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Supplemental Soil Assessment, Transport Canada Parcel 44, Esquimalt, BC

Submitted to:
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REPORT

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EXECUTIVE SUMMARY

A Supplemental Soil Assessment (SSA) was completed for Public Works and Government Services Canada (PWGSC) for Transport Canada (TC) Parcel 44, located in Esquimalt, BC (herein referred to as the "Site"). The objective of the SSA was to determine the extent of contamination remaining along the south upland and near foreshore area of the Site, along the southern property boundary.

The scope of work consisted of hand augering or drilling 12 boreholes on the foreshore of the Site, and drilling 17 boreholes along the near foreshore area of the upland portion of Site. Soil samples were submitted for the analysis of metals and polycyclic aromatic hydrocarbons and selected samples were submitted for the analysis of benzene, toluene, ethylbenzene and xylenes (BTEX), F1, F2-F4[1] hydrocarbons, and grain size. The laboratory soil results were compared to the BC Contaminated Sites Regulation (CSR) commercial land use (CL) and industrial land use (IL) soil standards, and Canadian Council of Ministers of the Environment (CCME) Soil Quality Guidelines (SQG) for commercial or industrial land use (CL/IL). The following summarizes the findings of this SSA conducted at TC Parcel 44, Esquimalt, BC:

- Soil materials observed on the foreshore at the Site generally consisted of a thin layer of fine and coarse gravel from ground surface to approximately 0.05 to 0.30 metres (m) below ground surface (bgs), underlain by silty peat to a depth of approximately 2 m bgs, and either a silty sand with gravel or clayey silt to the depth of bedrock which varied from 0.61 to 4.57 m bgs.
- Soil materials observed on the upland at the Site generally consisted of silty sand to a depth of approximately 0.3 m bgs to 2 m, underlain by silty clay, silty peat, or silty sand to the depth of bedrock which varied from 1.37 m to 9.6 m bgs.
- No hydrocarbon-like staining or odours were observed during soil sampling. Vapour headspace in the soil samples did not identify elevated vapour levels. Metal, wood, plastic, and glass debris was observed in several boreholes.
- Soils samples collected from selected boreholes advanced as part of this SSA contained concentrations that exceeded applicable CSR CL/IL soil standards as well as the CCME SQG for CL/IL selected parameters at 25 out of 29 borehole locations.

[1] BTEX = benzene, toluene, xylene, ethylbenzene; PAHs = polycyclic aromatic hydrocarbons; F1= hydrocarbon fraction C6-C10; F2-F4 = hydrocarbon fractions C10-C50.

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1.0 INTRODUCTION

Golder Associates Ltd. (Golder) was retained by Public Works and Government Services Canada (PWGSC) to conduct a Supplemental Soil Assessment (SSA) for Transport Canada (TC) Parcel 44, located in Esquimalt, British Columbia (BC) (herein referred to as "the Site"). The Site comprises the uplands and foreshore area in the northeast corner of Plumper Bay, Esquimalt Harbour, adjacent to the west sides of the Trio Ready-Mix Ltd. concrete plant and Esquimalt IR#1 Reserve (Esquimalt First Nation).

The objective of the SSA was to determine the extent of contamination remaining along the south upland and near foreshore areas of the Site, along the southern property boundary.

This report should be read in conjunction with the *Important Information and Limitations of This Report*, included in Appendix A. We specifically draw the reader's attention to this information, as it is essential for the proper use and interpretation of this report. The scope of work does not include provision for assessment of archaeological or bio-environmental aspects associated with site development.

2.0 SCOPE OF WORK

To meet the objective of the SSA, a drilling program was completed to evaluate soil quality at the Site. The general scope of work of the SSA consisted of the following tasks:

- Develop a Site-specific health, safety and environmental (HSaEP) plan for undertaking intrusive investigation activities at the Site.
- Identify the location of underground services using BC One Call and a utility locator subcontractor on the Site.
- Clear vegetation around boreholes to allow access for the drilling rig.
- Hand auger or drill 12 boreholes on the foreshore and 17 boreholes along the upland, near foreshore areas of the Site.
- Collect soil samples for chemical analyses of the potential contaminants of concern. The soil samples were submitted for the analysis of metals and polycyclic aromatic hydrocarbons (PAHs) and selected samples were submitted for the analysis of benzene, toluene, ethylbenzene, xylenes (BTEX), hydrocarbon fraction C6-C10 (F1), hydrocarbon fractions C10-C50 (F2-F4), and grain size.
- Tabulate and interpret the data, including comparing the analytical results to applicable provincial and federal standards and/or guidelines, and prepare a report detailing the findings of the investigation.

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3.0 APPLICABLE REGULATORY FRAMEWORK

3.1 Federal Guidelines

For federal lands, the Canadian Council of Ministers of the Environment (CCME) defines Environmental Quality Guidelines and Canada Wide Standards (CWS) for assessing soil quality. The CCME soil quality guidelines (SQG) (CCME 1999, last revision 2007) are divided into categories based on land use. The categories include agricultural land use (AL), residential land use (RL), park land use (PL), commercial land use (CL), and industrial land use (IL). The CCME SQG values are based on an incremental lifetime cancer risk of 1 in 100,000 (10^{-5}), where applicable.

The Site is currently vacant and not in use. Golder understands that historically the Site had some industrial use; however, its future land use is unknown. Land use for screening purposes was based on its past land use, which was commercial and industrial (CL and IL, respectively); therefore, CL and IL guidelines were utilized to screen the soil and groundwater analytical results.

The CCME SQG were applied for the protection of environmental and human health. The guidelines for the protection of freshwater life were considered not applicable at the Site as groundwater flow is inferred to be towards the marine environment and discharges to freshwater receiving environments are not expected.

The CWS for Petroleum Hydrocarbons (PHC) in soil (CCME 2001, last revision 2008) are divided into the same land use categories as the CCME SQG, but are further divided for each specific land use into two sub-categories based on soil texture: coarse-grained (i.e., grain size greater than 0.075 millimetres [mm]) and fine-grained (i.e., grain size less than 0.075 mm) soils. The soils at the Site were described as clayey silt to silty clay and sand, with some gravel. Because the grain size at the Site is variable, the most conservative soil quality standards were applied; whether that was coarse-grained or fine-grained. Surface soil guidelines were applied as a conservative measure, where applicable.

CWS PHCs are listed in four fractions (F1 through F4), which represent the following carbon chain lengths:

- CWS PHC F1: C6 – C10
- CWS PHC F2: C10 – C16
- CWS PHC F3: C16 – C34
- CWS PHC F4: > C34

Standards associated with each fraction were referenced in the interpretation.

3.2 Provincial Standards

In BC, environmental matters pertaining to contaminated sites generally fall under the jurisdiction of BC Ministry of Environment (MoE), pursuant to the "*Environmental Management Act*" (EMA; SBC 2003, Chapter 53 assessed 23 October 2003). The key regulations under the EMA relating to the assessment and remediation of contaminated sites are the *Contaminated Sites Regulation* (CSR, BC Reg. 375/96, O.C. 1480/96 and M271/2004 including amendments up to BC Reg. 4/2014) and the *Hazardous Waste Regulation* (HWR; BC Reg. 63/88, O.C. 268/88 including amendments up to BC Reg. 63/2009, 1 April 2009).

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The CSR soil standards are divided into categories based on land use, including wild lands (WL), agricultural (AL), urban park (PL), residential (RL), commercial (CL) and industrial (IL) land use. As discussed above, CL and IL standards are considered applicable at the Site.

The CSR includes generic numerical soil standards (Schedules 4 and 10), and matrix numerical soil standards (Schedule 5) for the protection of human health, including intake of contaminated soil (I), and environmental protection in consideration of toxicity to environmental receptors (T). The matrix numerical standards are further divided into site-specific standards, based on the nature and use of the groundwater at the Site, including groundwater used for drinking water, groundwater flow to aquatic life in surface water, groundwater used for livestock watering, and groundwater used for irrigation. Although groundwater at the Site would not likely be used for drinking water, it may be at the fringe of an aquifer that is used now, or in the future, for drinking water.

Standards for the protection of groundwater used for drinking water (DW) and groundwater flow to marine aquatic life (AW-M) were considered applicable for assessment of soil quality for consideration of potential future off-Site soil disposal.

4.0 METHODS

4.1 Health and Safety Plan and Underground Utility Clearance

Prior to undertaking the field work, Golder prepared a health, safety and environmental plan (HaSEP) for the project. The HaSEP was based on Golder's standard procedures and covered a description of tasks, hazards, safe work procedures, accident reporting, Site location plan, emergency response plan, emergency contact and telephone numbers, and check-in procedures.

A tailgate safety meeting was held on-site between Golder and the sub-contractors, including One Call Locators, Don Mann Excavating Ltd. and Grassroots Drilling Inc., to identify potential health and safety hazards, and where required, implement controls to mitigate risks and hazards.

Following the completion of the HaSEP and prior to commencing the field program, Golder retained the services of One Call Locators, a utility locator based in Victoria, BC. One Call Locators completed a BC One Call utility locate request and facilitated clearing the proposed subsurface investigation locations by marking identified utilities. Don Mann Excavating Ltd. was on-site at the same time as the utility locator to clear vegetation around boreholes to allow access for the drilling rig.

4.2 Hand Augering and Borehole Drilling

Between 8 and 15 September 2015, an excavator-mounted, solid-stem auger drilling system, owned and operated by Grassroots Drilling Inc. of Cowichan Bay, BC, was used to advance 23 boreholes to depths ranging from approximately 0.61 to 9.6 metres (m) below ground surface (bgs). A hand auger was used to advance six additional boreholes on the foreshore, in areas where access was limited due to uneven ground surface and/or tides. Hand augered boreholes were advanced to a depth of 0.3 m to 0.46 m bgs. Hand augering was completed to the maximum depth possible; however, the depth achieved was limited due to the subsurface conditions. The hand auger and boreholes were backfilled with soil cuttings where the material appeared to be native soil and no confining layers were encountered. Where drill cuttings appeared to be fill, the material was drummed

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and the borehole was backfilled with clean sand. A 0.6-m bentonite seal was placed in the borehole where a confining layer was encountered. Drummed soil cutting material, was left on-site and labelled with the source and date of the material for disposal during future Site activities.

Borehole logs are provided for each location in Appendix B. The locations of the boreholes are shown on Figure 1.

4.3 Soil Sampling

Soil samples were collected from the auger when drilling with the drilling rig, and from the wall of the borehole when using a hand auger. The subsurface conditions were logged by Golder and representative soil samples were collected for reference and for potential chemical analysis. Soil samples collected were assessed for visual and/or olfactory indications of contamination and soil samples were field screened for volatile organic vapours. Samples were collected from depths ranging from 0.15 m to 3.05 m bgs.

Soil samples collected for volatile hydrocarbon (i.e., BTEX) analysis were preserved in the field by placing approximately 5 grams (g) of soil in two laboratory-prepared 40-millilitre (mL) glass vials containing methanol. A second portion of the soil sample was placed in laboratory-prepared sterile 125-mL jar(s) with Teflon-lined lids. A portion of the sample was also placed in a sealed headspace bag and the headspace was screened for the presence of volatile organic vapours using a MiniRAE 3000 photo-ionization detector (PID). Prior to use at the Site, the PID was calibrated to 100 parts per million (ppm) isobutylene gas.

Soil sampling containers were appropriately-labelled, and stored in coolers filled with ice for transport to the analytical laboratory, and were accompanied by appropriated completed chain-of-custody forms. Samples were selected for laboratory analysis based on location and field observations, including the presence of potential odours, staining, debris and/or organic vapours. Soil samples were submitted to Maxxam Analytics (Maxxam) in Burnaby, BC for the analysis of metals and PAHs. Selected samples were also analysed for BTEX, F1, F2-F4, and/or grain size. Five duplicate soil samples were analyzed for metals and PAH, one duplicate sample was analysed for BTEX, F1, and F2-F4. Based on the soil results, two samples were also submitted for additional leachability analysis, for metals and for PAH, using the Toxicity Characteristics Leaching Procedure (TCLP; USEPA Method 1311).

Between sample locations, any tool(s) used to collect the samples were washed with laboratory-grade detergent and rinsed with distilled water, and nitrile gloves worn when handling sampling equipment were changed.

4.4 Sample Storage and Transport

Maxxam provided sampling containers and performed the laboratory analysis of the soil samples. Maxxam is certified by the Canadian Association for Laboratory Accreditation (CALA) for analytical methods used for this program. Samples were appropriately labelled and stored in a cooler prior to submission to the analytical laboratory. Ice was used to chill the samples where required. Sample custody was tracked using completed chain-of-custody forms. Samples were received and analyzed by the laboratory within the recommended holding time.

Copies of the original laboratory Certificates of Analysis are provided in Appendix C.

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4.1 Quality Assurance / Quality Control (QA/QC)

Golder followed standard quality assurance / quality control (QA/QC) procedures to assess and document that the sampling and analytical data was interpretable, meaningful, and reproducible. This involved using QA/QC measures in both the collection (field program) and analysis (laboratory) of environmental samples. The following discussion includes a brief summary of the QA/QC measures implemented by Golder during the field program and during our review of the data, as well as the QA/QC measures implemented by the analytical laboratory.

The QC measures used in the collection, preservation and shipment of samples included the following measures:

- Sampling methods were consistent with established Golder protocols and provincial/federal requirements.
- Field notes were recorded throughout the stages of the investigation and are available upon request.
- Sample locations were recorded and marked in the field.
- Samples were subsequently transported to the laboratory using Golder chain-of-custody procedures.

Copies of the chain-of-custody forms are provided in Appendix B.

The QA measures established for the field program included:

- Submission of blind field duplicate samples for a minimum of 10% of the samples analyzed. A blind field duplicate sample is a second sample from the same location that is submitted to the analytical laboratory under a separate label. For soil samples, the sample and its field duplicate were collected from a relatively homogeneous substrate and mixed until a uniform consistency was achieved.
- The relative percent difference (RPD) between field duplicate sample results was used to assess duplicate sample data. The RPD is a measure of the variability between two outcomes from the same procedure or process and is calculated by:

$$absolute\left(\frac{(x_1 - x_2)}{average(x_1 - x_2)}\right) \times 100$$

where x_1 is the original sample result and x_2 is the blind field duplicate result.

An RPD is calculated when sample results are equal to or greater than five times the laboratory method detection limit (MDL). In general for soils, the RPD should not be more than 35% on average, or a maximum of 50% percent, depending on the parameter and concentration. An RPD greater than 35% may reflect “within jar” variability (which reflects the nature of the contaminant distribution) or variation in the test procedures. Values exceeding this requirement are justified, on a case-by-case basis. When sample results are less than five times the MDL, but not less than the MDL, a difference factor (DF) is calculated. A DF is the absolute difference between the two values divided by the MDL. A DF less than two is considered to represent a good correlation.

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5.0 RESULTS

Borehole logs are provided in Appendix B. Tables 2 and 3 provide the soil analytical results for hydrocarbons and metals, respectively. Table 4 provides the QA QC results. Tables 5 and 6 provide the results of leachability (TCLP) testing. Copies of the laboratory Certificates of Analysis are provided in Appendix C.

5.1 General Subsurface Conditions and Field Observations

Soil materials observed on the foreshore at the Site generally consisted of a thin layer of fine and coarse gravel (from ground surface to approximately 0.05 to 0.30 m bgs), underlain by silty peat to a depth of approximately 2 m bgs, and either a silty sand with gravel or clayey silt to the depth of bedrock which varied from 0.61 to 4.57 m bgs.

Soil materials observed on the upland (near foreshore) at the Site generally consisted of silty sand to a depth of approximately 0.3 m bgs to 2 m underlain by silty clay, silty peat, or silty sand to the depth of bedrock which varied from 1.37 m to 9.6 m bgs.

No hydrocarbon-like staining or odours were observed during soil sampling. Vapour headspace in the soil samples did not identify elevated vapour levels.

Wood chips were found in the soils collected from the boreholes drilled on the foreshore and wood, plastic, and glass debris were found in the soil in the boreholes drilled in the upland locations.

5.2 Analytical Results

Golder collected a total of 59 soil samples during the soil sampling program, and analysed 45 of these samples for the PCOCs considered relevant. A summary of the analytical program is presented in Table 1, below.

The depth of soil samples collected was based on field observations and the identification of fill soils.

Table 1: Summary of Soil Sample Analyses

Parameter	Number of Samples Analyzed*
Metals	40 (5)
PAH	40 (5)
BTEX/F1	9 (1)
F2-F4	9 (1)
Grain Size	25

* not including duplicate samples; number of duplicate samples analyzed indicated in parentheses

Tabulated soil analytical results are provided in Table 2 (petroleum hydrocarbons) and Table 3 (metals), and shown on Figure 1. Results are compared to the applicable CSR CL and IL soil standards and the CCME SQG CL/IL guidelines/standards.

The following sections summarize the results of soil sample analyses.

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5.2.1 Hydrocarbons

The results of soil samples analyzed for petroleum hydrocarbon parameters, including PAHs, Fractions F1-F4, and BTEX results are presented in Table 2, shown on Figure 1, and are summarized below:

- Concentrations of petroleum hydrocarbons parameters were less than the applicable CSR soil standards and CCME SQG CL/IL in boreholes BH15-12, BH15-13, BH15-16, BH15-18, BH15-19, BH15-20, BH15-21, BH15-24, BH15-25, BH15-31, BH15-32, BH15-34, BH15-35, BH15-36, BH15-37, BH15-38, BH15-39 and BH15-40.
- Concentrations of one or more of BTEX, benzo(a)anthracene, benzo(b)fluoranthene, naphthalene, phenanthrene, pyrene, and/or index of additive cancer risk (IACR) exceeded the applicable standards and/or guidelines as described below
  - BH15-14, BH15-15, BH15-17, BH15-22, BH15-26, BH15-27, BH15-28, BH15-29, BH15-30, BH15-33 and BH15-34 contained soil with concentrations that exceeded the CCME CL/IL SQG for numerous PAH parameters.
- Leachable PAH concentrations were below laboratory detection limits and below the applicable Hazardous Waste Regulation standards.

5.2.2 Metals

The results of soil sample metals analyses are presented in Table 3 and are summarized below.

- The reported soil concentrations of metals were less than the applicable CSR soil standards and CCME SQG for CL/IL in boreholes BH15-12, BH15-13, BH15-16, BH15-17, BH15-18, BH15-20, BH15-22, BH15-27, BH15-30, BH15-31, BH15-32, BH15-37, BH15-38, and BH15-39.
- The pH values of three soil samples (including one duplicate) were greater than 8 and one was less than 6; outside of the range of 6 – 8 recommended by the CCME. Remaining pH values were between 6 and 8.
- Concentrations in soil of one or more of arsenic, chromium, copper, and/or molybdenum exceeded the CCME SQG guidelines in boreholes BH15-15, BH15-19, BH15-21, BH15-23, BH15-28, BH15-29, BH15-33, BH15-34, and BH15-36.
- Concentrations in soil of one or more of arsenic, chromium, copper, molybdenum, lead and/or zinc exceeded the CSR CL/IL standards in boreholes BH15-14, BH15-15, BH15-19, BH15-23, BH15-26, BH15-28, BH15-29, and BH15-36.
- Leachable metals concentrations were mostly below laboratory detection limits or had minor detections. All leachable metals concentrations were below the applicable Hazardous Waste Regulation standards.

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5.3 Quality Assurance / Quality Control (QA/QC)

The focus of the quality assurance / quality control (QA/QC) program was to evaluate the quality and appropriateness of the analytical data with respect to potential decision criteria. The discussion of data applicability focuses on the precision and accuracy of reported results for the identified parameters, particularly at concentrations that may be used as decision criteria.

Golder calculated RPDs and DFs for the duplicate pairs of soil samples; the QA/QC results are provided in Table 4. RPDs or DFs for the following individual parameters were greater than the objective of 35% or 2, respectively; however, average RPDs for the duplicate pairs were less than the objective of 35%:

- lead and chrysene in the sample pair from borehole BH15-14 at 1.68 m bgs (RPD of 62.81% and 47.79%, respectively)
- antimony, arsenic, iron, lead, manganese, phosphorus, sodium, tin in the sample pair from borehole BH15-19 at 2.59 m bgs (RPDs of 41.81%, 52.20%, 46.96%, 35.29%, 60.09%, 85.54%, 98.24%, 48.75%, respectively)
- antimony, calcium, lead, acenaphthene, anthracene, chrysene, fluoranthene, naphthalene, phenanthrene, pyrene, high molecular weight PAHs, low molecular weight PAHs, total PAHs, and index of additive cancer risk in the sample pair from borehole BH15-26 at 1.22 m bgs (RPDs of 41.46%, 48.51%, 45.84%, 51.21%, 50.85%, 38.81%, 42.42%, 55.32%, 60.00%, 42.86%, 45.81%, 54.78%, 47.06%, and 41.21%, respectively)
- benzene, ethylbenzene, toluene, and total xylene in the sample pair from borehole BH15-34 at 0.91 m bgs (RPDs of 52.25%, 58.06%, 68.57%, and 95.24%, respectively) as well as meta- and para-xylene (DF of 2.75)

RPDs and DFs for remaining parameters were either less than the objectives or not calculated because concentrations were less than laboratory detection limits.

6.0 SUMMARY AND CONCLUSIONS

A SSA was completed for PWGSC for TC Parcel 44. The objective of the SSA was to assess the extent of contamination remaining in the southeastern and the western areas along the southern Site property boundary. The objective of the sampling was achieved; however, the depth of the hand auger locations along the foreshore was limited to only the shallow soils.

The scope of work consisted of hand augering and drilling 29 boreholes and the collection of soil samples for chemical analysis. The soil samples were submitted for the analysis of metals and PAHs. Selected samples were also analysed for BTEX, F1, F2-F4, and/or grain size. The laboratory soil results were compared to the BC CSR CL and IL soil standards and the CCME SQG for CL and IL.

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The following summarizes the findings of this SSA conducted at TC Parcel 44.

- Soil materials observed on the foreshore at the Site generally consisted of a thin layer of fine and coarse gravel from ground surface to approximately 0.05 to 0.30 m bgs, underlain by silty peat to a depth of approximately 2 m bgs, and either a silty sand with gravel or clayey silt to the depth of bedrock which varied from 0.61 to 4.57 m bgs.
- Soil materials observed on the upland at the Site generally consisted of silty sand to a depth of approximately 0.3 m bgs to 2 m, underlain by silty clay, silty peat, or silty sand to the depth of bedrock which varied from 1.37 m to 9.6 m bgs.
- No hydrocarbon-like staining or odours were observed during soil sampling. Vapour headspace in the soil samples did not identify elevated vapour levels. Metal and glass debris was observed in several boreholes.
- Soil samples collected from selected boreholes advanced as part of this SSA contained concentrations that exceeded the applicable CSR CL/IL soil standards as well as the CCME SQG for CL/IL for selected the parameters. Soil exceedences were detected at all borehole locations except for BH15-18, BH15-20, BH15-37, and BH15-39.

7.0 CLOSURE

We trust that the information presented in this report is sufficient for your immediate requirements. If you have any questions or concerns, please do not hesitate to contact the undersigned.

GOLDER ASSOCIATES LTD.

Reviewed by:

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AU/JL/asd/lmk

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Table 2
Results of Soil Analyses - Hydrocarbons
Foreshore Investigation, Transport Canada Parcel 44, Esquimalt, BC

Location					BH15-12	BH15-13	BH15-13	BH15-14	BH15-14	BH15-14	BH15-15	BH15-16	BH15-17	BH15-18	BH15-19	BH15-19	BH15-19	BH15-20
SCN					00922-02	00922-04	00922-05	00922-06	00922-07	00922-08	00922-09	00922-12	00922-11	00918-01	00918-03	00918-04	00918-05	00918-06
Laboratory ID	CSR Standards for CL/IL [1]	MCS	CCME Standards for CL/IL [2]	MCS	NC4920	NC4922	NC4923	NC4924	NC4925	NC4926	NC4927	NC4930	NC4929	NC4889	NC4891	NC4892	NC4893	NC4894
Depth (m bgs)					1.37 - 1.52	0.91 - 1.07	2.13 - 2.29	1.37-1.52	1.68-1.83	1.68-1.83	0.46-0.61	0.30-0.61	0.30-0.46	0.46-0.61	0.91-1.22	2.59-2.74	2.59-2.74	0.91-1.07
Date Sampled					08-Sep-2015	08-Sep-2015	08-Sep-2015	08-Sep-2015	08-Sep-2015	08-Sep-2015	09-Sep-2015	09-Sep-2015	09-Sep-2015	09-Sep-2015	09-Sep-2015	09-Sep-2015	09-Sep-2015	09-Sep-2015
QA/QC									FDA	FD						FDA	FD	
Field Parameters																		
Soil Vapours (ppm)					0.9	0.3	0.1	0.5	0.4	0.4	1.1	5.0	0.7	0.0	0.0	0.0	0.0	0.0
Physical Parameters																		
moisture (%)					68	20	21	15	15	14	61	43	36	31	35	35	45	17
Particulate Mesh 200																		
200 mesh (<.075 mm) (%)					28.2	60.4	-	14.8	-	-	27.7	16.0	9.24	40.7	39.6	-	-	-
200 mesh (>.075 mm) (%)					71.8	39.6	-	85.2	-	-	72.3	84.0	90.8	59.3	60.4	-	-	-
Polycyclic Aromatic Hydrocarbons																		
2-Methylnaphthalene					<0.060	<0.020	<0.020	<0.020	0.14	0.13	<0.048	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
acenaphthene					<0.015	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.024	0.012	0.018	<0.0050	0.0074	<0.0050	<0.0050	<0.0050
acenaphthylene					<0.015	<0.0050	<0.0050	0.012	<0.0050	<0.0050	0.035	<0.0050	0.0092	<0.0050	0.0053	<0.0050	<0.0050	<0.0050
anthracene			**32**	SC	0.029	<0.0040	<0.0040	0.013	0.013	0.015	0.042	0.015	0.078	<0.0040	0.012	0.0049	<0.0040	<0.0040
benzo(a)anthracene	10	G	**10**	i	<0.060	<0.020	<0.020	0.044	0.033	0.042	0.055	<0.020	0.077	<0.020	<0.020	<0.020	<0.020	<0.020
benzo(a)pyrene	10	T	**1.4**	P	<0.060	<0.020	<0.020	0.053	0.034	0.039	<0.048	<0.020	0.052	<0.020	0.022	<0.020	<0.020	<0.020
benzo(b&j)fluoranthene					<0.060	<0.020	<0.020	0.098	0.11	0.15	0.074	<0.020	0.096	<0.020	0.041	<0.020	<0.020	<0.020
benzo(b)fluoranthene	10	G	**10**	i	<0.060	<0.020	<0.020	0.065	0.083	0.11	0.074	<0.020	0.068	<0.020	0.041	<0.020	<0.020	<0.020
benzo(g,h,i)perylene					<0.15	<0.050	<0.050	0.051	<0.050	<0.050	<0.12	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
benzo(k)fluoranthene	10	G	**10**	i	<0.060	<0.020	<0.020	0.029	0.032	0.034	<0.048	<0.020	0.023	<0.020	<0.020	<0.020	<0.020	<0.020
chrysene					<0.060	<0.020	<0.020	0.080	0.086	0.14	0.076	<0.020	0.091	<0.020	0.055	<0.020	<0.020	<0.020
dibenz(a,h)anthracene	10	G	**10**	i	*<0.15*	<0.050	<0.050	<0.050	<0.050	<0.050	*<0.12*	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
fluoranthene			**180**	SC	0.19	<0.020	0.023	0.15	0.089	0.095	0.52	0.12	0.34	0.035	0.083	0.028	0.031	<0.020
fluorene					<0.060	<0.020	<0.020	<0.020	<0.020	<0.020	<0.048	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
indeno(1,2,3-c,d)pyrene	10	G	**10**	i	*<0.15*	<0.050	<0.050	<0.050	<0.050	<0.050	*<0.12*	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
naphthalene	50	G	**22**	P	*<0.041*	<0.010	<0.010	0.017	0.11	0.10	0.080	*<0.043*	0.014	*<0.015*	0.016	<0.010	<0.010	<0.010
phenanthrene	50	G	**50**	i	*<0.060*	<0.020	<0.020	0.088	0.058	0.064	0.18	0.044	0.070	<0.020	0.038	0.020	<0.020	<0.020
pyrene	100	G	**100**	i	0.16	<0.020	0.023	0.14	0.076	0.083	0.37	0.095	0.23	0.030	0.054	0.022	0.024	<0.020
Total PAH																		
High Molecular Weight PAH`s					0.36	<0.050	<0.050	0.65	0.46	0.58	1.1	0.22	0.90	0.065	0.25	<0.050	0.055	<0.050
Low Molecular Weight PAH`s					<0.15	<0.050	<0.050	0.13	0.31	0.31	0.36	0.071	0.19	<0.15	0.079	<0.050	<0.050	<0.050
Total PAH					0.39	<0.050	<0.050	0.78	0.77	0.89	1.4	0.29	1.1	<0.15	0.33	0.075	0.055	<0.050
Benzo(a)pyrene Equivalency																		
benzo(a)pyrene equivalency			**5.3**		0.12	<0.10	<0.10	<0.10	<0.10	<0.10	0.11	<0.10	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
index of additive cancer risk (IACR)			**1.0**	DW	0.93	0.31	0.31	**1.2**	**1.3**	**1.6**	**1.2**	0.31	**1.3**	0.31	0.56	0.31	0.31	0.31
Non-Halogenated Volatiles																		
benzene	0.04	DW	**0.0068**	f, su, DW	-	<0.0050	-	<0.0050	-	-	-	-	-	-	<0.0050	-	-	-
ethylbenzene	7	DW	**0.018**	f, su, DW	-	<0.010	-	<0.010	-	-	-	-	-	-	<0.010	-	-	-
meta- & para-xylene					-	<0.040	-	<0.040	-	-	-	-	-	-	<0.040	-	-	-
methyl tertbutyl ether (MTBE)	700	S			-	<0.10	-	<0.10	-	-	-	-	-	-	<0.10	-	-	-
ortho-xylene					-	<0.040	-	<0.040	-	-	-	-	-	-	<0.040	-	-	-
styrene	50	G			-	<0.030	-	<0.030	-	-	-	-	-	-	<0.030	-	-	-
toluene	2.5	DW	**0.08**	f, su, DW	-	<0.020	-	<0.020	-	-	-	-	-	-	0.055	-	-	-
Total xylene	20	DW	**2.4**	f, su, DW	-	<0.040	-	<0.040	-	-	-	-	-	-	<0.040	-	-	-
F1 (C6-C10)			**170**	f, su, DW	-	<10	-	<10	-	-	-	-	-	-	<10	-	-	-
CCME Hydrocarbons (F2-F4)																		
F2 (C10-C16 Hydrocarbons)			**230**	f, su, DW	-	12		16	-	-	-	-	-	-	17	-	-	-
F3 (C16-C34 Hydrocarbons)			**1700**	c, su, SC	-	140		84	-	-	-	-	-	-	690	-	-	-
F4 (C34-C50 Hydrocarbons)			**3300**	c, su, SC	-	38		38	-	-	-	-	-	-	370	-	-	-

Notes:

Results are expressed in micrograms per gram (ug/g), unless otherwise indicated.
m bgs = metres below ground surface
SCN = sample control number
FDA = field duplicate available
FD = field duplicate
QA/QC = quality assurance/quality control
[1] Standards shown from the *Contaminated Sites Regulation* ("CSR"; BC Reg. 375/96, O.C. 1480/96 and M271/2004, including amendments up to BC Reg. 4/2014).
[2] Guidelines shown are from the Canadian Council of Ministers of the Environment (CCME) Soil Quality Guidelines (SQG) (updated 2014) for the Protection of Environmental and Human Health.
Land Use abbreviations: CL (Commercial); IL (Industrial)
MCS = most conservative standard based on applicable site-specific standards
Referenced CSR site-specific factors include: T = Toxicity to Invertebrates and Plants; DW = Drinking Water; G = Generic; S = Schedule 10; pH = standard is pH dependent
CCME MCS: su = surficial ; ss = subsurface; f/c =fine and coarse-grained soils; SC = Soil Contact; ML = Protection of Marine water life; DW = Protection of Potable Water. Where no site specific guideline existed the Interim Guidelines (i) were used.
ppm = parts per million
- = not analyzed
< = less than laboratory reporting limit
PAH = polycyclic aromatic hydrocarbon
BTEX = benzene; toluene; ethylbenzene; xylenes
B(a)P TPE = benzo(a)pyrene total potency equivalents
IACR = incremental lifetime cancer risk

10	Sample concentration exceeds CSR Standards for Commercial/Industrial Land Use
0.28	Sample concentration exceeds CCME Guidelines for Commercial/Industrial Land Use

Table 2
Results of Soil Analyses - Hydrocarbons
Foreshore Investigation, Transport Canada Parcel 44, Esquimalt, BC

