111.6		%		50-140	20-MAR-19
Dibenzo(a,h)anthracene			103.3		%		50-140	20-MAR-19
Fluoranthene			111.8		%		50-140	20-MAR-19
Fluorene			106.6		%		50-140	20-MAR-19
Indeno(1,2,3-cd)pyrene			100.8		%		50-140	20-MAR-19
Naphthalene			104.6		%		50-140	20-MAR-19
Pentachlorophenol			81.2		%		50-140	20-MAR-19
Phenanthrene			104.6		%		50-140	20-MAR-19
Pyrene			109.2		%		50-140	20-MAR-19
WG3008839-1 MB								
1-Methylnaphthalene			<0.030		ug/g		0.03	20-MAR-19
2-Chlorophenol			<0.10		ug/g		0.1	20-MAR-19
2-Methylnaphthalene			<0.030		ug/g		0.03	20-MAR-19
2,4-Dichlorophenol			<0.10		ug/g		0.1	20-MAR-19
2,4,5-Trichlorophenol			<0.10		ug/g		0.1	20-MAR-19
2,4,6-Trichlorophenol			<0.10		ug/g		0.1	20-MAR-19
Acenaphthene			<0.050		ug/g		0.05	20-MAR-19
Acenaphthylene			<0.050		ug/g		0.05	20-MAR-19
Anthracene			<0.050		ug/g		0.05	20-MAR-19
Benzo(a)anthracene			<0.050		ug/g		0.05	20-MAR-19
Benzo(a)pyrene			<0.050		ug/g		0.05	20-MAR-19
Benzo(b)fluoranthene			<0.050		ug/g		0.05	20-MAR-19
Benzo(ghi)perylene			<0.050		ug/g		0.05	20-MAR-19
Benzo(k)fluoranthene			<0.050		ug/g		0.05	20-MAR-19
Chrysene			<0.050		ug/g		0.05	20-MAR-19
Dibenzo(a,h)anthracene			<0.050		ug/g		0.05	20-MAR-19
Fluoranthene			<0.050		ug/g		0.05	20-MAR-19
Fluorene			<0.050		ug/g		0.05	20-MAR-19
Indeno(1,2,3-cd)pyrene			<0.050		ug/g		0.05	20-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
625-511-WT	**Soil**							
Batch R4573968								
WG3008839-1 MB								
Naphthalene			<0.050		ug/g		0.05	20-MAR-19
Pentachlorophenol			<0.10		ug/g		0.1	20-MAR-19
Phenanthrene			<0.050		ug/g		0.05	20-MAR-19
Pyrene			<0.050		ug/g		0.05	20-MAR-19
Surrogate: 2-Fluorobiphenyl			78.9		%		50-140	20-MAR-19
Surrogate: 2,4,6-Tribromophenol			67.2		%		50-140	20-MAR-19
Surrogate: p-Terphenyl d14			106.5		%		50-140	20-MAR-19
Surrogate: Phenol d5			95.3		%		30-130	20-MAR-19
WG3008839-4 MS		**WG3008839-5**						
1-Methylnaphthalene			102.7		%		50-140	20-MAR-19
2-Chlorophenol			116.1		%		50-140	20-MAR-19
2-Methylnaphthalene			108.9		%		50-140	20-MAR-19
2,4-Dichlorophenol			115.2		%		50-140	20-MAR-19
2,4,5-Trichlorophenol			111.8		%		50-140	20-MAR-19
2,4,6-Trichlorophenol			109.3		%		50-140	20-MAR-19
Acenaphthene			107.5		%		50-140	20-MAR-19
Acenaphthylene			113.4		%		50-140	20-MAR-19
Anthracene			107.9		%		50-140	20-MAR-19
Benzo(a)anthracene			113.2		%		50-140	20-MAR-19
Benzo(a)pyrene			106.4		%		50-140	20-MAR-19
Benzo(b)fluoranthene			113.2		%		50-140	20-MAR-19
Benzo(ghi)perylene			97.8		%		50-140	20-MAR-19
Benzo(k)fluoranthene			118.3		%		50-140	20-MAR-19
Chrysene			116.7		%		50-140	20-MAR-19
Dibenzo(a,h)anthracene			96.5		%		50-140	20-MAR-19
Fluoranthene			128.7		%		50-140	20-MAR-19
Fluorene			113.8		%		50-140	20-MAR-19
Indeno(1,2,3-cd)pyrene			94.1		%		50-140	20-MAR-19
Naphthalene			114.2		%		50-140	20-MAR-19
Pentachlorophenol			77.3		%		50-140	20-MAR-19
Phenanthrene			108.7		%		50-140	20-MAR-19
Pyrene			125.5		%		50-140	20-MAR-19

COMMENTS: RRQC: Recovery is outside ALS control limits. Associated sample results have not been affected.

B-HWS-R511-WT **Soil**

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
B-HWS-R511-WT	**Soil**							
Batch R4581033								
WG3012405-4 DUP		**L2242395-5**						
Boron (B), Hot Water Ext.		0.24	0.24		ug/g	0.5	30	25-MAR-19
WG3012405-2 IRM		**HOTB-SAL_SOIL5**						
Boron (B), Hot Water Ext.			118.8		%		70-130	25-MAR-19
WG3012405-3 LCS								
Boron (B), Hot Water Ext.			99.4		%		70-130	25-MAR-19
WG3012405-1 MB								
Boron (B), Hot Water Ext.			<0.10		ug/g		0.1	25-MAR-19
CN-WAD-R511-WT	**Soil**							
Batch R4573316								
WG3009615-3 DUP		**L2245407-1**						
Cyanide, Weak Acid Diss		<0.050	<0.050	RPD-NA	ug/g	N/A	35	20-MAR-19
WG3009615-2 LCS								
Cyanide, Weak Acid Diss			98.4		%		80-120	20-MAR-19
WG3009615-1 MB								
Cyanide, Weak Acid Diss			<0.050		ug/g		0.05	20-MAR-19
WG3009615-4 MS		**L2245407-1**						
Cyanide, Weak Acid Diss			95.5		%		70-130	21-MAR-19
CR-CR6-IC-WT	**Soil**							
Batch R4577989								
WG3009569-8 CRM		**WT-SQC012**						
Chromium, Hexavalent			87.7		%		70-130	21-MAR-19
WG3009569-7 DUP		**L2245548-2**						
Chromium, Hexavalent		<0.20	<0.20	RPD-NA	ug/g	N/A	35	21-MAR-19
WG3009569-6 LCS								
Chromium, Hexavalent			95.3		%		80-120	21-MAR-19
WG3009569-5 MB								
Chromium, Hexavalent			<0.20		ug/g		0.2	21-MAR-19
EC-WT	**Soil**							
Batch R4581211								
WG3013227-4 DUP		**WG3013227-3**						
Conductivity		0.160	0.161		mS/cm	0.5	20	25-MAR-19
WG3013227-2 IRM		**WT SAR2**						
Conductivity			104.0		%		70-130	25-MAR-19
WG3013355-1 LCS								
Conductivity			102.6		%		90-110	25-MAR-19
WG3013227-1 MB								

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
EC-WT	**Soil**							
Batch R4581211								
WG3013227-1 MB								
Conductivity			<0.0040		mS/cm		0.004	25-MAR-19
F1-HS-511-WT	**Soil**							
Batch R4578874								
WG3011338-4 DUP		**WG3011338-3**						
F1 (C6-C10)		9.5	10.0		ug/g	5.5	30	22-MAR-19
WG3011338-2 LCS								
F1 (C6-C10)			111.0		%		80-120	22-MAR-19
WG3011338-1 MB								
F1 (C6-C10)			<5.0		ug/g		5	22-MAR-19
Surrogate: 3,4-Dichlorotoluene			108.2		%		60-140	22-MAR-19
WG3011338-6 MS		**L2245079-2**						
F1 (C6-C10)			113.9		%		60-140	22-MAR-19
F2-F4-511-WT	**Soil**							
Batch R4575615								
WG3008989-3 DUP		**WG3008989-5**						
F2 (C10-C16)		15	<10	RPD-NA	ug/g	N/A	30	20-MAR-19
F3 (C16-C34)		57	50		ug/g	12	30	20-MAR-19
F4 (C34-C50)		<50	<50	RPD-NA	ug/g	N/A	30	20-MAR-19
WG3008989-2 LCS								
F2 (C10-C16)			95.4		%		80-120	20-MAR-19
F3 (C16-C34)			98.8		%		80-120	20-MAR-19
F4 (C34-C50)			106.5		%		80-120	20-MAR-19
WG3008989-1 MB								
F2 (C10-C16)			<10		ug/g		10	20-MAR-19
F3 (C16-C34)			<50		ug/g		50	20-MAR-19
F4 (C34-C50)			<50		ug/g		50	20-MAR-19
Surrogate: 2-Bromobenzotrifluoride			88.9		%		60-140	20-MAR-19
WG3008989-4 MS		**WG3008989-5**						
F2 (C10-C16)			96.6		%		60-140	20-MAR-19
F3 (C16-C34)			99.3		%		60-140	20-MAR-19
F4 (C34-C50)			109.4		%		60-140	20-MAR-19
F4G-ADD-511-WT	**Soil**							

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F4G-ADD-511-WT	**Soil**							
Batch R4576475								
WG3011520-2 LCS								
F4G-SG (GHH-Silica)			73.3		%		60-140	19-MAR-19
WG3011520-1 MB								
F4G-SG (GHH-Silica)			<250		ug/g		250	19-MAR-19
HG-200.2-CVAA-WT	**Soil**							
Batch R4581407								
WG3012384-2 CRM		**WT-CANMET-TILL1**						
Mercury (Hg)			103.0		%		70-130	25-MAR-19
WG3012384-6 DUP		**WG3012384-5**						
Mercury (Hg)		0.0229	0.0206		ug/g	10	40	25-MAR-19
WG3012384-3 LCS								
Mercury (Hg)			104.0		%		80-120	25-MAR-19
WG3012384-1 MB								
Mercury (Hg)			<0.0050		mg/kg		0.005	25-MAR-19
MET-200.2-CCMS-WT	**Soil**							
Batch R4581452								
WG3012384-2 CRM		**WT-CANMET-TILL1**						
Antimony (Sb)			102.9		%		70-130	25-MAR-19
Arsenic (As)			101.3		%		70-130	25-MAR-19
Barium (Ba)			96.7		%		70-130	25-MAR-19
Beryllium (Be)			98.0		%		70-130	25-MAR-19
Boron (B)			2.9		mg/kg		0-8.2	25-MAR-19
Cadmium (Cd)			99.5		%		70-130	25-MAR-19
Chromium (Cr)			104.2		%		70-130	25-MAR-19
Cobalt (Co)			102.0		%		70-130	25-MAR-19
Copper (Cu)			102.1		%		70-130	25-MAR-19
Lead (Pb)			98.2		%		70-130	25-MAR-19
Molybdenum (Mo)			98.2		%		70-130	25-MAR-19
Nickel (Ni)			101.5		%		70-130	25-MAR-19
Selenium (Se)			0.27		mg/kg		0.11-0.51	25-MAR-19
Silver (Ag)			0.23		mg/kg		0.13-0.33	25-MAR-19
Thallium (Tl)			0.126		mg/kg		0.077-0.18	25-MAR-19
Uranium (U)			100.4		%		70-130	25-MAR-19
Vanadium (V)			101.1		%		70-130	25-MAR-19
Zinc (Zn)			100.6		%		70-130	25-MAR-19
WG3012384-6 DUP		**WG3012384-5**						

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R4581452								
WG3012384-6 DUP		**WG3012384-5**						
Antimony (Sb)		0.12	0.11		ug/g	5.8	30	25-MAR-19
Arsenic (As)		4.64	4.12		ug/g	12	30	25-MAR-19
Barium (Ba)		96.3	87.8		ug/g	9.2	40	25-MAR-19
Beryllium (Be)		0.77	0.70		ug/g	10	30	25-MAR-19
Boron (B)		9.3	8.8		ug/g	5.6	30	25-MAR-19
Cadmium (Cd)		0.117	0.105		ug/g	12	30	25-MAR-19
Chromium (Cr)		26.4	23.6		ug/g	11	30	25-MAR-19
Cobalt (Co)		12.1	10.7		ug/g	12	30	25-MAR-19
Copper (Cu)		24.5	21.9		ug/g	11	30	25-MAR-19
Lead (Pb)		11.2	10.6		ug/g	5.6	40	25-MAR-19
Molybdenum (Mo)		0.36	0.36		ug/g	0.5	40	25-MAR-19
Nickel (Ni)		26.0	23.5		ug/g	10	30	25-MAR-19
Selenium (Se)		<0.20	<0.20	RPD-NA	ug/g	N/A	30	25-MAR-19
Silver (Ag)		<0.10	<0.10	RPD-NA	ug/g	N/A	40	25-MAR-19
Thallium (Tl)		0.161	0.147		ug/g	8.7	30	25-MAR-19
Uranium (U)		0.714	0.666		ug/g	7.0	30	25-MAR-19
Vanadium (V)		36.1	33.0		ug/g	9.1	30	25-MAR-19
Zinc (Zn)		58.7	52.1		ug/g	12	30	25-MAR-19
WG3012384-4 LCS								
Antimony (Sb)			105.4		%		80-120	25-MAR-19
Arsenic (As)			101.9		%		80-120	25-MAR-19
Barium (Ba)			102.0		%		80-120	25-MAR-19
Beryllium (Be)			99.1		%		80-120	25-MAR-19
Boron (B)			94.5		%		80-120	25-MAR-19
Cadmium (Cd)			104.0		%		80-120	25-MAR-19
Chromium (Cr)			105.2		%		80-120	25-MAR-19
Cobalt (Co)			100.8		%		80-120	25-MAR-19
Copper (Cu)			101.3		%		80-120	25-MAR-19
Lead (Pb)			103.1		%		80-120	25-MAR-19
Molybdenum (Mo)			105.8		%		80-120	25-MAR-19
Nickel (Ni)			101.2		%		80-120	25-MAR-19
Selenium (Se)			104.1		%		80-120	25-MAR-19
Silver (Ag)			105.7		%		80-120	25-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R4581452								
WG3012384-4 LCS								
Thallium (Tl)			103.3		%		80-120	25-MAR-19
Uranium (U)			104.6		%		80-120	25-MAR-19
Vanadium (V)			105.2		%		80-120	25-MAR-19
Zinc (Zn)			97.9		%		80-120	25-MAR-19
WG3012384-1 MB								
Antimony (Sb)			<0.10		mg/kg		0.1	25-MAR-19
Arsenic (As)			<0.10		mg/kg		0.1	25-MAR-19
Barium (Ba)			<0.50		mg/kg		0.5	25-MAR-19
Beryllium (Be)			<0.10		mg/kg		0.1	25-MAR-19
Boron (B)			<5.0		mg/kg		5	25-MAR-19
Cadmium (Cd)			<0.020		mg/kg		0.02	25-MAR-19
Chromium (Cr)			<0.50		mg/kg		0.5	25-MAR-19
Cobalt (Co)			<0.10		mg/kg		0.1	25-MAR-19
Copper (Cu)			<0.50		mg/kg		0.5	25-MAR-19
Lead (Pb)			<0.50		mg/kg		0.5	25-MAR-19
Molybdenum (Mo)			<0.10		mg/kg		0.1	25-MAR-19
Nickel (Ni)			<0.50		mg/kg		0.5	25-MAR-19
Selenium (Se)			<0.20		mg/kg		0.2	25-MAR-19
Silver (Ag)			<0.10		mg/kg		0.1	25-MAR-19
Thallium (Tl)			<0.050		mg/kg		0.05	25-MAR-19
Uranium (U)			<0.050		mg/kg		0.05	25-MAR-19
Vanadium (V)			<0.20		mg/kg		0.2	25-MAR-19
Zinc (Zn)			<2.0		mg/kg		2	25-MAR-19
MOISTURE-WT	**Soil**							
Batch R4569907								
WG3008734-3 DUP		**L2245007-9**						
% Moisture		19.5	19.8		%	1.3	20	19-MAR-19
WG3008734-2 LCS								
% Moisture			100.3		%		90-110	19-MAR-19
WG3008734-1 MB								
% Moisture			<0.10		%		0.1	19-MAR-19
PCB-511-WT	**Soil**							

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PCB-511-WT	**Soil**							
Batch R4580653								
WG3010565-3 DUP		**WG3010565-5**						
Aroclor 1242		<0.010	<0.010	RPD-NA	ug/g	N/A	40	25-MAR-19
Aroclor 1248		<0.010	<0.010	RPD-NA	ug/g	N/A	40	25-MAR-19
Aroclor 1254		<0.010	<0.010	RPD-NA	ug/g	N/A	40	25-MAR-19
Aroclor 1260		<0.010	<0.010	RPD-NA	ug/g	N/A	40	25-MAR-19
WG3010565-2 LCS								
Aroclor 1242			98.3		%		60-140	25-MAR-19
Aroclor 1248			89.5		%		60-140	25-MAR-19
Aroclor 1254			98.8		%		60-140	25-MAR-19
Aroclor 1260			104.8		%		60-140	25-MAR-19
WG3010565-1 MB								
Aroclor 1242			<0.010		ug/g		0.01	25-MAR-19
Aroclor 1248			<0.010		ug/g		0.01	25-MAR-19
Aroclor 1254			<0.010		ug/g		0.01	25-MAR-19
Aroclor 1260			<0.010		ug/g		0.01	25-MAR-19
Surrogate: d14-Terphenyl			84.9		%		60-140	25-MAR-19
WG3010565-4 MS		**WG3010565-5**						
Aroclor 1242			90.9		%		60-140	25-MAR-19
Aroclor 1254			95.1		%		60-140	25-MAR-19
Aroclor 1260			108.2		%		60-140	25-MAR-19
PEST-OC-511-WT	**Soil**							
Batch R4573449								
WG3008701-8 DUP		**WG3008701-10**						
Aldrin		<0.020	<0.020	RPD-NA	ug/g	N/A	40	20-MAR-19
a-chlordane		<0.020	<0.020	RPD-NA	ug/g	N/A	40	20-MAR-19
g-chlordane		<0.020	<0.020	RPD-NA	ug/g	N/A	40	20-MAR-19
op-DDD		<0.020	<0.020	RPD-NA	ug/g	N/A	40	20-MAR-19
pp-DDD		<0.020	<0.020	RPD-NA	ug/g	N/A	40	20-MAR-19
o,p-DDE		<0.020	<0.020	RPD-NA	ug/g	N/A	40	20-MAR-19
pp-DDE		<0.020	<0.020	RPD-NA	ug/g	N/A	40	20-MAR-19
op-DDT		<0.020	<0.020	RPD-NA	ug/g	N/A	40	20-MAR-19
pp-DDT		<0.020	<0.020	RPD-NA	ug/g	N/A	40	20-MAR-19
Dieldrin		<0.020	<0.020	RPD-NA	ug/g	N/A	40	20-MAR-19
Endosulfan I		<0.020	<0.020	RPD-NA	ug/g	N/A	40	20-MAR-19
Endosulfan II		<0.020	<0.020	RPD-NA	ug/g	N/A	40	20-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PEST-OC-511-WT	**Soil**							
Batch R4573449								
WG3008701-8 DUP		**WG3008701-10**						
Endrin		<0.020	<0.020	RPD-NA	ug/g	N/A	40	20-MAR-19
gamma-hexachlorocyclohexane		<0.010	0.014	RPD-NA	ug/g	N/A	40	20-MAR-19
Heptachlor		<0.020	<0.020	RPD-NA	ug/g	N/A	40	20-MAR-19
Heptachlor Epoxide		<0.020	<0.020	RPD-NA	ug/g	N/A	40	20-MAR-19
Hexachlorobenzene		<0.010	<0.010	RPD-NA	ug/g	N/A	40	20-MAR-19
Hexachlorobutadiene		<0.010	<0.010	RPD-NA	ug/g	N/A	40	20-MAR-19
Hexachloroethane		<0.010	<0.010	RPD-NA	ug/g	N/A	40	20-MAR-19
Methoxychlor		<0.020	<0.020	RPD-NA	ug/g	N/A	40	20-MAR-19
WG3008701-7 LCS								
Aldrin			88.4		%		50-140	20-MAR-19
a-chlordane			81.2		%		50-140	20-MAR-19
g-chlordane			82.4		%		50-140	20-MAR-19
op-DDD			86.4		%		50-140	20-MAR-19
pp-DDD			95.1		%		50-140	20-MAR-19
o,p-DDE			81.2		%		50-140	20-MAR-19
pp-DDE			80.8		%		50-140	20-MAR-19
op-DDT			52.4		%		50-140	20-MAR-19
pp-DDT			52.1		%		50-140	20-MAR-19
Dieldrin			79.4		%		50-140	20-MAR-19
Endosulfan I			78.6		%		50-140	20-MAR-19
Endosulfan II			82.9		%		50-140	20-MAR-19
Endrin			90.5		%		50-140	20-MAR-19
gamma-hexachlorocyclohexane			88.8		%		50-140	20-MAR-19
Heptachlor			75.1		%		50-140	20-MAR-19
Heptachlor Epoxide			80.5		%		50-140	20-MAR-19
Hexachlorobenzene			91.3		%		50-140	20-MAR-19
Hexachlorobutadiene			90.4		%		50-140	20-MAR-19
Hexachloroethane			87.3		%		50-140	20-MAR-19
Methoxychlor			65.2		%		50-140	20-MAR-19
WG3008701-6 MB								
Aldrin			<0.020		ug/g		0.02	20-MAR-19
a-chlordane			<0.020		ug/g		0.02	20-MAR-19
g-chlordane			<0.020		ug/g		0.02	20-MAR-19
op-DDD			<0.020		ug/g		0.02	20-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PEST-OC-511-WT	**Soil**							
Batch R4573449								
WG3008701-6 MB								
pp-DDD			<0.020		ug/g		0.02	20-MAR-19
o,p-DDE			<0.020		ug/g		0.02	20-MAR-19
pp-DDE			<0.020		ug/g		0.02	20-MAR-19
op-DDT			<0.020		ug/g		0.02	20-MAR-19
pp-DDT			<0.020		ug/g		0.02	20-MAR-19
Dieldrin			<0.020		ug/g		0.02	20-MAR-19
Endosulfan I			<0.020		ug/g		0.02	20-MAR-19
Endosulfan II			<0.020		ug/g		0.02	20-MAR-19
Endrin			<0.020		ug/g		0.02	20-MAR-19
gamma-hexachlorocyclohexane			<0.010		ug/g		0.01	20-MAR-19
Heptachlor			<0.020		ug/g		0.02	20-MAR-19
Heptachlor Epoxide			<0.020		ug/g		0.02	20-MAR-19
Hexachlorobenzene			<0.010		ug/g		0.01	20-MAR-19
Hexachlorobutadiene			<0.010		ug/g		0.01	20-MAR-19
Hexachloroethane			<0.010		ug/g		0.01	20-MAR-19
Methoxychlor			<0.020		ug/g		0.02	20-MAR-19
Surrogate: 2-Fluorobiphenyl			100.0		%		50-140	20-MAR-19
Surrogate: d14-Terphenyl			96.5		%		50-140	20-MAR-19
WG3008701-9 MS		**WG3008701-10**						
Aldrin			94.0		%		50-140	20-MAR-19
a-chlordane			57.9		%		50-140	20-MAR-19
g-chlordane			55.9		%		50-140	20-MAR-19
op-DDD			57.8		%		50-140	20-MAR-19
pp-DDD			66.2		%		50-140	20-MAR-19
o,p-DDE			66.9		%		50-140	20-MAR-19
pp-DDE			62.4		%		50-140	20-MAR-19
op-DDT			62.6		%		50-140	20-MAR-19
pp-DDT			79.5		%		50-140	20-MAR-19
Dieldrin			58.4		%		50-140	20-MAR-19
Endosulfan I			68.0		%		50-140	20-MAR-19
Endosulfan II			66.6		%		50-140	20-MAR-19
Endrin			83.5		%		50-140	20-MAR-19
gamma-hexachlorocyclohexane			77.8		%		50-140	20-MAR-19
Heptachlor			89.5		%		50-140	20-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PEST-OC-511-WT	**Soil**							
Batch R4573449								
WG3008701-9 MS		**WG3008701-10**						
Heptachlor Epoxide			64.7		%		50-140	20-MAR-19
Hexachlorobenzene			86.1		%		50-140	20-MAR-19
Hexachlorobutadiene			96.3		%		50-140	20-MAR-19
Hexachloroethane			102.5		%		50-140	20-MAR-19
Methoxychlor			110.3		%		50-140	20-MAR-19
PH-WT	**Soil**							
Batch R4576452								
WG3009359-1 DUP		**L2244894-29**						
pH		7.94	7.94	J	pH units	0.00	0.3	21-MAR-19
WG3010962-1 LCS								
pH			6.96		pH units		6.9-7.1	21-MAR-19
Batch R4579188								
WG3010760-1 DUP		**L2242045-3**						
pH		7.85	7.80	J	pH units	0.05	0.3	22-MAR-19
WG3012052-1 LCS								
pH			7.01		pH units		6.9-7.1	22-MAR-19
SAR-R511-WT	**Soil**							
Batch R4581421								
WG3013227-4 DUP		**WG3013227-3**						
Calcium (Ca)		25.8	25.9		mg/L	0.4	30	25-MAR-19
Sodium (Na)		3.14	2.98		mg/L	5.2	30	25-MAR-19
Magnesium (Mg)		2.41	2.41		mg/L	0.0	30	25-MAR-19
WG3013227-2 IRM		**WT SAR2**						
Calcium (Ca)			117.7		%		70-130	25-MAR-19
Sodium (Na)			99.0		%		70-130	25-MAR-19
Magnesium (Mg)			113.9		%		70-130	25-MAR-19
WG3013227-5 LCS								
Calcium (Ca)			109.3		%		70-130	25-MAR-19
Sodium (Na)			104.8		%		70-130	25-MAR-19
Magnesium (Mg)			104.6		%		70-130	25-MAR-19
WG3013227-1 MB								
Calcium (Ca)			<0.50		mg/L		0.5	25-MAR-19
Sodium (Na)			<0.50		mg/L		0.5	25-MAR-19
Magnesium (Mg)			<0.50		mg/L		0.5	25-MAR-19
VOC-511-HS-WT	**Soil**							

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4578874								
WG3011338-4 DUP		**WG3011338-3**						
1,1,1,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	22-MAR-19
1,1,2,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	22-MAR-19
1,1,1-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	22-MAR-19
1,1,2-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	22-MAR-19
1,1-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	22-MAR-19
1,1-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	22-MAR-19
1,2-Dibromoethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	22-MAR-19
1,2-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	22-MAR-19
1,2-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	22-MAR-19
1,2-Dichloropropane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	22-MAR-19
1,3-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	22-MAR-19
1,4-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	22-MAR-19
Acetone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	22-MAR-19
Benzene		0.568	0.556		ug/g	2.1	40	22-MAR-19
Bromodichloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	22-MAR-19
Bromoform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	22-MAR-19
Bromomethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	22-MAR-19
Carbon tetrachloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	22-MAR-19
Chlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	22-MAR-19
Chloroform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	22-MAR-19
cis-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	22-MAR-19
cis-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	22-MAR-19
Dibromochloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	22-MAR-19
Dichlorodifluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	22-MAR-19
Ethylbenzene		0.175	0.173		ug/g	0.9	40	22-MAR-19
n-Hexane		0.483	0.478		ug/g	0.9	40	22-MAR-19
Methylene Chloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	22-MAR-19
MTBE		<0.050	<0.050	RPD-NA	ug/g	N/A	40	22-MAR-19
m+p-Xylenes		0.540	0.535		ug/g	1.0	40	22-MAR-19
Methyl Ethyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	22-MAR-19
Methyl Isobutyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	22-MAR-19
o-Xylene		0.260	0.258		ug/g	0.9	40	22-MAR-19
Styrene		<0.050	<0.050		ug/g			22-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4578874								
WG3011338-4 DUP		**WG3011338-3**						
Styrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	22-MAR-19
Tetrachloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	22-MAR-19
Toluene		0.403	0.400		ug/g	0.8	40	22-MAR-19
trans-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	22-MAR-19
trans-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	22-MAR-19
Trichloroethylene		0.290	0.283		ug/g	2.5	40	22-MAR-19
Trichlorofluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	22-MAR-19
Vinyl chloride		<0.020	<0.020	RPD-NA	ug/g	N/A	40	22-MAR-19
WG3011338-2 LCS								
1,1,1,2-Tetrachloroethane			98.7		%		60-130	22-MAR-19
1,1,2,2-Tetrachloroethane			84.6		%		60-130	22-MAR-19
1,1,1-Trichloroethane			98.6		%		60-130	22-MAR-19
1,1,2-Trichloroethane			94.1		%		60-130	22-MAR-19
1,1-Dichloroethane			95.8		%		60-130	22-MAR-19
1,1-Dichloroethylene			92.1		%		60-130	22-MAR-19
1,2-Dibromoethane			86.0		%		70-130	22-MAR-19
1,2-Dichlorobenzene			99.2		%		70-130	22-MAR-19
1,2-Dichloroethane			86.4		%		60-130	22-MAR-19
1,2-Dichloropropane			90.6		%		70-130	22-MAR-19
1,3-Dichlorobenzene			103.0		%		70-130	22-MAR-19
1,4-Dichlorobenzene			100.8		%		70-130	22-MAR-19
Acetone			76.0		%		60-140	22-MAR-19
Benzene			97.2		%		70-130	22-MAR-19
Bromodichloromethane			90.5		%		50-140	22-MAR-19
Bromoform			86.2		%		70-130	22-MAR-19
Bromomethane			99.1		%		50-140	22-MAR-19
Carbon tetrachloride			100.2		%		70-130	22-MAR-19
Chlorobenzene			96.8		%		70-130	22-MAR-19
Chloroform			95.0		%		70-130	22-MAR-19
cis-1,2-Dichloroethylene			93.9		%		70-130	22-MAR-19
cis-1,3-Dichloropropene			89.8		%		70-130	22-MAR-19
Dibromochloromethane			93.0		%		60-130	22-MAR-19
Dichlorodifluoromethane			57.1		%		50-140	22-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4578874								
WG3011338-2 LCS								
Ethylbenzene			96.4		%		70-130	22-MAR-19
n-Hexane			89.9		%		70-130	22-MAR-19
Methylene Chloride			91.7		%		70-130	22-MAR-19
MTBE			98.2		%		70-130	22-MAR-19
m+p-Xylenes			95.7		%		70-130	22-MAR-19
Methyl Ethyl Ketone			75.2		%		60-140	22-MAR-19
Methyl Isobutyl Ketone			68.5		%		60-140	22-MAR-19
o-Xylene			94.1		%		70-130	22-MAR-19
Styrene			93.9		%		70-130	22-MAR-19
Tetrachloroethylene			105.0		%		60-130	22-MAR-19
Toluene			96.3		%		70-130	22-MAR-19
trans-1,2-Dichloroethylene			93.2		%		60-130	22-MAR-19
trans-1,3-Dichloropropene			84.9		%		70-130	22-MAR-19
Trichloroethylene			102.8		%		60-130	22-MAR-19
Trichlorofluoromethane			101.2		%		50-140	22-MAR-19
Vinyl chloride			68.4		%		60-140	22-MAR-19
WG3011338-1 MB								
1,1,1,2-Tetrachloroethane			<0.050		ug/g		0.05	22-MAR-19
1,1,2,2-Tetrachloroethane			<0.050		ug/g		0.05	22-MAR-19
1,1,1-Trichloroethane			<0.050		ug/g		0.05	22-MAR-19
1,1,2-Trichloroethane			<0.050		ug/g		0.05	22-MAR-19
1,1-Dichloroethane			<0.050		ug/g		0.05	22-MAR-19
1,1-Dichloroethylene			<0.050		ug/g		0.05	22-MAR-19
1,2-Dibromoethane			<0.050		ug/g		0.05	22-MAR-19
1,2-Dichlorobenzene			<0.050		ug/g		0.05	22-MAR-19
1,2-Dichloroethane			<0.050		ug/g		0.05	22-MAR-19
1,2-Dichloropropane			<0.050		ug/g		0.05	22-MAR-19
1,3-Dichlorobenzene			<0.050		ug/g		0.05	22-MAR-19
1,4-Dichlorobenzene			<0.050		ug/g		0.05	22-MAR-19
Acetone			<0.50		ug/g		0.5	22-MAR-19
Benzene			<0.0068		ug/g		0.0068	22-MAR-19
Bromodichloromethane			<0.050		ug/g		0.05	22-MAR-19
Bromoform			<0.050		ug/g		0.05	22-MAR-19
Bromomethane			<0.050		ug/g		0.05	22-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4578874								
WG3011338-1 MB								
Carbon tetrachloride			<0.050		ug/g		0.05	22-MAR-19
Chlorobenzene			<0.050		ug/g		0.05	22-MAR-19
Chloroform			<0.050		ug/g		0.05	22-MAR-19
cis-1,2-Dichloroethylene			<0.050		ug/g		0.05	22-MAR-19
cis-1,3-Dichloropropene			<0.030		ug/g		0.03	22-MAR-19
Dibromochloromethane			<0.050		ug/g		0.05	22-MAR-19
Dichlorodifluoromethane			<0.050		ug/g		0.05	22-MAR-19
Ethylbenzene			<0.018		ug/g		0.018	22-MAR-19
n-Hexane			<0.050		ug/g		0.05	22-MAR-19
Methylene Chloride			<0.050		ug/g		0.05	22-MAR-19
MTBE			<0.050		ug/g		0.05	22-MAR-19
m+p-Xylenes			<0.030		ug/g		0.03	22-MAR-19
Methyl Ethyl Ketone			<0.50		ug/g		0.5	22-MAR-19
Methyl Isobutyl Ketone			<0.50		ug/g		0.5	22-MAR-19
o-Xylene			<0.020		ug/g		0.02	22-MAR-19
Styrene			<0.050		ug/g		0.05	22-MAR-19
Tetrachloroethylene			<0.050		ug/g		0.05	22-MAR-19
Toluene			<0.080		ug/g		0.08	22-MAR-19
trans-1,2-Dichloroethylene			<0.050		ug/g		0.05	22-MAR-19
trans-1,3-Dichloropropene			<0.030		ug/g		0.03	22-MAR-19
Trichloroethylene			<0.010		ug/g		0.01	22-MAR-19
Trichlorofluoromethane			<0.050		ug/g		0.05	22-MAR-19
Vinyl chloride			<0.020		ug/g		0.02	22-MAR-19
Surrogate: 1,4-Difluorobenzene			117.1		%		50-140	22-MAR-19
Surrogate: 4-Bromofluorobenzene			109.9		%		50-140	22-MAR-19
WG3011338-5 MS		**L2245079-1**						
1,1,1,2-Tetrachloroethane			96.9		%		50-140	22-MAR-19
1,1,2,2-Tetrachloroethane			88.5		%		50-140	22-MAR-19
1,1,1-Trichloroethane			95.0		%		50-140	22-MAR-19
1,1,2-Trichloroethane			97.1		%		50-140	22-MAR-19
1,1-Dichloroethane			94.3		%		50-140	22-MAR-19
1,1-Dichloroethylene			88.4		%		50-140	22-MAR-19
1,2-Dibromoethane			89.3		%		50-140	22-MAR-19
1,2-Dichlorobenzene			87.4		%		50-140	22-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4578874								
WG3011338-5 MS		**L2245079-1**						
1,2-Dichloroethane			89.1		%		50-140	22-MAR-19
1,2-Dichloropropane			90.5		%		50-140	22-MAR-19
1,3-Dichlorobenzene			88.6		%		50-140	22-MAR-19
1,4-Dichlorobenzene			89.6		%		50-140	22-MAR-19
Acetone			85.4		%		50-140	22-MAR-19
Benzene			84.7		%		50-140	22-MAR-19
Bromodichloromethane			96.8		%		50-140	22-MAR-19
Bromoform			88.9		%		50-140	22-MAR-19
Bromomethane			98.1		%		50-140	22-MAR-19
Carbon tetrachloride			95.8		%		50-140	22-MAR-19
Chlorobenzene			93.3		%		50-140	22-MAR-19
Chloroform			95.6		%		50-140	22-MAR-19
cis-1,2-Dichloroethylene			92.9		%		50-140	22-MAR-19
cis-1,3-Dichloropropene			89.3		%		50-140	22-MAR-19
Dibromochloromethane			94.8		%		50-140	22-MAR-19
Dichlorodifluoromethane			57.0		%		50-140	22-MAR-19
Ethylbenzene			91.1		%		50-140	22-MAR-19
n-Hexane			82.9		%		50-140	22-MAR-19
Methylene Chloride			92.1		%		50-140	22-MAR-19
MTBE			96.8		%		50-140	22-MAR-19
m+p-Xylenes			90.1		%		50-140	22-MAR-19
Methyl Ethyl Ketone			77.8		%		50-140	22-MAR-19
Methyl Isobutyl Ketone			74.5		%		50-140	22-MAR-19
o-Xylene			88.4		%		50-140	22-MAR-19
Styrene			89.8		%		50-140	22-MAR-19
Tetrachloroethylene			98.0		%		50-140	22-MAR-19
Toluene			91.4		%		50-140	22-MAR-19
trans-1,2-Dichloroethylene			89.3		%		50-140	22-MAR-19
trans-1,3-Dichloropropene			86.1		%		50-140	22-MAR-19
Trichloroethylene			97.7		%		50-140	22-MAR-19
Trichlorofluoromethane			97.5		%		50-140	22-MAR-19
Vinyl chloride			66.5		%		50-140	22-MAR-19

Quality Control Report

Workorder: L2245079 Report Date: 25-MAR-19

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
J	Duplicate results and limits are expressed in terms of absolute difference.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

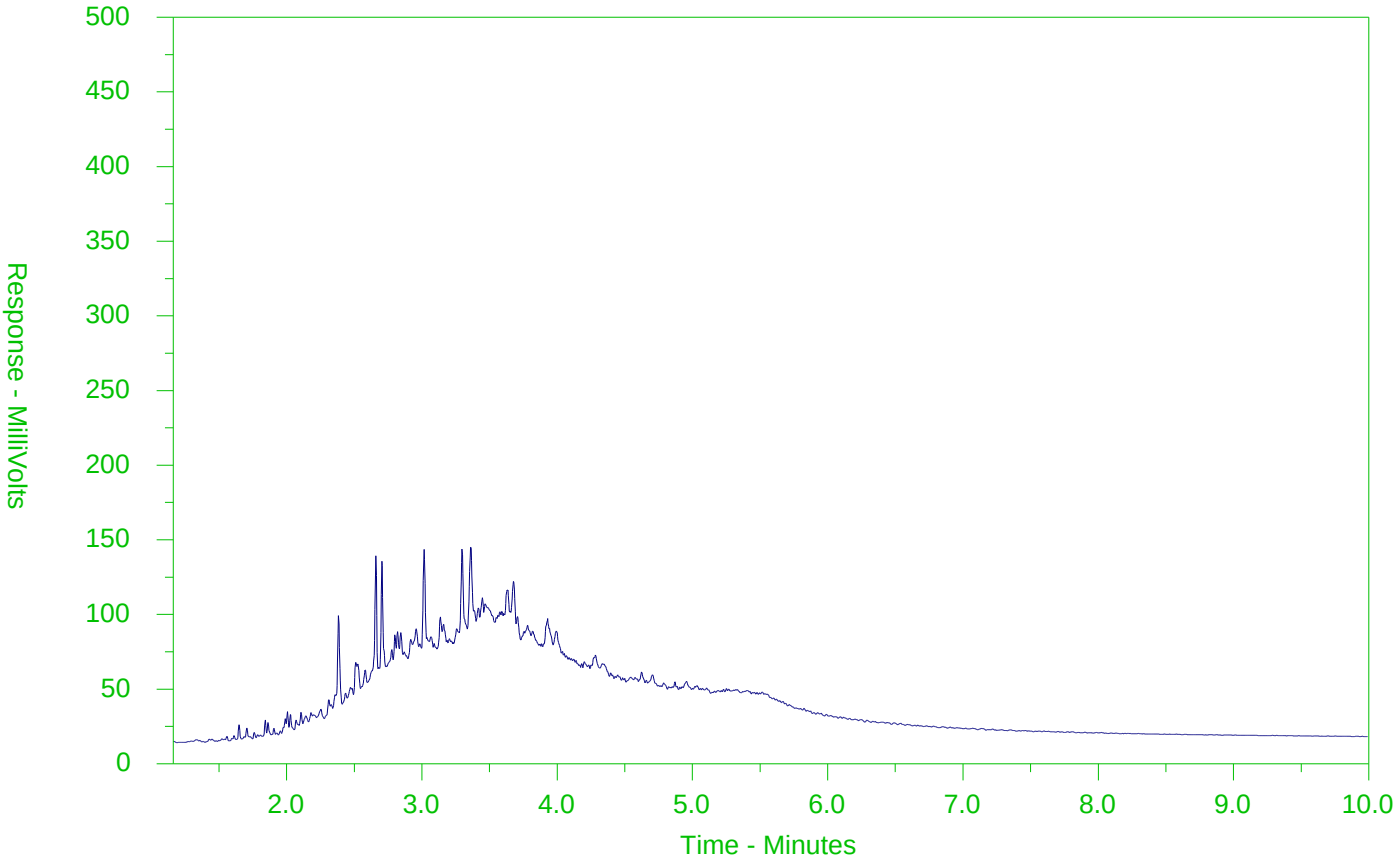
ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2245079-1
Client Sample ID: S-11102463-031419-SM-BH18-443-1.2-1.35MBGS



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

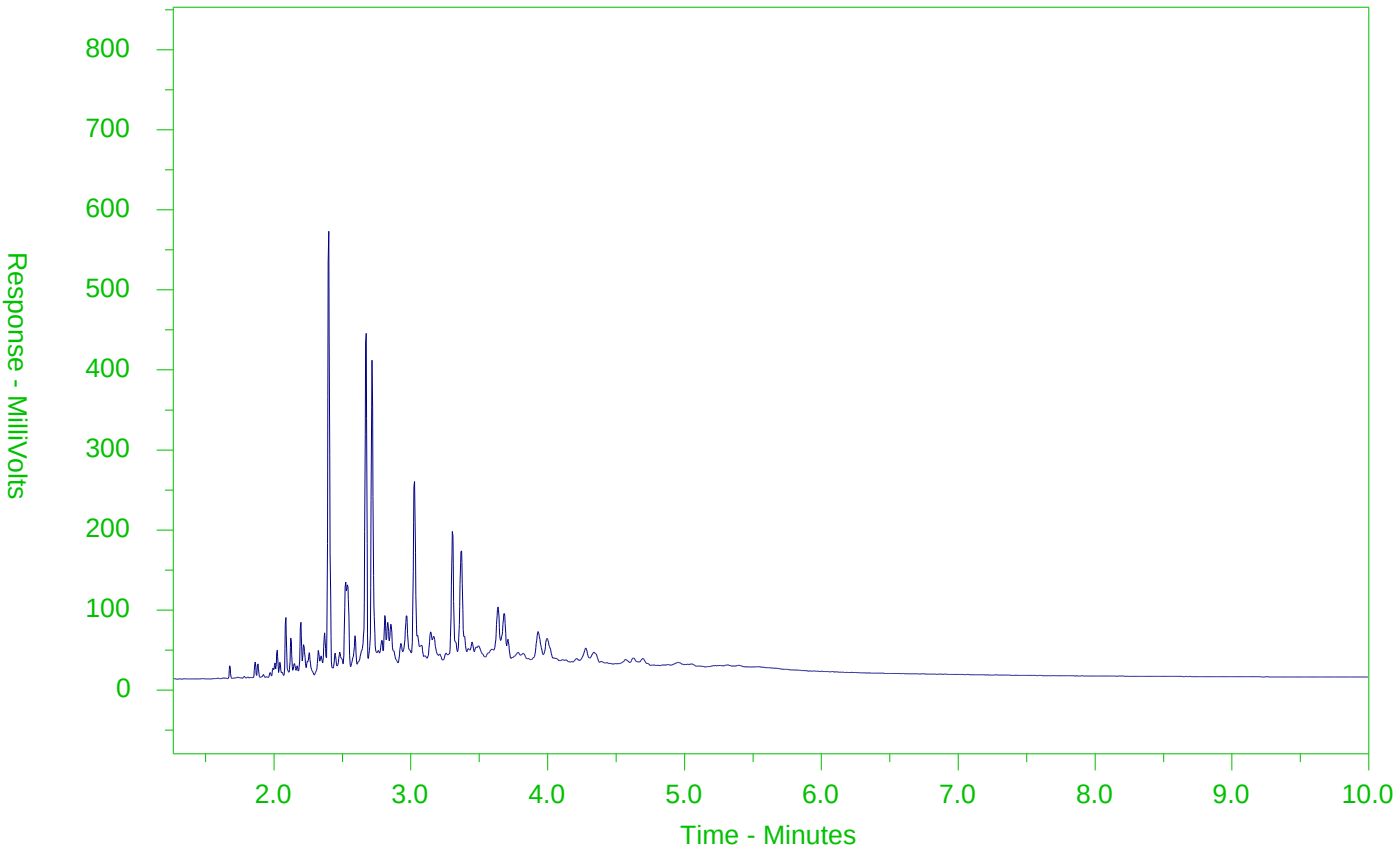
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2245079-2
Client Sample ID: S-11102463-031419-SM-BH18-442-1.4-1.5MBGS



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental

Canada Toll Free: 1 800 668 9878

www.alsglobal.com

L2245079-COFC

COC Number: 17 -

Page 1 of 1

Report To	Contact and company name below will appear on the final report
Company:	GHD LIMITED - ACCT #13791
Contact:	Jennifer Balkwill
Phone:	519-884-0510
	Company address below will appear on the final report
Street:	455 Phillip St
City/Province:	Waterloo,Ontario
Postal Code:	N2L 3X2
Invoice To	Same as Report To ☑ YES ☐ NO
	Copy of Invoice with Report ☐ YES ☑ NO
Company:	GHD Limited
Contact:	Jennifer Balkwill

Report Format / Distribution	
Select Report Format:	☑ PDF ☑ EXCEL ☑ EDD (DIGITAL)
Quality Control (QC) Report with Report	☑ YES ☐ NO
☐ Compare Results to Criteria on Report - provide details below if box checked	
Select Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	jennifer.balkwill@ghd.com
Email 2	See PO
Email 3	

Invoice Distribution	
Select Invoice Distribution:	☐ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	jennifer.balkwill@ghd.com
Email 2	

Project Information	
ALS Account # / Quote #:	13791, Q51987
Job #:	11102463-71
PO / AFE:	73509898-7
LSD:	Waterfront Toronto

Oil and Gas Required Fields (client use)	
AFE/Cost Center:	PO#
Major/Minor Code:	Routing Code:
Requisitioner:	
Location:	

ALS Lab Work Order # (lab use only): L2245079

ALS Contact: Rick H

Sampler: SHAWN MOLONEY

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)

Regular [R] ☑ Standard TAT if received by 3 pm - business days - no surcharges apply

PRIORITY (Business Days): 4 day [P4-20%] ☐ — 3 day [P3-25%] ☐ — 2 day [P2-50%] ☐

EMERGENCY: 1 Business day [E - 100%] ☐ — Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)] ☐

Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm

For tests that can not be performed according to the service level selected, you will be contacted.

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	BTEX,F1-F4-511-P-WT	TOC-WT (confirmed Triplicate 511 not neces	BTEX,F1 (Trip Blank)	other 153 metals + inorganics	PAHs	OC Pesticides	Chlorophenols	PCB Aroclors	VOCs	PHCs	SAMPLES ON HOLD	SUSPECTED HAZARD (see Special Instructions)
	S-11102463- 031419-SM-BH18-443-1.2-1.35mbgs	14-03-19	10:00	Soil	10				X	X	X	X	X	X	X		
	S-11102463- 031419-SM-BH18-442-1.4-1.5mbgs	14-03-19	14:00	Soil	10				X	X	X	X	X	X	X		
	S-11102463- TRIP BLANK	14-03-19	14:00	Soil	1			X									
	S-11102463-			Soil													
	S-11102463-			Soil													
	S-11102463-			Soil													
	S-11102463-			Soil													
	S-11102463-			Soil													
	S-11102463-			Soil													
	S-11102463-			Soil													
	S-11102463-			Soil													
	S-11102463-			Soil													

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? ☐ YES ☑ NO

Are samples for human consumption/ use? ☐ YES ☑ NO

Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐

Ice Packs ☐ Ice Cubes ☒ Custody seal intact Yes ☐ No ☐

Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				0.2			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by: SHAWN MOLONEY	Date: 14-03-19	Time: 15:05	Received by:	Date:	Time:	Received by:	Date: 15-MAR-19	Time: 1730

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

JUNE 2018 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

SIF

GHD Limited (Waterloo)
ATTN: JENNIFER BALKWILL
455 PHILLIP ST
WATERLOO ON N2L 3X2

Date Received: 18-MAR-19
Report Date: 26-MAR-19 15:18 (MT)
Version: FINAL

Client Phone: 519-884-0510

Certificate of Analysis

Lab Work Order #: L2245528

Project P.O. #:	73509898-7
Job Reference:	11102463-53
C of C Numbers:	17-641843
Legal Site Desc:	WATERFRONT, TORONTO

Rick Hawthorne
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

11102463-53 - WATERFRONT, TORONTO

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2245528-1 S-11102463-031519-DD-BH18-442-3.0-3.7								
Sampled By: DAN D. on 15-MAR-19 @ 11:15								
Matrix: SOIL								
Physical Tests								
Conductivity	0.665		0.0040	mS/cm	25-MAR-19	0.7	0.7	0.7
% Moisture	30.4		0.10	%	22-MAR-19			
pH	7.05		0.10	pH units	24-MAR-19			
Cyanides								
Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	22-MAR-19	0.051	0.051	0.051
Saturated Paste Extractables								
SAR	2.40		0.10	SAR	25-MAR-19	5	5	5
Calcium (Ca)	43.7		0.50	mg/L	25-MAR-19			
Magnesium (Mg)	6.54		0.50	mg/L	25-MAR-19			
Sodium (Na)	64.4		0.50	mg/L	25-MAR-19			
Metals								
Antimony (Sb)	1.9		1.0	ug/g	25-MAR-19	7.5	7.5	*1.3
Arsenic (As)	5.8		1.0	ug/g	25-MAR-19	18	18	18
Barium (Ba)	103		1.0	ug/g	25-MAR-19	390	390	220
Beryllium (Be)	<0.50		0.50	ug/g	25-MAR-19	4	5	2.5
Boron (B)	<5.0		5.0	ug/g	25-MAR-19	120	120	36
Boron (B), Hot Water Ext.	0.66		0.10	ug/g	25-MAR-19	1.5	1.5	1.5
Cadmium (Cd)	<0.50		0.50	ug/g	25-MAR-19	1.2	1.2	1.2
Chromium (Cr)	11.2		1.0	ug/g	25-MAR-19	160	160	70
Cobalt (Co)	3.0		1.0	ug/g	25-MAR-19	22	22	22
Copper (Cu)	29.0		1.0	ug/g	25-MAR-19	140	180	92
Lead (Pb)	142		1.0	ug/g	25-MAR-19	*120	*120	*120
Mercury (Hg)	0.396		0.0050	ug/g	25-MAR-19	*0.27	1.8	*0.27
Molybdenum (Mo)	<1.0		1.0	ug/g	25-MAR-19	6.9	6.9	2
Nickel (Ni)	6.7		1.0	ug/g	25-MAR-19	100	130	82
Selenium (Se)	<1.0		1.0	ug/g	25-MAR-19	2.4	2.4	1.5
Silver (Ag)	<0.20		0.20	ug/g	25-MAR-19	20	25	0.5
Thallium (Tl)	<0.50		0.50	ug/g	25-MAR-19	1	1	1
Uranium (U)	<1.0		1.0	ug/g	25-MAR-19	23	23	2.5
Vanadium (V)	11.9		1.0	ug/g	25-MAR-19	86	86	86
Zinc (Zn)	112		5.0	ug/g	25-MAR-19	340	340	290
Speciated Metals								
Chromium, Hexavalent	0.24		0.20	ug/g	22-MAR-19	8	10	0.66
Volatile Organic Compounds								
Acetone	<0.50		0.50	ug/g	25-MAR-19	16	28	0.5
Benzene	<0.0068		0.0068	ug/g	25-MAR-19	0.21	0.17	0.02
Bromodichloromethane	<0.050		0.050	ug/g	25-MAR-19	13	13	0.05
Bromoform	<0.050		0.050	ug/g	25-MAR-19	0.27	0.26	0.05
Bromomethane	<0.050		0.050	ug/g	25-MAR-19	0.05	0.05	0.05
Carbon tetrachloride	<0.050		0.050	ug/g	25-MAR-19	0.05	0.12	0.05
Chlorobenzene	<0.050		0.050	ug/g	25-MAR-19	2.4	2.7	0.05
Dibromochloromethane	<0.050		0.050	ug/g	25-MAR-19	9.4	9.4	0.05
Chloroform	<0.050		0.050	ug/g	25-MAR-19	0.05	0.18	0.05
1,2-Dibromoethane	<0.050		0.050	ug/g	25-MAR-19	0.05	0.05	0.05
1,2-Dichlorobenzene	<0.050		0.050	ug/g	25-MAR-19	3.4	4.3	0.05

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2245528-1 S-11102463-031519-DD-BH18-442-3.0-3.7								
Sampled By: DAN D. on 15-MAR-19 @ 11:15								
Matrix: SOIL								
Volatile Organic Compounds								
1,3-Dichlorobenzene	<0.050		0.050	ug/g	25-MAR-19	4.8	6	0.05
1,4-Dichlorobenzene	<0.050		0.050	ug/g	25-MAR-19	0.083	0.097	0.05
Dichlorodifluoromethane	<0.050		0.050	ug/g	25-MAR-19	16	25	0.05
1,1-Dichloroethane	<0.050		0.050	ug/g	25-MAR-19	3.5	11	0.05
1,2-Dichloroethane	<0.050		0.050	ug/g	25-MAR-19	0.05	0.05	0.05
1,1-Dichloroethylene	<0.050		0.050	ug/g	25-MAR-19	0.05	0.05	0.05
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	25-MAR-19	3.4	30	0.05
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	25-MAR-19	0.084	0.75	0.05
Methylene Chloride	<0.050		0.050	ug/g	25-MAR-19	0.1	0.96	0.05
1,2-Dichloropropane	<0.050		0.050	ug/g	25-MAR-19	0.05	0.085	0.05
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	25-MAR-19			
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	25-MAR-19			
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g	25-MAR-19	0.05	0.083	0.05
Ethylbenzene	<0.018		0.018	ug/g	25-MAR-19	2	15	0.05
n-Hexane	<0.050		0.050	ug/g	25-MAR-19	2.8	34	0.05
Methyl Ethyl Ketone	<0.50		0.50	ug/g	25-MAR-19	16	44	0.5
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	25-MAR-19	1.7	4.3	0.5
MTBE	<0.050		0.050	ug/g	25-MAR-19	0.75	1.4	0.05
Styrene	<0.050		0.050	ug/g	25-MAR-19	0.7	2.2	0.05
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	25-MAR-19	0.058	0.05	0.05
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	25-MAR-19	0.05	0.05	0.05
Tetrachloroethylene	<0.050		0.050	ug/g	25-MAR-19	0.28	2.3	0.05
Toluene	<0.080		0.080	ug/g	25-MAR-19	2.3	6	0.2
1,1,1-Trichloroethane	<0.050		0.050	ug/g	25-MAR-19	0.38	3.4	0.05
1,1,2-Trichloroethane	<0.050		0.050	ug/g	25-MAR-19	0.05	0.05	0.05
Trichloroethylene	<0.010		0.010	ug/g	25-MAR-19	0.061	0.52	0.05
Trichlorofluoromethane	<0.050		0.050	ug/g	25-MAR-19	4	5.8	0.25
Vinyl chloride	<0.020		0.020	ug/g	25-MAR-19	0.02	0.022	0.02
o-Xylene	<0.020		0.020	ug/g	25-MAR-19			
m+p-Xylenes	<0.030		0.030	ug/g	25-MAR-19			
Xylenes (Total)	<0.050		0.050	ug/g	25-MAR-19	3.1	25	0.05
Surrogate: 4-Bromofluorobenzene	77.2		50-140	%	25-MAR-19			
Surrogate: 1,4-Difluorobenzene	82.6		50-140	%	25-MAR-19			
Hydrocarbons								
F1 (C6-C10)	<5.0		5.0	ug/g	25-MAR-19	55	65	25
F1-BTEX	<5.0		5.0	ug/g	26-MAR-19	55	65	25
F2 (C10-C16)	<10		10	ug/g	26-MAR-19	98	150	10
F2-Naphth	<10		10	ug/g	26-MAR-19			
F3 (C16-C34)	190		50	ug/g	26-MAR-19	300	1300	240
F3-PAH	175		50	ug/g	26-MAR-19			
F4 (C34-C50)	71		50	ug/g	26-MAR-19	2800	5600	120
Total Hydrocarbons (C6-C50)	261		72	ug/g	26-MAR-19			
Chrom. to baseline at nC50	YES			No Unit	26-MAR-19			
Surrogate: 2-Bromobenzotrifluoride	83.4		60-140	%	26-MAR-19			
Surrogate: 3,4-Dichlorotoluene	90.5		60-140	%	25-MAR-19			
Polycyclic Aromatic Hydrocarbons								

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2245528-1 S-11102463-031519-DD-BH18-442-3.0-3.7								
Sampled By: DAN D. on 15-MAR-19 @ 11:15								
Matrix: SOIL								
Polycyclic Aromatic Hydrocarbons								
1+2-Methylnaphthalenes	0.143		0.042	ug/g	22-MAR-19	0.99	3.4	0.59
Semi-Volatile Organics								
Acenaphthene	0.205		0.050	ug/g	21-MAR-19	7.9	58	*0.072
Acenaphthylene	0.152		0.050	ug/g	21-MAR-19	*0.15	0.17	*0.093
Anthracene	0.439		0.050	ug/g	21-MAR-19	0.67	0.74	*0.22
Benzo(a)anthracene	1.71		0.050	ug/g	21-MAR-19	*0.5	*0.63	*0.36
Benzo(a)pyrene	1.74		0.050	ug/g	21-MAR-19	*0.3	*0.3	*0.3
Benzo(b)fluoranthene	1.54		0.050	ug/g	21-MAR-19	*0.78	*0.78	*0.47
Benzo(ghi)perylene	1.07		0.050	ug/g	21-MAR-19	6.6	7.8	*0.68
Benzo(k)fluoranthene	1.12		0.050	ug/g	21-MAR-19	*0.78	*0.78	*0.48
2-Chlorophenol	<0.10		0.10	ug/g	21-MAR-19	1.6	2	0.1
Chrysene	1.76		0.050	ug/g	21-MAR-19	7	7.8	2.8
Dibenzo(a,h)anthracene	0.222		0.050	ug/g	21-MAR-19	*0.1	*0.1	*0.1
2,4-Dichlorophenol	<0.10		0.10	ug/g	21-MAR-19	1.7	2.1	0.1
Fluoranthene	2.92		0.050	ug/g	21-MAR-19	*0.69	*0.69	*0.69
Fluorene	0.174		0.050	ug/g	21-MAR-19	62	69	0.19
Indeno(1,2,3-cd)pyrene	1.17		0.050	ug/g	21-MAR-19	*0.38	*0.48	*0.23
1-Methylnaphthalene	0.065		0.030	ug/g	21-MAR-19	0.99	3.4	0.59
2-Methylnaphthalene	0.078		0.030	ug/g	21-MAR-19	0.99	3.4	0.59
Naphthalene	0.143		0.050	ug/g	21-MAR-19	0.6	0.75	*0.09
Pentachlorophenol	<0.10		0.10	ug/g	21-MAR-19	0.1	0.1	0.1
Phenanthrene	1.58		0.050	ug/g	21-MAR-19	6.2	7.8	*0.69
Pyrene	2.87		0.050	ug/g	21-MAR-19	78	78	*1
2,4,5-Trichlorophenol	<0.10		0.10	ug/g	21-MAR-19	4.4	5.5	0.1
2,4,6-Trichlorophenol	<0.10		0.10	ug/g	21-MAR-19	3.8	4.2	0.1
Surrogate: 2-Fluorobiphenyl	100.7		50-140	%	21-MAR-19			
Surrogate: Phenol d5	102.2		30-130	%	21-MAR-19			
Surrogate: p-Terphenyl d14	107.4		50-140	%	21-MAR-19			
Surrogate: 2,4,6-Tribromophenol	93.3		50-140	%	21-MAR-19			
Polychlorinated Biphenyls								
Aroclor 1242	<0.015	DLM	0.015	ug/g	21-MAR-19			
Aroclor 1248	<0.010		0.010	ug/g	21-MAR-19			
Aroclor 1254	<0.010		0.010	ug/g	21-MAR-19			
Aroclor 1260	<0.010		0.010	ug/g	21-MAR-19			
Total PCBs	<0.025	DLM	0.025	ug/g	21-MAR-19	0.35	0.35	0.3
Surrogate: d14-Terphenyl	84.9		60-140	%	21-MAR-19			
Organochlorine Pesticides								
Aldrin	<0.020		0.020	ug/g	26-MAR-19	0.05	0.05	0.05
gamma-hexachlorocyclohexane	<0.050	DLM	0.050	ug/g	26-MAR-19	0.056	0.063	
a-chlordane	<0.020		0.020	ug/g	26-MAR-19			
Chlordane (Total)	<0.028		0.028	ug/g	26-MAR-19	0.05	0.05	0.05
g-chlordane	<0.020		0.020	ug/g	26-MAR-19			
op-DDD	<0.020		0.020	ug/g	26-MAR-19			
pp-DDD	<0.020		0.020	ug/g	26-MAR-19			
Total DDD	<0.028		0.028	ug/g	26-MAR-19	3.3	3.3	0.05
o,p-DDE	<0.020		0.020	ug/g	26-MAR-19			

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2245528-1 S-11102463-031519-DD-BH18-442-3.0-3.7								
Sampled By: DAN D. on 15-MAR-19 @ 11:15								
Matrix: SOIL								
Organochlorine Pesticides								
pp-DDE	<0.020		0.020	ug/g	26-MAR-19			
Total DDE	<0.028		0.028	ug/g	26-MAR-19	0.26	0.33	0.05
op-DDT	<0.020		0.020	ug/g	26-MAR-19			
pp-DDT	<0.10	DLM	0.10	ug/g	26-MAR-19			
Total DDT	<0.10		0.10	ug/g	26-MAR-19	1.4	1.4	1.4
Dieldrin	<0.020		0.020	ug/g	26-MAR-19	0.05	0.05	0.05
Endosulfan I	<0.020		0.020	ug/g	26-MAR-19			
Endosulfan II	<0.020		0.020	ug/g	26-MAR-19			
Endosulfan (Total)	<0.028		0.028	ug/g	26-MAR-19	0.04	0.04	0.04
Endrin	<0.020		0.020	ug/g	26-MAR-19	0.04	0.04	0.04
Heptachlor	<0.020		0.020	ug/g	26-MAR-19	0.15	0.15	0.05
Heptachlor Epoxide	<0.020		0.020	ug/g	26-MAR-19	0.05	0.05	0.05
Hexachlorobenzene	<0.050	DLM	0.050	ug/g	26-MAR-19	0.52	0.52	**0.02
Hexachlorobutadiene	<0.050	DLM	0.050	ug/g	26-MAR-19	**0.012	**0.014	**0.01
Hexachloroethane	<0.050	DLM	0.050	ug/g	26-MAR-19	0.089	0.07	**0.01
Methoxychlor	<0.10	DLM	0.10	ug/g	26-MAR-19	0.13	0.13	**0.05
Surrogate: 2-Fluorobiphenyl	67.9		50-140	%	26-MAR-19			
Surrogate: d14-Terphenyl	78.6		50-140	%	26-MAR-19			
L2245528-2 S-11102463-031519-DD-BH18-442-8.5-8.9								
Sampled By: DAN D. on 15-MAR-19 @ 15:30								
Matrix: SOIL								
Physical Tests								
Conductivity	0.483		0.0040	mS/cm	25-MAR-19	0.7	0.7	0.7
% Moisture	15.1		0.10	%	22-MAR-19			
pH	7.71		0.10	pH units	24-MAR-19			
Cyanides								
Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	22-MAR-19	0.051	0.051	0.051
Saturated Paste Extractables								
SAR	3.78		0.10	SAR	25-MAR-19	5	5	5
Calcium (Ca)	19.4		0.50	mg/L	25-MAR-19			
Magnesium (Mg)	1.55		0.50	mg/L	25-MAR-19			
Sodium (Na)	64.4		0.50	mg/L	25-MAR-19			
Metals								
Antimony (Sb)	<1.0		1.0	ug/g	25-MAR-19	7.5	7.5	1.3
Arsenic (As)	1.8		1.0	ug/g	25-MAR-19	18	18	18
Barium (Ba)	15.5		1.0	ug/g	25-MAR-19	390	390	220
Beryllium (Be)	<0.50		0.50	ug/g	25-MAR-19	4	5	2.5
Boron (B)	<5.0		5.0	ug/g	25-MAR-19	120	120	36
Boron (B), Hot Water Ext.	0.15		0.10	ug/g	25-MAR-19	1.5	1.5	1.5
Cadmium (Cd)	<0.50		0.50	ug/g	25-MAR-19	1.2	1.2	1.2
Chromium (Cr)	5.3		1.0	ug/g	25-MAR-19	160	160	70
Cobalt (Co)	2.6		1.0	ug/g	25-MAR-19	22	22	22
Copper (Cu)	4.2		1.0	ug/g	25-MAR-19	140	180	92
Lead (Pb)	4.1		1.0	ug/g	25-MAR-19	120	120	120
Mercury (Hg)	0.0065		0.0050	ug/g	25-MAR-19	0.27	1.8	0.27

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2245528-2 S-11102463-031519-DD-BH18-442-8.5-8.9								
Sampled By: DAN D. on 15-MAR-19 @ 15:30								
Matrix: SOIL								
Metals								
Molybdenum (Mo)	<1.0		1.0	ug/g	25-MAR-19	6.9	6.9	2
Nickel (Ni)	5.0		1.0	ug/g	25-MAR-19	100	130	82
Selenium (Se)	<1.0		1.0	ug/g	25-MAR-19	2.4	2.4	1.5
Silver (Ag)	<0.20		0.20	ug/g	25-MAR-19	20	25	0.5
Thallium (Tl)	<0.50		0.50	ug/g	25-MAR-19	1	1	1
Uranium (U)	<1.0		1.0	ug/g	25-MAR-19	23	23	2.5
Vanadium (V)	10.4		1.0	ug/g	25-MAR-19	86	86	86
Zinc (Zn)	12.1		5.0	ug/g	25-MAR-19	340	340	290
Speciated Metals								
Chromium, Hexavalent	<0.20		0.20	ug/g	22-MAR-19	8	10	0.66
Volatile Organic Compounds								
Acetone	<0.50		0.50	ug/g	25-MAR-19	16	28	0.5
Benzene	<0.0068		0.0068	ug/g	25-MAR-19	0.21	0.17	0.02
Bromodichloromethane	<0.050		0.050	ug/g	25-MAR-19	13	13	0.05
Bromoform	<0.050		0.050	ug/g	25-MAR-19	0.27	0.26	0.05
Bromomethane	<0.050		0.050	ug/g	25-MAR-19	0.05	0.05	0.05
Carbon tetrachloride	<0.050		0.050	ug/g	25-MAR-19	0.05	0.12	0.05
Chlorobenzene	<0.050		0.050	ug/g	25-MAR-19	2.4	2.7	0.05
Dibromochloromethane	<0.050		0.050	ug/g	25-MAR-19	9.4	9.4	0.05
Chloroform	<0.050		0.050	ug/g	25-MAR-19	0.05	0.18	0.05
1,2-Dibromoethane	<0.050		0.050	ug/g	25-MAR-19	0.05	0.05	0.05
1,2-Dichlorobenzene	<0.050		0.050	ug/g	25-MAR-19	3.4	4.3	0.05
1,3-Dichlorobenzene	<0.050		0.050	ug/g	25-MAR-19	4.8	6	0.05
1,4-Dichlorobenzene	<0.050		0.050	ug/g	25-MAR-19	0.083	0.097	0.05
Dichlorodifluoromethane	<0.050		0.050	ug/g	25-MAR-19	16	25	0.05
1,1-Dichloroethane	<0.050		0.050	ug/g	25-MAR-19	3.5	11	0.05
1,2-Dichloroethane	<0.050		0.050	ug/g	25-MAR-19	0.05	0.05	0.05
1,1-Dichloroethylene	<0.050		0.050	ug/g	25-MAR-19	0.05	0.05	0.05
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	25-MAR-19	3.4	30	0.05
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	25-MAR-19	0.084	0.75	0.05
Methylene Chloride	<0.050		0.050	ug/g	25-MAR-19	0.1	0.96	0.05
1,2-Dichloropropane	<0.050		0.050	ug/g	25-MAR-19	0.05	0.085	0.05
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	25-MAR-19			
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	25-MAR-19			
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g	25-MAR-19	0.05	0.083	0.05
Ethylbenzene	<0.018		0.018	ug/g	25-MAR-19	2	15	0.05
n-Hexane	<0.050		0.050	ug/g	25-MAR-19	2.8	34	0.05
Methyl Ethyl Ketone	<0.50		0.50	ug/g	25-MAR-19	16	44	0.5
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	25-MAR-19	1.7	4.3	0.5
MTBE	<0.050		0.050	ug/g	25-MAR-19	0.75	1.4	0.05
Styrene	<0.050		0.050	ug/g	25-MAR-19	0.7	2.2	0.05
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	25-MAR-19	0.058	0.05	0.05
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	25-MAR-19	0.05	0.05	0.05
Tetrachloroethylene	<0.050		0.050	ug/g	25-MAR-19	0.28	2.3	0.05
Toluene	<0.080		0.080	ug/g	25-MAR-19	2.3	6	0.2

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2245528-2 S-11102463-031519-DD-BH18-442-8.5-8.9								
Sampled By: DAN D. on 15-MAR-19 @ 15:30								
Matrix: SOIL								
Volatile Organic Compounds								
1,1,1-Trichloroethane	<0.050		0.050	ug/g	25-MAR-19	0.38	3.4	0.05
1,1,2-Trichloroethane	<0.050		0.050	ug/g	25-MAR-19	0.05	0.05	0.05
Trichloroethylene	<0.010		0.010	ug/g	25-MAR-19	0.061	0.52	0.05
Trichlorofluoromethane	<0.050		0.050	ug/g	25-MAR-19	4	5.8	0.25
Vinyl chloride	<0.020		0.020	ug/g	25-MAR-19	0.02	0.022	0.02
o-Xylene	<0.020		0.020	ug/g	25-MAR-19			
m+p-Xylenes	<0.030		0.030	ug/g	25-MAR-19			
Xylenes (Total)	<0.050		0.050	ug/g	25-MAR-19	3.1	25	0.05
Surrogate: 4-Bromofluorobenzene	87.2		50-140	%	25-MAR-19			
Surrogate: 1,4-Difluorobenzene	93.0		50-140	%	25-MAR-19			
Hydrocarbons								
F1 (C6-C10)	<5.0		5.0	ug/g	25-MAR-19	55	65	25
F1-BTEX	<5.0		5.0	ug/g	25-MAR-19	55	65	25
F2 (C10-C16)	<10		10	ug/g	22-MAR-19	98	150	10
F2-Naphth	<10		10	ug/g	25-MAR-19			
F3 (C16-C34)	96		50	ug/g	22-MAR-19	300	1300	240
F3-PAH	96		50	ug/g	25-MAR-19			
F4 (C34-C50)	<50		50	ug/g	22-MAR-19	2800	5600	120
Total Hydrocarbons (C6-C50)	96		72	ug/g	25-MAR-19			
Chrom. to baseline at nC50	YES			No Unit	22-MAR-19			
Surrogate: 2-Bromobenzotrifluoride	87.3		60-140	%	22-MAR-19			
Surrogate: 3,4-Dichlorotoluene	100.3		60-140	%	25-MAR-19			
Polycyclic Aromatic Hydrocarbons								
Acenaphthene	<0.050		0.050	ug/g	25-MAR-19	7.9	58	0.072
Acenaphthylene	<0.050		0.050	ug/g	25-MAR-19	0.15	0.17	0.093
Anthracene	<0.050		0.050	ug/g	25-MAR-19	0.67	0.74	0.22
Benzo(a)anthracene	<0.050		0.050	ug/g	25-MAR-19	0.5	0.63	0.36
Benzo(a)pyrene	<0.050		0.050	ug/g	25-MAR-19	0.3	0.3	0.3
Benzo(b)fluoranthene	<0.050		0.050	ug/g	25-MAR-19	0.78	0.78	0.47
Benzo(g,h,i)perylene	<0.050		0.050	ug/g	25-MAR-19	6.6	7.8	0.68
Benzo(k)fluoranthene	<0.050		0.050	ug/g	25-MAR-19	0.78	0.78	0.48
Chrysene	<0.050		0.050	ug/g	25-MAR-19	7	7.8	2.8
Dibenzo(ah)anthracene	<0.050		0.050	ug/g	25-MAR-19	0.1	0.1	0.1
Fluoranthene	<0.050		0.050	ug/g	25-MAR-19	0.69	0.69	0.69
Fluorene	<0.050		0.050	ug/g	25-MAR-19	62	69	0.19
Indeno(1,2,3-cd)pyrene	<0.050		0.050	ug/g	25-MAR-19	0.38	0.48	0.23
1+2-Methylnaphthalenes	<0.042		0.042	ug/g	25-MAR-19	0.99	3.4	0.59
1-Methylnaphthalene	<0.030		0.030	ug/g	25-MAR-19	0.99	3.4	0.59
2-Methylnaphthalene	<0.030		0.030	ug/g	25-MAR-19	0.99	3.4	0.59
Naphthalene	0.018		0.013	ug/g	25-MAR-19	0.6	0.75	0.09
Phenanthrene	<0.046		0.046	ug/g	25-MAR-19	6.2	7.8	0.69
Pyrene	<0.050		0.050	ug/g	25-MAR-19	78	78	1
Surrogate: 2-Fluorobiphenyl	95.2		50-140	%	25-MAR-19			
Surrogate: p-Terphenyl d14	89.0		50-140	%	25-MAR-19			

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3	
L2245528-3 TRIP BLANK Sampled By: DAN D. on 15-MAR-19 @ 08:00 Matrix: SOIL									
Physical Tests									
% Moisture	<0.10		0.10	%	22-MAR-19				
Volatile Organic Compounds									
Acetone	<0.50		0.50	ug/g	26-MAR-19	16	28	0.5	
Benzene	<0.0068		0.0068	ug/g	26-MAR-19	0.21	0.17	0.02	
Bromodichloromethane	<0.050		0.050	ug/g	26-MAR-19	13	13	0.05	
Bromoform	<0.050		0.050	ug/g	26-MAR-19	0.27	0.26	0.05	
Bromomethane	<0.050		0.050	ug/g	26-MAR-19	0.05	0.05	0.05	
Carbon tetrachloride	<0.050		0.050	ug/g	26-MAR-19	0.05	0.12	0.05	
Chlorobenzene	<0.050		0.050	ug/g	26-MAR-19	2.4	2.7	0.05	
Dibromochloromethane	<0.050		0.050	ug/g	26-MAR-19	9.4	9.4	0.05	
Chloroform	<0.050		0.050	ug/g	26-MAR-19	0.05	0.18	0.05	
1,2-Dibromoethane	<0.050		0.050	ug/g	26-MAR-19	0.05	0.05	0.05	
1,2-Dichlorobenzene	<0.050		0.050	ug/g	26-MAR-19	3.4	4.3	0.05	
1,3-Dichlorobenzene	<0.050		0.050	ug/g	26-MAR-19	4.8	6	0.05	
1,4-Dichlorobenzene	<0.050		0.050	ug/g	26-MAR-19	0.083	0.097	0.05	
Dichlorodifluoromethane	<0.050		0.050	ug/g	26-MAR-19	16	25	0.05	
1,1-Dichloroethane	<0.050		0.050	ug/g	26-MAR-19	3.5	11	0.05	
1,2-Dichloroethane	<0.050		0.050	ug/g	26-MAR-19	0.05	0.05	0.05	
1,1-Dichloroethylene	<0.050		0.050	ug/g	26-MAR-19	0.05	0.05	0.05	
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	26-MAR-19	3.4	30	0.05	
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	26-MAR-19	0.084	0.75	0.05	
Methylene Chloride	<0.050		0.050	ug/g	26-MAR-19	0.1	0.96	0.05	
1,2-Dichloropropane	<0.050		0.050	ug/g	26-MAR-19	0.05	0.085	0.05	
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	26-MAR-19				
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	26-MAR-19				
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g	26-MAR-19	0.05	0.083	0.05	
Ethylbenzene	<0.018		0.018	ug/g	26-MAR-19	2	15	0.05	
n-Hexane	<0.050		0.050	ug/g	26-MAR-19	2.8	34	0.05	
Methyl Ethyl Ketone	<0.50		0.50	ug/g	26-MAR-19	16	44	0.5	
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	26-MAR-19	1.7	4.3	0.5	
MTBE	<0.050		0.050	ug/g	26-MAR-19	0.75	1.4	0.05	
Styrene	<0.050		0.050	ug/g	26-MAR-19	0.7	2.2	0.05	
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	26-MAR-19	0.058	0.05	0.05	
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	26-MAR-19	0.05	0.05	0.05	
Tetrachloroethylene	<0.050		0.050	ug/g	26-MAR-19	0.28	2.3	0.05	
Toluene	<0.080		0.080	ug/g	26-MAR-19	2.3	6	0.2	
1,1,1-Trichloroethane	<0.050		0.050	ug/g	26-MAR-19	0.38	3.4	0.05	
1,1,2-Trichloroethane	<0.050		0.050	ug/g	26-MAR-19	0.05	0.05	0.05	
Trichloroethylene	<0.010		0.010	ug/g	26-MAR-19	0.061	0.52	0.05	
Trichlorofluoromethane	<0.050		0.050	ug/g	26-MAR-19	4	5.8	0.25	
Vinyl chloride	<0.020		0.020	ug/g	26-MAR-19	0.02	0.022	0.02	
o-Xylene	<0.020		0.020	ug/g	26-MAR-19				
m+p-Xylenes	<0.030		0.030	ug/g	26-MAR-19				
Xylenes (Total)	<0.050		0.050	ug/g	26-MAR-19	3.1	25	0.05	
Surrogate: 4-Bromofluorobenzene	111.6		50-140	%	26-MAR-19				
Surrogate: 1,4-Difluorobenzene	127.5		50-140	%	26-MAR-19				

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping	Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3	
L2245528-3	TRIP BLANK									
Sampled By:	DAN D. on 15-MAR-19 @ 08:00									
Matrix:	SOIL									
Hydrocarbons										
	F1 (C6-C10)	<5.0		5.0	ug/g	26-MAR-19	55	65	25	
	Surrogate: 3,4-Dichlorotoluene	101.2		60-140	%	26-MAR-19				

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Reference Information

Sample Parameter Qualifier key listed:

Qualifier	Description
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference***
625-511-WT	Soil	ABN-O.Reg 153/04 (July 2011)	SW846 8270 (511)

Soil and sediment samples are dried by mixing with a desiccant prior to extraction. The extracts are dried, concentrated and exchanged into a solvent and analyzed by GC/MS. Depending on the analytical GC/MS column used benzo(j)fluoranthene may chromatographically co-elute with benzo(b)fluoranthene or benzo(k)fluoranthene.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

B-HWS-R511-WT	Soil	Boron-HWE-O.Reg 153/04 (July 2011)	HW EXTR, EPA 6010B

A dried solid sample is extracted with calcium chloride, the sample undergoes a heating process. After cooling the sample is filtered and analyzed by ICP/OES.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

CHLORDANE-T-CALC-WT	Soil	Chlordane Total sums	CALCULATION

Aqueous sample is extracted by liquid/liquid extraction with a solvent mix. After extraction, a number of clean up techniques may be applied, depending on the sample matrix and analyzed by GC/MS.

CN-WAD-R511-WT	Soil	Cyanide (WAD)-O.Reg 153/04 (July 2011)	MOE 3015/APHA 4500CN I-WAD

The sample is extracted with a strong base for 16 hours, and then filtered. The filtrate is then distilled where the cyanide is converted to cyanogen chloride by reacting with chloramine-T, the cyanogen chloride then reacts with a combination of barbituric acid and isonicotinic acid to form a highly colored complex.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

CR-CR6-IC-WT	Soil	Hexavalent Chromium in Soil	SW846 3060A/7199

This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, Method 7199, published by the United States Environmental Protection Agency (EPA). The procedure involves analysis for chromium (VI) by ion chromatography using diphenylcarbazide in a sulphuric acid solution.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

DDD-DDE-DDT-CALC-WT	Soil	DDD, DDE, DDT sums	CALCULATION

Aqueous sample is extracted by liquid/liquid extraction with a solvent mix. After extraction, a number of clean up techniques may be applied, depending on the sample matrix and analyzed by GC/MS.

EC-WT	Soil	Conductivity (EC)	MOEE E3138

A representative subsample is tumbled with de-ionized (DI) water. The ratio of water to soil is 2:1 v/w. After tumbling the sample is then analyzed by a conductivity meter.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

ENDOSULFAN-T-CALC-WT	Soil	Endosulfan Total sums	CALCULATION

Aqueous sample is extracted by liquid/liquid extraction with a solvent mix. After extraction, a number of clean up techniques may be applied, depending on the sample matrix and analyzed by GC/MS.

Reference Information

F1-F4-511-CALC-WT	Soil	F1-F4 Hydrocarbon Calculated Parameters	CCME CWS-PHC, Pub #1310, Dec 2001-S

Analytical methods used for analysis of CCME Petroleum Hydrocarbons have been validated and comply with the Reference Method for the CWS PHC.

Hydrocarbon results are expressed on a dry weight basis.

In cases where results for both F4 and F4G are reported, the greater of the two results must be used in any application of the CWS PHC guidelines and the gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.
In samples where BTEX and F1 were analyzed , F1-BTEX represents a value where the sum of Benzene, Toluene, Ethylbenzene and total Xylenes has been subtracted from F1.

In samples where PAHs, F2 and F3 were analyzed, F2-Naphth represents the result where Naphthalene has been subtracted from F2. F3-PAH represents a result where the sum of Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenzo(a,h)anthracene, Fluoranthene, Indeno(1,2,3-cd)pyrene, Phenanthrene, and Pyrene has been subtracted from F3.

Unless otherwise qualified, the following quality control criteria have been met for the F1 hydrocarbon range:
1. All extraction and analysis holding times were met.
2. Instrument performance showing response factors for C6 and C10 within 30% of the response factor for toluene.
3. Linearity of gasoline response within 15% throughout the calibration range.

Unless otherwise qualified, the following quality control criteria have been met for the F2-F4 hydrocarbon ranges:
1. All extraction and analysis holding times were met.
2. Instrument performance showing C10, C16 and C34 response factors within 10% of their average.
3. Instrument performance showing the C50 response factor within 30% of the average of the C10, C16 and C34 response factors.
4. Linearity of diesel or motor oil response within 15% throughout the calibration range.

F1-HS-511-WT	Soil	F1-O.Reg 153/04 (July 2011)	E3398/CCME TIER 1-HS

Fraction F1 is determined by extracting a soil or sediment sample as received with methanol, then analyzing by headspace-GC/FID.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

F2-F4-511-WT	Soil	F2-F4-O.Reg 153/04 (July 2011)	CCME Tier 1

Petroleum Hydrocarbons (F2-F4 fractions) are extracted from soil with 1:1 hexane:acetone using a rotary extractor. Extracts are treated with silica gel to remove polar organic interferences. F2, F3, & F4 are analyzed by GC-FID. F4G-sg is analyzed gravimetrically.

Notes:
1. F2 (C10-C16): Sum of all hydrocarbons that elute between nC10 and nC16.
2. F3 (C16-C34): Sum of all hydrocarbons that elute between nC16 and nC34.
3. F4 (C34-C50): Sum of all hydrocarbons that elute between nC34 and nC50.
4. F4G: Gravimetric Heavy Hydrocarbons
5. F4G-sg: Gravimetric Heavy Hydrocarbons (F4G) after silica gel treatment.
6. Where both F4 (C34-C50) and F4G-sg are reported for a sample, the larger of the two values is used for comparison against the relevant CCME guideline for F4.
7. F4G-sg cannot be added to the C6 to C50 hydrocarbon results to obtain an estimate of total extractable hydrocarbons.
8. This method is validated for use.
9. Data from analysis of validation and quality control samples is available upon request.
10. Reported results are expressed as milligrams per dry kilogram, unless otherwise indicated.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

HG-200.2-CVAA-WT	Soil	Mercury in Soil by CVAAS	EPA 200.2/1631E (mod)

Soil samples are digested with nitric and hydrochloric acids, followed by analysis by CVAAS.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

Reference Information

MET-200.2-CCMS-WT	Soil	Metals in Soil by CRC ICPMS	EPA 200.2/6020A (mod)

Soil/sediment is dried, disaggregated, and sieved (2 mm). For tests intended to support Ontario regulations, the <2mm fraction is ground to pass through a 0.355 mm sieve. Strong Acid Leachable Metals in the <2mm fraction are solubilized by heated digestion with nitric and hydrochloric acids. Instrumental analysis is by Collision / Reaction Cell ICPMS.

Limitations: This method is intended to liberate environmentally available metals. Silicate minerals are not solubilized. Some metals may be only partially recovered (matrix dependent), including Al, Ba, Be, Cr, S, Sr, Ti, Tl, V, W, and Zr. Elemental Sulfur may be poorly recovered by this method. Volatile forms of sulfur (e.g. sulfide, H2S) may be excluded if lost during sampling, storage, or digestion.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

METHYLNAPS-CALC-WT	Soil	ABN-Calculated Parameters	SW846 8270
MOISTURE-WT	Soil	% Moisture	CCME PHC in Soil - Tier 1 (mod)
PAH-511-WT	Soil	PAH-O.Reg 153/04 (July 2011)	SW846 3510/8270

A representative sub-sample of soil is fortified with deuterium-labelled surrogates and a mechanical shaking techniqueis used to extract the sample with a mixture of methanol and toluene. The extracts are concentrated and analyzed by GC/MS. Results for benzo(b) fluoranthene may include contributions from benzo(j)fluoranthene, if also present in the sample.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

PCB-511-WT	Soil	PCB-O.Reg 153/04 (July 2011)	SW846 3510/8082

An aliquot of a solid sample is extracted with a solvent, extract is cleaned up and analyzed on the GC/MS.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

PEST-OC-511-WT	Soil	OC Pesticides-O.Reg 153/04 (July 2011)	SW846 8270 (511)

Soil sample is extracted in a solvent, after extraction a number of clean up techniques may be applied, depending on the sample matrix and analyzed by GC/MS.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

PH-WT	Soil	pH	MOEE E3137A

A minimum 10g portion of the sample is extracted with 20mL of 0.01M calcium chloride solution by shaking for at least 30 minutes. The aqueous layer is separated from the soil and then analyzed using a pH meter and electrode.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

SAR-R511-WT	Soil	SAR-O.Reg 153/04 (July 2011)	SW846 6010C

A dried, disaggregated solid sample is extracted with deionized water, the aqueous extract is separated from the solid, acidified and then analyzed using a ICP/OES. The concentrations of Na, Ca and Mg are reported as per CALA requirements for calculated parameters. These individual parameters are not for comparison to any guideline.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

VOC-1,3-DCP-CALC-WT	Soil	Regulation 153 VOCs	SW8260B/SW8270C
VOC-511-HS-WT	Soil	VOC-O.Reg 153/04 (July 2011)	SW846 8260 (511)

Soil and sediment samples are extracted in methanol and analyzed by headspace-GC/MS.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

XYLENES-SUM-CALC-WT	Soil	Sum of Xylene Isomer Concentrations	CALCULATION

Total xylenes represents the sum of o-xylene and m&p-xylene.

*** ALS test methods may incorporate modifications from specified reference methods to improve performance.

Chain of Custody numbers:

Reference Information

17-641843

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location	Laboratory Definition Code	Laboratory Location
WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA		

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.
mg/kg - milligrams per kilogram based on dry weight of sample
mg/kg wwt - milligrams per kilogram based on wet weight of sample
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight
mg/L - unit of concentration based on volume, parts per million.
< - Less than.
D.L. - The reporting limit.
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, fitness for a particular purpose, or non-infringement. ALS assumes no responsibility for errors or omissions in the information. Guideline limits are not adjusted for the hardness, pH or temperature of the sample (the most conservative values are used). Measurement uncertainty is not applied to test results prior to comparison with specified criteria values.

Quality Control Report

Workorder: L2245528 Report Date: 26-MAR-19

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
625-511-WT	**Soil**							
Batch R4573968								
WG3008839-3 DUP		**WG3008839-5**						
1-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	20-MAR-19
2-Chlorophenol		<0.10	<0.10	RPD-NA	ug/g	N/A	40	20-MAR-19
2-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	20-MAR-19
2,4-Dichlorophenol		<0.10	<0.10	RPD-NA	ug/g	N/A	40	20-MAR-19
2,4,5-Trichlorophenol		<0.10	<0.10	RPD-NA	ug/g	N/A	40	20-MAR-19
2,4,6-Trichlorophenol		<0.10	<0.10	RPD-NA	ug/g	N/A	40	20-MAR-19
Acenaphthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-MAR-19
Acenaphthylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-MAR-19
Anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-MAR-19
Benzo(a)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-MAR-19
Benzo(a)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-MAR-19
Benzo(b)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-MAR-19
Benzo(ghi)perylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-MAR-19
Benzo(k)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-MAR-19
Chrysene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-MAR-19
Dibenzo(a,h)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-MAR-19
Fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-MAR-19
Fluorene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-MAR-19
Indeno(1,2,3-cd)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-MAR-19
Naphthalene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-MAR-19
Pentachlorophenol		<0.10	<0.10	RPD-NA	ug/g	N/A	40	20-MAR-19
Phenanthrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-MAR-19
Pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	20-MAR-19
WG3008839-2 LCS								
1-Methylnaphthalene			95.6		%		50-140	20-MAR-19
2-Chlorophenol			109.6		%		50-140	20-MAR-19
2-Methylnaphthalene			99.4		%		50-140	20-MAR-19
2,4-Dichlorophenol			107.2		%		50-140	20-MAR-19
2,4,5-Trichlorophenol			100.9		%		50-140	20-MAR-19
2,4,6-Trichlorophenol			101.7		%		50-140	20-MAR-19
Acenaphthene			101.9		%		50-140	20-MAR-19
Acenaphthylene			107.1		%		50-140	20-MAR-19
Anthracene			103.4		%		50-140	20-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
625-511-WT	**Soil**							
Batch R4573968								
WG3008839-2 LCS								
Benzo(a)anthracene			103.8		%		50-140	20-MAR-19
Benzo(a)pyrene			102.9		%		50-140	20-MAR-19
Benzo(b)fluoranthene			102.2		%		50-140	20-MAR-19
Benzo(ghi)perylene			106.1		%		50-140	20-MAR-19
Benzo(k)fluoranthene			109.5		%		50-140	20-MAR-19
Chrysene			111.6		%		50-140	20-MAR-19
Dibenzo(a,h)anthracene			103.3		%		50-140	20-MAR-19
Fluoranthene			111.8		%		50-140	20-MAR-19
Fluorene			106.6		%		50-140	20-MAR-19
Indeno(1,2,3-cd)pyrene			100.8		%		50-140	20-MAR-19
Naphthalene			104.6		%		50-140	20-MAR-19
Pentachlorophenol			81.2		%		50-140	20-MAR-19
Phenanthrene			104.6		%		50-140	20-MAR-19
Pyrene			109.2		%		50-140	20-MAR-19
WG3008839-1 MB								
1-Methylnaphthalene			<0.030		ug/g		0.03	20-MAR-19
2-Chlorophenol			<0.10		ug/g		0.1	20-MAR-19
2-Methylnaphthalene			<0.030		ug/g		0.03	20-MAR-19
2,4-Dichlorophenol			<0.10		ug/g		0.1	20-MAR-19
2,4,5-Trichlorophenol			<0.10		ug/g		0.1	20-MAR-19
2,4,6-Trichlorophenol			<0.10		ug/g		0.1	20-MAR-19
Acenaphthene			<0.050		ug/g		0.05	20-MAR-19
Acenaphthylene			<0.050		ug/g		0.05	20-MAR-19
Anthracene			<0.050		ug/g		0.05	20-MAR-19
Benzo(a)anthracene			<0.050		ug/g		0.05	20-MAR-19
Benzo(a)pyrene			<0.050		ug/g		0.05	20-MAR-19
Benzo(b)fluoranthene			<0.050		ug/g		0.05	20-MAR-19
Benzo(ghi)perylene			<0.050		ug/g		0.05	20-MAR-19
Benzo(k)fluoranthene			<0.050		ug/g		0.05	20-MAR-19
Chrysene			<0.050		ug/g		0.05	20-MAR-19
Dibenzo(a,h)anthracene			<0.050		ug/g		0.05	20-MAR-19
Fluoranthene			<0.050		ug/g		0.05	20-MAR-19
Fluorene			<0.050		ug/g		0.05	20-MAR-19
Indeno(1,2,3-cd)pyrene			<0.050		ug/g		0.05	20-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
625-511-WT	**Soil**							
Batch R4573968								
WG3008839-1 MB								
Naphthalene			<0.050		ug/g		0.05	20-MAR-19
Pentachlorophenol			<0.10		ug/g		0.1	20-MAR-19
Phenanthrene			<0.050		ug/g		0.05	20-MAR-19
Pyrene			<0.050		ug/g		0.05	20-MAR-19
Surrogate: 2-Fluorobiphenyl			78.9		%		50-140	20-MAR-19
Surrogate: 2,4,6-Tribromophenol			67.2		%		50-140	20-MAR-19
Surrogate: p-Terphenyl d14			106.5		%		50-140	20-MAR-19
Surrogate: Phenol d5			95.3		%		30-130	20-MAR-19
WG3008839-4 MS		**WG3008839-5**						
1-Methylnaphthalene			102.7		%		50-140	20-MAR-19
2-Chlorophenol			116.1		%		50-140	20-MAR-19
2-Methylnaphthalene			108.9		%		50-140	20-MAR-19
2,4-Dichlorophenol			115.2		%		50-140	20-MAR-19
2,4,5-Trichlorophenol			111.8		%		50-140	20-MAR-19
2,4,6-Trichlorophenol			109.3		%		50-140	20-MAR-19
Acenaphthene			107.5		%		50-140	20-MAR-19
Acenaphthylene			113.4		%		50-140	20-MAR-19
Anthracene			107.9		%		50-140	20-MAR-19
Benzo(a)anthracene			113.2		%		50-140	20-MAR-19
Benzo(a)pyrene			106.4		%		50-140	20-MAR-19
Benzo(b)fluoranthene			113.2		%		50-140	20-MAR-19
Benzo(ghi)perylene			97.8		%		50-140	20-MAR-19
Benzo(k)fluoranthene			118.3		%		50-140	20-MAR-19
Chrysene			116.7		%		50-140	20-MAR-19
Dibenzo(a,h)anthracene			96.5		%		50-140	20-MAR-19
Fluoranthene			128.7		%		50-140	20-MAR-19
Fluorene			113.8		%		50-140	20-MAR-19
Indeno(1,2,3-cd)pyrene			94.1		%		50-140	20-MAR-19
Naphthalene			114.2		%		50-140	20-MAR-19
Pentachlorophenol			77.3		%		50-140	20-MAR-19
Phenanthrene			108.7		%		50-140	20-MAR-19
Pyrene			125.5		%		50-140	20-MAR-19

COMMENTS: RRQC: Recovery is outside ALS control limits. Associated sample results have not been affected.

B-HWS-R511-WT **Soil**

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
B-HWS-R511-WT	**Soil**							
Batch R4581507								
WG3013225-4 DUP		**L2245531-1**						
Boron (B), Hot Water Ext.		0.35	0.34		ug/g	3.3	30	25-MAR-19
WG3013225-2 IRM		**HOTB-SAL_SOIL5**						
Boron (B), Hot Water Ext.			86.6		%		70-130	25-MAR-19
WG3013225-3 LCS								
Boron (B), Hot Water Ext.			100.7		%		70-130	25-MAR-19
WG3013225-1 MB								
Boron (B), Hot Water Ext.			<0.10		ug/g		0.1	25-MAR-19
CN-WAD-R511-WT	**Soil**							
Batch R4579008								
WG3010898-5 DUP		**L2245533-1**						
Cyanide, Weak Acid Diss		<0.050	<0.050	RPD-NA	ug/g	N/A	35	22-MAR-19
WG3010898-2 LCS								
Cyanide, Weak Acid Diss			99.5		%		80-120	22-MAR-19
WG3010898-1 MB								
Cyanide, Weak Acid Diss			<0.050		ug/g		0.05	22-MAR-19
WG3010898-6 MS		**L2245533-1**						
Cyanide, Weak Acid Diss			96.0		%		70-130	22-MAR-19
CR-CR6-IC-WT	**Soil**							
Batch R4580508								
WG3011234-4 CRM		**WT-SQC012**						
Chromium, Hexavalent			93.5		%		70-130	22-MAR-19
WG3011234-3 DUP		**L2245533-6**						
Chromium, Hexavalent		<0.20	<0.20	RPD-NA	ug/g	N/A	35	22-MAR-19
WG3011234-2 LCS								
Chromium, Hexavalent			97.6		%		80-120	22-MAR-19
WG3011234-1 MB								
Chromium, Hexavalent			<0.20		ug/g		0.2	22-MAR-19
EC-WT	**Soil**							
Batch R4581428								
WG3013230-4 DUP		**WG3013230-3**						
Conductivity		0.125	0.127		mS/cm	1.6	20	25-MAR-19
WG3013230-2 IRM		**WT SAR2**						
Conductivity			96.3		%		70-130	25-MAR-19
WG3013361-1 LCS								
Conductivity			102.3		%		90-110	25-MAR-19
WG3013230-1 MB								

Quality Control Report

Workorder: L2245528 Report Date: 26-MAR-19

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2

Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
EC-WT	**Soil**							
Batch R4581428								
WG3013230-1 MB								
Conductivity			<0.0040		mS/cm		0.004	25-MAR-19
F1-HS-511-WT	**Soil**							
Batch R4580553								
WG3012587-4 DUP		**WG3012587-3**						
F1 (C6-C10)		<5.0	<5.0	RPD-NA	ug/g	N/A	30	25-MAR-19
WG3012587-2 LCS								
F1 (C6-C10)			102.3		%		80-120	25-MAR-19
WG3012587-1 MB								
F1 (C6-C10)			<5.0		ug/g		5	25-MAR-19
Surrogate: 3,4-Dichlorotoluene			119.8		%		60-140	25-MAR-19
WG3012587-6 MS		**L2247197-2**						
F1 (C6-C10)			94.7		%		60-140	25-MAR-19
Batch R4582911								
WG3013604-4 DUP		**WG3013604-3**						
F1 (C6-C10)		<5.0	<5.0	RPD-NA	ug/g	N/A	30	26-MAR-19
WG3013604-2 LCS								
F1 (C6-C10)			106.0		%		80-120	26-MAR-19
WG3013604-1 MB								
F1 (C6-C10)			<5.0		ug/g		5	26-MAR-19
Surrogate: 3,4-Dichlorotoluene			107.7		%		60-140	26-MAR-19
WG3013604-6 MS		**L2247715-2**						
F1 (C6-C10)			105.1		%		60-140	26-MAR-19
F2-F4-511-WT	**Soil**							
Batch R4581207								
WG3011192-3 DUP		**WG3011192-5**						
F2 (C10-C16)		<10	<10	RPD-NA	ug/g	N/A	30	22-MAR-19
F3 (C16-C34)		<50	<50	RPD-NA	ug/g	N/A	30	22-MAR-19
F4 (C34-C50)		<50	<50	RPD-NA	ug/g	N/A	30	22-MAR-19
WG3011192-2 LCS								
F2 (C10-C16)			98.6		%		80-120	22-MAR-19
F3 (C16-C34)			99.8		%		80-120	22-MAR-19
F4 (C34-C50)			103.9		%		80-120	22-MAR-19
WG3011192-1 MB								
F2 (C10-C16)			<10		ug/g		10	22-MAR-19
F3 (C16-C34)			<50		ug/g		50	22-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F2-F4-511-WT	**Soil**							
Batch R4581207								
WG3011192-1 MB								
F4 (C34-C50)			<50		ug/g		50	22-MAR-19
Surrogate: 2-Bromobenzotrifluoride			81.2		%		60-140	22-MAR-19
WG3011192-4 MS		**WG3011192-5**						
F2 (C10-C16)			93.5		%		60-140	22-MAR-19
F3 (C16-C34)			94.8		%		60-140	22-MAR-19
F4 (C34-C50)			98.6		%		60-140	22-MAR-19
HG-200.2-CVAA-WT	**Soil**							
Batch R4581420								
WG3013221-2 CRM		**WT-CANMET-TILL1**						
Mercury (Hg)			99.7		%		70-130	25-MAR-19
WG3013221-6 DUP		**WG3013221-5**						
Mercury (Hg)		0.0131	0.0134		ug/g	2.6	40	25-MAR-19
WG3013221-3 LCS								
Mercury (Hg)			113.0		%		80-120	25-MAR-19
WG3013221-1 MB								
Mercury (Hg)			<0.0050		mg/kg		0.005	25-MAR-19
MET-200.2-CCMS-WT	**Soil**							
Batch R4581888								
WG3013221-2 CRM		**WT-CANMET-TILL1**						
Antimony (Sb)			102.6		%		70-130	25-MAR-19
Arsenic (As)			105.6		%		70-130	25-MAR-19
Barium (Ba)			102.1		%		70-130	25-MAR-19
Beryllium (Be)			103.5		%		70-130	25-MAR-19
Boron (B)			2.6		mg/kg		0-8.2	25-MAR-19
Cadmium (Cd)			99.9		%		70-130	25-MAR-19
Chromium (Cr)			102.4		%		70-130	25-MAR-19
Cobalt (Co)			102.6		%		70-130	25-MAR-19
Copper (Cu)			106.4		%		70-130	25-MAR-19
Lead (Pb)			102.2		%		70-130	25-MAR-19
Molybdenum (Mo)			103.6		%		70-130	25-MAR-19
Nickel (Ni)			102.1		%		70-130	25-MAR-19
Selenium (Se)			0.28		mg/kg		0.11-0.51	25-MAR-19
Silver (Ag)			0.23		mg/kg		0.13-0.33	25-MAR-19
Thallium (Tl)			0.118		mg/kg		0.077-0.18	25-MAR-19
Uranium (U)			101.7		%		70-130	25-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R4581888								
WG3013221-2 CRM		**WT-CANMET-TILL1**						
Vanadium (V)			101.2		%		70-130	25-MAR-19
Zinc (Zn)			100.6		%		70-130	25-MAR-19
WG3013221-6 DUP		**WG3013221-5**						
Antimony (Sb)		<0.10	<0.10	RPD-NA	ug/g	N/A	30	25-MAR-19
Arsenic (As)		2.64	2.90		ug/g	9.2	30	25-MAR-19
Barium (Ba)		106	121		ug/g	14	40	25-MAR-19
Beryllium (Be)		0.61	0.64		ug/g	4.8	30	25-MAR-19
Boron (B)		9.0	9.4		ug/g	4.3	30	25-MAR-19
Cadmium (Cd)		0.089	0.106		ug/g	17	30	25-MAR-19
Chromium (Cr)		30.9	33.7		ug/g	8.5	30	25-MAR-19
Cobalt (Co)		9.33	10.2		ug/g	8.8	30	25-MAR-19
Copper (Cu)		19.3	20.7		ug/g	6.9	30	25-MAR-19
Lead (Pb)		7.52	8.01		ug/g	6.4	40	25-MAR-19
Molybdenum (Mo)		0.32	0.40		ug/g	21	40	25-MAR-19
Nickel (Ni)		22.6	24.5		ug/g	8.0	30	25-MAR-19
Selenium (Se)		<0.20	<0.20	RPD-NA	ug/g	N/A	30	25-MAR-19
Silver (Ag)		<0.10	<0.10	RPD-NA	ug/g	N/A	40	25-MAR-19
Thallium (Tl)		0.129	0.140		ug/g	7.7	30	25-MAR-19
Uranium (U)		0.740	0.818		ug/g	10	30	25-MAR-19
Vanadium (V)		35.8	39.2		ug/g	9.3	30	25-MAR-19
Zinc (Zn)		46.7	51.4		ug/g	9.5	30	25-MAR-19
WG3013221-4 LCS								
Antimony (Sb)			108.5		%		80-120	25-MAR-19
Arsenic (As)			108.7		%		80-120	25-MAR-19
Barium (Ba)			109.8		%		80-120	25-MAR-19
Beryllium (Be)			101.8		%		80-120	25-MAR-19
Boron (B)			98.0		%		80-120	25-MAR-19
Cadmium (Cd)			106.3		%		80-120	25-MAR-19
Chromium (Cr)			106.9		%		80-120	25-MAR-19
Cobalt (Co)			105.1		%		80-120	25-MAR-19
Copper (Cu)			104.9		%		80-120	25-MAR-19
Lead (Pb)			103.9		%		80-120	25-MAR-19
Molybdenum (Mo)			107.1		%		80-120	25-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R4581888								
WG3013221-4 LCS								
Nickel (Ni)			104.5		%		80-120	25-MAR-19
Selenium (Se)			107.7		%		80-120	25-MAR-19
Silver (Ag)			104.0		%		80-120	25-MAR-19
Thallium (Tl)			103.3		%		80-120	25-MAR-19
Uranium (U)			106.3		%		80-120	25-MAR-19
Vanadium (V)			108.9		%		80-120	25-MAR-19
Zinc (Zn)			102.1		%		80-120	25-MAR-19
WG3013221-1 MB								
Antimony (Sb)			<0.10		mg/kg		0.1	25-MAR-19
Arsenic (As)			<0.10		mg/kg		0.1	25-MAR-19
Barium (Ba)			<0.50		mg/kg		0.5	25-MAR-19
Beryllium (Be)			<0.10		mg/kg		0.1	25-MAR-19
Boron (B)			<5.0		mg/kg		5	25-MAR-19
Cadmium (Cd)			<0.020		mg/kg		0.02	25-MAR-19
Chromium (Cr)			<0.50		mg/kg		0.5	25-MAR-19
Cobalt (Co)			<0.10		mg/kg		0.1	25-MAR-19
Copper (Cu)			<0.50		mg/kg		0.5	25-MAR-19
Lead (Pb)			<0.50		mg/kg		0.5	25-MAR-19
Molybdenum (Mo)			<0.10		mg/kg		0.1	25-MAR-19
Nickel (Ni)			<0.50		mg/kg		0.5	25-MAR-19
Selenium (Se)			<0.20		mg/kg		0.2	25-MAR-19
Silver (Ag)			<0.10		mg/kg		0.1	25-MAR-19
Thallium (Tl)			<0.050		mg/kg		0.05	25-MAR-19
Uranium (U)			<0.050		mg/kg		0.05	25-MAR-19
Vanadium (V)			<0.20		mg/kg		0.2	25-MAR-19
Zinc (Zn)			<2.0		mg/kg		2	25-MAR-19
MOISTURE-WT	**Soil**							
Batch R4577923								
WG3010944-3 DUP		**L2245123-3**						
% Moisture		21.0	21.6		%	2.9	20	22-MAR-19
WG3010944-2 LCS								
% Moisture			100.3		%		90-110	22-MAR-19
WG3010944-1 MB								
% Moisture			<0.10		%		0.1	22-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R4582269								
WG3010803-3 DUP		**WG3010803-5**						
1-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	25-MAR-19
2-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	25-MAR-19
Acenaphthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-MAR-19
Acenaphthylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-MAR-19
Anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-MAR-19
Benzo(a)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-MAR-19
Benzo(a)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-MAR-19
Benzo(b)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-MAR-19
Benzo(g,h,i)perylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-MAR-19
Benzo(k)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-MAR-19
Chrysene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-MAR-19
Dibenzo(ah)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-MAR-19
Fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-MAR-19
Fluorene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-MAR-19
Indeno(1,2,3-cd)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-MAR-19
Naphthalene		<0.013	<0.013	RPD-NA	ug/g	N/A	40	25-MAR-19
Phenanthrene		<0.046	<0.046	RPD-NA	ug/g	N/A	40	25-MAR-19
Pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-MAR-19
WG3010803-2 LCS								
1-Methylnaphthalene			97.9		%		50-140	25-MAR-19
2-Methylnaphthalene			94.3		%		50-140	25-MAR-19
Acenaphthene			101.0		%		50-140	25-MAR-19
Acenaphthylene			89.8		%		50-140	25-MAR-19
Anthracene			90.3		%		50-140	25-MAR-19
Benzo(a)anthracene			88.8		%		50-140	25-MAR-19
Benzo(a)pyrene			91.0		%		50-140	25-MAR-19
Benzo(b)fluoranthene			93.4		%		50-140	25-MAR-19
Benzo(g,h,i)perylene			78.3		%		50-140	25-MAR-19
Benzo(k)fluoranthene			96.5		%		50-140	25-MAR-19
Chrysene			96.2		%		50-140	25-MAR-19
Dibenzo(ah)anthracene			81.4		%		50-140	25-MAR-19
Fluoranthene			83.4		%		50-140	25-MAR-19
Fluorene			93.8		%		50-140	25-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R4582269								
WG3010803-2 LCS								
Indeno(1,2,3-cd)pyrene			76.7		%		50-140	25-MAR-19
Naphthalene			97.0		%		50-140	25-MAR-19
Phenanthrene			99.6		%		50-140	25-MAR-19
Pyrene			84.6		%		50-140	25-MAR-19
WG3010803-1 MB								
1-Methylnaphthalene			<0.030		ug/g		0.03	25-MAR-19
2-Methylnaphthalene			<0.030		ug/g		0.03	25-MAR-19
Acenaphthene			<0.050		ug/g		0.05	25-MAR-19
Acenaphthylene			<0.050		ug/g		0.05	25-MAR-19
Anthracene			<0.050		ug/g		0.05	25-MAR-19
Benzo(a)anthracene			<0.050		ug/g		0.05	25-MAR-19
Benzo(a)pyrene			<0.050		ug/g		0.05	25-MAR-19
Benzo(b)fluoranthene			<0.050		ug/g		0.05	25-MAR-19
Benzo(g,h,i)perylene			<0.050		ug/g		0.05	25-MAR-19
Benzo(k)fluoranthene			<0.050		ug/g		0.05	25-MAR-19
Chrysene			<0.050		ug/g		0.05	25-MAR-19
Dibenzo(ah)anthracene			<0.050		ug/g		0.05	25-MAR-19
Fluoranthene			<0.050		ug/g		0.05	25-MAR-19
Fluorene			<0.050		ug/g		0.05	25-MAR-19
Indeno(1,2,3-cd)pyrene			<0.050		ug/g		0.05	25-MAR-19
Naphthalene			<0.013		ug/g		0.013	25-MAR-19
Phenanthrene			<0.046		ug/g		0.046	25-MAR-19
Pyrene			<0.050		ug/g		0.05	25-MAR-19
Surrogate: 2-Fluorobiphenyl			93.6		%		50-140	25-MAR-19
Surrogate: p-Terphenyl d14			86.0		%		50-140	25-MAR-19
WG3010803-4 MS		**WG3010803-5**						
1-Methylnaphthalene			93.0		%		50-140	25-MAR-19
2-Methylnaphthalene			89.8		%		50-140	25-MAR-19
Acenaphthene			96.4		%		50-140	25-MAR-19
Acenaphthylene			88.7		%		50-140	25-MAR-19
Anthracene			88.2		%		50-140	25-MAR-19
Benzo(a)anthracene			88.2		%		50-140	25-MAR-19
Benzo(a)pyrene			86.8		%		50-140	25-MAR-19
Benzo(b)fluoranthene			87.7		%		50-140	25-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R4582269								
WG3010803-4 MS		**WG3010803-5**						
Benzo(g,h,i)perylene			71.6		%		50-140	25-MAR-19
Benzo(k)fluoranthene			87.1		%		50-140	25-MAR-19
Chrysene			86.7		%		50-140	25-MAR-19
Dibenzo(ah)anthracene			75.7		%		50-140	25-MAR-19
Fluoranthene			81.6		%		50-140	25-MAR-19
Fluorene			90.5		%		50-140	25-MAR-19
Indeno(1,2,3-cd)pyrene			76.7		%		50-140	25-MAR-19
Naphthalene			91.1		%		50-140	25-MAR-19
Phenanthrene			93.7		%		50-140	25-MAR-19
Pyrene			81.8		%		50-140	25-MAR-19
PCB-511-WT	**Soil**							
Batch R4584127								
WG3010803-3 DUP		**WG3010803-5**						
Aroclor 1242		<0.010	<0.010	RPD-NA	ug/g	N/A	40	21-MAR-19
Aroclor 1248		<0.010	<0.010	RPD-NA	ug/g	N/A	40	21-MAR-19
Aroclor 1254		<0.010	<0.010	RPD-NA	ug/g	N/A	40	21-MAR-19
Aroclor 1260		<0.010	<0.010	RPD-NA	ug/g	N/A	40	21-MAR-19
WG3010803-2 LCS								
Aroclor 1242			94.8		%		60-140	21-MAR-19
Aroclor 1248			89.5		%		60-140	21-MAR-19
Aroclor 1254			99.1		%		60-140	21-MAR-19
Aroclor 1260			111.5		%		60-140	21-MAR-19
WG3010803-1 MB								
Aroclor 1242			<0.010		ug/g		0.01	21-MAR-19
Aroclor 1248			<0.010		ug/g		0.01	21-MAR-19
Aroclor 1254			<0.010		ug/g		0.01	21-MAR-19
Aroclor 1260			<0.010		ug/g		0.01	21-MAR-19
Surrogate: d14-Terphenyl			82.6		%		60-140	21-MAR-19
WG3010803-4 MS		**WG3010803-5**						
Aroclor 1242			95.9		%		60-140	21-MAR-19
Aroclor 1254			97.8		%		60-140	21-MAR-19
Aroclor 1260			112.9		%		60-140	21-MAR-19
PEST-OC-511-WT	**Soil**							

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PEST-OC-511-WT	**Soil**							
Batch R4581388								
WG3011936-3 DUP		**WG3011936-5**						
Aldrin		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
a-chlordane		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
g-chlordane		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
op-DDD		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
pp-DDD		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
o,p-DDE		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
pp-DDE		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
op-DDT		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
pp-DDT		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
Dieldrin		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
Endosulfan I		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
Endosulfan II		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
Endrin		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
gamma-hexachlorocyclohexane		<0.10	<0.10	RPD-NA	ug/g	N/A	40	25-MAR-19
Heptachlor		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
Heptachlor Epoxide		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
Hexachlorobenzene		<0.10	<0.10	RPD-NA	ug/g	N/A	40	25-MAR-19
Hexachlorobutadiene		<0.10	<0.10	RPD-NA	ug/g	N/A	40	25-MAR-19
Hexachloroethane		<0.10	<0.10	RPD-NA	ug/g	N/A	40	25-MAR-19
Methoxychlor		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
WG3011936-2 LCS								
Aldrin			102.8		%		50-140	25-MAR-19
a-chlordane			79.4		%		50-140	25-MAR-19
g-chlordane			82.6		%		50-140	25-MAR-19
op-DDD			84.4		%		50-140	25-MAR-19
pp-DDD			91.2		%		50-140	25-MAR-19
o,p-DDE			78.8		%		50-140	25-MAR-19
pp-DDE			78.1		%		50-140	25-MAR-19
op-DDT			133.1		%		50-140	25-MAR-19
pp-DDT			139.8		%		50-140	25-MAR-19
Dieldrin			80.7		%		50-140	25-MAR-19
Endosulfan I			83.0		%		50-140	25-MAR-19
Endosulfan II			93.6		%		50-140	25-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PEST-OC-511-WT	**Soil**							
Batch R4581388								
WG3011936-2 LCS								
Endrin			146.5	RRQC	%		50-140	25-MAR-19
gamma-hexachlorocyclohexane			95.1		%		50-140	25-MAR-19
Heptachlor			106.7		%		50-140	25-MAR-19
Heptachlor Epoxide			85.1		%		50-140	25-MAR-19
Hexachlorobenzene			99.2		%		50-140	25-MAR-19
Hexachlorobutadiene			95.3		%		50-140	25-MAR-19
Hexachloroethane			102.4		%		50-140	25-MAR-19
Methoxychlor			152.6	RRQC	%		50-140	25-MAR-19
COMMENTS: RRQC: Recovery is outside ALS control limits. Associated sample results have not been affected.								
WG3011936-1 MB								
Aldrin			<0.020		ug/g		0.02	25-MAR-19
a-chlordane			<0.020		ug/g		0.02	25-MAR-19
g-chlordane			<0.020		ug/g		0.02	25-MAR-19
op-DDD			<0.020		ug/g		0.02	25-MAR-19
pp-DDD			<0.020		ug/g		0.02	25-MAR-19
o,p-DDE			<0.020		ug/g		0.02	25-MAR-19
pp-DDE			<0.020		ug/g		0.02	25-MAR-19
op-DDT			<0.020		ug/g		0.02	25-MAR-19
pp-DDT			<0.020		ug/g		0.02	25-MAR-19
Dieldrin			<0.020		ug/g		0.02	25-MAR-19
Endosulfan I			<0.020		ug/g		0.02	25-MAR-19
Endosulfan II			<0.020		ug/g		0.02	25-MAR-19
Endrin			<0.020		ug/g		0.02	25-MAR-19
gamma-hexachlorocyclohexane			<0.010		ug/g		0.01	25-MAR-19
Heptachlor			<0.020		ug/g		0.02	25-MAR-19
Heptachlor Epoxide			<0.020		ug/g		0.02	25-MAR-19
Hexachlorobenzene			<0.010		ug/g		0.01	25-MAR-19
Hexachlorobutadiene			<0.010		ug/g		0.01	25-MAR-19
Hexachloroethane			<0.010		ug/g		0.01	25-MAR-19
Methoxychlor			<0.020		ug/g		0.02	25-MAR-19
Surrogate: 2-Fluorobiphenyl			95.0		%		50-140	25-MAR-19
Surrogate: d14-Terphenyl			110.5		%		50-140	25-MAR-19
WG3011936-4 MS		**WG3011936-5**						
Aldrin			85.0		%		50-140	25-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PEST-OC-511-WT	**Soil**							
Batch R4581388								
WG3011936-4 MS		**WG3011936-5**						
a-chlordane			62.0		%		50-140	25-MAR-19
g-chlordane			67.1		%		50-140	25-MAR-19
op-DDD			64.1		%		50-140	25-MAR-19
pp-DDD			66.3		%		50-140	25-MAR-19
o,p-DDE			66.8		%		50-140	25-MAR-19
pp-DDE			68.2		%		50-140	25-MAR-19
op-DDT			98.8		%		50-140	25-MAR-19
pp-DDT			100.2		%		50-140	25-MAR-19
Dieldrin			61.1		%		50-140	25-MAR-19
Endosulfan I			59.8		%		50-140	25-MAR-19
Endosulfan II			66.2		%		50-140	25-MAR-19
Endrin			93.8		%		50-140	25-MAR-19
gamma-hexachlorocyclohexane			71.9		%		50-140	25-MAR-19
Heptachlor			78.3		%		50-140	25-MAR-19
Heptachlor Epoxide			64.6		%		50-140	25-MAR-19
Hexachlorobenzene			85.0		%		50-140	25-MAR-19
Hexachlorobutadiene			81.8		%		50-140	25-MAR-19
Hexachloroethane			81.3		%		50-140	25-MAR-19
Methoxychlor			102.4		%		50-140	25-MAR-19
PH-WT	**Soil**							
Batch R4580395								
WG3010812-1 DUP		**L2245548-2**						
pH		8.07	8.06	J	pH units	0.01	0.3	24-MAR-19
WG3012848-1 LCS								
pH			7.03		pH units		6.9-7.1	24-MAR-19
SAR-R511-WT	**Soil**							
Batch R4581430								
WG3013230-4 DUP		**WG3013230-3**						
Calcium (Ca)		16.6	16.3		mg/L	1.8	30	25-MAR-19
Sodium (Na)		6.25	6.07		mg/L	2.9	30	25-MAR-19
Magnesium (Mg)		1.15	1.11		mg/L	3.5	30	25-MAR-19
WG3013230-2 IRM		**WT SAR2**						
Calcium (Ca)			103.7		%		70-130	25-MAR-19
Sodium (Na)			92.1		%		70-130	25-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
SAR-R511-WT	**Soil**							
Batch R4581430								
WG3013230-2 IRM		**WT SAR2**						
Magnesium (Mg)			101.2		%		70-130	25-MAR-19
WG3013230-5 LCS								
Calcium (Ca)			108.3		%		70-130	25-MAR-19
Sodium (Na)			103.8		%		70-130	25-MAR-19
Magnesium (Mg)			104.2		%		70-130	25-MAR-19
WG3013230-1 MB								
Calcium (Ca)			<0.50		mg/L		0.5	25-MAR-19
Sodium (Na)			<0.50		mg/L		0.5	25-MAR-19
Magnesium (Mg)			<0.50		mg/L		0.5	25-MAR-19
VOC-511-HS-WT	**Soil**							
Batch R4580553								
WG3012587-4 DUP		**WG3012587-3**						
1,1,1,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-MAR-19
1,1,2,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-MAR-19
1,1,1-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-MAR-19
1,1,2-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-MAR-19
1,1-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-MAR-19
1,1-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-MAR-19
1,2-Dibromoethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-MAR-19
1,2-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-MAR-19
1,2-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-MAR-19
1,2-Dichloropropane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-MAR-19
1,3-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-MAR-19
1,4-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-MAR-19
Acetone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	25-MAR-19
Benzene		<0.0068	<0.0068	RPD-NA	ug/g	N/A	40	25-MAR-19
Bromodichloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-MAR-19
Bromoform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-MAR-19
Bromomethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-MAR-19
Carbon tetrachloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-MAR-19
Chlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-MAR-19
Chloroform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-MAR-19
cis-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4580553								
WG3012587-4 DUP		**WG3012587-3**						
cis-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	25-MAR-19
Dibromochloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-MAR-19
Dichlorodifluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-MAR-19
Ethylbenzene		<0.018	<0.018	RPD-NA	ug/g	N/A	40	25-MAR-19
n-Hexane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-MAR-19
Methylene Chloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-MAR-19
MTBE		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-MAR-19
m+p-Xylenes		<0.030	<0.030	RPD-NA	ug/g	N/A	40	25-MAR-19
Methyl Ethyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	25-MAR-19
Methyl Isobutyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	25-MAR-19
o-Xylene		<0.020	<0.020	RPD-NA	ug/g	N/A	40	25-MAR-19
Styrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-MAR-19
Tetrachloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-MAR-19
Toluene		<0.080	<0.080	RPD-NA	ug/g	N/A	40	25-MAR-19
trans-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-MAR-19
trans-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	25-MAR-19
Trichloroethylene		<0.010	<0.010	RPD-NA	ug/g	N/A	40	25-MAR-19
Trichlorofluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-MAR-19
Vinyl chloride		<0.020	<0.020	RPD-NA	ug/g	N/A	40	25-MAR-19
WG3012587-2 LCS								
1,1,1,2-Tetrachloroethane			95.0		%		60-130	25-MAR-19
1,1,2,2-Tetrachloroethane			76.8		%		60-130	25-MAR-19
1,1,1-Trichloroethane			98.4		%		60-130	25-MAR-19
1,1,2-Trichloroethane			95.1		%		60-130	25-MAR-19
1,1-Dichloroethane			97.3		%		60-130	25-MAR-19
1,1-Dichloroethylene			93.9		%		60-130	25-MAR-19
1,2-Dibromoethane			94.4		%		70-130	25-MAR-19
1,2-Dichlorobenzene			99.3		%		70-130	25-MAR-19
1,2-Dichloroethane			96.1		%		60-130	25-MAR-19
1,2-Dichloropropane			96.1		%		70-130	25-MAR-19
1,3-Dichlorobenzene			103.0		%		70-130	25-MAR-19
1,4-Dichlorobenzene			101.7		%		70-130	25-MAR-19
Acetone			86.2		%		60-140	25-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4580553								
WG3012587-2 LCS								
Benzene			100.4		%		70-130	25-MAR-19
Bromodichloromethane			97.1		%		50-140	25-MAR-19
Bromoform			91.1		%		70-130	25-MAR-19
Bromomethane			100.1		%		50-140	25-MAR-19
Carbon tetrachloride			98.8		%		70-130	25-MAR-19
Chlorobenzene			99.4		%		70-130	25-MAR-19
Chloroform			98.8		%		70-130	25-MAR-19
cis-1,2-Dichloroethylene			98.2		%		70-130	25-MAR-19
cis-1,3-Dichloropropene			99.3		%		70-130	25-MAR-19
Dibromochloromethane			95.9		%		60-130	25-MAR-19
Dichlorodifluoromethane			55.5		%		50-140	25-MAR-19
Ethylbenzene			96.6		%		70-130	25-MAR-19
n-Hexane			88.6		%		70-130	25-MAR-19
Methylene Chloride			98.3		%		70-130	25-MAR-19
MTBE			99.2		%		70-130	25-MAR-19
m+p-Xylenes			99.3		%		70-130	25-MAR-19
Methyl Ethyl Ketone			91.7		%		60-140	25-MAR-19
Methyl Isobutyl Ketone			86.7		%		60-140	25-MAR-19
o-Xylene			95.4		%		70-130	25-MAR-19
Styrene			98.1		%		70-130	25-MAR-19
Tetrachloroethylene			94.5		%		60-130	25-MAR-19
Toluene			97.0		%		70-130	25-MAR-19
trans-1,2-Dichloroethylene			99.0		%		60-130	25-MAR-19
trans-1,3-Dichloropropene			96.6		%		70-130	25-MAR-19
Trichloroethylene			102.6		%		60-130	25-MAR-19
Trichlorofluoromethane			97.3		%		50-140	25-MAR-19
Vinyl chloride			66.3		%		60-140	25-MAR-19
WG3012587-1 MB								
1,1,1,2-Tetrachloroethane			<0.050		ug/g		0.05	25-MAR-19
1,1,2,2-Tetrachloroethane			<0.050		ug/g		0.05	25-MAR-19
1,1,1-Trichloroethane			<0.050		ug/g		0.05	25-MAR-19
1,1,2-Trichloroethane			<0.050		ug/g		0.05	25-MAR-19
1,1-Dichloroethane			<0.050		ug/g		0.05	25-MAR-19
1,1-Dichloroethylene			<0.050		ug/g		0.05	25-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4580553								
WG3012587-1 MB								
1,2-Dibromoethane			<0.050		ug/g		0.05	25-MAR-19
1,2-Dichlorobenzene			<0.050		ug/g		0.05	25-MAR-19
1,2-Dichloroethane			<0.050		ug/g		0.05	25-MAR-19
1,2-Dichloropropane			<0.050		ug/g		0.05	25-MAR-19
1,3-Dichlorobenzene			<0.050		ug/g		0.05	25-MAR-19
1,4-Dichlorobenzene			<0.050		ug/g		0.05	25-MAR-19
Acetone			<0.50		ug/g		0.5	25-MAR-19
Benzene			<0.0068		ug/g		0.0068	25-MAR-19
Bromodichloromethane			<0.050		ug/g		0.05	25-MAR-19
Bromoform			<0.050		ug/g		0.05	25-MAR-19
Bromomethane			<0.050		ug/g		0.05	25-MAR-19
Carbon tetrachloride			<0.050		ug/g		0.05	25-MAR-19
Chlorobenzene			<0.050		ug/g		0.05	25-MAR-19
Chloroform			<0.050		ug/g		0.05	25-MAR-19
cis-1,2-Dichloroethylene			<0.050		ug/g		0.05	25-MAR-19
cis-1,3-Dichloropropene			<0.030		ug/g		0.03	25-MAR-19
Dibromochloromethane			<0.050		ug/g		0.05	25-MAR-19
Dichlorodifluoromethane			<0.050		ug/g		0.05	25-MAR-19
Ethylbenzene			<0.018		ug/g		0.018	25-MAR-19
n-Hexane			<0.050		ug/g		0.05	25-MAR-19
Methylene Chloride			<0.050		ug/g		0.05	25-MAR-19
MTBE			<0.050		ug/g		0.05	25-MAR-19
m+p-Xylenes			<0.030		ug/g		0.03	25-MAR-19
Methyl Ethyl Ketone			<0.50		ug/g		0.5	25-MAR-19
Methyl Isobutyl Ketone			<0.50		ug/g		0.5	25-MAR-19
o-Xylene			<0.020		ug/g		0.02	25-MAR-19
Styrene			<0.050		ug/g		0.05	25-MAR-19
Tetrachloroethylene			<0.050		ug/g		0.05	25-MAR-19
Toluene			<0.080		ug/g		0.08	25-MAR-19
trans-1,2-Dichloroethylene			<0.050		ug/g		0.05	25-MAR-19
trans-1,3-Dichloropropene			<0.030		ug/g		0.03	25-MAR-19
Trichloroethylene			<0.010		ug/g		0.01	25-MAR-19
Trichlorofluoromethane			<0.050		ug/g		0.05	25-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4580553								
WG3012587-1 MB								
Vinyl chloride			<0.020		ug/g		0.02	25-MAR-19
Surrogate: 1,4-Difluorobenzene			125.4		%		50-140	25-MAR-19
Surrogate: 4-Bromofluorobenzene			113.5		%		50-140	25-MAR-19
WG3012587-5 MS		**L2245528-2**						
1,1,1,2-Tetrachloroethane			92.4		%		50-140	25-MAR-19
1,1,2,2-Tetrachloroethane			79.1		%		50-140	25-MAR-19
1,1,1-Trichloroethane			95.3		%		50-140	25-MAR-19
1,1,2-Trichloroethane			93.3		%		50-140	25-MAR-19
1,1-Dichloroethane			94.5		%		50-140	25-MAR-19
1,1-Dichloroethylene			90.7		%		50-140	25-MAR-19
1,2-Dibromoethane			92.5		%		50-140	25-MAR-19
1,2-Dichlorobenzene			96.7		%		50-140	25-MAR-19
1,2-Dichloroethane			94.1		%		50-140	25-MAR-19
1,2-Dichloropropane			93.6		%		50-140	25-MAR-19
1,3-Dichlorobenzene			98.2		%		50-140	25-MAR-19
1,4-Dichlorobenzene			98.0		%		50-140	25-MAR-19
Acetone			85.9		%		50-140	25-MAR-19
Benzene			97.5		%		50-140	25-MAR-19
Bromodichloromethane			94.6		%		50-140	25-MAR-19
Bromoform			89.4		%		50-140	25-MAR-19
Bromomethane			95.0		%		50-140	25-MAR-19
Carbon tetrachloride			95.6		%		50-140	25-MAR-19
Chlorobenzene			96.4		%		50-140	25-MAR-19
Chloroform			96.3		%		50-140	25-MAR-19
cis-1,2-Dichloroethylene			95.7		%		50-140	25-MAR-19
cis-1,3-Dichloropropene			91.6		%		50-140	25-MAR-19
Dibromochloromethane			93.9		%		50-140	25-MAR-19
Dichlorodifluoromethane			55.1		%		50-140	25-MAR-19
Ethylbenzene			92.9		%		50-140	25-MAR-19
n-Hexane			86.0		%		50-140	25-MAR-19
Methylene Chloride			95.7		%		50-140	25-MAR-19
MTBE			97.4		%		50-140	25-MAR-19
m+p-Xylenes			95.2		%		50-140	25-MAR-19
Methyl Ethyl Ketone			84.3		%		50-140	25-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4580553								
WG3012587-5 MS		**L2245528-2**						
Methyl Isobutyl Ketone			85.6		%		50-140	25-MAR-19
o-Xylene			91.8		%		50-140	25-MAR-19
Styrene			93.7		%		50-140	25-MAR-19
Tetrachloroethylene			89.8		%		50-140	25-MAR-19
Toluene			93.6		%		50-140	25-MAR-19
trans-1,2-Dichloroethylene			95.1		%		50-140	25-MAR-19
trans-1,3-Dichloropropene			87.7		%		50-140	25-MAR-19
Trichloroethylene			99.3		%		50-140	25-MAR-19
Trichlorofluoromethane			94.7		%		50-140	25-MAR-19
Vinyl chloride			64.0		%		50-140	25-MAR-19
Batch R4582911								
WG3013604-4 DUP		**WG3013604-3**						
1,1,1,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
1,1,2,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
1,1,1-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
1,1,2-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
1,1-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
1,1-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
1,2-Dibromoethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
1,2-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
1,2-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
1,2-Dichloropropane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
1,3-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
1,4-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Acetone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	26-MAR-19
Benzene		<0.0068	<0.0068	RPD-NA	ug/g	N/A	40	26-MAR-19
Bromodichloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Bromoform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Bromomethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Carbon tetrachloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Chlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Chloroform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
cis-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4582911								
WG3013604-4 DUP		**WG3013604-3**						
cis-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	26-MAR-19
Dibromochloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Dichlorodifluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Ethylbenzene		<0.018	<0.018	RPD-NA	ug/g	N/A	40	26-MAR-19
n-Hexane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Methylene Chloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
MTBE		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
m+p-Xylenes		<0.030	<0.030	RPD-NA	ug/g	N/A	40	26-MAR-19
Methyl Ethyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	26-MAR-19
Methyl Isobutyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	26-MAR-19
o-Xylene		<0.020	<0.020	RPD-NA	ug/g	N/A	40	26-MAR-19
Styrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Tetrachloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Toluene		<0.080	<0.080	RPD-NA	ug/g	N/A	40	26-MAR-19
trans-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
trans-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	26-MAR-19
Trichloroethylene		<0.010	<0.010	RPD-NA	ug/g	N/A	40	26-MAR-19
Trichlorofluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Vinyl chloride		<0.020	<0.020	RPD-NA	ug/g	N/A	40	26-MAR-19
WG3013604-2 LCS								
1,1,1,2-Tetrachloroethane			111.8		%		60-130	26-MAR-19
1,1,2,2-Tetrachloroethane			86.3		%		60-130	26-MAR-19
1,1,1-Trichloroethane			117.5		%		60-130	26-MAR-19
1,1,2-Trichloroethane			99.4		%		60-130	26-MAR-19
1,1-Dichloroethane			101.9		%		60-130	26-MAR-19
1,1-Dichloroethylene			109.8		%		60-130	26-MAR-19
1,2-Dibromoethane			88.8		%		70-130	26-MAR-19
1,2-Dichlorobenzene			111.2		%		70-130	26-MAR-19
1,2-Dichloroethane			91.7		%		60-130	26-MAR-19
1,2-Dichloropropane			99.1		%		70-130	26-MAR-19
1,3-Dichlorobenzene			120.1		%		70-130	26-MAR-19
1,4-Dichlorobenzene			117.1		%		70-130	26-MAR-19
Acetone			75.1		%		60-140	26-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4582911								
WG3013604-2 LCS								
Benzene			110.6		%		70-130	26-MAR-19
Bromodichloromethane			99.2		%		50-140	26-MAR-19
Bromoform			89.6		%		70-130	26-MAR-19
Bromomethane			113.5		%		50-140	26-MAR-19
Carbon tetrachloride			121.7		%		70-130	26-MAR-19
Chlorobenzene			111.5		%		70-130	26-MAR-19
Chloroform			108.3		%		70-130	26-MAR-19
cis-1,2-Dichloroethylene			106.0		%		70-130	26-MAR-19
cis-1,3-Dichloropropene			101.3		%		70-130	26-MAR-19
Dibromochloromethane			100.3		%		60-130	26-MAR-19
Dichlorodifluoromethane			66.9		%		50-140	26-MAR-19
Ethylbenzene			114.7		%		70-130	26-MAR-19
n-Hexane			108.1		%		70-130	26-MAR-19
Methylene Chloride			100.8		%		70-130	26-MAR-19
MTBE			110.6		%		70-130	26-MAR-19
m+p-Xylenes			114.3		%		70-130	26-MAR-19
Methyl Ethyl Ketone			72.5		%		60-140	26-MAR-19
Methyl Isobutyl Ketone			64.1		%		60-140	26-MAR-19
o-Xylene			109.8		%		70-130	26-MAR-19
Styrene			106.0		%		70-130	26-MAR-19
Tetrachloroethylene			130.6	MES	%		60-130	26-MAR-19
Toluene			112.2		%		70-130	26-MAR-19
trans-1,2-Dichloroethylene			110.9		%		60-130	26-MAR-19
trans-1,3-Dichloropropene			97.2		%		70-130	26-MAR-19
Trichloroethylene			122.4		%		60-130	26-MAR-19
Trichlorofluoromethane			121.8		%		50-140	26-MAR-19
Vinyl chloride			79.0		%		60-140	26-MAR-19
WG3013604-1 MB								
1,1,1,2-Tetrachloroethane			<0.050		ug/g		0.05	26-MAR-19
1,1,2,2-Tetrachloroethane			<0.050		ug/g		0.05	26-MAR-19
1,1,1-Trichloroethane			<0.050		ug/g		0.05	26-MAR-19
1,1,2-Trichloroethane			<0.050		ug/g		0.05	26-MAR-19
1,1-Dichloroethane			<0.050		ug/g		0.05	26-MAR-19
1,1-Dichloroethylene			<0.050		ug/g		0.05	26-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4582911								
WG3013604-1 MB								
1,2-Dibromoethane			<0.050		ug/g		0.05	26-MAR-19
1,2-Dichlorobenzene			<0.050		ug/g		0.05	26-MAR-19
1,2-Dichloroethane			<0.050		ug/g		0.05	26-MAR-19
1,2-Dichloropropane			<0.050		ug/g		0.05	26-MAR-19
1,3-Dichlorobenzene			<0.050		ug/g		0.05	26-MAR-19
1,4-Dichlorobenzene			<0.050		ug/g		0.05	26-MAR-19
Acetone			<0.50		ug/g		0.5	26-MAR-19
Benzene			<0.0068		ug/g		0.0068	26-MAR-19
Bromodichloromethane			<0.050		ug/g		0.05	26-MAR-19
Bromoform			<0.050		ug/g		0.05	26-MAR-19
Bromomethane			<0.050		ug/g		0.05	26-MAR-19
Carbon tetrachloride			<0.050		ug/g		0.05	26-MAR-19
Chlorobenzene			<0.050		ug/g		0.05	26-MAR-19
Chloroform			<0.050		ug/g		0.05	26-MAR-19
cis-1,2-Dichloroethylene			<0.050		ug/g		0.05	26-MAR-19
cis-1,3-Dichloropropene			<0.030		ug/g		0.03	26-MAR-19
Dibromochloromethane			<0.050		ug/g		0.05	26-MAR-19
Dichlorodifluoromethane			<0.050		ug/g		0.05	26-MAR-19
Ethylbenzene			<0.018		ug/g		0.018	26-MAR-19
n-Hexane			<0.050		ug/g		0.05	26-MAR-19
Methylene Chloride			<0.050		ug/g		0.05	26-MAR-19
MTBE			<0.050		ug/g		0.05	26-MAR-19
m+p-Xylenes			<0.030		ug/g		0.03	26-MAR-19
Methyl Ethyl Ketone			<0.50		ug/g		0.5	26-MAR-19
Methyl Isobutyl Ketone			<0.50		ug/g		0.5	26-MAR-19
o-Xylene			<0.020		ug/g		0.02	26-MAR-19
Styrene			<0.050		ug/g		0.05	26-MAR-19
Tetrachloroethylene			<0.050		ug/g		0.05	26-MAR-19
Toluene			<0.080		ug/g		0.08	26-MAR-19
trans-1,2-Dichloroethylene			<0.050		ug/g		0.05	26-MAR-19
trans-1,3-Dichloropropene			<0.030		ug/g		0.03	26-MAR-19
Trichloroethylene			<0.010		ug/g		0.01	26-MAR-19
Trichlorofluoromethane			<0.050		ug/g		0.05	26-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4582911								
WG3013604-1 MB								
Vinyl chloride			<0.020		ug/g		0.02	26-MAR-19
Surrogate: 1,4-Difluorobenzene			113.0		%		50-140	26-MAR-19
Surrogate: 4-Bromofluorobenzene			100.3		%		50-140	26-MAR-19
WG3013604-5 MS		**L2247641-3**						
1,1,1,2-Tetrachloroethane			109.0		%		50-140	26-MAR-19
1,1,2,2-Tetrachloroethane			87.7		%		50-140	26-MAR-19
1,1,1-Trichloroethane			112.9		%		50-140	26-MAR-19
1,1,2-Trichloroethane			99.6		%		50-140	26-MAR-19
1,1-Dichloroethane			92.9		%		50-140	26-MAR-19
1,1-Dichloroethylene			104.8		%		50-140	26-MAR-19
1,2-Dibromoethane			89.4		%		50-140	26-MAR-19
1,2-Dichlorobenzene			108.4		%		50-140	26-MAR-19
1,2-Dichloroethane			91.3		%		50-140	26-MAR-19
1,2-Dichloropropane			97.3		%		50-140	26-MAR-19
1,3-Dichlorobenzene			114.9		%		50-140	26-MAR-19
1,4-Dichlorobenzene			115.5		%		50-140	26-MAR-19
Acetone			79.8		%		50-140	26-MAR-19
Benzene			107.5		%		50-140	26-MAR-19
Bromodichloromethane			98.1		%		50-140	26-MAR-19
Bromoform			89.2		%		50-140	26-MAR-19
Bromomethane			107.3		%		50-140	26-MAR-19
Carbon tetrachloride			117.0		%		50-140	26-MAR-19
Chlorobenzene			107.7		%		50-140	26-MAR-19
Chloroform			106.3		%		50-140	26-MAR-19
cis-1,2-Dichloroethylene			103.2		%		50-140	26-MAR-19
cis-1,3-Dichloropropene			91.5		%		50-140	26-MAR-19
Dibromochloromethane			99.3		%		50-140	26-MAR-19
Dichlorodifluoromethane			68.7		%		50-140	26-MAR-19
Ethylbenzene			108.8		%		50-140	26-MAR-19
n-Hexane			103.8		%		50-140	26-MAR-19
Methylene Chloride			99.4		%		50-140	26-MAR-19
MTBE			109.2		%		50-140	26-MAR-19
m+p-Xylenes			107.9		%		50-140	26-MAR-19
Methyl Ethyl Ketone			70.2		%		50-140	26-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4582911								
WG3013604-5 MS		**L2247641-3**						
Methyl Isobutyl Ketone			64.2		%		50-140	26-MAR-19
o-Xylene			104.4		%		50-140	26-MAR-19
Styrene			100.6		%		50-140	26-MAR-19
Tetrachloroethylene			122.0		%		50-140	26-MAR-19
Toluene			108.0		%		50-140	26-MAR-19
trans-1,2-Dichloroethylene			104.3		%		50-140	26-MAR-19
trans-1,3-Dichloropropene			84.8		%		50-140	26-MAR-19
Trichloroethylene			117.2		%		50-140	26-MAR-19
Trichlorofluoromethane			118.4		%		50-140	26-MAR-19
Vinyl chloride			76.0		%		50-140	26-MAR-19

Quality Control Report

Workorder: L2245528 Report Date: 26-MAR-19

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
J	Duplicate results and limits are expressed in terms of absolute difference.
MES	Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.
RRQC	Refer to report remarks for information regarding this QC result.

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

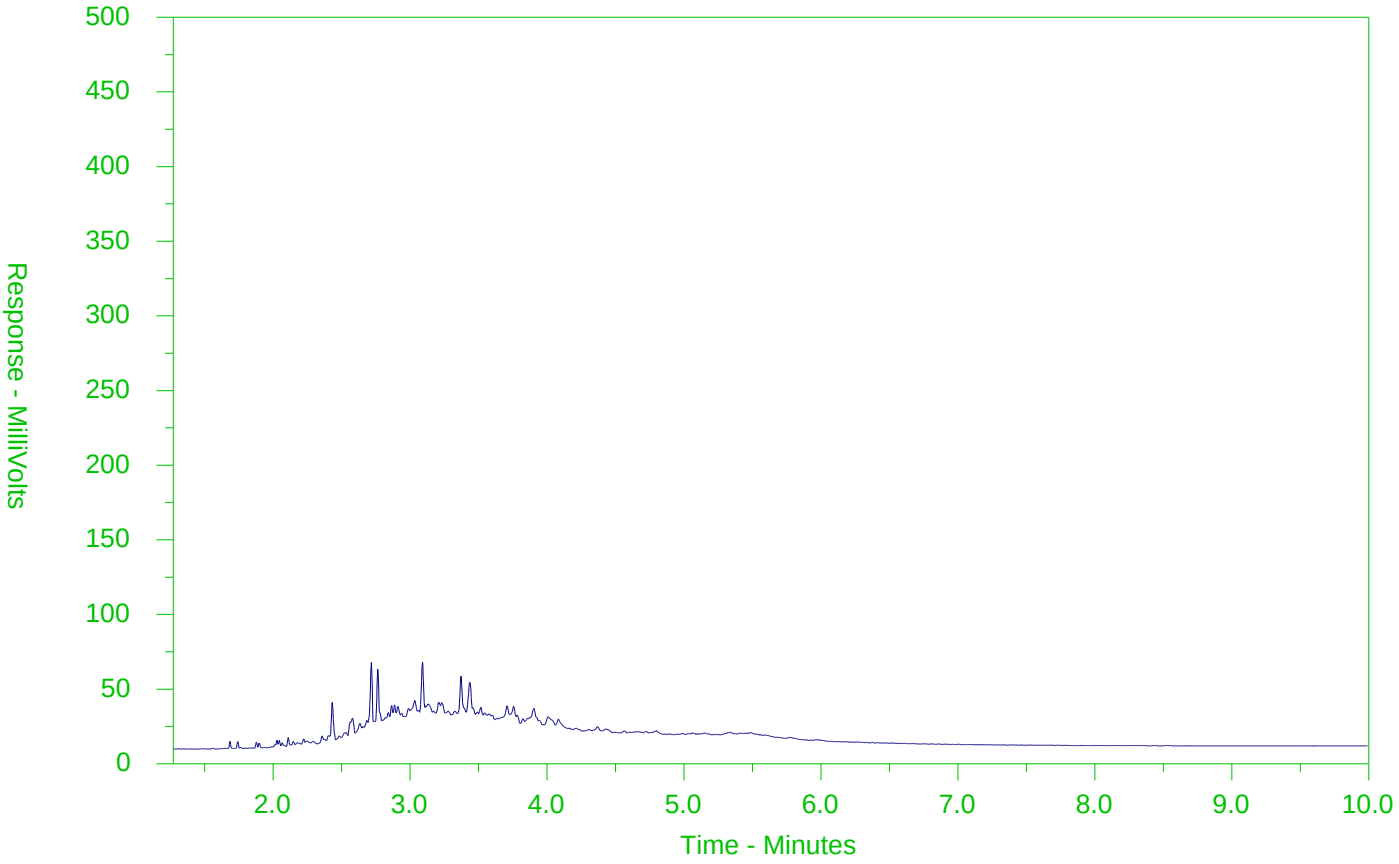
ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2245528-1
Client Sample ID: S-11102463-031519-DD-BH18-442-3.0-3.7



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

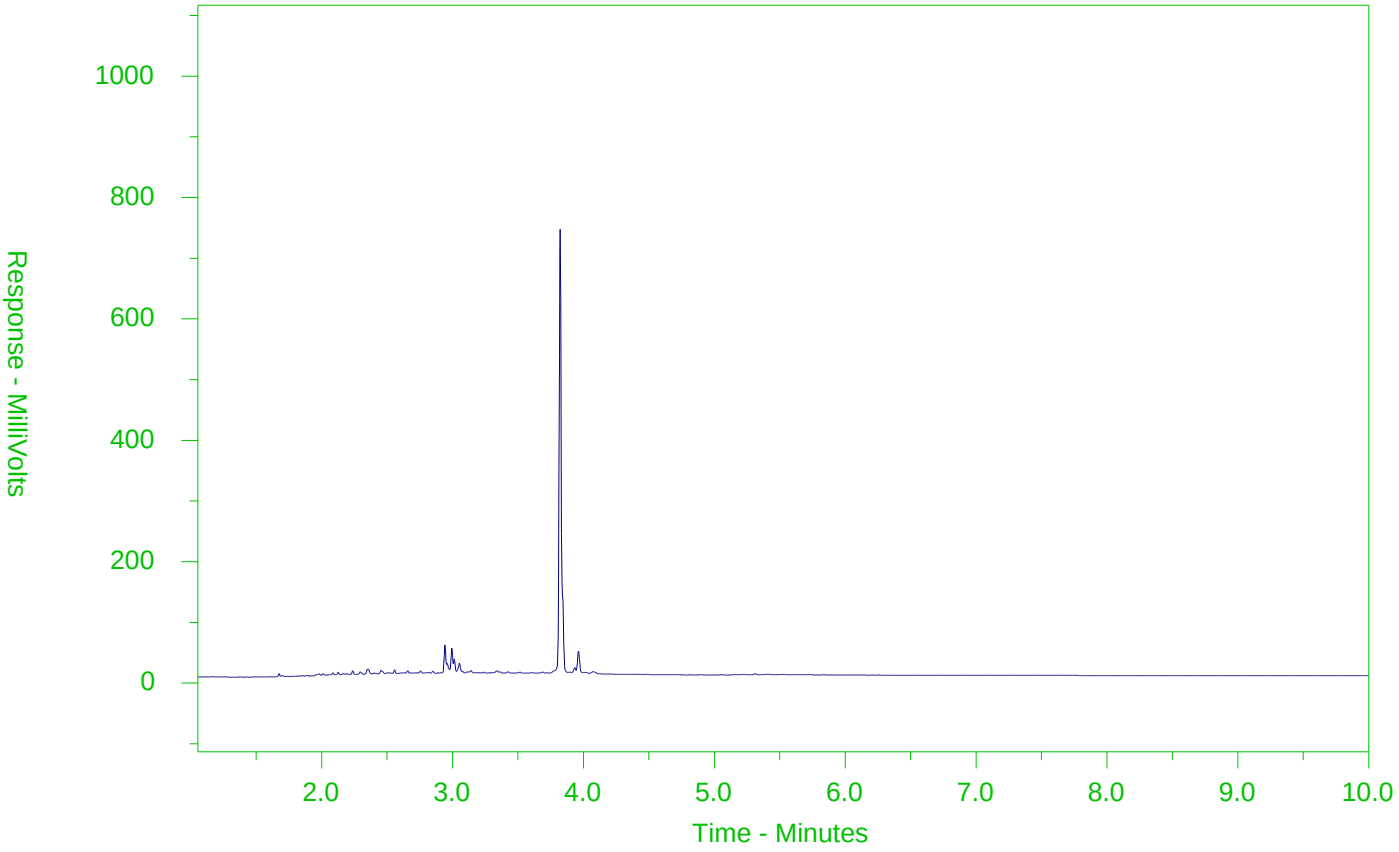
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2245528-2
Client Sample ID: S-11102463-031519-DD-BH18-442-8.5-8.9



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

ALS Environmental
www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

L2245528-COFC

COC Number: 17 - 641843

Page of

Report To	Contact and company name below will appear on the final report
Company:	GHD - LTD - Acct 13791
Contact:	Jennifer Balkwill
Phone:	519 884 0510
	Company address below will appear on the final report
Street:	455 Philip St
City/Province:	Waterloo, ON
Postal Code:	N2L 3X2
Invoice To	Same as Report To [✓] YES [ ] NO
	Copy of Invoice with Report [ ] YES [✓] NO
Company:	GHD Ltd
Contact:	Jennifer Balkwill

Report Format / Di...

Select Report Format: [✓] PDF [✓] EXCEL [✓] EDD (DIGITAL)

Quality Control (QC) Report with Report [✓] YES [ ] NO

[ ] Compare Results to Criteria on Report - provide details below if box checked

Select Distribution: [✓] EMAIL [ ] MAIL [ ] FAX

Email 1 or Fax: jennifer.balkwill@GHD.com

Email 2: see PO

Email 3:

Invoice Distribution

Select Invoice Distribution: [ ] EMAIL [ ] MAIL [ ] FAX

Email 1 or Fax: jennifer.balkwill@GHD.com

Email 2:

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)

Regular [R] [✓] Standard TAT if received by 3 pm - business days - no surcharges apply

PRIORITY (Business Days): 4 day [P4-20%] [ ] 3 day [P3-25%] [ ] 2 day [P2-50%] [ ]

EMERGENCY: 1 Business day [E-100%] [ ] Same Day, Weekend or Statutory holiday [E2-200% (Laboratory opening fees may apply)] [ ]

Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm

For tests that can not be performed according to the service level selected, you will be contacted.

Project Information

ALS Account # / Quote #: 13791 / Q51987

Job #: 1102463-71

PO / AFE: 73509898-7

LSD: Waterfront, Toronto

Oil and Gas Required Fields (client use)

AFE/Cost Center: PO#

Major/Minor Code: Routing Code:

Requisitioner:

Location:

ALS Lab Work Order # (lab use only): L2245528

ALS Contact: RICK H

Sampler: DAN DEITNER

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	BTEX, F1 (trip blank)	oReg 153 Metals + horseries	PAHs	OC Pesticides	Chlorophenols	PCB Aroclors	VOCs	PHCs	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
	S-11102463-031519-DD-BH18-442-3.0-3.7mBG	15-03-19	SOIL	~~10~~ 1115		X	X	X	X	X	X	X			10
	S-11102463-031519-DD-BH18-442-8.5-8.9	15-03-19	SOIL	~~8~~ 1530		X	X				X	X			
	trip blank	15-03-19	~~08~~ soil trip blank	0800	X										

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? [ ] YES [✓] NO

Are samples for human consumption/ use? [ ] YES [✓] NO

Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen [ ] SIF Observations Yes [ ] No [ ]

Ice Packs [ ] Ice Cubes [X] Custody seal intact Yes [ ] No [ ]

Cooling Initiated [ ]

INITIAL COOLER TEMPERATURES °C:

FINAL COOLER TEMPERATURES °C: 2.7

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by: DAN DEITNER	Date: 15-03-19	Time:	Received by:	Date:	Time:	Received by: SM	Date: 18 MAR 19	Time: 1606

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

JULY 2017 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

GHD Limited (Waterloo)
ATTN: JENNIFER BALKWILL
455 PHILLIP ST
WATERLOO ON N2L 3X2

Date Received: 20-MAR-19
Report Date: 03-APR-19 15:58 (MT)
Version: FINAL REV. 2

Client Phone: 519-884-0510

Certificate of Analysis

Lab Work Order #: L2247121

Project P.O. #: 73509898-7
Job Reference: 11102463-53
C of C Numbers:
Legal Site Desc: WATERFRONT TORONTO

Comments: ADDITIONAL 29-MAR-19 11:43

Rick Hawthorne
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3	
L2247121-1 S-11102463-031919-EN-BH-18-445-TRIP BLANK									
Sampled By: EN on 19-MAR-19 @ 09:00									
Matrix: SOIL									
Physical Tests									
% Moisture	<0.10		0.10	%	23-MAR-19				
Volatile Organic Compounds									
Acetone	<0.50		0.50	ug/g	27-MAR-19	16	28	0.5	
Benzene	<0.0068		0.0068	ug/g	27-MAR-19	0.21	0.17	0.02	
Bromodichloromethane	<0.050		0.050	ug/g	27-MAR-19	13	13	0.05	
Bromoform	<0.050		0.050	ug/g	27-MAR-19	0.27	0.26	0.05	
Bromomethane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05	
Carbon tetrachloride	<0.050		0.050	ug/g	27-MAR-19	0.05	0.12	0.05	
Chlorobenzene	<0.050		0.050	ug/g	27-MAR-19	2.4	2.7	0.05	
Dibromochloromethane	<0.050		0.050	ug/g	27-MAR-19	9.4	9.4	0.05	
Chloroform	<0.050		0.050	ug/g	27-MAR-19	0.05	0.18	0.05	
1,2-Dibromoethane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05	
1,2-Dichlorobenzene	<0.050		0.050	ug/g	27-MAR-19	3.4	4.3	0.05	
1,3-Dichlorobenzene	<0.050		0.050	ug/g	27-MAR-19	4.8	6	0.05	
1,4-Dichlorobenzene	<0.050		0.050	ug/g	27-MAR-19	0.083	0.097	0.05	
Dichlorodifluoromethane	<0.050		0.050	ug/g	27-MAR-19	16	25	0.05	
1,1-Dichloroethane	<0.050		0.050	ug/g	27-MAR-19	3.5	11	0.05	
1,2-Dichloroethane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05	
1,1-Dichloroethylene	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05	
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	27-MAR-19	3.4	30	0.05	
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	27-MAR-19	0.084	0.75	0.05	
Methylene Chloride	<0.050		0.050	ug/g	27-MAR-19	0.1	0.96	0.05	
1,2-Dichloropropane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.085	0.05	
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	27-MAR-19				
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	27-MAR-19				
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g	27-MAR-19	0.05	0.083	0.05	
Ethylbenzene	<0.018		0.018	ug/g	27-MAR-19	2	15	0.05	
n-Hexane	<0.050		0.050	ug/g	27-MAR-19	2.8	34	0.05	
Methyl Ethyl Ketone	<0.50		0.50	ug/g	27-MAR-19	16	44	0.5	
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	27-MAR-19	1.7	4.3	0.5	
MTBE	<0.050		0.050	ug/g	27-MAR-19	0.75	1.4	0.05	
Styrene	<0.050		0.050	ug/g	27-MAR-19	0.7	2.2	0.05	
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	27-MAR-19	0.058	0.05	0.05	
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05	
Tetrachloroethylene	<0.050		0.050	ug/g	27-MAR-19	0.28	2.3	0.05	
Toluene	<0.080		0.080	ug/g	27-MAR-19	2.3	6	0.2	
1,1,1-Trichloroethane	<0.050		0.050	ug/g	27-MAR-19	0.38	3.4	0.05	
1,1,2-Trichloroethane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05	
Trichloroethylene	<0.010		0.010	ug/g	27-MAR-19	0.061	0.52	0.05	
Trichlorofluoromethane	<0.050		0.050	ug/g	27-MAR-19	4	5.8	0.25	
Vinyl chloride	<0.020		0.020	ug/g	27-MAR-19	0.02	0.022	0.02	
o-Xylene	<0.020		0.020	ug/g	27-MAR-19				
m+p-Xylenes	<0.030		0.030	ug/g	27-MAR-19				
Xylenes (Total)	<0.050		0.050	ug/g	27-MAR-19	3.1	25	0.05	
Surrogate: 4-Bromofluorobenzene	111.1		50-140	%	27-MAR-19				
Surrogate: 1,4-Difluorobenzene	122.5		50-140	%	27-MAR-19				

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2247121-1 S-11102463-031919-EN-BH-18-445-TRIP BLANK								
Sampled By: EN on 19-MAR-19 @ 09:00								
Matrix: SOIL								
Hydrocarbons								
F1 (C6-C10)	<5.0		5.0	ug/g	27-MAR-19	55	65	25
Surrogate: 3,4-Dichlorotoluene	105.9		60-140	%	27-MAR-19			
L2247121-2 S-11102463-031919-EN-BH-18-445-2.5-4.5'								
Sampled By: EN on 19-MAR-19 @ 10:00								
Matrix: SOIL								
Physical Tests								
Conductivity	0.379		0.0040	mS/cm	27-MAR-19	0.7	0.7	0.7
% Moisture	9.03		0.10	%	23-MAR-19			
pH	7.77		0.10	pH units	25-MAR-19			
Cyanides								
Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	25-MAR-19	0.051	0.051	0.051
Saturated Paste Extractables								
SAR	3.45		0.10	SAR	27-MAR-19	5	5	5
Calcium (Ca)	35.1		0.50	mg/L	27-MAR-19			
Magnesium (Mg)	8.50		0.50	mg/L	27-MAR-19			
Sodium (Na)	87.9		0.50	mg/L	27-MAR-19			
Metals								
Antimony (Sb)	<1.0		1.0	ug/g	26-MAR-19	7.5	7.5	1.3
Arsenic (As)	2.3		1.0	ug/g	26-MAR-19	18	18	18
Barium (Ba)	56.0		1.0	ug/g	26-MAR-19	390	390	220
Beryllium (Be)	<0.50		0.50	ug/g	26-MAR-19	4	5	2.5
Boron (B)	5.8		5.0	ug/g	26-MAR-19	120	120	36
Boron (B), Hot Water Ext.	0.13		0.10	ug/g	26-MAR-19	1.5	1.5	1.5
Cadmium (Cd)	<0.50		0.50	ug/g	26-MAR-19	1.2	1.2	1.2
Chromium (Cr)	15.4		1.0	ug/g	26-MAR-19	160	160	70
Cobalt (Co)	4.9		1.0	ug/g	26-MAR-19	22	22	22
Copper (Cu)	11.5		1.0	ug/g	26-MAR-19	140	180	92
Lead (Pb)	10.3		1.0	ug/g	26-MAR-19	120	120	120
Mercury (Hg)	1.48	DLHC	0.050	ug/g	26-MAR-19	*0.27	1.8	*0.27
Molybdenum (Mo)	<1.0		1.0	ug/g	26-MAR-19	6.9	6.9	2
Nickel (Ni)	10.6		1.0	ug/g	26-MAR-19	100	130	82
Selenium (Se)	<1.0		1.0	ug/g	26-MAR-19	2.4	2.4	1.5
Silver (Ag)	<0.20		0.20	ug/g	26-MAR-19	20	25	0.5
Thallium (Tl)	<0.50		0.50	ug/g	26-MAR-19	1	1	1
Uranium (U)	<1.0		1.0	ug/g	26-MAR-19	23	23	2.5
Vanadium (V)	25.3		1.0	ug/g	26-MAR-19	86	86	86
Zinc (Zn)	32.7		5.0	ug/g	26-MAR-19	340	340	290
Speciated Metals								
Chromium, Hexavalent	<0.20		0.20	ug/g	26-MAR-19	8	10	0.66
Volatile Organic Compounds								
Acetone	<0.50		0.50	ug/g	27-MAR-19	16	28	0.5
Benzene	<0.0068		0.0068	ug/g	27-MAR-19	0.21	0.17	0.02
Bromodichloromethane	<0.050		0.050	ug/g	27-MAR-19	13	13	0.05
Bromoform	<0.050		0.050	ug/g	27-MAR-19	0.27	0.26	0.05

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2247121-2 S-11102463-031919-EN-BH-18-445-2.5-4.5'								
Sampled By: EN on 19-MAR-19 @ 10:00								
Matrix: SOIL								
Volatile Organic Compounds								
Bromomethane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05
Carbon tetrachloride	<0.050		0.050	ug/g	27-MAR-19	0.05	0.12	0.05
Chlorobenzene	<0.050		0.050	ug/g	27-MAR-19	2.4	2.7	0.05
Dibromochloromethane	<0.050		0.050	ug/g	27-MAR-19	9.4	9.4	0.05
Chloroform	<0.050		0.050	ug/g	27-MAR-19	0.05	0.18	0.05
1,2-Dibromoethane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05
1,2-Dichlorobenzene	<0.050		0.050	ug/g	27-MAR-19	3.4	4.3	0.05
1,3-Dichlorobenzene	<0.050		0.050	ug/g	27-MAR-19	4.8	6	0.05
1,4-Dichlorobenzene	<0.050		0.050	ug/g	27-MAR-19	0.083	0.097	0.05
Dichlorodifluoromethane	<0.050		0.050	ug/g	27-MAR-19	16	25	0.05
1,1-Dichloroethane	<0.050		0.050	ug/g	27-MAR-19	3.5	11	0.05
1,2-Dichloroethane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05
1,1-Dichloroethylene	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	27-MAR-19	3.4	30	0.05
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	27-MAR-19	0.084	0.75	0.05
Methylene Chloride	<0.050		0.050	ug/g	27-MAR-19	0.1	0.96	0.05
1,2-Dichloropropane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.085	0.05
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	27-MAR-19			
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	27-MAR-19			
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g	27-MAR-19	0.05	0.083	0.05
Ethylbenzene	<0.018		0.018	ug/g	27-MAR-19	2	15	0.05
n-Hexane	<0.050		0.050	ug/g	27-MAR-19	2.8	34	0.05
Methyl Ethyl Ketone	<0.50		0.50	ug/g	27-MAR-19	16	44	0.5
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	27-MAR-19	1.7	4.3	0.5
MTBE	<0.050		0.050	ug/g	27-MAR-19	0.75	1.4	0.05
Styrene	<0.050		0.050	ug/g	27-MAR-19	0.7	2.2	0.05
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	27-MAR-19	0.058	0.05	0.05
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05
Tetrachloroethylene	<0.050		0.050	ug/g	27-MAR-19	0.28	2.3	0.05
Toluene	<0.080		0.080	ug/g	27-MAR-19	2.3	6	0.2
1,1,1-Trichloroethane	<0.050		0.050	ug/g	27-MAR-19	0.38	3.4	0.05
1,1,2-Trichloroethane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05
Trichloroethylene	<0.010		0.010	ug/g	27-MAR-19	0.061	0.52	0.05
Trichlorofluoromethane	<0.050		0.050	ug/g	27-MAR-19	4	5.8	0.25
Vinyl chloride	<0.020		0.020	ug/g	27-MAR-19	0.02	0.022	0.02
o-Xylene	<0.020		0.020	ug/g	27-MAR-19			
m+p-Xylenes	<0.030		0.030	ug/g	27-MAR-19			
Xylenes (Total)	<0.050		0.050	ug/g	27-MAR-19	3.1	25	0.05
Surrogate: 4-Bromofluorobenzene	106.6		50-140	%	27-MAR-19			
Surrogate: 1,4-Difluorobenzene	117.7		50-140	%	27-MAR-19			
Hydrocarbons								
F1 (C6-C10)	<5.0		5.0	ug/g	27-MAR-19	55	65	25
F1-BTEX	<5.0		5.0	ug/g	27-MAR-19	55	65	25
F2 (C10-C16)	14		10	ug/g	25-MAR-19	98	150	*10
F2-Naphth	14		10	ug/g	27-MAR-19			
F3 (C16-C34)	94		50	ug/g	25-MAR-19	300	1300	240

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2247121-2 S-11102463-031919-EN-BH-18-445-2.5-4.5'								
Sampled By: EN on 19-MAR-19 @ 10:00								
Matrix: SOIL								
Hydrocarbons								
F3-PAH	94		50	ug/g	27-MAR-19			
F4 (C34-C50)	129		50	ug/g	25-MAR-19	2800	5600	*120
F4G-SG (GHH-Silica)	520		250	ug/g	25-MAR-19	2800	5600	*120
Total Hydrocarbons (C6-C50)	236		72	ug/g	27-MAR-19			
Chrom. to baseline at nC50	NO			No Unit	25-MAR-19			
Surrogate: 2-Bromobenzotrifluoride	81.8		60-140	%	25-MAR-19			
Surrogate: 3,4-Dichlorotoluene	98.7		60-140	%	27-MAR-19			
Polycyclic Aromatic Hydrocarbons								
Acenaphthene	<0.050		0.050	ug/g	26-MAR-19	7.9	58	0.072
Acenaphthylene	<0.050		0.050	ug/g	26-MAR-19	0.15	0.17	0.093
Anthracene	<0.050		0.050	ug/g	26-MAR-19	0.67	0.74	0.22
Benzo(a)anthracene	<0.050		0.050	ug/g	26-MAR-19	0.5	0.63	0.36
Benzo(a)pyrene	<0.050		0.050	ug/g	26-MAR-19	0.3	0.3	0.3
Benzo(b)fluoranthene	<0.050		0.050	ug/g	26-MAR-19	0.78	0.78	0.47
Benzo(g,h,i)perylene	<0.050		0.050	ug/g	26-MAR-19	6.6	7.8	0.68
Benzo(k)fluoranthene	<0.050		0.050	ug/g	26-MAR-19	0.78	0.78	0.48
Chrysene	<0.050		0.050	ug/g	26-MAR-19	7	7.8	2.8
Dibenzo(ah)anthracene	<0.050		0.050	ug/g	26-MAR-19	0.1	0.1	0.1
Fluoranthene	<0.050		0.050	ug/g	26-MAR-19	0.69	0.69	0.69
Fluorene	<0.050		0.050	ug/g	26-MAR-19	62	69	0.19
Indeno(1,2,3-cd)pyrene	<0.050		0.050	ug/g	26-MAR-19	0.38	0.48	0.23
1+2-Methylnaphthalenes	<0.042		0.042	ug/g	26-MAR-19	0.99	3.4	0.59
1-Methylnaphthalene	<0.030		0.030	ug/g	26-MAR-19	0.99	3.4	0.59
2-Methylnaphthalene	<0.030		0.030	ug/g	26-MAR-19	0.99	3.4	0.59
Naphthalene	<0.013		0.013	ug/g	26-MAR-19	0.6	0.75	0.09
Phenanthrene	<0.046		0.046	ug/g	26-MAR-19	6.2	7.8	0.69
Pyrene	<0.050		0.050	ug/g	26-MAR-19	78	78	1
Surrogate: 2-Fluorobiphenyl	98.9		50-140	%	26-MAR-19			
Surrogate: p-Terphenyl d14	103.0		50-140	%	26-MAR-19			
Semi-Volatile Organics								
2-Chlorophenol	<0.10		0.10	ug/g	26-MAR-19	1.6	2	0.1
2,4-Dichlorophenol	<0.10		0.10	ug/g	26-MAR-19	1.7	2.1	0.1
Pentachlorophenol	<0.10		0.10	ug/g	26-MAR-19	0.1	0.1	0.1
2,4,5-Trichlorophenol	<0.10		0.10	ug/g	26-MAR-19	4.4	5.5	0.1
2,4,6-Trichlorophenol	<0.10		0.10	ug/g	26-MAR-19	3.8	4.2	0.1
Surrogate: Phenol d5	96.9		30-130	%	26-MAR-19			
Surrogate: 2,4,6-Tribromophenol	84.1		50-140	%	26-MAR-19			
Polychlorinated Biphenyls								
Aroclor 1242	<0.010		0.010	ug/g	27-MAR-19			
Aroclor 1248	<0.010		0.010	ug/g	27-MAR-19			
Aroclor 1254	<0.010		0.010	ug/g	27-MAR-19			
Aroclor 1260	<0.050	DLM	0.050	ug/g	27-MAR-19			
Total PCBs	<0.060	DLM	0.060	ug/g	27-MAR-19	0.35	0.35	0.3
Surrogate: d14-Terphenyl	96.0		60-140	%	27-MAR-19			
Organochlorine Pesticides								
Aldrin	<0.020		0.020	ug/g	27-MAR-19	0.05	0.05	0.05

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2247121-2 S-11102463-031919-EN-BH-18-445-2.5-4.5'								
Sampled By: EN on 19-MAR-19 @ 10:00								
Matrix: SOIL								
Organochlorine Pesticides								
gamma-hexachlorocyclohexane	<0.050	DLM	0.050	ug/g	27-MAR-19	0.056	0.063	
a-chlordane	<0.020		0.020	ug/g	27-MAR-19			
Chlordane (Total)	<0.028		0.028	ug/g	27-MAR-19	0.05	0.05	0.05
g-chlordane	<0.020		0.020	ug/g	27-MAR-19			
op-DDD	<0.020		0.020	ug/g	27-MAR-19			
pp-DDD	<0.020		0.020	ug/g	27-MAR-19			
Total DDD	<0.028		0.028	ug/g	27-MAR-19	3.3	3.3	0.05
o,p-DDE	<0.020		0.020	ug/g	27-MAR-19			
pp-DDE	<0.020		0.020	ug/g	27-MAR-19			
Total DDE	<0.028		0.028	ug/g	27-MAR-19	0.26	0.33	0.05
op-DDT	<0.020		0.020	ug/g	27-MAR-19			
pp-DDT	<0.10	DLM	0.10	ug/g	27-MAR-19			
Total DDT	<0.10		0.10	ug/g	27-MAR-19	1.4	1.4	1.4
Dieldrin	<0.020		0.020	ug/g	27-MAR-19	0.05	0.05	0.05
Endosulfan I	<0.020		0.020	ug/g	27-MAR-19			
Endosulfan II	<0.020		0.020	ug/g	27-MAR-19			
Endosulfan (Total)	<0.028		0.028	ug/g	27-MAR-19	0.04	0.04	0.04
Endrin	<0.020		0.020	ug/g	27-MAR-19	0.04	0.04	0.04
Heptachlor	<0.020		0.020	ug/g	27-MAR-19	0.15	0.15	0.05
Heptachlor Epoxide	<0.020		0.020	ug/g	27-MAR-19	0.05	0.05	0.05
Hexachlorobenzene	<0.050	DLM	0.050	ug/g	27-MAR-19	0.52	0.52	**0.02
Hexachlorobutadiene	<0.050	DLM	0.050	ug/g	27-MAR-19	**0.012	**0.014	**0.01
Hexachloroethane	<0.050	DLM	0.050	ug/g	27-MAR-19	0.089	0.07	**0.01
Methoxychlor	<0.10	DLM	0.10	ug/g	27-MAR-19	0.13	0.13	**0.05
Surrogate: 2-Fluorobiphenyl	69.1		50-140	%	27-MAR-19			
Surrogate: d14-Terphenyl	84.3		50-140	%	27-MAR-19			
L2247121-3 S-11102463-031919-EN-BH-18-445-17.5-19.5'								
Sampled By: EN on 19-MAR-19 @ 11:00								
Matrix: SOIL								
Physical Tests								
Conductivity	1.26		0.0040	mS/cm	27-MAR-19	*0.7	*0.7	*0.7
% Moisture	74.3		0.10	%	23-MAR-19			
pH	6.99		0.10	pH units	25-MAR-19			
Cyanides								
Cyanide, Weak Acid Diss	0.211	DLHM	0.10	ug/g	25-MAR-19	*0.051	*0.051	*0.051
Saturated Paste Extractables								
SAR	2.62		0.10	SAR	28-MAR-19	5	5	5
Calcium (Ca)	40.0		0.50	mg/L	28-MAR-19			
Magnesium (Mg)	5.30		0.50	mg/L	28-MAR-19			
Sodium (Na)	66.5		0.50	mg/L	28-MAR-19			
Metals								
Antimony (Sb)	1.3		1.0	ug/g	26-MAR-19	7.5	7.5	1.3
Arsenic (As)	9.7		1.0	ug/g	26-MAR-19	18	18	18
Barium (Ba)	486		1.0	ug/g	26-MAR-19	*390	*390	*220
Beryllium (Be)	<0.50		0.50	ug/g	26-MAR-19	4	5	2.5

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2247121-3 S-11102463-031919-EN-BH-18-445-17.5-19.5'								
Sampled By: EN on 19-MAR-19 @ 11:00								
Matrix: SOIL								
Metals								
Boron (B)	14.0		5.0	ug/g	26-MAR-19	120	120	36
Boron (B), Hot Water Ext.	0.77		0.10	ug/g	26-MAR-19	1.5	1.5	1.5
Cadmium (Cd)	2.42		0.50	ug/g	26-MAR-19	*1.2	*1.2	*1.2
Chromium (Cr)	21.0		1.0	ug/g	26-MAR-19	160	160	70
Cobalt (Co)	5.3		1.0	ug/g	26-MAR-19	22	22	22
Copper (Cu)	82.3		1.0	ug/g	26-MAR-19	140	180	92
Lead (Pb)	275		1.0	ug/g	26-MAR-19	*120	*120	*120
Mercury (Hg)	0.570		0.0050	ug/g	26-MAR-19	*0.27	1.8	*0.27
Molybdenum (Mo)	1.7		1.0	ug/g	26-MAR-19	6.9	6.9	2
Nickel (Ni)	14.5		1.0	ug/g	26-MAR-19	100	130	82
Selenium (Se)	<1.0		1.0	ug/g	26-MAR-19	2.4	2.4	1.5
Silver (Ag)	0.30		0.20	ug/g	26-MAR-19	20	25	0.5
Thallium (Tl)	<0.50		0.50	ug/g	26-MAR-19	1	1	1
Uranium (U)	<1.0		1.0	ug/g	26-MAR-19	23	23	2.5
Vanadium (V)	20.5		1.0	ug/g	26-MAR-19	86	86	86
Zinc (Zn)	895		5.0	ug/g	26-MAR-19	*340	*340	*290
Speciated Metals								
Chromium, Hexavalent	<2.0	DLHM	2.0	ug/g	27-MAR-19	8	10	**0.66
Volatile Organic Compounds								
Acetone	<2.6	DLR	2.6	ug/g	26-MAR-19	16	28	**0.5
Benzene	<0.035	DLR	0.035	ug/g	26-MAR-19	0.21	0.17	**0.02
Bromodichloromethane	<0.26	DLR	0.26	ug/g	26-MAR-19	13	13	**0.05
Bromoform	<0.26	DLR	0.26	ug/g	26-MAR-19	0.27	0.26	**0.05
Bromomethane	<0.26	DLR	0.26	ug/g	26-MAR-19	**0.05	**0.05	**0.05
Carbon tetrachloride	<0.26	DLR	0.26	ug/g	26-MAR-19	**0.05	**0.12	**0.05
Chlorobenzene	<0.26	DLR	0.26	ug/g	26-MAR-19	2.4	2.7	**0.05
Dibromochloromethane	<0.26	DLR	0.26	ug/g	26-MAR-19	9.4	9.4	**0.05
Chloroform	<0.26	DLR	0.26	ug/g	26-MAR-19	**0.05	**0.18	**0.05
1,2-Dibromoethane	<0.26	DLR	0.26	ug/g	26-MAR-19	**0.05	**0.05	**0.05
1,2-Dichlorobenzene	<0.26	DLR	0.26	ug/g	26-MAR-19	3.4	4.3	**0.05
1,3-Dichlorobenzene	<0.26	DLR	0.26	ug/g	26-MAR-19	4.8	6	**0.05
1,4-Dichlorobenzene	<0.26	DLR	0.26	ug/g	26-MAR-19	**0.083	**0.097	**0.05
Dichlorodifluoromethane	<0.26	DLR	0.26	ug/g	26-MAR-19	16	25	**0.05
1,1-Dichloroethane	<0.26	DLR	0.26	ug/g	26-MAR-19	3.5	11	**0.05
1,2-Dichloroethane	<0.26	DLR	0.26	ug/g	26-MAR-19	**0.05	**0.05	**0.05
1,1-Dichloroethylene	<0.26	DLR	0.26	ug/g	26-MAR-19	**0.05	**0.05	**0.05
cis-1,2-Dichloroethylene	<0.26	DLR	0.26	ug/g	26-MAR-19	3.4	30	**0.05
trans-1,2-Dichloroethylene	<0.26	DLR	0.26	ug/g	26-MAR-19	**0.084	0.75	**0.05
Methylene Chloride	<0.26	DLR	0.26	ug/g	26-MAR-19	**0.1	0.96	**0.05
1,2-Dichloropropane	<0.26	DLR	0.26	ug/g	26-MAR-19	**0.05	**0.085	**0.05
cis-1,3-Dichloropropene	<0.15	DLR	0.15	ug/g	26-MAR-19			
trans-1,3-Dichloropropene	<0.15	DLR	0.15	ug/g	26-MAR-19			
1,3-Dichloropropene (cis & trans)	<0.22		0.22	ug/g	26-MAR-19	**0.05	**0.083	**0.05
Ethylbenzene	<0.092	DLR	0.092	ug/g	26-MAR-19	2	15	**0.05
n-Hexane	<0.26	DLR	0.26	ug/g	26-MAR-19	2.8	34	**0.05

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2247121-3 S-11102463-031919-EN-BH-18-445-17.5-19.5'								
Sampled By: EN on 19-MAR-19 @ 11:00								
Matrix: SOIL								
Volatile Organic Compounds								
Methyl Ethyl Ketone	<2.6	DLR	2.6	ug/g	26-MAR-19	16	44	**0.5
Methyl Isobutyl Ketone	<2.6	DLR	2.6	ug/g	26-MAR-19	**1.7	4.3	**0.5
MTBE	<0.26	DLR	0.26	ug/g	26-MAR-19	0.75	1.4	**0.05
Styrene	<0.26	DLR	0.26	ug/g	26-MAR-19	0.7	2.2	**0.05
1,1,1,2-Tetrachloroethane	<0.26	DLR	0.26	ug/g	26-MAR-19	**0.058	**0.05	**0.05
1,1,2,2-Tetrachloroethane	<0.26	DLR	0.26	ug/g	26-MAR-19	**0.05	**0.05	**0.05
Tetrachloroethylene	<0.26	DLR	0.26	ug/g	26-MAR-19	0.28	2.3	**0.05
Toluene	<0.41	DLR	0.41	ug/g	26-MAR-19	2.3	6	**0.2
1,1,1-Trichloroethane	<0.26	DLR	0.26	ug/g	26-MAR-19	0.38	3.4	**0.05
1,1,2-Trichloroethane	<0.26	DLR	0.26	ug/g	26-MAR-19	**0.05	**0.05	**0.05
Trichloroethylene	<0.051	DLR	0.051	ug/g	26-MAR-19	0.061	0.52	**0.05
Trichlorofluoromethane	<0.26	DLR	0.26	ug/g	26-MAR-19	4	5.8	**0.25
Vinyl chloride	<0.10	DLR	0.10	ug/g	26-MAR-19	**0.02	**0.022	**0.02
o-Xylene	<0.10	DLR	0.10	ug/g	26-MAR-19			
m+p-Xylenes	<0.15	DLR	0.15	ug/g	26-MAR-19			
Xylenes (Total)	<0.18		0.18	ug/g	26-MAR-19	3.1	25	**0.05
Surrogate: 4-Bromofluorobenzene	68.4		50-140	%	26-MAR-19			
Surrogate: 1,4-Difluorobenzene	76.8		50-140	%	26-MAR-19			
Hydrocarbons								
F1 (C6-C10)	<26	DLR	26	ug/g	27-MAR-19	55	65	**25
F1-BTEX	<26		26	ug/g	27-MAR-19	55	65	**25
F2 (C10-C16)	206	DLHM	30	ug/g	26-MAR-19	*98	*150	*10
F2-Naphth	206		30	ug/g	27-MAR-19			
F3 (C16-C34)	540	DLHM	150	ug/g	26-MAR-19	*300	1300	*240
F3-PAH	540		150	ug/g	27-MAR-19			
F4 (C34-C50)	<150	DLHM	150	ug/g	26-MAR-19	2800	5600	**120
Total Hydrocarbons (C6-C50)	750		220	ug/g	27-MAR-19			
Chrom. to baseline at nC50	YES			No Unit	26-MAR-19			
Surrogate: 2-Bromobenzotrifluoride	100.9		60-140	%	26-MAR-19			
Surrogate: 3,4-Dichlorotoluene	68.5		60-140	%	27-MAR-19			
Polycyclic Aromatic Hydrocarbons								
Acenaphthene	0.19	DLHM	0.15	ug/g	26-MAR-19	7.9	58	*0.072
Acenaphthylene	<0.15	DLHM	0.15	ug/g	26-MAR-19	0.15	0.17	**0.093
Anthracene	0.17	DLHM	0.15	ug/g	26-MAR-19	0.67	0.74	0.22
Benzo(a)anthracene	0.62	DLHM	0.15	ug/g	26-MAR-19	*0.5	0.63	*0.36
Benzo(a)pyrene	0.47	DLHM	0.15	ug/g	26-MAR-19	*0.3	*0.3	*0.3
Benzo(b)fluoranthene	0.67	DLHM	0.15	ug/g	26-MAR-19	0.78	0.78	*0.47
Benzo(g,h,i)perylene	0.32	DLHM	0.15	ug/g	26-MAR-19	6.6	7.8	0.68
Benzo(k)fluoranthene	0.19	DLHM	0.15	ug/g	26-MAR-19	0.78	0.78	0.48
Chrysene	0.54	DLHM	0.15	ug/g	26-MAR-19	7	7.8	2.8
Dibenzo(ah)anthracene	<0.15	DLHM	0.15	ug/g	26-MAR-19	**0.1	**0.1	**0.1
Fluoranthene	1.19	DLHM	0.15	ug/g	26-MAR-19	*0.69	*0.69	*0.69
Fluorene	0.25	DLHM	0.15	ug/g	26-MAR-19	62	69	*0.19
Indeno(1,2,3-cd)pyrene	0.26	DLHM	0.15	ug/g	26-MAR-19	0.38	0.48	*0.23
1+2-Methylnaphthalenes	<0.13		0.13	ug/g	26-MAR-19	0.99	3.4	0.59
1-Methylnaphthalene	<0.090	DLHM	0.090	ug/g	26-MAR-19	0.99	3.4	0.59

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping	Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2247121-3	S-11102463-031919-EN-BH-18-445-17.5-19.5'								
Sampled By:	EN on 19-MAR-19 @ 11:00								
Matrix:	SOIL								
Polycyclic Aromatic Hydrocarbons									
	2-Methylnaphthalene	<0.090	DLHM	0.090	ug/g	26-MAR-19	0.99	3.4	0.59
	Naphthalene	0.112	DLHM	0.039	ug/g	26-MAR-19	0.6	0.75	*0.09
	Phenanthrene	0.72	DLHM	0.14	ug/g	26-MAR-19	6.2	7.8	*0.69
	Pyrene	1.02	DLHM	0.15	ug/g	26-MAR-19	78	78	*1
	Surrogate: 2-Fluorobiphenyl	96.6		50-140	%	26-MAR-19			
	Surrogate: p-Terphenyl d14	97.7		50-140	%	26-MAR-19			
L2247121-4	S-11102463-031919-EN-BH-18-445-27.5-29.5'								
Sampled By:	EN on 19-MAR-19 @ 11:30								
Matrix:	SOIL								
Physical Tests									
	Conductivity	0.272		0.0040	mS/cm	03-APR-19	0.7	0.7	0.7
	% Moisture	18.4		0.10	%	30-MAR-19			
	pH	7.50		0.10	pH units	02-APR-19			
Cyanides									
	Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	02-APR-19	0.051	0.051	0.051
Saturated Paste Extractables									
	SAR	0.91		0.10	SAR	03-APR-19	5	5	5
	Calcium (Ca)	24.8		0.50	mg/L	03-APR-19			
	Magnesium (Mg)	2.20		0.50	mg/L	03-APR-19			
	Sodium (Na)	17.7		0.50	mg/L	03-APR-19			
Metals									
	Antimony (Sb)	<1.0		1.0	ug/g	03-APR-19	7.5	7.5	1.3
	Arsenic (As)	1.4		1.0	ug/g	03-APR-19	18	18	18
	Barium (Ba)	21.5		1.0	ug/g	03-APR-19	390	390	220
	Beryllium (Be)	<0.50		0.50	ug/g	03-APR-19	4	5	2.5
	Boron (B)	<5.0		5.0	ug/g	03-APR-19	120	120	36
	Boron (B), Hot Water Ext.	0.11		0.10	ug/g	03-APR-19	1.5	1.5	1.5
	Cadmium (Cd)	<0.50		0.50	ug/g	03-APR-19	1.2	1.2	1.2
	Chromium (Cr)	5.9		1.0	ug/g	03-APR-19	160	160	70
	Cobalt (Co)	2.0		1.0	ug/g	03-APR-19	22	22	22
	Copper (Cu)	5.7		1.0	ug/g	03-APR-19	140	180	92
	Lead (Pb)	16.4		1.0	ug/g	03-APR-19	120	120	120
	Mercury (Hg)	0.0260		0.0050	ug/g	03-APR-19	0.27	1.8	0.27
	Molybdenum (Mo)	<1.0		1.0	ug/g	03-APR-19	6.9	6.9	2
	Nickel (Ni)	4.7		1.0	ug/g	03-APR-19	100	130	82
	Selenium (Se)	<1.0		1.0	ug/g	03-APR-19	2.4	2.4	1.5
	Silver (Ag)	<0.20		0.20	ug/g	03-APR-19	20	25	0.5
	Thallium (Tl)	<0.50		0.50	ug/g	03-APR-19	1	1	1
	Uranium (U)	<1.0		1.0	ug/g	03-APR-19	23	23	2.5
	Vanadium (V)	8.4		1.0	ug/g	03-APR-19	86	86	86
	Zinc (Zn)	42.7		5.0	ug/g	03-APR-19	340	340	290
Speciated Metals									
	Chromium, Hexavalent	<0.20		0.20	ug/g	02-APR-19	8	10	0.66
Volatile Organic Compounds									

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2247121-4 S-11102463-031919-EN-BH-18-445-27.5-29.5'								
Sampled By: EN on 19-MAR-19 @ 11:30								
Matrix: SOIL								
Volatile Organic Compounds								
Acetone	<0.50		0.50	ug/g	02-APR-19	16	28	0.5
Benzene	<0.0068		0.0068	ug/g	02-APR-19	0.21	0.17	0.02
Bromodichloromethane	<0.050		0.050	ug/g	02-APR-19	13	13	0.05
Bromoform	<0.050		0.050	ug/g	02-APR-19	0.27	0.26	0.05
Bromomethane	<0.050		0.050	ug/g	02-APR-19	0.05	0.05	0.05
Carbon tetrachloride	<0.050		0.050	ug/g	02-APR-19	0.05	0.12	0.05
Chlorobenzene	<0.050		0.050	ug/g	02-APR-19	2.4	2.7	0.05
Dibromochloromethane	<0.050		0.050	ug/g	02-APR-19	9.4	9.4	0.05
Chloroform	<0.050		0.050	ug/g	02-APR-19	0.05	0.18	0.05
1,2-Dibromoethane	<0.050		0.050	ug/g	02-APR-19	0.05	0.05	0.05
1,2-Dichlorobenzene	<0.050		0.050	ug/g	02-APR-19	3.4	4.3	0.05
1,3-Dichlorobenzene	<0.050		0.050	ug/g	02-APR-19	4.8	6	0.05
1,4-Dichlorobenzene	<0.050		0.050	ug/g	02-APR-19	0.083	0.097	0.05
Dichlorodifluoromethane	<0.050		0.050	ug/g	02-APR-19	16	25	0.05
1,1-Dichloroethane	<0.050		0.050	ug/g	02-APR-19	3.5	11	0.05
1,2-Dichloroethane	<0.050		0.050	ug/g	02-APR-19	0.05	0.05	0.05
1,1-Dichloroethylene	<0.050		0.050	ug/g	02-APR-19	0.05	0.05	0.05
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	02-APR-19	3.4	30	0.05
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	02-APR-19	0.084	0.75	0.05
Methylene Chloride	<0.050		0.050	ug/g	02-APR-19	0.1	0.96	0.05
1,2-Dichloropropane	<0.050		0.050	ug/g	02-APR-19	0.05	0.085	0.05
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	02-APR-19			
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	02-APR-19			
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g	02-APR-19	0.05	0.083	0.05
Ethylbenzene	<0.018		0.018	ug/g	02-APR-19	2	15	0.05
n-Hexane	<0.050		0.050	ug/g	02-APR-19	2.8	34	0.05
Methyl Ethyl Ketone	<0.50		0.50	ug/g	02-APR-19	16	44	0.5
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	02-APR-19	1.7	4.3	0.5
MTBE	<0.050		0.050	ug/g	02-APR-19	0.75	1.4	0.05
Styrene	<0.050		0.050	ug/g	02-APR-19	0.7	2.2	0.05
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	02-APR-19	0.058	0.05	0.05
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	02-APR-19	0.05	0.05	0.05
Tetrachloroethylene	<0.050		0.050	ug/g	02-APR-19	0.28	2.3	0.05
Toluene	<0.080		0.080	ug/g	02-APR-19	2.3	6	0.2
1,1,1-Trichloroethane	<0.050		0.050	ug/g	02-APR-19	0.38	3.4	0.05
1,1,2-Trichloroethane	<0.050		0.050	ug/g	02-APR-19	0.05	0.05	0.05
Trichloroethylene	<0.010		0.010	ug/g	02-APR-19	0.061	0.52	0.05
Trichlorofluoromethane	<0.050		0.050	ug/g	02-APR-19	4	5.8	0.25
Vinyl chloride	<0.020		0.020	ug/g	02-APR-19	0.02	0.022	0.02
o-Xylene	<0.020		0.020	ug/g	02-APR-19			
m+p-Xylenes	<0.030		0.030	ug/g	02-APR-19			
Xylenes (Total)	<0.050		0.050	ug/g	02-APR-19	3.1	25	0.05
Surrogate: 4-Bromofluorobenzene	96.9		50-140	%	02-APR-19			
Surrogate: 1,4-Difluorobenzene	111.6		50-140	%	02-APR-19			
Hydrocarbons								
F1 (C6-C10)	<5.0		5.0	ug/g	02-APR-19	55	65	25

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2247121-4 S-11102463-031919-EN-BH-18-445-27.5-29.5'								
Sampled By: EN on 19-MAR-19 @ 11:30								
Matrix: SOIL								
Hydrocarbons								
F1-BTEX	<5.0		5.0	ug/g	03-APR-19	55	65	25
F2 (C10-C16)	<10		10	ug/g	01-APR-19	98	150	10
F2-Naphth	<10		10	ug/g	03-APR-19			
F3 (C16-C34)	<50		50	ug/g	01-APR-19	300	1300	240
F3-PAH	<50		50	ug/g	03-APR-19			
F4 (C34-C50)	<50		50	ug/g	01-APR-19	2800	5600	120
Total Hydrocarbons (C6-C50)	<72		72	ug/g	03-APR-19			
Chrom. to baseline at nC50	YES			No Unit	01-APR-19			
Surrogate: 2-Bromobenzotrifluoride	84.4		60-140	%	01-APR-19			
Surrogate: 3,4-Dichlorotoluene	85.9		60-140	%	02-APR-19			
Polycyclic Aromatic Hydrocarbons								
Acenaphthene	<0.050		0.050	ug/g	03-APR-19	7.9	58	0.072
Acenaphthylene	<0.050		0.050	ug/g	03-APR-19	0.15	0.17	0.093
Anthracene	<0.050		0.050	ug/g	03-APR-19	0.67	0.74	0.22
Benzo(a)anthracene	<0.050		0.050	ug/g	03-APR-19	0.5	0.63	0.36
Benzo(a)pyrene	<0.050		0.050	ug/g	03-APR-19	0.3	0.3	0.3
Benzo(b)fluoranthene	<0.050		0.050	ug/g	03-APR-19	0.78	0.78	0.47
Benzo(g,h,i)perylene	<0.050		0.050	ug/g	03-APR-19	6.6	7.8	0.68
Benzo(k)fluoranthene	<0.050		0.050	ug/g	03-APR-19	0.78	0.78	0.48
Chrysene	<0.050		0.050	ug/g	03-APR-19	7	7.8	2.8
Dibenzo(ah)anthracene	<0.050		0.050	ug/g	03-APR-19	0.1	0.1	0.1
Fluoranthene	<0.050		0.050	ug/g	03-APR-19	0.69	0.69	0.69
Fluorene	<0.050		0.050	ug/g	03-APR-19	62	69	0.19
Indeno(1,2,3-cd)pyrene	<0.050		0.050	ug/g	03-APR-19	0.38	0.48	0.23
1+2-Methylnaphthalenes	<0.042		0.042	ug/g	03-APR-19	0.99	3.4	0.59
1-Methylnaphthalene	<0.030		0.030	ug/g	03-APR-19	0.99	3.4	0.59
2-Methylnaphthalene	<0.030		0.030	ug/g	03-APR-19	0.99	3.4	0.59
Naphthalene	<0.013		0.013	ug/g	03-APR-19	0.6	0.75	0.09
Phenanthrene	<0.046		0.046	ug/g	03-APR-19	6.2	7.8	0.69
Pyrene	<0.050		0.050	ug/g	03-APR-19	78	78	1
Surrogate: 2-Fluorobiphenyl	92.1		50-140	%	03-APR-19			
Surrogate: p-Terphenyl d14	98.7		50-140	%	03-APR-19			

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Reference Information

Sample Parameter Qualifier key listed:

Qualifier	Description
DLR	Detection Limit Raised due to required dilution, limited sample amount, and/or high moisture content (soil samples)
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
DLHM	Detection Limit Adjusted: Sample has High Moisture Content
DLHC	Detection Limit Raised: Dilution required due to high concentration of test analyte(s).

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference***
625-511-WT	Soil	ABN-O.Reg 153/04 (July 2011)	SW846 8270 (511)

Soil and sediment samples are dried by mixing with a desiccant prior to extraction. The extracts are dried, concentrated and exchanged into a solvent and analyzed by GC/MS. Depending on the analytical GC/MS column used benzo(j)fluoranthene may chromatographically co-elute with benzo(b)fluoranthene or benzo(k)fluoranthene.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

B-HWS-R511-WT	Soil	Boron-HWE-O.Reg 153/04 (July 2011)	HW EXTR, EPA 6010B

A dried solid sample is extracted with calcium chloride, the sample undergoes a heating process. After cooling the sample is filtered and analyzed by ICP/OES.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

CHLORDANE-T-CALC-WT	Soil	Chlordane Total sums	CALCULATION

Aqueous sample is extracted by liquid/liquid extraction with a solvent mix. After extraction, a number of clean up techniques may be applied, depending on the sample matrix and analyzed by GC/MS.

CN-WAD-R511-WT	Soil	Cyanide (WAD)-O.Reg 153/04 (July 2011)	MOE 3015/APHA 4500CN I-WAD

The sample is extracted with a strong base for 16 hours, and then filtered. The filtrate is then distilled where the cyanide is converted to cyanogen chloride by reacting with chloramine-T, the cyanogen chloride then reacts with a combination of barbituric acid and isonicotinic acid to form a highly colored complex.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

CR-CR6-IC-WT	Soil	Hexavalent Chromium in Soil	SW846 3060A/7199

This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, Method 7199, published by the United States Environmental Protection Agency (EPA). The procedure involves analysis for chromium (VI) by ion chromatography using diphenylcarbazide in a sulphuric acid solution.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

DDD-DDE-DDT-CALC-WT	Soil	DDD, DDE, DDT sums	CALCULATION

Aqueous sample is extracted by liquid/liquid extraction with a solvent mix. After extraction, a number of clean up techniques may be applied, depending on the sample matrix and analyzed by GC/MS.

EC-WT	Soil	Conductivity (EC)	MOEE E3138

A representative subsample is tumbled with de-ionized (DI) water. The ratio of water to soil is 2:1 v/w. After tumbling the sample is then analyzed by a conductivity meter.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

ENDOSULFAN-T-CALC-WT	Soil	Endosulfan Total sums	CALCULATION

Aqueous sample is extracted by liquid/liquid extraction with a solvent mix. After extraction, a number of clean up techniques may be applied, depending on the sample matrix and analyzed by GC/MS.

Reference Information

F1-F4-511-CALC-WT	Soil	F1-F4 Hydrocarbon Calculated Parameters	CCME CWS-PHC, Pub #1310, Dec 2001-S

Analytical methods used for analysis of CCME Petroleum Hydrocarbons have been validated and comply with the Reference Method for the CWS PHC.

Hydrocarbon results are expressed on a dry weight basis.

In cases where results for both F4 and F4G are reported, the greater of the two results must be used in any application of the CWS PHC guidelines and the gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.
In samples where BTEX and F1 were analyzed , F1-BTEX represents a value where the sum of Benzene, Toluene, Ethylbenzene and total Xylenes has been subtracted from F1.

In samples where PAHs, F2 and F3 were analyzed, F2-Naphth represents the result where Naphthalene has been subtracted from F2. F3-PAH represents a result where the sum of Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenzo(a,h)anthracene, Fluoranthene, Indeno(1,2,3-cd)pyrene, Phenanthrene, and Pyrene has been subtracted from F3.

Unless otherwise qualified, the following quality control criteria have been met for the F1 hydrocarbon range:
1. All extraction and analysis holding times were met.
2. Instrument performance showing response factors for C6 and C10 within 30% of the response factor for toluene.
3. Linearity of gasoline response within 15% throughout the calibration range.

Unless otherwise qualified, the following quality control criteria have been met for the F2-F4 hydrocarbon ranges:
1. All extraction and analysis holding times were met.
2. Instrument performance showing C10, C16 and C34 response factors within 10% of their average.
3. Instrument performance showing the C50 response factor within 30% of the average of the C10, C16 and C34 response factors.
4. Linearity of diesel or motor oil response within 15% throughout the calibration range.

F1-HS-511-WT	Soil	F1-O.Reg 153/04 (July 2011)	E3398/CCME TIER 1-HS

Fraction F1 is determined by extracting a soil or sediment sample as received with methanol, then analyzing by headspace-GC/FID.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

F2-F4-511-WT	Soil	F2-F4-O.Reg 153/04 (July 2011)	CCME Tier 1

Petroleum Hydrocarbons (F2-F4 fractions) are extracted from soil with 1:1 hexane:acetone using a rotary extractor. Extracts are treated with silica gel to remove polar organic interferences. F2, F3, & F4 are analyzed by GC-FID. F4G-sg is analyzed gravimetrically.

Notes:
1. F2 (C10-C16): Sum of all hydrocarbons that elute between nC10 and nC16.
2. F3 (C16-C34): Sum of all hydrocarbons that elute between nC16 and nC34.
3. F4 (C34-C50): Sum of all hydrocarbons that elute between nC34 and nC50.
4. F4G: Gravimetric Heavy Hydrocarbons
5. F4G-sg: Gravimetric Heavy Hydrocarbons (F4G) after silica gel treatment.
6. Where both F4 (C34-C50) and F4G-sg are reported for a sample, the larger of the two values is used for comparison against the relevant CCME guideline for F4.
7. F4G-sg cannot be added to the C6 to C50 hydrocarbon results to obtain an estimate of total extractable hydrocarbons.
8. This method is validated for use.
9. Data from analysis of validation and quality control samples is available upon request.
10. Reported results are expressed as milligrams per dry kilogram, unless otherwise indicated.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

F4G-ADD-511-WT	Soil	F4G SG-O.Reg 153/04 (July 2011)	MOE DECPH-E3398/CCME TIER 1

F4G, gravimetric analysis, is determined if the chromatogram does not return to baseline at or before C50. A soil sample is extracted with a solvent mix, the solvent is evaporated and the weight of the residue is determined.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

HG-200.2-CVAA-WT	Soil	Mercury in Soil by CVAAS	EPA 200.2/1631E (mod)

Soil samples are digested with nitric and hydrochloric acids, followed by analysis by CVAAS.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

Reference Information

MET-200.2-CCMS-WT	Soil	Metals in Soil by CRC ICPMS	EPA 200.2/6020A (mod)

Soil/sediment is dried, disaggregated, and sieved (2 mm). For tests intended to support Ontario regulations, the <2mm fraction is ground to pass through a 0.355 mm sieve. Strong Acid Leachable Metals in the <2mm fraction are solubilized by heated digestion with nitric and hydrochloric acids. Instrumental analysis is by Collision / Reaction Cell ICPMS.

Limitations: This method is intended to liberate environmentally available metals. Silicate minerals are not solubilized. Some metals may be only partially recovered (matrix dependent), including Al, Ba, Be, Cr, S, Sr, Ti, Tl, V, W, and Zr. Elemental Sulfur may be poorly recovered by this method. Volatile forms of sulfur (e.g. sulfide, H2S) may be excluded if lost during sampling, storage, or digestion.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

METHYLNAPS-CALC-WT	Soil	ABN-Calculated Parameters	SW846 8270
MOISTURE-WT	Soil	% Moisture	CCME PHC in Soil - Tier 1 (mod)
PAH-511-WT	Soil	PAH-O.Reg 153/04 (July 2011)	SW846 3510/8270

A representative sub-sample of soil is fortified with deuterium-labelled surrogates and a mechanical shaking techniqueis used to extract the sample with a mixture of methanol and toluene. The extracts are concentrated and analyzed by GC/MS. Results for benzo(b) fluoranthene may include contributions from benzo(j)fluoranthene, if also present in the sample.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

PCB-511-WT	Soil	PCB-O.Reg 153/04 (July 2011)	SW846 3510/8082

An aliquot of a solid sample is extracted with a solvent, extract is cleaned up and analyzed on the GC/MS.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

PEST-OC-511-WT	Soil	OC Pesticides-O.Reg 153/04 (July 2011)	SW846 8270 (511)

Soil sample is extracted in a solvent, after extraction a number of clean up techniques may be applied, depending on the sample matrix and analyzed by GC/MS.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

PH-WT	Soil	pH	MOEE E3137A

A minimum 10g portion of the sample is extracted with 20mL of 0.01M calcium chloride solution by shaking for at least 30 minutes. The aqueous layer is separated from the soil and then analyzed using a pH meter and electrode.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

SAR-R511-WT	Soil	SAR-O.Reg 153/04 (July 2011)	SW846 6010C

A dried, disaggregated solid sample is extracted with deionized water, the aqueous extract is separated from the solid, acidified and then analyzed using a ICP/OES. The concentrations of Na, Ca and Mg are reported as per CALA requirements for calculated parameters. These individual parameters are not for comparison to any guideline.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

VOC-1,3-DCP-CALC-WT	Soil	Regulation 153 VOCs	SW8260B/SW8270C
VOC-511-HS-WT	Soil	VOC-O.Reg 153/04 (July 2011)	SW846 8260 (511)

Soil and sediment samples are extracted in methanol and analyzed by headspace-GC/MS.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

XYLENES-SUM-CALC-WT	Soil	Sum of Xylene Isomer Concentrations	CALCULATION

Total xylenes represents the sum of o-xylene and m&p-xylene.

*** ALS test methods may incorporate modifications from specified reference methods to improve performance.

Chain of Custody numbers:

Reference Information

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location	Laboratory Definition Code	Laboratory Location
WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA		

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.
mg/kg - milligrams per kilogram based on dry weight of sample
mg/kg wwt - milligrams per kilogram based on wet weight of sample
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight
mg/L - unit of concentration based on volume, parts per million.
< - Less than.
D.L. - The reporting limit.
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, fitness for a particular purpose, or non-infringement. ALS assumes no responsibility for errors or omissions in the information. Guideline limits are not adjusted for the hardness, pH or temperature of the sample (the most conservative values are used). Measurement uncertainty is not applied to test results prior to comparison with specified criteria values.

Quality Control Report

Workorder: L2247121 Report Date: 03-APR-19

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
625-511-WT	**Soil**							
Batch R4583368								
WG3013237-9 DUP		**WG3013237-5**						
2-Chlorophenol		<0.10	<0.10	RPD-NA	ug/g	N/A	40	26-MAR-19
2,4-Dichlorophenol		<0.10	<0.10	RPD-NA	ug/g	N/A	40	26-MAR-19
2,4,5-Trichlorophenol		<0.10	<0.10	RPD-NA	ug/g	N/A	40	26-MAR-19
2,4,6-Trichlorophenol		<0.10	<0.10	RPD-NA	ug/g	N/A	40	26-MAR-19
Pentachlorophenol		<0.10	<0.10	RPD-NA	ug/g	N/A	40	26-MAR-19
WG3013237-7 LCS								
2-Chlorophenol			109.0		%		50-140	26-MAR-19
2,4-Dichlorophenol			108.6		%		50-140	26-MAR-19
2,4,5-Trichlorophenol			111.7		%		50-140	26-MAR-19
2,4,6-Trichlorophenol			106.0		%		50-140	26-MAR-19
Pentachlorophenol			91.3		%		50-140	26-MAR-19
WG3013237-6 MB								
2-Chlorophenol			<0.10		ug/g		0.1	26-MAR-19
2,4-Dichlorophenol			<0.10		ug/g		0.1	26-MAR-19
2,4,5-Trichlorophenol			<0.10		ug/g		0.1	26-MAR-19
2,4,6-Trichlorophenol			<0.10		ug/g		0.1	26-MAR-19
Pentachlorophenol			<0.10		ug/g		0.1	26-MAR-19
Surrogate: 2,4,6-Tribromophenol			76.0		%		50-140	26-MAR-19
Surrogate: Phenol d5			97.4		%		30-130	26-MAR-19
WG3013237-8 MS		**WG3013237-5**						
2-Chlorophenol			101.2		%		50-140	26-MAR-19
2,4-Dichlorophenol			100.8		%		50-140	26-MAR-19
2,4,5-Trichlorophenol			105.4		%		50-140	26-MAR-19
2,4,6-Trichlorophenol			102.0		%		50-140	26-MAR-19
Pentachlorophenol			91.5		%		50-140	26-MAR-19
B-HWS-R511-WT	**Soil**							
Batch R4584249								
WG3013996-4 DUP		**L2246982-1**						
Boron (B), Hot Water Ext.		0.19	0.18		ug/g	5.3	30	26-MAR-19
WG3013996-2 IRM		**HOTB-SAL_SOIL5**						
Boron (B), Hot Water Ext.			95.6		%		70-130	26-MAR-19
WG3013996-3 LCS								
Boron (B), Hot Water Ext.			94.8		%		70-130	26-MAR-19
WG3013996-1 MB								
Boron (B), Hot Water Ext.			<0.10		ug/g		0.1	26-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
B-HWS-R511-WT	**Soil**							
Batch R4589623								
WG3019199-4 DUP		**L2250766-16**						
Boron (B), Hot Water Ext.		0.18	0.19		ug/g	6.1	30	03-APR-19
WG3019199-2 IRM		**HOTB-SAL_SOIL5**						
Boron (B), Hot Water Ext.			101.0		%		70-130	03-APR-19
WG3019199-3 LCS								
Boron (B), Hot Water Ext.			107.0		%		70-130	03-APR-19
WG3019199-1 MB								
Boron (B), Hot Water Ext.			<0.10		ug/g		0.1	03-APR-19
CN-WAD-R511-WT	**Soil**							
Batch R4581187								
WG3012495-3 DUP		**L2247083-7**						
Cyanide, Weak Acid Diss		<0.050	<0.050	RPD-NA	ug/g	N/A	35	25-MAR-19
WG3012495-2 LCS								
Cyanide, Weak Acid Diss			92.6		%		80-120	25-MAR-19
WG3012495-1 MB								
Cyanide, Weak Acid Diss			<0.050		ug/g		0.05	25-MAR-19
WG3012495-4 MS		**L2247083-7**						
Cyanide, Weak Acid Diss			102.7		%		70-130	25-MAR-19
Batch R4589003								
WG3018464-3 DUP		**L2250793-13**						
Cyanide, Weak Acid Diss		<0.050	<0.050	RPD-NA	ug/g	N/A	35	02-APR-19
WG3018464-2 LCS								
Cyanide, Weak Acid Diss			100.6		%		80-120	02-APR-19
WG3018464-1 MB								
Cyanide, Weak Acid Diss			<0.050		ug/g		0.05	02-APR-19
WG3018464-4 MS		**L2250793-13**						
Cyanide, Weak Acid Diss			105.8		%		70-130	02-APR-19
CR-CR6-IC-WT	**Soil**							
Batch R4583569								
WG3013235-4 CRM		**WT-SQC012**						
Chromium, Hexavalent			94.5		%		70-130	26-MAR-19
WG3013235-3 DUP		**L2247696-1**						
Chromium, Hexavalent		<0.20	<0.20	RPD-NA	ug/g	N/A	35	26-MAR-19
WG3013235-2 LCS								
Chromium, Hexavalent			99.4		%		80-120	26-MAR-19
WG3013235-1 MB								
Chromium, Hexavalent			<0.20		ug/g		0.2	26-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
CR-CR6-IC-WT	**Soil**							
Batch R4585522								
WG3014043-4 CRM		**WT-SQC012**						
Chromium, Hexavalent			84.2		%		70-130	27-MAR-19
WG3014043-3 DUP		**L2247186-2**						
Chromium, Hexavalent		0.21	0.23		ug/g	8.1	35	27-MAR-19
WG3014043-2 LCS								
Chromium, Hexavalent			102.8		%		80-120	27-MAR-19
WG3014043-1 MB								
Chromium, Hexavalent			<0.20		ug/g		0.2	27-MAR-19
Batch R4588911								
WG3018303-4 CRM		**WT-SQC012**						
Chromium, Hexavalent			98.2		%		70-130	02-APR-19
WG3018303-3 DUP		**L2247121-4**						
Chromium, Hexavalent		<0.20	<0.20	RPD-NA	ug/g	N/A	35	02-APR-19
WG3018303-2 LCS								
Chromium, Hexavalent			107.9		%		80-120	02-APR-19
WG3018303-1 MB								
Chromium, Hexavalent			<0.20		ug/g		0.2	02-APR-19
EC-WT	**Soil**							
Batch R4585550								
WG3014881-4 DUP		**WG3014881-3**						
Conductivity		0.452	0.454		mS/cm	0.4	20	27-MAR-19
WG3014881-2 IRM		**WT SAR2**						
Conductivity			98.0		%		70-130	27-MAR-19
WG3015362-1 LCS								
Conductivity			100.8		%		90-110	27-MAR-19
WG3014881-1 MB								
Conductivity			<0.0040		mS/cm		0.004	27-MAR-19
Batch R4589852								
WG3019223-4 DUP		**WG3019223-3**						
Conductivity		0.272	0.299		mS/cm	9.5	20	03-APR-19
WG3019223-2 IRM		**WT SAR2**						
Conductivity			99.5		%		70-130	03-APR-19
WG3019846-1 LCS								
Conductivity			106.2		%		90-110	03-APR-19
WG3019223-1 MB								
Conductivity			<0.0040		mS/cm		0.004	03-APR-19
F1-HS-511-WT	**Soil**							

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F1-HS-511-WT	**Soil**							
Batch R4583426								
WG3013782-4 DUP		**WG3013782-3**						
F1 (C6-C10)		<5.0	<5.0	RPD-NA	ug/g	N/A	30	27-MAR-19
WG3013782-2 LCS								
F1 (C6-C10)			101.3		%		80-120	26-MAR-19
WG3013782-1 MB								
F1 (C6-C10)			<5.0		ug/g		5	26-MAR-19
Surrogate: 3,4-Dichlorotoluene			113.9		%		60-140	26-MAR-19
WG3013782-6 MS		**L2247818-4**						
F1 (C6-C10)			95.5		%		60-140	27-MAR-19
Batch R4585205								
WG3013501-4 DUP		**WG3013501-3**						
F1 (C6-C10)		7.7	8.0		ug/g	3.8	30	27-MAR-19
WG3013501-2 LCS								
F1 (C6-C10)			101.2		%		80-120	27-MAR-19
WG3013501-1 MB								
F1 (C6-C10)			<5.0		ug/g		5	27-MAR-19
Surrogate: 3,4-Dichlorotoluene			102.5		%		60-140	27-MAR-19
WG3013501-6 MS		**L2247122-1**						
F1 (C6-C10)			103.6		%		60-140	27-MAR-19
Batch R4588672								
WG3018230-4 DUP		**WG3018230-3**						
F1 (C6-C10)		<5.0	<5.0	RPD-NA	ug/g	N/A	30	02-APR-19
WG3018230-2 LCS								
F1 (C6-C10)			105.7		%		80-120	02-APR-19
WG3018230-1 MB								
F1 (C6-C10)			<5.0		ug/g		5	02-APR-19
Surrogate: 3,4-Dichlorotoluene			100.9		%		60-140	02-APR-19
WG3018230-6 MS		**L2250793-14**						
F1 (C6-C10)			100.1		%		60-140	02-APR-19
F2-F4-511-WT	**Soil**							
Batch R4583107								
WG3012350-3 DUP		**WG3012350-5**						
F2 (C10-C16)		<10	<10	RPD-NA	ug/g	N/A	30	25-MAR-19
F3 (C16-C34)		<50	<50	RPD-NA	ug/g	N/A	30	25-MAR-19
F4 (C34-C50)		<50	73	RPD-NA	ug/g	N/A	30	25-MAR-19
WG3012350-2 LCS								
F2 (C10-C16)			98.6		%		80-120	25-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F2-F4-511-WT	**Soil**							
Batch R4583107								
WG3012350-2 LCS								
F3 (C16-C34)			100.2		%		80-120	25-MAR-19
F4 (C34-C50)			104.1		%		80-120	25-MAR-19
WG3012350-1 MB								
F2 (C10-C16)			<10		ug/g		10	25-MAR-19
F3 (C16-C34)			<50		ug/g		50	25-MAR-19
F4 (C34-C50)			<50		ug/g		50	25-MAR-19
Surrogate: 2-Bromobenzotrifluoride			83.3		%		60-140	25-MAR-19
WG3012350-4 MS		**WG3012350-5**						
F2 (C10-C16)			96.0		%		60-140	25-MAR-19
F3 (C16-C34)			101.1		%		60-140	25-MAR-19
F4 (C34-C50)			110.1		%		60-140	25-MAR-19
Batch R4585295								
WG3014253-3 DUP		**WG3014253-5**						
F2 (C10-C16)		<10	<10	RPD-NA	ug/g	N/A	30	26-MAR-19
F3 (C16-C34)		<50	<50	RPD-NA	ug/g	N/A	30	26-MAR-19
F4 (C34-C50)		<50	<50	RPD-NA	ug/g	N/A	30	26-MAR-19
WG3014253-2 LCS								
F2 (C10-C16)			108.0		%		80-120	26-MAR-19
F3 (C16-C34)			108.1		%		80-120	26-MAR-19
F4 (C34-C50)			114.7		%		80-120	26-MAR-19
WG3014253-1 MB								
F2 (C10-C16)			<10		ug/g		10	26-MAR-19
F3 (C16-C34)			<50		ug/g		50	26-MAR-19
F4 (C34-C50)			<50		ug/g		50	26-MAR-19
Surrogate: 2-Bromobenzotrifluoride			79.8		%		60-140	26-MAR-19
WG3014253-4 MS		**WG3014253-5**						
F2 (C10-C16)			110.8		%		60-140	26-MAR-19
F3 (C16-C34)			111.4		%		60-140	26-MAR-19
F4 (C34-C50)			118.1		%		60-140	26-MAR-19
Batch R4588751								
WG3017307-8 DUP		**WG3017307-10**						
F2 (C10-C16)		<10	<10	RPD-NA	ug/g	N/A	30	01-APR-19
F3 (C16-C34)		<50	<50	RPD-NA	ug/g	N/A	30	01-APR-19
F4 (C34-C50)		<50	<50	RPD-NA	ug/g	N/A	30	01-APR-19
WG3017307-7 LCS								

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F2-F4-511-WT	**Soil**							
Batch R4588751								
WG3017307-7 LCS								
F2 (C10-C16)			92.9		%		80-120	01-APR-19
F3 (C16-C34)			92.2		%		80-120	01-APR-19
F4 (C34-C50)			97.1		%		80-120	01-APR-19
WG3017307-6 MB								
F2 (C10-C16)			<10		ug/g		10	01-APR-19
F3 (C16-C34)			<50		ug/g		50	01-APR-19
F4 (C34-C50)			<50		ug/g		50	01-APR-19
Surrogate: 2-Bromobenzotrifluoride			78.9		%		60-140	01-APR-19
WG3017307-9 MS		**WG3017307-10**						
F2 (C10-C16)			90.5		%		60-140	01-APR-19
F3 (C16-C34)			88.1		%		60-140	01-APR-19
F4 (C34-C50)			92.1		%		60-140	01-APR-19
F4G-ADD-511-WT	**Soil**							
Batch R4585079								
WG3014788-2 LCS								
F4G-SG (GHH-Silica)			75.1		%		60-140	25-MAR-19
WG3014788-1 MB								
F4G-SG (GHH-Silica)			<250		ug/g		250	25-MAR-19
HG-200.2-CVAA-WT	**Soil**							
Batch R4583528								
WG3013974-2 CRM		**WT-CANMET-TILL1**						
Mercury (Hg)			97.4		%		70-130	26-MAR-19
WG3013974-6 DUP		**WG3013974-5**						
Mercury (Hg)		0.0163	0.0183		ug/g	12	40	26-MAR-19
WG3013974-4 LCS								
Mercury (Hg)			104.5		%		80-120	26-MAR-19
WG3013974-1 MB								
Mercury (Hg)			<0.0050		mg/kg		0.005	26-MAR-19
Batch R4589613								
WG3019157-2 CRM		**WT-CANMET-TILL1**						
Mercury (Hg)			111.0		%		70-130	03-APR-19
WG3019157-6 DUP		**WG3019157-5**						
Mercury (Hg)		0.0315	0.0309		ug/g	1.8	40	03-APR-19
WG3019157-3 LCS								
Mercury (Hg)			119.0		%		80-120	03-APR-19
WG3019157-1 MB								

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
HG-200.2-CVAA-WT	**Soil**							
Batch R4589613								
WG3019157-1 MB								
Mercury (Hg)			<0.0050		mg/kg		0.005	03-APR-19
MET-200.2-CCMS-WT	**Soil**							
Batch R4584117								
WG3013974-2 CRM		**WT-CANMET-TILL1**						
Antimony (Sb)			115.0		%		70-130	26-MAR-19
Arsenic (As)			117.4		%		70-130	26-MAR-19
Barium (Ba)			119.8		%		70-130	26-MAR-19
Beryllium (Be)			111.2		%		70-130	26-MAR-19
Boron (B)			3.2		mg/kg		0-8.2	26-MAR-19
Cadmium (Cd)			116.0		%		70-130	26-MAR-19
Chromium (Cr)			117.5		%		70-130	26-MAR-19
Cobalt (Co)			114.0		%		70-130	26-MAR-19
Copper (Cu)			118.0		%		70-130	26-MAR-19
Lead (Pb)			109.2		%		70-130	26-MAR-19
Molybdenum (Mo)			116.8		%		70-130	26-MAR-19
Nickel (Ni)			115.8		%		70-130	26-MAR-19
Selenium (Se)			0.31		mg/kg		0.11-0.51	26-MAR-19
Silver (Ag)			0.26		mg/kg		0.13-0.33	26-MAR-19
Thallium (Tl)			0.131		mg/kg		0.077-0.18	26-MAR-19
Uranium (U)			106.7		%		70-130	26-MAR-19
Vanadium (V)			117.1		%		70-130	26-MAR-19
Zinc (Zn)			114.7		%		70-130	26-MAR-19
WG3013974-6 DUP		**WG3013974-5**						
Antimony (Sb)		0.17	0.18		ug/g	1.9	30	26-MAR-19
Arsenic (As)		5.91	6.06		ug/g	2.5	30	26-MAR-19
Barium (Ba)		188	217		ug/g	14	40	26-MAR-19
Beryllium (Be)		0.86	0.83		ug/g	3.3	30	26-MAR-19
Boron (B)		9.5	9.2		ug/g	2.6	30	26-MAR-19
Cadmium (Cd)		0.093	0.088		ug/g	5.8	30	26-MAR-19
Chromium (Cr)		28.3	28.0		ug/g	0.9	30	26-MAR-19
Cobalt (Co)		15.6	15.5		ug/g	0.9	30	26-MAR-19
Copper (Cu)		33.9	33.7		ug/g	0.4	30	26-MAR-19
Lead (Pb)		12.0	11.8		ug/g	1.5	40	26-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R4584117								
WG3013974-6 DUP		**WG3013974-5**						
Molybdenum (Mo)		0.52	0.48		ug/g	7.3	40	26-MAR-19
Nickel (Ni)		33.2	33.1		ug/g	0.3	30	26-MAR-19
Selenium (Se)		<0.20	<0.20	RPD-NA	ug/g	N/A	30	26-MAR-19
Silver (Ag)		<0.10	<0.10	RPD-NA	ug/g	N/A	40	26-MAR-19
Thallium (Tl)		0.146	0.144		ug/g	1.5	30	26-MAR-19
Uranium (U)		0.669	0.642		ug/g	4.1	30	26-MAR-19
Vanadium (V)		39.7	39.2		ug/g	1.4	30	26-MAR-19
Zinc (Zn)		67.6	67.2		ug/g	0.6	30	26-MAR-19
WG3013974-3 LCS								
Antimony (Sb)			107.0		%		80-120	26-MAR-19
Arsenic (As)			98.1		%		80-120	26-MAR-19
Barium (Ba)			101.4		%		80-120	26-MAR-19
Beryllium (Be)			97.6		%		80-120	26-MAR-19
Boron (B)			91.6		%		80-120	26-MAR-19
Cadmium (Cd)			97.3		%		80-120	26-MAR-19
Chromium (Cr)			96.6		%		80-120	26-MAR-19
Cobalt (Co)			95.7		%		80-120	26-MAR-19
Copper (Cu)			95.4		%		80-120	26-MAR-19
Lead (Pb)			98.9		%		80-120	26-MAR-19
Molybdenum (Mo)			100.7		%		80-120	26-MAR-19
Nickel (Ni)			94.8		%		80-120	26-MAR-19
Selenium (Se)			103.2		%		80-120	26-MAR-19
Silver (Ag)			99.8		%		80-120	26-MAR-19
Thallium (Tl)			99.1		%		80-120	26-MAR-19
Uranium (U)			91.7		%		80-120	26-MAR-19
Vanadium (V)			100.3		%		80-120	26-MAR-19
Zinc (Zn)			96.3		%		80-120	26-MAR-19
WG3013974-1 MB								
Antimony (Sb)			<0.10		mg/kg		0.1	26-MAR-19
Arsenic (As)			<0.10		mg/kg		0.1	26-MAR-19
Barium (Ba)			<0.50		mg/kg		0.5	26-MAR-19
Beryllium (Be)			<0.10		mg/kg		0.1	26-MAR-19
Boron (B)			<5.0		mg/kg		5	26-MAR-19
Cadmium (Cd)			<0.020		mg/kg		0.02	26-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R4584117								
WG3013974-1 MB								
Chromium (Cr)			<0.50		mg/kg		0.5	26-MAR-19
Cobalt (Co)			<0.10		mg/kg		0.1	26-MAR-19
Copper (Cu)			<0.50		mg/kg		0.5	26-MAR-19
Lead (Pb)			<0.50		mg/kg		0.5	26-MAR-19
Molybdenum (Mo)			<0.10		mg/kg		0.1	26-MAR-19
Nickel (Ni)			<0.50		mg/kg		0.5	26-MAR-19
Selenium (Se)			<0.20		mg/kg		0.2	26-MAR-19
Silver (Ag)			<0.10		mg/kg		0.1	26-MAR-19
Thallium (Tl)			<0.050		mg/kg		0.05	26-MAR-19
Uranium (U)			<0.050		mg/kg		0.05	26-MAR-19
Vanadium (V)			<0.20		mg/kg		0.2	26-MAR-19
Zinc (Zn)			<2.0		mg/kg		2	26-MAR-19
Batch R4589633								
WG3019157-2 CRM		**WT-CANMET-TILL1**						
Antimony (Sb)			103.0		%		70-130	03-APR-19
Arsenic (As)			102.4		%		70-130	03-APR-19
Barium (Ba)			101.9		%		70-130	03-APR-19
Beryllium (Be)			98.1		%		70-130	03-APR-19
Boron (B)			3.1		mg/kg		0-8.2	03-APR-19
Cadmium (Cd)			105.5		%		70-130	03-APR-19
Chromium (Cr)			103.5		%		70-130	03-APR-19
Cobalt (Co)			102.2		%		70-130	03-APR-19
Copper (Cu)			104.7		%		70-130	03-APR-19
Lead (Pb)			102.9		%		70-130	03-APR-19
Molybdenum (Mo)			108.6		%		70-130	03-APR-19
Nickel (Ni)			102.9		%		70-130	03-APR-19
Selenium (Se)			0.32		mg/kg		0.11-0.51	03-APR-19
Silver (Ag)			0.23		mg/kg		0.13-0.33	03-APR-19
Thallium (Tl)			0.124		mg/kg		0.077-0.18	03-APR-19
Uranium (U)			100.3		%		70-130	03-APR-19
Vanadium (V)			102.4		%		70-130	03-APR-19
Zinc (Zn)			102.5		%		70-130	03-APR-19
WG3019157-6 DUP		**WG3019157-5**						
Antimony (Sb)		0.14	0.24	J	ug/g	0.10	0.2	03-APR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R4589633								
WG3019157-6 DUP		**WG3019157-5**						
Arsenic (As)		3.48	3.64		ug/g	4.5	30	03-APR-19
Barium (Ba)		55.7	54.9		ug/g	1.3	40	03-APR-19
Beryllium (Be)		0.38	0.37		ug/g	4.0	30	03-APR-19
Boron (B)		<5.0	<5.0	RPD-NA	ug/g	N/A	30	03-APR-19
Cadmium (Cd)		0.268	0.267		ug/g	0.4	30	03-APR-19
Chromium (Cr)		13.2	13.2		ug/g	0.6	30	03-APR-19
Cobalt (Co)		5.11	5.25		ug/g	2.6	30	03-APR-19
Copper (Cu)		8.25	8.39		ug/g	1.6	30	03-APR-19
Lead (Pb)		16.0	16.0		ug/g	0.0	40	03-APR-19
Molybdenum (Mo)		0.33	0.34		ug/g	1.0	40	03-APR-19
Nickel (Ni)		8.89	9.16		ug/g	3.1	30	03-APR-19
Selenium (Se)		0.20	0.21		ug/g	2.6	30	03-APR-19
Silver (Ag)		<0.10	<0.10	RPD-NA	ug/g	N/A	40	03-APR-19
Thallium (Tl)		0.082	0.084		ug/g	2.2	30	03-APR-19
Uranium (U)		0.433	0.422		ug/g	2.6	30	03-APR-19
Vanadium (V)		26.5	26.8		ug/g	1.1	30	03-APR-19
Zinc (Zn)		67.0	66.9		ug/g	0.1	30	03-APR-19
WG3019157-4 LCS								
Antimony (Sb)			106.4		%		80-120	03-APR-19
Arsenic (As)			102.4		%		80-120	03-APR-19
Barium (Ba)			109.5		%		80-120	03-APR-19
Beryllium (Be)			94.5		%		80-120	03-APR-19
Boron (B)			93.3		%		80-120	03-APR-19
Cadmium (Cd)			101.1		%		80-120	03-APR-19
Chromium (Cr)			104.5		%		80-120	03-APR-19
Cobalt (Co)			101.5		%		80-120	03-APR-19
Copper (Cu)			102.0		%		80-120	03-APR-19
Lead (Pb)			100.2		%		80-120	03-APR-19
Molybdenum (Mo)			104.5		%		80-120	03-APR-19
Nickel (Ni)			102.1		%		80-120	03-APR-19
Selenium (Se)			98.1		%		80-120	03-APR-19
Silver (Ag)			100.9		%		80-120	03-APR-19
Thallium (Tl)			98.4		%		80-120	03-APR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R4589633								
WG3019157-4 LCS								
Uranium (U)			97.3		%		80-120	03-APR-19
Vanadium (V)			107.2		%		80-120	03-APR-19
Zinc (Zn)			101.2		%		80-120	03-APR-19
WG3019157-1 MB								
Antimony (Sb)			<0.10		mg/kg		0.1	03-APR-19
Arsenic (As)			<0.10		mg/kg		0.1	03-APR-19
Barium (Ba)			<0.50		mg/kg		0.5	03-APR-19
Beryllium (Be)			<0.10		mg/kg		0.1	03-APR-19
Boron (B)			<5.0		mg/kg		5	03-APR-19
Cadmium (Cd)			<0.020		mg/kg		0.02	03-APR-19
Chromium (Cr)			<0.50		mg/kg		0.5	03-APR-19
Cobalt (Co)			<0.10		mg/kg		0.1	03-APR-19
Copper (Cu)			<0.50		mg/kg		0.5	03-APR-19
Lead (Pb)			<0.50		mg/kg		0.5	03-APR-19
Molybdenum (Mo)			<0.10		mg/kg		0.1	03-APR-19
Nickel (Ni)			<0.50		mg/kg		0.5	03-APR-19
Selenium (Se)			<0.20		mg/kg		0.2	03-APR-19
Silver (Ag)			<0.10		mg/kg		0.1	03-APR-19
Thallium (Tl)			<0.050		mg/kg		0.05	03-APR-19
Uranium (U)			<0.050		mg/kg		0.05	03-APR-19
Vanadium (V)			<0.20		mg/kg		0.2	03-APR-19
Zinc (Zn)			<2.0		mg/kg		2	03-APR-19
MOISTURE-WT	**Soil**							
Batch R4580102								
WG3012100-3 DUP		**L2245347-1**						
% Moisture		18.2	16.5		%	9.9	20	23-MAR-19
WG3012100-2 LCS								
% Moisture			101.9		%		90-110	23-MAR-19
WG3012100-1 MB								
% Moisture			<0.10		%		0.1	23-MAR-19
Batch R4587521								
WG3017280-3 DUP		**L2250754-5**						
% Moisture		18.6	19.9		%	6.9	20	30-MAR-19
WG3017280-2 LCS								
% Moisture			100.1		%		90-110	30-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MOISTURE-WT	**Soil**							
Batch R4587521								
WG3017280-1 MB								
% Moisture			<0.10		%		0.1	30-MAR-19
PAH-511-WT	**Soil**							
Batch R4582909								
WG3011796-3 DUP		**WG3011796-5**						
1-Methylnaphthalene		38.7	35.4		ug/g	8.9	40	26-MAR-19
2-Methylnaphthalene		56.8	51.6		ug/g	9.6	40	26-MAR-19
Acenaphthene		3.05	2.92		ug/g	4.4	40	26-MAR-19
Acenaphthylene		0.540	0.531		ug/g	1.7	40	26-MAR-19
Anthracene		<0.28	<0.28	RPD-NA	ug/g	N/A	40	26-MAR-19
Benzo(a)anthracene		0.056	0.057		ug/g	2.5	40	26-MAR-19
Benzo(a)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Benzo(b)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Benzo(g,h,i)perylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Benzo(k)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Chrysene		0.157	0.149		ug/g	5.3	40	26-MAR-19
Dibenzo(ah)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Fluoranthene		0.251	0.244		ug/g	3.0	40	26-MAR-19
Fluorene		5.16	4.82		ug/g	6.7	40	26-MAR-19
Indeno(1,2,3-cd)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Naphthalene		7.62	7.24		ug/g	5.1	40	26-MAR-19
Phenanthrene		12.8	11.8		ug/g	8.3	40	26-MAR-19
Pyrene		1.04	1.02		ug/g	2.7	40	26-MAR-19
WG3011796-2 LCS								
1-Methylnaphthalene			94.4		%		50-140	25-MAR-19
2-Methylnaphthalene			91.3		%		50-140	25-MAR-19
Acenaphthene			98.4		%		50-140	25-MAR-19
Acenaphthylene			90.8		%		50-140	25-MAR-19
Anthracene			93.2		%		50-140	25-MAR-19
Benzo(a)anthracene			94.4		%		50-140	25-MAR-19
Benzo(a)pyrene			94.4		%		50-140	25-MAR-19
Benzo(b)fluoranthene			95.0		%		50-140	25-MAR-19
Benzo(g,h,i)perylene			101.5		%		50-140	25-MAR-19
Benzo(k)fluoranthene			99.4				50-140	

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R4582909								
WG3011796-2 LCS								
Benzo(k)fluoranthene			99.4		%		50-140	25-MAR-19
Chrysene			98.2		%		50-140	25-MAR-19
Dibenzo(ah)anthracene			94.6		%		50-140	25-MAR-19
Fluoranthene			88.8		%		50-140	25-MAR-19
Fluorene			92.6		%		50-140	25-MAR-19
Indeno(1,2,3-cd)pyrene			85.3		%		50-140	25-MAR-19
Naphthalene			93.1		%		50-140	25-MAR-19
Phenanthrene			98.6		%		50-140	25-MAR-19
Pyrene			90.5		%		50-140	25-MAR-19
WG3011796-1 MB								
1-Methylnaphthalene			<0.030		ug/g		0.03	26-MAR-19
2-Methylnaphthalene			<0.030		ug/g		0.03	26-MAR-19
Acenaphthene			<0.050		ug/g		0.05	26-MAR-19
Acenaphthylene			<0.050		ug/g		0.05	26-MAR-19
Anthracene			<0.050		ug/g		0.05	26-MAR-19
Benzo(a)anthracene			<0.050		ug/g		0.05	26-MAR-19
Benzo(a)pyrene			<0.050		ug/g		0.05	26-MAR-19
Benzo(b)fluoranthene			<0.050		ug/g		0.05	26-MAR-19
Benzo(g,h,i)perylene			<0.050		ug/g		0.05	26-MAR-19
Benzo(k)fluoranthene			<0.050		ug/g		0.05	26-MAR-19
Chrysene			<0.050		ug/g		0.05	26-MAR-19
Dibenzo(ah)anthracene			<0.050		ug/g		0.05	26-MAR-19
Fluoranthene			<0.050		ug/g		0.05	26-MAR-19
Fluorene			<0.050		ug/g		0.05	26-MAR-19
Indeno(1,2,3-cd)pyrene			<0.050		ug/g		0.05	26-MAR-19
Naphthalene			<0.013		ug/g		0.013	26-MAR-19
Phenanthrene			<0.046		ug/g		0.046	26-MAR-19
Pyrene			<0.050		ug/g		0.05	26-MAR-19
Surrogate: 2-Fluorobiphenyl			102.4		%		50-140	26-MAR-19
Surrogate: p-Terphenyl d14			93.9		%		50-140	26-MAR-19
WG3011796-4 MS		**WG3011796-5**						
1-Methylnaphthalene			N/A	MS-B	%		-	26-MAR-19
2-Methylnaphthalene			N/A	MS-B	%		-	26-MAR-19
Acenaphthene			N/A	MS-B	%		-	26-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R4582909								
WG3011796-4 MS		**WG3011796-5**						
Acenaphthylene			84.8		%		50-140	26-MAR-19
Anthracene			70.4		%		50-140	26-MAR-19
Benzo(a)anthracene			110.6		%		50-140	26-MAR-19
Benzo(a)pyrene			99.3		%		50-140	26-MAR-19
Benzo(b)fluoranthene			104.9		%		50-140	26-MAR-19
Benzo(g,h,i)perylene			95.7		%		50-140	26-MAR-19
Benzo(k)fluoranthene			93.8		%		50-140	26-MAR-19
Chrysene			87.7		%		50-140	26-MAR-19
Dibenzo(ah)anthracene			95.8		%		50-140	26-MAR-19
Fluoranthene			91.2		%		50-140	26-MAR-19
Fluorene			N/A	MS-B	%		-	26-MAR-19
Indeno(1,2,3-cd)pyrene			92.0		%		50-140	26-MAR-19
Naphthalene			N/A	MS-B	%		-	26-MAR-19
Phenanthrene			N/A	MS-B	%		-	26-MAR-19
Pyrene			N/A	MS-B	%		-	26-MAR-19
Batch R4589362								
WG3018200-3 DUP		**WG3018200-5**						
1-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	03-APR-19
2-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	03-APR-19
Acenaphthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	03-APR-19
Acenaphthylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	03-APR-19
Anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	03-APR-19
Benzo(a)anthracene		0.089	0.092		ug/g	3.7	40	03-APR-19
Benzo(a)pyrene		0.099	0.104		ug/g	4.2	40	03-APR-19
Benzo(b)fluoranthene		0.187	0.195		ug/g	4.2	40	03-APR-19
Benzo(g,h,i)perylene		0.090	0.093		ug/g	2.9	40	03-APR-19
Benzo(k)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	03-APR-19
Chrysene		0.100	0.107		ug/g	7.4	40	03-APR-19
Dibenzo(ah)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	03-APR-19
Fluoranthene		0.210	0.208		ug/g	1.1	40	03-APR-19
Fluorene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	03-APR-19
Indeno(1,2,3-cd)pyrene		0.078	0.080		ug/g	3.3	40	03-APR-19
Naphthalene		<0.013	<0.013	RPD-NA	ug/g	N/A	40	03-APR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R4589362								
WG3018200-3 DUP		**WG3018200-5**						
Phenanthrene		0.087	0.084		ug/g	3.8	40	03-APR-19
Pyrene		0.180	0.179		ug/g	0.4	40	03-APR-19
WG3018200-2 LCS								
1-Methylnaphthalene			94.7		%		50-140	02-APR-19
2-Methylnaphthalene			91.7		%		50-140	02-APR-19
Acenaphthene			98.1		%		50-140	02-APR-19
Acenaphthylene			91.5		%		50-140	02-APR-19
Anthracene			89.8		%		50-140	02-APR-19
Benzo(a)anthracene			88.6		%		50-140	02-APR-19
Benzo(a)pyrene			94.3		%		50-140	02-APR-19
Benzo(b)fluoranthene			76.0		%		50-140	02-APR-19
Benzo(g,h,i)perylene			77.5		%		50-140	02-APR-19
Benzo(k)fluoranthene			96.7		%		50-140	02-APR-19
Chrysene			92.2		%		50-140	02-APR-19
Dibenzo(ah)anthracene			80.1		%		50-140	02-APR-19
Fluoranthene			90.7		%		50-140	02-APR-19
Fluorene			92.7		%		50-140	02-APR-19
Indeno(1,2,3-cd)pyrene			80.8		%		50-140	02-APR-19
Naphthalene			92.0		%		50-140	02-APR-19
Phenanthrene			93.3		%		50-140	02-APR-19
Pyrene			91.1		%		50-140	02-APR-19
WG3018200-1 MB								
1-Methylnaphthalene			<0.030		ug/g		0.03	02-APR-19
2-Methylnaphthalene			<0.030		ug/g		0.03	02-APR-19
Acenaphthene			<0.050		ug/g		0.05	02-APR-19
Acenaphthylene			<0.050		ug/g		0.05	02-APR-19
Anthracene			<0.050		ug/g		0.05	02-APR-19
Benzo(a)anthracene			<0.050		ug/g		0.05	02-APR-19
Benzo(a)pyrene			<0.050		ug/g		0.05	02-APR-19
Benzo(b)fluoranthene			<0.050		ug/g		0.05	02-APR-19
Benzo(g,h,i)perylene			<0.050		ug/g		0.05	02-APR-19
Benzo(k)fluoranthene			<0.050		ug/g		0.05	02-APR-19
Chrysene			<0.050		ug/g		0.05	02-APR-19
Dibenzo(ah)anthracene			<0.050		ug/g		0.05	02-APR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R4589362								
WG3018200-1 MB								
Fluoranthene			<0.050		ug/g		0.05	02-APR-19
Fluorene			<0.050		ug/g		0.05	02-APR-19
Indeno(1,2,3-cd)pyrene			<0.050		ug/g		0.05	02-APR-19
Naphthalene			<0.013		ug/g		0.013	02-APR-19
Phenanthrene			<0.046		ug/g		0.046	02-APR-19
Pyrene			<0.050		ug/g		0.05	02-APR-19
Surrogate: 2-Fluorobiphenyl			89.2		%		50-140	02-APR-19
Surrogate: p-Terphenyl d14			92.5		%		50-140	02-APR-19
WG3018200-4 MS		**WG3018200-5**						
1-Methylnaphthalene			88.8		%		50-140	03-APR-19
2-Methylnaphthalene			86.5		%		50-140	03-APR-19
Acenaphthene			94.3		%		50-140	03-APR-19
Acenaphthylene			88.6		%		50-140	03-APR-19
Anthracene			91.4		%		50-140	03-APR-19
Benzo(a)anthracene			99.3		%		50-140	03-APR-19
Benzo(a)pyrene			90.2		%		50-140	03-APR-19
Benzo(b)fluoranthene			112.3		%		50-140	03-APR-19
Benzo(g,h,i)perylene			93.6		%		50-140	03-APR-19
Benzo(k)fluoranthene			82.2		%		50-140	03-APR-19
Chrysene			87.0		%		50-140	03-APR-19
Dibenzo(ah)anthracene			102.4		%		50-140	03-APR-19
Fluoranthene			99.9		%		50-140	03-APR-19
Fluorene			91.2		%		50-140	03-APR-19
Indeno(1,2,3-cd)pyrene			103.0		%		50-140	03-APR-19
Naphthalene			87.0		%		50-140	03-APR-19
Phenanthrene			92.2		%		50-140	03-APR-19
Pyrene			101.4		%		50-140	03-APR-19
PCB-511-WT	**Soil**							
Batch R4585377								
WG3011796-7 DUP		**WG3011796-6**						
Aroclor 1242		<0.150	<0.150	RPD-NA	ug/g	N/A	40	27-MAR-19
Aroclor 1248		<0.020	<0.020	RPD-NA	ug/g	N/A	40	27-MAR-19
Aroclor 1254		<0.020	<0.020	RPD-NA	ug/g	N/A	40	27-MAR-19
Aroclor 1260		<0.020	<0.020	RPD-NA	ug/g	N/A	40	27-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PCB-511-WT	**Soil**							
Batch R4585377								
WG3011796-2 LCS								
Aroclor 1242			96.5		%		60-140	27-MAR-19
Aroclor 1248			90.0		%		60-140	27-MAR-19
Aroclor 1254			100.7		%		60-140	27-MAR-19
Aroclor 1260			112.9		%		60-140	27-MAR-19
WG3011796-1 MB								
Aroclor 1242			<0.010		ug/g		0.01	27-MAR-19
Aroclor 1248			<0.010		ug/g		0.01	27-MAR-19
Aroclor 1254			<0.010		ug/g		0.01	27-MAR-19
Aroclor 1260			<0.010		ug/g		0.01	27-MAR-19
Surrogate: d14-Terphenyl			86.5		%		60-140	27-MAR-19
WG3011796-8 MS		**WG3011796-6**						
Aroclor 1242			64.9		%		60-140	27-MAR-19
Aroclor 1254			89.3		%		60-140	27-MAR-19
Aroclor 1260			98.4		%		60-140	27-MAR-19
PEST-OC-511-WT	**Soil**							
Batch R4581388								
WG3011936-3 DUP		**WG3011936-5**						
Aldrin		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
a-chlordane		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
g-chlordane		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
op-DDD		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
pp-DDD		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
o,p-DDE		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
pp-DDE		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
op-DDT		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
pp-DDT		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
Dieldrin		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
Endosulfan I		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
Endosulfan II		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
Endrin		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
gamma-hexachlorocyclohexane		<0.10	<0.10	RPD-NA	ug/g	N/A	40	25-MAR-19
Heptachlor		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
Heptachlor Epoxide		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
Hexachlorobenzene		<0.10	<0.10		ug/g			25-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PEST-OC-511-WT	**Soil**							
Batch R4581388								
WG3011936-3 DUP		**WG3011936-5**						
Hexachlorobenzene		<0.10	<0.10	RPD-NA	ug/g	N/A	40	25-MAR-19
Hexachlorobutadiene		<0.10	<0.10	RPD-NA	ug/g	N/A	40	25-MAR-19
Hexachloroethane		<0.10	<0.10	RPD-NA	ug/g	N/A	40	25-MAR-19
Methoxychlor		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
WG3011936-2 LCS								
Aldrin			102.8		%		50-140	25-MAR-19
a-chlordane			79.4		%		50-140	25-MAR-19
g-chlordane			82.6		%		50-140	25-MAR-19
op-DDD			84.4		%		50-140	25-MAR-19
pp-DDD			91.2		%		50-140	25-MAR-19
o,p-DDE			78.8		%		50-140	25-MAR-19
pp-DDE			78.1		%		50-140	25-MAR-19
op-DDT			133.1		%		50-140	25-MAR-19
pp-DDT			139.8		%		50-140	25-MAR-19
Dieldrin			80.7		%		50-140	25-MAR-19
Endosulfan I			83.0		%		50-140	25-MAR-19
Endosulfan II			93.6		%		50-140	25-MAR-19
Endrin			146.5	RRQC	%		50-140	25-MAR-19
gamma-hexachlorocyclohexane			95.1		%		50-140	25-MAR-19
Heptachlor			106.7		%		50-140	25-MAR-19
Heptachlor Epoxide			85.1		%		50-140	25-MAR-19
Hexachlorobenzene			99.2		%		50-140	25-MAR-19
Hexachlorobutadiene			95.3		%		50-140	25-MAR-19
Hexachloroethane			102.4		%		50-140	25-MAR-19
Methoxychlor			152.6	RRQC	%		50-140	25-MAR-19
COMMENTS: RRQC: Recovery is outside ALS control limits. Associated sample results have not been affected.								
WG3011936-1 MB								
Aldrin			<0.020		ug/g		0.02	25-MAR-19
a-chlordane			<0.020		ug/g		0.02	25-MAR-19
g-chlordane			<0.020		ug/g		0.02	25-MAR-19
op-DDD			<0.020		ug/g		0.02	25-MAR-19
pp-DDD			<0.020		ug/g		0.02	25-MAR-19
o,p-DDE			<0.020		ug/g		0.02	25-MAR-19
pp-DDE			<0.020		ug/g		0.02	25-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PEST-OC-511-WT	**Soil**							
Batch R4581388								
WG3011936-1 MB								
op-DDT			<0.020		ug/g		0.02	25-MAR-19
pp-DDT			<0.020		ug/g		0.02	25-MAR-19
Dieldrin			<0.020		ug/g		0.02	25-MAR-19
Endosulfan I			<0.020		ug/g		0.02	25-MAR-19
Endosulfan II			<0.020		ug/g		0.02	25-MAR-19
Endrin			<0.020		ug/g		0.02	25-MAR-19
gamma-hexachlorocyclohexane			<0.010		ug/g		0.01	25-MAR-19
Heptachlor			<0.020		ug/g		0.02	25-MAR-19
Heptachlor Epoxide			<0.020		ug/g		0.02	25-MAR-19
Hexachlorobenzene			<0.010		ug/g		0.01	25-MAR-19
Hexachlorobutadiene			<0.010		ug/g		0.01	25-MAR-19
Hexachloroethane			<0.010		ug/g		0.01	25-MAR-19
Methoxychlor			<0.020		ug/g		0.02	25-MAR-19
Surrogate: 2-Fluorobiphenyl			95.0		%		50-140	25-MAR-19
Surrogate: d14-Terphenyl			110.5		%		50-140	25-MAR-19
WG3011936-4 MS		**WG3011936-5**						
Aldrin			85.0		%		50-140	25-MAR-19
a-chlordane			62.0		%		50-140	25-MAR-19
g-chlordane			67.1		%		50-140	25-MAR-19
op-DDD			64.1		%		50-140	25-MAR-19
pp-DDD			66.3		%		50-140	25-MAR-19
o,p-DDE			66.8		%		50-140	25-MAR-19
pp-DDE			68.2		%		50-140	25-MAR-19
op-DDT			98.8		%		50-140	25-MAR-19
pp-DDT			100.2		%		50-140	25-MAR-19
Dieldrin			61.1		%		50-140	25-MAR-19
Endosulfan I			59.8		%		50-140	25-MAR-19
Endosulfan II			66.2		%		50-140	25-MAR-19
Endrin			93.8		%		50-140	25-MAR-19
gamma-hexachlorocyclohexane			71.9		%		50-140	25-MAR-19
Heptachlor			78.3		%		50-140	25-MAR-19
Heptachlor Epoxide			64.6		%		50-140	25-MAR-19
Hexachlorobenzene			85.0		%		50-140	25-MAR-19
Hexachlorobutadiene			81.8		%		50-140	25-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PEST-OC-511-WT	**Soil**							
Batch R4581388								
WG3011936-4 MS		**WG3011936-5**						
Hexachloroethane			81.3		%		50-140	25-MAR-19
Methoxychlor			102.4		%		50-140	25-MAR-19
PH-WT	**Soil**							
Batch R4580950								
WG3013217-1 DUP		**L2247151-1**						
pH		7.82	7.82	J	pH units	0.00	0.3	25-MAR-19
WG3013316-1 LCS								
pH			6.96		pH units		6.9-7.1	25-MAR-19
Batch R4589066								
WG3017343-1 DUP		**L2250793-9**						
pH		7.96	8.01	J	pH units	0.05	0.3	02-APR-19
WG3019198-1 LCS								
pH			6.97		pH units		6.9-7.1	02-APR-19
SAR-R511-WT	**Soil**							
Batch R4585507								
WG3014881-4 DUP		**WG3014881-3**						
Calcium (Ca)		8.04	7.07		mg/L	13	30	27-MAR-19
Sodium (Na)		89.7	90.6		mg/L	1.0	30	27-MAR-19
Magnesium (Mg)		1.00	0.82		mg/L	20	30	27-MAR-19
WG3014881-2 IRM		**WT SAR2**						
Calcium (Ca)			101.8		%		70-130	27-MAR-19
Sodium (Na)			96.4		%		70-130	27-MAR-19
Magnesium (Mg)			100.6		%		70-130	27-MAR-19
WG3014881-5 LCS								
Calcium (Ca)			107.7		%		70-130	27-MAR-19
Sodium (Na)			104.0		%		70-130	27-MAR-19
Magnesium (Mg)			101.8		%		70-130	27-MAR-19
WG3014881-1 MB								
Calcium (Ca)			<0.50		mg/L		0.5	27-MAR-19
Sodium (Na)			<0.50		mg/L		0.5	27-MAR-19
Magnesium (Mg)			<0.50		mg/L		0.5	27-MAR-19
Batch R4586408								
WG3015821-4 DUP		**WG3015821-3**						
Calcium (Ca)		4.69	4.01		mg/L	16	30	28-MAR-19
Sodium (Na)		56.0	56.0		mg/L	0.0	30	28-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
SAR-R511-WT	**Soil**							
Batch R4586408								
WG3015821-4 DUP		**WG3015821-3**						
Magnesium (Mg)		1.79	1.56		mg/L	14	30	28-MAR-19
WG3015821-2 IRM		**WT SAR2**						
Calcium (Ca)			106.1		%		70-130	28-MAR-19
Sodium (Na)			98.3		%		70-130	28-MAR-19
Magnesium (Mg)			102.4		%		70-130	28-MAR-19
WG3015821-5 LCS								
Calcium (Ca)			109.3		%		70-130	28-MAR-19
Sodium (Na)			104.2		%		70-130	28-MAR-19
Magnesium (Mg)			103.0		%		70-130	28-MAR-19
WG3015821-1 MB								
Calcium (Ca)			<0.50		mg/L		0.5	28-MAR-19
Sodium (Na)			<0.50		mg/L		0.5	28-MAR-19
Magnesium (Mg)			<0.50		mg/L		0.5	28-MAR-19
Batch R4589601								
WG3019223-4 DUP		**WG3019223-3**						
Calcium (Ca)		24.8	27.3		mg/L	9.6	30	03-APR-19
Sodium (Na)		17.7	19.7		mg/L	11	30	03-APR-19
Magnesium (Mg)		2.20	2.43		mg/L	9.9	30	03-APR-19
WG3019223-2 IRM		**WT SAR2**						
Calcium (Ca)			104.9		%		70-130	03-APR-19
Sodium (Na)			94.0		%		70-130	03-APR-19
Magnesium (Mg)			101.8		%		70-130	03-APR-19
WG3019223-5 LCS								
Calcium (Ca)			108.0		%		70-130	03-APR-19
Sodium (Na)			102.0		%		70-130	03-APR-19
Magnesium (Mg)			102.4		%		70-130	03-APR-19
WG3019223-1 MB								
Calcium (Ca)			<0.50		mg/L		0.5	03-APR-19
Sodium (Na)			<0.50		mg/L		0.5	03-APR-19
Magnesium (Mg)			<0.50		mg/L		0.5	03-APR-19
VOC-511-HS-WT	**Soil**							
Batch R4583426								
WG3013782-4 DUP		**WG3013782-3**						
1,1,1,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
1,1,2,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4583426								
WG3013782-4 DUP		**WG3013782-3**						
1,1,1-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
1,1,2-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
1,1-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
1,1-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
1,2-Dibromoethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
1,2-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
1,2-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
1,2-Dichloropropane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
1,3-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
1,4-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Acetone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	26-MAR-19
Benzene		<0.0068	<0.0068	RPD-NA	ug/g	N/A	40	26-MAR-19
Bromodichloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Bromoform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Bromomethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Carbon tetrachloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Chlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Chloroform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
cis-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
cis-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	26-MAR-19
Dibromochloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Dichlorodifluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Ethylbenzene		<0.018	<0.018	RPD-NA	ug/g	N/A	40	26-MAR-19
n-Hexane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Methylene Chloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
MTBE		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
m+p-Xylenes		<0.030	<0.030	RPD-NA	ug/g	N/A	40	26-MAR-19
Methyl Ethyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	26-MAR-19
Methyl Isobutyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	26-MAR-19
o-Xylene		<0.020	<0.020	RPD-NA	ug/g	N/A	40	26-MAR-19
Styrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Tetrachloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Toluene		<0.080	<0.080		ug/g			26-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4583426								
WG3013782-4 DUP		**WG3013782-3**						
Toluene		<0.080	<0.080	RPD-NA	ug/g	N/A	40	26-MAR-19
trans-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
trans-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	26-MAR-19
Trichloroethylene		<0.010	<0.010	RPD-NA	ug/g	N/A	40	26-MAR-19
Trichlorofluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Vinyl chloride		<0.020	<0.020	RPD-NA	ug/g	N/A	40	26-MAR-19
WG3013782-2 LCS								
1,1,1,2-Tetrachloroethane			101.0		%		60-130	26-MAR-19
1,1,2,2-Tetrachloroethane			104.8		%		60-130	26-MAR-19
1,1,1-Trichloroethane			103.7		%		60-130	26-MAR-19
1,1,2-Trichloroethane			102.3		%		60-130	26-MAR-19
1,1-Dichloroethane			107.4		%		60-130	26-MAR-19
1,1-Dichloroethylene			104.5		%		60-130	26-MAR-19
1,2-Dibromoethane			98.9		%		70-130	26-MAR-19
1,2-Dichlorobenzene			104.6		%		70-130	26-MAR-19
1,2-Dichloroethane			101.1		%		60-130	26-MAR-19
1,2-Dichloropropane			102.8		%		70-130	26-MAR-19
1,3-Dichlorobenzene			107.6		%		70-130	26-MAR-19
1,4-Dichlorobenzene			107.0		%		70-130	26-MAR-19
Acetone			93.9		%		60-140	26-MAR-19
Benzene			106.8		%		70-130	26-MAR-19
Bromodichloromethane			100.1		%		50-140	26-MAR-19
Bromoform			96.1		%		70-130	26-MAR-19
Bromomethane			113.8		%		50-140	26-MAR-19
Carbon tetrachloride			103.2		%		70-130	26-MAR-19
Chlorobenzene			105.3		%		70-130	26-MAR-19
Chloroform			104.5		%		70-130	26-MAR-19
cis-1,2-Dichloroethylene			102.7		%		70-130	26-MAR-19
cis-1,3-Dichloropropene			101.1		%		70-130	26-MAR-19
Dibromochloromethane			99.4		%		60-130	26-MAR-19
Dichlorodifluoromethane			82.8		%		50-140	26-MAR-19
Ethylbenzene			100.7		%		70-130	26-MAR-19
n-Hexane			100.8		%		70-130	26-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4583426								
WG3013782-2 LCS								
Methylene Chloride			104.6		%		70-130	26-MAR-19
MTBE			105.0		%		70-130	26-MAR-19
m+p-Xylenes			102.4		%		70-130	26-MAR-19
Methyl Ethyl Ketone			95.8		%		60-140	26-MAR-19
Methyl Isobutyl Ketone			82.5		%		60-140	26-MAR-19
o-Xylene			97.6		%		70-130	26-MAR-19
Styrene			97.3		%		70-130	26-MAR-19
Tetrachloroethylene			107.4		%		60-130	26-MAR-19
Toluene			104.4		%		70-130	26-MAR-19
trans-1,2-Dichloroethylene			106.7		%		60-130	26-MAR-19
trans-1,3-Dichloropropene			101.8		%		70-130	26-MAR-19
Trichloroethylene			105.9		%		60-130	26-MAR-19
Trichlorofluoromethane			100.6		%		50-140	26-MAR-19
Vinyl chloride			87.1		%		60-140	26-MAR-19
WG3013782-1 MB								
1,1,1,2-Tetrachloroethane			<0.050		ug/g		0.05	26-MAR-19
1,1,2,2-Tetrachloroethane			<0.050		ug/g		0.05	26-MAR-19
1,1,1-Trichloroethane			<0.050		ug/g		0.05	26-MAR-19
1,1,2-Trichloroethane			<0.050		ug/g		0.05	26-MAR-19
1,1-Dichloroethane			<0.050		ug/g		0.05	26-MAR-19
1,1-Dichloroethylene			<0.050		ug/g		0.05	26-MAR-19
1,2-Dibromoethane			<0.050		ug/g		0.05	26-MAR-19
1,2-Dichlorobenzene			<0.050		ug/g		0.05	26-MAR-19
1,2-Dichloroethane			<0.050		ug/g		0.05	26-MAR-19
1,2-Dichloropropane			<0.050		ug/g		0.05	26-MAR-19
1,3-Dichlorobenzene			<0.050		ug/g		0.05	26-MAR-19
1,4-Dichlorobenzene			<0.050		ug/g		0.05	26-MAR-19
Acetone			<0.50		ug/g		0.5	26-MAR-19
Benzene			<0.0068		ug/g		0.0068	26-MAR-19
Bromodichloromethane			<0.050		ug/g		0.05	26-MAR-19
Bromoform			<0.050		ug/g		0.05	26-MAR-19
Bromomethane			<0.050		ug/g		0.05	26-MAR-19
Carbon tetrachloride			<0.050		ug/g		0.05	26-MAR-19
Chlorobenzene			<0.050		ug/g		0.05	26-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4583426								
WG3013782-1 MB								
Chloroform			<0.050		ug/g		0.05	26-MAR-19
cis-1,2-Dichloroethylene			<0.050		ug/g		0.05	26-MAR-19
cis-1,3-Dichloropropene			<0.030		ug/g		0.03	26-MAR-19
Dibromochloromethane			<0.050		ug/g		0.05	26-MAR-19
Dichlorodifluoromethane			<0.050		ug/g		0.05	26-MAR-19
Ethylbenzene			<0.018		ug/g		0.018	26-MAR-19
n-Hexane			<0.050		ug/g		0.05	26-MAR-19
Methylene Chloride			<0.050		ug/g		0.05	26-MAR-19
MTBE			<0.050		ug/g		0.05	26-MAR-19
m+p-Xylenes			<0.030		ug/g		0.03	26-MAR-19
Methyl Ethyl Ketone			<0.50		ug/g		0.5	26-MAR-19
Methyl Isobutyl Ketone			<0.50		ug/g		0.5	26-MAR-19
o-Xylene			<0.020		ug/g		0.02	26-MAR-19
Styrene			<0.050		ug/g		0.05	26-MAR-19
Tetrachloroethylene			<0.050		ug/g		0.05	26-MAR-19
Toluene			<0.080		ug/g		0.08	26-MAR-19
trans-1,2-Dichloroethylene			<0.050		ug/g		0.05	26-MAR-19
trans-1,3-Dichloropropene			<0.030		ug/g		0.03	26-MAR-19
Trichloroethylene			<0.010		ug/g		0.01	26-MAR-19
Trichlorofluoromethane			<0.050		ug/g		0.05	26-MAR-19
Vinyl chloride			<0.020		ug/g		0.02	26-MAR-19
Surrogate: 1,4-Difluorobenzene			104.8		%		50-140	26-MAR-19
Surrogate: 4-Bromofluorobenzene			95.8		%		50-140	26-MAR-19
WG3013782-5 MS		**L2247818-1**						
1,1,1,2-Tetrachloroethane			93.1		%		50-140	26-MAR-19
1,1,2,2-Tetrachloroethane			99.7		%		50-140	26-MAR-19
1,1,1-Trichloroethane			96.6		%		50-140	26-MAR-19
1,1,2-Trichloroethane			93.8		%		50-140	26-MAR-19
1,1-Dichloroethane			100.6		%		50-140	26-MAR-19
1,1-Dichloroethylene			97.7		%		50-140	26-MAR-19
1,2-Dibromoethane			89.1		%		50-140	26-MAR-19
1,2-Dichlorobenzene			96.1		%		50-140	26-MAR-19
1,2-Dichloroethane			92.9		%		50-140	26-MAR-19
1,2-Dichloropropane			95.4		%		50-140	26-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4583426								
WG3013782-5 MS		**L2247818-1**						
1,3-Dichlorobenzene			98.0		%		50-140	26-MAR-19
1,4-Dichlorobenzene			96.5		%		50-140	26-MAR-19
Acetone			87.2		%		50-140	26-MAR-19
Benzene			99.2		%		50-140	26-MAR-19
Bromodichloromethane			92.0		%		50-140	26-MAR-19
Bromoform			87.0		%		50-140	26-MAR-19
Bromomethane			102.6		%		50-140	26-MAR-19
Carbon tetrachloride			96.5		%		50-140	26-MAR-19
Chlorobenzene			96.4		%		50-140	26-MAR-19
Chloroform			97.5		%		50-140	26-MAR-19
cis-1,2-Dichloroethylene			94.6		%		50-140	26-MAR-19
cis-1,3-Dichloropropene			87.3		%		50-140	26-MAR-19
Dibromochloromethane			90.6		%		50-140	26-MAR-19
Dichlorodifluoromethane			74.3		%		50-140	26-MAR-19
Ethylbenzene			91.7		%		50-140	26-MAR-19
n-Hexane			93.3		%		50-140	26-MAR-19
Methylene Chloride			96.9		%		50-140	26-MAR-19
MTBE			97.8		%		50-140	26-MAR-19
m+p-Xylenes			93.6		%		50-140	26-MAR-19
Methyl Ethyl Ketone			82.0		%		50-140	26-MAR-19
Methyl Isobutyl Ketone			72.8		%		50-140	26-MAR-19
o-Xylene			89.0		%		50-140	26-MAR-19
Styrene			87.1		%		50-140	26-MAR-19
Tetrachloroethylene			98.6		%		50-140	26-MAR-19
Toluene			95.7		%		50-140	26-MAR-19
trans-1,2-Dichloroethylene			97.3		%		50-140	26-MAR-19
trans-1,3-Dichloropropene			85.7		%		50-140	26-MAR-19
Trichloroethylene			97.1		%		50-140	26-MAR-19
Trichlorofluoromethane			93.7		%		50-140	26-MAR-19
Vinyl chloride			80.4		%		50-140	26-MAR-19
Batch R4585205								
WG3013501-4 DUP		**WG3013501-3**						
1,1,1,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
1,1,2,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4585205								
WG3013501-4 DUP		**WG3013501-3**						
1,1,1-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
1,1,2-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
1,1-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
1,1-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
1,2-Dibromoethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
1,2-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
1,2-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
1,2-Dichloropropane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
1,3-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
1,4-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Acetone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	27-MAR-19
Benzene		0.0478	0.0437		ug/g	9.0	40	27-MAR-19
Bromodichloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Bromoform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Bromomethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Carbon tetrachloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Chlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Chloroform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
cis-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
cis-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	27-MAR-19
Dibromochloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Dichlorodifluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Ethylbenzene		0.031	0.029		ug/g	7.4	40	27-MAR-19
n-Hexane		0.085	0.075		ug/g	12	40	27-MAR-19
Methylene Chloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
MTBE		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
m+p-Xylenes		0.103	0.096		ug/g	7.9	40	27-MAR-19
Methyl Ethyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	27-MAR-19
Methyl Isobutyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	27-MAR-19
o-Xylene		0.051	0.048		ug/g	6.1	40	27-MAR-19
Styrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Tetrachloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Toluene		0.144	0.132		ug/g			27-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4585205								
WG3013501-4 DUP		**WG3013501-3**						
Toluene		0.144	0.132		ug/g	8.4	40	27-MAR-19
trans-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
trans-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	27-MAR-19
Trichloroethylene		0.011	0.011		ug/g	3.4	40	27-MAR-19
Trichlorofluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Vinyl chloride		<0.020	<0.020	RPD-NA	ug/g	N/A	40	27-MAR-19
WG3013501-2 LCS								
1,1,1,2-Tetrachloroethane			97.5		%		60-130	27-MAR-19
1,1,2,2-Tetrachloroethane			90.8		%		60-130	27-MAR-19
1,1,1-Trichloroethane			97.7		%		60-130	27-MAR-19
1,1,2-Trichloroethane			98.2		%		60-130	27-MAR-19
1,1-Dichloroethane			96.9		%		60-130	27-MAR-19
1,1-Dichloroethylene			89.7		%		60-130	27-MAR-19
1,2-Dibromoethane			91.0		%		70-130	27-MAR-19
1,2-Dichlorobenzene			99.5		%		70-130	27-MAR-19
1,2-Dichloroethane			95.3		%		60-130	27-MAR-19
1,2-Dichloropropane			93.2		%		70-130	27-MAR-19
1,3-Dichlorobenzene			101.6		%		70-130	27-MAR-19
1,4-Dichlorobenzene			103.4		%		70-130	27-MAR-19
Acetone			85.8		%		60-140	27-MAR-19
Benzene			97.9		%		70-130	27-MAR-19
Bromodichloromethane			94.5		%		50-140	27-MAR-19
Bromoform			90.2		%		70-130	27-MAR-19
Bromomethane			102.0		%		50-140	27-MAR-19
Carbon tetrachloride			99.98		%		70-130	27-MAR-19
Chlorobenzene			98.2		%		70-130	27-MAR-19
Chloroform			98.2		%		70-130	27-MAR-19
cis-1,2-Dichloroethylene			97.3		%		70-130	27-MAR-19
cis-1,3-Dichloropropene			100.4		%		70-130	27-MAR-19
Dibromochloromethane			96.3		%		60-130	27-MAR-19
Dichlorodifluoromethane			53.6		%		50-140	27-MAR-19
Ethylbenzene			91.8		%		70-130	27-MAR-19
n-Hexane			85.4		%		70-130	27-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4585205								
WG3013501-2 LCS								
Methylene Chloride			98.2		%		70-130	27-MAR-19
MTBE			99.5		%		70-130	27-MAR-19
m+p-Xylenes			93.4		%		70-130	27-MAR-19
Methyl Ethyl Ketone			88.0		%		60-140	27-MAR-19
Methyl Isobutyl Ketone			74.0		%		60-140	27-MAR-19
o-Xylene			90.2		%		70-130	27-MAR-19
Styrene			90.4		%		70-130	27-MAR-19
Tetrachloroethylene			101.9		%		60-130	27-MAR-19
Toluene			93.3		%		70-130	27-MAR-19
trans-1,2-Dichloroethylene			94.3		%		60-130	27-MAR-19
trans-1,3-Dichloropropene			91.0		%		70-130	27-MAR-19
Trichloroethylene			104.0		%		60-130	27-MAR-19
Trichlorofluoromethane			97.4		%		50-140	27-MAR-19
Vinyl chloride			64.3		%		60-140	27-MAR-19
WG3013501-1 MB								
1,1,1,2-Tetrachloroethane			<0.050		ug/g		0.05	27-MAR-19
1,1,2,2-Tetrachloroethane			<0.050		ug/g		0.05	27-MAR-19
1,1,1-Trichloroethane			<0.050		ug/g		0.05	27-MAR-19
1,1,2-Trichloroethane			<0.050		ug/g		0.05	27-MAR-19
1,1-Dichloroethane			<0.050		ug/g		0.05	27-MAR-19
1,1-Dichloroethylene			<0.050		ug/g		0.05	27-MAR-19
1,2-Dibromoethane			<0.050		ug/g		0.05	27-MAR-19
1,2-Dichlorobenzene			<0.050		ug/g		0.05	27-MAR-19
1,2-Dichloroethane			<0.050		ug/g		0.05	27-MAR-19
1,2-Dichloropropane			<0.050		ug/g		0.05	27-MAR-19
1,3-Dichlorobenzene			<0.050		ug/g		0.05	27-MAR-19
1,4-Dichlorobenzene			<0.050		ug/g		0.05	27-MAR-19
Acetone			<0.50		ug/g		0.5	27-MAR-19
Benzene			<0.0068		ug/g		0.0068	27-MAR-19
Bromodichloromethane			<0.050		ug/g		0.05	27-MAR-19
Bromoform			<0.050		ug/g		0.05	27-MAR-19
Bromomethane			<0.050		ug/g		0.05	27-MAR-19
Carbon tetrachloride			<0.050		ug/g		0.05	27-MAR-19
Chlorobenzene			<0.050		ug/g		0.05	27-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4585205								
WG3013501-1 MB								
Chloroform			<0.050		ug/g		0.05	27-MAR-19
cis-1,2-Dichloroethylene			<0.050		ug/g		0.05	27-MAR-19
cis-1,3-Dichloropropene			<0.030		ug/g		0.03	27-MAR-19
Dibromochloromethane			<0.050		ug/g		0.05	27-MAR-19
Dichlorodifluoromethane			<0.050		ug/g		0.05	27-MAR-19
Ethylbenzene			<0.018		ug/g		0.018	27-MAR-19
n-Hexane			<0.050		ug/g		0.05	27-MAR-19
Methylene Chloride			<0.050		ug/g		0.05	27-MAR-19
MTBE			<0.050		ug/g		0.05	27-MAR-19
m+p-Xylenes			<0.030		ug/g		0.03	27-MAR-19
Methyl Ethyl Ketone			<0.50		ug/g		0.5	27-MAR-19
Methyl Isobutyl Ketone			<0.50		ug/g		0.5	27-MAR-19
o-Xylene			<0.020		ug/g		0.02	27-MAR-19
Styrene			<0.050		ug/g		0.05	27-MAR-19
Tetrachloroethylene			<0.050		ug/g		0.05	27-MAR-19
Toluene			<0.080		ug/g		0.08	27-MAR-19
trans-1,2-Dichloroethylene			<0.050		ug/g		0.05	27-MAR-19
trans-1,3-Dichloropropene			<0.030		ug/g		0.03	27-MAR-19
Trichloroethylene			<0.010		ug/g		0.01	27-MAR-19
Trichlorofluoromethane			<0.050		ug/g		0.05	27-MAR-19
Vinyl chloride			<0.020		ug/g		0.02	27-MAR-19
Surrogate: 1,4-Difluorobenzene			119.0		%		50-140	27-MAR-19
Surrogate: 4-Bromofluorobenzene			107.8		%		50-140	27-MAR-19
WG3013501-5 MS		**L2248321-6**						
1,1,1,2-Tetrachloroethane			102.1		%		50-140	27-MAR-19
1,1,2,2-Tetrachloroethane			94.0		%		50-140	27-MAR-19
1,1,1-Trichloroethane			98.7		%		50-140	27-MAR-19
1,1,2-Trichloroethane			104.9		%		50-140	27-MAR-19
1,1-Dichloroethane			98.7		%		50-140	27-MAR-19
1,1-Dichloroethylene			88.4		%		50-140	27-MAR-19
1,2-Dibromoethane			95.2		%		50-140	27-MAR-19
1,2-Dichlorobenzene			71.0		%		50-140	27-MAR-19
1,2-Dichloroethane			97.3		%		50-140	27-MAR-19
1,2-Dichloropropane			94.7		%		50-140	27-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4585205								
WG3013501-5 MS		**L2248321-6**						
1,3-Dichlorobenzene			69.9		%		50-140	27-MAR-19
1,4-Dichlorobenzene			70.0		%		50-140	27-MAR-19
Acetone			99.0		%		50-140	27-MAR-19
Benzene			98.7		%		50-140	27-MAR-19
Bromodichloromethane			99.5		%		50-140	27-MAR-19
Bromoform			96.1		%		50-140	27-MAR-19
Bromomethane			94.0		%		50-140	27-MAR-19
Carbon tetrachloride			100.3		%		50-140	27-MAR-19
Chlorobenzene			98.0		%		50-140	27-MAR-19
Chloroform			100.4		%		50-140	27-MAR-19
cis-1,2-Dichloroethylene			97.3		%		50-140	27-MAR-19
cis-1,3-Dichloropropene			86.4		%		50-140	27-MAR-19
Dibromochloromethane			102.0		%		50-140	27-MAR-19
Dichlorodifluoromethane			50.4		%		50-140	27-MAR-19
Ethylbenzene			93.1		%		50-140	27-MAR-19
n-Hexane			82.5		%		50-140	27-MAR-19
Methylene Chloride			98.4		%		50-140	27-MAR-19
MTBE			99.8		%		50-140	27-MAR-19
m+p-Xylenes			92.4		%		50-140	27-MAR-19
Methyl Ethyl Ketone			87.6		%		50-140	27-MAR-19
Methyl Isobutyl Ketone			78.0		%		50-140	27-MAR-19
o-Xylene			91.2		%		50-140	27-MAR-19
Styrene			87.5		%		50-140	27-MAR-19
Tetrachloroethylene			98.5		%		50-140	27-MAR-19
Toluene			95.1		%		50-140	27-MAR-19
trans-1,2-Dichloroethylene			88.5		%		50-140	27-MAR-19
trans-1,3-Dichloropropene			78.8		%		50-140	27-MAR-19
Trichloroethylene			100.5		%		50-140	27-MAR-19
Trichlorofluoromethane			96.7		%		50-140	27-MAR-19
Vinyl chloride			62.1		%		50-140	27-MAR-19
Batch R4588672								
WG3018230-4 DUP		**WG3018230-3**						
1,1,1,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-APR-19
1,1,2,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-APR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4588672								
WG3018230-4 DUP		**WG3018230-3**						
1,1,1-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-APR-19
1,1,2-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-APR-19
1,1-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-APR-19
1,1-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-APR-19
1,2-Dibromoethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-APR-19
1,2-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-APR-19
1,2-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-APR-19
1,2-Dichloropropane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-APR-19
1,3-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-APR-19
1,4-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-APR-19
Acetone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	02-APR-19
Benzene		<0.0068	<0.0068	RPD-NA	ug/g	N/A	40	02-APR-19
Bromodichloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-APR-19
Bromoform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-APR-19
Bromomethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-APR-19
Carbon tetrachloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-APR-19
Chlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-APR-19
Chloroform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-APR-19
cis-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-APR-19
cis-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	02-APR-19
Dibromochloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-APR-19
Dichlorodifluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-APR-19
Ethylbenzene		<0.018	<0.018	RPD-NA	ug/g	N/A	40	02-APR-19
n-Hexane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-APR-19
Methylene Chloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-APR-19
MTBE		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-APR-19
m+p-Xylenes		<0.030	<0.030	RPD-NA	ug/g	N/A	40	02-APR-19
Methyl Ethyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	02-APR-19
Methyl Isobutyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	02-APR-19
o-Xylene		<0.020	<0.020	RPD-NA	ug/g	N/A	40	02-APR-19
Styrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-APR-19
Tetrachloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-APR-19
Toluene		<0.080	<0.080		ug/g			02-APR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4588672								
WG3018230-4 DUP		**WG3018230-3**						
Toluene		<0.080	<0.080	RPD-NA	ug/g	N/A	40	02-APR-19
trans-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-APR-19
trans-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	02-APR-19
Trichloroethylene		<0.010	<0.010	RPD-NA	ug/g	N/A	40	02-APR-19
Trichlorofluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	02-APR-19
Vinyl chloride		<0.020	<0.020	RPD-NA	ug/g	N/A	40	02-APR-19
WG3018230-2 LCS								
1,1,1,2-Tetrachloroethane			98.6		%		60-130	02-APR-19
1,1,2,2-Tetrachloroethane			89.5		%		60-130	02-APR-19
1,1,1-Trichloroethane			102.7		%		60-130	02-APR-19
1,1,2-Trichloroethane			96.1		%		60-130	02-APR-19
1,1-Dichloroethane			96.1		%		60-130	02-APR-19
1,1-Dichloroethylene			100.6		%		60-130	02-APR-19
1,2-Dibromoethane			93.7		%		70-130	02-APR-19
1,2-Dichlorobenzene			102.4		%		70-130	02-APR-19
1,2-Dichloroethane			97.4		%		60-130	02-APR-19
1,2-Dichloropropane			99.0		%		70-130	02-APR-19
1,3-Dichlorobenzene			106.8		%		70-130	02-APR-19
1,4-Dichlorobenzene			104.2		%		70-130	02-APR-19
Acetone			88.4		%		60-140	02-APR-19
Benzene			103.4		%		70-130	02-APR-19
Bromodichloromethane			96.9		%		50-140	02-APR-19
Bromoform			93.0		%		70-130	02-APR-19
Bromomethane			109.3		%		50-140	02-APR-19
Carbon tetrachloride			104.4		%		70-130	02-APR-19
Chlorobenzene			101.3		%		70-130	02-APR-19
Chloroform			100.3		%		70-130	02-APR-19
cis-1,2-Dichloroethylene			97.4		%		70-130	02-APR-19
cis-1,3-Dichloropropene			103.4		%		70-130	02-APR-19
Dibromochloromethane			95.2		%		60-130	02-APR-19
Dichlorodifluoromethane			70.7		%		50-140	02-APR-19
Ethylbenzene			100.4		%		70-130	02-APR-19
n-Hexane			100.2		%		70-130	02-APR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4588672								
WG3018230-2 LCS								
Methylene Chloride			100.3		%		70-130	02-APR-19
MTBE			102.7		%		70-130	02-APR-19
m+p-Xylenes			101.4		%		70-130	02-APR-19
Methyl Ethyl Ketone			81.8		%		60-140	02-APR-19
Methyl Isobutyl Ketone			76.5		%		60-140	02-APR-19
o-Xylene			98.5		%		70-130	02-APR-19
Styrene			97.7		%		70-130	02-APR-19
Tetrachloroethylene			107.5		%		60-130	02-APR-19
Toluene			101.5		%		70-130	02-APR-19
trans-1,2-Dichloroethylene			103.8		%		60-130	02-APR-19
trans-1,3-Dichloropropene			100.8		%		70-130	02-APR-19
Trichloroethylene			107.2		%		60-130	02-APR-19
Trichlorofluoromethane			104.9		%		50-140	02-APR-19
Vinyl chloride			83.3		%		60-140	02-APR-19
WG3018230-1 MB								
1,1,1,2-Tetrachloroethane			<0.050		ug/g		0.05	02-APR-19
1,1,2,2-Tetrachloroethane			<0.050		ug/g		0.05	02-APR-19
1,1,1-Trichloroethane			<0.050		ug/g		0.05	02-APR-19
1,1,2-Trichloroethane			<0.050		ug/g		0.05	02-APR-19
1,1-Dichloroethane			<0.050		ug/g		0.05	02-APR-19
1,1-Dichloroethylene			<0.050		ug/g		0.05	02-APR-19
1,2-Dibromoethane			<0.050		ug/g		0.05	02-APR-19
1,2-Dichlorobenzene			<0.050		ug/g		0.05	02-APR-19
1,2-Dichloroethane			<0.050		ug/g		0.05	02-APR-19
1,2-Dichloropropane			<0.050		ug/g		0.05	02-APR-19
1,3-Dichlorobenzene			<0.050		ug/g		0.05	02-APR-19
1,4-Dichlorobenzene			<0.050		ug/g		0.05	02-APR-19
Acetone			<0.50		ug/g		0.5	02-APR-19
Benzene			<0.0068		ug/g		0.0068	02-APR-19
Bromodichloromethane			<0.050		ug/g		0.05	02-APR-19
Bromoform			<0.050		ug/g		0.05	02-APR-19
Bromomethane			<0.050		ug/g		0.05	02-APR-19
Carbon tetrachloride			<0.050		ug/g		0.05	02-APR-19
Chlorobenzene			<0.050		ug/g		0.05	02-APR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4588672								
WG3018230-1 MB								
Chloroform			<0.050		ug/g		0.05	02-APR-19
cis-1,2-Dichloroethylene			<0.050		ug/g		0.05	02-APR-19
cis-1,3-Dichloropropene			<0.030		ug/g		0.03	02-APR-19
Dibromochloromethane			<0.050		ug/g		0.05	02-APR-19
Dichlorodifluoromethane			<0.050		ug/g		0.05	02-APR-19
Ethylbenzene			<0.018		ug/g		0.018	02-APR-19
n-Hexane			<0.050		ug/g		0.05	02-APR-19
Methylene Chloride			<0.050		ug/g		0.05	02-APR-19
MTBE			<0.050		ug/g		0.05	02-APR-19
m+p-Xylenes			<0.030		ug/g		0.03	02-APR-19
Methyl Ethyl Ketone			<0.50		ug/g		0.5	02-APR-19
Methyl Isobutyl Ketone			<0.50		ug/g		0.5	02-APR-19
o-Xylene			<0.020		ug/g		0.02	02-APR-19
Styrene			<0.050		ug/g		0.05	02-APR-19
Tetrachloroethylene			<0.050		ug/g		0.05	02-APR-19
Toluene			<0.080		ug/g		0.08	02-APR-19
trans-1,2-Dichloroethylene			<0.050		ug/g		0.05	02-APR-19
trans-1,3-Dichloropropene			<0.030		ug/g		0.03	02-APR-19
Trichloroethylene			<0.010		ug/g		0.01	02-APR-19
Trichlorofluoromethane			<0.050		ug/g		0.05	02-APR-19
Vinyl chloride			<0.020		ug/g		0.02	02-APR-19
Surrogate: 1,4-Difluorobenzene			108.7		%		50-140	02-APR-19
Surrogate: 4-Bromofluorobenzene			97.3		%		50-140	02-APR-19
WG3018230-5 MS		**L2247121-4**						
1,1,1,2-Tetrachloroethane			104.3		%		50-140	02-APR-19
1,1,2,2-Tetrachloroethane			96.4		%		50-140	02-APR-19
1,1,1-Trichloroethane			108.4		%		50-140	02-APR-19
1,1,2-Trichloroethane			102.2		%		50-140	02-APR-19
1,1-Dichloroethane			104.6		%		50-140	02-APR-19
1,1-Dichloroethylene			106.5		%		50-140	02-APR-19
1,2-Dibromoethane			99.5		%		50-140	02-APR-19
1,2-Dichlorobenzene			106.3		%		50-140	02-APR-19
1,2-Dichloroethane			104.0		%		50-140	02-APR-19
1,2-Dichloropropane			105.3		%		50-140	02-APR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4588672								
WG3018230-5 MS		**L2247121-4**						
1,3-Dichlorobenzene			109.9		%		50-140	02-APR-19
1,4-Dichlorobenzene			107.9		%		50-140	02-APR-19
Acetone			97.2		%		50-140	02-APR-19
Benzene			109.5		%		50-140	02-APR-19
Bromodichloromethane			103.3		%		50-140	02-APR-19
Bromoform			99.6		%		50-140	02-APR-19
Bromomethane			115.0		%		50-140	02-APR-19
Carbon tetrachloride			110.4		%		50-140	02-APR-19
Chlorobenzene			106.9		%		50-140	02-APR-19
Chloroform			106.8		%		50-140	02-APR-19
cis-1,2-Dichloroethylene			103.2		%		50-140	02-APR-19
cis-1,3-Dichloropropene			107.5		%		50-140	02-APR-19
Dibromochloromethane			101.3		%		50-140	02-APR-19
Dichlorodifluoromethane			77.1		%		50-140	02-APR-19
Ethylbenzene			105.1		%		50-140	02-APR-19
n-Hexane			105.5		%		50-140	02-APR-19
Methylene Chloride			106.0		%		50-140	02-APR-19
MTBE			108.3		%		50-140	02-APR-19
m+p-Xylenes			105.9		%		50-140	02-APR-19
Methyl Ethyl Ketone			83.7		%		50-140	02-APR-19
Methyl Isobutyl Ketone			81.0		%		50-140	02-APR-19
o-Xylene			103.1		%		50-140	02-APR-19
Styrene			101.7		%		50-140	02-APR-19
Tetrachloroethylene			112.0		%		50-140	02-APR-19
Toluene			106.7		%		50-140	02-APR-19
trans-1,2-Dichloroethylene			109.2		%		50-140	02-APR-19
trans-1,3-Dichloropropene			103.6		%		50-140	02-APR-19
Trichloroethylene			112.3		%		50-140	02-APR-19
Trichlorofluoromethane			111.3		%		50-140	02-APR-19
Vinyl chloride			88.3		%		50-140	02-APR-19

Quality Control Report

Workorder: L2247121 Report Date: 03-APR-19

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
DLHC	Detection Limit Raised: Dilution required due to high concentration of test analyte(s).
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
J	Duplicate results and limits are expressed in terms of absolute difference.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.
RRQC	Refer to report remarks for information regarding this QC result.

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

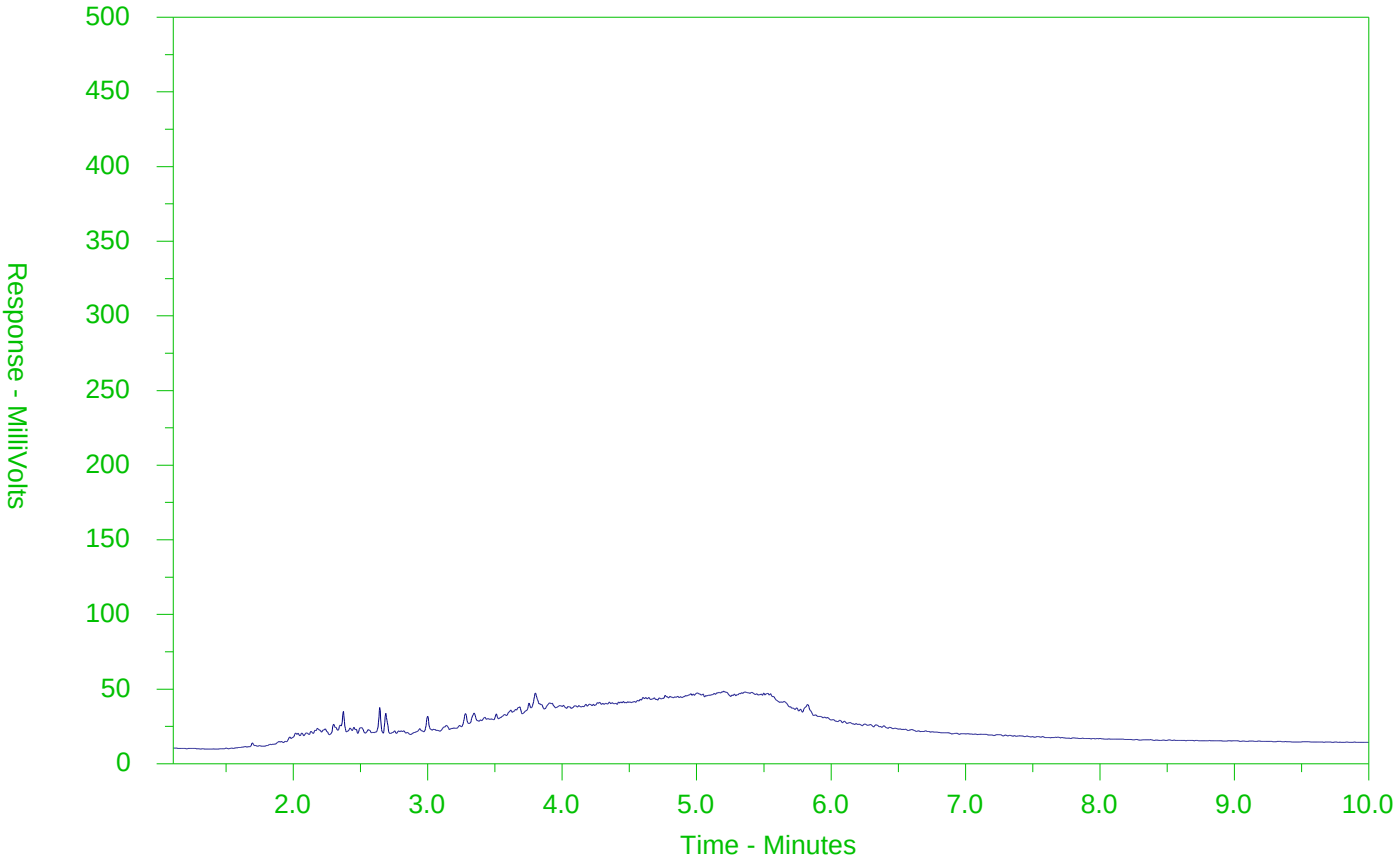
ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2247121-2
Client Sample ID: S-11102463-031919-EN-BH-18-445-2.5-4.5'



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
←Diesel/Jet Fuels→			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

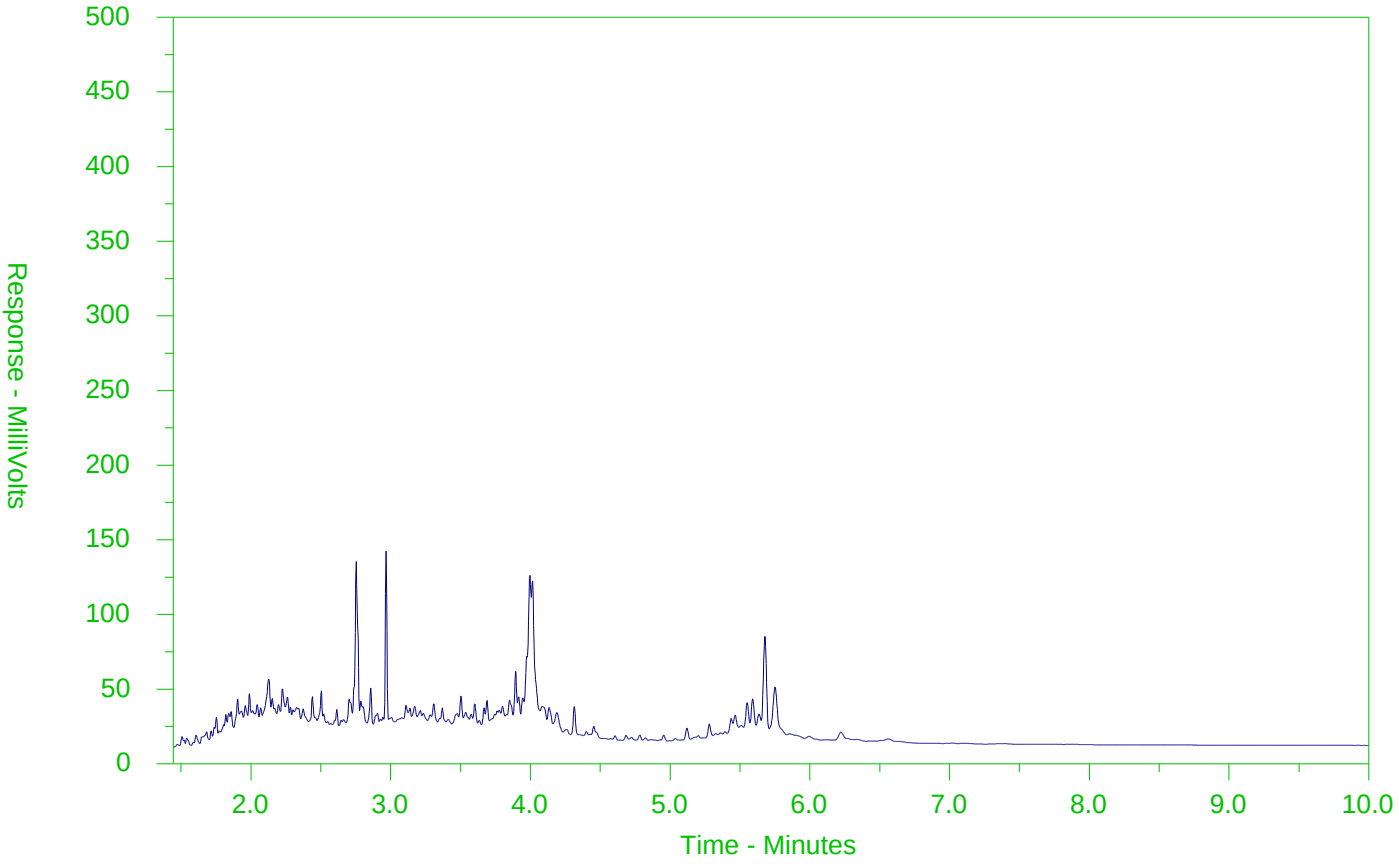
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2247121-3
Client Sample ID: S-11102463-031919-EN-BH-18-445-17.5-19.5'



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

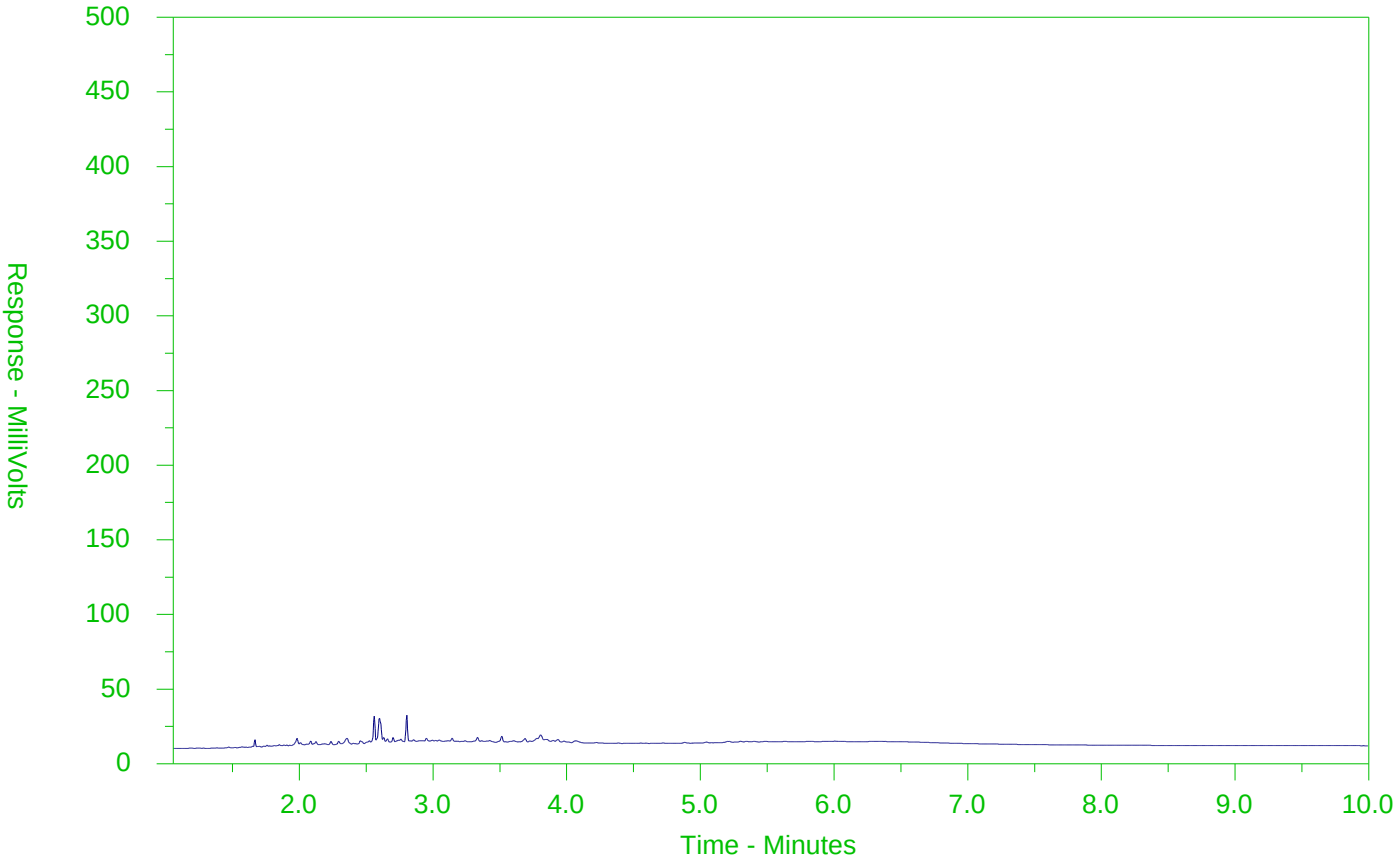
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2247121-4
Client Sample ID: S-11102463-031919-EN-BH-18-445-27.5-29.5'



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
←Diesel/Jet Fuels→			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2247121-COFC

C Number: 17 -

Page 1 of 1

Report To	Contact and company name below will appear on the final report
Company:	GHD LIMITED - ACCT #13791
Contact:	Jennifer Balkwill
Phone:	519-884-0510
	Company address below will appear on the final report
Street:	455 Phillip St
City/Province:	Waterloo,Ontario
Postal Code:	N2L 3X2

Report Format / Distribution	
Select Report Format:	☑ PDF ☑ EXCEL ☑ EDD (DIGITAL)
Quality Control (QC) Report with Report	☑ YES ☐ NO
☐ Compare Results to Criteria on Report - provide details below if box checked	
Select Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	jennifer.balkwill@ghd.com
Email 2	See PO
Email 3	

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)

Regular [R] ☑ Standard TAT if received by 3 pm - business days - no surcharges apply

PRIORITY (Business Days): 4 day [P4-20%] ☐ | 3 day [P3-25%] ☐ | 2 day [P2-50%] ☐

EMERGENCY: 1 Business day [E - 100%] ☐ | Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)] ☐

Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm

For tests that can not be performed according to the service level selected, you will be contacted.

Invoice To	Same as Report To ☑ YES ☐ NO	Invoice Distribution	
	Copy of Invoice with Report ☐ YES ☑ NO	Select Invoice Distribution:	☐ EMAIL ☐ MAIL ☐ FAX
Company:	GHD Limited	Email 1 or Fax	jennifer.balkwill@ghd.com
Contact:	Jennifer Balkwill	Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	13791, Q51987	AFE/Cost Center:	PO#
Job #:	11102463-71	Major/Minor Code:	Routing Code:
PO / AFE:	73509898-7	Requisitioner:	
LSD:	Waterfront Toronto	Location:	

ALS Lab Work Order # (lab use only): L2247121 20E | ALS Contact: Rick H | Sampler: E.NUSSLI

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	BTEX,F1-F4-511-P-WT	TOC-WT (confirmed Triplicate 511 not neces	BTEX,F1 (Trip Blank)	METALS AND INORGANICS	PHC F2-F4	PHC F1	VOCs	PCBs	OCP	CP	PAHs				SAMPLES ON HOLD	SUSPECTED HAZARD (see Special Instructions)
	S-11102463- 03MAR19-EN-BH-B-445-TRIP-BLANK	19-MAR-19	09:00	Soil	1			En			X	X									
	S-11102463- 2.5-4.5'		10:00	Soil	F/P				X	X	X	X	X	X	X	X					
	S-11102463- 17.5-19.5'		11:00	Soil	F/P				X	X	X	X				X					
	S-11102463- 27.5-29.5'		11:30	Soil	F/P				X	X	X	X				X				X	
	S-11102463-			Soil																	
	S-11102463-			Soil																	
	S-11102463-			Soil																	
	S-11102463-			Soil																	
	S-11102463-			Soil																	
	S-11102463-			Soil																	
	S-11102463-			Soil																	
	S-11102463- EN			Soil																	

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? ☐ YES ☑ NO	
Are samples for human consumption/ use? ☐ YES ☑ NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ | SIF Observations Yes ☐ No ☐

Ice Packs ☒ Ice Cubes ☐ | Custody seal intact Yes ☐ No ☐

Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				4-1°C			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by: EMMA NUSSLI/EN	Date: 19-MAR-2019	Time: 16:00	Received by:	Date:	Time:	Received by:	Date: 20/Mar/2019	Time: 17:15

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

JUNE 2016 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

GHD Limited (Waterloo)
ATTN: JENNIFER BALKWILL
455 PHILLIP ST
WATERLOO ON N2L 3X2

Date Received: 20-MAR-19
Report Date: 01-APR-19 08:27 (MT)
Version: FINAL REV. 2

Client Phone: 519-884-0510

Certificate of Analysis

Lab Work Order #: L2247122

Project P.O. #: 73509898-7
Job Reference: 11102463-53
C of C Numbers:
Legal Site Desc: WATERFRONT TORONTO

Comments:
1-APR-2019 Phase 53

Rick Hawthorne
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

11102463-53 - WATERFRONT TORONTO

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2247122-1 S-11102463-031919-DD-BH18-467-3.0-3.5 MBGS								
Sampled By: CLIENT on 19-MAR-19 @ 11:00								
Matrix: SOIL								
Physical Tests								
Conductivity	0.665		0.0040	mS/cm	27-MAR-19	0.7	0.7	0.7
% Moisture	29.6		0.10	%	23-MAR-19			
pH	7.96		0.10	pH units	25-MAR-19			
Cyanides								
Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	25-MAR-19	0.051	0.051	0.051
Saturated Paste Extractables								
SAR	1.78		0.10	SAR	27-MAR-19	5	5	5
Calcium (Ca)	65.7		0.50	mg/L	27-MAR-19			
Magnesium (Mg)	3.58		0.50	mg/L	27-MAR-19			
Sodium (Na)	54.7		0.50	mg/L	27-MAR-19			
Metals								
Antimony (Sb)	24.3		1.0	ug/g	26-MAR-19	*7.5	*7.5	*1.3
Arsenic (As)	38.0		1.0	ug/g	26-MAR-19	*18	*18	*18
Barium (Ba)	538		1.0	ug/g	26-MAR-19	*390	*390	*220
Beryllium (Be)	0.77		0.50	ug/g	26-MAR-19	4	5	2.5
Boron (B)	17.5		5.0	ug/g	26-MAR-19	120	120	36
Boron (B), Hot Water Ext.	2.59		0.10	ug/g	26-MAR-19	*1.5	*1.5	*1.5
Cadmium (Cd)	1.82		0.50	ug/g	26-MAR-19	*1.2	*1.2	*1.2
Chromium (Cr)	95.1		1.0	ug/g	26-MAR-19	160	160	*70
Cobalt (Co)	9.8		1.0	ug/g	26-MAR-19	22	22	22
Copper (Cu)	408		1.0	ug/g	26-MAR-19	*140	*180	*92
Lead (Pb)	2630	DLHC	10	ug/g	26-MAR-19	*120	*120	*120
Mercury (Hg)	1.99	DLHC	0.50	ug/g	26-MAR-19	*0.27	*1.8	*0.27
Molybdenum (Mo)	3.7		1.0	ug/g	26-MAR-19	6.9	6.9	*2
Nickel (Ni)	31.5		1.0	ug/g	26-MAR-19	100	130	82
Selenium (Se)	4.3		1.0	ug/g	26-MAR-19	*2.4	*2.4	*1.5
Silver (Ag)	7.43		0.20	ug/g	26-MAR-19	20	25	*0.5
Thallium (Tl)	<0.50		0.50	ug/g	26-MAR-19	1	1	1
Uranium (U)	<1.0		1.0	ug/g	26-MAR-19	23	23	2.5
Vanadium (V)	38.4		1.0	ug/g	26-MAR-19	86	86	86
Zinc (Zn)	719	DLHC	40	ug/g	26-MAR-19	*340	*340	*290
Speciated Metals								
Chromium, Hexavalent	<0.20		0.20	ug/g	25-MAR-19	8	10	0.66
Volatile Organic Compounds								
Acetone	<0.50		0.50	ug/g	27-MAR-19	16	28	0.5
Benzene	0.0296		0.0068	ug/g	27-MAR-19	0.21	0.17	*0.02
Bromodichloromethane	<0.050		0.050	ug/g	27-MAR-19	13	13	0.05
Bromoform	<0.050		0.050	ug/g	27-MAR-19	0.27	0.26	0.05
Bromomethane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05
Carbon tetrachloride	<0.050		0.050	ug/g	27-MAR-19	0.05	0.12	0.05
Chlorobenzene	<0.050		0.050	ug/g	27-MAR-19	2.4	2.7	0.05
Dibromochloromethane	<0.050		0.050	ug/g	27-MAR-19	9.4	9.4	0.05
Chloroform	<0.050		0.050	ug/g	27-MAR-19	0.05	0.18	0.05
1,2-Dibromoethane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05
1,2-Dichlorobenzene	<0.050		0.050	ug/g	27-MAR-19	3.4	4.3	0.05

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2247122-1 S-11102463-031919-DD-BH18-467-3.0-3.5 MBGS								
Sampled By: CLIENT on 19-MAR-19 @ 11:00								
Matrix: SOIL								
Volatile Organic Compounds								
1,3-Dichlorobenzene	<0.050		0.050	ug/g	27-MAR-19	4.8	6	0.05
1,4-Dichlorobenzene	<0.050		0.050	ug/g	27-MAR-19	0.083	0.097	0.05
Dichlorodifluoromethane	<0.050		0.050	ug/g	27-MAR-19	16	25	0.05
1,1-Dichloroethane	<0.050		0.050	ug/g	27-MAR-19	3.5	11	0.05
1,2-Dichloroethane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05
1,1-Dichloroethylene	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	27-MAR-19	3.4	30	0.05
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	27-MAR-19	0.084	0.75	0.05
Methylene Chloride	<0.050		0.050	ug/g	27-MAR-19	0.1	0.96	0.05
1,2-Dichloropropane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.085	0.05
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	27-MAR-19			
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	27-MAR-19			
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g	27-MAR-19	0.05	0.083	0.05
Ethylbenzene	0.054		0.018	ug/g	27-MAR-19	2	15	*0.05
n-Hexane	0.051		0.050	ug/g	27-MAR-19	2.8	34	*0.05
Methyl Ethyl Ketone	<0.50		0.50	ug/g	27-MAR-19	16	44	0.5
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	27-MAR-19	1.7	4.3	0.5
MTBE	<0.050		0.050	ug/g	27-MAR-19	0.75	1.4	0.05
Styrene	<0.050		0.050	ug/g	27-MAR-19	0.7	2.2	0.05
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	27-MAR-19	0.058	0.05	0.05
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05
Tetrachloroethylene	<0.050		0.050	ug/g	27-MAR-19	0.28	2.3	0.05
Toluene	0.172		0.080	ug/g	27-MAR-19	2.3	6	0.2
1,1,1-Trichloroethane	<0.050		0.050	ug/g	27-MAR-19	0.38	3.4	0.05
1,1,2-Trichloroethane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05
Trichloroethylene	<0.010		0.010	ug/g	27-MAR-19	0.061	0.52	0.05
Trichlorofluoromethane	<0.050		0.050	ug/g	27-MAR-19	4	5.8	0.25
Vinyl chloride	<0.020		0.020	ug/g	27-MAR-19	0.02	0.022	0.02
o-Xylene	0.153		0.020	ug/g	27-MAR-19			
m+p-Xylenes	0.204		0.030	ug/g	27-MAR-19			
Xylenes (Total)	0.357		0.050	ug/g	27-MAR-19	3.1	25	*0.05
Surrogate: 4-Bromofluorobenzene	91.2		50-140	%	27-MAR-19			
Surrogate: 1,4-Difluorobenzene	93.5		50-140	%	27-MAR-19			
Hydrocarbons								
F1 (C6-C10)	9.8		5.0	ug/g	27-MAR-19	55	65	25
F1-BTEX	9.2		5.0	ug/g	27-MAR-19	55	65	25
F2 (C10-C16)	19		10	ug/g	25-MAR-19	98	150	*10
F2-Naphth	19		10	ug/g	27-MAR-19			
F3 (C16-C34)	222		50	ug/g	25-MAR-19	300	1300	240
F3-PAH	200		50	ug/g	27-MAR-19			
F4 (C34-C50)	85		50	ug/g	25-MAR-19	2800	5600	120
F4G-SG (GHH-Silica)	310		250	ug/g	25-MAR-19	2800	5600	*120
Total Hydrocarbons (C6-C50)	336		72	ug/g	27-MAR-19			
Chrom. to baseline at nC50	NO			No Unit	25-MAR-19			
Surrogate: 2-Bromobenzotrifluoride	85.8		60-140	%	25-MAR-19			
Surrogate: 3,4-Dichlorotoluene	95.1		60-140	%	27-MAR-19			

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2247122-1 S-11102463-031919-DD-BH18-467-3.0-3.5 MBGS								
Sampled By: CLIENT on 19-MAR-19 @ 11:00								
Matrix: SOIL								
Polycyclic Aromatic Hydrocarbons								
Acenaphthene	0.364		0.050	ug/g	26-MAR-19	7.9	58	*0.072
Acenaphthylene	0.223		0.050	ug/g	26-MAR-19	*0.15	*0.17	*0.093
Anthracene	0.403		0.050	ug/g	26-MAR-19	0.67	0.74	*0.22
Benzo(a)anthracene	2.80		0.050	ug/g	26-MAR-19	*0.5	*0.63	*0.36
Benzo(a)pyrene	2.66		0.050	ug/g	26-MAR-19	*0.3	*0.3	*0.3
Benzo(b)fluoranthene	3.39		0.050	ug/g	26-MAR-19	*0.78	*0.78	*0.47
Benzo(g,h,i)perylene	2.12		0.050	ug/g	26-MAR-19	6.6	7.8	*0.68
Benzo(k)fluoranthene	1.10		0.050	ug/g	26-MAR-19	*0.78	*0.78	*0.48
Chrysene	2.51		0.050	ug/g	26-MAR-19	7	7.8	2.8
Dibenzo(ah)anthracene	0.462		0.050	ug/g	26-MAR-19	*0.1	*0.1	*0.1
Fluoranthene	4.48		0.050	ug/g	26-MAR-19	*0.69	*0.69	*0.69
Fluorene	0.075		0.050	ug/g	26-MAR-19	62	69	0.19
Indeno(1,2,3-cd)pyrene	1.63		0.050	ug/g	26-MAR-19	*0.38	*0.48	*0.23
1+2-Methylnaphthalenes	0.285		0.042	ug/g	26-MAR-19	0.99	3.4	0.59
1-Methylnaphthalene	0.123		0.030	ug/g	26-MAR-19	0.99	3.4	0.59
2-Methylnaphthalene	0.162		0.030	ug/g	26-MAR-19	0.99	3.4	0.59
Naphthalene	0.184		0.013	ug/g	26-MAR-19	0.6	0.75	*0.09
Phenanthrene	1.85		0.046	ug/g	26-MAR-19	6.2	7.8	*0.69
Pyrene	4.05		0.050	ug/g	26-MAR-19	78	78	*1
Surrogate: 2-Fluorobiphenyl	99.3		50-140	%	26-MAR-19			
Surrogate: p-Terphenyl d14	103.5		50-140	%	26-MAR-19			
Semi-Volatile Organics								
2-Chlorophenol	<0.10		0.10	ug/g	26-MAR-19	1.6	2	0.1
2,4-Dichlorophenol	<0.10		0.10	ug/g	26-MAR-19	1.7	2.1	0.1
Pentachlorophenol	<0.10		0.10	ug/g	26-MAR-19	0.1	0.1	0.1
2,4,5-Trichlorophenol	<0.10		0.10	ug/g	26-MAR-19	4.4	5.5	0.1
2,4,6-Trichlorophenol	<0.10		0.10	ug/g	26-MAR-19	3.8	4.2	0.1
Surrogate: Phenol d5	96.0		30-130	%	26-MAR-19			
Surrogate: 2,4,6-Tribromophenol	95.9		50-140	%	26-MAR-19			
Polychlorinated Biphenyls								
Aroclor 1242	<0.0150	DLM	0.015	ug/g	27-MAR-19			
Aroclor 1248	<0.0150	DLM	0.015	ug/g	27-MAR-19			
Aroclor 1254	<0.0150	DLM	0.015	ug/g	27-MAR-19			
Aroclor 1260	<0.050	DLM	0.050	ug/g	27-MAR-19			
Total PCBs	<0.060	DLM	0.060	ug/g	27-MAR-19	0.35	0.35	0.3
Surrogate: d14-Terphenyl	96.5		60-140	%	27-MAR-19			
Organochlorine Pesticides								
Aldrin	<0.020		0.020	ug/g	27-MAR-19	0.05	0.05	0.05
gamma-hexachlorocyclohexane	<0.050	DLM	0.050	ug/g	27-MAR-19	0.056	0.063	
a-chlordane	<0.020		0.020	ug/g	27-MAR-19			
Chlordane (Total)	<0.028		0.028	ug/g	27-MAR-19	0.05	0.05	0.05
g-chlordane	<0.020		0.020	ug/g	27-MAR-19			
op-DDD	<0.020		0.020	ug/g	27-MAR-19			
pp-DDD	<0.020		0.020	ug/g	27-MAR-19			
Total DDD	<0.028		0.028	ug/g	27-MAR-19	3.3	3.3	0.05
o,p-DDE	<0.020		0.020	ug/g	27-MAR-19			

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2247122-1 S-11102463-031919-DD-BH18-467-3.0-3.5 MBGS								
Sampled By: CLIENT on 19-MAR-19 @ 11:00								
Matrix: SOIL								
Organochlorine Pesticides								
pp-DDE	<0.020		0.020	ug/g	27-MAR-19			
Total DDE	<0.028		0.028	ug/g	27-MAR-19	0.26	0.33	0.05
op-DDT	<0.020		0.020	ug/g	27-MAR-19			
pp-DDT	<0.10	DLM	0.10	ug/g	27-MAR-19			
Total DDT	<0.10		0.10	ug/g	27-MAR-19	1.4	1.4	1.4
Dieldrin	<0.020		0.020	ug/g	27-MAR-19	0.05	0.05	0.05
Endosulfan I	<0.020		0.020	ug/g	27-MAR-19			
Endosulfan II	<0.020		0.020	ug/g	27-MAR-19			
Endosulfan (Total)	<0.028		0.028	ug/g	27-MAR-19	0.04	0.04	0.04
Endrin	<0.020		0.020	ug/g	27-MAR-19	0.04	0.04	0.04
Heptachlor	<0.020		0.020	ug/g	27-MAR-19	0.15	0.15	0.05
Heptachlor Epoxide	<0.020		0.020	ug/g	27-MAR-19	0.05	0.05	0.05
Hexachlorobenzene	<0.050	DLM	0.050	ug/g	27-MAR-19	0.52	0.52	**0.02
Hexachlorobutadiene	<0.050	DLM	0.050	ug/g	27-MAR-19	**0.012	**0.014	**0.01
Hexachloroethane	<0.050	DLM	0.050	ug/g	27-MAR-19	0.089	0.07	**0.01
Methoxychlor	<0.10	DLM	0.10	ug/g	27-MAR-19	0.13	0.13	**0.05
Surrogate: 2-Fluorobiphenyl	77.5		50-140	%	27-MAR-19			
Surrogate: d14-Terphenyl	87.7		50-140	%	27-MAR-19			
L2247122-2 S-11102463-031919-DD-BH18-467-4.6-5.2 MBGS								
Sampled By: CLIENT on 19-MAR-19 @ 12:30								
Matrix: SOIL								
Physical Tests								
Conductivity	2.08		0.0040	mS/cm	27-MAR-19	*0.7	*0.7	*0.7
% Moisture	30.2		0.10	%	23-MAR-19			
pH	7.27		0.10	pH units	25-MAR-19			
Cyanides								
Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	25-MAR-19	0.051	0.051	0.051
Saturated Paste Extractables								
SAR	2.59		0.10	SAR	27-MAR-19	5	5	5
Calcium (Ca)	245		0.50	mg/L	27-MAR-19			
Magnesium (Mg)	31.4		0.50	mg/L	27-MAR-19			
Sodium (Na)	162		0.50	mg/L	27-MAR-19			
Metals								
Antimony (Sb)	15.7		1.0	ug/g	26-MAR-19	*7.5	*7.5	*1.3
Arsenic (As)	69.0		1.0	ug/g	26-MAR-19	*18	*18	*18
Barium (Ba)	444		1.0	ug/g	26-MAR-19	*390	*390	*220
Beryllium (Be)	0.77		0.50	ug/g	26-MAR-19	4	5	2.5
Boron (B)	17.1		5.0	ug/g	26-MAR-19	120	120	36
Boron (B), Hot Water Ext.	4.26		0.10	ug/g	26-MAR-19	*1.5	*1.5	*1.5
Cadmium (Cd)	2.43		0.50	ug/g	26-MAR-19	*1.2	*1.2	*1.2
Chromium (Cr)	73.6		1.0	ug/g	26-MAR-19	160	160	*70
Cobalt (Co)	10.8		1.0	ug/g	26-MAR-19	22	22	22
Copper (Cu)	823		1.0	ug/g	26-MAR-19	*140	*180	*92
Lead (Pb)	2590	DLHC	10	ug/g	26-MAR-19	*120	*120	*120
Mercury (Hg)	3.27	DLHC	0.50	ug/g	26-MAR-19	*0.27	*1.8	*0.27

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2247122-2 S-11102463-031919-DD-BH18-467-4.6-5.2 MBGS								
Sampled By: CLIENT on 19-MAR-19 @ 12:30								
Matrix: SOIL								
Metals								
Molybdenum (Mo)	7.5		1.0	ug/g	26-MAR-19	*6.9	*6.9	*2
Nickel (Ni)	38.2		1.0	ug/g	26-MAR-19	100	130	82
Selenium (Se)	4.9		1.0	ug/g	26-MAR-19	*2.4	*2.4	*1.5
Silver (Ag)	5.16		0.20	ug/g	26-MAR-19	20	25	*0.5
Thallium (Tl)	0.51		0.50	ug/g	26-MAR-19	1	1	1
Uranium (U)	<1.0		1.0	ug/g	26-MAR-19	23	23	2.5
Vanadium (V)	30.9		1.0	ug/g	26-MAR-19	86	86	86
Zinc (Zn)	1180	DLHC	40	ug/g	26-MAR-19	*340	*340	*290
Speciated Metals								
Chromium, Hexavalent	<0.20		0.20	ug/g	25-MAR-19	8	10	0.66
Volatile Organic Compounds								
Acetone	<0.50		0.50	ug/g	27-MAR-19	16	28	0.5
Benzene	0.0225		0.0068	ug/g	27-MAR-19	0.21	0.17	*0.02
Bromodichloromethane	<0.26	DLVH	0.26	ug/g	27-MAR-19	13	13	**0.05
Bromoform	<0.050		0.050	ug/g	27-MAR-19	0.27	0.26	0.05
Bromomethane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05
Carbon tetrachloride	<0.050		0.050	ug/g	27-MAR-19	0.05	0.12	0.05
Chlorobenzene	<0.050		0.050	ug/g	27-MAR-19	2.4	2.7	0.05
Dibromochloromethane	<0.050		0.050	ug/g	27-MAR-19	9.4	9.4	0.05
Chloroform	<0.050		0.050	ug/g	27-MAR-19	0.05	0.18	0.05
1,2-Dibromoethane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05
1,2-Dichlorobenzene	<2.0	DLI	2.0	ug/g	27-MAR-19	3.4	4.3	**0.05
1,3-Dichlorobenzene	<2.0	DLI	2.0	ug/g	27-MAR-19	4.8	6	**0.05
1,4-Dichlorobenzene	<2.0	DLI	2.0	ug/g	27-MAR-19	**0.083	**0.097	**0.05
Dichlorodifluoromethane	<0.050		0.050	ug/g	27-MAR-19	16	25	0.05
1,1-Dichloroethane	<0.050		0.050	ug/g	27-MAR-19	3.5	11	0.05
1,2-Dichloroethane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05
1,1-Dichloroethylene	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	27-MAR-19	3.4	30	0.05
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	27-MAR-19	0.084	0.75	0.05
Methylene Chloride	<0.050		0.050	ug/g	27-MAR-19	0.1	0.96	0.05
1,2-Dichloropropane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.085	0.05
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	27-MAR-19			
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	27-MAR-19			
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g	27-MAR-19	0.05	0.083	0.05
Ethylbenzene	<0.018		0.018	ug/g	27-MAR-19	2	15	0.05
n-Hexane	0.068		0.050	ug/g	27-MAR-19	2.8	34	*0.05
Methyl Ethyl Ketone	<0.50		0.50	ug/g	27-MAR-19	16	44	0.5
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	27-MAR-19	1.7	4.3	0.5
MTBE	<0.050		0.050	ug/g	27-MAR-19	0.75	1.4	0.05
Styrene	<0.050		0.050	ug/g	27-MAR-19	0.7	2.2	0.05
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	27-MAR-19	0.058	0.05	0.05
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05
Tetrachloroethylene	<0.050		0.050	ug/g	27-MAR-19	0.28	2.3	0.05
Toluene	<0.080		0.080	ug/g	27-MAR-19	2.3	6	0.2

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2247122-2 S-11102463-031919-DD-BH18-467-4.6-5.2 MBGS								
Sampled By: CLIENT on 19-MAR-19 @ 12:30								
Matrix: SOIL								
Volatile Organic Compounds								
1,1,1-Trichloroethane	<0.050		0.050	ug/g	27-MAR-19	0.38	3.4	0.05
1,1,2-Trichloroethane	<0.11	DLVH	0.11	ug/g	27-MAR-19	**0.05	**0.05	**0.05
Trichloroethylene	<0.010		0.010	ug/g	27-MAR-19	0.061	0.52	0.05
Trichlorofluoromethane	<0.050		0.050	ug/g	27-MAR-19	4	5.8	0.25
Vinyl chloride	<0.020		0.020	ug/g	27-MAR-19	0.02	0.022	0.02
o-Xylene	0.020		0.020	ug/g	27-MAR-19			
m+p-Xylenes	<0.051	DLVH	0.051	ug/g	27-MAR-19			
Xylenes (Total)	<0.055		0.055	ug/g	27-MAR-19	3.1	25	**0.05
Surrogate: 4-Bromofluorobenzene	78.2		50-140	%	27-MAR-19			
Surrogate: 1,4-Difluorobenzene	80.5		50-140	%	27-MAR-19			
Hydrocarbons								
F1 (C6-C10)	68.1		5.0	ug/g	27-MAR-19	*55	*65	*25
F1-BTEX	68.1		5.0	ug/g	27-MAR-19	*55	*65	*25
F2 (C10-C16)	1910		10	ug/g	25-MAR-19	*98	*150	*10
F2-Naphth	1910		10	ug/g	27-MAR-19			
F3 (C16-C34)	1550		50	ug/g	25-MAR-19	*300	*1300	*240
F3-PAH	1530		50	ug/g	27-MAR-19			
F4 (C34-C50)	215		50	ug/g	25-MAR-19	2800	5600	*120
Total Hydrocarbons (C6-C50)	3750		72	ug/g	27-MAR-19			
Chrom. to baseline at nC50	YES			No Unit	25-MAR-19			
Surrogate: 2-Bromobenzotrifluoride	87.2		60-140	%	25-MAR-19			
Surrogate: 3,4-Dichlorotoluene	128.6		60-140	%	27-MAR-19			
Polycyclic Aromatic Hydrocarbons								
Acenaphthene	1.09		0.050	ug/g	26-MAR-19	7.9	58	*0.072
Acenaphthylene	0.229		0.050	ug/g	26-MAR-19	*0.15	*0.17	*0.093
Anthracene	0.539		0.050	ug/g	26-MAR-19	0.67	0.74	*0.22
Benzo(a)anthracene	2.54		0.050	ug/g	26-MAR-19	*0.5	*0.63	*0.36
Benzo(a)pyrene	2.12		0.050	ug/g	26-MAR-19	*0.3	*0.3	*0.3
Benzo(b)fluoranthene	2.65		0.050	ug/g	26-MAR-19	*0.78	*0.78	*0.47
Benzo(g,h,i)perylene	1.41		0.050	ug/g	26-MAR-19	6.6	7.8	*0.68
Benzo(k)fluoranthene	0.899		0.050	ug/g	26-MAR-19	*0.78	*0.78	*0.48
Chrysene	2.21		0.050	ug/g	26-MAR-19	7	7.8	2.8
Dibenzo(ah)anthracene	0.360		0.050	ug/g	26-MAR-19	*0.1	*0.1	*0.1
Fluoranthene	4.55		0.050	ug/g	26-MAR-19	*0.69	*0.69	*0.69
Fluorene	0.760		0.050	ug/g	26-MAR-19	62	69	*0.19
Indeno(1,2,3-cd)pyrene	1.10		0.050	ug/g	26-MAR-19	*0.38	*0.48	*0.23
1+2-Methylnaphthalenes	<0.38		0.38	ug/g	26-MAR-19	0.99	3.4	0.59
1-Methylnaphthalene	<0.28	DLM	0.28	ug/g	26-MAR-19	0.99	3.4	0.59
2-Methylnaphthalene	<0.25	DLM	0.25	ug/g	26-MAR-19	0.99	3.4	0.59
Naphthalene	<0.58	DLM	0.58	ug/g	26-MAR-19	0.6	0.75	**0.09
Phenanthrene	1.84		0.046	ug/g	26-MAR-19	6.2	7.8	*0.69
Pyrene	4.01		0.050	ug/g	26-MAR-19	78	78	*1
Surrogate: 2-Fluorobiphenyl	97.9		50-140	%	26-MAR-19			
Surrogate: p-Terphenyl d14	100.8		50-140	%	26-MAR-19			

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3	
L2247122-3 TRIP BLANK Sampled By: CLIENT on 19-MAR-19 Matrix: SOIL									
Physical Tests									
% Moisture	<0.10		0.10	%	23-MAR-19				
Volatile Organic Compounds									
Acetone	<0.50		0.50	ug/g	27-MAR-19	16	28	0.5	
Benzene	<0.0068		0.0068	ug/g	27-MAR-19	0.21	0.17	0.02	
Bromodichloromethane	<0.050		0.050	ug/g	27-MAR-19	13	13	0.05	
Bromoform	<0.050		0.050	ug/g	27-MAR-19	0.27	0.26	0.05	
Bromomethane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05	
Carbon tetrachloride	<0.050		0.050	ug/g	27-MAR-19	0.05	0.12	0.05	
Chlorobenzene	<0.050		0.050	ug/g	27-MAR-19	2.4	2.7	0.05	
Dibromochloromethane	<0.050		0.050	ug/g	27-MAR-19	9.4	9.4	0.05	
Chloroform	<0.050		0.050	ug/g	27-MAR-19	0.05	0.18	0.05	
1,2-Dibromoethane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05	
1,2-Dichlorobenzene	<0.050		0.050	ug/g	27-MAR-19	3.4	4.3	0.05	
1,3-Dichlorobenzene	<0.050		0.050	ug/g	27-MAR-19	4.8	6	0.05	
1,4-Dichlorobenzene	<0.050		0.050	ug/g	27-MAR-19	0.083	0.097	0.05	
Dichlorodifluoromethane	<0.050		0.050	ug/g	27-MAR-19	16	25	0.05	
1,1-Dichloroethane	<0.050		0.050	ug/g	27-MAR-19	3.5	11	0.05	
1,2-Dichloroethane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05	
1,1-Dichloroethylene	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05	
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	27-MAR-19	3.4	30	0.05	
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	27-MAR-19	0.084	0.75	0.05	
Methylene Chloride	<0.050		0.050	ug/g	27-MAR-19	0.1	0.96	0.05	
1,2-Dichloropropane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.085	0.05	
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	27-MAR-19				
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	27-MAR-19				
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g	27-MAR-19	0.05	0.083	0.05	
Ethylbenzene	<0.018		0.018	ug/g	27-MAR-19	2	15	0.05	
n-Hexane	<0.050		0.050	ug/g	27-MAR-19	2.8	34	0.05	
Methyl Ethyl Ketone	<0.50		0.50	ug/g	27-MAR-19	16	44	0.5	
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	27-MAR-19	1.7	4.3	0.5	
MTBE	<0.050		0.050	ug/g	27-MAR-19	0.75	1.4	0.05	
Styrene	<0.050		0.050	ug/g	27-MAR-19	0.7	2.2	0.05	
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	27-MAR-19	0.058	0.05	0.05	
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05	
Tetrachloroethylene	<0.050		0.050	ug/g	27-MAR-19	0.28	2.3	0.05	
Toluene	<0.080		0.080	ug/g	27-MAR-19	2.3	6	0.2	
1,1,1-Trichloroethane	<0.050		0.050	ug/g	27-MAR-19	0.38	3.4	0.05	
1,1,2-Trichloroethane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05	
Trichloroethylene	<0.010		0.010	ug/g	27-MAR-19	0.061	0.52	0.05	
Trichlorofluoromethane	<0.050		0.050	ug/g	27-MAR-19	4	5.8	0.25	
Vinyl chloride	<0.020		0.020	ug/g	27-MAR-19	0.02	0.022	0.02	
o-Xylene	<0.020		0.020	ug/g	27-MAR-19				
m+p-Xylenes	<0.030		0.030	ug/g	27-MAR-19				
Xylenes (Total)	<0.050		0.050	ug/g	27-MAR-19	3.1	25	0.05	
Surrogate: 4-Bromofluorobenzene	107.1		50-140	%	27-MAR-19				
Surrogate: 1,4-Difluorobenzene	114.8		50-140	%	27-MAR-19				

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping	Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits			
							#1	#2	#3	
L2247122-3	TRIP BLANK									
Sampled By:	CLIENT on 19-MAR-19									
Matrix:	SOIL									
Hydrocarbons										
	F1 (C6-C10)	<5.0		5.0	ug/g	27-MAR-19	55	65	25	
	F1-BTEX	<5.0		5.0	ug/g	27-MAR-19	55	65	25	
	Surrogate: 3,4-Dichlorotoluene	97.6		60-140	%	27-MAR-19				

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Reference Information

Sample Parameter Qualifier key listed:

Qualifier	Description
DLVH	Detection Limit raised due to interference from Volatile Hydrocarbons on VOC method. Chromatographic elution of interfering peaks in the same region as test analytes prevents a determination of whether VOC analyte is present or absent (above/below regular detection limits).
DLI	Detection Limit Raised: Dilution required to address Internal Standard response problems caused by matrix interference.
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
DLHC	Detection Limit Raised: Dilution required due to high concentration of test analyte(s).