Location				BH15-20	BH15-21	BH15-22	BH15-23	BH15-24	BH15-25	BH15-26	BH15-26	BH15-26	BH15-27	BH15-27	BH15-28	BH15-28	BH15-29	BH15-30	BH15-31	BH15-32
SCN				00918-07	00918-08	00923-03	00923-04	00923-05	00923-06	00923-07	00923-08	00923-09	00923-10	00923-11	00923-12	00919-01	00919-02	00919-04	00919-05	00919-06
Laboratory ID	CSR Standards for CL/IL [1]	MCS	CCME Standards for CL/IL [2]	NC4895	NC4896	ND0993	ND0994	ND0995	ND0996	ND0997	ND0998	ND0999	ND1000	ND1001	ND1002	ND1019	ND1020	ND1022	ND1023	ND1024
Depth (m bgs)				2.74-3.05	1.07-1.22	1.37-1.52	0.30-0.46	0.30-0.46	0.30-0.46	0.30-0.46	1.22-1.37	1.22-1.37	1.37-1.52	2.90-3.05	1.37-1.52	2.90-3.05	0.46-0.61	0.15-0.30	0.15-0.30	0.15-0.30
Date Sampled				09-Sep-2015	09-Sep-2015	10-Sep-2015	10-Sep-2015	10-Sep-2015	10-Sep-2015	10-Sep-2015	10-Sep-2015	10-Sep-2015	10-Sep-2015	10-Sep-2015	10-Sep-2015	10-Sep-2015	11-Sep-2015	11-Sep-2015	11-Sep-2015	11-Sep-2015
QA/QC											FDA	FD								
Field Parameters																				
Soil Vapours (ppm)				0.0	0.1	0.9	1.1	0.1	0.0	6.3	11.7	11.7	0.0	0.0	0.2	0.3	0.3	0.0	0.0	0.0
Physical Parameters																				
moisture (%)				22	13	76	31	20	24	17	23	27	35	35	13	64	59	66	29	32
Particulate Mesh 200																				
200 mesh (<.075 mm) (%)				25.0	15.2	20.6	10.5	6.10	9.56	19.4	24.9	-	29.6	28.3	23.9	-	29.1	20.6	16.4	20.2
200 mesh (>.075 mm) (%)				75.0	84.8	79.5	89.5	93.9	90.4	80.7	75.1	-	70.4	71.7	76.1	-	70.9	79.4	83.6	79.8
Polycyclic Aromatic Hydrocarbons																				
2-Methylnaphthalene				<0.020	<0.020	<0.078	0.073	0.028	0.022	0.028	0.037	0.064	0.041	0.027	<0.020	<0.056	<0.044	<0.058	<0.020	0.022
acenaphthene				<0.0050	<0.0050	0.071	0.014	0.015	0.011	0.054	0.077	0.13	0.015	0.010	<0.0050	0.099	0.018	<0.015	<0.0052	<0.0050
acenaphthylene				<0.0050	0.014	0.023	0.0054	0.0092	0.0057	0.0063	0.0064	0.011	0.022	0.019	<0.0050	<0.014	0.027	0.029	<0.0050	<0.0050
anthracene			32	<0.0040	0.024	0.072	0.020	0.024	0.015	0.027	0.044	0.074	0.024	0.046	0.0043	0.044	0.021	0.062	<0.0044	<0.0040
benzo(a)anthracene	10	G	10	<0.020	0.062	<0.078	0.023	0.022	<0.020	0.035	0.050	0.082	0.035	0.055	<0.020	0.065	<0.044	0.093	<0.020	<0.020
benzo(a)pyrene	10	T	1.4	<0.020	0.037	<0.078	<0.020	<0.020	<0.020	0.021	0.030	0.046	0.023	0.035	<0.020	<0.056	<0.044	0.091	<0.020	<0.020
benzo(b&j)fluoranthene				<0.020	0.065	<0.078	0.037	0.030	0.024	0.047	0.054	0.075	0.045	0.066	<0.020	<0.056	0.090	0.24	<0.020	<0.020
benzo(b)fluoranthene	10	G	10	<0.020	0.042	<0.078	0.026	<0.020	<0.020	0.033	0.036	0.049	0.029	0.043	<0.020	<0.056	0.067	0.16	<0.020	<0.020
benzo(g,h,i)perylene				<0.050	<0.050	<0.20	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.14	<0.11	<0.15	<0.050	<0.050
benzo(k)fluoranthene	10	G	10	<0.020	0.021	<0.078	<0.020	<0.020	<0.020	<0.020	<0.020	0.024	<0.020	0.045	<0.020	<0.056	<0.044	0.072	<0.020	<0.020
chrysene				<0.020	0.067	0.085	0.051	0.030	0.034	0.056	0.081	0.12	0.063	0.069	<0.020	0.082	0.081	0.21	0.021	<0.020
dibenz(a,h)anthracene	10	G	10	<0.050	<0.050	*<0.20*	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	*<0.14*	*<0.11*	*<0.15*	<0.050	<0.050
fluoranthene			180	<0.020	0.20	0.60	0.13	0.10	0.082	0.19	0.26	0.40	0.16	0.22	<0.033	0.21	0.24	0.58	0.068	0.037
fluorene				<0.020	<0.020	<0.078	0.030	0.025	<0.020	0.051	0.068	0.12	<0.020	<0.020	<0.020	<0.056	<0.044	<0.058	<0.020	<0.020
indeno(1,2,3-c,d)pyrene	10	G	10	<0.050	<0.050	*<0.20*	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	*<0.14*	*<0.11*	*<0.15*	<0.050	<0.050
naphthalene	50	G	22	<0.010	0.015	*<0.19*	0.060	0.063	0.028	0.042	0.051	0.090	0.071	0.040	<0.010	0.042	0.073	0.032	<0.010	0.011
phenanthrene	50	G	50	<0.020	0.085	0.19	0.076	0.095	0.062	0.20	0.28	0.52	0.15	0.13	0.023	0.22	0.12	0.12	0.021	<0.020
pyrene	100	G	100	<0.020	0.16	0.53	0.11	0.088	0.071	0.16	0.22	0.34	0.16	0.19	0.024	0.20	0.25	0.38	0.065	0.051
Total PAH																				
High Molecular Weight PAH`s				<0.050	0.62	1.2	0.35	0.27	0.21	0.51	0.69	1.1	0.49	0.68	<0.050	0.56	0.66	1.7	0.15	0.088
Low Molecular Weight PAH`s				<0.050	0.14	0.35	0.28	0.26	0.14	0.41	0.57	1.0	0.32	0.28	<0.050	0.40	0.26	0.24	<0.050	<0.050
Total PAH				<0.050	0.76	1.6	0.62	0.53	0.36	0.92	1.3	2.1	0.81	0.96	0.051	0.96	0.92	1.9	0.18	0.12
Benzo(a)pyrene Equivalency																				
benzo(a)pyrene equivalency			5.3	<0.10	<0.10	0.16	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.12	<0.10	0.21	<0.10	<0.10
index of additive cancer risk (IACR)			1.0 DW	0.31	0.98	**1.2**	0.54	0.48	0.41	0.67	0.79	**1.2**	0.67	**1.1**	0.31	**1.0**	**1.1**	**2.9**	0.31	0.31
Non-Halogenated Volatiles																				
benzene	0.04	DW	0.0068 f, su, DW	-	<0.0050	-	-	-	-	**0.010**	-	-	**0.013**	-	<0.0050	-	-	-	-	-
ethylbenzene	7	DW	0.018 f, su, DW	-	<0.010	-	-	-	-	0.014	-	-	<0.010	-	<0.010	-	-	-	-	-
meta- & para-xylene				-	<0.040	-	-	-	-	<0.040	-	-	<0.040	-	<0.040	-	-	-	-	-
methyl tertbutyl ether (MTBE)	700	S		-	<0.10	-	-	-	-	<0.10	-	-	<0.10	-	<0.10	-	-	-	-	-
ortho-xylene				-	<0.040	-	-	-	-	<0.040	-	-	<0.040	-	<0.040	-	-	-	-	-
styrene	50	G		-	<0.030	-	-	-	-	<0.030	-	-	<0.030	-	<0.030	-	-	-	-	-
toluene	2.5	DW	0.08 f, su, DW	-	<0.020	-	-	-	-	0.040	-	-	0.041	-	<0.020	-	-	-	-	-
Total xylene	20	DW	2.4 f, su, DW	-	<0.040	-	-	-	-	<0.040	-	-	<0.040	-	<0.040	-	-	-	-	-
F1 (C6-C10)			170 f, su, DW	-	<10	-	-	-	-	<10	-	-	<10	-	<10	-	-	-	-	-
CCME Hydrocarbons (F2-F4)																				
F2 (C10-C16 Hydrocarbons)			230 f, su, DW	-	13	-	-	-	-	16	-	-	18	-	<10	-	-	-	-	-
F3 (C16-C34 Hydrocarbons)			1700 c, su, SC	-	490	-	-	-	-	620	-	-	720	-	460	-	-	-	-	-
F4 (C34-C50 Hydrocarbons)			3300 c, su, SC	-	330	-	-	-	-	410	-	-	340	-	200	-	-	-	-	-

Notes:

Results are expressed in micrograms per gram (ug/g), unless otherwise indicated.
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FD = field duplicate
QA/QC = quality assurance/quality control
[1] Standards shown from the *Contaminated Sites Regulation* ("CSR"; BC Reg. 375/96, O.C. 1480/96 and M271/2004, including amendments up to BC Reg. 4/2014).
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Land Use abbreviations: CL (Commercial); IL (Industrial)
MCS = most conservative standard based on applicable site-specific standards
Referenced CSR site-specific factors include: T = Toxicity to Invertebrates and Plants; DW = Drinking Water; G = Generic; S = Schedule 10; pH = standard is pH dependent
CCME MCS: su = surficial ; ss = subsurface; f/c =fine and coarse-grained soils; SC = Soil Contact; ML = Protection of Marine water life; DW = Protection of Potable Water. Where no site specific guideline existed the Interim Guidelines (i) were used.
ppm = parts per million
- = not analyzed
< = less than laboratory reporting limit
PAH = polycyclic aromatic hydrocarbon
BTEX = benzene; toluene; ethylbenzene; xylenes
B(a)P TPE = benzo(a)pyrene total potency equivalents
IACR = incremental lifetime cancer risk

10	Sample concentration exceeds CSR Standards for Commercial/Industrial Land Use
0.28	Sample concentration exceeds CCME Guidelines for Commercial/Industrial Land Use

Table 2
Results of Soil Analyses - Hydrocarbons
Foreshore Investigation, Transport Canada Parcel 44, Esquimalt, BC

Location					BH15-33	BH15-33	BH15-34	BH15-34	BH15-34	BH15-35	BH15-36	BH15-37	BH15-38	BH15-38	BH15-39	BH15-40	BH15-40	BH15-40
SCN					00919-07	00919-08	00921-01	00921-02	00921-03	00921-05	00921-08	00921-09	00771-01	00771-02	00771-03	00771-04	00771-05	00771-06
Laboratory ID	CSR Standards for CL/IL [1]	MCS	CCME Standards for CL/IL [2]	MCS	ND1025	ND1026	ND6016	ND6017	ND6018	ND6020	ND6023	ND6024	ND6053	ND6054	ND6055	ND6056	ND6057	ND6058
Depth (m bgs)					1.37-1.52	2.74-2.90	0.91-1.07	0.91-1.07	2.44-2.59	1.22-1.37	1.83-1.98	1.37-1.52	1.07-1.22	2.13-2.29	0.91-1.22	0.91-1.22	0.91-1.22	2.13-2.44
Date Sampled					11-Sep-2015	11-Sep-2015	14-Sep-2015	14-Sep-2015	14-Sep-2015	14-Sep-2015	14-Sep-2015	14-Sep-2015	15-Sep-2015	15-Sep-2015	15-Sep-2015	15-Sep-2015	15-Sep-2015	15-Sep-2015
QA/QC							FDA	FD								FDA	FD	
Field Parameters																		
Soil Vapours (ppm)					0.3	0.0	1.7	1.7	0.0	1.1	0.0	0.4	0.5	0.2	0.2	0.1	0.1	0.3
Physical Parameters																		
moisture (%)					37	24	13	16	34	33	32	12	26	35	12	20	23	32
Particulate Mesh 200																		
200 mesh (<.075 mm) (%)					19.9	-	18.2	-	-	-	-	-	-	-	-	-	-	-
200 mesh (>.075 mm) (%)					80.2	-	81.8	-	-	-	-	-	-	-	-	-	-	-
Polycyclic Aromatic Hydrocarbons																		
2-Methylnaphthalene					0.039	<0.020	0.36	-	0.045	0.025	0.021	<0.020	<0.020	0.061	<0.020	<0.020	<0.020	0.037
acenaphthene					0.0068	<0.0050	0.069	-	0.030	0.019	0.0072	<0.0050	<0.0050	<0.086	<0.0050	<0.0050	0.0085	0.011
acenaphthylene					0.013	<0.0050	<0.0050	-	<0.0050	0.0092	<0.0050	<0.0050	<0.0050	<0.0060	<0.0050	0.013	0.010	0.019
anthracene			**32**	SC	0.010	<0.0040	0.099	-	0.013	0.020	0.013	<0.0040	<0.0040	<0.0040	<0.0040	0.020	0.021	0.020
benzo(a)anthracene	10	G	**10**	i	<0.020	<0.020	0.11	-	<0.020	0.023	<0.020	<0.020	<0.020	<0.020	<0.020	0.026	0.025	0.026
benzo(a)pyrene	10	T	**1.4**	P	<0.020	<0.020	0.057	-	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
benzo(b&j)fluoranthene					<0.020	<0.020	0.12	-	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.023	<0.020	0.021
benzo(b)fluoranthene	10	G	**10**	i	<0.020	<0.020	0.076	-	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.023	<0.020	0.021
benzo(g,h,i)perylene					<0.050	<0.050	<0.050	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
benzo(k)fluoranthene	10	G	**10**	i	<0.020	<0.020	0.038	-	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
chrysene					<0.020	<0.020	0.15	-	<0.020	0.032	0.033	<0.020	<0.020	<0.020	<0.020	0.043	0.039	0.039
dibenz(a,h)anthracene	10	G	**10**	i	<0.050	<0.050	<0.050	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
fluoranthene			**180**	SC	0.061	<0.020	0.63	-	0.041	0.12	0.064	<0.020	0.025	0.047	0.032	0.10	0.11	0.12
fluorene					<0.020	<0.020	0.070	-	0.030	0.024	<0.020	<0.020	<0.020	0.064	<0.020	<0.020	<0.020	<0.020
indeno(1,2,3-c,d)pyrene	10	G	**10**	i	<0.050	<0.050	<0.050	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
naphthalene	50	G	**22**	P	0.14	0.013	0.21	-	0.047	0.023	0.026	<0.010	<0.010	*<0.017*	<0.010	0.029	0.037	0.060
phenanthrene	50	G	**50**	i	0.088	0.021	0.51	-	0.076	0.12	0.071	<0.020	<0.020	0.11	0.030	0.086	0.12	0.10
pyrene	100	G	**100**	i	0.069	<0.020	0.49	-	0.033	0.13	0.056	<0.020	0.033	0.067	0.029	0.10	0.11	0.13
Total PAH																		
High Molecular Weight PAH`s					0.13	<0.050	1.6	-	0.074	0.30	0.15	<0.050	0.058	0.11	0.062	0.30	0.28	0.34
Low Molecular Weight PAH`s					0.30	<0.050	1.3	-	0.24	0.24	0.14	<0.050	<0.050	0.24	<0.050	0.15	0.19	0.25
Total PAH					0.43	<0.050	2.9	-	0.31	0.54	0.29	<0.050	0.058	0.35	0.091	0.44	0.47	0.59
Benzo(a)pyrene Equivalency																		
benzo(a)pyrene equivalency			**5.3**		<0.10	<0.10	0.11	-	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
index of additive cancer risk (IACR)			**1.0**	DW	0.31	0.31	**1.7**	-	0.31	0.36	0.32	0.31	0.31	0.31	0.31	0.46	0.37	0.44
Non-Halogenated Volatiles																		
benzene	0.04	DW	**0.0068**	f, su, DW	**0.021**	-	**0.41**	**0.70**	-	-	-	-	-	-	-	-	-	-
ethylbenzene	7	DW	**0.018**	f, su, DW	**0.026**	-	**0.066**	**0.12**	-	-	-	-	-	-	-	-	-	-
meta- & para-xylene					<0.040	-	0.11	0.22	-	-	-	-	-	-	-	-	-	-
methyl tertbutyl ether (MTBE)	700	S			<0.10	-	<0.10	<0.10	-	-	-	-	-	-	-	-	-	-
ortho-xylene					<0.040	-	<0.040	0.091	-	-	-	-	-	-	-	-	-	-
styrene	50	G			<0.030	-	<0.030	<0.030	-	-	-	-	-	-	-	-	-	-
toluene	2.5	DW	**0.08**	f, su, DW	0.061	-	**0.23**	**0.47**	-	-	-	-	-	-	-	-	-	-
Total xylene	20	DW	**2.4**	f, su, DW	<0.040	-	0.11	0.31	-	-	-	-	-	-	-	-	-	-
F1 (C6-C10)			**170**	f, su, DW	<10	-	<10	<10	-	-	-	-	-	-	-	-	-	-
CCME Hydrocarbons (F2-F4)																		
F2 (C10-C16 Hydrocarbons)			**230**	f, su, DW	13	-	43	88	-	-	-	-	-	-	-	-	-	-
F3 (C16-C34 Hydrocarbons)			**1700**	c, su, SC	240	-	570	680	-	-	-	-	-	-	-	-	-	-
F4 (C34-C50 Hydrocarbons)			**3300**	c, su, SC	84	-	130	170	-	-	-	-	-	-	-	-	-	-

Notes:

Results are expressed in micrograms per gram (ug/g), unless otherwise indicated.
m bgs = metres below ground surface
SCN = sample control number
FDA = field duplicate available
FD = field duplicate
QA/QC = quality assurance/quality control
[1] Standards shown from the *Contaminated Sites Regulation* ("CSR"; BC Reg. 375/96, O.C. 1480/96 and M271/2004, including amendments up to BC Reg. 4/2014).
[2] Guidelines shown are from the Canadian Council of Ministers of the Environment (CCME) Soil Quality Guidelines (SQG) (updated 2014) for the Protection of Environmental and Human Health.
Land Use abbreviations: CL (Commercial); IL (Industrial)
MCS = most conservative standard based on applicable site-specific standards
Referenced CSR site-specific factors include: T = Toxicity to Invertebrates and Plants; DW = Drinking Water; G = Generic; S = Schedule 10; pH = standard is pH dependent
CCME MCS: su = surficial ; ss = subsurface; f/c =fine and coarse-grained soils; SC = Soil Contact; ML = Protection of Marine water life; DW = Protection of Potable Water. Where no site specific guideline existed the Interim Guidelines (i) were used.
ppm = parts per million
- = not analyzed
< = less than laboratory reporting limit
PAH = polycyclic aromatic hydrocarbon
BTEX = benzene; toluene; ethylbenzene; xylenes
B(a)P TPE = benzo(a)pyrene total potency equivalents
IACR = incremental lifetime cancer risk

10	Sample concentration exceeds CSR Standards for Commercial/Industrial Land Use
0.28	Sample concentration exceeds CCME Guidelines for Commercial/Industrial Land Use

Table 3
Results of Soil Analyses - Metals
Foreshore Investigation, Transport Canada Parcel 44, Esquimalt, BC

Location					BH15-12	BH15-13	BH15-13	BH15-14	BH15-14	BH15-14	BH15-15	BH15-16	BH15-17	BH15-18	BH15-19
SCN					00922-02	00922-04	00922-05	00922-06	00922-07	00922-08	00922-09	00922-12	00922-11	00918-01	00918-03
Laboratory ID	CSR Standards for CL/IL [1]	MCS	CCME Standards for CL/IL [2]	MCS	NC4920	NC4922	NC4923	NC4924	NC4925	NC4926	NC4927	NC4930	NC4929	NC4889	NC4891
Depth (m bgs)					1.37 - 1.52	0.91 - 1.07	2.13 - 2.29	1.37-1.52	1.68-1.83	1.68-1.83	0.46-0.61	0.30-0.61	0.30-0.46	0.46-0.61	0.91-1.22
Date Sampled					08-Sep-2015	08-Sep-2015	08-Sep-2015	08-Sep-2015	08-Sep-2015 FDA	08-Sep-2015 FD	09-Sep-2015	09-Sep-2015	09-Sep-2015	09-Sep-2015	09-Sep-2015
QA/QC															
Physical Parameters															
pH (pH units)			**6-8**		6.59	7.97	7.46	7.49	7.57	7.55	7.10	7.47	7.88	7.38	6.91
Total Metals															
aluminum					9630	22700	22600	18100	15900	15800	4490	12900	12600	22000	11700
antimony	40	G	**40**		0.81	0.32	0.29	0.31	0.51	0.54	16.4	0.40	1.05	0.41	1.33
arsenic	15	DW	**12**	I	7.48	5.47	4.71	3.89	5.02	5.21	86.0	4.10	5.40	7.20	7.29
barium	400	DW	**2000**	i	19.6	85.8	95.2	104	143	136	40.0	20.9	40.4	51.8	53.4
beryllium	8	G	**8**	I	<0.40	0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
bismuth					<0.10	<0.10	0.10	<0.10	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
cadmium	1.5 - 100	DW/I/pH	**20**	i	0.511	0.101	0.236	0.209	0.561	0.572	0.203	0.254	0.182	0.114	0.289
calcium					5970	7510	6050	9920	30700	29300	12900	7720	31500	6210	17700
chromium	60 [VI] / 65 [III]	MW/V	**87**	SC	24.2	50.8	46.7	35.2	36.0	30.7	**137**	29.7	30.4	47.2	46.6
cobalt	300	G	**300**		7.63	17.4	14.2	12.2	11.8	11.2	30.0	9.40	9.48	16.3	7.41
copper	90 - 250	MW/T/pH	**91**	SC	37.3	57.5	47.7	61.5	51.8	52.6	**872**	35.9	54.0	55.8	70.5
iron					23500	37000	32700	26300	28300	27800	201000	22100	28600	38400	38800
lead	100 - 700	DW/I/pH	**260**	I	21.0	11.2	22.7	18.1	83.0	159	25.8	11.1	35.5	10.6	24.3
lithium	20,000	S			8.9	15.5	12.8	8.8	7.9	7.7	<5.0	12.8	10.7	20.2	7.0
magnesium					7190	9190	7650	7620	6610	6270	4800	8020	9160	10100	5350
manganese	19,000	S			310	718	591	900	867	831	891	373	345	403	376
mercury (inorganic)	40	I	**10**	i	1.25	0.069	0.066	0.061	0.125	0.131	0.116	0.132	0.067	0.104	0.100
molybdenum	40	G	**40**		15.8	0.39	0.48	0.54	0.57	0.62	**66.3**	5.46	2.03	2.32	12.6
nickel	500	G	**50**		20.4	40.4	34.1	28.6	26.3	25.0	**299**	22.1	23.0	39.7	22.5
phosphorus					435	654	860	1400	3640	3210	889	480	742	768	1320
potassium					1040	1020	910	710	886	893	712	1130	802	2050	922
selenium	10	G	**2.9**	SC	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
silver	40	G	**40**		0.074	0.080	0.054	0.053	0.130	0.107	0.595	0.065	0.060	0.072	0.099
sodium					8020	633	506	376	424	409	7610	5530	5770	3070	283
strontium (stable)	100,000	S			59.6	54.2	50.7	59.7	188	172	164	56.5	261	45.4	105
thallium			**1**	P	0.095	0.068	0.070	<0.050	0.087	0.116	0.055	0.088	0.051	0.066	0.108
tin	300	G	**300**		4.25	1.05	1.72	4.29	43.3	42.3	108	1.90	5.79	0.97	3.68
titanium					703	1210	1180	1200	776	802	368	1160	1150	1400	894
uranium	200	S	**33**	SC	4.45	0.378	0.405	0.326	0.402	0.483	3.90	1.90	0.408	0.996	3.38
vanadium			**130**	SC	44.8	91.2	83.7	68.7	65.0	59.7	28.4	59.9	56.6	92.7	60.0
zinc	150 - 600	DW/T/pH	**360**	SC	83.0	71.2	81.3	87.0	228	239	156	66.4	105	72.1	92.6
zirconium					4.17	5.52	3.17	2.96	1.66	1.68	2.11	5.10	4.48	6.40	3.75

Notes:

Results are expressed in micrograms per gram (ug/g), unless otherwise indicated.

m bgs = metres below ground surface

SCN = sample control number

FDA = field duplicate available

FD = field duplicate

QA/QC = quality assurance/quality control

[1] Standards shown from the *Contaminated Sites Regulation* ("CSR"; BC Reg. 375/96, O.C. 1480/96 and M271/2004, including amendments up to BC Reg. 4/2014).

[2] Guidelines shown are from the Canadian Council of Ministers of the Environment (CCME) Soil Quality Guidelines (SQG) (updated 2014) for the Protection of Environmental and Human Health.

Land Use abbreviations: CL (Commercial); IL (Industrial)

MCS = most conservative standard based on applicable site-specific standards

Referenced CSR site-specific factors include: I = Intake of Contaminated Soil; T = Toxicity to Invertebrates and Plants; DW = Drinking Water; MW = Marine Water; G = Generic; S = Schedule 10; pH = standard is pH dependent

V = Standard is valence dependent: III - trivalent chromium (Cr3+); VI - hexa-valent chromium (Cr6+)

CCME MCS: I = Intake Soil and Food Ingestion; SC = Soil Contact; P = Provisional

- = not analyzed

< = less than laboratory reporting limit

6-8 — Sample concentration exceeds CSR Standards for Commercial/Industrial Land Use

40 — Sample concentration exceeds CCME Guidelines for Commercial/Industrial Land Use

Table 3
Results of Soil Analyses - Metals
Foreshore Investigation, Transport Canada Parcel 44, Esquimalt, BC

Location					BH15-19	BH15-19	BH15-20	BH15-20	BH15-21	BH15-22	BH15-23	BH15-24	BH15-25	BH15-26	BH15-26
SCN					00918-04	00918-05	00918-06	00918-07	00918-08	00923-03	00923-04	00923-05	00923-06	00923-07	00923-08
Laboratory ID	CSR Standards for CL/IL [1]	MCS	CCME Standards for CL/IL [2]	MCS	NC4892	NC4893	NC4894	NC4895	NC4896	ND0993	ND0994	ND0995	ND0996	ND0997	ND0998
Depth (m bgs)					2.59-2.74	2.59-2.74	0.91-1.07	2.74-3.05	1.07-1.22	1.37-1.52	0.30-0.46	0.30-0.46	0.30-0.46	0.30-0.46	1.22-1.37
Date Sampled					09-Sep-2015	09-Sep-2015	09-Sep-2015	09-Sep-2015	09-Sep-2015	10-Sep-2015	10-Sep-2015	10-Sep-2015	10-Sep-2015	10-Sep-2015	10-Sep-2015
QA/QC					FDA	FD									FDA
Physical Parameters															
pH (pH units)			**6-8**		6.64	6.91	7.86	7.99	6.58	6.94	7.63	**8.21**	**8.12**	6.98	**8.02**
Total Metals															
aluminum					17800	16200	11400	12300	16800	6500	15800	15000	13300	19200	20400
antimony	40	G	**40**		2.40	1.57	0.15	0.14	0.44	0.37	1.61	1.08	0.62	1.02	0.65
arsenic	15	DW	**12**	I	10.9	**18.6**	3.26	3.12	5.42	6.64	**25.2**	6.92	7.99	6.91	5.23
barium	400	DW	**2000**	i	90.4	105	126	132	70.8	20.4	71.9	28.3	46.7	73.4	67.9
beryllium	8	G	**8**	I	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
bismuth					<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
cadmium	1.5 - 100	DW/I/pH	**20**	i	0.275	0.318	0.550	0.534	0.198	0.720	0.224	0.149	0.204	0.269	0.178
calcium					13800	12800	94100	110000	11200	6580	9270	12500	9650	14300	25100
chromium	60 [VI] / 65 [III]	MW/V	**87**	SC	48.4	42.7	18.8	19.3	37.0	18.6	50.9	33.4	37.6	80.3	60.4
cobalt	300	G	**300**		14.8	14.5	7.23	7.81	13.9	3.98	13.6	12.4	9.54	15.5	15.7
copper	90 - 250	MW/T/pH	**91**	SC	66.9	67.4	36.7	36.3	**91.0**	38.7	**113**	75.1	43.0	77.2	64.7
iron					45300	73100	16300	18000	25900	17200	50000	31400	32100	31400	31800
lead	100 - 700	DW/I/pH	**260**	I	23.8	34.0	27.5	24.8	28.1	34.1	57.9	33.8	52.4	34.1	19.0
lithium	20,000	S			8.1	9.8	5.8	6.7	8.8	7.2	16.6	17.8	18.3	10.0	8.6
magnesium					10400	9760	4230	4760	8290	4820	11700	10400	7520	11000	12400
manganese	19,000	S			893	1660	527	542	832	422	674	391	277	673	595
mercury (inorganic)	40	I	**10**	i	0.104	0.302	0.080	0.108	0.107	5.42	0.103	0.103	0.102	0.110	0.083
molybdenum	40	G	**40**		2.82	2.36	0.29	0.28	1.10	11.4	3.77	2.04	2.69	1.28	0.69
nickel	500	G	**50**		36.0	35.9	16.0	16.1	26.4	13.4	33.0	29.6	25.2	35.9	31.3
phosphorus					1180	2980	6560	6720	729	639	618	701	914	736	612
potassium					738	950	690	761	691	971	1040	827	775	871	831
selenium	10	G	**2.9**	SC	<0.50	<0.50	<0.50	<0.50	<0.50	0.52	<0.50	<0.50	<0.50	<0.50	<0.50
silver	40	G	**40**		0.062	0.065	0.093	0.102	0.076	0.092	0.568	<0.050	0.054	0.168	0.068
sodium					911	2670	702	861	276	7900	5540	3800	4240	1540	2030
strontium (stable)	100,000	S			81.4	105	482	556	52.5	61.0	68.3	71.2	85.5	59.4	74.3
thallium			**1**	P	0.052	0.052	<0.050	<0.050	0.054	0.083	<0.050	<0.050	<0.050	<0.050	<0.050
tin	300	G	**300**		3.47	2.11	1.79	1.96	2.87	5.54	14.1	8.91	14.2	3.11	2.01
titanium					1110	860	404	502	1190	416	1310	1360	1100	1340	1670
uranium	200	S	**33**	SC	0.549	0.485	0.345	0.367	0.394	3.33	0.637	0.535	0.608	0.324	0.320
vanadium			**130**	SC	71.8	68.8	32.9	38.9	69.2	32.8	68.8	68.2	57.7	78.8	83.3
zinc	150 - 600	DW/T/pH	**360**	SC	177	150	105	108	82.3	126	174	144	107	119	83.5
zirconium					2.80	1.55	0.83	0.75	3.64	2.83	5.76	6.65	3.98	5.48	7.33

Notes:

Results are expressed in micrograms per gram (ug/g), unless otherwise indicated.
m bgs = metres below ground surface
SCN = sample control number
FDA = field duplicate available
FD = field duplicate
QA/QC = quality assurance/quality control
[1] Standards shown from the *Contaminated Sites Regulation* ("CSR"; BC Reg. 375/96, O.C. 1480/96 and M271/2004, including amendments up to BC Reg. 4/2014).
[2] Guidelines shown are from the Canadian Council of Ministers of the Environment (CCME) Soil Quality Guidelines (SQG) (updated 2014) for the Protection of Environmental and Human Health.
Land Use abbreviations: CL (Commercial); IL (Industrial)
MCS = most conservative standard based on applicable site-specific standards
Referenced CSR site-specific factors include: I = Intake of Contaminated Soil; T = Toxicity to Invertebrates and Plants; DW = Drinking Water; MW = Marine Water; G = Generic; S = Schedule 10; pH = standard is pH dependent
V = Standard is valence dependent: III - trivalent chromium (Cr3+); VI - hexa-valent chromium (Cr6+)
CCME MCS: I = Intake Soil and Food Ingestion; SC = Soil Contact; P = Provisional
- = not analyzed
< = less than laboratory reporting limit

6-8 — Sample concentration exceeds CSR Standards for Commercial/Industrial Land Use

40 — Sample concentration exceeds CCME Guidelines for Commercial/Industrial Land Use

Table 3
Results of Soil Analyses - Metals
Foreshore Investigation, Transport Canada Parcel 44, Esquimalt, BC

Location					BH15-26	BH15-27	BH15-27	BH15-28	BH15-28	BH15-29	BH15-30	BH15-31	BH15-32	BH15-33	BH15-33
SCN					00923-09	00923-10	00923-11	00923-12	00919-01	00919-02	00919-04	00919-05	00919-06	00919-07	00919-08
Laboratory ID	CSR Standards for CL/IL [1]	MCS	CCME Standards for CL/IL [2]	MCS	ND0999	ND1000	ND1001	ND1002	ND1019	ND1020	ND1022	ND1023	ND1024	ND1025	ND1026
Depth (m bgs)					1.22-1.37	1.37-1.52	2.90-3.05	1.37-1.52	2.90-3.05	0.46-0.61	0.15-0.30	0.15-0.30	0.15-0.30	1.37-1.52	2.74-2.90
Date Sampled					10-Sep-2015	10-Sep-2015	10-Sep-2015	10-Sep-2015	10-Sep-2015	11-Sep-2015	11-Sep-2015	11-Sep-2015	11-Sep-2015	11-Sep-2015	11-Sep-2015
QA/QC					FD										
Physical Parameters															
pH (pH units)			6-8		7.43	7.09	7.19	6.22	6.40	6.56	7.71	7.93	6.99	7.72	7.27
Total Metals															
aluminum					17800	17600	17900	17400	12400	7740	8990	11600	19000	15900	25600
antimony	40	G	40		0.99	1.18	1.20	5.35	1.59	1.96	0.67	1.18	0.45	3.30	0.33
arsenic	15	DW	12	I	5.94	5.50	5.19	4.95	6.02	13.9	12.6	5.30	4.20	6.96	5.31
barium	400	DW	2000	i	67.3	126	125	104	63.5	21.8	32.2	19.5	45.6	171	118
beryllium	8	G	8	I	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	0.47
bismuth					<0.10	0.10	0.10	0.11	<0.10	<0.10	<0.10	<0.10	<0.10	0.13	0.11
cadmium	1.5 - 100	DW/I/pH	20	i	0.249	0.476	0.521	0.670	0.474	0.377	1.04	0.160	0.136	0.740	0.129
calcium					15300	14000	17000	13600	15500	8680	95900	24700	5880	28900	6710
chromium	60 [VI] / 65 [III]	MW/V	87	SC	64.6	40.1	39.6	**87.0**	40.8	**1100**	29.7	35.7	30.2	34.1	43.2
cobalt	300	G	300		14.2	11.8	12.1	13.5	9.03	12.7	7.04	10.9	12.6	11.5	14.2
copper	90 - 250	MW/T/pH	91	SC	67.9	78.8	77.8	**168**	**169**	**93.1**	64.7	46.3	60.0	**92.1**	40.1
iron					31300	26800	27700	34900	34700	130000	18800	50400	27500	29700	33200
lead	100 - 700	DW/I/pH	260	I	30.3	63.3	69.8	129	123	143	39.2	18.9	62.8	60.8	40.5
lithium	20,000	S			9.0	10.8	11.4	9.2	10.1	9.1	9.9	11.7	21.9	9.6	15.4
magnesium					10100	7440	7520	8090	5410	7600	8760	9850	9250	7970	7300
manganese	19,000	S			583	680	686	765	582	884	231	479	498	694	478
mercury (inorganic)	40	I	10	i	0.094	1.50	1.70	0.491	0.944	0.214	0.176	<0.050	0.075	0.205	0.104
molybdenum	40	G	40		0.96	1.58	1.67	5.59	3.00	**193**	3.68	2.34	1.31	2.29	0.39
nickel	500	G	50		31.4	29.6	30.2	45.2	27.0	**101**	18.5	26.6	25.3	26.5	32.7
phosphorus					714	1280	1260	1100	1220	767	1700	548	680	1760	725
potassium					872	1010	919	726	709	1130	1920	775	1110	960	960
selenium	10	G	2.9	SC	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	1.58	<0.50	<0.50	<0.50	<0.50
silver	40	G	40		0.094	0.091	0.104	2.42	0.152	0.058	0.096	<0.050	<0.050	0.131	0.060
sodium					1920	468	399	371	622	12200	21500	5190	6310	996	416
strontium (stable)	100,000	S			58.0	75.7	88.1	59.5	81.5	76.9	668	182	45.6	167	51.8
thallium			1	P	<0.050	<0.050	0.054	<0.050	<0.050	<0.050	0.099	<0.050	<0.050	0.079	0.059
tin	300	G	300		2.67	4.74	5.61	19.5	9.63	39.8	6.74	5.15	82.1	11.7	6.86
titanium					1430	931	1040	1190	839	551	450	1060	1300	1070	1180
uranium	200	S	33	SC	0.304	0.480	0.529	0.397	0.498	1.68	2.54	0.401	0.466	0.840	0.437
vanadium			130	SC	74.0	61.9	62.4	66.9	43.5	86.1	39.5	54.6	71.9	61.8	84.9
zinc	150 - 600	DW/T/pH	360	SC	108	173	164	281	188	**1130**	106	65.2	72.6	267	77.3
zirconium					5.90	2.69	2.79	4.35	3.24	2.96	2.58	5.08	4.97	4.36	3.61

Notes:

Results are expressed in micrograms per gram (ug/g), unless otherwise indicated.

m bgs = metres below ground surface

SCN = sample control number

FDA = field duplicate available

FD = field duplicate

QA/QC = quality assurance/quality control

[1] Standards shown from the *Contaminated Sites Regulation* ("CSR"; BC Reg. 375/96, O.C. 1480/96 and M271/2004, including amendments up to BC Reg. 4/2014).

[2] Guidelines shown are from the Canadian Council of Ministers of the Environment (CCME) Soil Quality Guidelines (SQG) (updated 2014) for the Protection of Environmental and Human Health.

Land Use abbreviations: CL (Commercial); IL (Industrial)

MCS = most conservative standard based on applicable site-specific standards

Referenced CSR site-specific factors include: I = Intake of Contaminated Soil; T = Toxicity to Invertebrates and Plants; DW = Drinking Water; MW = Marine Water; G = Generic; S = Schedule 10; pH = standard is pH dependent

V = Standard is valence dependent: III - trivalent chromium (Cr3+); VI - hexa-valent chromium (Cr6+)

CCME MCS: I = Intake Soil and Food Ingestion; SC = Soil Contact; P = Provisional

- = not analyzed

< = less than laboratory reporting limit

6-8	Sample concentration exceeds CSR Standards for Commercial/Industrial Land Use
40	Sample concentration exceeds CCME Guidelines for Commercial/Industrial Land Use

Table 3
Results of Soil Analyses - Metals
Foreshore Investigation, Transport Canada Parcel 44, Esquimalt, BC

Location					BH15-34	BH15-34	BH15-34	BH15-35	BH15-36	BH15-37	BH15-38	BH15-38	BH15-39	BH15-40	BH15-40	BH15-40
SCN					00921-01	00921-02	00921-03	00921-05	00921-08	00921-09	00771-01	00771-02	00771-03	00771-04	00771-05	00771-06
Laboratory ID	CSR Standards for CL/IL [1]	MCS	CCME Standards for CL/IL [2]	MCS	ND6016	ND6017	ND6018	ND6020	ND6023	ND6024	ND6053	ND6054	ND6055	ND6056	ND6057	ND6058
Depth (m bgs)					0.91-1.07	0.91-1.07	2.44-2.59	1.22-1.37	1.83-1.98	1.37-1.52	1.07-1.22	2.13-2.29	0.91-1.22	0.91-1.22	0.91-1.22	2.13-2.44
Date Sampled					14-Sep-2015	14-Sep-2015	14-Sep-2015	14-Sep-2015	14-Sep-2015	14-Sep-2015	14-Sep-2015	15-Sep-2015	15-Sep-2015	15-Sep-2015 FDA	15-Sep-2015 FD	15-Sep-2015
QA/QC																
Physical Parameters																
pH (pH units)			6-8		7.54	-	7.75	**5.26**	6.66	6.46	7.77	7.47	7.53	7.51	7.42	6.88
Total Metals																
aluminum					16800	-	20900	19100	16500	22300	22600	21800	21700	18700	19200	16500
antimony	40	G	**40**		2.67	-	2.20	0.29	3.46	0.49	0.74	0.48	0.51	0.91	0.88	0.74
arsenic	15	DW	**12**	I	8.15	-	7.71	2.22	10.8	6.94	5.63	7.93	5.97	5.99	5.61	6.62
barium	400	DW	**2000**	i	135	-	144	49.1	214	89.2	104	78.6	78.9	116	116	84.7
beryllium	8	G	**8**	I	<0.40	-	<0.40	<0.40	<0.40	0.44	0.43	0.41	<0.40	<0.40	<0.40	<0.40
bismuth					0.13	-	0.16	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
cadmium	1.5 - 100	DW/I/pH	**20**	i	0.667	-	0.493	0.113	0.681	0.117	0.174	0.163	0.252	0.401	0.407	0.375
calcium					24100	-	31600	9300	12200	7580	10400	6680	8540	10600	11000	8320
chromium	60 [VI] / 65 [III]	MW/V	**87**	SC	43.5	-	41.5	34.0	78.1	48.7	49.0	46.7	43.1	38.3	35.6	32.2
cobalt	300	G	**300**		12.7	-	13.4	13.3	13.6	16.3	15.2	15.9	15.6	12.7	12.5	10.3
copper	90 - 250	MW/T/pH	**91**	SC	**149**	-	**107**	63.7	**234**	53.0	57.3	53.5	77.3	62.1	61.7	49.2
iron					48500	-	31700	25400	52500	34800	32000	33100	31800	27600	26900	21900
lead	100 - 700	DW/I/pH	**260**	I	67.9	-	**308**	13.0	161	31.3	77.0	51.5	25.8	63.1	66.5	68.9
lithium	20,000	S			9.0	-	14.2	7.5	10.6	17.6	16.6	19.4	16.1	12.5	11.6	10.1
magnesium					7030	-	7530	11900	9210	8970	9140	9180	9380	7080	7210	6200
manganese	19,000	S			841	-	708	494	847	865	591	438	660	628	621	418
mercury (inorganic)	40	I	**10**	i	0.096	-	6.67	0.066	0.172	0.077	0.120	0.093	0.127	0.908	0.694	0.429
molybdenum	40	G	**40**		2.04	-	1.25	0.36	4.61	0.76	0.44	1.04	0.72	0.85	0.80	0.98
nickel	500	G	**50**		36.0	-	33.1	28.8	46.4	39.7	36.8	39.8	35.9	31.1	29.8	24.0
phosphorus					1540	-	3080	500	1100	810	904	780	757	1170	1330	914
potassium					1250	-	1950	543	1080	1330	1110	1920	1030	1030	939	835
selenium	10	G	**2.9**	SC	<0.50	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
silver	40	G	**40**		0.164	-	0.294	0.181	1.44	0.071	0.113	0.082	0.151	0.085	0.098	0.098
sodium					1850	-	1160	1480	2960	324	674	1170	352	286	262	349
strontium (stable)	100,000	S			122	-	180	30.8	76.9	48.7	65.8	48.8	51.5	61.8	63.8	48.5
thallium			**1**	P	<0.050	-	0.070	<0.050	<0.050	0.054	0.054	0.054	0.052	0.051	<0.050	<0.050
tin	300	G	**300**		6.85	-	6.62	2.20	8.31	0.98	4.98	2.80	0.91	4.12	4.00	3.47
titanium					1030	-	929	1480	1150	1240	1210	1200	1140	904	996	1010
uranium	200	S	**33**	SC	0.423	-	0.830	0.180	0.650	0.388	0.387	0.492	0.367	0.395	0.383	0.336
vanadium			**130**	SC	61.1	-	72.7	71.8	66.8	92.0	84.3	84.6	84.1	66.2	68.1	58.7
zinc	150 - 600	DW/T/pH	**360**	SC	**542**	-	202	51.7	231	80.2	103	85.0	99.5	157	165	119
zirconium					2.94	-	3.74	7.71	3.13	4.28	5.27	5.27	3.80	2.66	2.73	3.34

Notes:

Results are expressed in micrograms per gram (ug/g), unless otherwise indicated.

m bgs = metres below ground surface

SCN = sample control number

FDA = field duplicate available

FD = field duplicate

QA/QC = quality assurance/quality control

[1] Standards shown from the *Contaminated Sites Regulation* ("CSR"; BC Reg. 375/96, O.C. 1480/96 and M271/2004, including amendments up to BC Reg. 4/2014).

[2] Guidelines shown are from the Canadian Council of Ministers of the Environment (CCME) Soil Quality Guidelines (SQG) (updated 2014) for the Protection of Environmental and Human Health.

Land Use abbreviations: CL (Commercial); IL (Industrial)

MCS = most conservative standard based on applicable site-specific standards

Referenced CSR site-specific factors include: I = Intake of Contaminated Soil; T = Toxicity to Invertebrates and Plants; DW = Drinking Water; MW = Marine Water; G = Generic; S = Schedule 10; pH = standard is pH dependent

V = Standard is valence dependent: III - trivalent chromium (Cr3+); VI - hexa-valent chromium (Cr6+)

CCME MCS: I = Intake Soil and Food Ingestion; SC = Soil Contact; P = Provisional

- = not analyzed

< = less than laboratory reporting limit

6-8	Sample concentration exceeds CSR Standards for Commercial/Industrial Land Use
40	Sample concentration exceeds CCME Guidelines for Commercial/Industrial Land Use

Table 4
Results of Quality Control Analyses
Foreshore Investigation, Transport Canada Parcel 44, Esquimalt, BC

	Location	BH15-14	BH15-14	Method Reporting Limit	Mean	Relative Percent Difference	Difference Factor (DF)	BH15-19	BH15-19
	SCN	00922-07	00922-08					00918-04	00918-05
	Laboratory ID	NC4925	NC4926					NC4892	NC4893
	Depth (m bgs)	1.68-1.83	1.68-1.83					2.59-2.74	2.59-2.74
	Date Sampled	08-Sep-2015	08-Sep-2015					09-Sep-2015	09-Sep-2015
	QA/QC	FDA	FD					FDA	FD
Physical Parameters									
moisture (%)		15	14	0.30	14.5	6.90%	NA	35	45
pH		7.57	7.55	-	7.56	NA	NA	6.64	6.91
Particulate Mesh 200									
200 mesh (<.075 mm) (%)		-	-	0.10	NA	NA	NA	-	-
200 mesh (>.075 mm) (%)		-	-	0.10	NA	NA	NA	-	-
Total Metals									
aluminum		15900	15800	100	15850	0.63%	NA	17800	16200
antimony		0.51	0.54	0.10	0.525	5.71%	NA	2.40	1.57
arsenic		5.02	5.21	0.50	5.115	3.71%	NA	10.9	18.6
barium		143	136	0.10	139.5	5.02%	NA	90.4	105
beryllium		<0.40	<0.40	0.40	NA	NA	NA	<0.40	<0.40
bismuth		0.10	<0.10	0.10	NA	NA	NA	<0.10	<0.10
cadmium		0.561	0.572	0.050	0.5665	1.94%	NA	0.275	0.318
calcium		30700	29300	100	30000	4.67%	NA	13800	12800
chromium		36.0	30.7	1.0	33.35	15.89%	NA	48.4	42.7
cobalt		11.8	11.2	0.30	11.5	5.22%	NA	14.8	14.5
copper		51.8	52.6	0.50	52.2	1.53%	NA	66.9	67.4
iron		28300	27800	100	28050	1.78%	NA	45300	73100
lead		83.0	159	0.10	121	**62.81%**	NA	23.8	34.0
lithium		7.9	7.7	5.0	7.8	NA	0.04	8.1	9.8
magnesium		6610	6270	100	6440	5.28%	NA	10400	9760
manganese		867	831	0.20	849	4.24%	NA	893	1660
mercury (inorganic)		0.125	0.131	0.050	0.128	NA	0.12	0.104	0.302
molybdenum		0.57	0.62	0.10	0.595	8.40%	NA	2.82	2.36
nickel		26.3	25.0	0.80	25.65	5.07%	NA	36.0	35.9
phosphorus		3640	3210	10	3425	12.55%	NA	1180	2980
potassium		886	893	100	889.5	0.79%	NA	738	950
selenium		<0.50	<0.50	0.50	NA	NA	NA	<0.50	<0.50
silver		0.130	0.107	0.050	0.1185	NA	0.46	0.062	0.065
sodium		424	409	100	416.5	NA	0.15	911	2670
strontium (stable)		188	172	0.10	180	8.89%	NA	81.4	105
thallium		0.087	0.116	0.050	0.1015	NA	0.58	0.052	0.052
tin		43.3	42.3	0.10	42.8	2.34%	NA	3.47	2.11
titanium		776	802	1.0	789	3.30%	NA	1110	860
uranium		0.402	0.483	0.050	0.4425	18.31%	NA	0.549	0.485
vanadium		65.0	59.7	2.0	62.35	8.50%	NA	71.8	68.8
zinc		228	239	1.0	233.5	4.71%	NA	177	150
zirconium		1.66	1.68	0.50	1.67	NA	0.04	2.80	1.55
Polycyclic Aromatic Hydrocarbons									
2-Methylnaphthalene		0.14	0.13	0.020	0.135	7.41%	NA	<0.020	<0.020
acenaphthene		<0.0050	<0.0050	0.0050	NA	NA	NA	<0.0050	<0.0050
acenaphthylene		<0.0050	<0.0050	0.0050	NA	NA	NA	<0.0050	<0.0050
anthracene		0.013	0.015	0.0040	0.014	NA	0.50	0.0049	<0.0040
benzo(a)anthracene		0.033	0.042	0.020	0.0375	NA	0.45	<0.020	<0.020
benzo(a)pyrene		0.034	0.039	0.020	0.0365	NA	0.25	<0.020	<0.020
benzo(b&j)fluoranthene		0.11	0.15	0.020	0.13	30.77%	NA	<0.020	<0.020
benzo(b)fluoranthene		0.083	0.11	0.020	0.0965	NA	1.35	<0.020	<0.020
benzo(g,h,i)perylene		<0.050	<0.050	0.050	NA	NA	NA	<0.050	<0.050
benzo(k)fluoranthene		0.032	0.034	0.020	0.033	NA	0.10	<0.020	<0.020
chrysene		0.086	0.14	0.020	0.113	**47.79%**	NA	<0.020	<0.020
dibenz(a,h)anthracene		<0.050	<0.050	0.050	NA	NA	NA	<0.050	<0.050
fluoranthene		0.089	0.095	0.020	0.092	NA	0.30	0.028	0.031
fluorene		<0.020	<0.020	0.020	NC	NA	NA	<0.020	<0.020
indeno(1,2,3-c,d)pyrene		<0.050	<0.050	0.050	NC	NA	NA	<0.050	<0.050
naphthalene		0.11	0.10	0.010	0.105	9.52%	NA	<0.010	<0.010
phenanthrene		0.058	0.064	0.020	0.061	NA	0.30	0.020	<0.020
pyrene		0.076	0.083	0.020	0.0795	NA	0.35	0.022	0.024
Total PAH									
High Molecular Weight PAH`s		0.46	0.58	0.050	0.52	23.08%	NA	<0.050	0.055
Low Molecular Weight PAH`s		0.31	0.31	0.050	0.31	0.00%	NA	<0.050	<0.050
Total PAH		0.77	0.89	0.050	0.83	14.46%	NA	0.075	0.055
Benzo(a)pyrene Equivalency									
benzo(a)pyrene equivalency		<0.10	<0.10	0.10	NA	NA	NA	<0.10	<0.10
index of additive cancer risk (IARC)		1.3	1.6	0.10	1.45	20.69%	NA	0.31	0.31
Non-Halogenated Volatiles									
benzene		-	-	0.0050	NA	NA	NA	-	-
ethylbenzene		-	-	0.010	NA	NA	NA	-	-
methyl tertbutyl ether (MTBE)		-	-	0.10	NA	NA	NA	-	-
styrene		-	-	0.030	NA	NA	NA	-	-
toluene		-	-	0.020	NA	NA	NA	-	-
meta- & para-xylene		-	-	0.040	NA	NA	NA	-	-
ortho-xylene		-	-	0.040	NA	NA	NA	-	-
Total xylene		-	-	0.040	NA	NA	NA	-	-
F1 (C6-C10)		-	-	10	NA	NA	NA	-	-
CCME Hydrocarbons (F2-F4)									
F2 (C10-C16 Hydrocarbons)		-	-	10	NA	NA	NA	-	-
F3 (C16-C34 Hydrocarbons)		-	-	10	NA	NA	NA	-	-
F4 (C34-C50 Hydrocarbons)		-	-	10	NA	NA	NA	-	-

Notes:

Results are expressed in micrograms per gram (ug/g), unless otherwise indicated.

SCN = sample control number

FDA = field duplicate available

FD = field duplicate

QA/QC = quality assurance/quality control

Method Reporting Limit indicates the minimum concentration that could be measured by laboratory instrumentation for a specific sample.

Mean indicates the mean or average value calculated of a field duplicate pair (the FDA and the FD).

Relative Percent Difference (RPD) is calculated when the mean value is greater than five times the method reporting limit; Golder's internal QA/QC target is less than 35%.

Difference Factor (DF) is calculated when the mean value is less than five times the method reporting limit; Golder's internal QA/QC target is less than 2.

NA = not applicable

BOLD font indicates the parameter analysed exceeds Golder's internal QA/QC targets.

Table 4
Results of Quality Control Analyses
Foreshore Investigation, Transport Canada Parcel 44, Esquimalt, BC

Location					BH15-26	BH15-26		
SCN	Method Reporting Limit	Mean	Relative Percent Difference	Difference Factor (DF)	00923-08	00923-09	Method Reporting Limit	Mean
Laboratory ID					ND0998	ND0999		
Depth (m bgs)					1.22-1.37	1.22-1.37		
Date Sampled					10-Sep-2015	10-Sep-2015		
QA/QC					FDA	FD		
Physical Parameters								
moisture (%)	0.30	40	25.00%	NA	23	27	0.30	25
pH	-	6.78	NA	NA	8.02	7.43	-	7.73
Particulate Mesh 200								
200 mesh (<.075 mm) (%)	0.10	NA	NA	NA	24.9	-	0.10	NA
200 mesh (>.075 mm) (%)	0.10	NA	NA	NA	75.1	-	0.10	NA
Total Metals								
aluminum	100	17000	9.41%	NA	20400	17800	100	19100
antimony	0.10	1.985	**41.81%**	NA	0.65	0.99	0.10	0.82
arsenic	0.50	14.75	**52.20%**	NA	5.23	5.94	0.50	5.585
barium	0.10	97.7	14.94%	NA	67.9	67.3	0.10	67.6
beryllium	0.40	NA	NA	NA	<0.40	<0.40	0.40	NA
bismuth	0.10	NA	NA	NA	<0.10	<0.10	0.10	NA
cadmium	0.050	0.2965	14.50%	NA	0.178	0.249	0.050	0.2135
calcium	100	13300	7.52%	NA	25100	15300	100	20200
chromium	1.0	45.55	12.51%	NA	60.4	64.6	1.0	62.5
cobalt	0.30	14.65	2.05%	NA	15.7	14.2	0.30	14.95
copper	0.50	67.15	0.74%	NA	64.7	67.9	0.50	66.3
iron	100	59200	**46.96%**	NA	31800	31300	100	31550
lead	0.10	28.9	**35.29%**	NA	19.0	30.3	0.10	24.65
lithium	5.0	8.95	NA	0.34	8.6	9.0	5.0	8.8
magnesium	100	10080	6.35%	NA	12400	10100	100	11250
manganese	0.20	1276.5	**60.09%**	NA	595	583	0.20	589
mercury (inorganic)	0.050	0.203	NA	**3.96**	0.083	0.094	0.050	0.0885
molybdenum	0.10	2.59	17.76%	NA	0.69	0.96	0.10	0.825
nickel	0.80	35.95	0.28%	NA	31.3	31.4	0.80	31.35
phosphorus	10	2080	**86.54%**	NA	612	714	10	663
potassium	100	844	25.12%	NA	831	872	100	851.5
selenium	0.50	NA	NA	NA	<0.50	<0.50	0.50	NA
silver	0.050	0.0635	NA	0.06	0.068	0.094	0.050	0.081
sodium	100	1790.5	**98.24%**	NA	2030	1920	100	1975
strontium (stable)	0.10	93.2	25.32%	NA	74.3	58.0	0.10	66.15
thallium	0.050	0.052	NA	0.00	<0.050	<0.050	0.050	NA
tin	0.10	2.79	**48.75%**	NA	2.01	2.67	0.10	2.34
titanium	1.0	985	25.38%	NA	1670	1430	1.0	1550
uranium	0.050	0.517	12.38%	NA	0.320	0.304	0.050	0.312
vanadium	2.0	70.3	4.27%	NA	83.3	74.0	2.0	78.65
zinc	1.0	163.5	16.51%	NA	83.5	108	1.0	95.75
zirconium	0.50	2.175	NA	**2.50**	7.33	5.90	0.50	6.615
Polycyclic Aromatic Hydrocarbons								
2-Methylnaphthalene	0.020	NA	NA	NA	0.037	0.064	0.020	0.0505
acenaphthene	0.0050	NA	NA	NA	0.077	0.13	0.0050	0.1035
acenaphthylene	0.0050	NA	NA	NA	0.0064	0.011	0.0050	0.0087
anthracene	0.0040	NA	NA	NA	0.044	0.074	0.0040	0.059
benzo(a)anthracene	0.020	NA	NA	NA	0.050	0.082	0.020	0.066
benzo(a)pyrene	0.020	NA	NA	NA	0.030	0.046	0.020	0.038
benzo(b&j)fluoranthene	0.020	NA	NA	NA	0.054	0.075	0.020	0.0645
benzo(b)fluoranthene	0.020	NA	NA	NA	0.036	0.049	0.020	0.0425
benzo(g,h,i)perylene	0.050	NA	NA	NA	<0.050	<0.050	0.050	NA
benzo(k)fluoranthene	0.020	NA	NA	NA	<0.020	0.024	0.020	NA
chrysene	0.020	NA	NA	NA	0.081	0.12	0.020	0.1005
dibenz(a,h)anthracene	0.050	NA	NA	NA	<0.050	<0.050	0.050	NA
fluoranthene	0.020	0.0295	NA	0.15	0.26	0.40	0.020	0.33
fluorene	0.020	NA	NA	NA	0.068	0.12	0.020	0.094
indeno(1,2,3-c,d)pyrene	0.050	NA	NA	NA	<0.050	<0.050	0.050	NA
naphthalene	0.010	NA	NA	NA	0.051	0.090	0.010	0.0705
phenanthrene	0.020	NA	NA	NA	0.28	0.52	0.020	0.4
pyrene	0.020	0.023	NA	0.10	0.22	0.34	0.020	0.28
Total PAH								
High Molecular Weight PAH`s	0.050	NA	NA	NA	0.69	1.1	0.050	0.895
Low Molecular Weight PAH`s	0.050	NA	NA	NA	0.57	1.0	0.050	0.785
Total PAH	0.050	0.065	NA	0.40	1.3	2.1	0.050	1.7
Benzo(a)pyrene Equivalency								
benzo(a)pyrene equivalency	0.10	NA	NA	NA	<0.10	<0.10	0.10	NA
index of additive cancer risk (IARC)	0.10	0.31	NA	0.00	0.79	1.2	0.10	0.995
Non-Halogenated Volatiles								
benzene	0.0050	NA	NA	NA	-	-	0.0050	NA
ethylbenzene	0.010	NA	NA	NA	-	-	0.010	NA
methyl tertbutyl ether (MTBE)	0.10	NA	NA	NA	-	-	0.10	NA
styrene	0.030	NA	NA	NA	-	-	0.030	NA
toluene	0.020	NA	NA	NA	-	-	0.020	NA
meta- & para-xylene	0.040	NA	NA	NA	-	-	0.040	NA
ortho-xylene	0.040	NA	NA	NA	-	-	0.040	NA
Total xylene	0.040	NA	NA	NA	-	-	0.040	NA
F1 (C6-C10)	10	NA	NA	NA	-	-	10	NA
CCME Hydrocarbons (F2-F4)								
F2 (C10-C16 Hydrocarbons)	10	NA	NA	NA	-	-	10	NA
F3 (C16-C34 Hydrocarbons)	10	NA	NA	NA	-	-	10	NA
F4 (C34-C50 Hydrocarbons)	10	NA	NA	NA	-	-	10	NA

Notes:

Results are expressed in micrograms per gram (ug/g), unless otherwise indicated.

SCN = sample control number

FDA = field duplicate available

FD = field duplicate

QA/QC = quality assurance/quality control

Method Reporting Limit indicates the minimum concentration that could be measured by laboratory instrumentation for a specific sample.

Mean indicates the mean or average value calculated of a field duplicate pair (the FDA and the FD).

Relative Percent Difference (RPD) is calculated when the mean value is greater than five times the method reporting limit; Golder's internal QA/QC target is less than 35%.

Difference Factor (DF) is calculated when the mean value is less than five times the method reporting limit; Golder's internal QA/QC target is less than 2.

NA = not applicable

BOLD font indicates the parameter analysed exceeds Golder's internal QA/QC targets.

Table 4
Results of Quality Control Analyses
Foreshore Investigation, Transport Canada Parcel 44, Esquimalt, BC

Location			BH15-34	BH15-34				
SCN	Relative Percent Difference	Difference Factor (DF)	00921-01	00921-02	Method Reporting Limit	Mean	Relative Percent Difference	Difference Factor (DF)
Laboratory ID			ND6016	ND6017				
Depth (m bgs)			0.91-1.07	0.91-1.07				
Date Sampled			14-Sep-2015	14-Sep-2015				
QA/QC			FDA	FD				
Physical Parameters								
moisture (%)	16.00%	NA	13	16	0.30	14.5	20.69%	NA
pH	NA	NA	7.54	-	-	NA	NA	NA
Particulate Mesh 200								
200 mesh (<.075 mm) (%)	NA	NA	18.2	-	0.10	NA	NA	NA
200 mesh (>.075 mm) (%)	NA	NA	81.8	-	0.10	NA	NA	NA
Total Metals								
aluminum	13.61%	NA	16800	-	100	NA	NA	NA
antimony	**41.46%**	NA	2.67	-	0.10	NA	NA	NA
arsenic	12.71%	NA	8.15	-	0.50	NA	NA	NA
barium	0.89%	NA	135	-	0.10	NA	NA	NA
beryllium	NA	NA	<0.40	-	0.40	NA	NA	NA
bismuth	NA	NA	0.13	-	0.10	NA	NA	NA
cadmium	NA	1.42	0.667	-	0.050	NA	NA	NA
calcium	**48.51%**	NA	24100	-	100	NA	NA	NA
chromium	6.72%	NA	43.5	-	1.0	NA	NA	NA
cobalt	10.03%	NA	12.7	-	0.30	NA	NA	NA
copper	4.83%	NA	149	-	0.50	NA	NA	NA
iron	1.58%	NA	48500	-	100	NA	NA	NA
lead	**45.84%**	NA	67.9	-	0.10	NA	NA	NA
lithium	NA	0.08	9.0	-	5.0	NA	NA	NA
magnesium	20.44%	NA	7030	-	100	NA	NA	NA
manganese	2.04%	NA	841	-	0.20	NA	NA	NA
mercury (inorganic)	NA	0.22	0.096	-	0.050	NA	NA	NA
molybdenum	32.73%	NA	2.04	-	0.10	NA	NA	NA
nickel	0.32%	NA	36.0	-	0.80	NA	NA	NA
phosphorus	15.38%	NA	1540	-	10	NA	NA	NA
potassium	4.82%	NA	1250	-	100	NA	NA	NA
selenium	NA	NA	<0.50	-	0.50	NA	NA	NA
silver	NA	0.52	0.164	-	0.050	NA	NA	NA
sodium	5.57%	NA	1850	-	100	NA	NA	NA
strontium (stable)	24.64%	NA	122	-	0.10	NA	NA	NA
thallium	NA	NA	<0.050	-	0.050	NA	NA	NA
tin	28.21%	NA	6.85	-	0.10	NA	NA	NA
titanium	15.48%	NA	1030	-	1.0	NA	NA	NA
uranium	5.13%	NA	0.423	-	0.050	NA	NA	NA
vanadium	11.82%	NA	61.1	-	2.0	NA	NA	NA
zinc	25.59%	NA	542	-	1.0	NA	NA	NA
zirconium	21.62%	NA	2.94	-	0.50	NA	NA	NA
Polycyclic Aromatic Hydrocarbons								
2-Methylnaphthalene	NA	1.35	0.36	-	0.020	NA	NA	NA
acenaphthene	**51.21%**	NA	0.069	-	0.0050	NA	NA	NA
acenaphthylene	NA	0.92	<0.0050	-	0.0050	NA	NA	NA
anthracene	**50.85%**	NA	0.099	-	0.0040	NA	NA	NA
benzo(a)anthracene	NA	1.60	0.11	-	0.020	NA	NA	NA
benzo(a)pyrene	NA	0.80	0.057	-	0.020	NA	NA	NA
benzo(b&j)fluoranthene	NA	1.05	0.12	-	0.020	NA	NA	NA
benzo(b)fluoranthene	NA	0.65	0.076	-	0.020	NA	NA	NA
benzo(g,h,i)perylene	NA	NA	<0.050	-	0.050	NA	NA	NA
benzo(k)fluoranthene	NA	NA	0.038	-	0.020	NA	NA	NA
chrysene	**38.81%**	NA	0.15	-	0.020	NA	NA	NA
dibenz(a,h)anthracene	NA	NA	<0.050	-	0.050	NA	NA	NA
fluoranthene	**42.42%**	NA	0.63	-	0.020	NA	NA	NA
fluorene	NA	**2.60**	0.070	-	0.020	NA	NA	NA
indeno(1,2,3-c,d)pyrene	NA	NA	<0.050	-	0.050	NA	NA	NA
naphthalene	**55.32%**	NA	0.21	-	0.010	NA	NA	NA
phenanthrene	**60.00%**	NA	0.51	-	0.020	NA	NA	NA
pyrene	**42.86%**	NA	0.49	-	0.020	NA	NA	NA
Total PAH								
High Molecular Weight PAH`s	**45.81%**	NA	1.6	-	0.050	NA	NA	NA
Low Molecular Weight PAH`s	**54.78%**	NA	1.3	-	0.050	NA	NA	NA
Total PAH	**47.06%**	NA	2.9	-	0.050	NA	NA	NA
Benzo(a)pyrene Equivalency								
benzo(a)pyrene equivalency	NA	NA	0.11	-	0.10	NA	NA	NA
index of additive cancer risk (IARC)	**41.21%**	NA	1.7	-	0.10	NA	NA	NA
Non-Halogenated Volatiles								
benzene	NA	NA	0.41	0.70	0.0050	0.555	**52.25%**	NA
ethylbenzene	NA	NA	0.066	0.12	0.010	0.093	**58.06%**	NA
methyl tertbutyl ether (MTBE)	NA	NA	<0.10	<0.10	0.10	NA	NA	NA
styrene	NA	NA	<0.030	<0.030	0.030	NA	NA	NA
toluene	NA	NA	0.23	0.47	0.020	0.35	**68.57%**	NA
meta- & para-xylene	NA	NA	0.11	0.22	0.040	0.165	NA	**2.75**
ortho-xylene	NA	NA	<0.040	0.091	0.040	NA	NA	NA
Total xylene	NA	NA	0.11	0.31	0.040	0.21	**95.24%**	NA
F1 (C6-C10)	NA	NA	<10	<10	10	NA	NA	NA
CCME Hydrocarbons (F2-F4)								
F2 (C10-C16 Hydrocarbons)	NA	NA	43	88	10	NA	NA	NA
F3 (C16-C34 Hydrocarbons)	NA	NA	570	680	10	NA	NA	NA
F4 (C34-C50 Hydrocarbons)	NA	NA	130	170	10	NA	NA	NA

Notes:

Results are expressed in micrograms per gram (ug/g), unless otherwise indicated.

SCN = sample control number

FDA = field duplicate available

FD = field duplicate

QA/QC = quality assurance/quality control

Method Reporting Limit indicates the minimum concentration that could be measured by laboratory instrumentation for a specific sample.

Mean indicates the mean or average value calculated of a field duplicate pair (the FDA and the FD).

Relative Percent Difference (RPD) is calculated when the mean value is greater than five times the method reporting limit; Golder's internal QA/QC target is less than 35%.

Difference Factor (DF) is calculated when the mean value is less than five times the method reporting limit; Golder's internal QA/QC target is less than 2.

NA = not applicable

BOLD font indicates the parameter analysed exceeds Golder's internal QA/QC targets.