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference***
625-511-WT	Soil	ABN-O.Reg 153/04 (July 2011)	SW846 8270 (511)

Soil and sediment samples are dried by mixing with a desiccant prior to extraction. The extracts are dried, concentrated and exchanged into a solvent and analyzed by GC/MS. Depending on the analytical GC/MS column used benzo(j)fluoranthene may chromatographically co-elute with benzo(b)fluoranthene or benzo(k)fluoranthene.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

B-HWS-R511-WT	Soil	Boron-HWE-O.Reg 153/04 (July 2011)	HW EXTR, EPA 6010B

A dried solid sample is extracted with calcium chloride, the sample undergoes a heating process. After cooling the sample is filtered and analyzed by ICP/OES.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

CHLORDANE-T-CALC-WT	Soil	Chlordane Total sums	CALCULATION

Aqueous sample is extracted by liquid/liquid extraction with a solvent mix. After extraction, a number of clean up techniques may be applied, depending on the sample matrix and analyzed by GC/MS.

CN-WAD-R511-WT	Soil	Cyanide (WAD)-O.Reg 153/04 (July 2011)	MOE 3015/APHA 4500CN I-WAD

The sample is extracted with a strong base for 16 hours, and then filtered. The filtrate is then distilled where the cyanide is converted to cyanogen chloride by reacting with chloramine-T, the cyanogen chloride then reacts with a combination of barbituric acid and isonicotinic acid to form a highly colored complex.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

CR-CR6-IC-WT	Soil	Hexavalent Chromium in Soil	SW846 3060A/7199

This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, Method 7199, published by the United States Environmental Protection Agency (EPA). The procedure involves analysis for chromium (VI) by ion chromatography using diphenylcarbazide in a sulphuric acid solution.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

DDD-DDE-DDT-CALC-WT	Soil	DDD, DDE, DDT sums	CALCULATION

Aqueous sample is extracted by liquid/liquid extraction with a solvent mix. After extraction, a number of clean up techniques may be applied, depending on the sample matrix and analyzed by GC/MS.

EC-WT	Soil	Conductivity (EC)	MOEE E3138

A representative subsample is tumbled with de-ionized (DI) water. The ratio of water to soil is 2:1 v/w. After tumbling the sample is then analyzed by a conductivity meter.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

ENDOSULFAN-T-CALC-WT	Soil	Endosulfan Total sums	CALCULATION

Aqueous sample is extracted by liquid/liquid extraction with a solvent mix. After extraction, a number of clean up techniques may be applied, depending on the sample matrix and analyzed by GC/MS.

Reference Information

F1-F4-511-CALC-WT	Soil	F1-F4 Hydrocarbon Calculated Parameters	CCME CWS-PHC, Pub #1310, Dec 2001-S

Analytical methods used for analysis of CCME Petroleum Hydrocarbons have been validated and comply with the Reference Method for the CWS PHC.

Hydrocarbon results are expressed on a dry weight basis.

In cases where results for both F4 and F4G are reported, the greater of the two results must be used in any application of the CWS PHC guidelines and the gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.
In samples where BTEX and F1 were analyzed , F1-BTEX represents a value where the sum of Benzene, Toluene, Ethylbenzene and total Xylenes has been subtracted from F1.

In samples where PAHs, F2 and F3 were analyzed, F2-Naphth represents the result where Naphthalene has been subtracted from F2. F3-PAH represents a result where the sum of Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenzo(a,h)anthracene, Fluoranthene, Indeno(1,2,3-cd)pyrene, Phenanthrene, and Pyrene has been subtracted from F3.

Unless otherwise qualified, the following quality control criteria have been met for the F1 hydrocarbon range:
1. All extraction and analysis holding times were met.
2. Instrument performance showing response factors for C6 and C10 within 30% of the response factor for toluene.
3. Linearity of gasoline response within 15% throughout the calibration range.

Unless otherwise qualified, the following quality control criteria have been met for the F2-F4 hydrocarbon ranges:
1. All extraction and analysis holding times were met.
2. Instrument performance showing C10, C16 and C34 response factors within 10% of their average.
3. Instrument performance showing the C50 response factor within 30% of the average of the C10, C16 and C34 response factors.
4. Linearity of diesel or motor oil response within 15% throughout the calibration range.

F1-HS-511-WT	Soil	F1-O.Reg 153/04 (July 2011)	E3398/CCME TIER 1-HS

Fraction F1 is determined by extracting a soil or sediment sample as received with methanol, then analyzing by headspace-GC/FID.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

F2-F4-511-WT	Soil	F2-F4-O.Reg 153/04 (July 2011)	CCME Tier 1

Petroleum Hydrocarbons (F2-F4 fractions) are extracted from soil with 1:1 hexane:acetone using a rotary extractor. Extracts are treated with silica gel to remove polar organic interferences. F2, F3, & F4 are analyzed by GC-FID. F4G-sg is analyzed gravimetrically.

Notes:
1. F2 (C10-C16): Sum of all hydrocarbons that elute between nC10 and nC16.
2. F3 (C16-C34): Sum of all hydrocarbons that elute between nC16 and nC34.
3. F4 (C34-C50): Sum of all hydrocarbons that elute between nC34 and nC50.
4. F4G: Gravimetric Heavy Hydrocarbons
5. F4G-sg: Gravimetric Heavy Hydrocarbons (F4G) after silica gel treatment.
6. Where both F4 (C34-C50) and F4G-sg are reported for a sample, the larger of the two values is used for comparison against the relevant CCME guideline for F4.
7. F4G-sg cannot be added to the C6 to C50 hydrocarbon results to obtain an estimate of total extractable hydrocarbons.
8. This method is validated for use.
9. Data from analysis of validation and quality control samples is available upon request.
10. Reported results are expressed as milligrams per dry kilogram, unless otherwise indicated.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

F4G-ADD-511-WT	Soil	F4G SG-O.Reg 153/04 (July 2011)	MOE DECPH-E3398/CCME TIER 1

F4G, gravimetric analysis, is determined if the chromatogram does not return to baseline at or before C50. A soil sample is extracted with a solvent mix, the solvent is evaporated and the weight of the residue is determined.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

HG-200.2-CVAA-WT	Soil	Mercury in Soil by CVAAS	EPA 200.2/1631E (mod)

Soil samples are digested with nitric and hydrochloric acids, followed by analysis by CVAAS.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

Reference Information

MET-200.2-CCMS-WT	Soil	Metals in Soil by CRC ICPMS	EPA 200.2/6020A (mod)

Soil/sediment is dried, disaggregated, and sieved (2 mm). For tests intended to support Ontario regulations, the <2mm fraction is ground to pass through a 0.355 mm sieve. Strong Acid Leachable Metals in the <2mm fraction are solubilized by heated digestion with nitric and hydrochloric acids. Instrumental analysis is by Collision / Reaction Cell ICPMS.

Limitations: This method is intended to liberate environmentally available metals. Silicate minerals are not solubilized. Some metals may be only partially recovered (matrix dependent), including Al, Ba, Be, Cr, S, Sr, Ti, Tl, V, W, and Zr. Elemental Sulfur may be poorly recovered by this method. Volatile forms of sulfur (e.g. sulfide, H2S) may be excluded if lost during sampling, storage, or digestion.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

METHYLNAPS-CALC-WT	Soil	ABN-Calculated Parameters	SW846 8270
MOISTURE-WT	Soil	% Moisture	CCME PHC in Soil - Tier 1 (mod)
PAH-511-WT	Soil	PAH-O.Reg 153/04 (July 2011)	SW846 3510/8270

A representative sub-sample of soil is fortified with deuterium-labelled surrogates and a mechanical shaking techniqueis used to extract the sample with a mixture of methanol and toluene. The extracts are concentrated and analyzed by GC/MS. Results for benzo(b) fluoranthene may include contributions from benzo(j)fluoranthene, if also present in the sample.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

PCB-511-WT	Soil	PCB-O.Reg 153/04 (July 2011)	SW846 3510/8082

An aliquot of a solid sample is extracted with a solvent, extract is cleaned up and analyzed on the GC/MS.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

PEST-OC-511-WT	Soil	OC Pesticides-O.Reg 153/04 (July 2011)	SW846 8270 (511)

Soil sample is extracted in a solvent, after extraction a number of clean up techniques may be applied, depending on the sample matrix and analyzed by GC/MS.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

PH-WT	Soil	pH	MOEE E3137A

A minimum 10g portion of the sample is extracted with 20mL of 0.01M calcium chloride solution by shaking for at least 30 minutes. The aqueous layer is separated from the soil and then analyzed using a pH meter and electrode.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

SAR-R511-WT	Soil	SAR-O.Reg 153/04 (July 2011)	SW846 6010C

A dried, disaggregated solid sample is extracted with deionized water, the aqueous extract is separated from the solid, acidified and then analyzed using a ICP/OES. The concentrations of Na, Ca and Mg are reported as per CALA requirements for calculated parameters. These individual parameters are not for comparison to any guideline.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

VOC-1,3-DCP-CALC-WT	Soil	Regulation 153 VOCs	SW8260B/SW8270C
VOC-511-HS-WT	Soil	VOC-O.Reg 153/04 (July 2011)	SW846 8260 (511)

Soil and sediment samples are extracted in methanol and analyzed by headspace-GC/MS.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

XYLENES-SUM-CALC-WT	Soil	Sum of Xylene Isomer Concentrations	CALCULATION

Total xylenes represents the sum of o-xylene and m&p-xylene.

*** ALS test methods may incorporate modifications from specified reference methods to improve performance.

Chain of Custody numbers:

Reference Information

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location	Laboratory Definition Code	Laboratory Location
WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA		

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.
mg/kg - milligrams per kilogram based on dry weight of sample
mg/kg wwt - milligrams per kilogram based on wet weight of sample
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight
mg/L - unit of concentration based on volume, parts per million.
< - Less than.
D.L. - The reporting limit.
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, fitness for a particular purpose, or non-infringement. ALS assumes no responsibility for errors or omissions in the information. Guideline limits are not adjusted for the hardness, pH or temperature of the sample (the most conservative values are used). Measurement uncertainty is not applied to test results prior to comparison with specified criteria values.

Quality Control Report

Workorder: L2247122 Report Date: 01-APR-19

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
625-511-WT	**Soil**							
Batch R4583368								
WG3013237-9 DUP		**WG3013237-5**						
2-Chlorophenol		<0.10	<0.10	RPD-NA	ug/g	N/A	40	26-MAR-19
2,4-Dichlorophenol		<0.10	<0.10	RPD-NA	ug/g	N/A	40	26-MAR-19
2,4,5-Trichlorophenol		<0.10	<0.10	RPD-NA	ug/g	N/A	40	26-MAR-19
2,4,6-Trichlorophenol		<0.10	<0.10	RPD-NA	ug/g	N/A	40	26-MAR-19
Pentachlorophenol		<0.10	<0.10	RPD-NA	ug/g	N/A	40	26-MAR-19
WG3013237-7 LCS								
2-Chlorophenol			109.0		%		50-140	26-MAR-19
2,4-Dichlorophenol			108.6		%		50-140	26-MAR-19
2,4,5-Trichlorophenol			111.7		%		50-140	26-MAR-19
2,4,6-Trichlorophenol			106.0		%		50-140	26-MAR-19
Pentachlorophenol			91.3		%		50-140	26-MAR-19
WG3013237-6 MB								
2-Chlorophenol			<0.10		ug/g		0.1	26-MAR-19
2,4-Dichlorophenol			<0.10		ug/g		0.1	26-MAR-19
2,4,5-Trichlorophenol			<0.10		ug/g		0.1	26-MAR-19
2,4,6-Trichlorophenol			<0.10		ug/g		0.1	26-MAR-19
Pentachlorophenol			<0.10		ug/g		0.1	26-MAR-19
Surrogate: 2,4,6-Tribromophenol			76.0		%		50-140	26-MAR-19
Surrogate: Phenol d5			97.4		%		30-130	26-MAR-19
WG3013237-8 MS		**WG3013237-5**						
2-Chlorophenol			101.2		%		50-140	26-MAR-19
2,4-Dichlorophenol			100.8		%		50-140	26-MAR-19
2,4,5-Trichlorophenol			105.4		%		50-140	26-MAR-19
2,4,6-Trichlorophenol			102.0		%		50-140	26-MAR-19
Pentachlorophenol			91.5		%		50-140	26-MAR-19
B-HWS-R511-WT	**Soil**							
Batch R4584249								
WG3013996-4 DUP		**L2246982-1**						
Boron (B), Hot Water Ext.		0.19	0.18		ug/g	5.3	30	26-MAR-19
WG3013996-2 IRM		**HOTB-SAL_SOIL5**						
Boron (B), Hot Water Ext.			95.6		%		70-130	26-MAR-19
WG3013996-3 LCS								
Boron (B), Hot Water Ext.			94.8		%		70-130	26-MAR-19
WG3013996-1 MB								
Boron (B), Hot Water Ext.			<0.10		ug/g		0.1	26-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
CN-WAD-R511-WT	**Soil**							
Batch R4581134								
WG3012458-7 DUP		**L2247151-2**						
Cyanide, Weak Acid Diss		<0.050	<0.050	RPD-NA	ug/g	N/A	35	25-MAR-19
WG3012458-6 LCS								
Cyanide, Weak Acid Diss			93.4		%		80-120	25-MAR-19
WG3012458-5 MB								
Cyanide, Weak Acid Diss			<0.050		ug/g		0.05	25-MAR-19
WG3012458-8 MS		**L2247151-2**						
Cyanide, Weak Acid Diss			100.8		%		70-130	25-MAR-19
CR-CR6-IC-WT	**Soil**							
Batch R4580627								
WG3012537-4 CRM		**WT-SQC012**						
Chromium, Hexavalent			96.6		%		70-130	25-MAR-19
WG3012537-3 DUP		**L2247151-1**						
Chromium, Hexavalent		<0.20	0.20	RPD-NA	ug/g	N/A	35	25-MAR-19
WG3012537-2 LCS								
Chromium, Hexavalent			94.6		%		80-120	25-MAR-19
WG3012537-1 MB								
Chromium, Hexavalent			<0.20		ug/g		0.2	25-MAR-19
EC-WT	**Soil**							
Batch R4585550								
WG3014881-4 DUP		**WG3014881-3**						
Conductivity		0.452	0.454		mS/cm	0.4	20	27-MAR-19
WG3014881-2 IRM		**WT SAR2**						
Conductivity			98.0		%		70-130	27-MAR-19
WG3015362-1 LCS								
Conductivity			100.8		%		90-110	27-MAR-19
WG3014881-1 MB								
Conductivity			<0.0040		mS/cm		0.004	27-MAR-19
F1-HS-511-WT	**Soil**							
Batch R4585205								
WG3013501-4 DUP		**WG3013501-3**						
F1 (C6-C10)		7.7	8.0		ug/g	3.8	30	27-MAR-19
WG3013501-2 LCS								
F1 (C6-C10)			101.2		%		80-120	27-MAR-19
WG3013501-1 MB								
F1 (C6-C10)			<5.0		ug/g		5	27-MAR-19
Surrogate: 3,4-Dichlorotoluene			102.5		%		60-140	27-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F1-HS-511-WT	**Soil**							
Batch R4585205								
WG3013501-6 MS		**L2247122-1**						
F1 (C6-C10)			103.6		%		60-140	27-MAR-19
F2-F4-511-WT	**Soil**							
Batch R4583107								
WG3012350-3 DUP		**WG3012350-5**						
F2 (C10-C16)		<10	<10	RPD-NA	ug/g	N/A	30	25-MAR-19
F3 (C16-C34)		<50	<50	RPD-NA	ug/g	N/A	30	25-MAR-19
F4 (C34-C50)		<50	73	RPD-NA	ug/g	N/A	30	25-MAR-19
WG3012350-2 LCS								
F2 (C10-C16)			98.6		%		80-120	25-MAR-19
F3 (C16-C34)			100.2		%		80-120	25-MAR-19
F4 (C34-C50)			104.1		%		80-120	25-MAR-19
WG3012350-1 MB								
F2 (C10-C16)			<10		ug/g		10	25-MAR-19
F3 (C16-C34)			<50		ug/g		50	25-MAR-19
F4 (C34-C50)			<50		ug/g		50	25-MAR-19
Surrogate: 2-Bromobenzotrifluoride			83.3		%		60-140	25-MAR-19
WG3012350-4 MS		**WG3012350-5**						
F2 (C10-C16)			96.0		%		60-140	25-MAR-19
F3 (C16-C34)			101.1		%		60-140	25-MAR-19
F4 (C34-C50)			110.1		%		60-140	25-MAR-19
F4G-ADD-511-WT	**Soil**							
Batch R4585079								
WG3014788-2 LCS								
F4G-SG (GHH-Silica)			75.1		%		60-140	25-MAR-19
WG3014788-1 MB								
F4G-SG (GHH-Silica)			<250		ug/g		250	25-MAR-19
HG-200.2-CVAA-WT	**Soil**							
Batch R4583528								
WG3013974-2 CRM		**WT-CANMET-TILL1**						
Mercury (Hg)			97.4		%		70-130	26-MAR-19
WG3013974-6 DUP		**WG3013974-5**						
Mercury (Hg)		0.0163	0.0183		ug/g	12	40	26-MAR-19
WG3013974-4 LCS								
Mercury (Hg)			104.5		%		80-120	26-MAR-19
WG3013974-1 MB								

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
HG-200.2-CVAA-WT	**Soil**							
Batch R4583528								
WG3013974-1 MB								
Mercury (Hg)			<0.0050		mg/kg		0.005	26-MAR-19
MET-200.2-CCMS-WT	**Soil**							
Batch R4584117								
WG3013974-2 CRM		**WT-CANMET-TILL1**						
Antimony (Sb)			115.0		%		70-130	26-MAR-19
Arsenic (As)			117.4		%		70-130	26-MAR-19
Barium (Ba)			119.8		%		70-130	26-MAR-19
Beryllium (Be)			111.2		%		70-130	26-MAR-19
Boron (B)			3.2		mg/kg		0-8.2	26-MAR-19
Cadmium (Cd)			116.0		%		70-130	26-MAR-19
Chromium (Cr)			117.5		%		70-130	26-MAR-19
Cobalt (Co)			114.0		%		70-130	26-MAR-19
Copper (Cu)			118.0		%		70-130	26-MAR-19
Lead (Pb)			109.2		%		70-130	26-MAR-19
Molybdenum (Mo)			116.8		%		70-130	26-MAR-19
Nickel (Ni)			115.8		%		70-130	26-MAR-19
Selenium (Se)			0.31		mg/kg		0.11-0.51	26-MAR-19
Silver (Ag)			0.26		mg/kg		0.13-0.33	26-MAR-19
Thallium (Tl)			0.131		mg/kg		0.077-0.18	26-MAR-19
Uranium (U)			106.7		%		70-130	26-MAR-19
Vanadium (V)			117.1		%		70-130	26-MAR-19
Zinc (Zn)			114.7		%		70-130	26-MAR-19
WG3013974-6 DUP		**WG3013974-5**						
Antimony (Sb)		0.17	0.18		ug/g	1.9	30	26-MAR-19
Arsenic (As)		5.91	6.06		ug/g	2.5	30	26-MAR-19
Barium (Ba)		188	217		ug/g	14	40	26-MAR-19
Beryllium (Be)		0.86	0.83		ug/g	3.3	30	26-MAR-19
Boron (B)		9.5	9.2		ug/g	2.6	30	26-MAR-19
Cadmium (Cd)		0.093	0.088		ug/g	5.8	30	26-MAR-19
Chromium (Cr)		28.3	28.0		ug/g	0.9	30	26-MAR-19
Cobalt (Co)		15.6	15.5		ug/g	0.9	30	26-MAR-19
Copper (Cu)		33.9	33.7		ug/g	0.4	30	26-MAR-19
Lead (Pb)		12.0	11.8		ug/g	1.5	40	26-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R4584117								
WG3013974-6 DUP		**WG3013974-5**						
Molybdenum (Mo)		0.52	0.48		ug/g	7.3	40	26-MAR-19
Nickel (Ni)		33.2	33.1		ug/g	0.3	30	26-MAR-19
Selenium (Se)		<0.20	<0.20	RPD-NA	ug/g	N/A	30	26-MAR-19
Silver (Ag)		<0.10	<0.10	RPD-NA	ug/g	N/A	40	26-MAR-19
Thallium (Tl)		0.146	0.144		ug/g	1.5	30	26-MAR-19
Uranium (U)		0.669	0.642		ug/g	4.1	30	26-MAR-19
Vanadium (V)		39.7	39.2		ug/g	1.4	30	26-MAR-19
Zinc (Zn)		67.6	67.2		ug/g	0.6	30	26-MAR-19
WG3013974-3 LCS								
Antimony (Sb)			107.0		%		80-120	26-MAR-19
Arsenic (As)			98.1		%		80-120	26-MAR-19
Barium (Ba)			101.4		%		80-120	26-MAR-19
Beryllium (Be)			97.6		%		80-120	26-MAR-19
Boron (B)			91.6		%		80-120	26-MAR-19
Cadmium (Cd)			97.3		%		80-120	26-MAR-19
Chromium (Cr)			96.6		%		80-120	26-MAR-19
Cobalt (Co)			95.7		%		80-120	26-MAR-19
Copper (Cu)			95.4		%		80-120	26-MAR-19
Lead (Pb)			98.9		%		80-120	26-MAR-19
Molybdenum (Mo)			100.7		%		80-120	26-MAR-19
Nickel (Ni)			94.8		%		80-120	26-MAR-19
Selenium (Se)			103.2		%		80-120	26-MAR-19
Silver (Ag)			99.8		%		80-120	26-MAR-19
Thallium (Tl)			99.1		%		80-120	26-MAR-19
Uranium (U)			91.7		%		80-120	26-MAR-19
Vanadium (V)			100.3		%		80-120	26-MAR-19
Zinc (Zn)			96.3		%		80-120	26-MAR-19
WG3013974-1 MB								
Antimony (Sb)			<0.10		mg/kg		0.1	26-MAR-19
Arsenic (As)			<0.10		mg/kg		0.1	26-MAR-19
Barium (Ba)			<0.50		mg/kg		0.5	26-MAR-19
Beryllium (Be)			<0.10		mg/kg		0.1	26-MAR-19
Boron (B)			<5.0		mg/kg		5	26-MAR-19
Cadmium (Cd)			<0.020		mg/kg		0.02	26-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R4584117								
WG3013974-1 MB								
Chromium (Cr)			<0.50		mg/kg		0.5	26-MAR-19
Cobalt (Co)			<0.10		mg/kg		0.1	26-MAR-19
Copper (Cu)			<0.50		mg/kg		0.5	26-MAR-19
Lead (Pb)			<0.50		mg/kg		0.5	26-MAR-19
Molybdenum (Mo)			<0.10		mg/kg		0.1	26-MAR-19
Nickel (Ni)			<0.50		mg/kg		0.5	26-MAR-19
Selenium (Se)			<0.20		mg/kg		0.2	26-MAR-19
Silver (Ag)			<0.10		mg/kg		0.1	26-MAR-19
Thallium (Tl)			<0.050		mg/kg		0.05	26-MAR-19
Uranium (U)			<0.050		mg/kg		0.05	26-MAR-19
Vanadium (V)			<0.20		mg/kg		0.2	26-MAR-19
Zinc (Zn)			<2.0		mg/kg		2	26-MAR-19
MOISTURE-WT	**Soil**							
Batch R4580095								
WG3012623-3 DUP		**L2247151-1**						
% Moisture		14.4	14.2		%	1.2	20	23-MAR-19
WG3012623-2 LCS								
% Moisture			101.0		%		90-110	23-MAR-19
WG3012623-1 MB								
% Moisture			<0.10		%		0.1	23-MAR-19
Batch R4580102								
WG3012100-3 DUP		**L2245347-1**						
% Moisture		18.2	16.5		%	9.9	20	23-MAR-19
WG3012100-2 LCS								
% Moisture			101.9		%		90-110	23-MAR-19
WG3012100-1 MB								
% Moisture			<0.10		%		0.1	23-MAR-19
PAH-511-WT	**Soil**							
Batch R4582909								
WG3011796-3 DUP		**WG3011796-5**						
1-Methylnaphthalene		38.7	35.4		ug/g	8.9	40	26-MAR-19
2-Methylnaphthalene		56.8	51.6		ug/g	9.6	40	26-MAR-19
Acenaphthene		3.05	2.92		ug/g	4.4	40	26-MAR-19
Acenaphthylene		0.540	0.531		ug/g	1.7	40	26-MAR-19
Anthracene		<0.28	<0.28	RPD-NA	ug/g	N/A	40	26-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R4582909								
WG3011796-3 DUP		**WG3011796-5**						
Benzo(a)anthracene		0.056	0.057		ug/g	2.5	40	26-MAR-19
Benzo(a)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Benzo(b)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Benzo(g,h,i)perylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Benzo(k)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Chrysene		0.157	0.149		ug/g	5.3	40	26-MAR-19
Dibenzo(ah)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Fluoranthene		0.251	0.244		ug/g	3.0	40	26-MAR-19
Fluorene		5.16	4.82		ug/g	6.7	40	26-MAR-19
Indeno(1,2,3-cd)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Naphthalene		7.62	7.24		ug/g	5.1	40	26-MAR-19
Phenanthrene		12.8	11.8		ug/g	8.3	40	26-MAR-19
Pyrene		1.04	1.02		ug/g	2.7	40	26-MAR-19
WG3011796-2 LCS								
1-Methylnaphthalene			94.4		%		50-140	25-MAR-19
2-Methylnaphthalene			91.3		%		50-140	25-MAR-19
Acenaphthene			98.4		%		50-140	25-MAR-19
Acenaphthylene			90.8		%		50-140	25-MAR-19
Anthracene			93.2		%		50-140	25-MAR-19
Benzo(a)anthracene			94.4		%		50-140	25-MAR-19
Benzo(a)pyrene			94.4		%		50-140	25-MAR-19
Benzo(b)fluoranthene			95.0		%		50-140	25-MAR-19
Benzo(g,h,i)perylene			101.5		%		50-140	25-MAR-19
Benzo(k)fluoranthene			99.4		%		50-140	25-MAR-19
Chrysene			98.2		%		50-140	25-MAR-19
Dibenzo(ah)anthracene			94.6		%		50-140	25-MAR-19
Fluoranthene			88.8		%		50-140	25-MAR-19
Fluorene			92.6		%		50-140	25-MAR-19
Indeno(1,2,3-cd)pyrene			85.3		%		50-140	25-MAR-19
Naphthalene			93.1		%		50-140	25-MAR-19
Phenanthrene			98.6		%		50-140	25-MAR-19
Pyrene			90.5		%		50-140	25-MAR-19
WG3011796-1 MB								
							0.03	

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R4582909								
WG3011796-1 MB								
1-Methylnaphthalene			<0.030		ug/g		0.03	26-MAR-19
2-Methylnaphthalene			<0.030		ug/g		0.03	26-MAR-19
Acenaphthene			<0.050		ug/g		0.05	26-MAR-19
Acenaphthylene			<0.050		ug/g		0.05	26-MAR-19
Anthracene			<0.050		ug/g		0.05	26-MAR-19
Benzo(a)anthracene			<0.050		ug/g		0.05	26-MAR-19
Benzo(a)pyrene			<0.050		ug/g		0.05	26-MAR-19
Benzo(b)fluoranthene			<0.050		ug/g		0.05	26-MAR-19
Benzo(g,h,i)perylene			<0.050		ug/g		0.05	26-MAR-19
Benzo(k)fluoranthene			<0.050		ug/g		0.05	26-MAR-19
Chrysene			<0.050		ug/g		0.05	26-MAR-19
Dibenzo(ah)anthracene			<0.050		ug/g		0.05	26-MAR-19
Fluoranthene			<0.050		ug/g		0.05	26-MAR-19
Fluorene			<0.050		ug/g		0.05	26-MAR-19
Indeno(1,2,3-cd)pyrene			<0.050		ug/g		0.05	26-MAR-19
Naphthalene			<0.013		ug/g		0.013	26-MAR-19
Phenanthrene			<0.046		ug/g		0.046	26-MAR-19
Pyrene			<0.050		ug/g		0.05	26-MAR-19
Surrogate: 2-Fluorobiphenyl			102.4		%		50-140	26-MAR-19
Surrogate: p-Terphenyl d14			93.9		%		50-140	26-MAR-19
WG3011796-4 MS		**WG3011796-5**						
1-Methylnaphthalene			N/A	MS-B	%		-	26-MAR-19
2-Methylnaphthalene			N/A	MS-B	%		-	26-MAR-19
Acenaphthene			N/A	MS-B	%		-	26-MAR-19
Acenaphthylene			84.8		%		50-140	26-MAR-19
Anthracene			70.4		%		50-140	26-MAR-19
Benzo(a)anthracene			110.6		%		50-140	26-MAR-19
Benzo(a)pyrene			99.3		%		50-140	26-MAR-19
Benzo(b)fluoranthene			104.9		%		50-140	26-MAR-19
Benzo(g,h,i)perylene			95.7		%		50-140	26-MAR-19
Benzo(k)fluoranthene			93.8		%		50-140	26-MAR-19
Chrysene			87.7		%		50-140	26-MAR-19
Dibenzo(ah)anthracene			95.8		%		50-140	26-MAR-19
Fluoranthene			91.2		%		50-140	26-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R4582909								
WG3011796-4 MS		**WG3011796-5**						
Fluorene			N/A	MS-B	%		-	26-MAR-19
Indeno(1,2,3-cd)pyrene			92.0		%		50-140	26-MAR-19
Naphthalene			N/A	MS-B	%		-	26-MAR-19
Phenanthrene			N/A	MS-B	%		-	26-MAR-19
Pyrene			N/A	MS-B	%		-	26-MAR-19
PCB-511-WT	**Soil**							
Batch R4585377								
WG3011796-7 DUP		**WG3011796-6**						
Aroclor 1242		<0.150	<0.150	RPD-NA	ug/g	N/A	40	27-MAR-19
Aroclor 1248		<0.020	<0.020	RPD-NA	ug/g	N/A	40	27-MAR-19
Aroclor 1254		<0.020	<0.020	RPD-NA	ug/g	N/A	40	27-MAR-19
Aroclor 1260		<0.020	<0.020	RPD-NA	ug/g	N/A	40	27-MAR-19
WG3011796-2 LCS								
Aroclor 1242			96.5		%		60-140	27-MAR-19
Aroclor 1248			90.0		%		60-140	27-MAR-19
Aroclor 1254			100.7		%		60-140	27-MAR-19
Aroclor 1260			112.9		%		60-140	27-MAR-19
WG3011796-1 MB								
Aroclor 1242			<0.010		ug/g		0.01	27-MAR-19
Aroclor 1248			<0.010		ug/g		0.01	27-MAR-19
Aroclor 1254			<0.010		ug/g		0.01	27-MAR-19
Aroclor 1260			<0.010		ug/g		0.01	27-MAR-19
Surrogate: d14-Terphenyl			86.5		%		60-140	27-MAR-19
WG3011796-8 MS		**WG3011796-6**						
Aroclor 1242			64.9		%		60-140	27-MAR-19
Aroclor 1254			89.3		%		60-140	27-MAR-19
Aroclor 1260			98.4		%		60-140	27-MAR-19
PEST-OC-511-WT	**Soil**							
Batch R4581388								
WG3011936-3 DUP		**WG3011936-5**						
Aldrin		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
a-chlordane		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
g-chlordane		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
op-DDD		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PEST-OC-511-WT	**Soil**							
Batch R4581388								
WG3011936-3 DUP		**WG3011936-5**						
pp-DDD		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
o,p-DDE		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
pp-DDE		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
op-DDT		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
pp-DDT		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
Dieldrin		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
Endosulfan I		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
Endosulfan II		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
Endrin		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
gamma-hexachlorocyclohexane		<0.10	<0.10	RPD-NA	ug/g	N/A	40	25-MAR-19
Heptachlor		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
Heptachlor Epoxide		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
Hexachlorobenzene		<0.10	<0.10	RPD-NA	ug/g	N/A	40	25-MAR-19
Hexachlorobutadiene		<0.10	<0.10	RPD-NA	ug/g	N/A	40	25-MAR-19
Hexachloroethane		<0.10	<0.10	RPD-NA	ug/g	N/A	40	25-MAR-19
Methoxychlor		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
WG3011936-2 LCS								
Aldrin			102.8		%		50-140	25-MAR-19
a-chlordane			79.4		%		50-140	25-MAR-19
g-chlordane			82.6		%		50-140	25-MAR-19
op-DDD			84.4		%		50-140	25-MAR-19
pp-DDD			91.2		%		50-140	25-MAR-19
o,p-DDE			78.8		%		50-140	25-MAR-19
pp-DDE			78.1		%		50-140	25-MAR-19
op-DDT			133.1		%		50-140	25-MAR-19
pp-DDT			139.8		%		50-140	25-MAR-19
Dieldrin			80.7		%		50-140	25-MAR-19
Endosulfan I			83.0		%		50-140	25-MAR-19
Endosulfan II			93.6		%		50-140	25-MAR-19
Endrin			146.5	RRQC	%		50-140	25-MAR-19
gamma-hexachlorocyclohexane			95.1		%		50-140	25-MAR-19
Heptachlor			106.7		%		50-140	25-MAR-19
Heptachlor Epoxide			85.1		%		50-140	25-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PEST-OC-511-WT	**Soil**							
Batch R4581388								
WG3011936-2 LCS								
Hexachlorobenzene			99.2		%		50-140	25-MAR-19
Hexachlorobutadiene			95.3		%		50-140	25-MAR-19
Hexachloroethane			102.4		%		50-140	25-MAR-19
Methoxychlor			152.6	RRQC	%		50-140	25-MAR-19
COMMENTS: RRQC: Recovery is outside ALS control limits. Associated sample results have not been affected.								
WG3011936-1 MB								
Aldrin			<0.020		ug/g		0.02	25-MAR-19
a-chlordane			<0.020		ug/g		0.02	25-MAR-19
g-chlordane			<0.020		ug/g		0.02	25-MAR-19
op-DDD			<0.020		ug/g		0.02	25-MAR-19
pp-DDD			<0.020		ug/g		0.02	25-MAR-19
o,p-DDE			<0.020		ug/g		0.02	25-MAR-19
pp-DDE			<0.020		ug/g		0.02	25-MAR-19
op-DDT			<0.020		ug/g		0.02	25-MAR-19
pp-DDT			<0.020		ug/g		0.02	25-MAR-19
Dieldrin			<0.020		ug/g		0.02	25-MAR-19
Endosulfan I			<0.020		ug/g		0.02	25-MAR-19
Endosulfan II			<0.020		ug/g		0.02	25-MAR-19
Endrin			<0.020		ug/g		0.02	25-MAR-19
gamma-hexachlorocyclohexane			<0.010		ug/g		0.01	25-MAR-19
Heptachlor			<0.020		ug/g		0.02	25-MAR-19
Heptachlor Epoxide			<0.020		ug/g		0.02	25-MAR-19
Hexachlorobenzene			<0.010		ug/g		0.01	25-MAR-19
Hexachlorobutadiene			<0.010		ug/g		0.01	25-MAR-19
Hexachloroethane			<0.010		ug/g		0.01	25-MAR-19
Methoxychlor			<0.020		ug/g		0.02	25-MAR-19
Surrogate: 2-Fluorobiphenyl			95.0		%		50-140	25-MAR-19
Surrogate: d14-Terphenyl			110.5		%		50-140	25-MAR-19
WG3011936-4 MS		**WG3011936-5**						
Aldrin			85.0		%		50-140	25-MAR-19
a-chlordane			62.0		%		50-140	25-MAR-19
g-chlordane			67.1		%		50-140	25-MAR-19
op-DDD			64.1		%		50-140	25-MAR-19
pp-DDD			66.3		%		50-140	25-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PEST-OC-511-WT	**Soil**							
Batch R4581388								
WG3011936-4 MS		**WG3011936-5**						
o,p-DDE			66.8		%		50-140	25-MAR-19
pp-DDE			68.2		%		50-140	25-MAR-19
op-DDT			98.8		%		50-140	25-MAR-19
pp-DDT			100.2		%		50-140	25-MAR-19
Dieldrin			61.1		%		50-140	25-MAR-19
Endosulfan I			59.8		%		50-140	25-MAR-19
Endosulfan II			66.2		%		50-140	25-MAR-19
Endrin			93.8		%		50-140	25-MAR-19
gamma-hexachlorocyclohexane			71.9		%		50-140	25-MAR-19
Heptachlor			78.3		%		50-140	25-MAR-19
Heptachlor Epoxide			64.6		%		50-140	25-MAR-19
Hexachlorobenzene			85.0		%		50-140	25-MAR-19
Hexachlorobutadiene			81.8		%		50-140	25-MAR-19
Hexachloroethane			81.3		%		50-140	25-MAR-19
Methoxychlor			102.4		%		50-140	25-MAR-19
PH-WT	**Soil**							
Batch R4580950								
WG3013217-1 DUP		**L2247151-1**						
pH		7.82	7.82	J	pH units	0.00	0.3	25-MAR-19
WG3013316-1 LCS								
pH			6.96		pH units		6.9-7.1	25-MAR-19
SAR-R511-WT	**Soil**							
Batch R4585507								
WG3014881-4 DUP		**WG3014881-3**						
Calcium (Ca)		8.04	7.07		mg/L	13	30	27-MAR-19
Sodium (Na)		89.7	90.6		mg/L	1.0	30	27-MAR-19
Magnesium (Mg)		1.00	0.82		mg/L	20	30	27-MAR-19
WG3014881-2 IRM		**WT SAR2**						
Calcium (Ca)			101.8		%		70-130	27-MAR-19
Sodium (Na)			96.4		%		70-130	27-MAR-19
Magnesium (Mg)			100.6		%		70-130	27-MAR-19
WG3014881-5 LCS								
Calcium (Ca)			107.7		%		70-130	27-MAR-19
Sodium (Na)			104.0		%		70-130	27-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
SAR-R511-WT	**Soil**							
Batch R4585507								
WG3014881-5 LCS								
Magnesium (Mg)			101.8		%		70-130	27-MAR-19
WG3014881-1 MB								
Calcium (Ca)			<0.50		mg/L		0.5	27-MAR-19
Sodium (Na)			<0.50		mg/L		0.5	27-MAR-19
Magnesium (Mg)			<0.50		mg/L		0.5	27-MAR-19
VOC-511-HS-WT	**Soil**							
Batch R4585205								
WG3013501-4 DUP		**WG3013501-3**						
1,1,1,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
1,1,2,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
1,1,1-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
1,1,2-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
1,1-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
1,1-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
1,2-Dibromoethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
1,2-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
1,2-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
1,2-Dichloropropane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
1,3-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
1,4-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Acetone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	27-MAR-19
Benzene		0.0478	0.0437		ug/g	9.0	40	27-MAR-19
Bromodichloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Bromoform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Bromomethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Carbon tetrachloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Chlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Chloroform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
cis-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
cis-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	27-MAR-19
Dibromochloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Dichlorodifluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Ethylbenzene		0.031	0.029		ug/g	7.4	40	27-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4585205								
WG3013501-4 DUP		**WG3013501-3**						
n-Hexane		0.085	0.075		ug/g	12	40	27-MAR-19
Methylene Chloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
MTBE		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
m+p-Xylenes		0.103	0.096		ug/g	7.9	40	27-MAR-19
Methyl Ethyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	27-MAR-19
Methyl Isobutyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	27-MAR-19
o-Xylene		0.051	0.048		ug/g	6.1	40	27-MAR-19
Styrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Tetrachloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Toluene		0.144	0.132		ug/g	8.4	40	27-MAR-19
trans-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
trans-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	27-MAR-19
Trichloroethylene		0.011	0.011		ug/g	3.4	40	27-MAR-19
Trichlorofluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Vinyl chloride		<0.020	<0.020	RPD-NA	ug/g	N/A	40	27-MAR-19
WG3013501-2 LCS								
1,1,1,2-Tetrachloroethane			97.5		%		60-130	27-MAR-19
1,1,2,2-Tetrachloroethane			90.8		%		60-130	27-MAR-19
1,1,1-Trichloroethane			97.7		%		60-130	27-MAR-19
1,1,2-Trichloroethane			98.2		%		60-130	27-MAR-19
1,1-Dichloroethane			96.9		%		60-130	27-MAR-19
1,1-Dichloroethylene			89.7		%		60-130	27-MAR-19
1,2-Dibromoethane			91.0		%		70-130	27-MAR-19
1,2-Dichlorobenzene			99.5		%		70-130	27-MAR-19
1,2-Dichloroethane			95.3		%		60-130	27-MAR-19
1,2-Dichloropropane			93.2		%		70-130	27-MAR-19
1,3-Dichlorobenzene			101.6		%		70-130	27-MAR-19
1,4-Dichlorobenzene			103.4		%		70-130	27-MAR-19
Acetone			85.8		%		60-140	27-MAR-19
Benzene			97.9		%		70-130	27-MAR-19
Bromodichloromethane			94.5		%		50-140	27-MAR-19
Bromoform			90.2		%		70-130	27-MAR-19
Bromomethane			102.0		%		50-140	27-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4585205								
WG3013501-2 LCS								
Carbon tetrachloride			99.98		%		70-130	27-MAR-19
Chlorobenzene			98.2		%		70-130	27-MAR-19
Chloroform			98.2		%		70-130	27-MAR-19
cis-1,2-Dichloroethylene			97.3		%		70-130	27-MAR-19
cis-1,3-Dichloropropene			100.4		%		70-130	27-MAR-19
Dibromochloromethane			96.3		%		60-130	27-MAR-19
Dichlorodifluoromethane			53.6		%		50-140	27-MAR-19
Ethylbenzene			91.8		%		70-130	27-MAR-19
n-Hexane			85.4		%		70-130	27-MAR-19
Methylene Chloride			98.2		%		70-130	27-MAR-19
MTBE			99.5		%		70-130	27-MAR-19
m+p-Xylenes			93.4		%		70-130	27-MAR-19
Methyl Ethyl Ketone			88.0		%		60-140	27-MAR-19
Methyl Isobutyl Ketone			74.0		%		60-140	27-MAR-19
o-Xylene			90.2		%		70-130	27-MAR-19
Styrene			90.4		%		70-130	27-MAR-19
Tetrachloroethylene			101.9		%		60-130	27-MAR-19
Toluene			93.3		%		70-130	27-MAR-19
trans-1,2-Dichloroethylene			94.3		%		60-130	27-MAR-19
trans-1,3-Dichloropropene			91.0		%		70-130	27-MAR-19
Trichloroethylene			104.0		%		60-130	27-MAR-19
Trichlorofluoromethane			97.4		%		50-140	27-MAR-19
Vinyl chloride			64.3		%		60-140	27-MAR-19
WG3013501-1 MB								
1,1,1,2-Tetrachloroethane			<0.050		ug/g		0.05	27-MAR-19
1,1,2,2-Tetrachloroethane			<0.050		ug/g		0.05	27-MAR-19
1,1,1-Trichloroethane			<0.050		ug/g		0.05	27-MAR-19
1,1,2-Trichloroethane			<0.050		ug/g		0.05	27-MAR-19
1,1-Dichloroethane			<0.050		ug/g		0.05	27-MAR-19
1,1-Dichloroethylene			<0.050		ug/g		0.05	27-MAR-19
1,2-Dibromoethane			<0.050		ug/g		0.05	27-MAR-19
1,2-Dichlorobenzene			<0.050		ug/g		0.05	27-MAR-19
1,2-Dichloroethane			<0.050		ug/g		0.05	27-MAR-19
1,2-Dichloropropane			<0.050		ug/g		0.05	27-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4585205								
WG3013501-1 MB								
1,3-Dichlorobenzene			<0.050		ug/g		0.05	27-MAR-19
1,4-Dichlorobenzene			<0.050		ug/g		0.05	27-MAR-19
Acetone			<0.50		ug/g		0.5	27-MAR-19
Benzene			<0.0068		ug/g		0.0068	27-MAR-19
Bromodichloromethane			<0.050		ug/g		0.05	27-MAR-19
Bromoform			<0.050		ug/g		0.05	27-MAR-19
Bromomethane			<0.050		ug/g		0.05	27-MAR-19
Carbon tetrachloride			<0.050		ug/g		0.05	27-MAR-19
Chlorobenzene			<0.050		ug/g		0.05	27-MAR-19
Chloroform			<0.050		ug/g		0.05	27-MAR-19
cis-1,2-Dichloroethylene			<0.050		ug/g		0.05	27-MAR-19
cis-1,3-Dichloropropene			<0.030		ug/g		0.03	27-MAR-19
Dibromochloromethane			<0.050		ug/g		0.05	27-MAR-19
Dichlorodifluoromethane			<0.050		ug/g		0.05	27-MAR-19
Ethylbenzene			<0.018		ug/g		0.018	27-MAR-19
n-Hexane			<0.050		ug/g		0.05	27-MAR-19
Methylene Chloride			<0.050		ug/g		0.05	27-MAR-19
MTBE			<0.050		ug/g		0.05	27-MAR-19
m+p-Xylenes			<0.030		ug/g		0.03	27-MAR-19
Methyl Ethyl Ketone			<0.50		ug/g		0.5	27-MAR-19
Methyl Isobutyl Ketone			<0.50		ug/g		0.5	27-MAR-19
o-Xylene			<0.020		ug/g		0.02	27-MAR-19
Styrene			<0.050		ug/g		0.05	27-MAR-19
Tetrachloroethylene			<0.050		ug/g		0.05	27-MAR-19
Toluene			<0.080		ug/g		0.08	27-MAR-19
trans-1,2-Dichloroethylene			<0.050		ug/g		0.05	27-MAR-19
trans-1,3-Dichloropropene			<0.030		ug/g		0.03	27-MAR-19
Trichloroethylene			<0.010		ug/g		0.01	27-MAR-19
Trichlorofluoromethane			<0.050		ug/g		0.05	27-MAR-19
Vinyl chloride			<0.020		ug/g		0.02	27-MAR-19
Surrogate: 1,4-Difluorobenzene			119.0		%		50-140	27-MAR-19
Surrogate: 4-Bromofluorobenzene			107.8		%		50-140	27-MAR-19
WG3013501-5 MS		**L2248321-6**						
1,1,1,2-Tetrachloroethane			102.1		%		50-140	27-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4585205								
WG3013501-5 MS		**L2248321-6**						
1,1,2,2-Tetrachloroethane			94.0		%		50-140	27-MAR-19
1,1,1-Trichloroethane			98.7		%		50-140	27-MAR-19
1,1,2-Trichloroethane			104.9		%		50-140	27-MAR-19
1,1-Dichloroethane			98.7		%		50-140	27-MAR-19
1,1-Dichloroethylene			88.4		%		50-140	27-MAR-19
1,2-Dibromoethane			95.2		%		50-140	27-MAR-19
1,2-Dichlorobenzene			71.0		%		50-140	27-MAR-19
1,2-Dichloroethane			97.3		%		50-140	27-MAR-19
1,2-Dichloropropane			94.7		%		50-140	27-MAR-19
1,3-Dichlorobenzene			69.9		%		50-140	27-MAR-19
1,4-Dichlorobenzene			70.0		%		50-140	27-MAR-19
Acetone			99.0		%		50-140	27-MAR-19
Benzene			98.7		%		50-140	27-MAR-19
Bromodichloromethane			99.5		%		50-140	27-MAR-19
Bromoform			96.1		%		50-140	27-MAR-19
Bromomethane			94.0		%		50-140	27-MAR-19
Carbon tetrachloride			100.3		%		50-140	27-MAR-19
Chlorobenzene			98.0		%		50-140	27-MAR-19
Chloroform			100.4		%		50-140	27-MAR-19
cis-1,2-Dichloroethylene			97.3		%		50-140	27-MAR-19
cis-1,3-Dichloropropene			86.4		%		50-140	27-MAR-19
Dibromochloromethane			102.0		%		50-140	27-MAR-19
Dichlorodifluoromethane			50.4		%		50-140	27-MAR-19
Ethylbenzene			93.1		%		50-140	27-MAR-19
n-Hexane			82.5		%		50-140	27-MAR-19
Methylene Chloride			98.4		%		50-140	27-MAR-19
MTBE			99.8		%		50-140	27-MAR-19
m+p-Xylenes			92.4		%		50-140	27-MAR-19
Methyl Ethyl Ketone			87.6		%		50-140	27-MAR-19
Methyl Isobutyl Ketone			78.0		%		50-140	27-MAR-19
o-Xylene			91.2		%		50-140	27-MAR-19
Styrene			87.5		%		50-140	27-MAR-19
Tetrachloroethylene			98.5		%		50-140	27-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4585205								
WG3013501-5 MS		**L2248321-6**						
Toluene			95.1		%		50-140	27-MAR-19
trans-1,2-Dichloroethylene			88.5		%		50-140	27-MAR-19
trans-1,3-Dichloropropene			78.8		%		50-140	27-MAR-19
Trichloroethylene			100.5		%		50-140	27-MAR-19
Trichlorofluoromethane			96.7		%		50-140	27-MAR-19
Vinyl chloride			62.1		%		50-140	27-MAR-19

Quality Control Report

Workorder: L2247122 Report Date: 01-APR-19

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
DLHC	Detection Limit Raised: Dilution required due to high concentration of test analyte(s).
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
J	Duplicate results and limits are expressed in terms of absolute difference.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.
RRQC	Refer to report remarks for information regarding this QC result.

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

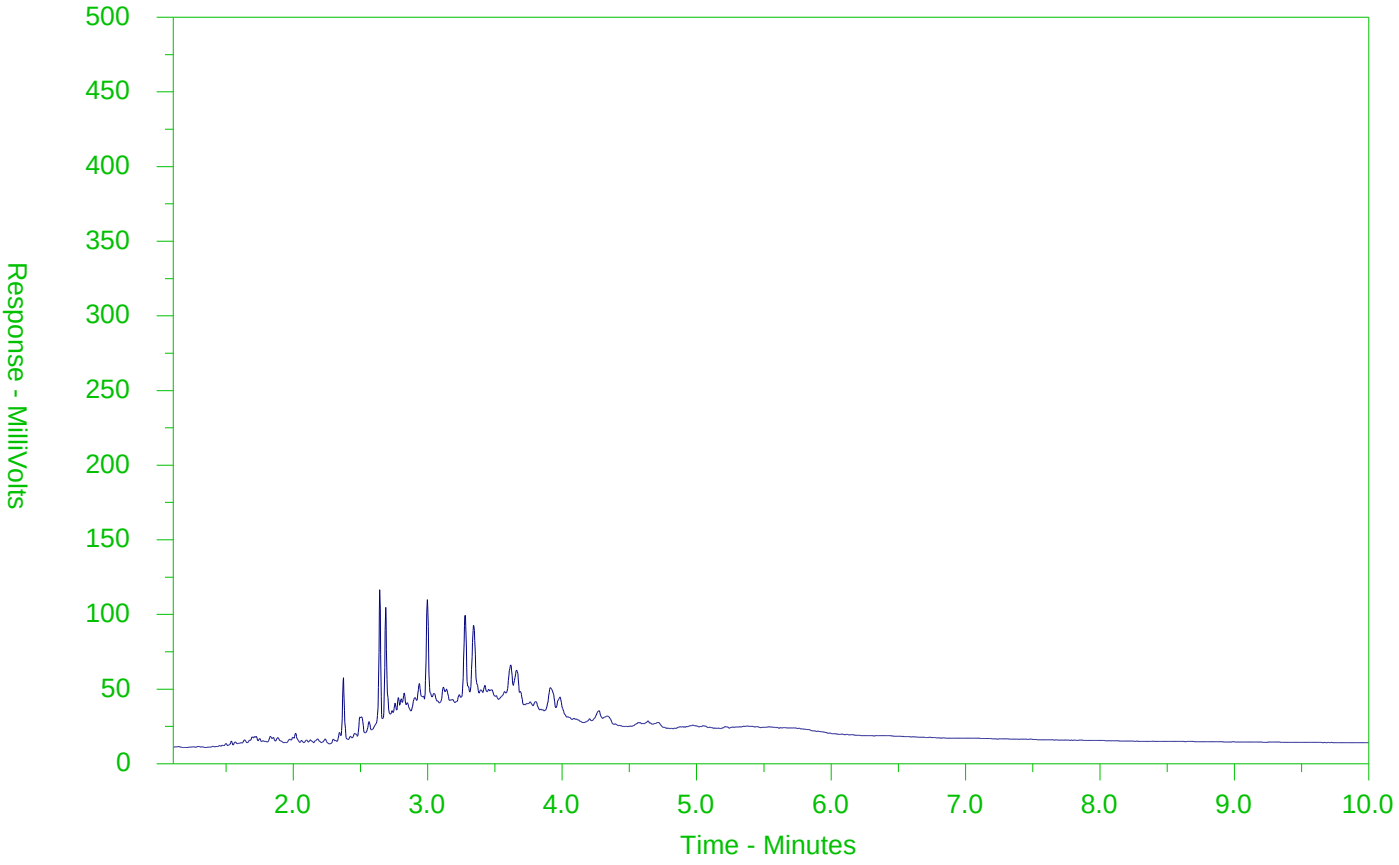
ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2247122-1
Client Sample ID: S-11102463-031919-DD-BH18-467-3.0-3.5 MBGS



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
←Diesel/Jet Fuels→			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

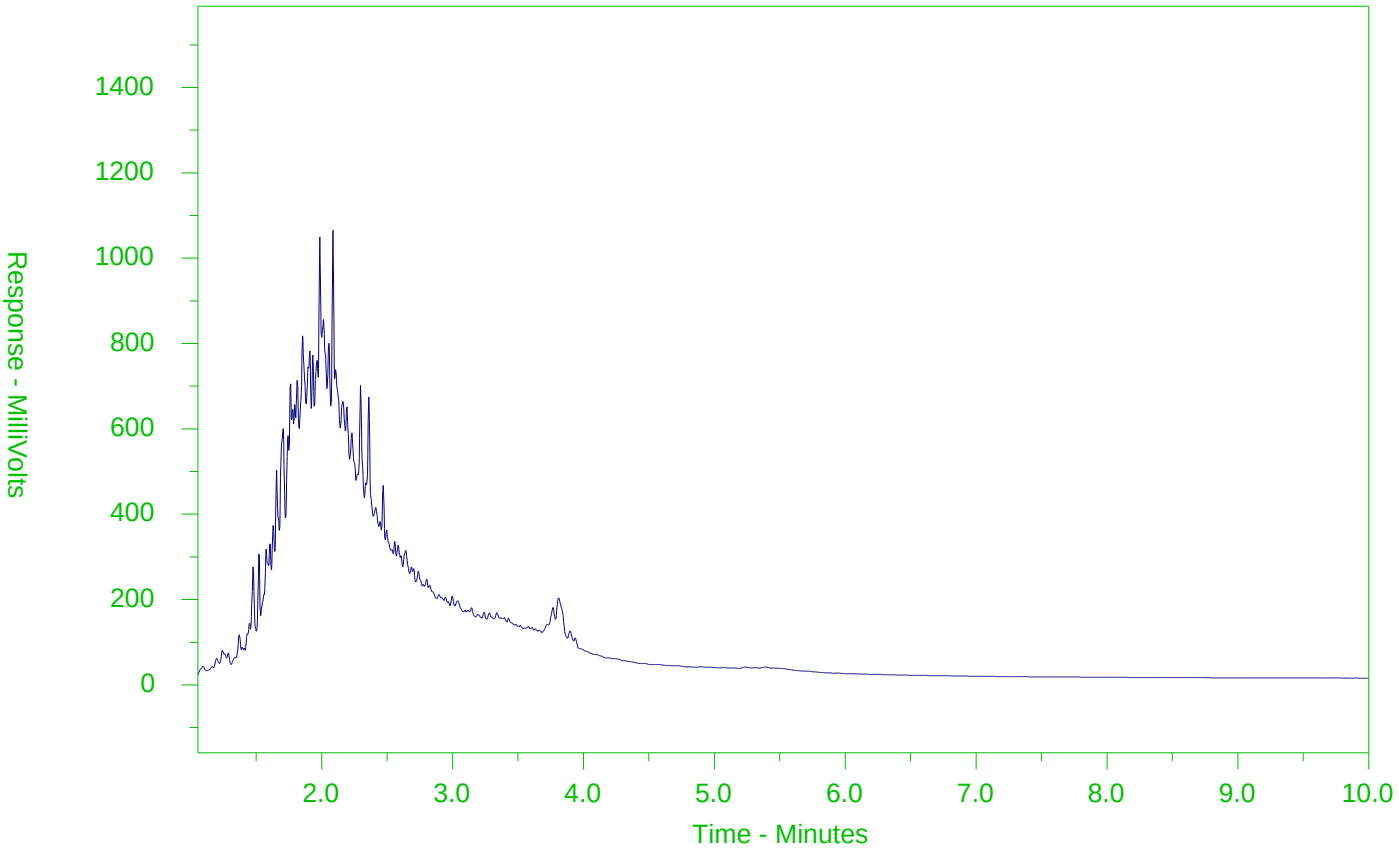
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2247122-2
Client Sample ID: S-11102463-031919-DD-BH18-467-4.6-5.2 MBGS



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
←Diesel/Jet Fuels→			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

ALS Environmental
www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

L2247122-COFC

Number: 17 -

Page 1 of 1

Report To	Contact and company name below will appear on the final report
Company:	GHD LIMITED - ACCT #13791
Contact:	Jennifer Balkwill
Phone:	519-884-0510
	Company address below will appear on the final report
Street:	455 Phillip St
City/Province:	Waterloo,Ontario
Postal Code:	N2L 3X2
Invoice To	Same as Report To ☑ YES ☐ NO
	Copy of Invoice with Report ☐ YES ☑ NO
Company:	GHD Limited
Contact:	Jennifer Balkwill

Report Format / Distribution

Select Report Format: ☑ PDF ☑ EXCEL ☑ EDD (DIGITAL)
Quality Control (QC) Report with Report ☑ YES ☐ NO
☐ Compare Results to Criteria on Report - provide details below if box checked
Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax jennifer.balkwill@ghd.com
Email 2 See PO
Email 3

Invoice Distribution

Select Invoice Distribution: ☐ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax jennifer.balkwill@ghd.com
Email 2

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)

Regular [R] ☑ Standard TAT if received by 3 pm - business days - no surcharges apply

PRIORITY (Business Days): 4 day [P4-20%] ☐ 3 day [P3-25%] ☐ 2 day [P2-50%] ☐

EMERGENCY: 1 Business day [E - 100%] ☐ Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)] ☐

Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm

For tests that can not be performed according to the service level selected, you will be contacted.

Project Information

ALS Account # / Quote #:	13791, Q51987
Job #:	11102463-71
PO / AFE:	73509898-7
LSD:	Waterfront Toronto

Oil and Gas Required Fields (client use)

AFE/Cost Center:	PO#
Major/Minor Code:	Routing Code:
Requisitioner:	
Location:	

ALS Lab Work Order # (lab use only): L2247122 20E

ALS Contact: Rick H Sampler:

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	BTEX,F1-F4-511-P-WT	TOC-WT (confirmed Triplicate 511 not neces	~~BTEX~~ F1 (Trip Blank) VOC	OC Pesticides	Chlorophenols	PCBs	PAHs	Oreg Metals + Inorganics	PHCs	VOCs					SAMPLES ON HOLD	SUSPECTED HAZARD (see Special Instructions)
	S-11102463- 031919-DD-BH18-467-3.0-3.5 mBGS	19-03-19	1100	Soil					X	X	X	X	X	X	X						
	S-11102463- 031919-DD-BH18-467-4.6-5.2 mBGS	19-03-19	1230	Soil								X	X	X	X						
	~~S-11102463-~~ TRIP BLANK	19-03-19	-	Soil				X													
	S-11102463-			Soil																	
	S-11102463-			Soil																	
	S-11102463-			Soil																	
	S-11102463-			Soil																	
	S-11102463-			Soil																	
	S-11102463-			Soil																	
	S-11102463-			Soil																	
	S-11102463-			Soil																	
	S-11102463-			Soil																	

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? ☐ YES ☑ NO

Are samples for human consumption/ use? ☐ YES ☑ NO

Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐
Ice Packs ☐ Ice Cubes ☒ Custody seal intact Yes ☐ No ☐
Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C

FINAL COOLER TEMPERATURES °C: 1.7°C

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by: DAN DEINER	Date: 03/19/19	Time: 1500	Received by:	Date:	Time:	Received by: [signature]	Date: 20/Mar/2019	Time: 17:15

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION WHITE - LABORATORY COPY YELLOW - CLIENT COPY

JUNE 2018 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

GHD Limited (Waterloo)
ATTN: JENNIFER BALKWILL
455 PHILLIP ST
WATERLOO ON N2L 3X2

Date Received: 21-MAR-19
Report Date: 28-MAR-19 14:16 (MT)
Version: FINAL

Client Phone: 519-884-0510

Certificate of Analysis

Lab Work Order #: L2247715

Project P.O. #: 73509898-7
Job Reference: 11102463-53
C of C Numbers:
Legal Site Desc: WATERFRONT TORONTO

Rick Hawthorne
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2247715-1 S-11102463-032019-EN-BH18-468-4"-2'								
Sampled By: E.NUSSLI on 20-MAR-19 @ 12:00								
Matrix: SOIL								
Physical Tests								
Conductivity	0.554		0.0040	mS/cm	27-MAR-19	0.7	0.7	0.7
% Moisture	12.9		0.10	%	26-MAR-19			
pH	9.12		0.10	pH units	27-MAR-19			
Cyanides								
Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	26-MAR-19	0.051	0.051	0.051
Saturated Paste Extractables								
SAR	0.87		0.10	SAR	27-MAR-19	5	5	5
Calcium (Ca)	72.2		0.50	mg/L	27-MAR-19			
Magnesium (Mg)	0.51		0.50	mg/L	27-MAR-19			
Sodium (Na)	27.1		0.50	mg/L	27-MAR-19			
Metals								
Antimony (Sb)	4.3		1.0	ug/g	27-MAR-19	7.5	7.5	*1.3
Arsenic (As)	10.4		1.0	ug/g	27-MAR-19	18	18	18
Barium (Ba)	141		1.0	ug/g	27-MAR-19	390	390	220
Beryllium (Be)	0.50		0.50	ug/g	27-MAR-19	4	5	2.5
Boron (B)	10.9		5.0	ug/g	27-MAR-19	120	120	36
Boron (B), Hot Water Ext.	0.61		0.10	ug/g	27-MAR-19	1.5	1.5	1.5
Cadmium (Cd)	1.34		0.50	ug/g	27-MAR-19	*1.2	*1.2	*1.2
Chromium (Cr)	79.5		1.0	ug/g	27-MAR-19	160	160	*70
Cobalt (Co)	8.3		1.0	ug/g	27-MAR-19	22	22	22
Copper (Cu)	93.0		1.0	ug/g	27-MAR-19	140	180	*92
Lead (Pb)	784		1.0	ug/g	27-MAR-19	*120	*120	*120
Mercury (Hg)	0.590		0.0050	ug/g	27-MAR-19	*0.27	1.8	*0.27
Molybdenum (Mo)	2.3		1.0	ug/g	27-MAR-19	6.9	6.9	*2
Nickel (Ni)	24.1		1.0	ug/g	27-MAR-19	100	130	82
Selenium (Se)	<1.0		1.0	ug/g	27-MAR-19	2.4	2.4	1.5
Silver (Ag)	0.63		0.20	ug/g	27-MAR-19	20	25	*0.5
Thallium (Tl)	<0.50		0.50	ug/g	27-MAR-19	1	1	1
Uranium (U)	<1.0		1.0	ug/g	27-MAR-19	23	23	2.5
Vanadium (V)	25.6		1.0	ug/g	27-MAR-19	86	86	86
Zinc (Zn)	319		5.0	ug/g	27-MAR-19	340	340	*290
Speciated Metals								
Chromium, Hexavalent	<0.20		0.20	ug/g	26-MAR-19	8	10	0.66
Volatile Organic Compounds								
Acetone	<0.50		0.50	ug/g	26-MAR-19	16	28	0.5
Benzene	0.0363		0.0068	ug/g	26-MAR-19	0.21	0.17	*0.02
Bromodichloromethane	<0.050		0.050	ug/g	26-MAR-19	13	13	0.05
Bromoform	<0.050		0.050	ug/g	26-MAR-19	0.27	0.26	0.05
Bromomethane	<0.050		0.050	ug/g	26-MAR-19	0.05	0.05	0.05
Carbon tetrachloride	<0.050		0.050	ug/g	26-MAR-19	0.05	0.12	0.05
Chlorobenzene	<0.050		0.050	ug/g	26-MAR-19	2.4	2.7	0.05
Dibromochloromethane	<0.050		0.050	ug/g	26-MAR-19	9.4	9.4	0.05
Chloroform	<0.050		0.050	ug/g	26-MAR-19	0.05	0.18	0.05
1,2-Dibromoethane	<0.050		0.050	ug/g	26-MAR-19	0.05	0.05	0.05
1,2-Dichlorobenzene	<0.050		0.050	ug/g	26-MAR-19	3.4	4.3	0.05

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2247715-1 S-11102463-032019-EN-BH18-468-4"-2'								
Sampled By: E.NUSSLI on 20-MAR-19 @ 12:00								
Matrix: SOIL								
Volatile Organic Compounds								
1,3-Dichlorobenzene	<0.050		0.050	ug/g	26-MAR-19	4.8	6	0.05
1,4-Dichlorobenzene	<0.050		0.050	ug/g	26-MAR-19	0.083	0.097	0.05
Dichlorodifluoromethane	<0.050		0.050	ug/g	26-MAR-19	16	25	0.05
1,1-Dichloroethane	<0.050		0.050	ug/g	26-MAR-19	3.5	11	0.05
1,2-Dichloroethane	<0.050		0.050	ug/g	26-MAR-19	0.05	0.05	0.05
1,1-Dichloroethylene	<0.050		0.050	ug/g	26-MAR-19	0.05	0.05	0.05
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	26-MAR-19	3.4	30	0.05
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	26-MAR-19	0.084	0.75	0.05
Methylene Chloride	<0.050		0.050	ug/g	26-MAR-19	0.1	0.96	0.05
1,2-Dichloropropane	<0.050		0.050	ug/g	26-MAR-19	0.05	0.085	0.05
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	26-MAR-19			
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	26-MAR-19			
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g	26-MAR-19	0.05	0.083	0.05
Ethylbenzene	0.036		0.018	ug/g	26-MAR-19	2	15	0.05
n-Hexane	0.071		0.050	ug/g	26-MAR-19	2.8	34	*0.05
Methyl Ethyl Ketone	<0.50		0.50	ug/g	26-MAR-19	16	44	0.5
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	26-MAR-19	1.7	4.3	0.5
MTBE	<0.050		0.050	ug/g	26-MAR-19	0.75	1.4	0.05
Styrene	<0.050		0.050	ug/g	26-MAR-19	0.7	2.2	0.05
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	26-MAR-19	0.058	0.05	0.05
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	26-MAR-19	0.05	0.05	0.05
Tetrachloroethylene	<0.050		0.050	ug/g	26-MAR-19	0.28	2.3	0.05
Toluene	0.114		0.080	ug/g	26-MAR-19	2.3	6	0.2
1,1,1-Trichloroethane	<0.050		0.050	ug/g	26-MAR-19	0.38	3.4	0.05
1,1,2-Trichloroethane	<0.050		0.050	ug/g	26-MAR-19	0.05	0.05	0.05
Trichloroethylene	0.050		0.010	ug/g	26-MAR-19	0.061	0.52	0.05
Trichlorofluoromethane	<0.050		0.050	ug/g	26-MAR-19	4	5.8	0.25
Vinyl chloride	<0.020		0.020	ug/g	26-MAR-19	0.02	0.022	0.02
o-Xylene	0.083		0.020	ug/g	26-MAR-19			
m+p-Xylenes	0.134		0.030	ug/g	26-MAR-19			
Xylenes (Total)	0.217		0.050	ug/g	26-MAR-19	3.1	25	*0.05
Surrogate: 4-Bromofluorobenzene	100.5		50-140	%	26-MAR-19			
Surrogate: 1,4-Difluorobenzene	114.1		50-140	%	26-MAR-19			
Hydrocarbons								
F1 (C6-C10)	<5.0		5.0	ug/g	26-MAR-19	55	65	25
F1-BTEX	<5.0		5.0	ug/g	28-MAR-19	55	65	25
F2 (C10-C16)	26	DLM	20	ug/g	28-MAR-19	98	150	*10
F2-Naphth	26		20	ug/g	28-MAR-19			
F3 (C16-C34)	710	DLM	100	ug/g	28-MAR-19	*300	1300	*240
F3-PAH	430		100	ug/g	28-MAR-19			
F4 (C34-C50)	270	DLM	100	ug/g	28-MAR-19	2800	5600	*120
F4G-SG (GHH-Silica)	750		250	ug/g	25-MAR-19	2800	5600	*120
Total Hydrocarbons (C6-C50)	1000		140	ug/g	28-MAR-19			
Chrom. to baseline at nC50	NO			No Unit	28-MAR-19			
Surrogate: 2-Bromobenzotrifluoride	73.5		60-140	%	28-MAR-19			
Surrogate: 3,4-Dichlorotoluene	88.4		60-140	%	26-MAR-19			

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2247715-1 S-11102463-032019-EN-BH18-468-4"-2'								
Sampled By: E.NUSSLI on 20-MAR-19 @ 12:00								
Matrix: SOIL								
Polycyclic Aromatic Hydrocarbons								
1+2-Methylnaphthalenes	1.18		0.085	ug/g	27-MAR-19	*0.99	3.4	*0.59
Semi-Volatile Organics								
Acenaphthene	3.38	DLM	0.10	ug/g	27-MAR-19	7.9	58	*0.072
Acenaphthylene	1.00	DLM	0.10	ug/g	27-MAR-19	*0.15	*0.17	*0.093
Anthracene	16.8	DLHC	2.5	ug/g	27-MAR-19	*0.67	*0.74	*0.22
Benzo(a)anthracene	27.4	DLHC	2.5	ug/g	27-MAR-19	*0.5	*0.63	*0.36
Benzo(a)pyrene	22.1	DLHC	2.5	ug/g	27-MAR-19	*0.3	*0.3	*0.3
Benzo(b)fluoranthene	23.7	DLHC	2.5	ug/g	27-MAR-19	*0.78	*0.78	*0.47
Benzo(ghi)perylene	12.9	DLHC	2.5	ug/g	27-MAR-19	*6.6	*7.8	*0.68
Benzo(k)fluoranthene	16.4	DLHC	2.5	ug/g	27-MAR-19	*0.78	*0.78	*0.48
2-Chlorophenol	<0.20	DLM	0.20	ug/g	27-MAR-19	1.6	2	**0.1
Chrysene	25.2	DLHC	2.5	ug/g	27-MAR-19	*7	*7.8	*2.8
Dibenzo(a,h)anthracene	3.16	DLM	0.10	ug/g	27-MAR-19	*0.1	*0.1	*0.1
2,4-Dichlorophenol	<0.20	DLM	0.20	ug/g	27-MAR-19	1.7	2.1	**0.1
Fluoranthene	68.1	DLHC	2.5	ug/g	27-MAR-19	*0.69	*0.69	*0.69
Fluorene	8.1	DLHC	2.5	ug/g	27-MAR-19	62	69	*0.19
Indeno(1,2,3-cd)pyrene	15.4	DLHC	2.5	ug/g	27-MAR-19	*0.38	*0.48	*0.23
1-Methylnaphthalene	0.629	DLM	0.060	ug/g	27-MAR-19	0.99	3.4	*0.59
2-Methylnaphthalene	0.554	DLM	0.060	ug/g	27-MAR-19	0.99	3.4	0.59
Naphthalene	0.34	DLM	0.10	ug/g	27-MAR-19	0.6	0.75	*0.09
Pentachlorophenol	<0.20	DLM	0.20	ug/g	27-MAR-19	**0.1	**0.1	**0.1
Phenanthrene	59.0	DLHC	2.5	ug/g	27-MAR-19	*6.2	*7.8	*0.69
Pyrene	47.9	DLHC	2.5	ug/g	27-MAR-19	78	78	*1
2,4,5-Trichlorophenol	<0.20	DLM	0.20	ug/g	27-MAR-19	4.4	5.5	**0.1
2,4,6-Trichlorophenol	<0.20	DLM	0.20	ug/g	27-MAR-19	3.8	4.2	**0.1
Surrogate: 2-Fluorobiphenyl	85.5		50-140	%	27-MAR-19			
Surrogate: Phenol d5	88.6		30-130	%	27-MAR-19			
Surrogate: p-Terphenyl d14	100.4		50-140	%	27-MAR-19			
Surrogate: 2,4,6-Tribromophenol	79.7		50-140	%	27-MAR-19			
Polychlorinated Biphenyls								
Aroclor 1242	<0.0150	DLM	0.015	ug/g	27-MAR-19			
Aroclor 1248	<0.010		0.010	ug/g	27-MAR-19			
Aroclor 1254	<0.0450	DLM	0.045	ug/g	27-MAR-19			
Aroclor 1260	0.112	PRAR	0.010	ug/g	27-MAR-19			
Total PCBs	0.112	DLM	0.050	ug/g	27-MAR-19	0.35	0.35	0.3
Surrogate: d14-Terphenyl	92.7		60-140	%	27-MAR-19			
Organochlorine Pesticides								
Aldrin	<0.020		0.020	ug/g	27-MAR-19	0.05	0.05	0.05
gamma-hexachlorocyclohexane	<0.050	DLM	0.050	ug/g	27-MAR-19	0.056	0.063	
a-chlordane	<0.020		0.020	ug/g	27-MAR-19			
Chlordane (Total)	<0.028		0.028	ug/g	27-MAR-19	0.05	0.05	0.05
g-chlordane	<0.020		0.020	ug/g	27-MAR-19			
op-DDD	0.083		0.020	ug/g	27-MAR-19			
pp-DDD	0.202		0.020	ug/g	27-MAR-19			
Total DDD	0.285		0.028	ug/g	27-MAR-19	3.3	3.3	*0.05
o,p-DDE	<0.020		0.020	ug/g	27-MAR-19			

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping	Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2247715-1	S-11102463-032019-EN-BH18-468-4"-2'								
Sampled By:	E.NUSSLI on 20-MAR-19 @ 12:00								
Matrix:	SOIL								
Organochlorine Pesticides									
	pp-DDE	0.114		0.020	ug/g	27-MAR-19			
	Total DDE	0.114		0.028	ug/g	27-MAR-19	0.26	0.33	*0.05
	op-DDT	<0.020		0.020	ug/g	27-MAR-19			
	pp-DDT	0.12	DLM	0.10	ug/g	27-MAR-19			
	Total DDT	0.12		0.10	ug/g	27-MAR-19	1.4	1.4	1.4
	Dieldrin	<0.020		0.020	ug/g	27-MAR-19	0.05	0.05	0.05
	Endosulfan I	<0.020		0.020	ug/g	27-MAR-19			
	Endosulfan II	<0.020		0.020	ug/g	27-MAR-19			
	Endosulfan (Total)	<0.028		0.028	ug/g	27-MAR-19	0.04	0.04	0.04
	Endrin	<0.020		0.020	ug/g	27-MAR-19	0.04	0.04	0.04
	Heptachlor	<0.020		0.020	ug/g	27-MAR-19	0.15	0.15	0.05
	Heptachlor Epoxide	<0.020		0.020	ug/g	27-MAR-19	0.05	0.05	0.05
	Hexachlorobenzene	<0.050	DLM	0.050	ug/g	27-MAR-19	0.52	0.52	**0.02
	Hexachlorobutadiene	<0.050	DLM	0.050	ug/g	27-MAR-19	**0.012	**0.014	**0.01
	Hexachloroethane	<0.050	DLM	0.050	ug/g	27-MAR-19	0.089	0.07	**0.01
	Methoxychlor	<0.10	DLM	0.10	ug/g	27-MAR-19	0.13	0.13	**0.05
	Surrogate: 2-Fluorobiphenyl	75.4		50-140	%	27-MAR-19			
	Surrogate: d14-Terphenyl	80.1		50-140	%	27-MAR-19			
L2247715-2	S-11102463-032019-EN-BH18-468-12.5-14.5'								
Sampled By:	E.NUSSLI on 20-MAR-19 @ 12:30								
Matrix:	SOIL								
Physical Tests									
	Conductivity	0.821		0.0040	mS/cm	27-MAR-19	*0.7	*0.7	*0.7
	% Moisture	31.2		0.10	%	26-MAR-19			
	pH	7.20		0.10	pH units	26-MAR-19			
Cyanides									
	Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	26-MAR-19	0.051	0.051	0.051
Saturated Paste Extractables									
	SAR	3.13		0.10	SAR	27-MAR-19	5	5	5
	Calcium (Ca)	48.0		0.50	mg/L	27-MAR-19			
	Magnesium (Mg)	5.64		0.50	mg/L	27-MAR-19			
	Sodium (Na)	86.1		0.50	mg/L	27-MAR-19			
Metals									
	Antimony (Sb)	1.7		1.0	ug/g	27-MAR-19	7.5	7.5	*1.3
	Arsenic (As)	17.2		1.0	ug/g	27-MAR-19	18	18	18
	Barium (Ba)	269		1.0	ug/g	27-MAR-19	390	390	*220
	Beryllium (Be)	0.99		0.50	ug/g	27-MAR-19	4	5	2.5
	Boron (B)	10.6		5.0	ug/g	27-MAR-19	120	120	36
	Boron (B), Hot Water Ext.	1.82		0.10	ug/g	27-MAR-19	*1.5	*1.5	*1.5
	Cadmium (Cd)	<0.50		0.50	ug/g	27-MAR-19	1.2	1.2	1.2
	Chromium (Cr)	30.7		1.0	ug/g	27-MAR-19	160	160	70
	Cobalt (Co)	12.2		1.0	ug/g	27-MAR-19	22	22	22
	Copper (Cu)	47.8		1.0	ug/g	27-MAR-19	140	180	92
	Lead (Pb)	310		1.0	ug/g	27-MAR-19	*120	*120	*120
	Mercury (Hg)	0.177		0.0050	ug/g	27-MAR-19	0.27	1.8	0.27

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2247715-2 S-11102463-032019-EN-BH18-468-12.5-14.5'								
Sampled By: E.NUSSLI on 20-MAR-19 @ 12:30								
Matrix: SOIL								
Metals								
Molybdenum (Mo)	2.9		1.0	ug/g	27-MAR-19	6.9	6.9	*2
Nickel (Ni)	26.7		1.0	ug/g	27-MAR-19	100	130	82
Selenium (Se)	1.6		1.0	ug/g	27-MAR-19	2.4	2.4	*1.5
Silver (Ag)	<0.20		0.20	ug/g	27-MAR-19	20	25	0.5
Thallium (Tl)	<0.50		0.50	ug/g	27-MAR-19	1	1	1
Uranium (U)	<1.0		1.0	ug/g	27-MAR-19	23	23	2.5
Vanadium (V)	46.0		1.0	ug/g	27-MAR-19	86	86	86
Zinc (Zn)	230		5.0	ug/g	27-MAR-19	340	340	290
Speciated Metals								
Chromium, Hexavalent	<0.20		0.20	ug/g	26-MAR-19	8	10	0.66
Volatile Organic Compounds								
Acetone	<0.50		0.50	ug/g	26-MAR-19	16	28	0.5
Benzene	<0.0068		0.0068	ug/g	26-MAR-19	0.21	0.17	0.02
Bromodichloromethane	<0.050		0.050	ug/g	26-MAR-19	13	13	0.05
Bromoform	<0.050		0.050	ug/g	26-MAR-19	0.27	0.26	0.05
Bromomethane	<0.050		0.050	ug/g	26-MAR-19	0.05	0.05	0.05
Carbon tetrachloride	<0.050		0.050	ug/g	26-MAR-19	0.05	0.12	0.05
Chlorobenzene	<0.050		0.050	ug/g	26-MAR-19	2.4	2.7	0.05
Dibromochloromethane	<0.050		0.050	ug/g	26-MAR-19	9.4	9.4	0.05
Chloroform	<0.050		0.050	ug/g	26-MAR-19	0.05	0.18	0.05
1,2-Dibromoethane	<0.050		0.050	ug/g	26-MAR-19	0.05	0.05	0.05
1,2-Dichlorobenzene	<0.050		0.050	ug/g	26-MAR-19	3.4	4.3	0.05
1,3-Dichlorobenzene	<0.050		0.050	ug/g	26-MAR-19	4.8	6	0.05
1,4-Dichlorobenzene	<0.050		0.050	ug/g	26-MAR-19	0.083	0.097	0.05
Dichlorodifluoromethane	<0.050		0.050	ug/g	26-MAR-19	16	25	0.05
1,1-Dichloroethane	<0.050		0.050	ug/g	26-MAR-19	3.5	11	0.05
1,2-Dichloroethane	<0.050		0.050	ug/g	26-MAR-19	0.05	0.05	0.05
1,1-Dichloroethylene	<0.050		0.050	ug/g	26-MAR-19	0.05	0.05	0.05
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	26-MAR-19	3.4	30	0.05
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	26-MAR-19	0.084	0.75	0.05
Methylene Chloride	<0.050		0.050	ug/g	26-MAR-19	0.1	0.96	0.05
1,2-Dichloropropane	<0.050		0.050	ug/g	26-MAR-19	0.05	0.085	0.05
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	26-MAR-19			
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	26-MAR-19			
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g	26-MAR-19	0.05	0.083	0.05
Ethylbenzene	<0.018		0.018	ug/g	26-MAR-19	2	15	0.05
n-Hexane	<0.050		0.050	ug/g	26-MAR-19	2.8	34	0.05
Methyl Ethyl Ketone	<0.50		0.50	ug/g	26-MAR-19	16	44	0.5
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	26-MAR-19	1.7	4.3	0.5
MTBE	<0.050		0.050	ug/g	26-MAR-19	0.75	1.4	0.05
Styrene	<0.050		0.050	ug/g	26-MAR-19	0.7	2.2	0.05
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	26-MAR-19	0.058	0.05	0.05
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	26-MAR-19	0.05	0.05	0.05
Tetrachloroethylene	<0.050		0.050	ug/g	26-MAR-19	0.28	2.3	0.05
Toluene	<0.080		0.080	ug/g	26-MAR-19	2.3	6	0.2

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2247715-2 S-11102463-032019-EN-BH18-468-12.5-14.5'								
Sampled By: E.NUSSLI on 20-MAR-19 @ 12:30								
Matrix: SOIL								
Volatile Organic Compounds								
1,1,1-Trichloroethane	<0.050		0.050	ug/g	26-MAR-19	0.38	3.4	0.05
1,1,2-Trichloroethane	<0.050		0.050	ug/g	26-MAR-19	0.05	0.05	0.05
Trichloroethylene	<0.010		0.010	ug/g	26-MAR-19	0.061	0.52	0.05
Trichlorofluoromethane	<0.050		0.050	ug/g	26-MAR-19	4	5.8	0.25
Vinyl chloride	<0.020		0.020	ug/g	26-MAR-19	0.02	0.022	0.02
o-Xylene	<0.020		0.020	ug/g	26-MAR-19			
m+p-Xylenes	<0.030		0.030	ug/g	26-MAR-19			
Xylenes (Total)	<0.050		0.050	ug/g	26-MAR-19	3.1	25	0.05
Surrogate: 4-Bromofluorobenzene	94.1		50-140	%	26-MAR-19			
Surrogate: 1,4-Difluorobenzene	100.1		50-140	%	26-MAR-19			
Hydrocarbons								
F1 (C6-C10)	<5.0		5.0	ug/g	26-MAR-19	55	65	25
F1-BTEX	<5.0		5.0	ug/g	28-MAR-19	55	65	25
F2 (C10-C16)	<10		10	ug/g	26-MAR-19	98	150	10
F2-Naphth	<10		10	ug/g	28-MAR-19			
F3 (C16-C34)	136		50	ug/g	26-MAR-19	300	1300	240
F3-PAH	136		50	ug/g	28-MAR-19			
F4 (C34-C50)	<50		50	ug/g	26-MAR-19	2800	5600	120
Total Hydrocarbons (C6-C50)	136		72	ug/g	28-MAR-19			
Chrom. to baseline at nC50	YES			No Unit	26-MAR-19			
Surrogate: 2-Bromobenzotrifluoride	78.3		60-140	%	26-MAR-19			
Surrogate: 3,4-Dichlorotoluene	81.0		60-140	%	26-MAR-19			
Polycyclic Aromatic Hydrocarbons								
1+2-Methylnaphthalenes	<0.042		0.042	ug/g	27-MAR-19	0.99	3.4	0.59
Semi-Volatile Organics								
Acenaphthene	<0.050		0.050	ug/g	27-MAR-19	7.9	58	0.072
Acenaphthylene	<0.050		0.050	ug/g	27-MAR-19	0.15	0.17	0.093
Anthracene	<0.050		0.050	ug/g	27-MAR-19	0.67	0.74	0.22
Benzo(a)anthracene	<0.050		0.050	ug/g	27-MAR-19	0.5	0.63	0.36
Benzo(a)pyrene	<0.050		0.050	ug/g	27-MAR-19	0.3	0.3	0.3
Benzo(b)fluoranthene	<0.050		0.050	ug/g	27-MAR-19	0.78	0.78	0.47
Benzo(ghi)perylene	<0.050		0.050	ug/g	27-MAR-19	6.6	7.8	0.68
Benzo(k)fluoranthene	<0.050		0.050	ug/g	27-MAR-19	0.78	0.78	0.48
2-Chlorophenol	<0.10		0.10	ug/g	27-MAR-19	1.6	2	0.1
Chrysene	<0.050		0.050	ug/g	27-MAR-19	7	7.8	2.8
Dibenzo(a,h)anthracene	<0.050		0.050	ug/g	27-MAR-19	0.1	0.1	0.1
2,4-Dichlorophenol	<0.10		0.10	ug/g	27-MAR-19	1.7	2.1	0.1
Fluoranthene	0.052		0.050	ug/g	27-MAR-19	0.69	0.69	0.69
Fluorene	<0.050		0.050	ug/g	27-MAR-19	62	69	0.19
Indeno(1,2,3-cd)pyrene	<0.050		0.050	ug/g	27-MAR-19	0.38	0.48	0.23
1-Methylnaphthalene	<0.030		0.030	ug/g	27-MAR-19	0.99	3.4	0.59
2-Methylnaphthalene	<0.030		0.030	ug/g	27-MAR-19	0.99	3.4	0.59
Naphthalene	<0.050		0.050	ug/g	27-MAR-19	0.6	0.75	0.09
Pentachlorophenol	<0.10		0.10	ug/g	27-MAR-19	0.1	0.1	0.1
Phenanthrene	<0.050		0.050	ug/g	27-MAR-19	6.2	7.8	0.69
Pyrene	<0.050		0.050	ug/g	27-MAR-19	78	78	1

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2247715-2 S-11102463-032019-EN-BH18-468-12.5-14.5'								
Sampled By: E.NUSSLI on 20-MAR-19 @ 12:30								
Matrix: SOIL								
Semi-Volatile Organics								
2,4,5-Trichlorophenol	<0.10		0.10	ug/g	27-MAR-19	4.4	5.5	0.1
2,4,6-Trichlorophenol	<0.10		0.10	ug/g	27-MAR-19	3.8	4.2	0.1
Surrogate: 2-Fluorobiphenyl	94.8		50-140	%	27-MAR-19			
Surrogate: Phenol d5	99.9		30-130	%	27-MAR-19			
Surrogate: p-Terphenyl d14	96.5		50-140	%	27-MAR-19			
Surrogate: 2,4,6-Tribromophenol	99.2		50-140	%	27-MAR-19			
Polychlorinated Biphenyls								
Aroclor 1242	<0.010		0.010	ug/g	27-MAR-19			
Aroclor 1248	<0.010		0.010	ug/g	27-MAR-19			
Aroclor 1254	<0.010		0.010	ug/g	27-MAR-19			
Aroclor 1260	<0.010		0.010	ug/g	27-MAR-19			
Total PCBs	<0.020		0.020	ug/g	27-MAR-19	0.35	0.35	0.3
Surrogate: d14-Terphenyl	87.6		60-140	%	27-MAR-19			
Organochlorine Pesticides								
Aldrin	<0.020		0.020	ug/g	27-MAR-19	0.05	0.05	0.05
gamma-hexachlorocyclohexane	<0.050	DLM	0.050	ug/g	27-MAR-19	0.056	0.063	
a-chlordane	<0.020		0.020	ug/g	27-MAR-19			
Chlordane (Total)	<0.028		0.028	ug/g	27-MAR-19	0.05	0.05	0.05
g-chlordane	<0.020		0.020	ug/g	27-MAR-19			
op-DDD	<0.020		0.020	ug/g	27-MAR-19			
pp-DDD	<0.020		0.020	ug/g	27-MAR-19			
Total DDD	<0.028		0.028	ug/g	27-MAR-19	3.3	3.3	0.05
o,p-DDE	<0.020		0.020	ug/g	27-MAR-19			
pp-DDE	<0.020		0.020	ug/g	27-MAR-19			
Total DDE	<0.028		0.028	ug/g	27-MAR-19	0.26	0.33	0.05
op-DDT	<0.020		0.020	ug/g	27-MAR-19			
pp-DDT	<0.10	DLM	0.10	ug/g	27-MAR-19			
Total DDT	<0.10		0.10	ug/g	27-MAR-19	1.4	1.4	1.4
Dieldrin	<0.020		0.020	ug/g	27-MAR-19	0.05	0.05	0.05
Endosulfan I	<0.020		0.020	ug/g	27-MAR-19			
Endosulfan II	<0.020		0.020	ug/g	27-MAR-19			
Endosulfan (Total)	<0.028		0.028	ug/g	27-MAR-19	0.04	0.04	0.04
Endrin	<0.020		0.020	ug/g	27-MAR-19	0.04	0.04	0.04
Heptachlor	<0.020		0.020	ug/g	27-MAR-19	0.15	0.15	0.05
Heptachlor Epoxide	<0.020		0.020	ug/g	27-MAR-19	0.05	0.05	0.05
Hexachlorobenzene	<0.050	DLM	0.050	ug/g	27-MAR-19	0.52	0.52	**0.02
Hexachlorobutadiene	<0.050	DLM	0.050	ug/g	27-MAR-19	**0.012	**0.014	**0.01
Hexachloroethane	<0.050	DLM	0.050	ug/g	27-MAR-19	0.089	0.07	**0.01
Methoxychlor	<0.10	DLM	0.10	ug/g	27-MAR-19	0.13	0.13	**0.05
Surrogate: 2-Fluorobiphenyl	65.8		50-140	%	27-MAR-19			
Surrogate: d14-Terphenyl	85.0		50-140	%	27-MAR-19			
L2247715-3 S-11102463-032019-EN-BH18-468-25-27								
Sampled By: E.NUSSLI on 20-MAR-19 @ 13:00								
Matrix: SOIL						#1	#2	#3
Physical Tests								

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2247715-3 S-11102463-032019-EN-BH18-468-25-27								
Sampled By: E.NUSSLI on 20-MAR-19 @ 13:00								
Matrix: SOIL								
Physical Tests								
Conductivity	0.551		0.0040	mS/cm	27-MAR-19	0.7	0.7	0.7
% Moisture	30.0		0.10	%	26-MAR-19			
pH	7.03		0.10	pH units	26-MAR-19			
Cyanides								
Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	26-MAR-19	0.051	0.051	0.051
Saturated Paste Extractables								
SAR	0.81		0.10	SAR	27-MAR-19	5	5	5
Calcium (Ca)	67.8		0.50	mg/L	27-MAR-19			
Magnesium (Mg)	3.63		0.50	mg/L	27-MAR-19			
Sodium (Na)	25.4		0.50	mg/L	27-MAR-19			
Metals								
Antimony (Sb)	<1.0		1.0	ug/g	27-MAR-19	7.5	7.5	1.3
Arsenic (As)	1.2		1.0	ug/g	27-MAR-19	18	18	18
Barium (Ba)	48.9		1.0	ug/g	27-MAR-19	390	390	220
Beryllium (Be)	<0.50		0.50	ug/g	27-MAR-19	4	5	2.5
Boron (B)	<5.0		5.0	ug/g	27-MAR-19	120	120	36
Boron (B), Hot Water Ext.	0.75		0.10	ug/g	27-MAR-19	1.5	1.5	1.5
Cadmium (Cd)	<0.50		0.50	ug/g	27-MAR-19	1.2	1.2	1.2
Chromium (Cr)	11.2		1.0	ug/g	27-MAR-19	160	160	70
Cobalt (Co)	4.0		1.0	ug/g	27-MAR-19	22	22	22
Copper (Cu)	9.8		1.0	ug/g	27-MAR-19	140	180	92
Lead (Pb)	6.7		1.0	ug/g	27-MAR-19	120	120	120
Mercury (Hg)	0.0116		0.0050	ug/g	27-MAR-19	0.27	1.8	0.27
Molybdenum (Mo)	<1.0		1.0	ug/g	27-MAR-19	6.9	6.9	2
Nickel (Ni)	8.6		1.0	ug/g	27-MAR-19	100	130	82
Selenium (Se)	<1.0		1.0	ug/g	27-MAR-19	2.4	2.4	1.5
Silver (Ag)	<0.20		0.20	ug/g	27-MAR-19	20	25	0.5
Thallium (Tl)	<0.50		0.50	ug/g	27-MAR-19	1	1	1
Uranium (U)	<1.0		1.0	ug/g	27-MAR-19	23	23	2.5
Vanadium (V)	16.7		1.0	ug/g	27-MAR-19	86	86	86
Zinc (Zn)	21.1		5.0	ug/g	27-MAR-19	340	340	290
Speciated Metals								
Chromium, Hexavalent	<0.20		0.20	ug/g	26-MAR-19	8	10	0.66
Volatile Organic Compounds								
Acetone	<0.50		0.50	ug/g	26-MAR-19	16	28	0.5
Benzene	0.0466		0.0068	ug/g	26-MAR-19	0.21	0.17	*0.02
Bromodichloromethane	<0.050		0.050	ug/g	26-MAR-19	13	13	0.05
Bromoform	<0.050		0.050	ug/g	26-MAR-19	0.27	0.26	0.05
Bromomethane	<0.050		0.050	ug/g	26-MAR-19	0.05	0.05	0.05
Carbon tetrachloride	<0.050		0.050	ug/g	26-MAR-19	0.05	0.12	0.05
Chlorobenzene	<0.050		0.050	ug/g	26-MAR-19	2.4	2.7	0.05
Dibromochloromethane	<0.050		0.050	ug/g	26-MAR-19	9.4	9.4	0.05
Chloroform	<0.050		0.050	ug/g	26-MAR-19	0.05	0.18	0.05
1,2-Dibromoethane	<0.050		0.050	ug/g	26-MAR-19	0.05	0.05	0.05
1,2-Dichlorobenzene	<0.050		0.050	ug/g	26-MAR-19	3.4	4.3	0.05

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2247715-3 S-11102463-032019-EN-BH18-468-25-27								
Sampled By: E.NUSSLI on 20-MAR-19 @ 13:00								
Matrix: SOIL								
Volatile Organic Compounds								
1,3-Dichlorobenzene	<0.050		0.050	ug/g	26-MAR-19	4.8	6	0.05
1,4-Dichlorobenzene	<0.050		0.050	ug/g	26-MAR-19	0.083	0.097	0.05
Dichlorodifluoromethane	<0.050		0.050	ug/g	26-MAR-19	16	25	0.05
1,1-Dichloroethane	<0.050		0.050	ug/g	26-MAR-19	3.5	11	0.05
1,2-Dichloroethane	<0.050		0.050	ug/g	26-MAR-19	0.05	0.05	0.05
1,1-Dichloroethylene	<0.050		0.050	ug/g	26-MAR-19	0.05	0.05	0.05
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	26-MAR-19	3.4	30	0.05
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	26-MAR-19	0.084	0.75	0.05
Methylene Chloride	<0.050		0.050	ug/g	26-MAR-19	0.1	0.96	0.05
1,2-Dichloropropane	<0.050		0.050	ug/g	26-MAR-19	0.05	0.085	0.05
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	26-MAR-19			
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	26-MAR-19			
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g	26-MAR-19	0.05	0.083	0.05
Ethylbenzene	0.170		0.018	ug/g	26-MAR-19	2	15	*0.05
n-Hexane	<0.050		0.050	ug/g	26-MAR-19	2.8	34	0.05
Methyl Ethyl Ketone	<0.50		0.50	ug/g	26-MAR-19	16	44	0.5
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	26-MAR-19	1.7	4.3	0.5
MTBE	<0.050		0.050	ug/g	26-MAR-19	0.75	1.4	0.05
Styrene	<0.050		0.050	ug/g	26-MAR-19	0.7	2.2	0.05
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	26-MAR-19	0.058	0.05	0.05
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	26-MAR-19	0.05	0.05	0.05
Tetrachloroethylene	<0.050		0.050	ug/g	26-MAR-19	0.28	2.3	0.05
Toluene	<0.080		0.080	ug/g	26-MAR-19	2.3	6	0.2
1,1,1-Trichloroethane	<0.050		0.050	ug/g	26-MAR-19	0.38	3.4	0.05
1,1,2-Trichloroethane	<0.050		0.050	ug/g	26-MAR-19	0.05	0.05	0.05
Trichloroethylene	<0.010		0.010	ug/g	26-MAR-19	0.061	0.52	0.05
Trichlorofluoromethane	<0.050		0.050	ug/g	26-MAR-19	4	5.8	0.25
Vinyl chloride	<0.020		0.020	ug/g	26-MAR-19	0.02	0.022	0.02
o-Xylene	0.191		0.020	ug/g	26-MAR-19			
m+p-Xylenes	0.422		0.030	ug/g	26-MAR-19			
Xylenes (Total)	0.613		0.050	ug/g	26-MAR-19	3.1	25	*0.05
Surrogate: 4-Bromofluorobenzene	91.8		50-140	%	26-MAR-19			
Surrogate: 1,4-Difluorobenzene	103.5		50-140	%	26-MAR-19			
Hydrocarbons								
F1 (C6-C10)	<5.0		5.0	ug/g	26-MAR-19	55	65	25
F1-BTEX	<5.0		5.0	ug/g	28-MAR-19	55	65	25
F2 (C10-C16)	33	RRR	10	ug/g	26-MAR-19	98	150	*10
F2-Naphth	11		10	ug/g	28-MAR-19			
F3 (C16-C34)	<50		50	ug/g	26-MAR-19	300	1300	240
F3-PAH	<50		50	ug/g	28-MAR-19			
F4 (C34-C50)	<50		50	ug/g	26-MAR-19	2800	5600	120
Total Hydrocarbons (C6-C50)	<72		72	ug/g	28-MAR-19			
Chrom. to baseline at nC50	YES			No Unit	26-MAR-19			
Surrogate: 2-Bromobenzotrifluoride	85.8		60-140	%	26-MAR-19			
Surrogate: 3,4-Dichlorotoluene	84.6		60-140	%	26-MAR-19			
Polycyclic Aromatic Hydrocarbons								

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2247715-3 S-11102463-032019-EN-BH18-468-25-27								
Sampled By: E.NUSSLI on 20-MAR-19 @ 13:00								
Matrix: SOIL								
Polycyclic Aromatic Hydrocarbons								
Acenaphthene	0.061	AI	0.050	ug/g	28-MAR-19	7.9	58	0.072
Acenaphthylene	<0.050		0.050	ug/g	28-MAR-19	0.15	0.17	0.093
Anthracene	<0.050		0.050	ug/g	28-MAR-19	0.67	0.74	0.22
Benzo(a)anthracene	<0.050		0.050	ug/g	28-MAR-19	0.5	0.63	0.36
Benzo(a)pyrene	<0.050		0.050	ug/g	28-MAR-19	0.3	0.3	0.3
Benzo(b)fluoranthene	<0.050		0.050	ug/g	28-MAR-19	0.78	0.78	0.47
Benzo(g,h,i)perylene	<0.050		0.050	ug/g	28-MAR-19	6.6	7.8	0.68
Benzo(k)fluoranthene	<0.050		0.050	ug/g	28-MAR-19	0.78	0.78	0.48
Chrysene	<0.050		0.050	ug/g	28-MAR-19	7	7.8	2.8
Dibenzo(ah)anthracene	<0.050		0.050	ug/g	28-MAR-19	0.1	0.1	0.1
Fluoranthene	<0.050		0.050	ug/g	28-MAR-19	0.69	0.69	0.69
Fluorene	<0.050		0.050	ug/g	28-MAR-19	62	69	0.19
Indeno(1,2,3-cd)pyrene	<0.050		0.050	ug/g	28-MAR-19	0.38	0.48	0.23
1+2-Methylnaphthalenes	0.580		0.042	ug/g	28-MAR-19	0.99	3.4	0.59
1-Methylnaphthalene	0.208		0.030	ug/g	28-MAR-19	0.99	3.4	0.59
2-Methylnaphthalene	0.372		0.030	ug/g	28-MAR-19	0.99	3.4	0.59
Naphthalene	21.4	DLHC	0.13	ug/g	28-MAR-19	*0.6	*0.75	*0.09
Phenanthrene	<0.046		0.046	ug/g	28-MAR-19	6.2	7.8	0.69
Pyrene	<0.050		0.050	ug/g	28-MAR-19	78	78	1
Surrogate: 2-Fluorobiphenyl	82.4		50-140	%	28-MAR-19			
Surrogate: p-Terphenyl d14	100.4		50-140	%	28-MAR-19			
L2247715-4 S-11102463-032019-EN-BH18-468-BH100								
Sampled By: E.NUSSLI on 20-MAR-19 @ 13:00								
Matrix: SOIL								
Physical Tests								
Conductivity	0.543		0.0040	mS/cm	27-MAR-19	0.7	0.7	0.7
% Moisture	30.3		0.10	%	26-MAR-19			
pH	6.98		0.10	pH units	26-MAR-19			
Cyanides								
Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	26-MAR-19	0.051	0.051	0.051
Saturated Paste Extractables								
SAR	0.79		0.10	SAR	27-MAR-19	5	5	5
Calcium (Ca)	67.3		0.50	mg/L	27-MAR-19			
Magnesium (Mg)	3.52		0.50	mg/L	27-MAR-19			
Sodium (Na)	24.4		0.50	mg/L	27-MAR-19			
Metals								
Antimony (Sb)	<1.0		1.0	ug/g	27-MAR-19	7.5	7.5	1.3
Arsenic (As)	1.1		1.0	ug/g	27-MAR-19	18	18	18
Barium (Ba)	39.3		1.0	ug/g	27-MAR-19	390	390	220
Beryllium (Be)	<0.50		0.50	ug/g	27-MAR-19	4	5	2.5
Boron (B)	<5.0		5.0	ug/g	27-MAR-19	120	120	36
Boron (B), Hot Water Ext.	0.65		0.10	ug/g	27-MAR-19	1.5	1.5	1.5
Cadmium (Cd)	<0.50		0.50	ug/g	27-MAR-19	1.2	1.2	1.2
Chromium (Cr)	10.0		1.0	ug/g	27-MAR-19	160	160	70

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2247715-4 S-11102463-032019-EN-BH18-468-BH100								
Sampled By: E.NUSSLI on 20-MAR-19 @ 13:00								
Matrix: SOIL								
Metals								
Cobalt (Co)	3.3		1.0	ug/g	27-MAR-19	22	22	22
Copper (Cu)	7.3		1.0	ug/g	27-MAR-19	140	180	92
Lead (Pb)	6.8		1.0	ug/g	27-MAR-19	120	120	120
Mercury (Hg)	0.0093		0.0050	ug/g	27-MAR-19	0.27	1.8	0.27
Molybdenum (Mo)	<1.0		1.0	ug/g	27-MAR-19	6.9	6.9	2
Nickel (Ni)	7.0		1.0	ug/g	27-MAR-19	100	130	82
Selenium (Se)	<1.0		1.0	ug/g	27-MAR-19	2.4	2.4	1.5
Silver (Ag)	<0.20		0.20	ug/g	27-MAR-19	20	25	0.5
Thallium (Tl)	<0.50		0.50	ug/g	27-MAR-19	1	1	1
Uranium (U)	<1.0		1.0	ug/g	27-MAR-19	23	23	2.5
Vanadium (V)	15.8		1.0	ug/g	27-MAR-19	86	86	86
Zinc (Zn)	19.2		5.0	ug/g	27-MAR-19	340	340	290
Speciated Metals								
Chromium, Hexavalent	<0.20		0.20	ug/g	26-MAR-19	8	10	0.66
Volatile Organic Compounds								
Acetone	<0.50		0.50	ug/g	26-MAR-19	16	28	0.5
Benzene	0.0453		0.0068	ug/g	26-MAR-19	0.21	0.17	*0.02
Bromodichloromethane	<0.050		0.050	ug/g	26-MAR-19	13	13	0.05
Bromoform	<0.050		0.050	ug/g	26-MAR-19	0.27	0.26	0.05
Bromomethane	<0.050		0.050	ug/g	26-MAR-19	0.05	0.05	0.05
Carbon tetrachloride	<0.050		0.050	ug/g	26-MAR-19	0.05	0.12	0.05
Chlorobenzene	<0.050		0.050	ug/g	26-MAR-19	2.4	2.7	0.05
Dibromochloromethane	<0.050		0.050	ug/g	26-MAR-19	9.4	9.4	0.05
Chloroform	<0.050		0.050	ug/g	26-MAR-19	0.05	0.18	0.05
1,2-Dibromoethane	<0.050		0.050	ug/g	26-MAR-19	0.05	0.05	0.05
1,2-Dichlorobenzene	<0.050		0.050	ug/g	26-MAR-19	3.4	4.3	0.05
1,3-Dichlorobenzene	<0.050		0.050	ug/g	26-MAR-19	4.8	6	0.05
1,4-Dichlorobenzene	<0.050		0.050	ug/g	26-MAR-19	0.083	0.097	0.05
Dichlorodifluoromethane	<0.050		0.050	ug/g	26-MAR-19	16	25	0.05
1,1-Dichloroethane	<0.050		0.050	ug/g	26-MAR-19	3.5	11	0.05
1,2-Dichloroethane	<0.050		0.050	ug/g	26-MAR-19	0.05	0.05	0.05
1,1-Dichloroethylene	<0.050		0.050	ug/g	26-MAR-19	0.05	0.05	0.05
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	26-MAR-19	3.4	30	0.05
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	26-MAR-19	0.084	0.75	0.05
Methylene Chloride	<0.050		0.050	ug/g	26-MAR-19	0.1	0.96	0.05
1,2-Dichloropropane	<0.050		0.050	ug/g	26-MAR-19	0.05	0.085	0.05
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	26-MAR-19			
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	26-MAR-19			
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g	26-MAR-19	0.05	0.083	0.05
Ethylbenzene	0.176		0.018	ug/g	26-MAR-19	2	15	*0.05
n-Hexane	<0.050		0.050	ug/g	26-MAR-19	2.8	34	0.05
Methyl Ethyl Ketone	<0.50		0.50	ug/g	26-MAR-19	16	44	0.5
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	26-MAR-19	1.7	4.3	0.5
MTBE	<0.050		0.050	ug/g	26-MAR-19	0.75	1.4	0.05
Styrene	<0.050		0.050	ug/g	26-MAR-19	0.7	2.2	0.05

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2247715-4 S-11102463-032019-EN-BH18-468-BH100								
Sampled By: E.NUSSLI on 20-MAR-19 @ 13:00								
Matrix: SOIL								
Volatile Organic Compounds								
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	26-MAR-19	0.058	0.05	0.05
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	26-MAR-19	0.05	0.05	0.05
Tetrachloroethylene	<0.050		0.050	ug/g	26-MAR-19	0.28	2.3	0.05
Toluene	<0.080		0.080	ug/g	26-MAR-19	2.3	6	0.2
1,1,1-Trichloroethane	<0.050		0.050	ug/g	26-MAR-19	0.38	3.4	0.05
1,1,2-Trichloroethane	<0.050		0.050	ug/g	26-MAR-19	0.05	0.05	0.05
Trichloroethylene	<0.010		0.010	ug/g	26-MAR-19	0.061	0.52	0.05
Trichlorofluoromethane	<0.050		0.050	ug/g	26-MAR-19	4	5.8	0.25
Vinyl chloride	<0.020		0.020	ug/g	26-MAR-19	0.02	0.022	0.02
o-Xylene	0.198		0.020	ug/g	26-MAR-19			
m+p-Xylenes	0.437		0.030	ug/g	26-MAR-19			
Xylenes (Total)	0.635		0.050	ug/g	26-MAR-19	3.1	25	*0.05
Surrogate: 4-Bromofluorobenzene	100.6		50-140	%	26-MAR-19			
Surrogate: 1,4-Difluorobenzene	114.4		50-140	%	26-MAR-19			
Hydrocarbons								
F1 (C6-C10)	<5.0		5.0	ug/g	26-MAR-19	55	65	25
F1-BTEX	<5.0		5.0	ug/g	28-MAR-19	55	65	25
F2 (C10-C16)	26	RRR	10	ug/g	26-MAR-19	98	150	*10
F2-Naphth	<10		10	ug/g	28-MAR-19			
F3 (C16-C34)	<50		50	ug/g	26-MAR-19	300	1300	240
F3-PAH	<50		50	ug/g	28-MAR-19			
F4 (C34-C50)	<50		50	ug/g	26-MAR-19	2800	5600	120
Total Hydrocarbons (C6-C50)	<72		72	ug/g	28-MAR-19			
Chrom. to baseline at nC50	YES			No Unit	26-MAR-19			
Surrogate: 2-Bromobenzotrifluoride	88.9		60-140	%	26-MAR-19			
Surrogate: 3,4-Dichlorotoluene	93.9		60-140	%	26-MAR-19			
Polycyclic Aromatic Hydrocarbons								
Acenaphthene	0.070	AI	0.050	ug/g	28-MAR-19	7.9	58	0.072
Acenaphthylene	<0.050		0.050	ug/g	28-MAR-19	0.15	0.17	0.093
Anthracene	<0.050		0.050	ug/g	28-MAR-19	0.67	0.74	0.22
Benzo(a)anthracene	<0.050		0.050	ug/g	28-MAR-19	0.5	0.63	0.36
Benzo(a)pyrene	<0.050		0.050	ug/g	28-MAR-19	0.3	0.3	0.3
Benzo(b)fluoranthene	<0.050		0.050	ug/g	28-MAR-19	0.78	0.78	0.47
Benzo(g,h,i)perylene	<0.050		0.050	ug/g	28-MAR-19	6.6	7.8	0.68
Benzo(k)fluoranthene	<0.050		0.050	ug/g	28-MAR-19	0.78	0.78	0.48
Chrysene	<0.050		0.050	ug/g	28-MAR-19	7	7.8	2.8
Dibenzo(ah)anthracene	<0.050		0.050	ug/g	28-MAR-19	0.1	0.1	0.1
Fluoranthene	<0.050		0.050	ug/g	28-MAR-19	0.69	0.69	0.69
Fluorene	<0.050		0.050	ug/g	28-MAR-19	62	69	0.19
Indeno(1,2,3-cd)pyrene	<0.050		0.050	ug/g	28-MAR-19	0.38	0.48	0.23
1+2-Methylnaphthalenes	0.628		0.042	ug/g	28-MAR-19	0.99	3.4	*0.59
1-Methylnaphthalene	0.224		0.030	ug/g	28-MAR-19	0.99	3.4	0.59
2-Methylnaphthalene	0.404		0.030	ug/g	28-MAR-19	0.99	3.4	0.59
Naphthalene	21.0	DLHC	0.13	ug/g	28-MAR-19	*0.6	*0.75	*0.09
Phenanthrene	<0.046		0.046	ug/g	28-MAR-19	6.2	7.8	0.69
Pyrene	<0.050		0.050	ug/g	28-MAR-19	78	78	1

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping	Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3	
L2247715-4	S-11102463-032019-EN-BH18-468-BH100									
Sampled By:	E.NUSSLI on 20-MAR-19 @ 13:00									
Matrix:	SOIL									
Polycyclic Aromatic Hydrocarbons										
Surrogate: 2-Fluorobiphenyl		82.0		50-140	%	28-MAR-19				
Surrogate: p-Terphenyl d14		100.4		50-140	%	28-MAR-19				
L2247715-5	S-11102463-032019-EN-BH18-468-TRIP BLANK									
Sampled By:	E.NUSSLI on 20-MAR-19 @ 09:00									
Matrix:	SOIL						#1	#2	#3	
Physical Tests										
% Moisture		<0.10		0.10	%	26-MAR-19				
Volatile Organic Compounds										
Acetone		<0.50		0.50	ug/g	26-MAR-19	16	28	0.5	
Benzene		<0.0068		0.0068	ug/g	26-MAR-19	0.21	0.17	0.02	
Bromodichloromethane		<0.050		0.050	ug/g	26-MAR-19	13	13	0.05	
Bromoform		<0.050		0.050	ug/g	26-MAR-19	0.27	0.26	0.05	
Bromomethane		<0.050		0.050	ug/g	26-MAR-19	0.05	0.05	0.05	
Carbon tetrachloride		<0.050		0.050	ug/g	26-MAR-19	0.05	0.12	0.05	
Chlorobenzene		<0.050		0.050	ug/g	26-MAR-19	2.4	2.7	0.05	
Dibromochloromethane		<0.050		0.050	ug/g	26-MAR-19	9.4	9.4	0.05	
Chloroform		<0.050		0.050	ug/g	26-MAR-19	0.05	0.18	0.05	
1,2-Dibromoethane		<0.050		0.050	ug/g	26-MAR-19	0.05	0.05	0.05	
1,2-Dichlorobenzene		<0.050		0.050	ug/g	26-MAR-19	3.4	4.3	0.05	
1,3-Dichlorobenzene		<0.050		0.050	ug/g	26-MAR-19	4.8	6	0.05	
1,4-Dichlorobenzene		<0.050		0.050	ug/g	26-MAR-19	0.083	0.097	0.05	
Dichlorodifluoromethane		<0.050		0.050	ug/g	26-MAR-19	16	25	0.05	
1,1-Dichloroethane		<0.050		0.050	ug/g	26-MAR-19	3.5	11	0.05	
1,2-Dichloroethane		<0.050		0.050	ug/g	26-MAR-19	0.05	0.05	0.05	
1,1-Dichloroethylene		<0.050		0.050	ug/g	26-MAR-19	0.05	0.05	0.05	
cis-1,2-Dichloroethylene		<0.050		0.050	ug/g	26-MAR-19	3.4	30	0.05	
trans-1,2-Dichloroethylene		<0.050		0.050	ug/g	26-MAR-19	0.084	0.75	0.05	
Methylene Chloride		<0.050		0.050	ug/g	26-MAR-19	0.1	0.96	0.05	
1,2-Dichloropropane		<0.050		0.050	ug/g	26-MAR-19	0.05	0.085	0.05	
cis-1,3-Dichloropropene		<0.030		0.030	ug/g	26-MAR-19				
trans-1,3-Dichloropropene		<0.030		0.030	ug/g	26-MAR-19				
1,3-Dichloropropene (cis & trans)		<0.042		0.042	ug/g	26-MAR-19	0.05	0.083	0.05	
Ethylbenzene		<0.018		0.018	ug/g	26-MAR-19	2	15	0.05	
n-Hexane		<0.050		0.050	ug/g	26-MAR-19	2.8	34	0.05	
Methyl Ethyl Ketone		<0.50		0.50	ug/g	26-MAR-19	16	44	0.5	
Methyl Isobutyl Ketone		<0.50		0.50	ug/g	26-MAR-19	1.7	4.3	0.5	
MTBE		<0.050		0.050	ug/g	26-MAR-19	0.75	1.4	0.05	
Styrene		<0.050		0.050	ug/g	26-MAR-19	0.7	2.2	0.05	
1,1,1,2-Tetrachloroethane		<0.050		0.050	ug/g	26-MAR-19	0.058	0.05	0.05	
1,1,2,2-Tetrachloroethane		<0.050		0.050	ug/g	26-MAR-19	0.05	0.05	0.05	
Tetrachloroethylene		<0.050		0.050	ug/g	26-MAR-19	0.28	2.3	0.05	
Toluene		<0.080		0.080	ug/g	26-MAR-19	2.3	6	0.2	
1,1,1-Trichloroethane		<0.050		0.050	ug/g	26-MAR-19	0.38	3.4	0.05	
1,1,2-Trichloroethane		<0.050		0.050	ug/g	26-MAR-19	0.05	0.05	0.05	
Trichloroethylene		<0.010		0.010	ug/g	26-MAR-19	0.061	0.52	0.05	

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3	
L2247715-5 S-11102463-032019-EN-BH18-468-TRIP BLANK									
Sampled By: E.NUSSLI on 20-MAR-19 @ 09:00									
Matrix: SOIL									
Volatile Organic Compounds									
Trichlorofluoromethane	<0.050		0.050	ug/g	26-MAR-19	4	5.8	0.25	
Vinyl chloride	<0.020		0.020	ug/g	26-MAR-19	0.02	0.022	0.02	
o-Xylene	<0.020		0.020	ug/g	26-MAR-19				
m+p-Xylenes	<0.030		0.030	ug/g	26-MAR-19				
Xylenes (Total)	<0.050		0.050	ug/g	26-MAR-19	3.1	25	0.05	
Surrogate: 4-Bromofluorobenzene	112.1		50-140	%	26-MAR-19				
Surrogate: 1,4-Difluorobenzene	125.8		50-140	%	26-MAR-19				
Hydrocarbons									
F1 (C6-C10)	<5.0		5.0	ug/g	26-MAR-19	55	65	25	
Surrogate: 3,4-Dichlorotoluene	98.4		60-140	%	26-MAR-19				

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Reference Information

Sample Parameter Qualifier key listed:

Qualifier	Description
PRAR	PCB Pattern Most Closely Resembles Aroclor Reported
AI	Analytical interferences may be present. Result may be biased high.
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
DLHC	Detection Limit Raised: Dilution required due to high concentration of test analyte(s).
RRR	Refer to Report Remarks for issues regarding this analysis

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference***
625-511-WT	Soil	ABN-O.Reg 153/04 (July 2011)	SW846 8270 (511)

Soil and sediment samples are dried by mixing with a desiccant prior to extraction. The extracts are dried, concentrated and exchanged into a solvent and analyzed by GC/MS. Depending on the analytical GC/MS column used benzo(j)fluoranthene may chromatographically co-elute with benzo(b)fluoranthene or benzo(k)fluoranthene.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

B-HWS-R511-WT	Soil	Boron-HWE-O.Reg 153/04 (July 2011)	HW EXTR, EPA 6010B

A dried solid sample is extracted with calcium chloride, the sample undergoes a heating process. After cooling the sample is filtered and analyzed by ICP/OES.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

CHLORDANE-T-CALC-WT	Soil	Chlordane Total sums	CALCULATION

Aqueous sample is extracted by liquid/liquid extraction with a solvent mix. After extraction, a number of clean up techniques may be applied, depending on the sample matrix and analyzed by GC/MS.

CN-WAD-R511-WT	Soil	Cyanide (WAD)-O.Reg 153/04 (July 2011)	MOE 3015/APHA 4500CN I-WAD

The sample is extracted with a strong base for 16 hours, and then filtered. The filtrate is then distilled where the cyanide is converted to cyanogen chloride by reacting with chloramine-T, the cyanogen chloride then reacts with a combination of barbituric acid and isonicotinic acid to form a highly colored complex.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

CR-CR6-IC-WT	Soil	Hexavalent Chromium in Soil	SW846 3060A/7199

This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, Method 7199, published by the United States Environmental Protection Agency (EPA). The procedure involves analysis for chromium (VI) by ion chromatography using diphenylcarbazide in a sulphuric acid solution.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

DDD-DDE-DDT-CALC-WT	Soil	DDD, DDE, DDT sums	CALCULATION

Aqueous sample is extracted by liquid/liquid extraction with a solvent mix. After extraction, a number of clean up techniques may be applied, depending on the sample matrix and analyzed by GC/MS.

EC-WT	Soil	Conductivity (EC)	MOEE E3138

A representative subsample is tumbled with de-ionized (DI) water. The ratio of water to soil is 2:1 v/w. After tumbling the sample is then analyzed by a conductivity meter.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

ENDOSULFAN-T-CALC-WT	Soil	Endosulfan Total sums	CALCULATION

Aqueous sample is extracted by liquid/liquid extraction with a solvent mix. After extraction, a number of clean up techniques may be applied, depending on the sample matrix and analyzed by GC/MS.

Reference Information

F1-F4-511-CALC-WT	Soil	F1-F4 Hydrocarbon Calculated Parameters	CCME CWS-PHC, Pub #1310, Dec 2001-S

Analytical methods used for analysis of CCME Petroleum Hydrocarbons have been validated and comply with the Reference Method for the CWS PHC.

Hydrocarbon results are expressed on a dry weight basis.

In cases where results for both F4 and F4G are reported, the greater of the two results must be used in any application of the CWS PHC guidelines and the gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.
In samples where BTEX and F1 were analyzed , F1-BTEX represents a value where the sum of Benzene, Toluene, Ethylbenzene and total Xylenes has been subtracted from F1.

In samples where PAHs, F2 and F3 were analyzed, F2-Naphth represents the result where Naphthalene has been subtracted from F2. F3-PAH represents a result where the sum of Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenzo(a,h)anthracene, Fluoranthene, Indeno(1,2,3-cd)pyrene, Phenanthrene, and Pyrene has been subtracted from F3.

Unless otherwise qualified, the following quality control criteria have been met for the F1 hydrocarbon range:
1. All extraction and analysis holding times were met.
2. Instrument performance showing response factors for C6 and C10 within 30% of the response factor for toluene.
3. Linearity of gasoline response within 15% throughout the calibration range.

Unless otherwise qualified, the following quality control criteria have been met for the F2-F4 hydrocarbon ranges:
1. All extraction and analysis holding times were met.
2. Instrument performance showing C10, C16 and C34 response factors within 10% of their average.
3. Instrument performance showing the C50 response factor within 30% of the average of the C10, C16 and C34 response factors.
4. Linearity of diesel or motor oil response within 15% throughout the calibration range.

F1-HS-511-WT	Soil	F1-O.Reg 153/04 (July 2011)	E3398/CCME TIER 1-HS

Fraction F1 is determined by extracting a soil or sediment sample as received with methanol, then analyzing by headspace-GC/FID.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

F2-F4-511-WT	Soil	F2-F4-O.Reg 153/04 (July 2011)	CCME Tier 1

Petroleum Hydrocarbons (F2-F4 fractions) are extracted from soil with 1:1 hexane:acetone using a rotary extractor. Extracts are treated with silica gel to remove polar organic interferences. F2, F3, & F4 are analyzed by GC-FID. F4G-sg is analyzed gravimetrically.

Notes:
1. F2 (C10-C16): Sum of all hydrocarbons that elute between nC10 and nC16.
2. F3 (C16-C34): Sum of all hydrocarbons that elute between nC16 and nC34.
3. F4 (C34-C50): Sum of all hydrocarbons that elute between nC34 and nC50.
4. F4G: Gravimetric Heavy Hydrocarbons
5. F4G-sg: Gravimetric Heavy Hydrocarbons (F4G) after silica gel treatment.
6. Where both F4 (C34-C50) and F4G-sg are reported for a sample, the larger of the two values is used for comparison against the relevant CCME guideline for F4.
7. F4G-sg cannot be added to the C6 to C50 hydrocarbon results to obtain an estimate of total extractable hydrocarbons.
8. This method is validated for use.
9. Data from analysis of validation and quality control samples is available upon request.
10. Reported results are expressed as milligrams per dry kilogram, unless otherwise indicated.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

F4G-ADD-511-WT	Soil	F4G SG-O.Reg 153/04 (July 2011)	MOE DECPH-E3398/CCME TIER 1

F4G, gravimetric analysis, is determined if the chromatogram does not return to baseline at or before C50. A soil sample is extracted with a solvent mix, the solvent is evaporated and the weight of the residue is determined.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

HG-200.2-CVAA-WT	Soil	Mercury in Soil by CVAAS	EPA 200.2/1631E (mod)

Soil samples are digested with nitric and hydrochloric acids, followed by analysis by CVAAS.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

Reference Information

MET-200.2-CCMS-WT	Soil	Metals in Soil by CRC ICPMS	EPA 200.2/6020A (mod)

Soil/sediment is dried, disaggregated, and sieved (2 mm). For tests intended to support Ontario regulations, the <2mm fraction is ground to pass through a 0.355 mm sieve. Strong Acid Leachable Metals in the <2mm fraction are solubilized by heated digestion with nitric and hydrochloric acids. Instrumental analysis is by Collision / Reaction Cell ICPMS.

Limitations: This method is intended to liberate environmentally available metals. Silicate minerals are not solubilized. Some metals may be only partially recovered (matrix dependent), including Al, Ba, Be, Cr, S, Sr, Ti, Tl, V, W, and Zr. Elemental Sulfur may be poorly recovered by this method. Volatile forms of sulfur (e.g. sulfide, H2S) may be excluded if lost during sampling, storage, or digestion.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

METHYLNAPS-CALC-WT	Soil	ABN-Calculated Parameters	SW846 8270
MOISTURE-WT	Soil	% Moisture	CCME PHC in Soil - Tier 1 (mod)
PAH-511-WT	Soil	PAH-O.Reg 153/04 (July 2011)	SW846 3510/8270

A representative sub-sample of soil is fortified with deuterium-labelled surrogates and a mechanical shaking techniqueis used to extract the sample with a mixture of methanol and toluene. The extracts are concentrated and analyzed by GC/MS. Results for benzo(b) fluoranthene may include contributions from benzo(j)fluoranthene, if also present in the sample.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

PCB-511-WT	Soil	PCB-O.Reg 153/04 (July 2011)	SW846 3510/8082

An aliquot of a solid sample is extracted with a solvent, extract is cleaned up and analyzed on the GC/MS.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

PEST-OC-511-WT	Soil	OC Pesticides-O.Reg 153/04 (July 2011)	SW846 8270 (511)

Soil sample is extracted in a solvent, after extraction a number of clean up techniques may be applied, depending on the sample matrix and analyzed by GC/MS.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

PH-WT	Soil	pH	MOEE E3137A

A minimum 10g portion of the sample is extracted with 20mL of 0.01M calcium chloride solution by shaking for at least 30 minutes. The aqueous layer is separated from the soil and then analyzed using a pH meter and electrode.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

SAR-R511-WT	Soil	SAR-O.Reg 153/04 (July 2011)	SW846 6010C

A dried, disaggregated solid sample is extracted with deionized water, the aqueous extract is separated from the solid, acidified and then analyzed using a ICP/OES. The concentrations of Na, Ca and Mg are reported as per CALA requirements for calculated parameters. These individual parameters are not for comparison to any guideline.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

VOC-1,3-DCP-CALC-WT	Soil	Regulation 153 VOCs	SW8260B/SW8270C
VOC-511-HS-WT	Soil	VOC-O.Reg 153/04 (July 2011)	SW846 8260 (511)

Soil and sediment samples are extracted in methanol and analyzed by headspace-GC/MS.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

XYLENES-SUM-CALC-WT	Soil	Sum of Xylene Isomer Concentrations	CALCULATION

Total xylenes represents the sum of o-xylene and m&p-xylene.

*** ALS test methods may incorporate modifications from specified reference methods to improve performance.

Chain of Custody numbers:

Reference Information

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location	Laboratory Definition Code	Laboratory Location
WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA		

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.
mg/kg - milligrams per kilogram based on dry weight of sample
mg/kg wwt - milligrams per kilogram based on wet weight of sample
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight
mg/L - unit of concentration based on volume, parts per million.
< - Less than.
D.L. - The reporting limit.
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, fitness for a particular purpose, or non-infringement. ALS assumes no responsibility for errors or omissions in the information. Guideline limits are not adjusted for the hardness, pH or temperature of the sample (the most conservative values are used). Measurement uncertainty is not applied to test results prior to comparison with specified criteria values.

Quality Control Report

Workorder: L2247715 Report Date: 28-MAR-19

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
625-511-WT	**Soil**							
Batch R4583368								
WG3013237-9 DUP		**WG3013237-5**						
1-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	26-MAR-19
2-Chlorophenol		<0.10	<0.10	RPD-NA	ug/g	N/A	40	26-MAR-19
2-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	26-MAR-19
2,4-Dichlorophenol		<0.10	<0.10	RPD-NA	ug/g	N/A	40	26-MAR-19
2,4,5-Trichlorophenol		<0.10	<0.10	RPD-NA	ug/g	N/A	40	26-MAR-19
2,4,6-Trichlorophenol		<0.10	<0.10	RPD-NA	ug/g	N/A	40	26-MAR-19
Acenaphthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Acenaphthylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Benzo(a)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Benzo(a)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Benzo(b)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Benzo(ghi)perylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Benzo(k)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Chrysene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Dibenzo(a,h)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Fluorene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Indeno(1,2,3-cd)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Naphthalene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Pentachlorophenol		<0.10	<0.10	RPD-NA	ug/g	N/A	40	26-MAR-19
Phenanthrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
WG3013237-7 LCS								
1-Methylnaphthalene			88.3		%		50-140	26-MAR-19
2-Chlorophenol			109.0		%		50-140	26-MAR-19
2-Methylnaphthalene			99.7		%		50-140	26-MAR-19
2,4-Dichlorophenol			108.6		%		50-140	26-MAR-19
2,4,5-Trichlorophenol			111.7		%		50-140	26-MAR-19
2,4,6-Trichlorophenol			106.0		%		50-140	26-MAR-19
Acenaphthene			98.8		%		50-140	26-MAR-19
Acenaphthylene			107.0		%		50-140	26-MAR-19
Anthracene			102.5		%		50-140	26-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
625-511-WT	**Soil**							
Batch R4583368								
WG3013237-7 LCS								
Benzo(a)anthracene			109.5		%		50-140	26-MAR-19
Benzo(a)pyrene			109.7		%		50-140	26-MAR-19
Benzo(b)fluoranthene			113.8		%		50-140	26-MAR-19
Benzo(ghi)perylene			80.5		%		50-140	26-MAR-19
Benzo(k)fluoranthene			108.2		%		50-140	26-MAR-19
Chrysene			108.7		%		50-140	26-MAR-19
Dibenzo(a,h)anthracene			94.5		%		50-140	26-MAR-19
Fluoranthene			91.3		%		50-140	26-MAR-19
Fluorene			97.7		%		50-140	26-MAR-19
Indeno(1,2,3-cd)pyrene			95.8		%		50-140	26-MAR-19
Naphthalene			101.1		%		50-140	26-MAR-19
Pentachlorophenol			91.3		%		50-140	26-MAR-19
Phenanthrene			99.8		%		50-140	26-MAR-19
Pyrene			90.2		%		50-140	26-MAR-19
WG3013237-6 MB								
1-Methylnaphthalene			<0.030		ug/g		0.03	26-MAR-19
2-Chlorophenol			<0.10		ug/g		0.1	26-MAR-19
2-Methylnaphthalene			<0.030		ug/g		0.03	26-MAR-19
2,4-Dichlorophenol			<0.10		ug/g		0.1	26-MAR-19
2,4,5-Trichlorophenol			<0.10		ug/g		0.1	26-MAR-19
2,4,6-Trichlorophenol			<0.10		ug/g		0.1	26-MAR-19
Acenaphthene			<0.050		ug/g		0.05	26-MAR-19
Acenaphthylene			<0.050		ug/g		0.05	26-MAR-19
Anthracene			<0.050		ug/g		0.05	26-MAR-19
Benzo(a)anthracene			<0.050		ug/g		0.05	26-MAR-19
Benzo(a)pyrene			<0.050		ug/g		0.05	26-MAR-19
Benzo(b)fluoranthene			<0.050		ug/g		0.05	26-MAR-19
Benzo(ghi)perylene			<0.050		ug/g		0.05	26-MAR-19
Benzo(k)fluoranthene			<0.050		ug/g		0.05	26-MAR-19
Chrysene			<0.050		ug/g		0.05	26-MAR-19
Dibenzo(a,h)anthracene			<0.050		ug/g		0.05	26-MAR-19
Fluoranthene			<0.050		ug/g		0.05	26-MAR-19
Fluorene			<0.050		ug/g		0.05	26-MAR-19
Indeno(1,2,3-cd)pyrene			<0.050		ug/g		0.05	26-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
625-511-WT	**Soil**							
Batch R4583368								
WG3013237-6 MB								
Naphthalene			<0.050		ug/g		0.05	26-MAR-19
Pentachlorophenol			<0.10		ug/g		0.1	26-MAR-19
Phenanthrene			<0.050		ug/g		0.05	26-MAR-19
Pyrene			<0.050		ug/g		0.05	26-MAR-19
Surrogate: 2-Fluorobiphenyl			69.5		%		50-140	26-MAR-19
Surrogate: 2,4,6-Tribromophenol			76.0		%		50-140	26-MAR-19
Surrogate: p-Terphenyl d14			100.2		%		50-140	26-MAR-19
Surrogate: Phenol d5			97.4		%		30-130	26-MAR-19
WG3013237-8 MS		**WG3013237-5**						
1-Methylnaphthalene			84.4		%		50-140	26-MAR-19
2-Chlorophenol			101.2		%		50-140	26-MAR-19
2-Methylnaphthalene			93.9		%		50-140	26-MAR-19
2,4-Dichlorophenol			100.8		%		50-140	26-MAR-19
2,4,5-Trichlorophenol			105.4		%		50-140	26-MAR-19
2,4,6-Trichlorophenol			102.0		%		50-140	26-MAR-19
Acenaphthene			94.3		%		50-140	26-MAR-19
Acenaphthylene			101.0		%		50-140	26-MAR-19
Anthracene			94.8		%		50-140	26-MAR-19
Benzo(a)anthracene			100.9		%		50-140	26-MAR-19
Benzo(a)pyrene			101.1		%		50-140	26-MAR-19
Benzo(b)fluoranthene			99.4		%		50-140	26-MAR-19
Benzo(ghi)perylene			77.2		%		50-140	26-MAR-19
Benzo(k)fluoranthene			96.3		%		50-140	26-MAR-19
Chrysene			95.8		%		50-140	26-MAR-19
Dibenzo(a,h)anthracene			87.5		%		50-140	26-MAR-19
Fluoranthene			79.8		%		50-140	26-MAR-19
Fluorene			90.8		%		50-140	26-MAR-19
Indeno(1,2,3-cd)pyrene			89.3		%		50-140	26-MAR-19
Naphthalene			96.0		%		50-140	26-MAR-19
Pentachlorophenol			91.5		%		50-140	26-MAR-19
Phenanthrene			93.5		%		50-140	26-MAR-19
Pyrene			80.4		%		50-140	26-MAR-19
B-HWS-R511-WT	**Soil**							

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
B-HWS-R511-WT	**Soil**							
Batch R4585338								
WG3014874-4 DUP		**L2247715-4**						
Boron (B), Hot Water Ext.		0.65	0.62		ug/g	4.9	30	27-MAR-19
WG3014874-2 IRM		**HOTB-SAL_SOIL5**						
Boron (B), Hot Water Ext.			104.8		%		70-130	27-MAR-19
WG3014874-3 LCS								
Boron (B), Hot Water Ext.			96.3		%		70-130	27-MAR-19
WG3014874-1 MB								
Boron (B), Hot Water Ext.			<0.10		ug/g		0.1	27-MAR-19
CN-WAD-R511-WT	**Soil**							
Batch R4583869								
WG3013562-3 DUP		**L2248320-1**						
Cyanide, Weak Acid Diss		<0.050	<0.050	RPD-NA	ug/g	N/A	35	26-MAR-19
WG3013562-2 LCS								
Cyanide, Weak Acid Diss			90.5		%		80-120	26-MAR-19
WG3013562-1 MB								
Cyanide, Weak Acid Diss			<0.050		ug/g		0.05	26-MAR-19
WG3013562-4 MS		**L2248320-1**						
Cyanide, Weak Acid Diss			94.4		%		70-130	26-MAR-19
CR-CR6-IC-WT	**Soil**							
Batch R4583569								
WG3013589-4 CRM		**WT-SQC012**						
Chromium, Hexavalent			98.3		%		70-130	26-MAR-19
WG3013589-3 DUP		**L2248321-2**						
Chromium, Hexavalent		<0.20	<0.20	RPD-NA	ug/g	N/A	35	26-MAR-19
WG3013589-2 LCS								
Chromium, Hexavalent			99.0		%		80-120	26-MAR-19
WG3013589-1 MB								
Chromium, Hexavalent			<0.20		ug/g		0.2	26-MAR-19
EC-WT	**Soil**							
Batch R4585443								
WG3014880-4 DUP		**WG3014880-3**						
Conductivity		0.289	0.287		mS/cm	0.7	20	27-MAR-19
WG3014880-2 IRM		**WT SAR2**						
Conductivity			102.9		%		70-130	27-MAR-19
WG3015334-1 LCS								
Conductivity			100.0		%		90-110	27-MAR-19
WG3014880-1 MB								

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
EC-WT	**Soil**							
Batch R4585443								
WG3014880-1 MB								
Conductivity			<0.0040		mS/cm		0.004	27-MAR-19
F1-HS-511-WT	**Soil**							
Batch R4582911								
WG3013604-4 DUP		**WG3013604-3**						
F1 (C6-C10)		<5.0	<5.0	RPD-NA	ug/g	N/A	30	26-MAR-19
WG3013604-2 LCS								
F1 (C6-C10)			106.0		%		80-120	26-MAR-19
WG3013604-1 MB								
F1 (C6-C10)			<5.0		ug/g		5	26-MAR-19
Surrogate: 3,4-Dichlorotoluene			107.7		%		60-140	26-MAR-19
WG3013604-6 MS		**L2247715-2**						
F1 (C6-C10)			105.1		%		60-140	26-MAR-19
F2-F4-511-WT	**Soil**							
Batch R4585227								
WG3013546-3 DUP		**WG3013546-5**						
F2 (C10-C16)		<10	<10	RPD-NA	ug/g	N/A	30	26-MAR-19
F3 (C16-C34)		<50	<50	RPD-NA	ug/g	N/A	30	26-MAR-19
F4 (C34-C50)		<50	<50	RPD-NA	ug/g	N/A	30	26-MAR-19
WG3013546-2 LCS								
F2 (C10-C16)			94.8		%		80-120	26-MAR-19
F3 (C16-C34)			100.9		%		80-120	26-MAR-19
F4 (C34-C50)			104.1		%		80-120	26-MAR-19
WG3013546-1 MB								
F2 (C10-C16)			<10		ug/g		10	26-MAR-19
F3 (C16-C34)			<50		ug/g		50	26-MAR-19
F4 (C34-C50)			<50		ug/g		50	26-MAR-19
Surrogate: 2-Bromobenzotrifluoride			82.1		%		60-140	26-MAR-19
WG3013546-4 MS		**WG3013546-5**						
F2 (C10-C16)			95.0		%		60-140	26-MAR-19
F3 (C16-C34)			99.0		%		60-140	26-MAR-19
F4 (C34-C50)			102.5		%		60-140	26-MAR-19
Batch R4585334								
WG3013260-3 DUP		**WG3013260-5**						
F2 (C10-C16)		<10	<10	RPD-NA	ug/g	N/A	30	26-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F2-F4-511-WT	**Soil**							
Batch R4585334								
WG3013260-3 DUP		**WG3013260-5**						
F3 (C16-C34)		<50	<50	RPD-NA	ug/g	N/A	30	26-MAR-19
F4 (C34-C50)		<50	<50	RPD-NA	ug/g	N/A	30	26-MAR-19
WG3013260-2 LCS								
F2 (C10-C16)			106.7		%		80-120	26-MAR-19
F3 (C16-C34)			104.8		%		80-120	26-MAR-19
F4 (C34-C50)			109.4		%		80-120	26-MAR-19
WG3013260-1 MB								
F2 (C10-C16)			<10		ug/g		10	26-MAR-19
F3 (C16-C34)			<50		ug/g		50	26-MAR-19
F4 (C34-C50)			<50		ug/g		50	26-MAR-19
Surrogate: 2-Bromobenzotrifluoride			57.7	MBS	%		60-140	26-MAR-19
WG3013260-4 MS		**WG3013260-5**						
F2 (C10-C16)			104.7		%		60-140	26-MAR-19
F3 (C16-C34)			104.4		%		60-140	26-MAR-19
F4 (C34-C50)			106.9		%		60-140	26-MAR-19
F4G-ADD-511-WT	**Soil**							
Batch R4586445								
WG3016475-2 LCS								
F4G-SG (GHH-Silica)			83.6		%		60-140	25-MAR-19
WG3016475-1 MB								
F4G-SG (GHH-Silica)			<250		ug/g		250	25-MAR-19
HG-200.2-CVAA-WT	**Soil**							
Batch R4585418								
WG3014864-2 CRM		**WT-CANMET-TILL1**						
Mercury (Hg)			99.0		%		70-130	27-MAR-19
WG3014864-6 DUP		**WG3014864-5**						
Mercury (Hg)		0.0221	0.0222		ug/g	0.4	40	27-MAR-19
WG3014864-3 LCS								
Mercury (Hg)			110.5		%		80-120	27-MAR-19
WG3014864-1 MB								
Mercury (Hg)			<0.0050		mg/kg		0.005	27-MAR-19
MET-200.2-CCMS-WT	**Soil**							

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R4585305								
WG3014864-2 CRM		**WT-CANMET-TILL1**						
Antimony (Sb)			104.2		%		70-130	27-MAR-19
Arsenic (As)			108.9		%		70-130	27-MAR-19
Barium (Ba)			106.6		%		70-130	27-MAR-19
Beryllium (Be)			103.2		%		70-130	27-MAR-19
Boron (B)			2.8		mg/kg		0-8.2	27-MAR-19
Cadmium (Cd)			104.9		%		70-130	27-MAR-19
Chromium (Cr)			107.5		%		70-130	27-MAR-19
Cobalt (Co)			106.3		%		70-130	27-MAR-19
Copper (Cu)			109.8		%		70-130	27-MAR-19
Lead (Pb)			108.4		%		70-130	27-MAR-19
Molybdenum (Mo)			109.6		%		70-130	27-MAR-19
Nickel (Ni)			108.0		%		70-130	27-MAR-19
Selenium (Se)			0.33		mg/kg		0.11-0.51	27-MAR-19
Silver (Ag)			0.24		mg/kg		0.13-0.33	27-MAR-19
Thallium (Tl)			0.131		mg/kg		0.077-0.18	27-MAR-19
Uranium (U)			97.7		%		70-130	27-MAR-19
Vanadium (V)			104.7		%		70-130	27-MAR-19
Zinc (Zn)			101.1		%		70-130	27-MAR-19
WG3014864-6 DUP		**WG3014864-5**						
Antimony (Sb)		0.28	0.27		ug/g	5.3	30	27-MAR-19
Arsenic (As)		3.94	4.07		ug/g	3.1	30	27-MAR-19
Barium (Ba)		54.6	54.3		ug/g	0.5	40	27-MAR-19
Beryllium (Be)		0.58	0.59		ug/g	1.7	30	27-MAR-19
Boron (B)		17.2	16.8		ug/g	2.4	30	27-MAR-19
Cadmium (Cd)		0.239	0.247		ug/g	3.1	30	27-MAR-19
Chromium (Cr)		24.2	24.4		ug/g	0.7	30	27-MAR-19
Cobalt (Co)		6.37	6.51		ug/g	2.2	30	27-MAR-19
Copper (Cu)		17.0	17.7		ug/g	3.9	30	27-MAR-19
Lead (Pb)		7.68	7.99		ug/g	3.9	40	27-MAR-19
Molybdenum (Mo)		2.68	2.75		ug/g	2.7	40	27-MAR-19
Nickel (Ni)		24.3	24.6		ug/g	1.3	30	27-MAR-19
Selenium (Se)		<0.20	<0.20	RPD-NA	ug/g	N/A	30	27-MAR-19
Silver (Ag)		<0.10	<0.10	RPD-NA	ug/g	N/A	40	27-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R4585305								
WG3014864-6 DUP		**WG3014864-5**						
Thallium (Tl)		0.213	0.220		ug/g	3.1	30	27-MAR-19
Uranium (U)		1.34	1.39		ug/g	3.2	30	27-MAR-19
Vanadium (V)		31.1	30.8		ug/g	1.0	30	27-MAR-19
Zinc (Zn)		43.7	45.0		ug/g	3.0	30	27-MAR-19
WG3014864-4 LCS								
Antimony (Sb)			107.2		%		80-120	27-MAR-19
Arsenic (As)			107.0		%		80-120	27-MAR-19
Barium (Ba)			105.3		%		80-120	27-MAR-19
Beryllium (Be)			101.3		%		80-120	27-MAR-19
Boron (B)			102.4		%		80-120	27-MAR-19
Cadmium (Cd)			103.1		%		80-120	27-MAR-19
Chromium (Cr)			104.0		%		80-120	27-MAR-19
Cobalt (Co)			102.6		%		80-120	27-MAR-19
Copper (Cu)			102.7		%		80-120	27-MAR-19
Lead (Pb)			100.1		%		80-120	27-MAR-19
Molybdenum (Mo)			107.7		%		80-120	27-MAR-19
Nickel (Ni)			103.0		%		80-120	27-MAR-19
Selenium (Se)			105.3		%		80-120	27-MAR-19
Silver (Ag)			100.9		%		80-120	27-MAR-19
Thallium (Tl)			101.9		%		80-120	27-MAR-19
Uranium (U)			99.1		%		80-120	27-MAR-19
Vanadium (V)			106.9		%		80-120	27-MAR-19
Zinc (Zn)			99.1		%		80-120	27-MAR-19
WG3014864-1 MB								
Antimony (Sb)			<0.10		mg/kg		0.1	27-MAR-19
Arsenic (As)			<0.10		mg/kg		0.1	27-MAR-19
Barium (Ba)			<0.50		mg/kg		0.5	27-MAR-19
Beryllium (Be)			<0.10		mg/kg		0.1	27-MAR-19
Boron (B)			<5.0		mg/kg		5	27-MAR-19
Cadmium (Cd)			<0.020		mg/kg		0.02	27-MAR-19
Chromium (Cr)			<0.50		mg/kg		0.5	27-MAR-19
Cobalt (Co)			<0.10		mg/kg		0.1	27-MAR-19
Copper (Cu)			<0.50		mg/kg		0.5	27-MAR-19
Lead (Pb)			<0.50		mg/kg		0.5	27-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R4585305								
WG3014864-1 MB								
Molybdenum (Mo)			<0.10		mg/kg		0.1	27-MAR-19
Nickel (Ni)			<0.50		mg/kg		0.5	27-MAR-19
Selenium (Se)			<0.20		mg/kg		0.2	27-MAR-19
Silver (Ag)			<0.10		mg/kg		0.1	27-MAR-19
Thallium (Tl)			<0.050		mg/kg		0.05	27-MAR-19
Uranium (U)			<0.050		mg/kg		0.05	27-MAR-19
Vanadium (V)			<0.20		mg/kg		0.2	27-MAR-19
Zinc (Zn)			<2.0		mg/kg		2	27-MAR-19
MOISTURE-WT	**Soil**							
Batch R4582804								
WG3013505-3 DUP		**L2248319-2**						
% Moisture		13.4	14.1		%	5.3	20	26-MAR-19
WG3013505-2 LCS								
% Moisture			100.2		%		90-110	26-MAR-19
WG3013505-1 MB								
% Moisture			<0.10		%		0.1	26-MAR-19
Batch R4582805								
WG3013440-3 DUP		**L2247572-1**						
% Moisture		13.6	12.8		%	6.2	20	26-MAR-19
WG3013440-2 LCS								
% Moisture			100.2		%		90-110	26-MAR-19
WG3013440-1 MB								
% Moisture			<0.10		%		0.1	26-MAR-19
PAH-511-WT	**Soil**							
Batch R4585876								
WG3012635-3 DUP		**WG3012635-5**						
1-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	27-MAR-19
2-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	27-MAR-19
Acenaphthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Acenaphthylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Benzo(a)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Benzo(a)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Benzo(b)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Benzo(g,h,i)perylene		<0.050	<0.050		ug/g			

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R4585876								
WG3012635-3 DUP		**WG3012635-5**						
Benzo(g,h,i)perylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Benzo(k)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Chrysene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Dibenzo(ah)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Fluorene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Indeno(1,2,3-cd)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Naphthalene		<0.013	<0.013	RPD-NA	ug/g	N/A	40	27-MAR-19
Phenanthrene		<0.046	<0.046	RPD-NA	ug/g	N/A	40	27-MAR-19
Pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
WG3012635-2 LCS								
1-Methylnaphthalene			100.6		%		50-140	27-MAR-19
2-Methylnaphthalene			99.0		%		50-140	27-MAR-19
Acenaphthene			108.0		%		50-140	27-MAR-19
Acenaphthylene			108.2		%		50-140	27-MAR-19
Anthracene			102.8		%		50-140	27-MAR-19
Benzo(a)anthracene			111.5		%		50-140	27-MAR-19
Benzo(a)pyrene			100.7		%		50-140	27-MAR-19
Benzo(b)fluoranthene			107.5		%		50-140	27-MAR-19
Benzo(g,h,i)perylene			97.1		%		50-140	27-MAR-19
Benzo(k)fluoranthene			96.1		%		50-140	27-MAR-19
Chrysene			94.9		%		50-140	27-MAR-19
Dibenzo(ah)anthracene			94.8		%		50-140	27-MAR-19
Fluoranthene			102.7		%		50-140	27-MAR-19
Fluorene			106.7		%		50-140	27-MAR-19
Indeno(1,2,3-cd)pyrene			95.6		%		50-140	27-MAR-19
Naphthalene			96.8		%		50-140	27-MAR-19
Phenanthrene			99.0		%		50-140	27-MAR-19
Pyrene			102.2		%		50-140	27-MAR-19
WG3012635-1 MB								
1-Methylnaphthalene			<0.030		ug/g		0.03	27-MAR-19
2-Methylnaphthalene			<0.030		ug/g		0.03	27-MAR-19
Acenaphthene			<0.050		ug/g		0.05	27-MAR-19
Acenaphthylene			<0.050		ug/g		0.05	27-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R4585876								
WG3012635-1 MB								
Anthracene			<0.050		ug/g		0.05	27-MAR-19
Benzo(a)anthracene			<0.050		ug/g		0.05	27-MAR-19
Benzo(a)pyrene			<0.050		ug/g		0.05	27-MAR-19
Benzo(b)fluoranthene			<0.050		ug/g		0.05	27-MAR-19
Benzo(g,h,i)perylene			<0.050		ug/g		0.05	27-MAR-19
Benzo(k)fluoranthene			<0.050		ug/g		0.05	27-MAR-19
Chrysene			<0.050		ug/g		0.05	27-MAR-19
Dibenzo(ah)anthracene			<0.050		ug/g		0.05	27-MAR-19
Fluoranthene			<0.050		ug/g		0.05	27-MAR-19
Fluorene			<0.050		ug/g		0.05	27-MAR-19
Indeno(1,2,3-cd)pyrene			<0.050		ug/g		0.05	27-MAR-19
Naphthalene			<0.013		ug/g		0.013	27-MAR-19
Phenanthrene			<0.046		ug/g		0.046	27-MAR-19
Pyrene			<0.050		ug/g		0.05	27-MAR-19
Surrogate: 2-Fluorobiphenyl			96.9		%		50-140	27-MAR-19
Surrogate: p-Terphenyl d14			98.1		%		50-140	27-MAR-19
WG3012635-4 MS		**WG3012635-5**						
1-Methylnaphthalene			97.8		%		50-140	27-MAR-19
2-Methylnaphthalene			95.4		%		50-140	27-MAR-19
Acenaphthene			104.8		%		50-140	27-MAR-19
Acenaphthylene			101.8		%		50-140	27-MAR-19
Anthracene			100.3		%		50-140	27-MAR-19
Benzo(a)anthracene			107.6		%		50-140	27-MAR-19
Benzo(a)pyrene			99.0		%		50-140	27-MAR-19
Benzo(b)fluoranthene			105.0		%		50-140	27-MAR-19
Benzo(g,h,i)perylene			93.6		%		50-140	27-MAR-19
Benzo(k)fluoranthene			94.2		%		50-140	27-MAR-19
Chrysene			96.4		%		50-140	27-MAR-19
Dibenzo(ah)anthracene			90.9		%		50-140	27-MAR-19
Fluoranthene			103.6		%		50-140	27-MAR-19
Fluorene			101.4		%		50-140	27-MAR-19
Indeno(1,2,3-cd)pyrene			86.7		%		50-140	27-MAR-19
Naphthalene			95.0		%		50-140	27-MAR-19
Phenanthrene			99.1		%		50-140	27-MAR-19

Quality Control Report

Workorder: L2247715 Report Date: 28-MAR-19

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R4585876								
WG3012635-4 MS		**WG3012635-5**						
Pyrene			102.4		%		50-140	27-MAR-19
PCB-511-WT	**Soil**							
Batch R4580669								
WG3012341-3 DUP		**WG3012341-5**						
Aroclor 1242		<0.010	<0.010	RPD-NA	ug/g	N/A	40	25-MAR-19
Aroclor 1248		<0.010	<0.010	RPD-NA	ug/g	N/A	40	25-MAR-19
Aroclor 1254		<0.0150	<0.0150	RPD-NA	ug/g	N/A	40	25-MAR-19
Aroclor 1260		0.051	0.071		ug/g	32	40	25-MAR-19
WG3012341-2 LCS								
Aroclor 1242			103.2		%		60-140	25-MAR-19
Aroclor 1248			95.1		%		60-140	25-MAR-19
Aroclor 1254			107.3		%		60-140	25-MAR-19
Aroclor 1260			111.0		%		60-140	25-MAR-19
WG3012341-1 MB								
Aroclor 1242			<0.010		ug/g		0.01	25-MAR-19
Aroclor 1248			<0.010		ug/g		0.01	25-MAR-19
Aroclor 1254			<0.010		ug/g		0.01	25-MAR-19
Aroclor 1260			<0.010		ug/g		0.01	25-MAR-19
Surrogate: d14-Terphenyl			75.7		%		60-140	25-MAR-19
WG3012341-4 MS		**WG3012341-5**						
Aroclor 1242			102.0		%		60-140	25-MAR-19
Aroclor 1254			112.8		%		60-140	25-MAR-19
Aroclor 1260			127.8		%		60-140	25-MAR-19
PEST-OC-511-WT	**Soil**							
Batch R4581388								
WG3011936-3 DUP		**WG3011936-5**						
Aldrin		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
a-chlordane		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
g-chlordane		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
op-DDD		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
pp-DDD		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
o,p-DDE		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
pp-DDE		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PEST-OC-511-WT	**Soil**							
Batch R4581388								
WG3011936-3 DUP		**WG3011936-5**						
op-DDT		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
pp-DDT		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
Dieldrin		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
Endosulfan I		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
Endosulfan II		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
Endrin		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
gamma-hexachlorocyclohexane		<0.10	<0.10	RPD-NA	ug/g	N/A	40	25-MAR-19
Heptachlor		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
Heptachlor Epoxide		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
Hexachlorobenzene		<0.10	<0.10	RPD-NA	ug/g	N/A	40	25-MAR-19
Hexachlorobutadiene		<0.10	<0.10	RPD-NA	ug/g	N/A	40	25-MAR-19
Hexachloroethane		<0.10	<0.10	RPD-NA	ug/g	N/A	40	25-MAR-19
Methoxychlor		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
WG3011936-2 LCS								
Aldrin			102.8		%		50-140	25-MAR-19
a-chlordane			79.4		%		50-140	25-MAR-19
g-chlordane			82.6		%		50-140	25-MAR-19
op-DDD			84.4		%		50-140	25-MAR-19
pp-DDD			91.2		%		50-140	25-MAR-19
o,p-DDE			78.8		%		50-140	25-MAR-19
pp-DDE			78.1		%		50-140	25-MAR-19
op-DDT			133.1		%		50-140	25-MAR-19
pp-DDT			139.8		%		50-140	25-MAR-19
Dieldrin			80.7		%		50-140	25-MAR-19
Endosulfan I			83.0		%		50-140	25-MAR-19
Endosulfan II			93.6		%		50-140	25-MAR-19
Endrin			146.5	RRQC	%		50-140	25-MAR-19
gamma-hexachlorocyclohexane			95.1		%		50-140	25-MAR-19
Heptachlor			106.7		%		50-140	25-MAR-19
Heptachlor Epoxide			85.1		%		50-140	25-MAR-19
Hexachlorobenzene			99.2		%		50-140	25-MAR-19
Hexachlorobutadiene			95.3		%		50-140	25-MAR-19
Hexachloroethane			102.4		%		50-140	25-MAR-19

COMMENTS: RRQC: Recovery is outside ALS control limits. Associated sample results have not been affected.