Table 4
Results of Quality Control Analyses
Foreshore Investigation, Transport Canada Parcel 44, Esquimalt, BC

	Location	BH15-40	BH15-40				
	SCN	00771-04	00771-05	Method Reporting Limit	Mean	Relative Percent Difference	Difference Factor (DF)
	Laboratory ID	ND6056	ND6057				
	Depth (m bgs)	0.91-1.22	0.91-1.22				
	Date Sampled	15-Sep-2015	15-Sep-2015				
	QA/QC	FDA	FD				
Physical Parameters							
moisture (%)		20	23	0.30	21.5	13.95%	NA
pH		7.51	7.42	-	7.47	NA	NA
Particulate Mesh 200							
200 mesh (<.075 mm) (%)		-	-	0.10	NA	NA	NA
200 mesh (>.075 mm) (%)		-	-	0.10	NA	NA	NA
Total Metals							
aluminum		18700	19200	100	18950	2.64%	NA
antimony		0.91	0.88	0.10	0.895	3.35%	NA
arsenic		5.99	5.61	0.50	5.8	6.55%	NA
barium		116	116	0.10	116	0.00%	NA
beryllium		<0.40	<0.40	0.40	NA	NA	NA
bismuth		<0.10	<0.10	0.10	NA	NA	NA
cadmium		0.401	0.407	0.050	0.404	1.49%	NA
calcium		10600	11000	100	10800	3.70%	NA
chromium		38.3	35.6	1.0	36.95	7.31%	NA
cobalt		12.7	12.5	0.30	12.6	1.59%	NA
copper		62.1	61.7	0.50	61.9	0.65%	NA
iron		27600	26900	100	27250	2.57%	NA
lead		63.1	66.5	0.10	64.8	5.25%	NA
lithium		12.5	11.6	5.0	12.05	NA	0.18
magnesium		7080	7210	100	7145	1.82%	NA
manganese		628	621	0.20	624.5	1.12%	NA
mercury (inorganic)		0.908	0.694	0.050	0.801	26.72%	NA
molybdenum		0.85	0.80	0.10	0.825	6.06%	NA
nickel		31.1	29.8	0.80	30.45	4.27%	NA
phosphorus		1170	1330	10	1250	12.80%	NA
potassium		1030	939	100	984.5	9.24%	NA
selenium		<0.50	<0.50	0.50	NA	NA	NA
silver		0.085	0.098	0.050	0.0915	NA	0.26
sodium		286	262	100	274	NA	0.24
strontium (stable)		61.8	63.8	0.10	62.8	3.18%	NA
thallium		0.051	<0.050	0.050	NA	NA	NA
tin		4.12	4.00	0.10	4.06	2.96%	NA
titanium		904	996	1.0	950	9.68%	NA
uranium		0.395	0.383	0.050	0.389	3.08%	NA
vanadium		66.2	68.1	2.0	67.15	2.83%	NA
zinc		157	165	1.0	161	4.97%	NA
zirconium		2.66	2.73	0.50	2.695	2.60%	NA
Polycyclic Aromatic Hydrocarbons							
2-Methylnaphthalene		<0.020	<0.020	0.020	NA	NA	NA
acenaphthene		<0.0050	0.0085	0.0050	NA	NA	NA
acenaphthylene		0.013	0.010	0.0050	0.0115	NA	0.60
anthracene		0.020	0.021	0.0040	0.0205	4.88%	NA
benzo(a)anthracene		0.026	0.025	0.020	0.0255	NA	0.05
benzo(a)pyrene		<0.020	<0.020	0.020	NA	NA	NA
benzo(b&j)fluoranthene		0.023	<0.020	0.020	NA	NA	NA
benzo(b)fluoranthene		0.023	<0.020	0.020	NA	NA	NA
benzo(g,h,i)perylene		<0.050	<0.050	0.050	NA	NA	NA
benzo(k)fluoranthene		<0.020	<0.020	0.020	NA	NA	NA
chrysene		0.043	0.039	0.020	0.041	NA	0.20
dibenz(a,h)anthracene		<0.050	<0.050	0.050	NA	NA	NA
fluoranthene		0.10	0.11	0.020	0.105	9.52%	NA
fluorene		<0.020	<0.020	0.020	NA	NA	NA
indeno(1,2,3-c,d)pyrene		<0.050	<0.050	0.050	NA	NA	NA
naphthalene		0.029	0.037	0.010	0.033	NA	0.80
phenanthrene		0.086	0.12	0.020	0.103	33.01%	NA
pyrene		0.10	0.11	0.020	0.105	9.52%	NA
Total PAH							
High Molecular Weight PAH`s		0.30	0.28	0.050	0.29	6.90%	NA
Low Molecular Weight PAH`s		0.15	0.19	0.050	0.17	NA	0.80
Total PAH		0.44	0.47	0.050	0.455	6.59%	NA
Benzo(a)pyrene Equivalency							
benzo(a)pyrene equivalency		<0.10	<0.10	0.10	NA	NA	NA
index of additive cancer risk (IARC)		0.46	0.37	0.10	0.415	NA	0.90
Non-Halogenated Volatiles							
benzene		-	-	0.0050	NA	NA	NA
ethylbenzene		-	-	0.010	NA	NA	NA
methyl tertbutyl ether (MTBE)		-	-	0.10	NA	NA	NA
styrene		-	-	0.030	NA	NA	NA
toluene		-	-	0.020	NA	NA	NA
meta- & para-xylene		-	-	0.040	NA	NA	NA
ortho-xylene		-	-	0.040	NA	NA	NA
Total xylene		-	-	0.040	NA	NA	NA
F1 (C6-C10)		-	-	10	NA	NA	NA
CCME Hydrocarbons (F2-F4)							
F2 (C10-C16 Hydrocarbons)		-	-	10	NA	NA	NA
F3 (C16-C34 Hydrocarbons)		-	-	10	NA	NA	NA
F4 (C34-C50 Hydrocarbons)		-	-	10	NA	NA	NA

Notes:

Results are expressed in micrograms per gram (ug/g), unless otherwise indicated.

SCN = sample control number

FDA = field duplicate available

FD = field duplicate

QA/QC = quality assurance/quality control

Method Reporting Limit indicates the minimum concentration that could be measured by laboratory instrumentation for a specific sample.

Mean indicates the mean or average value calculated of a field duplicate pair (the FDA and the FD).

Relative Percent Difference (RPD) is calculated when the mean value is greater than five times the method reporting limit; Golder's internal QA/QC target is less than 35%.

Difference Factor (DF) is calculated when the mean value is less than five times the method reporting limit; Golder's internal QA/QC target is less than 2.

NA = not applicable

BOLD font indicates the parameter analysed exceeds Golder's internal QA/QC targets.

Table 5
Results of Leachable PAH Analysis
Foreshore Investigation, Transport Canada Parcel 44, Esquimalt, BC

Location		BH15-34
SCN	HWR Leachate Quality Standards[1]	00921-01
Laboratory ID		ND6016
Depth (m bgs)		0.91-1.07
Date Sampled		2015-09-14
QA/QC	MCS	
PAHs		
Leachate Low Molecular Weight PAH`s		<0.50
Leachate High Molecular Weight PAH`s		<0.20
Leachate Total PAH		<0.50
Polycyclic Aromatics		
Leachate Naphthalene		<0.10
Leachate 2-Methylnaphthalene		<0.10
Leachate Quinoline		<0.50
Leachate Acenaphthylene		<0.10
Leachate Acenaphthene		<0.10
Leachate Fluorene		<0.10
Leachate Phenanthrene		<0.10
Leachate Anthracene		<0.10
Leachate Acridine		<0.50
Leachate Fluoranthene		<0.10
Leachate Pyrene		<0.10
Leachate Benzo(a)anthracene		<0.10
Leachate Chrysene		<0.10
Leachate Benzo(b&j)fluoranthene		<0.10
Leachate Benzo(k)fluoranthene		<0.10
Leachate Benzo(a)pyrene	1	<0.10
Leachate Indeno(1,2,3-cd)pyrene		<0.20
Leachate Dibenz(a,h)anthracene		<0.20
Leachate Benzo(g,h,i)perylene		<0.20

Notes:

Results are expressed in micrograms per gram (ug/L), unless otherwise indicated.

m bgs = metres below ground surface

SCN = sample control number

FDA = field duplicate available

FD = field duplicate

QA/QC = quality assurance/quality control

1. Standards shown are from the BC Hazardous Waste Regulation (HWR) (BC Reg 63/88, O.C. 268/88, including amendments up to BC Reg 63/2009, April 1, 2009), Schedule 4, Part 2: Table 1 - Leachate Quality Standards.

< = less than laboratory reporting limit

1 Sample concentration exceeds HWR Standards

Table 6
Results of Leachable Metals Analysis
Foreshore Investigation, Transport Canada Parcel 44, Esquimalt, BC

Location		BH15-34
SCN	HWR Leachate Quality Standards[1]	00921-03
Laboratory ID		ND6018
Depth (m bgs)		2.44-2.59
Date Sampled		2015-09-14
QA/QC		
TCLP Extraction Procedure		
Initial pH of Sample		8.41
pH after HCl		1.44
Final pH of Leachate		6.00
pH of Leaching Fluid		4.93
Metals		
LEACHATE Antimony (Sb)		<0.10
LEACHATE Arsenic (As)	2.5	<0.10
LEACHATE Barium (Ba)	100.0	0.35
LEACHATE Beryllium (Be)		<0.10
LEACHATE Boron (B)	500.0	0.17
LEACHATE Cadmium (Cd)	0.5	<0.10
LEACHATE Chromium (Cr)	5.0	<0.10
LEACHATE Cobalt (Co)		<0.10
LEACHATE Copper (Cu)	100	<0.10
LEACHATE Iron (Fe)		<0.50
LEACHATE Lead (Pb)	5.0	<0.10
LEACHATE Mercury (Hg)	0.1	<0.0020
LEACHATE Molybdenum (Mo)		<0.10
LEACHATE Nickel (Ni)		<0.10
LEACHATE Selenium (Se)	1.0	<0.10
LEACHATE Silver (Ag)	5.0	<0.10
LEACHATE Thallium (Tl)		<0.10
LEACHATE Uranium (U)	10.0	<0.10
LEACHATE Vanadium (V)		<0.10
LEACHATE Zinc (Zn)	500.0	0.14
LEACHATE Zirconium (Zr)		<0.10

Notes:

Results are expressed in milligrams per litre (mg/L), unless otherwise indicated.

m bgs = metres below ground surface

SCN = sample control number

FDA = field duplicate available

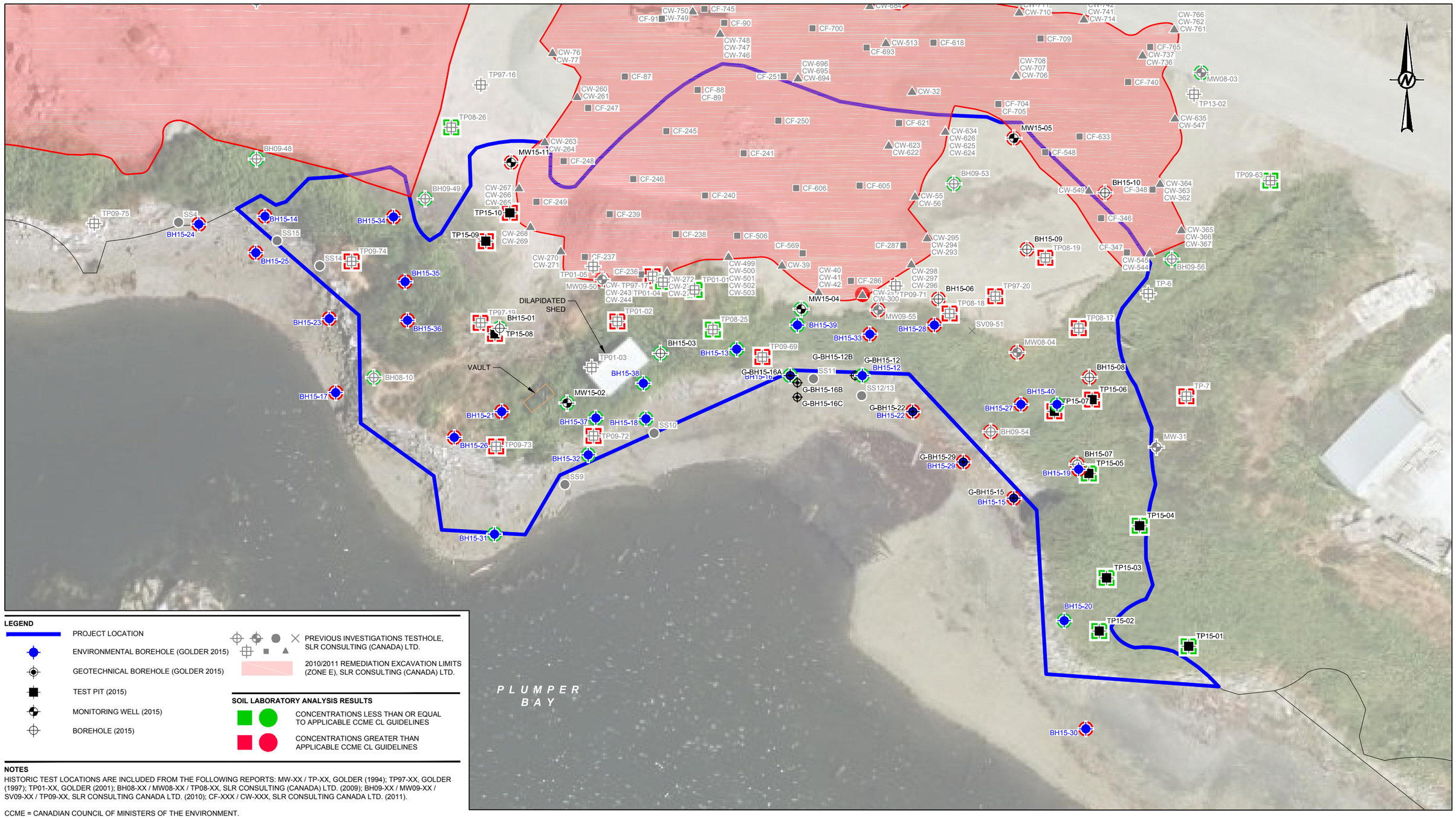
FD = field duplicate

QA/QC = quality assurance/quality control

1. Standards shown are from the BC Hazardous Waste Regulation (HWR) (BC Reg 63/88, O.C. 268/88, including amendments up to BC Reg 63/2009, April 1, 2009), Schedule 4, Part 2: Table 1 - Leachate Quality Standards.

< = less than laboratory reporting limit

1 Sample concentration exceeds HWR Standards



LEGEND

- PROJECT LOCATION
- ENVIRONMENTAL BOREHOLE (GOLDER 2015)
- GEOTECHNICAL BOREHOLE (GOLDER 2015)
- TEST PIT (2015)
- MONITORING WELL (2015)
- BOREHOLE (2015)
- PREVIOUS INVESTIGATIONS TESTHOLE, SLR CONSULTING (CANADA) LTD.
- 2010/2011 REMEDIATION EXCAVATION LIMITS (ZONE E), SLR CONSULTING (CANADA) LTD.

SOIL LABORATORY ANALYSIS RESULTS

- CONCENTRATIONS LESS THAN OR EQUAL TO APPLICABLE CCME CL GUIDELINES
- CONCENTRATIONS GREATER THAN APPLICABLE CCME CL GUIDELINES

NOTES

HISTORIC TEST LOCATIONS ARE INCLUDED FROM THE FOLLOWING REPORTS: MW-XX / TP-XX, GOLDER (1994); TP97-XX, GOLDER (1997); TP01-XX, GOLDER (2001); BH08-XX / MW08-XX / TP08-XX, SLR CONSULTING (CANADA) LTD. (2009); BH09-XX / MW09-XX / SV09-XX / TP09-XX, SLR CONSULTING CANADA LTD. (2010); CF-XXX / CW-XXX, SLR CONSULTING CANADA LTD. (2011).

CCME = CANADIAN COUNCIL OF MINISTERS OF THE ENVIRONMENT.

CL = COMMERCIAL LAND USE .

BOREHOLE LOCATIONS WERE OBTAINED USING FIELD GPS AND ARE APPROXIMATE ONLY.

REFERENCE

IMAGE OBTAINED FROM CAPITAL REGIONAL DISTRICT'S WEB MAPPING SERVICE.

BASE DATA OBTAINED FROM WSP SYRVEYS (BC) LIMITED PARTNERSHIP. FILENAME: ACAD-010052620-CNSI01-R00 [UTM].dwg DATED: 2015-02-27.

EXCAVATION DATA OBTAINED FROM PWGSC, MARCH 12, 2015. FILENAME: S_205-03424-00-C8.dwg

HISTORICAL SITE FEATURES OBTAINED FROM PDF OF SLR DRAWING, DATED APRIL 6, 2011.

0 10 20
1:500 METRES

CLIENT
PUBLIC WORKS GOVERNMENT SERVICES CANADA
ESQUIMALT, BC

CONSULTANT
Golder Associates

YYYY-MM-DD	2015-12-02
PREPARED	J. FARAH
DESIGN	W. BEAIRSTO
REVIEW	A. UMPHRIES
APPROVED	J. LAIDLAW

PROJECT
PARCEL 44 SUPLEMENTAL SOIL ASSESSMENT

TITLE
SITE PLAN

PROJECT No.	PHASE	Rev.	FIGURE
1535154	2000	0	1

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

25 mm

Path: \\golder.gds\gal\Victoria\CAD-GIS\Client\PWGSC\Env_Serv_Site_44\99_PROJECTS\1535154\02_PRODUCTION\Phase 2000\ | File Name: 1535154-2000-01.dwg

APPENDIX A

Important Information and Limitations of This Report

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APPENDIX A
Important Information and Limitations of This Report

This report was prepared for Canada in accordance with terms and conditions of the task authorization contract # E0276-110680/003/XSB, and based on the project Task Authorization # 700333380. Liability and Copyright is specified in the Contract with PWGSC.

The inferences concerning the Site conditions contained in this report are based on information obtained during the assessment conducted by Golder personnel, and are based solely on historical information obtained by Golder, as described in this report.

This report was prepared, based in part, on information obtained from historic information sources. In evaluating the subject Site, Golder has relied in good faith on information provided. We accept no responsibility for any deficiency or inaccuracy contained in this report as a result of our reliance on the aforementioned information.

The findings and conclusions documented in this report have been prepared for the specific application to this project, and have been developed in a manner consistent with that level of care normally exercised by environmental professionals currently practicing under similar conditions in the jurisdiction.

With respect to regulatory compliance issues, regulatory statutes are subject to interpretation. These interpretations may change over time, these should be reviewed.

If new information is discovered during future work, the conclusions of this report should be re-evaluated and the report amended, as required, prior to any reliance upon the information presented herein.

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APPENDIX B

Borehole Logs

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PROJECT No.: 1535154 / 2000 / 2000

RECORD OF BOREHOLE: BH15-12

SHEET 1 OF 1

CLIENT: Public Works and Government Services Canada
PROJECT: Transport Canada Parcel 44
LOCATION: Esquimalt, BC
N: ~5365905 E: ~467928
Note: Coordinates and Elevation have not been surveyed and are considered to be approximate only.

DRILLING DATE: September 8, 2015
DRILLING CONTRACTOR: Grassroots Drilling Inc.

DATUM: Ground Surface

DEPTH SCALE METRES	DRILLING RIG / DRILLING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	GEOTECH SAMPLES: NUMBER	TYPE	BLOWS/0.3m	CORE No.	CORE RECOVERY %	CHEMISTRY SAMPLES: NUMBER	SCN	ANALYSED	PID ppm (5 10 15 20)	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / WATER CONTENT % (Wp W Wl; 10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE OR THERMISTOR INSTALLATION
		Ground Surface														Backfilling Details
0	Mole Rat / Solid Stem Auger (Casing:152 mm;)	FILL - **(PT)** SILTY PEAT, some sand, some gravel; dark brown, contains wood chips (approximately 70% by volume of organics), organic odour; non-cohesive, wet, loose.		0.00	1	AS		1	100	1	00922-01		⊕			- Backfilled with cuttings.
1					2	AS				2	00922-02		⊕			
2		**(SP)** gravelly SAND, some silt; dark grey, contains shells (10-30%); non-cohesive, wet, loose.		1.83				2	90							
3					3	AS		3	90	3	00922-03		⊕			
4																
		End of Borehole. (Refusal) Note: Encountered rock at 4.57 m depth.		4.57												
5																
6																
7																
8																
9																
10																

SOIL CLASSIFICATION SYSTEM: GACS

DEPTH SCALE
1 : 50

Golder Associates

LOGGED: AU
CHECKED: WB

National IM Server:GINT_GAL_NATIONALIM Unique Project ID: Output Form:BC_BOREHOLE (GEO/ENVIRO) jfarah 25/11/15

PROJECT No.: 1535154 / 2000 / 2000

RECORD OF BOREHOLE: BH15-13

SHEET 1 OF 1

CLIENT: Public Works and Government Services Canada
PROJECT: Transport Canada Parcel 44
LOCATION: Esquimalt, BC
N: ~5365909 E: ~467911
Note: Coordinates and Elevation have not been surveyed and are considered to be approximate only.

DRILLING DATE: September 8, 2015
DRILLING CONTRACTOR: Grassroots Drilling Inc.

DATUM: Ground Surface

DEPTH SCALE METRES	DRILLING RIG / DRILLING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	GEOTECH SAMPLES: NUMBER	TYPE	BLOWS/0.3m	CORE No.	CORE RECOVERY %	CHEMISTRY SAMPLES: NUMBER	SCN	ANALYSED	PID ppm (5 10 15 20)	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / WATER CONTENT % (Wp W Wl; 10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE OR THERMISTOR INSTALLATION
		Ground Surface														Backfilling Details
0	Mole Rat / Solid Stem Auger (Casing:152 mm.)	**(SM)** SILTY SAND, medium, some coarse, rounded gravel; dark brown, no staining; non-cohesive, moist, loose.		0.00												
1		**(CL)** SILTY CLAY, some medium sand, some coarse, rounded gravel; grey, no staining; cohesive, w<PL, firm.		0.61	1	AS		1	100	1	00922-04	⊕				- drum cuttings. - backfilled with sand. - bentonite from 0.31 m to 0.91 m depth.
2		- soft from 1.52 m to 2.29 m depth.			2	AS		2	60	2	00922-05	⊕				
		End of Borehole. (Refusal)		2.29				3	60							
3																
4																
5																
6																
7																
8																
9																
10																

SOIL CLASSIFICATION SYSTEM: GACS

DEPTH SCALE
1 : 50

LOGGED: AU
CHECKED: WB

Golder Associates

National IM Server:GINT_GAL_NATIONALIM Unique Project ID: Output Form:BC_BOREHOLE (GEO/ENVIRO) jfarah 25/11/15

PROJECT No.: 1535154 / 2000 / 2000

RECORD OF BOREHOLE: BH15-14

SHEET 1 OF 1

DATUM: Ground Surface

CLIENT: Public Works and Government Services Canada
PROJECT: Transport Canada Parcel 44
LOCATION: Esquimalt, BC
N: ~5365927 E: ~467845
Note: Coordinates and Elevation have not been surveyed and are considered to be approximate only.

DRILLING DATE: September 8, 2015
DRILLING CONTRACTOR: Grassroots Drilling Inc.

DEPTH SCALE METRES	DRILLING RIG / DRILLING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	GEOTECH SAMPLES: NUMBER	TYPE	BLOWS/0.3m	CORE No.	CORE RECOVERY %	CHEMISTRY SAMPLES: NUMBER	SCN	ANALYSED	PID ppm (5 10 15 20)	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / WATER CONTENT % (Wp W Wl; 10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE OR THERMISTOR INSTALLATION
		Ground Surface														Backfilling Details
0	Mole Rat / Solid Stem Auger (Casing:152 mm;)	**(SM)** SILTY SAND, fine, some coarse, rounded gravel; red-brown, no staining; non-cohesive, dry, loose. - with wood debris from 0.00 m to 0.91 m depth.		0.00				1	50							- drum cuttings. - backfilled with sand.
1		- with shells at 1.22 m depth.			1	AS				1	00922-06		⊕			
					2/3	AS		2	60	2/3	00922-07/08		⊕			
2		End of Borehole. (Refusal)		1.83												
3																
4																
5																
6																
7																
8																
9																
10																

SOIL CLASSIFICATION SYSTEM: GACS

DEPTH SCALE
1 : 50

Golder Associates

LOGGED: AU
CHECKED: WB

National IM Server:GINT_GAL_NATIONALIM Unique Project ID: Output Form:BC_BOREHOLE (GEO/ENVIRO) jfarah 25/11/15

PROJECT No.: 1535154 / 2000 / 2000

RECORD OF BOREHOLE: BH15-15

SHEET 1 OF 1

CLIENT: Public Works and Government Services Canada
PROJECT: Transport Canada Parcel 44
LOCATION: Esquimalt, BC
N: ~5365888 E: ~467949
Note: Coordinates and Elevation have not been surveyed and are considered to be approximate only.

DRILLING DATE: September 9, 2015
DRILLING CONTRACTOR: Grassroots Drilling Inc.

DATUM: Ground Surface

DEPTH SCALE METRES	DRILLING RIG / DRILLING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	GEOTECH SAMPLES: NUMBER	TYPE	BLOWS/0.3m	CORE No.	CORE RECOVERY %	CHEMISTRY SAMPLES: NUMBER	SCN	ANALYSED	PID ppm (5 10 15 20)	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / WATER CONTENT % (Wp W Wl; 10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE OR THERMISTOR INSTALLATION
		Ground Surface														Backfilling
0	Mole Rat / Solid Stem Auger (Casing:152 mm;)	FILL - **(SM/GM)** SILTY SAND and GRAVEL, sub-angular gravel; light brown, contains organics; non-cohesive, moist, loose.		0.00												
		FILL - **(PT)** SILTY PEAT, some sand, some gravel; dark brown / black, organic odour, contains wood chips (approximately 90 - 100% by volume of organics); non-cohesive, moist, very loose.		0.30	1	AS		1	100	1	00922-09		⊕			- Backfilled with cuttings. - Bentonite from 1.52 m to 2.13 m depth.
1																
2		**(SM/GM)** SILTY SAND and GRAVEL; dark grey, contains shells; cohesive, w~PL, soft. - w>PL from 2.44 m to 3.51 m depth.		1.52	2	AS		2	100	2	00922-10		⊕			
3																
		End of Borehole. Note: Inferred bedrock.		3.51												
4																
5																
6																
7																
8																
9																
10																

DEPTH SCALE
1 : 50

SOIL CLASSIFICATION SYSTEM: GACS
LOGGED: AU
CHECKED: WB

Golder Associates

National IM Server:GINT_GAL_NATIONALIM Unique Project ID: Output Form:BC_BOREHOLE (GEO/ENVIRO) jfarah 25/11/15

PROJECT No.: 1535154 / 2000 / 2000

RECORD OF BOREHOLE: BH15-16

SHEET 1 OF 1

DATUM: Ground Surface

CLIENT: Public Works and Government Services Canada
PROJECT: Transport Canada Parcel 44
LOCATION: Esquimalt, BC
N: ~5365905 E: ~467918
Note: Coordinates and Elevation have not been surveyed and are considered to be approximate only.

DRILLING DATE: September 9, 2015
DRILLING CONTRACTOR: Grassroots Drilling Inc.

DEPTH SCALE METRES	DRILLING RIG / DRILLING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	GEOTECH SAMPLES: NUMBER	TYPE	BLOWS/0.3m	CORE No.	CORE RECOVERY %	CHEMISTRY SAMPLES: NUMBER	SCN	ANALYSED	PID ppm (5 10 15 20)	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / WATER CONTENT % (Wp W Wl; 10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE OR THERMISTOR INSTALLATION
		Ground Surface														Backfilling
0	Mole Rat (Casing:152 mm;)	**(SC)** gravelly silty CLAYEY SAND; grey, contains shells; cohesive, w>PL, soft to firm.		0.00	1	AS		1	50	1	00922-12		⊕			- Backfilled with cuttings.
1	Solid Stem Auger	End of Borehole. (Refusal) Note: Inferred bedrock.		0.61												
2																
3																
4																
5																
6																
7																
8																
9																
10																

SOIL CLASSIFICATION SYSTEM: GACS

DEPTH SCALE
1 : 50

LOGGED: AU
CHECKED: WB

Golder Associates

National IM Server:GINT_GAL_NATIONALIM Unique Project ID: Output Form:BC_BOREHOLE (GEO/ENVIRO) jfarah 25/11/15

PROJECT No.: 1535154 / 2000 / 2000

RECORD OF BOREHOLE: BH15-17

SHEET 1 OF 1

DATUM: Ground Surface

CLIENT: Public Works and Government Services Canada
PROJECT: Transport Canada Parcel 44
LOCATION: Esquimalt, BC
N: ~5365903 E: ~467855
Note: Coordinates and Elevation have not been surveyed and are considered to be approximate only.

DRILLING DATE: September 9, 2015
DRILLING CONTRACTOR: Grassroots Drilling Inc.

DEPTH SCALE METRES	DRILLING RIG / DRILLING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	GEOTECH SAMPLES: NUMBER	TYPE	BLOWS/0.3m	CORE No.	CORE RECOVERY %	CHEMISTRY SAMPLES: NUMBER	SCN	ANALYSED	PID ppm (5 10 15 20)	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / WATER CONTENT % (Wp W Wl; 10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE OR THERMISTOR INSTALLATION
		Ground Surface														Backfilling Details
0	Hand Auger / Hand Augering	**(SP/GP)** SAND and GRAVEL, coarse sand, coarse, rounded gravel, some fines; dark grey, no staining, with shells; non-cohesive, wet, loose.		0.00				1	50							- backfilled with cuttings.
				0.30	1	AS				1	00922-11		⊕			
		(SM) SILTY SAND, coarse, trace fine gravel; brown, no staining, with wood debris, with shells; non-cohesive, moist, loose.		0.46												
1		End of Borehole.														
		Note: Hand auger cannot penetrate gravel and cobbles at 0.46 m depth.														
2																
3																
4																
5																
6																
7																
8																
9																
10																

SOIL CLASSIFICATION SYSTEM: GACS

DEPTH SCALE
1 : 50

LOGGED: AU
CHECKED: WB

Golder Associates

National IM Server:GINT_GAL_NATIONALIM Unique Project ID: Output Form:BC_BOREHOLE (GEO/ENVIRO) jfarah 25/11/15

PROJECT No.: 1535154 / 2000 / 2000

RECORD OF BOREHOLE: BH15-18

SHEET 1 OF 1

CLIENT: Public Works and Government Services Canada
PROJECT: Transport Canada Parcel 44
LOCATION: Esquimalt, BC
N: ~5365899 E: ~467898
Note: Coordinates and Elevation have not been surveyed and are considered to be approximate only.

DRILLING DATE: September 9, 2015
DRILLING CONTRACTOR: Grassroots Drilling Inc.

DATUM: Ground Surface

DEPTH SCALE METRES	DRILLING RIG / DRILLING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	GEOTECH SAMPLES: NUMBER	TYPE	BLOWS/0.3m	CORE No.	CORE RECOVERY %	CHEMISTRY SAMPLES: NUMBER	SCN	ANALYSED	PID ppm (5 10 15 20)	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / WATER CONTENT % (Wp W Wl; 10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE OR THERMISTOR INSTALLATION
		Ground Surface														Backfilling Details
0	Mole Rat / Solid Stem Auger (Casing:152 mm:)	**(CH)** CLAY, some coarse, rounded gravel, trace fine sand; grey, no staining; cohesive, w>PL, soft.		0.00	1	AS		1	80	1	00918-01	⊕				- drum cuttings. - backfilled with sand.
1		**(SP/GP)** SAND and GRAVEL, coarse sand, coarse gravel, some fines; grey, no staining, with cobbles; non-cohesive, wet, loose.		1.52	2	AS		2	50	2	00918-02	⊕				
2		End of Borehole. (Refusal) Note: Inferred bedrock at 1.98 m depth.		1.98												
3																
4																
5																
6																
7																
8																
9																
10																

DEPTH SCALE
1 : 50

SOIL CLASSIFICATION SYSTEM: GACS
LOGGED: AU
CHECKED: WB

Golder Associates

National IM Server:GINT_GAL_NATIONALIM Unique Project ID: Output Form:BC_BOREHOLE (GEO/ENVIRO) jfarah 25/11/15

PROJECT No.: 1535154 / 2000 / 2000

RECORD OF BOREHOLE: BH15-19

SHEET 1 OF 1

CLIENT: Public Works and Government Services Canada
PROJECT: Transport Canada Parcel 44
LOCATION: Esquimalt, BC
N: ~5365892 E: ~467958
Note: Coordinates and Elevation have not been surveyed and are considered to be approximate only.

DRILLING DATE: September 9, 2015
DRILLING CONTRACTOR: Grassroots Drilling Inc.

DATUM: Ground Surface

DEPTH SCALE METRES	DRILLING RIG / DRILLING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	GEOTECH SAMPLES: NUMBER	TYPE	BLOWS/0.3m	CORE No.	CORE RECOVERY %	CHEMISTRY SAMPLES: NUMBER	SCN	ANALYSED	PID ppm (5 10 15 20)	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / WATER CONTENT % (Wp W Wl; 10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE OR THERMISTOR INSTALLATION
		Ground Surface														Backfilling Details
0	Mole Rat / Solid Stem Auger (Casing:152 mm:)	**(SM)** SILTY SAND, fine, trace coarse, angular gravel; brown, no staining, with rootlets; non-cohesive, moist, loose.		0.00				1								- drum cuttings. - backfilled with sand.
1		**(ML)** SILT, some fine sand; red-brown, no staining, with wood chips; non-cohesive, moist, loose. - metal debris from 0.91 m to 1.22 m depth. - plastic sheeting at 1.22 m depth.		0.61	1	AS				1	00918-03	⊕				
2		**(ML)** CLAYEY SILT, trace fine sand, trace coarse, angular gravel; brown, no staining, with rootlets, with wood chips, with glass; non-cohesive, moist, loose. - some fine and coarse gravel at 2.44 m depth. - wet at 2.74 m depth.		1.52	2	AS				2/3	00918-04/05	⊕				
3		End of Borehole. (Refusal) Note: Inferred bedrock at 2.90 m depth.		2.90												
4																
5																
6																
7																
8																
9																
10																

SOIL CLASSIFICATION SYSTEM: GACS

DEPTH SCALE
1 : 50

LOGGED: AU
CHECKED: WB

Golder Associates

National IM Server:GINT_GAL_NATIONALIM Unique Project ID: Output Form:BC_BOREHOLE (GEO/ENVIRO) jfarah 25/11/15

PROJECT No.: 1535154 / 2000 / 2000

RECORD OF BOREHOLE: BH15-20

SHEET 1 OF 1

CLIENT: Public Works and Government Services Canada
PROJECT: Transport Canada Parcel 44
LOCATION: Esquimalt, BC
N: ~5365871 E: ~467956
Note: Coordinates and Elevation have not been surveyed and are considered to be approximate only.