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PEST-OC-511-WT	**Soil**							
Batch R4581388								
WG3011936-2 LCS								
Methoxychlor			152.6	RRQC	%		50-140	25-MAR-19
COMMENTS: RRQC: Recovery is outside ALS control limits. Associated sample results have not been affected.								
WG3011936-1 MB								
Aldrin			<0.020		ug/g		0.02	25-MAR-19
a-chlordane			<0.020		ug/g		0.02	25-MAR-19
g-chlordane			<0.020		ug/g		0.02	25-MAR-19
op-DDD			<0.020		ug/g		0.02	25-MAR-19
pp-DDD			<0.020		ug/g		0.02	25-MAR-19
o,p-DDE			<0.020		ug/g		0.02	25-MAR-19
pp-DDE			<0.020		ug/g		0.02	25-MAR-19
op-DDT			<0.020		ug/g		0.02	25-MAR-19
pp-DDT			<0.020		ug/g		0.02	25-MAR-19
Dieldrin			<0.020		ug/g		0.02	25-MAR-19
Endosulfan I			<0.020		ug/g		0.02	25-MAR-19
Endosulfan II			<0.020		ug/g		0.02	25-MAR-19
Endrin			<0.020		ug/g		0.02	25-MAR-19
gamma-hexachlorocyclohexane			<0.010		ug/g		0.01	25-MAR-19
Heptachlor			<0.020		ug/g		0.02	25-MAR-19
Heptachlor Epoxide			<0.020		ug/g		0.02	25-MAR-19
Hexachlorobenzene			<0.010		ug/g		0.01	25-MAR-19
Hexachlorobutadiene			<0.010		ug/g		0.01	25-MAR-19
Hexachloroethane			<0.010		ug/g		0.01	25-MAR-19
Methoxychlor			<0.020		ug/g		0.02	25-MAR-19
Surrogate: 2-Fluorobiphenyl			95.0		%		50-140	25-MAR-19
Surrogate: d14-Terphenyl			110.5		%		50-140	25-MAR-19
WG3011936-4 MS		**WG3011936-5**						
Aldrin			85.0		%		50-140	25-MAR-19
a-chlordane			62.0		%		50-140	25-MAR-19
g-chlordane			67.1		%		50-140	25-MAR-19
op-DDD			64.1		%		50-140	25-MAR-19
pp-DDD			66.3		%		50-140	25-MAR-19
o,p-DDE			66.8		%		50-140	25-MAR-19
pp-DDE			68.2		%		50-140	25-MAR-19
op-DDT			98.8		%		50-140	25-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PEST-OC-511-WT	**Soil**							
Batch R4581388								
WG3011936-4 MS		**WG3011936-5**						
pp-DDT			100.2		%		50-140	25-MAR-19
Dieldrin			61.1		%		50-140	25-MAR-19
Endosulfan I			59.8		%		50-140	25-MAR-19
Endosulfan II			66.2		%		50-140	25-MAR-19
Endrin			93.8		%		50-140	25-MAR-19
gamma-hexachlorocyclohexane			71.9		%		50-140	25-MAR-19
Heptachlor			78.3		%		50-140	25-MAR-19
Heptachlor Epoxide			64.6		%		50-140	25-MAR-19
Hexachlorobenzene			85.0		%		50-140	25-MAR-19
Hexachlorobutadiene			81.8		%		50-140	25-MAR-19
Hexachloroethane			81.3		%		50-140	25-MAR-19
Methoxychlor			102.4		%		50-140	25-MAR-19
PH-WT	**Soil**							
Batch R4584807								
WG3013598-1 DUP		**L2248320-1**						
pH		7.35	7.23	J	pH units	0.12	0.3	26-MAR-19
WG3014231-1 LCS								
pH			6.96		pH units		6.9-7.1	26-MAR-19
Batch R4585398								
WG3013415-1 DUP		**L2247705-2**						
pH		7.75	7.80	J	pH units	0.05	0.3	27-MAR-19
WG3015076-1 LCS								
pH			6.99		pH units		6.9-7.1	27-MAR-19
SAR-R511-WT	**Soil**							
Batch R4585424								
WG3014880-4 DUP		**WG3014880-3**						
Calcium (Ca)		38.1	38.1		mg/L	0.0	30	27-MAR-19
Sodium (Na)		7.24	7.23		mg/L	0.1	30	27-MAR-19
Magnesium (Mg)		10.2	10.2		mg/L	0.0	30	27-MAR-19
WG3014880-2 IRM		**WT SAR2**						
Calcium (Ca)			105.8		%		70-130	27-MAR-19
Sodium (Na)			99.9		%		70-130	27-MAR-19
Magnesium (Mg)			104.2		%		70-130	27-MAR-19
WG3014880-5 LCS								
Calcium (Ca)			106.7		%		70-130	27-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
SAR-R511-WT	**Soil**							
Batch R4585424								
WG3014880-5 LCS								
Sodium (Na)			104.6		%		70-130	27-MAR-19
Magnesium (Mg)			101.6		%		70-130	27-MAR-19
WG3014880-1 MB								
Calcium (Ca)			<0.50		mg/L		0.5	27-MAR-19
Sodium (Na)			<0.50		mg/L		0.5	27-MAR-19
Magnesium (Mg)			<0.50		mg/L		0.5	27-MAR-19
VOC-511-HS-WT	**Soil**							
Batch R4582911								
WG3013604-4 DUP		**WG3013604-3**						
1,1,1,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
1,1,2,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
1,1,1-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
1,1,2-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
1,1-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
1,1-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
1,2-Dibromoethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
1,2-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
1,2-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
1,2-Dichloropropane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
1,3-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
1,4-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Acetone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	26-MAR-19
Benzene		<0.0068	<0.0068	RPD-NA	ug/g	N/A	40	26-MAR-19
Bromodichloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Bromoform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Bromomethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Carbon tetrachloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Chlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Chloroform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
cis-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
cis-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	26-MAR-19
Dibromochloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Dichlorodifluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4582911								
WG3013604-4 DUP		**WG3013604-3**						
Ethylbenzene		<0.018	<0.018	RPD-NA	ug/g	N/A	40	26-MAR-19
n-Hexane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Methylene Chloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
MTBE		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
m+p-Xylenes		<0.030	<0.030	RPD-NA	ug/g	N/A	40	26-MAR-19
Methyl Ethyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	26-MAR-19
Methyl Isobutyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	26-MAR-19
o-Xylene		<0.020	<0.020	RPD-NA	ug/g	N/A	40	26-MAR-19
Styrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Tetrachloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Toluene		<0.080	<0.080	RPD-NA	ug/g	N/A	40	26-MAR-19
trans-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
trans-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	26-MAR-19
Trichloroethylene		<0.010	<0.010	RPD-NA	ug/g	N/A	40	26-MAR-19
Trichlorofluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Vinyl chloride		<0.020	<0.020	RPD-NA	ug/g	N/A	40	26-MAR-19
WG3013604-2 LCS								
1,1,1,2-Tetrachloroethane			111.8		%		60-130	26-MAR-19
1,1,2,2-Tetrachloroethane			86.3		%		60-130	26-MAR-19
1,1,1-Trichloroethane			117.5		%		60-130	26-MAR-19
1,1,2-Trichloroethane			99.4		%		60-130	26-MAR-19
1,1-Dichloroethane			101.9		%		60-130	26-MAR-19
1,1-Dichloroethylene			109.8		%		60-130	26-MAR-19
1,2-Dibromoethane			88.8		%		70-130	26-MAR-19
1,2-Dichlorobenzene			111.2		%		70-130	26-MAR-19
1,2-Dichloroethane			91.7		%		60-130	26-MAR-19
1,2-Dichloropropane			99.1		%		70-130	26-MAR-19
1,3-Dichlorobenzene			120.1		%		70-130	26-MAR-19
1,4-Dichlorobenzene			117.1		%		70-130	26-MAR-19
Acetone			75.1		%		60-140	26-MAR-19
Benzene			110.6		%		70-130	26-MAR-19
Bromodichloromethane			99.2		%		50-140	26-MAR-19
Bromoform			89.6		%		70-130	26-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4582911								
WG3013604-2 LCS								
Bromomethane			113.5		%		50-140	26-MAR-19
Carbon tetrachloride			121.7		%		70-130	26-MAR-19
Chlorobenzene			111.5		%		70-130	26-MAR-19
Chloroform			108.3		%		70-130	26-MAR-19
cis-1,2-Dichloroethylene			106.0		%		70-130	26-MAR-19
cis-1,3-Dichloropropene			101.3		%		70-130	26-MAR-19
Dibromochloromethane			100.3		%		60-130	26-MAR-19
Dichlorodifluoromethane			66.9		%		50-140	26-MAR-19
Ethylbenzene			114.7		%		70-130	26-MAR-19
n-Hexane			108.1		%		70-130	26-MAR-19
Methylene Chloride			100.8		%		70-130	26-MAR-19
MTBE			110.6		%		70-130	26-MAR-19
m+p-Xylenes			114.3		%		70-130	26-MAR-19
Methyl Ethyl Ketone			72.5		%		60-140	26-MAR-19
Methyl Isobutyl Ketone			64.1		%		60-140	26-MAR-19
o-Xylene			109.8		%		70-130	26-MAR-19
Styrene			106.0		%		70-130	26-MAR-19
Tetrachloroethylene			130.6	MES	%		60-130	26-MAR-19
Toluene			112.2		%		70-130	26-MAR-19
trans-1,2-Dichloroethylene			110.9		%		60-130	26-MAR-19
trans-1,3-Dichloropropene			97.2		%		70-130	26-MAR-19
Trichloroethylene			122.4		%		60-130	26-MAR-19
Trichlorofluoromethane			121.8		%		50-140	26-MAR-19
Vinyl chloride			79.0		%		60-140	26-MAR-19
WG3013604-1 MB								
1,1,1,2-Tetrachloroethane			<0.050		ug/g		0.05	26-MAR-19
1,1,2,2-Tetrachloroethane			<0.050		ug/g		0.05	26-MAR-19
1,1,1-Trichloroethane			<0.050		ug/g		0.05	26-MAR-19
1,1,2-Trichloroethane			<0.050		ug/g		0.05	26-MAR-19
1,1-Dichloroethane			<0.050		ug/g		0.05	26-MAR-19
1,1-Dichloroethylene			<0.050		ug/g		0.05	26-MAR-19
1,2-Dibromoethane			<0.050		ug/g		0.05	26-MAR-19
1,2-Dichlorobenzene			<0.050		ug/g		0.05	26-MAR-19
1,2-Dichloroethane			<0.050		ug/g		0.05	26-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4582911								
WG3013604-1 MB								
1,2-Dichloropropane			<0.050		ug/g		0.05	26-MAR-19
1,3-Dichlorobenzene			<0.050		ug/g		0.05	26-MAR-19
1,4-Dichlorobenzene			<0.050		ug/g		0.05	26-MAR-19
Acetone			<0.50		ug/g		0.5	26-MAR-19
Benzene			<0.0068		ug/g		0.0068	26-MAR-19
Bromodichloromethane			<0.050		ug/g		0.05	26-MAR-19
Bromoform			<0.050		ug/g		0.05	26-MAR-19
Bromomethane			<0.050		ug/g		0.05	26-MAR-19
Carbon tetrachloride			<0.050		ug/g		0.05	26-MAR-19
Chlorobenzene			<0.050		ug/g		0.05	26-MAR-19
Chloroform			<0.050		ug/g		0.05	26-MAR-19
cis-1,2-Dichloroethylene			<0.050		ug/g		0.05	26-MAR-19
cis-1,3-Dichloropropene			<0.030		ug/g		0.03	26-MAR-19
Dibromochloromethane			<0.050		ug/g		0.05	26-MAR-19
Dichlorodifluoromethane			<0.050		ug/g		0.05	26-MAR-19
Ethylbenzene			<0.018		ug/g		0.018	26-MAR-19
n-Hexane			<0.050		ug/g		0.05	26-MAR-19
Methylene Chloride			<0.050		ug/g		0.05	26-MAR-19
MTBE			<0.050		ug/g		0.05	26-MAR-19
m+p-Xylenes			<0.030		ug/g		0.03	26-MAR-19
Methyl Ethyl Ketone			<0.50		ug/g		0.5	26-MAR-19
Methyl Isobutyl Ketone			<0.50		ug/g		0.5	26-MAR-19
o-Xylene			<0.020		ug/g		0.02	26-MAR-19
Styrene			<0.050		ug/g		0.05	26-MAR-19
Tetrachloroethylene			<0.050		ug/g		0.05	26-MAR-19
Toluene			<0.080		ug/g		0.08	26-MAR-19
trans-1,2-Dichloroethylene			<0.050		ug/g		0.05	26-MAR-19
trans-1,3-Dichloropropene			<0.030		ug/g		0.03	26-MAR-19
Trichloroethylene			<0.010		ug/g		0.01	26-MAR-19
Trichlorofluoromethane			<0.050		ug/g		0.05	26-MAR-19
Vinyl chloride			<0.020		ug/g		0.02	26-MAR-19
Surrogate: 1,4-Difluorobenzene			113.0		%		50-140	26-MAR-19
Surrogate: 4-Bromofluorobenzene			100.3		%		50-140	26-MAR-19
WG3013604-5 MS		**L2247641-3**						

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4582911								
WG3013604-5 MS		**L2247641-3**						
1,1,1,2-Tetrachloroethane			109.0		%		50-140	26-MAR-19
1,1,2,2-Tetrachloroethane			87.7		%		50-140	26-MAR-19
1,1,1-Trichloroethane			112.9		%		50-140	26-MAR-19
1,1,2-Trichloroethane			99.6		%		50-140	26-MAR-19
1,1-Dichloroethane			92.9		%		50-140	26-MAR-19
1,1-Dichloroethylene			104.8		%		50-140	26-MAR-19
1,2-Dibromoethane			89.4		%		50-140	26-MAR-19
1,2-Dichlorobenzene			108.4		%		50-140	26-MAR-19
1,2-Dichloroethane			91.3		%		50-140	26-MAR-19
1,2-Dichloropropane			97.3		%		50-140	26-MAR-19
1,3-Dichlorobenzene			114.9		%		50-140	26-MAR-19
1,4-Dichlorobenzene			115.5		%		50-140	26-MAR-19
Acetone			79.8		%		50-140	26-MAR-19
Benzene			107.5		%		50-140	26-MAR-19
Bromodichloromethane			98.1		%		50-140	26-MAR-19
Bromoform			89.2		%		50-140	26-MAR-19
Bromomethane			107.3		%		50-140	26-MAR-19
Carbon tetrachloride			117.0		%		50-140	26-MAR-19
Chlorobenzene			107.7		%		50-140	26-MAR-19
Chloroform			106.3		%		50-140	26-MAR-19
cis-1,2-Dichloroethylene			103.2		%		50-140	26-MAR-19
cis-1,3-Dichloropropene			91.5		%		50-140	26-MAR-19
Dibromochloromethane			99.3		%		50-140	26-MAR-19
Dichlorodifluoromethane			68.7		%		50-140	26-MAR-19
Ethylbenzene			108.8		%		50-140	26-MAR-19
n-Hexane			103.8		%		50-140	26-MAR-19
Methylene Chloride			99.4		%		50-140	26-MAR-19
MTBE			109.2		%		50-140	26-MAR-19
m+p-Xylenes			107.9		%		50-140	26-MAR-19
Methyl Ethyl Ketone			70.2		%		50-140	26-MAR-19
Methyl Isobutyl Ketone			64.2		%		50-140	26-MAR-19
o-Xylene			104.4		%		50-140	26-MAR-19
Styrene			100.6		%		50-140	26-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4582911								
WG3013604-5 MS		**L2247641-3**						
Tetrachloroethylene			122.0		%		50-140	26-MAR-19
Toluene			108.0		%		50-140	26-MAR-19
trans-1,2-Dichloroethylene			104.3		%		50-140	26-MAR-19
trans-1,3-Dichloropropene			84.8		%		50-140	26-MAR-19
Trichloroethylene			117.2		%		50-140	26-MAR-19
Trichlorofluoromethane			118.4		%		50-140	26-MAR-19
Vinyl chloride			76.0		%		50-140	26-MAR-19

Quality Control Report

Workorder: L2247715 Report Date: 28-MAR-19

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
J	Duplicate results and limits are expressed in terms of absolute difference.
MBS	Surrogate recovery in Method Blank was outside ALS DQO. Moderately low-biased results in the MB do not significantly affect its purpose.
MES	Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.
RRQC	Refer to report remarks for information regarding this QC result.

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

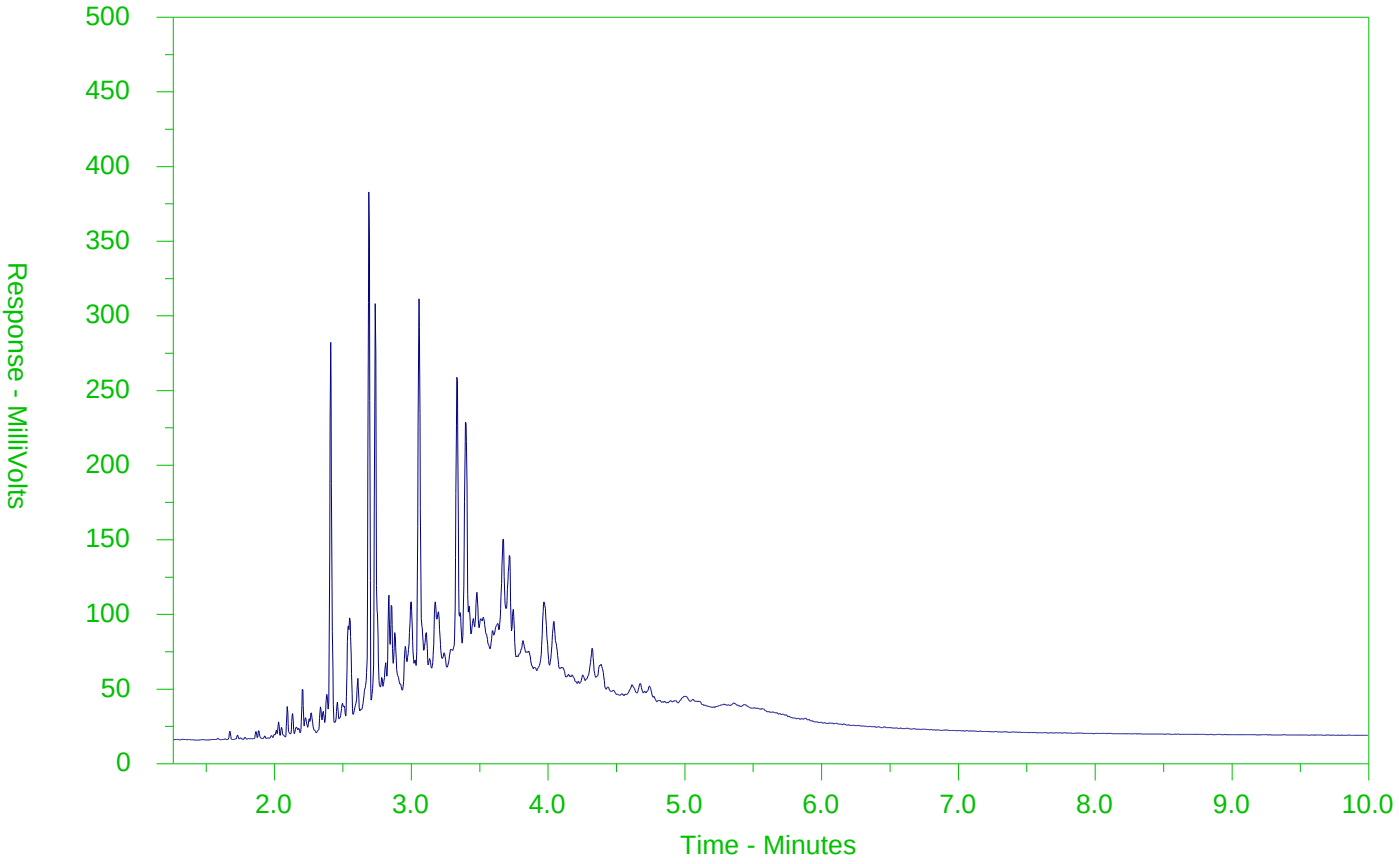
ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2247715-1
Client Sample ID: S-11102463-032019-EN-BH18-468-4"-2'



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

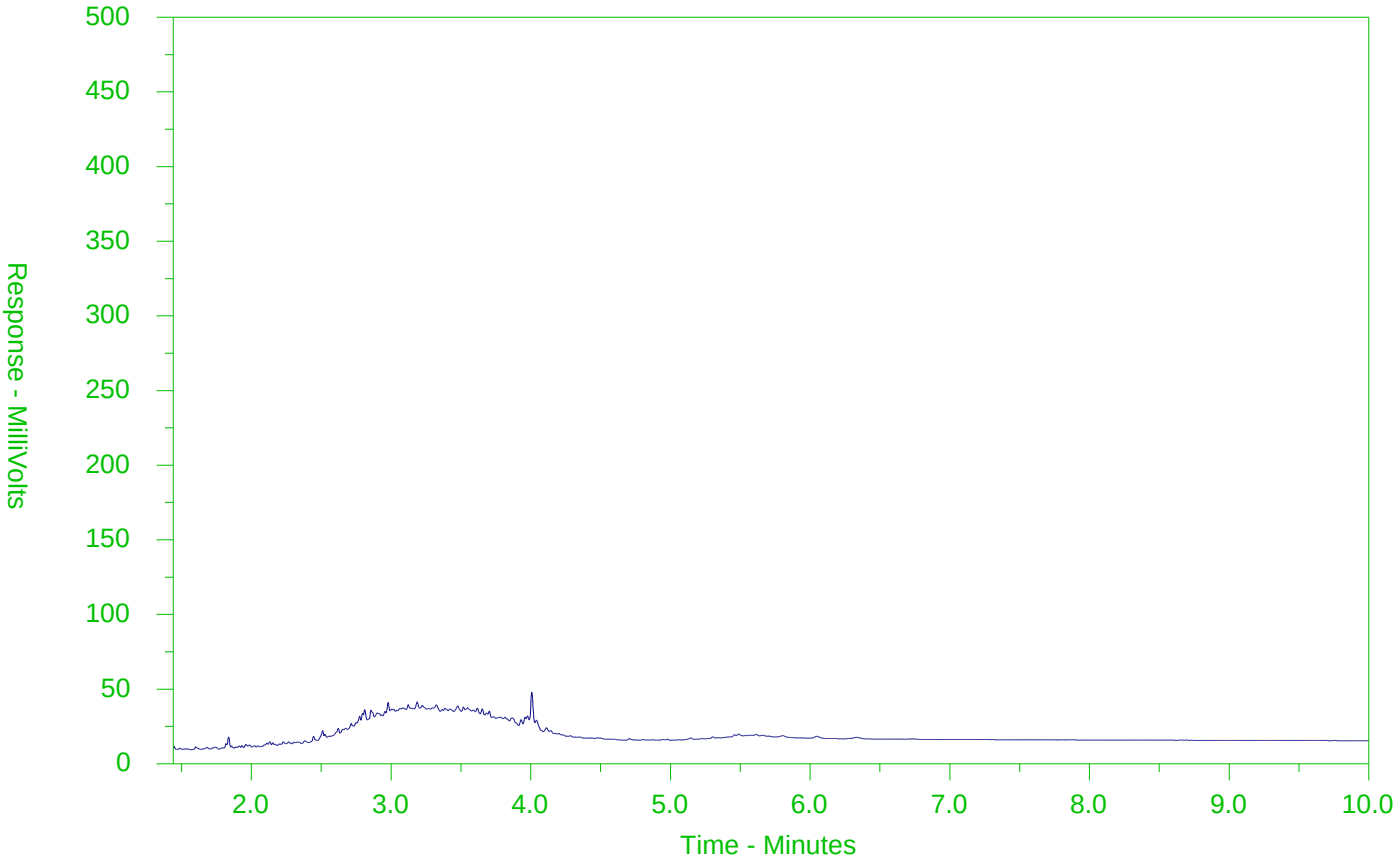
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2247715-2
Client Sample ID: S-11102463-032019-EN-BH18-468-12.5-14.5'



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

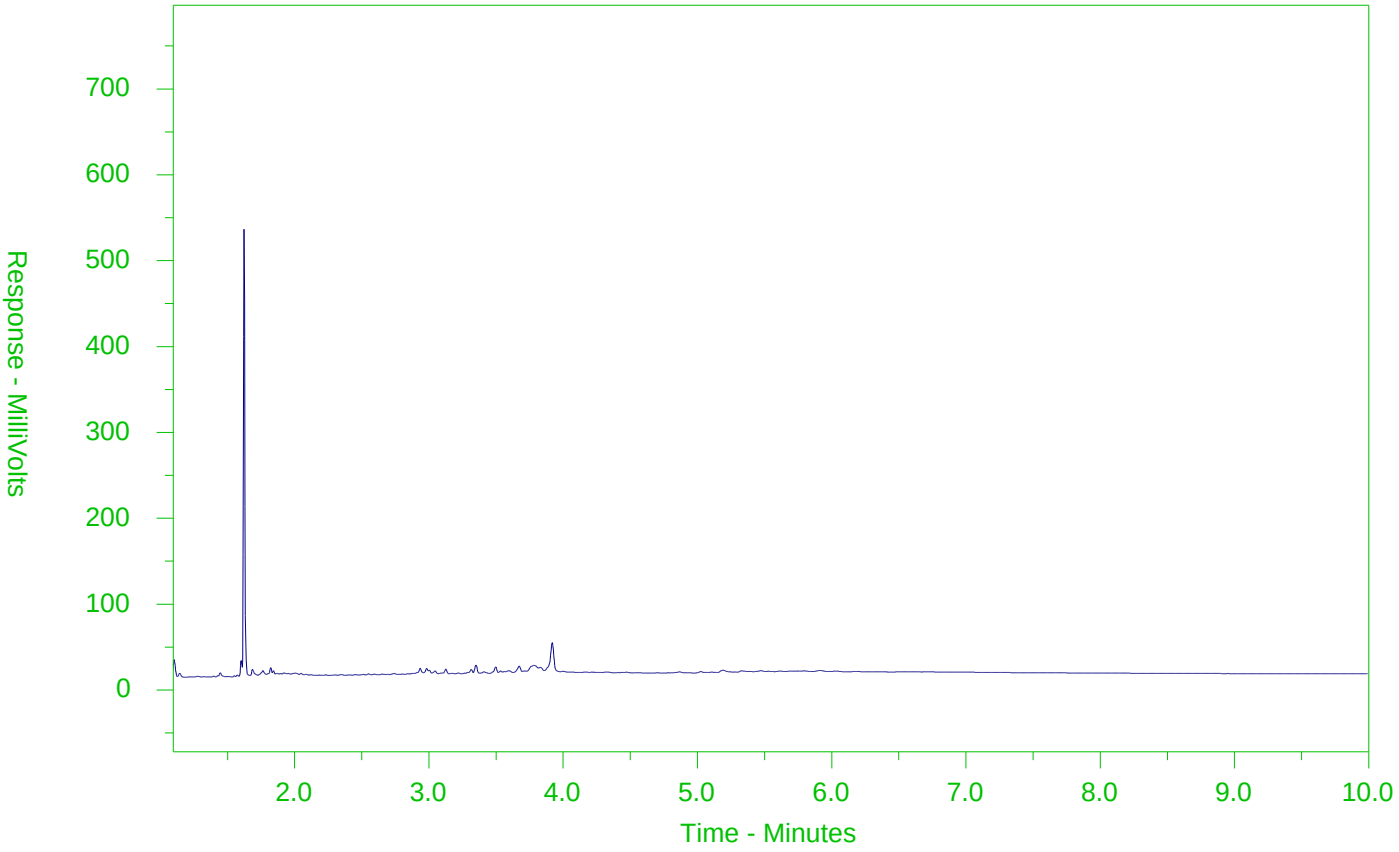
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2247715-3
Client Sample ID: S-11102463-032019-EN-BH18-468-25-27



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

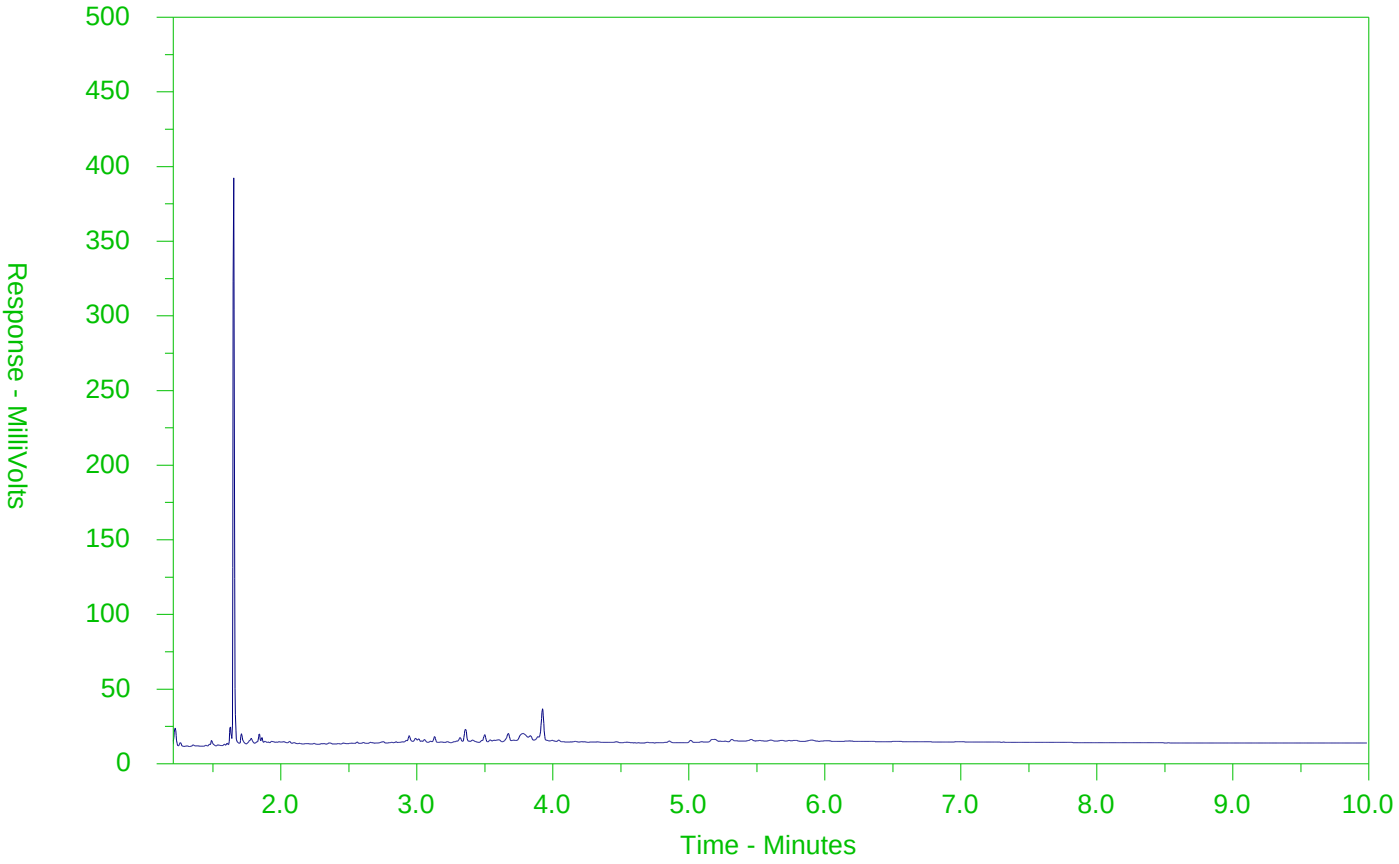
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2247715-4
Client Sample ID: S-11102463-032019-EN-BH18-468-BH100



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental

www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2247715-COFC

COC Number: 17 -

Page | of |

Report To	Contact and company name below will appear on the final report
Company:	GHD LIMITED - ACCT #13791
Contact:	Jennifer Balkwill
Phone:	519-884-0510
	Company address below will appear on the final report
Street:	455 Phillip St
City/Province:	Waterloo,Ontario
Postal Code:	N2L 3X2
Invoice To	Same as Report To ☑ YES ☐ NO
	Copy of Invoice with Report ☐ YES ☑ NO
Company:	GHD Limited
Contact:	Jennifer Balkwill

Report Format / Distribution

Select Report Format: ☑ PDF ☑ EXCEL ☑ EDD (DIGITAL)

Quality Control (QC) Report with Report ☑ YES ☐ NO

☐ Compare Results to Criteria on Report - provide details below if box checked

Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax: jennifer.balkwill@ghd.com

Email 2: See PO

Email 3:

Invoice Distribution

Select Invoice Distribution: ☐ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax: jennifer.balkwill@ghd.com

Email 2:

Project Information

ALS Account # / Quote #:	13791, Q51987
Job #:	11102463-053
PO / AFE:	73509898-7
LSD:	Waterfront Toronto

Oil and Gas Required Fields (client use)

AFE/Cost Center:	PO#
Major/Minor Code:	Routing Code:
Requisitioner:	
Location:	

ALS Lab Work Order # (lab use only): L2247715

ALS Contact: Rick H

Sampler: E.NUSSLI

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)

Regular [R] ☑ Standard TAT if received by 3 pm - business days - no surcharges apply

PRIORITY (Business Days): 4 day [P4-20%] ☐ | 3 day [P3-25%] ☐ | 2 day [P2-50%] ☐

EMERGENCY: 1 Business day [E - 100%] ☐ | Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)] ☐

Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm

For tests that can not be performed according to the service level selected, you will be contacted.

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	BTEX,F1-F4-511-P-WT	TOC-WT (confirmed Triplicate 511 not neces	BTEX,F1 (Trip Blank)	OCP	CP	PCBs	METALS AND INORGANICS	PAHs	PHC F1	PHC F2-F4	VOCs	SAMPLES ON HOLD	SUSPECTED HAZARD (see Special Instructions)
	S-11102463-032019-EN-BH08-468-4"-2'	20-MAR-19	12:00	Soil	5				X	X	X	X	X	X	X	X		
	S-11102463-12.5-14.5'	20-MAR-19	12:30	Soil	4				X	X	X	X	X	X	X	X		
	S-11102463-25-27'	20-MAR-19	13:00	Soil	4							X	X	X	X	X		
	S-11102463-BH100	20-MAR-19	13:00	Soil	4							X	X	X	X	X		
	S-11102463-TRIP-BLANK	20-MAR-19	09:00	Soil	2									X		X		
	S-11102463-			Soil														
	S-11102463-			Soil														
	S-11102463-			Soil														
	S-11102463-			Soil														
	S-11102463-			Soil														
	S-11102463-			Soil														
	S-11102463-			Soil														

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? ☐ YES ☑ NO

Are samples for human consumption/ use? ☐ YES ☑ NO

Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)

LOW SAMPLE VOLUMES.

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ | SIF Observations Yes ☐ No ☐

Ice Packs ☐ Ice Cubes ☒ | Custody seal intact Yes ☐ No ☐

Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C	FINAL COOLER TEMPERATURES °C
	4.0 °C

SHIPMENT RELEASE (client use)

Released by: Emma Nussli | Date: 20-MAR-2019 | Time: 16:00

INITIAL SHIPMENT RECEPTION (lab use only)

Received by: | Date: | Time:

FINAL SHIPMENT RECEPTION (lab use only)

Received by: | Date: 21/Mar/2019 | Time: 18:25

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

JUNE 2016 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

GHD Limited (Waterloo)
ATTN: JENNIFER BALKWILL
455 PHILLIP ST
WATERLOO ON N2L 3X2

Date Received: 21-MAR-19
Report Date: 01-APR-19 09:42 (MT)
Version: FINAL REV. 2

Client Phone: 519-884-0510

Certificate of Analysis

Lab Work Order #: L2247725

Project P.O. #: 73509898-7
Job Reference: 11102463-53
C of C Numbers:
Legal Site Desc: WATERFRONT TORONTO

Comments:

1-APR-2019 Amended duplicate reporting of SAR.

Rick Hawthorne
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2247725-1 S-11102463-032019-JC-BH18-444-1.0-2.0								
Sampled By: J.CUMMINGS/E.NUSSLI on 20-MA								
Matrix: SOIL								
Physical Tests								
Conductivity	0.207		0.0040	mS/cm	27-MAR-19	0.7	0.7	0.7
% Moisture	11.3		0.10	%	25-MAR-19			
pH	7.54		0.10	pH units	26-MAR-19			
Cyanides								
Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	26-MAR-19	0.051	0.051	0.051
Saturated Paste Extractables								
SAR	0.64		0.10	SAR	27-MAR-19	5	5	5
Calcium (Ca)	26.0		0.50	mg/L	27-MAR-19			
Magnesium (Mg)	1.20		0.50	mg/L	27-MAR-19			
Sodium (Na)	12.3		0.50	mg/L	27-MAR-19			
Metals								
Antimony (Sb)	3.0		1.0	ug/g	26-MAR-19	7.5	7.5	*1.3
Arsenic (As)	4.3		1.0	ug/g	26-MAR-19	18	18	18
Barium (Ba)	98.9		1.0	ug/g	26-MAR-19	390	390	220
Beryllium (Be)	<0.50		0.50	ug/g	26-MAR-19	4	5	2.5
Boron (B)	5.9		5.0	ug/g	26-MAR-19	120	120	36
Boron (B), Hot Water Ext.	0.40		0.10	ug/g	26-MAR-19	1.5	1.5	1.5
Cadmium (Cd)	1.59		0.50	ug/g	26-MAR-19	*1.2	*1.2	*1.2
Chromium (Cr)	31.0		1.0	ug/g	26-MAR-19	160	160	70
Cobalt (Co)	6.1		1.0	ug/g	26-MAR-19	22	22	22
Copper (Cu)	61.3		1.0	ug/g	26-MAR-19	140	180	92
Lead (Pb)	190		1.0	ug/g	26-MAR-19	*120	*120	*120
Mercury (Hg)	0.302		0.0050	ug/g	26-MAR-19	*0.27	1.8	*0.27
Molybdenum (Mo)	1.3		1.0	ug/g	26-MAR-19	6.9	6.9	2
Nickel (Ni)	17.4		1.0	ug/g	26-MAR-19	100	130	82
Selenium (Se)	<1.0		1.0	ug/g	26-MAR-19	2.4	2.4	1.5
Silver (Ag)	0.63		0.20	ug/g	26-MAR-19	20	25	*0.5
Thallium (Tl)	<0.50		0.50	ug/g	26-MAR-19	1	1	1
Uranium (U)	<1.0		1.0	ug/g	26-MAR-19	23	23	2.5
Vanadium (V)	23.0		1.0	ug/g	26-MAR-19	86	86	86
Zinc (Zn)	151		5.0	ug/g	26-MAR-19	340	340	290
Speciated Metals								
Chromium, Hexavalent	<0.20		0.20	ug/g	26-MAR-19	8	10	0.66
Volatile Organic Compounds								
Acetone	<0.50		0.50	ug/g	25-MAR-19	16	28	0.5
Benzene	<0.0068		0.0068	ug/g	25-MAR-19	0.21	0.17	0.02
Bromodichloromethane	<0.050		0.050	ug/g	25-MAR-19	13	13	0.05
Bromoform	<0.050		0.050	ug/g	25-MAR-19	0.27	0.26	0.05
Bromomethane	<0.050		0.050	ug/g	25-MAR-19	0.05	0.05	0.05
Carbon tetrachloride	<0.050		0.050	ug/g	25-MAR-19	0.05	0.12	0.05
Chlorobenzene	<0.050		0.050	ug/g	25-MAR-19	2.4	2.7	0.05
Dibromochloromethane	<0.050		0.050	ug/g	25-MAR-19	9.4	9.4	0.05
Chloroform	<0.050		0.050	ug/g	25-MAR-19	0.05	0.18	0.05
1,2-Dibromoethane	<0.050		0.050	ug/g	25-MAR-19	0.05	0.05	0.05
1,2-Dichlorobenzene	<0.050		0.050	ug/g	25-MAR-19	3.4	4.3	0.05

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2247725-1 S-11102463-032019-JC-BH18-444-1.0-2.0								
Sampled By: J.CUMMINGS/E.NUSSLI on 20-MA								
Matrix: SOIL								
Volatile Organic Compounds								
1,3-Dichlorobenzene	<0.050		0.050	ug/g	25-MAR-19	4.8	6	0.05
1,4-Dichlorobenzene	<0.050		0.050	ug/g	25-MAR-19	0.083	0.097	0.05
Dichlorodifluoromethane	<0.050		0.050	ug/g	25-MAR-19	16	25	0.05
1,1-Dichloroethane	<0.050		0.050	ug/g	25-MAR-19	3.5	11	0.05
1,2-Dichloroethane	<0.050		0.050	ug/g	25-MAR-19	0.05	0.05	0.05
1,1-Dichloroethylene	<0.050		0.050	ug/g	25-MAR-19	0.05	0.05	0.05
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	25-MAR-19	3.4	30	0.05
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	25-MAR-19	0.084	0.75	0.05
Methylene Chloride	<0.050		0.050	ug/g	25-MAR-19	0.1	0.96	0.05
1,2-Dichloropropane	<0.050		0.050	ug/g	25-MAR-19	0.05	0.085	0.05
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	25-MAR-19			
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	25-MAR-19			
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g	25-MAR-19	0.05	0.083	0.05
Ethylbenzene	<0.018		0.018	ug/g	25-MAR-19	2	15	0.05
n-Hexane	<0.050		0.050	ug/g	25-MAR-19	2.8	34	0.05
Methyl Ethyl Ketone	<0.50		0.50	ug/g	25-MAR-19	16	44	0.5
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	25-MAR-19	1.7	4.3	0.5
MTBE	<0.050		0.050	ug/g	25-MAR-19	0.75	1.4	0.05
Styrene	<0.050		0.050	ug/g	25-MAR-19	0.7	2.2	0.05
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	25-MAR-19	0.058	0.05	0.05
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	25-MAR-19	0.05	0.05	0.05
Tetrachloroethylene	<0.050		0.050	ug/g	25-MAR-19	0.28	2.3	0.05
Toluene	0.103		0.080	ug/g	25-MAR-19	2.3	6	0.2
1,1,1-Trichloroethane	<0.050		0.050	ug/g	25-MAR-19	0.38	3.4	0.05
1,1,2-Trichloroethane	<0.050		0.050	ug/g	25-MAR-19	0.05	0.05	0.05
Trichloroethylene	<0.010		0.010	ug/g	25-MAR-19	0.061	0.52	0.05
Trichlorofluoromethane	<0.050		0.050	ug/g	25-MAR-19	4	5.8	0.25
Vinyl chloride	<0.020		0.020	ug/g	25-MAR-19	0.02	0.022	0.02
o-Xylene	<0.020		0.020	ug/g	25-MAR-19			
m+p-Xylenes	0.031		0.030	ug/g	25-MAR-19			
Xylenes (Total)	<0.050		0.050	ug/g	25-MAR-19	3.1	25	0.05
Surrogate: 4-Bromofluorobenzene	86.6		50-140	%	25-MAR-19			
Surrogate: 1,4-Difluorobenzene	94.2		50-140	%	25-MAR-19			
Hydrocarbons								
F1 (C6-C10)	<5.0		5.0	ug/g	25-MAR-19	55	65	25
F1-BTEX	<5.0		5.0	ug/g	27-MAR-19	55	65	25
F2 (C10-C16)	<10		10	ug/g	26-MAR-19	98	150	10
F2-Naphth	<10		10	ug/g	27-MAR-19			
F3 (C16-C34)	79		50	ug/g	26-MAR-19	300	1300	240
F3-PAH	76		50	ug/g	27-MAR-19			
F4 (C34-C50)	<50		50	ug/g	26-MAR-19	2800	5600	120
Total Hydrocarbons (C6-C50)	79		72	ug/g	27-MAR-19			
Chrom. to baseline at nC50	YES			No Unit	26-MAR-19			
Surrogate: 2-Bromobenzotrifluoride	88.5		60-140	%	26-MAR-19			
Surrogate: 3,4-Dichlorotoluene	81.1		60-140	%	25-MAR-19			
Polycyclic Aromatic Hydrocarbons								

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2247725-1 S-11102463-032019-JC-BH18-444-1.0-2.0								
Sampled By: J.CUMMINGS/E.NUSSLI on 20-MA								
Matrix: SOIL								
Polycyclic Aromatic Hydrocarbons								
1+2-Methylnaphthalenes	0.218		0.042	ug/g	27-MAR-19	0.99	3.4	0.59
Semi-Volatile Organics								
Acenaphthene	0.141		0.050	ug/g	27-MAR-19	7.9	58	*0.072
Acenaphthylene	<0.050		0.050	ug/g	27-MAR-19	0.15	0.17	0.093
Anthracene	0.128		0.050	ug/g	27-MAR-19	0.67	0.74	0.22
Benzo(a)anthracene	0.293		0.050	ug/g	27-MAR-19	0.5	0.63	0.36
Benzo(a)pyrene	0.275		0.050	ug/g	27-MAR-19	0.3	0.3	0.3
Benzo(b)fluoranthene	0.288		0.050	ug/g	27-MAR-19	0.78	0.78	0.47
Benzo(ghi)perylene	0.236		0.050	ug/g	27-MAR-19	6.6	7.8	0.68
Benzo(k)fluoranthene	0.190		0.050	ug/g	27-MAR-19	0.78	0.78	0.48
2-Chlorophenol	<0.10		0.10	ug/g	27-MAR-19	1.6	2	0.1
Chrysene	0.322		0.050	ug/g	27-MAR-19	7	7.8	2.8
Dibenzo(a,h)anthracene	<0.050		0.050	ug/g	27-MAR-19	0.1	0.1	0.1
2,4-Dichlorophenol	<0.10		0.10	ug/g	27-MAR-19	1.7	2.1	0.1
Fluoranthene	0.698		0.050	ug/g	27-MAR-19	*0.69	*0.69	*0.69
Fluorene	0.151		0.050	ug/g	27-MAR-19	62	69	0.19
Indeno(1,2,3-cd)pyrene	0.242		0.050	ug/g	27-MAR-19	0.38	0.48	*0.23
1-Methylnaphthalene	0.092		0.030	ug/g	27-MAR-19	0.99	3.4	0.59
2-Methylnaphthalene	0.126		0.030	ug/g	27-MAR-19	0.99	3.4	0.59
Naphthalene	0.083		0.050	ug/g	27-MAR-19	0.6	0.75	0.09
Pentachlorophenol	<0.10		0.10	ug/g	27-MAR-19	0.1	0.1	0.1
Phenanthrene	0.650		0.050	ug/g	27-MAR-19	6.2	7.8	0.69
Pyrene	0.619		0.050	ug/g	27-MAR-19	78	78	1
2,4,5-Trichlorophenol	<0.10		0.10	ug/g	27-MAR-19	4.4	5.5	0.1
2,4,6-Trichlorophenol	<0.10		0.10	ug/g	27-MAR-19	3.8	4.2	0.1
Surrogate: 2-Fluorobiphenyl	88.5		50-140	%	27-MAR-19			
Surrogate: Phenol d5	92.9		30-130	%	27-MAR-19			
Surrogate: p-Terphenyl d14	105.9		50-140	%	27-MAR-19			
Surrogate: 2,4,6-Tribromophenol	79.9		50-140	%	27-MAR-19			
Polychlorinated Biphenyls								
Aroclor 1242	<0.010		0.010	ug/g	25-MAR-19			
Aroclor 1248	<0.010		0.010	ug/g	25-MAR-19			
Aroclor 1254	<0.0150	DLM	0.015	ug/g	25-MAR-19			
Aroclor 1260	0.051	PRAR	0.010	ug/g	25-MAR-19			
Total PCBs	0.051	DLM	0.023	ug/g	25-MAR-19	0.35	0.35	0.3
Surrogate: d14-Terphenyl	89.2		60-140	%	25-MAR-19			
Organochlorine Pesticides								
Aldrin	<0.020		0.020	ug/g	27-MAR-19	0.05	0.05	0.05
gamma-hexachlorocyclohexane	<0.050	DLM	0.050	ug/g	27-MAR-19	0.056	0.063	
a-chlordane	<0.020		0.020	ug/g	27-MAR-19			
Chlordane (Total)	<0.028		0.028	ug/g	27-MAR-19	0.05	0.05	0.05
g-chlordane	<0.020		0.020	ug/g	27-MAR-19			
op-DDD	<0.020		0.020	ug/g	27-MAR-19			
pp-DDD	<0.020		0.020	ug/g	27-MAR-19			
Total DDD	<0.028		0.028	ug/g	27-MAR-19	3.3	3.3	0.05
o,p-DDE	<0.020		0.020	ug/g	27-MAR-19			

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2247725-1 S-11102463-032019-JC-BH18-444-1.0-2.0								
Sampled By: J.CUMMINGS/E.NUSSLI on 20-MA								
Matrix: SOIL								
Organochlorine Pesticides								
pp-DDE	<0.020		0.020	ug/g	27-MAR-19			
Total DDE	<0.028		0.028	ug/g	27-MAR-19	0.26	0.33	0.05
op-DDT	<0.020		0.020	ug/g	27-MAR-19			
pp-DDT	<0.10	DLM	0.10	ug/g	27-MAR-19			
Total DDT	<0.10		0.10	ug/g	27-MAR-19	1.4	1.4	1.4
Dieldrin	<0.020		0.020	ug/g	27-MAR-19	0.05	0.05	0.05
Endosulfan I	<0.020		0.020	ug/g	27-MAR-19			
Endosulfan II	<0.020		0.020	ug/g	27-MAR-19			
Endosulfan (Total)	<0.028		0.028	ug/g	27-MAR-19	0.04	0.04	0.04
Endrin	<0.020		0.020	ug/g	27-MAR-19	0.04	0.04	0.04
Heptachlor	<0.020		0.020	ug/g	27-MAR-19	0.15	0.15	0.05
Heptachlor Epoxide	<0.020		0.020	ug/g	27-MAR-19	0.05	0.05	0.05
Hexachlorobenzene	<0.050	DLM	0.050	ug/g	27-MAR-19	0.52	0.52	**0.02
Hexachlorobutadiene	<0.050	DLM	0.050	ug/g	27-MAR-19	**0.012	**0.014	**0.01
Hexachloroethane	<0.050	DLM	0.050	ug/g	27-MAR-19	0.089	0.07	**0.01
Methoxychlor	<0.10	DLM	0.10	ug/g	27-MAR-19	0.13	0.13	**0.05
Surrogate: 2-Fluorobiphenyl	69.9		50-140	%	27-MAR-19			
Surrogate: d14-Terphenyl	86.4		50-140	%	27-MAR-19			
L2247725-2 S-11102463-032119-EN-BH18-444-10-12								
Sampled By: J.CUMMINGS/E.NUSSLI on 21-MA								
Matrix: SOIL								
Physical Tests								
Conductivity	2.00		0.0040	mS/cm	27-MAR-19	*0.7	*0.7	*0.7
% Moisture	42.6		0.10	%	26-MAR-19			
pH	7.13		0.10	pH units	26-MAR-19			
Cyanides								
Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	26-MAR-19	0.051	0.051	0.051
Saturated Paste Extractables								
SAR	1.11		0.10	SAR	27-MAR-19	5	5	5
Calcium (Ca)	347		0.50	mg/L	27-MAR-19			
Magnesium (Mg)	23.7		0.50	mg/L	27-MAR-19			
Sodium (Na)	78.9		0.50	mg/L	27-MAR-19			
Metals								
Antimony (Sb)	4.3		1.0	ug/g	26-MAR-19	7.5	7.5	*1.3
Arsenic (As)	27.6		1.0	ug/g	26-MAR-19	*18	*18	*18
Barium (Ba)	242		1.0	ug/g	26-MAR-19	390	390	*220
Beryllium (Be)	1.00		0.50	ug/g	26-MAR-19	4	5	2.5
Boron (B)	27.3		5.0	ug/g	26-MAR-19	120	120	36
Boron (B), Hot Water Ext.	2.11		0.10	ug/g	26-MAR-19	*1.5	*1.5	*1.5
Cadmium (Cd)	6.44		0.50	ug/g	26-MAR-19	*1.2	*1.2	*1.2
Chromium (Cr)	37.6		1.0	ug/g	26-MAR-19	160	160	70
Cobalt (Co)	16.3		1.0	ug/g	26-MAR-19	22	22	22
Copper (Cu)	285		1.0	ug/g	26-MAR-19	*140	*180	*92
Lead (Pb)	783		1.0	ug/g	26-MAR-19	*120	*120	*120
Mercury (Hg)	0.417		0.0050	ug/g	26-MAR-19	*0.27	1.8	*0.27

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2247725-2 S-11102463-032119-EN-BH18-444-10-12								
Sampled By: J.CUMMINGS/E.NUSSLI on 21-MA								
Matrix: SOIL								
Metals								
Molybdenum (Mo)	3.8		1.0	ug/g	26-MAR-19	6.9	6.9	*2
Nickel (Ni)	43.5		1.0	ug/g	26-MAR-19	100	130	82
Selenium (Se)	1.7		1.0	ug/g	26-MAR-19	2.4	2.4	*1.5
Silver (Ag)	1.02		0.20	ug/g	26-MAR-19	20	25	*0.5
Thallium (Tl)	<0.50		0.50	ug/g	26-MAR-19	1	1	1
Uranium (U)	<1.0		1.0	ug/g	26-MAR-19	23	23	2.5
Vanadium (V)	35.7		1.0	ug/g	26-MAR-19	86	86	86
Zinc (Zn)	2030	DLHC	40	ug/g	26-MAR-19	*340	*340	*290
Speciated Metals								
Chromium, Hexavalent	<0.20		0.20	ug/g	26-MAR-19	8	10	0.66
Volatile Organic Compounds								
Acetone	<0.50		0.50	ug/g	25-MAR-19	16	28	0.5
Benzene	0.0633		0.0068	ug/g	25-MAR-19	0.21	0.17	*0.02
Bromodichloromethane	<0.050		0.050	ug/g	25-MAR-19	13	13	0.05
Bromoform	<0.050		0.050	ug/g	25-MAR-19	0.27	0.26	0.05
Bromomethane	<0.050		0.050	ug/g	25-MAR-19	0.05	0.05	0.05
Carbon tetrachloride	<0.050		0.050	ug/g	25-MAR-19	0.05	0.12	0.05
Chlorobenzene	<0.050		0.050	ug/g	25-MAR-19	2.4	2.7	0.05
Dibromochloromethane	<0.050		0.050	ug/g	25-MAR-19	9.4	9.4	0.05
Chloroform	<0.050		0.050	ug/g	25-MAR-19	0.05	0.18	0.05
1,2-Dibromoethane	<0.050		0.050	ug/g	25-MAR-19	0.05	0.05	0.05
1,2-Dichlorobenzene	<0.80	DLI	0.80	ug/g	26-MAR-19	3.4	4.3	**0.05
1,3-Dichlorobenzene	<0.80	DLI	0.80	ug/g	26-MAR-19	4.8	6	**0.05
1,4-Dichlorobenzene	<0.80	DLI	0.80	ug/g	26-MAR-19	**0.083	**0.097	**0.05
Dichlorodifluoromethane	<0.050		0.050	ug/g	25-MAR-19	16	25	0.05
1,1-Dichloroethane	<0.050		0.050	ug/g	25-MAR-19	3.5	11	0.05
1,2-Dichloroethane	<0.050		0.050	ug/g	25-MAR-19	0.05	0.05	0.05
1,1-Dichloroethylene	<0.050		0.050	ug/g	25-MAR-19	0.05	0.05	0.05
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	25-MAR-19	3.4	30	0.05
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	25-MAR-19	0.084	0.75	0.05
Methylene Chloride	<0.050		0.050	ug/g	25-MAR-19	0.1	0.96	0.05
1,2-Dichloropropane	<0.050		0.050	ug/g	25-MAR-19	0.05	0.085	0.05
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	25-MAR-19			
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	25-MAR-19			
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g	28-MAR-19	0.05	0.083	0.05
Ethylbenzene	0.022		0.018	ug/g	25-MAR-19	2	15	0.05
n-Hexane	0.058		0.050	ug/g	25-MAR-19	2.8	34	*0.05
Methyl Ethyl Ketone	<0.50		0.50	ug/g	25-MAR-19	16	44	0.5
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	25-MAR-19	1.7	4.3	0.5
MTBE	<0.050		0.050	ug/g	25-MAR-19	0.75	1.4	0.05
Styrene	<0.050		0.050	ug/g	25-MAR-19	0.7	2.2	0.05
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	25-MAR-19	0.058	0.05	0.05
1,1,2,2-Tetrachloroethane	<0.26	DLVH	0.26	ug/g	25-MAR-19	**0.05	**0.05	**0.05
Tetrachloroethylene	<0.050		0.050	ug/g	25-MAR-19	0.28	2.3	0.05
Toluene	0.098		0.080	ug/g	25-MAR-19	2.3	6	0.2

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2247725-2 S-11102463-032119-EN-BH18-444-10-12								
Sampled By: J.CUMMINGS/E.NUSSLI on 21-MA								
Matrix: SOIL								
Volatile Organic Compounds								
1,1,1-Trichloroethane	<0.050		0.050	ug/g	25-MAR-19	0.38	3.4	0.05
1,1,2-Trichloroethane	<0.050		0.050	ug/g	25-MAR-19	0.05	0.05	0.05
Trichloroethylene	<0.010		0.010	ug/g	25-MAR-19	0.061	0.52	0.05
Trichlorofluoromethane	<0.050		0.050	ug/g	25-MAR-19	4	5.8	0.25
Vinyl chloride	<0.020		0.020	ug/g	25-MAR-19	0.02	0.022	0.02
o-Xylene	0.034		0.020	ug/g	25-MAR-19			
m+p-Xylenes	0.090		0.030	ug/g	25-MAR-19			
Xylenes (Total)	0.124		0.050	ug/g	28-MAR-19	3.1	25	*0.05
Surrogate: 4-Bromofluorobenzene	102.3		50-140	%	25-MAR-19			
Surrogate: 1,4-Difluorobenzene	108.0		50-140	%	25-MAR-19			
Hydrocarbons								
F1 (C6-C10)	45.1		5.0	ug/g	25-MAR-19	55	65	*25
F1-BTEX	44.8		5.0	ug/g	28-MAR-19	55	65	*25
F2 (C10-C16)	3150		10	ug/g	26-MAR-19	*98	*150	*10
F2-Naphth	3150		10	ug/g	28-MAR-19			
F3 (C16-C34)	1520		50	ug/g	26-MAR-19	*300	*1300	*240
F3-PAH	1520		50	ug/g	28-MAR-19			
F4 (C34-C50)	167		50	ug/g	26-MAR-19	2800	5600	*120
Total Hydrocarbons (C6-C50)	4890		72	ug/g	28-MAR-19			
Chrom. to baseline at nC50	YES			No Unit	26-MAR-19			
Surrogate: 2-Bromobenzotrifluoride	93.2		60-140	%	26-MAR-19			
Surrogate: 3,4-Dichlorotoluene	137.4		60-140	%	25-MAR-19			
Polycyclic Aromatic Hydrocarbons								
1+2-Methylnaphthalenes	0.101		0.085	ug/g	27-MAR-19	0.99	3.4	0.59
Semi-Volatile Organics								
Acenaphthene	<0.10	DLM	0.10	ug/g	27-MAR-19	7.9	58	**0.072
Acenaphthylene	<0.10	DLM	0.10	ug/g	27-MAR-19	0.15	0.17	**0.093
Anthracene	<0.10	DLM	0.10	ug/g	27-MAR-19	0.67	0.74	0.22
Benzo(a)anthracene	<0.10	DLM	0.10	ug/g	27-MAR-19	0.5	0.63	0.36
Benzo(a)pyrene	<0.10	DLM	0.10	ug/g	27-MAR-19	0.3	0.3	0.3
Benzo(b)fluoranthene	<0.10	DLM	0.10	ug/g	27-MAR-19	0.78	0.78	0.47
Benzo(ghi)perylene	<0.10	DLM	0.10	ug/g	27-MAR-19	6.6	7.8	0.68
Benzo(k)fluoranthene	<0.10	DLM	0.10	ug/g	27-MAR-19	0.78	0.78	0.48
2-Chlorophenol	<0.20	DLM	0.20	ug/g	27-MAR-19	1.6	2	**0.1
Chrysene	<0.10	DLM	0.10	ug/g	27-MAR-19	7	7.8	2.8
Dibenzo(a,h)anthracene	<0.10	DLM	0.10	ug/g	27-MAR-19	0.1	0.1	0.1
2,4-Dichlorophenol	<0.20	DLM	0.20	ug/g	27-MAR-19	1.7	2.1	**0.1
Fluoranthene	0.19	DLM	0.10	ug/g	27-MAR-19	0.69	0.69	0.69
Fluorene	<0.10	DLM	0.10	ug/g	27-MAR-19	62	69	0.19
Indeno(1,2,3-cd)pyrene	<0.10	DLM	0.10	ug/g	27-MAR-19	0.38	0.48	0.23
1-Methylnaphthalene	0.101	DLM	0.060	ug/g	27-MAR-19	0.99	3.4	0.59
2-Methylnaphthalene	<0.060	DLM	0.060	ug/g	27-MAR-19	0.99	3.4	0.59
Naphthalene	<0.10	DLM	0.10	ug/g	27-MAR-19	0.6	0.75	**0.09
Pentachlorophenol	<0.20	DLM	0.20	ug/g	27-MAR-19	**0.1	**0.1	**0.1
Phenanthrene	<0.10	DLM	0.10	ug/g	27-MAR-19	6.2	7.8	0.69
Pyrene	0.20	DLM	0.10	ug/g	27-MAR-19	78	78	1

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2247725-2 S-11102463-032119-EN-BH18-444-10-12								
Sampled By: J.CUMMINGS/E.NUSSLI on 21-MA								
Matrix: SOIL								
Semi-Volatile Organics								
2,4,5-Trichlorophenol	<0.20	DLM	0.20	ug/g	27-MAR-19	4.4	5.5	**0.1
2,4,6-Trichlorophenol	<0.20	DLM	0.20	ug/g	27-MAR-19	3.8	4.2	**0.1
Surrogate: 2-Fluorobiphenyl	94.0		50-140	%	27-MAR-19			
Surrogate: Phenol d5	93.2		30-130	%	27-MAR-19			
Surrogate: p-Terphenyl d14	99.9		50-140	%	27-MAR-19			
Surrogate: 2,4,6-Tribromophenol	75.2		50-140	%	27-MAR-19			
Polychlorinated Biphenyls								
Aroclor 1242	<0.030	DLM	0.030	ug/g	27-MAR-19			
Aroclor 1248	<0.010		0.010	ug/g	27-MAR-19			
Aroclor 1254	<0.010		0.010	ug/g	27-MAR-19			
Aroclor 1260	<0.010		0.010	ug/g	27-MAR-19			
Total PCBs	<0.0350	DLM	0.035	ug/g	27-MAR-19	0.35	0.35	0.3
Surrogate: d14-Terphenyl	82.7		60-140	%	27-MAR-19			
Organochlorine Pesticides								
Aldrin	<0.020		0.020	ug/g	27-MAR-19	0.05	0.05	0.05
gamma-hexachlorocyclohexane	<0.050	DLM	0.050	ug/g	27-MAR-19	0.056	0.063	
a-chlordane	<0.020		0.020	ug/g	27-MAR-19			
Chlordane (Total)	<0.028		0.028	ug/g	27-MAR-19	0.05	0.05	0.05
g-chlordane	<0.020		0.020	ug/g	27-MAR-19			
op-DDD	<0.020		0.020	ug/g	27-MAR-19			
pp-DDD	<0.020		0.020	ug/g	27-MAR-19			
Total DDD	<0.028		0.028	ug/g	27-MAR-19	3.3	3.3	0.05
o,p-DDE	<0.020		0.020	ug/g	27-MAR-19			
pp-DDE	<0.020		0.020	ug/g	27-MAR-19			
Total DDE	<0.028		0.028	ug/g	27-MAR-19	0.26	0.33	0.05
op-DDT	<0.020		0.020	ug/g	27-MAR-19			
pp-DDT	<0.10	DLM	0.10	ug/g	27-MAR-19			
Total DDT	<0.10		0.10	ug/g	27-MAR-19	1.4	1.4	1.4
Dieldrin	<0.020		0.020	ug/g	27-MAR-19	0.05	0.05	0.05
Endosulfan I	<0.020		0.020	ug/g	27-MAR-19			
Endosulfan II	<0.020		0.020	ug/g	27-MAR-19			
Endosulfan (Total)	<0.028		0.028	ug/g	27-MAR-19	0.04	0.04	0.04
Endrin	<0.020		0.020	ug/g	27-MAR-19	0.04	0.04	0.04
Heptachlor	<0.020		0.020	ug/g	27-MAR-19	0.15	0.15	0.05
Heptachlor Epoxide	<0.020		0.020	ug/g	27-MAR-19	0.05	0.05	0.05
Hexachlorobenzene	<0.050	DLM	0.050	ug/g	27-MAR-19	0.52	0.52	**0.02
Hexachlorobutadiene	<0.050	DLM	0.050	ug/g	27-MAR-19	**0.012	**0.014	**0.01
Hexachloroethane	<0.050	DLM	0.050	ug/g	27-MAR-19	0.089	0.07	**0.01
Methoxychlor	<0.10	DLM	0.10	ug/g	27-MAR-19	0.13	0.13	**0.05
Surrogate: 2-Fluorobiphenyl	66.7		50-140	%	27-MAR-19			
Surrogate: d14-Terphenyl	83.2		50-140	%	27-MAR-19			
L2247725-3 S-11102463-032119-EN-BH18-444-15-17								
Sampled By: J.CUMMINGS/E.NUSSLI on 21-MA								
Matrix: SOIL						#1	#2	#3
Physical Tests								

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2247725-3 S-11102463-032119-EN-BH18-444-15-17								
Sampled By: J.CUMMINGS/E.NUSSLI on 21-MA								
Matrix: SOIL								
Physical Tests								
Conductivity	0.584		0.0040	mS/cm	27-MAR-19	0.7	0.7	0.7
% Moisture	35.3		0.10	%	26-MAR-19			
pH	7.14		0.10	pH units	26-MAR-19			
Cyanides								
Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	26-MAR-19	0.051	0.051	0.051
Saturated Paste Extractables								
SAR	1.05		0.10	SAR	27-MAR-19	5	5	5
Calcium (Ca)	59.0		0.50	mg/L	27-MAR-19			
Magnesium (Mg)	3.74		0.50	mg/L	27-MAR-19			
Sodium (Na)	30.7		0.50	mg/L	27-MAR-19			
Metals								
Antimony (Sb)	<1.0		1.0	ug/g	26-MAR-19	7.5	7.5	1.3
Arsenic (As)	3.1		1.0	ug/g	26-MAR-19	18	18	18
Barium (Ba)	159		1.0	ug/g	26-MAR-19	390	390	220
Beryllium (Be)	0.53		0.50	ug/g	26-MAR-19	4	5	2.5
Boron (B)	5.3		5.0	ug/g	26-MAR-19	120	120	36
Boron (B), Hot Water Ext.	2.32		0.10	ug/g	26-MAR-19	*1.5	*1.5	*1.5
Cadmium (Cd)	<0.50		0.50	ug/g	26-MAR-19	1.2	1.2	1.2
Chromium (Cr)	22.5		1.0	ug/g	26-MAR-19	160	160	70
Cobalt (Co)	6.2		1.0	ug/g	26-MAR-19	22	22	22
Copper (Cu)	29.8		1.0	ug/g	26-MAR-19	140	180	92
Lead (Pb)	71.3		1.0	ug/g	26-MAR-19	120	120	120
Mercury (Hg)	0.459		0.0050	ug/g	26-MAR-19	*0.27	1.8	*0.27
Molybdenum (Mo)	<1.0		1.0	ug/g	26-MAR-19	6.9	6.9	2
Nickel (Ni)	12.8		1.0	ug/g	26-MAR-19	100	130	82
Selenium (Se)	<1.0		1.0	ug/g	26-MAR-19	2.4	2.4	1.5
Silver (Ag)	0.26		0.20	ug/g	26-MAR-19	20	25	0.5
Thallium (Tl)	<0.50		0.50	ug/g	26-MAR-19	1	1	1
Uranium (U)	<1.0		1.0	ug/g	26-MAR-19	23	23	2.5
Vanadium (V)	27.9		1.0	ug/g	26-MAR-19	86	86	86
Zinc (Zn)	127		5.0	ug/g	26-MAR-19	340	340	290
Speciated Metals								
Chromium, Hexavalent	<0.20		0.20	ug/g	26-MAR-19	8	10	0.66
Volatile Organic Compounds								
Acetone	<0.50		0.50	ug/g	25-MAR-19	16	28	0.5
Benzene	<0.0068		0.0068	ug/g	25-MAR-19	0.21	0.17	0.02
Bromodichloromethane	<0.050		0.050	ug/g	25-MAR-19	13	13	0.05
Bromoform	<0.050		0.050	ug/g	25-MAR-19	0.27	0.26	0.05
Bromomethane	<0.050		0.050	ug/g	25-MAR-19	0.05	0.05	0.05
Carbon tetrachloride	<0.050		0.050	ug/g	25-MAR-19	0.05	0.12	0.05
Chlorobenzene	<0.050		0.050	ug/g	25-MAR-19	2.4	2.7	0.05
Dibromochloromethane	<0.050		0.050	ug/g	25-MAR-19	9.4	9.4	0.05
Chloroform	<0.050		0.050	ug/g	25-MAR-19	0.05	0.18	0.05
1,2-Dibromoethane	<0.050		0.050	ug/g	25-MAR-19	0.05	0.05	0.05
1,2-Dichlorobenzene	<0.050		0.050	ug/g	25-MAR-19	3.4	4.3	0.05

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2247725-3 S-11102463-032119-EN-BH18-444-15-17								
Sampled By: J.CUMMINGS/E.NUSSLI on 21-MA								
Matrix: SOIL								
Volatile Organic Compounds								
1,3-Dichlorobenzene	<0.050		0.050	ug/g	25-MAR-19	4.8	6	0.05
1,4-Dichlorobenzene	<0.050		0.050	ug/g	25-MAR-19	0.083	0.097	0.05
Dichlorodifluoromethane	<0.050		0.050	ug/g	25-MAR-19	16	25	0.05
1,1-Dichloroethane	<0.050		0.050	ug/g	25-MAR-19	3.5	11	0.05
1,2-Dichloroethane	<0.050		0.050	ug/g	25-MAR-19	0.05	0.05	0.05
1,1-Dichloroethylene	<0.050		0.050	ug/g	25-MAR-19	0.05	0.05	0.05
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	25-MAR-19	3.4	30	0.05
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	25-MAR-19	0.084	0.75	0.05
Methylene Chloride	<0.050		0.050	ug/g	25-MAR-19	0.1	0.96	0.05
1,2-Dichloropropane	<0.050		0.050	ug/g	25-MAR-19	0.05	0.085	0.05
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	25-MAR-19			
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	25-MAR-19			
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g	27-MAR-19	0.05	0.083	0.05
Ethylbenzene	<0.018		0.018	ug/g	25-MAR-19	2	15	0.05
n-Hexane	<0.050		0.050	ug/g	25-MAR-19	2.8	34	0.05
Methyl Ethyl Ketone	<0.50		0.50	ug/g	25-MAR-19	16	44	0.5
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	25-MAR-19	1.7	4.3	0.5
MTBE	<0.050		0.050	ug/g	25-MAR-19	0.75	1.4	0.05
Styrene	<0.050		0.050	ug/g	25-MAR-19	0.7	2.2	0.05
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	25-MAR-19	0.058	0.05	0.05
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	25-MAR-19	0.05	0.05	0.05
Tetrachloroethylene	<0.050		0.050	ug/g	25-MAR-19	0.28	2.3	0.05
Toluene	<0.080		0.080	ug/g	25-MAR-19	2.3	6	0.2
1,1,1-Trichloroethane	<0.050		0.050	ug/g	25-MAR-19	0.38	3.4	0.05
1,1,2-Trichloroethane	<0.050		0.050	ug/g	25-MAR-19	0.05	0.05	0.05
Trichloroethylene	<0.010		0.010	ug/g	25-MAR-19	0.061	0.52	0.05
Trichlorofluoromethane	<0.050		0.050	ug/g	25-MAR-19	4	5.8	0.25
Vinyl chloride	<0.020		0.020	ug/g	25-MAR-19	0.02	0.022	0.02
o-Xylene	<0.020		0.020	ug/g	25-MAR-19			
m+p-Xylenes	<0.030		0.030	ug/g	25-MAR-19			
Xylenes (Total)	<0.050		0.050	ug/g	27-MAR-19	3.1	25	0.05
Surrogate: 4-Bromofluorobenzene	79.8		50-140	%	25-MAR-19			
Surrogate: 1,4-Difluorobenzene	86.7		50-140	%	25-MAR-19			
Hydrocarbons								
F1 (C6-C10)	<5.0		5.0	ug/g	25-MAR-19	55	65	25
F1-BTEX	<5.0		5.0	ug/g	27-MAR-19	55	65	25
F2 (C10-C16)	45		10	ug/g	26-MAR-19	98	150	*10
F2-Naphth	45		10	ug/g	27-MAR-19			
F3 (C16-C34)	73		50	ug/g	26-MAR-19	300	1300	240
F3-PAH	71		50	ug/g	27-MAR-19			
F4 (C34-C50)	<50		50	ug/g	26-MAR-19	2800	5600	120
Total Hydrocarbons (C6-C50)	117		72	ug/g	27-MAR-19			
Chrom. to baseline at nC50	YES			No Unit	26-MAR-19			
Surrogate: 2-Bromobenzotrifluoride	86.9		60-140	%	26-MAR-19			
Surrogate: 3,4-Dichlorotoluene	83.2		60-140	%	25-MAR-19			
Polycyclic Aromatic Hydrocarbons								

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2247725-3 S-11102463-032119-EN-BH18-444-15-17								
Sampled By: J.CUMMINGS/E.NUSSLI on 21-MA								
Matrix: SOIL								
Polycyclic Aromatic Hydrocarbons								
Acenaphthene	<0.050		0.050	ug/g	27-MAR-19	7.9	58	0.072
Acenaphthylene	<0.050		0.050	ug/g	27-MAR-19	0.15	0.17	0.093
Anthracene	<0.050		0.050	ug/g	27-MAR-19	0.67	0.74	0.22
Benzo(a)anthracene	0.135		0.050	ug/g	27-MAR-19	0.5	0.63	0.36
Benzo(a)pyrene	0.078		0.050	ug/g	27-MAR-19	0.3	0.3	0.3
Benzo(b)fluoranthene	0.171		0.050	ug/g	27-MAR-19	0.78	0.78	0.47
Benzo(g,h,i)perylene	0.075	R	0.050	ug/g	27-MAR-19	6.6	7.8	0.68
Benzo(k)fluoranthene	0.051		0.050	ug/g	27-MAR-19	0.78	0.78	0.48
Chrysene	0.158		0.050	ug/g	27-MAR-19	7	7.8	2.8
Dibenzo(ah)anthracene	<0.050		0.050	ug/g	27-MAR-19	0.1	0.1	0.1
Fluoranthene	0.226		0.050	ug/g	27-MAR-19	0.69	0.69	0.69
Fluorene	<0.050		0.050	ug/g	27-MAR-19	62	69	0.19
Indeno(1,2,3-cd)pyrene	0.063		0.050	ug/g	27-MAR-19	0.38	0.48	0.23
1+2-Methylnaphthalenes	<0.042		0.042	ug/g	27-MAR-19	0.99	3.4	0.59
1-Methylnaphthalene	0.040		0.030	ug/g	27-MAR-19	0.99	3.4	0.59
2-Methylnaphthalene	<0.030		0.030	ug/g	27-MAR-19	0.99	3.4	0.59
Naphthalene	0.033		0.013	ug/g	27-MAR-19	0.6	0.75	0.09
Phenanthrene	0.128		0.046	ug/g	27-MAR-19	6.2	7.8	0.69
Pyrene	0.244		0.050	ug/g	27-MAR-19	78	78	1
Surrogate: 2-Fluorobiphenyl	96.4		50-140	%	27-MAR-19			
Surrogate: p-Terphenyl d14	98.7		50-140	%	27-MAR-19			
L2247725-4 S-11102463-032019-EN-BH18-444-TRIP BLANK								
Sampled By: J.CUMMINGS/E.NUSSLI on 20-MA								
Matrix: SOIL								
Physical Tests								
% Moisture	<0.10		0.10	%	26-MAR-19			
Volatile Organic Compounds								
Acetone	<0.50		0.50	ug/g	25-MAR-19	16	28	0.5
Benzene	<0.0068		0.0068	ug/g	25-MAR-19	0.21	0.17	0.02
Bromodichloromethane	<0.050		0.050	ug/g	25-MAR-19	13	13	0.05
Bromoform	<0.050		0.050	ug/g	25-MAR-19	0.27	0.26	0.05
Bromomethane	<0.050		0.050	ug/g	25-MAR-19	0.05	0.05	0.05
Carbon tetrachloride	<0.050		0.050	ug/g	25-MAR-19	0.05	0.12	0.05
Chlorobenzene	<0.050		0.050	ug/g	25-MAR-19	2.4	2.7	0.05
Dibromochloromethane	<0.050		0.050	ug/g	25-MAR-19	9.4	9.4	0.05
Chloroform	<0.050		0.050	ug/g	25-MAR-19	0.05	0.18	0.05
1,2-Dibromoethane	<0.050		0.050	ug/g	25-MAR-19	0.05	0.05	0.05
1,2-Dichlorobenzene	<0.050		0.050	ug/g	25-MAR-19	3.4	4.3	0.05
1,3-Dichlorobenzene	<0.050		0.050	ug/g	25-MAR-19	4.8	6	0.05
1,4-Dichlorobenzene	<0.050		0.050	ug/g	25-MAR-19	0.083	0.097	0.05
Dichlorodifluoromethane	<0.050		0.050	ug/g	25-MAR-19	16	25	0.05
1,1-Dichloroethane	<0.050		0.050	ug/g	25-MAR-19	3.5	11	0.05
1,2-Dichloroethane	<0.050		0.050	ug/g	25-MAR-19	0.05	0.05	0.05
1,1-Dichloroethylene	<0.050		0.050	ug/g	25-MAR-19	0.05	0.05	0.05

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3	
L2247725-4 S-11102463-032019-EN-BH18-444-TRIP BLANK									
Sampled By: J.CUMMINGS/E.NUSSLI on 20-MA									
Matrix: SOIL									
Volatile Organic Compounds									
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	25-MAR-19	3.4	30	0.05	
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	25-MAR-19	0.084	0.75	0.05	
Methylene Chloride	<0.050		0.050	ug/g	25-MAR-19	0.1	0.96	0.05	
1,2-Dichloropropane	<0.050		0.050	ug/g	25-MAR-19	0.05	0.085	0.05	
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	25-MAR-19				
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	25-MAR-19				
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g	27-MAR-19	0.05	0.083	0.05	
Ethylbenzene	<0.018		0.018	ug/g	25-MAR-19	2	15	0.05	
n-Hexane	<0.050		0.050	ug/g	25-MAR-19	2.8	34	0.05	
Methyl Ethyl Ketone	<0.50		0.50	ug/g	25-MAR-19	16	44	0.5	
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	25-MAR-19	1.7	4.3	0.5	
MTBE	<0.050		0.050	ug/g	25-MAR-19	0.75	1.4	0.05	
Styrene	<0.050		0.050	ug/g	25-MAR-19	0.7	2.2	0.05	
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	25-MAR-19	0.058	0.05	0.05	
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	25-MAR-19	0.05	0.05	0.05	
Tetrachloroethylene	<0.050		0.050	ug/g	25-MAR-19	0.28	2.3	0.05	
Toluene	<0.080		0.080	ug/g	25-MAR-19	2.3	6	0.2	
1,1,1-Trichloroethane	<0.050		0.050	ug/g	25-MAR-19	0.38	3.4	0.05	
1,1,2-Trichloroethane	<0.050		0.050	ug/g	25-MAR-19	0.05	0.05	0.05	
Trichloroethylene	<0.010		0.010	ug/g	25-MAR-19	0.061	0.52	0.05	
Trichlorofluoromethane	<0.050		0.050	ug/g	25-MAR-19	4	5.8	0.25	
Vinyl chloride	<0.020		0.020	ug/g	25-MAR-19	0.02	0.022	0.02	
o-Xylene	<0.020		0.020	ug/g	25-MAR-19				
m+p-Xylenes	<0.030		0.030	ug/g	25-MAR-19				
Xylenes (Total)	<0.050		0.050	ug/g	27-MAR-19	3.1	25	0.05	
Surrogate: 4-Bromofluorobenzene	96.6		50-140	%	25-MAR-19				
Surrogate: 1,4-Difluorobenzene	107.6		50-140	%	25-MAR-19				
Hydrocarbons									
F1 (C6-C10)	<5.0		5.0	ug/g	25-MAR-19	55	65	25	
Surrogate: 3,4-Dichlorotoluene	91.1		60-140	%	25-MAR-19				

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Reference Information

Sample Parameter Qualifier key listed:

Qualifier	Description
R	The ion abundance ratio(s) did not meet the acceptance criteria. Value is an estimated maximum.
DLVH	Detection Limit raised due to interference from Volatile Hydrocarbons on VOC method. Chromatographic elution of interfering peaks in the same region as test analytes prevents a determination of whether VOC analyte is present or absent (above/below regular detection limits).
DLI	Detection Limit Raised: Dilution required to address Internal Standard response problems caused by matrix interference.
PRAR	PCB Pattern Most Closely Resembles Aroclor Reported
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
DLHC	Detection Limit Raised: Dilution required due to high concentration of test analyte(s).

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference***
625-511-WT	Soil	ABN-O.Reg 153/04 (July 2011)	SW846 8270 (511)

Soil and sediment samples are dried by mixing with a desiccant prior to extraction. The extracts are dried, concentrated and exchanged into a solvent and analyzed by GC/MS. Depending on the analytical GC/MS column used benzo(j)fluoranthene may chromatographically co-elute with benzo(b)fluoranthene or benzo(k)fluoranthene.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

B-HWS-R511-WT	Soil	Boron-HWE-O.Reg 153/04 (July 2011)	HW EXTR, EPA 6010B

A dried solid sample is extracted with calcium chloride, the sample undergoes a heating process. After cooling the sample is filtered and analyzed by ICP/OES.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

CHLORDANE-T-CALC-WT	Soil	Chlordane Total sums	CALCULATION

Aqueous sample is extracted by liquid/liquid extraction with a solvent mix. After extraction, a number of clean up techniques may be applied, depending on the sample matrix and analyzed by GC/MS.

CN-WAD-R511-WT	Soil	Cyanide (WAD)-O.Reg 153/04 (July 2011)	MOE 3015/APHA 4500CN I-WAD

The sample is extracted with a strong base for 16 hours, and then filtered. The filtrate is then distilled where the cyanide is converted to cyanogen chloride by reacting with chloramine-T, the cyanogen chloride then reacts with a combination of barbituric acid and isonicotinic acid to form a highly colored complex.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

CR-CR6-IC-WT	Soil	Hexavalent Chromium in Soil	SW846 3060A/7199

This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, Method 7199, published by the United States Environmental Protection Agency (EPA). The procedure involves analysis for chromium (VI) by ion chromatography using diphenylcarbazide in a sulphuric acid solution.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

DDD-DDE-DDT-CALC-WT	Soil	DDD, DDE, DDT sums	CALCULATION

Aqueous sample is extracted by liquid/liquid extraction with a solvent mix. After extraction, a number of clean up techniques may be applied, depending on the sample matrix and analyzed by GC/MS.

EC-WT	Soil	Conductivity (EC)	MOEE E3138

A representative subsample is tumbled with de-ionized (DI) water. The ratio of water to soil is 2:1 v/w. After tumbling the sample is then analyzed by a conductivity meter.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

ENDOSULFAN-T-CALC-WT	Soil	Endosulfan Total sums	CALCULATION

Aqueous sample is extracted by liquid/liquid extraction with a solvent mix. After extraction, a number of clean up techniques may be applied, depending on the sample matrix and analyzed by GC/MS.

Reference Information

F1-F4-511-CALC-WT	Soil	F1-F4 Hydrocarbon Calculated Parameters	CCME CWS-PHC, Pub #1310, Dec 2001-S

Analytical methods used for analysis of CCME Petroleum Hydrocarbons have been validated and comply with the Reference Method for the CWS PHC.

Hydrocarbon results are expressed on a dry weight basis.

In cases where results for both F4 and F4G are reported, the greater of the two results must be used in any application of the CWS PHC guidelines and the gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.
In samples where BTEX and F1 were analyzed , F1-BTEX represents a value where the sum of Benzene, Toluene, Ethylbenzene and total Xylenes has been subtracted from F1.

In samples where PAHs, F2 and F3 were analyzed, F2-Naphth represents the result where Naphthalene has been subtracted from F2. F3-PAH represents a result where the sum of Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenzo(a,h)anthracene, Fluoranthene, Indeno(1,2,3-cd)pyrene, Phenanthrene, and Pyrene has been subtracted from F3.

Unless otherwise qualified, the following quality control criteria have been met for the F1 hydrocarbon range:
1. All extraction and analysis holding times were met.
2. Instrument performance showing response factors for C6 and C10 within 30% of the response factor for toluene.
3. Linearity of gasoline response within 15% throughout the calibration range.

Unless otherwise qualified, the following quality control criteria have been met for the F2-F4 hydrocarbon ranges:
1. All extraction and analysis holding times were met.
2. Instrument performance showing C10, C16 and C34 response factors within 10% of their average.
3. Instrument performance showing the C50 response factor within 30% of the average of the C10, C16 and C34 response factors.
4. Linearity of diesel or motor oil response within 15% throughout the calibration range.

F1-HS-511-WT	Soil	F1-O.Reg 153/04 (July 2011)	E3398/CCME TIER 1-HS

Fraction F1 is determined by extracting a soil or sediment sample as received with methanol, then analyzing by headspace-GC/FID.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

F2-F4-511-WT	Soil	F2-F4-O.Reg 153/04 (July 2011)	CCME Tier 1

Petroleum Hydrocarbons (F2-F4 fractions) are extracted from soil with 1:1 hexane:acetone using a rotary extractor. Extracts are treated with silica gel to remove polar organic interferences. F2, F3, & F4 are analyzed by GC-FID. F4G-sg is analyzed gravimetrically.

Notes:
1. F2 (C10-C16): Sum of all hydrocarbons that elute between nC10 and nC16.
2. F3 (C16-C34): Sum of all hydrocarbons that elute between nC16 and nC34.
3. F4 (C34-C50): Sum of all hydrocarbons that elute between nC34 and nC50.
4. F4G: Gravimetric Heavy Hydrocarbons
5. F4G-sg: Gravimetric Heavy Hydrocarbons (F4G) after silica gel treatment.
6. Where both F4 (C34-C50) and F4G-sg are reported for a sample, the larger of the two values is used for comparison against the relevant CCME guideline for F4.
7. F4G-sg cannot be added to the C6 to C50 hydrocarbon results to obtain an estimate of total extractable hydrocarbons.
8. This method is validated for use.
9. Data from analysis of validation and quality control samples is available upon request.
10. Reported results are expressed as milligrams per dry kilogram, unless otherwise indicated.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

HG-200.2-CVAA-WT	Soil	Mercury in Soil by CVAAS	EPA 200.2/1631E (mod)

Soil samples are digested with nitric and hydrochloric acids, followed by analysis by CVAAS.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

Reference Information

MET-200.2-CCMS-WT	Soil	Metals in Soil by CRC ICPMS	EPA 200.2/6020A (mod)

Soil/sediment is dried, disaggregated, and sieved (2 mm). For tests intended to support Ontario regulations, the <2mm fraction is ground to pass through a 0.355 mm sieve. Strong Acid Leachable Metals in the <2mm fraction are solubilized by heated digestion with nitric and hydrochloric acids. Instrumental analysis is by Collision / Reaction Cell ICPMS.

Limitations: This method is intended to liberate environmentally available metals. Silicate minerals are not solubilized. Some metals may be only partially recovered (matrix dependent), including Al, Ba, Be, Cr, S, Sr, Ti, Tl, V, W, and Zr. Elemental Sulfur may be poorly recovered by this method. Volatile forms of sulfur (e.g. sulfide, H2S) may be excluded if lost during sampling, storage, or digestion.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

METHYLNAPS-CALC-WT	Soil	ABN-Calculated Parameters	SW846 8270
MOISTURE-WT	Soil	% Moisture	CCME PHC in Soil - Tier 1 (mod)
PAH-511-WT	Soil	PAH-O.Reg 153/04 (July 2011)	SW846 3510/8270

A representative sub-sample of soil is fortified with deuterium-labelled surrogates and a mechanical shaking techniqueis used to extract the sample with a mixture of methanol and toluene. The extracts are concentrated and analyzed by GC/MS. Results for benzo(b) fluoranthene may include contributions from benzo(j)fluoranthene, if also present in the sample.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

PCB-511-WT	Soil	PCB-O.Reg 153/04 (July 2011)	SW846 3510/8082

An aliquot of a solid sample is extracted with a solvent, extract is cleaned up and analyzed on the GC/MS.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

PEST-OC-511-WT	Soil	OC Pesticides-O.Reg 153/04 (July 2011)	SW846 8270 (511)

Soil sample is extracted in a solvent, after extraction a number of clean up techniques may be applied, depending on the sample matrix and analyzed by GC/MS.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

PH-WT	Soil	pH	MOEE E3137A

A minimum 10g portion of the sample is extracted with 20mL of 0.01M calcium chloride solution by shaking for at least 30 minutes. The aqueous layer is separated from the soil and then analyzed using a pH meter and electrode.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

SAR-R511-WT	Soil	SAR-O.Reg 153/04 (July 2011)	SW846 6010C

A dried, disaggregated solid sample is extracted with deionized water, the aqueous extract is separated from the solid, acidified and then analyzed using a ICP/OES. The concentrations of Na, Ca and Mg are reported as per CALA requirements for calculated parameters. These individual parameters are not for comparison to any guideline.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

VOC-1,3-DCP-CALC-WT	Soil	Regulation 153 VOCs	SW8260B/SW8270C
VOC-511-HS-WT	Soil	VOC-O.Reg 153/04 (July 2011)	SW846 8260 (511)

Soil and sediment samples are extracted in methanol and analyzed by headspace-GC/MS.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

XYLENES-SUM-CALC-WT	Soil	Sum of Xylene Isomer Concentrations	CALCULATION

Total xylenes represents the sum of o-xylene and m&p-xylene.

*** ALS test methods may incorporate modifications from specified reference methods to improve performance.

Chain of Custody numbers:

Reference Information

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location	Laboratory Definition Code	Laboratory Location
WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA		

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.
mg/kg - milligrams per kilogram based on dry weight of sample
mg/kg wwt - milligrams per kilogram based on wet weight of sample
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight
mg/L - unit of concentration based on volume, parts per million.
< - Less than.
D.L. - The reporting limit.
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, fitness for a particular purpose, or non-infringement. ALS assumes no responsibility for errors or omissions in the information. Guideline limits are not adjusted for the hardness, pH or temperature of the sample (the most conservative values are used). Measurement uncertainty is not applied to test results prior to comparison with specified criteria values.

Quality Control Report

Workorder: L2247725 Report Date: 01-APR-19

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
625-511-WT	**Soil**							
Batch R4583368								
WG3013237-9 DUP		**WG3013237-5**						
1-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	26-MAR-19
2-Chlorophenol		<0.10	<0.10	RPD-NA	ug/g	N/A	40	26-MAR-19
2-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	26-MAR-19
2,4-Dichlorophenol		<0.10	<0.10	RPD-NA	ug/g	N/A	40	26-MAR-19
2,4,5-Trichlorophenol		<0.10	<0.10	RPD-NA	ug/g	N/A	40	26-MAR-19
2,4,6-Trichlorophenol		<0.10	<0.10	RPD-NA	ug/g	N/A	40	26-MAR-19
Acenaphthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Acenaphthylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Benzo(a)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Benzo(a)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Benzo(b)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Benzo(ghi)perylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Benzo(k)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Chrysene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Dibenzo(a,h)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Fluorene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Indeno(1,2,3-cd)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Naphthalene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Pentachlorophenol		<0.10	<0.10	RPD-NA	ug/g	N/A	40	26-MAR-19
Phenanthrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
WG3013237-7 LCS								
1-Methylnaphthalene			88.3		%		50-140	26-MAR-19
2-Chlorophenol			109.0		%		50-140	26-MAR-19
2-Methylnaphthalene			99.7		%		50-140	26-MAR-19
2,4-Dichlorophenol			108.6		%		50-140	26-MAR-19
2,4,5-Trichlorophenol			111.7		%		50-140	26-MAR-19
2,4,6-Trichlorophenol			106.0		%		50-140	26-MAR-19
Acenaphthene			98.8		%		50-140	26-MAR-19
Acenaphthylene			107.0		%		50-140	26-MAR-19
Anthracene			102.5		%		50-140	26-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
625-511-WT	**Soil**							
Batch R4583368								
WG3013237-7 LCS								
Benzo(a)anthracene			109.5		%		50-140	26-MAR-19
Benzo(a)pyrene			109.7		%		50-140	26-MAR-19
Benzo(b)fluoranthene			113.8		%		50-140	26-MAR-19
Benzo(ghi)perylene			80.5		%		50-140	26-MAR-19
Benzo(k)fluoranthene			108.2		%		50-140	26-MAR-19
Chrysene			108.7		%		50-140	26-MAR-19
Dibenzo(a,h)anthracene			94.5		%		50-140	26-MAR-19
Fluoranthene			91.3		%		50-140	26-MAR-19
Fluorene			97.7		%		50-140	26-MAR-19
Indeno(1,2,3-cd)pyrene			95.8		%		50-140	26-MAR-19
Naphthalene			101.1		%		50-140	26-MAR-19
Pentachlorophenol			91.3		%		50-140	26-MAR-19
Phenanthrene			99.8		%		50-140	26-MAR-19
Pyrene			90.2		%		50-140	26-MAR-19
WG3013237-6 MB								
1-Methylnaphthalene			<0.030		ug/g		0.03	26-MAR-19
2-Chlorophenol			<0.10		ug/g		0.1	26-MAR-19
2-Methylnaphthalene			<0.030		ug/g		0.03	26-MAR-19
2,4-Dichlorophenol			<0.10		ug/g		0.1	26-MAR-19
2,4,5-Trichlorophenol			<0.10		ug/g		0.1	26-MAR-19
2,4,6-Trichlorophenol			<0.10		ug/g		0.1	26-MAR-19
Acenaphthene			<0.050		ug/g		0.05	26-MAR-19
Acenaphthylene			<0.050		ug/g		0.05	26-MAR-19
Anthracene			<0.050		ug/g		0.05	26-MAR-19
Benzo(a)anthracene			<0.050		ug/g		0.05	26-MAR-19
Benzo(a)pyrene			<0.050		ug/g		0.05	26-MAR-19
Benzo(b)fluoranthene			<0.050		ug/g		0.05	26-MAR-19
Benzo(ghi)perylene			<0.050		ug/g		0.05	26-MAR-19
Benzo(k)fluoranthene			<0.050		ug/g		0.05	26-MAR-19
Chrysene			<0.050		ug/g		0.05	26-MAR-19
Dibenzo(a,h)anthracene			<0.050		ug/g		0.05	26-MAR-19
Fluoranthene			<0.050		ug/g		0.05	26-MAR-19
Fluorene			<0.050		ug/g		0.05	26-MAR-19
Indeno(1,2,3-cd)pyrene			<0.050		ug/g		0.05	26-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
625-511-WT	**Soil**							
Batch R4583368								
WG3013237-6 MB								
Naphthalene			<0.050		ug/g		0.05	26-MAR-19
Pentachlorophenol			<0.10		ug/g		0.1	26-MAR-19
Phenanthrene			<0.050		ug/g		0.05	26-MAR-19
Pyrene			<0.050		ug/g		0.05	26-MAR-19
Surrogate: 2-Fluorobiphenyl			69.5		%		50-140	26-MAR-19
Surrogate: 2,4,6-Tribromophenol			76.0		%		50-140	26-MAR-19
Surrogate: p-Terphenyl d14			100.2		%		50-140	26-MAR-19
Surrogate: Phenol d5			97.4		%		30-130	26-MAR-19
WG3013237-8 MS		**WG3013237-5**						
1-Methylnaphthalene			84.4		%		50-140	26-MAR-19
2-Chlorophenol			101.2		%		50-140	26-MAR-19
2-Methylnaphthalene			93.9		%		50-140	26-MAR-19
2,4-Dichlorophenol			100.8		%		50-140	26-MAR-19
2,4,5-Trichlorophenol			105.4		%		50-140	26-MAR-19
2,4,6-Trichlorophenol			102.0		%		50-140	26-MAR-19
Acenaphthene			94.3		%		50-140	26-MAR-19
Acenaphthylene			101.0		%		50-140	26-MAR-19
Anthracene			94.8		%		50-140	26-MAR-19
Benzo(a)anthracene			100.9		%		50-140	26-MAR-19
Benzo(a)pyrene			101.1		%		50-140	26-MAR-19
Benzo(b)fluoranthene			99.4		%		50-140	26-MAR-19
Benzo(ghi)perylene			77.2		%		50-140	26-MAR-19
Benzo(k)fluoranthene			96.3		%		50-140	26-MAR-19
Chrysene			95.8		%		50-140	26-MAR-19
Dibenzo(a,h)anthracene			87.5		%		50-140	26-MAR-19
Fluoranthene			79.8		%		50-140	26-MAR-19
Fluorene			90.8		%		50-140	26-MAR-19
Indeno(1,2,3-cd)pyrene			89.3		%		50-140	26-MAR-19
Naphthalene			96.0		%		50-140	26-MAR-19
Pentachlorophenol			91.5		%		50-140	26-MAR-19
Phenanthrene			93.5		%		50-140	26-MAR-19
Pyrene			80.4		%		50-140	26-MAR-19
B-HWS-R511-WT	**Soil**							

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
B-HWS-R511-WT	**Soil**							
Batch R4583408								
WG3013994-4 DUP		**L2247725-1**						
Boron (B), Hot Water Ext.		0.40	0.34		ug/g	15	30	26-MAR-19
WG3013994-2 IRM		**HOTB-SAL_SOIL5**						
Boron (B), Hot Water Ext.			115.5		%		70-130	26-MAR-19
WG3013994-3 LCS								
Boron (B), Hot Water Ext.			97.0		%		70-130	26-MAR-19
WG3013994-1 MB								
Boron (B), Hot Water Ext.			<0.10		ug/g		0.1	26-MAR-19
CN-WAD-R511-WT	**Soil**							
Batch R4583869								
WG3013562-3 DUP		**L2248320-1**						
Cyanide, Weak Acid Diss		<0.050	<0.050	RPD-NA	ug/g	N/A	35	26-MAR-19
WG3013562-2 LCS								
Cyanide, Weak Acid Diss			90.5		%		80-120	26-MAR-19
WG3013562-1 MB								
Cyanide, Weak Acid Diss			<0.050		ug/g		0.05	26-MAR-19
WG3013562-4 MS		**L2248320-1**						
Cyanide, Weak Acid Diss			94.4		%		70-130	26-MAR-19
CR-CR6-IC-WT	**Soil**							
Batch R4583569								
WG3013589-4 CRM		**WT-SQC012**						
Chromium, Hexavalent			98.3		%		70-130	26-MAR-19
WG3013589-3 DUP		**L2248321-2**						
Chromium, Hexavalent		<0.20	<0.20	RPD-NA	ug/g	N/A	35	26-MAR-19
WG3013589-2 LCS								
Chromium, Hexavalent			99.0		%		80-120	26-MAR-19
WG3013589-1 MB								
Chromium, Hexavalent			<0.20		ug/g		0.2	26-MAR-19
EC-WT	**Soil**							
Batch R4585298								
WG3014878-4 DUP		**WG3014878-3**						
Conductivity		0.291	0.319		mS/cm	9.2	20	27-MAR-19
WG3014878-2 IRM		**WT SAR2**						
Conductivity			97.4		%		70-130	27-MAR-19
WG3015084-1 LCS								
Conductivity			102.9		%		90-110	27-MAR-19
WG3014878-1 MB								

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
EC-WT	**Soil**							
Batch R4585298								
WG3014878-1 MB								
Conductivity			<0.0040		mS/cm		0.004	27-MAR-19
F1-HS-511-WT	**Soil**							
Batch R4581369								
WG3013151-4 DUP		**WG3013151-3**						
F1 (C6-C10)		<5.0	<5.0	RPD-NA	ug/g	N/A	30	25-MAR-19
WG3013151-2 LCS								
F1 (C6-C10)			108.1		%		80-120	25-MAR-19
WG3013151-1 MB								
F1 (C6-C10)			<5.0		ug/g		5	25-MAR-19
Surrogate: 3,4-Dichlorotoluene			109.3		%		60-140	25-MAR-19
WG3013151-6 MS		**L2247542-1**						
F1 (C6-C10)			106.5		%		60-140	25-MAR-19
F2-F4-511-WT	**Soil**							
Batch R4585227								
WG3013546-3 DUP		**WG3013546-5**						
F2 (C10-C16)		<10	<10	RPD-NA	ug/g	N/A	30	26-MAR-19
F3 (C16-C34)		<50	<50	RPD-NA	ug/g	N/A	30	26-MAR-19
F4 (C34-C50)		<50	<50	RPD-NA	ug/g	N/A	30	26-MAR-19
WG3013546-2 LCS								
F2 (C10-C16)			94.8		%		80-120	26-MAR-19
F3 (C16-C34)			100.9		%		80-120	26-MAR-19
F4 (C34-C50)			104.1		%		80-120	26-MAR-19
WG3013546-1 MB								
F2 (C10-C16)			<10		ug/g		10	26-MAR-19
F3 (C16-C34)			<50		ug/g		50	26-MAR-19
F4 (C34-C50)			<50		ug/g		50	26-MAR-19
Surrogate: 2-Bromobenzotrifluoride			82.1		%		60-140	26-MAR-19
WG3013546-4 MS		**WG3013546-5**						
F2 (C10-C16)			95.0		%		60-140	26-MAR-19
F3 (C16-C34)			99.0		%		60-140	26-MAR-19
F4 (C34-C50)			102.5		%		60-140	26-MAR-19
HG-200.2-CVAA-WT	**Soil**							

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
HG-200.2-CVAA-WT	**Soil**							
Batch R4583508								
WG3013982-2 CRM		**WT-CANMET-TILL1**						
Mercury (Hg)			98.9		%		70-130	26-MAR-19
WG3013982-6 DUP		**WG3013982-5**						
Mercury (Hg)		0.302	0.329		ug/g	8.5	40	26-MAR-19
WG3013982-3 LCS								
Mercury (Hg)			104.0		%		80-120	26-MAR-19
WG3013982-1 MB								
Mercury (Hg)			<0.0050		mg/kg		0.005	26-MAR-19
Batch R4583510								
WG3013977-2 CRM		**WT-CANMET-TILL1**						
Mercury (Hg)			89.7		%		70-130	26-MAR-19
WG3013977-6 DUP		**WG3013977-5**						
Mercury (Hg)		0.0115	0.0117		ug/g	1.4	40	26-MAR-19
WG3013977-3 LCS								
Mercury (Hg)			100.5		%		80-120	26-MAR-19
WG3013977-1 MB								
Mercury (Hg)			<0.0050		mg/kg		0.005	26-MAR-19
MET-200.2-CCMS-WT	**Soil**							
Batch R4583409								
WG3013982-2 CRM		**WT-CANMET-TILL1**						
Antimony (Sb)			106.1		%		70-130	26-MAR-19
Arsenic (As)			101.4		%		70-130	26-MAR-19
Barium (Ba)			104.9		%		70-130	26-MAR-19
Beryllium (Be)			104.0		%		70-130	26-MAR-19
Boron (B)			3.2		mg/kg		0-8.2	26-MAR-19
Cadmium (Cd)			102.6		%		70-130	26-MAR-19
Chromium (Cr)			103.7		%		70-130	26-MAR-19
Cobalt (Co)			100.7		%		70-130	26-MAR-19
Copper (Cu)			102.8		%		70-130	26-MAR-19
Lead (Pb)			102.0		%		70-130	26-MAR-19
Molybdenum (Mo)			96.5		%		70-130	26-MAR-19
Nickel (Ni)			100.8		%		70-130	26-MAR-19
Selenium (Se)			0.31		mg/kg		0.11-0.51	26-MAR-19
Silver (Ag)			0.24		mg/kg		0.13-0.33	26-MAR-19
Thallium (Tl)			0.128		mg/kg		0.077-0.18	26-MAR-19
Uranium (U)			100.1		%		70-130	26-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R4583409								
WG3013982-2 CRM		**WT-CANMET-TILL1**						
Vanadium (V)			103.8		%		70-130	26-MAR-19
Zinc (Zn)			102.6		%		70-130	26-MAR-19
WG3013982-6 DUP		**WG3013982-5**						
Antimony (Sb)		2.98	3.85		ug/g	26	30	26-MAR-19
Arsenic (As)		4.28	4.75		ug/g	10	30	26-MAR-19
Barium (Ba)		98.9	104		ug/g	4.9	40	26-MAR-19
Beryllium (Be)		0.36	0.44		ug/g	18	30	26-MAR-19
Boron (B)		5.9	7.7		ug/g	26	30	26-MAR-19
Cadmium (Cd)		1.59	1.88		ug/g	17	30	26-MAR-19
Chromium (Cr)		31.0	35.1		ug/g	13	30	26-MAR-19
Cobalt (Co)		6.11	6.89		ug/g	12	30	26-MAR-19
Copper (Cu)		61.3	67.1		ug/g	9.1	30	26-MAR-19
Lead (Pb)		190	192		ug/g	1.0	40	26-MAR-19
Molybdenum (Mo)		1.27	1.23		ug/g	3.0	40	26-MAR-19
Nickel (Ni)		17.4	19.4		ug/g	11	30	26-MAR-19
Selenium (Se)		0.38	0.44		ug/g	13	30	26-MAR-19
Silver (Ag)		0.63	0.70		ug/g	9.7	40	26-MAR-19
Thallium (Tl)		0.146	0.151		ug/g	3.7	30	26-MAR-19
Uranium (U)		0.462	0.527		ug/g	13	30	26-MAR-19
Vanadium (V)		23.0	27.3		ug/g	17	30	26-MAR-19
Zinc (Zn)		151	170		ug/g	12	30	26-MAR-19
WG3013982-4 LCS								
Antimony (Sb)			114.5		%		80-120	26-MAR-19
Arsenic (As)			107.8		%		80-120	26-MAR-19
Barium (Ba)			112.6		%		80-120	26-MAR-19
Beryllium (Be)			107.3		%		80-120	26-MAR-19
Boron (B)			108.0		%		80-120	26-MAR-19
Cadmium (Cd)			108.7		%		80-120	26-MAR-19
Chromium (Cr)			107.0		%		80-120	26-MAR-19
Cobalt (Co)			104.7		%		80-120	26-MAR-19
Copper (Cu)			105.6		%		80-120	26-MAR-19
Lead (Pb)			110.3		%		80-120	26-MAR-19
Molybdenum (Mo)			112.4		%		80-120	26-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R4583409								
WG3013982-4 LCS								
Nickel (Ni)			107.1		%		80-120	26-MAR-19
Selenium (Se)			109.9		%		80-120	26-MAR-19
Silver (Ag)			109.1		%		80-120	26-MAR-19
Thallium (Tl)			106.4		%		80-120	26-MAR-19
Uranium (U)			108.8		%		80-120	26-MAR-19
Vanadium (V)			110.1		%		80-120	26-MAR-19
Zinc (Zn)			106.0		%		80-120	26-MAR-19
WG3013982-1 MB								
Antimony (Sb)			<0.10		mg/kg		0.1	26-MAR-19
Arsenic (As)			<0.10		mg/kg		0.1	26-MAR-19
Barium (Ba)			<0.50		mg/kg		0.5	26-MAR-19
Beryllium (Be)			<0.10		mg/kg		0.1	26-MAR-19
Boron (B)			<5.0		mg/kg		5	26-MAR-19
Cadmium (Cd)			<0.020		mg/kg		0.02	26-MAR-19
Chromium (Cr)			<0.50		mg/kg		0.5	26-MAR-19
Cobalt (Co)			<0.10		mg/kg		0.1	26-MAR-19
Copper (Cu)			<0.50		mg/kg		0.5	26-MAR-19
Lead (Pb)			<0.50		mg/kg		0.5	26-MAR-19
Molybdenum (Mo)			<0.10		mg/kg		0.1	26-MAR-19
Nickel (Ni)			<0.50		mg/kg		0.5	26-MAR-19
Selenium (Se)			<0.20		mg/kg		0.2	26-MAR-19
Silver (Ag)			<0.10		mg/kg		0.1	26-MAR-19
Thallium (Tl)			<0.050		mg/kg		0.05	26-MAR-19
Uranium (U)			<0.050		mg/kg		0.05	26-MAR-19
Vanadium (V)			<0.20		mg/kg		0.2	26-MAR-19
Zinc (Zn)			<2.0		mg/kg		2	26-MAR-19
Batch R4583727								
WG3013977-2 CRM		**WT-CANMET-TILL1**						
Antimony (Sb)			106.0		%		70-130	26-MAR-19
Arsenic (As)			100.7		%		70-130	26-MAR-19
Barium (Ba)			99.3		%		70-130	26-MAR-19
Beryllium (Be)			103.0		%		70-130	26-MAR-19
Boron (B)			2.8		mg/kg		0-8.2	26-MAR-19
Cadmium (Cd)			106.9		%		70-130	26-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R4583727								
WG3013977-2 CRM		**WT-CANMET-TILL1**						
Chromium (Cr)			100.4		%		70-130	26-MAR-19
Cobalt (Co)			99.2		%		70-130	26-MAR-19
Copper (Cu)			102.2		%		70-130	26-MAR-19
Lead (Pb)			102.8		%		70-130	26-MAR-19
Molybdenum (Mo)			101.0		%		70-130	26-MAR-19
Nickel (Ni)			100.1		%		70-130	26-MAR-19
Selenium (Se)			0.33		mg/kg		0.11-0.51	26-MAR-19
Silver (Ag)			0.24		mg/kg		0.13-0.33	26-MAR-19
Thallium (Tl)			0.118		mg/kg		0.077-0.18	26-MAR-19
Uranium (U)			97.0		%		70-130	26-MAR-19
Vanadium (V)			101.3		%		70-130	26-MAR-19
Zinc (Zn)			102.3		%		70-130	26-MAR-19
WG3013977-6 DUP		**WG3013977-5**						
Antimony (Sb)		0.16	0.16		ug/g	3.6	30	26-MAR-19
Arsenic (As)		2.73	2.43		ug/g	11	30	26-MAR-19
Barium (Ba)		70.6	62.1		ug/g	13	40	26-MAR-19
Beryllium (Be)		0.38	0.34		ug/g	11	30	26-MAR-19
Boron (B)		7.1	6.3		ug/g	13	30	26-MAR-19
Cadmium (Cd)		0.144	0.126		ug/g	13	30	26-MAR-19
Chromium (Cr)		15.1	13.1		ug/g	15	30	26-MAR-19
Cobalt (Co)		4.39	3.92		ug/g	11	30	26-MAR-19
Copper (Cu)		9.95	8.79		ug/g	12	30	26-MAR-19
Lead (Pb)		14.9	13.1		ug/g	13	40	26-MAR-19
Molybdenum (Mo)		0.46	0.43		ug/g	5.0	40	26-MAR-19
Nickel (Ni)		8.84	7.88		ug/g	11	30	26-MAR-19
Selenium (Se)		<0.20	<0.20	RPD-NA	ug/g	N/A	30	26-MAR-19
Silver (Ag)		<0.10	<0.10	RPD-NA	ug/g	N/A	40	26-MAR-19
Thallium (Tl)		0.088	0.074		ug/g	17	30	26-MAR-19
Uranium (U)		0.541	0.516		ug/g	4.6	30	26-MAR-19
Vanadium (V)		26.2	22.6		ug/g	15	30	26-MAR-19
Zinc (Zn)		53.9	47.2		ug/g	13	30	26-MAR-19
WG3013977-4 LCS								
Antimony (Sb)			112.6		%		80-120	26-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R4583727								
WG3013977-4 LCS								
Arsenic (As)			107.6		%		80-120	26-MAR-19
Barium (Ba)			110.1		%		80-120	26-MAR-19
Beryllium (Be)			104.2		%		80-120	26-MAR-19
Boron (B)			101.5		%		80-120	26-MAR-19
Cadmium (Cd)			108.3		%		80-120	26-MAR-19
Chromium (Cr)			106.7		%		80-120	26-MAR-19
Cobalt (Co)			104.3		%		80-120	26-MAR-19
Copper (Cu)			103.7		%		80-120	26-MAR-19
Lead (Pb)			106.0		%		80-120	26-MAR-19
Molybdenum (Mo)			109.6		%		80-120	26-MAR-19
Nickel (Ni)			103.9		%		80-120	26-MAR-19
Selenium (Se)			105.1		%		80-120	26-MAR-19
Silver (Ag)			103.4		%		80-120	26-MAR-19
Thallium (Tl)			106.8		%		80-120	26-MAR-19
Uranium (U)			105.2		%		80-120	26-MAR-19
Vanadium (V)			110.0		%		80-120	26-MAR-19
Zinc (Zn)			105.2		%		80-120	26-MAR-19
WG3013977-1 MB								
Antimony (Sb)			<0.10		mg/kg		0.1	26-MAR-19
Arsenic (As)			<0.10		mg/kg		0.1	26-MAR-19
Barium (Ba)			<0.50		mg/kg		0.5	26-MAR-19
Beryllium (Be)			<0.10		mg/kg		0.1	26-MAR-19
Boron (B)			<5.0		mg/kg		5	26-MAR-19
Cadmium (Cd)			<0.020		mg/kg		0.02	26-MAR-19
Chromium (Cr)			<0.50		mg/kg		0.5	26-MAR-19
Cobalt (Co)			<0.10		mg/kg		0.1	26-MAR-19
Copper (Cu)			<0.50		mg/kg		0.5	26-MAR-19
Lead (Pb)			<0.50		mg/kg		0.5	26-MAR-19
Molybdenum (Mo)			<0.10		mg/kg		0.1	26-MAR-19
Nickel (Ni)			<0.50		mg/kg		0.5	26-MAR-19
Selenium (Se)			<0.20		mg/kg		0.2	26-MAR-19
Silver (Ag)			<0.10		mg/kg		0.1	26-MAR-19
Thallium (Tl)			<0.050		mg/kg		0.05	26-MAR-19
Uranium (U)			<0.050		mg/kg		0.05	26-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R4583727								
WG3013977-1 MB								
Vanadium (V)			<0.20		mg/kg		0.2	26-MAR-19
Zinc (Zn)			<2.0		mg/kg		2	26-MAR-19
MOISTURE-WT	**Soil**							
Batch R4580911								
WG3013332-3 DUP		**L2247725-1**						
% Moisture		11.3	10.7		%	5.1	20	25-MAR-19
WG3013332-2 LCS								
% Moisture			100.1		%		90-110	25-MAR-19
WG3013332-1 MB								
% Moisture			<0.10		%		0.1	25-MAR-19
Batch R4582804								
WG3013505-3 DUP		**L2248319-2**						
% Moisture		13.4	14.1		%	5.3	20	26-MAR-19
WG3013505-2 LCS								
% Moisture			100.2		%		90-110	26-MAR-19
WG3013505-1 MB								
% Moisture			<0.10		%		0.1	26-MAR-19
Batch R4582807								
WG3013694-3 DUP		**L2247736-1**						
% Moisture		42.4	46.5		%	9.2	20	26-MAR-19
WG3013694-2 LCS								
% Moisture			100.2		%		90-110	26-MAR-19
WG3013694-1 MB								
% Moisture			<0.10		%		0.1	26-MAR-19
PAH-511-WT	**Soil**							
Batch R4585876								
WG3012635-3 DUP		**WG3012635-5**						
1-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	27-MAR-19
2-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	27-MAR-19
Acenaphthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Acenaphthylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Benzo(a)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Benzo(a)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Benzo(b)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R4585876								
WG3012635-3 DUP		**WG3012635-5**						
Benzo(g,h,i)perylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Benzo(k)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Chrysene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Dibenzo(ah)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Fluorene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Indeno(1,2,3-cd)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Naphthalene		<0.013	<0.013	RPD-NA	ug/g	N/A	40	27-MAR-19
Phenanthrene		<0.046	<0.046	RPD-NA	ug/g	N/A	40	27-MAR-19
Pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
WG3012635-2 LCS								
1-Methylnaphthalene			100.6		%		50-140	27-MAR-19
2-Methylnaphthalene			99.0		%		50-140	27-MAR-19
Acenaphthene			108.0		%		50-140	27-MAR-19
Acenaphthylene			108.2		%		50-140	27-MAR-19
Anthracene			102.8		%		50-140	27-MAR-19
Benzo(a)anthracene			111.5		%		50-140	27-MAR-19
Benzo(a)pyrene			100.7		%		50-140	27-MAR-19
Benzo(b)fluoranthene			107.5		%		50-140	27-MAR-19
Benzo(g,h,i)perylene			97.1		%		50-140	27-MAR-19
Benzo(k)fluoranthene			96.1		%		50-140	27-MAR-19
Chrysene			94.9		%		50-140	27-MAR-19
Dibenzo(ah)anthracene			94.8		%		50-140	27-MAR-19
Fluoranthene			102.7		%		50-140	27-MAR-19
Fluorene			106.7		%		50-140	27-MAR-19
Indeno(1,2,3-cd)pyrene			95.6		%		50-140	27-MAR-19
Naphthalene			96.8		%		50-140	27-MAR-19
Phenanthrene			99.0		%		50-140	27-MAR-19
Pyrene			102.2		%		50-140	27-MAR-19
WG3012635-1 MB								
1-Methylnaphthalene			<0.030		ug/g		0.03	27-MAR-19
2-Methylnaphthalene			<0.030		ug/g		0.03	27-MAR-19
Acenaphthene			<0.050		ug/g		0.05	27-MAR-19
Acenaphthylene			<0.050		ug/g		0.05	27-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R4585876								
WG3012635-1 MB								
Anthracene			<0.050		ug/g		0.05	27-MAR-19
Benzo(a)anthracene			<0.050		ug/g		0.05	27-MAR-19
Benzo(a)pyrene			<0.050		ug/g		0.05	27-MAR-19
Benzo(b)fluoranthene			<0.050		ug/g		0.05	27-MAR-19
Benzo(g,h,i)perylene			<0.050		ug/g		0.05	27-MAR-19
Benzo(k)fluoranthene			<0.050		ug/g		0.05	27-MAR-19
Chrysene			<0.050		ug/g		0.05	27-MAR-19
Dibenzo(ah)anthracene			<0.050		ug/g		0.05	27-MAR-19
Fluoranthene			<0.050		ug/g		0.05	27-MAR-19
Fluorene			<0.050		ug/g		0.05	27-MAR-19
Indeno(1,2,3-cd)pyrene			<0.050		ug/g		0.05	27-MAR-19
Naphthalene			<0.013		ug/g		0.013	27-MAR-19
Phenanthrene			<0.046		ug/g		0.046	27-MAR-19
Pyrene			<0.050		ug/g		0.05	27-MAR-19
Surrogate: 2-Fluorobiphenyl			96.9		%		50-140	27-MAR-19
Surrogate: p-Terphenyl d14			98.1		%		50-140	27-MAR-19
WG3012635-4 MS		**WG3012635-5**						
1-Methylnaphthalene			97.8		%		50-140	27-MAR-19
2-Methylnaphthalene			95.4		%		50-140	27-MAR-19
Acenaphthene			104.8		%		50-140	27-MAR-19
Acenaphthylene			101.8		%		50-140	27-MAR-19
Anthracene			100.3		%		50-140	27-MAR-19
Benzo(a)anthracene			107.6		%		50-140	27-MAR-19
Benzo(a)pyrene			99.0		%		50-140	27-MAR-19
Benzo(b)fluoranthene			105.0		%		50-140	27-MAR-19
Benzo(g,h,i)perylene			93.6		%		50-140	27-MAR-19
Benzo(k)fluoranthene			94.2		%		50-140	27-MAR-19
Chrysene			96.4		%		50-140	27-MAR-19
Dibenzo(ah)anthracene			90.9		%		50-140	27-MAR-19
Fluoranthene			103.6		%		50-140	27-MAR-19
Fluorene			101.4		%		50-140	27-MAR-19
Indeno(1,2,3-cd)pyrene			86.7		%		50-140	27-MAR-19
Naphthalene			95.0		%		50-140	27-MAR-19
Phenanthrene			99.1		%		50-140	27-MAR-19

Quality Control Report

Workorder: L2247725 Report Date: 01-APR-19

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2

Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R4585876								
WG3012635-4 MS		**WG3012635-5**						
Pyrene			102.4		%		50-140	27-MAR-19
PCB-511-WT	**Soil**							
Batch R4580669								
WG3012341-3 DUP		**WG3012341-5**						
Aroclor 1242		<0.010	<0.010	RPD-NA	ug/g	N/A	40	25-MAR-19
Aroclor 1248		<0.010	<0.010	RPD-NA	ug/g	N/A	40	25-MAR-19
Aroclor 1254		<0.0150	<0.0150	RPD-NA	ug/g	N/A	40	25-MAR-19
Aroclor 1260		0.051	0.071		ug/g	32	40	25-MAR-19
WG3012341-2 LCS								
Aroclor 1242			103.2		%		60-140	25-MAR-19
Aroclor 1248			95.1		%		60-140	25-MAR-19
Aroclor 1254			107.3		%		60-140	25-MAR-19
Aroclor 1260			111.0		%		60-140	25-MAR-19
WG3012341-1 MB								
Aroclor 1242			<0.010		ug/g		0.01	25-MAR-19
Aroclor 1248			<0.010		ug/g		0.01	25-MAR-19
Aroclor 1254			<0.010		ug/g		0.01	25-MAR-19
Aroclor 1260			<0.010		ug/g		0.01	25-MAR-19
Surrogate: d14-Terphenyl			75.7		%		60-140	25-MAR-19
WG3012341-4 MS		**WG3012341-5**						
Aroclor 1242			102.0		%		60-140	25-MAR-19
Aroclor 1254			112.8		%		60-140	25-MAR-19
Aroclor 1260			127.8		%		60-140	25-MAR-19
PEST-OC-511-WT	**Soil**							
Batch R4581388								
WG3011936-3 DUP		**WG3011936-5**						
Aldrin		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
a-chlordane		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
g-chlordane		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
op-DDD		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
pp-DDD		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
o,p-DDE		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
pp-DDE		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PEST-OC-511-WT	**Soil**							
Batch R4581388								
WG3011936-3 DUP		**WG3011936-5**						
op-DDT		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
pp-DDT		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
Dieldrin		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
Endosulfan I		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
Endosulfan II		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
Endrin		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
gamma-hexachlorocyclohexane		<0.10	<0.10	RPD-NA	ug/g	N/A	40	25-MAR-19
Heptachlor		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
Heptachlor Epoxide		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
Hexachlorobenzene		<0.10	<0.10	RPD-NA	ug/g	N/A	40	25-MAR-19
Hexachlorobutadiene		<0.10	<0.10	RPD-NA	ug/g	N/A	40	25-MAR-19
Hexachloroethane		<0.10	<0.10	RPD-NA	ug/g	N/A	40	25-MAR-19
Methoxychlor		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
WG3011936-2 LCS								
Aldrin			102.8		%		50-140	25-MAR-19
a-chlordane			79.4		%		50-140	25-MAR-19
g-chlordane			82.6		%		50-140	25-MAR-19
op-DDD			84.4		%		50-140	25-MAR-19
pp-DDD			91.2		%		50-140	25-MAR-19
o,p-DDE			78.8		%		50-140	25-MAR-19
pp-DDE			78.1		%		50-140	25-MAR-19
op-DDT			133.1		%		50-140	25-MAR-19
pp-DDT			139.8		%		50-140	25-MAR-19
Dieldrin			80.7		%		50-140	25-MAR-19
Endosulfan I			83.0		%		50-140	25-MAR-19
Endosulfan II			93.6		%		50-140	25-MAR-19
Endrin			146.5	RRQC	%		50-140	25-MAR-19
gamma-hexachlorocyclohexane			95.1		%		50-140	25-MAR-19
Heptachlor			106.7		%		50-140	25-MAR-19
Heptachlor Epoxide			85.1		%		50-140	25-MAR-19
Hexachlorobenzene			99.2		%		50-140	25-MAR-19
Hexachlorobutadiene			95.3		%		50-140	25-MAR-19
Hexachloroethane			102.4		%		50-140	25-MAR-19

COMMENTS: RRQC: Recovery is outside ALS control limits. Associated sample results have not been affected.

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PEST-OC-511-WT	**Soil**							
Batch R4581388								
WG3011936-2 LCS								
Methoxychlor			152.6	RRQC	%		50-140	25-MAR-19
COMMENTS: RRQC: Recovery is outside ALS control limits. Associated sample results have not been affected.								
WG3011936-1 MB								
Aldrin			<0.020		ug/g		0.02	25-MAR-19
a-chlordane			<0.020		ug/g		0.02	25-MAR-19
g-chlordane			<0.020		ug/g		0.02	25-MAR-19
op-DDD			<0.020		ug/g		0.02	25-MAR-19
pp-DDD			<0.020		ug/g		0.02	25-MAR-19
o,p-DDE			<0.020		ug/g		0.02	25-MAR-19
pp-DDE			<0.020		ug/g		0.02	25-MAR-19
op-DDT			<0.020		ug/g		0.02	25-MAR-19
pp-DDT			<0.020		ug/g		0.02	25-MAR-19
Dieldrin			<0.020		ug/g		0.02	25-MAR-19
Endosulfan I			<0.020		ug/g		0.02	25-MAR-19
Endosulfan II			<0.020		ug/g		0.02	25-MAR-19
Endrin			<0.020		ug/g		0.02	25-MAR-19
gamma-hexachlorocyclohexane			<0.010		ug/g		0.01	25-MAR-19
Heptachlor			<0.020		ug/g		0.02	25-MAR-19
Heptachlor Epoxide			<0.020		ug/g		0.02	25-MAR-19
Hexachlorobenzene			<0.010		ug/g		0.01	25-MAR-19
Hexachlorobutadiene			<0.010		ug/g		0.01	25-MAR-19
Hexachloroethane			<0.010		ug/g		0.01	25-MAR-19
Methoxychlor			<0.020		ug/g		0.02	25-MAR-19
Surrogate: 2-Fluorobiphenyl			95.0		%		50-140	25-MAR-19
Surrogate: d14-Terphenyl			110.5		%		50-140	25-MAR-19
WG3011936-4 MS		**WG3011936-5**						
Aldrin			85.0		%		50-140	25-MAR-19
a-chlordane			62.0		%		50-140	25-MAR-19
g-chlordane			67.1		%		50-140	25-MAR-19
op-DDD			64.1		%		50-140	25-MAR-19
pp-DDD			66.3		%		50-140	25-MAR-19
o,p-DDE			66.8		%		50-140	25-MAR-19
pp-DDE			68.2		%		50-140	25-MAR-19
op-DDT			98.8		%		50-140	25-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PEST-OC-511-WT	**Soil**							
Batch R4581388								
WG3011936-4 MS		**WG3011936-5**						
pp-DDT			100.2		%		50-140	25-MAR-19
Dieldrin			61.1		%		50-140	25-MAR-19
Endosulfan I			59.8		%		50-140	25-MAR-19
Endosulfan II			66.2		%		50-140	25-MAR-19
Endrin			93.8		%		50-140	25-MAR-19
gamma-hexachlorocyclohexane			71.9		%		50-140	25-MAR-19
Heptachlor			78.3		%		50-140	25-MAR-19
Heptachlor Epoxide			64.6		%		50-140	25-MAR-19
Hexachlorobenzene			85.0		%		50-140	25-MAR-19
Hexachlorobutadiene			81.8		%		50-140	25-MAR-19
Hexachloroethane			81.3		%		50-140	25-MAR-19
Methoxychlor			102.4		%		50-140	25-MAR-19
PH-WT	**Soil**							
Batch R4584807								
WG3013598-1 DUP		**L2248320-1**						
pH		7.35	7.23	J	pH units	0.12	0.3	26-MAR-19
WG3014231-1 LCS								
pH			6.96		pH units		6.9-7.1	26-MAR-19
SAR-R511-WT	**Soil**							
Batch R4585357								
WG3014878-4 DUP		**WG3014878-3**						
Calcium (Ca)		24.9	22.0		mg/L	12	30	27-MAR-19
Sodium (Na)		31.4	26.0		mg/L	19	30	27-MAR-19
Magnesium (Mg)		2.31	1.92		mg/L	18	30	27-MAR-19
WG3014878-2 IRM		**WT SAR2**						
Calcium (Ca)			91.7		%		70-130	27-MAR-19
Sodium (Na)			93.8		%		70-130	27-MAR-19
Magnesium (Mg)			92.7		%		70-130	27-MAR-19
WG3014878-5 LCS								
Calcium (Ca)			105.7		%		70-130	27-MAR-19
Sodium (Na)			105.2		%		70-130	27-MAR-19
Magnesium (Mg)			101.4		%		70-130	27-MAR-19
WG3014878-1 MB								
Calcium (Ca)			<0.50		mg/L		0.5	27-MAR-19
							0.5	

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
SAR-R511-WT	**Soil**							
Batch R4585357								
WG3014878-1 MB								
Sodium (Na)			<0.50		mg/L		0.5	27-MAR-19
Magnesium (Mg)			<0.50		mg/L		0.5	27-MAR-19
VOC-511-HS-WT	**Soil**							
Batch R4581369								
WG3013151-4 DUP		**WG3013151-3**						
1,1,1,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-MAR-19
1,1,2,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-MAR-19
1,1,1-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-MAR-19
1,1,2-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-MAR-19
1,1-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-MAR-19
1,1-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-MAR-19
1,2-Dibromoethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-MAR-19
1,2-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-MAR-19
1,2-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-MAR-19
1,2-Dichloropropane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-MAR-19
1,3-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-MAR-19
1,4-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-MAR-19
Acetone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	25-MAR-19
Benzene		<0.0068	<0.0068	RPD-NA	ug/g	N/A	40	25-MAR-19
Bromodichloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-MAR-19
Bromoform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-MAR-19
Bromomethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-MAR-19
Carbon tetrachloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-MAR-19
Chlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-MAR-19
Chloroform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-MAR-19
cis-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-MAR-19
cis-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	25-MAR-19
Dibromochloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-MAR-19
Dichlorodifluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-MAR-19
Ethylbenzene		<0.018	<0.018	RPD-NA	ug/g	N/A	40	25-MAR-19
n-Hexane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-MAR-19
Methylene Chloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-MAR-19
MTBE		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4581369								
WG3013151-4 DUP		**WG3013151-3**						
m+p-Xylenes		<0.030	<0.030	RPD-NA	ug/g	N/A	40	25-MAR-19
Methyl Ethyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	25-MAR-19
Methyl Isobutyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	25-MAR-19
o-Xylene		<0.020	<0.020	RPD-NA	ug/g	N/A	40	25-MAR-19
Styrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-MAR-19
Tetrachloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-MAR-19
Toluene		<0.080	<0.080	RPD-NA	ug/g	N/A	40	25-MAR-19
trans-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-MAR-19
trans-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	25-MAR-19
Trichloroethylene		<0.010	<0.010	RPD-NA	ug/g	N/A	40	25-MAR-19
Trichlorofluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	25-MAR-19
Vinyl chloride		<0.020	<0.020	RPD-NA	ug/g	N/A	40	25-MAR-19
WG3013151-2 LCS								
1,1,1,2-Tetrachloroethane			95.9		%		60-130	25-MAR-19
1,1,2,2-Tetrachloroethane			95.6		%		60-130	25-MAR-19
1,1,1-Trichloroethane			100.3		%		60-130	25-MAR-19
1,1,2-Trichloroethane			94.7		%		60-130	25-MAR-19
1,1-Dichloroethane			102.8		%		60-130	25-MAR-19
1,1-Dichloroethylene			101.3		%		60-130	25-MAR-19
1,2-Dibromoethane			90.6		%		70-130	25-MAR-19
1,2-Dichlorobenzene			100.0		%		70-130	25-MAR-19
1,2-Dichloroethane			93.0		%		60-130	25-MAR-19
1,2-Dichloropropane			97.7		%		70-130	25-MAR-19
1,3-Dichlorobenzene			104.5		%		70-130	25-MAR-19
1,4-Dichlorobenzene			103.4		%		70-130	25-MAR-19
Acetone			81.8		%		60-140	25-MAR-19
Benzene			102.4		%		70-130	25-MAR-19
Bromodichloromethane			93.8		%		50-140	25-MAR-19
Bromoform			85.8		%		70-130	25-MAR-19
Bromomethane			105.8		%		50-140	25-MAR-19
Carbon tetrachloride			100.5		%		70-130	25-MAR-19
Chlorobenzene			101.4		%		70-130	25-MAR-19
Chloroform			99.3		%		70-130	25-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4581369								
WG3013151-2 LCS								
cis-1,2-Dichloroethylene			97.6		%		70-130	25-MAR-19
cis-1,3-Dichloropropene			97.2		%		70-130	25-MAR-19
Dibromochloromethane			91.9		%		60-130	25-MAR-19
Dichlorodifluoromethane			81.6		%		50-140	25-MAR-19
Ethylbenzene			100.4		%		70-130	25-MAR-19
n-Hexane			99.6		%		70-130	25-MAR-19
Methylene Chloride			97.7		%		70-130	25-MAR-19
MTBE			101.3		%		70-130	25-MAR-19
m+p-Xylenes			101.8		%		70-130	25-MAR-19
Methyl Ethyl Ketone			85.8		%		60-140	25-MAR-19
Methyl Isobutyl Ketone			76.9		%		60-140	25-MAR-19
o-Xylene			96.5		%		70-130	25-MAR-19
Styrene			95.5		%		70-130	25-MAR-19
Tetrachloroethylene			106.5		%		60-130	25-MAR-19
Toluene			102.3		%		70-130	25-MAR-19
trans-1,2-Dichloroethylene			103.5		%		60-130	25-MAR-19
trans-1,3-Dichloropropene			97.0		%		70-130	25-MAR-19
Trichloroethylene			102.5		%		60-130	25-MAR-19
Trichlorofluoromethane			97.3		%		50-140	25-MAR-19
Vinyl chloride			84.0		%		60-140	25-MAR-19
WG3013151-1 MB								
1,1,1,2-Tetrachloroethane			<0.050		ug/g		0.05	25-MAR-19
1,1,2,2-Tetrachloroethane			<0.050		ug/g		0.05	25-MAR-19
1,1,1-Trichloroethane			<0.050		ug/g		0.05	25-MAR-19
1,1,2-Trichloroethane			<0.050		ug/g		0.05	25-MAR-19
1,1-Dichloroethane			<0.050		ug/g		0.05	25-MAR-19
1,1-Dichloroethylene			<0.050		ug/g		0.05	25-MAR-19
1,2-Dibromoethane			<0.050		ug/g		0.05	25-MAR-19
1,2-Dichlorobenzene			<0.050		ug/g		0.05	25-MAR-19
1,2-Dichloroethane			<0.050		ug/g		0.05	25-MAR-19
1,2-Dichloropropane			<0.050		ug/g		0.05	25-MAR-19
1,3-Dichlorobenzene			<0.050		ug/g		0.05	25-MAR-19
1,4-Dichlorobenzene			<0.050		ug/g		0.05	25-MAR-19
Acetone			<0.50		ug/g		0.5	25-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4581369								
WG3013151-1 MB								
Benzene			<0.0068		ug/g		0.0068	25-MAR-19
Bromodichloromethane			<0.050		ug/g		0.05	25-MAR-19
Bromoform			<0.050		ug/g		0.05	25-MAR-19
Bromomethane			<0.050		ug/g		0.05	25-MAR-19
Carbon tetrachloride			<0.050		ug/g		0.05	25-MAR-19
Chlorobenzene			<0.050		ug/g		0.05	25-MAR-19
Chloroform			<0.050		ug/g		0.05	25-MAR-19
cis-1,2-Dichloroethylene			<0.050		ug/g		0.05	25-MAR-19
cis-1,3-Dichloropropene			<0.030		ug/g		0.03	25-MAR-19
Dibromochloromethane			<0.050		ug/g		0.05	25-MAR-19
Dichlorodifluoromethane			<0.050		ug/g		0.05	25-MAR-19
Ethylbenzene			<0.018		ug/g		0.018	25-MAR-19
n-Hexane			<0.050		ug/g		0.05	25-MAR-19
Methylene Chloride			<0.050		ug/g		0.05	25-MAR-19
MTBE			<0.050		ug/g		0.05	25-MAR-19
m+p-Xylenes			<0.030		ug/g		0.03	25-MAR-19
Methyl Ethyl Ketone			<0.50		ug/g		0.5	25-MAR-19
Methyl Isobutyl Ketone			<0.50		ug/g		0.5	25-MAR-19
o-Xylene			<0.020		ug/g		0.02	25-MAR-19
Styrene			<0.050		ug/g		0.05	25-MAR-19
Tetrachloroethylene			<0.050		ug/g		0.05	25-MAR-19
Toluene			<0.080		ug/g		0.08	25-MAR-19
trans-1,2-Dichloroethylene			<0.050		ug/g		0.05	25-MAR-19
trans-1,3-Dichloropropene			<0.030		ug/g		0.03	25-MAR-19
Trichloroethylene			<0.010		ug/g		0.01	25-MAR-19
Trichlorofluoromethane			<0.050		ug/g		0.05	25-MAR-19
Vinyl chloride			<0.020		ug/g		0.02	25-MAR-19
Surrogate: 1,4-Difluorobenzene			106.1		%		50-140	25-MAR-19
Surrogate: 4-Bromofluorobenzene			95.1		%		50-140	25-MAR-19
WG3013151-5 MS		**L2247542-3**						
1,1,1,2-Tetrachloroethane			118.0		%		50-140	25-MAR-19
1,1,2,2-Tetrachloroethane			142.9	MES	%		50-140	25-MAR-19
1,1,1-Trichloroethane			121.9		%		50-140	25-MAR-19
1,1,2-Trichloroethane			119.3		%		50-140	25-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4581369								
WG3013151-5 MS		**L2247542-3**						
1,1-Dichloroethane			126.2		%		50-140	25-MAR-19
1,1-Dichloroethylene			121.6		%		50-140	25-MAR-19
1,2-Dibromoethane			114.4		%		50-140	25-MAR-19
1,2-Dichlorobenzene			120.9		%		50-140	25-MAR-19
1,2-Dichloroethane			117.9		%		50-140	25-MAR-19
1,2-Dichloropropane			122.0		%		50-140	25-MAR-19
1,3-Dichlorobenzene			124.0		%		50-140	25-MAR-19
1,4-Dichlorobenzene			122.0		%		50-140	25-MAR-19
Acetone			108.5		%		50-140	25-MAR-19
Benzene			125.8		%		50-140	25-MAR-19
Bromodichloromethane			117.0		%		50-140	25-MAR-19
Bromoform			110.7		%		50-140	25-MAR-19
Bromomethane			127.5		%		50-140	25-MAR-19
Carbon tetrachloride			120.9		%		50-140	25-MAR-19
Chlorobenzene			122.1		%		50-140	25-MAR-19
Chloroform			122.6		%		50-140	25-MAR-19
cis-1,2-Dichloroethylene			119.9		%		50-140	25-MAR-19
cis-1,3-Dichloropropene			118.1		%		50-140	25-MAR-19
Dibromochloromethane			115.2		%		50-140	25-MAR-19
Dichlorodifluoromethane			90.3		%		50-140	25-MAR-19
Ethylbenzene			119.4		%		50-140	25-MAR-19
n-Hexane			117.9		%		50-140	25-MAR-19
Methylene Chloride			121.6		%		50-140	25-MAR-19
MTBE			123.0		%		50-140	25-MAR-19
m+p-Xylenes			120.5		%		50-140	25-MAR-19
Methyl Ethyl Ketone			107.2		%		50-140	25-MAR-19
Methyl Isobutyl Ketone			100.5		%		50-140	25-MAR-19
o-Xylene			116.2		%		50-140	25-MAR-19
Styrene			116.2		%		50-140	25-MAR-19
Tetrachloroethylene			123.3		%		50-140	25-MAR-19
Toluene			123.1		%		50-140	25-MAR-19
trans-1,2-Dichloroethylene			123.8		%		50-140	25-MAR-19
trans-1,3-Dichloropropene			117.6		%		50-140	25-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4581369								
WG3013151-5 MS		**L2247542-3**						
Trichloroethylene			120.0		%		50-140	25-MAR-19
Trichlorofluoromethane			115.8		%		50-140	25-MAR-19
Vinyl chloride			98.6		%		50-140	25-MAR-19

Quality Control Report

Workorder: L2247725 Report Date: 01-APR-19

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
J	Duplicate results and limits are expressed in terms of absolute difference.
MES	Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.
RRQC	Refer to report remarks for information regarding this QC result.

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

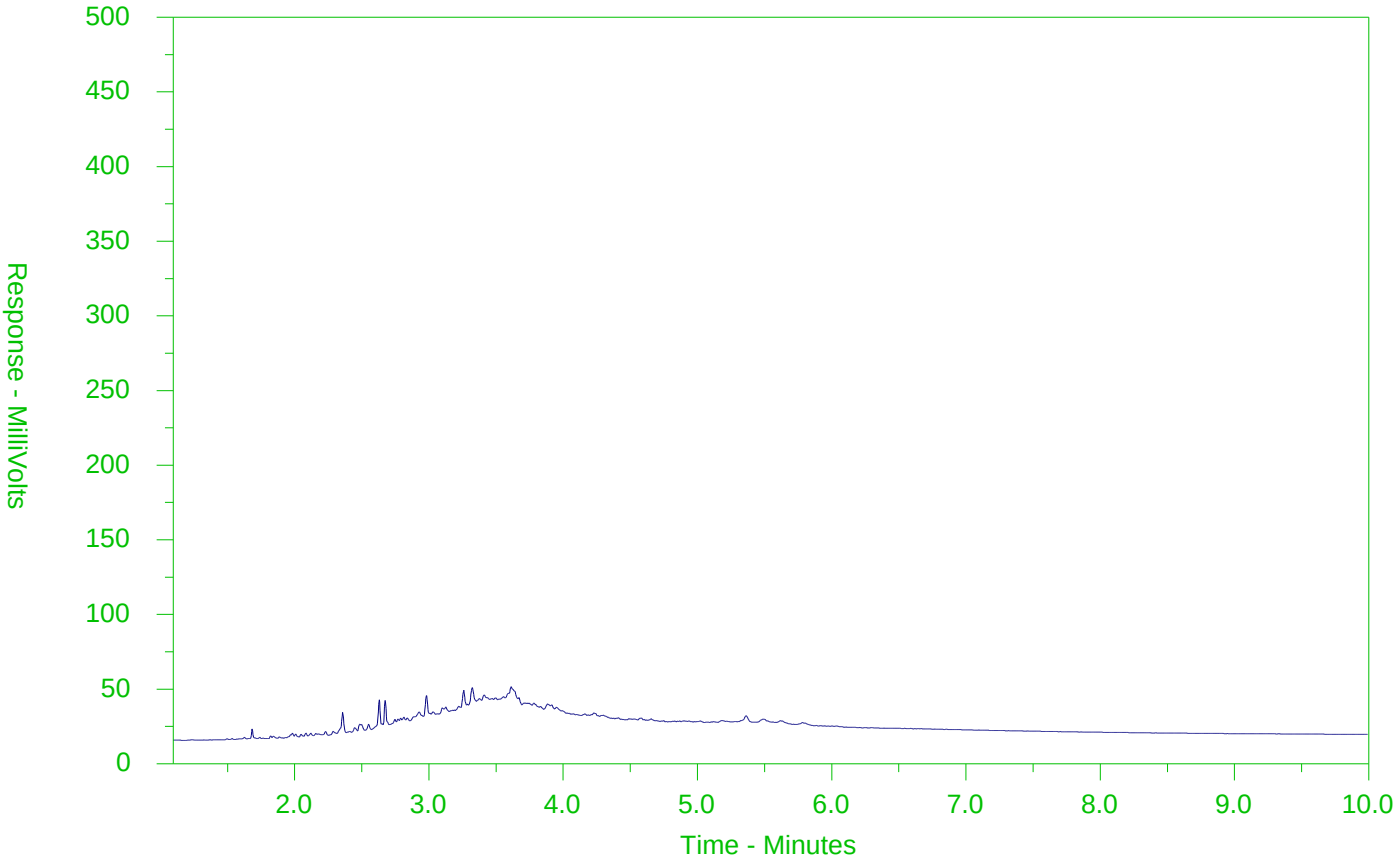
ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2247725-1
Client Sample ID: S-11102463-032019-JC-BH18-444-1.0-2.0



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

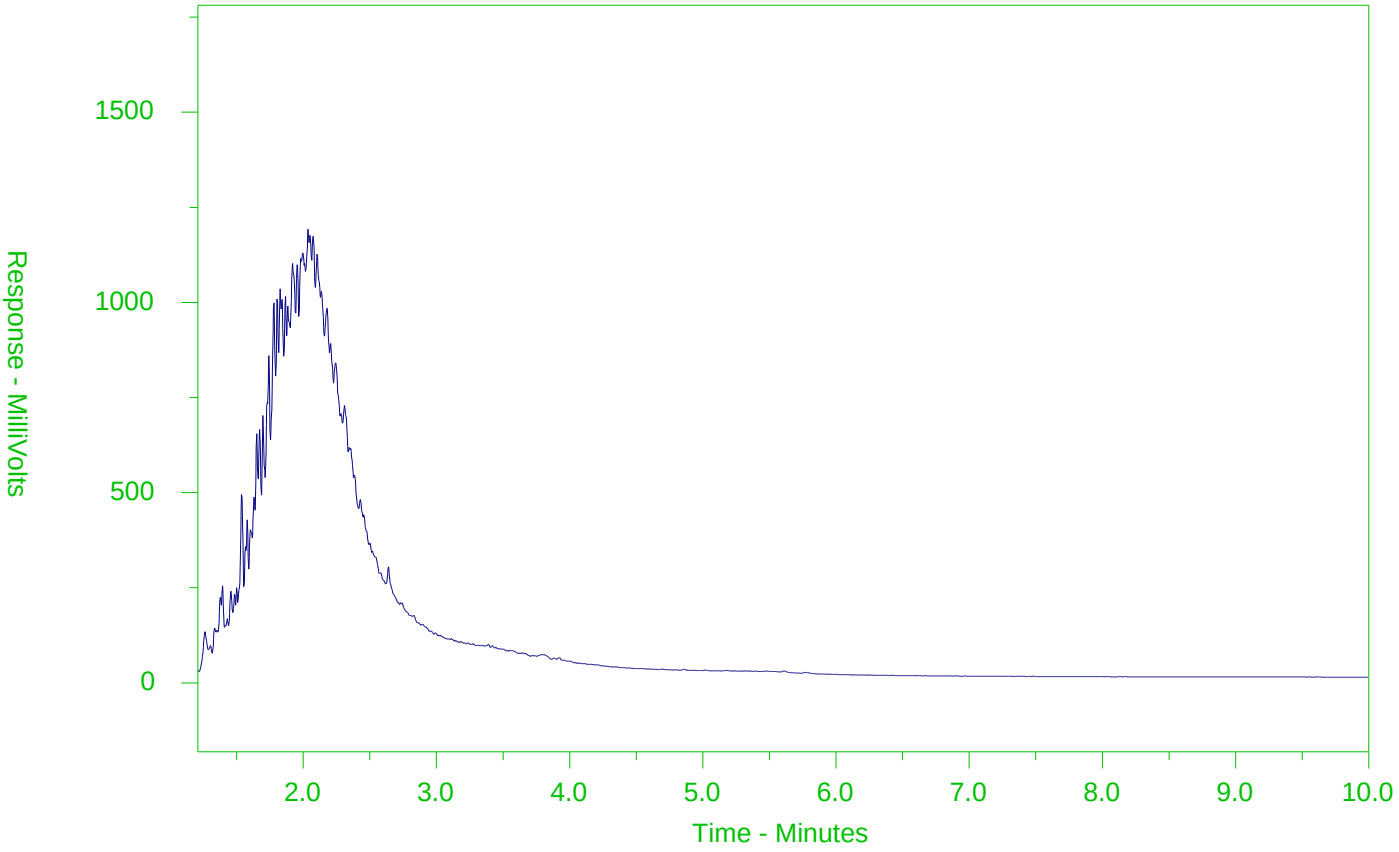
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2247725-2
Client Sample ID: S-11102463-032119-EN-BH18-444-10-12



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

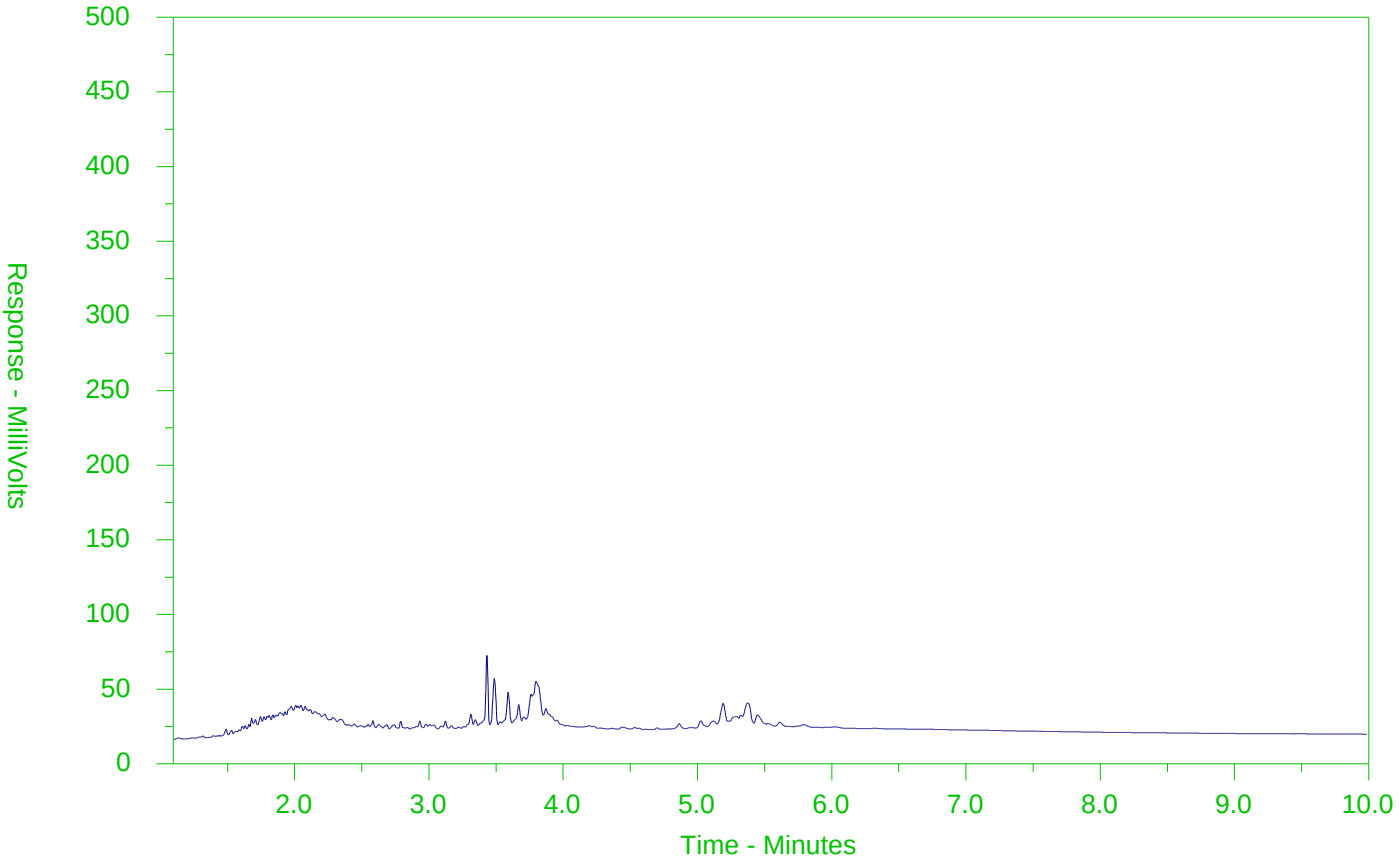
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2247725-3
Client Sample ID: S-11102463-032119-EN-BH18-444-15-17



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental

Canada Toll Free: 1 800 668 9878

www.alsglobal.com

L2247725-COFC

Number: 17 -

Page 1 of 1

Report To	Contact and company name below will appear on the final report
Company:	GHD LIMITED - ACCT #13791
Contact:	Jennifer Balkwill
Phone:	519-884-0510
	Company address below will appear on the final report
Street:	455 Phillip St
City/Province:	Waterloo, Ontario
Postal Code:	N2L 3X2

Report Format / Distri.	
Select Report Format:	☑ PDF ☑ EXCEL ☑ EDD (DIGITAL)
Quality Control (QC) Report with Report	☑ YES ☐ NO
☐ Compare Results to Criteria on Report - provide details below if box checked	
Select Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	jennifer.balkwill@ghd.com
Email 2	See PO
Email 3	

ct your AM to confirm all E&P TATs (surcharges may apply)

Regular [R] ☑ Standard TAT if received by 3 pm - business days - no surcharges apply

PRIORITY (Business Days): 4 day [P4-20%] ☐ | 3 day [P3-25%] ☐ | 2 day [P2-50%] ☐

EMERGENCY: 1 Business day [E - 100%] ☐ | Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)] ☐

Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm

For tests that can not be performed according to the service level selected, you will be contacted.

Invoice To	Same as Report To ☑ YES ☐ NO
	Copy of Invoice with Report ☐ YES ☑ NO
Company:	GHD Limited
Contact:	Jennifer Balkwill

Invoice Distribution	
Select Invoice Distribution:	☐ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	jennifer.balkwill@ghd.com
Email 2	

Project Information	
ALS Account # / Quote #:	13791, Q51987
Job #:	11102463-~~0~~ 53
PO / AFE:	73509898-7
LSD:	Waterfront Toronto

Oil and Gas Required Fields (client use)	
AFE/Cost Center:	PO#
Major/Minor Code:	Routing Code:
Requisitioner:	
Location:	

ALS Lab Work Order # (lab use only): L2247725 21E

ALS Contact: Rick H

Sampler: J. Cummings / E. Nuzzi

Analysis Request — Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	BTEX,F1-F4-511-P-WT	TOC-WT (confirmed Triplicate 511 not neces	BTEX,F1 (Trip Blank)	OCP	CP	PCBs	MetPhs & INORGANICS	PAHs	PHCF1	PHCF2-F4	VOCs	SAMPLES ON HOLD	SUSPECTED HAZARD (see Special Instructions)
1	S-11102463- 190319-JC-BH18-444-1.0-2.0'	20-MAR-19	13:00	Soil	5				X	X	X	X	X	X	X	X		
2	S-11102463- 032119-EN-BH18-444-10-12'	21-MAR-19	10:45	Soil	4				X	X	X	X	X	X	X	X		
3	S-11102463- 032119-EN-BH18-444-15-17'	21-MAR-19	11:35	Soil	4							X	X	X	X	X		
4	S-11102463- 032019-EN-BH18-444-TRIP-BLANK	20-MAR-19	09:00	Soil	1									X		X		
	S-11102463-			Soil														
	S-11102463-			Soil														
	S-11102463-			Soil														
	S-11102463-			Soil														
	S-11102463-			Soil														
	S-11102463-			Soil														
	S-11102463-			Soil														
	S-11102463-			Soil														

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? ☐ YES ☑ NO	LIMITED SAMPLE VOLUME, PLEASE PROCEED WITH ANALYSIS. BH18-444-10-12' MAY HAVE DEBRIS IN SAMPLE.
Are samples for human consumption/ use? ☐ YES ☑ NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐

Ice Packs ☐ Ice Cubes ☐ Custody seal intact Yes ☐ No ☐

Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C	FINAL COOLER TEMPERATURES °C
	-0.5

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by: Emma Nuzzi	Date: 21-MAR-2019	Time: 12:30	Received by:	Date:	Time:	Received by:	Date: Mar 21/19	Time: 18:20

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

JUNE 2016 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

GHD Limited (Waterloo)
ATTN: JENNIFER BALKWILL
455 PHILLIP ST
WATERLOO ON N2L 3X2

Date Received: 21-MAR-19
Report Date: 29-MAR-19 13:21 (MT)
Version: FINAL

Client Phone: 519-884-0510

Certificate of Analysis

Lab Work Order #: L2247735

Project P.O. #:	73509898-7
Job Reference:	11102463-53
C of C Numbers:	17-667135
Legal Site Desc:	WATERFRONT TORONTO

Rick Hawthorne
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2247735-1 S-11102463-032019-EN-TRIP-BLANK Sampled By: E. NUSSLI on 20-MAR-19 @ 09:0(Matrix: SOIL								
Physical Tests								
% Moisture	<0.10		0.10	%	26-MAR-19			
Volatile Organic Compounds								
Acetone	<0.50		0.50	ug/g	26-MAR-19	16	28	0.5
Benzene	<0.0068		0.0068	ug/g	26-MAR-19	0.21	0.17	0.02
Bromodichloromethane	<0.050		0.050	ug/g	26-MAR-19	13	13	0.05
Bromoform	<0.050		0.050	ug/g	26-MAR-19	0.27	0.26	0.05
Bromomethane	<0.050		0.050	ug/g	26-MAR-19	0.05	0.05	0.05
Carbon tetrachloride	<0.050		0.050	ug/g	26-MAR-19	0.05	0.12	0.05
Chlorobenzene	<0.050		0.050	ug/g	26-MAR-19	2.4	2.7	0.05
Dibromochloromethane	<0.050		0.050	ug/g	26-MAR-19	9.4	9.4	0.05
Chloroform	<0.050		0.050	ug/g	26-MAR-19	0.05	0.18	0.05
1,2-Dibromoethane	<0.050		0.050	ug/g	26-MAR-19	0.05	0.05	0.05
1,2-Dichlorobenzene	<0.050		0.050	ug/g	26-MAR-19	3.4	4.3	0.05
1,3-Dichlorobenzene	<0.050		0.050	ug/g	26-MAR-19	4.8	6	0.05
1,4-Dichlorobenzene	<0.050		0.050	ug/g	26-MAR-19	0.083	0.097	0.05
Dichlorodifluoromethane	<0.050		0.050	ug/g	26-MAR-19	16	25	0.05
1,1-Dichloroethane	<0.050		0.050	ug/g	26-MAR-19	3.5	11	0.05
1,2-Dichloroethane	<0.050		0.050	ug/g	26-MAR-19	0.05	0.05	0.05
1,1-Dichloroethylene	<0.050		0.050	ug/g	26-MAR-19	0.05	0.05	0.05
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	26-MAR-19	3.4	30	0.05
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	26-MAR-19	0.084	0.75	0.05
Methylene Chloride	<0.050		0.050	ug/g	26-MAR-19	0.1	0.96	0.05
1,2-Dichloropropane	<0.050		0.050	ug/g	26-MAR-19	0.05	0.085	0.05
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	26-MAR-19			
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	26-MAR-19			
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g	26-MAR-19	0.05	0.083	0.05
Ethylbenzene	<0.018		0.018	ug/g	26-MAR-19	2	15	0.05
n-Hexane	<0.050		0.050	ug/g	26-MAR-19	2.8	34	0.05
Methyl Ethyl Ketone	<0.50		0.50	ug/g	26-MAR-19	16	44	0.5
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	26-MAR-19	1.7	4.3	0.5
MTBE	<0.050		0.050	ug/g	26-MAR-19	0.75	1.4	0.05
Styrene	<0.050		0.050	ug/g	26-MAR-19	0.7	2.2	0.05
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	26-MAR-19	0.058	0.05	0.05
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	26-MAR-19	0.05	0.05	0.05
Tetrachloroethylene	<0.050		0.050	ug/g	26-MAR-19	0.28	2.3	0.05
Toluene	<0.080		0.080	ug/g	26-MAR-19	2.3	6	0.2
1,1,1-Trichloroethane	<0.050		0.050	ug/g	26-MAR-19	0.38	3.4	0.05
1,1,2-Trichloroethane	<0.050		0.050	ug/g	26-MAR-19	0.05	0.05	0.05
Trichloroethylene	<0.010		0.010	ug/g	26-MAR-19	0.061	0.52	0.05
Trichlorofluoromethane	<0.050		0.050	ug/g	26-MAR-19	4	5.8	0.25
Vinyl chloride	<0.020		0.020	ug/g	26-MAR-19	0.02	0.022	0.02
o-Xylene	<0.020		0.020	ug/g	26-MAR-19			
m+p-Xylenes	<0.030		0.030	ug/g	26-MAR-19			
Xylenes (Total)	<0.050		0.050	ug/g	26-MAR-19	3.1	25	0.05
Surrogate: 4-Bromofluorobenzene	98.7		50-140	%	26-MAR-19			
Surrogate: 1,4-Difluorobenzene	107.7		50-140	%	26-MAR-19			

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2247735-1 S-11102463-032019-EN-TRIP-BLANK								
Sampled By: E. NUSSLI on 20-MAR-19 @ 09:0(								
Matrix: SOIL								
Hydrocarbons								
F1 (C6-C10)	<5.0		5.0	ug/g	26-MAR-19	55	65	25
Surrogate: 3,4-Dichlorotoluene	83.9		60-140	%	26-MAR-19			
L2247735-2 S-11102463-032019-EN-BH18-463-1-2'								
Sampled By: E. NUSSLI on 20-MAR-19 @ 10:0(								
Matrix: SOIL								
Physical Tests								
Conductivity	0.191		0.0040	mS/cm	28-MAR-19	0.7	0.7	0.7
% Moisture	18.0		0.10	%	26-MAR-19			
pH	6.76		0.10	pH units	27-MAR-19			
Cyanides								
Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	27-MAR-19	0.051	0.051	0.051
Saturated Paste Extractables								
SAR	0.23		0.10	SAR	28-MAR-19	5	5	5
Calcium (Ca)	33.2		0.50	mg/L	28-MAR-19			
Magnesium (Mg)	1.46		0.50	mg/L	28-MAR-19			
Sodium (Na)	4.93		0.50	mg/L	28-MAR-19			
Metals								
Antimony (Sb)	2.0		1.0	ug/g	28-MAR-19	7.5	7.5	*1.3
Arsenic (As)	5.7		1.0	ug/g	28-MAR-19	18	18	18
Barium (Ba)	106		1.0	ug/g	28-MAR-19	390	390	220
Beryllium (Be)	<0.50		0.50	ug/g	28-MAR-19	4	5	2.5
Boron (B)	6.4		5.0	ug/g	28-MAR-19	120	120	36
Boron (B), Hot Water Ext.	0.35		0.10	ug/g	28-MAR-19	1.5	1.5	1.5
Cadmium (Cd)	1.09		0.50	ug/g	28-MAR-19	1.2	1.2	1.2
Chromium (Cr)	30.4		1.0	ug/g	28-MAR-19	160	160	70
Cobalt (Co)	7.1		1.0	ug/g	28-MAR-19	22	22	22
Copper (Cu)	52.9		1.0	ug/g	28-MAR-19	140	180	92
Lead (Pb)	192		1.0	ug/g	28-MAR-19	*120	*120	*120
Mercury (Hg)	0.332		0.0050	ug/g	28-MAR-19	*0.27	1.8	*0.27
Molybdenum (Mo)	<1.0		1.0	ug/g	28-MAR-19	6.9	6.9	2
Nickel (Ni)	19.4		1.0	ug/g	28-MAR-19	100	130	82
Selenium (Se)	<1.0		1.0	ug/g	28-MAR-19	2.4	2.4	1.5
Silver (Ag)	0.40		0.20	ug/g	28-MAR-19	20	25	0.5
Thallium (Tl)	<0.50		0.50	ug/g	28-MAR-19	1	1	1
Uranium (U)	<1.0		1.0	ug/g	28-MAR-19	23	23	2.5
Vanadium (V)	27.8		1.0	ug/g	28-MAR-19	86	86	86
Zinc (Zn)	216		5.0	ug/g	28-MAR-19	340	340	290
Speciated Metals								
Chromium, Hexavalent	6.26		0.20	ug/g	27-MAR-19	8	10	*0.66
Volatile Organic Compounds								
Acetone	<0.50		0.50	ug/g	26-MAR-19	16	28	0.5
Benzene	0.0168		0.0068	ug/g	26-MAR-19	0.21	0.17	0.02
Bromodichloromethane	<0.050		0.050	ug/g	26-MAR-19	13	13	0.05
Bromoform	<0.050		0.050	ug/g	26-MAR-19	0.27	0.26	0.05

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2247735-2 S-11102463-032019-EN-BH18-463-1-2'								
Sampled By: E. NUSSLI on 20-MAR-19 @ 10:0(								
Matrix: SOIL								
Volatile Organic Compounds								
Bromomethane	<0.050		0.050	ug/g	26-MAR-19	0.05	0.05	0.05
Carbon tetrachloride	<0.050		0.050	ug/g	26-MAR-19	0.05	0.12	0.05
Chlorobenzene	<0.050		0.050	ug/g	26-MAR-19	2.4	2.7	0.05
Dibromochloromethane	<0.050		0.050	ug/g	26-MAR-19	9.4	9.4	0.05
Chloroform	<0.050		0.050	ug/g	26-MAR-19	0.05	0.18	0.05
1,2-Dibromoethane	<0.050		0.050	ug/g	26-MAR-19	0.05	0.05	0.05
1,2-Dichlorobenzene	<0.050		0.050	ug/g	26-MAR-19	3.4	4.3	0.05
1,3-Dichlorobenzene	<0.050		0.050	ug/g	26-MAR-19	4.8	6	0.05
1,4-Dichlorobenzene	<0.050		0.050	ug/g	26-MAR-19	0.083	0.097	0.05
Dichlorodifluoromethane	<0.050		0.050	ug/g	26-MAR-19	16	25	0.05
1,1-Dichloroethane	<0.050		0.050	ug/g	26-MAR-19	3.5	11	0.05
1,2-Dichloroethane	<0.050		0.050	ug/g	26-MAR-19	0.05	0.05	0.05
1,1-Dichloroethylene	<0.050		0.050	ug/g	26-MAR-19	0.05	0.05	0.05
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	26-MAR-19	3.4	30	0.05
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	26-MAR-19	0.084	0.75	0.05
Methylene Chloride	<0.050		0.050	ug/g	26-MAR-19	0.1	0.96	0.05
1,2-Dichloropropane	<0.050		0.050	ug/g	26-MAR-19	0.05	0.085	0.05
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	26-MAR-19			
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	26-MAR-19			
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g	26-MAR-19	0.05	0.083	0.05
Ethylbenzene	<0.018		0.018	ug/g	26-MAR-19	2	15	0.05
n-Hexane	<0.050		0.050	ug/g	26-MAR-19	2.8	34	0.05
Methyl Ethyl Ketone	<0.50		0.50	ug/g	26-MAR-19	16	44	0.5
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	26-MAR-19	1.7	4.3	0.5
MTBE	<0.050		0.050	ug/g	26-MAR-19	0.75	1.4	0.05
Styrene	<0.050		0.050	ug/g	26-MAR-19	0.7	2.2	0.05
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	26-MAR-19	0.058	0.05	0.05
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	26-MAR-19	0.05	0.05	0.05
Tetrachloroethylene	<0.050		0.050	ug/g	26-MAR-19	0.28	2.3	0.05
Toluene	<0.080		0.080	ug/g	26-MAR-19	2.3	6	0.2
1,1,1-Trichloroethane	<0.050		0.050	ug/g	26-MAR-19	0.38	3.4	0.05
1,1,2-Trichloroethane	<0.050		0.050	ug/g	26-MAR-19	0.05	0.05	0.05
Trichloroethylene	<0.010		0.010	ug/g	26-MAR-19	0.061	0.52	0.05
Trichlorofluoromethane	<0.050		0.050	ug/g	26-MAR-19	4	5.8	0.25
Vinyl chloride	<0.020		0.020	ug/g	26-MAR-19	0.02	0.022	0.02
o-Xylene	0.040		0.020	ug/g	26-MAR-19			
m+p-Xylenes	0.068		0.030	ug/g	26-MAR-19			
Xylenes (Total)	0.108		0.050	ug/g	26-MAR-19	3.1	25	*0.05
Surrogate: 4-Bromofluorobenzene	96.9		50-140	%	26-MAR-19			
Surrogate: 1,4-Difluorobenzene	110.0		50-140	%	26-MAR-19			
Hydrocarbons								
F1 (C6-C10)	<5.0		5.0	ug/g	26-MAR-19	55	65	25
F1-BTEX	<5.0		5.0	ug/g	28-MAR-19	55	65	25
F2 (C10-C16)	<10		10	ug/g	27-MAR-19	98	150	10
F2-Naphth	<10		10	ug/g	28-MAR-19			
F3 (C16-C34)	172		50	ug/g	27-MAR-19	300	1300	240

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2247735-2 S-11102463-032019-EN-BH18-463-1-2'								
Sampled By: E. NUSSLI on 20-MAR-19 @ 10:0(								
Matrix: SOIL								
Hydrocarbons								
F3-PAH	158		50	ug/g	28-MAR-19			
F4 (C34-C50)	348		50	ug/g	27-MAR-19	2800	5600	*120
F4G-SG (GHH-Silica)	1280		250	ug/g	26-MAR-19	2800	5600	*120
Total Hydrocarbons (C6-C50)	520		72	ug/g	28-MAR-19			
Chrom. to baseline at nC50	NO			No Unit	27-MAR-19			
Surrogate: 2-Bromobenzotrifluoride	107.7		60-140	%	27-MAR-19			
Surrogate: 3,4-Dichlorotoluene	85.7		60-140	%	26-MAR-19			
Polycyclic Aromatic Hydrocarbons								
1+2-Methylnaphthalenes	0.357		0.085	ug/g	27-MAR-19	0.99	3.4	0.59
Semi-Volatile Organics								
Acenaphthene	0.41	DLM	0.10	ug/g	27-MAR-19	7.9	58	*0.072
Acenaphthylene	<0.10	DLM	0.10	ug/g	27-MAR-19	0.15	0.17	**0.093
Anthracene	1.27	DLM	0.10	ug/g	27-MAR-19	*0.67	*0.74	*0.22
Benzo(a)anthracene	1.28	DLM	0.10	ug/g	27-MAR-19	*0.5	*0.63	*0.36
Benzo(a)pyrene	0.84	DLM	0.10	ug/g	27-MAR-19	*0.3	*0.3	*0.3
Benzo(b)fluoranthene	0.88	DLM	0.10	ug/g	27-MAR-19	*0.78	*0.78	*0.47
Benzo(ghi)perylene	0.57	DLM	0.10	ug/g	27-MAR-19	6.6	7.8	0.68
Benzo(k)fluoranthene	0.62	DLM	0.10	ug/g	27-MAR-19	0.78	0.78	*0.48
2-Chlorophenol	<0.20	DLM	0.20	ug/g	27-MAR-19	1.6	2	**0.1
Chrysene	1.12	DLM	0.10	ug/g	27-MAR-19	7	7.8	2.8
Dibenzo(a,h)anthracene	0.16	DLM	0.10	ug/g	27-MAR-19	*0.1	*0.1	*0.1
2,4-Dichlorophenol	<0.20	DLM	0.20	ug/g	27-MAR-19	1.7	2.1	**0.1
Fluoranthene	3.15	DLM	0.10	ug/g	27-MAR-19	*0.69	*0.69	*0.69
Fluorene	0.70	DLM	0.10	ug/g	27-MAR-19	62	69	*0.19
Indeno(1,2,3-cd)pyrene	0.64	DLM	0.10	ug/g	27-MAR-19	*0.38	*0.48	*0.23
1-Methylnaphthalene	0.147	DLM	0.060	ug/g	27-MAR-19	0.99	3.4	0.59
2-Methylnaphthalene	0.210	DLM	0.060	ug/g	27-MAR-19	0.99	3.4	0.59
Naphthalene	0.33	DLM	0.10	ug/g	27-MAR-19	0.6	0.75	*0.09
Pentachlorophenol	<0.20	DLM	0.20	ug/g	27-MAR-19	**0.1	**0.1	**0.1
Phenanthrene	4.34	DLM	0.10	ug/g	27-MAR-19	6.2	7.8	*0.69
Pyrene	2.37	DLM	0.10	ug/g	27-MAR-19	78	78	*1
2,4,5-Trichlorophenol	<0.20	DLM	0.20	ug/g	27-MAR-19	4.4	5.5	**0.1
2,4,6-Trichlorophenol	<0.20	DLM	0.20	ug/g	27-MAR-19	3.8	4.2	**0.1
Surrogate: 2-Fluorobiphenyl	89.8		50-140	%	27-MAR-19			
Surrogate: Phenol d5	90.3		30-130	%	27-MAR-19			
Surrogate: p-Terphenyl d14	94.9		50-140	%	27-MAR-19			
Surrogate: 2,4,6-Tribromophenol	74.2		50-140	%	27-MAR-19			
Polychlorinated Biphenyls								
Aroclor 1242	<0.010		0.010	ug/g	27-MAR-19			
Aroclor 1248	<0.010		0.010	ug/g	27-MAR-19			
Aroclor 1254	<0.0250	DLM	0.025	ug/g	27-MAR-19			
Aroclor 1260	0.059	PRAR	0.010	ug/g	27-MAR-19			
Total PCBs	0.059	DLM	0.030	ug/g	27-MAR-19	0.35	0.35	0.3
Surrogate: d14-Terphenyl	87.9		60-140	%	27-MAR-19			
Organochlorine Pesticides								
Aldrin	<0.020		0.020	ug/g	27-MAR-19	0.05	0.05	0.05

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2247735-2 S-11102463-032019-EN-BH18-463-1-2'								
Sampled By: E. NUSSLI on 20-MAR-19 @ 10:0(								
Matrix: SOIL								
Organochlorine Pesticides								
gamma-hexachlorocyclohexane	<0.050	DLM	0.050	ug/g	27-MAR-19	0.056	0.063	
a-chlordane	<0.020		0.020	ug/g	27-MAR-19			
Chlordane (Total)	<0.028		0.028	ug/g	27-MAR-19	0.05	0.05	0.05
g-chlordane	<0.020		0.020	ug/g	27-MAR-19			
op-DDD	<0.020		0.020	ug/g	27-MAR-19			
pp-DDD	<0.020		0.020	ug/g	27-MAR-19			
Total DDD	<0.028		0.028	ug/g	27-MAR-19	3.3	3.3	0.05
o,p-DDE	<0.020		0.020	ug/g	27-MAR-19			
pp-DDE	<0.020		0.020	ug/g	27-MAR-19			
Total DDE	<0.028		0.028	ug/g	27-MAR-19	0.26	0.33	0.05
op-DDT	<0.020		0.020	ug/g	27-MAR-19			
pp-DDT	<0.10	DLM	0.10	ug/g	27-MAR-19			
Total DDT	<0.10		0.10	ug/g	27-MAR-19	1.4	1.4	1.4
Dieldrin	<0.020		0.020	ug/g	27-MAR-19	0.05	0.05	0.05
Endosulfan I	<0.020		0.020	ug/g	27-MAR-19			
Endosulfan II	<0.020		0.020	ug/g	27-MAR-19			
Endosulfan (Total)	<0.028		0.028	ug/g	27-MAR-19	0.04	0.04	0.04
Endrin	<0.020		0.020	ug/g	27-MAR-19	0.04	0.04	0.04
Heptachlor	<0.020		0.020	ug/g	27-MAR-19	0.15	0.15	0.05
Heptachlor Epoxide	<0.020		0.020	ug/g	27-MAR-19	0.05	0.05	0.05
Hexachlorobenzene	<0.050	DLM	0.050	ug/g	27-MAR-19	0.52	0.52	**0.02
Hexachlorobutadiene	<0.050	DLM	0.050	ug/g	27-MAR-19	**0.012	**0.014	**0.01
Hexachloroethane	<0.050	DLM	0.050	ug/g	27-MAR-19	0.089	0.07	**0.01
Methoxychlor	<0.10	DLM	0.10	ug/g	27-MAR-19	0.13	0.13	**0.05
Surrogate: 2-Fluorobiphenyl	72.1		50-140	%	27-MAR-19			
Surrogate: d14-Terphenyl	89.8		50-140	%	27-MAR-19			
L2247735-3 S-11102463-032119-EN-BH18-463-10-12'								
Sampled By: E. NUSSLI on 21-MAR-19 @ 09:0(								
Matrix: SOIL								
Physical Tests								
Conductivity	0.351		0.0040	mS/cm	28-MAR-19	0.7	0.7	0.7
% Moisture	37.0		0.10	%	26-MAR-19			
pH	6.84		0.10	pH units	27-MAR-19			
Cyanides								
Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	27-MAR-19	0.051	0.051	0.051
Saturated Paste Extractables								
SAR	0.73		0.10	SAR	28-MAR-19	5	5	5
Calcium (Ca)	30.3		0.50	mg/L	28-MAR-19			
Magnesium (Mg)	4.65		0.50	mg/L	28-MAR-19			
Sodium (Na)	16.4		0.50	mg/L	28-MAR-19			
Metals								
Antimony (Sb)	15.9		1.0	ug/g	28-MAR-19	*7.5	*7.5	*1.3
Arsenic (As)	30.8		1.0	ug/g	28-MAR-19	*18	*18	*18
Barium (Ba)	369		1.0	ug/g	28-MAR-19	390	390	*220
Beryllium (Be)	1.25		0.50	ug/g	28-MAR-19	4	5	2.5

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2247735-3 S-11102463-032119-EN-BH18-463-10-12'								
Sampled By: E. NUSSLI on 21-MAR-19 @ 09:0(								
Matrix: SOIL								
Metals								
Boron (B)	11.2		5.0	ug/g	28-MAR-19	120	120	36
Boron (B), Hot Water Ext.	2.54		0.10	ug/g	28-MAR-19	*1.5	*1.5	*1.5
Cadmium (Cd)	0.95		0.50	ug/g	28-MAR-19	1.2	1.2	1.2
Chromium (Cr)	104		1.0	ug/g	28-MAR-19	160	160	*70
Cobalt (Co)	14.4		1.0	ug/g	28-MAR-19	22	22	22
Copper (Cu)	650		1.0	ug/g	28-MAR-19	*140	*180	*92
Lead (Pb)	1370		1.0	ug/g	28-MAR-19	*120	*120	*120
Mercury (Hg)	0.810		0.0050	ug/g	28-MAR-19	*0.27	1.8	*0.27
Molybdenum (Mo)	4.9		1.0	ug/g	28-MAR-19	6.9	6.9	*2
Nickel (Ni)	38.7		1.0	ug/g	28-MAR-19	100	130	82
Selenium (Se)	1.1		1.0	ug/g	28-MAR-19	2.4	2.4	1.5
Silver (Ag)	0.65		0.20	ug/g	28-MAR-19	20	25	*0.5
Thallium (Tl)	<0.50		0.50	ug/g	28-MAR-19	1	1	1
Uranium (U)	<1.0		1.0	ug/g	28-MAR-19	23	23	2.5
Vanadium (V)	43.1		1.0	ug/g	28-MAR-19	86	86	86
Zinc (Zn)	852		5.0	ug/g	28-MAR-19	*340	*340	*290
Speciated Metals								
Chromium, Hexavalent	0.56		0.20	ug/g	27-MAR-19	8	10	0.66
Volatile Organic Compounds								
Acetone	<0.50		0.50	ug/g	27-MAR-19	16	28	0.5
Benzene	0.0087		0.0068	ug/g	27-MAR-19	0.21	0.17	0.02
Bromodichloromethane	<0.060	DLVH	0.060	ug/g	27-MAR-19	13	13	**0.05
Bromoform	<0.050		0.050	ug/g	27-MAR-19	0.27	0.26	0.05
Bromomethane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05
Carbon tetrachloride	<0.050		0.050	ug/g	27-MAR-19	0.05	0.12	0.05
Chlorobenzene	<0.050		0.050	ug/g	27-MAR-19	2.4	2.7	0.05
Dibromochloromethane	<0.050		0.050	ug/g	27-MAR-19	9.4	9.4	0.05
Chloroform	<0.050		0.050	ug/g	27-MAR-19	0.05	0.18	0.05
1,2-Dibromoethane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05
1,2-Dichlorobenzene	<1.0	DLI	1.0	ug/g	27-MAR-19	3.4	4.3	**0.05
1,3-Dichlorobenzene	<1.0	DLI	1.0	ug/g	27-MAR-19	4.8	6	**0.05
1,4-Dichlorobenzene	<1.0	DLI	1.0	ug/g	27-MAR-19	**0.083	**0.097	**0.05
Dichlorodifluoromethane	<0.050		0.050	ug/g	27-MAR-19	16	25	0.05
1,1-Dichloroethane	<0.050		0.050	ug/g	27-MAR-19	3.5	11	0.05
1,2-Dichloroethane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05
1,1-Dichloroethylene	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	27-MAR-19	3.4	30	0.05
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	27-MAR-19	0.084	0.75	0.05
Methylene Chloride	<0.050		0.050	ug/g	27-MAR-19	0.1	0.96	0.05
1,2-Dichloropropane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.085	0.05
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	27-MAR-19			
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	27-MAR-19			
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g	27-MAR-19	0.05	0.083	0.05
Ethylbenzene	<0.018		0.018	ug/g	27-MAR-19	2	15	0.05
n-Hexane	<0.050		0.050	ug/g	27-MAR-19	2.8	34	0.05

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2247735-3 S-11102463-032119-EN-BH18-463-10-12'								
Sampled By: E. NUSSLI on 21-MAR-19 @ 09:0(								
Matrix: SOIL								
Volatile Organic Compounds								
Methyl Ethyl Ketone	<0.50		0.50	ug/g	27-MAR-19	16	44	0.5
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	27-MAR-19	1.7	4.3	0.5
MTBE	<0.050		0.050	ug/g	27-MAR-19	0.75	1.4	0.05
Styrene	<0.050		0.050	ug/g	27-MAR-19	0.7	2.2	0.05
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	27-MAR-19	0.058	0.05	0.05
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05
Tetrachloroethylene	<0.050		0.050	ug/g	27-MAR-19	0.28	2.3	0.05
Toluene	<0.080		0.080	ug/g	27-MAR-19	2.3	6	0.2
1,1,1-Trichloroethane	<0.050		0.050	ug/g	27-MAR-19	0.38	3.4	0.05
1,1,2-Trichloroethane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05
Trichloroethylene	<0.010		0.010	ug/g	27-MAR-19	0.061	0.52	0.05
Trichlorofluoromethane	<0.050		0.050	ug/g	27-MAR-19	4	5.8	0.25
Vinyl chloride	<0.020		0.020	ug/g	27-MAR-19	0.02	0.022	0.02
o-Xylene	<0.020		0.020	ug/g	27-MAR-19			
m+p-Xylenes	<0.030		0.030	ug/g	27-MAR-19			
Xylenes (Total)	<0.050		0.050	ug/g	27-MAR-19	3.1	25	0.05
Surrogate: 4-Bromofluorobenzene	95.7		50-140	%	27-MAR-19			
Surrogate: 1,4-Difluorobenzene	107.6		50-140	%	27-MAR-19			
Hydrocarbons								
F1 (C6-C10)	<100		100	ug/g	27-MAR-19	**55	**65	**25
F1-BTEX	<100		100	ug/g	28-MAR-19	**55	**65	**25
F2 (C10-C16)	2020		10	ug/g	27-MAR-19	*98	*150	*10
F2-Naphth	2020		10	ug/g	28-MAR-19			
F3 (C16-C34)	1180		50	ug/g	27-MAR-19	*300	1300	*240
F3-PAH	1170		50	ug/g	28-MAR-19			
F4 (C34-C50)	<50		50	ug/g	27-MAR-19	2800	5600	120
Total Hydrocarbons (C6-C50)	3200		120	ug/g	28-MAR-19			
Chrom. to baseline at nC50	YES			No Unit	27-MAR-19			
Surrogate: 2-Bromobenzotrifluoride	100.3		60-140	%	27-MAR-19			
Surrogate: 3,4-Dichlorotoluene	N/A	SDO:RNA	60-140	%	27-MAR-19			
Polycyclic Aromatic Hydrocarbons								
1+2-Methylnaphthalenes	1.23		0.085	ug/g	27-MAR-19	*0.99	3.4	*0.59
Semi-Volatile Organics								
Acenaphthene	0.64	DLM	0.10	ug/g	27-MAR-19	7.9	58	*0.072
Acenaphthylene	<0.10	DLM	0.10	ug/g	27-MAR-19	0.15	0.17	**0.093
Anthracene	0.67	DLM	0.10	ug/g	27-MAR-19	0.67	0.74	*0.22
Benzo(a)anthracene	0.78	DLM	0.10	ug/g	27-MAR-19	*0.5	*0.63	*0.36
Benzo(a)pyrene	0.61	DLM	0.10	ug/g	27-MAR-19	*0.3	*0.3	*0.3
Benzo(b)fluoranthene	0.61	DLM	0.10	ug/g	27-MAR-19	0.78	0.78	*0.47
Benzo(ghi)perylene	0.43	DLM	0.10	ug/g	27-MAR-19	6.6	7.8	0.68
Benzo(k)fluoranthene	0.42	DLM	0.10	ug/g	27-MAR-19	0.78	0.78	0.48
2-Chlorophenol	<0.20	DLM	0.20	ug/g	27-MAR-19	1.6	2	**0.1
Chrysene	0.69	DLM	0.10	ug/g	27-MAR-19	7	7.8	2.8
Dibenzo(a,h)anthracene	<0.10	DLM	0.10	ug/g	27-MAR-19	0.1	0.1	0.1
2,4-Dichlorophenol	<0.20	DLM	0.20	ug/g	27-MAR-19	1.7	2.1	**0.1

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2247735-3 S-11102463-032119-EN-BH18-463-10-12'								
Sampled By: E. NUSSLI on 21-MAR-19 @ 09:0(								
Matrix: SOIL								
Semi-Volatile Organics								
Fluoranthene	1.80	DLM	0.10	ug/g	27-MAR-19	*0.69	*0.69	*0.69
Fluorene	1.03	DLM	0.10	ug/g	27-MAR-19	62	69	*0.19
Indeno(1,2,3-cd)pyrene	0.47	DLM	0.10	ug/g	27-MAR-19	*0.38	0.48	*0.23
1-Methylnaphthalene	1.02	DLM	0.060	ug/g	27-MAR-19	*0.99	3.4	*0.59
2-Methylnaphthalene	0.209	DLM	0.060	ug/g	27-MAR-19	0.99	3.4	0.59
Naphthalene	<0.20	DLM	0.20	ug/g	27-MAR-19	0.6	0.75	**0.09
Pentachlorophenol	<0.20	DLM	0.20	ug/g	27-MAR-19	**0.1	**0.1	**0.1
Phenanthrene	2.13	DLM	0.10	ug/g	27-MAR-19	6.2	7.8	*0.69
Pyrene	1.38	DLM	0.10	ug/g	27-MAR-19	78	78	*1
2,4,5-Trichlorophenol	<0.20	DLM	0.20	ug/g	27-MAR-19	4.4	5.5	**0.1
2,4,6-Trichlorophenol	<0.20	DLM	0.20	ug/g	27-MAR-19	3.8	4.2	**0.1
Surrogate: 2-Fluorobiphenyl	91.8		50-140	%	27-MAR-19			
Surrogate: Phenol d5	92.3		30-130	%	27-MAR-19			
Surrogate: p-Terphenyl d14	104.4		50-140	%	27-MAR-19			
Surrogate: 2,4,6-Tribromophenol	73.3		50-140	%	27-MAR-19			
Polychlorinated Biphenyls								
Aroclor 1242	<0.020	DLM	0.020	ug/g	27-MAR-19			
Aroclor 1248	<0.010		0.010	ug/g	27-MAR-19			
Aroclor 1254	<0.020	DLM	0.020	ug/g	27-MAR-19			
Aroclor 1260	<0.010		0.010	ug/g	27-MAR-19			
Total PCBs	<0.0350	DLM	0.035	ug/g	27-MAR-19	0.35	0.35	0.3
Surrogate: d14-Terphenyl	81.8		60-140	%	27-MAR-19			
Organochlorine Pesticides								
Aldrin	<0.020		0.020	ug/g	27-MAR-19	0.05	0.05	0.05
gamma-hexachlorocyclohexane	<0.050	DLM	0.050	ug/g	27-MAR-19	0.056	0.063	
a-chlordane	<0.020		0.020	ug/g	27-MAR-19			
Chlordane (Total)	<0.028		0.028	ug/g	27-MAR-19	0.05	0.05	0.05
g-chlordane	<0.020		0.020	ug/g	27-MAR-19			
op-DDD	<0.020		0.020	ug/g	27-MAR-19			
pp-DDD	<0.020		0.020	ug/g	27-MAR-19			
Total DDD	<0.028		0.028	ug/g	27-MAR-19	3.3	3.3	0.05
o,p-DDE	<0.020		0.020	ug/g	27-MAR-19			
pp-DDE	<0.020		0.020	ug/g	27-MAR-19			
Total DDE	<0.028		0.028	ug/g	27-MAR-19	0.26	0.33	0.05
op-DDT	<0.020		0.020	ug/g	27-MAR-19			
pp-DDT	<0.10	DLM	0.10	ug/g	27-MAR-19			
Total DDT	<0.10		0.10	ug/g	27-MAR-19	1.4	1.4	1.4
Dieldrin	<0.020		0.020	ug/g	27-MAR-19	0.05	0.05	0.05
Endosulfan I	<0.020		0.020	ug/g	27-MAR-19			
Endosulfan II	<0.020		0.020	ug/g	27-MAR-19			
Endosulfan (Total)	<0.028		0.028	ug/g	27-MAR-19	0.04	0.04	0.04
Endrin	<0.020		0.020	ug/g	27-MAR-19	0.04	0.04	0.04
Heptachlor	<0.020		0.020	ug/g	27-MAR-19	0.15	0.15	0.05
Heptachlor Epoxide	<0.020		0.020	ug/g	27-MAR-19	0.05	0.05	0.05
Hexachlorobenzene	<0.050	DLM	0.050	ug/g	27-MAR-19	0.52	0.52	**0.02
Hexachlorobutadiene	<0.050	DLM	0.050	ug/g	27-MAR-19	**0.012	**0.014	**0.01

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2247735-3 S-11102463-032119-EN-BH18-463-10-12'								
Sampled By: E. NUSSLI on 21-MAR-19 @ 09:0(								
Matrix: SOIL								
Organochlorine Pesticides								
Hexachloroethane	<0.050	DLM	0.050	ug/g	27-MAR-19	0.089	0.07	**0.01
Methoxychlor	<0.10	DLM	0.10	ug/g	27-MAR-19	0.13	0.13	**0.05
Surrogate: 2-Fluorobiphenyl	68.9		50-140	%	27-MAR-19			
Surrogate: d14-Terphenyl	95.5		50-140	%	27-MAR-19			
L2247735-4 S-11102463-032119-EN-BH18-463-15-17'								
Sampled By: E. NUSSLI on 21-MAR-19 @ 09:3(								
Matrix: SOIL								
Physical Tests								
Conductivity	0.585		0.0040	mS/cm	28-MAR-19	0.7	0.7	0.7
% Moisture	26.4		0.10	%	26-MAR-19			
pH	7.24		0.10	pH units	27-MAR-19			
Cyanides								
Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	27-MAR-19	0.051	0.051	0.051
Saturated Paste Extractables								
SAR	3.15		0.10	SAR	28-MAR-19	5	5	5
Calcium (Ca)	22.8		0.50	mg/L	28-MAR-19			
Magnesium (Mg)	4.56		0.50	mg/L	28-MAR-19			
Sodium (Na)	62.9		0.50	mg/L	28-MAR-19			
Metals								
Antimony (Sb)	<1.0		1.0	ug/g	28-MAR-19	7.5	7.5	1.3
Arsenic (As)	2.6		1.0	ug/g	28-MAR-19	18	18	18
Barium (Ba)	110		1.0	ug/g	28-MAR-19	390	390	220
Beryllium (Be)	0.61		0.50	ug/g	28-MAR-19	4	5	2.5
Boron (B)	11.5		5.0	ug/g	28-MAR-19	120	120	36
Boron (B), Hot Water Ext.	6.85	DLHC	2.0	ug/g	28-MAR-19	*1.5	*1.5	*1.5
Cadmium (Cd)	<0.50		0.50	ug/g	28-MAR-19	1.2	1.2	1.2
Chromium (Cr)	30.3		1.0	ug/g	28-MAR-19	160	160	70
Cobalt (Co)	8.6		1.0	ug/g	28-MAR-19	22	22	22
Copper (Cu)	17.7		1.0	ug/g	28-MAR-19	140	180	92
Lead (Pb)	11.8		1.0	ug/g	28-MAR-19	120	120	120
Mercury (Hg)	0.0300		0.0050	ug/g	28-MAR-19	0.27	1.8	0.27
Molybdenum (Mo)	<1.0		1.0	ug/g	28-MAR-19	6.9	6.9	2
Nickel (Ni)	17.8		1.0	ug/g	28-MAR-19	100	130	82
Selenium (Se)	<1.0		1.0	ug/g	28-MAR-19	2.4	2.4	1.5
Silver (Ag)	<0.20		0.20	ug/g	28-MAR-19	20	25	0.5
Thallium (Tl)	<0.50		0.50	ug/g	28-MAR-19	1	1	1
Uranium (U)	<1.0		1.0	ug/g	28-MAR-19	23	23	2.5
Vanadium (V)	38.9		1.0	ug/g	28-MAR-19	86	86	86
Zinc (Zn)	51.9		5.0	ug/g	28-MAR-19	340	340	290
Speciated Metals								
Chromium, Hexavalent	2.4	DLM	1.0	ug/g	29-MAR-19	8	10	*0.66
Volatile Organic Compounds								
Acetone	<0.50		0.50	ug/g	27-MAR-19	16	28	0.5
Benzene	<0.0068		0.0068	ug/g	27-MAR-19	0.21	0.17	0.02

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2247735-4 S-11102463-032119-EN-BH18-463-15-17'								
Sampled By: E. NUSSLI on 21-MAR-19 @ 09:3(								
Matrix: SOIL								
Volatile Organic Compounds								
Bromodichloromethane	<0.050		0.050	ug/g	27-MAR-19	13	13	0.05
Bromoform	<0.050		0.050	ug/g	27-MAR-19	0.27	0.26	0.05
Bromomethane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05
Carbon tetrachloride	<0.050		0.050	ug/g	27-MAR-19	0.05	0.12	0.05
Chlorobenzene	<0.050		0.050	ug/g	27-MAR-19	2.4	2.7	0.05
Dibromochloromethane	<0.050		0.050	ug/g	27-MAR-19	9.4	9.4	0.05
Chloroform	<0.050		0.050	ug/g	27-MAR-19	0.05	0.18	0.05
1,2-Dibromoethane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05
1,2-Dichlorobenzene	<0.050		0.050	ug/g	27-MAR-19	3.4	4.3	0.05
1,3-Dichlorobenzene	<0.050		0.050	ug/g	27-MAR-19	4.8	6	0.05
1,4-Dichlorobenzene	<0.050		0.050	ug/g	27-MAR-19	0.083	0.097	0.05
Dichlorodifluoromethane	<0.050		0.050	ug/g	27-MAR-19	16	25	0.05
1,1-Dichloroethane	<0.050		0.050	ug/g	27-MAR-19	3.5	11	0.05
1,2-Dichloroethane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05
1,1-Dichloroethylene	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	27-MAR-19	3.4	30	0.05
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	27-MAR-19	0.084	0.75	0.05
Methylene Chloride	<0.050		0.050	ug/g	27-MAR-19	0.1	0.96	0.05
1,2-Dichloropropane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.085	0.05
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	27-MAR-19			
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	27-MAR-19			
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g	27-MAR-19	0.05	0.083	0.05
Ethylbenzene	<0.018		0.018	ug/g	27-MAR-19	2	15	0.05
n-Hexane	<0.050		0.050	ug/g	27-MAR-19	2.8	34	0.05
Methyl Ethyl Ketone	<0.50		0.50	ug/g	27-MAR-19	16	44	0.5
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	27-MAR-19	1.7	4.3	0.5
MTBE	<0.050		0.050	ug/g	27-MAR-19	0.75	1.4	0.05
Styrene	<0.050		0.050	ug/g	27-MAR-19	0.7	2.2	0.05
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	27-MAR-19	0.058	0.05	0.05
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05
Tetrachloroethylene	<0.050		0.050	ug/g	27-MAR-19	0.28	2.3	0.05
Toluene	<0.080		0.080	ug/g	27-MAR-19	2.3	6	0.2
1,1,1-Trichloroethane	<0.050		0.050	ug/g	27-MAR-19	0.38	3.4	0.05
1,1,2-Trichloroethane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05
Trichloroethylene	<0.010		0.010	ug/g	27-MAR-19	0.061	0.52	0.05
Trichlorofluoromethane	<0.050		0.050	ug/g	27-MAR-19	4	5.8	0.25
Vinyl chloride	<0.020		0.020	ug/g	27-MAR-19	0.02	0.022	0.02
o-Xylene	<0.020		0.020	ug/g	27-MAR-19			
m+p-Xylenes	<0.030		0.030	ug/g	27-MAR-19			
Xylenes (Total)	<0.050		0.050	ug/g	27-MAR-19	3.1	25	0.05
Surrogate: 4-Bromofluorobenzene	91.8		50-140	%	27-MAR-19			
Surrogate: 1,4-Difluorobenzene	99.2		50-140	%	27-MAR-19			
Hydrocarbons								
F1 (C6-C10)	<5.0		5.0	ug/g	28-MAR-19	55	65	25
F1-BTEX	<5.0		5.0	ug/g	28-MAR-19	55	65	25
F2 (C10-C16)	<10		10	ug/g	27-MAR-19	98	150	10

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2247735-4 S-11102463-032119-EN-BH18-463-15-17'								
Sampled By: E. NUSSLI on 21-MAR-19 @ 09:3(								
Matrix: SOIL								
Hydrocarbons								
F2-Naphth	<10		10	ug/g	28-MAR-19			
F3 (C16-C34)	<50		50	ug/g	27-MAR-19	300	1300	240
F3-PAH	<50		50	ug/g	28-MAR-19			
F4 (C34-C50)	<50		50	ug/g	27-MAR-19	2800	5600	120
Total Hydrocarbons (C6-C50)	<72		72	ug/g	28-MAR-19			
Chrom. to baseline at nC50	YES			No Unit	27-MAR-19			
Surrogate: 2-Bromobenzotrifluoride	102.9		60-140	%	27-MAR-19			
Surrogate: 3,4-Dichlorotoluene	92.1		60-140	%	28-MAR-19			
Polycyclic Aromatic Hydrocarbons								
Acenaphthene	<0.050		0.050	ug/g	26-MAR-19	7.9	58	0.072
Acenaphthylene	<0.050		0.050	ug/g	26-MAR-19	0.15	0.17	0.093
Anthracene	<0.050		0.050	ug/g	26-MAR-19	0.67	0.74	0.22
Benzo(a)anthracene	<0.050		0.050	ug/g	26-MAR-19	0.5	0.63	0.36
Benzo(a)pyrene	<0.050		0.050	ug/g	26-MAR-19	0.3	0.3	0.3
Benzo(b)fluoranthene	<0.050		0.050	ug/g	26-MAR-19	0.78	0.78	0.47
Benzo(g,h,i)perylene	<0.050		0.050	ug/g	26-MAR-19	6.6	7.8	0.68
Benzo(k)fluoranthene	<0.050		0.050	ug/g	26-MAR-19	0.78	0.78	0.48
Chrysene	<0.050		0.050	ug/g	26-MAR-19	7	7.8	2.8
Dibenzo(ah)anthracene	<0.050		0.050	ug/g	26-MAR-19	0.1	0.1	0.1
Fluoranthene	<0.050		0.050	ug/g	26-MAR-19	0.69	0.69	0.69
Fluorene	<0.050		0.050	ug/g	26-MAR-19	62	69	0.19
Indeno(1,2,3-cd)pyrene	<0.050		0.050	ug/g	26-MAR-19	0.38	0.48	0.23
1+2-Methylnaphthalenes	<0.042		0.042	ug/g	26-MAR-19	0.99	3.4	0.59
1-Methylnaphthalene	<0.030		0.030	ug/g	26-MAR-19	0.99	3.4	0.59
2-Methylnaphthalene	<0.030		0.030	ug/g	26-MAR-19	0.99	3.4	0.59
Naphthalene	<0.013		0.013	ug/g	26-MAR-19	0.6	0.75	0.09
Phenanthrene	0.049		0.046	ug/g	26-MAR-19	6.2	7.8	0.69
Pyrene	<0.050		0.050	ug/g	26-MAR-19	78	78	1
Surrogate: 2-Fluorobiphenyl	101.9		50-140	%	26-MAR-19			
Surrogate: p-Terphenyl d14	94.9		50-140	%	26-MAR-19			

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Reference Information

Sample Parameter Qualifier key listed:

Qualifier	Description
DLVH	Detection Limit raised due to interference from Volatile Hydrocarbons on VOC method. Chromatographic elution of interfering peaks in the same region as test analytes prevents a determination of whether VOC analyte is present or absent (above/below regular detection limits).
DLI	Detection Limit Raised: Dilution required to address Internal Standard response problems caused by matrix interference.
PRAR	PCB Pattern Most Closely Resembles Aroclor Reported
SDO:RNA	Surrogate diluted out:% recovery not available
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
DLHC	Detection Limit Raised: Dilution required due to high concentration of test analyte(s).

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference***
625-511-WT	Soil	ABN-O.Reg 153/04 (July 2011)	SW846 8270 (511)

Soil and sediment samples are dried by mixing with a desiccant prior to extraction. The extracts are dried, concentrated and exchanged into a solvent and analyzed by GC/MS. Depending on the analytical GC/MS column used benzo(j)fluoranthene may chromatographically co-elute with benzo(b)fluoranthene or benzo(k)fluoranthene.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

B-HWS-R511-WT	Soil	Boron-HWE-O.Reg 153/04 (July 2011)	HW EXTR, EPA 6010B

A dried solid sample is extracted with calcium chloride, the sample undergoes a heating process. After cooling the sample is filtered and analyzed by ICP/OES.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

CHLORDANE-T-CALC-WT	Soil	Chlordane Total sums	CALCULATION

Aqueous sample is extracted by liquid/liquid extraction with a solvent mix. After extraction, a number of clean up techniques may be applied, depending on the sample matrix and analyzed by GC/MS.

CN-WAD-R511-WT	Soil	Cyanide (WAD)-O.Reg 153/04 (July 2011)	MOE 3015/APHA 4500CN I-WAD

The sample is extracted with a strong base for 16 hours, and then filtered. The filtrate is then distilled where the cyanide is converted to cyanogen chloride by reacting with chloramine-T, the cyanogen chloride then reacts with a combination of barbituric acid and isonicotinic acid to form a highly colored complex.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

CR-CR6-IC-WT	Soil	Hexavalent Chromium in Soil	SW846 3060A/7199

This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, Method 7199, published by the United States Environmental Protection Agency (EPA). The procedure involves analysis for chromium (VI) by ion chromatography using diphenylcarbazide in a sulphuric acid solution.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

DDD-DDE-DDT-CALC-WT	Soil	DDD, DDE, DDT sums	CALCULATION

Aqueous sample is extracted by liquid/liquid extraction with a solvent mix. After extraction, a number of clean up techniques may be applied, depending on the sample matrix and analyzed by GC/MS.

EC-WT	Soil	Conductivity (EC)	MOEE E3138

A representative subsample is tumbled with de-ionized (DI) water. The ratio of water to soil is 2:1 v/w. After tumbling the sample is then analyzed by a conductivity meter.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

ENDOSULFAN-T-CALC-WT	Soil	Endosulfan Total sums	CALCULATION

Aqueous sample is extracted by liquid/liquid extraction with a solvent mix. After extraction, a number of clean up techniques may be applied, depending on the sample matrix and analyzed by GC/MS.

Reference Information

F1-F4-511-CALC-WT	Soil	F1-F4 Hydrocarbon Calculated Parameters	CCME CWS-PHC, Pub #1310, Dec 2001-S

Analytical methods used for analysis of CCME Petroleum Hydrocarbons have been validated and comply with the Reference Method for the CWS PHC.

Hydrocarbon results are expressed on a dry weight basis.

In cases where results for both F4 and F4G are reported, the greater of the two results must be used in any application of the CWS PHC guidelines and the gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.
In samples where BTEX and F1 were analyzed , F1-BTEX represents a value where the sum of Benzene, Toluene, Ethylbenzene and total Xylenes has been subtracted from F1.

In samples where PAHs, F2 and F3 were analyzed, F2-Naphth represents the result where Naphthalene has been subtracted from F2. F3-PAH represents a result where the sum of Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenzo(a,h)anthracene, Fluoranthene, Indeno(1,2,3-cd)pyrene, Phenanthrene, and Pyrene has been subtracted from F3.

Unless otherwise qualified, the following quality control criteria have been met for the F1 hydrocarbon range:
1. All extraction and analysis holding times were met.
2. Instrument performance showing response factors for C6 and C10 within 30% of the response factor for toluene.
3. Linearity of gasoline response within 15% throughout the calibration range.

Unless otherwise qualified, the following quality control criteria have been met for the F2-F4 hydrocarbon ranges:
1. All extraction and analysis holding times were met.
2. Instrument performance showing C10, C16 and C34 response factors within 10% of their average.
3. Instrument performance showing the C50 response factor within 30% of the average of the C10, C16 and C34 response factors.
4. Linearity of diesel or motor oil response within 15% throughout the calibration range.

F1-HS-511-WT	Soil	F1-O.Reg 153/04 (July 2011)	E3398/CCME TIER 1-HS

Fraction F1 is determined by extracting a soil or sediment sample as received with methanol, then analyzing by headspace-GC/FID.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

F2-F4-511-WT	Soil	F2-F4-O.Reg 153/04 (July 2011)	CCME Tier 1

Petroleum Hydrocarbons (F2-F4 fractions) are extracted from soil with 1:1 hexane:acetone using a rotary extractor. Extracts are treated with silica gel to remove polar organic interferences. F2, F3, & F4 are analyzed by GC-FID. F4G-sg is analyzed gravimetrically.

Notes:
1. F2 (C10-C16): Sum of all hydrocarbons that elute between nC10 and nC16.
2. F3 (C16-C34): Sum of all hydrocarbons that elute between nC16 and nC34.
3. F4 (C34-C50): Sum of all hydrocarbons that elute between nC34 and nC50.
4. F4G: Gravimetric Heavy Hydrocarbons
5. F4G-sg: Gravimetric Heavy Hydrocarbons (F4G) after silica gel treatment.
6. Where both F4 (C34-C50) and F4G-sg are reported for a sample, the larger of the two values is used for comparison against the relevant CCME guideline for F4.
7. F4G-sg cannot be added to the C6 to C50 hydrocarbon results to obtain an estimate of total extractable hydrocarbons.
8. This method is validated for use.
9. Data from analysis of validation and quality control samples is available upon request.
10. Reported results are expressed as milligrams per dry kilogram, unless otherwise indicated.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

F4G-ADD-511-WT	Soil	F4G SG-O.Reg 153/04 (July 2011)	MOE DECPH-E3398/CCME TIER 1

F4G, gravimetric analysis, is determined if the chromatogram does not return to baseline at or before C50. A soil sample is extracted with a solvent mix, the solvent is evaporated and the weight of the residue is determined.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

HG-200.2-CVAA-WT	Soil	Mercury in Soil by CVAAS	EPA 200.2/1631E (mod)

Soil samples are digested with nitric and hydrochloric acids, followed by analysis by CVAAS.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

Reference Information

MET-200.2-CCMS-WT	Soil	Metals in Soil by CRC ICPMS	EPA 200.2/6020A (mod)

Soil/sediment is dried, disaggregated, and sieved (2 mm). For tests intended to support Ontario regulations, the <2mm fraction is ground to pass through a 0.355 mm sieve. Strong Acid Leachable Metals in the <2mm fraction are solubilized by heated digestion with nitric and hydrochloric acids. Instrumental analysis is by Collision / Reaction Cell ICPMS.

Limitations: This method is intended to liberate environmentally available metals. Silicate minerals are not solubilized. Some metals may be only partially recovered (matrix dependent), including Al, Ba, Be, Cr, S, Sr, Ti, Tl, V, W, and Zr. Elemental Sulfur may be poorly recovered by this method. Volatile forms of sulfur (e.g. sulfide, H2S) may be excluded if lost during sampling, storage, or digestion.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

METHYLNAPS-CALC-WT	Soil	ABN-Calculated Parameters	SW846 8270
MOISTURE-WT	Soil	% Moisture	CCME PHC in Soil - Tier 1 (mod)
PAH-511-WT	Soil	PAH-O.Reg 153/04 (July 2011)	SW846 3510/8270

A representative sub-sample of soil is fortified with deuterium-labelled surrogates and a mechanical shaking techniqueis used to extract the sample with a mixture of methanol and toluene. The extracts are concentrated and analyzed by GC/MS. Results for benzo(b) fluoranthene may include contributions from benzo(j)fluoranthene, if also present in the sample.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

PCB-511-WT	Soil	PCB-O.Reg 153/04 (July 2011)	SW846 3510/8082

An aliquot of a solid sample is extracted with a solvent, extract is cleaned up and analyzed on the GC/MS.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

PEST-OC-511-WT	Soil	OC Pesticides-O.Reg 153/04 (July 2011)	SW846 8270 (511)

Soil sample is extracted in a solvent, after extraction a number of clean up techniques may be applied, depending on the sample matrix and analyzed by GC/MS.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

PH-WT	Soil	pH	MOEE E3137A

A minimum 10g portion of the sample is extracted with 20mL of 0.01M calcium chloride solution by shaking for at least 30 minutes. The aqueous layer is separated from the soil and then analyzed using a pH meter and electrode.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

SAR-R511-WT	Soil	SAR-O.Reg 153/04 (July 2011)	SW846 6010C

A dried, disaggregated solid sample is extracted with deionized water, the aqueous extract is separated from the solid, acidified and then analyzed using a ICP/OES. The concentrations of Na, Ca and Mg are reported as per CALA requirements for calculated parameters. These individual parameters are not for comparison to any guideline.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

VOC-1,3-DCP-CALC-WT	Soil	Regulation 153 VOCs	SW8260B/SW8270C
VOC-511-HS-WT	Soil	VOC-O.Reg 153/04 (July 2011)	SW846 8260 (511)

Soil and sediment samples are extracted in methanol and analyzed by headspace-GC/MS.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

XYLENES-SUM-CALC-WT	Soil	Sum of Xylene Isomer Concentrations	CALCULATION

Total xylenes represents the sum of o-xylene and m&p-xylene.

*** ALS test methods may incorporate modifications from specified reference methods to improve performance.

Chain of Custody numbers:

Reference Information

17-667135

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location	Laboratory Definition Code	Laboratory Location
WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA		

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.
mg/kg - milligrams per kilogram based on dry weight of sample
mg/kg wwt - milligrams per kilogram based on wet weight of sample
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight
mg/L - unit of concentration based on volume, parts per million.
< - Less than.
D.L. - The reporting limit.
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, fitness for a particular purpose, or non-infringement. ALS assumes no responsibility for errors or omissions in the information. Guideline limits are not adjusted for the hardness, pH or temperature of the sample (the most conservative values are used). Measurement uncertainty is not applied to test results prior to comparison with specified criteria values.

Quality Control Report

Workorder: L2247735 Report Date: 29-MAR-19

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
625-511-WT	**Soil**							
Batch R4583368								
WG3013237-9 DUP		**WG3013237-5**						
1-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	26-MAR-19
2-Chlorophenol		<0.10	<0.10	RPD-NA	ug/g	N/A	40	26-MAR-19
2-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	26-MAR-19
2,4-Dichlorophenol		<0.10	<0.10	RPD-NA	ug/g	N/A	40	26-MAR-19
2,4,5-Trichlorophenol		<0.10	<0.10	RPD-NA	ug/g	N/A	40	26-MAR-19
2,4,6-Trichlorophenol		<0.10	<0.10	RPD-NA	ug/g	N/A	40	26-MAR-19
Acenaphthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Acenaphthylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Benzo(a)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Benzo(a)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Benzo(b)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Benzo(ghi)perylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Benzo(k)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Chrysene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Dibenzo(a,h)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Fluorene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Indeno(1,2,3-cd)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Naphthalene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Pentachlorophenol		<0.10	<0.10	RPD-NA	ug/g	N/A	40	26-MAR-19
Phenanthrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
WG3013237-7 LCS								
1-Methylnaphthalene			88.3		%		50-140	26-MAR-19
2-Chlorophenol			109.0		%		50-140	26-MAR-19
2-Methylnaphthalene			99.7		%		50-140	26-MAR-19
2,4-Dichlorophenol			108.6		%		50-140	26-MAR-19
2,4,5-Trichlorophenol			111.7		%		50-140	26-MAR-19
2,4,6-Trichlorophenol			106.0		%		50-140	26-MAR-19
Acenaphthene			98.8		%		50-140	26-MAR-19
Acenaphthylene			107.0		%		50-140	26-MAR-19
Anthracene			102.5		%		50-140	26-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
625-511-WT	**Soil**							
Batch R4583368								
WG3013237-7 LCS								
Benzo(a)anthracene			109.5		%		50-140	26-MAR-19
Benzo(a)pyrene			109.7		%		50-140	26-MAR-19
Benzo(b)fluoranthene			113.8		%		50-140	26-MAR-19
Benzo(ghi)perylene			80.5		%		50-140	26-MAR-19
Benzo(k)fluoranthene			108.2		%		50-140	26-MAR-19
Chrysene			108.7		%		50-140	26-MAR-19
Dibenzo(a,h)anthracene			94.5		%		50-140	26-MAR-19
Fluoranthene			91.3		%		50-140	26-MAR-19
Fluorene			97.7		%		50-140	26-MAR-19
Indeno(1,2,3-cd)pyrene			95.8		%		50-140	26-MAR-19
Naphthalene			101.1		%		50-140	26-MAR-19
Pentachlorophenol			91.3		%		50-140	26-MAR-19
Phenanthrene			99.8		%		50-140	26-MAR-19
Pyrene			90.2		%		50-140	26-MAR-19
WG3013237-6 MB								
1-Methylnaphthalene			<0.030		ug/g		0.03	26-MAR-19
2-Chlorophenol			<0.10		ug/g		0.1	26-MAR-19
2-Methylnaphthalene			<0.030		ug/g		0.03	26-MAR-19
2,4-Dichlorophenol			<0.10		ug/g		0.1	26-MAR-19
2,4,5-Trichlorophenol			<0.10		ug/g		0.1	26-MAR-19
2,4,6-Trichlorophenol			<0.10		ug/g		0.1	26-MAR-19
Acenaphthene			<0.050		ug/g		0.05	26-MAR-19
Acenaphthylene			<0.050		ug/g		0.05	26-MAR-19
Anthracene			<0.050		ug/g		0.05	26-MAR-19
Benzo(a)anthracene			<0.050		ug/g		0.05	26-MAR-19
Benzo(a)pyrene			<0.050		ug/g		0.05	26-MAR-19
Benzo(b)fluoranthene			<0.050		ug/g		0.05	26-MAR-19
Benzo(ghi)perylene			<0.050		ug/g		0.05	26-MAR-19
Benzo(k)fluoranthene			<0.050		ug/g		0.05	26-MAR-19
Chrysene			<0.050		ug/g		0.05	26-MAR-19
Dibenzo(a,h)anthracene			<0.050		ug/g		0.05	26-MAR-19
Fluoranthene			<0.050		ug/g		0.05	26-MAR-19
Fluorene			<0.050		ug/g		0.05	26-MAR-19
Indeno(1,2,3-cd)pyrene			<0.050		ug/g		0.05	26-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
625-511-WT	**Soil**							
Batch R4583368								
WG3013237-6 MB								
Naphthalene			<0.050		ug/g		0.05	26-MAR-19
Pentachlorophenol			<0.10		ug/g		0.1	26-MAR-19
Phenanthrene			<0.050		ug/g		0.05	26-MAR-19
Pyrene			<0.050		ug/g		0.05	26-MAR-19
Surrogate: 2-Fluorobiphenyl			69.5		%		50-140	26-MAR-19
Surrogate: 2,4,6-Tribromophenol			76.0		%		50-140	26-MAR-19
Surrogate: p-Terphenyl d14			100.2		%		50-140	26-MAR-19
Surrogate: Phenol d5			97.4		%		30-130	26-MAR-19
WG3013237-8 MS		**WG3013237-5**						
1-Methylnaphthalene			84.4		%		50-140	26-MAR-19
2-Chlorophenol			101.2		%		50-140	26-MAR-19
2-Methylnaphthalene			93.9		%		50-140	26-MAR-19
2,4-Dichlorophenol			100.8		%		50-140	26-MAR-19
2,4,5-Trichlorophenol			105.4		%		50-140	26-MAR-19
2,4,6-Trichlorophenol			102.0		%		50-140	26-MAR-19
Acenaphthene			94.3		%		50-140	26-MAR-19
Acenaphthylene			101.0		%		50-140	26-MAR-19
Anthracene			94.8		%		50-140	26-MAR-19
Benzo(a)anthracene			100.9		%		50-140	26-MAR-19
Benzo(a)pyrene			101.1		%		50-140	26-MAR-19
Benzo(b)fluoranthene			99.4		%		50-140	26-MAR-19
Benzo(ghi)perylene			77.2		%		50-140	26-MAR-19
Benzo(k)fluoranthene			96.3		%		50-140	26-MAR-19
Chrysene			95.8		%		50-140	26-MAR-19
Dibenzo(a,h)anthracene			87.5		%		50-140	26-MAR-19
Fluoranthene			79.8		%		50-140	26-MAR-19
Fluorene			90.8		%		50-140	26-MAR-19
Indeno(1,2,3-cd)pyrene			89.3		%		50-140	26-MAR-19
Naphthalene			96.0		%		50-140	26-MAR-19
Pentachlorophenol			91.5		%		50-140	26-MAR-19
Phenanthrene			93.5		%		50-140	26-MAR-19
Pyrene			80.4		%		50-140	26-MAR-19
B-HWS-R511-WT	**Soil**							

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
B-HWS-R511-WT	**Soil**							
Batch R4586407								
WG3015492-4 DUP		**L2247818-2**						
Boron (B), Hot Water Ext.		0.25	0.26		ug/g	4.2	30	28-MAR-19
WG3015492-2 IRM		**HOTB-SAL_SOIL5**						
Boron (B), Hot Water Ext.			114.4		%		70-130	28-MAR-19
WG3015492-3 LCS								
Boron (B), Hot Water Ext.			96.9		%		70-130	28-MAR-19
WG3015492-1 MB								
Boron (B), Hot Water Ext.			<0.10		ug/g		0.1	28-MAR-19
CN-WAD-R511-WT	**Soil**							
Batch R4585366								
WG3014583-3 DUP		**L2248096-6**						
Cyanide, Weak Acid Diss		<0.050	<0.050	RPD-NA	ug/g	N/A	35	27-MAR-19
WG3014583-2 LCS								
Cyanide, Weak Acid Diss			95.1		%		80-120	27-MAR-19
WG3014583-1 MB								
Cyanide, Weak Acid Diss			<0.050		ug/g		0.05	27-MAR-19
WG3014583-4 MS		**L2248096-6**						
Cyanide, Weak Acid Diss			106.8		%		70-130	27-MAR-19
CR-CR6-IC-WT	**Soil**							
Batch R4585522								
WG3014043-4 CRM		**WT-SQC012**						
Chromium, Hexavalent			84.2		%		70-130	27-MAR-19
WG3014043-3 DUP		**L2247186-2**						
Chromium, Hexavalent		0.21	0.23		ug/g	8.1	35	27-MAR-19
WG3014043-2 LCS								
Chromium, Hexavalent			102.8		%		80-120	27-MAR-19
WG3014043-1 MB								
Chromium, Hexavalent			<0.20		ug/g		0.2	27-MAR-19
Batch R4587102								
WG3016260-4 CRM		**WT-SQC012**						
Chromium, Hexavalent			96.2		%		70-130	29-MAR-19
WG3016260-3 DUP		**L2248143-1**						
Chromium, Hexavalent		0.88	1.12		ug/g	24	35	29-MAR-19
WG3016260-2 LCS								
Chromium, Hexavalent			103.0		%		80-120	29-MAR-19
WG3016260-1 MB								
Chromium, Hexavalent			<0.20		ug/g		0.2	29-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
EC-WT	**Soil**							
Batch R4586575								
WG3015821-4 DUP		**WG3015821-3**						
Conductivity		0.272	0.273		mS/cm	0.4	20	28-MAR-19
WG3015821-2 IRM		**WT SAR2**						
Conductivity			103.6		%		70-130	28-MAR-19
WG3016257-1 LCS								
Conductivity			93.9		%		90-110	28-MAR-19
WG3015821-1 MB								
Conductivity			<0.0040		mS/cm		0.004	28-MAR-19
F1-HS-511-WT	**Soil**							
Batch R4582911								
WG3013604-4 DUP		**WG3013604-3**						
F1 (C6-C10)		<5.0	<5.0	RPD-NA	ug/g	N/A	30	26-MAR-19
WG3013604-2 LCS								
F1 (C6-C10)			106.0		%		80-120	26-MAR-19
WG3013604-1 MB								
F1 (C6-C10)			<5.0		ug/g		5	26-MAR-19
Surrogate: 3,4-Dichlorotoluene			107.7		%		60-140	26-MAR-19
WG3013604-6 MS		**L2247715-2**						
F1 (C6-C10)			105.1		%		60-140	26-MAR-19
Batch R4585282								
WG3014419-4 DUP		**WG3014419-3**						
F1 (C6-C10)		<5.0	<5.0	RPD-NA	ug/g	N/A	30	27-MAR-19
WG3014419-2 LCS								
F1 (C6-C10)			104.8		%		80-120	27-MAR-19
WG3014419-1 MB								
F1 (C6-C10)			<5.0		ug/g		5	27-MAR-19
Surrogate: 3,4-Dichlorotoluene			101.5		%		60-140	27-MAR-19
WG3014419-6 MS		**L2248668-3**						
F1 (C6-C10)			97.9		%		60-140	27-MAR-19
F2-F4-511-WT	**Soil**							
Batch R4586154								
WG3014013-3 DUP		**WG3014013-5**						
F2 (C10-C16)		<10	<10	RPD-NA	ug/g	N/A	30	27-MAR-19
F3 (C16-C34)		<50	<50	RPD-NA	ug/g	N/A	30	27-MAR-19
F4 (C34-C50)		<50	<50	RPD-NA	ug/g	N/A	30	27-MAR-19
WG3014013-2 LCS								
F2 (C10-C16)			106.4		%		80-120	27-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F2-F4-511-WT	**Soil**							
Batch R4586154								
WG3014013-2 LCS								
F3 (C16-C34)			107.4		%		80-120	27-MAR-19
F4 (C34-C50)			113.7		%		80-120	27-MAR-19
WG3014013-1 MB								
F2 (C10-C16)			<10		ug/g		10	27-MAR-19
F3 (C16-C34)			<50		ug/g		50	27-MAR-19
F4 (C34-C50)			<50		ug/g		50	27-MAR-19
Surrogate: 2-Bromobenzotrifluoride			89.1		%		60-140	27-MAR-19
WG3014013-4 MS		**WG3014013-5**						
F2 (C10-C16)			106.5		%		60-140	27-MAR-19
F3 (C16-C34)			106.4		%		60-140	27-MAR-19
F4 (C34-C50)			113.2		%		60-140	27-MAR-19
F4G-ADD-511-WT	**Soil**							
Batch R4586455								
WG3016483-2 LCS								
F4G-SG (GHH-Silica)			90.3		%		60-140	26-MAR-19
WG3016483-1 MB								
F4G-SG (GHH-Silica)			<250		ug/g		250	26-MAR-19
HG-200.2-CVAA-WT	**Soil**							
Batch R4586213								
WG3015444-2 CRM		**WT-CANMET-TILL1**						
Mercury (Hg)			100.6		%		70-130	28-MAR-19
WG3015444-6 DUP		**WG3015444-5**						
Mercury (Hg)		0.0341	0.0396		ug/g	15	40	28-MAR-19
WG3015444-3 LCS								
Mercury (Hg)			106.0		%		80-120	28-MAR-19
WG3015444-1 MB								
Mercury (Hg)			<0.0050		mg/kg		0.005	28-MAR-19
MET-200.2-CCMS-WT	**Soil**							
Batch R4586281								
WG3015444-2 CRM		**WT-CANMET-TILL1**						
Antimony (Sb)			114.7		%		70-130	28-MAR-19
Arsenic (As)			109.2		%		70-130	28-MAR-19
Barium (Ba)			104.4		%		70-130	28-MAR-19
Beryllium (Be)			105.6		%		70-130	28-MAR-19
Boron (B)			3.2		mg/kg		0-8.2	28-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R4586281								
WG3015444-2 CRM		**WT-CANMET-TILL1**						
Cadmium (Cd)			109.1		%		70-130	28-MAR-19
Chromium (Cr)			108.0		%		70-130	28-MAR-19
Cobalt (Co)			107.5		%		70-130	28-MAR-19
Copper (Cu)			108.9		%		70-130	28-MAR-19
Lead (Pb)			110.4		%		70-130	28-MAR-19
Molybdenum (Mo)			108.9		%		70-130	28-MAR-19
Nickel (Ni)			107.3		%		70-130	28-MAR-19
Selenium (Se)			0.35		mg/kg		0.11-0.51	28-MAR-19
Silver (Ag)			0.25		mg/kg		0.13-0.33	28-MAR-19
Thallium (Tl)			0.139		mg/kg		0.077-0.18	28-MAR-19
Uranium (U)			110.6		%		70-130	28-MAR-19
Vanadium (V)			108.5		%		70-130	28-MAR-19
Zinc (Zn)			102.4		%		70-130	28-MAR-19
WG3015444-6 DUP		**WG3015444-5**						
Antimony (Sb)		0.66	0.58		ug/g	12	30	28-MAR-19
Arsenic (As)		10.0	8.30		ug/g	19	30	28-MAR-19
Barium (Ba)		137	117		ug/g	16	40	28-MAR-19
Beryllium (Be)		1.00	0.84		ug/g	17	30	28-MAR-19
Boron (B)		21.3	19.4		ug/g	9.6	30	28-MAR-19
Cadmium (Cd)		0.404	0.370		ug/g	8.8	30	28-MAR-19
Chromium (Cr)		36.2	30.8		ug/g	16	30	28-MAR-19
Cobalt (Co)		15.4	12.5		ug/g	21	30	28-MAR-19
Copper (Cu)		29.6	24.0		ug/g	21	30	28-MAR-19
Lead (Pb)		13.8	11.4		ug/g	20	40	28-MAR-19
Molybdenum (Mo)		7.68	6.25		ug/g	21	40	28-MAR-19
Nickel (Ni)		45.4	37.2		ug/g	20	30	28-MAR-19
Selenium (Se)		0.50	0.47		ug/g	4.6	30	28-MAR-19
Silver (Ag)		<0.10	<0.10	RPD-NA	ug/g	N/A	40	28-MAR-19
Thallium (Tl)		0.408	0.343		ug/g	17	30	28-MAR-19
Uranium (U)		2.46	2.04		ug/g	19	30	28-MAR-19
Vanadium (V)		48.3	41.3		ug/g	16	30	28-MAR-19
Zinc (Zn)		79.2	68.2		ug/g	15	30	28-MAR-19
WG3015444-4 LCS								

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R4586281								
WG3015444-4 LCS								
Antimony (Sb)			111.3		%		80-120	28-MAR-19
Arsenic (As)			105.4		%		80-120	28-MAR-19
Barium (Ba)			108.8		%		80-120	28-MAR-19
Beryllium (Be)			109.1		%		80-120	28-MAR-19
Boron (B)			106.6		%		80-120	28-MAR-19
Cadmium (Cd)			106.3		%		80-120	28-MAR-19
Chromium (Cr)			102.9		%		80-120	28-MAR-19
Cobalt (Co)			104.0		%		80-120	28-MAR-19
Copper (Cu)			103.4		%		80-120	28-MAR-19
Lead (Pb)			106.0		%		80-120	28-MAR-19
Molybdenum (Mo)			109.8		%		80-120	28-MAR-19
Nickel (Ni)			102.4		%		80-120	28-MAR-19
Selenium (Se)			102.1		%		80-120	28-MAR-19
Silver (Ag)			109.5		%		80-120	28-MAR-19
Thallium (Tl)			105.8		%		80-120	28-MAR-19
Uranium (U)			110.4		%		80-120	28-MAR-19
Vanadium (V)			108.5		%		80-120	28-MAR-19
Zinc (Zn)			100.5		%		80-120	28-MAR-19
WG3015444-1 MB								
Antimony (Sb)			<0.10		mg/kg		0.1	28-MAR-19
Arsenic (As)			<0.10		mg/kg		0.1	28-MAR-19
Barium (Ba)			<0.50		mg/kg		0.5	28-MAR-19
Beryllium (Be)			<0.10		mg/kg		0.1	28-MAR-19
Boron (B)			<5.0		mg/kg		5	28-MAR-19
Cadmium (Cd)			<0.020		mg/kg		0.02	28-MAR-19
Chromium (Cr)			<0.50		mg/kg		0.5	28-MAR-19
Cobalt (Co)			<0.10		mg/kg		0.1	28-MAR-19
Copper (Cu)			<0.50		mg/kg		0.5	28-MAR-19
Lead (Pb)			<0.50		mg/kg		0.5	28-MAR-19
Molybdenum (Mo)			<0.10		mg/kg		0.1	28-MAR-19
Nickel (Ni)			<0.50		mg/kg		0.5	28-MAR-19
Selenium (Se)			<0.20		mg/kg		0.2	28-MAR-19
Silver (Ag)			<0.10		mg/kg		0.1	28-MAR-19
Thallium (Tl)			<0.050		mg/kg		0.05	28-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R4586281								
WG3015444-1 MB								
Uranium (U)			<0.050		mg/kg		0.05	28-MAR-19
Vanadium (V)			<0.20		mg/kg		0.2	28-MAR-19
Zinc (Zn)			<2.0		mg/kg		2	28-MAR-19
MOISTURE-WT	**Soil**							
Batch R4582807								
WG3013694-3 DUP		**L2247736-1**						
% Moisture		42.4	46.5		%	9.2	20	26-MAR-19
WG3013694-2 LCS								
% Moisture			100.2		%		90-110	26-MAR-19
WG3013694-1 MB								
% Moisture			<0.10		%		0.1	26-MAR-19
PAH-511-WT	**Soil**							
Batch R4584760								
WG3013236-3 DUP		**WG3013236-5**						
1-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	26-MAR-19
2-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	26-MAR-19
Acenaphthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Acenaphthylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Benzo(a)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Benzo(a)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Benzo(b)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Benzo(g,h,i)perylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Benzo(k)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Chrysene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Dibenzo(ah)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Fluorene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Indeno(1,2,3-cd)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Naphthalene		<0.013	<0.013	RPD-NA	ug/g	N/A	40	26-MAR-19
Phenanthrene		<0.046	<0.046	RPD-NA	ug/g	N/A	40	26-MAR-19
Pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
WG3013236-2 LCS								
1-Methylnaphthalene			103.7		%		50-140	26-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R4584760								
WG3013236-2 LCS								
2-Methylnaphthalene			99.7		%		50-140	26-MAR-19
Acenaphthene			109.8		%		50-140	26-MAR-19
Acenaphthylene			103.7		%		50-140	26-MAR-19
Anthracene			102.7		%		50-140	26-MAR-19
Benzo(a)anthracene			103.9		%		50-140	26-MAR-19
Benzo(a)pyrene			106.0		%		50-140	26-MAR-19
Benzo(b)fluoranthene			86.4		%		50-140	26-MAR-19
Benzo(g,h,i)perylene			105.3		%		50-140	26-MAR-19
Benzo(k)fluoranthene			106.2		%		50-140	26-MAR-19
Chrysene			102.3		%		50-140	26-MAR-19
Dibenzo(ah)anthracene			105.0		%		50-140	26-MAR-19
Fluoranthene			101.4		%		50-140	26-MAR-19
Fluorene			104.8		%		50-140	26-MAR-19
Indeno(1,2,3-cd)pyrene			87.6		%		50-140	26-MAR-19
Naphthalene			100.6		%		50-140	26-MAR-19
Phenanthrene			104.6		%		50-140	26-MAR-19
Pyrene			102.4		%		50-140	26-MAR-19
WG3013236-1 MB								
1-Methylnaphthalene			<0.030		ug/g		0.03	26-MAR-19
2-Methylnaphthalene			<0.030		ug/g		0.03	26-MAR-19
Acenaphthene			<0.050		ug/g		0.05	26-MAR-19
Acenaphthylene			<0.050		ug/g		0.05	26-MAR-19
Anthracene			<0.050		ug/g		0.05	26-MAR-19
Benzo(a)anthracene			<0.050		ug/g		0.05	26-MAR-19
Benzo(a)pyrene			<0.050		ug/g		0.05	26-MAR-19
Benzo(b)fluoranthene			<0.050		ug/g		0.05	26-MAR-19
Benzo(g,h,i)perylene			<0.050		ug/g		0.05	26-MAR-19
Benzo(k)fluoranthene			<0.050		ug/g		0.05	26-MAR-19
Chrysene			<0.050		ug/g		0.05	26-MAR-19
Dibenzo(ah)anthracene			<0.050		ug/g		0.05	26-MAR-19
Fluoranthene			<0.050		ug/g		0.05	26-MAR-19
Fluorene			<0.050		ug/g		0.05	26-MAR-19
Indeno(1,2,3-cd)pyrene			<0.050		ug/g		0.05	26-MAR-19
Naphthalene			<0.013		ug/g		0.013	26-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R4584760								
WG3013236-1 MB								
Phenanthrene			<0.046		ug/g		0.046	26-MAR-19
Pyrene			<0.050		ug/g		0.05	26-MAR-19
Surrogate: 2-Fluorobiphenyl			103.3		%		50-140	26-MAR-19
Surrogate: p-Terphenyl d14			94.2		%		50-140	26-MAR-19
WG3013236-4 MS		**WG3013236-5**						
1-Methylnaphthalene			98.3		%		50-140	26-MAR-19
2-Methylnaphthalene			95.0		%		50-140	26-MAR-19
Acenaphthene			103.9		%		50-140	26-MAR-19
Acenaphthylene			97.3		%		50-140	26-MAR-19
Anthracene			96.9		%		50-140	26-MAR-19
Benzo(a)anthracene			99.0		%		50-140	26-MAR-19
Benzo(a)pyrene			100.9		%		50-140	26-MAR-19
Benzo(b)fluoranthene			84.4		%		50-140	26-MAR-19
Benzo(g,h,i)perylene			101.0		%		50-140	26-MAR-19
Benzo(k)fluoranthene			113.1		%		50-140	26-MAR-19
Chrysene			99.6		%		50-140	26-MAR-19
Dibenzo(ah)anthracene			100.7		%		50-140	26-MAR-19
Fluoranthene			96.9		%		50-140	26-MAR-19
Fluorene			99.2		%		50-140	26-MAR-19
Indeno(1,2,3-cd)pyrene			94.1		%		50-140	26-MAR-19
Naphthalene			95.1		%		50-140	26-MAR-19
Phenanthrene			99.4		%		50-140	26-MAR-19
Pyrene			97.7		%		50-140	26-MAR-19
PCB-511-WT	**Soil**							
Batch R4580669								
WG3012341-3 DUP		**WG3012341-5**						
Aroclor 1242		<0.010	<0.010	RPD-NA	ug/g	N/A	40	25-MAR-19
Aroclor 1248		<0.010	<0.010	RPD-NA	ug/g	N/A	40	25-MAR-19
Aroclor 1254		<0.0150	<0.0150	RPD-NA	ug/g	N/A	40	25-MAR-19
Aroclor 1260		0.051	0.071		ug/g	32	40	25-MAR-19
WG3012341-2 LCS								
Aroclor 1242			103.2		%		60-140	25-MAR-19
Aroclor 1248			95.1		%		60-140	25-MAR-19
Aroclor 1254			107.3		%		60-140	25-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PCB-511-WT	**Soil**							
Batch R4580669								
WG3012341-2 LCS								
Aroclor 1260			111.0		%		60-140	25-MAR-19
WG3012341-1 MB								
Aroclor 1242			<0.010		ug/g		0.01	25-MAR-19
Aroclor 1248			<0.010		ug/g		0.01	25-MAR-19
Aroclor 1254			<0.010		ug/g		0.01	25-MAR-19
Aroclor 1260			<0.010		ug/g		0.01	25-MAR-19
Surrogate: d14-Terphenyl			75.7		%		60-140	25-MAR-19
WG3012341-4 MS		**WG3012341-5**						
Aroclor 1242			102.0		%		60-140	25-MAR-19
Aroclor 1254			112.8		%		60-140	25-MAR-19
Aroclor 1260			127.8		%		60-140	25-MAR-19
PEST-OC-511-WT	**Soil**							
Batch R4581388								
WG3011936-3 DUP		**WG3011936-5**						
Aldrin		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
a-chlordane		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
g-chlordane		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
op-DDD		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
pp-DDD		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
o,p-DDE		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
pp-DDE		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
op-DDT		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
pp-DDT		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
Dieldrin		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
Endosulfan I		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
Endosulfan II		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
Endrin		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
gamma-hexachlorocyclohexane		<0.10	<0.10	RPD-NA	ug/g	N/A	40	25-MAR-19
Heptachlor		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
Heptachlor Epoxide		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
Hexachlorobenzene		<0.10	<0.10	RPD-NA	ug/g	N/A	40	25-MAR-19
Hexachlorobutadiene		<0.10	<0.10	RPD-NA	ug/g	N/A	40	25-MAR-19
Hexachloroethane		<0.10	<0.10	RPD-NA	ug/g	N/A	40	25-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PEST-OC-511-WT	**Soil**							
Batch R4581388								
WG3011936-3 DUP		**WG3011936-5**						
Methoxychlor		<0.20	<0.20	RPD-NA	ug/g	N/A	40	25-MAR-19
WG3011936-2 LCS								
Aldrin			102.8		%		50-140	25-MAR-19
a-chlordane			79.4		%		50-140	25-MAR-19
g-chlordane			82.6		%		50-140	25-MAR-19
op-DDD			84.4		%		50-140	25-MAR-19
pp-DDD			91.2		%		50-140	25-MAR-19
o,p-DDE			78.8		%		50-140	25-MAR-19
pp-DDE			78.1		%		50-140	25-MAR-19
op-DDT			133.1		%		50-140	25-MAR-19
pp-DDT			139.8		%		50-140	25-MAR-19
Dieldrin			80.7		%		50-140	25-MAR-19
Endosulfan I			83.0		%		50-140	25-MAR-19
Endosulfan II			93.6		%		50-140	25-MAR-19
Endrin			146.5	RRQC	%		50-140	25-MAR-19
gamma-hexachlorocyclohexane			95.1		%		50-140	25-MAR-19
Heptachlor			106.7		%		50-140	25-MAR-19
Heptachlor Epoxide			85.1		%		50-140	25-MAR-19
Hexachlorobenzene			99.2		%		50-140	25-MAR-19
Hexachlorobutadiene			95.3		%		50-140	25-MAR-19
Hexachloroethane			102.4		%		50-140	25-MAR-19
Methoxychlor			152.6	RRQC	%		50-140	25-MAR-19
COMMENTS: RRQC: Recovery is outside ALS control limits. Associated sample results have not been affected.								
WG3011936-1 MB								
Aldrin			<0.020		ug/g		0.02	25-MAR-19
a-chlordane			<0.020		ug/g		0.02	25-MAR-19
g-chlordane			<0.020		ug/g		0.02	25-MAR-19
op-DDD			<0.020		ug/g		0.02	25-MAR-19
pp-DDD			<0.020		ug/g		0.02	25-MAR-19
o,p-DDE			<0.020		ug/g		0.02	25-MAR-19
pp-DDE			<0.020		ug/g		0.02	25-MAR-19
op-DDT			<0.020		ug/g		0.02	25-MAR-19
pp-DDT			<0.020		ug/g		0.02	25-MAR-19
Dieldrin			<0.020		ug/g		0.02	25-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PEST-OC-511-WT	**Soil**							
Batch R4581388								
WG3011936-1 MB								
Endosulfan I			<0.020		ug/g		0.02	25-MAR-19
Endosulfan II			<0.020		ug/g		0.02	25-MAR-19
Endrin			<0.020		ug/g		0.02	25-MAR-19
gamma-hexachlorocyclohexane			<0.010		ug/g		0.01	25-MAR-19
Heptachlor			<0.020		ug/g		0.02	25-MAR-19
Heptachlor Epoxide			<0.020		ug/g		0.02	25-MAR-19
Hexachlorobenzene			<0.010		ug/g		0.01	25-MAR-19
Hexachlorobutadiene			<0.010		ug/g		0.01	25-MAR-19
Hexachloroethane			<0.010		ug/g		0.01	25-MAR-19
Methoxychlor			<0.020		ug/g		0.02	25-MAR-19
Surrogate: 2-Fluorobiphenyl			95.0		%		50-140	25-MAR-19
Surrogate: d14-Terphenyl			110.5		%		50-140	25-MAR-19
WG3011936-4 MS		**WG3011936-5**						
Aldrin			85.0		%		50-140	25-MAR-19
a-chlordane			62.0		%		50-140	25-MAR-19
g-chlordane			67.1		%		50-140	25-MAR-19
op-DDD			64.1		%		50-140	25-MAR-19
pp-DDD			66.3		%		50-140	25-MAR-19
o,p-DDE			66.8		%		50-140	25-MAR-19
pp-DDE			68.2		%		50-140	25-MAR-19
op-DDT			98.8		%		50-140	25-MAR-19
pp-DDT			100.2		%		50-140	25-MAR-19
Dieldrin			61.1		%		50-140	25-MAR-19
Endosulfan I			59.8		%		50-140	25-MAR-19
Endosulfan II			66.2		%		50-140	25-MAR-19
Endrin			93.8		%		50-140	25-MAR-19
gamma-hexachlorocyclohexane			71.9		%		50-140	25-MAR-19
Heptachlor			78.3		%		50-140	25-MAR-19
Heptachlor Epoxide			64.6		%		50-140	25-MAR-19
Hexachlorobenzene			85.0		%		50-140	25-MAR-19
Hexachlorobutadiene			81.8		%		50-140	25-MAR-19
Hexachloroethane			81.3		%		50-140	25-MAR-19
Methoxychlor			102.4		%		50-140	25-MAR-19
PH-WT	**Soil**							

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PH-WT	**Soil**							
Batch R4585976								
WG3014158-1 DUP		**L2248083-3**						
pH		7.67	7.82	J	pH units	0.15	0.3	27-MAR-19
WG3015095-1 LCS								
pH			6.99		pH units		6.9-7.1	27-MAR-19
SAR-R511-WT	**Soil**							
Batch R4586408								
WG3015821-4 DUP		**WG3015821-3**						
Calcium (Ca)		4.69	4.01		mg/L	16	30	28-MAR-19
Sodium (Na)		56.0	56.0		mg/L	0.0	30	28-MAR-19
Magnesium (Mg)		1.79	1.56		mg/L	14	30	28-MAR-19
WG3015821-2 IRM		**WT SAR2**						
Calcium (Ca)			106.1		%		70-130	28-MAR-19
Sodium (Na)			98.3		%		70-130	28-MAR-19
Magnesium (Mg)			102.4		%		70-130	28-MAR-19
WG3015821-5 LCS								
Calcium (Ca)			109.3		%		70-130	28-MAR-19
Sodium (Na)			104.2		%		70-130	28-MAR-19
Magnesium (Mg)			103.0		%		70-130	28-MAR-19
WG3015821-1 MB								
Calcium (Ca)			<0.50		mg/L		0.5	28-MAR-19
Sodium (Na)			<0.50		mg/L		0.5	28-MAR-19
Magnesium (Mg)			<0.50		mg/L		0.5	28-MAR-19
VOC-511-HS-WT	**Soil**							
Batch R4582911								
WG3013604-4 DUP		**WG3013604-3**						
1,1,1,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
1,1,2,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
1,1,1-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
1,1,2-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
1,1-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
1,1-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
1,2-Dibromoethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
1,2-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
1,2-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
1,2-Dichloropropane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4582911								
WG3013604-4 DUP		**WG3013604-3**						
1,3-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
1,4-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Acetone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	26-MAR-19
Benzene		<0.0068	<0.0068	RPD-NA	ug/g	N/A	40	26-MAR-19
Bromodichloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Bromoform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Bromomethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Carbon tetrachloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Chlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Chloroform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
cis-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
cis-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	26-MAR-19
Dibromochloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Dichlorodifluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Ethylbenzene		<0.018	<0.018	RPD-NA	ug/g	N/A	40	26-MAR-19
n-Hexane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Methylene Chloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
MTBE		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
m+p-Xylenes		<0.030	<0.030	RPD-NA	ug/g	N/A	40	26-MAR-19
Methyl Ethyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	26-MAR-19
Methyl Isobutyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	26-MAR-19
o-Xylene		<0.020	<0.020	RPD-NA	ug/g	N/A	40	26-MAR-19
Styrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Tetrachloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Toluene		<0.080	<0.080	RPD-NA	ug/g	N/A	40	26-MAR-19
trans-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
trans-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	26-MAR-19
Trichloroethylene		<0.010	<0.010	RPD-NA	ug/g	N/A	40	26-MAR-19
Trichlorofluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Vinyl chloride		<0.020	<0.020	RPD-NA	ug/g	N/A	40	26-MAR-19
WG3013604-2 LCS								
1,1,1,2-Tetrachloroethane			111.8		%		60-130	26-MAR-19
1,1,2,2-Tetrachloroethane			86.3		%		60-130	26-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4582911								
WG3013604-2 LCS								
1,1,1-Trichloroethane			117.5		%		60-130	26-MAR-19
1,1,2-Trichloroethane			99.4		%		60-130	26-MAR-19
1,1-Dichloroethane			101.9		%		60-130	26-MAR-19
1,1-Dichloroethylene			109.8		%		60-130	26-MAR-19
1,2-Dibromoethane			88.8		%		70-130	26-MAR-19
1,2-Dichlorobenzene			111.2		%		70-130	26-MAR-19
1,2-Dichloroethane			91.7		%		60-130	26-MAR-19
1,2-Dichloropropane			99.1		%		70-130	26-MAR-19
1,3-Dichlorobenzene			120.1		%		70-130	26-MAR-19
1,4-Dichlorobenzene			117.1		%		70-130	26-MAR-19
Acetone			75.1		%		60-140	26-MAR-19
Benzene			110.6		%		70-130	26-MAR-19
Bromodichloromethane			99.2		%		50-140	26-MAR-19
Bromoform			89.6		%		70-130	26-MAR-19
Bromomethane			113.5		%		50-140	26-MAR-19
Carbon tetrachloride			121.7		%		70-130	26-MAR-19
Chlorobenzene			111.5		%		70-130	26-MAR-19
Chloroform			108.3		%		70-130	26-MAR-19
cis-1,2-Dichloroethylene			106.0		%		70-130	26-MAR-19
cis-1,3-Dichloropropene			101.3		%		70-130	26-MAR-19
Dibromochloromethane			100.3		%		60-130	26-MAR-19
Dichlorodifluoromethane			66.9		%		50-140	26-MAR-19
Ethylbenzene			114.7		%		70-130	26-MAR-19
n-Hexane			108.1		%		70-130	26-MAR-19
Methylene Chloride			100.8		%		70-130	26-MAR-19
MTBE			110.6		%		70-130	26-MAR-19
m+p-Xylenes			114.3		%		70-130	26-MAR-19
Methyl Ethyl Ketone			72.5		%		60-140	26-MAR-19
Methyl Isobutyl Ketone			64.1		%		60-140	26-MAR-19
o-Xylene			109.8		%		70-130	26-MAR-19
Styrene			106.0		%		70-130	26-MAR-19
Tetrachloroethylene			130.6	MES	%		60-130	26-MAR-19
Toluene			112.2		%		70-130	26-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4582911								
WG3013604-2 LCS								
trans-1,2-Dichloroethylene			110.9		%		60-130	26-MAR-19
trans-1,3-Dichloropropene			97.2		%		70-130	26-MAR-19
Trichloroethylene			122.4		%		60-130	26-MAR-19
Trichlorofluoromethane			121.8		%		50-140	26-MAR-19
Vinyl chloride			79.0		%		60-140	26-MAR-19
WG3013604-1 MB								
1,1,1,2-Tetrachloroethane			<0.050		ug/g		0.05	26-MAR-19
1,1,2,2-Tetrachloroethane			<0.050		ug/g		0.05	26-MAR-19
1,1,1-Trichloroethane			<0.050		ug/g		0.05	26-MAR-19
1,1,2-Trichloroethane			<0.050		ug/g		0.05	26-MAR-19
1,1-Dichloroethane			<0.050		ug/g		0.05	26-MAR-19
1,1-Dichloroethylene			<0.050		ug/g		0.05	26-MAR-19
1,2-Dibromoethane			<0.050		ug/g		0.05	26-MAR-19
1,2-Dichlorobenzene			<0.050		ug/g		0.05	26-MAR-19
1,2-Dichloroethane			<0.050		ug/g		0.05	26-MAR-19
1,2-Dichloropropane			<0.050		ug/g		0.05	26-MAR-19
1,3-Dichlorobenzene			<0.050		ug/g		0.05	26-MAR-19
1,4-Dichlorobenzene			<0.050		ug/g		0.05	26-MAR-19
Acetone			<0.50		ug/g		0.5	26-MAR-19
Benzene			<0.0068		ug/g		0.0068	26-MAR-19
Bromodichloromethane			<0.050		ug/g		0.05	26-MAR-19
Bromoform			<0.050		ug/g		0.05	26-MAR-19
Bromomethane			<0.050		ug/g		0.05	26-MAR-19
Carbon tetrachloride			<0.050		ug/g		0.05	26-MAR-19
Chlorobenzene			<0.050		ug/g		0.05	26-MAR-19
Chloroform			<0.050		ug/g		0.05	26-MAR-19
cis-1,2-Dichloroethylene			<0.050		ug/g		0.05	26-MAR-19
cis-1,3-Dichloropropene			<0.030		ug/g		0.03	26-MAR-19
Dibromochloromethane			<0.050		ug/g		0.05	26-MAR-19
Dichlorodifluoromethane			<0.050		ug/g		0.05	26-MAR-19
Ethylbenzene			<0.018		ug/g		0.018	26-MAR-19
n-Hexane			<0.050		ug/g		0.05	26-MAR-19
Methylene Chloride			<0.050		ug/g		0.05	26-MAR-19
MTBE			<0.050		ug/g		0.05	26-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4582911								
WG3013604-1 MB								
m+p-Xylenes			<0.030		ug/g		0.03	26-MAR-19
Methyl Ethyl Ketone			<0.50		ug/g		0.5	26-MAR-19
Methyl Isobutyl Ketone			<0.50		ug/g		0.5	26-MAR-19
o-Xylene			<0.020		ug/g		0.02	26-MAR-19
Styrene			<0.050		ug/g		0.05	26-MAR-19
Tetrachloroethylene			<0.050		ug/g		0.05	26-MAR-19
Toluene			<0.080		ug/g		0.08	26-MAR-19
trans-1,2-Dichloroethylene			<0.050		ug/g		0.05	26-MAR-19
trans-1,3-Dichloropropene			<0.030		ug/g		0.03	26-MAR-19
Trichloroethylene			<0.010		ug/g		0.01	26-MAR-19
Trichlorofluoromethane			<0.050		ug/g		0.05	26-MAR-19
Vinyl chloride			<0.020		ug/g		0.02	26-MAR-19
Surrogate: 1,4-Difluorobenzene			113.0		%		50-140	26-MAR-19
Surrogate: 4-Bromofluorobenzene			100.3		%		50-140	26-MAR-19
WG3013604-5 MS		**L2247641-3**						
1,1,1,2-Tetrachloroethane			109.0		%		50-140	26-MAR-19
1,1,2,2-Tetrachloroethane			87.7		%		50-140	26-MAR-19
1,1,1-Trichloroethane			112.9		%		50-140	26-MAR-19
1,1,2-Trichloroethane			99.6		%		50-140	26-MAR-19
1,1-Dichloroethane			92.9		%		50-140	26-MAR-19
1,1-Dichloroethylene			104.8		%		50-140	26-MAR-19
1,2-Dibromoethane			89.4		%		50-140	26-MAR-19
1,2-Dichlorobenzene			108.4		%		50-140	26-MAR-19
1,2-Dichloroethane			91.3		%		50-140	26-MAR-19
1,2-Dichloropropane			97.3		%		50-140	26-MAR-19
1,3-Dichlorobenzene			114.9		%		50-140	26-MAR-19
1,4-Dichlorobenzene			115.5		%		50-140	26-MAR-19
Acetone			79.8		%		50-140	26-MAR-19
Benzene			107.5		%		50-140	26-MAR-19
Bromodichloromethane			98.1		%		50-140	26-MAR-19
Bromoform			89.2		%		50-140	26-MAR-19
Bromomethane			107.3		%		50-140	26-MAR-19
Carbon tetrachloride			117.0		%		50-140	26-MAR-19
Chlorobenzene			107.7		%		50-140	26-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4582911								
WG3013604-5 MS		**L2247641-3**						
Chloroform			106.3		%		50-140	26-MAR-19
cis-1,2-Dichloroethylene			103.2		%		50-140	26-MAR-19
cis-1,3-Dichloropropene			91.5		%		50-140	26-MAR-19
Dibromochloromethane			99.3		%		50-140	26-MAR-19
Dichlorodifluoromethane			68.7		%		50-140	26-MAR-19
Ethylbenzene			108.8		%		50-140	26-MAR-19
n-Hexane			103.8		%		50-140	26-MAR-19
Methylene Chloride			99.4		%		50-140	26-MAR-19
MTBE			109.2		%		50-140	26-MAR-19
m+p-Xylenes			107.9		%		50-140	26-MAR-19
Methyl Ethyl Ketone			70.2		%		50-140	26-MAR-19
Methyl Isobutyl Ketone			64.2		%		50-140	26-MAR-19
o-Xylene			104.4		%		50-140	26-MAR-19
Styrene			100.6		%		50-140	26-MAR-19
Tetrachloroethylene			122.0		%		50-140	26-MAR-19
Toluene			108.0		%		50-140	26-MAR-19
trans-1,2-Dichloroethylene			104.3		%		50-140	26-MAR-19
trans-1,3-Dichloropropene			84.8		%		50-140	26-MAR-19
Trichloroethylene			117.2		%		50-140	26-MAR-19
Trichlorofluoromethane			118.4		%		50-140	26-MAR-19
Vinyl chloride			76.0		%		50-140	26-MAR-19
Batch R4585282								
WG3014419-4 DUP		**WG3014419-3**						
1,1,1,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
1,1,2,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
1,1,1-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
1,1,2-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
1,1-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
1,1-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
1,2-Dibromoethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
1,2-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
1,2-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
1,2-Dichloropropane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4585282								
WG3014419-4 DUP		**WG3014419-3**						
1,3-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
1,4-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Acetone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	27-MAR-19
Benzene		<0.0068	<0.0068	RPD-NA	ug/g	N/A	40	27-MAR-19
Bromodichloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Bromoform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Bromomethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Carbon tetrachloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Chlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Chloroform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
cis-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
cis-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	27-MAR-19
Dibromochloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Dichlorodifluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Ethylbenzene		<0.018	<0.018	RPD-NA	ug/g	N/A	40	27-MAR-19
n-Hexane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Methylene Chloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
MTBE		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
m+p-Xylenes		<0.030	<0.030	RPD-NA	ug/g	N/A	40	27-MAR-19
Methyl Ethyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	27-MAR-19
Methyl Isobutyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	27-MAR-19
o-Xylene		<0.020	<0.020	RPD-NA	ug/g	N/A	40	27-MAR-19
Styrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Tetrachloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Toluene		<0.080	<0.080	RPD-NA	ug/g	N/A	40	27-MAR-19
trans-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
trans-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	27-MAR-19
Trichloroethylene		<0.010	<0.010	RPD-NA	ug/g	N/A	40	27-MAR-19
Trichlorofluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Vinyl chloride		<0.020	<0.020	RPD-NA	ug/g	N/A	40	27-MAR-19
WG3014419-2 LCS								
1,1,1,2-Tetrachloroethane			111.0		%		60-130	27-MAR-19
1,1,2,2-Tetrachloroethane			91.6		%		60-130	27-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4585282								
WG3014419-2 LCS								
1,1,1-Trichloroethane			116.5		%		60-130	27-MAR-19
1,1,2-Trichloroethane			103.8		%		60-130	27-MAR-19
1,1-Dichloroethane			111.7		%		60-130	27-MAR-19
1,1-Dichloroethylene			108.8		%		60-130	27-MAR-19
1,2-Dibromoethane			94.0		%		70-130	27-MAR-19
1,2-Dichlorobenzene			111.7		%		70-130	27-MAR-19
1,2-Dichloroethane			99.6		%		60-130	27-MAR-19
1,2-Dichloropropane			102.0		%		70-130	27-MAR-19
1,3-Dichlorobenzene			116.8		%		70-130	27-MAR-19
1,4-Dichlorobenzene			117.4		%		70-130	27-MAR-19
Acetone			83.8		%		60-140	27-MAR-19
Benzene			111.3		%		70-130	27-MAR-19
Bromodichloromethane			103.4		%		50-140	27-MAR-19
Bromoform			94.0		%		70-130	27-MAR-19
Bromomethane			117.5		%		50-140	27-MAR-19
Carbon tetrachloride			120.5		%		70-130	27-MAR-19
Chlorobenzene			111.8		%		70-130	27-MAR-19
Chloroform			111.0		%		70-130	27-MAR-19
cis-1,2-Dichloroethylene			109.5		%		70-130	27-MAR-19
cis-1,3-Dichloropropene			104.2		%		70-130	27-MAR-19
Dibromochloromethane			104.1		%		60-130	27-MAR-19
Dichlorodifluoromethane			71.7		%		50-140	27-MAR-19
Ethylbenzene			108.3		%		70-130	27-MAR-19
n-Hexane			105.5		%		70-130	27-MAR-19
Methylene Chloride			107.2		%		70-130	27-MAR-19
MTBE			112.0		%		70-130	27-MAR-19
m+p-Xylenes			109.6		%		70-130	27-MAR-19
Methyl Ethyl Ketone			82.1		%		60-140	27-MAR-19
Methyl Isobutyl Ketone			70.6		%		60-140	27-MAR-19
o-Xylene			105.1		%		70-130	27-MAR-19
Styrene			102.0		%		70-130	27-MAR-19
Tetrachloroethylene			121.8		%		60-130	27-MAR-19
Toluene			109.0		%		70-130	27-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4585282								
WG3014419-2 LCS								
trans-1,2-Dichloroethylene			109.0		%		60-130	27-MAR-19
trans-1,3-Dichloropropene			93.4		%		70-130	27-MAR-19
Trichloroethylene			121.3		%		60-130	27-MAR-19
Trichlorofluoromethane			122.1		%		50-140	27-MAR-19
Vinyl chloride			79.7		%		60-140	27-MAR-19
WG3014419-1 MB								
1,1,1,2-Tetrachloroethane			<0.050		ug/g		0.05	27-MAR-19
1,1,2,2-Tetrachloroethane			<0.050		ug/g		0.05	27-MAR-19
1,1,1-Trichloroethane			<0.050		ug/g		0.05	27-MAR-19
1,1,2-Trichloroethane			<0.050		ug/g		0.05	27-MAR-19
1,1-Dichloroethane			<0.050		ug/g		0.05	27-MAR-19
1,1-Dichloroethylene			<0.050		ug/g		0.05	27-MAR-19
1,2-Dibromoethane			<0.050		ug/g		0.05	27-MAR-19
1,2-Dichlorobenzene			<0.050		ug/g		0.05	27-MAR-19
1,2-Dichloroethane			<0.050		ug/g		0.05	27-MAR-19
1,2-Dichloropropane			<0.050		ug/g		0.05	27-MAR-19
1,3-Dichlorobenzene			<0.050		ug/g		0.05	27-MAR-19
1,4-Dichlorobenzene			<0.050		ug/g		0.05	27-MAR-19
Acetone			<0.50		ug/g		0.5	27-MAR-19
Benzene			<0.0068		ug/g		0.0068	27-MAR-19
Bromodichloromethane			<0.050		ug/g		0.05	27-MAR-19
Bromoform			<0.050		ug/g		0.05	27-MAR-19
Bromomethane			<0.050		ug/g		0.05	27-MAR-19
Carbon tetrachloride			<0.050		ug/g		0.05	27-MAR-19
Chlorobenzene			<0.050		ug/g		0.05	27-MAR-19
Chloroform			<0.050		ug/g		0.05	27-MAR-19
cis-1,2-Dichloroethylene			<0.050		ug/g		0.05	27-MAR-19
cis-1,3-Dichloropropene			<0.030		ug/g		0.03	27-MAR-19
Dibromochloromethane			<0.050		ug/g		0.05	27-MAR-19
Dichlorodifluoromethane			<0.050		ug/g		0.05	27-MAR-19
Ethylbenzene			<0.018		ug/g		0.018	27-MAR-19
n-Hexane			<0.050		ug/g		0.05	27-MAR-19
Methylene Chloride			<0.050		ug/g		0.05	27-MAR-19
MTBE			<0.050		ug/g		0.05	27-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4585282								
WG3014419-1 MB								
m+p-Xylenes			<0.030		ug/g		0.03	27-MAR-19
Methyl Ethyl Ketone			<0.50		ug/g		0.5	27-MAR-19
Methyl Isobutyl Ketone			<0.50		ug/g		0.5	27-MAR-19
o-Xylene			<0.020		ug/g		0.02	27-MAR-19
Styrene			<0.050		ug/g		0.05	27-MAR-19
Tetrachloroethylene			<0.050		ug/g		0.05	27-MAR-19
Toluene			<0.080		ug/g		0.08	27-MAR-19
trans-1,2-Dichloroethylene			<0.050		ug/g		0.05	27-MAR-19
trans-1,3-Dichloropropene			<0.030		ug/g		0.03	27-MAR-19
Trichloroethylene			<0.010		ug/g		0.01	27-MAR-19
Trichlorofluoromethane			<0.050		ug/g		0.05	27-MAR-19
Vinyl chloride			<0.020		ug/g		0.02	27-MAR-19
Surrogate: 1,4-Difluorobenzene			112.4		%		50-140	27-MAR-19
Surrogate: 4-Bromofluorobenzene			101.8		%		50-140	27-MAR-19
WG3014419-5 MS		**L2248298-1**						
1,1,1,2-Tetrachloroethane			115.5		%		50-140	27-MAR-19
1,1,2,2-Tetrachloroethane			100.2		%		50-140	27-MAR-19
1,1,1-Trichloroethane			121.4		%		50-140	27-MAR-19
1,1,2-Trichloroethane			110.9		%		50-140	27-MAR-19
1,1-Dichloroethane			107.1		%		50-140	27-MAR-19
1,1-Dichloroethylene			112.8		%		50-140	27-MAR-19
1,2-Dibromoethane			100.9		%		50-140	27-MAR-19
1,2-Dichlorobenzene			113.9		%		50-140	27-MAR-19
1,2-Dichloroethane			107.2		%		50-140	27-MAR-19
1,2-Dichloropropane			108.8		%		50-140	27-MAR-19
1,3-Dichlorobenzene			116.9		%		50-140	27-MAR-19
1,4-Dichlorobenzene			118.1		%		50-140	27-MAR-19
Acetone			94.0		%		50-140	27-MAR-19
Benzene			117.4		%		50-140	27-MAR-19
Bromodichloromethane			110.7		%		50-140	27-MAR-19
Bromoform			100.5		%		50-140	27-MAR-19
Bromomethane			124.0		%		50-140	27-MAR-19
Carbon tetrachloride			125.2		%		50-140	27-MAR-19
Chlorobenzene			115.5		%		50-140	27-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4585282								
WG3014419-5 MS		**L2248298-1**						
Chloroform			117.7		%		50-140	27-MAR-19
cis-1,2-Dichloroethylene			115.0		%		50-140	27-MAR-19
cis-1,3-Dichloropropene			111.8		%		50-140	27-MAR-19
Dibromochloromethane			110.0		%		50-140	27-MAR-19
Dichlorodifluoromethane			75.9		%		50-140	27-MAR-19
Ethylbenzene			110.2		%		50-140	27-MAR-19
n-Hexane			110.7		%		50-140	27-MAR-19
Methylene Chloride			113.8		%		50-140	27-MAR-19
MTBE			114.0		%		50-140	27-MAR-19
m+p-Xylenes			111.3		%		50-140	27-MAR-19
Methyl Ethyl Ketone			90.4		%		50-140	27-MAR-19
Methyl Isobutyl Ketone			80.1		%		50-140	27-MAR-19
o-Xylene			107.4		%		50-140	27-MAR-19
Styrene			105.2		%		50-140	27-MAR-19
Tetrachloroethylene			122.6		%		50-140	27-MAR-19
Toluene			111.7		%		50-140	27-MAR-19
trans-1,2-Dichloroethylene			112.9		%		50-140	27-MAR-19
trans-1,3-Dichloropropene			99.4		%		50-140	27-MAR-19
Trichloroethylene			125.9		%		50-140	27-MAR-19
Trichlorofluoromethane			127.2		%		50-140	27-MAR-19
Vinyl chloride			82.8		%		50-140	27-MAR-19

Quality Control Report

Workorder: L2247735 Report Date: 29-MAR-19

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
J	Duplicate results and limits are expressed in terms of absolute difference.
MES	Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.
RRQC	Refer to report remarks for information regarding this QC result.

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

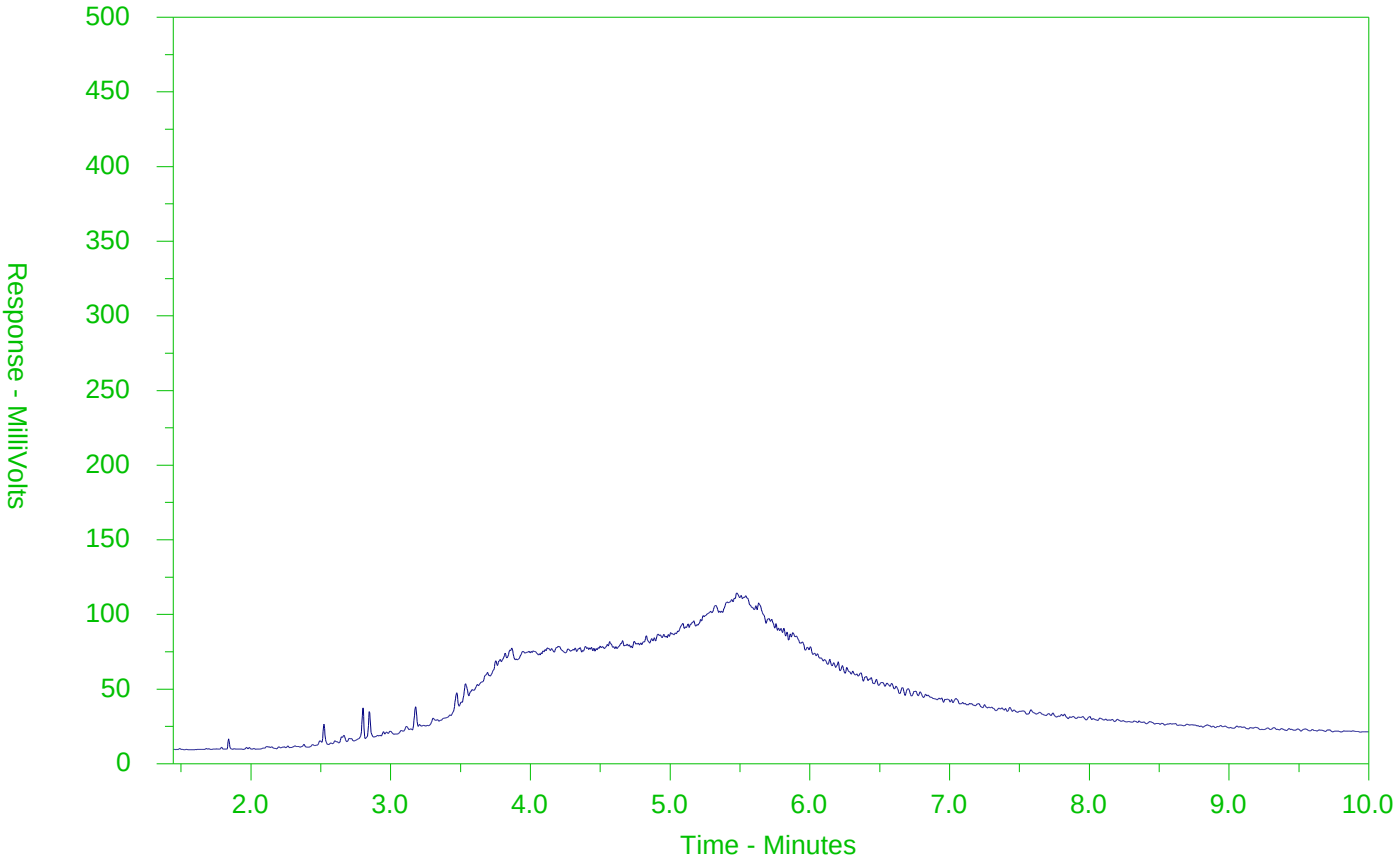
ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2247735-2
Client Sample ID: S-11102463-032019-EN-BH18-463-1-2'



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
←Diesel/Jet Fuels→			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

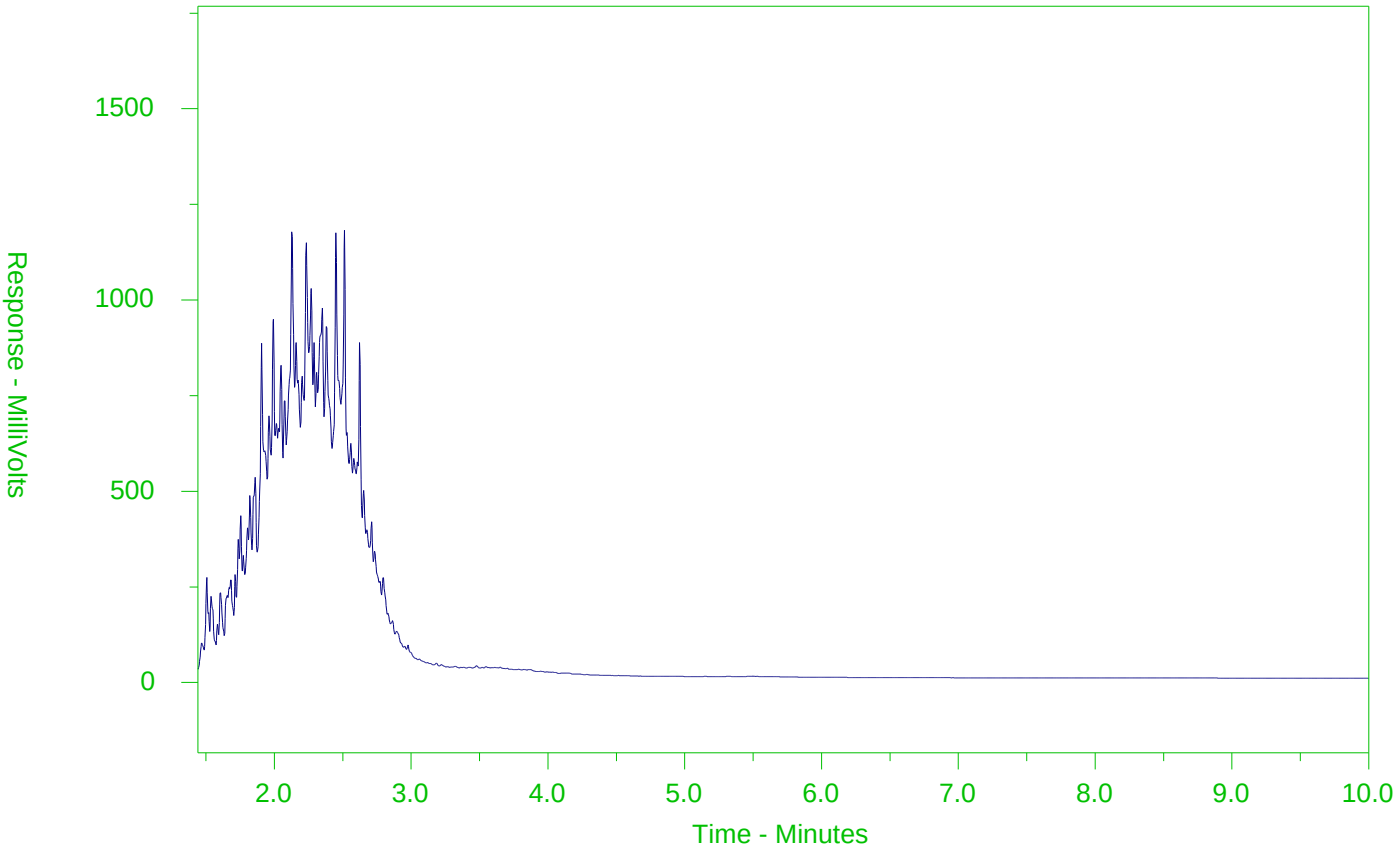
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2247735-3
Client Sample ID: S-11102463-032119-EN-BH18-463-10-12'



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
←Diesel/Jet Fuels→			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

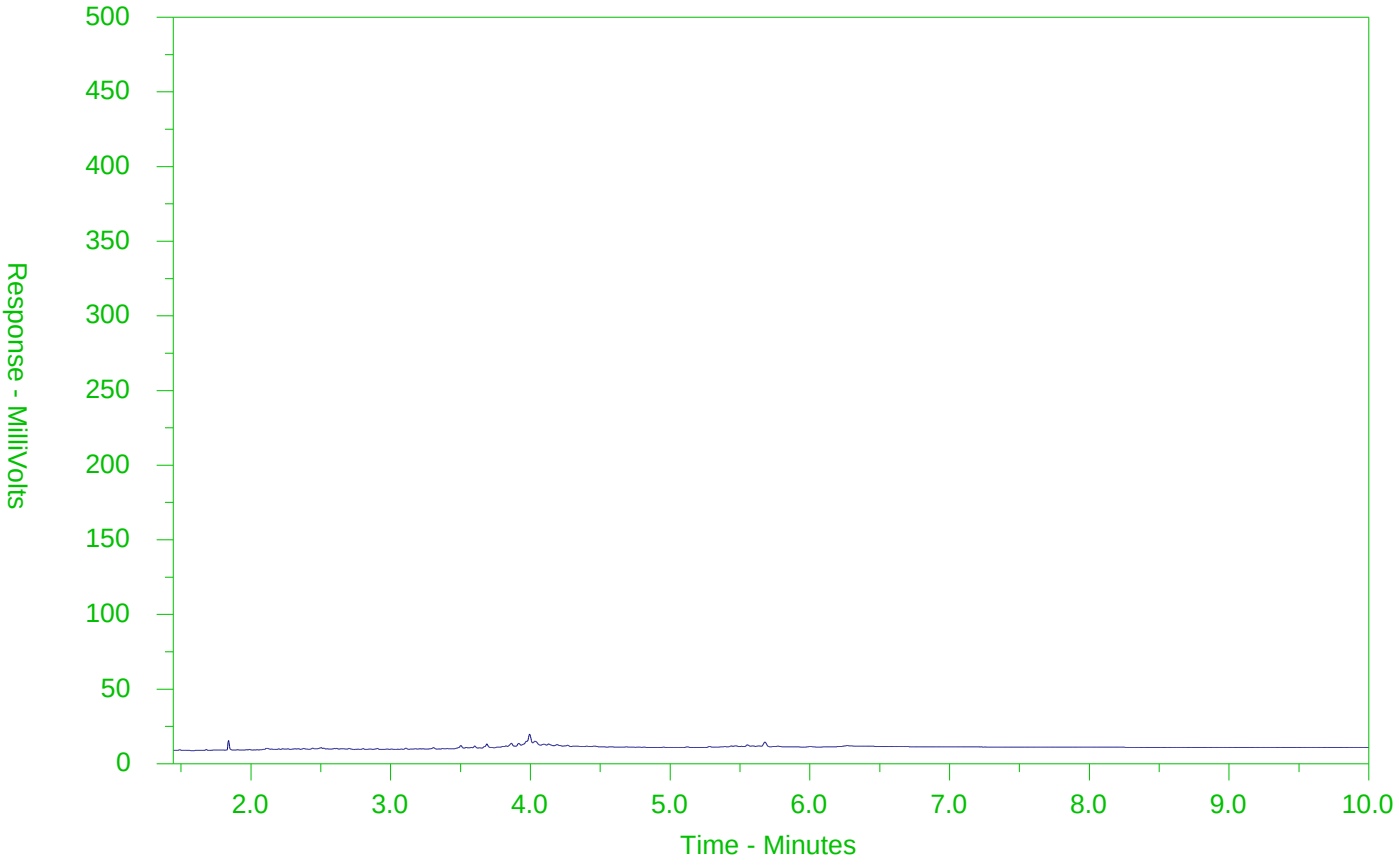
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2247735-4
Client Sample ID: S-11102463-032119-EN-BH18-463-15-17'



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
←Diesel/Jet Fuels→			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

ALS Environmental
www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

L2247735-COFC

COC Number: 17 - 667135

Page 1 of 1

Report To	Contact and company name below will appear on the final report
Company:	JENNIFER BALKWILL & en
Contact:	GHD LIMITED
Phone:	519-884-0510
	Company address below will appear on the final report
Street:	455 PHILLIP ST.
City/Province:	WATERLOO, ON
Postal Code:	
Invoice To	Same as Report To ☐ YES ☐ NO SEE PO.
	Copy of Invoice with Report ☐ YES ☐ NO
Company:	
Contact:	

Report Format / Distribution

Select Report Format: ☒ PDF ☒ EXCEL ☒ EDD (DIGITAL)

Quality Control (QC) Report with Report ☐ YES ☐ NO

☐ Compare Results to Criteria on Report - provide details below if box checked

Select Distribution: ☐ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax SEE PO

Email 2

Email 3

Invoice Distribution

Select Invoice Distribution: ☐ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax

Email 2

Project Information

ALS Account # / Quote #:

Job #: 11102463-53

PO / AFE:

LSD:

Oil and Gas Required Fields (client use)

AFE/Cost Center: PO#

Major/Minor Code: Routing Code:

Requisitioner:

Location:

ALS Lab Work Order # (lab use only): L2247735 21E

ALS Contact:

Sampler: E. NUSSLI

Below - Contact your AM to confirm all E&P TATs (surcharges may apply)

Regular [R] ☒ Standard TAT if received by 3 pm - business days - no surcharges apply

PRIORITY (Business Days): 4 day [P4-20%] ☐ 3 day [P3-25%] ☐ 2 day [P2-50%] ☐

EMERGENCY: 1 Business day [E-100%] ☐ Same Day, Weekend or Statutory holiday [E2-200% (Laboratory opening fees may apply)] ☐

Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm

For tests that can not be performed according to the service level selected, you will be contacted.

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	OCP	CP	PCBS	METALS & INORGANICS	PAHs	PHC F1	PHC F2-F4	VOCs	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
1	S-11102463-032019-EN-TRIP BLANK	20-MAR-19	09:00	SOIL						X		X			1
2	S-11102463-032019-EN-BH18-463-1-2'	20-MAR-19	10:00	SOIL	X	X	X	X	X	X	X	X			5
3	S-11102463-032119-EN-BH18-463-10-12'	21-MAR-19	09:00	SOIL	X	X	X	X	X	X	X	X			4
4	S-11102463-032119-EN-BH18-463-15-17'	21-MAR-19	09:30	SOIL				X	X	X	X	X			4

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? ☐ YES ☒ NO

Are samples for human consumption/ use? ☐ YES ☒ NO

Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)

LOW SAMPLE VOLUME, PLEASE PROCEED WITH ANALYSIS.

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐

Ice Packs ☐ Ice Cubes ☐ Custody seal intact Yes ☐ No ☐

Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C

FINAL COOLER TEMPERATURES °C -0.5

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by: Emma Nussli	Date: 21-MAR-19	Time: 12:30	Received by:	Date:	Time:	Received by: [signature]	Date: Mar 21/19	Time: 18:20

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

JULY 2017 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

White Paper Co. 604 951-3900

GHD Limited (Waterloo)
ATTN: JENNIFER BALKWILL
455 PHILLIP ST
WATERLOO ON N2L 3X2

Date Received: 22-MAR-19
Report Date: 27-MAR-19 14:40 (MT)
Version: FINAL

Client Phone: 519-884-0510

Certificate of Analysis

Lab Work Order #: L2248315

Project P.O. #: 73509898-7
Job Reference: 11102463-53
C of C Numbers:
Legal Site Desc: WATERFRONT TORONTO

Rick Hawthorne
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2248315-1 S-11102463-190322-JC-BH18-465-2.5'-4.5'								
Sampled By: CLIENT on 22-MAR-19 @ 11:05								
Matrix: SOIL								
Physical Tests								
Conductivity	3.05		0.0040	mS/cm	27-MAR-19	*0.7	*0.7	*0.7
% Moisture	19.5		0.10	%	26-MAR-19			
pH	7.47		0.10	pH units	26-MAR-19			
Cyanides								
Cyanide, Weak Acid Diss	0.133		0.050	ug/g	26-MAR-19	*0.051	*0.051	*0.051
Saturated Paste Extractables								
SAR	1.62		0.10	SAR	27-MAR-19	5	5	5
Calcium (Ca)	619		0.50	mg/L	27-MAR-19			
Magnesium (Mg)	8.55		0.50	mg/L	27-MAR-19			
Sodium (Na)	148		0.50	mg/L	27-MAR-19			
Metals								
Antimony (Sb)	5.7		1.0	ug/g	26-MAR-19	7.5	7.5	*1.3
Arsenic (As)	16.8		1.0	ug/g	26-MAR-19	18	18	18
Barium (Ba)	194		1.0	ug/g	26-MAR-19	390	390	220
Beryllium (Be)	0.65		0.50	ug/g	26-MAR-19	4	5	2.5
Boron (B)	18.6		5.0	ug/g	26-MAR-19	120	120	36
Boron (B), Hot Water Ext.	1.45		0.10	ug/g	26-MAR-19	1.5	1.5	1.5
Cadmium (Cd)	0.76		0.50	ug/g	26-MAR-19	1.2	1.2	1.2
Chromium (Cr)	205		1.0	ug/g	26-MAR-19	*160	*160	*70
Cobalt (Co)	6.8		1.0	ug/g	26-MAR-19	22	22	22
Copper (Cu)	133		1.0	ug/g	26-MAR-19	140	180	*92
Lead (Pb)	480		1.0	ug/g	26-MAR-19	*120	*120	*120
Mercury (Hg)	0.375		0.0050	ug/g	26-MAR-19	*0.27	1.8	*0.27
Molybdenum (Mo)	1.5		1.0	ug/g	26-MAR-19	6.9	6.9	2
Nickel (Ni)	18.9		1.0	ug/g	26-MAR-19	100	130	82
Selenium (Se)	<1.0		1.0	ug/g	26-MAR-19	2.4	2.4	1.5
Silver (Ag)	0.45		0.20	ug/g	26-MAR-19	20	25	0.5
Thallium (Tl)	<0.50		0.50	ug/g	26-MAR-19	1	1	1
Uranium (U)	<1.0		1.0	ug/g	26-MAR-19	23	23	2.5
Vanadium (V)	25.4		1.0	ug/g	26-MAR-19	86	86	86
Zinc (Zn)	367		5.0	ug/g	26-MAR-19	*340	*340	*290
Speciated Metals								
Chromium, Hexavalent	<0.20		0.20	ug/g	26-MAR-19	8	10	0.66
Volatile Organic Compounds								
Acetone	<0.50		0.50	ug/g	27-MAR-19	16	28	0.5
Benzene	0.176		0.0068	ug/g	27-MAR-19	0.21	*0.17	*0.02
Bromodichloromethane	<0.050		0.050	ug/g	27-MAR-19	13	13	0.05
Bromoform	<0.050		0.050	ug/g	27-MAR-19	0.27	0.26	0.05
Bromomethane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05
Carbon tetrachloride	<0.050		0.050	ug/g	27-MAR-19	0.05	0.12	0.05
Chlorobenzene	<0.050		0.050	ug/g	27-MAR-19	2.4	2.7	0.05
Dibromochloromethane	<0.050		0.050	ug/g	27-MAR-19	9.4	9.4	0.05
Chloroform	<0.050		0.050	ug/g	27-MAR-19	0.05	0.18	0.05
1,2-Dibromoethane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05
1,2-Dichlorobenzene	<0.050		0.050	ug/g	27-MAR-19	3.4	4.3	0.05

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2248315-1 S-11102463-190322-JC-BH18-465-2.5'-4.5'								
Sampled By: CLIENT on 22-MAR-19 @ 11:05								
Matrix: SOIL								
Volatile Organic Compounds								
1,3-Dichlorobenzene	<0.050		0.050	ug/g	27-MAR-19	4.8	6	0.05
1,4-Dichlorobenzene	<0.050		0.050	ug/g	27-MAR-19	0.083	0.097	0.05
Dichlorodifluoromethane	<0.050		0.050	ug/g	27-MAR-19	16	25	0.05
1,1-Dichloroethane	<0.050		0.050	ug/g	27-MAR-19	3.5	11	0.05
1,2-Dichloroethane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05
1,1-Dichloroethylene	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	27-MAR-19	3.4	30	0.05
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	27-MAR-19	0.084	0.75	0.05
Methylene Chloride	<0.050		0.050	ug/g	27-MAR-19	0.1	0.96	0.05
1,2-Dichloropropane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.085	0.05
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	27-MAR-19			
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	27-MAR-19			
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g	27-MAR-19	0.05	0.083	0.05
Ethylbenzene	0.158		0.018	ug/g	27-MAR-19	2	15	*0.05
n-Hexane	0.415		0.050	ug/g	27-MAR-19	2.8	34	*0.05
Methyl Ethyl Ketone	<0.50		0.50	ug/g	27-MAR-19	16	44	0.5
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	27-MAR-19	1.7	4.3	0.5
MTBE	<0.050		0.050	ug/g	27-MAR-19	0.75	1.4	0.05
Styrene	<0.050		0.050	ug/g	27-MAR-19	0.7	2.2	0.05
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	27-MAR-19	0.058	0.05	0.05
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05
Tetrachloroethylene	<0.050		0.050	ug/g	27-MAR-19	0.28	2.3	0.05
Toluene	0.277		0.080	ug/g	27-MAR-19	2.3	6	*0.2
1,1,1-Trichloroethane	<0.050		0.050	ug/g	27-MAR-19	0.38	3.4	0.05
1,1,2-Trichloroethane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05
Trichloroethylene	<0.010		0.010	ug/g	27-MAR-19	0.061	0.52	0.05
Trichlorofluoromethane	<0.050		0.050	ug/g	27-MAR-19	4	5.8	0.25
Vinyl chloride	<0.020		0.020	ug/g	27-MAR-19	0.02	0.022	0.02
o-Xylene	0.115		0.020	ug/g	27-MAR-19			
m+p-Xylenes	0.417		0.030	ug/g	27-MAR-19			
Xylenes (Total)	0.533		0.050	ug/g	27-MAR-19	3.1	25	*0.05
Surrogate: 4-Bromofluorobenzene	99.7		50-140	%	27-MAR-19			
Surrogate: 1,4-Difluorobenzene	110.3		50-140	%	27-MAR-19			
Hydrocarbons								
F1 (C6-C10)	6.2		5.0	ug/g	27-MAR-19	55	65	25
F1-BTEX	5.1		5.0	ug/g	27-MAR-19	55	65	25
F2 (C10-C16)	30		10	ug/g	26-MAR-19	98	150	*10
F2-Naphth	30		10	ug/g	27-MAR-19			
F3 (C16-C34)	327		50	ug/g	26-MAR-19	*300	1300	*240
F3-PAH	282		50	ug/g	27-MAR-19			
F4 (C34-C50)	146		50	ug/g	26-MAR-19	2800	5600	*120
F4G-SG (GHH-Silica)	390		250	ug/g	25-MAR-19	2800	5600	*120
Total Hydrocarbons (C6-C50)	509		72	ug/g	27-MAR-19			
Chrom. to baseline at nC50	NO			No Unit	26-MAR-19			
Surrogate: 2-Bromobenzotrifluoride	94.5		60-140	%	26-MAR-19			
Surrogate: 3,4-Dichlorotoluene	91.5		60-140	%	27-MAR-19			

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2248315-1 S-11102463-190322-JC-BH18-465-2.5'-4.5'								
Sampled By: CLIENT on 22-MAR-19 @ 11:05								
Matrix: SOIL								
Polycyclic Aromatic Hydrocarbons								
1+2-Methylnaphthalenes	0.697		0.042	ug/g	27-MAR-19	0.99	3.4	*0.59
Semi-Volatile Organics								
Acenaphthene	0.700		0.050	ug/g	27-MAR-19	7.9	58	*0.072
Acenaphthylene	0.150		0.050	ug/g	27-MAR-19	0.15	0.17	*0.093
Anthracene	2.32		0.050	ug/g	27-MAR-19	*0.67	*0.74	*0.22
Benzo(a)anthracene	4.34	DLHC	0.25	ug/g	27-MAR-19	*0.5	*0.63	*0.36
Benzo(a)pyrene	4.10	DLHC	0.25	ug/g	27-MAR-19	*0.3	*0.3	*0.3
Benzo(b)fluoranthene	4.07	DLHC	0.25	ug/g	27-MAR-19	*0.78	*0.78	*0.47
Benzo(ghi)perylene	2.94		0.050	ug/g	27-MAR-19	6.6	7.8	*0.68
Benzo(k)fluoranthene	2.97		0.050	ug/g	27-MAR-19	*0.78	*0.78	*0.48
2-Chlorophenol	<0.10		0.10	ug/g	27-MAR-19	1.6	2	0.1
Chrysene	4.19	DLHC	0.25	ug/g	27-MAR-19	7	7.8	*2.8
Dibenzo(a,h)anthracene	0.690		0.050	ug/g	27-MAR-19	*0.1	*0.1	*0.1
2,4-Dichlorophenol	<0.10		0.10	ug/g	27-MAR-19	1.7	2.1	0.1
Fluoranthene	9.60	DLHC	0.25	ug/g	27-MAR-19	*0.69	*0.69	*0.69
Fluorene	0.958		0.050	ug/g	27-MAR-19	62	69	*0.19
Indeno(1,2,3-cd)pyrene	3.17		0.050	ug/g	27-MAR-19	*0.38	*0.48	*0.23
1-Methylnaphthalene	0.366		0.030	ug/g	27-MAR-19	0.99	3.4	0.59
2-Methylnaphthalene	0.331		0.030	ug/g	27-MAR-19	0.99	3.4	0.59
Naphthalene	0.488		0.050	ug/g	27-MAR-19	0.6	0.75	*0.09
Pentachlorophenol	<0.10		0.10	ug/g	27-MAR-19	0.1	0.1	0.1
Phenanthrene	8.21	DLHC	0.25	ug/g	27-MAR-19	*6.2	*7.8	*0.69
Pyrene	7.72	DLHC	0.25	ug/g	27-MAR-19	78	78	*1
2,4,5-Trichlorophenol	<0.10		0.10	ug/g	27-MAR-19	4.4	5.5	0.1
2,4,6-Trichlorophenol	<0.10		0.10	ug/g	27-MAR-19	3.8	4.2	0.1
Surrogate: 2-Fluorobiphenyl	94.5		50-140	%	27-MAR-19			
Surrogate: Phenol d5	99.9		30-130	%	27-MAR-19			
Surrogate: p-Terphenyl d14	107.5		50-140	%	27-MAR-19			
Surrogate: 2,4,6-Tribromophenol	88.7		50-140	%	27-MAR-19			
Polychlorinated Biphenyls								
Aroclor 1242	<0.010		0.010	ug/g	27-MAR-19			
Aroclor 1248	<0.010		0.010	ug/g	27-MAR-19			
Aroclor 1254	<0.010		0.010	ug/g	27-MAR-19			
Aroclor 1260	<0.010		0.010	ug/g	27-MAR-19			
Total PCBs	<0.020		0.020	ug/g	27-MAR-19	0.35	0.35	0.3
Surrogate: d14-Terphenyl	88.0		60-140	%	27-MAR-19			
Organochlorine Pesticides								
Aldrin	<0.020		0.020	ug/g	26-MAR-19	0.05	0.05	0.05
gamma-hexachlorocyclohexane	<0.10	DLM	0.10	ug/g	26-MAR-19	**0.056	**0.063	
a-chlordane	<0.020		0.020	ug/g	26-MAR-19			
Chlordane (Total)	<0.028		0.028	ug/g	26-MAR-19	0.05	0.05	0.05
g-chlordane	<0.020		0.020	ug/g	26-MAR-19			
op-DDD	<0.020		0.020	ug/g	26-MAR-19			
pp-DDD	<0.020		0.020	ug/g	26-MAR-19			
Total DDD	<0.028		0.028	ug/g	26-MAR-19	3.3	3.3	0.05
o,p-DDE	<0.020		0.020	ug/g	26-MAR-19			

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2248315-1 S-11102463-190322-JC-BH18-465-2.5'-4.5'								
Sampled By: CLIENT on 22-MAR-19 @ 11:05								
Matrix: SOIL								
Organochlorine Pesticides								
pp-DDE	<0.020		0.020	ug/g	26-MAR-19			
Total DDE	<0.028		0.028	ug/g	26-MAR-19	0.26	0.33	0.05
op-DDT	<0.10	DLM	0.10	ug/g	26-MAR-19			
pp-DDT	<0.10	DLM	0.10	ug/g	26-MAR-19			
Total DDT	<0.14		0.14	ug/g	26-MAR-19	1.4	1.4	1.4
Dieldrin	<0.020		0.020	ug/g	26-MAR-19	0.05	0.05	0.05
Endosulfan I	<0.020		0.020	ug/g	26-MAR-19			
Endosulfan II	<0.10	DLM	0.10	ug/g	26-MAR-19			
Endosulfan (Total)	<0.10		0.10	ug/g	26-MAR-19	**0.04	**0.04	**0.04
Endrin	<0.020		0.020	ug/g	26-MAR-19	0.04	0.04	0.04
Heptachlor	<0.020		0.020	ug/g	26-MAR-19	0.15	0.15	0.05
Heptachlor Epoxide	<0.020		0.020	ug/g	26-MAR-19	0.05	0.05	0.05
Hexachlorobenzene	<0.10	DLM	0.10	ug/g	26-MAR-19	0.52	0.52	**0.02
Hexachlorobutadiene	<0.10	DLM	0.10	ug/g	26-MAR-19	**0.012	**0.014	**0.01
Hexachloroethane	<0.10	DLM	0.10	ug/g	26-MAR-19	**0.089	**0.07	**0.01
Methoxychlor	<0.10	DLM	0.10	ug/g	26-MAR-19	0.13	0.13	**0.05
Surrogate: 2-Fluorobiphenyl	66.5		50-140	%	26-MAR-19			
Surrogate: d14-Terphenyl	66.4		50-140	%	26-MAR-19			
L2248315-2 S-11102463-190322-JC-BH18-465-10'-12'								
Sampled By: CLIENT on 22-MAR-19 @ 11:30								
Matrix: SOIL								
Physical Tests								
Conductivity	2.99		0.0040	mS/cm	27-MAR-19	*0.7	*0.7	*0.7
% Moisture	48.5		0.10	%	26-MAR-19			
pH	7.44		0.10	pH units	26-MAR-19			
Cyanides								
Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	26-MAR-19	0.051	0.051	0.051
Saturated Paste Extractables								
SAR	12.6		0.10	SAR	27-MAR-19	*5	*5	*5
Calcium (Ca)	77.1		0.50	mg/L	27-MAR-19			
Magnesium (Mg)	13.9		0.50	mg/L	27-MAR-19			
Sodium (Na)	456		0.50	mg/L	27-MAR-19			
Metals								
Antimony (Sb)	3.4		1.0	ug/g	26-MAR-19	7.5	7.5	*1.3
Arsenic (As)	18.0		1.0	ug/g	26-MAR-19	18	18	18
Barium (Ba)	380		1.0	ug/g	26-MAR-19	390	390	*220
Beryllium (Be)	<0.50		0.50	ug/g	26-MAR-19	4	5	2.5
Boron (B)	13.2		5.0	ug/g	26-MAR-19	120	120	36
Boron (B), Hot Water Ext.	4.54		0.10	ug/g	26-MAR-19	*1.5	*1.5	*1.5
Cadmium (Cd)	<0.50		0.50	ug/g	26-MAR-19	1.2	1.2	1.2
Chromium (Cr)	30.7		1.0	ug/g	26-MAR-19	160	160	70
Cobalt (Co)	6.2		1.0	ug/g	26-MAR-19	22	22	22
Copper (Cu)	253		1.0	ug/g	26-MAR-19	*140	*180	*92
Lead (Pb)	128		1.0	ug/g	26-MAR-19	*120	*120	*120
Mercury (Hg)	0.749		0.0050	ug/g	26-MAR-19	*0.27	1.8	*0.27

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2248315-2 S-11102463-190322-JC-BH18-465-10'-12'								
Sampled By: CLIENT on 22-MAR-19 @ 11:30								
Matrix: SOIL								
Metals								
Molybdenum (Mo)	2.0		1.0	ug/g	26-MAR-19	6.9	6.9	2
Nickel (Ni)	17.1		1.0	ug/g	26-MAR-19	100	130	82
Selenium (Se)	2.8		1.0	ug/g	26-MAR-19	*2.4	*2.4	*1.5
Silver (Ag)	1.93		0.20	ug/g	26-MAR-19	20	25	*0.5
Thallium (Tl)	<0.50		0.50	ug/g	26-MAR-19	1	1	1
Uranium (U)	<1.0		1.0	ug/g	26-MAR-19	23	23	2.5
Vanadium (V)	27.7		1.0	ug/g	26-MAR-19	86	86	86
Zinc (Zn)	361		5.0	ug/g	26-MAR-19	*340	*340	*290
Speciated Metals								
Chromium, Hexavalent	<0.20		0.20	ug/g	26-MAR-19	8	10	0.66
Volatile Organic Compounds								
Acetone	<1.4	DLIS	1.4	ug/g	26-MAR-19	16	28	**0.5
Benzene	0.071	DLIS	0.018	ug/g	26-MAR-19	0.21	0.17	*0.02
Bromodichloromethane	<0.14	DLIS	0.14	ug/g	26-MAR-19	13	13	**0.05
Bromoform	<0.14	DLIS	0.14	ug/g	26-MAR-19	0.27	0.26	**0.05
Bromomethane	<0.14	DLIS	0.14	ug/g	26-MAR-19	**0.05	**0.05	**0.05
Carbon tetrachloride	<0.14	DLIS	0.14	ug/g	26-MAR-19	**0.05	**0.12	**0.05
Chlorobenzene	<0.14	DLIS	0.14	ug/g	26-MAR-19	2.4	2.7	**0.05
Dibromochloromethane	<0.14	DLIS	0.14	ug/g	26-MAR-19	9.4	9.4	**0.05
Chloroform	<0.14	DLIS	0.14	ug/g	26-MAR-19	**0.05	0.18	**0.05
1,2-Dibromoethane	<0.14	DLIS	0.14	ug/g	26-MAR-19	**0.05	**0.05	**0.05
1,2-Dichlorobenzene	<0.14	DLIS	0.14	ug/g	26-MAR-19	3.4	4.3	**0.05
1,3-Dichlorobenzene	<0.14	DLIS	0.14	ug/g	26-MAR-19	4.8	6	**0.05
1,4-Dichlorobenzene	<0.14	DLIS	0.14	ug/g	26-MAR-19	**0.083	**0.097	**0.05
Dichlorodifluoromethane	<0.14	DLIS	0.14	ug/g	26-MAR-19	16	25	**0.05
1,1-Dichloroethane	<0.14	DLIS	0.14	ug/g	26-MAR-19	3.5	11	**0.05
1,2-Dichloroethane	<0.14	DLIS	0.14	ug/g	26-MAR-19	**0.05	**0.05	**0.05
1,1-Dichloroethylene	<0.14	DLIS	0.14	ug/g	26-MAR-19	**0.05	**0.05	**0.05
cis-1,2-Dichloroethylene	<0.14	DLIS	0.14	ug/g	26-MAR-19	3.4	30	**0.05
trans-1,2-Dichloroethylene	<0.14	DLIS	0.14	ug/g	26-MAR-19	**0.084	0.75	**0.05
Methylene Chloride	<0.14	DLIS	0.14	ug/g	26-MAR-19	**0.1	0.96	**0.05
1,2-Dichloropropane	<0.14	DLIS	0.14	ug/g	26-MAR-19	**0.05	**0.085	**0.05
cis-1,3-Dichloropropene	<0.081	DLIS	0.081	ug/g	26-MAR-19			
trans-1,3-Dichloropropene	<0.081	DLIS	0.081	ug/g	26-MAR-19			
1,3-Dichloropropene (cis & trans)	<0.11		0.11	ug/g	26-MAR-19	**0.05	**0.083	**0.05
Ethylbenzene	<0.049	DLIS	0.049	ug/g	26-MAR-19	2	15	0.05
n-Hexane	0.14	DLIS	0.14	ug/g	26-MAR-19	2.8	34	*0.05
Methyl Ethyl Ketone	<1.4	DLIS	1.4	ug/g	26-MAR-19	16	44	**0.5
Methyl Isobutyl Ketone	<1.4	DLIS	1.4	ug/g	26-MAR-19	1.7	4.3	**0.5
MTBE	<0.14	DLIS	0.14	ug/g	26-MAR-19	0.75	1.4	**0.05
Styrene	<0.14	DLIS	0.14	ug/g	26-MAR-19	0.7	2.2	**0.05
1,1,1,2-Tetrachloroethane	<0.14	DLIS	0.14	ug/g	26-MAR-19	**0.058	**0.05	**0.05
1,1,2,2-Tetrachloroethane	<0.14	DLIS	0.14	ug/g	26-MAR-19	**0.05	**0.05	**0.05
Tetrachloroethylene	<0.14	DLIS	0.14	ug/g	26-MAR-19	0.28	2.3	**0.05
Toluene	0.27	DLIS	0.22	ug/g	26-MAR-19	2.3	6	*0.2

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2248315-2 S-11102463-190322-JC-BH18-465-10'-12'								
Sampled By: CLIENT on 22-MAR-19 @ 11:30								
Matrix: SOIL								
Volatile Organic Compounds								
1,1,1-Trichloroethane	<0.14	DLIS	0.14	ug/g	26-MAR-19	0.38	3.4	**0.05
1,1,2-Trichloroethane	<0.14	DLIS	0.14	ug/g	26-MAR-19	**0.05	**0.05	**0.05
Trichloroethylene	<0.027	DLIS	0.027	ug/g	26-MAR-19	0.061	0.52	0.05
Trichlorofluoromethane	<0.14	DLIS	0.14	ug/g	26-MAR-19	4	5.8	0.25
Vinyl chloride	<0.054	DLIS	0.054	ug/g	26-MAR-19	**0.02	**0.022	**0.02
o-Xylene	<0.054	DLIS	0.054	ug/g	26-MAR-19			
m+p-Xylenes	0.154	DLIS	0.081	ug/g	26-MAR-19			
Xylenes (Total)	0.154		0.097	ug/g	26-MAR-19	3.1	25	*0.05
Surrogate: 4-Bromofluorobenzene	93.1		50-140	%	26-MAR-19			
Surrogate: 1,4-Difluorobenzene	84.0		50-140	%	26-MAR-19			
Hydrocarbons								
F1 (C6-C10)	24	DLR	14	ug/g	27-MAR-19	55	65	25
F1-BTEX	23		14	ug/g	27-MAR-19	55	65	25
F2 (C10-C16)	791		10	ug/g	26-MAR-19	*98	*150	*10
F2-Naphth	791		10	ug/g	27-MAR-19			
F3 (C16-C34)	1010		50	ug/g	26-MAR-19	*300	1300	*240
F3-PAH	1010		50	ug/g	27-MAR-19			
F4 (C34-C50)	142		50	ug/g	26-MAR-19	2800	5600	*120
Total Hydrocarbons (C6-C50)	1970		73	ug/g	27-MAR-19			
Chrom. to baseline at nC50	YES			No Unit	26-MAR-19			
Surrogate: 2-Bromobenzotrifluoride	94.3		60-140	%	26-MAR-19			
Surrogate: 3,4-Dichlorotoluene	86.8		60-140	%	27-MAR-19			
Polycyclic Aromatic Hydrocarbons								
1+2-Methylnaphthalenes	0.642		0.042	ug/g	27-MAR-19	0.99	3.4	*0.59
Semi-Volatile Organics								
Acenaphthene	0.664		0.050	ug/g	27-MAR-19	7.9	58	*0.072
Acenaphthylene	<0.050		0.050	ug/g	27-MAR-19	0.15	0.17	0.093
Anthracene	0.256		0.050	ug/g	27-MAR-19	0.67	0.74	*0.22
Benzo(a)anthracene	0.441		0.050	ug/g	27-MAR-19	0.5	0.63	*0.36
Benzo(a)pyrene	0.318		0.050	ug/g	27-MAR-19	*0.3	*0.3	*0.3
Benzo(b)fluoranthene	0.321		0.050	ug/g	27-MAR-19	0.78	0.78	0.47
Benzo(ghi)perylene	0.291		0.050	ug/g	27-MAR-19	6.6	7.8	0.68
Benzo(k)fluoranthene	0.217		0.050	ug/g	27-MAR-19	0.78	0.78	0.48
2-Chlorophenol	<0.10		0.10	ug/g	27-MAR-19	1.6	2	0.1
Chrysene	0.569		0.050	ug/g	27-MAR-19	7	7.8	2.8
Dibenzo(a,h)anthracene	0.075		0.050	ug/g	27-MAR-19	0.1	0.1	0.1
2,4-Dichlorophenol	<0.10		0.10	ug/g	27-MAR-19	1.7	2.1	0.1
Fluoranthene	1.01		0.050	ug/g	27-MAR-19	*0.69	*0.69	*0.69
Fluorene	0.532		0.050	ug/g	27-MAR-19	62	69	*0.19
Indeno(1,2,3-cd)pyrene	0.280		0.050	ug/g	27-MAR-19	0.38	0.48	*0.23
1-Methylnaphthalene	0.477		0.030	ug/g	27-MAR-19	0.99	3.4	0.59
2-Methylnaphthalene	0.165		0.030	ug/g	27-MAR-19	0.99	3.4	0.59
Naphthalene	<0.10	DLM	0.10	ug/g	27-MAR-19	0.6	0.75	**0.09
Pentachlorophenol	<0.10		0.10	ug/g	27-MAR-19	0.1	0.1	0.1
Phenanthrene	0.566		0.050	ug/g	27-MAR-19	6.2	7.8	0.69
Pyrene	1.03		0.050	ug/g	27-MAR-19	78	78	*1

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping	Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits			
L2248315-2	S-11102463-190322-JC-BH18-465-10'-12'									
Sampled By:	CLIENT on 22-MAR-19 @ 11:30									
Matrix:	SOIL						#1	#2	#3	
Semi-Volatile Organics										
	2,4,5-Trichlorophenol	<0.10		0.10	ug/g	27-MAR-19	4.4	5.5	0.1	
	2,4,6-Trichlorophenol	<0.10		0.10	ug/g	27-MAR-19	3.8	4.2	0.1	
	Surrogate: 2-Fluorobiphenyl	97.7		50-140	%	27-MAR-19				
	Surrogate: Phenol d5	95.8		30-130	%	27-MAR-19				
	Surrogate: p-Terphenyl d14	105.4		50-140	%	27-MAR-19				
	Surrogate: 2,4,6-Tribromophenol	102.6		50-140	%	27-MAR-19				
Polychlorinated Biphenyls										
	Aroclor 1242	<0.0350	DLM	0.035	ug/g	27-MAR-19				
	Aroclor 1248	<0.010		0.010	ug/g	27-MAR-19				
	Aroclor 1254	<0.010		0.010	ug/g	27-MAR-19				
	Aroclor 1260	<0.010		0.010	ug/g	27-MAR-19				
	Total PCBs	<0.040	DLM	0.040	ug/g	27-MAR-19	0.35	0.35	0.3	
	Surrogate: d14-Terphenyl	84.1		60-140	%	27-MAR-19				
Organochlorine Pesticides										
	Aldrin	<0.020		0.020	ug/g	26-MAR-19	0.05	0.05	0.05	
	gamma-hexachlorocyclohexane	<0.10	DLM	0.10	ug/g	26-MAR-19	**0.056	**0.063		
	a-chlordane	<0.020		0.020	ug/g	26-MAR-19				
	Chlordane (Total)	<0.028		0.028	ug/g	26-MAR-19	0.05	0.05	0.05	
	g-chlordane	<0.020		0.020	ug/g	26-MAR-19				
	op-DDD	<0.020		0.020	ug/g	26-MAR-19				
	pp-DDD	<0.020		0.020	ug/g	26-MAR-19				
	Total DDD	<0.028		0.028	ug/g	26-MAR-19	3.3	3.3	0.05	
	o,p-DDE	<0.020		0.020	ug/g	26-MAR-19				
	pp-DDE	<0.020		0.020	ug/g	26-MAR-19				
	Total DDE	<0.028		0.028	ug/g	26-MAR-19	0.26	0.33	0.05	
	op-DDT	<0.10	DLM	0.10	ug/g	26-MAR-19				
	pp-DDT	<0.10	DLM	0.10	ug/g	26-MAR-19				
	Total DDT	<0.14		0.14	ug/g	26-MAR-19	1.4	1.4	1.4	
	Dieldrin	<0.020		0.020	ug/g	26-MAR-19	0.05	0.05	0.05	
	Endosulfan I	<0.020		0.020	ug/g	26-MAR-19				
	Endosulfan II	<0.10	DLM	0.10	ug/g	26-MAR-19				
	Endosulfan (Total)	<0.10		0.10	ug/g	26-MAR-19	**0.04	**0.04	**0.04	
	Endrin	<0.020		0.020	ug/g	26-MAR-19	0.04	0.04	0.04	
	Heptachlor	<0.020		0.020	ug/g	26-MAR-19	0.15	0.15	0.05	
	Heptachlor Epoxide	<0.020		0.020	ug/g	26-MAR-19	0.05	0.05	0.05	
	Hexachlorobenzene	<0.10	DLM	0.10	ug/g	26-MAR-19	0.52	0.52	**0.02	
	Hexachlorobutadiene	<0.10	DLM	0.10	ug/g	26-MAR-19	**0.012	**0.014	**0.01	
	Hexachloroethane	<0.10	DLM	0.10	ug/g	26-MAR-19	**0.089	**0.07	**0.01	
	Methoxychlor	<0.10	DLM	0.10	ug/g	26-MAR-19	0.13	0.13	**0.05	
	Surrogate: 2-Fluorobiphenyl	59.8		50-140	%	26-MAR-19				
	Surrogate: d14-Terphenyl	71.0		50-140	%	26-MAR-19				
L2248315-3	S-11102463-190322-JC-BH18-465-25'-27'									
Sampled By:	CLIENT on 22-MAR-19 @ 12:00									
Matrix:	SOIL						#1	#2	#3	
Physical Tests										

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2248315-3 S-11102463-190322-JC-BH18-465-25'-27'								
Sampled By: CLIENT on 22-MAR-19 @ 12:00								
Matrix: SOIL								
Physical Tests								
Conductivity	0.216		0.0040	mS/cm	27-MAR-19	0.7	0.7	0.7
% Moisture	20.5		0.10	%	26-MAR-19			
pH	7.50		0.10	pH units	26-MAR-19			
Cyanides								
Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	26-MAR-19	0.051	0.051	0.051
Saturated Paste Extractables								
SAR	0.64		0.10	SAR	27-MAR-19	5	5	5
Calcium (Ca)	18.0		0.50	mg/L	27-MAR-19			
Magnesium (Mg)	5.16		0.50	mg/L	27-MAR-19			
Sodium (Na)	11.9		0.50	mg/L	27-MAR-19			
Metals								
Antimony (Sb)	<1.0		1.0	ug/g	26-MAR-19	7.5	7.5	1.3
Arsenic (As)	2.8		1.0	ug/g	26-MAR-19	18	18	18
Barium (Ba)	88.4		1.0	ug/g	26-MAR-19	390	390	220
Beryllium (Be)	<0.50		0.50	ug/g	26-MAR-19	4	5	2.5
Boron (B)	7.2		5.0	ug/g	26-MAR-19	120	120	36
Boron (B), Hot Water Ext.	0.12		0.10	ug/g	26-MAR-19	1.5	1.5	1.5
Cadmium (Cd)	<0.50		0.50	ug/g	26-MAR-19	1.2	1.2	1.2
Chromium (Cr)	21.3		1.0	ug/g	26-MAR-19	160	160	70
Cobalt (Co)	7.5		1.0	ug/g	26-MAR-19	22	22	22
Copper (Cu)	17.1		1.0	ug/g	26-MAR-19	140	180	92
Lead (Pb)	6.3		1.0	ug/g	26-MAR-19	120	120	120
Mercury (Hg)	0.0138		0.0050	ug/g	26-MAR-19	0.27	1.8	0.27
Molybdenum (Mo)	<1.0		1.0	ug/g	26-MAR-19	6.9	6.9	2
Nickel (Ni)	16.8		1.0	ug/g	26-MAR-19	100	130	82
Selenium (Se)	<1.0		1.0	ug/g	26-MAR-19	2.4	2.4	1.5
Silver (Ag)	<0.20		0.20	ug/g	26-MAR-19	20	25	0.5
Thallium (Tl)	<0.50		0.50	ug/g	26-MAR-19	1	1	1
Uranium (U)	<1.0		1.0	ug/g	26-MAR-19	23	23	2.5
Vanadium (V)	32.5		1.0	ug/g	26-MAR-19	86	86	86
Zinc (Zn)	39.6		5.0	ug/g	26-MAR-19	340	340	290
Speciated Metals								
Chromium, Hexavalent	<0.20		0.20	ug/g	26-MAR-19	8	10	0.66
Volatile Organic Compounds								
Acetone	<0.50		0.50	ug/g	27-MAR-19	16	28	0.5
Benzene	<0.0068		0.0068	ug/g	27-MAR-19	0.21	0.17	0.02
Bromodichloromethane	<0.050		0.050	ug/g	27-MAR-19	13	13	0.05
Bromoform	<0.050		0.050	ug/g	27-MAR-19	0.27	0.26	0.05
Bromomethane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05
Carbon tetrachloride	<0.050		0.050	ug/g	27-MAR-19	0.05	0.12	0.05
Chlorobenzene	<0.050		0.050	ug/g	27-MAR-19	2.4	2.7	0.05
Dibromochloromethane	<0.050		0.050	ug/g	27-MAR-19	9.4	9.4	0.05
Chloroform	<0.050		0.050	ug/g	27-MAR-19	0.05	0.18	0.05
1,2-Dibromoethane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05
1,2-Dichlorobenzene	<0.050		0.050	ug/g	27-MAR-19	3.4	4.3	0.05

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2248315-3 S-11102463-190322-JC-BH18-465-25'-27'								
Sampled By: CLIENT on 22-MAR-19 @ 12:00								
Matrix: SOIL								
Volatile Organic Compounds								
1,3-Dichlorobenzene	<0.050		0.050	ug/g	27-MAR-19	4.8	6	0.05
1,4-Dichlorobenzene	<0.050		0.050	ug/g	27-MAR-19	0.083	0.097	0.05
Dichlorodifluoromethane	<0.050		0.050	ug/g	27-MAR-19	16	25	0.05
1,1-Dichloroethane	<0.050		0.050	ug/g	27-MAR-19	3.5	11	0.05
1,2-Dichloroethane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05
1,1-Dichloroethylene	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	27-MAR-19	3.4	30	0.05
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	27-MAR-19	0.084	0.75	0.05
Methylene Chloride	<0.050		0.050	ug/g	27-MAR-19	0.1	0.96	0.05
1,2-Dichloropropane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.085	0.05
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	27-MAR-19			
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	27-MAR-19			
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g	27-MAR-19	0.05	0.083	0.05
Ethylbenzene	<0.018		0.018	ug/g	27-MAR-19	2	15	0.05
n-Hexane	<0.050		0.050	ug/g	27-MAR-19	2.8	34	0.05
Methyl Ethyl Ketone	<0.50		0.50	ug/g	27-MAR-19	16	44	0.5
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	27-MAR-19	1.7	4.3	0.5
MTBE	<0.050		0.050	ug/g	27-MAR-19	0.75	1.4	0.05
Styrene	<0.050		0.050	ug/g	27-MAR-19	0.7	2.2	0.05
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	27-MAR-19	0.058	0.05	0.05
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05
Tetrachloroethylene	<0.050		0.050	ug/g	27-MAR-19	0.28	2.3	0.05
Toluene	<0.080		0.080	ug/g	27-MAR-19	2.3	6	0.2
1,1,1-Trichloroethane	<0.050		0.050	ug/g	27-MAR-19	0.38	3.4	0.05
1,1,2-Trichloroethane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05
Trichloroethylene	<0.010		0.010	ug/g	27-MAR-19	0.061	0.52	0.05
Trichlorofluoromethane	<0.050		0.050	ug/g	27-MAR-19	4	5.8	0.25
Vinyl chloride	<0.020		0.020	ug/g	27-MAR-19	0.02	0.022	0.02
o-Xylene	<0.020		0.020	ug/g	27-MAR-19			
m+p-Xylenes	<0.030		0.030	ug/g	27-MAR-19			
Xylenes (Total)	<0.050		0.050	ug/g	27-MAR-19	3.1	25	0.05
Surrogate: 4-Bromofluorobenzene	92.1		50-140	%	27-MAR-19			
Surrogate: 1,4-Difluorobenzene	100.1		50-140	%	27-MAR-19			
Hydrocarbons								
F1 (C6-C10)	<5.0		5.0	ug/g	27-MAR-19	55	65	25
F1-BTEX	<5.0		5.0	ug/g	27-MAR-19	55	65	25
F2 (C10-C16)	<10		10	ug/g	26-MAR-19	98	150	10
F2-Naphth	<10		10	ug/g	27-MAR-19			
F3 (C16-C34)	<50		50	ug/g	26-MAR-19	300	1300	240
F3-PAH	<50		50	ug/g	27-MAR-19			
F4 (C34-C50)	<50		50	ug/g	26-MAR-19	2800	5600	120
Total Hydrocarbons (C6-C50)	<72		72	ug/g	27-MAR-19			
Chrom. to baseline at nC50	YES			No Unit	26-MAR-19			
Surrogate: 2-Bromobenzotrifluoride	88.9		60-140	%	26-MAR-19			
Surrogate: 3,4-Dichlorotoluene	80.0		60-140	%	27-MAR-19			
Polycyclic Aromatic Hydrocarbons								

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2248315-3 S-11102463-190322-JC-BH18-465-25'-27'								
Sampled By: CLIENT on 22-MAR-19 @ 12:00								
Matrix: SOIL								
Polycyclic Aromatic Hydrocarbons								
Acenaphthene	<0.050		0.050	ug/g	26-MAR-19	7.9	58	0.072
Acenaphthylene	<0.050		0.050	ug/g	26-MAR-19	0.15	0.17	0.093
Anthracene	<0.050		0.050	ug/g	26-MAR-19	0.67	0.74	0.22
Benzo(a)anthracene	<0.050		0.050	ug/g	26-MAR-19	0.5	0.63	0.36
Benzo(a)pyrene	<0.050		0.050	ug/g	26-MAR-19	0.3	0.3	0.3
Benzo(b)fluoranthene	<0.050		0.050	ug/g	26-MAR-19	0.78	0.78	0.47
Benzo(g,h,i)perylene	<0.050		0.050	ug/g	26-MAR-19	6.6	7.8	0.68
Benzo(k)fluoranthene	<0.050		0.050	ug/g	26-MAR-19	0.78	0.78	0.48
Chrysene	<0.050		0.050	ug/g	26-MAR-19	7	7.8	2.8
Dibenzo(ah)anthracene	<0.050		0.050	ug/g	26-MAR-19	0.1	0.1	0.1
Fluoranthene	<0.050		0.050	ug/g	26-MAR-19	0.69	0.69	0.69
Fluorene	<0.050		0.050	ug/g	26-MAR-19	62	69	0.19
Indeno(1,2,3-cd)pyrene	<0.050		0.050	ug/g	26-MAR-19	0.38	0.48	0.23
1+2-Methylnaphthalenes	<0.042		0.042	ug/g	26-MAR-19	0.99	3.4	0.59
1-Methylnaphthalene	<0.030		0.030	ug/g	26-MAR-19	0.99	3.4	0.59
2-Methylnaphthalene	<0.030		0.030	ug/g	26-MAR-19	0.99	3.4	0.59
Naphthalene	<0.013		0.013	ug/g	26-MAR-19	0.6	0.75	0.09
Phenanthrene	<0.046		0.046	ug/g	26-MAR-19	6.2	7.8	0.69
Pyrene	<0.050		0.050	ug/g	26-MAR-19	78	78	1
Surrogate: 2-Fluorobiphenyl	107.4		50-140	%	26-MAR-19			
Surrogate: p-Terphenyl d14	102.2		50-140	%	26-MAR-19			
L2248315-4 TRIP BLANK								
Sampled By: CLIENT on 22-MAR-19								
Matrix: SOIL								
Physical Tests								
% Moisture	<0.10		0.10	%	26-MAR-19			
Volatile Organic Compounds								
Benzene	<0.0068		0.0068	ug/g	26-MAR-19	0.21	0.17	0.02
Ethylbenzene	<0.018		0.018	ug/g	26-MAR-19	2	15	0.05
Toluene	<0.080		0.080	ug/g	26-MAR-19	2.3	6	0.2
o-Xylene	<0.020		0.020	ug/g	26-MAR-19			
m+p-Xylenes	<0.030		0.030	ug/g	26-MAR-19			
Xylenes (Total)	<0.050		0.050	ug/g	26-MAR-19	3.1	25	0.05
Surrogate: 4-Bromofluorobenzene	88.9		50-140	%	26-MAR-19			
Surrogate: 1,4-Difluorobenzene	96.4		50-140	%	26-MAR-19			
Hydrocarbons								
F1 (C6-C10)	<5.0		5.0	ug/g	26-MAR-19	55	65	25
F1-BTEX	<5.0		5.0	ug/g	26-MAR-19	55	65	25
Surrogate: 3,4-Dichlorotoluene	93.4		60-140	%	26-MAR-19			

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Reference Information

Sample Parameter Qualifier key listed:

Qualifier	Description
DLR	Detection Limit Raised due to required dilution, limited sample amount, and/or high moisture content (soil samples)
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
DLHC	Detection Limit Raised: Dilution required due to high concentration of test analyte(s).
DLIS	Detection Limit Adjusted: Insufficient Sample

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference***
625-511-WT	Soil	ABN-O.Reg 153/04 (July 2011)	SW846 8270 (511)

Soil and sediment samples are dried by mixing with a desiccant prior to extraction. The extracts are dried, concentrated and exchanged into a solvent and analyzed by GC/MS. Depending on the analytical GC/MS column used benzo(j)fluoranthene may chromatographically co-elute with benzo(b)fluoranthene or benzo(k)fluoranthene.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

B-HWS-R511-WT	Soil	Boron-HWE-O.Reg 153/04 (July 2011)	HW EXTR, EPA 6010B

A dried solid sample is extracted with calcium chloride, the sample undergoes a heating process. After cooling the sample is filtered and analyzed by ICP/OES.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

BTX-511-HS-WT	Soil	BTEX-O.Reg 153/04 (July 2011)	SW846 8260

BTX is determined by extracting a soil or sediment sample as received with methanol, then analyzing by headspace-GC/MS.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

CHLORDANE-T-CALC-WT	Soil	Chlordane Total sums	CALCULATION

Aqueous sample is extracted by liquid/liquid extraction with a solvent mix. After extraction, a number of clean up techniques may be applied, depending on the sample matrix and analyzed by GC/MS.