DRILLING DATE: September 9, 2015
DRILLING CONTRACTOR: Grassroots Drilling Inc.

DATUM: Ground Surface

DEPTH SCALE METRES	DRILLING RIG / DRILLING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	GEOTECH SAMPLES: NUMBER	TYPE	BLOWS/0.3m	CORE No.	CORE RECOVERY %	CHEMISTRY SAMPLES: NUMBER	SCN	ANALYSED	PID ppm (5 10 15 20)	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / WATER CONTENT % (Wp W Wl; 10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE OR THERMISTOR INSTALLATION
		Ground Surface		0.00												Backfilling Details
0	Mole Rat / Solid Stem Auger (Casing:152 mm;)	**(SM)** SILTY SAND, fine, trace fine, sub-angular gravel; dark brown, no staining, with rootlets, with shells; cohesive, moist, loose.						1	50							- drum cuttings. - backfilled with sand.
1					1	AS				1	00918-06	⊕				
		- compact at 1.22 m depth.														
2								2	70							
3					2	AS				2	00918-07	⊕				
		- grading to coarse, rounded gravel at 3.66 m depth.						3	70							
4		- with glass at 3.96 m depth.														
		- grading to coarse sand, wet at 4.57 m depth.														
5								4	50							
		End of Borehole. (Refusal) Note: Inferred bedrock at 5.33 m depth.		5.33												
6																
7																
8																
9																
10																

SOIL CLASSIFICATION SYSTEM: GACS

DEPTH SCALE
1 : 50

LOGGED: AU
CHECKED: WB

Golder Associates

National IM Server:GINT_GAL_NATIONALIM Unique Project ID: Output Form:BC_BOREHOLE (GEO/ENVIRO) jfarah 25/11/15

PROJECT No.: 1535154 / 2000 / 2000

RECORD OF BOREHOLE: BH15-21

SHEET 1 OF 1

DATUM: Ground Surface

CLIENT: Public Works and Government Services Canada
PROJECT: Transport Canada Parcel 44
LOCATION: Esquimalt, BC
N: ~5365900 E: ~467878
Note: Coordinates and Elevation have not been surveyed and are considered to be approximate only.

DRILLING DATE: September 9, 2015
DRILLING CONTRACTOR: Grassroots Drilling Inc.

DEPTH SCALE METRES	DRILLING RIG / DRILLING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	GEOTECH SAMPLES: NUMBER	TYPE	BLOWS/0.3m	CORE No.	CORE RECOVERY %	CHEMISTRY SAMPLES: NUMBER	SCN	ANALYSED	PID ppm (5 10 15 20)	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / WATER CONTENT % (Wp W Wl; 10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE OR THERMISTOR INSTALLATION
		Ground Surface														Backfilling Details
0	Mole Rat (Casing:152 mm); Solid Stem Auger	**(SP)** SAND, fine, some fine, rounded gravel, trace fines; light brown, no staining, with rootlets; non-cohesive, dry, loose.		0.00				1								- drum cuttings. - backfilled with sand.
1					1	AS				1	00918-08	⊕				
		End of Borehole. (Refusal) Note: Suspected rip rap. Drilled four more nearby locations with refusal at 0.46 m to 1.22 m below ground surface.		1.22												
2																
3																
4																
5																
6																
7																
8																
9																
10																

SOIL CLASSIFICATION SYSTEM: GACS

DEPTH SCALE
1 : 50

LOGGED: AU
CHECKED: WB

Golder Associates

National IM Server:GINT_GAL_NATIONALIM Unique Project ID: Output Form:BC_BOREHOLE (GEO/ENVIRO) jfarah 25/11/15

PROJECT No.: 1535154 / 2000 / 2000

RECORD OF BOREHOLE: BH15-22

SHEET 1 OF 1

CLIENT: Public Works and Government Services Canada
PROJECT: Transport Canada Parcel 44
LOCATION: Esquimalt, BC
N: ~5365900 E: ~467935
Note: Coordinates and Elevation have not been surveyed and are considered to be approximate only.

DRILLING DATE: September 10, 2015
DRILLING CONTRACTOR: Grassroots Drilling Inc.

DATUM: Ground Surface

DEPTH SCALE METRES	DRILLING RIG / DRILLING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	GEOTECH SAMPLES: NUMBER	TYPE	BLOWS/0.3m	CORE No.	CORE RECOVERY %	CHEMISTRY SAMPLES: NUMBER	SCN	ANALYSED	PID ppm (5 10 15 20)	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / WATER CONTENT % (Wp W Wl; 10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE OR THERMISTOR INSTALLATION
		Ground Surface														Backfilling Details
0	Mole Rat (Casing:152 mm;) / Solid Stem Auger	FILL - **(PT)** SANDY PEAT, some gravel; black, organic odour, contains wood chips (approximately 90% by volume of organics); non-cohesive, moist, very loose.		0.00												
				0.30	1/2	AS				1/2	00923-01/02		⊕			
1		FILL - **(PT)** SILTY PEAT, some sand, some gravel; brown, contains wood chips (approximately 90 - 100% by volume of organics); non-cohesive, moist, very loose.						1	100							
					3	AS				2	00923-03		⊕			
		End of Borehole.		1.52												
2		Note: Geotechnical drilling continued.														
3																
4																
5																
6																
7																
8																
9																
10																

SOIL CLASSIFICATION SYSTEM: GACS

DEPTH SCALE
1 : 50

Golder Associates

LOGGED: AU
CHECKED: WB

National IM Server:GINT_GAL_NATIONALIM Unique Project ID: Output Form:BC_BOREHOLE (GEO/ENVIRO) jfarah 25/11/15

PROJECT No.: 1535154 / 2000 / 2000

RECORD OF BOREHOLE: BH15-23

SHEET 1 OF 1

CLIENT: Public Works and Government Services Canada
PROJECT: Transport Canada Parcel 44
LOCATION: Esquimalt, BC
N: ~5365913 E: ~467854
Note: Coordinates and Elevation have not been surveyed and are considered to be approximate only.

DRILLING DATE: September 10, 2015
DRILLING CONTRACTOR: Grassroots Drilling Inc.

DATUM: Ground Surface

DEPTH SCALE METRES	DRILLING RIG / DRILLING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	GEOTECH SAMPLES: NUMBER	TYPE	BLOWS/0.3m	CORE No.	CORE RECOVERY %	CHEMISTRY SAMPLES: NUMBER	SCN	ANALYSED	PID ppm (5 10 15 20)	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / WATER CONTENT % (Wp W Wl; 10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE OR THERMISTOR INSTALLATION
		Ground Surface														Backfilling Details
0	Hand Auger / Hand Augering	FILL - **(PT)** SANDY PEAT, some coarse, rounded gravel, some fines; dark brown, no staining, with cobbles, with wood chips; non-cohesive, moist, loose.		0.00	1	AS		1	100	1	00923-04	⊕				- backfilled with cuttings.
		End of Borehole. Note: Hand auger cannot penetrate through gravel at 0.46 m depth.		0.46												
1																
2																
3																
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5																
6																
7																
8																
9																
10																

SOIL CLASSIFICATION SYSTEM: GACS

DEPTH SCALE
1 : 50

LOGGED: AU
CHECKED: WB

Golder Associates

National IM Server:GINT_GAL_NATIONALIM Unique Project ID: Output Form:BC_BOREHOLE (GEO/ENVIRO) jfarah 25/11/15

PROJECT No.: 1535154 / 2000 / 2000

RECORD OF BOREHOLE: BH15-24

SHEET 1 OF 1

DATUM: Ground Surface

CLIENT: Public Works and Government Services Canada
PROJECT: Transport Canada Parcel 44
LOCATION: Esquimalt, BC
N: ~5365926 E: ~467836
Note: Coordinates and Elevation have not been surveyed and are considered to be approximate only.

DRILLING DATE: September 10, 2015
DRILLING CONTRACTOR: Grassroots Drilling Inc.

DEPTH SCALE METRES	DRILLING RIG / DRILLING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	GEOTECH SAMPLES: NUMBER	TYPE	BLOWS/0.3m	CORE No.	CORE RECOVERY %	CHEMISTRY SAMPLES: NUMBER	SCN	ANALYSED	PID ppm (5 10 15 20)	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / WATER CONTENT % (Wp W Wl; 10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE OR THERMISTOR INSTALLATION
		Ground Surface														Backfilling Details
0	Hand Auger / Hand Augering	**(SP/GP)** SAND and GRAVEL, medium to coarse sand, fine to coarse, sub-rounded to rounded gravel; grey, no staining; non-cohesive, moist, loose.		0.00	1	AS		1	100	1	00923-05	⊕				- backfilled with cuttings.
				0.46												
		Note: Hand auger cannot penetrate through gravel at 0.46 m depth.														
1																
2																
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8																
9																
10																

SOIL CLASSIFICATION SYSTEM: GACS

DEPTH SCALE
1 : 50

LOGGED: AU
CHECKED: WB

Golder Associates

National IM Server:GINT_GAL_NATIONALIM Unique Project ID: Output Form:BC_BOREHOLE (GEO/ENVIRO) jfarah 25/11/15

PROJECT No.: 1535154 / 2000 / 2000

RECORD OF BOREHOLE: BH15-25

SHEET 1 OF 1

DATUM: Ground Surface

CLIENT: Public Works and Government Services Canada
PROJECT: Transport Canada Parcel 44
LOCATION: Esquimalt, BC
N: ~5365922 E: ~467844
Note: Coordinates and Elevation have not been surveyed and are considered to be approximate only.

DRILLING DATE: September 10, 2015
DRILLING CONTRACTOR: Grassroots Drilling Inc.

DEPTH SCALE METRES	DRILLING RIG / DRILLING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	GEOTECH SAMPLES: NUMBER	TYPE	BLOWS/0.3m	CORE No.	CORE RECOVERY %	CHEMISTRY SAMPLES: NUMBER	SCN	ANALYSED	PID ppm (5 10 15 20)	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / WATER CONTENT % (Wp W Wl; 10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE OR THERMISTOR INSTALLATION
		Ground Surface														Backfilling Details
0	Hand Auger / Hand Augering	**(SP/GP)** SAND and GRAVEL, medium to coarse sand, fine to coarse, sub-rounded to rounded gravel; grey, no staining; non-cohesive, moist, loose.		0.00	1	AS		1	100	1	00923-06	⊕				- backfilled with cuttings.
				0.46												
		Note: Hand auger cannot penetrate through gravel at 0.46 m depth.														
1																
2																
3																
4																
5																
6																
7																
8																
9																
10																

SOIL CLASSIFICATION SYSTEM: GACS

DEPTH SCALE
1 : 50

LOGGED: AU
CHECKED: WB

Golder Associates

National IM Server:GINT_GAL_NATIONALIM Unique Project ID: Output Form:BC_BOREHOLE (GEO/ENVIRO) jfarah 25/11/15

PROJECT No.: 1535154 / 2000 / 2000

RECORD OF BOREHOLE: BH15-26

SHEET 1 OF 1

DATUM: Ground Surface

CLIENT: Public Works and Government Services Canada
PROJECT: Transport Canada Parcel 44
LOCATION: Esquimalt, BC
N: ~5365896 E: ~467871
Note: Coordinates and Elevation have not been surveyed and are considered to be approximate only.

DRILLING DATE: September 10, 2015
DRILLING CONTRACTOR: Grassroots Drilling Inc.

DEPTH SCALE METRES	DRILLING RIG / DRILLING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	GEOTECH SAMPLES: NUMBER	TYPE	BLOWS/0.3m	CORE No.	CORE RECOVERY %	CHEMISTRY SAMPLES: NUMBER	SCN	ANALYSED	PID ppm (5 10 15 20)	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / WATER CONTENT % (Wp W Wl; 10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE OR THERMISTOR INSTALLATION
		Ground Surface														Backfilling Details
0	Mole Rat (Casing:152 mm.) / Solid Stem Auger	**(SM)** SILTY SAND, fine, some fine, rounded to sub-rounded gravel; brown, no staining, with wood chips; non-cohesive, dry, loose.		0.00	1	AS		1	80	1	00923-07		⊕			- backfilled with cuttings.
					2/3	AS				2/3	00923-08/09		⊕			
		End of Borehole. (Refusal) Note: Inferred bedrock at 1.37 m depth.		1.37												
1																
2																
3																
4																
5																
6																
7																
8																
9																
10																

SOIL CLASSIFICATION SYSTEM: GACS

DEPTH SCALE
1 : 50

Golder Associates

LOGGED: AU
CHECKED: WB

National IM Server:GINT_GAL_NATIONALIM Unique Project ID: Output Form:BC_BOREHOLE (GEO/ENVIRO) jfarah 25/11/15

PROJECT No.: 1535154 / 2000 / 2000

RECORD OF BOREHOLE: BH15-27

SHEET 1 OF 1

CLIENT: Public Works and Government Services Canada
PROJECT: Transport Canada Parcel 44
LOCATION: Esquimalt, BC
N: ~5365901 E: ~467950
Note: Coordinates and Elevation have not been surveyed and are considered to be approximate only.

DRILLING DATE: September 10, 2015
DRILLING CONTRACTOR: Grassroots Drilling Inc.

DATUM: Ground Surface

DEPTH SCALE METRES	DRILLING RIG / DRILLING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	GEOTECH SAMPLES: NUMBER	TYPE	BLOWS/0.3m	CORE No.	CORE RECOVERY %	CHEMISTRY SAMPLES: NUMBER	SCN	ANALYSED	PID ppm (5 10 15 20)	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / WATER CONTENT % (Wp W Wl; 10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE OR THERMISTOR INSTALLATION
		Ground Surface														Backfilling Details
0	Mole Rat / Solid Stem Auger (Casing:152 mm;)	**(SM)** SILTY SAND, fine, some coarse, angular gravel; dark brown, no staining, with wood chips; non-cohesive, moist, loose.		0.00				1	90							- drum cuttings. - backfilled with sand.
1					1	AS				1	00923-10	⊕				
2								2	90							
3		- more wood chips at 2.74 m depth. - wet at 2.90 m depth.			2	AS				2	00923-11	⊕				
4								3	90							
5								4	50							
6								5	50							
		End of Borehole.		6.40												
7																
8																
9																
10																

SOIL CLASSIFICATION SYSTEM: GACS

DEPTH SCALE
1 : 50

LOGGED: AU
CHECKED: WB

Golder Associates

National IM Server:GINT_GAL_NATIONALIM Unique Project ID: Output Form:BC_BOREHOLE (GEO/ENVIRO) jfarah 25/11/15

PROJECT No.: 1535154 / 2000 / 2000

RECORD OF BOREHOLE: BH15-28

SHEET 1 OF 1

DATUM: Ground Surface

CLIENT: Public Works and Government Services Canada
PROJECT: Transport Canada Parcel 44
LOCATION: Esquimalt, BC
N: ~5365912 E: ~467938
Note: Coordinates and Elevation have not been surveyed and are considered to be approximate only.

DRILLING DATE: September 10, 2015
DRILLING CONTRACTOR: Grassroots Drilling Inc.

DEPTH SCALE METRES	DRILLING RIG / DRILLING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	GEOTECH SAMPLES: NUMBER	TYPE	BLOWS/0.3m	CORE No.	CORE RECOVERY %	CHEMISTRY SAMPLES: NUMBER	SCN	ANALYSED	PID ppm (5 10 15 20)	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / WATER CONTENT % (Wp W Wl; 10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE OR THERMISTOR INSTALLATION
		Ground Surface														Backfilling Details
0	Mole Rat / Solid Stem Auger (Casing:152 mm;)	**(SM)** SILTY SAND, fine, some coarse, sub-rounded gravel; no staining; non-cohesive, dry, loose.		0.00				1	60							- drum cuttings. - backfilled with sand. - bentonite seal from 2.44 m to 3.05 m depth.
1		- wood chips, metal debris at 1.22 m depth.			1	AS				1	00923-12	⊕				
		- encountered wood at 1.52 m depth, pushed through.														
2		**(PT)** SILTY PEAT, some fine sand, some fine, sub-rounded gravel; dark brown, no staining, with wood chips, with shells; non-cohesive, moist, loose.		1.83				2	90							
		- metal debris at 2.74 m depth.			2	AS				2	00919-01	⊕				
3																
4		- grading to red-brown; wet at 2.74 m depth.						3	80							
5		- dark brown; with metal debris at 4.57 m depth.						4	60							
		- with metal debris at 5.79 m depth.														
6		**(CL)** SILTY CLAY, some fine sand, trace fine, rounded gravel; no staining; cohesive, w>PL, soft.		5.79				5	50							
7		**(SP)** SILTY SAND, fine, trace fine, rounded gravel; no staining; non-cohesive, wet, loose.		6.71												
		End of Borehole. (Refusal)		7.01												
8																
9																
10																

SOIL CLASSIFICATION SYSTEM: GACS

DEPTH SCALE
1 : 50

LOGGED: AU
CHECKED: WB

Golder Associates

National IM Server:GINT_GAL_NATIONALIM Unique Project ID: Output Form:BC_BOREHOLE (GEO/ENVIRO) jfarah 25/11/15

PROJECT No.: 1535154 / 2000 / 2000

RECORD OF BOREHOLE: BH15-29

SHEET 1 OF 1

DATUM: Ground Surface

CLIENT: Public Works and Government Services Canada
PROJECT: Transport Canada Parcel 44
LOCATION: Esquimalt, BC
N: ~5365893 E: ~467942
Note: Coordinates and Elevation have not been surveyed and are considered to be approximate only.

DRILLING DATE: September 11, 2015
DRILLING CONTRACTOR: Grassroots Drilling Inc.

DEPTH SCALE METRES	DRILLING RIG / DRILLING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	GEOTECH SAMPLES: NUMBER	TYPE	BLOWS/0.3m	CORE No.	CORE RECOVERY %	CHEMISTRY SAMPLES: NUMBER	SCN	ANALYSED	PID ppm (5 10 15 20)	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / WATER CONTENT % (Wp W Wl; 10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE OR THERMISTOR INSTALLATION
		Ground Surface														Backfilling Details
0	Mole Rat (Casing:152 mm;) / Solid Stem Auger	FILL - **(PT)** SANDY PEAT, some gravel, some fines; black, strong organic odour, contains wood chips (approximately 90% by volume of organics); non-cohesive, moist, loose.		0.00	1	AS				1	00919-02		⊕			- backfilled with cuttings. - bentonite seal from 5.49 m to 6.10 m depth.
1		FILL - **(PT)** SILTY PEAT, some sand, some gravel; brown, contains wood chips (approximately 90 - 100% by volume of organics); non-cohesive, moist. loose. - Void - 0.1 m thick from 1.42 - 1.52 m		0.61				1	80							
					2	AS				2	00919-03		⊕			
		End of Borehole. Note: Geotechnical drilling continued.		1.52												
2																
3																
4																
5																
6																
7																
8																
9																
10																

SOIL CLASSIFICATION SYSTEM: GACS

DEPTH SCALE
1 : 50

LOGGED: AU
CHECKED: WB

Golder Associates

National IM Server:GINT_GAL_NATIONALIM Unique Project ID: Output Form:BC_BOREHOLE (GEO/ENVIRO) jfarah 25/11/15

PROJECT No.: 1535154 / 2000 / 2000

RECORD OF BOREHOLE: BH15-30

SHEET 1 OF 1

CLIENT: Public Works and Government Services Canada
PROJECT: Transport Canada Parcel 44
LOCATION: Esquimalt, BC
N: ~5365856 E: ~467959
Note: Coordinates and Elevation have not been surveyed and are considered to be approximate only.

DRILLING DATE: September 11, 2015
DRILLING CONTRACTOR: Grassroots Drilling Inc.

DATUM: Ground Surface

DEPTH SCALE METRES	DRILLING RIG / DRILLING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	GEOTECH SAMPLES: NUMBER	TYPE	BLOWS/0.3m	CORE No.	CORE RECOVERY %	CHEMISTRY SAMPLES: NUMBER	SCN	ANALYSED	PID ppm (5 10 15 20)	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / WATER CONTENT % (Wp W Wl; 10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE OR THERMISTOR INSTALLATION
		Ground Surface														Backfilling Details
0	Hand Auger / Hand Augering	**(GP)** GRAVEL, coarse, rounded; grey, no staining, with cobbles; non-cohesive, dry, loose.		0.00	1	AS		1	100	1	00919-04	⊕				
		(ML/GP) SILT and GRAVEL, coarse, rounded; grey, no staining, with cobbles, with shells; non-cohesive, moist, loose.		0.30												- drum cuttings. - backfilled with sand.
1		End of Borehole.														
2																
3																
4																
5																
6																
7																
8																
9																
10																

SOIL CLASSIFICATION SYSTEM: GACS

DEPTH SCALE
1 : 50

LOGGED: AU
CHECKED: WB

Golder Associates

National IM Server:GINT_GAL_NATIONALIM Unique Project ID: Output Form:BC_BOREHOLE (GEO/ENVIRO) jfarah 25/11/15

PROJECT No.: 1535154 / 2000 / 2000

RECORD OF BOREHOLE: BH15-31

SHEET 1 OF 1

DATUM: Ground Surface

CLIENT: Public Works and Government Services Canada
PROJECT: Transport Canada Parcel 44
LOCATION: Esquimalt, BC
N: ~5365883 E: ~467877
Note: Coordinates and Elevation have not been surveyed and are considered to be approximate only.

DRILLING DATE: September 11, 2015
DRILLING CONTRACTOR: Grassroots Drilling Inc.

DEPTH SCALE METRES	DRILLING RIG / DRILLING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	GEOTECH SAMPLES: NUMBER	TYPE	BLOWS/0.3m	CORE No.	CORE RECOVERY %	CHEMISTRY SAMPLES: NUMBER	SCN	ANALYSED	PID ppm (5 10 15 20)	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / WATER CONTENT % (Wp W Wl; 10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE OR THERMISTOR INSTALLATION
		Ground Surface														Backfilling Details
0	Hand Auger / Hand Augering	**(GP)** GRAVEL, coarse, rounded; grey, no staining, with cobbles; non-cohesive, dry, loose.		0.00	1	AS		1	100	1	00919-05	⊕				- backfilled with cuttings.
		(ML/GP) SILT and GRAVEL, coarse, rounded; grey, no staining, with cobbles, with shells; non-cohesive, moist, loose.		0.30												
1		End of Borehole.														
2																
3																
4																
5																
6																
7																
8																
9																
10																

SOIL CLASSIFICATION SYSTEM: GACS

DEPTH SCALE
1 : 50

LOGGED: AU
CHECKED: WB

Golder Associates

National IM Server:GINT_GAL_NATIONALIM Unique Project ID: Output Form:BC_BOREHOLE (GEO/ENVIRO) jfarah 25/11/15

PROJECT No.: 1535154 / 2000 / 2000

RECORD OF BOREHOLE: BH15-32

SHEET 1 OF 1

CLIENT: Public Works and Government Services Canada
PROJECT: Transport Canada Parcel 44
LOCATION: Esquimalt, BC
N: ~5365894 E: ~467890
Note: Coordinates and Elevation have not been surveyed and are considered to be approximate only.

DRILLING DATE: September 9, 2015
DRILLING CONTRACTOR: Grassroots Drilling Inc.

DATUM: Ground Surface

DEPTH SCALE METRES	DRILLING RIG / DRILLING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	GEOTECH SAMPLES: NUMBER	TYPE	BLOWS/0.3m	CORE No.	CORE RECOVERY %	CHEMISTRY SAMPLES: NUMBER	SCN	ANALYSED	PID ppm (5 10 15 20)	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / WATER CONTENT % (Wp W Wl; 10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE OR THERMISTOR INSTALLATION
		Ground Surface														Backfilling Details
0	Hand Auger / Hand Augering	**(GP)** GRAVEL, coarse, rounded; grey, no staining, with cobbles; non-cohesive, dry, loose.		0.00	1	AS		1		1	00919-06	⊕				- backfilled with cuttings.
		(ML/GP) SILT and GRAVEL, coarse, rounded; grey, no staining, with cobbles, with shells; non-cohesive, moist, loose.		0.30												
1		End of Borehole.														
2																
3																
4																
5																
6																
7																
8																
9																
10																

SOIL CLASSIFICATION SYSTEM: GACS

DEPTH SCALE
1 : 50

LOGGED: AU
CHECKED: WB

Golder Associates

National IM Server:GINT_GAL_NATIONALIM Unique Project ID: Output Form:BC_BOREHOLE (GEO/ENVIRO) jfarah 25/11/15

PROJECT No.: 1535154 / 2000 / 2000

RECORD OF BOREHOLE: BH15-33

SHEET 1 OF 2

CLIENT: Public Works and Government Services Canada
PROJECT: Transport Canada Parcel 44
LOCATION: Esquimalt, BC
N: ~5365911 E: ~467929
Note: Coordinates and Elevation have not been surveyed and are considered to be approximate only.

DRILLING DATE: September 11, 2015
DRILLING CONTRACTOR: Grassroots Drilling Inc.

DATUM: Ground Surface

DEPTH SCALE METRES	DRILLING RIG / DRILLING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	GEOTECH SAMPLES: NUMBER	TYPE	BLOWS/0.3m	CORE No.	CORE RECOVERY %	CHEMISTRY SAMPLES: NUMBER	SCN	ANALYSED	PID ppm (5 10 15 20)	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / WATER CONTENT % (Wp W Wl; 10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE OR THERMISTOR INSTALLATION
		Ground Surface		0.00												Backfilling Details
0	Mole Rat / Solid Stem Auger (Casing:152 mm;)	**(SW)** SAND, medium, some fine, rounded gravel; light brown, no staining, with cobbles; non-cohesive, dry, loose.		0.15												- drum cuttings. - backfilled with sand. - bentonite seal from 1.52 m to 2.13 m depth.
		(PT) SANDY PEAT, medium sand, some fine, angular gravel; dark brown, no staining, with wood chips; non-cohesive, moist, loose.						1	80							
1					1	AS				1	00919-07	⊕				
2		**(CI)** SILTY CLAY, some fine, rounded gravel; grey, no staining; cohesive, w~PL, soft.		1.83				2	80							
					2	AS				2	00919-08	⊕				
3		- wood chips from 3.05 m to 4.57 m depth.														
								3	80							
4		- w<PL at 4.27 m depth.														
5		- grading to some fine sand at 4.88 m depth.														
		(SM) SILTY SAND, fine, some fine, rounded gravel; dark grey, no staining, with shells; non-cohesive, wet loose.		5.18				4	80							
6																
		(SM) SILTY SAND; grey, no staining; cohesive, w>PL, soft.		6.40				5	100							
7																
8		- some fine, angular gravel from 8.23 m to 9.14 m depth.						6	100							
9																
		End of Borehole. (Refusal)		9.60												
10		*CONTINUED NEXT PAGE*														

SOIL CLASSIFICATION SYSTEM: GACS

DEPTH SCALE
1 : 50

LOGGED: AU
CHECKED: WB

Golder Associates

National IM Server:GINT_GAL_NATIONALIM Unique Project ID: Output Form:BC_BOREHOLE (GEO/ENVIRO) jfarah 25/11/15

PROJECT No.: 1535154 / 2000 / 2000

RECORD OF BOREHOLE: BH15-33

SHEET 2 OF 2

CLIENT: Public Works and Government Services Canada
PROJECT: Transport Canada Parcel 44
LOCATION: Esquimalt, BC
N: ~5365911 E: ~467929
Note: Coordinates and Elevation have not been surveyed and are considered to be approximate only.

DRILLING DATE: September 11, 2015
DRILLING CONTRACTOR: Grassroots Drilling Inc.

DATUM: Ground Surface

DEPTH SCALE METRES	DRILLING RIG / DRILLING METHOD	SOIL PROFILE: DESCRIPTION	SOIL PROFILE: STRATA PLOT	SOIL PROFILE: ELEV. / DEPTH (m)	GEOTECH SAMPLES: NUMBER	GEOTECH SAMPLES: TYPE	GEOTECH SAMPLES: BLOWS/0.3m	GEOTECH SAMPLES: CORE No.	GEOTECH SAMPLES: CORE RECOVERY %	CHEMISTRY SAMPLES: NUMBER	CHEMISTRY SAMPLES: SCN	CHEMISTRY SAMPLES: ANALYSED	PID ppm (5 10 15 20)	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / WATER CONTENT % (Wp W Wl; 10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE OR THERMISTOR INSTALLATION
10		Note: Inferred bedrock at 9.60 m depth.														
11																
12																
13																
14																
15																
16																
17																
18																
19																
20																

SOIL CLASSIFICATION SYSTEM: GACS

DEPTH SCALE
1 : 50

LOGGED: AU
CHECKED: WB

Golder Associates

National IM Server:GINT_GAL_NATIONALIM Unique Project ID: Output Form:BC_BOREHOLE (GEO/ENVIRO) jfarah 25/11/15

PROJECT No.: 1535154 / 2000 / 2000

RECORD OF BOREHOLE: BH15-34

SHEET 1 OF 1

CLIENT: Public Works and Government Services Canada
PROJECT: Transport Canada Parcel 44
LOCATION: Esquimalt, BC
N: ~5365927 E: ~467863
Note: Coordinates and Elevation have not been surveyed and are considered to be approximate only.

DRILLING DATE: September 14, 2015
DRILLING CONTRACTOR: Grassroots Drilling Inc.

DATUM: Ground Surface

DEPTH SCALE METRES	DRILLING RIG / DRILLING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	GEOTECH SAMPLES: NUMBER	TYPE	BLOWS/0.3m	CORE No.	CORE RECOVERY %	CHEMISTRY SAMPLES: NUMBER	SCN	ANALYSED	PID ppm (5 10 15 20)	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / WATER CONTENT % (Wp W Wl; 10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE OR THERMISTOR INSTALLATION
		Ground Surface														Backfilling Details
0	Mole Rat / Solid Stem Auger (Casing:152 mm;)	**(SM)** SILTY SAND, fine, some coarse, rounded gravel; dark brown, no staining, with cobbles, with wood chips; non-cohesive, dry, loose.		0.00												- drum cuttings. - backfilled with sand. - bentonite seal from 1.83 m to 2.44 m below ground surface.
1					1/2	AS		1	50	1/2	00921-01/02		⊕			
2		- moist at 1.83 m depth.														
		(SM) SILTY SAND, medium, some fine, sub-rounded gravel; dark grey, no staining, with wood chips; non-cohesive, wet, loose.		2.13				2	80							
3					3/4	AS				2/3	00921-03/04		⊕			
		- grading to dark brown at 3.05 m depth.						3	50							
		End of Borehole. (Refusal) Note: Inferred bedrock at 3.35 m depth.		3.35												
4																
5																
6																
7																
8																
9																
10																

SOIL CLASSIFICATION SYSTEM: GACS

DEPTH SCALE
1 : 50

LOGGED: AU
CHECKED: WB

Golder Associates

National IM Server:GINT_GAL_NATIONALIM Unique Project ID: Output Form:BC_BOREHOLE (GEO/ENVIRO) jfarah 25/11/15

PROJECT No.: 1535154 / 2000 / 2000

RECORD OF BOREHOLE: BH15-35

SHEET 1 OF 1

CLIENT: Public Works and Government Services Canada
PROJECT: Transport Canada Parcel 44
LOCATION: Esquimalt, BC
N: ~5365918 E: ~467865
Note: Coordinates and Elevation have not been surveyed and are considered to be approximate only.

DRILLING DATE: September 14, 2015
DRILLING CONTRACTOR: Grassroots Drilling Inc.

DATUM: Ground Surface

DEPTH SCALE METRES	DRILLING RIG / DRILLING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	GEOTECH SAMPLES: NUMBER	TYPE	BLOWS/0.3m	CORE No.	CORE RECOVERY %	CHEMISTRY SAMPLES: NUMBER	SCN	ANALYSED	PID ppm (5 10 15 20)	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / WATER CONTENT % (Wp W Wl; 10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE OR THERMISTOR INSTALLATION
		Ground Surface														Backfilling Details
0	Mole Rat / Solid Stem Auger (Casing:152 mm.)	**(SM)** SILTY SAND, fine; red-brown, no staining, with wood chips; non-cohesive, dry, loose.		0.00												
		(PT) SILTY PEAT, trace fine sand, trace coarse, sub-rounded gravel; dark brown, no staining, with wood chips; non-cohesive, moist, loose.		0.30				1	70							- drum cuttings. - backfilled with sand.
1					1	AS				1	00921-05		⊕			
2		**(PT)** SILTY PEAT, some medium sand, some fine, rounded gravel; dark grey, no staining, with wood chips; non-cohesive, moist, loose.		1.52				2	40							
3					2	AS				2	00921-06		⊕			
		End of Borehole. (Refusal) Note: Inferred bedrock at 3.05 m depth.		3.05												
4																
5																
6																
7																
8																
9																
10																

SOIL CLASSIFICATION SYSTEM: GACS

DEPTH SCALE
1 : 50

LOGGED: AU
CHECKED: WB

Golder Associates

National IM Server:GINT_GAL_NATIONALIM Unique Project ID: Output Form:BC_BOREHOLE (GEO/ENVIRO) jfarah 25/11/15

PROJECT No.: 1535154 / 2000 / 2000

RECORD OF BOREHOLE: BH15-36

SHEET 1 OF 1

CLIENT: Public Works and Government Services Canada
PROJECT: Transport Canada Parcel 44
LOCATION: Esquimalt, BC
N: ~5365913 E: ~467865
Note: Coordinates and Elevation have not been surveyed and are considered to be approximate only.

DRILLING DATE: September 14, 2015
DRILLING CONTRACTOR: Grassroots Drilling Inc.

DATUM: Ground Surface

DEPTH SCALE METRES	DRILLING RIG / DRILLING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	GEOTECH SAMPLES: NUMBER	TYPE	BLOWS/0.3m	CORE No.	CORE RECOVERY %	CHEMISTRY SAMPLES: NUMBER	SCN	ANALYSED	PID ppm (5 10 15 20)	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / WATER CONTENT % (Wp W Wl; 10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE OR THERMISTOR INSTALLATION
		Ground Surface														Backfilling Details
0	Mole Rat / Solid Stem Auger (Casing:152 mm.)	**(SM)** SILTY SAND, fine to medium, trace coarse, angular gravel; brown, no staining, with cobbles, with wood chips; non-cohesive, dry, loose.		0.00				1	50							- drum cuttings. - backfilled with sand.
1					1	AS				1	00921-07	⊕				
2		- wet at 1.83 m depth.			2	AS		2	50	2	00921-08	⊕				
		End of Borehole. (Refusal) Note: Inferred bedrock at 2.13 m depth.		2.13												
3																
4																
5																
6																
7																
8																
9																
10																

SOIL CLASSIFICATION SYSTEM: GACS

DEPTH SCALE
1 : 50

LOGGED: AU
CHECKED: WB

Golder Associates

National IM Server:GINT_GAL_NATIONALIM Unique Project ID: Output Form:BC_BOREHOLE (GEO/ENVIRO) jfarah 25/11/15

PROJECT No.: 1535154 / 2000 / 2000

RECORD OF BOREHOLE: BH15-37

SHEET 1 OF 1

CLIENT: Public Works and Government Services Canada
PROJECT: Transport Canada Parcel 44
LOCATION: Esquimalt, BC
N: ~5365899 E: ~467891
Note: Coordinates and Elevation have not been surveyed and are considered to be approximate only.

DRILLING DATE: September 14, 2015
DRILLING CONTRACTOR: Grassroots Drilling Inc.

DATUM: Ground Surface

DEPTH SCALE METRES	DRILLING RIG / DRILLING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	GEOTECH SAMPLES: NUMBER	TYPE	BLOWS/0.3m	CORE No.	CORE RECOVERY %	CHEMISTRY SAMPLES: NUMBER	SCN	ANALYSED	PID ppm (5 10 15 20)	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / WATER CONTENT % (Wp W Wl; 10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE OR THERMISTOR INSTALLATION
		Ground Surface														Backfilling Details
0	Mole Rat / Solid Stem Auger (Casing:152 mm;)	**(ML)** SILT, trace coarse, sub-rounded gravel; brown, no staining, with cobbles, with rootlets, with wood chips; non-cohesive, moist, loose.		0.00				1	50							- drum cuttings. - backfilled with sand. - bentonite from 1.22 m to 1.83m depth.
					1/2	AS				1/2	00921-09/10	⊕				
1																
2		**(ML)** SILT, trace fine, rounded gravel; grey, no staining; cohesive, w>PL, very soft.		1.52												
					3/4	AS		2	70	3/4	00921-11/12	⊕				
3								3	100							
		End of Borehole. (Refusal) Note: Inferred bedrock at 3.51 m depth.		3.51												
4																
5																
6																
7																
8																
9																
10																

SOIL CLASSIFICATION SYSTEM: GACS

DEPTH SCALE
1 : 50

Golder Associates

LOGGED: AU
CHECKED: WB

National IM Server:GINT_GAL_NATIONALIM Unique Project ID: Output Form:BC_BOREHOLE (GEO/ENVIRO) jfarah 25/11/15

PROJECT No.: 1535154 / 2000 / 2000

RECORD OF BOREHOLE: BH15-38

SHEET 1 OF 1

CLIENT: Public Works and Government Services Canada
PROJECT: Transport Canada Parcel 44
LOCATION: Esquimalt, BC
N: ~5365904 E: ~467897
Note: Coordinates and Elevation have not been surveyed and are considered to be approximate only.

DRILLING DATE: September 15, 2015
DRILLING CONTRACTOR: Grassroots Drilling Inc.

DATUM: Ground Surface

DEPTH SCALE METRES	DRILLING RIG / DRILLING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	GEOTECH SAMPLES: NUMBER	TYPE	BLOWS/0.3m	CORE No.	CORE RECOVERY %	CHEMISTRY SAMPLES: NUMBER	SCN	ANALYSED	PID ppm (5 10 15 20)	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / WATER CONTENT % (Wp W Wl; 10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE OR THERMISTOR INSTALLATION
		Ground Surface														Backfilling Details
0	Mole Rat / Solid Stem Auger (Casing:152 mm;)	**(MH)** CLAYEY SILT, trace fine, rounded gravel; brown, no staining, with wood chips; cohesive, w<PL, soft.		0.00												
		(CL) SILTY CLAY; grey, no staining, with wood chips; cohesive, w<PL, soft.		0.30				1	80							- drum cuttings. - backfilled with sand.
1					1	AS				1	00771-01	⊕				
		- grading to some sand at 1.52 m depth. - increase in wood chips from 1.52 m to 4.57 m depth.														
2					2	AS		2	70	2	00771-02	⊕				
3		- grading to some fine, angular gravel at 3.05 m depth.														
4								3	80							
		- wet at 4.57 m depth.														
5																
6		End of Borehole. (Refusal) Note: Inferred bedrock at 5.94 m depth.		5.94												
7																
8																
9																
10																

SOIL CLASSIFICATION SYSTEM: GACS

DEPTH SCALE
1 : 50

LOGGED: AU
CHECKED: WB

Golder Associates

National IM Server:GINT_GAL_NATIONALIM Unique Project ID: Output Form:BC_BOREHOLE (GEO/ENVIRO) jfarah 25/11/15

PROJECT No.: 1535154 / 2000 / 2000

RECORD OF BOREHOLE: BH15-39

SHEET 1 OF 1

CLIENT: Public Works and Government Services Canada
PROJECT: Transport Canada Parcel 44
LOCATION: Esquimalt, BC
N: ~5365912 E: ~467919
Note: Coordinates and Elevation have not been surveyed and are considered to be approximate only.

DRILLING DATE: September 15, 2015
DRILLING CONTRACTOR: Grassroots Drilling Inc.

DATUM: Ground Surface

DEPTH SCALE METRES	DRILLING RIG / DRILLING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	GEOTECH SAMPLES: NUMBER	TYPE	BLOWS/0.3m	CORE No.	CORE RECOVERY %	CHEMISTRY SAMPLES: NUMBER	SCN	ANALYSED	PID ppm (5 10 15 20)	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / WATER CONTENT % (Wp W Wl; 10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE OR THERMISTOR INSTALLATION
		Ground Surface														Backfilling Details
0	Mole Rat (Casing:152 mm;) / Solid Stem Auger	**(ML)** SILT, trace fine sand, trace fine, angular and rounded gravel; brown, no staining, with cobbles; non-cohesive, dry loose.		0.00				1	50							- drum cuttings. - backfilled with sand.
1					1	AS				1	00771-03		⊕			
		End of Borehole. (Refusal) Note: Inferred bedrock at 1.68 m depth.		1.68												
2																
3																
4																
5																
6																
7																
8																
9																
10																

SOIL CLASSIFICATION SYSTEM: GACS

DEPTH SCALE
1 : 50

Golder Associates

LOGGED: AU
CHECKED: WB

National IM Server:GINT_GAL_NATIONALIM Unique Project ID: Output Form:BC_BOREHOLE (GEO/ENVIRO) jfarah 25/11/15

PROJECT No.: 1535154 / 2000 / 2000

RECORD OF BOREHOLE: BH15-40

SHEET 1 OF 1

CLIENT: Public Works and Government Services Canada
PROJECT: Transport Canada Parcel 44
LOCATION: Esquimalt, BC
N: ~5365901 E: ~467955
Note: Coordinates and Elevation have not been surveyed and are considered to be approximate only.

DRILLING DATE: September 15, 2015
DRILLING CONTRACTOR: Grassroots Drilling Inc.

DATUM: Ground Surface

DEPTH SCALE METRES	DRILLING RIG / DRILLING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	GEOTECH SAMPLES: NUMBER	TYPE	BLOWS/0.3m	CORE No.	CORE RECOVERY %	CHEMISTRY SAMPLES: NUMBER	SCN	ANALYSED	PID ppm (5 10 15 20)	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / WATER CONTENT % (Wp W Wl; 10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE OR THERMISTOR INSTALLATION
		Ground Surface														Backfilling Details
0	Mole Rat / Solid Stem Auger (Casing:152 mm;)	**(ML)** SILT, trace fine, rounded and angular gravel; brown, no staining, with cobbles, with wood chips; cohesive, w~PL, soft.		0.00				1	80							- drum cuttings. - backfilled with sand.
1					1/2	AS				1/2	00771-04/05	⊕				
2		**(ML)** CLAYEY SILT, some fine sand, trace fine, angular gravel; brown, no staining, with cobbles, with wood chips; cohesive, w~PL, soft. - w>PL at 2.13 m depth. - grading to some coarse, rounded gravel at 2.44 m depth.		1.83	3/4	AS		2	80	3/4	00771-06/07	⊕				
3																
		End of Borehole. (Refusal) Note: Inferred bedrock at 3.51 m depth.		3.51												
4																
5																
6																
7																
8																
9																
10																

SOIL CLASSIFICATION SYSTEM: GACS

DEPTH SCALE
1 : 50

LOGGED: AU
CHECKED: WB

Golder Associates

National IM Server:GINT_GAL_NATIONALIM Unique Project ID: Output Form:BC_BOREHOLE (GEO/ENVIRO) jfarah 25/11/15

APPENDIX C

Laboratory Certificate of Analysis and Chain of Custody Forms

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Maxxam
A Bureau Veritas Group Company

Success Through Science®

Your P.O. #: 700326766
Your Project #: 1535154
Site Location: PARCEL 44
Your C.O.C. #: 00918

Attention:Alanna Umphrey

GOLDER ASSOCIATES LTD
3795 CAREY ROAD
(2nd Floor)
VICTORIA, BC
Canada V8Z 6T8

Report Date: 2015/09/17
Report #: R2042836
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B579239
Received: 2015/09/11, 09:45

Sample Matrix: Soil
Samples Received: 7

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
BTEX/MTBE LH VH F1 in Soil - Field Pres. (1)	1	N/A	2015/09/15	BBY8SOP-00010/11	EPA 8260c R3 m
BTEX/MTBE LH VH F1 in Soil - Field Pres. (1)	1	N/A	2015/09/16	BBY8SOP-00010/11	EPA 8260c R3 m
Volatile F1-BTEX	2	N/A	2015/09/16	BBY WI-00033	Auto Calc
CCME Hydrocarbons (F2-F4 in soil) (2)	2	2015/09/12	2015/09/15	BBY8SOP-00030	CCME PHC-CWS
Elements by ICPMS (total)	7	2015/09/15	2015/09/17	BBY7SOP-00001	EPA 6020a R1 m
Particulate Mesh 200	4	N/A	2015/09/16	BBY6SOP-00039	Carter 2nd ed 55.4
Moisture	7	N/A	2015/09/14	BBY8SOP-00017	OMOE E3139 3.1 m
PAH in Soil by GC/MS (SIM) - CCME	1	2015/09/12	2015/09/14	BBY8SOP-00022	EPA 8270d R4 m
PAH in Soil by GC/MS (SIM) - CCME	6	2015/09/12	2015/09/15	BBY8SOP-00022	EPA 8270d R4 m
Benzo[a]pyrene Equivalency	5	N/A	2015/09/15	BBY WI-00033	Auto Calc
Benzo[a]pyrene Equivalency	2	N/A	2015/09/16	BBY WI-00033	Auto Calc
Total LMW, HMW, Total PAH Calc	5	N/A	2015/09/15	BBY WI-00033	Auto Calc
Total LMW, HMW, Total PAH Calc	2	N/A	2015/09/16	BBY WI-00033	Auto Calc
pH (2:1 DI Water Extract)	7	2015/09/15	2015/09/16	BBY6SOP-00028	BCMOE BCLM Mar2005 m

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

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

(1) The extraction date for VOC, BTEX, VH, or F1 samples that are field preserved with methanol equals the date sampled, unless otherwise stated.
(2) All CCME results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following the 'Alberta Environment Draft Addenda to the CWS-PHC, Appendix 6, Validation of Alternate Methods'. Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.

Encryption Key

Samantha Fregien
17 Sep 2015 17:21:24 -07:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Samantha Fregien, Project Manager
Email: SFregien@maxxam.ca
Phone# (604)639-8418

==========

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

Maxxam Job #: B579239
Report Date: 2015/09/17

GOLDER ASSOCIATES LTD
Client Project #: 1535154
Site Location: PARCEL 44
Your P.O. #: 700326766
Sampler Initials: AV

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		NC4891		NC4896		
Sampling Date		2015/09/09		2015/09/09		
COC Number		00918		00918		
	UNITS	**00918-03**	**QC Batch**	**00918-08**	**RDL**	**QC Batch**
Ext. Pet. Hydrocarbon						
F2 (C10-C16 Hydrocarbons)	mg/kg	17	8037180	13	10	8037842
F3 (C16-C34 Hydrocarbons)	mg/kg	690	8037180	490	10	8037842
F4 (C34-C50 Hydrocarbons)	mg/kg	370	8037180	330	10	8037842
Reached Baseline at C50	mg/kg	Yes	8037180	Yes	N/A	8037842
Surrogate Recovery (%)						
O-TERPHENYL (sur.)	%	94	8037180	89		8037842

RDL = Reportable Detection Limit
N/A = Not Applicable

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B579239
Report Date: 2015/09/17

GOLDER ASSOCIATES LTD
Client Project #: 1535154
Site Location: PARCEL 44
Your P.O. #: 700326766
Sampler Initials: AV

PARTICLE SIZE DISTRIBUTION ANALYSIS (SOIL)

Maxxam ID		NC4889	NC4891	NC4895	NC4896		
Sampling Date		2015/09/09	2015/09/09	2015/09/09	2015/09/09		
COC Number		00918	00918	00918	00918		
	UNITS	**00918-01**	**00918-03**	**00918-07**	**00918-08**	**RDL**	**QC Batch**
Physical Properties							
200 mesh (>.075 mm)	%	59.3	60.4	75.0	84.8	0.10	8036686
200 mesh (<.075 mm)	%	40.7	39.6	25.0	15.2	0.10	8036686
RDL = Reportable Detection Limit							

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B579239
Report Date: 2015/09/17

GOLDER ASSOCIATES LTD
Client Project #: 1535154
Site Location: PARCEL 44
Your P.O. #: 700326766
Sampler Initials: AV

PHYSICAL TESTING (SOIL)

Maxxam ID		NC4889	NC4891	NC4892	NC4893	NC4894	NC4895	NC4896		
Sampling Date		2015/09/09	2015/09/09	2015/09/09	2015/09/09	2015/09/09	2015/09/09	2015/09/09		
COC Number		00918	00918	00918	00918	00918	00918	00918		
	UNITS	**00918-01**	**00918-03**	**00918-04**	**00918-05**	**00918-06**	**00918-07**	**00918-08**	**RDL**	**QC Batch**
Physical Properties										
Moisture	%	31	35	35	45	17	22	13	0.30	8035338
RDL = Reportable Detection Limit										

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B579239
Report Date: 2015/09/17

GOLDER ASSOCIATES LTD
Client Project #: 1535154
Site Location: PARCEL 44
Your P.O. #: 700326766
Sampler Initials: AV

CCME BTEX/F1IN SOIL - FIELD PRESERVED (SOIL)

Maxxam ID		NC4891	NC4896		
Sampling Date		2015/09/09	2015/09/09		
COC Number		00918	00918		
	UNITS	**00918-03**	**00918-08**	**RDL**	**QC Batch**
Calculated Parameters					
F1 (C6-C10) - BTEX	mg/kg	<10	<10	10	8035037
Volatiles					
Methyl-tert-butylether (MTBE)	mg/kg	<0.10	<0.10	0.10	8038846
Benzene	mg/kg	<0.0050	<0.0050	0.0050	8038846
Toluene	mg/kg	0.055	<0.020	0.020	8038846
Ethylbenzene	mg/kg	<0.010	<0.010	0.010	8038846
m & p-Xylene	mg/kg	<0.040	<0.040	0.040	8038846
o-Xylene	mg/kg	<0.040	<0.040	0.040	8038846
Styrene	mg/kg	<0.030	<0.030	0.030	8038846
Xylenes (Total)	mg/kg	<0.040	<0.040	0.040	8038846
F1 (C6-C10)	mg/kg	<10	<10	10	8038846
Surrogate Recovery (%)					
1,4-Difluorobenzene (sur.)	%	101	100		8038846
4-Bromofluorobenzene (sur.)	%	99	100		8038846
D10-ETHYLBENZENE (sur.)	%	99	97		8038846
D4-1,2-Dichloroethane (sur.)	%	96	97		8038846
RDL = Reportable Detection Limit					

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B579239
Report Date: 2015/09/17

GOLDER ASSOCIATES LTD
Client Project #: 1535154
Site Location: PARCEL 44
Your P.O. #: 700326766
Sampler Initials: AV

CSR/CCME METALS IN SOIL (SOIL)

Maxxam ID		NC4889	NC4891	NC4892	NC4893	NC4894	NC4895	NC4896		
Sampling Date		2015/09/09	2015/09/09	2015/09/09	2015/09/09	2015/09/09	2015/09/09	2015/09/09		
COC Number		00918	00918	00918	00918	00918	00918	00918		
	UNITS	**00918-01**	**00918-03**	**00918-04**	**00918-05**	**00918-06**	**00918-07**	**00918-08**	**RDL**	**QC Batch**
Physical Properties										
Soluble (2:1) pH	pH	7.38	6.91	6.64	6.91	7.86	7.99	6.58	N/A	8038135
Total Metals by ICPMS										
Total Aluminum (Al)	mg/kg	22000	11700	17800	16200	11400	12300	16800	100	8038124
Total Antimony (Sb)	mg/kg	0.41	1.33	2.40	1.57	0.15	0.14	0.44	0.10	8038124
Total Arsenic (As)	mg/kg	7.20	7.29	10.9	18.6	3.26	3.12	5.42	0.50	8038124
Total Barium (Ba)	mg/kg	51.8	53.4	90.4	105	126	132	70.8	0.10	8038124
Total Beryllium (Be)	mg/kg	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	0.40	8038124
Total Bismuth (Bi)	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	8038124
Total Cadmium (Cd)	mg/kg	0.114	0.289	0.275	0.318	0.550	0.534	0.198	0.050	8038124
Total Calcium (Ca)	mg/kg	6210	17700	13800	12800	94100	110000	11200	100	8038124
Total Chromium (Cr)	mg/kg	47.2	46.6	48.4	42.7	18.8	19.3	37.0	1.0	8038124
Total Cobalt (Co)	mg/kg	16.3	7.41	14.8	14.5	7.23	7.81	13.9	0.30	8038124
Total Copper (Cu)	mg/kg	55.8	70.5	66.9	67.4	36.7	36.3	91.0	0.50	8038124
Total Iron (Fe)	mg/kg	38400	38800	45300	73100	16300	18000	25900	100	8038124
Total Lead (Pb)	mg/kg	10.6	24.3	23.8	34.0	27.5	24.8	28.1	0.10	8038124
Total Lithium (Li)	mg/kg	20.2	7.0	8.1	9.8	5.8	6.7	8.8	5.0	8038124
Total Magnesium (Mg)	mg/kg	10100	5350	10400	9760	4230	4760	8290	100	8038124
Total Manganese (Mn)	mg/kg	403	376	893	1660	527	542	832	0.20	8038124
Total Mercury (Hg)	mg/kg	0.104	0.100	0.104	0.302	0.080	0.108	0.107	0.050	8038124
Total Molybdenum (Mo)	mg/kg	2.32	12.6	2.82	2.36	0.29	0.28	1.10	0.10	8038124
Total Nickel (Ni)	mg/kg	39.7	22.5	36.0	35.9	16.0	16.1	26.4	0.80	8038124
Total Phosphorus (P)	mg/kg	768	1320	1180	2980	6560	6720	729	10	8038124
Total Potassium (K)	mg/kg	2050	922	738	950	690	761	691	100	8038124
Total Selenium (Se)	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	8038124
Total Silver (Ag)	mg/kg	0.072	0.099	0.062	0.065	0.093	0.102	0.076	0.050	8038124
Total Sodium (Na)	mg/kg	3070	283	911	2670	702	861	276	100	8038124
Total Strontium (Sr)	mg/kg	45.4	105	81.4	105	482	556	52.5	0.10	8038124
Total Thallium (Tl)	mg/kg	0.066	0.108	0.052	0.052	<0.050	<0.050	0.054	0.050	8038124
Total Tin (Sn)	mg/kg	0.97	3.68	3.47	2.11	1.79	1.96	2.87	0.10	8038124
Total Titanium (Ti)	mg/kg	1400	894	1110	860	404	502	1190	1.0	8038124
Total Uranium (U)	mg/kg	0.996	3.38	0.549	0.485	0.345	0.367	0.394	0.050	8038124
Total Vanadium (V)	mg/kg	92.7	60.0	71.8	68.8	32.9	38.9	69.2	2.0	8038124
Total Zinc (Zn)	mg/kg	72.1	92.6	177	150	105	108	82.3	1.0	8038124
Total Zirconium (Zr)	mg/kg	6.40	3.75	2.80	1.55	0.83	0.75	3.64	0.50	8038124

RDL = Reportable Detection Limit
N/A = Not Applicable

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Maxxam Job #: B579239
Report Date: 2015/09/17

GOLDER ASSOCIATES LTD
Client Project #: 1535154
Site Location: PARCEL 44
Your P.O. #: 700326766
Sampler Initials: AV

CCME PAH IN SOIL BY GC-MS (SOIL)

Maxxam ID		NC4889			NC4891		NC4892		
Sampling Date		2015/09/09			2015/09/09		2015/09/09		
COC Number		00918			00918		00918		
	UNITS	**00918-01**	**RDL**	**QC Batch**	**00918-03**	**QC Batch**	**00918-04**	**RDL**	**QC Batch**
Calculated Parameters									
Index of Additive Cancer Risk(IARC)	N/A	0.31	0.10	8035044	0.56	8035044	0.31	0.10	8035044
Benzo[a]pyrene equivalency	N/A	<0.10	0.10	8035044	<0.10	8035044	<0.10	0.10	8035044
Polycyclic Aromatics									
Naphthalene	mg/kg	<0.015	0.015	8037562	0.016	8037196	<0.010	0.010	8038175
2-Methylnaphthalene	mg/kg	<0.020	0.020	8037562	<0.020	8037196	<0.020	0.020	8038175
Acenaphthylene	mg/kg	<0.0050	0.0050	8037562	0.0053	8037196	<0.0050	0.0050	8038175
Acenaphthene	mg/kg	<0.0050	0.0050	8037562	0.0074	8037196	<0.0050	0.0050	8038175
Fluorene	mg/kg	<0.020	0.020	8037562	<0.020	8037196	<0.020	0.020	8038175
Phenanthrene	mg/kg	<0.020	0.020	8037562	0.038	8037196	0.020	0.020	8038175
Anthracene	mg/kg	<0.0040	0.0040	8037562	0.012	8037196	0.0049	0.0040	8038175
Fluoranthene	mg/kg	0.035	0.020	8037562	0.083	8037196	0.028	0.020	8038175
Pyrene	mg/kg	0.030	0.020	8037562	0.054	8037196	0.022	0.020	8038175
Benzo(a)anthracene	mg/kg	<0.020	0.020	8037562	<0.020	8037196	<0.020	0.020	8038175
Chrysene	mg/kg	<0.020	0.020	8037562	0.055	8037196	<0.020	0.020	8038175
Benzo(b&j)fluoranthene	mg/kg	<0.020	0.020	8037562	0.041	8037196	<0.020	0.020	8038175
Benzo(b)fluoranthene	mg/kg	<0.020	0.020	8037562	0.041	8037196	<0.020	0.020	8038175
Benzo(k)fluoranthene	mg/kg	<0.020	0.020	8037562	<0.020	8037196	<0.020	0.020	8038175
Benzo(a)pyrene	mg/kg	<0.020	0.020	8037562	0.022	8037196	<0.020	0.020	8038175
Indeno(1,2,3-cd)pyrene	mg/kg	<0.050	0.050	8037562	<0.050	8037196	<0.050	0.050	8038175
Dibenz(a,h)anthracene	mg/kg	<0.050	0.050	8037562	<0.050	8037196	<0.050	0.050	8038175
Benzo(g,h,i)perylene	mg/kg	<0.050	0.050	8037562	<0.050	8037196	<0.050	0.050	8038175
Low Molecular Weight PAH`s	mg/kg	<0.15	0.15	8034428	0.079	8034428	<0.050	0.050	8034428
High Molecular Weight PAH`s	mg/kg	0.065	0.050	8034428	0.25	8034428	<0.050	0.050	8034428
Total PAH	mg/kg	<0.15	0.15	8034428	0.33	8034428	0.075	0.050	8034428
Surrogate Recovery (%)									
D10-ANTHRACENE (sur.)	%	93		8037562	112	8037196	99		8038175
D8-ACENAPHTHYLENE (sur.)	%	87		8037562	82	8037196	90		8038175
D8-NAPHTHALENE (sur.)	%	89		8037562	85	8037196	92		8038175
TERPHENYL-D14 (sur.)	%	90		8037562	98	8037196	97		8038175
RDL = Reportable Detection Limit									

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Maxxam Job #: B579239
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GOLDER ASSOCIATES LTD
Client Project #: 1535154
Site Location: PARCEL 44
Your P.O. #: 700326766
Sampler Initials: AV

CCME PAH IN SOIL BY GC-MS (SOIL)

Maxxam ID		NC4893	NC4894	NC4895		NC4896		
Sampling Date		2015/09/09	2015/09/09	2015/09/09		2015/09/09		
COC Number		00918	00918	00918		00918		
	UNITS	**00918-05**	**00918-06**	**00918-07**	**QC Batch**	**00918-08**	**RDL**	**QC Batch**
Calculated Parameters								
Index of Additive Cancer Risk(IARC)	N/A	0.31	0.31	0.31	8035044	0.98	0.10	8035044
Benzo[a]pyrene equivalency	N/A	<0.10	<0.10	<0.10	8035044	<0.10	0.10	8035044
Polycyclic Aromatics								
Naphthalene	mg/kg	<0.010	<0.010	<0.010	8037562	0.015	0.010	8038175
2-Methylnaphthalene	mg/kg	<0.020	<0.020	<0.020	8037562	<0.020	0.020	8038175
Acenaphthylene	mg/kg	<0.0050	<0.0050	<0.0050	8037562	0.014	0.0050	8038175
Acenaphthene	mg/kg	<0.0050	<0.0050	<0.0050	8037562	<0.0050	0.0050	8038175
Fluorene	mg/kg	<0.020	<0.020	<0.020	8037562	<0.020	0.020	8038175
Phenanthrene	mg/kg	<0.020	<0.020	<0.020	8037562	0.085	0.020	8038175
Anthracene	mg/kg	<0.0040	<0.0040	<0.0040	8037562	0.024	0.0040	8038175
Fluoranthene	mg/kg	0.031	<0.020	<0.020	8037562	0.20	0.020	8038175
Pyrene	mg/kg	0.024	<0.020	<0.020	8037562	0.16	0.020	8038175
Benzo(a)anthracene	mg/kg	<0.020	<0.020	<0.020	8037562	0.062	0.020	8038175
Chrysene	mg/kg	<0.020	<0.020	<0.020	8037562	0.067	0.020	8038175
Benzo(b&j)fluoranthene	mg/kg	<0.020	<0.020	<0.020	8037562	0.065	0.020	8038175
Benzo(b)fluoranthene	mg/kg	<0.020	<0.020	<0.020	8037562	0.042	0.020	8038175
Benzo(k)fluoranthene	mg/kg	<0.020	<0.020	<0.020	8037562	0.021	0.020	8038175
Benzo(a)pyrene	mg/kg	<0.020	<0.020	<0.020	8037562	0.037	0.020	8038175
Indeno(1,2,3-cd)pyrene	mg/kg	<0.050	<0.050	<0.050	8037562	<0.050	0.050	8038175
Dibenz(a,h)anthracene	mg/kg	<0.050	<0.050	<0.050	8037562	<0.050	0.050	8038175
Benzo(g,h,i)perylene	mg/kg	<0.050	<0.050	<0.050	8037562	<0.050	0.050	8038175
Low Molecular Weight PAH`s	mg/kg	<0.050	<0.050	<0.050	8034428	0.14	0.050	8034428
High Molecular Weight PAH`s	mg/kg	0.055	<0.050	<0.050	8034428	0.62	0.050	8034428
Total PAH	mg/kg	0.055	<0.050	<0.050	8034428	0.76	0.050	8034428
Surrogate Recovery (%)								
D10-ANTHRACENE (sur.)	%	94	106	99	8037562	91		8038175
D8-ACENAPHTHYLENE (sur.)	%	86	94	86	8037562	85		8038175
D8-NAPHTHALENE (sur.)	%	89	96	91	8037562	85		8038175
TERPHENYL-D14 (sur.)	%	92	104	99	8037562	89		8038175
RDL = Reportable Detection Limit								

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GOLDER ASSOCIATES LTD
Client Project #: 1535154
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GENERAL COMMENTS

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

Package 1	3.0°C
Package 2	3.0°C
Package 3	3.7°C
Package 4	2.0°C
Package 5	2.7°C

Results relate only to the items tested.