CN-WAD-R511-WT	Soil	Cyanide (WAD)-O.Reg 153/04 (July 2011)	MOE 3015/APHA 4500CN I-WAD

The sample is extracted with a strong base for 16 hours, and then filtered. The filtrate is then distilled where the cyanide is converted to cyanogen chloride by reacting with chloramine-T, the cyanogen chloride then reacts with a combination of barbituric acid and isonicotinic acid to form a highly colored complex.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

CR-CR6-IC-WT	Soil	Hexavalent Chromium in Soil	SW846 3060A/7199

This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, Method 7199, published by the United States Environmental Protection Agency (EPA). The procedure involves analysis for chromium (VI) by ion chromatography using diphenylcarbazide in a sulphuric acid solution.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

DDD-DDE-DDT-CALC-WT	Soil	DDD, DDE, DDT sums	CALCULATION

Aqueous sample is extracted by liquid/liquid extraction with a solvent mix. After extraction, a number of clean up techniques may be applied, depending on the sample matrix and analyzed by GC/MS.

EC-WT	Soil	Conductivity (EC)	MOEE E3138

A representative subsample is tumbled with de-ionized (DI) water. The ratio of water to soil is 2:1 v/w. After tumbling the sample is then analyzed by a conductivity meter.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

ENDOSULFAN-T-CALC-WT	Soil	Endosulfan Total sums	CALCULATION

Aqueous sample is extracted by liquid/liquid extraction with a solvent mix. After extraction, a number of clean up techniques may be applied, depending on the sample matrix and analyzed by GC/MS.

Reference Information

F1-F4-511-CALC-WT	Soil	F1-F4 Hydrocarbon Calculated Parameters	CCME CWS-PHC, Pub #1310, Dec 2001-S

Analytical methods used for analysis of CCME Petroleum Hydrocarbons have been validated and comply with the Reference Method for the CWS PHC.

Hydrocarbon results are expressed on a dry weight basis.

In cases where results for both F4 and F4G are reported, the greater of the two results must be used in any application of the CWS PHC guidelines and the gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.
In samples where BTEX and F1 were analyzed , F1-BTEX represents a value where the sum of Benzene, Toluene, Ethylbenzene and total Xylenes has been subtracted from F1.

In samples where PAHs, F2 and F3 were analyzed, F2-Naphth represents the result where Naphthalene has been subtracted from F2. F3-PAH represents a result where the sum of Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenzo(a,h)anthracene, Fluoranthene, Indeno(1,2,3-cd)pyrene, Phenanthrene, and Pyrene has been subtracted from F3.

Unless otherwise qualified, the following quality control criteria have been met for the F1 hydrocarbon range:
1. All extraction and analysis holding times were met.
2. Instrument performance showing response factors for C6 and C10 within 30% of the response factor for toluene.
3. Linearity of gasoline response within 15% throughout the calibration range.

Unless otherwise qualified, the following quality control criteria have been met for the F2-F4 hydrocarbon ranges:
1. All extraction and analysis holding times were met.
2. Instrument performance showing C10, C16 and C34 response factors within 10% of their average.
3. Instrument performance showing the C50 response factor within 30% of the average of the C10, C16 and C34 response factors.
4. Linearity of diesel or motor oil response within 15% throughout the calibration range.

F1-HS-511-WT	Soil	F1-O.Reg 153/04 (July 2011)	E3398/CCME TIER 1-HS

Fraction F1 is determined by extracting a soil or sediment sample as received with methanol, then analyzing by headspace-GC/FID.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

F2-F4-511-WT	Soil	F2-F4-O.Reg 153/04 (July 2011)	CCME Tier 1

Petroleum Hydrocarbons (F2-F4 fractions) are extracted from soil with 1:1 hexane:acetone using a rotary extractor. Extracts are treated with silica gel to remove polar organic interferences. F2, F3, & F4 are analyzed by GC-FID. F4G-sg is analyzed gravimetrically.

Notes:
1. F2 (C10-C16): Sum of all hydrocarbons that elute between nC10 and nC16.
2. F3 (C16-C34): Sum of all hydrocarbons that elute between nC16 and nC34.
3. F4 (C34-C50): Sum of all hydrocarbons that elute between nC34 and nC50.
4. F4G: Gravimetric Heavy Hydrocarbons
5. F4G-sg: Gravimetric Heavy Hydrocarbons (F4G) after silica gel treatment.
6. Where both F4 (C34-C50) and F4G-sg are reported for a sample, the larger of the two values is used for comparison against the relevant CCME guideline for F4.
7. F4G-sg cannot be added to the C6 to C50 hydrocarbon results to obtain an estimate of total extractable hydrocarbons.
8. This method is validated for use.
9. Data from analysis of validation and quality control samples is available upon request.
10. Reported results are expressed as milligrams per dry kilogram, unless otherwise indicated.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

F4G-ADD-511-WT	Soil	F4G SG-O.Reg 153/04 (July 2011)	MOE DECPH-E3398/CCME TIER 1

F4G, gravimetric analysis, is determined if the chromatogram does not return to baseline at or before C50. A soil sample is extracted with a solvent mix, the solvent is evaporated and the weight of the residue is determined.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

HG-200.2-CVAA-WT	Soil	Mercury in Soil by CVAAS	EPA 200.2/1631E (mod)

Soil samples are digested with nitric and hydrochloric acids, followed by analysis by CVAAS.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

Reference Information

MET-200.2-CCMS-WT	Soil	Metals in Soil by CRC ICPMS	EPA 200.2/6020A (mod)

Soil/sediment is dried, disaggregated, and sieved (2 mm). For tests intended to support Ontario regulations, the <2mm fraction is ground to pass through a 0.355 mm sieve. Strong Acid Leachable Metals in the <2mm fraction are solubilized by heated digestion with nitric and hydrochloric acids. Instrumental analysis is by Collision / Reaction Cell ICPMS.

Limitations: This method is intended to liberate environmentally available metals. Silicate minerals are not solubilized. Some metals may be only partially recovered (matrix dependent), including Al, Ba, Be, Cr, S, Sr, Ti, Tl, V, W, and Zr. Elemental Sulfur may be poorly recovered by this method. Volatile forms of sulfur (e.g. sulfide, H2S) may be excluded if lost during sampling, storage, or digestion.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

METHYLNAPS-CALC-WT	Soil	ABN-Calculated Parameters	SW846 8270
MOISTURE-WT	Soil	% Moisture	CCME PHC in Soil - Tier 1 (mod)
PAH-511-WT	Soil	PAH-O.Reg 153/04 (July 2011)	SW846 3510/8270

A representative sub-sample of soil is fortified with deuterium-labelled surrogates and a mechanical shaking techniqueis used to extract the sample with a mixture of methanol and toluene. The extracts are concentrated and analyzed by GC/MS. Results for benzo(b) fluoranthene may include contributions from benzo(j)fluoranthene, if also present in the sample.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

PCB-511-WT	Soil	PCB-O.Reg 153/04 (July 2011)	SW846 3510/8082

An aliquot of a solid sample is extracted with a solvent, extract is cleaned up and analyzed on the GC/MS.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

PEST-OC-511-WT	Soil	OC Pesticides-O.Reg 153/04 (July 2011)	SW846 8270 (511)

Soil sample is extracted in a solvent, after extraction a number of clean up techniques may be applied, depending on the sample matrix and analyzed by GC/MS.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

PH-WT	Soil	pH	MOEE E3137A

A minimum 10g portion of the sample is extracted with 20mL of 0.01M calcium chloride solution by shaking for at least 30 minutes. The aqueous layer is separated from the soil and then analyzed using a pH meter and electrode.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

SAR-R511-WT	Soil	SAR-O.Reg 153/04 (July 2011)	SW846 6010C

A dried, disaggregated solid sample is extracted with deionized water, the aqueous extract is separated from the solid, acidified and then analyzed using a ICP/OES. The concentrations of Na, Ca and Mg are reported as per CALA requirements for calculated parameters. These individual parameters are not for comparison to any guideline.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

VOC-1,3-DCP-CALC-WT	Soil	Regulation 153 VOCs	SW8260B/SW8270C
VOC-511-HS-WT	Soil	VOC-O.Reg 153/04 (July 2011)	SW846 8260 (511)

Soil and sediment samples are extracted in methanol and analyzed by headspace-GC/MS.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

XYLENES-SUM-CALC-WT	Soil	Sum of Xylene Isomer Concentrations	CALCULATION

Total xylenes represents the sum of o-xylene and m&p-xylene.

*** ALS test methods may incorporate modifications from specified reference methods to improve performance.

Chain of Custody numbers:

Reference Information

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location	Laboratory Definition Code	Laboratory Location
WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA		

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.
mg/kg - milligrams per kilogram based on dry weight of sample
mg/kg wwt - milligrams per kilogram based on wet weight of sample
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight
mg/L - unit of concentration based on volume, parts per million.
< - Less than.
D.L. - The reporting limit.
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, fitness for a particular purpose, or non-infringement. ALS assumes no responsibility for errors or omissions in the information. Guideline limits are not adjusted for the hardness, pH or temperature of the sample (the most conservative values are used). Measurement uncertainty is not applied to test results prior to comparison with specified criteria values.

Quality Control Report

Workorder: L2248315 Report Date: 27-MAR-19

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
625-511-WT	**Soil**							
Batch R4583368								
WG3013237-9 DUP		**WG3013237-5**						
1-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	26-MAR-19
2-Chlorophenol		<0.10	<0.10	RPD-NA	ug/g	N/A	40	26-MAR-19
2-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	26-MAR-19
2,4-Dichlorophenol		<0.10	<0.10	RPD-NA	ug/g	N/A	40	26-MAR-19
2,4,5-Trichlorophenol		<0.10	<0.10	RPD-NA	ug/g	N/A	40	26-MAR-19
2,4,6-Trichlorophenol		<0.10	<0.10	RPD-NA	ug/g	N/A	40	26-MAR-19
Acenaphthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Acenaphthylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Benzo(a)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Benzo(a)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Benzo(b)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Benzo(ghi)perylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Benzo(k)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Chrysene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Dibenzo(a,h)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Fluorene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Indeno(1,2,3-cd)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Naphthalene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Pentachlorophenol		<0.10	<0.10	RPD-NA	ug/g	N/A	40	26-MAR-19
Phenanthrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
WG3013237-7 LCS								
1-Methylnaphthalene			88.3		%		50-140	26-MAR-19
2-Chlorophenol			109.0		%		50-140	26-MAR-19
2-Methylnaphthalene			99.7		%		50-140	26-MAR-19
2,4-Dichlorophenol			108.6		%		50-140	26-MAR-19
2,4,5-Trichlorophenol			111.7		%		50-140	26-MAR-19
2,4,6-Trichlorophenol			106.0		%		50-140	26-MAR-19
Acenaphthene			98.8		%		50-140	26-MAR-19
Acenaphthylene			107.0		%		50-140	26-MAR-19
Anthracene			102.5		%		50-140	26-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
625-511-WT	**Soil**							
Batch R4583368								
WG3013237-7 LCS								
Benzo(a)anthracene			109.5		%		50-140	26-MAR-19
Benzo(a)pyrene			109.7		%		50-140	26-MAR-19
Benzo(b)fluoranthene			113.8		%		50-140	26-MAR-19
Benzo(ghi)perylene			80.5		%		50-140	26-MAR-19
Benzo(k)fluoranthene			108.2		%		50-140	26-MAR-19
Chrysene			108.7		%		50-140	26-MAR-19
Dibenzo(a,h)anthracene			94.5		%		50-140	26-MAR-19
Fluoranthene			91.3		%		50-140	26-MAR-19
Fluorene			97.7		%		50-140	26-MAR-19
Indeno(1,2,3-cd)pyrene			95.8		%		50-140	26-MAR-19
Naphthalene			101.1		%		50-140	26-MAR-19
Pentachlorophenol			91.3		%		50-140	26-MAR-19
Phenanthrene			99.8		%		50-140	26-MAR-19
Pyrene			90.2		%		50-140	26-MAR-19
WG3013237-6 MB								
1-Methylnaphthalene			<0.030		ug/g		0.03	26-MAR-19
2-Chlorophenol			<0.10		ug/g		0.1	26-MAR-19
2-Methylnaphthalene			<0.030		ug/g		0.03	26-MAR-19
2,4-Dichlorophenol			<0.10		ug/g		0.1	26-MAR-19
2,4,5-Trichlorophenol			<0.10		ug/g		0.1	26-MAR-19
2,4,6-Trichlorophenol			<0.10		ug/g		0.1	26-MAR-19
Acenaphthene			<0.050		ug/g		0.05	26-MAR-19
Acenaphthylene			<0.050		ug/g		0.05	26-MAR-19
Anthracene			<0.050		ug/g		0.05	26-MAR-19
Benzo(a)anthracene			<0.050		ug/g		0.05	26-MAR-19
Benzo(a)pyrene			<0.050		ug/g		0.05	26-MAR-19
Benzo(b)fluoranthene			<0.050		ug/g		0.05	26-MAR-19
Benzo(ghi)perylene			<0.050		ug/g		0.05	26-MAR-19
Benzo(k)fluoranthene			<0.050		ug/g		0.05	26-MAR-19
Chrysene			<0.050		ug/g		0.05	26-MAR-19
Dibenzo(a,h)anthracene			<0.050		ug/g		0.05	26-MAR-19
Fluoranthene			<0.050		ug/g		0.05	26-MAR-19
Fluorene			<0.050		ug/g		0.05	26-MAR-19
Indeno(1,2,3-cd)pyrene			<0.050		ug/g		0.05	26-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
625-511-WT	**Soil**							
Batch R4583368								
WG3013237-6 MB								
Naphthalene			<0.050		ug/g		0.05	26-MAR-19
Pentachlorophenol			<0.10		ug/g		0.1	26-MAR-19
Phenanthrene			<0.050		ug/g		0.05	26-MAR-19
Pyrene			<0.050		ug/g		0.05	26-MAR-19
Surrogate: 2-Fluorobiphenyl			69.5		%		50-140	26-MAR-19
Surrogate: 2,4,6-Tribromophenol			76.0		%		50-140	26-MAR-19
Surrogate: p-Terphenyl d14			100.2		%		50-140	26-MAR-19
Surrogate: Phenol d5			97.4		%		30-130	26-MAR-19
WG3013237-8 MS		**WG3013237-5**						
1-Methylnaphthalene			84.4		%		50-140	26-MAR-19
2-Chlorophenol			101.2		%		50-140	26-MAR-19
2-Methylnaphthalene			93.9		%		50-140	26-MAR-19
2,4-Dichlorophenol			100.8		%		50-140	26-MAR-19
2,4,5-Trichlorophenol			105.4		%		50-140	26-MAR-19
2,4,6-Trichlorophenol			102.0		%		50-140	26-MAR-19
Acenaphthene			94.3		%		50-140	26-MAR-19
Acenaphthylene			101.0		%		50-140	26-MAR-19
Anthracene			94.8		%		50-140	26-MAR-19
Benzo(a)anthracene			100.9		%		50-140	26-MAR-19
Benzo(a)pyrene			101.1		%		50-140	26-MAR-19
Benzo(b)fluoranthene			99.4		%		50-140	26-MAR-19
Benzo(ghi)perylene			77.2		%		50-140	26-MAR-19
Benzo(k)fluoranthene			96.3		%		50-140	26-MAR-19
Chrysene			95.8		%		50-140	26-MAR-19
Dibenzo(a,h)anthracene			87.5		%		50-140	26-MAR-19
Fluoranthene			79.8		%		50-140	26-MAR-19
Fluorene			90.8		%		50-140	26-MAR-19
Indeno(1,2,3-cd)pyrene			89.3		%		50-140	26-MAR-19
Naphthalene			96.0		%		50-140	26-MAR-19
Pentachlorophenol			91.5		%		50-140	26-MAR-19
Phenanthrene			93.5		%		50-140	26-MAR-19
Pyrene			80.4		%		50-140	26-MAR-19
B-HWS-R511-WT	**Soil**							

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
B-HWS-R511-WT	**Soil**							
Batch R4583408								
WG3013994-4 DUP		**L2247725-1**						
Boron (B), Hot Water Ext.		0.40	0.34		ug/g	15	30	26-MAR-19
WG3013994-2 IRM		**HOTB-SAL_SOIL5**						
Boron (B), Hot Water Ext.			115.5		%		70-130	26-MAR-19
WG3013994-3 LCS								
Boron (B), Hot Water Ext.			97.0		%		70-130	26-MAR-19
WG3013994-1 MB								
Boron (B), Hot Water Ext.			<0.10		ug/g		0.1	26-MAR-19
BTX-511-HS-WT	**Soil**							
Batch R4583367								
WG3013559-4 DUP		**WG3013559-3**						
Benzene		<0.0068	<0.0068	RPD-NA	ug/g	N/A	40	26-MAR-19
Ethylbenzene		<0.018	<0.018	RPD-NA	ug/g	N/A	40	26-MAR-19
m+p-Xylenes		<0.030	<0.030	RPD-NA	ug/g	N/A	40	26-MAR-19
o-Xylene		<0.020	<0.020	RPD-NA	ug/g	N/A	40	26-MAR-19
Toluene		<0.080	<0.080	RPD-NA	ug/g	N/A	40	26-MAR-19
WG3013559-2 LCS								
Benzene			96.3		%		70-130	26-MAR-19
Ethylbenzene			89.5		%		70-130	26-MAR-19
m+p-Xylenes			87.7		%		70-130	26-MAR-19
o-Xylene			89.3		%		70-130	26-MAR-19
Toluene			93.9		%		70-130	26-MAR-19
WG3013559-1 MB								
Benzene			<0.0068		ug/g		0.0068	26-MAR-19
Ethylbenzene			<0.018		ug/g		0.018	26-MAR-19
m+p-Xylenes			<0.030		ug/g		0.03	26-MAR-19
o-Xylene			<0.020		ug/g		0.02	26-MAR-19
Toluene			<0.080		ug/g		0.08	26-MAR-19
Surrogate: 1,4-Difluorobenzene			95.1		%		50-140	26-MAR-19
Surrogate: 4-Bromofluorobenzene			88.8		%		50-140	26-MAR-19
WG3013559-5 MS		**L2248147-1**						
Benzene			96.7		%		60-140	26-MAR-19
Ethylbenzene			90.5		%		60-140	26-MAR-19
m+p-Xylenes			88.0		%		60-140	26-MAR-19
o-Xylene			90.0		%		60-140	26-MAR-19
Toluene			94.7		%		60-140	26-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
CN-WAD-R511-WT	**Soil**							
Batch R4583869								
WG3013562-3 DUP		**L2248320-1**						
Cyanide, Weak Acid Diss		<0.050	<0.050	RPD-NA	ug/g	N/A	35	26-MAR-19
WG3013562-2 LCS								
Cyanide, Weak Acid Diss			90.5		%		80-120	26-MAR-19
WG3013562-1 MB								
Cyanide, Weak Acid Diss			<0.050		ug/g		0.05	26-MAR-19
WG3013562-4 MS		**L2248320-1**						
Cyanide, Weak Acid Diss			94.4		%		70-130	26-MAR-19
CR-CR6-IC-WT	**Soil**							
Batch R4583569								
WG3013589-4 CRM		**WT-SQC012**						
Chromium, Hexavalent			98.3		%		70-130	26-MAR-19
WG3013589-3 DUP		**L2248321-2**						
Chromium, Hexavalent		<0.20	<0.20	RPD-NA	ug/g	N/A	35	26-MAR-19
WG3013589-2 LCS								
Chromium, Hexavalent			99.0		%		80-120	26-MAR-19
WG3013589-1 MB								
Chromium, Hexavalent			<0.20		ug/g		0.2	26-MAR-19
EC-WT	**Soil**							
Batch R4585298								
WG3014878-4 DUP		**WG3014878-3**						
Conductivity		0.291	0.319		mS/cm	9.2	20	27-MAR-19
WG3014878-2 IRM		**WT SAR2**						
Conductivity			97.4		%		70-130	27-MAR-19
WG3015084-1 LCS								
Conductivity			102.9		%		90-110	27-MAR-19
WG3014878-1 MB								
Conductivity			<0.0040		mS/cm		0.004	27-MAR-19
F1-HS-511-WT	**Soil**							
Batch R4583367								
WG3013559-4 DUP		**WG3013559-3**						
F1 (C6-C10)		<5.0	<5.0	RPD-NA	ug/g	N/A	30	26-MAR-19
WG3013559-2 LCS								
F1 (C6-C10)			90.9		%		80-120	26-MAR-19
WG3013559-1 MB								
F1 (C6-C10)			<5.0		ug/g		5	26-MAR-19
Surrogate: 3,4-Dichlorotoluene			93.6		%		60-140	26-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F1-HS-511-WT	**Soil**							
Batch R4583367								
WG3013559-6 MS		**L2247186-2**						
F1 (C6-C10)			101.1		%		60-140	26-MAR-19
Batch R4583426								
WG3013782-4 DUP		**WG3013782-3**						
F1 (C6-C10)		<5.0	<5.0	RPD-NA	ug/g	N/A	30	27-MAR-19
WG3013782-2 LCS								
F1 (C6-C10)			101.3		%		80-120	26-MAR-19
WG3013782-1 MB								
F1 (C6-C10)			<5.0		ug/g		5	26-MAR-19
Surrogate: 3,4-Dichlorotoluene			113.9		%		60-140	26-MAR-19
WG3013782-6 MS		**L2247818-4**						
F1 (C6-C10)			95.5		%		60-140	27-MAR-19
Batch R4585205								
WG3013501-4 DUP		**WG3013501-3**						
F1 (C6-C10)		7.7	8.0		ug/g	3.8	30	27-MAR-19
WG3013501-2 LCS								
F1 (C6-C10)			101.2		%		80-120	27-MAR-19
WG3013501-1 MB								
F1 (C6-C10)			<5.0		ug/g		5	27-MAR-19
Surrogate: 3,4-Dichlorotoluene			102.5		%		60-140	27-MAR-19
WG3013501-6 MS		**L2247122-1**						
F1 (C6-C10)			103.6		%		60-140	27-MAR-19
F2-F4-511-WT	**Soil**							
Batch R4585227								
WG3013546-3 DUP		**WG3013546-5**						
F2 (C10-C16)		<10	<10	RPD-NA	ug/g	N/A	30	26-MAR-19
F3 (C16-C34)		<50	<50	RPD-NA	ug/g	N/A	30	26-MAR-19
F4 (C34-C50)		<50	<50	RPD-NA	ug/g	N/A	30	26-MAR-19
WG3013546-2 LCS								
F2 (C10-C16)			94.8		%		80-120	26-MAR-19
F3 (C16-C34)			100.9		%		80-120	26-MAR-19
F4 (C34-C50)			104.1		%		80-120	26-MAR-19
WG3013546-1 MB								
F2 (C10-C16)			<10		ug/g		10	26-MAR-19
F3 (C16-C34)			<50		ug/g		50	26-MAR-19
F4 (C34-C50)			<50		ug/g		50	26-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F2-F4-511-WT	**Soil**							
Batch R4585227								
WG3013546-1 MB								
Surrogate: 2-Bromobenzotrifluoride			82.1		%		60-140	26-MAR-19
WG3013546-4 MS		**WG3013546-5**						
F2 (C10-C16)			95.0		%		60-140	26-MAR-19
F3 (C16-C34)			99.0		%		60-140	26-MAR-19
F4 (C34-C50)			102.5		%		60-140	26-MAR-19
F4G-ADD-511-WT	**Soil**							
Batch R4585339								
WG3015238-2 LCS								
F4G-SG (GHH-Silica)			80.0		%		60-140	25-MAR-19
WG3015238-1 MB								
F4G-SG (GHH-Silica)			<250		ug/g		250	25-MAR-19
HG-200.2-CVAA-WT	**Soil**							
Batch R4583508								
WG3013982-2 CRM		**WT-CANMET-TILL1**						
Mercury (Hg)			98.9		%		70-130	26-MAR-19
WG3013982-6 DUP		**WG3013982-5**						
Mercury (Hg)		0.302	0.329		ug/g	8.5	40	26-MAR-19
WG3013982-3 LCS								
Mercury (Hg)			104.0		%		80-120	26-MAR-19
WG3013982-1 MB								
Mercury (Hg)			<0.0050		mg/kg		0.005	26-MAR-19
MET-200.2-CCMS-WT	**Soil**							
Batch R4583409								
WG3013982-2 CRM		**WT-CANMET-TILL1**						
Antimony (Sb)			106.1		%		70-130	26-MAR-19
Arsenic (As)			101.4		%		70-130	26-MAR-19
Barium (Ba)			104.9		%		70-130	26-MAR-19
Beryllium (Be)			104.0		%		70-130	26-MAR-19
Boron (B)			3.2		mg/kg		0-8.2	26-MAR-19
Cadmium (Cd)			102.6		%		70-130	26-MAR-19
Chromium (Cr)			103.7		%		70-130	26-MAR-19
Cobalt (Co)			100.7		%		70-130	26-MAR-19
Copper (Cu)			102.8		%		70-130	26-MAR-19
Lead (Pb)			102.0		%		70-130	26-MAR-19
Molybdenum (Mo)			96.5		%		70-130	26-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R4583409								
WG3013982-2 CRM		**WT-CANMET-TILL1**						
Nickel (Ni)			100.8		%		70-130	26-MAR-19
Selenium (Se)			0.31		mg/kg		0.11-0.51	26-MAR-19
Silver (Ag)			0.24		mg/kg		0.13-0.33	26-MAR-19
Thallium (Tl)			0.128		mg/kg		0.077-0.18	26-MAR-19
Uranium (U)			100.1		%		70-130	26-MAR-19
Vanadium (V)			103.8		%		70-130	26-MAR-19
Zinc (Zn)			102.6		%		70-130	26-MAR-19
WG3013982-6 DUP		**WG3013982-5**						
Antimony (Sb)		2.98	3.85		ug/g	26	30	26-MAR-19
Arsenic (As)		4.28	4.75		ug/g	10	30	26-MAR-19
Barium (Ba)		98.9	104		ug/g	4.9	40	26-MAR-19
Beryllium (Be)		0.36	0.44		ug/g	18	30	26-MAR-19
Boron (B)		5.9	7.7		ug/g	26	30	26-MAR-19
Cadmium (Cd)		1.59	1.88		ug/g	17	30	26-MAR-19
Chromium (Cr)		31.0	35.1		ug/g	13	30	26-MAR-19
Cobalt (Co)		6.11	6.89		ug/g	12	30	26-MAR-19
Copper (Cu)		61.3	67.1		ug/g	9.1	30	26-MAR-19
Lead (Pb)		190	192		ug/g	1.0	40	26-MAR-19
Molybdenum (Mo)		1.27	1.23		ug/g	3.0	40	26-MAR-19
Nickel (Ni)		17.4	19.4		ug/g	11	30	26-MAR-19
Selenium (Se)		0.38	0.44		ug/g	13	30	26-MAR-19
Silver (Ag)		0.63	0.70		ug/g	9.7	40	26-MAR-19
Thallium (Tl)		0.146	0.151		ug/g	3.7	30	26-MAR-19
Uranium (U)		0.462	0.527		ug/g	13	30	26-MAR-19
Vanadium (V)		23.0	27.3		ug/g	17	30	26-MAR-19
Zinc (Zn)		151	170		ug/g	12	30	26-MAR-19
WG3013982-4 LCS								
Antimony (Sb)			114.5		%		80-120	26-MAR-19
Arsenic (As)			107.8		%		80-120	26-MAR-19
Barium (Ba)			112.6		%		80-120	26-MAR-19
Beryllium (Be)			107.3		%		80-120	26-MAR-19
Boron (B)			108.0		%		80-120	26-MAR-19
Cadmium (Cd)			108.7		%		80-120	26-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R4583409								
WG3013982-4 LCS								
Chromium (Cr)			107.0		%		80-120	26-MAR-19
Cobalt (Co)			104.7		%		80-120	26-MAR-19
Copper (Cu)			105.6		%		80-120	26-MAR-19
Lead (Pb)			110.3		%		80-120	26-MAR-19
Molybdenum (Mo)			112.4		%		80-120	26-MAR-19
Nickel (Ni)			107.1		%		80-120	26-MAR-19
Selenium (Se)			109.9		%		80-120	26-MAR-19
Silver (Ag)			109.1		%		80-120	26-MAR-19
Thallium (Tl)			106.4		%		80-120	26-MAR-19
Uranium (U)			108.8		%		80-120	26-MAR-19
Vanadium (V)			110.1		%		80-120	26-MAR-19
Zinc (Zn)			106.0		%		80-120	26-MAR-19
WG3013982-1 MB								
Antimony (Sb)			<0.10		mg/kg		0.1	26-MAR-19
Arsenic (As)			<0.10		mg/kg		0.1	26-MAR-19
Barium (Ba)			<0.50		mg/kg		0.5	26-MAR-19
Beryllium (Be)			<0.10		mg/kg		0.1	26-MAR-19
Boron (B)			<5.0		mg/kg		5	26-MAR-19
Cadmium (Cd)			<0.020		mg/kg		0.02	26-MAR-19
Chromium (Cr)			<0.50		mg/kg		0.5	26-MAR-19
Cobalt (Co)			<0.10		mg/kg		0.1	26-MAR-19
Copper (Cu)			<0.50		mg/kg		0.5	26-MAR-19
Lead (Pb)			<0.50		mg/kg		0.5	26-MAR-19
Molybdenum (Mo)			<0.10		mg/kg		0.1	26-MAR-19
Nickel (Ni)			<0.50		mg/kg		0.5	26-MAR-19
Selenium (Se)			<0.20		mg/kg		0.2	26-MAR-19
Silver (Ag)			<0.10		mg/kg		0.1	26-MAR-19
Thallium (Tl)			<0.050		mg/kg		0.05	26-MAR-19
Uranium (U)			<0.050		mg/kg		0.05	26-MAR-19
Vanadium (V)			<0.20		mg/kg		0.2	26-MAR-19
Zinc (Zn)			<2.0		mg/kg		2	26-MAR-19
MOISTURE-WT	**Soil**							

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MOISTURE-WT	**Soil**							
Batch R4582804								
WG3013505-3 DUP		**L2248319-2**						
% Moisture		13.4	14.1		%	5.3	20	26-MAR-19
WG3013505-2 LCS								
% Moisture			100.2		%		90-110	26-MAR-19
WG3013505-1 MB								
% Moisture			<0.10		%		0.1	26-MAR-19
PAH-511-WT	**Soil**							
Batch R4584116								
WG3013432-3 DUP		**WG3013432-5**						
1-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	26-MAR-19
2-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	26-MAR-19
Acenaphthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Acenaphthylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Benzo(a)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Benzo(a)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Benzo(b)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Benzo(g,h,i)perylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Benzo(k)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Chrysene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Dibenzo(ah)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Fluorene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Indeno(1,2,3-cd)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Naphthalene		<0.013	<0.013	RPD-NA	ug/g	N/A	40	26-MAR-19
Phenanthrene		<0.046	<0.046	RPD-NA	ug/g	N/A	40	26-MAR-19
Pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
WG3013432-2 LCS								
1-Methylnaphthalene			100.9		%		50-140	26-MAR-19
2-Methylnaphthalene			97.7		%		50-140	26-MAR-19
Acenaphthene			106.8		%		50-140	26-MAR-19
Acenaphthylene			101.9		%		50-140	26-MAR-19
Anthracene			100.5		%		50-140	26-MAR-19
Benzo(a)anthracene			104.3		%		50-140	26-MAR-19
Benzo(a)pyrene			105.7		%		50-140	26-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R4584116								
WG3013432-2 LCS								
Benzo(b)fluoranthene			92.9		%		50-140	26-MAR-19
Benzo(g,h,i)perylene			104.9		%		50-140	26-MAR-19
Benzo(k)fluoranthene			108.5		%		50-140	26-MAR-19
Chrysene			100.6		%		50-140	26-MAR-19
Dibenzo(ah)anthracene			105.3		%		50-140	26-MAR-19
Fluoranthene			100.3		%		50-140	26-MAR-19
Fluorene			102.1		%		50-140	26-MAR-19
Indeno(1,2,3-cd)pyrene			95.9		%		50-140	26-MAR-19
Naphthalene			97.4		%		50-140	26-MAR-19
Phenanthrene			102.1		%		50-140	26-MAR-19
Pyrene			101.0		%		50-140	26-MAR-19
WG3013432-1 MB								
1-Methylnaphthalene			<0.030		ug/g		0.03	26-MAR-19
2-Methylnaphthalene			<0.030		ug/g		0.03	26-MAR-19
Acenaphthene			<0.050		ug/g		0.05	26-MAR-19
Acenaphthylene			<0.050		ug/g		0.05	26-MAR-19
Anthracene			<0.050		ug/g		0.05	26-MAR-19
Benzo(a)anthracene			<0.050		ug/g		0.05	26-MAR-19
Benzo(a)pyrene			<0.050		ug/g		0.05	26-MAR-19
Benzo(b)fluoranthene			<0.050		ug/g		0.05	26-MAR-19
Benzo(g,h,i)perylene			<0.050		ug/g		0.05	26-MAR-19
Benzo(k)fluoranthene			<0.050		ug/g		0.05	26-MAR-19
Chrysene			<0.050		ug/g		0.05	26-MAR-19
Dibenzo(ah)anthracene			<0.050		ug/g		0.05	26-MAR-19
Fluoranthene			<0.050		ug/g		0.05	26-MAR-19
Fluorene			<0.050		ug/g		0.05	26-MAR-19
Indeno(1,2,3-cd)pyrene			<0.050		ug/g		0.05	26-MAR-19
Naphthalene			<0.013		ug/g		0.013	26-MAR-19
Phenanthrene			<0.046		ug/g		0.046	26-MAR-19
Pyrene			<0.050		ug/g		0.05	26-MAR-19
Surrogate: 2-Fluorobiphenyl			106.4		%		50-140	26-MAR-19
Surrogate: p-Terphenyl d14			95.8		%		50-140	26-MAR-19
WG3013432-4 MS		**WG3013432-5**						
1-Methylnaphthalene			101.5		%		50-140	26-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R4584116								
WG3013432-4 MS		**WG3013432-5**						
2-Methylnaphthalene			98.5		%		50-140	26-MAR-19
Acenaphthene			108.0		%		50-140	26-MAR-19
Acenaphthylene			102.9		%		50-140	26-MAR-19
Anthracene			102.8		%		50-140	26-MAR-19
Benzo(a)anthracene			107.9		%		50-140	26-MAR-19
Benzo(a)pyrene			106.2		%		50-140	26-MAR-19
Benzo(b)fluoranthene			92.9		%		50-140	26-MAR-19
Benzo(g,h,i)perylene			107.3		%		50-140	26-MAR-19
Benzo(k)fluoranthene			115.6		%		50-140	26-MAR-19
Chrysene			101.1		%		50-140	26-MAR-19
Dibenzo(ah)anthracene			107.3		%		50-140	26-MAR-19
Fluoranthene			102.7		%		50-140	26-MAR-19
Fluorene			103.8		%		50-140	26-MAR-19
Indeno(1,2,3-cd)pyrene			96.6		%		50-140	26-MAR-19
Naphthalene			98.0		%		50-140	26-MAR-19
Phenanthrene			103.6		%		50-140	26-MAR-19
Pyrene			103.9		%		50-140	26-MAR-19
PCB-511-WT	**Soil**							
Batch R4583089								
WG3013432-3 DUP		**WG3013432-5**						
Aroclor 1242		<0.010	<0.010	RPD-NA	ug/g	N/A	40	25-MAR-19
Aroclor 1248		<0.010	<0.010	RPD-NA	ug/g	N/A	40	25-MAR-19
Aroclor 1254		<0.010	<0.010	RPD-NA	ug/g	N/A	40	25-MAR-19
Aroclor 1260		<0.010	<0.010	RPD-NA	ug/g	N/A	40	25-MAR-19
WG3013432-2 LCS								
Aroclor 1242			99.1		%		60-140	25-MAR-19
Aroclor 1248			94.1		%		60-140	25-MAR-19
Aroclor 1254			98.7		%		60-140	25-MAR-19
Aroclor 1260			110.3		%		60-140	25-MAR-19
WG3013432-1 MB								
Aroclor 1242			<0.010		ug/g		0.01	25-MAR-19
Aroclor 1248			<0.010		ug/g		0.01	25-MAR-19
Aroclor 1254			<0.010		ug/g		0.01	25-MAR-19
Aroclor 1260			<0.010		ug/g		0.01	25-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PCB-511-WT	**Soil**							
Batch R4583089								
WG3013432-1 MB								
Surrogate: d14-Terphenyl			87.0		%		60-140	25-MAR-19
WG3013432-4 MS		**WG3013432-5**						
Aroclor 1242			99.5		%		60-140	25-MAR-19
Aroclor 1254			100.3		%		60-140	25-MAR-19
Aroclor 1260			109.8		%		60-140	25-MAR-19
PEST-OC-511-WT	**Soil**							
Batch R4584177								
WG3013567-3 DUP		**WG3013567-5**						
Aldrin		<0.020	<0.020	RPD-NA	ug/g	N/A	40	26-MAR-19
a-chlordane		<0.020	<0.020	RPD-NA	ug/g	N/A	40	26-MAR-19
g-chlordane		<0.020	<0.020	RPD-NA	ug/g	N/A	40	26-MAR-19
op-DDD		<0.020	<0.020	RPD-NA	ug/g	N/A	40	26-MAR-19
pp-DDD		<0.020	<0.020	RPD-NA	ug/g	N/A	40	26-MAR-19
o,p-DDE		<0.020	<0.020	RPD-NA	ug/g	N/A	40	26-MAR-19
pp-DDE		<0.020	<0.020	RPD-NA	ug/g	N/A	40	26-MAR-19
op-DDT		<0.10	<0.10	RPD-NA	ug/g	N/A	40	26-MAR-19
pp-DDT		<0.10	<0.10	RPD-NA	ug/g	N/A	40	26-MAR-19
Dieldrin		<0.020	<0.020	RPD-NA	ug/g	N/A	40	26-MAR-19
Endosulfan I		<0.020	<0.020	RPD-NA	ug/g	N/A	40	26-MAR-19
Endosulfan II		<0.10	<0.10	RPD-NA	ug/g	N/A	40	26-MAR-19
Endrin		<0.020	<0.020	RPD-NA	ug/g	N/A	40	26-MAR-19
gamma-hexachlorocyclohexane		<0.10	<0.10	RPD-NA	ug/g	N/A	40	26-MAR-19
Heptachlor		<0.020	<0.020	RPD-NA	ug/g	N/A	40	26-MAR-19
Heptachlor Epoxide		<0.020	<0.020	RPD-NA	ug/g	N/A	40	26-MAR-19
Hexachlorobenzene		<0.10	<0.10	RPD-NA	ug/g	N/A	40	26-MAR-19
Hexachlorobutadiene		<0.10	<0.10	RPD-NA	ug/g	N/A	40	26-MAR-19
Hexachloroethane		<0.10	<0.10	RPD-NA	ug/g	N/A	40	26-MAR-19
Methoxychlor		<0.10	<0.10	RPD-NA	ug/g	N/A	40	26-MAR-19
WG3013567-2 LCS								
Aldrin			104.3		%		50-140	26-MAR-19
a-chlordane			99.0		%		50-140	26-MAR-19
g-chlordane			99.3		%		50-140	26-MAR-19
op-DDD			103.1		%		50-140	26-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PEST-OC-511-WT	**Soil**							
Batch R4584177								
WG3013567-2 LCS								
pp-DDD			105.9		%		50-140	26-MAR-19
o,p-DDE			100.2		%		50-140	26-MAR-19
pp-DDE			100.2		%		50-140	26-MAR-19
op-DDT			97.3		%		50-140	26-MAR-19
pp-DDT			111.3		%		50-140	26-MAR-19
Dieldrin			100.3		%		50-140	26-MAR-19
Endosulfan I			96.9		%		50-140	26-MAR-19
Endosulfan II			98.1		%		50-140	26-MAR-19
Endrin			110.1		%		50-140	26-MAR-19
gamma-hexachlorocyclohexane			100.5		%		50-140	26-MAR-19
Heptachlor			93.2		%		50-140	26-MAR-19
Heptachlor Epoxide			101.5		%		50-140	26-MAR-19
Hexachlorobenzene			100.5		%		50-140	26-MAR-19
Hexachlorobutadiene			99.8		%		50-140	26-MAR-19
Hexachloroethane			105.7		%		50-140	26-MAR-19
Methoxychlor			123.9		%		50-140	26-MAR-19
WG3013567-1 MB								
Aldrin			<0.020		ug/g		0.02	26-MAR-19
a-chlordane			<0.020		ug/g		0.02	26-MAR-19
g-chlordane			<0.020		ug/g		0.02	26-MAR-19
op-DDD			<0.020		ug/g		0.02	26-MAR-19
pp-DDD			<0.020		ug/g		0.02	26-MAR-19
o,p-DDE			<0.020		ug/g		0.02	26-MAR-19
pp-DDE			<0.020		ug/g		0.02	26-MAR-19
op-DDT			<0.020		ug/g		0.02	26-MAR-19
pp-DDT			<0.020		ug/g		0.02	26-MAR-19
Dieldrin			<0.020		ug/g		0.02	26-MAR-19
Endosulfan I			<0.020		ug/g		0.02	26-MAR-19
Endosulfan II			<0.020		ug/g		0.02	26-MAR-19
Endrin			<0.020		ug/g		0.02	26-MAR-19
gamma-hexachlorocyclohexane			<0.010		ug/g		0.01	26-MAR-19
Heptachlor			<0.020		ug/g		0.02	26-MAR-19
Heptachlor Epoxide			<0.020		ug/g		0.02	26-MAR-19
Hexachlorobenzene			<0.010		ug/g		0.01	26-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PEST-OC-511-WT	**Soil**							
Batch R4584177								
WG3013567-1 MB								
Hexachlorobutadiene			<0.010		ug/g		0.01	26-MAR-19
Hexachloroethane			<0.010		ug/g		0.01	26-MAR-19
Methoxychlor			<0.020		ug/g		0.02	26-MAR-19
Surrogate: 2-Fluorobiphenyl			111.0		%		50-140	26-MAR-19
Surrogate: d14-Terphenyl			95.3		%		50-140	26-MAR-19
WG3013567-4 MS		**WG3013567-5**						
Aldrin			113.5		%		50-140	26-MAR-19
a-chlordane			68.8		%		50-140	26-MAR-19
g-chlordane			68.9		%		50-140	26-MAR-19
op-DDD			72.6		%		50-140	26-MAR-19
pp-DDD			82.6		%		50-140	26-MAR-19
o,p-DDE			65.4		%		50-140	26-MAR-19
pp-DDE			66.4		%		50-140	26-MAR-19
op-DDT			86.3		%		50-140	26-MAR-19
pp-DDT			122.9		%		50-140	26-MAR-19
Dieldrin			62.9		%		50-140	26-MAR-19
Endosulfan I			68.4		%		50-140	26-MAR-19
Endosulfan II			82.5		%		50-140	26-MAR-19
Endrin			118.9		%		50-140	26-MAR-19
gamma-hexachlorocyclohexane			89.3		%		50-140	26-MAR-19
Heptachlor			88.7		%		50-140	26-MAR-19
Heptachlor Epoxide			66.2		%		50-140	26-MAR-19
Hexachlorobenzene			83.0		%		50-140	26-MAR-19
Hexachlorobutadiene			86.6		%		50-140	26-MAR-19
Hexachloroethane			87.7		%		50-140	26-MAR-19
Methoxychlor			130.6		%		50-140	26-MAR-19
PH-WT	**Soil**							
Batch R4584807								
WG3013598-1 DUP		**L2248320-1**						
pH		7.35	7.23	J	pH units	0.12	0.3	26-MAR-19
WG3014231-1 LCS								
pH			6.96		pH units		6.9-7.1	26-MAR-19
SAR-R511-WT	**Soil**							

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
SAR-R511-WT	**Soil**							
Batch R4585357								
WG3014878-4 DUP		**WG3014878-3**						
Calcium (Ca)		24.9	22.0		mg/L	12	30	27-MAR-19
Sodium (Na)		31.4	26.0		mg/L	19	30	27-MAR-19
Magnesium (Mg)		2.31	1.92		mg/L	18	30	27-MAR-19
WG3014878-2 IRM		**WT SAR2**						
Calcium (Ca)			91.7		%		70-130	27-MAR-19
Sodium (Na)			93.8		%		70-130	27-MAR-19
Magnesium (Mg)			92.7		%		70-130	27-MAR-19
WG3014878-5 LCS								
Calcium (Ca)			105.7		%		70-130	27-MAR-19
Sodium (Na)			105.2		%		70-130	27-MAR-19
Magnesium (Mg)			101.4		%		70-130	27-MAR-19
WG3014878-1 MB								
Calcium (Ca)			<0.50		mg/L		0.5	27-MAR-19
Sodium (Na)			<0.50		mg/L		0.5	27-MAR-19
Magnesium (Mg)			<0.50		mg/L		0.5	27-MAR-19
VOC-511-HS-WT	**Soil**							
Batch R4583426								
WG3013782-4 DUP		**WG3013782-3**						
1,1,1,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
1,1,2,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
1,1,1-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
1,1,2-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
1,1-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
1,1-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
1,2-Dibromoethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
1,2-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
1,2-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
1,2-Dichloropropane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
1,3-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
1,4-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Acetone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	26-MAR-19
Benzene		<0.0068	<0.0068	RPD-NA	ug/g	N/A	40	26-MAR-19
Bromodichloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Bromoform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4583426								
WG3013782-4 DUP		**WG3013782-3**						
Bromomethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Carbon tetrachloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Chlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Chloroform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
cis-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
cis-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	26-MAR-19
Dibromochloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Dichlorodifluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Ethylbenzene		<0.018	<0.018	RPD-NA	ug/g	N/A	40	26-MAR-19
n-Hexane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Methylene Chloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
MTBE		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
m+p-Xylenes		<0.030	<0.030	RPD-NA	ug/g	N/A	40	26-MAR-19
Methyl Ethyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	26-MAR-19
Methyl Isobutyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	26-MAR-19
o-Xylene		<0.020	<0.020	RPD-NA	ug/g	N/A	40	26-MAR-19
Styrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Tetrachloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Toluene		<0.080	<0.080	RPD-NA	ug/g	N/A	40	26-MAR-19
trans-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
trans-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	26-MAR-19
Trichloroethylene		<0.010	<0.010	RPD-NA	ug/g	N/A	40	26-MAR-19
Trichlorofluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Vinyl chloride		<0.020	<0.020	RPD-NA	ug/g	N/A	40	26-MAR-19
WG3013782-2 LCS								
1,1,1,2-Tetrachloroethane			101.0		%		60-130	26-MAR-19
1,1,2,2-Tetrachloroethane			104.8		%		60-130	26-MAR-19
1,1,1-Trichloroethane			103.7		%		60-130	26-MAR-19
1,1,2-Trichloroethane			102.3		%		60-130	26-MAR-19
1,1-Dichloroethane			107.4		%		60-130	26-MAR-19
1,1-Dichloroethylene			104.5		%		60-130	26-MAR-19
1,2-Dibromoethane			98.9		%		70-130	26-MAR-19
1,2-Dichlorobenzene			104.6		%		70-130	26-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4583426								
WG3013782-2 LCS								
1,2-Dichloroethane			101.1		%		60-130	26-MAR-19
1,2-Dichloropropane			102.8		%		70-130	26-MAR-19
1,3-Dichlorobenzene			107.6		%		70-130	26-MAR-19
1,4-Dichlorobenzene			107.0		%		70-130	26-MAR-19
Acetone			93.9		%		60-140	26-MAR-19
Benzene			106.8		%		70-130	26-MAR-19
Bromodichloromethane			100.1		%		50-140	26-MAR-19
Bromoform			96.1		%		70-130	26-MAR-19
Bromomethane			113.8		%		50-140	26-MAR-19
Carbon tetrachloride			103.2		%		70-130	26-MAR-19
Chlorobenzene			105.3		%		70-130	26-MAR-19
Chloroform			104.5		%		70-130	26-MAR-19
cis-1,2-Dichloroethylene			102.7		%		70-130	26-MAR-19
cis-1,3-Dichloropropene			101.1		%		70-130	26-MAR-19
Dibromochloromethane			99.4		%		60-130	26-MAR-19
Dichlorodifluoromethane			82.8		%		50-140	26-MAR-19
Ethylbenzene			100.7		%		70-130	26-MAR-19
n-Hexane			100.8		%		70-130	26-MAR-19
Methylene Chloride			104.6		%		70-130	26-MAR-19
MTBE			105.0		%		70-130	26-MAR-19
m+p-Xylenes			102.4		%		70-130	26-MAR-19
Methyl Ethyl Ketone			95.8		%		60-140	26-MAR-19
Methyl Isobutyl Ketone			82.5		%		60-140	26-MAR-19
o-Xylene			97.6		%		70-130	26-MAR-19
Styrene			97.3		%		70-130	26-MAR-19
Tetrachloroethylene			107.4		%		60-130	26-MAR-19
Toluene			104.4		%		70-130	26-MAR-19
trans-1,2-Dichloroethylene			106.7		%		60-130	26-MAR-19
trans-1,3-Dichloropropene			101.8		%		70-130	26-MAR-19
Trichloroethylene			105.9		%		60-130	26-MAR-19
Trichlorofluoromethane			100.6		%		50-140	26-MAR-19
Vinyl chloride			87.1		%		60-140	26-MAR-19
WG3013782-1 MB								
1,1,1,2-Tetrachloroethane			<0.050		ug/g		0.05	26-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4583426								
WG3013782-1 MB								
1,1,2,2-Tetrachloroethane			<0.050		ug/g		0.05	26-MAR-19
1,1,1-Trichloroethane			<0.050		ug/g		0.05	26-MAR-19
1,1,2-Trichloroethane			<0.050		ug/g		0.05	26-MAR-19
1,1-Dichloroethane			<0.050		ug/g		0.05	26-MAR-19
1,1-Dichloroethylene			<0.050		ug/g		0.05	26-MAR-19
1,2-Dibromoethane			<0.050		ug/g		0.05	26-MAR-19
1,2-Dichlorobenzene			<0.050		ug/g		0.05	26-MAR-19
1,2-Dichloroethane			<0.050		ug/g		0.05	26-MAR-19
1,2-Dichloropropane			<0.050		ug/g		0.05	26-MAR-19
1,3-Dichlorobenzene			<0.050		ug/g		0.05	26-MAR-19
1,4-Dichlorobenzene			<0.050		ug/g		0.05	26-MAR-19
Acetone			<0.50		ug/g		0.5	26-MAR-19
Benzene			<0.0068		ug/g		0.0068	26-MAR-19
Bromodichloromethane			<0.050		ug/g		0.05	26-MAR-19
Bromoform			<0.050		ug/g		0.05	26-MAR-19
Bromomethane			<0.050		ug/g		0.05	26-MAR-19
Carbon tetrachloride			<0.050		ug/g		0.05	26-MAR-19
Chlorobenzene			<0.050		ug/g		0.05	26-MAR-19
Chloroform			<0.050		ug/g		0.05	26-MAR-19
cis-1,2-Dichloroethylene			<0.050		ug/g		0.05	26-MAR-19
cis-1,3-Dichloropropene			<0.030		ug/g		0.03	26-MAR-19
Dibromochloromethane			<0.050		ug/g		0.05	26-MAR-19
Dichlorodifluoromethane			<0.050		ug/g		0.05	26-MAR-19
Ethylbenzene			<0.018		ug/g		0.018	26-MAR-19
n-Hexane			<0.050		ug/g		0.05	26-MAR-19
Methylene Chloride			<0.050		ug/g		0.05	26-MAR-19
MTBE			<0.050		ug/g		0.05	26-MAR-19
m+p-Xylenes			<0.030		ug/g		0.03	26-MAR-19
Methyl Ethyl Ketone			<0.50		ug/g		0.5	26-MAR-19
Methyl Isobutyl Ketone			<0.50		ug/g		0.5	26-MAR-19
o-Xylene			<0.020		ug/g		0.02	26-MAR-19
Styrene			<0.050		ug/g		0.05	26-MAR-19
Tetrachloroethylene			<0.050		ug/g		0.05	26-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4583426								
WG3013782-1 MB								
Toluene			<0.080		ug/g		0.08	26-MAR-19
trans-1,2-Dichloroethylene			<0.050		ug/g		0.05	26-MAR-19
trans-1,3-Dichloropropene			<0.030		ug/g		0.03	26-MAR-19
Trichloroethylene			<0.010		ug/g		0.01	26-MAR-19
Trichlorofluoromethane			<0.050		ug/g		0.05	26-MAR-19
Vinyl chloride			<0.020		ug/g		0.02	26-MAR-19
Surrogate: 1,4-Difluorobenzene			104.8		%		50-140	26-MAR-19
Surrogate: 4-Bromofluorobenzene			95.8		%		50-140	26-MAR-19
WG3013782-5 MS		**L2247818-1**						
1,1,1,2-Tetrachloroethane			93.1		%		50-140	26-MAR-19
1,1,2,2-Tetrachloroethane			99.7		%		50-140	26-MAR-19
1,1,1-Trichloroethane			96.6		%		50-140	26-MAR-19
1,1,2-Trichloroethane			93.8		%		50-140	26-MAR-19
1,1-Dichloroethane			100.6		%		50-140	26-MAR-19
1,1-Dichloroethylene			97.7		%		50-140	26-MAR-19
1,2-Dibromoethane			89.1		%		50-140	26-MAR-19
1,2-Dichlorobenzene			96.1		%		50-140	26-MAR-19
1,2-Dichloroethane			92.9		%		50-140	26-MAR-19
1,2-Dichloropropane			95.4		%		50-140	26-MAR-19
1,3-Dichlorobenzene			98.0		%		50-140	26-MAR-19
1,4-Dichlorobenzene			96.5		%		50-140	26-MAR-19
Acetone			87.2		%		50-140	26-MAR-19
Benzene			99.2		%		50-140	26-MAR-19
Bromodichloromethane			92.0		%		50-140	26-MAR-19
Bromoform			87.0		%		50-140	26-MAR-19
Bromomethane			102.6		%		50-140	26-MAR-19
Carbon tetrachloride			96.5		%		50-140	26-MAR-19
Chlorobenzene			96.4		%		50-140	26-MAR-19
Chloroform			97.5		%		50-140	26-MAR-19
cis-1,2-Dichloroethylene			94.6		%		50-140	26-MAR-19
cis-1,3-Dichloropropene			87.3		%		50-140	26-MAR-19
Dibromochloromethane			90.6		%		50-140	26-MAR-19
Dichlorodifluoromethane			74.3		%		50-140	26-MAR-19
Ethylbenzene			91.7		%		50-140	26-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4583426								
WG3013782-5 MS		**L2247818-1**						
n-Hexane			93.3		%		50-140	26-MAR-19
Methylene Chloride			96.9		%		50-140	26-MAR-19
MTBE			97.8		%		50-140	26-MAR-19
m+p-Xylenes			93.6		%		50-140	26-MAR-19
Methyl Ethyl Ketone			82.0		%		50-140	26-MAR-19
Methyl Isobutyl Ketone			72.8		%		50-140	26-MAR-19
o-Xylene			89.0		%		50-140	26-MAR-19
Styrene			87.1		%		50-140	26-MAR-19
Tetrachloroethylene			98.6		%		50-140	26-MAR-19
Toluene			95.7		%		50-140	26-MAR-19
trans-1,2-Dichloroethylene			97.3		%		50-140	26-MAR-19
trans-1,3-Dichloropropene			85.7		%		50-140	26-MAR-19
Trichloroethylene			97.1		%		50-140	26-MAR-19
Trichlorofluoromethane			93.7		%		50-140	26-MAR-19
Vinyl chloride			80.4		%		50-140	26-MAR-19
Batch R4585205								
WG3013501-4 DUP		**WG3013501-3**						
1,1,1,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
1,1,2,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
1,1,1-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
1,1,2-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
1,1-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
1,1-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
1,2-Dibromoethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
1,2-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
1,2-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
1,2-Dichloropropane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
1,3-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
1,4-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Acetone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	27-MAR-19
Benzene		0.0478	0.0437		ug/g	9.0	40	27-MAR-19
Bromodichloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Bromoform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4585205								
WG3013501-4 DUP		**WG3013501-3**						
Bromomethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Carbon tetrachloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Chlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Chloroform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
cis-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
cis-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	27-MAR-19
Dibromochloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Dichlorodifluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Ethylbenzene		0.031	0.029		ug/g	7.4	40	27-MAR-19
n-Hexane		0.085	0.075		ug/g	12	40	27-MAR-19
Methylene Chloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
MTBE		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
m+p-Xylenes		0.103	0.096		ug/g	7.9	40	27-MAR-19
Methyl Ethyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	27-MAR-19
Methyl Isobutyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	27-MAR-19
o-Xylene		0.051	0.048		ug/g	6.1	40	27-MAR-19
Styrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Tetrachloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Toluene		0.144	0.132		ug/g	8.4	40	27-MAR-19
trans-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
trans-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	27-MAR-19
Trichloroethylene		0.011	0.011		ug/g	3.4	40	27-MAR-19
Trichlorofluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Vinyl chloride		<0.020	<0.020	RPD-NA	ug/g	N/A	40	27-MAR-19
WG3013501-2 LCS								
1,1,1,2-Tetrachloroethane			97.5		%		60-130	27-MAR-19
1,1,2,2-Tetrachloroethane			90.8		%		60-130	27-MAR-19
1,1,1-Trichloroethane			97.7		%		60-130	27-MAR-19
1,1,2-Trichloroethane			98.2		%		60-130	27-MAR-19
1,1-Dichloroethane			96.9		%		60-130	27-MAR-19
1,1-Dichloroethylene			89.7		%		60-130	27-MAR-19
1,2-Dibromoethane			91.0		%		70-130	27-MAR-19
1,2-Dichlorobenzene			99.5		%		70-130	27-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4585205								
WG3013501-2 LCS								
1,2-Dichloroethane			95.3		%		60-130	27-MAR-19
1,2-Dichloropropane			93.2		%		70-130	27-MAR-19
1,3-Dichlorobenzene			101.6		%		70-130	27-MAR-19
1,4-Dichlorobenzene			103.4		%		70-130	27-MAR-19
Acetone			85.8		%		60-140	27-MAR-19
Benzene			97.9		%		70-130	27-MAR-19
Bromodichloromethane			94.5		%		50-140	27-MAR-19
Bromoform			90.2		%		70-130	27-MAR-19
Bromomethane			102.0		%		50-140	27-MAR-19
Carbon tetrachloride			99.98		%		70-130	27-MAR-19
Chlorobenzene			98.2		%		70-130	27-MAR-19
Chloroform			98.2		%		70-130	27-MAR-19
cis-1,2-Dichloroethylene			97.3		%		70-130	27-MAR-19
cis-1,3-Dichloropropene			100.4		%		70-130	27-MAR-19
Dibromochloromethane			96.3		%		60-130	27-MAR-19
Dichlorodifluoromethane			53.6		%		50-140	27-MAR-19
Ethylbenzene			91.8		%		70-130	27-MAR-19
n-Hexane			85.4		%		70-130	27-MAR-19
Methylene Chloride			98.2		%		70-130	27-MAR-19
MTBE			99.5		%		70-130	27-MAR-19
m+p-Xylenes			93.4		%		70-130	27-MAR-19
Methyl Ethyl Ketone			88.0		%		60-140	27-MAR-19
Methyl Isobutyl Ketone			74.0		%		60-140	27-MAR-19
o-Xylene			90.2		%		70-130	27-MAR-19
Styrene			90.4		%		70-130	27-MAR-19
Tetrachloroethylene			101.9		%		60-130	27-MAR-19
Toluene			93.3		%		70-130	27-MAR-19
trans-1,2-Dichloroethylene			94.3		%		60-130	27-MAR-19
trans-1,3-Dichloropropene			91.0		%		70-130	27-MAR-19
Trichloroethylene			104.0		%		60-130	27-MAR-19
Trichlorofluoromethane			97.4		%		50-140	27-MAR-19
Vinyl chloride			64.3		%		60-140	27-MAR-19
WG3013501-1 MB								
1,1,1,2-Tetrachloroethane			<0.050		ug/g		0.05	27-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4585205								
WG3013501-1 MB								
1,1,2,2-Tetrachloroethane			<0.050		ug/g		0.05	27-MAR-19
1,1,1-Trichloroethane			<0.050		ug/g		0.05	27-MAR-19
1,1,2-Trichloroethane			<0.050		ug/g		0.05	27-MAR-19
1,1-Dichloroethane			<0.050		ug/g		0.05	27-MAR-19
1,1-Dichloroethylene			<0.050		ug/g		0.05	27-MAR-19
1,2-Dibromoethane			<0.050		ug/g		0.05	27-MAR-19
1,2-Dichlorobenzene			<0.050		ug/g		0.05	27-MAR-19
1,2-Dichloroethane			<0.050		ug/g		0.05	27-MAR-19
1,2-Dichloropropane			<0.050		ug/g		0.05	27-MAR-19
1,3-Dichlorobenzene			<0.050		ug/g		0.05	27-MAR-19
1,4-Dichlorobenzene			<0.050		ug/g		0.05	27-MAR-19
Acetone			<0.50		ug/g		0.5	27-MAR-19
Benzene			<0.0068		ug/g		0.0068	27-MAR-19
Bromodichloromethane			<0.050		ug/g		0.05	27-MAR-19
Bromoform			<0.050		ug/g		0.05	27-MAR-19
Bromomethane			<0.050		ug/g		0.05	27-MAR-19
Carbon tetrachloride			<0.050		ug/g		0.05	27-MAR-19
Chlorobenzene			<0.050		ug/g		0.05	27-MAR-19
Chloroform			<0.050		ug/g		0.05	27-MAR-19
cis-1,2-Dichloroethylene			<0.050		ug/g		0.05	27-MAR-19
cis-1,3-Dichloropropene			<0.030		ug/g		0.03	27-MAR-19
Dibromochloromethane			<0.050		ug/g		0.05	27-MAR-19
Dichlorodifluoromethane			<0.050		ug/g		0.05	27-MAR-19
Ethylbenzene			<0.018		ug/g		0.018	27-MAR-19
n-Hexane			<0.050		ug/g		0.05	27-MAR-19
Methylene Chloride			<0.050		ug/g		0.05	27-MAR-19
MTBE			<0.050		ug/g		0.05	27-MAR-19
m+p-Xylenes			<0.030		ug/g		0.03	27-MAR-19
Methyl Ethyl Ketone			<0.50		ug/g		0.5	27-MAR-19
Methyl Isobutyl Ketone			<0.50		ug/g		0.5	27-MAR-19
o-Xylene			<0.020		ug/g		0.02	27-MAR-19
Styrene			<0.050		ug/g		0.05	27-MAR-19
Tetrachloroethylene			<0.050		ug/g		0.05	27-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4585205								
WG3013501-1 MB								
Toluene			<0.080		ug/g		0.08	27-MAR-19
trans-1,2-Dichloroethylene			<0.050		ug/g		0.05	27-MAR-19
trans-1,3-Dichloropropene			<0.030		ug/g		0.03	27-MAR-19
Trichloroethylene			<0.010		ug/g		0.01	27-MAR-19
Trichlorofluoromethane			<0.050		ug/g		0.05	27-MAR-19
Vinyl chloride			<0.020		ug/g		0.02	27-MAR-19
Surrogate: 1,4-Difluorobenzene			119.0		%		50-140	27-MAR-19
Surrogate: 4-Bromofluorobenzene			107.8		%		50-140	27-MAR-19
WG3013501-5 MS		**L2248321-6**						
1,1,1,2-Tetrachloroethane			102.1		%		50-140	27-MAR-19
1,1,2,2-Tetrachloroethane			94.0		%		50-140	27-MAR-19
1,1,1-Trichloroethane			98.7		%		50-140	27-MAR-19
1,1,2-Trichloroethane			104.9		%		50-140	27-MAR-19
1,1-Dichloroethane			98.7		%		50-140	27-MAR-19
1,1-Dichloroethylene			88.4		%		50-140	27-MAR-19
1,2-Dibromoethane			95.2		%		50-140	27-MAR-19
1,2-Dichlorobenzene			71.0		%		50-140	27-MAR-19
1,2-Dichloroethane			97.3		%		50-140	27-MAR-19
1,2-Dichloropropane			94.7		%		50-140	27-MAR-19
1,3-Dichlorobenzene			69.9		%		50-140	27-MAR-19
1,4-Dichlorobenzene			70.0		%		50-140	27-MAR-19
Acetone			99.0		%		50-140	27-MAR-19
Benzene			98.7		%		50-140	27-MAR-19
Bromodichloromethane			99.5		%		50-140	27-MAR-19
Bromoform			96.1		%		50-140	27-MAR-19
Bromomethane			94.0		%		50-140	27-MAR-19
Carbon tetrachloride			100.3		%		50-140	27-MAR-19
Chlorobenzene			98.0		%		50-140	27-MAR-19
Chloroform			100.4		%		50-140	27-MAR-19
cis-1,2-Dichloroethylene			97.3		%		50-140	27-MAR-19
cis-1,3-Dichloropropene			86.4		%		50-140	27-MAR-19
Dibromochloromethane			102.0		%		50-140	27-MAR-19
Dichlorodifluoromethane			50.4		%		50-140	27-MAR-19
Ethylbenzene			93.1		%		50-140	27-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4585205								
WG3013501-5 MS		**L2248321-6**						
n-Hexane			82.5		%		50-140	27-MAR-19
Methylene Chloride			98.4		%		50-140	27-MAR-19
MTBE			99.8		%		50-140	27-MAR-19
m+p-Xylenes			92.4		%		50-140	27-MAR-19
Methyl Ethyl Ketone			87.6		%		50-140	27-MAR-19
Methyl Isobutyl Ketone			78.0		%		50-140	27-MAR-19
o-Xylene			91.2		%		50-140	27-MAR-19
Styrene			87.5		%		50-140	27-MAR-19
Tetrachloroethylene			98.5		%		50-140	27-MAR-19
Toluene			95.1		%		50-140	27-MAR-19
trans-1,2-Dichloroethylene			88.5		%		50-140	27-MAR-19
trans-1,3-Dichloropropene			78.8		%		50-140	27-MAR-19
Trichloroethylene			100.5		%		50-140	27-MAR-19
Trichlorofluoromethane			96.7		%		50-140	27-MAR-19
Vinyl chloride			62.1		%		50-140	27-MAR-19

Quality Control Report

Workorder: L2248315 Report Date: 27-MAR-19

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
J	Duplicate results and limits are expressed in terms of absolute difference.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

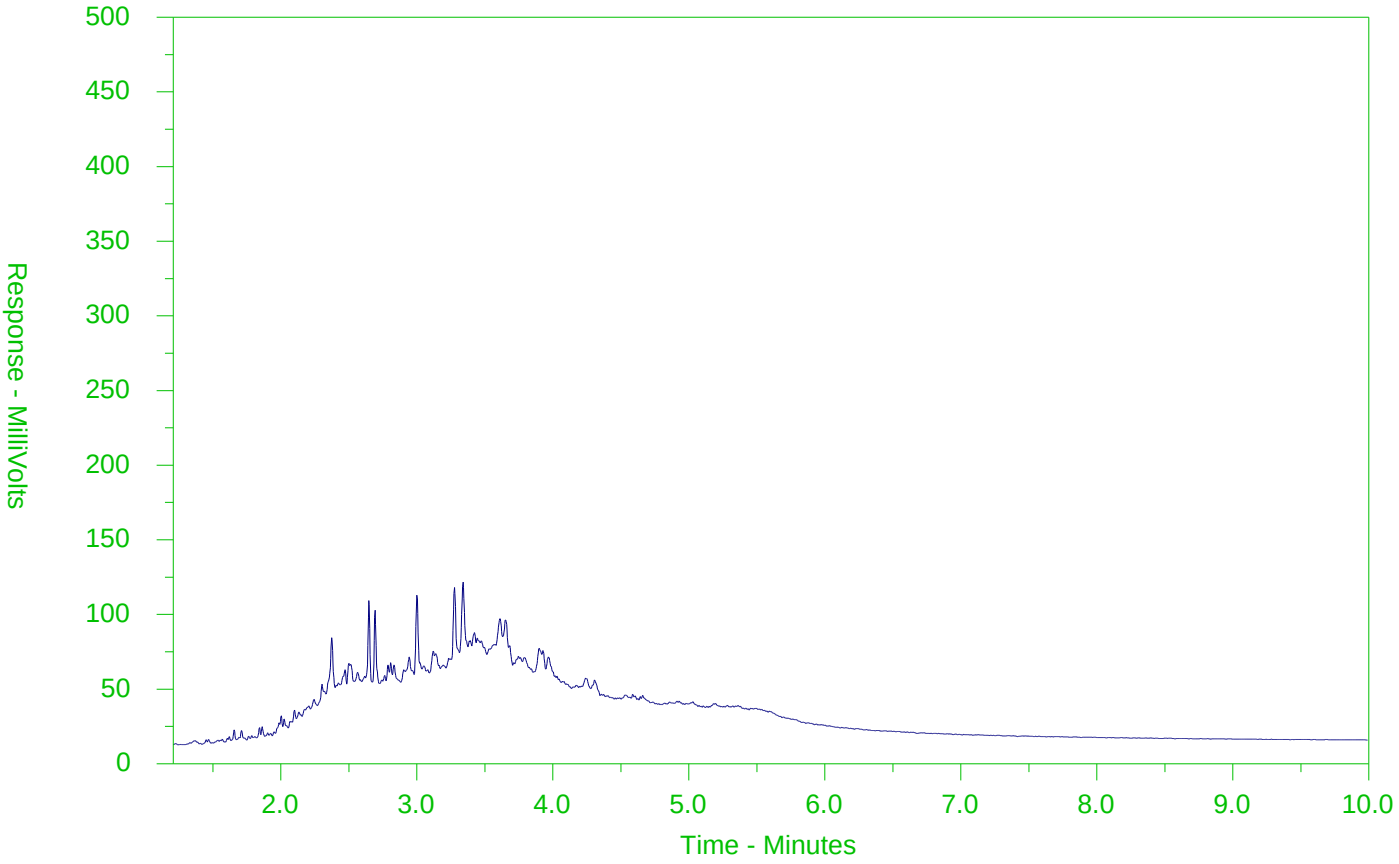
ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2248315-1
Client Sample ID: S-11102463-190322-JC-BH18-465-2.5'-4.5'



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

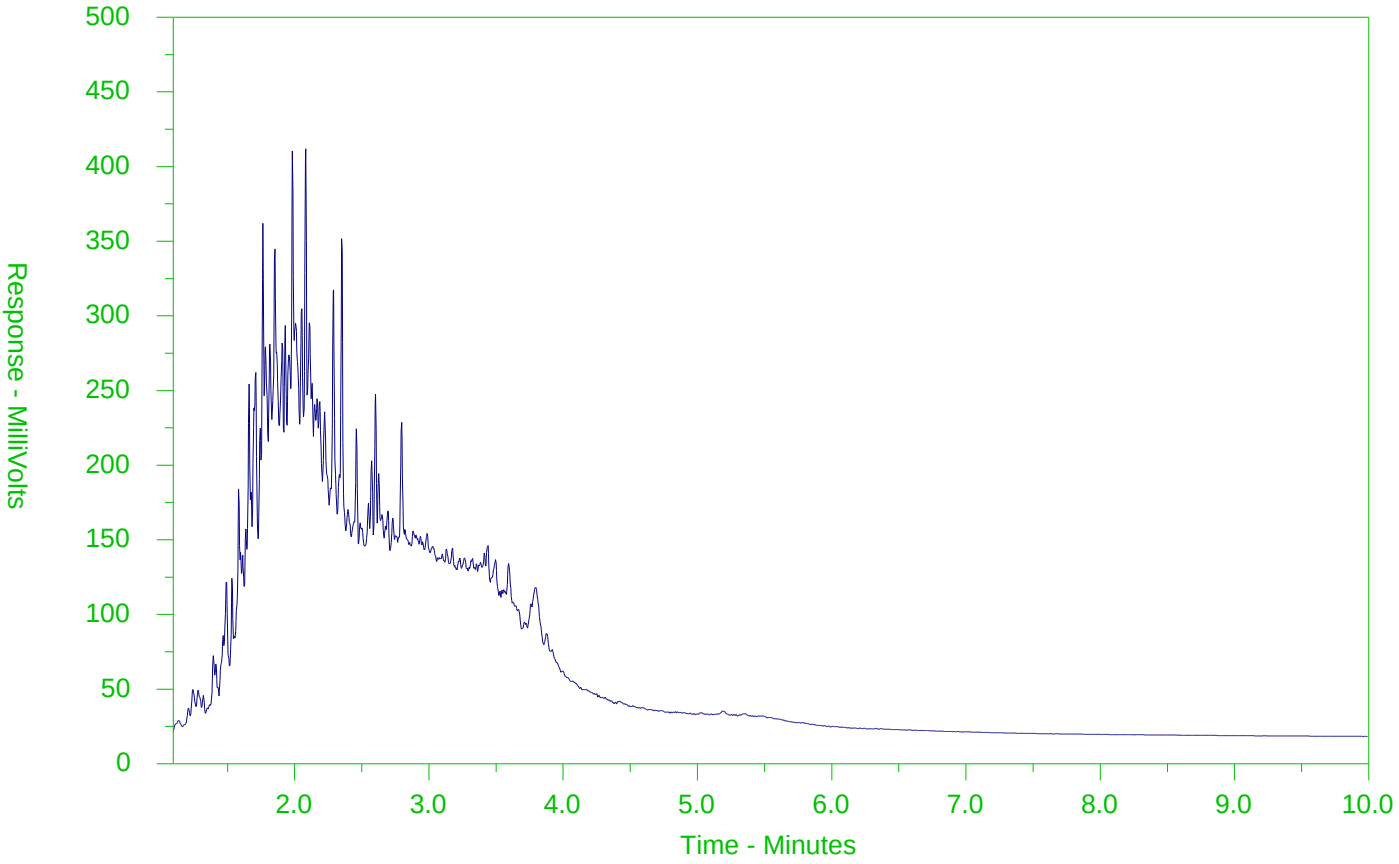
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2248315-2
Client Sample ID: S-11102463-190322-JC-BH18-465-10'-12'



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

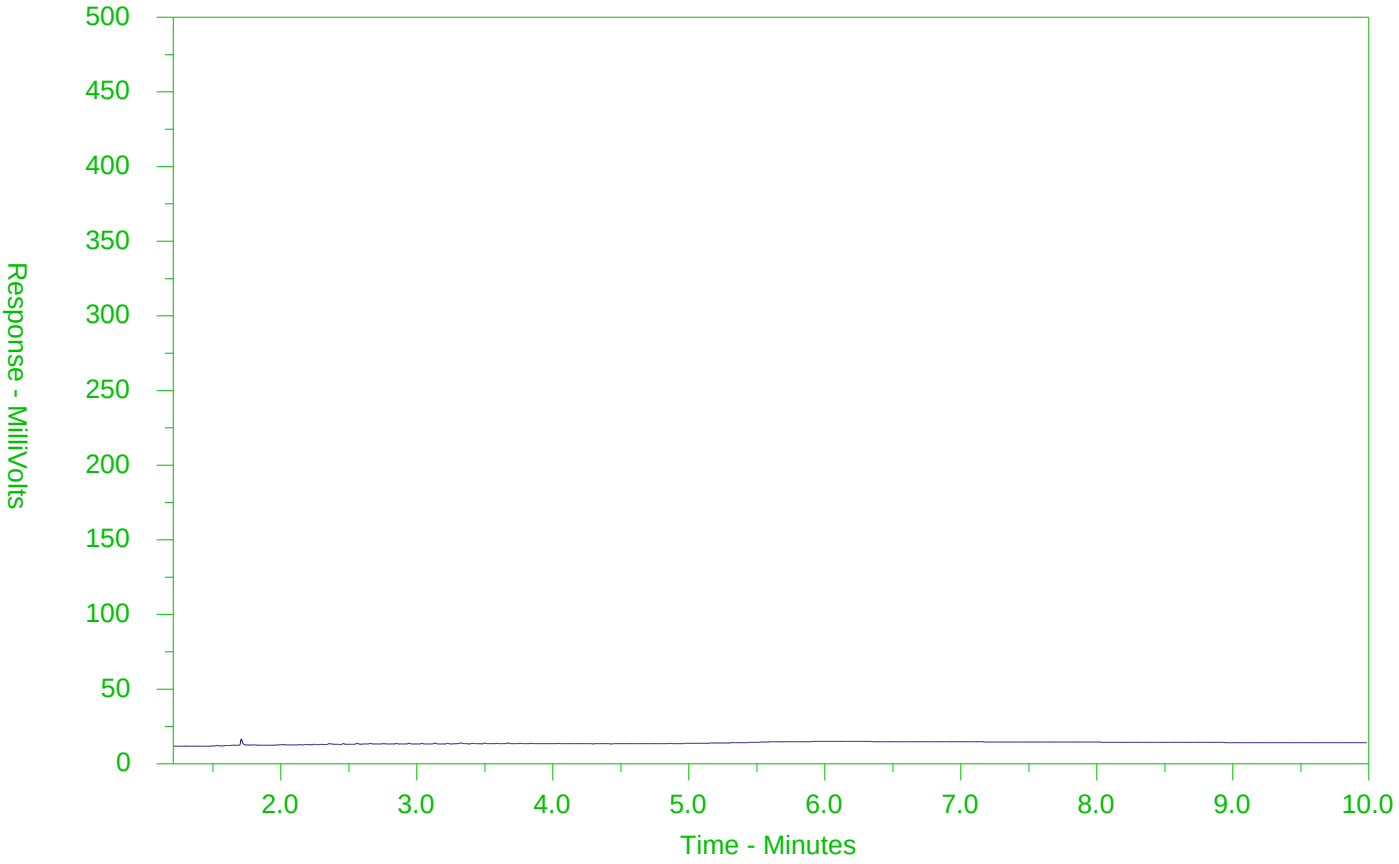
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2248315-3
Client Sample ID: S-11102463-190322-JC-BH18-465-25'-27'



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

ALS Environmental

www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

L2248315-COFC

nber: 17 -

Page of

Report To	Contact and company name below will appear on the final report
Company:	GHD LIMITED - ACCT #13791
Contact:	Jennifer Balkwill
Phone:	519-884-0510
	Company address below will appear on the final report
Street:	455 Phillip St
City/Province:	Waterloo,Ontario
Postal Code:	N2L 3X2
Invoice To	Same as Report To ☑ YES ☐ NO
	Copy of Invoice with Report ☐ YES ☑ NO
Company:	GHD Limited
Contact:	Jennifer Balkwill

Report Format / Distribution

Select Report Format: ☑ PDF ☑ EXCEL ☑ EDD (DIGITAL)

Quality Control (QC) Report with Report ☑ YES ☐ NO

☐ Compare Results to Criteria on Report - provide details below if box checked

Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax jennifer.balkwill@ghd.com

Email 2 See PO

Email 3

Invoice Distribution

Select Invoice Distribution: ☐ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax jennifer.balkwill@ghd.com

Email 2

Select ... our AM to confirm all E&P TATs (surcharges may apply)

Regular [R] ☑ Standard TAT if received by 3 pm - business days - no surcharges apply

PRIORITY (Business Days): 4 day [P4-20%] ☐ 3 day [P3-25%] ☐ 2 day [P2-50%] ☐

EMERGENCY: 1 Business day [E - 100%] ☐ Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)] ☐

Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm

For tests that can not be performed according to the service level selected, you will be contacted.

Project Information

ALS Account # / Quote #:	13791, Q51987
Job #:	11102463-71
PO / AFE:	73509898-7
LSD:	Waterfront Toronto

Oil and Gas Required Fields (client use)

AFE/Cost Center:	PO#
Major/Minor Code:	Routing Code:
Requisitioner:	
Location:	

ALS Lab Work Order # (lab use only): L2248315 22E

ALS Contact: Rick H Sampler:

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	BTEX,F1-F4-511-P-WT	TOC-WT (confirmed Triplicate 511 not neces	BTEX,F1 (Trip Blank)	metals + inorganics	PAH	PHC	OC Pest	Chlorophenols	PCB Aroclors	VOC	SAMPLES ON HOLD	SUSPECTED HAZARD (see Special Instructions)
	S-11102463-190322-JC-BH18-465-2.5'-4.5'	22-mar-19	11:15	Soil					X	X	X	X	X	X	X		
	S-11102463-190322-JC-BH18-465-10'-12'	↓	11:30	Soil					X	X	X	X	X	X	X		
	S-11102463-190322-JC-BH18-465-25'-27'	↓	12:00	Soil					X	X	X				X		
	~~S-11102463-~~ Trip Blank			Soil				X							X		
	S-11102463-			Soil													
	S-11102463-			Soil													
	S-11102463-			Soil													
	S-11102463-			Soil													
	S-11102463-			Soil													
	S-11102463-			Soil													
	S-11102463-			Soil													
	S-11102463-			Soil													

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? ☐ YES ☑ NO

Are samples for human consumption/ use? ☐ YES ☑ NO

Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐

Ice Packs ☐ Ice Cubes ☐ Custody seal intact Yes ☐ No ☐

Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C	FINAL COOLER TEMPERATURES °C
	8.8°C

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by: [signature]	Date:	Time:	Received by:	Date:	Time:	Received by: [signature]	Date: 22/Mar/2019	Time: ~~18~~ 17:50

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION WHITE - LABORATORY COPY YELLOW - CLIENT COPY

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

GHD Limited (Waterloo)
ATTN: JENNIFER BALKWILL
455 PHILLIP ST
WATERLOO ON N2L 3X2

Date Received: 22-MAR-19
Report Date: 27-MAR-19 14:47 (MT)
Version: FINAL

Client Phone: 519-884-0510

Certificate of Analysis

Lab Work Order #: L2248319

Project P.O. #: 73509898-7
Job Reference: 11102463-53
C of C Numbers:
Legal Site Desc: WATERFRONT TORONTO

Rick Hawthorne
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2248319-1 S-11102463-190321-JC-BH18-443-20-22'								
Sampled By: CLIENT on 21-MAR-19 @ 10:00								
Matrix: SOIL								
Physical Tests								
Conductivity	0.671		0.0040	mS/cm	27-MAR-19	0.7	0.7	0.7
% Moisture	72.2		0.10	%	26-MAR-19			
pH	7.00		0.10	pH units	26-MAR-19			
Cyanides								
Cyanide, Weak Acid Diss	0.245	DLHM	0.10	ug/g	26-MAR-19	*0.051	*0.051	*0.051
Saturated Paste Extractables								
SAR	1.91		0.10	SAR	27-MAR-19	5	5	5
Calcium (Ca)	44.0		0.50	mg/L	27-MAR-19			
Magnesium (Mg)	5.72		0.50	mg/L	27-MAR-19			
Sodium (Na)	50.8		0.50	mg/L	27-MAR-19			
Metals								
Antimony (Sb)	<1.0		1.0	ug/g	26-MAR-19	7.5	7.5	1.3
Arsenic (As)	2.9		1.0	ug/g	26-MAR-19	18	18	18
Barium (Ba)	82.1		1.0	ug/g	26-MAR-19	390	390	220
Beryllium (Be)	<0.50		0.50	ug/g	26-MAR-19	4	5	2.5
Boron (B)	6.9		5.0	ug/g	26-MAR-19	120	120	36
Boron (B), Hot Water Ext.	1.69		0.10	ug/g	26-MAR-19	*1.5	*1.5	*1.5
Cadmium (Cd)	<0.50		0.50	ug/g	26-MAR-19	1.2	1.2	1.2
Chromium (Cr)	21.6		1.0	ug/g	26-MAR-19	160	160	70
Cobalt (Co)	6.7		1.0	ug/g	26-MAR-19	22	22	22
Copper (Cu)	27.2		1.0	ug/g	26-MAR-19	140	180	92
Lead (Pb)	24.9		1.0	ug/g	26-MAR-19	120	120	120
Mercury (Hg)	0.0544		0.0050	ug/g	26-MAR-19	0.27	1.8	0.27
Molybdenum (Mo)	1.5		1.0	ug/g	26-MAR-19	6.9	6.9	2
Nickel (Ni)	15.8		1.0	ug/g	26-MAR-19	100	130	82
Selenium (Se)	<1.0		1.0	ug/g	26-MAR-19	2.4	2.4	1.5
Silver (Ag)	<0.20		0.20	ug/g	26-MAR-19	20	25	0.5
Thallium (Tl)	<0.50		0.50	ug/g	26-MAR-19	1	1	1
Uranium (U)	<1.0		1.0	ug/g	26-MAR-19	23	23	2.5
Vanadium (V)	24.6		1.0	ug/g	26-MAR-19	86	86	86
Zinc (Zn)	72.8		5.0	ug/g	26-MAR-19	340	340	290
Speciated Metals								
Chromium, Hexavalent	<2.0	DLHM	2.0	ug/g	27-MAR-19	8	10	**0.66
Volatile Organic Compounds								
Acetone	<2.0	DLR	2.0	ug/g	27-MAR-19	16	28	**0.5
Benzene	<0.027	DLR	0.027	ug/g	27-MAR-19	0.21	0.17	**0.02
Bromodichloromethane	<0.20	DLR	0.20	ug/g	27-MAR-19	13	13	**0.05
Bromoform	<0.20	DLR	0.20	ug/g	27-MAR-19	0.27	0.26	**0.05
Bromomethane	<0.20	DLR	0.20	ug/g	27-MAR-19	**0.05	**0.05	**0.05
Carbon tetrachloride	<0.20	DLR	0.20	ug/g	27-MAR-19	**0.05	**0.12	**0.05
Chlorobenzene	<0.20	DLR	0.20	ug/g	27-MAR-19	2.4	2.7	**0.05
Dibromochloromethane	<0.20	DLR	0.20	ug/g	27-MAR-19	9.4	9.4	**0.05
Chloroform	<0.20	DLR	0.20	ug/g	27-MAR-19	**0.05	**0.18	**0.05
1,2-Dibromoethane	<0.20	DLR	0.20	ug/g	27-MAR-19	**0.05	**0.05	**0.05
1,2-Dichlorobenzene	<0.20	DLR	0.20	ug/g	27-MAR-19	3.4	4.3	**0.05

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2248319-1 S-11102463-190321-JC-BH18-443-20-22'								
Sampled By: CLIENT on 21-MAR-19 @ 10:00								
Matrix: SOIL								
Volatile Organic Compounds								
1,3-Dichlorobenzene	<0.20	DLR	0.20	ug/g	27-MAR-19	4.8	6	**0.05
1,4-Dichlorobenzene	<0.20	DLR	0.20	ug/g	27-MAR-19	**0.083	**0.097	**0.05
Dichlorodifluoromethane	<0.20	DLR	0.20	ug/g	27-MAR-19	16	25	**0.05
1,1-Dichloroethane	<0.20	DLR	0.20	ug/g	27-MAR-19	3.5	11	**0.05
1,2-Dichloroethane	<0.20	DLR	0.20	ug/g	27-MAR-19	**0.05	**0.05	**0.05
1,1-Dichloroethylene	<0.20	DLR	0.20	ug/g	27-MAR-19	**0.05	**0.05	**0.05
cis-1,2-Dichloroethylene	<0.20	DLR	0.20	ug/g	27-MAR-19	3.4	30	**0.05
trans-1,2-Dichloroethylene	<0.20	DLR	0.20	ug/g	27-MAR-19	**0.084	0.75	**0.05
Methylene Chloride	<0.20	DLR	0.20	ug/g	27-MAR-19	**0.1	0.96	**0.05
1,2-Dichloropropane	<0.20	DLR	0.20	ug/g	27-MAR-19	**0.05	**0.085	**0.05
cis-1,3-Dichloropropene	<0.12	DLR	0.12	ug/g	27-MAR-19			
trans-1,3-Dichloropropene	<0.12	DLR	0.12	ug/g	27-MAR-19			
1,3-Dichloropropene (cis & trans)	<0.17		0.17	ug/g	27-MAR-19	**0.05	**0.083	**0.05
Ethylbenzene	<0.072	DLR	0.072	ug/g	27-MAR-19	2	15	**0.05
n-Hexane	<0.20	DLR	0.20	ug/g	27-MAR-19	2.8	34	**0.05
Methyl Ethyl Ketone	<2.0	DLR	2.0	ug/g	27-MAR-19	16	44	**0.5
Methyl Isobutyl Ketone	<2.0	DLR	2.0	ug/g	27-MAR-19	**1.7	4.3	**0.5
MTBE	<0.20	DLR	0.20	ug/g	27-MAR-19	0.75	1.4	**0.05
Styrene	<0.20	DLR	0.20	ug/g	27-MAR-19	0.7	2.2	**0.05
1,1,1,2-Tetrachloroethane	<0.20	DLR	0.20	ug/g	27-MAR-19	**0.058	**0.05	**0.05
1,1,2,2-Tetrachloroethane	<0.20	DLR	0.20	ug/g	27-MAR-19	**0.05	**0.05	**0.05
Tetrachloroethylene	<0.20	DLR	0.20	ug/g	27-MAR-19	0.28	2.3	**0.05
Toluene	<0.32	DLR	0.32	ug/g	27-MAR-19	2.3	6	**0.2
1,1,1-Trichloroethane	<0.20	DLR	0.20	ug/g	27-MAR-19	0.38	3.4	**0.05
1,1,2-Trichloroethane	<0.20	DLR	0.20	ug/g	27-MAR-19	**0.05	**0.05	**0.05
Trichloroethylene	<0.040	DLR	0.040	ug/g	27-MAR-19	0.061	0.52	0.05
Trichlorofluoromethane	<0.20	DLR	0.20	ug/g	27-MAR-19	4	5.8	0.25
Vinyl chloride	<0.080	DLR	0.080	ug/g	27-MAR-19	**0.02	**0.022	**0.02
o-Xylene	<0.080	DLR	0.080	ug/g	27-MAR-19			
m+p-Xylenes	<0.12	DLR	0.12	ug/g	27-MAR-19			
Xylenes (Total)	<0.14		0.14	ug/g	27-MAR-19	3.1	25	**0.05
Surrogate: 4-Bromofluorobenzene	83.5		50-140	%	27-MAR-19			
Surrogate: 1,4-Difluorobenzene	91.4		50-140	%	27-MAR-19			
Hydrocarbons								
F1 (C6-C10)	<20	DLR	20	ug/g	27-MAR-19	55	65	25
F1-BTEX	<20		20	ug/g	27-MAR-19	55	65	25
F2 (C10-C16)	27	DLHM	30	ug/g	26-MAR-19	98	150	*10
F2-Naphth	<30		30	ug/g	27-MAR-19			
F3 (C16-C34)	193	DLHM	150	ug/g	26-MAR-19	300	1300	240
F3-PAH	190		150	ug/g	27-MAR-19			
F4 (C34-C50)	99	DLHM	150	ug/g	26-MAR-19	2800	5600	120
Total Hydrocarbons (C6-C50)	<220		220	ug/g	27-MAR-19			
Chrom. to baseline at nC50	YES			No Unit	26-MAR-19			
Surrogate: 2-Bromobenzotrifluoride	88.0		60-140	%	26-MAR-19			
Surrogate: 3,4-Dichlorotoluene	74.4		60-140	%	27-MAR-19			
Polycyclic Aromatic Hydrocarbons								

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2248319-1 S-11102463-190321-JC-BH18-443-20-22'								
Sampled By: CLIENT on 21-MAR-19 @ 10:00								
Matrix: SOIL								
Polycyclic Aromatic Hydrocarbons								
1+2-Methylnaphthalenes	<0.21		0.21	ug/g	27-MAR-19	0.99	3.4	0.59
Semi-Volatile Organics								
Acenaphthene	<0.25	DLR	0.25	ug/g	27-MAR-19	7.9	58	**0.072
Acenaphthylene	<0.25	DLR	0.25	ug/g	27-MAR-19	**0.15	**0.17	**0.093
Anthracene	<0.25	DLR	0.25	ug/g	27-MAR-19	0.67	0.74	**0.22
Benzo(a)anthracene	<0.25	DLR	0.25	ug/g	27-MAR-19	0.5	0.63	0.36
Benzo(a)pyrene	<0.25	DLR	0.25	ug/g	27-MAR-19	0.3	0.3	0.3
Benzo(b)fluoranthene	<0.25	DLR	0.25	ug/g	27-MAR-19	0.78	0.78	0.47
Benzo(ghi)perylene	<0.25	DLR	0.25	ug/g	27-MAR-19	6.6	7.8	0.68
Benzo(k)fluoranthene	<0.25	DLR	0.25	ug/g	27-MAR-19	0.78	0.78	0.48
2-Chlorophenol	<0.50	DLR	0.50	ug/g	27-MAR-19	1.6	2	**0.1
Chrysene	<0.25	DLR	0.25	ug/g	27-MAR-19	7	7.8	2.8
Dibenzo(a,h)anthracene	<0.25	DLR	0.25	ug/g	27-MAR-19	**0.1	**0.1	**0.1
2,4-Dichlorophenol	<0.50	DLR	0.50	ug/g	27-MAR-19	1.7	2.1	**0.1
Fluoranthene	0.29	DLR	0.25	ug/g	27-MAR-19	0.69	0.69	0.69
Fluorene	<0.25	DLR	0.25	ug/g	27-MAR-19	62	69	**0.19
Indeno(1,2,3-cd)pyrene	<0.25	DLR	0.25	ug/g	27-MAR-19	0.38	0.48	**0.23
1-Methylnaphthalene	<0.15	DLR	0.15	ug/g	27-MAR-19	0.99	3.4	0.59
2-Methylnaphthalene	<0.15	DLR	0.15	ug/g	27-MAR-19	0.99	3.4	0.59
Naphthalene	<0.25	DLR	0.25	ug/g	27-MAR-19	0.6	0.75	**0.09
Pentachlorophenol	<0.50	DLR	0.50	ug/g	27-MAR-19	**0.1	**0.1	**0.1
Phenanthrene	0.29	DLR	0.25	ug/g	27-MAR-19	6.2	7.8	0.69
Pyrene	0.28	DLR	0.25	ug/g	27-MAR-19	78	78	1
2,4,5-Trichlorophenol	<0.50	DLR	0.50	ug/g	27-MAR-19	4.4	5.5	**0.1
2,4,6-Trichlorophenol	<0.50	DLR	0.50	ug/g	27-MAR-19	3.8	4.2	**0.1
Surrogate: 2-Fluorobiphenyl	94.5		50-140	%	27-MAR-19			
Surrogate: Phenol d5	93.1		30-130	%	27-MAR-19			
Surrogate: p-Terphenyl d14	83.6		50-140	%	27-MAR-19			
Surrogate: 2,4,6-Tribromophenol	105.4		50-140	%	27-MAR-19			
Polychlorinated Biphenyls								
Aroclor 1242	<0.030	DLHM	0.030	ug/g	27-MAR-19			
Aroclor 1248	<0.030	DLHM	0.030	ug/g	27-MAR-19			
Aroclor 1254	<0.030	DLHM	0.030	ug/g	27-MAR-19			
Aroclor 1260	<0.030	DLHM	0.030	ug/g	27-MAR-19			
Total PCBs	<0.060	DLHM	0.060	ug/g	27-MAR-19	0.35	0.35	0.3
Surrogate: d14-Terphenyl	95.2		60-140	%	27-MAR-19			
Organochlorine Pesticides								
Aldrin	<0.060	DLHM	0.060	ug/g	27-MAR-19	**0.05	**0.05	**0.05
gamma-hexachlorocyclohexane	<0.15	DLHM	0.15	ug/g	27-MAR-19	**0.056	**0.063	
a-chlordane	<0.060	DLHM	0.060	ug/g	27-MAR-19			
Chlordane (Total)	<0.085		0.085	ug/g	27-MAR-19	**0.05	**0.05	**0.05
g-chlordane	<0.060	DLHM	0.060	ug/g	27-MAR-19			
op-DDD	<0.060	DLHM	0.060	ug/g	27-MAR-19			
pp-DDD	<0.060	DLHM	0.060	ug/g	27-MAR-19			
Total DDD	<0.085		0.085	ug/g	27-MAR-19	3.3	3.3	**0.05
o,p-DDE	<0.060	DLHM	0.060	ug/g	27-MAR-19			

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping	Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2248319-1	S-11102463-190321-JC-BH18-443-20-22'								
Sampled By:	CLIENT on 21-MAR-19 @ 10:00								
Matrix:	SOIL								
Organochlorine Pesticides									
	pp-DDE	<0.060	DLHM	0.060	ug/g	27-MAR-19			
	Total DDE	<0.085		0.085	ug/g	27-MAR-19	0.26	0.33	**0.05
	op-DDT	<0.30	DLHM	0.30	ug/g	27-MAR-19			
	pp-DDT	<0.30	DLHM	0.30	ug/g	27-MAR-19			
	Total DDT	<0.42		0.42	ug/g	27-MAR-19	1.4	1.4	1.4
	Dieldrin	<0.060	DLHM	0.060	ug/g	27-MAR-19	**0.05	**0.05	**0.05
	Endosulfan I	<0.060	DLHM	0.060	ug/g	27-MAR-19			
	Endosulfan II	<0.060	DLHM	0.060	ug/g	27-MAR-19			
	Endosulfan (Total)	<0.085		0.085	ug/g	27-MAR-19	**0.04	**0.04	**0.04
	Endrin	<0.060	DLHM	0.060	ug/g	27-MAR-19	**0.04	**0.04	**0.04
	Heptachlor	<0.060	DLHM	0.060	ug/g	27-MAR-19	0.15	0.15	**0.05
	Heptachlor Epoxide	<0.060	DLHM	0.060	ug/g	27-MAR-19	**0.05	**0.05	**0.05
	Hexachlorobenzene	<0.15	DLHM	0.15	ug/g	27-MAR-19	0.52	0.52	**0.02
	Hexachlorobutadiene	<0.15	DLHM	0.15	ug/g	27-MAR-19	**0.012	**0.014	**0.01
	Hexachloroethane	<0.15	DLHM	0.15	ug/g	27-MAR-19	**0.089	**0.07	**0.01
	Methoxychlor	<0.30	DLHM	0.30	ug/g	27-MAR-19	**0.13	**0.13	**0.05
	Surrogate: 2-Fluorobiphenyl	85.3		50-140	%	27-MAR-19			
	Surrogate: d14-Terphenyl	68.4		50-140	%	27-MAR-19			
L2248319-2	S-11102463-190321-JC-BH18-443-35.5-36"								
Sampled By:	CLIENT on 21-MAR-19 @ 11:00								
Matrix:	SOIL								
Physical Tests									
	Conductivity	0.417		0.0040	mS/cm	27-MAR-19	0.7	0.7	0.7
	% Moisture	13.4		0.10	%	26-MAR-19			
	pH	8.07		0.10	pH units	26-MAR-19			
Cyanides									
	Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	26-MAR-19	0.051	0.051	0.051
Saturated Paste Extractables									
	SAR	2.15		0.10	SAR	27-MAR-19	5	5	5
	Calcium (Ca)	22.3		0.50	mg/L	27-MAR-19			
	Magnesium (Mg)	2.37		0.50	mg/L	27-MAR-19			
	Sodium (Na)	39.9		0.50	mg/L	27-MAR-19			
Metals									
	Antimony (Sb)	<1.0		1.0	ug/g	26-MAR-19	7.5	7.5	1.3
	Arsenic (As)	<1.0		1.0	ug/g	26-MAR-19	18	18	18
	Barium (Ba)	16.0		1.0	ug/g	26-MAR-19	390	390	220
	Beryllium (Be)	<0.50		0.50	ug/g	26-MAR-19	4	5	2.5
	Boron (B)	<5.0		5.0	ug/g	26-MAR-19	120	120	36
	Boron (B), Hot Water Ext.	<0.10		0.10	ug/g	26-MAR-19	1.5	1.5	1.5
	Cadmium (Cd)	<0.50		0.50	ug/g	26-MAR-19	1.2	1.2	1.2
	Chromium (Cr)	5.3		1.0	ug/g	26-MAR-19	160	160	70
	Cobalt (Co)	2.3		1.0	ug/g	26-MAR-19	22	22	22
	Copper (Cu)	7.0		1.0	ug/g	26-MAR-19	140	180	92
	Lead (Pb)	3.8		1.0	ug/g	26-MAR-19	120	120	120
	Mercury (Hg)	0.0063		0.0050	ug/g	26-MAR-19	0.27	1.8	0.27

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2248319-2 S-11102463-190321-JC-BH18-443-35.5-36"								
Sampled By: CLIENT on 21-MAR-19 @ 11:00								
Matrix: SOIL								
Metals								
Molybdenum (Mo)	<1.0		1.0	ug/g	26-MAR-19	6.9	6.9	2
Nickel (Ni)	4.9		1.0	ug/g	26-MAR-19	100	130	82
Selenium (Se)	<1.0		1.0	ug/g	26-MAR-19	2.4	2.4	1.5
Silver (Ag)	<0.20		0.20	ug/g	26-MAR-19	20	25	0.5
Thallium (Tl)	<0.50		0.50	ug/g	26-MAR-19	1	1	1
Uranium (U)	<1.0		1.0	ug/g	26-MAR-19	23	23	2.5
Vanadium (V)	9.2		1.0	ug/g	26-MAR-19	86	86	86
Zinc (Zn)	13.8		5.0	ug/g	26-MAR-19	340	340	290
Speciated Metals								
Chromium, Hexavalent	<0.20		0.20	ug/g	26-MAR-19	8	10	0.66
Volatile Organic Compounds								
Acetone	<0.50		0.50	ug/g	27-MAR-19	16	28	0.5
Benzene	<0.0068		0.0068	ug/g	27-MAR-19	0.21	0.17	0.02
Bromodichloromethane	<0.050		0.050	ug/g	27-MAR-19	13	13	0.05
Bromoform	<0.050		0.050	ug/g	27-MAR-19	0.27	0.26	0.05
Bromomethane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05
Carbon tetrachloride	<0.050		0.050	ug/g	27-MAR-19	0.05	0.12	0.05
Chlorobenzene	<0.050		0.050	ug/g	27-MAR-19	2.4	2.7	0.05
Dibromochloromethane	<0.050		0.050	ug/g	27-MAR-19	9.4	9.4	0.05
Chloroform	<0.050		0.050	ug/g	27-MAR-19	0.05	0.18	0.05
1,2-Dibromoethane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05
1,2-Dichlorobenzene	<0.050		0.050	ug/g	27-MAR-19	3.4	4.3	0.05
1,3-Dichlorobenzene	<0.050		0.050	ug/g	27-MAR-19	4.8	6	0.05
1,4-Dichlorobenzene	<0.050		0.050	ug/g	27-MAR-19	0.083	0.097	0.05
Dichlorodifluoromethane	<0.050		0.050	ug/g	27-MAR-19	16	25	0.05
1,1-Dichloroethane	<0.050		0.050	ug/g	27-MAR-19	3.5	11	0.05
1,2-Dichloroethane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05
1,1-Dichloroethylene	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	27-MAR-19	3.4	30	0.05
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	27-MAR-19	0.084	0.75	0.05
Methylene Chloride	<0.050		0.050	ug/g	27-MAR-19	0.1	0.96	0.05
1,2-Dichloropropane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.085	0.05
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	27-MAR-19			
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	27-MAR-19			
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g	27-MAR-19	0.05	0.083	0.05
Ethylbenzene	<0.018		0.018	ug/g	27-MAR-19	2	15	0.05
n-Hexane	<0.050		0.050	ug/g	27-MAR-19	2.8	34	0.05
Methyl Ethyl Ketone	<0.50		0.50	ug/g	27-MAR-19	16	44	0.5
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	27-MAR-19	1.7	4.3	0.5
MTBE	<0.050		0.050	ug/g	27-MAR-19	0.75	1.4	0.05
Styrene	<0.050		0.050	ug/g	27-MAR-19	0.7	2.2	0.05
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	27-MAR-19	0.058	0.05	0.05
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05
Tetrachloroethylene	<0.050		0.050	ug/g	27-MAR-19	0.28	2.3	0.05
Toluene	<0.080		0.080	ug/g	27-MAR-19	2.3	6	0.2

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping	Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3	
L2248319-2	S-11102463-190321-JC-BH18-443-35.5-36"									
Sampled By:	CLIENT on 21-MAR-19 @ 11:00									
Matrix:	SOIL									
Volatile Organic Compounds										
	1,1,1-Trichloroethane	<0.050		0.050	ug/g	27-MAR-19	0.38	3.4	0.05	
	1,1,2-Trichloroethane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05	
	Trichloroethylene	<0.010		0.010	ug/g	27-MAR-19	0.061	0.52	0.05	
	Trichlorofluoromethane	<0.050		0.050	ug/g	27-MAR-19	4	5.8	0.25	
	Vinyl chloride	<0.020		0.020	ug/g	27-MAR-19	0.02	0.022	0.02	
	o-Xylene	<0.020		0.020	ug/g	27-MAR-19				
	m+p-Xylenes	<0.030		0.030	ug/g	27-MAR-19				
	Xylenes (Total)	<0.050		0.050	ug/g	27-MAR-19	3.1	25	0.05	
	Surrogate: 4-Bromofluorobenzene	95.6		50-140	%	27-MAR-19				
	Surrogate: 1,4-Difluorobenzene	105.4		50-140	%	27-MAR-19				
Hydrocarbons										
	F1 (C6-C10)	<5.0		5.0	ug/g	27-MAR-19	55	65	25	
	F1-BTEX	<5.0		5.0	ug/g	27-MAR-19	55	65	25	
	F2 (C10-C16)	<10		10	ug/g	26-MAR-19	98	150	10	
	F2-Naphth	<10		10	ug/g	27-MAR-19				
	F3 (C16-C34)	<50		50	ug/g	26-MAR-19	300	1300	240	
	F3-PAH	<50		50	ug/g	27-MAR-19				
	F4 (C34-C50)	<50		50	ug/g	26-MAR-19	2800	5600	120	
	Total Hydrocarbons (C6-C50)	<72		72	ug/g	27-MAR-19				
	Chrom. to baseline at nC50	YES			No Unit	26-MAR-19				
	Surrogate: 2-Bromobenzotrifluoride	89.5		60-140	%	26-MAR-19				
	Surrogate: 3,4-Dichlorotoluene	89.6		60-140	%	27-MAR-19				
Polycyclic Aromatic Hydrocarbons										
	Acenaphthene	<0.050		0.050	ug/g	26-MAR-19	7.9	58	0.072	
	Acenaphthylene	<0.050		0.050	ug/g	26-MAR-19	0.15	0.17	0.093	
	Anthracene	<0.050		0.050	ug/g	26-MAR-19	0.67	0.74	0.22	
	Benzo(a)anthracene	<0.050		0.050	ug/g	26-MAR-19	0.5	0.63	0.36	
	Benzo(a)pyrene	<0.050		0.050	ug/g	26-MAR-19	0.3	0.3	0.3	
	Benzo(b)fluoranthene	<0.050		0.050	ug/g	26-MAR-19	0.78	0.78	0.47	
	Benzo(g,h,i)perylene	<0.050		0.050	ug/g	26-MAR-19	6.6	7.8	0.68	
	Benzo(k)fluoranthene	<0.050		0.050	ug/g	26-MAR-19	0.78	0.78	0.48	
	Chrysene	<0.050		0.050	ug/g	26-MAR-19	7	7.8	2.8	
	Dibenzo(ah)anthracene	<0.050		0.050	ug/g	26-MAR-19	0.1	0.1	0.1	
	Fluoranthene	<0.050		0.050	ug/g	26-MAR-19	0.69	0.69	0.69	
	Fluorene	<0.050		0.050	ug/g	26-MAR-19	62	69	0.19	
	Indeno(1,2,3-cd)pyrene	<0.050		0.050	ug/g	26-MAR-19	0.38	0.48	0.23	
	1+2-Methylnaphthalenes	<0.042		0.042	ug/g	26-MAR-19	0.99	3.4	0.59	
	1-Methylnaphthalene	<0.030		0.030	ug/g	26-MAR-19	0.99	3.4	0.59	
	2-Methylnaphthalene	<0.030		0.030	ug/g	26-MAR-19	0.99	3.4	0.59	
	Naphthalene	<0.013		0.013	ug/g	26-MAR-19	0.6	0.75	0.09	
	Phenanthrene	<0.046		0.046	ug/g	26-MAR-19	6.2	7.8	0.69	
	Pyrene	<0.050		0.050	ug/g	26-MAR-19	78	78	1	
	Surrogate: 2-Fluorobiphenyl	98.1		50-140	%	26-MAR-19				
	Surrogate: p-Terphenyl d14	92.3		50-140	%	26-MAR-19				

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3	
L2248319-3 TRIP BLANK Sampled By: CLIENT on 21-MAR-19 Matrix: SOIL									
Physical Tests									
% Moisture	<0.10		0.10	%	26-MAR-19				
Volatile Organic Compounds									
Benzene	<0.0068		0.0068	ug/g	26-MAR-19	0.21	0.17	0.02	
Ethylbenzene	<0.018		0.018	ug/g	26-MAR-19	2	15	0.05	
Toluene	<0.080		0.080	ug/g	26-MAR-19	2.3	6	0.2	
o-Xylene	<0.020		0.020	ug/g	26-MAR-19				
m+p-Xylenes	<0.030		0.030	ug/g	26-MAR-19				
Xylenes (Total)	<0.050		0.050	ug/g	26-MAR-19	3.1	25	0.05	
Surrogate: 4-Bromofluorobenzene	86.8		50-140	%	26-MAR-19				
Surrogate: 1,4-Difluorobenzene	91.3		50-140	%	26-MAR-19				
Hydrocarbons									
F1 (C6-C10)	<5.0		5.0	ug/g	26-MAR-19	55	65	25	
F1-BTEX	<5.0		5.0	ug/g	26-MAR-19	55	65	25	
Surrogate: 3,4-Dichlorotoluene	89.1		60-140	%	26-MAR-19				

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Reference Information

Sample Parameter Qualifier key listed:

Qualifier	Description
DLR	Detection Limit Raised due to required dilution, limited sample amount, and/or high moisture content (soil samples)
DLHM	Detection Limit Adjusted: Sample has High Moisture Content

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference***
625-511-WT	Soil	ABN-O.Reg 153/04 (July 2011)	SW846 8270 (511)

Soil and sediment samples are dried by mixing with a desiccant prior to extraction. The extracts are dried, concentrated and exchanged into a solvent and analyzed by GC/MS. Depending on the analytical GC/MS column used benzo(j)fluoranthene may chromatographically co-elute with benzo(b)fluoranthene or benzo(k)fluoranthene.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

B-HWS-R511-WT	Soil	Boron-HWE-O.Reg 153/04 (July 2011)	HW EXTR, EPA 6010B

A dried solid sample is extracted with calcium chloride, the sample undergoes a heating process. After cooling the sample is filtered and analyzed by ICP/OES.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

BTX-511-HS-WT	Soil	BTEX-O.Reg 153/04 (July 2011)	SW846 8260

BTX is determined by extracting a soil or sediment sample as received with methanol, then analyzing by headspace-GC/MS.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

CHLORDANE-T-CALC-WT	Soil	Chlordane Total sums	CALCULATION

Aqueous sample is extracted by liquid/liquid extraction with a solvent mix. After extraction, a number of clean up techniques may be applied, depending on the sample matrix and analyzed by GC/MS.

CN-WAD-R511-WT	Soil	Cyanide (WAD)-O.Reg 153/04 (July 2011)	MOE 3015/APHA 4500CN I-WAD

The sample is extracted with a strong base for 16 hours, and then filtered. The filtrate is then distilled where the cyanide is converted to cyanogen chloride by reacting with chloramine-T, the cyanogen chloride then reacts with a combination of barbituric acid and isonicotinic acid to form a highly colored complex.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

CR-CR6-IC-WT	Soil	Hexavalent Chromium in Soil	SW846 3060A/7199

This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, Method 7199, published by the United States Environmental Protection Agency (EPA). The procedure involves analysis for chromium (VI) by ion chromatography using diphenylcarbazide in a sulphuric acid solution.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

DDD-DDE-DDT-CALC-WT	Soil	DDD, DDE, DDT sums	CALCULATION

Aqueous sample is extracted by liquid/liquid extraction with a solvent mix. After extraction, a number of clean up techniques may be applied, depending on the sample matrix and analyzed by GC/MS.

EC-WT	Soil	Conductivity (EC)	MOEE E3138

A representative subsample is tumbled with de-ionized (DI) water. The ratio of water to soil is 2:1 v/w. After tumbling the sample is then analyzed by a conductivity meter.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

ENDOSULFAN-T-CALC-WT	Soil	Endosulfan Total sums	CALCULATION

Aqueous sample is extracted by liquid/liquid extraction with a solvent mix. After extraction, a number of clean up techniques may be applied, depending on the sample matrix and analyzed by GC/MS.

Reference Information

F1-F4-511-CALC-WT	Soil	F1-F4 Hydrocarbon Calculated Parameters	CCME CWS-PHC, Pub #1310, Dec 2001-S

Analytical methods used for analysis of CCME Petroleum Hydrocarbons have been validated and comply with the Reference Method for the CWS PHC.

Hydrocarbon results are expressed on a dry weight basis.

In cases where results for both F4 and F4G are reported, the greater of the two results must be used in any application of the CWS PHC guidelines and the gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.
In samples where BTEX and F1 were analyzed , F1-BTEX represents a value where the sum of Benzene, Toluene, Ethylbenzene and total Xylenes has been subtracted from F1.

In samples where PAHs, F2 and F3 were analyzed, F2-Naphth represents the result where Naphthalene has been subtracted from F2. F3-PAH represents a result where the sum of Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenzo(a,h)anthracene, Fluoranthene, Indeno(1,2,3-cd)pyrene, Phenanthrene, and Pyrene has been subtracted from F3.

Unless otherwise qualified, the following quality control criteria have been met for the F1 hydrocarbon range:
1. All extraction and analysis holding times were met.
2. Instrument performance showing response factors for C6 and C10 within 30% of the response factor for toluene.
3. Linearity of gasoline response within 15% throughout the calibration range.

Unless otherwise qualified, the following quality control criteria have been met for the F2-F4 hydrocarbon ranges:
1. All extraction and analysis holding times were met.
2. Instrument performance showing C10, C16 and C34 response factors within 10% of their average.
3. Instrument performance showing the C50 response factor within 30% of the average of the C10, C16 and C34 response factors.
4. Linearity of diesel or motor oil response within 15% throughout the calibration range.

F1-HS-511-WT	Soil	F1-O.Reg 153/04 (July 2011)	E3398/CCME TIER 1-HS

Fraction F1 is determined by extracting a soil or sediment sample as received with methanol, then analyzing by headspace-GC/FID.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

F2-F4-511-WT	Soil	F2-F4-O.Reg 153/04 (July 2011)	CCME Tier 1

Petroleum Hydrocarbons (F2-F4 fractions) are extracted from soil with 1:1 hexane:acetone using a rotary extractor. Extracts are treated with silica gel to remove polar organic interferences. F2, F3, & F4 are analyzed by GC-FID. F4G-sg is analyzed gravimetrically.

Notes:
1. F2 (C10-C16): Sum of all hydrocarbons that elute between nC10 and nC16.
2. F3 (C16-C34): Sum of all hydrocarbons that elute between nC16 and nC34.
3. F4 (C34-C50): Sum of all hydrocarbons that elute between nC34 and nC50.
4. F4G: Gravimetric Heavy Hydrocarbons
5. F4G-sg: Gravimetric Heavy Hydrocarbons (F4G) after silica gel treatment.
6. Where both F4 (C34-C50) and F4G-sg are reported for a sample, the larger of the two values is used for comparison against the relevant CCME guideline for F4.
7. F4G-sg cannot be added to the C6 to C50 hydrocarbon results to obtain an estimate of total extractable hydrocarbons.
8. This method is validated for use.
9. Data from analysis of validation and quality control samples is available upon request.
10. Reported results are expressed as milligrams per dry kilogram, unless otherwise indicated.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

HG-200.2-CVAA-WT	Soil	Mercury in Soil by CVAAS	EPA 200.2/1631E (mod)

Soil samples are digested with nitric and hydrochloric acids, followed by analysis by CVAAS.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

Reference Information

MET-200.2-CCMS-WT	Soil	Metals in Soil by CRC ICPMS	EPA 200.2/6020A (mod)

Soil/sediment is dried, disaggregated, and sieved (2 mm). For tests intended to support Ontario regulations, the <2mm fraction is ground to pass through a 0.355 mm sieve. Strong Acid Leachable Metals in the <2mm fraction are solubilized by heated digestion with nitric and hydrochloric acids. Instrumental analysis is by Collision / Reaction Cell ICPMS.

Limitations: This method is intended to liberate environmentally available metals. Silicate minerals are not solubilized. Some metals may be only partially recovered (matrix dependent), including Al, Ba, Be, Cr, S, Sr, Ti, Tl, V, W, and Zr. Elemental Sulfur may be poorly recovered by this method. Volatile forms of sulfur (e.g. sulfide, H2S) may be excluded if lost during sampling, storage, or digestion.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

METHYLNAPS-CALC-WT	Soil	ABN-Calculated Parameters	SW846 8270
MOISTURE-WT	Soil	% Moisture	CCME PHC in Soil - Tier 1 (mod)
PAH-511-WT	Soil	PAH-O.Reg 153/04 (July 2011)	SW846 3510/8270

A representative sub-sample of soil is fortified with deuterium-labelled surrogates and a mechanical shaking techniqueis used to extract the sample with a mixture of methanol and toluene. The extracts are concentrated and analyzed by GC/MS. Results for benzo(b) fluoranthene may include contributions from benzo(j)fluoranthene, if also present in the sample.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

PCB-511-WT	Soil	PCB-O.Reg 153/04 (July 2011)	SW846 3510/8082

An aliquot of a solid sample is extracted with a solvent, extract is cleaned up and analyzed on the GC/MS.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

PEST-OC-511-WT	Soil	OC Pesticides-O.Reg 153/04 (July 2011)	SW846 8270 (511)

Soil sample is extracted in a solvent, after extraction a number of clean up techniques may be applied, depending on the sample matrix and analyzed by GC/MS.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

PH-WT	Soil	pH	MOEE E3137A

A minimum 10g portion of the sample is extracted with 20mL of 0.01M calcium chloride solution by shaking for at least 30 minutes. The aqueous layer is separated from the soil and then analyzed using a pH meter and electrode.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

SAR-R511-WT	Soil	SAR-O.Reg 153/04 (July 2011)	SW846 6010C

A dried, disaggregated solid sample is extracted with deionized water, the aqueous extract is separated from the solid, acidified and then analyzed using a ICP/OES. The concentrations of Na, Ca and Mg are reported as per CALA requirements for calculated parameters. These individual parameters are not for comparison to any guideline.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

VOC-1,3-DCP-CALC-WT	Soil	Regulation 153 VOCs	SW8260B/SW8270C
VOC-511-HS-WT	Soil	VOC-O.Reg 153/04 (July 2011)	SW846 8260 (511)

Soil and sediment samples are extracted in methanol and analyzed by headspace-GC/MS.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

XYLENES-SUM-CALC-WT	Soil	Sum of Xylene Isomer Concentrations	CALCULATION

Total xylenes represents the sum of o-xylene and m&p-xylene.

*** ALS test methods may incorporate modifications from specified reference methods to improve performance.

Chain of Custody numbers:

Reference Information

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location	Laboratory Definition Code	Laboratory Location
WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA		

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.
mg/kg - milligrams per kilogram based on dry weight of sample
mg/kg wwt - milligrams per kilogram based on wet weight of sample
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight
mg/L - unit of concentration based on volume, parts per million.
< - Less than.
D.L. - The reporting limit.
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, fitness for a particular purpose, or non-infringement. ALS assumes no responsibility for errors or omissions in the information. Guideline limits are not adjusted for the hardness, pH or temperature of the sample (the most conservative values are used). Measurement uncertainty is not applied to test results prior to comparison with specified criteria values.

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
625-511-WT	**Soil**							
Batch R4583368								
WG3013237-9 DUP		**WG3013237-5**						
1-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	26-MAR-19
2-Chlorophenol		<0.10	<0.10	RPD-NA	ug/g	N/A	40	26-MAR-19
2-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	26-MAR-19
2,4-Dichlorophenol		<0.10	<0.10	RPD-NA	ug/g	N/A	40	26-MAR-19
2,4,5-Trichlorophenol		<0.10	<0.10	RPD-NA	ug/g	N/A	40	26-MAR-19
2,4,6-Trichlorophenol		<0.10	<0.10	RPD-NA	ug/g	N/A	40	26-MAR-19
Acenaphthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Acenaphthylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Benzo(a)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Benzo(a)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Benzo(b)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Benzo(ghi)perylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Benzo(k)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Chrysene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Dibenzo(a,h)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Fluorene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Indeno(1,2,3-cd)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Naphthalene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Pentachlorophenol		<0.10	<0.10	RPD-NA	ug/g	N/A	40	26-MAR-19
Phenanthrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
WG3013237-7 LCS								
1-Methylnaphthalene			88.3		%		50-140	26-MAR-19
2-Chlorophenol			109.0		%		50-140	26-MAR-19
2-Methylnaphthalene			99.7		%		50-140	26-MAR-19
2,4-Dichlorophenol			108.6		%		50-140	26-MAR-19
2,4,5-Trichlorophenol			111.7		%		50-140	26-MAR-19
2,4,6-Trichlorophenol			106.0		%		50-140	26-MAR-19
Acenaphthene			98.8		%		50-140	26-MAR-19
Acenaphthylene			107.0		%		50-140	26-MAR-19
Anthracene			102.5		%		50-140	26-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
625-511-WT	**Soil**							
Batch R4583368								
WG3013237-7 LCS								
Benzo(a)anthracene			109.5		%		50-140	26-MAR-19
Benzo(a)pyrene			109.7		%		50-140	26-MAR-19
Benzo(b)fluoranthene			113.8		%		50-140	26-MAR-19
Benzo(ghi)perylene			80.5		%		50-140	26-MAR-19
Benzo(k)fluoranthene			108.2		%		50-140	26-MAR-19
Chrysene			108.7		%		50-140	26-MAR-19
Dibenzo(a,h)anthracene			94.5		%		50-140	26-MAR-19
Fluoranthene			91.3		%		50-140	26-MAR-19
Fluorene			97.7		%		50-140	26-MAR-19
Indeno(1,2,3-cd)pyrene			95.8		%		50-140	26-MAR-19
Naphthalene			101.1		%		50-140	26-MAR-19
Pentachlorophenol			91.3		%		50-140	26-MAR-19
Phenanthrene			99.8		%		50-140	26-MAR-19
Pyrene			90.2		%		50-140	26-MAR-19
WG3013237-6 MB								
1-Methylnaphthalene			<0.030		ug/g		0.03	26-MAR-19
2-Chlorophenol			<0.10		ug/g		0.1	26-MAR-19
2-Methylnaphthalene			<0.030		ug/g		0.03	26-MAR-19
2,4-Dichlorophenol			<0.10		ug/g		0.1	26-MAR-19
2,4,5-Trichlorophenol			<0.10		ug/g		0.1	26-MAR-19
2,4,6-Trichlorophenol			<0.10		ug/g		0.1	26-MAR-19
Acenaphthene			<0.050		ug/g		0.05	26-MAR-19
Acenaphthylene			<0.050		ug/g		0.05	26-MAR-19
Anthracene			<0.050		ug/g		0.05	26-MAR-19
Benzo(a)anthracene			<0.050		ug/g		0.05	26-MAR-19
Benzo(a)pyrene			<0.050		ug/g		0.05	26-MAR-19
Benzo(b)fluoranthene			<0.050		ug/g		0.05	26-MAR-19
Benzo(ghi)perylene			<0.050		ug/g		0.05	26-MAR-19
Benzo(k)fluoranthene			<0.050		ug/g		0.05	26-MAR-19
Chrysene			<0.050		ug/g		0.05	26-MAR-19
Dibenzo(a,h)anthracene			<0.050		ug/g		0.05	26-MAR-19
Fluoranthene			<0.050		ug/g		0.05	26-MAR-19
Fluorene			<0.050		ug/g		0.05	26-MAR-19
Indeno(1,2,3-cd)pyrene			<0.050		ug/g		0.05	26-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
625-511-WT	**Soil**							
Batch R4583368								
WG3013237-6 MB								
Naphthalene			<0.050		ug/g		0.05	26-MAR-19
Pentachlorophenol			<0.10		ug/g		0.1	26-MAR-19
Phenanthrene			<0.050		ug/g		0.05	26-MAR-19
Pyrene			<0.050		ug/g		0.05	26-MAR-19
Surrogate: 2-Fluorobiphenyl			69.5		%		50-140	26-MAR-19
Surrogate: 2,4,6-Tribromophenol			76.0		%		50-140	26-MAR-19
Surrogate: p-Terphenyl d14			100.2		%		50-140	26-MAR-19
Surrogate: Phenol d5			97.4		%		30-130	26-MAR-19
WG3013237-8 MS		**WG3013237-5**						
1-Methylnaphthalene			84.4		%		50-140	26-MAR-19
2-Chlorophenol			101.2		%		50-140	26-MAR-19
2-Methylnaphthalene			93.9		%		50-140	26-MAR-19
2,4-Dichlorophenol			100.8		%		50-140	26-MAR-19
2,4,5-Trichlorophenol			105.4		%		50-140	26-MAR-19
2,4,6-Trichlorophenol			102.0		%		50-140	26-MAR-19
Acenaphthene			94.3		%		50-140	26-MAR-19
Acenaphthylene			101.0		%		50-140	26-MAR-19
Anthracene			94.8		%		50-140	26-MAR-19
Benzo(a)anthracene			100.9		%		50-140	26-MAR-19
Benzo(a)pyrene			101.1		%		50-140	26-MAR-19
Benzo(b)fluoranthene			99.4		%		50-140	26-MAR-19
Benzo(ghi)perylene			77.2		%		50-140	26-MAR-19
Benzo(k)fluoranthene			96.3		%		50-140	26-MAR-19
Chrysene			95.8		%		50-140	26-MAR-19
Dibenzo(a,h)anthracene			87.5		%		50-140	26-MAR-19
Fluoranthene			79.8		%		50-140	26-MAR-19
Fluorene			90.8		%		50-140	26-MAR-19
Indeno(1,2,3-cd)pyrene			89.3		%		50-140	26-MAR-19
Naphthalene			96.0		%		50-140	26-MAR-19
Pentachlorophenol			91.5		%		50-140	26-MAR-19
Phenanthrene			93.5		%		50-140	26-MAR-19
Pyrene			80.4		%		50-140	26-MAR-19
B-HWS-R511-WT	**Soil**							

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
B-HWS-R511-WT	**Soil**							
Batch R4583408								
WG3013994-4 DUP		**L2247725-1**						
Boron (B), Hot Water Ext.		0.40	0.34		ug/g	15	30	26-MAR-19
WG3013994-2 IRM		**HOTB-SAL_SOIL5**						
Boron (B), Hot Water Ext.			115.5		%		70-130	26-MAR-19
WG3013994-3 LCS								
Boron (B), Hot Water Ext.			97.0		%		70-130	26-MAR-19
WG3013994-1 MB								
Boron (B), Hot Water Ext.			<0.10		ug/g		0.1	26-MAR-19
BTX-511-HS-WT	**Soil**							
Batch R4583367								
WG3013559-4 DUP		**WG3013559-3**						
Benzene		<0.0068	<0.0068	RPD-NA	ug/g	N/A	40	26-MAR-19
Ethylbenzene		<0.018	<0.018	RPD-NA	ug/g	N/A	40	26-MAR-19
m+p-Xylenes		<0.030	<0.030	RPD-NA	ug/g	N/A	40	26-MAR-19
o-Xylene		<0.020	<0.020	RPD-NA	ug/g	N/A	40	26-MAR-19
Toluene		<0.080	<0.080	RPD-NA	ug/g	N/A	40	26-MAR-19
WG3013559-2 LCS								
Benzene			96.3		%		70-130	26-MAR-19
Ethylbenzene			89.5		%		70-130	26-MAR-19
m+p-Xylenes			87.7		%		70-130	26-MAR-19
o-Xylene			89.3		%		70-130	26-MAR-19
Toluene			93.9		%		70-130	26-MAR-19
WG3013559-1 MB								
Benzene			<0.0068		ug/g		0.0068	26-MAR-19
Ethylbenzene			<0.018		ug/g		0.018	26-MAR-19
m+p-Xylenes			<0.030		ug/g		0.03	26-MAR-19
o-Xylene			<0.020		ug/g		0.02	26-MAR-19
Toluene			<0.080		ug/g		0.08	26-MAR-19
Surrogate: 1,4-Difluorobenzene			95.1		%		50-140	26-MAR-19
Surrogate: 4-Bromofluorobenzene			88.8		%		50-140	26-MAR-19
WG3013559-5 MS		**L2248147-1**						
Benzene			96.7		%		60-140	26-MAR-19
Ethylbenzene			90.5		%		60-140	26-MAR-19
m+p-Xylenes			88.0		%		60-140	26-MAR-19
o-Xylene			90.0		%		60-140	26-MAR-19
Toluene			94.7		%		60-140	26-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
CN-WAD-R511-WT	**Soil**							
Batch R4583869								
WG3013562-3 DUP		**L2248320-1**						
Cyanide, Weak Acid Diss		<0.050	<0.050	RPD-NA	ug/g	N/A	35	26-MAR-19
WG3013562-2 LCS								
Cyanide, Weak Acid Diss			90.5		%		80-120	26-MAR-19
WG3013562-1 MB								
Cyanide, Weak Acid Diss			<0.050		ug/g		0.05	26-MAR-19
WG3013562-4 MS		**L2248320-1**						
Cyanide, Weak Acid Diss			94.4		%		70-130	26-MAR-19
CR-CR6-IC-WT	**Soil**							
Batch R4583569								
WG3013589-4 CRM		**WT-SQC012**						
Chromium, Hexavalent			98.3		%		70-130	26-MAR-19
WG3013589-3 DUP		**L2248321-2**						
Chromium, Hexavalent		<0.20	<0.20	RPD-NA	ug/g	N/A	35	26-MAR-19
WG3013589-2 LCS								
Chromium, Hexavalent			99.0		%		80-120	26-MAR-19
WG3013589-1 MB								
Chromium, Hexavalent			<0.20		ug/g		0.2	26-MAR-19
Batch R4585522								
WG3014324-4 CRM		**WT-SQC012**						
Chromium, Hexavalent			92.4		%		70-130	27-MAR-19
WG3014324-3 DUP		**L2248879-1**						
Chromium, Hexavalent		0.36	0.44		ug/g	20	35	27-MAR-19
WG3014324-2 LCS								
Chromium, Hexavalent			99.8		%		80-120	27-MAR-19
WG3014324-1 MB								
Chromium, Hexavalent			<0.20		ug/g		0.2	27-MAR-19
EC-WT	**Soil**							
Batch R4585298								
WG3014878-4 DUP		**WG3014878-3**						
Conductivity		0.291	0.319		mS/cm	9.2	20	27-MAR-19
WG3014878-2 IRM		**WT SAR2**						
Conductivity			97.4		%		70-130	27-MAR-19
WG3015084-1 LCS								
Conductivity			102.9		%		90-110	27-MAR-19
WG3014878-1 MB								
Conductivity			<0.0040		mS/cm		0.004	27-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F1-HS-511-WT	**Soil**							
Batch R4583367								
WG3013559-4 DUP		**WG3013559-3**						
F1 (C6-C10)		<5.0	<5.0	RPD-NA	ug/g	N/A	30	26-MAR-19
WG3013559-2 LCS								
F1 (C6-C10)			90.9		%		80-120	26-MAR-19
WG3013559-1 MB								
F1 (C6-C10)			<5.0		ug/g		5	26-MAR-19
Surrogate: 3,4-Dichlorotoluene			93.6		%		60-140	26-MAR-19
WG3013559-6 MS		**L2247186-2**						
F1 (C6-C10)			101.1		%		60-140	26-MAR-19
Batch R4585205								
WG3013501-4 DUP		**WG3013501-3**						
F1 (C6-C10)		7.7	8.0		ug/g	3.8	30	27-MAR-19
WG3013501-2 LCS								
F1 (C6-C10)			101.2		%		80-120	27-MAR-19
WG3013501-1 MB								
F1 (C6-C10)			<5.0		ug/g		5	27-MAR-19
Surrogate: 3,4-Dichlorotoluene			102.5		%		60-140	27-MAR-19
WG3013501-6 MS		**L2247122-1**						
F1 (C6-C10)			103.6		%		60-140	27-MAR-19
F2-F4-511-WT	**Soil**							
Batch R4585227								
WG3013546-3 DUP		**WG3013546-5**						
F2 (C10-C16)		<10	<10	RPD-NA	ug/g	N/A	30	26-MAR-19
F3 (C16-C34)		<50	<50	RPD-NA	ug/g	N/A	30	26-MAR-19
F4 (C34-C50)		<50	<50	RPD-NA	ug/g	N/A	30	26-MAR-19
WG3013546-2 LCS								
F2 (C10-C16)			94.8		%		80-120	26-MAR-19
F3 (C16-C34)			100.9		%		80-120	26-MAR-19
F4 (C34-C50)			104.1		%		80-120	26-MAR-19
WG3013546-1 MB								
F2 (C10-C16)			<10		ug/g		10	26-MAR-19
F3 (C16-C34)			<50		ug/g		50	26-MAR-19
F4 (C34-C50)			<50		ug/g		50	26-MAR-19
Surrogate: 2-Bromobenzotrifluoride			82.1		%		60-140	26-MAR-19
WG3013546-4 MS		**WG3013546-5**						
F2 (C10-C16)			95.0		%		60-140	26-MAR-19
F3 (C16-C34)			99.0		%		60-140	26-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F2-F4-511-WT	**Soil**							
Batch R4585227								
WG3013546-4 MS		**WG3013546-5**						
F4 (C34-C50)			102.5		%		60-140	26-MAR-19
HG-200.2-CVAA-WT	**Soil**							
Batch R4583508								
WG3013982-2 CRM		**WT-CANMET-TILL1**						
Mercury (Hg)			98.9		%		70-130	26-MAR-19
WG3013982-6 DUP		**WG3013982-5**						
Mercury (Hg)		0.302	0.329		ug/g	8.5	40	26-MAR-19
WG3013982-3 LCS								
Mercury (Hg)			104.0		%		80-120	26-MAR-19
WG3013982-1 MB								
Mercury (Hg)			<0.0050		mg/kg		0.005	26-MAR-19
MET-200.2-CCMS-WT	**Soil**							
Batch R4583409								
WG3013982-2 CRM		**WT-CANMET-TILL1**						
Antimony (Sb)			106.1		%		70-130	26-MAR-19
Arsenic (As)			101.4		%		70-130	26-MAR-19
Barium (Ba)			104.9		%		70-130	26-MAR-19
Beryllium (Be)			104.0		%		70-130	26-MAR-19
Boron (B)			3.2		mg/kg		0-8.2	26-MAR-19
Cadmium (Cd)			102.6		%		70-130	26-MAR-19
Chromium (Cr)			103.7		%		70-130	26-MAR-19
Cobalt (Co)			100.7		%		70-130	26-MAR-19
Copper (Cu)			102.8		%		70-130	26-MAR-19
Lead (Pb)			102.0		%		70-130	26-MAR-19
Molybdenum (Mo)			96.5		%		70-130	26-MAR-19
Nickel (Ni)			100.8		%		70-130	26-MAR-19
Selenium (Se)			0.31		mg/kg		0.11-0.51	26-MAR-19
Silver (Ag)			0.24		mg/kg		0.13-0.33	26-MAR-19
Thallium (Tl)			0.128		mg/kg		0.077-0.18	26-MAR-19
Uranium (U)			100.1		%		70-130	26-MAR-19
Vanadium (V)			103.8		%		70-130	26-MAR-19
Zinc (Zn)			102.6		%		70-130	26-MAR-19
WG3013982-6 DUP		**WG3013982-5**						
Antimony (Sb)		2.98	3.85		ug/g	26	30	26-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R4583409								
WG3013982-6 DUP		**WG3013982-5**						
Arsenic (As)		4.28	4.75		ug/g	10	30	26-MAR-19
Barium (Ba)		98.9	104		ug/g	4.9	40	26-MAR-19
Beryllium (Be)		0.36	0.44		ug/g	18	30	26-MAR-19
Boron (B)		5.9	7.7		ug/g	26	30	26-MAR-19
Cadmium (Cd)		1.59	1.88		ug/g	17	30	26-MAR-19
Chromium (Cr)		31.0	35.1		ug/g	13	30	26-MAR-19
Cobalt (Co)		6.11	6.89		ug/g	12	30	26-MAR-19
Copper (Cu)		61.3	67.1		ug/g	9.1	30	26-MAR-19
Lead (Pb)		190	192		ug/g	1.0	40	26-MAR-19
Molybdenum (Mo)		1.27	1.23		ug/g	3.0	40	26-MAR-19
Nickel (Ni)		17.4	19.4		ug/g	11	30	26-MAR-19
Selenium (Se)		0.38	0.44		ug/g	13	30	26-MAR-19
Silver (Ag)		0.63	0.70		ug/g	9.7	40	26-MAR-19
Thallium (Tl)		0.146	0.151		ug/g	3.7	30	26-MAR-19
Uranium (U)		0.462	0.527		ug/g	13	30	26-MAR-19
Vanadium (V)		23.0	27.3		ug/g	17	30	26-MAR-19
Zinc (Zn)		151	170		ug/g	12	30	26-MAR-19
WG3013982-4 LCS								
Antimony (Sb)			114.5		%		80-120	26-MAR-19
Arsenic (As)			107.8		%		80-120	26-MAR-19
Barium (Ba)			112.6		%		80-120	26-MAR-19
Beryllium (Be)			107.3		%		80-120	26-MAR-19
Boron (B)			108.0		%		80-120	26-MAR-19
Cadmium (Cd)			108.7		%		80-120	26-MAR-19
Chromium (Cr)			107.0		%		80-120	26-MAR-19
Cobalt (Co)			104.7		%		80-120	26-MAR-19
Copper (Cu)			105.6		%		80-120	26-MAR-19
Lead (Pb)			110.3		%		80-120	26-MAR-19
Molybdenum (Mo)			112.4		%		80-120	26-MAR-19
Nickel (Ni)			107.1		%		80-120	26-MAR-19
Selenium (Se)			109.9		%		80-120	26-MAR-19
Silver (Ag)			109.1		%		80-120	26-MAR-19
Thallium (Tl)			106.4		%		80-120	26-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R4583409								
WG3013982-4 LCS								
Uranium (U)			108.8		%		80-120	26-MAR-19
Vanadium (V)			110.1		%		80-120	26-MAR-19
Zinc (Zn)			106.0		%		80-120	26-MAR-19
WG3013982-1 MB								
Antimony (Sb)			<0.10		mg/kg		0.1	26-MAR-19
Arsenic (As)			<0.10		mg/kg		0.1	26-MAR-19
Barium (Ba)			<0.50		mg/kg		0.5	26-MAR-19
Beryllium (Be)			<0.10		mg/kg		0.1	26-MAR-19
Boron (B)			<5.0		mg/kg		5	26-MAR-19
Cadmium (Cd)			<0.020		mg/kg		0.02	26-MAR-19
Chromium (Cr)			<0.50		mg/kg		0.5	26-MAR-19
Cobalt (Co)			<0.10		mg/kg		0.1	26-MAR-19
Copper (Cu)			<0.50		mg/kg		0.5	26-MAR-19
Lead (Pb)			<0.50		mg/kg		0.5	26-MAR-19
Molybdenum (Mo)			<0.10		mg/kg		0.1	26-MAR-19
Nickel (Ni)			<0.50		mg/kg		0.5	26-MAR-19
Selenium (Se)			<0.20		mg/kg		0.2	26-MAR-19
Silver (Ag)			<0.10		mg/kg		0.1	26-MAR-19
Thallium (Tl)			<0.050		mg/kg		0.05	26-MAR-19
Uranium (U)			<0.050		mg/kg		0.05	26-MAR-19
Vanadium (V)			<0.20		mg/kg		0.2	26-MAR-19
Zinc (Zn)			<2.0		mg/kg		2	26-MAR-19
MOISTURE-WT	**Soil**							
Batch R4582804								
WG3013505-3 DUP		**L2248319-2**						
% Moisture		13.4	14.1		%	5.3	20	26-MAR-19
WG3013505-2 LCS								
% Moisture			100.2		%		90-110	26-MAR-19
WG3013505-1 MB								
% Moisture			<0.10		%		0.1	26-MAR-19
PAH-511-WT	**Soil**							
Batch R4584116								
WG3013432-3 DUP		**WG3013432-5**						
1-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	26-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R4584116								
WG3013432-3 DUP		**WG3013432-5**						
2-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	26-MAR-19
Acenaphthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Acenaphthylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Benzo(a)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Benzo(a)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Benzo(b)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Benzo(g,h,i)perylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Benzo(k)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Chrysene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Dibenzo(ah)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Fluorene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Indeno(1,2,3-cd)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Naphthalene		<0.013	<0.013	RPD-NA	ug/g	N/A	40	26-MAR-19
Phenanthrene		<0.046	<0.046	RPD-NA	ug/g	N/A	40	26-MAR-19
Pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
WG3013432-2 LCS								
1-Methylnaphthalene			100.9		%		50-140	26-MAR-19
2-Methylnaphthalene			97.7		%		50-140	26-MAR-19
Acenaphthene			106.8		%		50-140	26-MAR-19
Acenaphthylene			101.9		%		50-140	26-MAR-19
Anthracene			100.5		%		50-140	26-MAR-19
Benzo(a)anthracene			104.3		%		50-140	26-MAR-19
Benzo(a)pyrene			105.7		%		50-140	26-MAR-19
Benzo(b)fluoranthene			92.9		%		50-140	26-MAR-19
Benzo(g,h,i)perylene			104.9		%		50-140	26-MAR-19
Benzo(k)fluoranthene			108.5		%		50-140	26-MAR-19
Chrysene			100.6		%		50-140	26-MAR-19
Dibenzo(ah)anthracene			105.3		%		50-140	26-MAR-19
Fluoranthene			100.3		%		50-140	26-MAR-19
Fluorene			102.1		%		50-140	26-MAR-19
Indeno(1,2,3-cd)pyrene			95.9		%		50-140	26-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R4584116								
WG3013432-2 LCS								
Naphthalene			97.4		%		50-140	26-MAR-19
Phenanthrene			102.1		%		50-140	26-MAR-19
Pyrene			101.0		%		50-140	26-MAR-19
WG3013432-1 MB								
1-Methylnaphthalene			<0.030		ug/g		0.03	26-MAR-19
2-Methylnaphthalene			<0.030		ug/g		0.03	26-MAR-19
Acenaphthene			<0.050		ug/g		0.05	26-MAR-19
Acenaphthylene			<0.050		ug/g		0.05	26-MAR-19
Anthracene			<0.050		ug/g		0.05	26-MAR-19
Benzo(a)anthracene			<0.050		ug/g		0.05	26-MAR-19
Benzo(a)pyrene			<0.050		ug/g		0.05	26-MAR-19
Benzo(b)fluoranthene			<0.050		ug/g		0.05	26-MAR-19
Benzo(g,h,i)perylene			<0.050		ug/g		0.05	26-MAR-19
Benzo(k)fluoranthene			<0.050		ug/g		0.05	26-MAR-19
Chrysene			<0.050		ug/g		0.05	26-MAR-19
Dibenzo(ah)anthracene			<0.050		ug/g		0.05	26-MAR-19
Fluoranthene			<0.050		ug/g		0.05	26-MAR-19
Fluorene			<0.050		ug/g		0.05	26-MAR-19
Indeno(1,2,3-cd)pyrene			<0.050		ug/g		0.05	26-MAR-19
Naphthalene			<0.013		ug/g		0.013	26-MAR-19
Phenanthrene			<0.046		ug/g		0.046	26-MAR-19
Pyrene			<0.050		ug/g		0.05	26-MAR-19
Surrogate: 2-Fluorobiphenyl			106.4		%		50-140	26-MAR-19
Surrogate: p-Terphenyl d14			95.8		%		50-140	26-MAR-19
WG3013432-4 MS		**WG3013432-5**						
1-Methylnaphthalene			101.5		%		50-140	26-MAR-19
2-Methylnaphthalene			98.5		%		50-140	26-MAR-19
Acenaphthene			108.0		%		50-140	26-MAR-19
Acenaphthylene			102.9		%		50-140	26-MAR-19
Anthracene			102.8		%		50-140	26-MAR-19
Benzo(a)anthracene			107.9		%		50-140	26-MAR-19
Benzo(a)pyrene			106.2		%		50-140	26-MAR-19
Benzo(b)fluoranthene			92.9		%		50-140	26-MAR-19
Benzo(g,h,i)perylene			107.3		%		50-140	26-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R4584116								
WG3013432-4 MS		**WG3013432-5**						
Benzo(k)fluoranthene			115.6		%		50-140	26-MAR-19
Chrysene			101.1		%		50-140	26-MAR-19
Dibenzo(ah)anthracene			107.3		%		50-140	26-MAR-19
Fluoranthene			102.7		%		50-140	26-MAR-19
Fluorene			103.8		%		50-140	26-MAR-19
Indeno(1,2,3-cd)pyrene			96.6		%		50-140	26-MAR-19
Naphthalene			98.0		%		50-140	26-MAR-19
Phenanthrene			103.6		%		50-140	26-MAR-19
Pyrene			103.9		%		50-140	26-MAR-19
PCB-511-WT	**Soil**							
Batch R4583089								
WG3013432-3 DUP		**WG3013432-5**						
Aroclor 1242		<0.010	<0.010	RPD-NA	ug/g	N/A	40	25-MAR-19
Aroclor 1248		<0.010	<0.010	RPD-NA	ug/g	N/A	40	25-MAR-19
Aroclor 1254		<0.010	<0.010	RPD-NA	ug/g	N/A	40	25-MAR-19
Aroclor 1260		<0.010	<0.010	RPD-NA	ug/g	N/A	40	25-MAR-19
WG3013432-2 LCS								
Aroclor 1242			99.1		%		60-140	25-MAR-19
Aroclor 1248			94.1		%		60-140	25-MAR-19
Aroclor 1254			98.7		%		60-140	25-MAR-19
Aroclor 1260			110.3		%		60-140	25-MAR-19
WG3013432-1 MB								
Aroclor 1242			<0.010		ug/g		0.01	25-MAR-19
Aroclor 1248			<0.010		ug/g		0.01	25-MAR-19
Aroclor 1254			<0.010		ug/g		0.01	25-MAR-19
Aroclor 1260			<0.010		ug/g		0.01	25-MAR-19
Surrogate: d14-Terphenyl			87.0		%		60-140	25-MAR-19
WG3013432-4 MS		**WG3013432-5**						
Aroclor 1242			99.5		%		60-140	25-MAR-19
Aroclor 1254			100.3		%		60-140	25-MAR-19
Aroclor 1260			109.8		%		60-140	25-MAR-19
PEST-OC-511-WT	**Soil**							

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PEST-OC-511-WT	**Soil**							
Batch R4584177								
WG3013567-3 DUP		**WG3013567-5**						
Aldrin		<0.020	<0.020	RPD-NA	ug/g	N/A	40	26-MAR-19
a-chlordane		<0.020	<0.020	RPD-NA	ug/g	N/A	40	26-MAR-19
g-chlordane		<0.020	<0.020	RPD-NA	ug/g	N/A	40	26-MAR-19
op-DDD		<0.020	<0.020	RPD-NA	ug/g	N/A	40	26-MAR-19
pp-DDD		<0.020	<0.020	RPD-NA	ug/g	N/A	40	26-MAR-19
o,p-DDE		<0.020	<0.020	RPD-NA	ug/g	N/A	40	26-MAR-19
pp-DDE		<0.020	<0.020	RPD-NA	ug/g	N/A	40	26-MAR-19
op-DDT		<0.10	<0.10	RPD-NA	ug/g	N/A	40	26-MAR-19
pp-DDT		<0.10	<0.10	RPD-NA	ug/g	N/A	40	26-MAR-19
Dieldrin		<0.020	<0.020	RPD-NA	ug/g	N/A	40	26-MAR-19
Endosulfan I		<0.020	<0.020	RPD-NA	ug/g	N/A	40	26-MAR-19
Endosulfan II		<0.10	<0.10	RPD-NA	ug/g	N/A	40	26-MAR-19
Endrin		<0.020	<0.020	RPD-NA	ug/g	N/A	40	26-MAR-19
gamma-hexachlorocyclohexane		<0.10	<0.10	RPD-NA	ug/g	N/A	40	26-MAR-19
Heptachlor		<0.020	<0.020	RPD-NA	ug/g	N/A	40	26-MAR-19
Heptachlor Epoxide		<0.020	<0.020	RPD-NA	ug/g	N/A	40	26-MAR-19
Hexachlorobenzene		<0.10	<0.10	RPD-NA	ug/g	N/A	40	26-MAR-19
Hexachlorobutadiene		<0.10	<0.10	RPD-NA	ug/g	N/A	40	26-MAR-19
Hexachloroethane		<0.10	<0.10	RPD-NA	ug/g	N/A	40	26-MAR-19
Methoxychlor		<0.10	<0.10	RPD-NA	ug/g	N/A	40	26-MAR-19
WG3013567-2 LCS								
Aldrin			104.3		%		50-140	26-MAR-19
a-chlordane			99.0		%		50-140	26-MAR-19
g-chlordane			99.3		%		50-140	26-MAR-19
op-DDD			103.1		%		50-140	26-MAR-19
pp-DDD			105.9		%		50-140	26-MAR-19
o,p-DDE			100.2		%		50-140	26-MAR-19
pp-DDE			100.2		%		50-140	26-MAR-19
op-DDT			97.3		%		50-140	26-MAR-19
pp-DDT			111.3		%		50-140	26-MAR-19
Dieldrin			100.3		%		50-140	26-MAR-19
Endosulfan I			96.9		%		50-140	26-MAR-19
Endosulfan II			98.1		%		50-140	26-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PEST-OC-511-WT	**Soil**							
Batch R4584177								
WG3013567-2 LCS								
Endrin			110.1		%		50-140	26-MAR-19
gamma-hexachlorocyclohexane			100.5		%		50-140	26-MAR-19
Heptachlor			93.2		%		50-140	26-MAR-19
Heptachlor Epoxide			101.5		%		50-140	26-MAR-19
Hexachlorobenzene			100.5		%		50-140	26-MAR-19
Hexachlorobutadiene			99.8		%		50-140	26-MAR-19
Hexachloroethane			105.7		%		50-140	26-MAR-19
Methoxychlor			123.9		%		50-140	26-MAR-19
WG3013567-1 MB								
Aldrin			<0.020		ug/g		0.02	26-MAR-19
a-chlordane			<0.020		ug/g		0.02	26-MAR-19
g-chlordane			<0.020		ug/g		0.02	26-MAR-19
op-DDD			<0.020		ug/g		0.02	26-MAR-19
pp-DDD			<0.020		ug/g		0.02	26-MAR-19
o,p-DDE			<0.020		ug/g		0.02	26-MAR-19
pp-DDE			<0.020		ug/g		0.02	26-MAR-19
op-DDT			<0.020		ug/g		0.02	26-MAR-19
pp-DDT			<0.020		ug/g		0.02	26-MAR-19
Dieldrin			<0.020		ug/g		0.02	26-MAR-19
Endosulfan I			<0.020		ug/g		0.02	26-MAR-19
Endosulfan II			<0.020		ug/g		0.02	26-MAR-19
Endrin			<0.020		ug/g		0.02	26-MAR-19
gamma-hexachlorocyclohexane			<0.010		ug/g		0.01	26-MAR-19
Heptachlor			<0.020		ug/g		0.02	26-MAR-19
Heptachlor Epoxide			<0.020		ug/g		0.02	26-MAR-19
Hexachlorobenzene			<0.010		ug/g		0.01	26-MAR-19
Hexachlorobutadiene			<0.010		ug/g		0.01	26-MAR-19
Hexachloroethane			<0.010		ug/g		0.01	26-MAR-19
Methoxychlor			<0.020		ug/g		0.02	26-MAR-19
Surrogate: 2-Fluorobiphenyl			111.0		%		50-140	26-MAR-19
Surrogate: d14-Terphenyl			95.3		%		50-140	26-MAR-19
WG3013567-4 MS		**WG3013567-5**						
Aldrin			113.5		%		50-140	26-MAR-19
a-chlordane			68.8		%		50-140	26-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PEST-OC-511-WT	**Soil**							
Batch R4584177								
WG3013567-4 MS		**WG3013567-5**						
g-chlordane			68.9		%		50-140	26-MAR-19
op-DDD			72.6		%		50-140	26-MAR-19
pp-DDD			82.6		%		50-140	26-MAR-19
o,p-DDE			65.4		%		50-140	26-MAR-19
pp-DDE			66.4		%		50-140	26-MAR-19
op-DDT			86.3		%		50-140	26-MAR-19
pp-DDT			122.9		%		50-140	26-MAR-19
Dieldrin			62.9		%		50-140	26-MAR-19
Endosulfan I			68.4		%		50-140	26-MAR-19
Endosulfan II			82.5		%		50-140	26-MAR-19
Endrin			118.9		%		50-140	26-MAR-19
gamma-hexachlorocyclohexane			89.3		%		50-140	26-MAR-19
Heptachlor			88.7		%		50-140	26-MAR-19
Heptachlor Epoxide			66.2		%		50-140	26-MAR-19
Hexachlorobenzene			83.0		%		50-140	26-MAR-19
Hexachlorobutadiene			86.6		%		50-140	26-MAR-19
Hexachloroethane			87.7		%		50-140	26-MAR-19
Methoxychlor			130.6		%		50-140	26-MAR-19
PH-WT	**Soil**							
Batch R4584807								
WG3013598-1 DUP		**L2248320-1**						
pH		7.35	7.23	J	pH units	0.12	0.3	26-MAR-19
WG3014231-1 LCS								
pH			6.96		pH units		6.9-7.1	26-MAR-19
SAR-R511-WT	**Soil**							
Batch R4585357								
WG3014878-4 DUP		**WG3014878-3**						
Calcium (Ca)		24.9	22.0		mg/L	12	30	27-MAR-19
Sodium (Na)		31.4	26.0		mg/L	19	30	27-MAR-19
Magnesium (Mg)		2.31	1.92		mg/L	18	30	27-MAR-19
WG3014878-2 IRM		**WT SAR2**						
Calcium (Ca)			91.7		%		70-130	27-MAR-19
Sodium (Na)			93.8		%		70-130	27-MAR-19
Magnesium (Mg)			92.7		%		70-130	27-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
SAR-R511-WT	**Soil**							
Batch R4585357								
WG3014878-5 LCS								
Calcium (Ca)			105.7		%		70-130	27-MAR-19
Sodium (Na)			105.2		%		70-130	27-MAR-19
Magnesium (Mg)			101.4		%		70-130	27-MAR-19
WG3014878-1 MB								
Calcium (Ca)			<0.50		mg/L		0.5	27-MAR-19
Sodium (Na)			<0.50		mg/L		0.5	27-MAR-19
Magnesium (Mg)			<0.50		mg/L		0.5	27-MAR-19
VOC-511-HS-WT	**Soil**							
Batch R4585205								
WG3013501-4 DUP		**WG3013501-3**						
1,1,1,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
1,1,2,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
1,1,1-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
1,1,2-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
1,1-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
1,1-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
1,2-Dibromoethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
1,2-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
1,2-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
1,2-Dichloropropane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
1,3-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
1,4-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Acetone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	27-MAR-19
Benzene		0.0478	0.0437		ug/g	9.0	40	27-MAR-19
Bromodichloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Bromoform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Bromomethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Carbon tetrachloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Chlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Chloroform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
cis-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
cis-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	27-MAR-19
Dibromochloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4585205								
WG3013501-4 DUP		**WG3013501-3**						
Dichlorodifluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Ethylbenzene		0.031	0.029		ug/g	7.4	40	27-MAR-19
n-Hexane		0.085	0.075		ug/g	12	40	27-MAR-19
Methylene Chloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
MTBE		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
m+p-Xylenes		0.103	0.096		ug/g	7.9	40	27-MAR-19
Methyl Ethyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	27-MAR-19
Methyl Isobutyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	27-MAR-19
o-Xylene		0.051	0.048		ug/g	6.1	40	27-MAR-19
Styrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Tetrachloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Toluene		0.144	0.132		ug/g	8.4	40	27-MAR-19
trans-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
trans-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	27-MAR-19
Trichloroethylene		0.011	0.011		ug/g	3.4	40	27-MAR-19
Trichlorofluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Vinyl chloride		<0.020	<0.020	RPD-NA	ug/g	N/A	40	27-MAR-19
WG3013501-2 LCS								
1,1,1,2-Tetrachloroethane			97.5		%		60-130	27-MAR-19
1,1,2,2-Tetrachloroethane			90.8		%		60-130	27-MAR-19
1,1,1-Trichloroethane			97.7		%		60-130	27-MAR-19
1,1,2-Trichloroethane			98.2		%		60-130	27-MAR-19
1,1-Dichloroethane			96.9		%		60-130	27-MAR-19
1,1-Dichloroethylene			89.7		%		60-130	27-MAR-19
1,2-Dibromoethane			91.0		%		70-130	27-MAR-19
1,2-Dichlorobenzene			99.5		%		70-130	27-MAR-19
1,2-Dichloroethane			95.3		%		60-130	27-MAR-19
1,2-Dichloropropane			93.2		%		70-130	27-MAR-19
1,3-Dichlorobenzene			101.6		%		70-130	27-MAR-19
1,4-Dichlorobenzene			103.4		%		70-130	27-MAR-19
Acetone			85.8		%		60-140	27-MAR-19
Benzene			97.9		%		70-130	27-MAR-19
Bromodichloromethane			94.5		%		50-140	27-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4585205								
WG3013501-2 LCS								
Bromoform			90.2		%		70-130	27-MAR-19
Bromomethane			102.0		%		50-140	27-MAR-19
Carbon tetrachloride			99.98		%		70-130	27-MAR-19
Chlorobenzene			98.2		%		70-130	27-MAR-19
Chloroform			98.2		%		70-130	27-MAR-19
cis-1,2-Dichloroethylene			97.3		%		70-130	27-MAR-19
cis-1,3-Dichloropropene			100.4		%		70-130	27-MAR-19
Dibromochloromethane			96.3		%		60-130	27-MAR-19
Dichlorodifluoromethane			53.6		%		50-140	27-MAR-19
Ethylbenzene			91.8		%		70-130	27-MAR-19
n-Hexane			85.4		%		70-130	27-MAR-19
Methylene Chloride			98.2		%		70-130	27-MAR-19
MTBE			99.5		%		70-130	27-MAR-19
m+p-Xylenes			93.4		%		70-130	27-MAR-19
Methyl Ethyl Ketone			88.0		%		60-140	27-MAR-19
Methyl Isobutyl Ketone			74.0		%		60-140	27-MAR-19
o-Xylene			90.2		%		70-130	27-MAR-19
Styrene			90.4		%		70-130	27-MAR-19
Tetrachloroethylene			101.9		%		60-130	27-MAR-19
Toluene			93.3		%		70-130	27-MAR-19
trans-1,2-Dichloroethylene			94.3		%		60-130	27-MAR-19
trans-1,3-Dichloropropene			91.0		%		70-130	27-MAR-19
Trichloroethylene			104.0		%		60-130	27-MAR-19
Trichlorofluoromethane			97.4		%		50-140	27-MAR-19
Vinyl chloride			64.3		%		60-140	27-MAR-19
WG3013501-1 MB								
1,1,1,2-Tetrachloroethane			<0.050		ug/g		0.05	27-MAR-19
1,1,2,2-Tetrachloroethane			<0.050		ug/g		0.05	27-MAR-19
1,1,1-Trichloroethane			<0.050		ug/g		0.05	27-MAR-19
1,1,2-Trichloroethane			<0.050		ug/g		0.05	27-MAR-19
1,1-Dichloroethane			<0.050		ug/g		0.05	27-MAR-19
1,1-Dichloroethylene			<0.050		ug/g		0.05	27-MAR-19
1,2-Dibromoethane			<0.050		ug/g		0.05	27-MAR-19
1,2-Dichlorobenzene			<0.050		ug/g		0.05	27-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4585205								
WG3013501-1 MB								
1,2-Dichloroethane			<0.050		ug/g		0.05	27-MAR-19
1,2-Dichloropropane			<0.050		ug/g		0.05	27-MAR-19
1,3-Dichlorobenzene			<0.050		ug/g		0.05	27-MAR-19
1,4-Dichlorobenzene			<0.050		ug/g		0.05	27-MAR-19
Acetone			<0.50		ug/g		0.5	27-MAR-19
Benzene			<0.0068		ug/g		0.0068	27-MAR-19
Bromodichloromethane			<0.050		ug/g		0.05	27-MAR-19
Bromoform			<0.050		ug/g		0.05	27-MAR-19
Bromomethane			<0.050		ug/g		0.05	27-MAR-19
Carbon tetrachloride			<0.050		ug/g		0.05	27-MAR-19
Chlorobenzene			<0.050		ug/g		0.05	27-MAR-19
Chloroform			<0.050		ug/g		0.05	27-MAR-19
cis-1,2-Dichloroethylene			<0.050		ug/g		0.05	27-MAR-19
cis-1,3-Dichloropropene			<0.030		ug/g		0.03	27-MAR-19
Dibromochloromethane			<0.050		ug/g		0.05	27-MAR-19
Dichlorodifluoromethane			<0.050		ug/g		0.05	27-MAR-19
Ethylbenzene			<0.018		ug/g		0.018	27-MAR-19
n-Hexane			<0.050		ug/g		0.05	27-MAR-19
Methylene Chloride			<0.050		ug/g		0.05	27-MAR-19
MTBE			<0.050		ug/g		0.05	27-MAR-19
m+p-Xylenes			<0.030		ug/g		0.03	27-MAR-19
Methyl Ethyl Ketone			<0.50		ug/g		0.5	27-MAR-19
Methyl Isobutyl Ketone			<0.50		ug/g		0.5	27-MAR-19
o-Xylene			<0.020		ug/g		0.02	27-MAR-19
Styrene			<0.050		ug/g		0.05	27-MAR-19
Tetrachloroethylene			<0.050		ug/g		0.05	27-MAR-19
Toluene			<0.080		ug/g		0.08	27-MAR-19
trans-1,2-Dichloroethylene			<0.050		ug/g		0.05	27-MAR-19
trans-1,3-Dichloropropene			<0.030		ug/g		0.03	27-MAR-19
Trichloroethylene			<0.010		ug/g		0.01	27-MAR-19
Trichlorofluoromethane			<0.050		ug/g		0.05	27-MAR-19
Vinyl chloride			<0.020		ug/g		0.02	27-MAR-19
Surrogate: 1,4-Difluorobenzene			119.0		%		50-140	27-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4585205								
WG3013501-1 MB								
Surrogate: 4-Bromofluorobenzene			107.8		%		50-140	27-MAR-19
WG3013501-5 MS		**L2248321-6**						
1,1,1,2-Tetrachloroethane			102.1		%		50-140	27-MAR-19
1,1,2,2-Tetrachloroethane			94.0		%		50-140	27-MAR-19
1,1,1-Trichloroethane			98.7		%		50-140	27-MAR-19
1,1,2-Trichloroethane			104.9		%		50-140	27-MAR-19
1,1-Dichloroethane			98.7		%		50-140	27-MAR-19
1,1-Dichloroethylene			88.4		%		50-140	27-MAR-19
1,2-Dibromoethane			95.2		%		50-140	27-MAR-19
1,2-Dichlorobenzene			71.0		%		50-140	27-MAR-19
1,2-Dichloroethane			97.3		%		50-140	27-MAR-19
1,2-Dichloropropane			94.7		%		50-140	27-MAR-19
1,3-Dichlorobenzene			69.9		%		50-140	27-MAR-19
1,4-Dichlorobenzene			70.0		%		50-140	27-MAR-19
Acetone			99.0		%		50-140	27-MAR-19
Benzene			98.7		%		50-140	27-MAR-19
Bromodichloromethane			99.5		%		50-140	27-MAR-19
Bromoform			96.1		%		50-140	27-MAR-19
Bromomethane			94.0		%		50-140	27-MAR-19
Carbon tetrachloride			100.3		%		50-140	27-MAR-19
Chlorobenzene			98.0		%		50-140	27-MAR-19
Chloroform			100.4		%		50-140	27-MAR-19
cis-1,2-Dichloroethylene			97.3		%		50-140	27-MAR-19
cis-1,3-Dichloropropene			86.4		%		50-140	27-MAR-19
Dibromochloromethane			102.0		%		50-140	27-MAR-19
Dichlorodifluoromethane			50.4		%		50-140	27-MAR-19
Ethylbenzene			93.1		%		50-140	27-MAR-19
n-Hexane			82.5		%		50-140	27-MAR-19
Methylene Chloride			98.4		%		50-140	27-MAR-19
MTBE			99.8		%		50-140	27-MAR-19
m+p-Xylenes			92.4		%		50-140	27-MAR-19
Methyl Ethyl Ketone			87.6		%		50-140	27-MAR-19
Methyl Isobutyl Ketone			78.0		%		50-140	27-MAR-19
o-Xylene			91.2		%		50-140	27-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4585205								
WG3013501-5 MS		**L2248321-6**						
Styrene			87.5		%		50-140	27-MAR-19
Tetrachloroethylene			98.5		%		50-140	27-MAR-19
Toluene			95.1		%		50-140	27-MAR-19
trans-1,2-Dichloroethylene			88.5		%		50-140	27-MAR-19
trans-1,3-Dichloropropene			78.8		%		50-140	27-MAR-19
Trichloroethylene			100.5		%		50-140	27-MAR-19
Trichlorofluoromethane			96.7		%		50-140	27-MAR-19
Vinyl chloride			62.1		%		50-140	27-MAR-19

Quality Control Report

Workorder: L2248319 Report Date: 27-MAR-19

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
J	Duplicate results and limits are expressed in terms of absolute difference.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

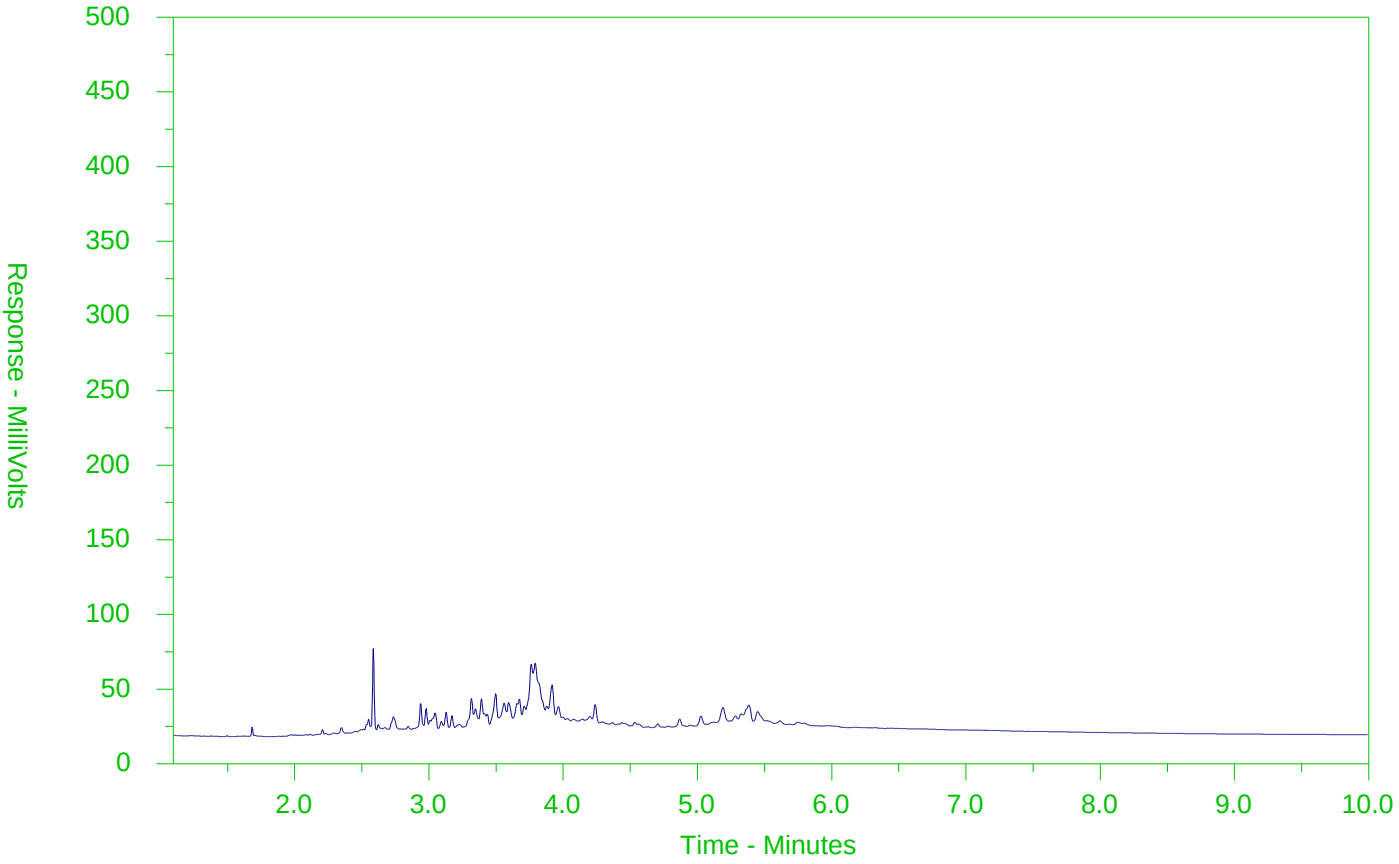
ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2248319-1
Client Sample ID: S-11102463-190321-JC-BH18-443-20-22'



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

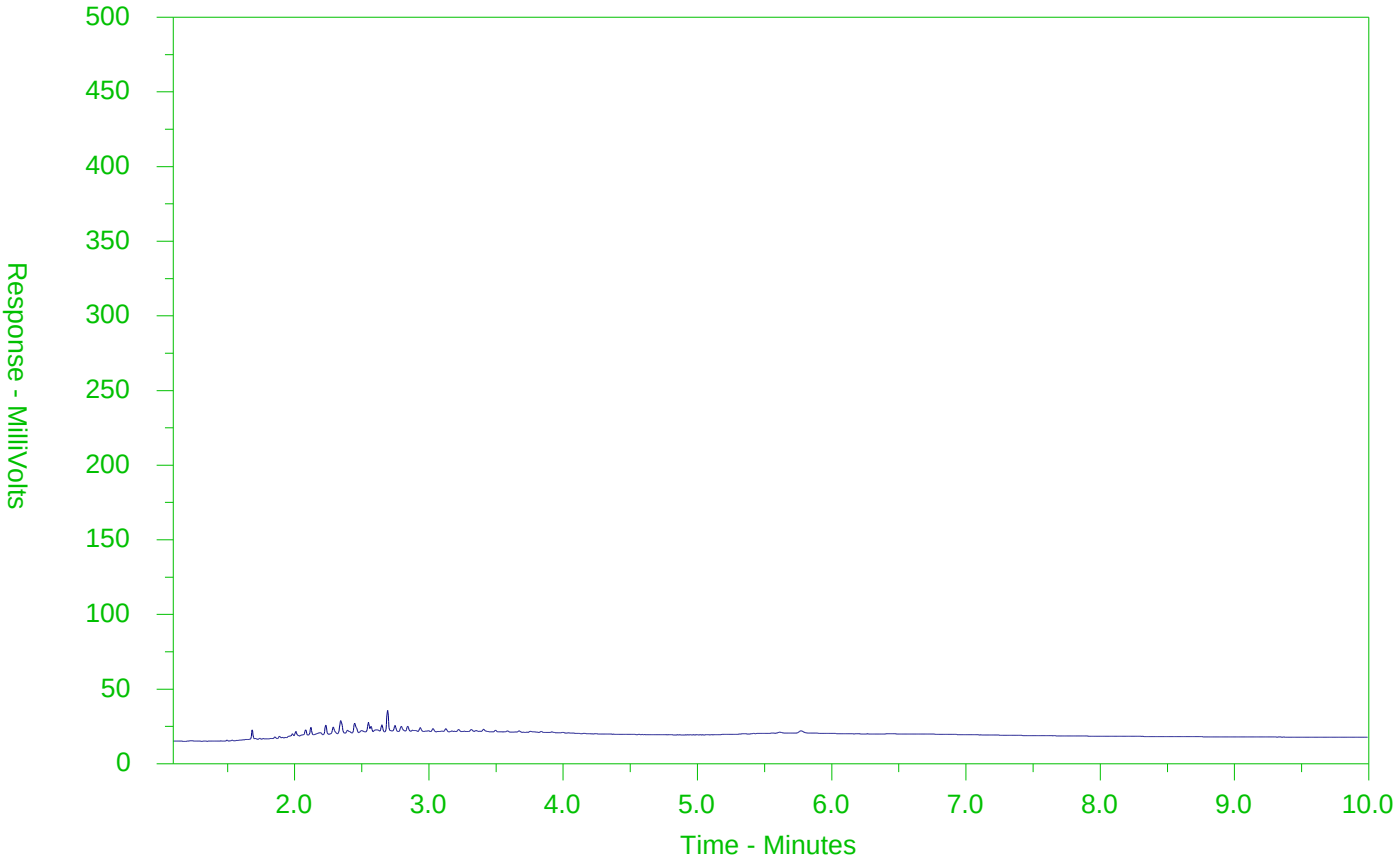
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2248319-2
Client Sample ID: S-11102463-190321-JC-BH18-443-35.5-36"



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental

Canada Toll Free: 1 800 668 9878

www.alsglobal.com

L2248319-COFC

COC Number: 17 -

Page of

Report To	Contact and company name below will appear on the final report
Company:	GHD LIMITED - ACCT #13791
Contact:	Jennifer Balkwill
Phone:	519-884-0510
	Company address below will appear on the final report
Street:	455 Phillip St
City/Province:	Waterloo,Ontario
Postal Code:	N2L 3X2
Invoice To	Same as Report To ☑ YES ☐ NO
	Copy of Invoice with Report ☐ YES ☑ NO
Company:	GHD Limited
Contact:	Jennifer Balkwil

Report Format / Distribution

Select Report Format: ☑ PDF ☑ EXCEL ☑ EDD (DIGITAL)

Quality Control (QC) Report with Report ☑ YES ☐ NO

☐ Compare Results to Criteria on Report - provide details below if box checked

Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax jennifer.balkwill@ghd.com

Email 2 See PO

Email 3

Invoice Distribution

Select Invoice Distribution: ☐ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax jennifer.balkwill@ghd.com

Email 2

Project Information

ALS Account # / Quote #:	13791, Q51987
Job #:	11102463-71
PO / AFE:	73509898-7
LSD:	Waterfront Toronto

Oil and Gas Required Fields (client use)

AFE/Cost Center:	PO#
Major/Minor Code:	Routing Code:
Requisitioner:	
Location:	

ALS Lab Work Order # (lab use only): L2248319

ALS Contact: Rick H Sampler:

Select Service Level: ☐ W - Contact your AM to confirm all E&P TATs (surcharges may apply)

Regular [R] ☑ Standard TAT if received by 3 pm - business days - no surcharges apply

PRIORITY (Business Days): 4 day [P4-20%] ☐ 3 day [P3-25%] ☐ 2 day [P2-50%] ☐

EMERGENCY: 1 Business day [E - 100%] ☐ Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)] ☐

Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm

For tests that can not be performed according to the service level selected, you will be contacted.

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	BTEX,F1-F4-511-P-WT	TOC-WT (confirmed Triplicate 511 not neces	BTEX,F1 (Trip Blank)	metals + inorganics	PAH	PHC	OC Pest	Chlorophenols	PCB Aroclors	VOC						SAMPLES ON HOLD	SUSPECTED HAZARD (see Special Instructions)
	S-11102463- 190321-JC-BH18-443-20-22'	29-mar-19	10:00	Soil	5				X	X	X	X	X	X	X							
	S-11102463- 190321-JC-BH18-443-355-36'11"	1	11:00	Soil	4				X	X	X				X							
	~~S-11102463-~~ Trip Blank			Soil				X	X	X	X				X							
	S-11102463-			Soil																		
	S-11102463-			Soil																		
	S-11102463-			Soil																		
	S-11102463-			Soil																		
	S-11102463-			Soil																		
	S-11102463-			Soil																		
	S-11102463-			Soil																		
	S-11102463-			Soil																		
	S-11102463-			Soil																		

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? ☐ YES ☑ NO

Are samples for human consumption/ use? ☐ YES ☑ NO

Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐

Ice Packs ☒ Ice Cubes ☐ Custody seal intact Yes ☐ No ☐

Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				4.0°C			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date: 20/Mar/2019	Time: 17:50

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

JUN 2018 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

GHD Limited (Waterloo)
ATTN: JENNIFER BALKWILL
455 PHILLIP ST
WATERLOO ON N2L 3X2

Date Received: 22-MAR-19
Report Date: 01-APR-19 09:44 (MT)
Version: FINAL REV. 2

Client Phone: 519-884-0510

Certificate of Analysis

Lab Work Order #: L2248320

Project P.O. #: 73509898-7
Job Reference: 11102463-53
C of C Numbers:
Legal Site Desc: WATERFRONT TORONTO

Comments:

1-APR-2019 Amended report re: duplicate SAR results.

Rick Hawthorne
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2248320-1 S-11102463-190321-JC-BH18-441-25'-30'								
Sampled By: CLIENT on 21-MAR-19 @ 14:00								
Matrix: SOIL								
Physical Tests								
Conductivity	0.291		0.0040	mS/cm	27-MAR-19	0.7	0.7	0.7
% Moisture	18.4		0.10	%	26-MAR-19			
pH	7.35		0.10	pH units	26-MAR-19			
Cyanides								
Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	26-MAR-19	0.051	0.051	0.051
Saturated Paste Extractables								
SAR	1.43		0.10	SAR	27-MAR-19	5	5	5
Calcium (Ca)	22.0		0.50	mg/L	27-MAR-19			
Magnesium (Mg)	1.92		0.50	mg/L	27-MAR-19			
Sodium (Na)	26.0		0.50	mg/L	27-MAR-19			
Metals								
Antimony (Sb)	<1.0		1.0	ug/g	26-MAR-19	7.5	7.5	1.3
Arsenic (As)	1.0		1.0	ug/g	26-MAR-19	18	18	18
Barium (Ba)	32.0		1.0	ug/g	26-MAR-19	390	390	220
Beryllium (Be)	<0.50		0.50	ug/g	26-MAR-19	4	5	2.5
Boron (B)	<5.0		5.0	ug/g	26-MAR-19	120	120	36
Boron (B), Hot Water Ext.	0.14		0.10	ug/g	26-MAR-19	1.5	1.5	1.5
Cadmium (Cd)	<0.50		0.50	ug/g	26-MAR-19	1.2	1.2	1.2
Chromium (Cr)	6.6		1.0	ug/g	26-MAR-19	160	160	70
Cobalt (Co)	2.6		1.0	ug/g	26-MAR-19	22	22	22
Copper (Cu)	4.0		1.0	ug/g	26-MAR-19	140	180	92
Lead (Pb)	7.2		1.0	ug/g	26-MAR-19	120	120	120
Mercury (Hg)	0.0120		0.0050	ug/g	26-MAR-19	0.27	1.8	0.27
Molybdenum (Mo)	<1.0		1.0	ug/g	26-MAR-19	6.9	6.9	2
Nickel (Ni)	5.1		1.0	ug/g	26-MAR-19	100	130	82
Selenium (Se)	<1.0		1.0	ug/g	26-MAR-19	2.4	2.4	1.5
Silver (Ag)	<0.20		0.20	ug/g	26-MAR-19	20	25	0.5
Thallium (Tl)	<0.50		0.50	ug/g	26-MAR-19	1	1	1
Uranium (U)	<1.0		1.0	ug/g	26-MAR-19	23	23	2.5
Vanadium (V)	9.4		1.0	ug/g	26-MAR-19	86	86	86
Zinc (Zn)	18.9		5.0	ug/g	26-MAR-19	340	340	290
Speciated Metals								
Chromium, Hexavalent	<0.20		0.20	ug/g	26-MAR-19	8	10	0.66
Volatile Organic Compounds								
Acetone	<0.50		0.50	ug/g	27-MAR-19	16	28	0.5
Benzene	0.0126		0.0068	ug/g	27-MAR-19	0.21	0.17	0.02
Bromodichloromethane	<0.050		0.050	ug/g	27-MAR-19	13	13	0.05
Bromoform	<0.050		0.050	ug/g	27-MAR-19	0.27	0.26	0.05
Bromomethane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05
Carbon tetrachloride	<0.050		0.050	ug/g	27-MAR-19	0.05	0.12	0.05
Chlorobenzene	<0.050		0.050	ug/g	27-MAR-19	2.4	2.7	0.05
Dibromochloromethane	<0.050		0.050	ug/g	27-MAR-19	9.4	9.4	0.05
Chloroform	<0.050		0.050	ug/g	27-MAR-19	0.05	0.18	0.05
1,2-Dibromoethane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05
1,2-Dichlorobenzene	<0.050		0.050	ug/g	27-MAR-19	3.4	4.3	0.05

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping	Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2248320-1	S-11102463-190321-JC-BH18-441-25'-30'								
Sampled By:	CLIENT on 21-MAR-19 @ 14:00								
Matrix:	SOIL								
Volatile Organic Compounds									
1,3-Dichlorobenzene		<0.050		0.050	ug/g	27-MAR-19	4.8	6	0.05
1,4-Dichlorobenzene		<0.050		0.050	ug/g	27-MAR-19	0.083	0.097	0.05
Dichlorodifluoromethane		<0.050		0.050	ug/g	27-MAR-19	16	25	0.05
1,1-Dichloroethane		<0.050		0.050	ug/g	27-MAR-19	3.5	11	0.05
1,2-Dichloroethane		<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05
1,1-Dichloroethylene		<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05
cis-1,2-Dichloroethylene		<0.050		0.050	ug/g	27-MAR-19	3.4	30	0.05
trans-1,2-Dichloroethylene		<0.050		0.050	ug/g	27-MAR-19	0.084	0.75	0.05
Methylene Chloride		<0.050		0.050	ug/g	27-MAR-19	0.1	0.96	0.05
1,2-Dichloropropane		<0.050		0.050	ug/g	27-MAR-19	0.05	0.085	0.05
cis-1,3-Dichloropropene		<0.030		0.030	ug/g	27-MAR-19			
trans-1,3-Dichloropropene		<0.030		0.030	ug/g	27-MAR-19			
1,3-Dichloropropene (cis & trans)		<0.042		0.042	ug/g	27-MAR-19	0.05	0.083	0.05
Ethylbenzene		<0.018		0.018	ug/g	27-MAR-19	2	15	0.05
n-Hexane		0.150		0.050	ug/g	27-MAR-19	2.8	34	*0.05
Methyl Ethyl Ketone		<0.50		0.50	ug/g	27-MAR-19	16	44	0.5
Methyl Isobutyl Ketone		<0.50		0.50	ug/g	27-MAR-19	1.7	4.3	0.5
MTBE		<0.050		0.050	ug/g	27-MAR-19	0.75	1.4	0.05
Styrene		<0.050		0.050	ug/g	27-MAR-19	0.7	2.2	0.05
1,1,1,2-Tetrachloroethane		<0.050		0.050	ug/g	27-MAR-19	0.058	0.05	0.05
1,1,2,2-Tetrachloroethane		<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05
Tetrachloroethylene		<0.050		0.050	ug/g	27-MAR-19	0.28	2.3	0.05
Toluene		<0.080		0.080	ug/g	27-MAR-19	2.3	6	0.2
1,1,1-Trichloroethane		<0.050		0.050	ug/g	27-MAR-19	0.38	3.4	0.05
1,1,2-Trichloroethane		<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05
Trichloroethylene		<0.010		0.010	ug/g	27-MAR-19	0.061	0.52	0.05
Trichlorofluoromethane		<0.050		0.050	ug/g	27-MAR-19	4	5.8	0.25
Vinyl chloride		<0.020		0.020	ug/g	27-MAR-19	0.02	0.022	0.02
o-Xylene		<0.020		0.020	ug/g	27-MAR-19			
m+p-Xylenes		0.052		0.030	ug/g	27-MAR-19			
Xylenes (Total)		0.052		0.050	ug/g	27-MAR-19	3.1	25	*0.05
Surrogate: 4-Bromofluorobenzene		102.5		50-140	%	27-MAR-19			
Surrogate: 1,4-Difluorobenzene		112.2		50-140	%	27-MAR-19			
Hydrocarbons									
F1 (C6-C10)		<5.0		5.0	ug/g	27-MAR-19	55	65	25
F1-BTEX		<5.0		5.0	ug/g	27-MAR-19	55	65	25
F2 (C10-C16)		14		10	ug/g	26-MAR-19	98	150	*10
F2-Naphth		14		10	ug/g	27-MAR-19			
F3 (C16-C34)		92		50	ug/g	26-MAR-19	300	1300	240
F3-PAH		91		50	ug/g	27-MAR-19			
F4 (C34-C50)		<50		50	ug/g	26-MAR-19	2800	5600	120
Total Hydrocarbons (C6-C50)		106		72	ug/g	27-MAR-19			
Chrom. to baseline at nC50		YES			No Unit	26-MAR-19			
Surrogate: 2-Bromobenzotrifluoride		93.4		60-140	%	26-MAR-19			
Surrogate: 3,4-Dichlorotoluene		95.9		60-140	%	27-MAR-19			
Polycyclic Aromatic Hydrocarbons									

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping	Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3	
L2248320-1	S-11102463-190321-JC-BH18-441-25'-30'									
Sampled By:	CLIENT on 21-MAR-19 @ 14:00									
Matrix:	SOIL									
Polycyclic Aromatic Hydrocarbons										
	Acenaphthene	0.050		0.050	ug/g	26-MAR-19	7.9	58	0.072	
	Acenaphthylene	<0.050		0.050	ug/g	26-MAR-19	0.15	0.17	0.093	
	Anthracene	0.065		0.050	ug/g	26-MAR-19	0.67	0.74	0.22	
	Benzo(a)anthracene	0.116		0.050	ug/g	26-MAR-19	0.5	0.63	0.36	
	Benzo(a)pyrene	0.144		0.050	ug/g	26-MAR-19	0.3	0.3	0.3	
	Benzo(b)fluoranthene	0.154		0.050	ug/g	26-MAR-19	0.78	0.78	0.47	
	Benzo(g,h,i)perylene	0.130		0.050	ug/g	26-MAR-19	6.6	7.8	0.68	
	Benzo(k)fluoranthene	<0.050		0.050	ug/g	26-MAR-19	0.78	0.78	0.48	
	Chrysene	0.124		0.050	ug/g	26-MAR-19	7	7.8	2.8	
	Dibenzo(ah)anthracene	<0.050		0.050	ug/g	26-MAR-19	0.1	0.1	0.1	
	Fluoranthene	0.252		0.050	ug/g	26-MAR-19	0.69	0.69	0.69	
	Fluorene	0.051		0.050	ug/g	26-MAR-19	62	69	0.19	
	Indeno(1,2,3-cd)pyrene	0.100		0.050	ug/g	26-MAR-19	0.38	0.48	0.23	
	1+2-Methylnaphthalenes	<0.042		0.042	ug/g	26-MAR-19	0.99	3.4	0.59	
	1-Methylnaphthalene	<0.030		0.030	ug/g	26-MAR-19	0.99	3.4	0.59	
	2-Methylnaphthalene	<0.030		0.030	ug/g	26-MAR-19	0.99	3.4	0.59	
	Naphthalene	0.035		0.013	ug/g	26-MAR-19	0.6	0.75	0.09	
	Phenanthrene	0.149		0.046	ug/g	26-MAR-19	6.2	7.8	0.69	
	Pyrene	0.241		0.050	ug/g	26-MAR-19	78	78	1	
	Surrogate: 2-Fluorobiphenyl	104.7		50-140	%	26-MAR-19				
	Surrogate: p-Terphenyl d14	100.5		50-140	%	26-MAR-19				

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference***
B-HWS-R511-WT	Soil	Boron-HWE-O.Reg 153/04 (July 2011)	HW EXTR, EPA 6010B

A dried solid sample is extracted with calcium chloride, the sample undergoes a heating process. After cooling the sample is filtered and analyzed by ICP/OES.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

CN-WAD-R511-WT	Soil	Cyanide (WAD)-O.Reg 153/04 (July 2011)	MOE 3015/APHA 4500CN I-WAD

The sample is extracted with a strong base for 16 hours, and then filtered. The filtrate is then distilled where the cyanide is converted to cyanogen chloride by reacting with chloramine-T, the cyanogen chloride then reacts with a combination of barbituric acid and isonicotinic acid to form a highly colored complex.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

CR-CR6-IC-WT	Soil	Hexavalent Chromium in Soil	SW846 3060A/7199

This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, Method 7199, published by the United States Environmental Protection Agency (EPA). The procedure involves analysis for chromium (VI) by ion chromatography using diphenylcarbazide in a sulphuric acid solution.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

EC-WT	Soil	Conductivity (EC)	MOEE E3138

A representative subsample is tumbled with de-ionized (DI) water. The ratio of water to soil is 2:1 v/w. After tumbling the sample is then analyzed by a conductivity meter.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

F1-F4-511-CALC-WT	Soil	F1-F4 Hydrocarbon Calculated Parameters	CCME CWS-PHC, Pub #1310, Dec 2001-S

Analytical methods used for analysis of CCME Petroleum Hydrocarbons have been validated and comply with the Reference Method for the CWS PHC.

Hydrocarbon results are expressed on a dry weight basis.

In cases where results for both F4 and F4G are reported, the greater of the two results must be used in any application of the CWS PHC guidelines and the gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.
In samples where BTEX and F1 were analyzed , F1-BTEX represents a value where the sum of Benzene, Toluene, Ethylbenzene and total Xylenes has been subtracted from F1.

In samples where PAHs, F2 and F3 were analyzed, F2-Naphth represents the result where Naphthalene has been subtracted from F2. F3-PAH represents a result where the sum of Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenzo(a,h)anthracene, Fluoranthene, Indeno(1,2,3-cd)pyrene, Phenanthrene, and Pyrene has been subtracted from F3.

Unless otherwise qualified, the following quality control criteria have been met for the F1 hydrocarbon range:
1. All extraction and analysis holding times were met.
2. Instrument performance showing response factors for C6 and C10 within 30% of the response factor for toluene.
3. Linearity of gasoline response within 15% throughout the calibration range.

Unless otherwise qualified, the following quality control criteria have been met for the F2-F4 hydrocarbon ranges:
1. All extraction and analysis holding times were met.
2. Instrument performance showing C10, C16 and C34 response factors within 10% of their average.
3. Instrument performance showing the C50 response factor within 30% of the average of the C10, C16 and C34 response factors.
4. Linearity of diesel or motor oil response within 15% throughout the calibration range.

F1-HS-511-WT	Soil	F1-O.Reg 153/04 (July 2011)	E3398/CCME TIER 1-HS

Fraction F1 is determined by extracting a soil or sediment sample as received with methanol, then analyzing by headspace-GC/FID.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

Reference Information

F2-F4-511-WT Soil F2-F4-O.Reg 153/04 (July 2011) CCME Tier 1

Petroleum Hydrocarbons (F2-F4 fractions) are extracted from soil with 1:1 hexane:acetone using a rotary extractor. Extracts are treated with silica gel to remove polar organic interferences. F2, F3, & F4 are analyzed by GC-FID. F4G-sg is analyzed gravimetrically.

Notes:
1. F2 (C10-C16): Sum of all hydrocarbons that elute between nC10 and nC16.
2. F3 (C16-C34): Sum of all hydrocarbons that elute between nC16 and nC34.
3. F4 (C34-C50): Sum of all hydrocarbons that elute between nC34 and nC50.
4. F4G: Gravimetric Heavy Hydrocarbons
5. F4G-sg: Gravimetric Heavy Hydrocarbons (F4G) after silica gel treatment.
6. Where both F4 (C34-C50) and F4G-sg are reported for a sample, the larger of the two values is used for comparison against the relevant CCME guideline for F4.
7. F4G-sg cannot be added to the C6 to C50 hydrocarbon results to obtain an estimate of total extractable hydrocarbons.
8. This method is validated for use.
9. Data from analysis of validation and quality control samples is available upon request.
10. Reported results are expressed as milligrams per dry kilogram, unless otherwise indicated.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

HG-200.2-CVAA-WT Soil Mercury in Soil by CVAAS EPA 200.2/1631E (mod)

Soil samples are digested with nitric and hydrochloric acids, followed by analysis by CVAAS.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

MET-200.2-CCMS-WT Soil Metals in Soil by CRC ICPMS EPA 200.2/6020A (mod)

Soil/sediment is dried, disaggregated, and sieved (2 mm). For tests intended to support Ontario regulations, the <2mm fraction is ground to pass through a 0.355 mm sieve. Strong Acid Leachable Metals in the <2mm fraction are solubilized by heated digestion with nitric and hydrochloric acids. Instrumental analysis is by Collision / Reaction Cell ICPMS.

Limitations: This method is intended to liberate environmentally available metals. Silicate minerals are not solubilized. Some metals may be only partially recovered (matrix dependent), including Al, Ba, Be, Cr, S, Sr, Ti, Tl, V, W, and Zr. Elemental Sulfur may be poorly recovered by this method. Volatile forms of sulfur (e.g. sulfide, H2S) may be excluded if lost during sampling, storage, or digestion.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

METHYLNAPS-CALC-WT Soil ABN-Calculated Parameters SW846 8270

MOISTURE-WT Soil % Moisture CCME PHC in Soil - Tier 1 (mod)

PAH-511-WT Soil PAH-O.Reg 153/04 (July 2011) SW846 3510/8270

A representative sub-sample of soil is fortified with deuterium-labelled surrogates and a mechanical shaking techniqueis used to extract the sample with a mixture of methanol and toluene. The extracts are concentrated and analyzed by GC/MS. Results for benzo(b) fluoranthene may include contributions from benzo(j)fluoranthene, if also present in the sample.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

PH-WT Soil pH MOEE E3137A

A minimum 10g portion of the sample is extracted with 20mL of 0.01M calcium chloride solution by shaking for at least 30 minutes. The aqueous layer is separated from the soil and then analyzed using a pH meter and electrode.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

SAR-R511-WT Soil SAR-O.Reg 153/04 (July 2011) SW846 6010C

A dried, disaggregated solid sample is extracted with deionized water, the aqueous extract is separated from the solid, acidified and then analyzed using a ICP/OES. The concentrations of Na, Ca and Mg are reported as per CALA requirements for calculated parameters. These individual parameters are not for comparison to any guideline.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

VOC-1,3-DCP-CALC-WT Soil Regulation 153 VOCs SW8260B/SW8270C

Reference Information

VOC-511-HS-WT	Soil	VOC-O.Reg 153/04 (July 2011)	SW846 8260 (511)

Soil and sediment samples are extracted in methanol and analyzed by headspace-GC/MS.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

XYLENES-SUM-CALC-WT	Soil	Sum of Xylene Isomer Concentrations	CALCULATION

Total xylenes represents the sum of o-xylene and m&p-xylene.

*** ALS test methods may incorporate modifications from specified reference methods to improve performance.

Chain of Custody numbers:

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location	Laboratory Definition Code	Laboratory Location
WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA		

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.
mg/kg - milligrams per kilogram based on dry weight of sample
mg/kg wwt - milligrams per kilogram based on wet weight of sample
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight
mg/L - unit of concentration based on volume, parts per million.
< - Less than.
D.L. - The reporting limit.
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, fitness for a particular purpose, or non-infringement. ALS assumes no responsibility for errors or omissions in the information. Guideline limits are not adjusted for the hardness, pH or temperature of the sample (the most conservative values are used). Measurement uncertainty is not applied to test results prior to comparison with specified criteria values.

Quality Control Report

Workorder: L2248320 Report Date: 01-APR-19

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
B-HWS-R511-WT	**Soil**							
Batch R4583408								
WG3013994-4 DUP		**L2247725-1**						
Boron (B), Hot Water Ext.		0.40	0.34		ug/g	15	30	26-MAR-19
WG3013994-2 IRM		**HOTB-SAL_SOIL5**						
Boron (B), Hot Water Ext.			115.5		%		70-130	26-MAR-19
WG3013994-3 LCS								
Boron (B), Hot Water Ext.			97.0		%		70-130	26-MAR-19
WG3013994-1 MB								
Boron (B), Hot Water Ext.			<0.10		ug/g		0.1	26-MAR-19
CN-WAD-R511-WT	**Soil**							
Batch R4583869								
WG3013562-3 DUP		**L2248320-1**						
Cyanide, Weak Acid Diss		<0.050	<0.050	RPD-NA	ug/g	N/A	35	26-MAR-19
WG3013562-2 LCS								
Cyanide, Weak Acid Diss			90.5		%		80-120	26-MAR-19
WG3013562-1 MB								
Cyanide, Weak Acid Diss			<0.050		ug/g		0.05	26-MAR-19
WG3013562-4 MS		**L2248320-1**						
Cyanide, Weak Acid Diss			94.4		%		70-130	26-MAR-19
CR-CR6-IC-WT	**Soil**							
Batch R4583569								
WG3013589-4 CRM		**WT-SQC012**						
Chromium, Hexavalent			98.3		%		70-130	26-MAR-19
WG3013589-3 DUP		**L2248321-2**						
Chromium, Hexavalent		<0.20	<0.20	RPD-NA	ug/g	N/A	35	26-MAR-19
WG3013589-2 LCS								
Chromium, Hexavalent			99.0		%		80-120	26-MAR-19
WG3013589-1 MB								
Chromium, Hexavalent			<0.20		ug/g		0.2	26-MAR-19
EC-WT	**Soil**							
Batch R4585298								
WG3014878-4 DUP		**WG3014878-3**						
Conductivity		0.291	0.319		mS/cm	9.2	20	27-MAR-19
WG3014878-2 IRM		**WT SAR2**						
Conductivity			97.4		%		70-130	27-MAR-19
WG3015084-1 LCS								
Conductivity			102.9		%		90-110	27-MAR-19
WG3014878-1 MB								

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
EC-WT	**Soil**							
Batch R4585298								
WG3014878-1 MB								
Conductivity			<0.0040		mS/cm		0.004	27-MAR-19
F1-HS-511-WT	**Soil**							
Batch R4585205								
WG3013501-4 DUP		**WG3013501-3**						
F1 (C6-C10)		7.7	8.0		ug/g	3.8	30	27-MAR-19
WG3013501-2 LCS								
F1 (C6-C10)			101.2		%		80-120	27-MAR-19
WG3013501-1 MB								
F1 (C6-C10)			<5.0		ug/g		5	27-MAR-19
Surrogate: 3,4-Dichlorotoluene			102.5		%		60-140	27-MAR-19
WG3013501-6 MS		**L2247122-1**						
F1 (C6-C10)			103.6		%		60-140	27-MAR-19
F2-F4-511-WT	**Soil**							
Batch R4585227								
WG3013546-3 DUP		**WG3013546-5**						
F2 (C10-C16)		<10	<10	RPD-NA	ug/g	N/A	30	26-MAR-19
F3 (C16-C34)		<50	<50	RPD-NA	ug/g	N/A	30	26-MAR-19
F4 (C34-C50)		<50	<50	RPD-NA	ug/g	N/A	30	26-MAR-19
WG3013546-2 LCS								
F2 (C10-C16)			94.8		%		80-120	26-MAR-19
F3 (C16-C34)			100.9		%		80-120	26-MAR-19
F4 (C34-C50)			104.1		%		80-120	26-MAR-19
WG3013546-1 MB								
F2 (C10-C16)			<10		ug/g		10	26-MAR-19
F3 (C16-C34)			<50		ug/g		50	26-MAR-19
F4 (C34-C50)			<50		ug/g		50	26-MAR-19
Surrogate: 2-Bromobenzotrifluoride			82.1		%		60-140	26-MAR-19
WG3013546-4 MS		**WG3013546-5**						
F2 (C10-C16)			95.0		%		60-140	26-MAR-19
F3 (C16-C34)			99.0		%		60-140	26-MAR-19
F4 (C34-C50)			102.5		%		60-140	26-MAR-19
HG-200.2-CVAA-WT	**Soil**							

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
HG-200.2-CVAA-WT	**Soil**							
Batch R4583508								
WG3013982-2 CRM		**WT-CANMET-TILL1**						
Mercury (Hg)			98.9		%		70-130	26-MAR-19
WG3013982-6 DUP		**WG3013982-5**						
Mercury (Hg)		0.302	0.329		ug/g	8.5	40	26-MAR-19
WG3013982-3 LCS								
Mercury (Hg)			104.0		%		80-120	26-MAR-19
WG3013982-1 MB								
Mercury (Hg)			<0.0050		mg/kg		0.005	26-MAR-19
MET-200.2-CCMS-WT	**Soil**							
Batch R4583409								
WG3013982-2 CRM		**WT-CANMET-TILL1**						
Antimony (Sb)			106.1		%		70-130	26-MAR-19
Arsenic (As)			101.4		%		70-130	26-MAR-19
Barium (Ba)			104.9		%		70-130	26-MAR-19
Beryllium (Be)			104.0		%		70-130	26-MAR-19
Boron (B)			3.2		mg/kg		0-8.2	26-MAR-19
Cadmium (Cd)			102.6		%		70-130	26-MAR-19
Chromium (Cr)			103.7		%		70-130	26-MAR-19
Cobalt (Co)			100.7		%		70-130	26-MAR-19
Copper (Cu)			102.8		%		70-130	26-MAR-19
Lead (Pb)			102.0		%		70-130	26-MAR-19
Molybdenum (Mo)			96.5		%		70-130	26-MAR-19
Nickel (Ni)			100.8		%		70-130	26-MAR-19
Selenium (Se)			0.31		mg/kg		0.11-0.51	26-MAR-19
Silver (Ag)			0.24		mg/kg		0.13-0.33	26-MAR-19
Thallium (Tl)			0.128		mg/kg		0.077-0.18	26-MAR-19
Uranium (U)			100.1		%		70-130	26-MAR-19
Vanadium (V)			103.8		%		70-130	26-MAR-19
Zinc (Zn)			102.6		%		70-130	26-MAR-19
WG3013982-6 DUP		**WG3013982-5**						
Antimony (Sb)		2.98	3.85		ug/g	26	30	26-MAR-19
Arsenic (As)		4.28	4.75		ug/g	10	30	26-MAR-19
Barium (Ba)		98.9	104		ug/g	4.9	40	26-MAR-19
Beryllium (Be)		0.36	0.44		ug/g	18	30	26-MAR-19
Boron (B)		5.9	7.7		ug/g	26	30	26-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R4583409								
WG3013982-6 DUP		**WG3013982-5**						
Cadmium (Cd)		1.59	1.88		ug/g	17	30	26-MAR-19
Chromium (Cr)		31.0	35.1		ug/g	13	30	26-MAR-19
Cobalt (Co)		6.11	6.89		ug/g	12	30	26-MAR-19
Copper (Cu)		61.3	67.1		ug/g	9.1	30	26-MAR-19
Lead (Pb)		190	192		ug/g	1.0	40	26-MAR-19
Molybdenum (Mo)		1.27	1.23		ug/g	3.0	40	26-MAR-19
Nickel (Ni)		17.4	19.4		ug/g	11	30	26-MAR-19
Selenium (Se)		0.38	0.44		ug/g	13	30	26-MAR-19
Silver (Ag)		0.63	0.70		ug/g	9.7	40	26-MAR-19
Thallium (Tl)		0.146	0.151		ug/g	3.7	30	26-MAR-19
Uranium (U)		0.462	0.527		ug/g	13	30	26-MAR-19
Vanadium (V)		23.0	27.3		ug/g	17	30	26-MAR-19
Zinc (Zn)		151	170		ug/g	12	30	26-MAR-19
WG3013982-4 LCS								
Antimony (Sb)			114.5		%		80-120	26-MAR-19
Arsenic (As)			107.8		%		80-120	26-MAR-19
Barium (Ba)			112.6		%		80-120	26-MAR-19
Beryllium (Be)			107.3		%		80-120	26-MAR-19
Boron (B)			108.0		%		80-120	26-MAR-19
Cadmium (Cd)			108.7		%		80-120	26-MAR-19
Chromium (Cr)			107.0		%		80-120	26-MAR-19
Cobalt (Co)			104.7		%		80-120	26-MAR-19
Copper (Cu)			105.6		%		80-120	26-MAR-19
Lead (Pb)			110.3		%		80-120	26-MAR-19
Molybdenum (Mo)			112.4		%		80-120	26-MAR-19
Nickel (Ni)			107.1		%		80-120	26-MAR-19
Selenium (Se)			109.9		%		80-120	26-MAR-19
Silver (Ag)			109.1		%		80-120	26-MAR-19
Thallium (Tl)			106.4		%		80-120	26-MAR-19
Uranium (U)			108.8		%		80-120	26-MAR-19
Vanadium (V)			110.1		%		80-120	26-MAR-19
Zinc (Zn)			106.0		%		80-120	26-MAR-19
WG3013982-1 MB								
							0.1	

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R4583409								
WG3013982-1 MB								
Antimony (Sb)			<0.10		mg/kg		0.1	26-MAR-19
Arsenic (As)			<0.10		mg/kg		0.1	26-MAR-19
Barium (Ba)			<0.50		mg/kg		0.5	26-MAR-19
Beryllium (Be)			<0.10		mg/kg		0.1	26-MAR-19
Boron (B)			<5.0		mg/kg		5	26-MAR-19
Cadmium (Cd)			<0.020		mg/kg		0.02	26-MAR-19
Chromium (Cr)			<0.50		mg/kg		0.5	26-MAR-19
Cobalt (Co)			<0.10		mg/kg		0.1	26-MAR-19
Copper (Cu)			<0.50		mg/kg		0.5	26-MAR-19
Lead (Pb)			<0.50		mg/kg		0.5	26-MAR-19
Molybdenum (Mo)			<0.10		mg/kg		0.1	26-MAR-19
Nickel (Ni)			<0.50		mg/kg		0.5	26-MAR-19
Selenium (Se)			<0.20		mg/kg		0.2	26-MAR-19
Silver (Ag)			<0.10		mg/kg		0.1	26-MAR-19
Thallium (Tl)			<0.050		mg/kg		0.05	26-MAR-19
Uranium (U)			<0.050		mg/kg		0.05	26-MAR-19
Vanadium (V)			<0.20		mg/kg		0.2	26-MAR-19
Zinc (Zn)			<2.0		mg/kg		2	26-MAR-19
MOISTURE-WT	**Soil**							
Batch R4582804								
WG3013505-3 DUP		**L2248319-2**						
% Moisture		13.4	14.1		%	5.3	20	26-MAR-19
WG3013505-2 LCS								
% Moisture			100.2		%		90-110	26-MAR-19
WG3013505-1 MB								
% Moisture			<0.10		%		0.1	26-MAR-19
PAH-511-WT	**Soil**							
Batch R4584116								
WG3013432-3 DUP		**WG3013432-5**						
1-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	26-MAR-19
2-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	26-MAR-19
Acenaphthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Acenaphthylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R4584116								
WG3013432-3 DUP		**WG3013432-5**						
Benzo(a)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Benzo(a)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Benzo(b)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Benzo(g,h,i)perylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Benzo(k)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Chrysene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Dibenzo(ah)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Fluorene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Indeno(1,2,3-cd)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
Naphthalene		<0.013	<0.013	RPD-NA	ug/g	N/A	40	26-MAR-19
Phenanthrene		<0.046	<0.046	RPD-NA	ug/g	N/A	40	26-MAR-19
Pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-MAR-19
WG3013432-2 LCS								
1-Methylnaphthalene			100.9		%		50-140	26-MAR-19
2-Methylnaphthalene			97.7		%		50-140	26-MAR-19
Acenaphthene			106.8		%		50-140	26-MAR-19
Acenaphthylene			101.9		%		50-140	26-MAR-19
Anthracene			100.5		%		50-140	26-MAR-19
Benzo(a)anthracene			104.3		%		50-140	26-MAR-19
Benzo(a)pyrene			105.7		%		50-140	26-MAR-19
Benzo(b)fluoranthene			92.9		%		50-140	26-MAR-19
Benzo(g,h,i)perylene			104.9		%		50-140	26-MAR-19
Benzo(k)fluoranthene			108.5		%		50-140	26-MAR-19
Chrysene			100.6		%		50-140	26-MAR-19
Dibenzo(ah)anthracene			105.3		%		50-140	26-MAR-19
Fluoranthene			100.3		%		50-140	26-MAR-19
Fluorene			102.1		%		50-140	26-MAR-19
Indeno(1,2,3-cd)pyrene			95.9		%		50-140	26-MAR-19
Naphthalene			97.4		%		50-140	26-MAR-19
Phenanthrene			102.1		%		50-140	26-MAR-19
Pyrene			101.0		%		50-140	26-MAR-19
WG3013432-1 MB								
							0.03	

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R4584116								
WG3013432-1 MB								
1-Methylnaphthalene			<0.030		ug/g		0.03	26-MAR-19
2-Methylnaphthalene			<0.030		ug/g		0.03	26-MAR-19
Acenaphthene			<0.050		ug/g		0.05	26-MAR-19
Acenaphthylene			<0.050		ug/g		0.05	26-MAR-19
Anthracene			<0.050		ug/g		0.05	26-MAR-19
Benzo(a)anthracene			<0.050		ug/g		0.05	26-MAR-19
Benzo(a)pyrene			<0.050		ug/g		0.05	26-MAR-19
Benzo(b)fluoranthene			<0.050		ug/g		0.05	26-MAR-19
Benzo(g,h,i)perylene			<0.050		ug/g		0.05	26-MAR-19
Benzo(k)fluoranthene			<0.050		ug/g		0.05	26-MAR-19
Chrysene			<0.050		ug/g		0.05	26-MAR-19
Dibenzo(ah)anthracene			<0.050		ug/g		0.05	26-MAR-19
Fluoranthene			<0.050		ug/g		0.05	26-MAR-19
Fluorene			<0.050		ug/g		0.05	26-MAR-19
Indeno(1,2,3-cd)pyrene			<0.050		ug/g		0.05	26-MAR-19
Naphthalene			<0.013		ug/g		0.013	26-MAR-19
Phenanthrene			<0.046		ug/g		0.046	26-MAR-19
Pyrene			<0.050		ug/g		0.05	26-MAR-19
Surrogate: 2-Fluorobiphenyl			106.4		%		50-140	26-MAR-19
Surrogate: p-Terphenyl d14			95.8		%		50-140	26-MAR-19
WG3013432-4 MS		**WG3013432-5**						
1-Methylnaphthalene			101.5		%		50-140	26-MAR-19
2-Methylnaphthalene			98.5		%		50-140	26-MAR-19
Acenaphthene			108.0		%		50-140	26-MAR-19
Acenaphthylene			102.9		%		50-140	26-MAR-19
Anthracene			102.8		%		50-140	26-MAR-19
Benzo(a)anthracene			107.9		%		50-140	26-MAR-19
Benzo(a)pyrene			106.2		%		50-140	26-MAR-19
Benzo(b)fluoranthene			92.9		%		50-140	26-MAR-19
Benzo(g,h,i)perylene			107.3		%		50-140	26-MAR-19
Benzo(k)fluoranthene			115.6		%		50-140	26-MAR-19
Chrysene			101.1		%		50-140	26-MAR-19
Dibenzo(ah)anthracene			107.3		%		50-140	26-MAR-19
Fluoranthene			102.7		%		50-140	26-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R4584116								
WG3013432-4 MS		**WG3013432-5**						
Fluorene			103.8		%		50-140	26-MAR-19
Indeno(1,2,3-cd)pyrene			96.6		%		50-140	26-MAR-19
Naphthalene			98.0		%		50-140	26-MAR-19
Phenanthrene			103.6		%		50-140	26-MAR-19
Pyrene			103.9		%		50-140	26-MAR-19
PH-WT	**Soil**							
Batch R4584807								
WG3013598-1 DUP		**L2248320-1**						
pH		7.35	7.23	J	pH units	0.12	0.3	26-MAR-19
WG3014231-1 LCS								
pH			6.96		pH units		6.9-7.1	26-MAR-19
SAR-R511-WT	**Soil**							
Batch R4585357								
WG3014878-4 DUP		**WG3014878-3**						
Calcium (Ca)		24.9	22.0		mg/L	12	30	27-MAR-19
Sodium (Na)		31.4	26.0		mg/L	19	30	27-MAR-19
Magnesium (Mg)		2.31	1.92		mg/L	18	30	27-MAR-19
WG3014878-2 IRM		**WT SAR2**						
Calcium (Ca)			91.7		%		70-130	27-MAR-19
Sodium (Na)			93.8		%		70-130	27-MAR-19
Magnesium (Mg)			92.7		%		70-130	27-MAR-19
WG3014878-5 LCS								
Calcium (Ca)			105.7		%		70-130	27-MAR-19
Sodium (Na)			105.2		%		70-130	27-MAR-19
Magnesium (Mg)			101.4		%		70-130	27-MAR-19
WG3014878-1 MB								
Calcium (Ca)			<0.50		mg/L		0.5	27-MAR-19
Sodium (Na)			<0.50		mg/L		0.5	27-MAR-19
Magnesium (Mg)			<0.50		mg/L		0.5	27-MAR-19
VOC-511-HS-WT	**Soil**							
Batch R4585205								
WG3013501-4 DUP		**WG3013501-3**						
1,1,1,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
1,1,2,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
1,1,1-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4585205								
WG3013501-4 DUP		**WG3013501-3**						
1,1,2-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
1,1-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
1,1-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
1,2-Dibromoethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
1,2-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
1,2-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
1,2-Dichloropropane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
1,3-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
1,4-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Acetone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	27-MAR-19
Benzene		0.0478	0.0437		ug/g	9.0	40	27-MAR-19
Bromodichloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Bromoform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Bromomethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Carbon tetrachloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Chlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Chloroform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
cis-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
cis-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	27-MAR-19
Dibromochloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Dichlorodifluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Ethylbenzene		0.031	0.029		ug/g	7.4	40	27-MAR-19
n-Hexane		0.085	0.075		ug/g	12	40	27-MAR-19
Methylene Chloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
MTBE		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
m+p-Xylenes		0.103	0.096		ug/g	7.9	40	27-MAR-19
Methyl Ethyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	27-MAR-19
Methyl Isobutyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	27-MAR-19
o-Xylene		0.051	0.048		ug/g	6.1	40	27-MAR-19
Styrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Tetrachloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Toluene		0.144	0.132		ug/g	8.4	40	27-MAR-19
trans-1,2-Dichloroethylene		<0.050	<0.050		ug/g			27-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4585205								
WG3013501-4 DUP		**WG3013501-3**						
trans-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
trans-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	27-MAR-19
Trichloroethylene		0.011	0.011		ug/g	3.4	40	27-MAR-19
Trichlorofluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Vinyl chloride		<0.020	<0.020	RPD-NA	ug/g	N/A	40	27-MAR-19
WG3013501-2 LCS								
1,1,1,2-Tetrachloroethane			97.5		%		60-130	27-MAR-19
1,1,2,2-Tetrachloroethane			90.8		%		60-130	27-MAR-19
1,1,1-Trichloroethane			97.7		%		60-130	27-MAR-19
1,1,2-Trichloroethane			98.2		%		60-130	27-MAR-19
1,1-Dichloroethane			96.9		%		60-130	27-MAR-19
1,1-Dichloroethylene			89.7		%		60-130	27-MAR-19
1,2-Dibromoethane			91.0		%		70-130	27-MAR-19
1,2-Dichlorobenzene			99.5		%		70-130	27-MAR-19
1,2-Dichloroethane			95.3		%		60-130	27-MAR-19
1,2-Dichloropropane			93.2		%		70-130	27-MAR-19
1,3-Dichlorobenzene			101.6		%		70-130	27-MAR-19
1,4-Dichlorobenzene			103.4		%		70-130	27-MAR-19
Acetone			85.8		%		60-140	27-MAR-19
Benzene			97.9		%		70-130	27-MAR-19
Bromodichloromethane			94.5		%		50-140	27-MAR-19
Bromoform			90.2		%		70-130	27-MAR-19
Bromomethane			102.0		%		50-140	27-MAR-19
Carbon tetrachloride			99.98		%		70-130	27-MAR-19
Chlorobenzene			98.2		%		70-130	27-MAR-19
Chloroform			98.2		%		70-130	27-MAR-19
cis-1,2-Dichloroethylene			97.3		%		70-130	27-MAR-19
cis-1,3-Dichloropropene			100.4		%		70-130	27-MAR-19
Dibromochloromethane			96.3		%		60-130	27-MAR-19
Dichlorodifluoromethane			53.6		%		50-140	27-MAR-19
Ethylbenzene			91.8		%		70-130	27-MAR-19
n-Hexane			85.4		%		70-130	27-MAR-19
Methylene Chloride			98.2		%		70-130	27-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4585205								
WG3013501-2 LCS								
MTBE			99.5		%		70-130	27-MAR-19
m+p-Xylenes			93.4		%		70-130	27-MAR-19
Methyl Ethyl Ketone			88.0		%		60-140	27-MAR-19
Methyl Isobutyl Ketone			74.0		%		60-140	27-MAR-19
o-Xylene			90.2		%		70-130	27-MAR-19
Styrene			90.4		%		70-130	27-MAR-19
Tetrachloroethylene			101.9		%		60-130	27-MAR-19
Toluene			93.3		%		70-130	27-MAR-19
trans-1,2-Dichloroethylene			94.3		%		60-130	27-MAR-19
trans-1,3-Dichloropropene			91.0		%		70-130	27-MAR-19
Trichloroethylene			104.0		%		60-130	27-MAR-19
Trichlorofluoromethane			97.4		%		50-140	27-MAR-19
Vinyl chloride			64.3		%		60-140	27-MAR-19
WG3013501-1 MB								
1,1,1,2-Tetrachloroethane			<0.050		ug/g		0.05	27-MAR-19
1,1,2,2-Tetrachloroethane			<0.050		ug/g		0.05	27-MAR-19
1,1,1-Trichloroethane			<0.050		ug/g		0.05	27-MAR-19
1,1,2-Trichloroethane			<0.050		ug/g		0.05	27-MAR-19
1,1-Dichloroethane			<0.050		ug/g		0.05	27-MAR-19
1,1-Dichloroethylene			<0.050		ug/g		0.05	27-MAR-19
1,2-Dibromoethane			<0.050		ug/g		0.05	27-MAR-19
1,2-Dichlorobenzene			<0.050		ug/g		0.05	27-MAR-19
1,2-Dichloroethane			<0.050		ug/g		0.05	27-MAR-19
1,2-Dichloropropane			<0.050		ug/g		0.05	27-MAR-19
1,3-Dichlorobenzene			<0.050		ug/g		0.05	27-MAR-19
1,4-Dichlorobenzene			<0.050		ug/g		0.05	27-MAR-19
Acetone			<0.50		ug/g		0.5	27-MAR-19
Benzene			<0.0068		ug/g		0.0068	27-MAR-19
Bromodichloromethane			<0.050		ug/g		0.05	27-MAR-19
Bromoform			<0.050		ug/g		0.05	27-MAR-19
Bromomethane			<0.050		ug/g		0.05	27-MAR-19
Carbon tetrachloride			<0.050		ug/g		0.05	27-MAR-19
Chlorobenzene			<0.050		ug/g		0.05	27-MAR-19
Chloroform			<0.050		ug/g		0.05	27-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4585205								
WG3013501-1 MB								
cis-1,2-Dichloroethylene			<0.050		ug/g		0.05	27-MAR-19
cis-1,3-Dichloropropene			<0.030		ug/g		0.03	27-MAR-19
Dibromochloromethane			<0.050		ug/g		0.05	27-MAR-19
Dichlorodifluoromethane			<0.050		ug/g		0.05	27-MAR-19
Ethylbenzene			<0.018		ug/g		0.018	27-MAR-19
n-Hexane			<0.050		ug/g		0.05	27-MAR-19
Methylene Chloride			<0.050		ug/g		0.05	27-MAR-19
MTBE			<0.050		ug/g		0.05	27-MAR-19
m+p-Xylenes			<0.030		ug/g		0.03	27-MAR-19
Methyl Ethyl Ketone			<0.50		ug/g		0.5	27-MAR-19
Methyl Isobutyl Ketone			<0.50		ug/g		0.5	27-MAR-19
o-Xylene			<0.020		ug/g		0.02	27-MAR-19
Styrene			<0.050		ug/g		0.05	27-MAR-19
Tetrachloroethylene			<0.050		ug/g		0.05	27-MAR-19
Toluene			<0.080		ug/g		0.08	27-MAR-19
trans-1,2-Dichloroethylene			<0.050		ug/g		0.05	27-MAR-19
trans-1,3-Dichloropropene			<0.030		ug/g		0.03	27-MAR-19
Trichloroethylene			<0.010		ug/g		0.01	27-MAR-19
Trichlorofluoromethane			<0.050		ug/g		0.05	27-MAR-19
Vinyl chloride			<0.020		ug/g		0.02	27-MAR-19
Surrogate: 1,4-Difluorobenzene			119.0		%		50-140	27-MAR-19
Surrogate: 4-Bromofluorobenzene			107.8		%		50-140	27-MAR-19
WG3013501-5 MS		**L2248321-6**						
1,1,1,2-Tetrachloroethane			102.1		%		50-140	27-MAR-19
1,1,2,2-Tetrachloroethane			94.0		%		50-140	27-MAR-19
1,1,1-Trichloroethane			98.7		%		50-140	27-MAR-19
1,1,2-Trichloroethane			104.9		%		50-140	27-MAR-19
1,1-Dichloroethane			98.7		%		50-140	27-MAR-19
1,1-Dichloroethylene			88.4		%		50-140	27-MAR-19
1,2-Dibromoethane			95.2		%		50-140	27-MAR-19
1,2-Dichlorobenzene			71.0		%		50-140	27-MAR-19
1,2-Dichloroethane			97.3		%		50-140	27-MAR-19
1,2-Dichloropropane			94.7		%		50-140	27-MAR-19
1,3-Dichlorobenzene			69.9		%		50-140	27-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4585205								
WG3013501-5 MS		**L2248321-6**						
1,4-Dichlorobenzene			70.0		%		50-140	27-MAR-19
Acetone			99.0		%		50-140	27-MAR-19
Benzene			98.7		%		50-140	27-MAR-19
Bromodichloromethane			99.5		%		50-140	27-MAR-19
Bromoform			96.1		%		50-140	27-MAR-19
Bromomethane			94.0		%		50-140	27-MAR-19
Carbon tetrachloride			100.3		%		50-140	27-MAR-19
Chlorobenzene			98.0		%		50-140	27-MAR-19
Chloroform			100.4		%		50-140	27-MAR-19
cis-1,2-Dichloroethylene			97.3		%		50-140	27-MAR-19
cis-1,3-Dichloropropene			86.4		%		50-140	27-MAR-19
Dibromochloromethane			102.0		%		50-140	27-MAR-19
Dichlorodifluoromethane			50.4		%		50-140	27-MAR-19
Ethylbenzene			93.1		%		50-140	27-MAR-19
n-Hexane			82.5		%		50-140	27-MAR-19
Methylene Chloride			98.4		%		50-140	27-MAR-19
MTBE			99.8		%		50-140	27-MAR-19
m+p-Xylenes			92.4		%		50-140	27-MAR-19
Methyl Ethyl Ketone			87.6		%		50-140	27-MAR-19
Methyl Isobutyl Ketone			78.0		%		50-140	27-MAR-19
o-Xylene			91.2		%		50-140	27-MAR-19
Styrene			87.5		%		50-140	27-MAR-19
Tetrachloroethylene			98.5		%		50-140	27-MAR-19
Toluene			95.1		%		50-140	27-MAR-19
trans-1,2-Dichloroethylene			88.5		%		50-140	27-MAR-19
trans-1,3-Dichloropropene			78.8		%		50-140	27-MAR-19
Trichloroethylene			100.5		%		50-140	27-MAR-19
Trichlorofluoromethane			96.7		%		50-140	27-MAR-19
Vinyl chloride			62.1		%		50-140	27-MAR-19

Quality Control Report

Workorder: L2248320 Report Date: 01-APR-19

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
J	Duplicate results and limits are expressed in terms of absolute difference.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

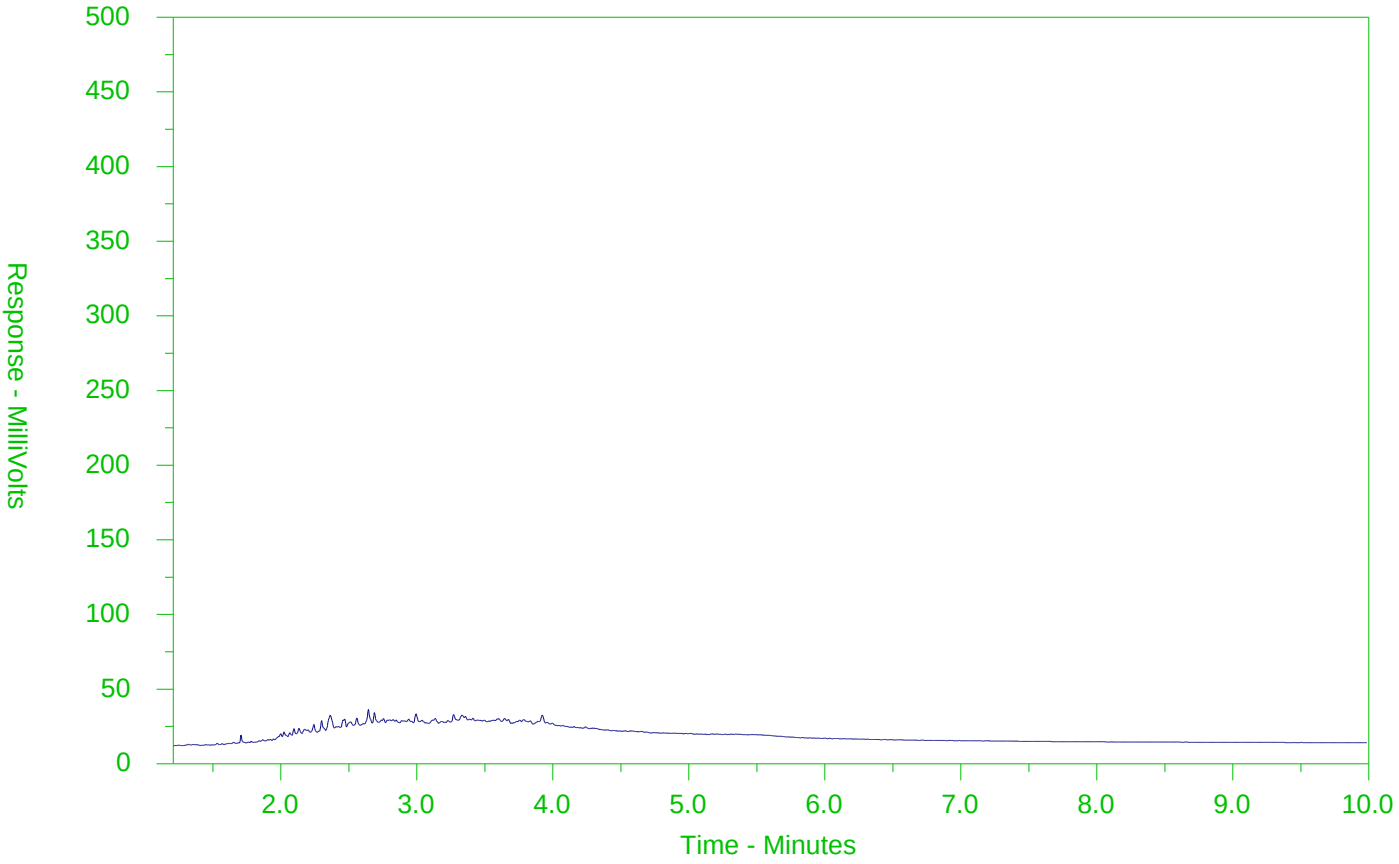
ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2248320-1
Client Sample ID: S-11102463-190321-JC-BH18-441-25'-30'



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

Chain of Custody (COC) / Analytical Request Form

L2248320-COFC

COC Number: 17 -

Page of

Canada Toll Free: 1 800 668 9878

www.alsglobal.com

Report To	Contact and company name below will appear on the final report
Company:	GHD LIMITED - ACCT #13791
Contact:	Jennifer Balkwill
Phone:	519-884-0510
	Company address below will appear on the final report
Street:	455 Phillip St
City/Province:	Waterloo,Ontario
Postal Code:	N2L 3X2
Invoice To	Same as Report To ☑ YES ☐ NO
	Copy of Invoice with Report ☐ YES ☑ NO
Company:	GHD Limited
Contact:	Jennifer Balkwill

Report Format / Distribution	
Select Report Format:	☑ PDF ☑ EXCEL ☑ EDD (DIGITAL)
Quality Control (QC) Report with Report	☑ YES ☐ NO
☐ Compare Results to Criteria on Report - provide details below if box checked	
Select Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	jennifer.balkwill@ghd.com
Email 2	See PO
Email 3	

Invoice Distribution	
Select Invoice Distribution:	☐ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	jennifer.balkwill@ghd.com
Email 2	

Project Information	
ALS Account # / Quote #:	13791, Q51987
Job #:	11102463-71
PO / AFE:	73509898-7
LSD:	Waterfront Toronto
ALS Lab Work Order # (lab use only):	L2248320

Oil and Gas Required Fields (client use)	
AFE/Cost Center:	PO#
Major/Minor Code:	Routing Code:
Requisitioner:	
Location:	
ALS Contact: Rick H	Sampler:

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)

Regular [R] ☑ Standard TAT if received by 3 pm - business days - no surcharges apply

Priority (Business Days)		Emergency	
	4 day [P4-20%] ☐		1 Business day [E - 100%] ☐
	3 day [P3-25%] ☐		Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)] ☐
	2 day [P2-50%] ☐		

Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm

For tests that can not be performed according to the service level selected, you will be contacted.

Analysis Request

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	BTEX,F1-F4-511-P-WT	TOC-WT (confirmed Triplicate 511 not neces	BTEX,F1 (Trip Blank)	X metals + inorganics	PAH	PCB	OC Pest	Chlorophenolics	PCB Aroclors	VOC	PHC	SAMPLES ON HOLD	SUSPECTED HAZARD (see Special Instructions)
	S-11102463- 190321-JC-BH18-441-25'-30'	21 mar-19	12:00	Soil	4				X	X	X				X	X		
	S-11102463-			Soil														
	S-11102463-			Soil														
	S-11102463-			Soil														
	S-11102463-			Soil														
	S-11102463-			Soil														
	S-11102463-			Soil														
	S-11102463-			Soil														
	S-11102463-			Soil														
	S-11102463-			Soil														
	S-11102463-			Soil														
	S-11102463-			Soil														

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? ☐ YES ☑ NO	
Are samples for human consumption/ use? ☐ YES ☑ NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen	☐	SIF Observations	Yes ☐	No	☐
Ice Packs	☒	Ice Cubes ☐	Custody seal intact	Yes ☐	No ☐
Cooling Initiated	☐				

INITIAL COOLER TEMPERATURES °C	FINAL COOLER TEMPERATURES °C
	4.0 °C

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
							22/Mar/2019	17:50

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

GHD Limited (Waterloo)
ATTN: JENNIFER BALKWILL
455 PHILLIP ST
WATERLOO ON N2L 3X2

Date Received: 22-MAR-19
Report Date: 27-MAR-19 14:47 (MT)
Version: FINAL

Client Phone: 519-884-0510

Certificate of Analysis

Lab Work Order #: L2248321

Project P.O. #: 73509898-7
Job Reference: 11102463-53
C of C Numbers:
Legal Site Desc: WATERFRONT TORONTO

Rick Hawthorne
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2248321-2 S-11102463-032019-DD-BH18-441-1.0-1.5								
Sampled By: CLIENT on 20-MAR-19 @ 12:00								
Matrix: SOIL								
Physical Tests								
Conductivity	2.28		0.0040	mS/cm	27-MAR-19	*0.7	*0.7	*0.7
% Moisture	9.30		0.10	%	26-MAR-19			
pH	7.90		0.10	pH units	26-MAR-19			
Cyanides								
Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	26-MAR-19	0.051	0.051	0.051
Saturated Paste Extractables								
SAR	26.5		0.10	SAR	27-MAR-19	*5	*5	*5
Calcium (Ca)	14.4		0.50	mg/L	27-MAR-19			
Magnesium (Mg)	3.18		0.50	mg/L	27-MAR-19			
Sodium (Na)	426		0.50	mg/L	27-MAR-19			
Metals								
Antimony (Sb)	2.4		1.0	ug/g	26-MAR-19	7.5	7.5	*1.3
Arsenic (As)	5.8		1.0	ug/g	26-MAR-19	18	18	18
Barium (Ba)	63.2		1.0	ug/g	26-MAR-19	390	390	220
Beryllium (Be)	<0.50		0.50	ug/g	26-MAR-19	4	5	2.5
Boron (B)	<5.0		5.0	ug/g	26-MAR-19	120	120	36
Boron (B), Hot Water Ext.	0.50		0.10	ug/g	26-MAR-19	1.5	1.5	1.5
Cadmium (Cd)	<0.50		0.50	ug/g	26-MAR-19	1.2	1.2	1.2
Chromium (Cr)	15.7		1.0	ug/g	26-MAR-19	160	160	70
Cobalt (Co)	3.8		1.0	ug/g	26-MAR-19	22	22	22
Copper (Cu)	31.3		1.0	ug/g	26-MAR-19	140	180	92
Lead (Pb)	126		1.0	ug/g	26-MAR-19	*120	*120	*120
Mercury (Hg)	0.213		0.0050	ug/g	26-MAR-19	0.27	1.8	0.27
Molybdenum (Mo)	<1.0		1.0	ug/g	26-MAR-19	6.9	6.9	2
Nickel (Ni)	10.1		1.0	ug/g	26-MAR-19	100	130	82
Selenium (Se)	<1.0		1.0	ug/g	26-MAR-19	2.4	2.4	1.5
Silver (Ag)	<0.20		0.20	ug/g	26-MAR-19	20	25	0.5
Thallium (Tl)	<0.50		0.50	ug/g	26-MAR-19	1	1	1
Uranium (U)	<1.0		1.0	ug/g	26-MAR-19	23	23	2.5
Vanadium (V)	19.5		1.0	ug/g	26-MAR-19	86	86	86
Zinc (Zn)	87.6		5.0	ug/g	26-MAR-19	340	340	290
Speciated Metals								
Chromium, Hexavalent	<0.20		0.20	ug/g	26-MAR-19	8	10	0.66
Volatile Organic Compounds								
Acetone	<0.50		0.50	ug/g	27-MAR-19	16	28	0.5
Benzene	0.119		0.0068	ug/g	27-MAR-19	0.21	0.17	*0.02
Bromodichloromethane	<0.050		0.050	ug/g	27-MAR-19	13	13	0.05
Bromoform	<0.050		0.050	ug/g	27-MAR-19	0.27	0.26	0.05
Bromomethane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05
Carbon tetrachloride	<0.050		0.050	ug/g	27-MAR-19	0.05	0.12	0.05
Chlorobenzene	<0.050		0.050	ug/g	27-MAR-19	2.4	2.7	0.05
Dibromochloromethane	<0.050		0.050	ug/g	27-MAR-19	9.4	9.4	0.05
Chloroform	<0.050		0.050	ug/g	27-MAR-19	0.05	0.18	0.05
1,2-Dibromoethane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05
1,2-Dichlorobenzene	<0.050		0.050	ug/g	27-MAR-19	3.4	4.3	0.05

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2248321-2 S-11102463-032019-DD-BH18-441-1.0-1.5								
Sampled By: CLIENT on 20-MAR-19 @ 12:00								
Matrix: SOIL								
Volatile Organic Compounds								
1,3-Dichlorobenzene	<0.050		0.050	ug/g	27-MAR-19	4.8	6	0.05
1,4-Dichlorobenzene	<0.050		0.050	ug/g	27-MAR-19	0.083	0.097	0.05
Dichlorodifluoromethane	<0.050		0.050	ug/g	27-MAR-19	16	25	0.05
1,1-Dichloroethane	<0.050		0.050	ug/g	27-MAR-19	3.5	11	0.05
1,2-Dichloroethane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05
1,1-Dichloroethylene	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	27-MAR-19	3.4	30	0.05
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	27-MAR-19	0.084	0.75	0.05
Methylene Chloride	<0.050		0.050	ug/g	27-MAR-19	0.1	0.96	0.05
1,2-Dichloropropane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.085	0.05
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	27-MAR-19			
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	27-MAR-19			
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g	27-MAR-19	0.05	0.083	0.05
Ethylbenzene	0.089		0.018	ug/g	27-MAR-19	2	15	*0.05
n-Hexane	0.294		0.050	ug/g	27-MAR-19	2.8	34	*0.05
Methyl Ethyl Ketone	<0.50		0.50	ug/g	27-MAR-19	16	44	0.5
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	27-MAR-19	1.7	4.3	0.5
MTBE	<0.050		0.050	ug/g	27-MAR-19	0.75	1.4	0.05
Styrene	<0.050		0.050	ug/g	27-MAR-19	0.7	2.2	0.05
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	27-MAR-19	0.058	0.05	0.05
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05
Tetrachloroethylene	<0.050		0.050	ug/g	27-MAR-19	0.28	2.3	0.05
Toluene	0.360		0.080	ug/g	27-MAR-19	2.3	6	*0.2
1,1,1-Trichloroethane	<0.050		0.050	ug/g	27-MAR-19	0.38	3.4	0.05
1,1,2-Trichloroethane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05
Trichloroethylene	<0.010		0.010	ug/g	27-MAR-19	0.061	0.52	0.05
Trichlorofluoromethane	<0.050		0.050	ug/g	27-MAR-19	4	5.8	0.25
Vinyl chloride	<0.020		0.020	ug/g	27-MAR-19	0.02	0.022	0.02
o-Xylene	0.227		0.020	ug/g	27-MAR-19			
m+p-Xylenes	0.441		0.030	ug/g	27-MAR-19			
Xylenes (Total)	0.667		0.050	ug/g	27-MAR-19	3.1	25	*0.05
Surrogate: 4-Bromofluorobenzene	98.8		50-140	%	27-MAR-19			
Surrogate: 1,4-Difluorobenzene	111.4		50-140	%	27-MAR-19			
Hydrocarbons								
F1 (C6-C10)	7.0		5.0	ug/g	27-MAR-19	55	65	25
F1-BTEX	5.8		5.0	ug/g	27-MAR-19	55	65	25
F2 (C10-C16)	19		10	ug/g	26-MAR-19	98	150	*10
F2-Naphth	18		10	ug/g	27-MAR-19			
F3 (C16-C34)	326		50	ug/g	26-MAR-19	*300	1300	*240
F3-PAH	321		50	ug/g	27-MAR-19			
F4 (C34-C50)	349		50	ug/g	26-MAR-19	2800	5600	*120
F4G-SG (GHH-Silica)	890		250	ug/g	25-MAR-19	2800	5600	*120
Total Hydrocarbons (C6-C50)	701		72	ug/g	27-MAR-19			
Chrom. to baseline at nC50	NO			No Unit	26-MAR-19			
Surrogate: 2-Bromobenzotrifluoride	92.9		60-140	%	26-MAR-19			
Surrogate: 3,4-Dichlorotoluene	80.6		60-140	%	27-MAR-19			

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2248321-2 S-11102463-032019-DD-BH18-441-1.0-1.5								
Sampled By: CLIENT on 20-MAR-19 @ 12:00								
Matrix: SOIL								
Polycyclic Aromatic Hydrocarbons								
1+2-Methylnaphthalenes	0.636		0.042	ug/g	26-MAR-19	0.99	3.4	*0.59
Semi-Volatile Organics								
Acenaphthene	0.092		0.050	ug/g	26-MAR-19	7.9	58	*0.072
Acenaphthylene	0.057		0.050	ug/g	26-MAR-19	0.15	0.17	0.093
Anthracene	0.183		0.050	ug/g	26-MAR-19	0.67	0.74	0.22
Benzo(a)anthracene	0.565		0.050	ug/g	26-MAR-19	*0.5	0.63	*0.36
Benzo(a)pyrene	0.635		0.050	ug/g	26-MAR-19	*0.3	*0.3	*0.3
Benzo(b)fluoranthene	0.611		0.050	ug/g	26-MAR-19	0.78	0.78	*0.47
Benzo(ghi)perylene	0.383		0.050	ug/g	26-MAR-19	6.6	7.8	0.68
Benzo(k)fluoranthene	0.416		0.050	ug/g	26-MAR-19	0.78	0.78	0.48
2-Chlorophenol	<0.10		0.10	ug/g	26-MAR-19	1.6	2	0.1
Chrysene	0.675		0.050	ug/g	26-MAR-19	7	7.8	2.8
Dibenzo(a,h)anthracene	0.109		0.050	ug/g	26-MAR-19	*0.1	*0.1	*0.1
2,4-Dichlorophenol	<0.10		0.10	ug/g	26-MAR-19	1.7	2.1	0.1
Fluoranthene	0.835		0.050	ug/g	26-MAR-19	*0.69	*0.69	*0.69
Fluorene	0.071		0.050	ug/g	26-MAR-19	62	69	0.19
Indeno(1,2,3-cd)pyrene	0.390		0.050	ug/g	26-MAR-19	*0.38	0.48	*0.23
1-Methylnaphthalene	0.270		0.030	ug/g	26-MAR-19	0.99	3.4	0.59
2-Methylnaphthalene	0.366		0.030	ug/g	26-MAR-19	0.99	3.4	0.59
Naphthalene	0.400		0.050	ug/g	26-MAR-19	0.6	0.75	*0.09
Pentachlorophenol	<0.10		0.10	ug/g	26-MAR-19	0.1	0.1	0.1
Phenanthrene	0.835		0.050	ug/g	26-MAR-19	6.2	7.8	*0.69
Pyrene	0.775		0.050	ug/g	26-MAR-19	78	78	1
2,4,5-Trichlorophenol	<0.10		0.10	ug/g	26-MAR-19	4.4	5.5	0.1
2,4,6-Trichlorophenol	<0.10		0.10	ug/g	26-MAR-19	3.8	4.2	0.1
Surrogate: 2-Fluorobiphenyl	88.7		50-140	%	26-MAR-19			
Surrogate: Phenol d5	93.2		30-130	%	26-MAR-19			
Surrogate: p-Terphenyl d14	86.4		50-140	%	26-MAR-19			
Surrogate: 2,4,6-Tribromophenol	90.3		50-140	%	26-MAR-19			
Polychlorinated Biphenyls								
Aroclor 1242	<0.010		0.010	ug/g	27-MAR-19			
Aroclor 1248	<0.010		0.010	ug/g	27-MAR-19			
Aroclor 1254	<0.010		0.010	ug/g	27-MAR-19			
Aroclor 1260	<0.020	DLM	0.020	ug/g	27-MAR-19			
Total PCBs	<0.030	DLM	0.030	ug/g	27-MAR-19	0.35	0.35	0.3
Surrogate: d14-Terphenyl	87.6		60-140	%	27-MAR-19			
Organochlorine Pesticides								
Aldrin	<0.10	DLM	0.10	ug/g	26-MAR-19	**0.05	**0.05	**0.05
gamma-hexachlorocyclohexane	<0.050	DLM	0.050	ug/g	26-MAR-19	0.056	0.063	
a-chlordane	<0.10	DLM	0.10	ug/g	26-MAR-19			
Chlordane (Total)	<0.14		0.14	ug/g	27-MAR-19	**0.05	**0.05	**0.05
g-chlordane	<0.10	DLM	0.10	ug/g	26-MAR-19			
op-DDD	<0.10	DLM	0.10	ug/g	26-MAR-19			
pp-DDD	<0.10	DLM	0.10	ug/g	26-MAR-19			
Total DDD	<0.14		0.14	ug/g	27-MAR-19	3.3	3.3	**0.05
o,p-DDE	<0.10	DLM	0.10	ug/g	26-MAR-19			

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2248321-2 S-11102463-032019-DD-BH18-441-1.0-1.5								
Sampled By: CLIENT on 20-MAR-19 @ 12:00								
Matrix: SOIL								
Organochlorine Pesticides								
pp-DDE	<0.10	DLM	0.10	ug/g	26-MAR-19			
Total DDE	<0.14		0.14	ug/g	27-MAR-19	0.26	0.33	**0.05
op-DDT	<0.10	DLM	0.10	ug/g	26-MAR-19			
pp-DDT	<0.20	DLM	0.20	ug/g	26-MAR-19			
Total DDT	<0.22		0.22	ug/g	27-MAR-19	1.4	1.4	1.4
Dieldrin	<0.10	DLM	0.10	ug/g	26-MAR-19	**0.05	**0.05	**0.05
Endosulfan I	<0.10	DLM	0.10	ug/g	26-MAR-19			
Endosulfan II	<0.10	DLM	0.10	ug/g	26-MAR-19			
Endosulfan (Total)	<0.14		0.14	ug/g	27-MAR-19	**0.04	**0.04	**0.04
Endrin	<0.10	DLM	0.10	ug/g	26-MAR-19	**0.04	**0.04	**0.04
Heptachlor	<0.10	DLM	0.10	ug/g	26-MAR-19	0.15	0.15	**0.05
Heptachlor Epoxide	<0.10	DLM	0.10	ug/g	26-MAR-19	**0.05	**0.05	**0.05
Hexachlorobenzene	<0.050	DLM	0.050	ug/g	26-MAR-19	0.52	0.52	**0.02
Hexachlorobutadiene	<0.050	DLM	0.050	ug/g	26-MAR-19	**0.012	**0.014	**0.01
Hexachloroethane	<0.050	DLM	0.050	ug/g	26-MAR-19	0.089	0.07	**0.01
Methoxychlor	<0.20	DLM	0.20	ug/g	26-MAR-19	**0.13	**0.13	**0.05
Surrogate: 2-Fluorobiphenyl	71.1		50-140	%	26-MAR-19			
Surrogate: d14-Terphenyl	62.8		50-140	%	26-MAR-19			
L2248321-3 S-11102463-032019-DD-BH18-441-2.8-3.4								
Sampled By: CLIENT on 20-MAR-19 @ 13:00								
Matrix: SOIL								
Physical Tests								
Conductivity	10.4		0.0040	mS/cm	27-MAR-19	*0.7	*0.7	*0.7
% Moisture	33.1		0.10	%	26-MAR-19			
pH	7.84		0.10	pH units	26-MAR-19			
Cyanides								
Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	26-MAR-19	0.051	0.051	0.051
Saturated Paste Extractables								
SAR	52.8		0.10	SAR	27-MAR-19	*5	*5	*5
Calcium (Ca)	119	DLHC	10	mg/L	27-MAR-19			
Magnesium (Mg)	10	DLHC	10	mg/L	27-MAR-19			
Sodium (Na)	2240	DLHC	10	mg/L	27-MAR-19			
Metals								
Antimony (Sb)	13.0		1.0	ug/g	26-MAR-19	*7.5	*7.5	*1.3
Arsenic (As)	21.2		1.0	ug/g	26-MAR-19	*18	*18	*18
Barium (Ba)	317		1.0	ug/g	26-MAR-19	390	390	*220
Beryllium (Be)	0.72		0.50	ug/g	26-MAR-19	4	5	2.5
Boron (B)	11.8		5.0	ug/g	26-MAR-19	120	120	36
Boron (B), Hot Water Ext.	1.28		0.10	ug/g	26-MAR-19	1.5	1.5	1.5
Cadmium (Cd)	1.36		0.50	ug/g	26-MAR-19	*1.2	*1.2	*1.2
Chromium (Cr)	34.9		1.0	ug/g	26-MAR-19	160	160	70
Cobalt (Co)	8.3		1.0	ug/g	26-MAR-19	22	22	22
Copper (Cu)	419		1.0	ug/g	26-MAR-19	*140	*180	*92
Lead (Pb)	1320	DLHC	10	ug/g	26-MAR-19	*120	*120	*120
Mercury (Hg)	1.15	DLHC	0.050	ug/g	26-MAR-19	*0.27	1.8	*0.27

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2248321-3 S-11102463-032019-DD-BH18-441-2.8-3.4								
Sampled By: CLIENT on 20-MAR-19 @ 13:00								
Matrix: SOIL								
Metals								
Molybdenum (Mo)	2.7		1.0	ug/g	26-MAR-19	6.9	6.9	*2
Nickel (Ni)	31.6		1.0	ug/g	26-MAR-19	100	130	82
Selenium (Se)	2.7		1.0	ug/g	26-MAR-19	*2.4	*2.4	*1.5
Silver (Ag)	1.23		0.20	ug/g	26-MAR-19	20	25	*0.5
Thallium (Tl)	<0.50		0.50	ug/g	26-MAR-19	1	1	1
Uranium (U)	<1.0		1.0	ug/g	26-MAR-19	23	23	2.5
Vanadium (V)	27.5		1.0	ug/g	26-MAR-19	86	86	86
Zinc (Zn)	822		5.0	ug/g	26-MAR-19	*340	*340	*290
Speciated Metals								
Chromium, Hexavalent	<0.20		0.20	ug/g	26-MAR-19	8	10	0.66
Volatile Organic Compounds								
Acetone	<0.50		0.50	ug/g	27-MAR-19	16	28	0.5
Benzene	0.150		0.0068	ug/g	27-MAR-19	0.21	0.17	*0.02
Bromodichloromethane	<6.1	DLVH	6.1	ug/g	27-MAR-19	13	13	**0.05
Bromoform	<0.050		0.050	ug/g	27-MAR-19	0.27	0.26	0.05
Bromomethane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05
Carbon tetrachloride	<0.050		0.050	ug/g	27-MAR-19	0.05	0.12	0.05
Chlorobenzene	<0.14	DLVH	0.14	ug/g	27-MAR-19	2.4	2.7	**0.05
Dibromochloromethane	<0.050		0.050	ug/g	27-MAR-19	9.4	9.4	0.05
Chloroform	<0.55	DLVH	0.55	ug/g	27-MAR-19	**0.05	**0.18	**0.05
1,2-Dibromoethane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05
1,2-Dichlorobenzene	<2.0	DLI	2.0	ug/g	27-MAR-19	3.4	4.3	**0.05
1,3-Dichlorobenzene	<2.0	DLI	2.0	ug/g	27-MAR-19	4.8	6	**0.05
1,4-Dichlorobenzene	<2.0	DLI	2.0	ug/g	27-MAR-19	**0.083	**0.097	**0.05
Dichlorodifluoromethane	<0.050		0.050	ug/g	27-MAR-19	16	25	0.05
1,1-Dichloroethane	<0.050		0.050	ug/g	27-MAR-19	3.5	11	0.05
1,2-Dichloroethane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05
1,1-Dichloroethylene	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05
cis-1,2-Dichloroethylene	<0.11	DLVH	0.11	ug/g	27-MAR-19	3.4	30	**0.05
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	27-MAR-19	0.084	0.75	0.05
Methylene Chloride	<0.050		0.050	ug/g	27-MAR-19	0.1	0.96	0.05
1,2-Dichloropropane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.085	0.05
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	27-MAR-19			
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	27-MAR-19			
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g	27-MAR-19	0.05	0.083	0.05
Ethylbenzene	0.166		0.018	ug/g	27-MAR-19	2	15	*0.05
n-Hexane	1.24		0.050	ug/g	27-MAR-19	2.8	34	*0.05
Methyl Ethyl Ketone	<0.85	DLVH	0.85	ug/g	27-MAR-19	16	44	**0.5
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	27-MAR-19	1.7	4.3	0.5
MTBE	<0.050		0.050	ug/g	27-MAR-19	0.75	1.4	0.05
Styrene	<0.050		0.050	ug/g	27-MAR-19	0.7	2.2	0.05
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	27-MAR-19	0.058	0.05	0.05
1,1,2,2-Tetrachloroethane	<2.0	DLVH	2.0	ug/g	27-MAR-19	**0.05	**0.05	**0.05
Tetrachloroethylene	<0.050		0.050	ug/g	27-MAR-19	0.28	2.3	0.05
Toluene	0.203		0.080	ug/g	27-MAR-19	2.3	6	*0.2

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2248321-3 S-11102463-032019-DD-BH18-441-2.8-3.4								
Sampled By: CLIENT on 20-MAR-19 @ 13:00								
Matrix: SOIL								
Volatile Organic Compounds								
1,1,1-Trichloroethane	<0.050		0.050	ug/g	27-MAR-19	0.38	3.4	0.05
1,1,2-Trichloroethane	<2.7	DLVH	2.7	ug/g	27-MAR-19	**0.05	**0.05	**0.05
Trichloroethylene	<0.010		0.010	ug/g	27-MAR-19	0.061	0.52	0.05
Trichlorofluoromethane	<0.050		0.050	ug/g	27-MAR-19	4	5.8	0.25
Vinyl chloride	<0.020		0.020	ug/g	27-MAR-19	0.02	0.022	0.02
o-Xylene	0.136		0.020	ug/g	27-MAR-19			
m+p-Xylenes	0.637		0.030	ug/g	27-MAR-19			
Xylenes (Total)	0.772		0.050	ug/g	27-MAR-19	3.1	25	*0.05
Surrogate: 4-Bromofluorobenzene	88.0		50-140	%	27-MAR-19			
Surrogate: 1,4-Difluorobenzene	94.6		50-140	%	27-MAR-19			
Hydrocarbons								
F1 (C6-C10)	800	DLHC	200	ug/g	27-MAR-19	*55	*65	*25
F1-BTEX	800		200	ug/g	27-MAR-19	*55	*65	*25
F2 (C10-C16)	3050	DLM	50	ug/g	26-MAR-19	*98	*150	*10
F2-Naphth	3050		50	ug/g	27-MAR-19			
F3 (C16-C34)	16700	DLM	250	ug/g	26-MAR-19	*300	*1300	*240
F3-PAH	16600		250	ug/g	27-MAR-19			
F4 (C34-C50)	7870	DLM	250	ug/g	26-MAR-19	*2800	*5600	*120
F4G-SG (GHH-Silica)	19100		250	ug/g	25-MAR-19	*2800	*5600	*120
Total Hydrocarbons (C6-C50)	28400		410	ug/g	27-MAR-19			
Chrom. to baseline at nC50	NO			No Unit	26-MAR-19			
Surrogate: 2-Bromobenzotrifluoride	115.1		60-140	%	26-MAR-19			
Surrogate: 3,4-Dichlorotoluene	N/A	SDO:RNA	60-140	%	27-MAR-19			
Polycyclic Aromatic Hydrocarbons								
1+2-Methylnaphthalenes	11.2		0.085	ug/g	26-MAR-19	*0.99	*3.4	*0.59
Semi-Volatile Organics								
Acenaphthene	2.64	DLM	0.10	ug/g	26-MAR-19	7.9	58	*0.072
Acenaphthylene	0.17	DLM	0.10	ug/g	26-MAR-19	*0.15	0.17	*0.093
Anthracene	2.74	DLM	0.10	ug/g	26-MAR-19	*0.67	*0.74	*0.22
Benzo(a)anthracene	5.48	DLM	0.10	ug/g	26-MAR-19	*0.5	*0.63	*0.36
Benzo(a)pyrene	6.61	DLM	0.10	ug/g	26-MAR-19	*0.3	*0.3	*0.3
Benzo(b)fluoranthene	6.61	DLM	0.10	ug/g	26-MAR-19	*0.78	*0.78	*0.47
Benzo(ghi)perylene	3.61	DLM	0.10	ug/g	26-MAR-19	6.6	7.8	*0.68
Benzo(k)fluoranthene	3.99	DLM	0.10	ug/g	26-MAR-19	*0.78	*0.78	*0.48
2-Chlorophenol	<0.20	DLM	0.20	ug/g	26-MAR-19	1.6	2	**0.1
Chrysene	6.56	DLM	0.10	ug/g	26-MAR-19	7	7.8	*2.8
Dibenzo(a,h)anthracene	0.73	DLM	0.10	ug/g	26-MAR-19	*0.1	*0.1	*0.1
2,4-Dichlorophenol	<0.20	DLM	0.20	ug/g	26-MAR-19	1.7	2.1	**0.1
Fluoranthene	10.0	DLM	0.10	ug/g	26-MAR-19	*0.69	*0.69	*0.69
Fluorene	4.74	DLM	0.10	ug/g	26-MAR-19	62	69	*0.19
Indeno(1,2,3-cd)pyrene	4.36	DLM	0.10	ug/g	26-MAR-19	*0.38	*0.48	*0.23
1-Methylnaphthalene	6.80	DLM	0.060	ug/g	26-MAR-19	*0.99	*3.4	*0.59
2-Methylnaphthalene	4.39	DLM	0.060	ug/g	26-MAR-19	*0.99	*3.4	*0.59
Naphthalene	2.73	DLM	0.10	ug/g	26-MAR-19	*0.6	*0.75	*0.09
Pentachlorophenol	<0.20	DLM	0.20	ug/g	26-MAR-19	**0.1	**0.1	**0.1

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2248321-3 S-11102463-032019-DD-BH18-441-2.8-3.4								
Sampled By: CLIENT on 20-MAR-19 @ 13:00								
Matrix: SOIL								
Semi-Volatile Organics								
Phenanthrene	7.60	DLM	0.10	ug/g	26-MAR-19	*6.2	7.8	*0.69
Pyrene	9.48	DLM	0.10	ug/g	26-MAR-19	78	78	*1
2,4,5-Trichlorophenol	<0.40	DLM	0.40	ug/g	26-MAR-19	4.4	5.5	**0.1
2,4,6-Trichlorophenol	<0.20	DLM	0.20	ug/g	26-MAR-19	3.8	4.2	**0.1
Surrogate: 2-Fluorobiphenyl	88.6		50-140	%	26-MAR-19			
Surrogate: Phenol d5	88.6		30-130	%	26-MAR-19			
Surrogate: p-Terphenyl d14	78.5		50-140	%	26-MAR-19			
Surrogate: 2,4,6-Tribromophenol	98.2		50-140	%	26-MAR-19			
Polychlorinated Biphenyls								
Aroclor 1242	<0.30	DLM	0.30	ug/g	27-MAR-19			
Aroclor 1248	<0.10	DLM	0.10	ug/g	27-MAR-19			
Aroclor 1254	<0.10	DLM	0.10	ug/g	27-MAR-19			
Aroclor 1260	<0.10	DLM	0.10	ug/g	27-MAR-19			
Total PCBs	<0.350	DLM	0.35	ug/g	27-MAR-19	0.35	0.35	**0.3
Surrogate: d14-Terphenyl	93.6		60-140	%	27-MAR-19			
Organochlorine Pesticides								
Aldrin	<0.40	DLM	0.40	ug/g	27-MAR-19	**0.05	**0.05	**0.05
gamma-hexachlorocyclohexane	<1.25	DLM	1.3	ug/g	27-MAR-19	**0.056	**0.063	
a-chlordane	<0.40	DLM	0.40	ug/g	27-MAR-19			
Chlordane (Total)	<0.57		0.57	ug/g	27-MAR-19	**0.05	**0.05	**0.05
g-chlordane	<0.40	DLM	0.40	ug/g	27-MAR-19			
op-DDD	<0.40	DLM	0.40	ug/g	27-MAR-19			
pp-DDD	<0.40	DLM	0.40	ug/g	27-MAR-19			
Total DDD	<0.57		0.57	ug/g	27-MAR-19	3.3	3.3	**0.05
o,p-DDE	<0.40	DLM	0.40	ug/g	27-MAR-19			
pp-DDE	<0.40	DLM	0.40	ug/g	27-MAR-19			
Total DDE	<0.57		0.57	ug/g	27-MAR-19	**0.26	**0.33	**0.05
op-DDT	<0.40	DLM	0.40	ug/g	27-MAR-19			
pp-DDT	<0.40	DLM	0.40	ug/g	27-MAR-19			
Total DDT	<0.57		0.57	ug/g	27-MAR-19	1.4	1.4	1.4
Dieldrin	<0.40	DLM	0.40	ug/g	27-MAR-19	**0.05	**0.05	**0.05
Endosulfan I	<0.40	DLM	0.40	ug/g	27-MAR-19			
Endosulfan II	<0.40	DLM	0.40	ug/g	27-MAR-19			
Endosulfan (Total)	<0.57		0.57	ug/g	27-MAR-19	**0.04	**0.04	**0.04
Endrin	<0.40	DLM	0.40	ug/g	27-MAR-19	**0.04	**0.04	**0.04
Heptachlor	<0.40	DLM	0.40	ug/g	27-MAR-19	**0.15	**0.15	**0.05
Heptachlor Epoxide	<0.40	DLM	0.40	ug/g	27-MAR-19	**0.05	**0.05	**0.05
Hexachlorobenzene	<0.20	DLM	0.20	ug/g	27-MAR-19	0.52	0.52	**0.02
Hexachlorobutadiene	<0.20	DLM	0.20	ug/g	27-MAR-19	**0.012	**0.014	**0.01
Hexachloroethane	<0.20	DLM	0.20	ug/g	27-MAR-19	**0.089	**0.07	**0.01
Methoxychlor	<0.40	DLM	0.40	ug/g	27-MAR-19	**0.13	**0.13	**0.05
Surrogate: 2-Fluorobiphenyl	N/A	SDO:RNA	50-140	%	27-MAR-19			
Surrogate: d14-Terphenyl	N/A	SDO:RNA	50-140	%	27-MAR-19			

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2248321-4 S-11102463-032119-DD-BH18-469-0.8-1.4								
Sampled By: CLIENT on 21-MAR-19 @ 12:10								
Matrix: SOIL								
Physical Tests								
Conductivity	0.564		0.0040	mS/cm	27-MAR-19	0.7	0.7	0.7
% Moisture	18.1		0.10	%	26-MAR-19			
pH	7.64		0.10	pH units	26-MAR-19			
Cyanides								
Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	26-MAR-19	0.051	0.051	0.051
Saturated Paste Extractables								
SAR	2.34		0.10	SAR	27-MAR-19	5	5	5
Calcium (Ca)	39.5		0.50	mg/L	27-MAR-19			
Magnesium (Mg)	4.79		0.50	mg/L	27-MAR-19			
Sodium (Na)	58.5		0.50	mg/L	27-MAR-19			
Metals								
Antimony (Sb)	2.6		1.0	ug/g	26-MAR-19	7.5	7.5	*1.3
Arsenic (As)	7.2		1.0	ug/g	26-MAR-19	18	18	18
Barium (Ba)	137		1.0	ug/g	26-MAR-19	390	390	220
Beryllium (Be)	0.54		0.50	ug/g	26-MAR-19	4	5	2.5
Boron (B)	11.7		5.0	ug/g	26-MAR-19	120	120	36
Boron (B), Hot Water Ext.	1.97		0.10	ug/g	26-MAR-19	*1.5	*1.5	*1.5
Cadmium (Cd)	0.54		0.50	ug/g	26-MAR-19	1.2	1.2	1.2
Chromium (Cr)	31.8		1.0	ug/g	26-MAR-19	160	160	70
Cobalt (Co)	8.0		1.0	ug/g	26-MAR-19	22	22	22
Copper (Cu)	59.8		1.0	ug/g	26-MAR-19	140	180	92
Lead (Pb)	181		1.0	ug/g	26-MAR-19	*120	*120	*120
Mercury (Hg)	0.357		0.0050	ug/g	26-MAR-19	*0.27	1.8	*0.27
Molybdenum (Mo)	<1.0		1.0	ug/g	26-MAR-19	6.9	6.9	2
Nickel (Ni)	20.8		1.0	ug/g	26-MAR-19	100	130	82
Selenium (Se)	<1.0		1.0	ug/g	26-MAR-19	2.4	2.4	1.5
Silver (Ag)	0.31		0.20	ug/g	26-MAR-19	20	25	0.5
Thallium (Tl)	<0.50		0.50	ug/g	26-MAR-19	1	1	1
Uranium (U)	<1.0		1.0	ug/g	26-MAR-19	23	23	2.5
Vanadium (V)	29.2		1.0	ug/g	26-MAR-19	86	86	86
Zinc (Zn)	173		5.0	ug/g	26-MAR-19	340	340	290
Speciated Metals								
Chromium, Hexavalent	<0.20		0.20	ug/g	26-MAR-19	8	10	0.66
Volatile Organic Compounds								
Acetone	<0.50		0.50	ug/g	27-MAR-19	16	28	0.5
Benzene	0.110		0.0068	ug/g	27-MAR-19	0.21	0.17	*0.02
Bromodichloromethane	<0.050		0.050	ug/g	27-MAR-19	13	13	0.05
Bromoform	<0.050		0.050	ug/g	27-MAR-19	0.27	0.26	0.05
Bromomethane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05
Carbon tetrachloride	<0.050		0.050	ug/g	27-MAR-19	0.05	0.12	0.05
Chlorobenzene	<0.050		0.050	ug/g	27-MAR-19	2.4	2.7	0.05
Dibromochloromethane	<0.050		0.050	ug/g	27-MAR-19	9.4	9.4	0.05
Chloroform	<0.050		0.050	ug/g	27-MAR-19	0.05	0.18	0.05
1,2-Dibromoethane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05
1,2-Dichlorobenzene	<0.050		0.050	ug/g	27-MAR-19	3.4	4.3	0.05

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2248321-4 S-11102463-032119-DD-BH18-469-0.8-1.4								
Sampled By: CLIENT on 21-MAR-19 @ 12:10								
Matrix: SOIL								
Volatile Organic Compounds								
1,3-Dichlorobenzene	<0.050		0.050	ug/g	27-MAR-19	4.8	6	0.05
1,4-Dichlorobenzene	<0.050		0.050	ug/g	27-MAR-19	0.083	0.097	0.05
Dichlorodifluoromethane	<0.050		0.050	ug/g	27-MAR-19	16	25	0.05
1,1-Dichloroethane	<0.050		0.050	ug/g	27-MAR-19	3.5	11	0.05
1,2-Dichloroethane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05
1,1-Dichloroethylene	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	27-MAR-19	3.4	30	0.05
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	27-MAR-19	0.084	0.75	0.05
Methylene Chloride	<0.050		0.050	ug/g	27-MAR-19	0.1	0.96	0.05
1,2-Dichloropropane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.085	0.05
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	27-MAR-19			
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	27-MAR-19			
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g	27-MAR-19	0.05	0.083	0.05
Ethylbenzene	0.070		0.018	ug/g	27-MAR-19	2	15	*0.05
n-Hexane	0.289		0.050	ug/g	27-MAR-19	2.8	34	*0.05
Methyl Ethyl Ketone	<0.50		0.50	ug/g	27-MAR-19	16	44	0.5
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	27-MAR-19	1.7	4.3	0.5
MTBE	<0.050		0.050	ug/g	27-MAR-19	0.75	1.4	0.05
Styrene	<0.050		0.050	ug/g	27-MAR-19	0.7	2.2	0.05
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	27-MAR-19	0.058	0.05	0.05
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05
Tetrachloroethylene	<0.050		0.050	ug/g	27-MAR-19	0.28	2.3	0.05
Toluene	0.202		0.080	ug/g	27-MAR-19	2.3	6	*0.2
1,1,1-Trichloroethane	<0.050		0.050	ug/g	27-MAR-19	0.38	3.4	0.05
1,1,2-Trichloroethane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05
Trichloroethylene	<0.010		0.010	ug/g	27-MAR-19	0.061	0.52	0.05
Trichlorofluoromethane	<0.050		0.050	ug/g	27-MAR-19	4	5.8	0.25
Vinyl chloride	<0.020		0.020	ug/g	27-MAR-19	0.02	0.022	0.02
o-Xylene	0.136		0.020	ug/g	27-MAR-19			
m+p-Xylenes	0.246		0.030	ug/g	27-MAR-19			
Xylenes (Total)	0.382		0.050	ug/g	27-MAR-19	3.1	25	*0.05
Surrogate: 4-Bromofluorobenzene	98.3		50-140	%	27-MAR-19			
Surrogate: 1,4-Difluorobenzene	110.2		50-140	%	27-MAR-19			
Hydrocarbons								
F1 (C6-C10)	5.6		5.0	ug/g	27-MAR-19	55	65	25
F1-BTEX	<5.0		5.0	ug/g	27-MAR-19	55	65	25
F2 (C10-C16)	26		10	ug/g	26-MAR-19	98	150	*10
F2-Naphth	26		10	ug/g	27-MAR-19			
F3 (C16-C34)	236		50	ug/g	26-MAR-19	300	1300	240
F3-PAH	216		50	ug/g	27-MAR-19			
F4 (C34-C50)	110		50	ug/g	26-MAR-19	2800	5600	120
F4G-SG (GHH-Silica)	470		250	ug/g	25-MAR-19	2800	5600	*120
Total Hydrocarbons (C6-C50)	378		72	ug/g	27-MAR-19			
Chrom. to baseline at nC50	NO			No Unit	26-MAR-19			
Surrogate: 2-Bromobenzotrifluoride	92.4		60-140	%	26-MAR-19			
Surrogate: 3,4-Dichlorotoluene	81.8		60-140	%	27-MAR-19			

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2248321-4 S-11102463-032119-DD-BH18-469-0.8-1.4								
Sampled By: CLIENT on 21-MAR-19 @ 12:10								
Matrix: SOIL								
Polycyclic Aromatic Hydrocarbons								
1+2-Methylnaphthalenes	0.665		0.042	ug/g	26-MAR-19	0.99	3.4	*0.59
Semi-Volatile Organics								
Acenaphthene	0.896		0.050	ug/g	26-MAR-19	7.9	58	*0.072
Acenaphthylene	0.119		0.050	ug/g	26-MAR-19	0.15	0.17	*0.093
Anthracene	2.17		0.050	ug/g	26-MAR-19	*0.67	*0.74	*0.22
Benzo(a)anthracene	2.10		0.050	ug/g	26-MAR-19	*0.5	*0.63	*0.36
Benzo(a)pyrene	1.96		0.050	ug/g	26-MAR-19	*0.3	*0.3	*0.3
Benzo(b)fluoranthene	2.05		0.050	ug/g	26-MAR-19	*0.78	*0.78	*0.47
Benzo(ghi)perylene	0.855		0.050	ug/g	26-MAR-19	6.6	7.8	*0.68
Benzo(k)fluoranthene	1.33		0.050	ug/g	26-MAR-19	*0.78	*0.78	*0.48
2-Chlorophenol	<0.10		0.10	ug/g	26-MAR-19	1.6	2	0.1
Chrysene	2.11		0.050	ug/g	26-MAR-19	7	7.8	2.8
Dibenzo(a,h)anthracene	0.193		0.050	ug/g	26-MAR-19	*0.1	*0.1	*0.1
2,4-Dichlorophenol	<0.10		0.10	ug/g	26-MAR-19	1.7	2.1	0.1
Fluoranthene	3.70	DLHC	0.10	ug/g	26-MAR-19	*0.69	*0.69	*0.69
Fluorene	0.885		0.050	ug/g	26-MAR-19	62	69	*0.19
Indeno(1,2,3-cd)pyrene	1.01		0.050	ug/g	26-MAR-19	*0.38	*0.48	*0.23
1-Methylnaphthalene	0.281		0.030	ug/g	26-MAR-19	0.99	3.4	0.59
2-Methylnaphthalene	0.384		0.030	ug/g	26-MAR-19	0.99	3.4	0.59
Naphthalene	0.432		0.050	ug/g	26-MAR-19	0.6	0.75	*0.09
Pentachlorophenol	<0.10		0.10	ug/g	26-MAR-19	0.1	0.1	0.1
Phenanthrene	4.15	DLHC	0.10	ug/g	26-MAR-19	6.2	7.8	*0.69
Pyrene	3.87		0.050	ug/g	26-MAR-19	78	78	*1
2,4,5-Trichlorophenol	<0.10		0.10	ug/g	26-MAR-19	4.4	5.5	0.1
2,4,6-Trichlorophenol	<0.10		0.10	ug/g	26-MAR-19	3.8	4.2	0.1
Surrogate: 2-Fluorobiphenyl	96.5		50-140	%	26-MAR-19			
Surrogate: Phenol d5	96.8		30-130	%	26-MAR-19			
Surrogate: p-Terphenyl d14	88.3		50-140	%	26-MAR-19			
Surrogate: 2,4,6-Tribromophenol	104.2		50-140	%	26-MAR-19			
Polychlorinated Biphenyls								
Aroclor 1242	<0.010		0.010	ug/g	27-MAR-19			
Aroclor 1248	<0.010		0.010	ug/g	27-MAR-19			
Aroclor 1254	<0.010		0.010	ug/g	27-MAR-19			
Aroclor 1260	<0.050	DLM	0.050	ug/g	27-MAR-19			
Total PCBs	<0.0550	DLM	0.055	ug/g	27-MAR-19	0.35	0.35	0.3
Surrogate: d14-Terphenyl	90.7		60-140	%	27-MAR-19			
Organochlorine Pesticides								
Aldrin	<0.10	DLM	0.10	ug/g	27-MAR-19	**0.05	**0.05	**0.05
gamma-hexachlorocyclohexane	<0.050	DLM	0.050	ug/g	27-MAR-19	0.056	0.063	
a-chlordane	<0.10	DLM	0.10	ug/g	27-MAR-19			
Chlordane (Total)	<0.14		0.14	ug/g	27-MAR-19	**0.05	**0.05	**0.05
g-chlordane	<0.10	DLM	0.10	ug/g	27-MAR-19			
op-DDD	<0.10	DLM	0.10	ug/g	27-MAR-19			
pp-DDD	<0.10	DLM	0.10	ug/g	27-MAR-19			
Total DDD	<0.14		0.14	ug/g	27-MAR-19	3.3	3.3	**0.05
o,p-DDE	<0.10	DLM	0.10	ug/g	27-MAR-19			

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2248321-4 S-11102463-032119-DD-BH18-469-0.8-1.4								
Sampled By: CLIENT on 21-MAR-19 @ 12:10								
Matrix: SOIL								
Organochlorine Pesticides								
pp-DDE	<0.10	DLM	0.10	ug/g	27-MAR-19			
Total DDE	<0.14		0.14	ug/g	27-MAR-19	0.26	0.33	**0.05
op-DDT	<0.10	DLM	0.10	ug/g	27-MAR-19			
pp-DDT	<0.20	DLM	0.20	ug/g	27-MAR-19			
Total DDT	<0.22		0.22	ug/g	27-MAR-19	1.4	1.4	1.4
Dieldrin	<0.10	DLM	0.10	ug/g	27-MAR-19	**0.05	**0.05	**0.05
Endosulfan I	<0.10	DLM	0.10	ug/g	27-MAR-19			
Endosulfan II	<0.10	DLM	0.10	ug/g	27-MAR-19			
Endosulfan (Total)	<0.14		0.14	ug/g	27-MAR-19	**0.04	**0.04	**0.04
Endrin	<0.10	DLM	0.10	ug/g	27-MAR-19	**0.04	**0.04	**0.04
Heptachlor	<0.10	DLM	0.10	ug/g	27-MAR-19	0.15	0.15	**0.05
Heptachlor Epoxide	<0.10	DLM	0.10	ug/g	27-MAR-19	**0.05	**0.05	**0.05
Hexachlorobenzene	<0.050	DLM	0.050	ug/g	27-MAR-19	0.52	0.52	**0.02
Hexachlorobutadiene	<0.050	DLM	0.050	ug/g	27-MAR-19	**0.012	**0.014	**0.01
Hexachloroethane	<0.050	DLM	0.050	ug/g	27-MAR-19	0.089	0.07	**0.01
Methoxychlor	<0.20	DLM	0.20	ug/g	27-MAR-19	**0.13	**0.13	**0.05
Surrogate: 2-Fluorobiphenyl	68.6		50-140	%	27-MAR-19			
Surrogate: d14-Terphenyl	84.6		50-140	%	27-MAR-19			
L2248321-5 S-11102463-032119-DD-BH18-469-3.0-3.7								
Sampled By: CLIENT on 21-MAR-19 @ 13:00								
Matrix: SOIL								
Physical Tests								
Conductivity	1.33		0.0040	mS/cm	27-MAR-19	*0.7	*0.7	*0.7
% Moisture	27.4		0.10	%	26-MAR-19			
pH	8.42		0.10	pH units	26-MAR-19			
Cyanides								
Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	26-MAR-19	0.051	0.051	0.051
Saturated Paste Extractables								
SAR	1.85		0.10	SAR	27-MAR-19	5	5	5
Calcium (Ca)	154		0.50	mg/L	27-MAR-19			
Magnesium (Mg)	6.53		0.50	mg/L	27-MAR-19			
Sodium (Na)	86.4		0.50	mg/L	27-MAR-19			
Metals								
Antimony (Sb)	12.8		1.0	ug/g	26-MAR-19	*7.5	*7.5	*1.3
Arsenic (As)	82.6		1.0	ug/g	26-MAR-19	*18	*18	*18
Barium (Ba)	327		1.0	ug/g	26-MAR-19	390	390	*220
Beryllium (Be)	<0.50		0.50	ug/g	26-MAR-19	4	5	2.5
Boron (B)	10.9		5.0	ug/g	26-MAR-19	120	120	36
Boron (B), Hot Water Ext.	1.84		0.10	ug/g	26-MAR-19	*1.5	*1.5	*1.5
Cadmium (Cd)	1.52		0.50	ug/g	26-MAR-19	*1.2	*1.2	*1.2
Chromium (Cr)	41.4		1.0	ug/g	26-MAR-19	160	160	70
Cobalt (Co)	7.0		1.0	ug/g	26-MAR-19	22	22	22
Copper (Cu)	310		1.0	ug/g	26-MAR-19	*140	*180	*92
Lead (Pb)	1520	DLHC	10	ug/g	26-MAR-19	*120	*120	*120
Mercury (Hg)	3.09	DLHC	0.50	ug/g	26-MAR-19	*0.27	*1.8	*0.27

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2248321-5 S-11102463-032119-DD-BH18-469-3.0-3.7								
Sampled By: CLIENT on 21-MAR-19 @ 13:00								
Matrix: SOIL								
Metals								
Molybdenum (Mo)	1.6		1.0	ug/g	26-MAR-19	6.9	6.9	2
Nickel (Ni)	26.7		1.0	ug/g	26-MAR-19	100	130	82
Selenium (Se)	2.6		1.0	ug/g	26-MAR-19	*2.4	*2.4	*1.5
Silver (Ag)	5.00		0.20	ug/g	26-MAR-19	20	25	*0.5
Thallium (Tl)	<0.50		0.50	ug/g	26-MAR-19	1	1	1
Uranium (U)	<1.0		1.0	ug/g	26-MAR-19	23	23	2.5
Vanadium (V)	24.8		1.0	ug/g	26-MAR-19	86	86	86
Zinc (Zn)	990		5.0	ug/g	26-MAR-19	*340	*340	*290
Speciated Metals								
Chromium, Hexavalent	<0.20		0.20	ug/g	26-MAR-19	8	10	0.66
Volatile Organic Compounds								
Acetone	<0.50		0.50	ug/g	27-MAR-19	16	28	0.5
Benzene	0.0639		0.0068	ug/g	27-MAR-19	0.21	0.17	*0.02
Bromodichloromethane	<0.050		0.050	ug/g	27-MAR-19	13	13	0.05
Bromoform	<0.050		0.050	ug/g	27-MAR-19	0.27	0.26	0.05
Bromomethane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05
Carbon tetrachloride	<0.050		0.050	ug/g	27-MAR-19	0.05	0.12	0.05
Chlorobenzene	<0.050		0.050	ug/g	27-MAR-19	2.4	2.7	0.05
Dibromochloromethane	<0.050		0.050	ug/g	27-MAR-19	9.4	9.4	0.05
Chloroform	<0.050		0.050	ug/g	27-MAR-19	0.05	0.18	0.05
1,2-Dibromoethane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05
1,2-Dichlorobenzene	<0.050		0.050	ug/g	27-MAR-19	3.4	4.3	0.05
1,3-Dichlorobenzene	<0.050		0.050	ug/g	27-MAR-19	4.8	6	0.05
1,4-Dichlorobenzene	<0.050		0.050	ug/g	27-MAR-19	0.083	0.097	0.05
Dichlorodifluoromethane	<0.050		0.050	ug/g	27-MAR-19	16	25	0.05
1,1-Dichloroethane	<0.050		0.050	ug/g	27-MAR-19	3.5	11	0.05
1,2-Dichloroethane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05
1,1-Dichloroethylene	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	27-MAR-19	3.4	30	0.05
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	27-MAR-19	0.084	0.75	0.05
Methylene Chloride	<0.050		0.050	ug/g	27-MAR-19	0.1	0.96	0.05
1,2-Dichloropropane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.085	0.05
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	27-MAR-19			
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	27-MAR-19			
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g	27-MAR-19	0.05	0.083	0.05
Ethylbenzene	0.030		0.018	ug/g	27-MAR-19	2	15	0.05
n-Hexane	0.069		0.050	ug/g	27-MAR-19	2.8	34	*0.05
Methyl Ethyl Ketone	<0.50		0.50	ug/g	27-MAR-19	16	44	0.5
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	27-MAR-19	1.7	4.3	0.5
MTBE	<0.050		0.050	ug/g	27-MAR-19	0.75	1.4	0.05
Styrene	<0.050		0.050	ug/g	27-MAR-19	0.7	2.2	0.05
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	27-MAR-19	0.058	0.05	0.05
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05
Tetrachloroethylene	<0.050		0.050	ug/g	27-MAR-19	0.28	2.3	0.05
Toluene	0.158		0.080	ug/g	27-MAR-19	2.3	6	0.2

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2248321-5 S-11102463-032119-DD-BH18-469-3.0-3.7								
Sampled By: CLIENT on 21-MAR-19 @ 13:00								
Matrix: SOIL								
Volatile Organic Compounds								
1,1,1-Trichloroethane	<0.050		0.050	ug/g	27-MAR-19	0.38	3.4	0.05
1,1,2-Trichloroethane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05
Trichloroethylene	<0.010		0.010	ug/g	27-MAR-19	0.061	0.52	0.05
Trichlorofluoromethane	<0.050		0.050	ug/g	27-MAR-19	4	5.8	0.25
Vinyl chloride	<0.020		0.020	ug/g	27-MAR-19	0.02	0.022	0.02
o-Xylene	0.050		0.020	ug/g	27-MAR-19			
m+p-Xylenes	0.099		0.030	ug/g	27-MAR-19			
Xylenes (Total)	0.149		0.050	ug/g	27-MAR-19	3.1	25	*0.05
Surrogate: 4-Bromofluorobenzene	94.7		50-140	%	27-MAR-19			
Surrogate: 1,4-Difluorobenzene	104.0		50-140	%	27-MAR-19			
Hydrocarbons								
F1 (C6-C10)	7.2		5.0	ug/g	27-MAR-19	55	65	25
F1-BTEX	6.8		5.0	ug/g	27-MAR-19	55	65	25
F2 (C10-C16)	42		10	ug/g	26-MAR-19	98	150	*10
F2-Naphth	42		10	ug/g	27-MAR-19			
F3 (C16-C34)	1250		50	ug/g	26-MAR-19	*300	1300	*240
F3-PAH	1250		50	ug/g	27-MAR-19			
F4 (C34-C50)	903		50	ug/g	26-MAR-19	2800	5600	*120
F4G-SG (GHH-Silica)	1910		250	ug/g	25-MAR-19	2800	5600	*120
Total Hydrocarbons (C6-C50)	2200		72	ug/g	27-MAR-19			
Chrom. to baseline at nC50	NO			No Unit	26-MAR-19			
Surrogate: 2-Bromobenzotrifluoride	94.1		60-140	%	26-MAR-19			
Surrogate: 3,4-Dichlorotoluene	83.4		60-140	%	27-MAR-19			
Polycyclic Aromatic Hydrocarbons								
1+2-Methylnaphthalenes	0.171		0.042	ug/g	26-MAR-19	0.99	3.4	0.59
Semi-Volatile Organics								
Acenaphthene	0.191		0.050	ug/g	26-MAR-19	7.9	58	*0.072
Acenaphthylene	<0.050		0.050	ug/g	26-MAR-19	0.15	0.17	0.093
Anthracene	0.299		0.050	ug/g	26-MAR-19	0.67	0.74	*0.22
Benzo(a)anthracene	0.578		0.050	ug/g	26-MAR-19	*0.5	0.63	*0.36
Benzo(a)pyrene	0.520		0.050	ug/g	26-MAR-19	*0.3	*0.3	*0.3
Benzo(b)fluoranthene	0.551		0.050	ug/g	26-MAR-19	0.78	0.78	*0.47
Benzo(ghi)perylene	0.207		0.050	ug/g	26-MAR-19	6.6	7.8	0.68
Benzo(k)fluoranthene	0.351		0.050	ug/g	26-MAR-19	0.78	0.78	0.48
2-Chlorophenol	<0.10		0.10	ug/g	26-MAR-19	1.6	2	0.1
Chrysene	0.577		0.050	ug/g	26-MAR-19	7	7.8	2.8
Dibenzo(a,h)anthracene	0.060		0.050	ug/g	26-MAR-19	0.1	0.1	0.1
2,4-Dichlorophenol	<0.10		0.10	ug/g	26-MAR-19	1.7	2.1	0.1
Fluoranthene	1.10		0.050	ug/g	26-MAR-19	*0.69	*0.69	*0.69
Fluorene	0.159		0.050	ug/g	26-MAR-19	62	69	0.19
Indeno(1,2,3-cd)pyrene	0.281		0.050	ug/g	26-MAR-19	0.38	0.48	*0.23
1-Methylnaphthalene	0.076		0.030	ug/g	26-MAR-19	0.99	3.4	0.59
2-Methylnaphthalene	0.095		0.030	ug/g	26-MAR-19	0.99	3.4	0.59
Naphthalene	0.124		0.050	ug/g	26-MAR-19	0.6	0.75	*0.09
Pentachlorophenol	<0.10		0.10	ug/g	26-MAR-19	0.1	0.1	0.1
Phenanthrene	0.939		0.050	ug/g	26-MAR-19	6.2	7.8	*0.69

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2248321-5 S-11102463-032119-DD-BH18-469-3.0-3.7								
Sampled By: CLIENT on 21-MAR-19 @ 13:00								
Matrix: SOIL								
Semi-Volatile Organics								
Pyrene	0.925		0.050	ug/g	26-MAR-19	78	78	1
2,4,5-Trichlorophenol	<0.10		0.10	ug/g	26-MAR-19	4.4	5.5	0.1
2,4,6-Trichlorophenol	<0.10		0.10	ug/g	26-MAR-19	3.8	4.2	0.1
Surrogate: 2-Fluorobiphenyl	92.1		50-140	%	26-MAR-19			
Surrogate: Phenol d5	95.0		30-130	%	26-MAR-19			
Surrogate: p-Terphenyl d14	89.4		50-140	%	26-MAR-19			
Surrogate: 2,4,6-Tribromophenol	99.0		50-140	%	26-MAR-19			
Polychlorinated Biphenyls								
Aroclor 1242	<0.020	DLM	0.020	ug/g	27-MAR-19			
Aroclor 1248	<0.010		0.010	ug/g	27-MAR-19			
Aroclor 1254	<0.010		0.010	ug/g	27-MAR-19			
Aroclor 1260	<0.010		0.010	ug/g	27-MAR-19			
Total PCBs	<0.030	DLM	0.030	ug/g	27-MAR-19	0.35	0.35	0.3
Surrogate: d14-Terphenyl	86.4		60-140	%	27-MAR-19			
Organochlorine Pesticides								
Aldrin	<0.10	DLM	0.10	ug/g	27-MAR-19	**0.05	**0.05	**0.05
gamma-hexachlorocyclohexane	<0.050	DLM	0.050	ug/g	27-MAR-19	0.056	0.063	
a-chlordane	<0.10	DLM	0.10	ug/g	27-MAR-19			
Chlordane (Total)	<0.14		0.14	ug/g	27-MAR-19	**0.05	**0.05	**0.05
g-chlordane	<0.10	DLM	0.10	ug/g	27-MAR-19			
op-DDD	<0.10	DLM	0.10	ug/g	27-MAR-19			
pp-DDD	<0.10	DLM	0.10	ug/g	27-MAR-19			
Total DDD	<0.14		0.14	ug/g	27-MAR-19	3.3	3.3	**0.05
o,p-DDE	<0.10	DLM	0.10	ug/g	27-MAR-19			
pp-DDE	<0.10	DLM	0.10	ug/g	27-MAR-19			
Total DDE	<0.14		0.14	ug/g	27-MAR-19	0.26	0.33	**0.05
op-DDT	<0.10	DLM	0.10	ug/g	27-MAR-19			
pp-DDT	<0.20	DLM	0.20	ug/g	27-MAR-19			
Total DDT	<0.22		0.22	ug/g	27-MAR-19	1.4	1.4	1.4
Dieldrin	<0.10	DLM	0.10	ug/g	27-MAR-19	**0.05	**0.05	**0.05
Endosulfan I	<0.10	DLM	0.10	ug/g	27-MAR-19			
Endosulfan II	<0.10	DLM	0.10	ug/g	27-MAR-19			
Endosulfan (Total)	<0.14		0.14	ug/g	27-MAR-19	**0.04	**0.04	**0.04
Endrin	<0.10	DLM	0.10	ug/g	27-MAR-19	**0.04	**0.04	**0.04
Heptachlor	<0.10	DLM	0.10	ug/g	27-MAR-19	0.15	0.15	**0.05
Heptachlor Epoxide	<0.10	DLM	0.10	ug/g	27-MAR-19	**0.05	**0.05	**0.05
Hexachlorobenzene	<0.050	DLM	0.050	ug/g	27-MAR-19	0.52	0.52	**0.02
Hexachlorobutadiene	<0.050	DLM	0.050	ug/g	27-MAR-19	**0.012	**0.014	**0.01
Hexachloroethane	<0.050	DLM	0.050	ug/g	27-MAR-19	0.089	0.07	**0.01
Methoxychlor	<0.20	DLM	0.20	ug/g	27-MAR-19	**0.13	**0.13	**0.05
Surrogate: 2-Fluorobiphenyl	53.1		50-140	%	27-MAR-19			
Surrogate: d14-Terphenyl	79.2		50-140	%	27-MAR-19			
L2248321-6 S-11102463-032119-DD-BH18-469-DUP-001								
Sampled By: CLIENT on 21-MAR-19 @ 13:30								
Matrix: SOIL						#1	#2	#3

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2248321-6 S-11102463-032119-DD-BH18-469-DUP-001								
Sampled By: CLIENT on 21-MAR-19 @ 13:30								
Matrix: SOIL								
Physical Tests								
Conductivity	1.27		0.0040	mS/cm	27-MAR-19	*0.7	*0.7	*0.7
% Moisture	26.7		0.10	%	26-MAR-19			
pH	8.53		0.10	pH units	26-MAR-19			
Cyanides								
Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	26-MAR-19	0.051	0.051	0.051
Saturated Paste Extractables								
SAR	1.93		0.10	SAR	27-MAR-19	5	5	5
Calcium (Ca)	141		0.50	mg/L	27-MAR-19			
Magnesium (Mg)	7.85		0.50	mg/L	27-MAR-19			
Sodium (Na)	87.0		0.50	mg/L	27-MAR-19			
Metals								
Antimony (Sb)	10.2		1.0	ug/g	26-MAR-19	*7.5	*7.5	*1.3
Arsenic (As)	79.9		1.0	ug/g	26-MAR-19	*18	*18	*18
Barium (Ba)	288		1.0	ug/g	26-MAR-19	390	390	*220
Beryllium (Be)	<0.50		0.50	ug/g	26-MAR-19	4	5	2.5
Boron (B)	10.7		5.0	ug/g	26-MAR-19	120	120	36
Boron (B), Hot Water Ext.	1.22		0.10	ug/g	26-MAR-19	1.5	1.5	1.5
Cadmium (Cd)	1.27		0.50	ug/g	26-MAR-19	*1.2	*1.2	*1.2
Chromium (Cr)	36.4		1.0	ug/g	26-MAR-19	160	160	70
Cobalt (Co)	6.4		1.0	ug/g	26-MAR-19	22	22	22
Copper (Cu)	219		1.0	ug/g	26-MAR-19	*140	*180	*92
Lead (Pb)	3760	DLHC	10	ug/g	26-MAR-19	*120	*120	*120
Mercury (Hg)	2.83	DLHC	0.50	ug/g	26-MAR-19	*0.27	*1.8	*0.27
Molybdenum (Mo)	1.5		1.0	ug/g	26-MAR-19	6.9	6.9	2
Nickel (Ni)	22.4		1.0	ug/g	26-MAR-19	100	130	82
Selenium (Se)	2.2		1.0	ug/g	26-MAR-19	2.4	2.4	*1.5
Silver (Ag)	3.41		0.20	ug/g	26-MAR-19	20	25	*0.5
Thallium (Tl)	<0.50		0.50	ug/g	26-MAR-19	1	1	1
Uranium (U)	<1.0		1.0	ug/g	26-MAR-19	23	23	2.5
Vanadium (V)	22.2		1.0	ug/g	26-MAR-19	86	86	86
Zinc (Zn)	913		5.0	ug/g	26-MAR-19	*340	*340	*290
Speciated Metals								
Chromium, Hexavalent	<0.20		0.20	ug/g	26-MAR-19	8	10	0.66
Volatile Organic Compounds								
Acetone	<0.50		0.50	ug/g	27-MAR-19	16	28	0.5
Benzene	0.0478		0.0068	ug/g	27-MAR-19	0.21	0.17	*0.02
Bromodichloromethane	<0.050		0.050	ug/g	27-MAR-19	13	13	0.05
Bromoform	<0.050		0.050	ug/g	27-MAR-19	0.27	0.26	0.05
Bromomethane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05
Carbon tetrachloride	<0.050		0.050	ug/g	27-MAR-19	0.05	0.12	0.05
Chlorobenzene	<0.050		0.050	ug/g	27-MAR-19	2.4	2.7	0.05
Dibromochloromethane	<0.050		0.050	ug/g	27-MAR-19	9.4	9.4	0.05
Chloroform	<0.050		0.050	ug/g	27-MAR-19	0.05	0.18	0.05
1,2-Dibromoethane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05
1,2-Dichlorobenzene	<0.050		0.050	ug/g	27-MAR-19	3.4	4.3	0.05

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2248321-6 S-11102463-032119-DD-BH18-469-DUP-001								
Sampled By: CLIENT on 21-MAR-19 @ 13:30								
Matrix: SOIL								
Volatile Organic Compounds								
1,3-Dichlorobenzene	<0.050		0.050	ug/g	27-MAR-19	4.8	6	0.05
1,4-Dichlorobenzene	<0.050		0.050	ug/g	27-MAR-19	0.083	0.097	0.05
Dichlorodifluoromethane	<0.050		0.050	ug/g	27-MAR-19	16	25	0.05
1,1-Dichloroethane	<0.050		0.050	ug/g	27-MAR-19	3.5	11	0.05
1,2-Dichloroethane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05
1,1-Dichloroethylene	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	27-MAR-19	3.4	30	0.05
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	27-MAR-19	0.084	0.75	0.05
Methylene Chloride	<0.050		0.050	ug/g	27-MAR-19	0.1	0.96	0.05
1,2-Dichloropropane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.085	0.05
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	27-MAR-19			
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	27-MAR-19			
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g	27-MAR-19	0.05	0.083	0.05
Ethylbenzene	0.031		0.018	ug/g	27-MAR-19	2	15	0.05
n-Hexane	0.085		0.050	ug/g	27-MAR-19	2.8	34	*0.05
Methyl Ethyl Ketone	<0.50		0.50	ug/g	27-MAR-19	16	44	0.5
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	27-MAR-19	1.7	4.3	0.5
MTBE	<0.050		0.050	ug/g	27-MAR-19	0.75	1.4	0.05
Styrene	<0.050		0.050	ug/g	27-MAR-19	0.7	2.2	0.05
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	27-MAR-19	0.058	0.05	0.05
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05
Tetrachloroethylene	<0.050		0.050	ug/g	27-MAR-19	0.28	2.3	0.05
Toluene	0.144		0.080	ug/g	27-MAR-19	2.3	6	0.2
1,1,1-Trichloroethane	<0.050		0.050	ug/g	27-MAR-19	0.38	3.4	0.05
1,1,2-Trichloroethane	<0.050		0.050	ug/g	27-MAR-19	0.05	0.05	0.05
Trichloroethylene	0.011		0.010	ug/g	27-MAR-19	0.061	0.52	0.05
Trichlorofluoromethane	<0.050		0.050	ug/g	27-MAR-19	4	5.8	0.25
Vinyl chloride	<0.020		0.020	ug/g	27-MAR-19	0.02	0.022	0.02
o-Xylene	0.051		0.020	ug/g	27-MAR-19			
m+p-Xylenes	0.103		0.030	ug/g	27-MAR-19			
Xylenes (Total)	0.154		0.050	ug/g	27-MAR-19	3.1	25	*0.05
Surrogate: 4-Bromofluorobenzene	87.3		50-140	%	27-MAR-19			
Surrogate: 1,4-Difluorobenzene	91.9		50-140	%	27-MAR-19			
Hydrocarbons								
F1 (C6-C10)	7.7		5.0	ug/g	27-MAR-19	55	65	25
F1-BTEX	7.3		5.0	ug/g	27-MAR-19	55	65	25
F2 (C10-C16)	45		10	ug/g	26-MAR-19	98	150	*10
F2-Naphth	45		10	ug/g	27-MAR-19			
F3 (C16-C34)	565		50	ug/g	26-MAR-19	*300	1300	*240
F3-PAH	556		50	ug/g	27-MAR-19			
F4 (C34-C50)	183		50	ug/g	26-MAR-19	2800	5600	*120
F4G-SG (GHH-Silica)	840		250	ug/g	25-MAR-19	2800	5600	*120
Total Hydrocarbons (C6-C50)	801		72	ug/g	27-MAR-19			
Chrom. to baseline at nC50	NO			No Unit	26-MAR-19			
Surrogate: 2-Bromobenzotrifluoride	94.1		60-140	%	26-MAR-19			
Surrogate: 3,4-Dichlorotoluene	75.6		60-140	%	27-MAR-19			

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2248321-6 S-11102463-032119-DD-BH18-469-DUP-001								
Sampled By: CLIENT on 21-MAR-19 @ 13:30								
Matrix: SOIL								
Polycyclic Aromatic Hydrocarbons								
1+2-Methylnaphthalenes	0.361		0.042	ug/g	26-MAR-19	0.99	3.4	0.59
Semi-Volatile Organics								
Acenaphthene	0.331		0.050	ug/g	26-MAR-19	7.9	58	*0.072
Acenaphthylene	0.072		0.050	ug/g	26-MAR-19	0.15	0.17	0.093
Anthracene	0.499		0.050	ug/g	26-MAR-19	0.67	0.74	*0.22
Benzo(a)anthracene	1.06		0.050	ug/g	26-MAR-19	*0.5	*0.63	*0.36
Benzo(a)pyrene	0.951		0.050	ug/g	26-MAR-19	*0.3	*0.3	*0.3
Benzo(b)fluoranthene	1.03		0.050	ug/g	26-MAR-19	*0.78	*0.78	*0.47
Benzo(ghi)perylene	0.411		0.050	ug/g	26-MAR-19	6.6	7.8	0.68
Benzo(k)fluoranthene	0.643		0.050	ug/g	26-MAR-19	0.78	0.78	*0.48
2-Chlorophenol	<0.10		0.10	ug/g	26-MAR-19	1.6	2	0.1
Chrysene	1.08		0.050	ug/g	26-MAR-19	7	7.8	2.8
Dibenzo(a,h)anthracene	0.112		0.050	ug/g	26-MAR-19	*0.1	*0.1	*0.1
2,4-Dichlorophenol	<0.10		0.10	ug/g	26-MAR-19	1.7	2.1	0.1
Fluoranthene	1.77		0.050	ug/g	26-MAR-19	*0.69	*0.69	*0.69
Fluorene	0.270		0.050	ug/g	26-MAR-19	62	69	*0.19
Indeno(1,2,3-cd)pyrene	0.506		0.050	ug/g	26-MAR-19	*0.38	*0.48	*0.23
1-Methylnaphthalene	0.156		0.030	ug/g	26-MAR-19	0.99	3.4	0.59
2-Methylnaphthalene	0.205		0.030	ug/g	26-MAR-19	0.99	3.4	0.59
Naphthalene	0.251		0.050	ug/g	26-MAR-19	0.6	0.75	*0.09
Pentachlorophenol	<0.10		0.10	ug/g	26-MAR-19	0.1	0.1	0.1
Phenanthrene	1.49		0.050	ug/g	26-MAR-19	6.2	7.8	*0.69
Pyrene	1.58		0.050	ug/g	26-MAR-19	78	78	*1
2,4,5-Trichlorophenol	<0.10		0.10	ug/g	26-MAR-19	4.4	5.5	0.1
2,4,6-Trichlorophenol	<0.10		0.10	ug/g	26-MAR-19	3.8	4.2	0.1
Surrogate: 2-Fluorobiphenyl	109.5		50-140	%	26-MAR-19			
Surrogate: Phenol d5	110.0		30-130	%	26-MAR-19			
Surrogate: p-Terphenyl d14	96.4		50-140	%	26-MAR-19			
Surrogate: 2,4,6-Tribromophenol	114.7		50-140	%	26-MAR-19			
Polychlorinated Biphenyls								
Aroclor 1242	<0.010		0.010	ug/g	27-MAR-19			
Aroclor 1248	<0.010		0.010	ug/g	27-MAR-19			
Aroclor 1254	<0.010		0.010	ug/g	27-MAR-19			
Aroclor 1260	<0.010		0.010	ug/g	27-MAR-19			
Total PCBs	<0.020		0.020	ug/g	27-MAR-19	0.35	0.35	0.3
Surrogate: d14-Terphenyl	85.2		60-140	%	27-MAR-19			
Organochlorine Pesticides								
Aldrin	<0.10	DLM	0.10	ug/g	27-MAR-19	**0.05	**0.05	**0.05
gamma-hexachlorocyclohexane	<0.050	DLM	0.050	ug/g	27-MAR-19	0.056	0.063	
a-chlordane	<0.10	DLM	0.10	ug/g	27-MAR-19			
Chlordane (Total)	<0.14		0.14	ug/g	27-MAR-19	**0.05	**0.05	**0.05
g-chlordane	<0.10	DLM	0.10	ug/g	27-MAR-19			
op-DDD	<0.10	DLM	0.10	ug/g	27-MAR-19			
pp-DDD	<0.10	DLM	0.10	ug/g	27-MAR-19			
Total DDD	<0.14		0.14	ug/g	27-MAR-19	3.3	3.3	**0.05
o,p-DDE	<0.10	DLM	0.10	ug/g	27-MAR-19			

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2248321-6 S-11102463-032119-DD-BH18-469-DUP-001								
Sampled By: CLIENT on 21-MAR-19 @ 13:30								
Matrix: SOIL								
Organochlorine Pesticides								
pp-DDE	<0.10	DLM	0.10	ug/g	27-MAR-19			
Total DDE	<0.14		0.14	ug/g	27-MAR-19	0.26	0.33	**0.05
op-DDT	<0.10	DLM	0.10	ug/g	27-MAR-19			
pp-DDT	<0.20	DLM	0.20	ug/g	27-MAR-19			
Total DDT	<0.22		0.22	ug/g	27-MAR-19	1.4	1.4	1.4
Dieldrin	<0.10	DLM	0.10	ug/g	27-MAR-19	**0.05	**0.05	**0.05
Endosulfan I	<0.10	DLM	0.10	ug/g	27-MAR-19			
Endosulfan II	<0.10	DLM	0.10	ug/g	27-MAR-19			
Endosulfan (Total)	<0.14		0.14	ug/g	27-MAR-19	**0.04	**0.04	**0.04
Endrin	<0.10	DLM	0.10	ug/g	27-MAR-19	**0.04	**0.04	**0.04
Heptachlor	<0.10	DLM	0.10	ug/g	27-MAR-19	0.15	0.15	**0.05
Heptachlor Epoxide	<0.10	DLM	0.10	ug/g	27-MAR-19	**0.05	**0.05	**0.05
Hexachlorobenzene	<0.050	DLM	0.050	ug/g	27-MAR-19	0.52	0.52	**0.02
Hexachlorobutadiene	<0.050	DLM	0.050	ug/g	27-MAR-19	**0.012	**0.014	**0.01
Hexachloroethane	<0.050	DLM	0.050	ug/g	27-MAR-19	0.089	0.07	**0.01
Methoxychlor	<0.20	DLM	0.20	ug/g	27-MAR-19	**0.13	**0.13	**0.05
Surrogate: 2-Fluorobiphenyl	60.6		50-140	%	27-MAR-19			
Surrogate: d14-Terphenyl	77.6		50-140	%	27-MAR-19			

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Reference Information

Sample Parameter Qualifier key listed:

Qualifier	Description
DLVH	Detection Limit raised due to interference from Volatile Hydrocarbons on VOC method. Chromatographic elution of interfering peaks in the same region as test analytes prevents a determination of whether VOC analyte is present or absent (above/below regular detection limits).
DLI	Detection Limit Raised: Dilution required to address Internal Standard response problems caused by matrix interference.
SDO:RNA	Surrogate diluted out:% recovery not available
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
DLHC	Detection Limit Raised: Dilution required due to high concentration of test analyte(s).

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference***
625-511-WT	Soil	ABN-O.Reg 153/04 (July 2011)	SW846 8270 (511)

Soil and sediment samples are dried by mixing with a desiccant prior to extraction. The extracts are dried, concentrated and exchanged into a solvent and analyzed by GC/MS. Depending on the analytical GC/MS column used benzo(j)fluoranthene may chromatographically co-elute with benzo(b)fluoranthene or benzo(k)fluoranthene.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

B-HWS-R511-WT	Soil	Boron-HWE-O.Reg 153/04 (July 2011)	HW EXTR, EPA 6010B

A dried solid sample is extracted with calcium chloride, the sample undergoes a heating process. After cooling the sample is filtered and analyzed by ICP/OES.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

CHLORDANE-T-CALC-WT	Soil	Chlordane Total sums	CALCULATION

Aqueous sample is extracted by liquid/liquid extraction with a solvent mix. After extraction, a number of clean up techniques may be applied, depending on the sample matrix and analyzed by GC/MS.

CN-WAD-R511-WT	Soil	Cyanide (WAD)-O.Reg 153/04 (July 2011)	MOE 3015/APHA 4500CN I-WAD

The sample is extracted with a strong base for 16 hours, and then filtered. The filtrate is then distilled where the cyanide is converted to cyanogen chloride by reacting with chloramine-T, the cyanogen chloride then reacts with a combination of barbituric acid and isonicotinic acid to form a highly colored complex.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

CR-CR6-IC-WT	Soil	Hexavalent Chromium in Soil	SW846 3060A/7199

This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, Method 7199, published by the United States Environmental Protection Agency (EPA). The procedure involves analysis for chromium (VI) by ion chromatography using diphenylcarbazide in a sulphuric acid solution.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

DDD-DDE-DDT-CALC-WT	Soil	DDD, DDE, DDT sums	CALCULATION

Aqueous sample is extracted by liquid/liquid extraction with a solvent mix. After extraction, a number of clean up techniques may be applied, depending on the sample matrix and analyzed by GC/MS.

EC-WT	Soil	Conductivity (EC)	MOEE E3138

A representative subsample is tumbled with de-ionized (DI) water. The ratio of water to soil is 2:1 v/w. After tumbling the sample is then analyzed by a conductivity meter.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

ENDOSULFAN-T-CALC-WT	Soil	Endosulfan Total sums	CALCULATION

Aqueous sample is extracted by liquid/liquid extraction with a solvent mix. After extraction, a number of clean up techniques may be applied, depending on the sample matrix and analyzed by GC/MS.

Reference Information

F1-F4-511-CALC-WT	Soil	F1-F4 Hydrocarbon Calculated Parameters	CCME CWS-PHC, Pub #1310, Dec 2001-S

Analytical methods used for analysis of CCME Petroleum Hydrocarbons have been validated and comply with the Reference Method for the CWS PHC.

Hydrocarbon results are expressed on a dry weight basis.

In cases where results for both F4 and F4G are reported, the greater of the two results must be used in any application of the CWS PHC guidelines and the gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.
In samples where BTEX and F1 were analyzed , F1-BTEX represents a value where the sum of Benzene, Toluene, Ethylbenzene and total Xylenes has been subtracted from F1.

In samples where PAHs, F2 and F3 were analyzed, F2-Naphth represents the result where Naphthalene has been subtracted from F2. F3-PAH represents a result where the sum of Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenzo(a,h)anthracene, Fluoranthene, Indeno(1,2,3-cd)pyrene, Phenanthrene, and Pyrene has been subtracted from F3.

Unless otherwise qualified, the following quality control criteria have been met for the F1 hydrocarbon range:
1. All extraction and analysis holding times were met.
2. Instrument performance showing response factors for C6 and C10 within 30% of the response factor for toluene.
3. Linearity of gasoline response within 15% throughout the calibration range.

Unless otherwise qualified, the following quality control criteria have been met for the F2-F4 hydrocarbon ranges:
1. All extraction and analysis holding times were met.
2. Instrument performance showing C10, C16 and C34 response factors within 10% of their average.
3. Instrument performance showing the C50 response factor within 30% of the average of the C10, C16 and C34 response factors.
4. Linearity of diesel or motor oil response within 15% throughout the calibration range.

F1-HS-511-WT	Soil	F1-O.Reg 153/04 (July 2011)	E3398/CCME TIER 1-HS

Fraction F1 is determined by extracting a soil or sediment sample as received with methanol, then analyzing by headspace-GC/FID.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

F2-F4-511-WT	Soil	F2-F4-O.Reg 153/04 (July 2011)	CCME Tier 1

Petroleum Hydrocarbons (F2-F4 fractions) are extracted from soil with 1:1 hexane:acetone using a rotary extractor. Extracts are treated with silica gel to remove polar organic interferences. F2, F3, & F4 are analyzed by GC-FID. F4G-sg is analyzed gravimetrically.

Notes:
1. F2 (C10-C16): Sum of all hydrocarbons that elute between nC10 and nC16.
2. F3 (C16-C34): Sum of all hydrocarbons that elute between nC16 and nC34.
3. F4 (C34-C50): Sum of all hydrocarbons that elute between nC34 and nC50.
4. F4G: Gravimetric Heavy Hydrocarbons
5. F4G-sg: Gravimetric Heavy Hydrocarbons (F4G) after silica gel treatment.
6. Where both F4 (C34-C50) and F4G-sg are reported for a sample, the larger of the two values is used for comparison against the relevant CCME guideline for F4.
7. F4G-sg cannot be added to the C6 to C50 hydrocarbon results to obtain an estimate of total extractable hydrocarbons.
8. This method is validated for use.
9. Data from analysis of validation and quality control samples is available upon request.
10. Reported results are expressed as milligrams per dry kilogram, unless otherwise indicated.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

F4G-ADD-511-WT	Soil	F4G SG-O.Reg 153/04 (July 2011)	MOE DECPH-E3398/CCME TIER 1

F4G, gravimetric analysis, is determined if the chromatogram does not return to baseline at or before C50. A soil sample is extracted with a solvent mix, the solvent is evaporated and the weight of the residue is determined.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

HG-200.2-CVAA-WT	Soil	Mercury in Soil by CVAAS	EPA 200.2/1631E (mod)

Soil samples are digested with nitric and hydrochloric acids, followed by analysis by CVAAS.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

Reference Information

MET-200.2-CCMS-WT	Soil	Metals in Soil by CRC ICPMS	EPA 200.2/6020A (mod)

Soil/sediment is dried, disaggregated, and sieved (2 mm). For tests intended to support Ontario regulations, the <2mm fraction is ground to pass through a 0.355 mm sieve. Strong Acid Leachable Metals in the <2mm fraction are solubilized by heated digestion with nitric and hydrochloric acids. Instrumental analysis is by Collision / Reaction Cell ICPMS.

Limitations: This method is intended to liberate environmentally available metals. Silicate minerals are not solubilized. Some metals may be only partially recovered (matrix dependent), including Al, Ba, Be, Cr, S, Sr, Ti, Tl, V, W, and Zr. Elemental Sulfur may be poorly recovered by this method. Volatile forms of sulfur (e.g. sulfide, H2S) may be excluded if lost during sampling, storage, or digestion.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

METHYLNAPS-CALC-WT	Soil	ABN-Calculated Parameters	SW846 8270
MOISTURE-WT	Soil	% Moisture	CCME PHC in Soil - Tier 1 (mod)
PCB-511-WT	Soil	PCB-O.Reg 153/04 (July 2011)	SW846 3510/8082

An aliquot of a solid sample is extracted with a solvent, extract is cleaned up and analyzed on the GC/MS.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

PEST-OC-511-WT	Soil	OC Pesticides-O.Reg 153/04 (July 2011)	SW846 8270 (511)

Soil sample is extracted in a solvent, after extraction a number of clean up techniques may be applied, depending on the sample matrix and analyzed by GC/MS.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

PH-WT	Soil	pH	MOEE E3137A

A minimum 10g portion of the sample is extracted with 20mL of 0.01M calcium chloride solution by shaking for at least 30 minutes. The aqueous layer is separated from the soil and then analyzed using a pH meter and electrode.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

SAR-R511-WT	Soil	SAR-O.Reg 153/04 (July 2011)	SW846 6010C

A dried, disaggregated solid sample is extracted with deionized water, the aqueous extract is separated from the solid, acidified and then analyzed using a ICP/OES. The concentrations of Na, Ca and Mg are reported as per CALA requirements for calculated parameters. These individual parameters are not for comparison to any guideline.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

VOC-1,3-DCP-CALC-WT	Soil	Regulation 153 VOCs	SW8260B/SW8270C
VOC-511-HS-WT	Soil	VOC-O.Reg 153/04 (July 2011)	SW846 8260 (511)

Soil and sediment samples are extracted in methanol and analyzed by headspace-GC/MS.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

XYLENES-SUM-CALC-WT	Soil	Sum of Xylene Isomer Concentrations	CALCULATION

Total xylenes represents the sum of o-xylene and m&p-xylene.

*** ALS test methods may incorporate modifications from specified reference methods to improve performance.

Chain of Custody numbers:

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location	Laboratory Definition Code	Laboratory Location
WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA		

Reference Information

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.
mg/kg - milligrams per kilogram based on dry weight of sample
mg/kg wwt - milligrams per kilogram based on wet weight of sample
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight
mg/L - unit of concentration based on volume, parts per million.
< - Less than.
D.L. - The reporting limit.
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, fitness for a particular purpose, or non-infringement. ALS assumes no responsibility for errors or omissions in the information. Guideline limits are not adjusted for the hardness, pH or temperature of the sample (the most conservative values are used). Measurement uncertainty is not applied to test results prior to comparison with specified criteria values.