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QUALITY ASSURANCE REPORT

GOLDER ASSOCIATES LTD
Client Project #: 1535154
Site Location: PARCEL 44
Your P.O. #: 700326766
Sampler Initials: AV

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8037180	O-TERPHENYL (sur.)	2015/09/14	84	50 - 130	93	50 - 130	105	%				
8037196	D10-ANTHRACENE (sur.)	2015/09/14	109	60 - 130	114	60 - 130	101	%				
8037196	D8-ACENAPHTHYLENE (sur.)	2015/09/14	87	50 - 130	88	50 - 130	96	%				
8037196	D8-NAPHTHALENE (sur.)	2015/09/14	87	50 - 130	88	50 - 130	93	%				
8037196	TERPHENYL-D14 (sur.)	2015/09/14	97	60 - 130	96	60 - 130	92	%				
8037562	D10-ANTHRACENE (sur.)	2015/09/15	93	60 - 130	102	60 - 130	105	%				
8037562	D8-ACENAPHTHYLENE (sur.)	2015/09/15	92	50 - 130	95	50 - 130	91	%				
8037562	D8-NAPHTHALENE (sur.)	2015/09/15	92	50 - 130	95	50 - 130	91	%				
8037562	TERPHENYL-D14 (sur.)	2015/09/15	96	60 - 130	98	60 - 130	96	%				
8037842	O-TERPHENYL (sur.)	2015/09/15	74	50 - 130	102	50 - 130	99	%				
8038175	D10-ANTHRACENE (sur.)	2015/09/15	94	60 - 130	98	60 - 130	107	%				
8038175	D8-ACENAPHTHYLENE (sur.)	2015/09/15	91	50 - 130	89	50 - 130	94	%				
8038175	D8-NAPHTHALENE (sur.)	2015/09/15	91	50 - 130	89	50 - 130	91	%				
8038175	TERPHENYL-D14 (sur.)	2015/09/15	95	60 - 130	94	60 - 130	99	%				
8038846	1,4-Difluorobenzene (sur.)	2015/09/15	97	60 - 140	99	60 - 140	103	%				
8038846	4-Bromofluorobenzene (sur.)	2015/09/15	100	60 - 140	99	60 - 140	100	%				
8038846	D10-ETHYLBENZENE (sur.)	2015/09/15	97	60 - 130	87	60 - 130	97	%				
8038846	D4-1,2-Dichloroethane (sur.)	2015/09/15	93	60 - 140	94	60 - 140	95	%				
8035338	Moisture	2015/09/14					<0.30	%	4.1	20		
8036686	200 mesh (<.075 mm)	2015/09/16							6.2	35		
8036686	200 mesh (>.075 mm)	2015/09/16							4.0	35		
8037180	F2 (C10-C16 Hydrocarbons)	2015/09/14	110	50 - 130	102	70 - 130	<10	mg/kg	NC	40		
8037180	F3 (C16-C34 Hydrocarbons)	2015/09/14	123	50 - 130	118	70 - 130	<10	mg/kg	NC	40		
8037180	F4 (C34-C50 Hydrocarbons)	2015/09/14	120	50 - 130	92	70 - 120	<10	mg/kg	NC	40		
8037180	Reached Baseline at C50	2015/09/14					YES	mg/kg	NC	50		
8037196	2-Methylnaphthalene	2015/09/14	85	50 - 130	85	50 - 130	<0.020	mg/kg	NC	50		
8037196	Acenaphthene	2015/09/14	87	50 - 130	86	50 - 130	<0.0050	mg/kg	NC	50		
8037196	Acenaphthylene	2015/09/14	85	50 - 130	84	50 - 130	<0.0050	mg/kg	NC	50		
8037196	Anthracene	2015/09/14	110	60 - 130	113	60 - 130	<0.0040	mg/kg	NC	50		
8037196	Benzo(a)anthracene	2015/09/14	77	60 - 130	76	60 - 130	<0.020	mg/kg	NC	50		

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QUALITY ASSURANCE REPORT(CONT'D)

GOLDER ASSOCIATES LTD
Client Project #: 1535154
Site Location: PARCEL 44
Your P.O. #: 700326766
Sampler Initials: AV

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8037196	Benzo(a)pyrene	2015/09/14	80	60 - 130	78	60 - 130	<0.020	mg/kg	NC	50		
8037196	Benzo(b&j)fluoranthene	2015/09/14	68	60 - 130	65	60 - 130	<0.020	mg/kg	NC	50		
8037196	Benzo(b)fluoranthene	2015/09/14	68	60 - 130	65	60 - 130	<0.020	mg/kg	NC	20		
8037196	Benzo(g,h,i)perylene	2015/09/14	65	60 - 130	60	60 - 130	<0.050	mg/kg	NC	50		
8037196	Benzo(k)fluoranthene	2015/09/14	83	60 - 130	91	60 - 130	<0.020	mg/kg	NC	50		
8037196	Chrysene	2015/09/14	80	60 - 130	78	60 - 130	<0.020	mg/kg	NC	50		
8037196	Dibenz(a,h)anthracene	2015/09/14	75	60 - 130	70	60 - 130	<0.050	mg/kg	NC	50		
8037196	Fluoranthene	2015/09/14	96	60 - 130	93	60 - 130	<0.020	mg/kg	NC	50		
8037196	Fluorene	2015/09/14	86	50 - 130	85	50 - 130	<0.020	mg/kg	NC	50		
8037196	Indeno(1,2,3-cd)pyrene	2015/09/14	73	60 - 130	67	60 - 130	<0.050	mg/kg	NC	50		
8037196	Naphthalene	2015/09/14	83	50 - 130	83	50 - 130	<0.010	mg/kg	NC	50		
8037196	Phenanthrene	2015/09/14	79	60 - 130	70	60 - 130	<0.020	mg/kg	NC	50		
8037196	Pyrene	2015/09/14	101	60 - 130	92	60 - 130	<0.020	mg/kg	NC	50		
8037562	2-Methylnaphthalene	2015/09/15	91	50 - 130	93	50 - 130	<0.020	mg/kg	NC	50		
8037562	Acenaphthene	2015/09/15	91	50 - 130	95	50 - 130	<0.0050	mg/kg	NC	50		
8037562	Acenaphthylene	2015/09/15	88	50 - 130	91	50 - 130	<0.0050	mg/kg	NC	50		
8037562	Anthracene	2015/09/15	91	60 - 130	102	60 - 130	<0.0040	mg/kg	NC	50		
8037562	Benzo(a)anthracene	2015/09/15	81	60 - 130	88	60 - 130	<0.020	mg/kg	NC	50		
8037562	Benzo(a)pyrene	2015/09/15	78	60 - 130	87	60 - 130	<0.020	mg/kg	NC	50		
8037562	Benzo(b&j)fluoranthene	2015/09/15	83	60 - 130	88	60 - 130	<0.020	mg/kg	NC	50		
8037562	Benzo(b)fluoranthene	2015/09/15	83	60 - 130	88	60 - 130	<0.020	mg/kg	NC	20		
8037562	Benzo(g,h,i)perylene	2015/09/15	72	60 - 130	78	60 - 130	<0.050	mg/kg	NC	50		
8037562	Benzo(k)fluoranthene	2015/09/15	84	60 - 130	85	60 - 130	<0.020	mg/kg	NC	50		
8037562	Chrysene	2015/09/15	83	60 - 130	92	60 - 130	<0.020	mg/kg	NC	50		
8037562	Dibenz(a,h)anthracene	2015/09/15	83	60 - 130	85	60 - 130	<0.050	mg/kg	NC	50		
8037562	Fluoranthene	2015/09/15	95	60 - 130	104	60 - 130	<0.020	mg/kg	NC	50		
8037562	Fluorene	2015/09/15	93	50 - 130	96	50 - 130	<0.020	mg/kg	NC	50		
8037562	Indeno(1,2,3-cd)pyrene	2015/09/15	77	60 - 130	83	60 - 130	<0.050	mg/kg	NC	50		
8037562	Naphthalene	2015/09/15	87	50 - 130	90	50 - 130	<0.010	mg/kg	NC	50		
8037562	Phenanthrene	2015/09/15	88	60 - 130	93	60 - 130	<0.020	mg/kg	NC	50		

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QUALITY ASSURANCE REPORT(CONT'D)

GOLDER ASSOCIATES LTD
Client Project #: 1535154
Site Location: PARCEL 44
Your P.O. #: 700326766
Sampler Initials: AV

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8037562	Pyrene	2015/09/15	93	60 - 130	102	60 - 130	<0.020	mg/kg	NC	50		
8037842	F2 (C10-C16 Hydrocarbons)	2015/09/15	102	50 - 130	98	70 - 130	<10	mg/kg	NC	40		
8037842	F3 (C16-C34 Hydrocarbons)	2015/09/15	115	50 - 130	113	70 - 130	<10	mg/kg	15	40		
8037842	F4 (C34-C50 Hydrocarbons)	2015/09/15	90	50 - 130	92	70 - 120	<10	mg/kg	NC	40		
8037842	Reached Baseline at C50	2015/09/15					YES	mg/kg	NC	50		
8038124	Total Aluminum (Al)	2015/09/17					<100	mg/kg	0.40	35	100	70 - 130
8038124	Total Antimony (Sb)	2015/09/17	86	75 - 125	91	75 - 125	<0.10	mg/kg	NC	30	95	70 - 130
8038124	Total Arsenic (As)	2015/09/17	95	75 - 125	94	75 - 125	<0.50	mg/kg	0.17	30	97	70 - 130
8038124	Total Barium (Ba)	2015/09/17	NC	75 - 125	99	75 - 125	<0.10	mg/kg	1.7	35	107	70 - 130
8038124	Total Beryllium (Be)	2015/09/17	92	75 - 125	91	75 - 125	<0.40	mg/kg	NC	30		
8038124	Total Bismuth (Bi)	2015/09/17					<0.10	mg/kg	NC	30		
8038124	Total Cadmium (Cd)	2015/09/17	101	75 - 125	100	75 - 125	<0.050	mg/kg	NC	30	96	70 - 130
8038124	Total Calcium (Ca)	2015/09/17					<100	mg/kg	0.60	30	94	70 - 130
8038124	Total Chromium (Cr)	2015/09/17	NC	75 - 125	102	75 - 125	<1.0	mg/kg	1.2	30	109	70 - 130
8038124	Total Cobalt (Co)	2015/09/17	101	75 - 125	103	75 - 125	<0.30	mg/kg	0.18	30	95	70 - 130
8038124	Total Copper (Cu)	2015/09/17	NC	75 - 125	103	75 - 125	<0.50	mg/kg	1.4	30	92	70 - 130
8038124	Total Iron (Fe)	2015/09/17					<100	mg/kg	0.018	30	96	70 - 130
8038124	Total Lead (Pb)	2015/09/17	98	75 - 125	101	75 - 125	<0.10	mg/kg	3.3	35	98	70 - 130
8038124	Total Lithium (Li)	2015/09/17	86	75 - 125	87	75 - 125	<5.0	mg/kg	NC	30		
8038124	Total Magnesium (Mg)	2015/09/17					<100	mg/kg	0.23	30	94	70 - 130
8038124	Total Manganese (Mn)	2015/09/17	NC	75 - 125	101	75 - 125	<0.20	mg/kg	0.29	30	100	70 - 130
8038124	Total Mercury (Hg)	2015/09/17	101	75 - 125	98	75 - 125	<0.050	mg/kg	NC	35	82	70 - 130
8038124	Total Molybdenum (Mo)	2015/09/17	100	75 - 125	97	75 - 125	<0.10	mg/kg	NC	35	101	70 - 130
8038124	Total Nickel (Ni)	2015/09/17	NC	75 - 125	102	75 - 125	<0.80	mg/kg	0.69	30	94	70 - 130
8038124	Total Phosphorus (P)	2015/09/17					<10	mg/kg	1.1	30	88	70 - 130
8038124	Total Potassium (K)	2015/09/17					<100	mg/kg	5.1	35		
8038124	Total Selenium (Se)	2015/09/17	89	75 - 125	96	75 - 125	<0.50	mg/kg	NC	30		
8038124	Total Silver (Ag)	2015/09/17	87	75 - 125	89	75 - 125	<0.050	mg/kg	NC	35	93	60 - 140
8038124	Total Sodium (Na)	2015/09/17					<100	mg/kg	0.82	35		
8038124	Total Strontium (Sr)	2015/09/17	NC	75 - 125	101	75 - 125	<0.10	mg/kg	2.3	35	96	70 - 130

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Maxxam Job #: B579239
Report Date: 2015/09/17

QUALITY ASSURANCE REPORT(CONT'D)

GOLDER ASSOCIATES LTD
Client Project #: 1535154
Site Location: PARCEL 44
Your P.O. #: 700326766
Sampler Initials: AV

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8038124	Total Thallium (Tl)	2015/09/17	102	75 - 125	101	75 - 125	<0.050	mg/kg	NC	30	108	70 - 130
8038124	Total Tin (Sn)	2015/09/17	93	75 - 125	95	75 - 125	<0.10	mg/kg	1.5	35		
8038124	Total Titanium (Ti)	2015/09/17	NC	75 - 125	97	75 - 125	<1.0	mg/kg	3.1	35	112	70 - 130
8038124	Total Uranium (U)	2015/09/17	104	75 - 125	101	75 - 125	<0.050	mg/kg	2.7	30	104	70 - 130
8038124	Total Vanadium (V)	2015/09/17	NC	75 - 125	100	75 - 125	<2.0	mg/kg	1.5	30	103	70 - 130
8038124	Total Zinc (Zn)	2015/09/17	NC	75 - 125	103	75 - 125	<1.0	mg/kg	0.11	30	92	70 - 130
8038124	Total Zirconium (Zr)	2015/09/17					<0.50	mg/kg	0.82	30		
8038135	Soluble (2:1) pH	2015/09/16			100	97 - 103			1.1	N/A		
8038175	2-Methylnaphthalene	2015/09/15	93	50 - 130	84	50 - 130	<0.020	mg/kg	NC	50		
8038175	Acenaphthene	2015/09/15	95	50 - 130	82	50 - 130	<0.0050	mg/kg	NC	50		
8038175	Acenaphthylene	2015/09/15	90	50 - 130	81	50 - 130	<0.0050	mg/kg	NC	50		
8038175	Anthracene	2015/09/15	97	60 - 130	91	60 - 130	<0.0040	mg/kg	NC	50		
8038175	Benzo(a)anthracene	2015/09/15	87	60 - 130	76	60 - 130	<0.020	mg/kg	NC	50		
8038175	Benzo(a)pyrene	2015/09/15	87	60 - 130	76	60 - 130	<0.020	mg/kg	NC	50		
8038175	Benzo(b&j)fluoranthene	2015/09/15	95	60 - 130	81	60 - 130	<0.020	mg/kg	NC	50		
8038175	Benzo(b)fluoranthene	2015/09/15	95	60 - 130	81	60 - 130	<0.020	mg/kg	NC	20		
8038175	Benzo(g,h,i)perylene	2015/09/15	93	60 - 130	77	60 - 130	<0.050	mg/kg	NC	50		
8038175	Benzo(k)fluoranthene	2015/09/15	87	60 - 130	79	60 - 130	<0.020	mg/kg	NC	50		
8038175	Chrysene	2015/09/15	90	60 - 130	78	60 - 130	<0.020	mg/kg	NC	50		
8038175	Dibenz(a,h)anthracene	2015/09/15	97	60 - 130	80	60 - 130	<0.050	mg/kg	NC	50		
8038175	Fluoranthene	2015/09/15	103	60 - 130	92	60 - 130	<0.020	mg/kg	NC	50		
8038175	Fluorene	2015/09/15	96	50 - 130	84	50 - 130	<0.020	mg/kg	NC	50		
8038175	Indeno(1,2,3-cd)pyrene	2015/09/15	94	60 - 130	78	60 - 130	<0.050	mg/kg	NC	50		
8038175	Naphthalene	2015/09/15	90	50 - 130	81	50 - 130	<0.010	mg/kg	NC	50		
8038175	Phenanthrene	2015/09/15	92	60 - 130	80	60 - 130	<0.020	mg/kg	NC	50		
8038175	Pyrene	2015/09/15	100	60 - 130	89	60 - 130	<0.020	mg/kg	NC	50		
8038846	Benzene	2015/09/16	89	60 - 140	88	60 - 140	<0.0050	mg/kg	NC	40		
8038846	Ethylbenzene	2015/09/16	94	60 - 140	93	60 - 140	<0.010	mg/kg	NC	40		
8038846	F1 (C6-C10)	2015/09/16			98	60 - 140	<10	mg/kg	NC	40		
8038846	m & p-Xylene	2015/09/16	96	60 - 140	95	60 - 140	<0.040	mg/kg	NC	40		

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Maxxam Job #: B579239
Report Date: 2015/09/17

QUALITY ASSURANCE REPORT(CONT'D)

GOLDER ASSOCIATES LTD
Client Project #: 1535154
Site Location: PARCEL 44
Your P.O. #: 700326766
Sampler Initials: AV

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8038846	Methyl-tert-butylether (MTBE)	2015/09/16					<0.10	mg/kg	NC	40		
8038846	o-Xylene	2015/09/16	94	60 - 140	93	60 - 140	<0.040	mg/kg	NC	40		
8038846	Styrene	2015/09/16					<0.030	mg/kg	NC	40		
8038846	Toluene	2015/09/16	90	60 - 140	89	60 - 140	<0.020	mg/kg	NC	40		
8038846	Xylenes (Total)	2015/09/16					<0.040	mg/kg	NC	40		

N/A = Not Applicable

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

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

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

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

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

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

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

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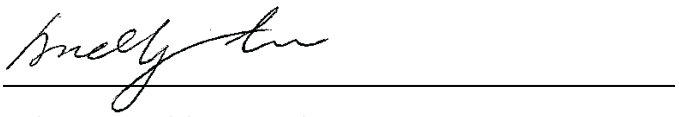
Maxxam Job #: B579239
Report Date: 2015/09/17

GOLDER ASSOCIATES LTD
Client Project #: 1535154
Site Location: PARCEL 44
Your P.O. #: 700326766
Sampler Initials: AV

VALIDATION SIGNATURE PAGE

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



Andy Lu, Data Validation Coordinator

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B579239

CHAIN OF CUSTODY RECORD/ANALYSIS REQUEST

No. 00918 page 1 of _

Golder Associates
200 – 2920 Virtual Way
Vancouver, British Columbia, Canada V5M 0C4
Telephone (604) 296-4200 Fax (604) 298-5253

Project Number: 1535154
Short Title: TC Lot 44
Golder Contact: Wendy Beairsto
Golder E-mail Address 1: WBeairsto@golder.com
Golder E-mail Address 2: SMorse@golder.com

Laboratory Name: Maxxam Analytics
Address: 4606 Canada Way
Telephone/Fax: 604-639-2614
Contact: Namita Sahni

Office Name: Victoria
EQuIS Facility Code:
EQuIS upload:

Turnaround Time: ☐ 24 hr ☐ 48 hr ☐ 72 hr ☒ Regular (5 Days)
Criteria: ☐ CSR ☐ CCME ☐ BC Water Quality ☐ Other

Note: Final Reports to be issued by e-mail
Quote No.:

Analyses Required

Sample Control Number (SCN)	Sample Location	Sa. #	Sample Depth (m) (ft)	Sample Matrix (over)	Date Sampled (D / M / Y)	Time Sampled (HH:MM)	Sample Type (over)	QAQC Code (over)	Related SCN (over)	Number of Containers	TOTAL METALS	BTEX/F1	F2-F4	PAH	Grain Size		Hold			RUSH (Select TAT above)	Remarks (over)
00918 - 01	BH15-18	1	1'6"-2'	SOIL	09/09/15	–	~~WATER~~	–	–	2	X			X	X						NC4889
- 02	BH15-18	2	5'-5'6"			–		–	–	2							X				NC4890
- 03	BH15-19	1	3'-4'			–		–	–	5	X	X	X	X	X						NC4891
- 04	BH15-19	2	8'6"-9'			–		FDA	00918-05	2	X			X							NC4892
- 05	BH15-19	2	8'6"-9'			–		FD	00918-04	2	X			X							NC4893
- 06	BH15-20	1	3'-3'6"			–		–	–	2	X			X							NC4894
- 07	BH15-20	2	9'-10'			–		–	–	2	X			X	X						NC4895
- 08	BH15-21A	1	3'6"-4'			–		–	–	4	X	X	X	X	X						NC4896
- 09																					
- 10																					
- 11																					
- 12																					

B579239

Sampler's Signature:	Relinquished by: Signature	Company	Date	Time	Received by: Signature	Company
		Golder	Sept. 9, 2015	16:17	KEVIN CHONG 2015/09/11	9:45

Comments:	Method of Shipment:	Waybill No.:	Received for Lab by:	Date	Time
ON ICE				09/09/15	16:20
	Shipped by:	Shipment Condition:	Temp (°C) / Cooler opened by:	Date	Time
		Seal Intact:	8.8		

WHITE: Golder Copy YELLOW: Lab Copy

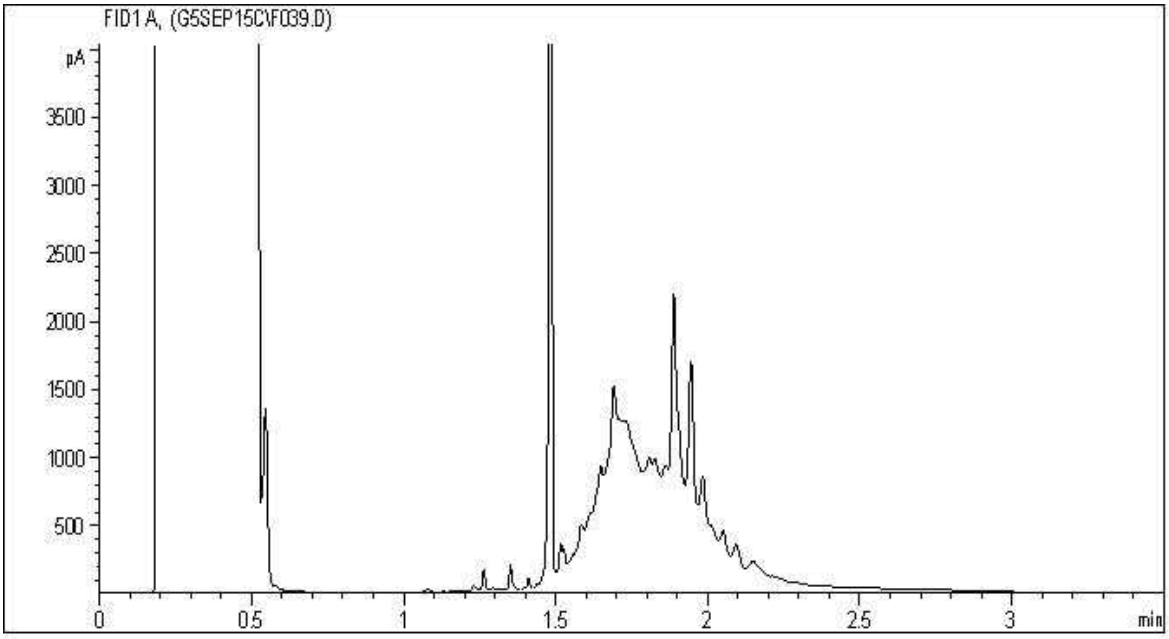
cooler (on ice) NO CUSTODY SEAL
1 - 3, 3, 3
2 - 3, 3, 3
3 - 4, 4, 3
4 - 2, 1, 3
5 - 4, 3, 1

ESED

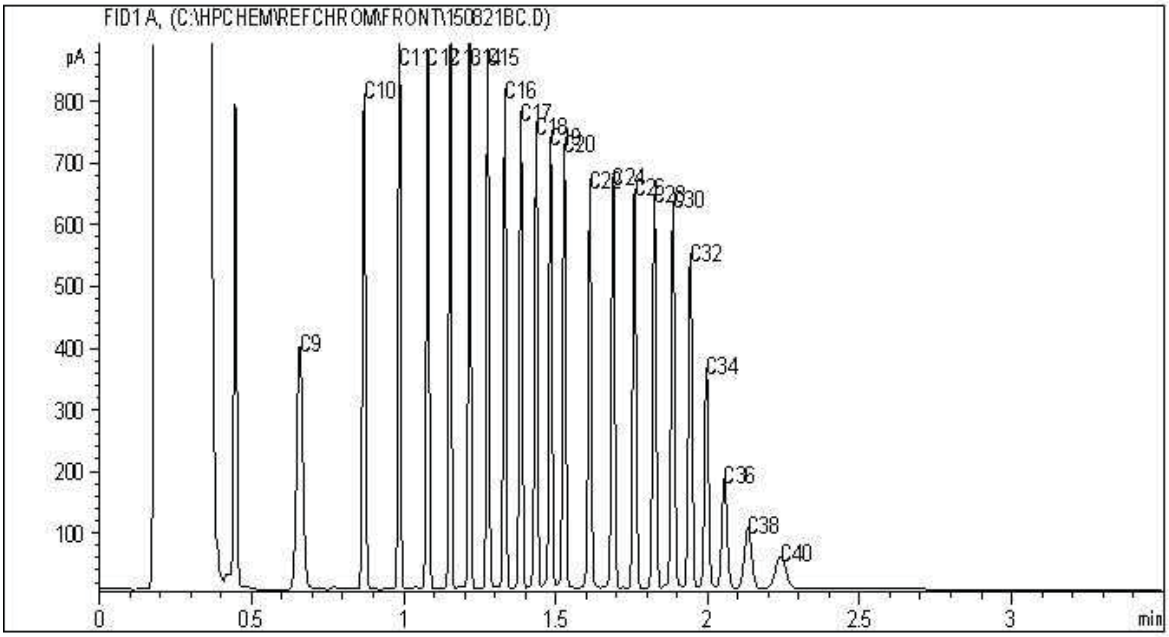
Maxxam Job #: B579239
Report Date: 2015/09/17
Maxxam Sample: NC4891

GOLDER ASSOCIATES LTD
Client Project #: 1535154
Site Reference: PARCEL 44
Client ID: 00918-03

CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



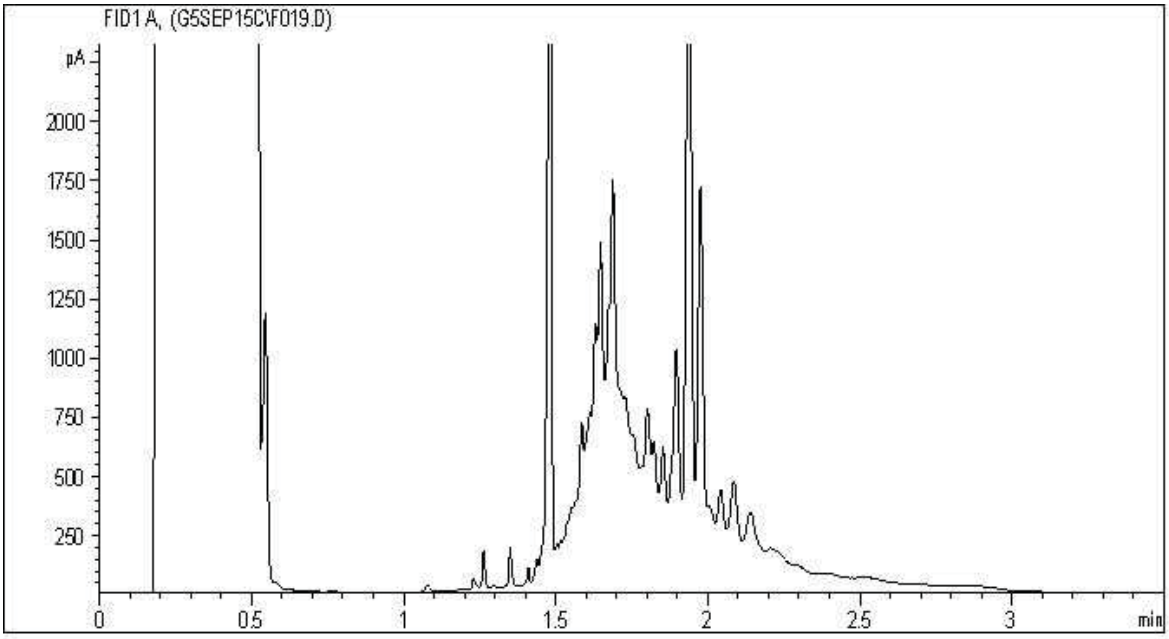
TYPICAL PRODUCT CARBON NUMBER RANGES

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

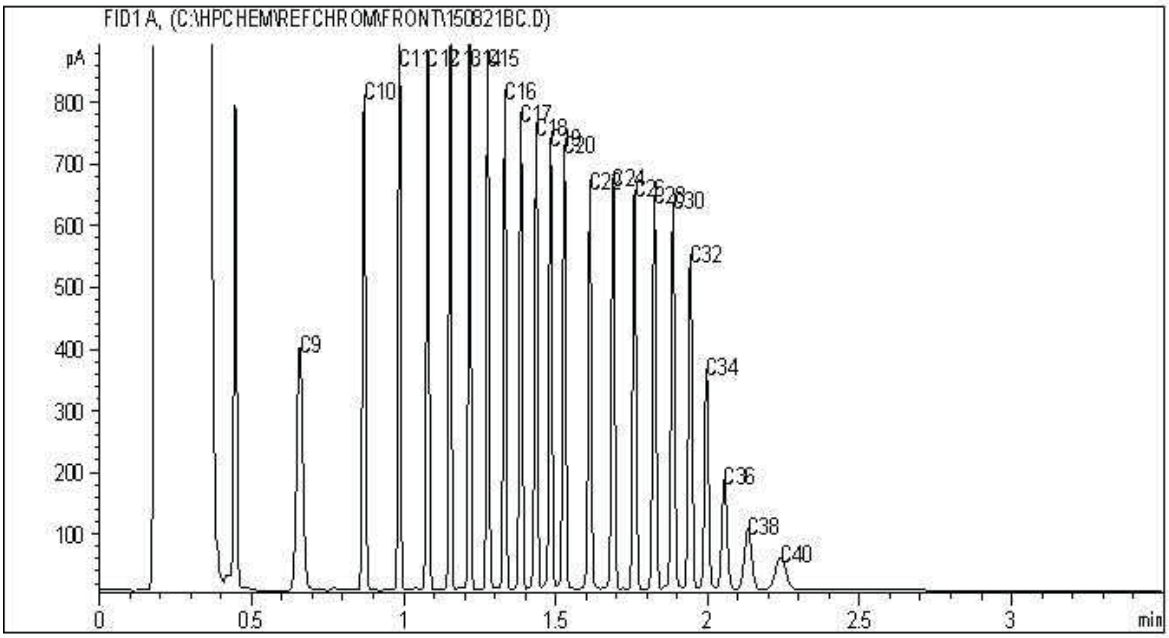
Maxxam Job #: B579239
Report Date: 2015/09/17
Maxxam Sample: NC4896

GOLDER ASSOCIATES LTD
Client Project #: 1535154
Site Reference: PARCEL 44
Client ID: 00918-08

CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

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

Your P.O. #: 700326766
Your Project #: 1535154
Site Location: PARCEL 44
Your C.O.C. #: 00922

Attention:Alanna Umphrey

GOLDER ASSOCIATES LTD
3795 CAREY ROAD
(2nd Floor)
VICTORIA, BC
Canada V8Z 6T8

Report Date: 2015/09/17
Report #: R2043128
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B579247
Received: 2015/09/11, 09:45

Sample Matrix: Soil
Samples Received: 9

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
BTEX/MTBE LH VH F1 in Soil - Field Pres. (1)	2	N/A	2015/09/16	BBY8SOP-00010/11	EPA 8260c R3 m
Volatile F1-BTEX	1	N/A	2015/09/16	BBY WI-00033	Auto Calc
Volatile F1-BTEX	1	N/A	2015/09/17	BBY WI-00033	Auto Calc
CCME Hydrocarbons (F2-F4 in soil) (2)	2	2015/09/12	2015/09/15	BBY8SOP-00030	CCME PHC-CWS
Elements by ICPMS (total)	9	2015/09/15	2015/09/17	BBY7SOP-00001	EPA 6020a R1 m
Particulate Mesh 200	6	N/A	2015/09/16	BBY6SOP-00039	Carter 2nd ed 55.4
Moisture	9	N/A	2015/09/14	BBY8SOP-00017	OMOE E3139 3.1 m
PAH in Soil by GC/MS (SIM) - CCME	1	2015/09/12	2015/09/14	BBY8SOP-00022	EPA 8270d R4 m
PAH in Soil by GC/MS (SIM) - CCME	8	2015/09/12	2015/09/15	BBY8SOP-00022	EPA 8270d R4 m
Benzo[a]pyrene Equivalency	6	N/A	2015/09/15	BBY WI-00033	Auto Calc
Benzo[a]pyrene Equivalency	3	N/A	2015/09/16	BBY WI-00033	Auto Calc
Total LMW, HMW, Total PAH Calc	6	N/A	2015/09/15	BBY WI-00033	Auto Calc
Total LMW, HMW, Total PAH Calc	3	N/A	2015/09/16	BBY WI-00033	Auto Calc
pH (2:1 DI Water Extract)	9	2015/09/15	2015/09/16	BBY6SOP-00028	BCMOE BCLM Mar2005 m

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

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

(1) The extraction date for VOC, BTEX, VH, or F1 samples that are field preserved with methanol equals the date sampled, unless otherwise stated.
(2) All CCME results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following the 'Alberta Environment Draft Addenda to the CWS-PHC, Appendix 6, Validation of Alternate Methods'. Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.