Quality Control Report

Workorder: L2248321 Report Date: 27-MAR-19

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
625-511-WT	**Soil**							
Batch R4584047								
WG3013558-3 DUP		**WG3013558-5**						
1-Methylnaphthalene		0.270	0.370		ug/g	31	40	26-MAR-19
2-Chlorophenol		<0.10	<0.10	RPD-NA	ug/g	N/A	40	26-MAR-19
2-Methylnaphthalene		0.366	0.499		ug/g	31	40	26-MAR-19
2,4-Dichlorophenol		<0.10	<0.10	RPD-NA	ug/g	N/A	40	26-MAR-19
2,4,5-Trichlorophenol		<0.10	<0.10	RPD-NA	ug/g	N/A	40	26-MAR-19
2,4,6-Trichlorophenol		<0.10	<0.10	RPD-NA	ug/g	N/A	40	26-MAR-19
Acenaphthene		0.092	0.128		ug/g	33	40	26-MAR-19
Acenaphthylene		0.057	0.060		ug/g	5.3	40	26-MAR-19
Anthracene		0.183	0.233		ug/g	24	40	26-MAR-19
Benzo(a)anthracene		0.565	0.651		ug/g	14	40	26-MAR-19
Benzo(a)pyrene		0.635	0.681		ug/g	7.0	40	26-MAR-19
Benzo(b)fluoranthene		0.611	0.736		ug/g	19	40	26-MAR-19
Benzo(ghi)perylene		0.383	0.430		ug/g	12	40	26-MAR-19
Benzo(k)fluoranthene		0.416	0.443		ug/g	6.3	40	26-MAR-19
Chrysene		0.675	0.765		ug/g	12	40	26-MAR-19
Dibenzo(a,h)anthracene		0.109	0.116		ug/g	6.3	40	26-MAR-19
Fluoranthene		0.835	0.945		ug/g	12	40	26-MAR-19
Fluorene		0.071	0.094		ug/g	28	40	26-MAR-19
Indeno(1,2,3-cd)pyrene		0.390	0.435		ug/g	11	40	26-MAR-19
Naphthalene		0.400	0.489		ug/g	20	40	26-MAR-19
Pentachlorophenol		<0.10	<0.10	RPD-NA	ug/g	N/A	40	26-MAR-19
Phenanthrene		0.835	1.09		ug/g	26	40	26-MAR-19
Pyrene		0.775	0.907		ug/g	16	40	26-MAR-19
WG3013558-2 LCS								
1-Methylnaphthalene			79.9		%		50-140	26-MAR-19
2-Chlorophenol			102.3		%		50-140	26-MAR-19
2-Methylnaphthalene			92.4		%		50-140	26-MAR-19
2,4-Dichlorophenol			99.0		%		50-140	26-MAR-19
2,4,5-Trichlorophenol			103.5		%		50-140	26-MAR-19
2,4,6-Trichlorophenol			97.0		%		50-140	26-MAR-19
Acenaphthene			91.2		%		50-140	26-MAR-19
Acenaphthylene			97.3		%		50-140	26-MAR-19
Anthracene			95.6		%		50-140	26-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
625-511-WT	**Soil**							
Batch R4584047								
WG3013558-2 LCS								
Benzo(a)anthracene			94.8		%		50-140	26-MAR-19
Benzo(a)pyrene			99.7		%		50-140	26-MAR-19
Benzo(b)fluoranthene			97.2		%		50-140	26-MAR-19
Benzo(ghi)perylene			75.7		%		50-140	26-MAR-19
Benzo(k)fluoranthene			97.0		%		50-140	26-MAR-19
Chrysene			97.5		%		50-140	26-MAR-19
Dibenzo(a,h)anthracene			86.0		%		50-140	26-MAR-19
Fluoranthene			85.2		%		50-140	26-MAR-19
Fluorene			92.1		%		50-140	26-MAR-19
Indeno(1,2,3-cd)pyrene			86.4		%		50-140	26-MAR-19
Naphthalene			91.8		%		50-140	26-MAR-19
Pentachlorophenol			77.4		%		50-140	26-MAR-19
Phenanthrene			92.9		%		50-140	26-MAR-19
Pyrene			86.6		%		50-140	26-MAR-19
WG3013558-1 MB								
1-Methylnaphthalene			<0.030		ug/g		0.03	26-MAR-19
2-Chlorophenol			<0.10		ug/g		0.1	26-MAR-19
2-Methylnaphthalene			<0.030		ug/g		0.03	26-MAR-19
2,4-Dichlorophenol			<0.10		ug/g		0.1	26-MAR-19
2,4,5-Trichlorophenol			<0.10		ug/g		0.1	26-MAR-19
2,4,6-Trichlorophenol			<0.10		ug/g		0.1	26-MAR-19
Acenaphthene			<0.050		ug/g		0.05	26-MAR-19
Acenaphthylene			<0.050		ug/g		0.05	26-MAR-19
Anthracene			<0.050		ug/g		0.05	26-MAR-19
Benzo(a)anthracene			<0.050		ug/g		0.05	26-MAR-19
Benzo(a)pyrene			<0.050		ug/g		0.05	26-MAR-19
Benzo(b)fluoranthene			<0.050		ug/g		0.05	26-MAR-19
Benzo(ghi)perylene			<0.050		ug/g		0.05	26-MAR-19
Benzo(k)fluoranthene			<0.050		ug/g		0.05	26-MAR-19
Chrysene			<0.050		ug/g		0.05	26-MAR-19
Dibenzo(a,h)anthracene			<0.050		ug/g		0.05	26-MAR-19
Fluoranthene			<0.050		ug/g		0.05	26-MAR-19
Fluorene			<0.050		ug/g		0.05	26-MAR-19
Indeno(1,2,3-cd)pyrene			<0.050		ug/g		0.05	26-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
625-511-WT	**Soil**							
Batch R4584047								
WG3013558-1 MB								
Naphthalene			<0.050		ug/g		0.05	26-MAR-19
Pentachlorophenol			<0.10		ug/g		0.1	26-MAR-19
Phenanthrene			<0.050		ug/g		0.05	26-MAR-19
Pyrene			<0.050		ug/g		0.05	26-MAR-19
Surrogate: 2-Fluorobiphenyl			84.4		%		50-140	26-MAR-19
Surrogate: 2,4,6-Tribromophenol			67.2		%		50-140	26-MAR-19
Surrogate: p-Terphenyl d14			86.5		%		50-140	26-MAR-19
Surrogate: Phenol d5			87.2		%		30-130	26-MAR-19
WG3013558-4 MS		**WG3013558-5**						
1-Methylnaphthalene			90.4		%		50-140	26-MAR-19
2-Chlorophenol			102.7		%		50-140	26-MAR-19
2-Methylnaphthalene			100.6		%		50-140	26-MAR-19
2,4-Dichlorophenol			101.5		%		50-140	26-MAR-19
2,4,5-Trichlorophenol			115.3		%		50-140	26-MAR-19
2,4,6-Trichlorophenol			108.8		%		50-140	26-MAR-19
Acenaphthene			100.4		%		50-140	26-MAR-19
Acenaphthylene			105.9		%		50-140	26-MAR-19
Anthracene			99.5		%		50-140	26-MAR-19
Benzo(a)anthracene			103.2		%		50-140	26-MAR-19
Benzo(a)pyrene			95.3		%		50-140	26-MAR-19
Benzo(b)fluoranthene			101.8		%		50-140	26-MAR-19
Benzo(ghi)perylene			61.3		%		50-140	26-MAR-19
Benzo(k)fluoranthene			94.0		%		50-140	26-MAR-19
Chrysene			97.2		%		50-140	26-MAR-19
Dibenzo(a,h)anthracene			81.4		%		50-140	26-MAR-19
Fluoranthene			79.9		%		50-140	26-MAR-19
Fluorene			92.7		%		50-140	26-MAR-19
Indeno(1,2,3-cd)pyrene			80.2		%		50-140	26-MAR-19
Naphthalene			101.2		%		50-140	26-MAR-19
Pentachlorophenol			117.4		%		50-140	26-MAR-19
Phenanthrene			100.5		%		50-140	26-MAR-19
Pyrene			88.0		%		50-140	26-MAR-19
B-HWS-R511-WT	**Soil**							

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
B-HWS-R511-WT	**Soil**							
Batch R4583408								
WG3013994-4 DUP		**L2247725-1**						
Boron (B), Hot Water Ext.		0.40	0.34		ug/g	15	30	26-MAR-19
WG3013994-2 IRM		**HOTB-SAL_SOIL5**						
Boron (B), Hot Water Ext.			115.5		%		70-130	26-MAR-19
WG3013994-3 LCS								
Boron (B), Hot Water Ext.			97.0		%		70-130	26-MAR-19
WG3013994-1 MB								
Boron (B), Hot Water Ext.			<0.10		ug/g		0.1	26-MAR-19
CN-WAD-R511-WT	**Soil**							
Batch R4583869								
WG3013562-3 DUP		**L2248320-1**						
Cyanide, Weak Acid Diss		<0.050	<0.050	RPD-NA	ug/g	N/A	35	26-MAR-19
WG3013562-2 LCS								
Cyanide, Weak Acid Diss			90.5		%		80-120	26-MAR-19
WG3013562-1 MB								
Cyanide, Weak Acid Diss			<0.050		ug/g		0.05	26-MAR-19
WG3013562-4 MS		**L2248320-1**						
Cyanide, Weak Acid Diss			94.4		%		70-130	26-MAR-19
CR-CR6-IC-WT	**Soil**							
Batch R4583569								
WG3013589-4 CRM		**WT-SQC012**						
Chromium, Hexavalent			98.3		%		70-130	26-MAR-19
WG3013589-3 DUP		**L2248321-2**						
Chromium, Hexavalent		<0.20	<0.20	RPD-NA	ug/g	N/A	35	26-MAR-19
WG3013589-2 LCS								
Chromium, Hexavalent			99.0		%		80-120	26-MAR-19
WG3013589-1 MB								
Chromium, Hexavalent			<0.20		ug/g		0.2	26-MAR-19
EC-WT	**Soil**							
Batch R4585298								
WG3014878-4 DUP		**WG3014878-3**						
Conductivity		0.291	0.319		mS/cm	9.2	20	27-MAR-19
WG3014878-2 IRM		**WT SAR2**						
Conductivity			97.4		%		70-130	27-MAR-19
WG3015084-1 LCS								
Conductivity			102.9		%		90-110	27-MAR-19
WG3014878-1 MB								

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
EC-WT	**Soil**							
Batch R4585298								
WG3014878-1 MB								
Conductivity			<0.0040		mS/cm		0.004	27-MAR-19
F1-HS-511-WT	**Soil**							
Batch R4585205								
WG3013501-4 DUP		**WG3013501-3**						
F1 (C6-C10)		7.7	8.0		ug/g	3.8	30	27-MAR-19
WG3013501-2 LCS								
F1 (C6-C10)			101.2		%		80-120	27-MAR-19
WG3013501-1 MB								
F1 (C6-C10)			<5.0		ug/g		5	27-MAR-19
Surrogate: 3,4-Dichlorotoluene			102.5		%		60-140	27-MAR-19
WG3013501-6 MS		**L2247122-1**						
F1 (C6-C10)			103.6		%		60-140	27-MAR-19
F2-F4-511-WT	**Soil**							
Batch R4585227								
WG3013546-3 DUP		**WG3013546-5**						
F2 (C10-C16)		<10	<10	RPD-NA	ug/g	N/A	30	26-MAR-19
F3 (C16-C34)		<50	<50	RPD-NA	ug/g	N/A	30	26-MAR-19
F4 (C34-C50)		<50	<50	RPD-NA	ug/g	N/A	30	26-MAR-19
WG3013546-2 LCS								
F2 (C10-C16)			94.8		%		80-120	26-MAR-19
F3 (C16-C34)			100.9		%		80-120	26-MAR-19
F4 (C34-C50)			104.1		%		80-120	26-MAR-19
WG3013546-1 MB								
F2 (C10-C16)			<10		ug/g		10	26-MAR-19
F3 (C16-C34)			<50		ug/g		50	26-MAR-19
F4 (C34-C50)			<50		ug/g		50	26-MAR-19
Surrogate: 2-Bromobenzotrifluoride			82.1		%		60-140	26-MAR-19
WG3013546-4 MS		**WG3013546-5**						
F2 (C10-C16)			95.0		%		60-140	26-MAR-19
F3 (C16-C34)			99.0		%		60-140	26-MAR-19
F4 (C34-C50)			102.5		%		60-140	26-MAR-19
F4G-ADD-511-WT	**Soil**							

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F4G-ADD-511-WT	**Soil**							
Batch R4585339								
WG3015238-2 LCS								
F4G-SG (GHH-Silica)			80.0		%		60-140	25-MAR-19
WG3015238-1 MB								
F4G-SG (GHH-Silica)			<250		ug/g		250	25-MAR-19
HG-200.2-CVAA-WT	**Soil**							
Batch R4583508								
WG3013982-2 CRM		**WT-CANMET-TILL1**						
Mercury (Hg)			98.9		%		70-130	26-MAR-19
WG3013982-6 DUP		**WG3013982-5**						
Mercury (Hg)		0.302	0.329		ug/g	8.5	40	26-MAR-19
WG3013982-3 LCS								
Mercury (Hg)			104.0		%		80-120	26-MAR-19
WG3013982-1 MB								
Mercury (Hg)			<0.0050		mg/kg		0.005	26-MAR-19
MET-200.2-CCMS-WT	**Soil**							
Batch R4583409								
WG3013982-2 CRM		**WT-CANMET-TILL1**						
Antimony (Sb)			106.1		%		70-130	26-MAR-19
Arsenic (As)			101.4		%		70-130	26-MAR-19
Barium (Ba)			104.9		%		70-130	26-MAR-19
Beryllium (Be)			104.0		%		70-130	26-MAR-19
Boron (B)			3.2		mg/kg		0-8.2	26-MAR-19
Cadmium (Cd)			102.6		%		70-130	26-MAR-19
Chromium (Cr)			103.7		%		70-130	26-MAR-19
Cobalt (Co)			100.7		%		70-130	26-MAR-19
Copper (Cu)			102.8		%		70-130	26-MAR-19
Lead (Pb)			102.0		%		70-130	26-MAR-19
Molybdenum (Mo)			96.5		%		70-130	26-MAR-19
Nickel (Ni)			100.8		%		70-130	26-MAR-19
Selenium (Se)			0.31		mg/kg		0.11-0.51	26-MAR-19
Silver (Ag)			0.24		mg/kg		0.13-0.33	26-MAR-19
Thallium (Tl)			0.128		mg/kg		0.077-0.18	26-MAR-19
Uranium (U)			100.1		%		70-130	26-MAR-19
Vanadium (V)			103.8		%		70-130	26-MAR-19
Zinc (Zn)			102.6		%		70-130	26-MAR-19
WG3013982-6 DUP		**WG3013982-5**						

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R4583409								
WG3013982-6 DUP		**WG3013982-5**						
Antimony (Sb)		2.98	3.85		ug/g	26	30	26-MAR-19
Arsenic (As)		4.28	4.75		ug/g	10	30	26-MAR-19
Barium (Ba)		98.9	104		ug/g	4.9	40	26-MAR-19
Beryllium (Be)		0.36	0.44		ug/g	18	30	26-MAR-19
Boron (B)		5.9	7.7		ug/g	26	30	26-MAR-19
Cadmium (Cd)		1.59	1.88		ug/g	17	30	26-MAR-19
Chromium (Cr)		31.0	35.1		ug/g	13	30	26-MAR-19
Cobalt (Co)		6.11	6.89		ug/g	12	30	26-MAR-19
Copper (Cu)		61.3	67.1		ug/g	9.1	30	26-MAR-19
Lead (Pb)		190	192		ug/g	1.0	40	26-MAR-19
Molybdenum (Mo)		1.27	1.23		ug/g	3.0	40	26-MAR-19
Nickel (Ni)		17.4	19.4		ug/g	11	30	26-MAR-19
Selenium (Se)		0.38	0.44		ug/g	13	30	26-MAR-19
Silver (Ag)		0.63	0.70		ug/g	9.7	40	26-MAR-19
Thallium (Tl)		0.146	0.151		ug/g	3.7	30	26-MAR-19
Uranium (U)		0.462	0.527		ug/g	13	30	26-MAR-19
Vanadium (V)		23.0	27.3		ug/g	17	30	26-MAR-19
Zinc (Zn)		151	170		ug/g	12	30	26-MAR-19
WG3013982-4 LCS								
Antimony (Sb)			114.5		%		80-120	26-MAR-19
Arsenic (As)			107.8		%		80-120	26-MAR-19
Barium (Ba)			112.6		%		80-120	26-MAR-19
Beryllium (Be)			107.3		%		80-120	26-MAR-19
Boron (B)			108.0		%		80-120	26-MAR-19
Cadmium (Cd)			108.7		%		80-120	26-MAR-19
Chromium (Cr)			107.0		%		80-120	26-MAR-19
Cobalt (Co)			104.7		%		80-120	26-MAR-19
Copper (Cu)			105.6		%		80-120	26-MAR-19
Lead (Pb)			110.3		%		80-120	26-MAR-19
Molybdenum (Mo)			112.4		%		80-120	26-MAR-19
Nickel (Ni)			107.1		%		80-120	26-MAR-19
Selenium (Se)			109.9		%		80-120	26-MAR-19
Silver (Ag)			109.1		%		80-120	26-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R4583409								
WG3013982-4 LCS								
Thallium (Tl)			106.4		%		80-120	26-MAR-19
Uranium (U)			108.8		%		80-120	26-MAR-19
Vanadium (V)			110.1		%		80-120	26-MAR-19
Zinc (Zn)			106.0		%		80-120	26-MAR-19
WG3013982-1 MB								
Antimony (Sb)			<0.10		mg/kg		0.1	26-MAR-19
Arsenic (As)			<0.10		mg/kg		0.1	26-MAR-19
Barium (Ba)			<0.50		mg/kg		0.5	26-MAR-19
Beryllium (Be)			<0.10		mg/kg		0.1	26-MAR-19
Boron (B)			<5.0		mg/kg		5	26-MAR-19
Cadmium (Cd)			<0.020		mg/kg		0.02	26-MAR-19
Chromium (Cr)			<0.50		mg/kg		0.5	26-MAR-19
Cobalt (Co)			<0.10		mg/kg		0.1	26-MAR-19
Copper (Cu)			<0.50		mg/kg		0.5	26-MAR-19
Lead (Pb)			<0.50		mg/kg		0.5	26-MAR-19
Molybdenum (Mo)			<0.10		mg/kg		0.1	26-MAR-19
Nickel (Ni)			<0.50		mg/kg		0.5	26-MAR-19
Selenium (Se)			<0.20		mg/kg		0.2	26-MAR-19
Silver (Ag)			<0.10		mg/kg		0.1	26-MAR-19
Thallium (Tl)			<0.050		mg/kg		0.05	26-MAR-19
Uranium (U)			<0.050		mg/kg		0.05	26-MAR-19
Vanadium (V)			<0.20		mg/kg		0.2	26-MAR-19
Zinc (Zn)			<2.0		mg/kg		2	26-MAR-19
MOISTURE-WT	**Soil**							
Batch R4582804								
WG3013505-3 DUP		**L2248319-2**						
% Moisture		13.4	14.1		%	5.3	20	26-MAR-19
WG3013505-2 LCS								
% Moisture			100.2		%		90-110	26-MAR-19
WG3013505-1 MB								
% Moisture			<0.10		%		0.1	26-MAR-19
PCB-511-WT	**Soil**							

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PCB-511-WT	**Soil**							
Batch R4583089								
WG3013432-3 DUP		**WG3013432-5**						
Aroclor 1242		<0.010	<0.010	RPD-NA	ug/g	N/A	40	25-MAR-19
Aroclor 1248		<0.010	<0.010	RPD-NA	ug/g	N/A	40	25-MAR-19
Aroclor 1254		<0.010	<0.010	RPD-NA	ug/g	N/A	40	25-MAR-19
Aroclor 1260		<0.010	<0.010	RPD-NA	ug/g	N/A	40	25-MAR-19
WG3013432-2 LCS								
Aroclor 1242			99.1		%		60-140	25-MAR-19
Aroclor 1248			94.1		%		60-140	25-MAR-19
Aroclor 1254			98.7		%		60-140	25-MAR-19
Aroclor 1260			110.3		%		60-140	25-MAR-19
WG3013432-1 MB								
Aroclor 1242			<0.010		ug/g		0.01	25-MAR-19
Aroclor 1248			<0.010		ug/g		0.01	25-MAR-19
Aroclor 1254			<0.010		ug/g		0.01	25-MAR-19
Aroclor 1260			<0.010		ug/g		0.01	25-MAR-19
Surrogate: d14-Terphenyl			87.0		%		60-140	25-MAR-19
WG3013432-4 MS		**WG3013432-5**						
Aroclor 1242			99.5		%		60-140	25-MAR-19
Aroclor 1254			100.3		%		60-140	25-MAR-19
Aroclor 1260			109.8		%		60-140	25-MAR-19
PEST-OC-511-WT	**Soil**							
Batch R4584177								
WG3013567-3 DUP		**WG3013567-5**						
Aldrin		<0.020	<0.020	RPD-NA	ug/g	N/A	40	26-MAR-19
a-chlordane		<0.020	<0.020	RPD-NA	ug/g	N/A	40	26-MAR-19
g-chlordane		<0.020	<0.020	RPD-NA	ug/g	N/A	40	26-MAR-19
op-DDD		<0.020	<0.020	RPD-NA	ug/g	N/A	40	26-MAR-19
pp-DDD		<0.020	<0.020	RPD-NA	ug/g	N/A	40	26-MAR-19
o,p-DDE		<0.020	<0.020	RPD-NA	ug/g	N/A	40	26-MAR-19
pp-DDE		<0.020	<0.020	RPD-NA	ug/g	N/A	40	26-MAR-19
op-DDT		<0.10	<0.10	RPD-NA	ug/g	N/A	40	26-MAR-19
pp-DDT		<0.10	<0.10	RPD-NA	ug/g	N/A	40	26-MAR-19
Dieldrin		<0.020	<0.020	RPD-NA	ug/g	N/A	40	26-MAR-19
Endosulfan I		<0.020	<0.020	RPD-NA	ug/g	N/A	40	26-MAR-19
Endosulfan II		<0.10	<0.10	RPD-NA	ug/g	N/A	40	26-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PEST-OC-511-WT	**Soil**							
Batch R4584177								
WG3013567-3 DUP		**WG3013567-5**						
Endrin		<0.020	<0.020	RPD-NA	ug/g	N/A	40	26-MAR-19
gamma-hexachlorocyclohexane		<0.10	<0.10	RPD-NA	ug/g	N/A	40	26-MAR-19
Heptachlor		<0.020	<0.020	RPD-NA	ug/g	N/A	40	26-MAR-19
Heptachlor Epoxide		<0.020	<0.020	RPD-NA	ug/g	N/A	40	26-MAR-19
Hexachlorobenzene		<0.10	<0.10	RPD-NA	ug/g	N/A	40	26-MAR-19
Hexachlorobutadiene		<0.10	<0.10	RPD-NA	ug/g	N/A	40	26-MAR-19
Hexachloroethane		<0.10	<0.10	RPD-NA	ug/g	N/A	40	26-MAR-19
Methoxychlor		<0.10	<0.10	RPD-NA	ug/g	N/A	40	26-MAR-19
WG3013567-2 LCS								
Aldrin			104.3		%		50-140	26-MAR-19
a-chlordane			99.0		%		50-140	26-MAR-19
g-chlordane			99.3		%		50-140	26-MAR-19
op-DDD			103.1		%		50-140	26-MAR-19
pp-DDD			105.9		%		50-140	26-MAR-19
o,p-DDE			100.2		%		50-140	26-MAR-19
pp-DDE			100.2		%		50-140	26-MAR-19
op-DDT			97.3		%		50-140	26-MAR-19
pp-DDT			111.3		%		50-140	26-MAR-19
Dieldrin			100.3		%		50-140	26-MAR-19
Endosulfan I			96.9		%		50-140	26-MAR-19
Endosulfan II			98.1		%		50-140	26-MAR-19
Endrin			110.1		%		50-140	26-MAR-19
gamma-hexachlorocyclohexane			100.5		%		50-140	26-MAR-19
Heptachlor			93.2		%		50-140	26-MAR-19
Heptachlor Epoxide			101.5		%		50-140	26-MAR-19
Hexachlorobenzene			100.5		%		50-140	26-MAR-19
Hexachlorobutadiene			99.8		%		50-140	26-MAR-19
Hexachloroethane			105.7		%		50-140	26-MAR-19
Methoxychlor			123.9		%		50-140	26-MAR-19
WG3013567-1 MB								
Aldrin			<0.020		ug/g		0.02	26-MAR-19
a-chlordane			<0.020		ug/g		0.02	26-MAR-19
g-chlordane			<0.020		ug/g		0.02	26-MAR-19
op-DDD			<0.020		ug/g		0.02	26-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PEST-OC-511-WT	**Soil**							
Batch R4584177								
WG3013567-1 MB								
pp-DDD			<0.020		ug/g		0.02	26-MAR-19
o,p-DDE			<0.020		ug/g		0.02	26-MAR-19
pp-DDE			<0.020		ug/g		0.02	26-MAR-19
op-DDT			<0.020		ug/g		0.02	26-MAR-19
pp-DDT			<0.020		ug/g		0.02	26-MAR-19
Dieldrin			<0.020		ug/g		0.02	26-MAR-19
Endosulfan I			<0.020		ug/g		0.02	26-MAR-19
Endosulfan II			<0.020		ug/g		0.02	26-MAR-19
Endrin			<0.020		ug/g		0.02	26-MAR-19
gamma-hexachlorocyclohexane			<0.010		ug/g		0.01	26-MAR-19
Heptachlor			<0.020		ug/g		0.02	26-MAR-19
Heptachlor Epoxide			<0.020		ug/g		0.02	26-MAR-19
Hexachlorobenzene			<0.010		ug/g		0.01	26-MAR-19
Hexachlorobutadiene			<0.010		ug/g		0.01	26-MAR-19
Hexachloroethane			<0.010		ug/g		0.01	26-MAR-19
Methoxychlor			<0.020		ug/g		0.02	26-MAR-19
Surrogate: 2-Fluorobiphenyl			111.0		%		50-140	26-MAR-19
Surrogate: d14-Terphenyl			95.3		%		50-140	26-MAR-19
WG3013567-4 MS		**WG3013567-5**						
Aldrin			113.5		%		50-140	26-MAR-19
a-chlordane			68.8		%		50-140	26-MAR-19
g-chlordane			68.9		%		50-140	26-MAR-19
op-DDD			72.6		%		50-140	26-MAR-19
pp-DDD			82.6		%		50-140	26-MAR-19
o,p-DDE			65.4		%		50-140	26-MAR-19
pp-DDE			66.4		%		50-140	26-MAR-19
op-DDT			86.3		%		50-140	26-MAR-19
pp-DDT			122.9		%		50-140	26-MAR-19
Dieldrin			62.9		%		50-140	26-MAR-19
Endosulfan I			68.4		%		50-140	26-MAR-19
Endosulfan II			82.5		%		50-140	26-MAR-19
Endrin			118.9		%		50-140	26-MAR-19
gamma-hexachlorocyclohexane			89.3		%		50-140	26-MAR-19
Heptachlor			88.7		%		50-140	26-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PEST-OC-511-WT	**Soil**							
Batch R4584177								
WG3013567-4 MS		**WG3013567-5**						
Heptachlor Epoxide			66.2		%		50-140	26-MAR-19
Hexachlorobenzene			83.0		%		50-140	26-MAR-19
Hexachlorobutadiene			86.6		%		50-140	26-MAR-19
Hexachloroethane			87.7		%		50-140	26-MAR-19
Methoxychlor			130.6		%		50-140	26-MAR-19
PH-WT	**Soil**							
Batch R4584807								
WG3013598-1 DUP		**L2248320-1**						
pH		7.35	7.23	J	pH units	0.12	0.3	26-MAR-19
WG3014231-1 LCS								
pH			6.96		pH units		6.9-7.1	26-MAR-19
SAR-R511-WT	**Soil**							
Batch R4585357								
WG3014878-4 DUP		**WG3014878-3**						
Calcium (Ca)		24.9	22.0		mg/L	12	30	27-MAR-19
Sodium (Na)		31.4	26.0		mg/L	19	30	27-MAR-19
Magnesium (Mg)		2.31	1.92		mg/L	18	30	27-MAR-19
WG3014878-2 IRM		**WT SAR2**						
Calcium (Ca)			91.7		%		70-130	27-MAR-19
Sodium (Na)			93.8		%		70-130	27-MAR-19
Magnesium (Mg)			92.7		%		70-130	27-MAR-19
WG3014878-5 LCS								
Calcium (Ca)			105.7		%		70-130	27-MAR-19
Sodium (Na)			105.2		%		70-130	27-MAR-19
Magnesium (Mg)			101.4		%		70-130	27-MAR-19
WG3014878-1 MB								
Calcium (Ca)			<0.50		mg/L		0.5	27-MAR-19
Sodium (Na)			<0.50		mg/L		0.5	27-MAR-19
Magnesium (Mg)			<0.50		mg/L		0.5	27-MAR-19
VOC-511-HS-WT	**Soil**							
Batch R4585205								
WG3013501-4 DUP		**WG3013501-3**						
1,1,1,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
1,1,2,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
1,1,1-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4585205								
WG3013501-4 DUP		**WG3013501-3**						
1,1,2-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
1,1-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
1,1-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
1,2-Dibromoethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
1,2-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
1,2-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
1,2-Dichloropropane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
1,3-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
1,4-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Acetone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	27-MAR-19
Benzene		0.0478	0.0437		ug/g	9.0	40	27-MAR-19
Bromodichloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Bromoform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Bromomethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Carbon tetrachloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Chlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Chloroform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
cis-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
cis-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	27-MAR-19
Dibromochloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Dichlorodifluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Ethylbenzene		0.031	0.029		ug/g	7.4	40	27-MAR-19
n-Hexane		0.085	0.075		ug/g	12	40	27-MAR-19
Methylene Chloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
MTBE		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
m+p-Xylenes		0.103	0.096		ug/g	7.9	40	27-MAR-19
Methyl Ethyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	27-MAR-19
Methyl Isobutyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	27-MAR-19
o-Xylene		0.051	0.048		ug/g	6.1	40	27-MAR-19
Styrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Tetrachloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Toluene		0.144	0.132		ug/g	8.4	40	27-MAR-19
trans-1,2-Dichloroethylene		<0.050	<0.050		ug/g			27-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4585205								
WG3013501-4 DUP		**WG3013501-3**						
trans-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
trans-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	27-MAR-19
Trichloroethylene		0.011	0.011		ug/g	3.4	40	27-MAR-19
Trichlorofluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	27-MAR-19
Vinyl chloride		<0.020	<0.020	RPD-NA	ug/g	N/A	40	27-MAR-19
WG3013501-2 LCS								
1,1,1,2-Tetrachloroethane			97.5		%		60-130	27-MAR-19
1,1,2,2-Tetrachloroethane			90.8		%		60-130	27-MAR-19
1,1,1-Trichloroethane			97.7		%		60-130	27-MAR-19
1,1,2-Trichloroethane			98.2		%		60-130	27-MAR-19
1,1-Dichloroethane			96.9		%		60-130	27-MAR-19
1,1-Dichloroethylene			89.7		%		60-130	27-MAR-19
1,2-Dibromoethane			91.0		%		70-130	27-MAR-19
1,2-Dichlorobenzene			99.5		%		70-130	27-MAR-19
1,2-Dichloroethane			95.3		%		60-130	27-MAR-19
1,2-Dichloropropane			93.2		%		70-130	27-MAR-19
1,3-Dichlorobenzene			101.6		%		70-130	27-MAR-19
1,4-Dichlorobenzene			103.4		%		70-130	27-MAR-19
Acetone			85.8		%		60-140	27-MAR-19
Benzene			97.9		%		70-130	27-MAR-19
Bromodichloromethane			94.5		%		50-140	27-MAR-19
Bromoform			90.2		%		70-130	27-MAR-19
Bromomethane			102.0		%		50-140	27-MAR-19
Carbon tetrachloride			99.98		%		70-130	27-MAR-19
Chlorobenzene			98.2		%		70-130	27-MAR-19
Chloroform			98.2		%		70-130	27-MAR-19
cis-1,2-Dichloroethylene			97.3		%		70-130	27-MAR-19
cis-1,3-Dichloropropene			100.4		%		70-130	27-MAR-19
Dibromochloromethane			96.3		%		60-130	27-MAR-19
Dichlorodifluoromethane			53.6		%		50-140	27-MAR-19
Ethylbenzene			91.8		%		70-130	27-MAR-19
n-Hexane			85.4		%		70-130	27-MAR-19
Methylene Chloride			98.2		%		70-130	27-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4585205								
WG3013501-2 LCS								
MTBE			99.5		%		70-130	27-MAR-19
m+p-Xylenes			93.4		%		70-130	27-MAR-19
Methyl Ethyl Ketone			88.0		%		60-140	27-MAR-19
Methyl Isobutyl Ketone			74.0		%		60-140	27-MAR-19
o-Xylene			90.2		%		70-130	27-MAR-19
Styrene			90.4		%		70-130	27-MAR-19
Tetrachloroethylene			101.9		%		60-130	27-MAR-19
Toluene			93.3		%		70-130	27-MAR-19
trans-1,2-Dichloroethylene			94.3		%		60-130	27-MAR-19
trans-1,3-Dichloropropene			91.0		%		70-130	27-MAR-19
Trichloroethylene			104.0		%		60-130	27-MAR-19
Trichlorofluoromethane			97.4		%		50-140	27-MAR-19
Vinyl chloride			64.3		%		60-140	27-MAR-19
WG3013501-1 MB								
1,1,1,2-Tetrachloroethane			<0.050		ug/g		0.05	27-MAR-19
1,1,2,2-Tetrachloroethane			<0.050		ug/g		0.05	27-MAR-19
1,1,1-Trichloroethane			<0.050		ug/g		0.05	27-MAR-19
1,1,2-Trichloroethane			<0.050		ug/g		0.05	27-MAR-19
1,1-Dichloroethane			<0.050		ug/g		0.05	27-MAR-19
1,1-Dichloroethylene			<0.050		ug/g		0.05	27-MAR-19
1,2-Dibromoethane			<0.050		ug/g		0.05	27-MAR-19
1,2-Dichlorobenzene			<0.050		ug/g		0.05	27-MAR-19
1,2-Dichloroethane			<0.050		ug/g		0.05	27-MAR-19
1,2-Dichloropropane			<0.050		ug/g		0.05	27-MAR-19
1,3-Dichlorobenzene			<0.050		ug/g		0.05	27-MAR-19
1,4-Dichlorobenzene			<0.050		ug/g		0.05	27-MAR-19
Acetone			<0.50		ug/g		0.5	27-MAR-19
Benzene			<0.0068		ug/g		0.0068	27-MAR-19
Bromodichloromethane			<0.050		ug/g		0.05	27-MAR-19
Bromoform			<0.050		ug/g		0.05	27-MAR-19
Bromomethane			<0.050		ug/g		0.05	27-MAR-19
Carbon tetrachloride			<0.050		ug/g		0.05	27-MAR-19
Chlorobenzene			<0.050		ug/g		0.05	27-MAR-19
Chloroform			<0.050		ug/g		0.05	27-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4585205								
WG3013501-1 MB								
cis-1,2-Dichloroethylene			<0.050		ug/g		0.05	27-MAR-19
cis-1,3-Dichloropropene			<0.030		ug/g		0.03	27-MAR-19
Dibromochloromethane			<0.050		ug/g		0.05	27-MAR-19
Dichlorodifluoromethane			<0.050		ug/g		0.05	27-MAR-19
Ethylbenzene			<0.018		ug/g		0.018	27-MAR-19
n-Hexane			<0.050		ug/g		0.05	27-MAR-19
Methylene Chloride			<0.050		ug/g		0.05	27-MAR-19
MTBE			<0.050		ug/g		0.05	27-MAR-19
m+p-Xylenes			<0.030		ug/g		0.03	27-MAR-19
Methyl Ethyl Ketone			<0.50		ug/g		0.5	27-MAR-19
Methyl Isobutyl Ketone			<0.50		ug/g		0.5	27-MAR-19
o-Xylene			<0.020		ug/g		0.02	27-MAR-19
Styrene			<0.050		ug/g		0.05	27-MAR-19
Tetrachloroethylene			<0.050		ug/g		0.05	27-MAR-19
Toluene			<0.080		ug/g		0.08	27-MAR-19
trans-1,2-Dichloroethylene			<0.050		ug/g		0.05	27-MAR-19
trans-1,3-Dichloropropene			<0.030		ug/g		0.03	27-MAR-19
Trichloroethylene			<0.010		ug/g		0.01	27-MAR-19
Trichlorofluoromethane			<0.050		ug/g		0.05	27-MAR-19
Vinyl chloride			<0.020		ug/g		0.02	27-MAR-19
Surrogate: 1,4-Difluorobenzene			119.0		%		50-140	27-MAR-19
Surrogate: 4-Bromofluorobenzene			107.8		%		50-140	27-MAR-19
WG3013501-5 MS		**L2248321-6**						
1,1,1,2-Tetrachloroethane			102.1		%		50-140	27-MAR-19
1,1,2,2-Tetrachloroethane			94.0		%		50-140	27-MAR-19
1,1,1-Trichloroethane			98.7		%		50-140	27-MAR-19
1,1,2-Trichloroethane			104.9		%		50-140	27-MAR-19
1,1-Dichloroethane			98.7		%		50-140	27-MAR-19
1,1-Dichloroethylene			88.4		%		50-140	27-MAR-19
1,2-Dibromoethane			95.2		%		50-140	27-MAR-19
1,2-Dichlorobenzene			71.0		%		50-140	27-MAR-19
1,2-Dichloroethane			97.3		%		50-140	27-MAR-19
1,2-Dichloropropane			94.7		%		50-140	27-MAR-19
1,3-Dichlorobenzene			69.9		%		50-140	27-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4585205								
WG3013501-5 MS		**L2248321-6**						
1,4-Dichlorobenzene			70.0		%		50-140	27-MAR-19
Acetone			99.0		%		50-140	27-MAR-19
Benzene			98.7		%		50-140	27-MAR-19
Bromodichloromethane			99.5		%		50-140	27-MAR-19
Bromoform			96.1		%		50-140	27-MAR-19
Bromomethane			94.0		%		50-140	27-MAR-19
Carbon tetrachloride			100.3		%		50-140	27-MAR-19
Chlorobenzene			98.0		%		50-140	27-MAR-19
Chloroform			100.4		%		50-140	27-MAR-19
cis-1,2-Dichloroethylene			97.3		%		50-140	27-MAR-19
cis-1,3-Dichloropropene			86.4		%		50-140	27-MAR-19
Dibromochloromethane			102.0		%		50-140	27-MAR-19
Dichlorodifluoromethane			50.4		%		50-140	27-MAR-19
Ethylbenzene			93.1		%		50-140	27-MAR-19
n-Hexane			82.5		%		50-140	27-MAR-19
Methylene Chloride			98.4		%		50-140	27-MAR-19
MTBE			99.8		%		50-140	27-MAR-19
m+p-Xylenes			92.4		%		50-140	27-MAR-19
Methyl Ethyl Ketone			87.6		%		50-140	27-MAR-19
Methyl Isobutyl Ketone			78.0		%		50-140	27-MAR-19
o-Xylene			91.2		%		50-140	27-MAR-19
Styrene			87.5		%		50-140	27-MAR-19
Tetrachloroethylene			98.5		%		50-140	27-MAR-19
Toluene			95.1		%		50-140	27-MAR-19
trans-1,2-Dichloroethylene			88.5		%		50-140	27-MAR-19
trans-1,3-Dichloropropene			78.8		%		50-140	27-MAR-19
Trichloroethylene			100.5		%		50-140	27-MAR-19
Trichlorofluoromethane			96.7		%		50-140	27-MAR-19
Vinyl chloride			62.1		%		50-140	27-MAR-19

Quality Control Report

Workorder: L2248321 Report Date: 27-MAR-19

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
J	Duplicate results and limits are expressed in terms of absolute difference.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

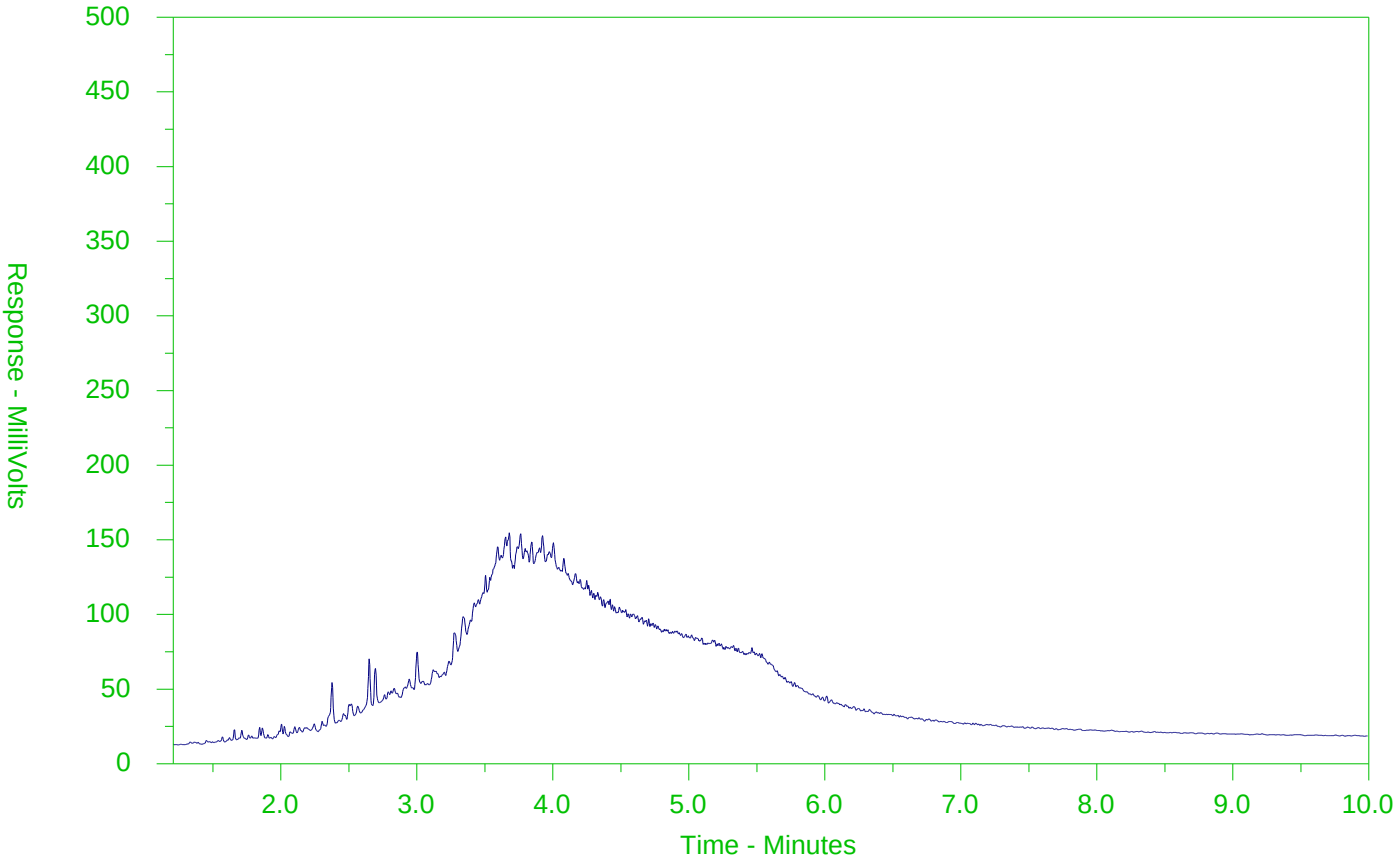
ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2248321-2
Client Sample ID: S-11102463-032019-DD-BH18-441-1.0-1.5



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

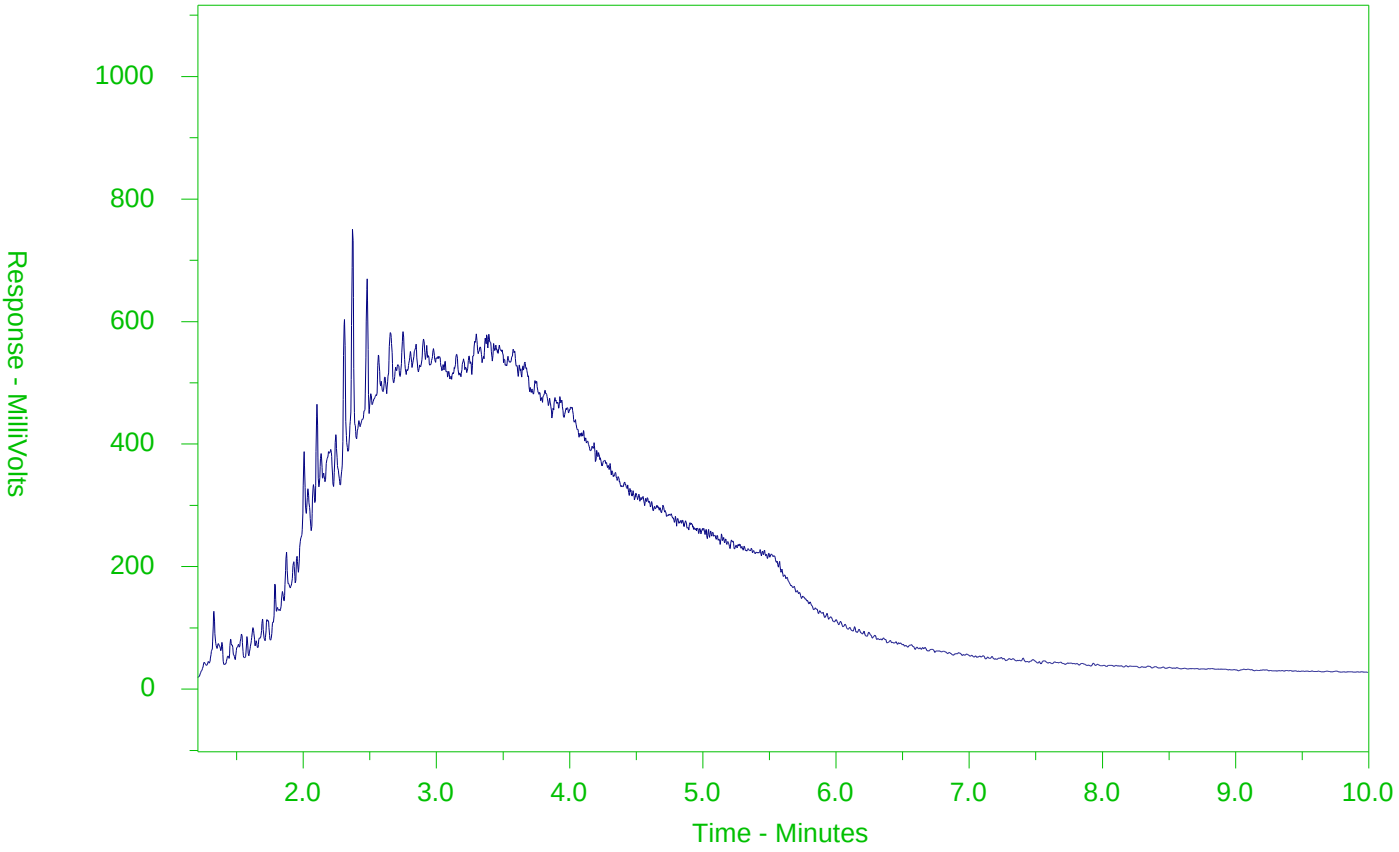
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2248321-3
Client Sample ID: S-11102463-032019-DD-BH18-441-2.8-3.4



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

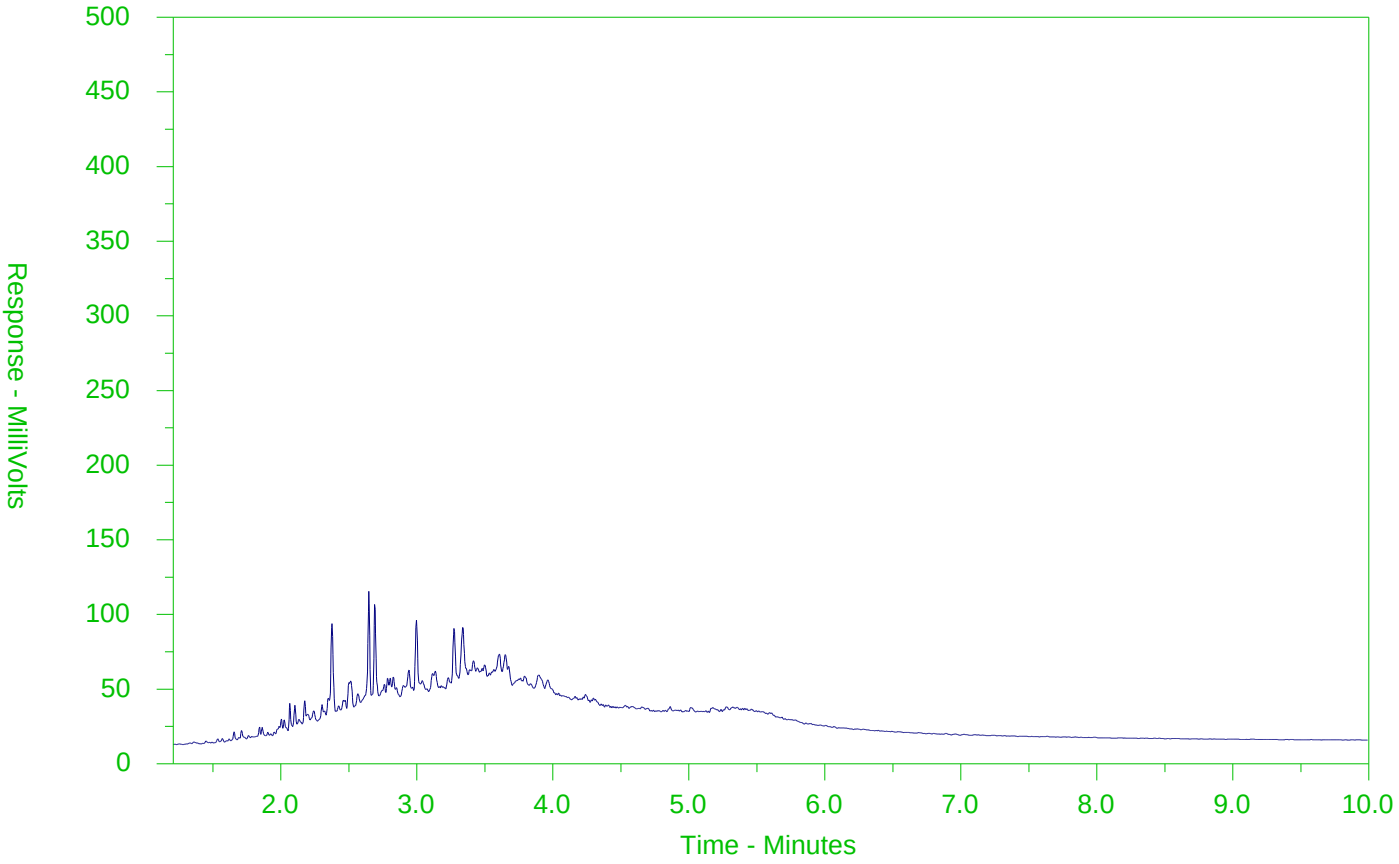
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2248321-4
Client Sample ID: S-11102463-032119-DD-BH18-469-0.8-1.4



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

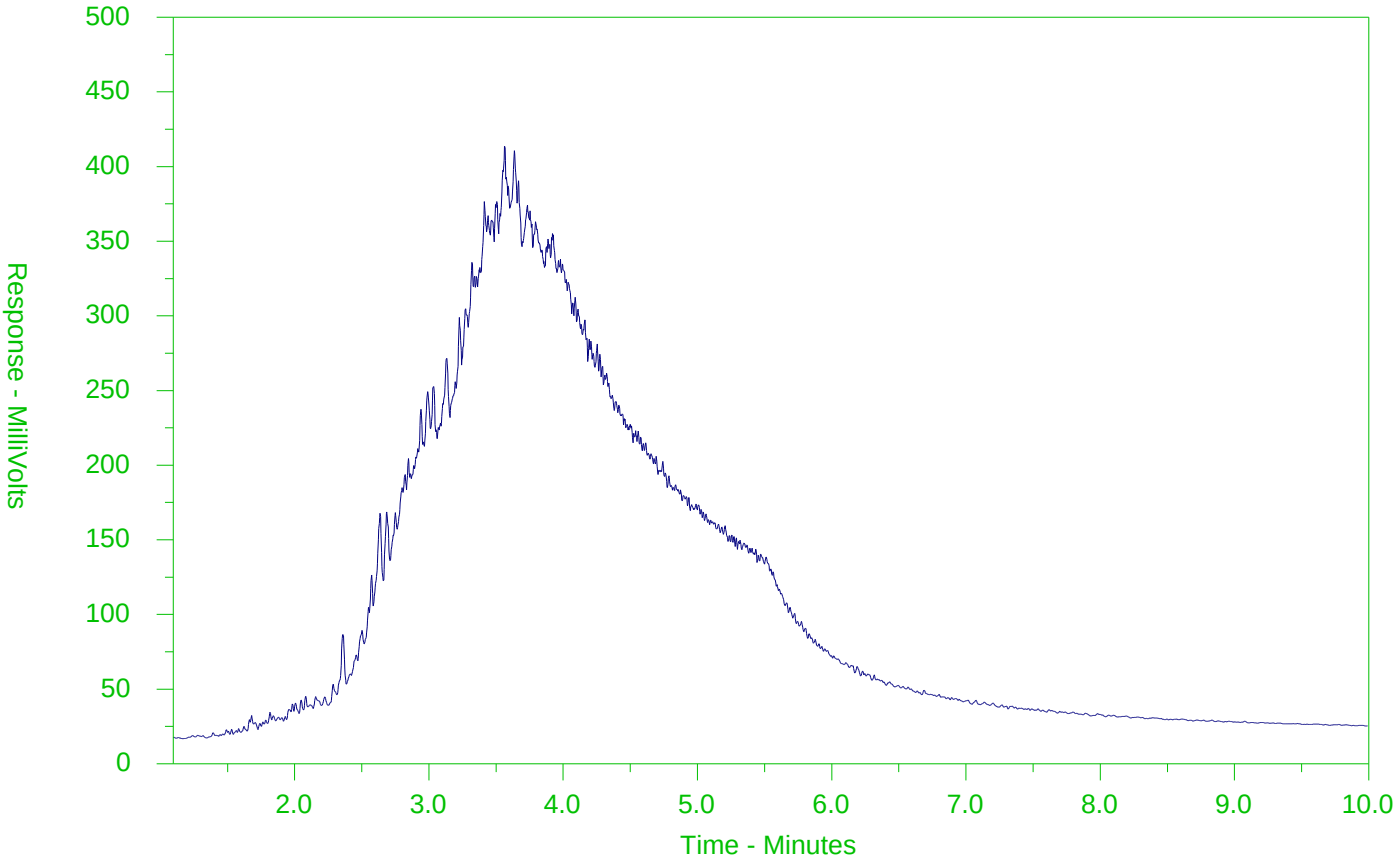
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2248321-5
Client Sample ID: S-11102463-032119-DD-BH18-469-3.0-3.7



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

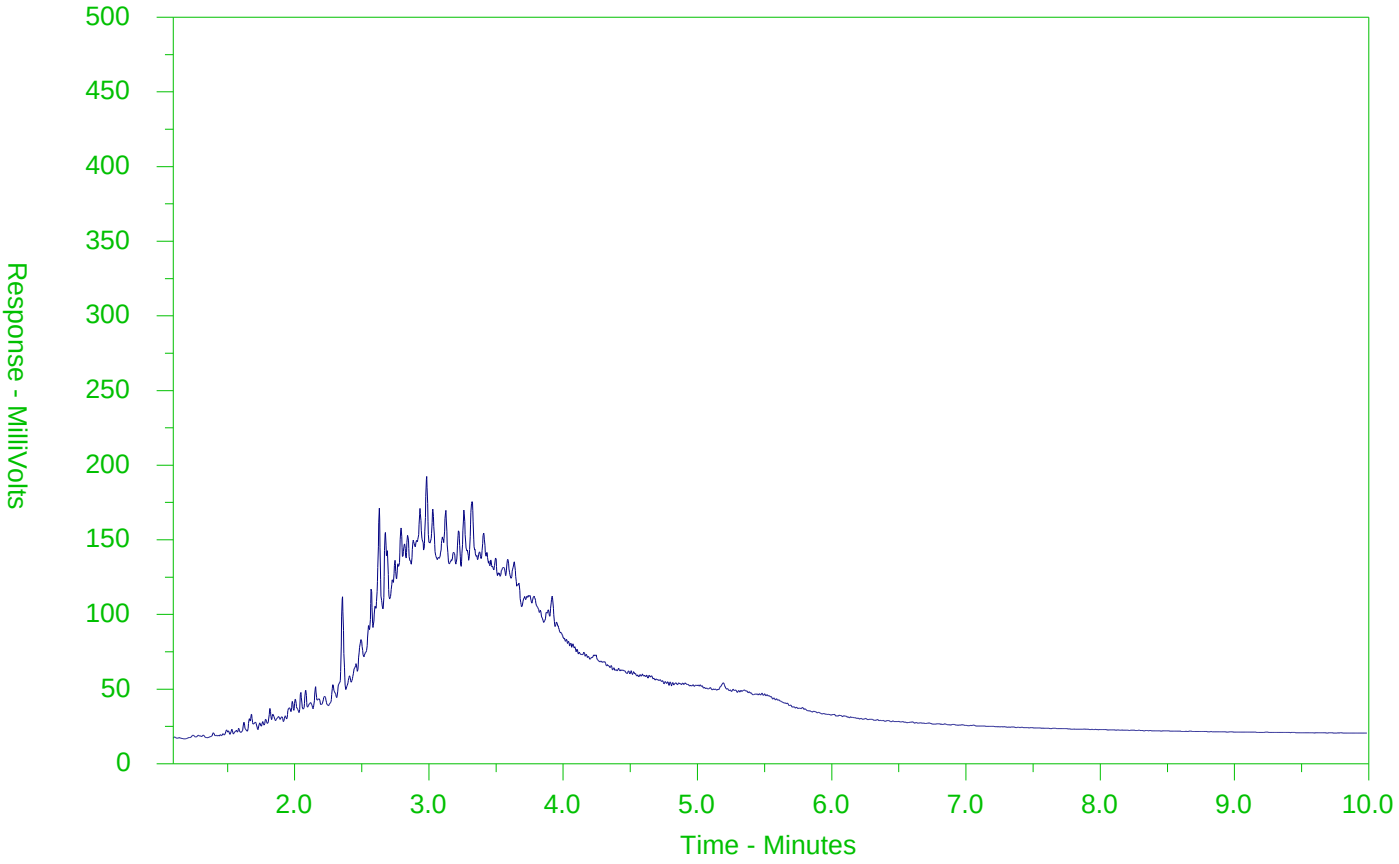
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2248321-6
Client Sample ID: S-11102463-032119-DD-BH18-469-DUP-001



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2248321-COFC

COC Number: 17 -

Page of

Report To	Contact and company name below will appear on the final report	Report Format / Dis.	Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)
Company:	GHD LIMITED - ACCT #13791	Select Report Format: ☑ PDF ☑ EXCEL ☑ EDD (DIGITAL)	Regular [R] ☑ Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:	Jennifer Balkwill	Quality Control (QC) Report with Report ☑ YES ☐ NO	PRIORITY (Business Days): 4 day [P4-20%] ☐ / 3 day [P3-25%] ☐ / 2 day [P2-50%] ☐
Phone:	519-884-0510	☐ Compare Results to Criteria on Report - provide details below if box checked	EMERGENCY: 1 Business day [E - 100%] ☐ / Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)] ☐
	Company address below will appear on the final report	Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX	Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm
Street:	455 Phillip St	Email 1 or Fax jennifer.balkwill@ghd.com	For tests that can not be performed according to the service level selected, you will be contacted.
City/Province:	Waterloo, Ontario	Email 2 See PO	
Postal Code:	N2L 3X2	Email 3	
Invoice To	Same as Report To ☑ YES ☐ NO	**Invoice Distribution**	
	Copy of Invoice with Report ☐ YES ☑ NO	Select Invoice Distribution: ☐ EMAIL ☐ MAIL ☐ FAX	
Company:	GHD Limited	Email 1 or Fax jennifer.balkwill@ghd.com	
Contact:	Jennifer Balkwill	Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	13791, Q51987	AFE/Cost Center:	PO#
Job #:	11102463-71	Major/Minor Code:	Routing Code:
PO / AFE:	73509898-7	Requisitioner:	
LSD:	Waterfront Toronto	Location:	
ALS Lab Work Order # (lab use only):	L2248321	ALS Contact: Rick H	Sampler:

Analysis Request — Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	BTEX,F1-F4-511-P-WT	TOC-WT (confirmed Triplicate 511 not neces	BTEX,F1 (Trip Blank)	OC Pesticides	Cyanomeds	PCBs	PAHs	ORegMetals+Inorgs	PHCs	VOCs	SAMPLES ON HOLD	SUSPECTED HAZARD (see Special Instructions)
	S-11102463- TRIP BLANK	20-03-19	-	Water	1			X									
	S-11102463- 032019 - ND - BH18-441 - 1.0-1.5	20-03-19	1200	Soil	5				X	X	X	X	X	X	X		
	S-11102463- 032019 - M - BH18-441 - 2.8-3.4	20-03-19	1300	Soil	5				X	X	X	X	X	X	X		
	S-11102463- 032119 - M - BH18-469 - 0.8-1.4	21-03-19	1210	Soil	5				X	X	X	X	X	X	X		
	S-11102463- 032119 - ND - BH18-469 - 3.0-3.7	21-03-19	1300	Soil	8				X	X	X	X	X	X	X		
	S-11102463- 032119 - DUP - BH18-469 - DUP-001	21-03-19	1330	Soil	8				X	X	X	X	X	X	X		
	S-11102463-			Soil													
	S-11102463-			Soil													
	S-11102463-			Soil													
	S-11102463-			Soil													
	S-11102463-			Soil													
	S-11102463-			Soil													

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? ☐ YES ☑ NO	
Are samples for human consumption/ use? ☐ YES ☑ NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐
Ice Packs ☒ Ice Cubes ☐ Custody seal intact Yes ☐ No ☐
Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				4.0 °C			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date: 22/Mar/2019	Time: 17:50

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

JUNE 2016 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

GHD Limited (Waterloo)
ATTN: JENNIFER BALKWILL
455 PHILLIP ST
WATERLOO ON N2L 3X2

Date Received: 25-MAR-19
Report Date: 01-APR-19 13:39 (MT)
Version: FINAL

Client Phone: 519-884-0510

Certificate of Analysis

Lab Work Order #: L2248786

Project P.O. #: 73509898-7
Job Reference: 11102463-53
C of C Numbers:
Legal Site Desc: WATERFRONT TORONTO

Rick Hawthorne
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2248786-1 S-11102463-032219-DD-BH18-469-9.9-10.5								
Sampled By: CLIENT on 22-MAR-19 @ 11:30								
Matrix: SOIL								
Physical Tests								
Conductivity	0.274		0.0040	mS/cm	28-MAR-19	0.7	0.7	0.7
% Moisture	14.9		0.10	%	28-MAR-19			
pH	7.80		0.10	pH units	28-MAR-19			
Cyanides								
Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	28-MAR-19	0.051	0.051	0.051
Saturated Paste Extractables								
SAR	2.13		0.10	SAR	28-MAR-19	5	5	5
Calcium (Ca)	13.6		0.50	mg/L	28-MAR-19			
Magnesium (Mg)	0.96		0.50	mg/L	28-MAR-19			
Sodium (Na)	30.2		0.50	mg/L	28-MAR-19			
Metals								
Antimony (Sb)	<1.0		1.0	ug/g	28-MAR-19	7.5	7.5	1.3
Arsenic (As)	2.1		1.0	ug/g	28-MAR-19	18	18	18
Barium (Ba)	31.7		1.0	ug/g	28-MAR-19	390	390	220
Beryllium (Be)	<0.50		0.50	ug/g	28-MAR-19	4	5	2.5
Boron (B)	5.2		5.0	ug/g	28-MAR-19	120	120	36
Boron (B), Hot Water Ext.	0.23		0.10	ug/g	28-MAR-19	1.5	1.5	1.5
Cadmium (Cd)	<0.50		0.50	ug/g	28-MAR-19	1.2	1.2	1.2
Chromium (Cr)	11.9		1.0	ug/g	28-MAR-19	160	160	70
Cobalt (Co)	4.6		1.0	ug/g	28-MAR-19	22	22	22
Copper (Cu)	10.8		1.0	ug/g	28-MAR-19	140	180	92
Lead (Pb)	45.4		1.0	ug/g	28-MAR-19	120	120	120
Mercury (Hg)	0.0152		0.0050	ug/g	28-MAR-19	0.27	1.8	0.27
Molybdenum (Mo)	<1.0		1.0	ug/g	28-MAR-19	6.9	6.9	2
Nickel (Ni)	11.3		1.0	ug/g	28-MAR-19	100	130	82
Selenium (Se)	<1.0		1.0	ug/g	28-MAR-19	2.4	2.4	1.5
Silver (Ag)	<0.20		0.20	ug/g	28-MAR-19	20	25	0.5
Thallium (Tl)	<0.50		0.50	ug/g	28-MAR-19	1	1	1
Uranium (U)	<1.0		1.0	ug/g	28-MAR-19	23	23	2.5
Vanadium (V)	15.3		1.0	ug/g	28-MAR-19	86	86	86
Zinc (Zn)	48.6		5.0	ug/g	28-MAR-19	340	340	290
Speciated Metals								
Chromium, Hexavalent	<0.20		0.20	ug/g	27-MAR-19	8	10	0.66
Volatile Organic Compounds								
Acetone	<0.50		0.50	ug/g	29-MAR-19	16	28	0.5
Benzene	<0.0068		0.0068	ug/g	29-MAR-19	0.21	0.17	0.02
Bromodichloromethane	<0.050		0.050	ug/g	29-MAR-19	13	13	0.05
Bromoform	<0.050		0.050	ug/g	29-MAR-19	0.27	0.26	0.05
Bromomethane	<0.050		0.050	ug/g	29-MAR-19	0.05	0.05	0.05
Carbon tetrachloride	<0.050		0.050	ug/g	29-MAR-19	0.05	0.12	0.05
Chlorobenzene	<0.050		0.050	ug/g	29-MAR-19	2.4	2.7	0.05
Dibromochloromethane	<0.050		0.050	ug/g	29-MAR-19	9.4	9.4	0.05
Chloroform	<0.050		0.050	ug/g	29-MAR-19	0.05	0.18	0.05
1,2-Dibromoethane	<0.050		0.050	ug/g	29-MAR-19	0.05	0.05	0.05
1,2-Dichlorobenzene	<0.050		0.050	ug/g	29-MAR-19	3.4	4.3	0.05

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2248786-1 S-11102463-032219-DD-BH18-469-9.9-10.5								
Sampled By: CLIENT on 22-MAR-19 @ 11:30								
Matrix: SOIL								
Volatile Organic Compounds								
1,3-Dichlorobenzene	<0.050		0.050	ug/g	29-MAR-19	4.8	6	0.05
1,4-Dichlorobenzene	<0.050		0.050	ug/g	29-MAR-19	0.083	0.097	0.05
Dichlorodifluoromethane	<0.050		0.050	ug/g	29-MAR-19	16	25	0.05
1,1-Dichloroethane	<0.050		0.050	ug/g	29-MAR-19	3.5	11	0.05
1,2-Dichloroethane	<0.050		0.050	ug/g	29-MAR-19	0.05	0.05	0.05
1,1-Dichloroethylene	<0.050		0.050	ug/g	29-MAR-19	0.05	0.05	0.05
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	29-MAR-19	3.4	30	0.05
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	29-MAR-19	0.084	0.75	0.05
Methylene Chloride	<0.050		0.050	ug/g	29-MAR-19	0.1	0.96	0.05
1,2-Dichloropropane	<0.050		0.050	ug/g	29-MAR-19	0.05	0.085	0.05
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	29-MAR-19			
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	29-MAR-19			
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g	29-MAR-19	0.05	0.083	0.05
Ethylbenzene	<0.018		0.018	ug/g	29-MAR-19	2	15	0.05
n-Hexane	<0.050		0.050	ug/g	29-MAR-19	2.8	34	0.05
Methyl Ethyl Ketone	<0.50		0.50	ug/g	29-MAR-19	16	44	0.5
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	29-MAR-19	1.7	4.3	0.5
MTBE	<0.050		0.050	ug/g	29-MAR-19	0.75	1.4	0.05
Styrene	<0.050		0.050	ug/g	29-MAR-19	0.7	2.2	0.05
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	29-MAR-19	0.058	0.05	0.05
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	29-MAR-19	0.05	0.05	0.05
Tetrachloroethylene	<0.050		0.050	ug/g	29-MAR-19	0.28	2.3	0.05
Toluene	<0.080		0.080	ug/g	29-MAR-19	2.3	6	0.2
1,1,1-Trichloroethane	<0.050		0.050	ug/g	29-MAR-19	0.38	3.4	0.05
1,1,2-Trichloroethane	<0.050		0.050	ug/g	29-MAR-19	0.05	0.05	0.05
Trichloroethylene	<0.010		0.010	ug/g	29-MAR-19	0.061	0.52	0.05
Trichlorofluoromethane	<0.050		0.050	ug/g	29-MAR-19	4	5.8	0.25
Vinyl chloride	<0.020		0.020	ug/g	29-MAR-19	0.02	0.022	0.02
o-Xylene	<0.020		0.020	ug/g	29-MAR-19			
m+p-Xylenes	<0.030		0.030	ug/g	29-MAR-19			
Xylenes (Total)	<0.050		0.050	ug/g	29-MAR-19	3.1	25	0.05
Surrogate: 4-Bromofluorobenzene	93.4		50-140	%	29-MAR-19			
Surrogate: 1,4-Difluorobenzene	101.3		50-140	%	29-MAR-19			
Hydrocarbons								
F1 (C6-C10)	<5.0		5.0	ug/g	29-MAR-19	55	65	25
F1-BTEX	<5.0		5.0	ug/g	29-MAR-19	55	65	25
F2 (C10-C16)	<10		10	ug/g	27-MAR-19	98	150	10
F2-Naphth	<10		10	ug/g	29-MAR-19			
F3 (C16-C34)	<50		50	ug/g	27-MAR-19	300	1300	240
F3-PAH	<50		50	ug/g	29-MAR-19			
F4 (C34-C50)	<50		50	ug/g	27-MAR-19	2800	5600	120
Total Hydrocarbons (C6-C50)	<72		72	ug/g	29-MAR-19			
Chrom. to baseline at nC50	YES			No Unit	27-MAR-19			
Surrogate: 2-Bromobenzotrifluoride	83.8		60-140	%	27-MAR-19			
Surrogate: 3,4-Dichlorotoluene	99.3		60-140	%	29-MAR-19			
Polycyclic Aromatic Hydrocarbons								

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping	Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3
L2248786-1	S-11102463-032219-DD-BH18-469-9.9-10.5								
Sampled By:	CLIENT on 22-MAR-19 @ 11:30								
Matrix:	SOIL								
Polycyclic Aromatic Hydrocarbons									
	Acenaphthene	<0.050		0.050	ug/g	29-MAR-19	7.9	58	0.072
	Acenaphthylene	<0.050		0.050	ug/g	29-MAR-19	0.15	0.17	0.093
	Anthracene	<0.050		0.050	ug/g	29-MAR-19	0.67	0.74	0.22
	Benzo(a)anthracene	<0.050		0.050	ug/g	29-MAR-19	0.5	0.63	0.36
	Benzo(a)pyrene	<0.050		0.050	ug/g	29-MAR-19	0.3	0.3	0.3
	Benzo(b)fluoranthene	<0.050		0.050	ug/g	29-MAR-19	0.78	0.78	0.47
	Benzo(g,h,i)perylene	<0.050		0.050	ug/g	29-MAR-19	6.6	7.8	0.68
	Benzo(k)fluoranthene	<0.050		0.050	ug/g	29-MAR-19	0.78	0.78	0.48
	Chrysene	<0.050		0.050	ug/g	29-MAR-19	7	7.8	2.8
	Dibenzo(ah)anthracene	<0.050		0.050	ug/g	29-MAR-19	0.1	0.1	0.1
	Fluoranthene	<0.050		0.050	ug/g	29-MAR-19	0.69	0.69	0.69
	Fluorene	<0.050		0.050	ug/g	29-MAR-19	62	69	0.19
	Indeno(1,2,3-cd)pyrene	<0.050		0.050	ug/g	29-MAR-19	0.38	0.48	0.23
	1+2-Methylnaphthalenes	<0.042		0.042	ug/g	29-MAR-19	0.99	3.4	0.59
	1-Methylnaphthalene	<0.030		0.030	ug/g	29-MAR-19	0.99	3.4	0.59
	2-Methylnaphthalene	<0.030		0.030	ug/g	29-MAR-19	0.99	3.4	0.59
	Naphthalene	0.019		0.013	ug/g	29-MAR-19	0.6	0.75	0.09
	Phenanthrene	<0.046		0.046	ug/g	29-MAR-19	6.2	7.8	0.69
	Pyrene	<0.050		0.050	ug/g	29-MAR-19	78	78	1
	Surrogate: 2-Fluorobiphenyl	82.2		50-140	%	29-MAR-19			
	Surrogate: p-Terphenyl d14	97.5		50-140	%	29-MAR-19			
L2248786-2	TRIP BLANK								
Sampled By:	CLIENT on 22-MAR-19								
Matrix:	SOIL								
Physical Tests									
	% Moisture	<0.10		0.10	%	28-MAR-19			
Volatile Organic Compounds									
	Acetone	<0.50		0.50	ug/g	01-APR-19	16	28	0.5
	Benzene	<0.0068		0.0068	ug/g	01-APR-19	0.21	0.17	0.02
	Bromodichloromethane	<0.050		0.050	ug/g	01-APR-19	13	13	0.05
	Bromoform	<0.050		0.050	ug/g	01-APR-19	0.27	0.26	0.05
	Bromomethane	<0.050		0.050	ug/g	01-APR-19	0.05	0.05	0.05
	Carbon tetrachloride	<0.050		0.050	ug/g	01-APR-19	0.05	0.12	0.05
	Chlorobenzene	<0.050		0.050	ug/g	01-APR-19	2.4	2.7	0.05
	Dibromochloromethane	<0.050		0.050	ug/g	01-APR-19	9.4	9.4	0.05
	Chloroform	<0.050		0.050	ug/g	01-APR-19	0.05	0.18	0.05
	1,2-Dibromoethane	<0.050		0.050	ug/g	01-APR-19	0.05	0.05	0.05
	1,2-Dichlorobenzene	<0.050		0.050	ug/g	01-APR-19	3.4	4.3	0.05
	1,3-Dichlorobenzene	<0.050		0.050	ug/g	01-APR-19	4.8	6	0.05
	1,4-Dichlorobenzene	<0.050		0.050	ug/g	01-APR-19	0.083	0.097	0.05
	Dichlorodifluoromethane	<0.050		0.050	ug/g	01-APR-19	16	25	0.05
	1,1-Dichloroethane	<0.050		0.050	ug/g	01-APR-19	3.5	11	0.05
	1,2-Dichloroethane	<0.050		0.050	ug/g	01-APR-19	0.05	0.05	0.05
	1,1-Dichloroethylene	<0.050		0.050	ug/g	01-APR-19	0.05	0.05	0.05

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3	
L2248786-2 TRIP BLANK Sampled By: CLIENT on 22-MAR-19 Matrix: SOIL									
Volatile Organic Compounds									
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	01-APR-19	3.4	30	0.05	
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	01-APR-19	0.084	0.75	0.05	
Methylene Chloride	<0.050		0.050	ug/g	01-APR-19	0.1	0.96	0.05	
1,2-Dichloropropane	<0.050		0.050	ug/g	01-APR-19	0.05	0.085	0.05	
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	01-APR-19				
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	01-APR-19				
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g	01-APR-19	0.05	0.083	0.05	
Ethylbenzene	<0.018		0.018	ug/g	01-APR-19	2	15	0.05	
n-Hexane	<0.050		0.050	ug/g	01-APR-19	2.8	34	0.05	
Methyl Ethyl Ketone	<0.50		0.50	ug/g	01-APR-19	16	44	0.5	
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	01-APR-19	1.7	4.3	0.5	
MTBE	<0.050		0.050	ug/g	01-APR-19	0.75	1.4	0.05	
Styrene	<0.050		0.050	ug/g	01-APR-19	0.7	2.2	0.05	
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	01-APR-19	0.058	0.05	0.05	
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	01-APR-19	0.05	0.05	0.05	
Tetrachloroethylene	<0.050		0.050	ug/g	01-APR-19	0.28	2.3	0.05	
Toluene	<0.080		0.080	ug/g	01-APR-19	2.3	6	0.2	
1,1,1-Trichloroethane	<0.050		0.050	ug/g	01-APR-19	0.38	3.4	0.05	
1,1,2-Trichloroethane	<0.050		0.050	ug/g	01-APR-19	0.05	0.05	0.05	
Trichloroethylene	<0.010		0.010	ug/g	01-APR-19	0.061	0.52	0.05	
Trichlorofluoromethane	<0.050		0.050	ug/g	01-APR-19	4	5.8	0.25	
Vinyl chloride	<0.020		0.020	ug/g	01-APR-19	0.02	0.022	0.02	
o-Xylene	<0.020		0.020	ug/g	01-APR-19				
m+p-Xylenes	<0.030		0.030	ug/g	01-APR-19				
Xylenes (Total)	<0.050		0.050	ug/g	01-APR-19	3.1	25	0.05	
Surrogate: 4-Bromofluorobenzene	88.7		50-140	%	01-APR-19				
Surrogate: 1,4-Difluorobenzene	99.8		50-140	%	01-APR-19				
Hydrocarbons									
F1 (C6-C10)	<5.0		5.0	ug/g	01-APR-19	55	65	25	
Surrogate: 3,4-Dichlorotoluene	80.7		60-140	%	01-APR-19				

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T3/T9-SOIL-RPI/RPIICC-C/F

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

#2: T3-Soil-Res/Park/Inst. Property Use (Fine)

#3: T9-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference***
B-HWS-R511-WT	Soil	Boron-HWE-O.Reg 153/04 (July 2011)	HW EXTR, EPA 6010B

A dried solid sample is extracted with calcium chloride, the sample undergoes a heating process. After cooling the sample is filtered and analyzed by ICP/OES.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

CN-WAD-R511-WT	Soil	Cyanide (WAD)-O.Reg 153/04 (July 2011)	MOE 3015/APHA 4500CN I-WAD

The sample is extracted with a strong base for 16 hours, and then filtered. The filtrate is then distilled where the cyanide is converted to cyanogen chloride by reacting with chloramine-T, the cyanogen chloride then reacts with a combination of barbituric acid and isonicotinic acid to form a highly colored complex.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

CR-CR6-IC-WT	Soil	Hexavalent Chromium in Soil	SW846 3060A/7199

This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, Method 7199, published by the United States Environmental Protection Agency (EPA). The procedure involves analysis for chromium (VI) by ion chromatography using diphenylcarbazide in a sulphuric acid solution.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

EC-WT	Soil	Conductivity (EC)	MOEE E3138

A representative subsample is tumbled with de-ionized (DI) water. The ratio of water to soil is 2:1 v/w. After tumbling the sample is then analyzed by a conductivity meter.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

F1-F4-511-CALC-WT	Soil	F1-F4 Hydrocarbon Calculated Parameters	CCME CWS-PHC, Pub #1310, Dec 2001-S

Analytical methods used for analysis of CCME Petroleum Hydrocarbons have been validated and comply with the Reference Method for the CWS PHC.

Hydrocarbon results are expressed on a dry weight basis.

In cases where results for both F4 and F4G are reported, the greater of the two results must be used in any application of the CWS PHC guidelines and the gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.
In samples where BTEX and F1 were analyzed , F1-BTEX represents a value where the sum of Benzene, Toluene, Ethylbenzene and total Xylenes has been subtracted from F1.

In samples where PAHs, F2 and F3 were analyzed, F2-Naphth represents the result where Naphthalene has been subtracted from F2. F3-PAH represents a result where the sum of Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenzo(a,h)anthracene, Fluoranthene, Indeno(1,2,3-cd)pyrene, Phenanthrene, and Pyrene has been subtracted from F3.

Unless otherwise qualified, the following quality control criteria have been met for the F1 hydrocarbon range:
1. All extraction and analysis holding times were met.
2. Instrument performance showing response factors for C6 and C10 within 30% of the response factor for toluene.
3. Linearity of gasoline response within 15% throughout the calibration range.

Unless otherwise qualified, the following quality control criteria have been met for the F2-F4 hydrocarbon ranges:
1. All extraction and analysis holding times were met.
2. Instrument performance showing C10, C16 and C34 response factors within 10% of their average.
3. Instrument performance showing the C50 response factor within 30% of the average of the C10, C16 and C34 response factors.
4. Linearity of diesel or motor oil response within 15% throughout the calibration range.

F1-HS-511-WT	Soil	F1-O.Reg 153/04 (July 2011)	E3398/CCME TIER 1-HS

Fraction F1 is determined by extracting a soil or sediment sample as received with methanol, then analyzing by headspace-GC/FID.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

Reference Information

F2-F4-511-WT Soil F2-F4-O.Reg 153/04 (July 2011) CCME Tier 1

Petroleum Hydrocarbons (F2-F4 fractions) are extracted from soil with 1:1 hexane:acetone using a rotary extractor. Extracts are treated with silica gel to remove polar organic interferences. F2, F3, & F4 are analyzed by GC-FID. F4G-sg is analyzed gravimetrically.

Notes:
1. F2 (C10-C16): Sum of all hydrocarbons that elute between nC10 and nC16.
2. F3 (C16-C34): Sum of all hydrocarbons that elute between nC16 and nC34.
3. F4 (C34-C50): Sum of all hydrocarbons that elute between nC34 and nC50.
4. F4G: Gravimetric Heavy Hydrocarbons
5. F4G-sg: Gravimetric Heavy Hydrocarbons (F4G) after silica gel treatment.
6. Where both F4 (C34-C50) and F4G-sg are reported for a sample, the larger of the two values is used for comparison against the relevant CCME guideline for F4.
7. F4G-sg cannot be added to the C6 to C50 hydrocarbon results to obtain an estimate of total extractable hydrocarbons.
8. This method is validated for use.
9. Data from analysis of validation and quality control samples is available upon request.
10. Reported results are expressed as milligrams per dry kilogram, unless otherwise indicated.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

HG-200.2-CVAA-WT Soil Mercury in Soil by CVAAS EPA 200.2/1631E (mod)

Soil samples are digested with nitric and hydrochloric acids, followed by analysis by CVAAS.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

MET-200.2-CCMS-WT Soil Metals in Soil by CRC ICPMS EPA 200.2/6020A (mod)

Soil/sediment is dried, disaggregated, and sieved (2 mm). For tests intended to support Ontario regulations, the <2mm fraction is ground to pass through a 0.355 mm sieve. Strong Acid Leachable Metals in the <2mm fraction are solubilized by heated digestion with nitric and hydrochloric acids. Instrumental analysis is by Collision / Reaction Cell ICPMS.

Limitations: This method is intended to liberate environmentally available metals. Silicate minerals are not solubilized. Some metals may be only partially recovered (matrix dependent), including Al, Ba, Be, Cr, S, Sr, Ti, Tl, V, W, and Zr. Elemental Sulfur may be poorly recovered by this method. Volatile forms of sulfur (e.g. sulfide, H2S) may be excluded if lost during sampling, storage, or digestion.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

METHYLNAPS-CALC-WT Soil ABN-Calculated Parameters SW846 8270

MOISTURE-WT Soil % Moisture CCME PHC in Soil - Tier 1 (mod)

PAH-511-WT Soil PAH-O.Reg 153/04 (July 2011) SW846 3510/8270

A representative sub-sample of soil is fortified with deuterium-labelled surrogates and a mechanical shaking techniqueis used to extract the sample with a mixture of methanol and toluene. The extracts are concentrated and analyzed by GC/MS. Results for benzo(b) fluoranthene may include contributions from benzo(j)fluoranthene, if also present in the sample.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

PH-WT Soil pH MOEE E3137A

A minimum 10g portion of the sample is extracted with 20mL of 0.01M calcium chloride solution by shaking for at least 30 minutes. The aqueous layer is separated from the soil and then analyzed using a pH meter and electrode.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

SAR-R511-WT Soil SAR-O.Reg 153/04 (July 2011) SW846 6010C

A dried, disaggregated solid sample is extracted with deionized water, the aqueous extract is separated from the solid, acidified and then analyzed using a ICP/OES. The concentrations of Na, Ca and Mg are reported as per CALA requirements for calculated parameters. These individual parameters are not for comparison to any guideline.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

VOC-1,3-DCP-CALC-WT Soil Regulation 153 VOCs SW8260B/SW8270C

Reference Information

VOC-511-HS-WT	Soil	VOC-O.Reg 153/04 (July 2011)	SW846 8260 (511)

Soil and sediment samples are extracted in methanol and analyzed by headspace-GC/MS.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

XYLENES-SUM-CALC-WT	Soil	Sum of Xylene Isomer Concentrations	CALCULATION

Total xylenes represents the sum of o-xylene and m&p-xylene.

*** ALS test methods may incorporate modifications from specified reference methods to improve performance.

Chain of Custody numbers:

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location	Laboratory Definition Code	Laboratory Location
WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA		

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.
mg/kg - milligrams per kilogram based on dry weight of sample
mg/kg wwt - milligrams per kilogram based on wet weight of sample
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight
mg/L - unit of concentration based on volume, parts per million.
< - Less than.
D.L. - The reporting limit.
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, fitness for a particular purpose, or non-infringement. ALS assumes no responsibility for errors or omissions in the information. Guideline limits are not adjusted for the hardness, pH or temperature of the sample (the most conservative values are used). Measurement uncertainty is not applied to test results prior to comparison with specified criteria values.

Quality Control Report

Workorder: L2248786 Report Date: 01-APR-19

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
B-HWS-R511-WT	**Soil**							
Batch R4586248								
WG3015817-4 DUP		**L2249274-1**						
Boron (B), Hot Water Ext.		0.17	0.17		ug/g	1.5	30	28-MAR-19
WG3015817-2 IRM		**HOTB-SAL_SOIL5**						
Boron (B), Hot Water Ext.			105.8		%		70-130	28-MAR-19
WG3015817-3 LCS								
Boron (B), Hot Water Ext.			96.9		%		70-130	28-MAR-19
WG3015817-1 MB								
Boron (B), Hot Water Ext.			<0.10		ug/g		0.1	28-MAR-19
CN-WAD-R511-WT	**Soil**							
Batch R4586856								
WG3015320-3 DUP		**L2248786-1**						
Cyanide, Weak Acid Diss		<0.050	<0.050	RPD-NA	ug/g	N/A	35	28-MAR-19
WG3015320-2 LCS								
Cyanide, Weak Acid Diss			93.2		%		80-120	28-MAR-19
WG3015320-1 MB								
Cyanide, Weak Acid Diss			<0.050		ug/g		0.05	28-MAR-19
WG3015320-4 MS		**L2248786-1**						
Cyanide, Weak Acid Diss			97.8		%		70-130	28-MAR-19
CR-CR6-IC-WT	**Soil**							
Batch R4585522								
WG3014502-4 CRM		**WT-SQC012**						
Chromium, Hexavalent			95.4		%		70-130	27-MAR-19
WG3014502-3 DUP		**L2247818-6**						
Chromium, Hexavalent		0.22	0.24		ug/g	11	35	27-MAR-19
WG3014502-2 LCS								
Chromium, Hexavalent			96.2		%		80-120	27-MAR-19
WG3014502-1 MB								
Chromium, Hexavalent			<0.20		ug/g		0.2	27-MAR-19
EC-WT	**Soil**							
Batch R4586585								
WG3015824-4 DUP		**WG3015824-3**						
Conductivity		0.228	0.217		mS/cm	4.9	20	28-MAR-19
WG3015824-2 IRM		**WT SAR2**						
Conductivity			103.7		%		70-130	28-MAR-19
WG3016261-1 LCS								
Conductivity			94.3		%		90-110	28-MAR-19
WG3015824-1 MB								

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
EC-WT	**Soil**							
Batch R4586585								
WG3015824-1 MB								
Conductivity			<0.0040		mS/cm		0.004	28-MAR-19
F1-HS-511-WT	**Soil**							
Batch R4587039								
WG3015470-4 DUP		**WG3015470-3**						
F1 (C6-C10)		<5.0	<5.0	RPD-NA	ug/g	N/A	30	29-MAR-19
WG3015470-2 LCS								
F1 (C6-C10)			108.8		%		80-120	29-MAR-19
WG3015470-1 MB								
F1 (C6-C10)			<5.0		ug/g		5	29-MAR-19
Surrogate: 3,4-Dichlorotoluene			107.9		%		60-140	29-MAR-19
WG3015470-6 MS		**L2249274-4**						
F1 (C6-C10)			106.9		%		60-140	29-MAR-19
Batch R4588072								
WG3017498-4 DUP		**WG3017498-3**						
F1 (C6-C10)		<5.0	<5.0	RPD-NA	ug/g	N/A	30	01-APR-19
WG3017498-2 LCS								
F1 (C6-C10)			95.6		%		80-120	01-APR-19
WG3017498-1 MB								
F1 (C6-C10)			<5.0		ug/g		5	01-APR-19
Surrogate: 3,4-Dichlorotoluene			119.1		%		60-140	01-APR-19
WG3017498-6 MS		**L2249805-17**						
F1 (C6-C10)			101.7		%		60-140	01-APR-19
F2-F4-511-WT	**Soil**							
Batch R4586088								
WG3015259-3 DUP		**WG3015259-5**						
F2 (C10-C16)		<10	10	RPD-NA	ug/g	N/A	30	27-MAR-19
F3 (C16-C34)		<50	<50	RPD-NA	ug/g	N/A	30	27-MAR-19
F4 (C34-C50)		<50	<50	RPD-NA	ug/g	N/A	30	27-MAR-19
WG3015259-2 LCS								
F2 (C10-C16)			98.5		%		80-120	27-MAR-19
F3 (C16-C34)			98.2		%		80-120	27-MAR-19
F4 (C34-C50)			103.9		%		80-120	27-MAR-19
WG3015259-1 MB								
F2 (C10-C16)			<10		ug/g		10	27-MAR-19
F3 (C16-C34)			<50		ug/g		50	27-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F2-F4-511-WT	**Soil**							
Batch R4586088								
WG3015259-1 MB								
F4 (C34-C50)			<50		ug/g		50	27-MAR-19
Surrogate: 2-Bromobenzotrifluoride			75.7		%		60-140	27-MAR-19
WG3015259-4 MS		**WG3015259-5**						
F2 (C10-C16)			102.1		%		60-140	27-MAR-19
F3 (C16-C34)			112.2		%		60-140	27-MAR-19
F4 (C34-C50)			117.5		%		60-140	27-MAR-19
HG-200.2-CVAA-WT	**Soil**							
Batch R4586205								
WG3015803-2 CRM		**WT-CANMET-TILL1**						
Mercury (Hg)			111.0		%		70-130	28-MAR-19
WG3015803-6 DUP		**WG3015803-5**						
Mercury (Hg)		0.0463	0.0347		ug/g	29	40	28-MAR-19
WG3015803-3 LCS								
Mercury (Hg)			106.0		%		80-120	28-MAR-19
WG3015803-1 MB								
Mercury (Hg)			<0.0050		mg/kg		0.005	28-MAR-19
MET-200.2-CCMS-WT	**Soil**							
Batch R4586170								
WG3015803-2 CRM		**WT-CANMET-TILL1**						
Antimony (Sb)			98.9		%		70-130	28-MAR-19
Arsenic (As)			98.3		%		70-130	28-MAR-19
Barium (Ba)			97.9		%		70-130	28-MAR-19
Beryllium (Be)			100.5		%		70-130	28-MAR-19
Boron (B)			2.5		mg/kg		0-8.2	28-MAR-19
Cadmium (Cd)			94.1		%		70-130	28-MAR-19
Chromium (Cr)			98.2		%		70-130	28-MAR-19
Cobalt (Co)			96.8		%		70-130	28-MAR-19
Copper (Cu)			100.0		%		70-130	28-MAR-19
Lead (Pb)			96.5		%		70-130	28-MAR-19
Molybdenum (Mo)			100.2		%		70-130	28-MAR-19
Nickel (Ni)			98.3		%		70-130	28-MAR-19
Selenium (Se)			0.26		mg/kg		0.11-0.51	28-MAR-19
Silver (Ag)			0.23		mg/kg		0.13-0.33	28-MAR-19
Thallium (Tl)			0.115		mg/kg		0.077-0.18	28-MAR-19
Uranium (U)			92.6		%		70-130	28-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R4586170								
WG3015803-2 CRM		**WT-CANMET-TILL1**						
Vanadium (V)			95.2		%		70-130	28-MAR-19
Zinc (Zn)			93.6		%		70-130	28-MAR-19
WG3015803-6 DUP		**WG3015803-5**						
Antimony (Sb)		0.16	0.16		ug/g	3.6	30	28-MAR-19
Arsenic (As)		3.40	3.34		ug/g	1.8	30	28-MAR-19
Barium (Ba)		46.6	49.7		ug/g	6.4	40	28-MAR-19
Beryllium (Be)		0.36	0.39		ug/g	7.6	30	28-MAR-19
Boron (B)		<5.0	<5.0	RPD-NA	ug/g	N/A	30	28-MAR-19
Cadmium (Cd)		0.151	0.138		ug/g	9.2	30	28-MAR-19
Chromium (Cr)		16.5	17.0		ug/g	3.4	30	28-MAR-19
Cobalt (Co)		6.13	6.37		ug/g	3.8	30	28-MAR-19
Copper (Cu)		18.5	19.9		ug/g	7.5	30	28-MAR-19
Lead (Pb)		49.0	46.8		ug/g	4.7	40	28-MAR-19
Molybdenum (Mo)		0.31	0.39		ug/g	21	40	28-MAR-19
Nickel (Ni)		13.7	14.0		ug/g	2.3	30	28-MAR-19
Selenium (Se)		<0.20	<0.20	RPD-NA	ug/g	N/A	30	28-MAR-19
Silver (Ag)		<0.10	<0.10	RPD-NA	ug/g	N/A	40	28-MAR-19
Thallium (Tl)		0.096	0.093		ug/g	3.5	30	28-MAR-19
Uranium (U)		0.399	0.494		ug/g	21	30	28-MAR-19
Vanadium (V)		25.3	26.5		ug/g	4.6	30	28-MAR-19
Zinc (Zn)		56.6	57.5		ug/g	1.7	30	28-MAR-19
WG3015803-4 LCS								
Antimony (Sb)			106.9		%		80-120	28-MAR-19
Arsenic (As)			102.1		%		80-120	28-MAR-19
Barium (Ba)			103.4		%		80-120	28-MAR-19
Beryllium (Be)			100.9		%		80-120	28-MAR-19
Boron (B)			99.7		%		80-120	28-MAR-19
Cadmium (Cd)			101.4		%		80-120	28-MAR-19
Chromium (Cr)			103.4		%		80-120	28-MAR-19
Cobalt (Co)			100.8		%		80-120	28-MAR-19
Copper (Cu)			100.0		%		80-120	28-MAR-19
Lead (Pb)			100.6		%		80-120	28-MAR-19
Molybdenum (Mo)			104.7		%		80-120	28-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R4586170								
WG3015803-4 LCS								
Nickel (Ni)			101.4		%		80-120	28-MAR-19
Selenium (Se)			99.8		%		80-120	28-MAR-19
Silver (Ag)			103.7		%		80-120	28-MAR-19
Thallium (Tl)			101.8		%		80-120	28-MAR-19
Uranium (U)			101.8		%		80-120	28-MAR-19
Vanadium (V)			105.4		%		80-120	28-MAR-19
Zinc (Zn)			98.2		%		80-120	28-MAR-19
WG3015803-1 MB								
Antimony (Sb)			<0.10		mg/kg		0.1	28-MAR-19
Arsenic (As)			<0.10		mg/kg		0.1	28-MAR-19
Barium (Ba)			<0.50		mg/kg		0.5	28-MAR-19
Beryllium (Be)			<0.10		mg/kg		0.1	28-MAR-19
Boron (B)			<5.0		mg/kg		5	28-MAR-19
Cadmium (Cd)			<0.020		mg/kg		0.02	28-MAR-19
Chromium (Cr)			<0.50		mg/kg		0.5	28-MAR-19
Cobalt (Co)			<0.10		mg/kg		0.1	28-MAR-19
Copper (Cu)			<0.50		mg/kg		0.5	28-MAR-19
Lead (Pb)			<0.50		mg/kg		0.5	28-MAR-19
Molybdenum (Mo)			<0.10		mg/kg		0.1	28-MAR-19
Nickel (Ni)			<0.50		mg/kg		0.5	28-MAR-19
Selenium (Se)			<0.20		mg/kg		0.2	28-MAR-19
Silver (Ag)			<0.10		mg/kg		0.1	28-MAR-19
Thallium (Tl)			<0.050		mg/kg		0.05	28-MAR-19
Uranium (U)			<0.050		mg/kg		0.05	28-MAR-19
Vanadium (V)			<0.20		mg/kg		0.2	28-MAR-19
Zinc (Zn)			<2.0		mg/kg		2	28-MAR-19
MOISTURE-WT	**Soil**							
Batch R4585592								
WG3015142-3 DUP		**L2248977-2**						
% Moisture		4.83	4.76		%	1.6	20	28-MAR-19
WG3015142-2 LCS								
% Moisture			99.8		%		90-110	28-MAR-19
WG3015142-1 MB								
% Moisture			<0.10		%		0.1	28-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R4587124								
WG3015072-3 DUP		**WG3015072-5**						
1-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	29-MAR-19
2-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	29-MAR-19
Acenaphthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-MAR-19
Acenaphthylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-MAR-19
Anthracene		0.086	0.089		ug/g	3.6	40	29-MAR-19
Benzo(a)anthracene		0.319	0.314		ug/g	1.6	40	29-MAR-19
Benzo(a)pyrene		0.276	0.267		ug/g	3.4	40	29-MAR-19
Benzo(b)fluoranthene		0.392	0.381		ug/g	2.7	40	29-MAR-19
Benzo(g,h,i)perylene		0.204	0.205		ug/g	0.6	40	29-MAR-19
Benzo(k)fluoranthene		0.139	0.126		ug/g	9.8	40	29-MAR-19
Chrysene		0.320	0.314		ug/g	1.9	40	29-MAR-19
Dibenzo(ah)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-MAR-19
Fluoranthene		0.660	0.624		ug/g	5.6	40	29-MAR-19
Fluorene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-MAR-19
Indeno(1,2,3-cd)pyrene		0.178	0.174		ug/g	2.3	40	29-MAR-19
Naphthalene		0.013	<0.013	RPD-NA	ug/g	N/A	40	29-MAR-19
Phenanthrene		0.302	0.289		ug/g	4.5	40	29-MAR-19
Pyrene		0.540	0.516		ug/g	4.5	40	29-MAR-19
WG3015072-2 LCS								
1-Methylnaphthalene			79.1		%		50-140	29-MAR-19
2-Methylnaphthalene			76.2		%		50-140	29-MAR-19
Acenaphthene			80.6		%		50-140	29-MAR-19
Acenaphthylene			78.2		%		50-140	29-MAR-19
Anthracene			85.9		%		50-140	29-MAR-19
Benzo(a)anthracene			87.2		%		50-140	29-MAR-19
Benzo(a)pyrene			81.6		%		50-140	29-MAR-19
Benzo(b)fluoranthene			77.0		%		50-140	29-MAR-19
Benzo(g,h,i)perylene			71.7		%		50-140	29-MAR-19
Benzo(k)fluoranthene			84.0		%		50-140	29-MAR-19
Chrysene			83.0		%		50-140	29-MAR-19
Dibenzo(ah)anthracene			69.2		%		50-140	29-MAR-19
Fluoranthene			85.9		%		50-140	29-MAR-19
Fluorene			77.0		%		50-140	29-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R4587124								
WG3015072-2 LCS								
Indeno(1,2,3-cd)pyrene			68.5		%		50-140	29-MAR-19
Naphthalene			85.9		%		50-140	29-MAR-19
Phenanthrene			85.9		%		50-140	29-MAR-19
Pyrene			87.0		%		50-140	29-MAR-19
WG3015072-1 MB								
1-Methylnaphthalene			<0.030		ug/g		0.03	29-MAR-19
2-Methylnaphthalene			<0.030		ug/g		0.03	29-MAR-19
Acenaphthene			<0.050		ug/g		0.05	29-MAR-19
Acenaphthylene			<0.050		ug/g		0.05	29-MAR-19
Anthracene			<0.050		ug/g		0.05	29-MAR-19
Benzo(a)anthracene			<0.050		ug/g		0.05	29-MAR-19
Benzo(a)pyrene			<0.050		ug/g		0.05	29-MAR-19
Benzo(b)fluoranthene			<0.050		ug/g		0.05	29-MAR-19
Benzo(g,h,i)perylene			<0.050		ug/g		0.05	29-MAR-19
Benzo(k)fluoranthene			<0.050		ug/g		0.05	29-MAR-19
Chrysene			<0.050		ug/g		0.05	29-MAR-19
Dibenzo(ah)anthracene			<0.050		ug/g		0.05	29-MAR-19
Fluoranthene			<0.050		ug/g		0.05	29-MAR-19
Fluorene			<0.050		ug/g		0.05	29-MAR-19
Indeno(1,2,3-cd)pyrene			<0.050		ug/g		0.05	29-MAR-19
Naphthalene			<0.013		ug/g		0.013	29-MAR-19
Phenanthrene			<0.046		ug/g		0.046	29-MAR-19
Pyrene			<0.050		ug/g		0.05	29-MAR-19
Surrogate: 2-Fluorobiphenyl			80.9		%		50-140	29-MAR-19
Surrogate: p-Terphenyl d14			89.2		%		50-140	29-MAR-19
WG3015072-4 MS		**WG3015072-5**						
1-Methylnaphthalene			79.3		%		50-140	29-MAR-19
2-Methylnaphthalene			76.5		%		50-140	29-MAR-19
Acenaphthene			86.2		%		50-140	29-MAR-19
Acenaphthylene			80.9		%		50-140	29-MAR-19
Anthracene			103.4		%		50-140	29-MAR-19
Benzo(a)anthracene			118.2		%		50-140	29-MAR-19
Benzo(a)pyrene			102.3		%		50-140	29-MAR-19
Benzo(b)fluoranthene			94.4		%		50-140	29-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R4587124								
WG3015072-4 MS		**WG3015072-5**						
Benzo(g,h,i)perylene			94.4		%		50-140	29-MAR-19
Benzo(k)fluoranthene			100.8		%		50-140	29-MAR-19
Chrysene			105.5		%		50-140	29-MAR-19
Dibenzo(ah)anthracene			81.1		%		50-140	29-MAR-19
Fluoranthene			143.3	E	%		50-140	29-MAR-19
Fluorene			83.7		%		50-140	29-MAR-19
Indeno(1,2,3-cd)pyrene			90.6		%		50-140	29-MAR-19
Naphthalene			88.4		%		50-140	29-MAR-19
Phenanthrene			139.4		%		50-140	29-MAR-19
Pyrene			130.9		%		50-140	29-MAR-19
PH-WT	**Soil**							
Batch R4586610								
WG3015310-1 DUP		**L2248786-1**						
pH		7.80	7.78	J	pH units	0.02	0.3	28-MAR-19
WG3015472-1 LCS								
pH			6.99		pH units		6.9-7.1	28-MAR-19
SAR-R511-WT	**Soil**							
Batch R4586228								
WG3015824-4 DUP		**WG3015824-3**						
Calcium (Ca)		18.6	19.2		mg/L	3.2	30	28-MAR-19
Sodium (Na)		23.7	24.6		mg/L	3.7	30	28-MAR-19
Magnesium (Mg)		1.17	1.20		mg/L	2.5	30	28-MAR-19
WG3015824-2 IRM		**WT SAR2**						
Calcium (Ca)			106.1		%		70-130	28-MAR-19
Sodium (Na)			103.3		%		70-130	28-MAR-19
Magnesium (Mg)			104.8		%		70-130	28-MAR-19
WG3015824-5 LCS								
Calcium (Ca)			106.0		%		70-130	28-MAR-19
Sodium (Na)			102.4		%		70-130	28-MAR-19
Magnesium (Mg)			101.2		%		70-130	28-MAR-19
WG3015824-1 MB								
Calcium (Ca)			<0.50		mg/L		0.5	28-MAR-19
Sodium (Na)			<0.50		mg/L		0.5	28-MAR-19
Magnesium (Mg)			<0.50		mg/L		0.5	28-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4587039								
WG3015470-4 DUP		**WG3015470-3**						
1,1,1,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-MAR-19
1,1,2,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-MAR-19
1,1,1-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-MAR-19
1,1,2-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-MAR-19
1,1-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-MAR-19
1,1-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-MAR-19
1,2-Dibromoethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-MAR-19
1,2-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-MAR-19
1,2-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-MAR-19
1,2-Dichloropropane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-MAR-19
1,3-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-MAR-19
1,4-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-MAR-19
Acetone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	29-MAR-19
Benzene		<0.0068	<0.0068	RPD-NA	ug/g	N/A	40	29-MAR-19
Bromodichloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-MAR-19
Bromoform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-MAR-19
Bromomethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-MAR-19
Carbon tetrachloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-MAR-19
Chlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-MAR-19
Chloroform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-MAR-19
cis-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-MAR-19
cis-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	29-MAR-19
Dibromochloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-MAR-19
Dichlorodifluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-MAR-19
Ethylbenzene		<0.018	<0.018	RPD-NA	ug/g	N/A	40	29-MAR-19
n-Hexane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-MAR-19
Methylene Chloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-MAR-19
MTBE		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-MAR-19
m+p-Xylenes		<0.030	<0.030	RPD-NA	ug/g	N/A	40	29-MAR-19
Methyl Ethyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	29-MAR-19
Methyl Isobutyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	29-MAR-19
o-Xylene		<0.020	<0.020	RPD-NA	ug/g	N/A	40	29-MAR-19
Styrene		<0.050	<0.050		ug/g			29-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4587039								
WG3015470-4 DUP		**WG3015470-3**						
Styrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-MAR-19
Tetrachloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-MAR-19
Toluene		<0.080	<0.080	RPD-NA	ug/g	N/A	40	29-MAR-19
trans-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-MAR-19
trans-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	29-MAR-19
Trichloroethylene		<0.010	<0.010	RPD-NA	ug/g	N/A	40	29-MAR-19
Trichlorofluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	29-MAR-19
Vinyl chloride		<0.020	<0.020	RPD-NA	ug/g	N/A	40	29-MAR-19
WG3015470-2 LCS								
1,1,1,2-Tetrachloroethane			95.4		%		60-130	29-MAR-19
1,1,2,2-Tetrachloroethane			85.9		%		60-130	29-MAR-19
1,1,1-Trichloroethane			101.3		%		60-130	29-MAR-19
1,1,2-Trichloroethane			93.5		%		60-130	29-MAR-19
1,1-Dichloroethane			98.9		%		60-130	29-MAR-19
1,1-Dichloroethylene			100.2		%		60-130	29-MAR-19
1,2-Dibromoethane			90.4		%		70-130	29-MAR-19
1,2-Dichlorobenzene			98.9		%		70-130	29-MAR-19
1,2-Dichloroethane			91.7		%		60-130	29-MAR-19
1,2-Dichloropropane			95.5		%		70-130	29-MAR-19
1,3-Dichlorobenzene			103.0		%		70-130	29-MAR-19
1,4-Dichlorobenzene			101.8		%		70-130	29-MAR-19
Acetone			84.3		%		60-140	29-MAR-19
Benzene			100.2		%		70-130	29-MAR-19
Bromodichloromethane			93.7		%		50-140	29-MAR-19
Bromoform			81.7		%		70-130	29-MAR-19
Bromomethane			105.1		%		50-140	29-MAR-19
Carbon tetrachloride			100.4		%		70-130	29-MAR-19
Chlorobenzene			98.2		%		70-130	29-MAR-19
Chloroform			98.5		%		70-130	29-MAR-19
cis-1,2-Dichloroethylene			96.6		%		70-130	29-MAR-19
cis-1,3-Dichloropropene			94.2		%		70-130	29-MAR-19
Dibromochloromethane			88.9		%		60-130	29-MAR-19
Dichlorodifluoromethane			69.1		%		50-140	29-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4587039								
WG3015470-2 LCS								
Ethylbenzene			101.4		%		70-130	29-MAR-19
n-Hexane			96.2		%		70-130	29-MAR-19
Methylene Chloride			95.1		%		70-130	29-MAR-19
MTBE			101.4		%		70-130	29-MAR-19
m+p-Xylenes			102.0		%		70-130	29-MAR-19
Methyl Ethyl Ketone			82.5		%		60-140	29-MAR-19
Methyl Isobutyl Ketone			77.9		%		60-140	29-MAR-19
o-Xylene			97.7		%		70-130	29-MAR-19
Styrene			97.0		%		70-130	29-MAR-19
Tetrachloroethylene			105.2		%		60-130	29-MAR-19
Toluene			101.8		%		70-130	29-MAR-19
trans-1,2-Dichloroethylene			100.9		%		60-130	29-MAR-19
trans-1,3-Dichloropropene			96.0		%		70-130	29-MAR-19
Trichloroethylene			103.9		%		60-130	29-MAR-19
Trichlorofluoromethane			104.9		%		50-140	29-MAR-19
Vinyl chloride			81.7		%		60-140	29-MAR-19
WG3015470-1 MB								
1,1,1,2-Tetrachloroethane			<0.050		ug/g		0.05	29-MAR-19
1,1,2,2-Tetrachloroethane			<0.050		ug/g		0.05	29-MAR-19
1,1,1-Trichloroethane			<0.050		ug/g		0.05	29-MAR-19
1,1,2-Trichloroethane			<0.050		ug/g		0.05	29-MAR-19
1,1-Dichloroethane			<0.050		ug/g		0.05	29-MAR-19
1,1-Dichloroethylene			<0.050		ug/g		0.05	29-MAR-19
1,2-Dibromoethane			<0.050		ug/g		0.05	29-MAR-19
1,2-Dichlorobenzene			<0.050		ug/g		0.05	29-MAR-19
1,2-Dichloroethane			<0.050		ug/g		0.05	29-MAR-19
1,2-Dichloropropane			<0.050		ug/g		0.05	29-MAR-19
1,3-Dichlorobenzene			<0.050		ug/g		0.05	29-MAR-19
1,4-Dichlorobenzene			<0.050		ug/g		0.05	29-MAR-19
Acetone			<0.50		ug/g		0.5	29-MAR-19
Benzene			<0.0068		ug/g		0.0068	29-MAR-19
Bromodichloromethane			<0.050		ug/g		0.05	29-MAR-19
Bromoform			<0.050		ug/g		0.05	29-MAR-19
Bromomethane			<0.050		ug/g		0.05	29-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4587039								
WG3015470-1 MB								
Carbon tetrachloride			<0.050		ug/g		0.05	29-MAR-19
Chlorobenzene			<0.050		ug/g		0.05	29-MAR-19
Chloroform			<0.050		ug/g		0.05	29-MAR-19
cis-1,2-Dichloroethylene			<0.050		ug/g		0.05	29-MAR-19
cis-1,3-Dichloropropene			<0.030		ug/g		0.03	29-MAR-19
Dibromochloromethane			<0.050		ug/g		0.05	29-MAR-19
Dichlorodifluoromethane			<0.050		ug/g		0.05	29-MAR-19
Ethylbenzene			<0.018		ug/g		0.018	29-MAR-19
n-Hexane			<0.050		ug/g		0.05	29-MAR-19
Methylene Chloride			<0.050		ug/g		0.05	29-MAR-19
MTBE			<0.050		ug/g		0.05	29-MAR-19
m+p-Xylenes			<0.030		ug/g		0.03	29-MAR-19
Methyl Ethyl Ketone			<0.50		ug/g		0.5	29-MAR-19
Methyl Isobutyl Ketone			<0.50		ug/g		0.5	29-MAR-19
o-Xylene			<0.020		ug/g		0.02	29-MAR-19
Styrene			<0.050		ug/g		0.05	29-MAR-19
Tetrachloroethylene			<0.050		ug/g		0.05	29-MAR-19
Toluene			<0.080		ug/g		0.08	29-MAR-19
trans-1,2-Dichloroethylene			<0.050		ug/g		0.05	29-MAR-19
trans-1,3-Dichloropropene			<0.030		ug/g		0.03	29-MAR-19
Trichloroethylene			<0.010		ug/g		0.01	29-MAR-19
Trichlorofluoromethane			<0.050		ug/g		0.05	29-MAR-19
Vinyl chloride			<0.020		ug/g		0.02	29-MAR-19
Surrogate: 1,4-Difluorobenzene			97.9		%		50-140	29-MAR-19
Surrogate: 4-Bromofluorobenzene			90.2		%		50-140	29-MAR-19
WG3015470-5 MS		**L2249274-2**						
1,1,1,2-Tetrachloroethane			102.6		%		50-140	29-MAR-19
1,1,2,2-Tetrachloroethane			101.0		%		50-140	29-MAR-19
1,1,1-Trichloroethane			104.1		%		50-140	29-MAR-19
1,1,2-Trichloroethane			106.4		%		50-140	29-MAR-19
1,1-Dichloroethane			104.6		%		50-140	29-MAR-19
1,1-Dichloroethylene			102.8		%		50-140	29-MAR-19
1,2-Dibromoethane			104.1		%		50-140	29-MAR-19
1,2-Dichlorobenzene			100.1		%		50-140	29-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4587039								
WG3015470-5 MS		**L2249274-2**						
1,2-Dichloroethane			102.7		%		50-140	29-MAR-19
1,2-Dichloropropane			104.0		%		50-140	29-MAR-19
1,3-Dichlorobenzene			100.4		%		50-140	29-MAR-19
1,4-Dichlorobenzene			99.4		%		50-140	29-MAR-19
Acetone			101.8		%		50-140	29-MAR-19
Benzene			105.7		%		50-140	29-MAR-19
Bromodichloromethane			102.0		%		50-140	29-MAR-19
Bromoform			93.3		%		50-140	29-MAR-19
Bromomethane			109.0		%		50-140	29-MAR-19
Carbon tetrachloride			102.3		%		50-140	29-MAR-19
Chlorobenzene			103.1		%		50-140	29-MAR-19
Chloroform			104.8		%		50-140	29-MAR-19
cis-1,2-Dichloroethylene			101.7		%		50-140	29-MAR-19
cis-1,3-Dichloropropene			99.3		%		50-140	29-MAR-19
Dibromochloromethane			99.4		%		50-140	29-MAR-19
Dichlorodifluoromethane			71.6		%		50-140	29-MAR-19
Ethylbenzene			103.5		%		50-140	29-MAR-19
n-Hexane			99.0		%		50-140	29-MAR-19
Methylene Chloride			103.4		%		50-140	29-MAR-19
MTBE			105.3		%		50-140	29-MAR-19
m+p-Xylenes			103.7		%		50-140	29-MAR-19
Methyl Ethyl Ketone			95.5		%		50-140	29-MAR-19
Methyl Isobutyl Ketone			94.9		%		50-140	29-MAR-19
o-Xylene			101.0		%		50-140	29-MAR-19
Styrene			101.7		%		50-140	29-MAR-19
Tetrachloroethylene			104.3		%		50-140	29-MAR-19
Toluene			106.1		%		50-140	29-MAR-19
trans-1,2-Dichloroethylene			102.4		%		50-140	29-MAR-19
trans-1,3-Dichloropropene			102.5		%		50-140	29-MAR-19
Trichloroethylene			105.4		%		50-140	29-MAR-19
Trichlorofluoromethane			107.0		%		50-140	29-MAR-19
Vinyl chloride			83.2		%		50-140	29-MAR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4588072								
WG3017498-4 DUP		**WG3017498-3**						
1,1,1,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	01-APR-19
1,1,2,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	01-APR-19
1,1,1-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	01-APR-19
1,1,2-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	01-APR-19
1,1-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	01-APR-19
1,1-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	01-APR-19
1,2-Dibromoethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	01-APR-19
1,2-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	01-APR-19
1,2-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	01-APR-19
1,2-Dichloropropane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	01-APR-19
1,3-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	01-APR-19
1,4-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	01-APR-19
Acetone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	01-APR-19
Benzene		<0.0068	<0.0068	RPD-NA	ug/g	N/A	40	01-APR-19
Bromodichloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	01-APR-19
Bromoform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	01-APR-19
Bromomethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	01-APR-19
Carbon tetrachloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	01-APR-19
Chlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	01-APR-19
Chloroform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	01-APR-19
cis-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	01-APR-19
cis-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	01-APR-19
Dibromochloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	01-APR-19
Dichlorodifluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	01-APR-19
Ethylbenzene		<0.018	<0.018	RPD-NA	ug/g	N/A	40	01-APR-19
n-Hexane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	01-APR-19
Methylene Chloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	01-APR-19
MTBE		<0.050	<0.050	RPD-NA	ug/g	N/A	40	01-APR-19
m+p-Xylenes		<0.030	<0.030	RPD-NA	ug/g	N/A	40	01-APR-19
Methyl Ethyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	01-APR-19
Methyl Isobutyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	01-APR-19
o-Xylene		<0.020	<0.020	RPD-NA	ug/g	N/A	40	01-APR-19
Styrene		<0.050	<0.050		ug/g			01-APR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4588072								
WG3017498-4 DUP		**WG3017498-3**						
Styrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	01-APR-19
Tetrachloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	01-APR-19
Toluene		<0.080	<0.080	RPD-NA	ug/g	N/A	40	01-APR-19
trans-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	01-APR-19
trans-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	01-APR-19
Trichloroethylene		<0.010	<0.010	RPD-NA	ug/g	N/A	40	01-APR-19
Trichlorofluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	01-APR-19
Vinyl chloride		<0.020	<0.020	RPD-NA	ug/g	N/A	40	01-APR-19
WG3017498-2 LCS								
1,1,1,2-Tetrachloroethane			100.3		%		60-130	01-APR-19
1,1,2,2-Tetrachloroethane			106.5		%		60-130	01-APR-19
1,1,1-Trichloroethane			103.0		%		60-130	01-APR-19
1,1,2-Trichloroethane			105.7		%		60-130	01-APR-19
1,1-Dichloroethane			103.7		%		60-130	01-APR-19
1,1-Dichloroethylene			98.2		%		60-130	01-APR-19
1,2-Dibromoethane			105.8		%		70-130	01-APR-19
1,2-Dichlorobenzene			103.9		%		70-130	01-APR-19
1,2-Dichloroethane			113.6		%		60-130	01-APR-19
1,2-Dichloropropane			108.8		%		70-130	01-APR-19
1,3-Dichlorobenzene			103.7		%		70-130	01-APR-19
1,4-Dichlorobenzene			102.7		%		70-130	01-APR-19
Acetone			112.1		%		60-140	01-APR-19
Benzene			109.1		%		70-130	01-APR-19
Bromodichloromethane			108.6		%		50-140	01-APR-19
Bromoform			106.4		%		70-130	01-APR-19
Bromomethane			114.3		%		50-140	01-APR-19
Carbon tetrachloride			103.6		%		70-130	01-APR-19
Chlorobenzene			103.6		%		70-130	01-APR-19
Chloroform			108.1		%		70-130	01-APR-19
cis-1,2-Dichloroethylene			104.4		%		70-130	01-APR-19
cis-1,3-Dichloropropene			118.0		%		70-130	01-APR-19
Dibromochloromethane			103.1		%		60-130	01-APR-19
Dichlorodifluoromethane			55.2		%		50-140	01-APR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4588072								
WG3017498-2 LCS								
Ethylbenzene			95.0		%		70-130	01-APR-19
n-Hexane			93.4		%		70-130	01-APR-19
Methylene Chloride			110.3		%		70-130	01-APR-19
MTBE			104.1		%		70-130	01-APR-19
m+p-Xylenes			97.5		%		70-130	01-APR-19
Methyl Ethyl Ketone			106.9		%		60-140	01-APR-19
Methyl Isobutyl Ketone			97.3		%		60-140	01-APR-19
o-Xylene			94.9		%		70-130	01-APR-19
Styrene			97.6		%		70-130	01-APR-19
Tetrachloroethylene			99.6		%		60-130	01-APR-19
Toluene			97.5		%		70-130	01-APR-19
trans-1,2-Dichloroethylene			104.7		%		60-130	01-APR-19
trans-1,3-Dichloropropene			110.7		%		70-130	01-APR-19
Trichloroethylene			108.3		%		60-130	01-APR-19
Trichlorofluoromethane			102.0		%		50-140	01-APR-19
Vinyl chloride			78.8		%		60-140	01-APR-19
WG3017498-1 MB								
1,1,1,2-Tetrachloroethane			<0.050		ug/g		0.05	01-APR-19
1,1,2,2-Tetrachloroethane			<0.050		ug/g		0.05	01-APR-19
1,1,1-Trichloroethane			<0.050		ug/g		0.05	01-APR-19
1,1,2-Trichloroethane			<0.050		ug/g		0.05	01-APR-19
1,1-Dichloroethane			<0.050		ug/g		0.05	01-APR-19
1,1-Dichloroethylene			<0.050		ug/g		0.05	01-APR-19
1,2-Dibromoethane			<0.050		ug/g		0.05	01-APR-19
1,2-Dichlorobenzene			<0.050		ug/g		0.05	01-APR-19
1,2-Dichloroethane			<0.050		ug/g		0.05	01-APR-19
1,2-Dichloropropane			<0.050		ug/g		0.05	01-APR-19
1,3-Dichlorobenzene			<0.050		ug/g		0.05	01-APR-19
1,4-Dichlorobenzene			<0.050		ug/g		0.05	01-APR-19
Acetone			<0.50		ug/g		0.5	01-APR-19
Benzene			<0.0068		ug/g		0.0068	01-APR-19
Bromodichloromethane			<0.050		ug/g		0.05	01-APR-19
Bromoform			<0.050		ug/g		0.05	01-APR-19
Bromomethane			<0.050		ug/g		0.05	01-APR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4588072								
WG3017498-1 MB								
Carbon tetrachloride			<0.050		ug/g		0.05	01-APR-19
Chlorobenzene			<0.050		ug/g		0.05	01-APR-19
Chloroform			<0.050		ug/g		0.05	01-APR-19
cis-1,2-Dichloroethylene			<0.050		ug/g		0.05	01-APR-19
cis-1,3-Dichloropropene			<0.030		ug/g		0.03	01-APR-19
Dibromochloromethane			<0.050		ug/g		0.05	01-APR-19
Dichlorodifluoromethane			<0.050		ug/g		0.05	01-APR-19
Ethylbenzene			<0.018		ug/g		0.018	01-APR-19
n-Hexane			<0.050		ug/g		0.05	01-APR-19
Methylene Chloride			<0.050		ug/g		0.05	01-APR-19
MTBE			<0.050		ug/g		0.05	01-APR-19
m+p-Xylenes			<0.030		ug/g		0.03	01-APR-19
Methyl Ethyl Ketone			<0.50		ug/g		0.5	01-APR-19
Methyl Isobutyl Ketone			<0.50		ug/g		0.5	01-APR-19
o-Xylene			<0.020		ug/g		0.02	01-APR-19
Styrene			<0.050		ug/g		0.05	01-APR-19
Tetrachloroethylene			<0.050		ug/g		0.05	01-APR-19
Toluene			<0.080		ug/g		0.08	01-APR-19
trans-1,2-Dichloroethylene			<0.050		ug/g		0.05	01-APR-19
trans-1,3-Dichloropropene			<0.030		ug/g		0.03	01-APR-19
Trichloroethylene			<0.010		ug/g		0.01	01-APR-19
Trichlorofluoromethane			<0.050		ug/g		0.05	01-APR-19
Vinyl chloride			<0.020		ug/g		0.02	01-APR-19
Surrogate: 1,4-Difluorobenzene			115.2		%		50-140	01-APR-19
Surrogate: 4-Bromofluorobenzene			101.6		%		50-140	01-APR-19
WG3017498-5 MS		**L2251133-1**						
1,1,1,2-Tetrachloroethane			99.0		%		50-140	01-APR-19
1,1,2,2-Tetrachloroethane			100.9		%		50-140	01-APR-19
1,1,1-Trichloroethane			98.0		%		50-140	01-APR-19
1,1,2-Trichloroethane			102.9		%		50-140	01-APR-19
1,1-Dichloroethane			97.5		%		50-140	01-APR-19
1,1-Dichloroethylene			93.7		%		50-140	01-APR-19
1,2-Dibromoethane			103.0		%		50-140	01-APR-19
1,2-Dichlorobenzene			99.3		%		50-140	01-APR-19

Quality Control Report

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R4588072								
WG3017498-5 MS		**L2251133-1**						
1,2-Dichloroethane			105.4		%		50-140	01-APR-19
1,2-Dichloropropane			101.6		%		50-140	01-APR-19
1,3-Dichlorobenzene			97.6		%		50-140	01-APR-19
1,4-Dichlorobenzene			96.8		%		50-140	01-APR-19
Acetone			108.5		%		50-140	01-APR-19
Benzene			102.6		%		50-140	01-APR-19
Bromodichloromethane			100.1		%		50-140	01-APR-19
Bromoform			101.8		%		50-140	01-APR-19
Bromomethane			102.1		%		50-140	01-APR-19
Carbon tetrachloride			98.5		%		50-140	01-APR-19
Chlorobenzene			99.2		%		50-140	01-APR-19
Chloroform			100.5		%		50-140	01-APR-19
cis-1,2-Dichloroethylene			97.0		%		50-140	01-APR-19
cis-1,3-Dichloropropene			99.3		%		50-140	01-APR-19
Dibromochloromethane			100.9		%		50-140	01-APR-19
Dichlorodifluoromethane			58.2		%		50-140	01-APR-19
Ethylbenzene			95.3		%		50-140	01-APR-19
n-Hexane			93.0		%		50-140	01-APR-19
Methylene Chloride			102.8		%		50-140	01-APR-19
MTBE			102.3		%		50-140	01-APR-19
m+p-Xylenes			95.4		%		50-140	01-APR-19
Methyl Ethyl Ketone			95.2		%		50-140	01-APR-19
Methyl Isobutyl Ketone			90.5		%		50-140	01-APR-19
o-Xylene			95.6		%		50-140	01-APR-19
Styrene			96.2		%		50-140	01-APR-19
Tetrachloroethylene			97.5		%		50-140	01-APR-19
Toluene			97.5		%		50-140	01-APR-19
trans-1,2-Dichloroethylene			97.6		%		50-140	01-APR-19
trans-1,3-Dichloropropene			98.3		%		50-140	01-APR-19
Trichloroethylene			100.6		%		50-140	01-APR-19
Trichlorofluoromethane			98.1		%		50-140	01-APR-19
Vinyl chloride			75.5		%		50-140	01-APR-19

Quality Control Report

Workorder: L2248786 Report Date: 01-APR-19

Client: GHD Limited (Waterloo)
455 PHILLIP ST
WATERLOO ON N2L 3X2
Contact: JENNIFER BALKWILL

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
E	Matrix Spike recovery outside ALS DQO due to heterogeneous analyte background in sample.
J	Duplicate results and limits are expressed in terms of absolute difference.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

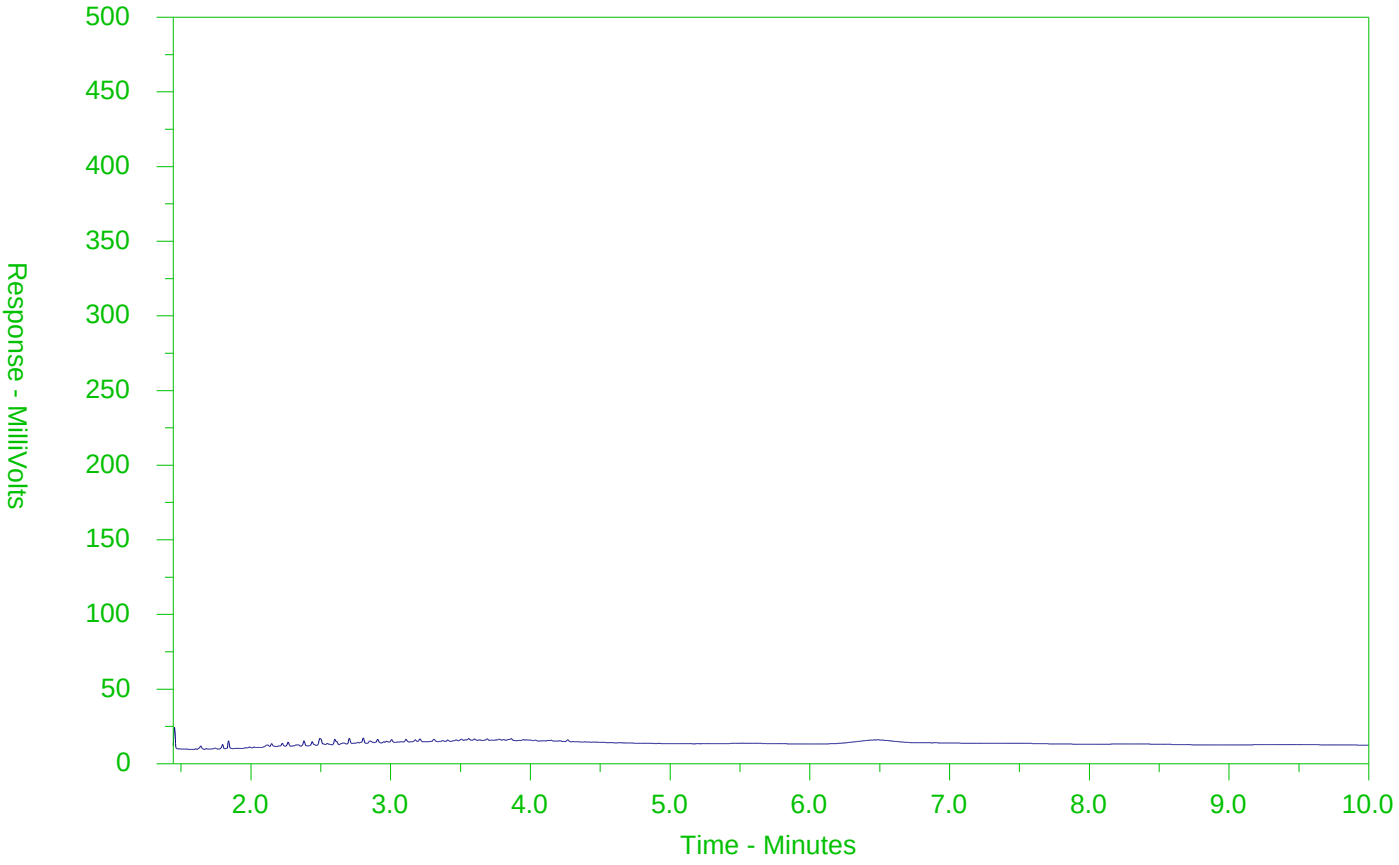
ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2248786-1
Client Sample ID: S-11102463-032219-DD-BH18-469-9.9-10.5



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
←Diesel/Jet Fuels→			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental

Canada Toll Free: 1 800 668 9878

www.alsglobal.com

L2248786-COFC

COC Number: 17 -

Page of

Report To	Contact and company name below will appear on the final report
Company:	GHD LIMITED - ACCT #13791
Contact:	Jennifer Balkwill
Phone:	519-884-0510
	Company address below will appear on the final report
Street:	455 Phillip St
City/Province:	Waterloo, Ontario
Postal Code:	N2L 3X2

Report Format / D	
Select Report Format:	☑ PDF ☑ EXCEL ☑ EDD (DIGITAL)
Quality Control (QC) Report with Report	☑ YES ☐ NO
☐ Compare Results to Criteria on Report - provide details below if box checked	
Select Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	jennifer.balkwill@ghd.com
Email 2	See PO
Email 3	

Contact your AM to confirm all E&P TATs (surcharges may apply)

Regular [R] ☑ Standard TAT if received by 3 pm - business days - no surcharges apply

PRIORITY (Business Days)		EMERGENCY	
	4 day [P4-20%] ☐		1 Business day [E - 100%] ☐
	3 day [P3-25%] ☐		Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)] ☐
	2 day [P2-50%] ☐		

Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm

For tests that can not be performed according to the service level selected, you will be contacted.

Invoice To	Same as Report To ☑ YES ☐ NO
	Copy of Invoice with Report ☐ YES ☑ NO
Company:	GHD Limited
Contact:	Jennifer Balkwill

Invoice Distribution	
Select Invoice Distribution:	☐ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	jennifer.balkwill@ghd.com
Email 2	

Project Information	
ALS Account # / Quote #:	13791, Q51987
Job #:	11102463-71
PO / AFE:	73509898-7
LSD:	Waterfront Toronto

Oil and Gas Required Fields (client use)	
AFE/Cost Center:	PO#
Major/Minor Code:	Routing Code:
Requisitioner:	
Location:	

ALS Lab Work Order # (lab use only): L2248786

ALS Contact: Rick H Sampler:

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	BTEX,F1-F4-511-P-WT	TOC-WT (confirmed Triplicate 511 not neces	BTEX,F1 (Trip Blank) VOC	VOC	PAH	PHC	ORBG Methyl Naphthalene	Moisture	SAMPLES ON HOLD	SUSPECTED HAZARD (see Special Instructions)
	~~S-11102463-~~ Trip Blank	03/22/19	—	~~Trip Blank~~ Soil	1										
	S-11102463- 03/22/19-DS-BH18-269-9.9-10.5	03/22/19	11:30	Soil	6				X	X	X	X	X		
	S-11102463-			Soil											
	S-11102463-			Soil											
	S-11102463-			Soil											
	S-11102463-			Soil											
	S-11102463-			Soil											
	S-11102463-			Soil											
	S-11102463-			Soil											
	S-11102463-			Soil											
	S-11102463-			Soil											
	S-11102463-			Soil											

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? ☐ YES ☑ NO	
Are samples for human consumption/ use? ☐ YES ☑ NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen	☐	SIF Observations	Yes ☐	No	☐
Ice Packs	☑	Ice Cubes ☐	Custody seal intact	Yes ☐	No ☐
Cooling Initiated	☐				

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
			6.4		

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
	03/22/19	11:30					25/3/19	1720

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

JUNE 2018 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

Attachment D
Data Validation Memorandum

Memorandum

April 26, 2019

To:	David Hutchinson; Mike Evans; Jessica Bruce; Jennifer Balkwill	Ref. No.:	11102463-53
From:	Laura Ermeta/ev/19		

Subject: **Analytical Data Verification**
RMM Investigation – SDMA – City Lands
Waterfront Toronto – Toronto Port Lands
Toronto, Ontario
March 2019

1. Introduction

The following document details an analytical data verification of results for soil samples collected in support of the Environmental Investigation at the Waterfront Toronto - Toronto Port Lands Site in Toronto, Ontario during March 2019. Samples were submitted to ALS Canada Ltd. (ALS) located in Waterloo, Ontario. A sample collection and analysis summary is presented in Table 1. A summary of the analytical methodology is presented in Table 2.

Standard GHD Limited (GHD) report deliverables were submitted by the laboratory. The final results and supporting quality assurance/quality control (QA/QC) data were assessed. Evaluation of the data was based on information obtained from the chain of custody forms, finished report forms, method blank data, duplicate data, recovery data from surrogate spikes, laboratory control samples (LCS), matrix spikes (MS), and field QC samples.

The QA/QC criteria by which these data have been assessed are outlined in the analytical methods referenced in Table 2 and applicable guidance from the documents entitled:

i) "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review", October 1999, United States Environmental Protection Agency (USEPA) 540/R−99/008

ii) "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review", USEPA 540/R-94-013, February 1994

iii) "Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act", Laboratory Services Branch, Ministry of the Environment. March 9, 2004, amended as of July 1, 2011

Items i) and ii) will subsequently be referred to as the "Guidelines" in this Memorandum. Item iii) will subsequently be referred to as the "O. Reg. 153 Analytical Protocols".

GHD
455 Phillip Street Waterloo Ontario N2L 3X2 Canada
T 519 884 0510 F 519 884 0525 W www.ghd.com

REGISTERED COMPANY FOR ISO 9001 ENGINEERING DESIGN

2. Sample Holding Time and Preservation

The sample holding time criteria for the analyses are summarized in Table 2. Sample chain of custody documents and analytical reports were used to determine sample holding times. All samples were prepared and analyzed within the required holding times.

All samples were properly preserved, delivered on ice and stored by the laboratory at the required temperature (<10°C).

3. Laboratory Method Blank Analyses

Method blanks are prepared from a purified matrix and analyzed with investigative samples to determine the existence and magnitude of sample contamination introduced during the analytical procedures.

For this study, laboratory method blanks were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

All method blank results were non-detect, indicating that laboratory contamination was not a factor for this investigation.

4. Surrogate Spike Recoveries

In accordance with the methods employed, all samples, blanks, and QC samples analyzed for organics are spiked with surrogate compounds prior to sample extraction and/or analysis. Surrogate recoveries provide a means to evaluate the effects of laboratory performance on individual sample matrices.

All samples submitted for volatile organic compound (VOC), benzene, toluene, ethylbenzene, xylene (BTEX), petroleum hydrocarbon (PHC), polycyclic aromatic hydrocarbon (PAH), chlorophenol, organochlorine (OC) pesticide, and polychlorinated biphenyl (PCB) determinations were spiked with the appropriate number of surrogate compounds prior to sample analysis.

Surrogate recoveries were assessed against laboratory control limits. All surrogate recoveries met the above criteria.

Due to necessary sample dilutions and sample matrix interference, surrogate recoveries could not be reported for some samples.

5. Laboratory Control Sample Analyses

LCS are prepared and analyzed as samples to assess the analytical efficiencies of the methods employed, independent of sample matrix effects.

For this study, LCS were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

Organic Analyses

The LCS contained all compounds of interest. Most LCS recoveries were within the laboratory control limits, demonstrating acceptable analytical accuracy. Non−detect results associated with high LCS recoveries were not qualified. The indicated high bias would not impact the data.

Inorganic Analyses

The LCS contained all analytes of interest. LCS recoveries were assessed per the “Guidelines”. All LCS recoveries were within the control limits, demonstrating acceptable analytical accuracy.

6. Matrix Spike Analyses

To evaluate the effects of sample matrices on the extraction or digestion process, measurement procedures, and accuracy of a particular analysis, samples are spiked with a known concentration of the analyte of concern and analyzed as MS samples. If the original sample concentration is significantly greater than the spike concentration, the recovery is not assessed.

Organic Analyses

The MS samples were spiked with all compounds of interest. All percent recoveries were within the laboratory control limits, demonstrating acceptable analytical accuracy.

Inorganic Analyses

The MS samples were spiked with the analytes of interest, and the results were evaluated using the “Guidelines”. All percent recoveries were within the control limits, demonstrating acceptable analytical accuracy.

7. Duplicate Sample Analyses

Analytical precision is evaluated based on the analysis of laboratory duplicate samples. For this study, duplicate samples were prepared and analyzed by the laboratory. The laboratory performed additional site-specific duplicate analyses internally. The relative percent differences (RPDs) associated with these duplicate samples must be less than 35 percent for soil samples. If the reported concentration in either the investigative sample or its duplicate is less than five times the reporting limit (RL), the evaluation criteria is a difference of two times the RL for soil samples. All duplicate analyses performed were acceptable, demonstrating acceptable analytical precision.

8. Ion Abundance Ratio

One benzo(g,h,i)perylene result was flagged by the laboratory because the ion abundance ratio did not meet acceptance criteria. The associated sample result has been qualified as estimated as the result is considered an estimated maximum concentration (see Table 3).

9. Analytical Interference

Two acenaphthene results were flagged by the laboratory because analytical interferences may have been present. The associated sample results have been qualified as estimated as the results may be biased high (see Table 4).

10. Field QA/QC Samples

The field QA/QC consisted of nine trip blanks and two field duplicate sample sets.

Trip Blank Sample Analysis

To evaluate contamination from sample collection, transportation, storage, and analytical activities, nine trip blanks were submitted to the laboratory for PHC (F1), VOC and/or BTEX analysis as outlined in Table 1. All results were non-detect for the compounds of interest.

Field Duplicate Sample Analysis

To assess the analytical and sampling protocol precision, two field duplicate sample sets were collected and submitted “blind” to the laboratory, as specified in Table 1. The RPDs associated with these duplicate samples must be less than 100 percent for soil samples. If the reported concentration in either the investigative sample or its duplicate is less than five times the RL, the evaluation criteria is a difference of two times the RL for soil samples.

Most field duplicate results were within acceptable agreement, demonstrating acceptable sampling and analytical precision. Results that showed variability were qualified as estimated (see Table 5).

11. Conclusion

Based on the assessment detailed in the foregoing, the data are acceptable with the specific qualifications noted herein.

Table 1

Sample Collection and Analysis Summary
RMM Investigation – SDMA – City Lands
Waterfront Toronto – Toronto Port Lands
Toronto, Ontario
March 2019

Lab Report #	Sample Identification	Location	Matrix	Initial Sample Depth (m BGS)	Final Sample Depth (m BGS)	Collection Date (mm/dd/yyyy)	Collection Time (hr:min:sec)	Analysis/Parameters: Volatile Organic Compounds	BTEX	Petroleum Hydrocarbons (F1)	Petroleum Hydrocarbons (F2-F4)	Petroleum Hydrocarbons (F4G)	Polycyclic Aromatic Hydrocarbons	O. Reg. 153 Chlorophenols	Organochlorine Pesticides	PCB Aroclors	Metals	Mercury	Hexavalent Chromium	Hot Water Extractable Boron	Cyanide, Weak-Acid Dissociable	Conductivity	pH	Sodium Adsorption Ratio	Comments
L2244522	S-11102463-031319-SM-BH18-467-1.1-1.15MBGS	BH18-467	Soil	1.1	1.2	03/13/2019	12:00:00	X	-	X	X	-	X	X	X	X	X	X	X	X	X	X	X	X	
L2245079	S-11102463-031419-SM-BH18-443-1.2-1.35MBGS	BH18-443	Soil	1.2	1.4	03/14/2019	10:00:00	X	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
L2245079	S-11102463-031419-SM-BH18-442-1.4-1.5MBGS	BH18-442	Soil	1.4	1.5	03/14/2019	14:00:00	X	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
L2245528	S-11102463-031519-DD-BH18-442-3.0-3.7	BH18-442	Soil	3.0	3.7	03/15/2019	11:15:00	X	-	X	X	-	X	X	X	X	X	X	X	X	X	X	X	X	
L2245528	S-11102463-031519-DD-BH18-442-8.5-8.9	BH18-442	Soil	8.5	8.9	03/15/2019	15:30:00	X	-	X	X	-	X	-	-	-	X	X	X	X	X	X	X	X	
L2245528	TRIP BLANK	-	Methanol	-	-	03/15/2019	08:00:00	X	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Trip Blank
L2247121	S-031919-EN-BH-18-445-TRIP BLANK	-	Methanol	-	-	03/19/2019	09:00:00	X	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Trip Blank
L2247121	S-031919-EN-BH-18-445-2.5-4.5	BH18-445	Soil	0.8	1.4	03/19/2019	10:00:00	X	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
L2247121	S-031919-EN-BH-18-445-17.5-19.5	BH18-445	Soil	5.3	5.9	03/19/2019	11:00:00	X	-	X	X	-	X	-	-	-	X	X	X	X	X	X	X	X	
L2247121	S-031919-EN-BH-18-445-27.5-29.5	BH18-445	Soil	8.4	9.0	03/19/2019	11:30:00	X	-	X	X	-	X	-	-	-	X	X	X	X	X	X	X	X	
L2247122	S-11102463-031919-DD-BH18-467-3.0-3.5 MBGS	BH18-467	Soil	3.0	3.5	03/19/2019	11:00:00	X	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
L2247122	S-11102463-031919-DD-BH18-467-4.6-5.2 MBGS	BH18-467	Soil	4.6	5.2	03/19/2019	12:30:00	X	-	X	X	-	X	-	-	-	X	X	X	X	X	X	X	X	
L2247122	TRIP BLANK	-	Methanol	-	-	03/19/2019	-	X	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Trip Blank
L2247715	S-11102463-032019-EN-BH18-468-4-2	BH18-468	Soil	0.1	0.61	03/20/2019	12:00:00	X	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
L2247715	S-11102463-032019-EN-BH18-468-12.5-14.5	BH18-468	Soil	3.8	4.4	03/20/2019	12:30:00	X	-	X	X	-	X	X	X	X	X	X	X	X	X	X	X	X	
L2247715	S-11102463-032019-EN-BH18-468-25-27	BH18-468	Soil	7.6	8.2	03/20/2019	13:00:00	X	-	X	X	-	X	-	-	-	X	X	X	X	X	X	X	X	
L2247715	S-11102463-032019-EN-BH18-468-BH100	BH18-468	Soil	7.6	8.2	03/20/2019	13:00:00	X	-	X	X	-	X	-	-	-	X	X	X	X	X	X	X	X	FD (S-11102463-032019-EN-BH18-468-25-27)
L2247715	S-11102463-032019-EN-BH18-468-TRIP BLANK	-	Methanol	-	-	03/20/2019	09:00:00	X	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Trip Blank
L2247735	S-11102463-032019-EN-TRIP-BLANK	-	Methanol	-	-	03/20/2019	09:00:00	X	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Trip Blank
L2247735	S-11102463-032019-EN-BH18-463-1-2	BH18-463	Soil	0.3	0.61	03/20/2019	10:00:00	X	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
L2247735	S-11102463-032119-EN-BH18-463-10-12	BH18-463	Soil	3.05	3.66	03/21/2019	09:00:00	X	-	X	X	-	X	X	X	X	X	X	X	X	X	X	X	X	
L2247735	S-11102463-032119-EN-BH18-463-15-17	BH18-463	Soil	4.57	5.19	03/21/2019	09:30:00	X	-	X	X	-	X	-	-	-	X	X	X	X	X	X	X	X	
L2247725	S-11102463-032019-JC-BH18-444-1.0-2.0	BH18-444	Soil	0.3	0.6	03/20/2019	13:00:00	X	-	X	X	-	X	X	X	X	X	X	X	X	X	X	X	X	
L2247725	S-11102463-032119-EN-BH18-444-10-12	BH18-444	Soil	3.1	3.7	03/21/2019	10:45:00	X	-	X	X	-	X	X	X	X	X	X	X	X	X	X	X	X	
L2247725	S-11102463-032119-EN-BH18-444-15-17	BH18-444	Soil	4.6	5.2	03/21/2019	11:35:00	X	-	X	X	-	X	-	-	-	X	X	X	X	X	X	X	X	
L2247725	S-11102463-032019-EN-BH18-444-TRIP BLANK	-	Methanol	-	-	03/20/2019	09:00:00	X	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Trip Blank

Table 1

Sample Collection and Analysis Summary
RMM Investigation – SDMA – City Lands
Waterfront Toronto – Toronto Port Lands
Toronto, Ontario
March 2019

								Analysis/Parameters															
Lab Report #	Sample Identification	Location	Matrix	Initial Sample Depth (m BGS)	Final Sample Depth (m BGS)	Collection Date (mm/dd/yyyy)	Collection Time (hr:min:sec)	Volatile Organic Compounds	BTEX	Petroleum Hydrocarbons (F1)	Petroleum Hydrocarbons (F2-F4)	Petroleum Hydrocarbons (F4G)	Polycyclic Aromatic Hydrocarbons	O. Reg. 153 Chlorophenols	Organochlorine Pesticides	PCB Aroclors	Metals	Mercury	Hexavalent Chromium	Hot Water Extractable Boron	Cyanide, Weak-Acid Dissociable	Conductivity	pH	Sodium Adsorption Ratio	Comments
L2248319	S-11102463-190321-JC-BH18-443-20-22	BH18-443	Soil	6.1	6.7	03/21/2019	10:00:00	X	-	X	X	-	X	X	X	X	X	X	X	X	X	X	X	X	
L2248319	S-11102463-190321-JC-BH18-443-35.5-36	BH18-443	Soil	10.8	11	03/21/2019	11:00:00	X	-	X	X	-	X	-	-	-	X	X	X	X	X	X	X	X	
L2248319	TRIP BLANK	-	Methanol	-	-	03/21/2019	-	-	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Trip Blank
L2248321	S-11102463-032019-DD-BH18-441-1.0-1.5	BH18-441	Soil	1.0	1.5	03/20/2019	12:00:00	X	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
L2248321	S-11102463-032119-DD-BH18-469-0.8-1.4	BH18-469	Soil	0.8	1.4	03/21/2019	12:10:00	X	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
L2248321	S-11102463-032119-DD-BH18-469-3.0-3.7	BH18-469	Soil	3.0	3.7	03/21/2019	13:00:00	X	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
L2248321	S-11102463-032119-DD-BH18-469-DUP-001	BH18-469	Soil	3.0	3.7	03/21/2019	13:30:00	X	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	FD (S-032119-DD-BH18-469-3.0-3.7)
L2248320	S-11102463-190321-JC-BH18-441-25-30	BH18-441	Soil	7.6	9.1	03/21/2019	14:00:00	X	-	X	X	-	X	-	-	-	X	X	X	X	X	X	X	X	
L2248786	S-11102463-032219-DD-BH18-469-9.9-10.5	BH18-469	Soil	3.0	3.2	03/22/2019	11:30:00	X	-	X	X	-	X	-	-	-	X	X	X	X	X	X	X	X	
L2248786	TRIP BLANK	-	Methanol	-	-	03/22/2019	-	X	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Trip Blank
L2248315	S-11102463-190322-JC-BH18-465-2.5-4.5	BH18-465	Soil	0.8	1.4	03/22/2019	11:05:00	X	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
L2248315	S-11102463-190322-JC-BH18-465-10-12	BH18-465	Soil	3.1	3.7	03/22/2019	11:30:00	X	-	X	X	-	X	X	X	X	X	X	X	X	X	X	X	X	X	
L2248315	S-11102463-190322-JC-BH18-465-25-27	BH18-465	Soil	7.6	8.2	03/22/2019	12:00:00	X	-	X	X	-	X	-	-	-	X	X	X	X	X	X	X	X	
L2248315	TRIP BLANK	-	Methanol	-	-	03/22/2019	00:00:00	-	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Trip Blank

Notes

FD	- Field Duplicate Sample of sample in parenthesis
"-"	- Not applicable
m BGS	- metres Below Ground Surface
BTEX	- Benzene, Toluene, Ethylbenzene, Xylene
PCB	- Polychlorinated Biphenyl

Table 2

Analytical Method and Holding Time Criteria
RMM Investigation – SDMA – City Lands
Waterfront Toronto – Toronto Port Lands
Toronto, Ontario
March 2019

Parameters	Methodology [1] Soil	Holding Time Criteria[2] Soil
VOCs - methanol preserved	SW846 8260	14/40[3]
BTEX - methanol preserved	SW846 8260	14/40[3]
Petroleum Hydrocarbons (F1) - methanol preserved	CCME CWS-PHC	14/40[3]
Petroleum Hydrocarbons (F2-F4)	CCME CWS-PHC	14 days
Petroleum Hydrocarbons (F4G)	CCME CWS-PHC	14 days
Polycyclic Aromatic Hydrocarbons	SW846 8270	60 days
O. Reg. 153 Chlorophenols	SW846 8270	60 days
Organochlorine Pesticides	SW846 8270	60 days
PCB Aroclors	SW846 8082	Indefinite
Metals	EPA 200.2/6020A	180 days
Mercury	EPA 200.2/1631E	28 days
Hexavalent Chromium	SW846 3060A/7199	30 days
Hot Water Extractable Boron	EPA 6010B	180 days
Cyanide, Weak-Acid Dissociable	MOE 3015/APHA 4500CN I-WAD	14 days
Conductivity	MOEE E3138	30 days
pH	MOEE E3137A	30 days
Sodium Adsorption Ratio	SW846 6010C	180 days

Notes:

(1) Methods referenced from the following:
SW846 - "Test Method for Evaluating Solid Waste Physical/Chemical Methods", EPA, November 1986 with promulgated updates
CCME CWS - Canadian Council of Ministers of the Environment - Canadian Wide Standards
EPA - U.S. Environmental Protection Agency. Analytical Methodology (October, 2007)
MOE - Ministry of the Environment
MOEE - Ministry of the Environment and Energy

(2) Holding times differing from those defined in the indicated methodology were obtained from the O. Reg. 153 Analytical Protocols

(3) x/y - x days to extract/y days to analyze

VOCs - Volatile Organic Compounds

BTEX - Benzene, Toluene, Ethylbenzene, Xylene

PCB - Polychlorinated Biphenyl

Table 3

Qualified Sample Data Due To Outlying Ion Abundance Ratios
RMM Investigation – SDMA – City Lands
Waterfront Toronto – Toronto Port Lands
Toronto, Ontario
March 2019

Lab Report #	Parameter	Analyte	Associated Sample ID	Qualified Result	Units
L2247725	PAHs	Benzo(g,h,i)perylene	S-11102463-032119-EN-BH18-444-15-17	0.075 J	µg/g

Notes:

J - Estimated concentration
PAHs - Polycyclic Aromatic Hydrocarbons

Table 4

Qualified Sample Data Due To Analytical Interference
RMM Investigation – SDMA – City Lands
Waterfront Toronto – Toronto Port Lands
Toronto, Ontario
March 2019

Lab Report #	Parameter	Analyte	Sample ID	Qualified Result	Units
L2247715	PAHs	Acenaphthene	S-11102463-032019-EN-BH18-468-25-27	0.061 J	µg/g
L2247715	PAHs	Acenaphthene	S-11102463-032019-EN-BH18-468-BH100	0.070 J	µg/g

Notes:

J - Estimated concentration
PAHs - Polycyclic Aromatic Hydrocarbons

Table 5

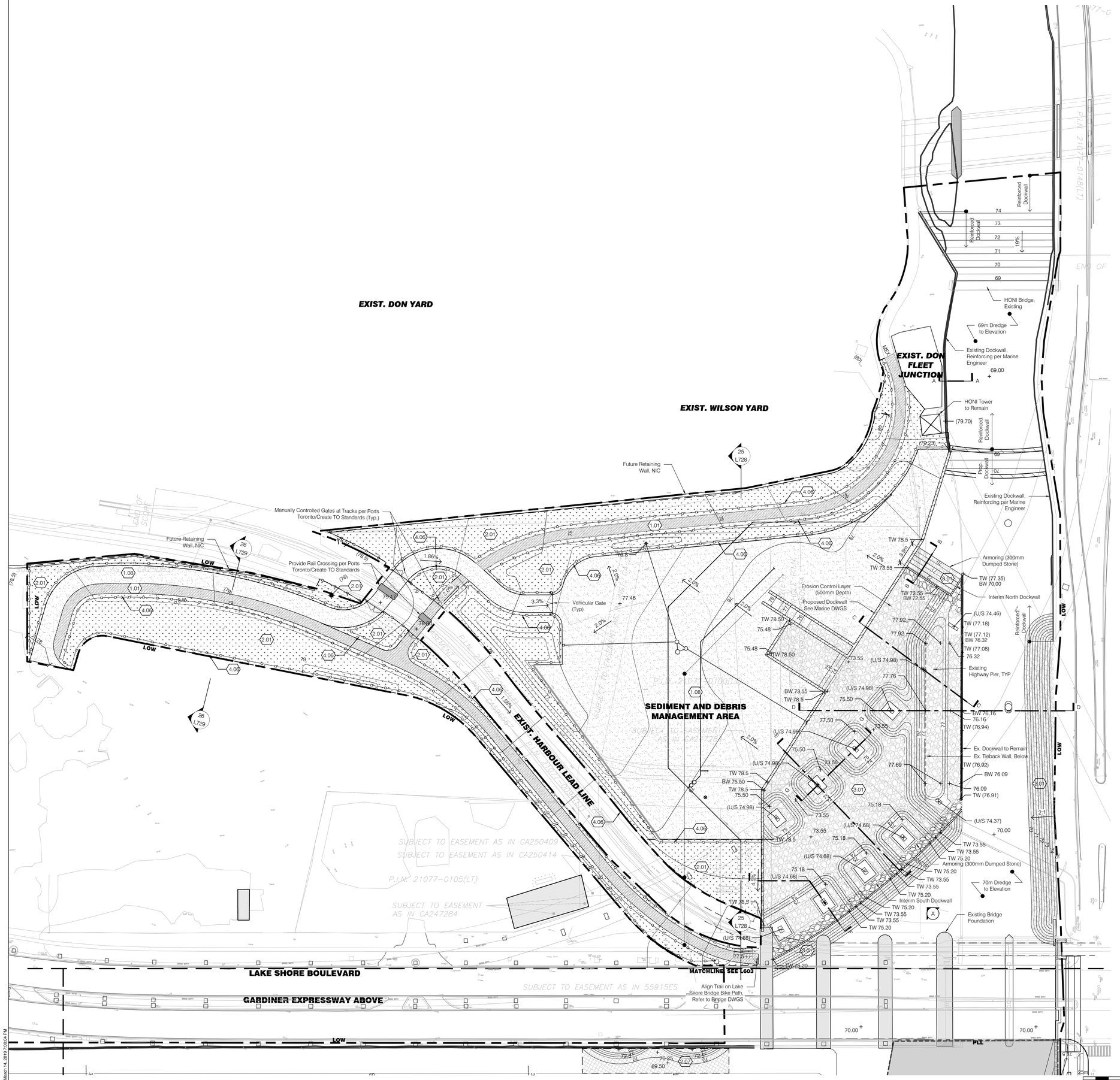
Qualified Sample Data Due To Variability in Field Duplicate Results
RMM Investigation – SDMA – City Lands
Waterfront Toronto – Toronto Port Lands
Toronto, Ontario
March 2019

Lab Report #	Parameter	Analyte	Diff	Sample ID	Qualified Result	Field Duplicate Sample ID	Qualified Result	Units
L2248321	PAHs	1-Methylnaphthalene	>2xRL	S-11102463-032119-DD-BH18-469-3.0-3.7	0.076 J	S-11102463-032119-DD-BH18-469-DUP-001	0.156 J	µg/g
L2248321	PAHs	1-Methylnaphthalene/2-Methylnaphthalene	>2xRL	S-11102463-032119-DD-BH18-469-3.0-3.7	0.171 J	S-11102463-032119-DD-BH18-469-DUP-001	0.361 J	µg/g
L2248321	PAHs	2-Methylnaphthalene	>2xRL	S-11102463-032119-DD-BH18-469-3.0-3.7	0.095 J	S-11102463-032119-DD-BH18-469-DUP-001	0.205 J	µg/g
L2248321	PAHs	Acenaphthene	>2xRL	S-11102463-032119-DD-BH18-469-3.0-3.7	0.191 J	S-11102463-032119-DD-BH18-469-DUP-001	0.331 J	µg/g
L2248321	PAHs	Benzo(g,h,i)perylene	>2xRL	S-11102463-032119-DD-BH18-469-3.0-3.7	0.207 J	S-11102463-032119-DD-BH18-469-DUP-001	0.411 J	µg/g
L2248321	PAHs	Fluorene	>2xRL	S-11102463-032119-DD-BH18-469-3.0-3.7	0.159 J	S-11102463-032119-DD-BH18-469-DUP-001	0.270 J	µg/g
L2248321	PAHs	Naphthalene	>2xRL	S-11102463-032119-DD-BH18-469-3.0-3.7	0.124 J	S-11102463-032119-DD-BH18-469-DUP-001	0.251 J	µg/g
L2248321	PHCs	Petroleum hydrocarbons F4 (C34-C50)	>2xRL	S-11102463-032119-DD-BH18-469-3.0-3.7	903 J	S-11102463-032119-DD-BH18-469-DUP-001	183 J	µg/g
L2248321	PHCs	Petroleum hydrocarbons F4 gravimetric - silica gel (GHH)	>2xRL	S-11102463-032119-DD-BH18-469-3.0-3.7	1910 J	S-11102463-032119-DD-BH18-469-DUP-001	840 J	µg/g

Notes:

Diff - Difference (i.e. >2XRL for soils)
RL - Reporting limit
J - Estimated concentration
PAHs - Polycyclic Aromatic Hydrocarbons
PHCs - Petroleum Hydrocarbons

Attachment 3



SITE LEGEND

- PLL — Package Limit Line
- LOW — Parks Public Realm and River (PPR+R) Limit of Work
- MATCHLINE — Matchline
- WL — Waterlot Boundary
- XX+00 — River Centerline
- Property Line
- Existing Building to Remain (NIC)
- Existing Listed Heritage Structure
- Proposed Bridge Pier, Refer to Bridge DWGs
- Proposed Dockwall, Refer to SM DWGs

ENABLING SITEWORK LEGEND

- RSC/CBRA Boundary
- (00) — Existing Contour
- 1 — Proposed Contour, 1 meter
- 0.5 — Proposed Contour, 0.5 meter
- Grade Break
- 0.0% — Percentage and Direction of Slope
- (00.00) + — Existing Spot Elevation
- 00.00 + — Proposed Spot Elevation

Material Key

- 1.01 — 1/L900 — Bituminous Concrete Pavement - Pedestrian 430mm
- 1.08 — 2/L900 — Bituminous Concrete Pavement - Vehicular 450mm
- 2.01 — 6/L430 — Interim Planting Soil and Seed Mix
- 3.01 — Stone Armour
- 4.06 — 1/L909 — Chain Link Fence

PORTLANDS FLOOD PROTECTION AND ENABLING INFRASTRUCTURE (PLFP)

Toronto, ON

Client
Waterfront Toronto
20 Bay St
Toronto ON, M5J 2N8
Canada
Tel: 416.214.1344

Landscape Architect and Project Lead
Michael Van Valkenburgh Associates, Inc.
Landscape Architects
231 Concord Ave
Cambridge, MA 02138 USA
Tel: 617-864-2076

Geotechnical, Earthwork and Env. Engineer
JACOBS
245 Consumers Road, Suite 400
Toronto, ON M2J1R3 CANADA
Tel: 416-564-3581

Civil Engineer
WSP Canada Group Limited
100 Commerce Valley Drive West
Thornhill, ON L3T 0A1 CANADA
Tel: 905-882-4211 Ext 6486

Electrical Engineer
Smith + Andersen
500 - 4211 Yonge St.
Toronto, ON M2P 2A9 CANADA
Tel: 732-487-8151

Structural Engineer
RJC Engineers
144 Front Street West, Suite 1301
Toronto, ON M5J 2L7 CANADA
Tel: 416-977-5335

Marine/Coastal Engineer
GEI Consultants
400 Unicorn Park Drive
Woburn, MA 01801 USA
Tel: 781-721-4043

Hydrologist
LimnoTech
501 Avis Drive
Ann Arbor, MI 48108 USA
Tel: 734-332-1200

Ecologist
Inter-Fluve
220 Concord Ave, 2nd Floor
Cambridge, MA 02138 USA
Tel: 617-714-5537

Horticultural Soil Scientist
Olsson Associates
1301 Burlington St
North Kansas City, MO 64116 USA
Tel: 402-474-6311

Irrigation
Landtech Design
8420 Zionsville Rd
Indianapolis, IN 46268 USA
Tel: 314-541-2779

Heritage Structures
ERA Architects Inc.
10 St Mary St #801
Toronto, ON M4Y 1P9 CANADA
Tel: 416-963-4497

Operations and Maintenance
ETM Associates, L.L.C.
1202 Raritan Ave
Highland Park, NJ 08904 USA
Tel: 732-572-6626

Cost Estimator
Vermeulens
9835 Leslie St.
Toronto, ON L4B 3Y4 CANADA
Tel: 905-787-1880

SEAL

DRAFT

02/28/2019

60% DESIGN PACKAGE #9 NOT FOR CONSTRUCTION

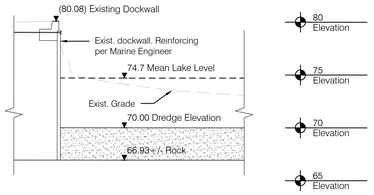
ENABLING SITEWORK PLAN

JOB NUMBER: 07009
DATE: 2 May 2019
SCALE: 1:500
DRAWN BY: MVA
CHECKED BY:MVA

LI109

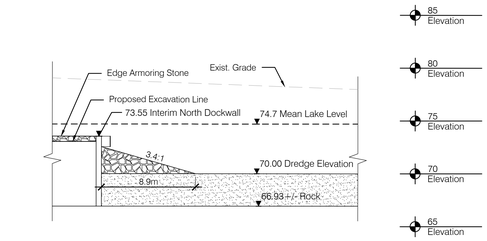
Thursday, March 14, 2019 7:00:04 PM

Attachment 4



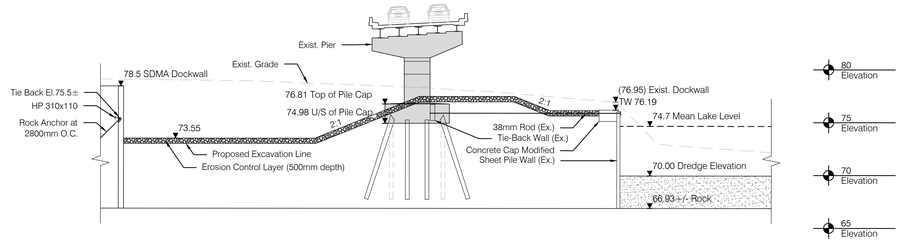
1 Section A
Scale: 1:200

Section



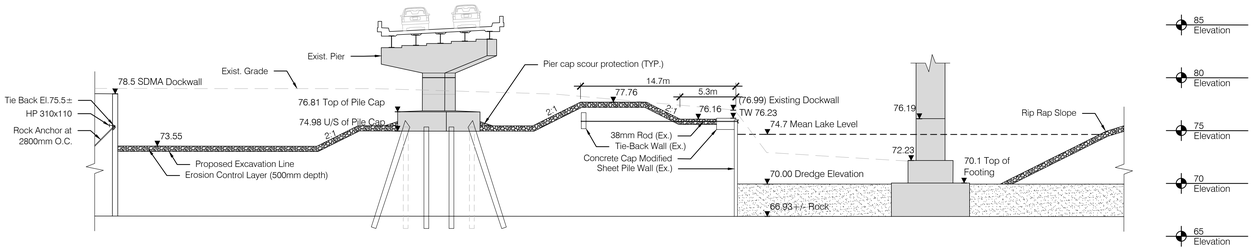
2 Section B
Scale: 1:200

Section



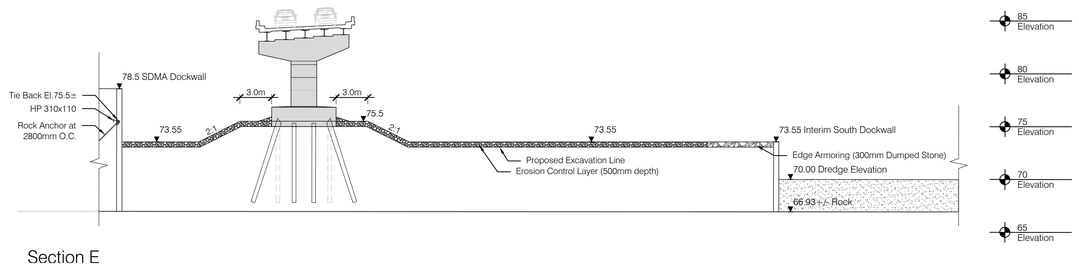
3 Section C
Scale: 1:200

Section



4 Section D
Scale: 1:200

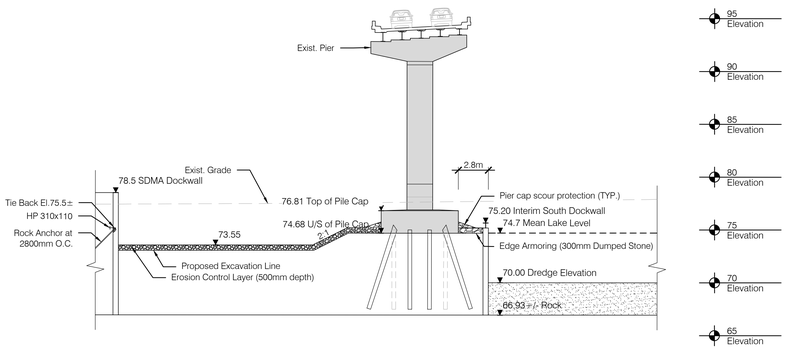
Section



Section E

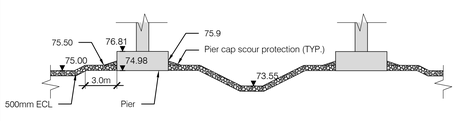
5 Section E
Scale: 1:200

Section



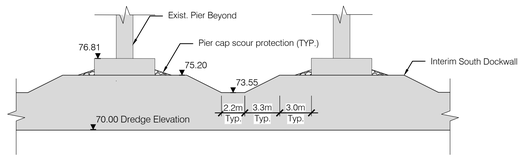
6 Section F
Scale: 1:200

Section



7 Section G
Scale: 1:200

Section



8 Elevation A
Scale: 1:200

Elevation

Thursday, March 14, 2019 7:01:38 PM

PORTLANDS FLOOD PROTECTION AND ENABLING INFRASTRUCTURE (PLFP)

Toronto, ON

Client
Waterfront Toronto
20 Bay St
Toronto ON, M5J 2N8
Canada
Tel: 416.214.1344

Landscape Architect and Project Lead
Michael Van Valkenburgh Associates, Inc.
Landscape Architects
231 Concord Ave
Cambridge, MA 02138 USA
Tel: 617-864-2076

Geotechnical, Earthwork and Env. Engineer
JACOBS
245 Consumers Road, Suite 400
Toronto, ON M2J1R3 CANADA
Tel: 416-564-3581

Civil Engineer
WSP Canada Group Limited
100 Commerce Valley Drive West
Thornhill, ON L3T 0A1 CANADA
Tel: 905-882-4211 Ext 6486

Electrical Engineer
Smith + Andersen
500 - 4211 Yonge St.
Toronto, ON M2P 2A9 CANADA
Tel: 732-487-8151

Structural Engineer
RJC Engineers
144 Front Street West, Suite 1301
Toronto, ON M5J 2L7 CANADA
Tel: 416-977-5335

Marine/Coastal Engineer
GEI Consultants
400 Unicorn Park Drive
Woburn, MA 01801 USA
Tel: 781-721-4043

Hydrologist
LimnoTech
501 Avis Drive
Ann Arbor, MI 48108 USA
Tel: 734-332-1200

Ecologist
Inter-Fluve
220 Concord Ave, 2nd Floor
Cambridge, MA 02138 USA
Tel: 617-714-5537

Horticultural Soil Scientist
Olsson Associates
1301 Burlington St
North Kansas City, MO 64116 USA
Tel: 402-474-6311

Irrigation
Landtech Design
8420 Zionsville Rd
Indianapolis, IN 46268 USA
Tel: 314-541-2779

Heritage Structures
ERA Architects Inc.
10 St Mary St #801
Toronto, ON M4Y 1P9 CANADA
Tel: 416-963-4497

Operations and Maintenance
ETM Associates, L.L.C.
1202 Raritan Ave
Highland Park, NJ 08904 USA
Tel: 732-572-6626

Cost Estimator
Vermeulens
9835 Leslie St.
Toronto, ON L4B 3Y4 CANADA
Tel: 905-787-1880

SEAL

DRAFT

02/28/2019

60% DESIGN PACKAGE #9 NOT FOR CONSTRUCTION

ENABLING SITEWORK SECTIONS

JOB NUMBER: 07009
DATE: 2 May 2019
SCALE: Varies
DRAWN BY: MVVA
CHECKED BY:MVVA

LI111