Encryption Key

Samantha Fregien
17 Sep 2015 17:26:25 -07:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Samantha Fregien, Project Manager
Email: SFregien@maxxam.ca
Phone# (604)639-8418

==========

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Maxxam Job #: B579247
Report Date: 2015/09/17

GOLDER ASSOCIATES LTD
Client Project #: 1535154
Site Location: PARCEL 44
Your P.O. #: 700326766
Sampler Initials: SM

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		NC4922		NC4924		
Sampling Date		2015/09/08		2015/09/08		
COC Number		00922		00922		
	UNITS	**00922-04**	**QC Batch**	**00922-06**	**RDL**	**QC Batch**
Ext. Pet. Hydrocarbon						
F2 (C10-C16 Hydrocarbons)	mg/kg	12	8037180	16	10	8037842
F3 (C16-C34 Hydrocarbons)	mg/kg	140	8037180	84	10	8037842
F4 (C34-C50 Hydrocarbons)	mg/kg	38	8037180	38	10	8037842
Reached Baseline at C50	mg/kg	Yes	8037180	Yes	N/A	8037842
Surrogate Recovery (%)						
O-TERPHENYL (sur.)	%	89	8037180	92		8037842

RDL = Reportable Detection Limit
N/A = Not Applicable

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Maxxam Job #: B579247
Report Date: 2015/09/17

GOLDER ASSOCIATES LTD
Client Project #: 1535154
Site Location: PARCEL 44
Your P.O. #: 700326766
Sampler Initials: SM

PARTICLE SIZE DISTRIBUTION ANALYSIS (SOIL)

Maxxam ID		NC4920	NC4922	NC4924	NC4927	NC4929	NC4930		
Sampling Date		2015/09/08	2015/09/08	2015/09/08	2015/09/09	2015/09/09	2015/09/09		
COC Number		00922	00922	00922	00922	00922	00922		
	UNITS	**00922-02**	**00922-04**	**00922-06**	**00922-09**	**00922-11**	**00922-12**	**RDL**	**QC Batch**
Physical Properties									
200 mesh (>.075 mm)	%	71.8	39.6	85.2	72.3	90.8	84.0	0.10	8036686
200 mesh (<.075 mm)	%	28.2	60.4	14.8	27.7	9.24	16.0	0.10	8036686
RDL = Reportable Detection Limit									

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Maxxam Job #: B579247
Report Date: 2015/09/17

GOLDER ASSOCIATES LTD
Client Project #: 1535154
Site Location: PARCEL 44
Your P.O. #: 700326766
Sampler Initials: SM

PHYSICAL TESTING (SOIL)

Maxxam ID		NC4920	NC4922	NC4923	NC4924	NC4925	NC4926	NC4927		
Sampling Date		2015/09/08	2015/09/08	2015/09/08	2015/09/08	2015/09/08	2015/09/08	2015/09/09		
COC Number		00922	00922	00922	00922	00922	00922	00922		
	UNITS	**00922-02**	**00922-04**	**00922-05**	**00922-06**	**00922-07**	**00922-08**	**00922-09**	**RDL**	**QC Batch**
Physical Properties										
Moisture	%	68	20	21	15	15	14	61	0.30	8035338
RDL = Reportable Detection Limit										

Maxxam ID		NC4929	NC4930		
Sampling Date		2015/09/09	2015/09/09		
COC Number		00922	00922		
	UNITS	**00922-11**	**00922-12**	**RDL**	**QC Batch**
Physical Properties					
Moisture	%	36	43	0.30	8035338
RDL = Reportable Detection Limit					

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Maxxam Job #: B579247
Report Date: 2015/09/17

GOLDER ASSOCIATES LTD
Client Project #: 1535154
Site Location: PARCEL 44
Your P.O. #: 700326766
Sampler Initials: SM

CCME BTEX/F1IN SOIL - FIELD PRESERVED (SOIL)

Maxxam ID		NC4922	NC4924		
Sampling Date		2015/09/08	2015/09/08		
COC Number		00922	00922		
	UNITS	**00922-04**	**00922-06**	**RDL**	**QC Batch**
Calculated Parameters					
F1 (C6-C10) - BTEX	mg/kg	<10	<10	10	8035037
Volatiles					
Methyl-tert-butylether (MTBE)	mg/kg	<0.10	<0.10	0.10	8038846
Benzene	mg/kg	<0.0050	<0.0050	0.0050	8038846
Toluene	mg/kg	<0.020	<0.020	0.020	8038846
Ethylbenzene	mg/kg	<0.010	<0.010	0.010	8038846
m & p-Xylene	mg/kg	<0.040	<0.040	0.040	8038846
o-Xylene	mg/kg	<0.040	<0.040	0.040	8038846
Styrene	mg/kg	<0.030	<0.030	0.030	8038846
Xylenes (Total)	mg/kg	<0.040	<0.040	0.040	8038846
F1 (C6-C10)	mg/kg	<10	<10	10	8038846
Surrogate Recovery (%)					
1,4-Difluorobenzene (sur.)	%	104	100		8038846
4-Bromofluorobenzene (sur.)	%	98	100		8038846
D10-ETHYLBENZENE (sur.)	%	86	99		8038846
D4-1,2-Dichloroethane (sur.)	%	101	98		8038846
RDL = Reportable Detection Limit					

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Maxxam Job #: B579247
Report Date: 2015/09/17

GOLDER ASSOCIATES LTD
Client Project #: 1535154
Site Location: PARCEL 44
Your P.O. #: 700326766
Sampler Initials: SM

CSR/CCME METALS IN SOIL (SOIL)

Maxxam ID		NC4920	NC4922	NC4923	NC4924	NC4925	NC4926	NC4927		
Sampling Date		2015/09/08	2015/09/08	2015/09/08	2015/09/08	2015/09/08	2015/09/08	2015/09/09		
COC Number		00922	00922	00922	00922	00922	00922	00922		
	UNITS	**00922-02**	**00922-04**	**00922-05**	**00922-06**	**00922-07**	**00922-08**	**00922-09**	**RDL**	**QC Batch**
Physical Properties										
Soluble (2:1) pH	pH	6.59 (1)	7.97	7.46	7.49	7.57	7.55	7.10	N/A	8038135
Total Metals by ICPMS										
Total Aluminum (Al)	mg/kg	9630	22700	22600	18100	15900	15800	4490	100	8038124
Total Antimony (Sb)	mg/kg	0.81	0.32	0.29	0.31	0.51	0.54	16.4	0.10	8038124
Total Arsenic (As)	mg/kg	7.48	5.47	4.71	3.89	5.02	5.21	86.0	0.50	8038124
Total Barium (Ba)	mg/kg	19.6	85.8	95.2	104	143	136	40.0	0.10	8038124
Total Beryllium (Be)	mg/kg	<0.40	0.40	<0.40	<0.40	<0.40	<0.40	<0.40	0.40	8038124
Total Bismuth (Bi)	mg/kg	<0.10	<0.10	0.10	<0.10	0.10	<0.10	<0.10	0.10	8038124
Total Cadmium (Cd)	mg/kg	0.511	0.101	0.236	0.209	0.561	0.572	0.203	0.050	8038124
Total Calcium (Ca)	mg/kg	5970	7510	6050	9920	30700	29300	12900	100	8038124
Total Chromium (Cr)	mg/kg	24.2	50.8	46.7	35.2	36.0	30.7	137	1.0	8038124
Total Cobalt (Co)	mg/kg	7.63	17.4	14.2	12.2	11.8	11.2	30.0	0.30	8038124
Total Copper (Cu)	mg/kg	37.3	57.5	47.7	61.5	51.8	52.6	872	0.50	8038124
Total Iron (Fe)	mg/kg	23500	37000	32700	26300	28300	27800	201000	100	8038124
Total Lead (Pb)	mg/kg	21.0	11.2	22.7	18.1	83.0	159	25.8	0.10	8038124
Total Lithium (Li)	mg/kg	8.9	15.5	12.8	8.8	7.9	7.7	<5.0	5.0	8038124
Total Magnesium (Mg)	mg/kg	7190	9190	7650	7620	6610	6270	4800	100	8038124
Total Manganese (Mn)	mg/kg	310	718	591	900	867	831	891	0.20	8038124
Total Mercury (Hg)	mg/kg	1.25	0.069	0.066	0.061	0.125	0.131	0.116	0.050	8038124
Total Molybdenum (Mo)	mg/kg	15.8	0.39	0.48	0.54	0.57	0.62	66.3	0.10	8038124
Total Nickel (Ni)	mg/kg	20.4	40.4	34.1	28.6	26.3	25.0	299	0.80	8038124
Total Phosphorus (P)	mg/kg	435	654	860	1400	3640	3210	889	10	8038124
Total Potassium (K)	mg/kg	1040	1020	910	710	886	893	712	100	8038124
Total Selenium (Se)	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	8038124
Total Silver (Ag)	mg/kg	0.074	0.080	0.054	0.053	0.130	0.107	0.595	0.050	8038124
Total Sodium (Na)	mg/kg	8020	633	506	376	424	409	7610	100	8038124
Total Strontium (Sr)	mg/kg	59.6	54.2	50.7	59.7	188	172	164	0.10	8038124
Total Thallium (Tl)	mg/kg	0.095	0.068	0.070	<0.050	0.087	0.116	0.055	0.050	8038124
Total Tin (Sn)	mg/kg	4.25	1.05	1.72	4.29	43.3	42.3	108	0.10	8038124
Total Titanium (Ti)	mg/kg	703	1210	1180	1200	776	802	368	1.0	8038124
Total Uranium (U)	mg/kg	4.45	0.378	0.405	0.326	0.402	0.483	3.90	0.050	8038124
Total Vanadium (V)	mg/kg	44.8	91.2	83.7	68.7	65.0	59.7	28.4	2.0	8038124
Total Zinc (Zn)	mg/kg	83.0	71.2	81.3	87.0	228	239	156	1.0	8038124

RDL = Reportable Detection Limit
N/A = Not Applicable
(1) Due to high absorbtivity of the sample the water soil extraction ratio has changed from 2:1 to 4:1.

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GOLDER ASSOCIATES LTD
Client Project #: 1535154
Site Location: PARCEL 44
Your P.O. #: 700326766
Sampler Initials: SM

CSR/CCME METALS IN SOIL (SOIL)

Maxxam ID		NC4920	NC4922	NC4923	NC4924	NC4925	NC4926	NC4927		
Sampling Date		2015/09/08	2015/09/08	2015/09/08	2015/09/08	2015/09/08	2015/09/08	2015/09/09		
COC Number		00922	00922	00922	00922	00922	00922	00922		
	UNITS	**00922-02**	**00922-04**	**00922-05**	**00922-06**	**00922-07**	**00922-08**	**00922-09**	**RDL**	**QC Batch**
Total Zirconium (Zr)	mg/kg	4.17	5.52	3.17	2.96	1.66	1.68	2.11	0.50	8038124
RDL = Reportable Detection Limit										

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GOLDER ASSOCIATES LTD
Client Project #: 1535154
Site Location: PARCEL 44
Your P.O. #: 700326766
Sampler Initials: SM

CSR/CCME METALS IN SOIL (SOIL)

Maxxam ID		NC4929	NC4930		
Sampling Date		2015/09/09	2015/09/09		
COC Number		00922	00922		
	UNITS	**00922-11**	**00922-12**	**RDL**	**QC Batch**
Physical Properties					
Soluble (2:1) pH	pH	7.88	7.47	N/A	8038135
Total Metals by ICPMS					
Total Aluminum (Al)	mg/kg	12600	12900	100	8038124
Total Antimony (Sb)	mg/kg	1.05	0.40	0.10	8038124
Total Arsenic (As)	mg/kg	5.40	4.10	0.50	8038124
Total Barium (Ba)	mg/kg	40.4	20.9	0.10	8038124
Total Beryllium (Be)	mg/kg	<0.40	<0.40	0.40	8038124
Total Bismuth (Bi)	mg/kg	<0.10	<0.10	0.10	8038124
Total Cadmium (Cd)	mg/kg	0.182	0.254	0.050	8038124
Total Calcium (Ca)	mg/kg	31500	7720	100	8038124
Total Chromium (Cr)	mg/kg	30.4	29.7	1.0	8038124
Total Cobalt (Co)	mg/kg	9.48	9.40	0.30	8038124
Total Copper (Cu)	mg/kg	54.0	35.9	0.50	8038124
Total Iron (Fe)	mg/kg	28600	22100	100	8038124
Total Lead (Pb)	mg/kg	35.5	11.1	0.10	8038124
Total Lithium (Li)	mg/kg	10.7	12.8	5.0	8038124
Total Magnesium (Mg)	mg/kg	9160	8020	100	8038124
Total Manganese (Mn)	mg/kg	345	373	0.20	8038124
Total Mercury (Hg)	mg/kg	0.067	0.132	0.050	8038124
Total Molybdenum (Mo)	mg/kg	2.03	5.46	0.10	8038124
Total Nickel (Ni)	mg/kg	23.0	22.1	0.80	8038124
Total Phosphorus (P)	mg/kg	742	480	10	8038124
Total Potassium (K)	mg/kg	802	1130	100	8038124
Total Selenium (Se)	mg/kg	<0.50	<0.50	0.50	8038124
Total Silver (Ag)	mg/kg	0.060	0.065	0.050	8038124
Total Sodium (Na)	mg/kg	5770	5530	100	8038124
Total Strontium (Sr)	mg/kg	261	56.5	0.10	8038124
Total Thallium (Tl)	mg/kg	0.051	0.088	0.050	8038124
Total Tin (Sn)	mg/kg	5.79	1.90	0.10	8038124
Total Titanium (Ti)	mg/kg	1150	1160	1.0	8038124
Total Uranium (U)	mg/kg	0.408	1.90	0.050	8038124
Total Vanadium (V)	mg/kg	56.6	59.9	2.0	8038124
Total Zinc (Zn)	mg/kg	105	66.4	1.0	8038124
Total Zirconium (Zr)	mg/kg	4.48	5.10	0.50	8038124

RDL = Reportable Detection Limit
N/A = Not Applicable

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Maxxam Job #: B579247
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GOLDER ASSOCIATES LTD
Client Project #: 1535154
Site Location: PARCEL 44
Your P.O. #: 700326766
Sampler Initials: SM

CCME PAH IN SOIL BY GC-MS (SOIL)

Maxxam ID		NC4920			NC4922		NC4923		
Sampling Date		2015/09/08			2015/09/08		2015/09/08		
COC Number		00922			00922		00922		
	UNITS	**00922-02**	**RDL**	**QC Batch**	**00922-04**	**QC Batch**	**00922-05**	**RDL**	**QC Batch**
Calculated Parameters									
Index of Additive Cancer Risk(IARC)	N/A	0.93	0.10	8035044	0.31	8035044	0.31	0.10	8035044
Benzo[a]pyrene equivalency	N/A	0.12	0.10	8035044	<0.10	8035044	<0.10	0.10	8035044
Polycyclic Aromatics									
Naphthalene	mg/kg	<0.041 (1)	0.041	8037562	<0.010	8037196	<0.010	0.010	8037562
2-Methylnaphthalene	mg/kg	<0.060 (2)	0.060	8037562	<0.020	8037196	<0.020	0.020	8037562
Acenaphthylene	mg/kg	<0.015 (2)	0.015	8037562	<0.0050	8037196	<0.0050	0.0050	8037562
Acenaphthene	mg/kg	<0.015 (2)	0.015	8037562	<0.0050	8037196	<0.0050	0.0050	8037562
Fluorene	mg/kg	<0.060 (2)	0.060	8037562	<0.020	8037196	<0.020	0.020	8037562
Phenanthrene	mg/kg	<0.060 (2)	0.060	8037562	<0.020	8037196	<0.020	0.020	8037562
Anthracene	mg/kg	0.029 (2)	0.012	8037562	<0.0040	8037196	<0.0040	0.0040	8037562
Fluoranthene	mg/kg	0.19 (2)	0.060	8037562	<0.020	8037196	0.023	0.020	8037562
Pyrene	mg/kg	0.16 (2)	0.060	8037562	<0.020	8037196	0.023	0.020	8037562
Benzo(a)anthracene	mg/kg	<0.060 (2)	0.060	8037562	<0.020	8037196	<0.020	0.020	8037562
Chrysene	mg/kg	<0.060 (2)	0.060	8037562	<0.020	8037196	<0.020	0.020	8037562
Benzo(b&j)fluoranthene	mg/kg	<0.060 (2)	0.060	8037562	<0.020	8037196	<0.020	0.020	8037562
Benzo(b)fluoranthene	mg/kg	<0.060 (2)	0.060	8037562	<0.020	8037196	<0.020	0.020	8037562
Benzo(k)fluoranthene	mg/kg	<0.060 (2)	0.060	8037562	<0.020	8037196	<0.020	0.020	8037562
Benzo(a)pyrene	mg/kg	<0.060 (2)	0.060	8037562	<0.020	8037196	<0.020	0.020	8037562
Indeno(1,2,3-cd)pyrene	mg/kg	<0.15 (2)	0.15	8037562	<0.050	8037196	<0.050	0.050	8037562
Dibenz(a,h)anthracene	mg/kg	<0.15 (2)	0.15	8037562	<0.050	8037196	<0.050	0.050	8037562
Benzo(g,h,i)perylene	mg/kg	<0.15 (2)	0.15	8037562	<0.050	8037196	<0.050	0.050	8037562
Low Molecular Weight PAH`s	mg/kg	<0.15	0.15	8034428	<0.050	8034428	<0.050	0.050	8034428
High Molecular Weight PAH`s	mg/kg	0.36	0.15	8034428	<0.050	8034428	<0.050	0.050	8034428
Total PAH	mg/kg	0.39	0.15	8034428	<0.050	8034428	<0.050	0.050	8034428
Surrogate Recovery (%)									
D10-ANTHRACENE (sur.)	%	94		8037562	104	8037196	99		8037562
D8-ACENAPHTHYLENE (sur.)	%	77		8037562	82	8037196	86		8037562
D8-NAPHTHALENE (sur.)	%	89		8037562	82	8037196	86		8037562
TERPHENYL-D14 (sur.)	%	91		8037562	94	8037196	95		8037562

RDL = Reportable Detection Limit
(1) Detection limits raised due to matrix interference.
(2) Detection limits raised due to high moisture content.

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Maxxam Job #: B579247
Report Date: 2015/09/17

GOLDER ASSOCIATES LTD
Client Project #: 1535154
Site Location: PARCEL 44
Your P.O. #: 700326766
Sampler Initials: SM

CCME PAH IN SOIL BY GC-MS (SOIL)

Maxxam ID		NC4924		NC4925	NC4926		NC4927		
Sampling Date		2015/09/08		2015/09/08	2015/09/08		2015/09/09		
COC Number		00922		00922	00922		00922		
	UNITS	**00922-06**	**QC Batch**	**00922-07**	**00922-08**	**RDL**	**00922-09**	**RDL**	**QC Batch**
Calculated Parameters									
Index of Additive Cancer Risk(IARC)	N/A	1.2	8035044	1.3	1.6	0.10	1.2	0.10	8035044
Benzo[a]pyrene equivalency	N/A	<0.10	8035044	<0.10	<0.10	0.10	0.11	0.10	8035044
Polycyclic Aromatics									
Naphthalene	mg/kg	0.017	8038175	0.11	0.10	0.010	0.080 (1)	0.024	8037562
2-Methylnaphthalene	mg/kg	<0.020	8038175	0.14	0.13	0.020	<0.048 (1)	0.048	8037562
Acenaphthylene	mg/kg	0.012	8038175	<0.0050	<0.0050	0.0050	0.035 (1)	0.012	8037562
Acenaphthene	mg/kg	<0.0050	8038175	<0.0050	<0.0050	0.0050	0.024 (1)	0.012	8037562
Fluorene	mg/kg	<0.020	8038175	<0.020	<0.020	0.020	<0.048 (1)	0.048	8037562
Phenanthrene	mg/kg	0.088	8038175	0.058	0.064	0.020	0.18 (1)	0.048	8037562
Anthracene	mg/kg	0.013	8038175	0.013	0.015	0.0040	0.042 (1)	0.0096	8037562
Fluoranthene	mg/kg	0.15	8038175	0.089	0.095	0.020	0.52 (1)	0.048	8037562
Pyrene	mg/kg	0.14	8038175	0.076	0.083	0.020	0.37 (1)	0.048	8037562
Benzo(a)anthracene	mg/kg	0.044	8038175	0.033	0.042	0.020	0.055 (1)	0.048	8037562
Chrysene	mg/kg	0.080	8038175	0.086	0.14	0.020	0.076 (1)	0.048	8037562
Benzo(b&j)fluoranthene	mg/kg	0.098	8038175	0.11	0.15	0.020	0.074 (1)	0.048	8037562
Benzo(b)fluoranthene	mg/kg	0.065	8038175	0.083	0.11	0.020	0.074 (1)	0.048	8037562
Benzo(k)fluoranthene	mg/kg	0.029	8038175	0.032	0.034	0.020	<0.048 (1)	0.048	8037562
Benzo(a)pyrene	mg/kg	0.053	8038175	0.034	0.039	0.020	<0.048 (1)	0.048	8037562
Indeno(1,2,3-cd)pyrene	mg/kg	<0.050	8038175	<0.050	<0.050	0.050	<0.12 (1)	0.12	8037562
Dibenz(a,h)anthracene	mg/kg	<0.050	8038175	<0.050	<0.050	0.050	<0.12 (1)	0.12	8037562
Benzo(g,h,i)perylene	mg/kg	0.051	8038175	<0.050	<0.050	0.050	<0.12 (1)	0.12	8037562
Low Molecular Weight PAH`s	mg/kg	0.13	8034428	0.31	0.31	0.050	0.36	0.12	8034428
High Molecular Weight PAH`s	mg/kg	0.65	8034428	0.46	0.58	0.050	1.1	0.12	8034428
Total PAH	mg/kg	0.78	8034428	0.77	0.89	0.050	1.4	0.12	8034428
Surrogate Recovery (%)									
D10-ANTHRACENE (sur.)	%	92	8038175	96	98		95		8037562
D8-ACENAPHTHYLENE (sur.)	%	84	8038175	88	89		87		8037562
D8-NAPHTHALENE (sur.)	%	84	8038175	89	90		88		8037562
TERPHENYL-D14 (sur.)	%	92	8038175	95	96		88		8037562

RDL = Reportable Detection Limit
(1) Detection limits raised due to high moisture content.

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Maxxam Job #: B579247
Report Date: 2015/09/17

GOLDER ASSOCIATES LTD
Client Project #: 1535154
Site Location: PARCEL 44
Your P.O. #: 700326766
Sampler Initials: SM

CCME PAH IN SOIL BY GC-MS (SOIL)

Maxxam ID		NC4929		NC4930		
Sampling Date		2015/09/09		2015/09/09		
COC Number		00922		00922		
	UNITS	**00922-11**	**RDL**	**00922-12**	**RDL**	**QC Batch**
Calculated Parameters						
Index of Additive Cancer Risk(IARC)	N/A	1.3	0.10	0.31	0.10	8035044
Benzo[a]pyrene equivalency	N/A	0.10	0.10	<0.10	0.10	8035044
Polycyclic Aromatics						
Naphthalene	mg/kg	0.014	0.010	<0.043 (1)	0.043	8038175
2-Methylnaphthalene	mg/kg	<0.020	0.020	<0.020	0.020	8038175
Acenaphthylene	mg/kg	0.0092	0.0050	<0.0050	0.0050	8038175
Acenaphthene	mg/kg	0.018	0.0050	0.012	0.0050	8038175
Fluorene	mg/kg	<0.020	0.020	<0.020	0.020	8038175
Phenanthrene	mg/kg	0.070	0.020	0.044	0.020	8038175
Anthracene	mg/kg	0.078	0.0040	0.015	0.0040	8038175
Fluoranthene	mg/kg	0.34	0.020	0.12	0.020	8038175
Pyrene	mg/kg	0.23	0.020	0.095	0.020	8038175
Benzo(a)anthracene	mg/kg	0.077	0.020	<0.020	0.020	8038175
Chrysene	mg/kg	0.091	0.020	<0.020	0.020	8038175
Benzo(b&j)fluoranthene	mg/kg	0.096	0.020	<0.020	0.020	8038175
Benzo(b)fluoranthene	mg/kg	0.068	0.020	<0.020	0.020	8038175
Benzo(k)fluoranthene	mg/kg	0.023	0.020	<0.020	0.020	8038175
Benzo(a)pyrene	mg/kg	0.052	0.020	<0.020	0.020	8038175
Indeno(1,2,3-cd)pyrene	mg/kg	<0.050	0.050	<0.050	0.050	8038175
Dibenz(a,h)anthracene	mg/kg	<0.050	0.050	<0.050	0.050	8038175
Benzo(g,h,i)perylene	mg/kg	<0.050	0.050	<0.050	0.050	8038175
Low Molecular Weight PAH`s	mg/kg	0.19	0.050	0.071	0.050	8034428
High Molecular Weight PAH`s	mg/kg	0.90	0.050	0.22	0.050	8034428
Total PAH	mg/kg	1.1	0.050	0.29	0.050	8034428
Surrogate Recovery (%)						
D10-ANTHRACENE (sur.)	%	94		81		8038175
D8-ACENAPHTHYLENE (sur.)	%	78		65		8038175
D8-NAPHTHALENE (sur.)	%	87		82		8038175
TERPHENYL-D14 (sur.)	%	90		77		8038175

RDL = Reportable Detection Limit
(1) RDL raised due to sample matrix interference.

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Maxxam Job #: B579247
Report Date: 2015/09/17

GOLDER ASSOCIATES LTD
Client Project #: 1535154
Site Location: PARCEL 44
Your P.O. #: 700326766
Sampler Initials: SM

GENERAL COMMENTS

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

Package 1	3.0°C
Package 2	3.0°C
Package 3	3.7°C
Package 4	2.0°C
Package 5	2.7°C

Results relate only to the items tested.

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B579247
Report Date: 2015/09/17

QUALITY ASSURANCE REPORT

GOLDER ASSOCIATES LTD
Client Project #: 1535154
Site Location: PARCEL 44
Your P.O. #: 700326766
Sampler Initials: SM

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8037180	O-TERPHENYL (sur.)	2015/09/14	84	50 - 130	93	50 - 130	105	%				
8037196	D10-ANTHRACENE (sur.)	2015/09/14	109	60 - 130	114	60 - 130	101	%				
8037196	D8-ACENAPHTHYLENE (sur.)	2015/09/14	87	50 - 130	88	50 - 130	96	%				
8037196	D8-NAPHTHALENE (sur.)	2015/09/14	87	50 - 130	88	50 - 130	93	%				
8037196	TERPHENYL-D14 (sur.)	2015/09/14	97	60 - 130	96	60 - 130	92	%				
8037562	D10-ANTHRACENE (sur.)	2015/09/15	93	60 - 130	102	60 - 130	105	%				
8037562	D8-ACENAPHTHYLENE (sur.)	2015/09/15	92	50 - 130	95	50 - 130	91	%				
8037562	D8-NAPHTHALENE (sur.)	2015/09/15	92	50 - 130	95	50 - 130	91	%				
8037562	TERPHENYL-D14 (sur.)	2015/09/15	96	60 - 130	98	60 - 130	96	%				
8037842	O-TERPHENYL (sur.)	2015/09/15	74	50 - 130	102	50 - 130	99	%				
8038175	D10-ANTHRACENE (sur.)	2015/09/15	94	60 - 130	98	60 - 130	107	%				
8038175	D8-ACENAPHTHYLENE (sur.)	2015/09/15	91	50 - 130	89	50 - 130	94	%				
8038175	D8-NAPHTHALENE (sur.)	2015/09/15	91	50 - 130	89	50 - 130	91	%				
8038175	TERPHENYL-D14 (sur.)	2015/09/15	95	60 - 130	94	60 - 130	99	%				
8038846	1,4-Difluorobenzene (sur.)	2015/09/15	97	60 - 140	99	60 - 140	103	%				
8038846	4-Bromofluorobenzene (sur.)	2015/09/15	100	60 - 140	99	60 - 140	100	%				
8038846	D10-ETHYLBENZENE (sur.)	2015/09/15	97	60 - 130	87	60 - 130	97	%				
8038846	D4-1,2-Dichloroethane (sur.)	2015/09/15	93	60 - 140	94	60 - 140	95	%				
8035338	Moisture	2015/09/14					<0.30	%	4.1	20		
8036686	200 mesh (<.075 mm)	2015/09/16							6.2	35		
8036686	200 mesh (>.075 mm)	2015/09/16							4.0	35		
8037180	F2 (C10-C16 Hydrocarbons)	2015/09/14	110	50 - 130	102	70 - 130	<10	mg/kg	NC	40		
8037180	F3 (C16-C34 Hydrocarbons)	2015/09/14	123	50 - 130	118	70 - 130	<10	mg/kg	NC	40		
8037180	F4 (C34-C50 Hydrocarbons)	2015/09/14	120	50 - 130	92	70 - 120	<10	mg/kg	NC	40		
8037180	Reached Baseline at C50	2015/09/14					YES	mg/kg	NC	50		
8037196	2-Methylnaphthalene	2015/09/14	85	50 - 130	85	50 - 130	<0.020	mg/kg	NC	50		
8037196	Acenaphthene	2015/09/14	87	50 - 130	86	50 - 130	<0.0050	mg/kg	NC	50		
8037196	Acenaphthylene	2015/09/14	85	50 - 130	84	50 - 130	<0.0050	mg/kg	NC	50		
8037196	Anthracene	2015/09/14	110	60 - 130	113	60 - 130	<0.0040	mg/kg	NC	50		
8037196	Benzo(a)anthracene	2015/09/14	77	60 - 130	76	60 - 130	<0.020	mg/kg	NC	50		

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Maxxam Job #: B579247
Report Date: 2015/09/17

QUALITY ASSURANCE REPORT(CONT'D)

GOLDER ASSOCIATES LTD
Client Project #: 1535154
Site Location: PARCEL 44
Your P.O. #: 700326766
Sampler Initials: SM

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8037196	Benzo(a)pyrene	2015/09/14	80	60 - 130	78	60 - 130	<0.020	mg/kg	NC	50		
8037196	Benzo(b&j)fluoranthene	2015/09/14	68	60 - 130	65	60 - 130	<0.020	mg/kg	NC	50		
8037196	Benzo(b)fluoranthene	2015/09/14	68	60 - 130	65	60 - 130	<0.020	mg/kg	NC	20		
8037196	Benzo(g,h,i)perylene	2015/09/14	65	60 - 130	60	60 - 130	<0.050	mg/kg	NC	50		
8037196	Benzo(k)fluoranthene	2015/09/14	83	60 - 130	91	60 - 130	<0.020	mg/kg	NC	50		
8037196	Chrysene	2015/09/14	80	60 - 130	78	60 - 130	<0.020	mg/kg	NC	50		
8037196	Dibenz(a,h)anthracene	2015/09/14	75	60 - 130	70	60 - 130	<0.050	mg/kg	NC	50		
8037196	Fluoranthene	2015/09/14	96	60 - 130	93	60 - 130	<0.020	mg/kg	NC	50		
8037196	Fluorene	2015/09/14	86	50 - 130	85	50 - 130	<0.020	mg/kg	NC	50		
8037196	Indeno(1,2,3-cd)pyrene	2015/09/14	73	60 - 130	67	60 - 130	<0.050	mg/kg	NC	50		
8037196	Naphthalene	2015/09/14	83	50 - 130	83	50 - 130	<0.010	mg/kg	NC	50		
8037196	Phenanthrene	2015/09/14	79	60 - 130	70	60 - 130	<0.020	mg/kg	NC	50		
8037196	Pyrene	2015/09/14	101	60 - 130	92	60 - 130	<0.020	mg/kg	NC	50		
8037562	2-Methylnaphthalene	2015/09/15	91	50 - 130	93	50 - 130	<0.020	mg/kg	NC	50		
8037562	Acenaphthene	2015/09/15	91	50 - 130	95	50 - 130	<0.0050	mg/kg	NC	50		
8037562	Acenaphthylene	2015/09/15	88	50 - 130	91	50 - 130	<0.0050	mg/kg	NC	50		
8037562	Anthracene	2015/09/15	91	60 - 130	102	60 - 130	<0.0040	mg/kg	NC	50		
8037562	Benzo(a)anthracene	2015/09/15	81	60 - 130	88	60 - 130	<0.020	mg/kg	NC	50		
8037562	Benzo(a)pyrene	2015/09/15	78	60 - 130	87	60 - 130	<0.020	mg/kg	NC	50		
8037562	Benzo(b&j)fluoranthene	2015/09/15	83	60 - 130	88	60 - 130	<0.020	mg/kg	NC	50		
8037562	Benzo(b)fluoranthene	2015/09/15	83	60 - 130	88	60 - 130	<0.020	mg/kg	NC	20		
8037562	Benzo(g,h,i)perylene	2015/09/15	72	60 - 130	78	60 - 130	<0.050	mg/kg	NC	50		
8037562	Benzo(k)fluoranthene	2015/09/15	84	60 - 130	85	60 - 130	<0.020	mg/kg	NC	50		
8037562	Chrysene	2015/09/15	83	60 - 130	92	60 - 130	<0.020	mg/kg	NC	50		
8037562	Dibenz(a,h)anthracene	2015/09/15	83	60 - 130	85	60 - 130	<0.050	mg/kg	NC	50		
8037562	Fluoranthene	2015/09/15	95	60 - 130	104	60 - 130	<0.020	mg/kg	NC	50		
8037562	Fluorene	2015/09/15	93	50 - 130	96	50 - 130	<0.020	mg/kg	NC	50		
8037562	Indeno(1,2,3-cd)pyrene	2015/09/15	77	60 - 130	83	60 - 130	<0.050	mg/kg	NC	50		
8037562	Naphthalene	2015/09/15	87	50 - 130	90	50 - 130	<0.010	mg/kg	NC	50		
8037562	Phenanthrene	2015/09/15	88	60 - 130	93	60 - 130	<0.020	mg/kg	NC	50		

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B579247
Report Date: 2015/09/17

QUALITY ASSURANCE REPORT(CONT'D)

GOLDER ASSOCIATES LTD
Client Project #: 1535154
Site Location: PARCEL 44
Your P.O. #: 700326766
Sampler Initials: SM

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8037562	Pyrene	2015/09/15	93	60 - 130	102	60 - 130	<0.020	mg/kg	NC	50		
8037842	F2 (C10-C16 Hydrocarbons)	2015/09/15	102	50 - 130	98	70 - 130	<10	mg/kg	NC	40		
8037842	F3 (C16-C34 Hydrocarbons)	2015/09/15	115	50 - 130	113	70 - 130	<10	mg/kg	15	40		
8037842	F4 (C34-C50 Hydrocarbons)	2015/09/15	90	50 - 130	92	70 - 120	<10	mg/kg	NC	40		
8037842	Reached Baseline at C50	2015/09/15					YES	mg/kg	NC	50		
8038124	Total Aluminum (Al)	2015/09/17					<100	mg/kg	0.40	35	100	70 - 130
8038124	Total Antimony (Sb)	2015/09/17	86	75 - 125	91	75 - 125	<0.10	mg/kg	NC	30	95	70 - 130
8038124	Total Arsenic (As)	2015/09/17	95	75 - 125	94	75 - 125	<0.50	mg/kg	0.17	30	97	70 - 130
8038124	Total Barium (Ba)	2015/09/17	NC	75 - 125	99	75 - 125	<0.10	mg/kg	1.7	35	107	70 - 130
8038124	Total Beryllium (Be)	2015/09/17	92	75 - 125	91	75 - 125	<0.40	mg/kg	NC	30		
8038124	Total Bismuth (Bi)	2015/09/17					<0.10	mg/kg	NC	30		
8038124	Total Cadmium (Cd)	2015/09/17	101	75 - 125	100	75 - 125	<0.050	mg/kg	NC	30	96	70 - 130
8038124	Total Calcium (Ca)	2015/09/17					<100	mg/kg	0.60	30	94	70 - 130
8038124	Total Chromium (Cr)	2015/09/17	NC	75 - 125	102	75 - 125	<1.0	mg/kg	1.2	30	109	70 - 130
8038124	Total Cobalt (Co)	2015/09/17	101	75 - 125	103	75 - 125	<0.30	mg/kg	0.18	30	95	70 - 130
8038124	Total Copper (Cu)	2015/09/17	NC	75 - 125	103	75 - 125	<0.50	mg/kg	1.4	30	92	70 - 130
8038124	Total Iron (Fe)	2015/09/17					<100	mg/kg	0.018	30	96	70 - 130
8038124	Total Lead (Pb)	2015/09/17	98	75 - 125	101	75 - 125	<0.10	mg/kg	3.3	35	98	70 - 130
8038124	Total Lithium (Li)	2015/09/17	86	75 - 125	87	75 - 125	<5.0	mg/kg	NC	30		
8038124	Total Magnesium (Mg)	2015/09/17					<100	mg/kg	0.23	30	94	70 - 130
8038124	Total Manganese (Mn)	2015/09/17	NC	75 - 125	101	75 - 125	<0.20	mg/kg	0.29	30	100	70 - 130
8038124	Total Mercury (Hg)	2015/09/17	101	75 - 125	98	75 - 125	<0.050	mg/kg	NC	35	82	70 - 130
8038124	Total Molybdenum (Mo)	2015/09/17	100	75 - 125	97	75 - 125	<0.10	mg/kg	NC	35	101	70 - 130
8038124	Total Nickel (Ni)	2015/09/17	NC	75 - 125	102	75 - 125	<0.80	mg/kg	0.69	30	94	70 - 130
8038124	Total Phosphorus (P)	2015/09/17					<10	mg/kg	1.1	30	88	70 - 130
8038124	Total Potassium (K)	2015/09/17					<100	mg/kg	5.1	35		
8038124	Total Selenium (Se)	2015/09/17	89	75 - 125	96	75 - 125	<0.50	mg/kg	NC	30		
8038124	Total Silver (Ag)	2015/09/17	87	75 - 125	89	75 - 125	<0.050	mg/kg	NC	35	93	60 - 140
8038124	Total Sodium (Na)	2015/09/17					<100	mg/kg	0.82	35		
8038124	Total Strontium (Sr)	2015/09/17	NC	75 - 125	101	75 - 125	<0.10	mg/kg	2.3	35	96	70 - 130

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Maxxam Job #: B579247
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QUALITY ASSURANCE REPORT(CONT'D)

GOLDER ASSOCIATES LTD
Client Project #: 1535154
Site Location: PARCEL 44
Your P.O. #: 700326766
Sampler Initials: SM

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8038124	Total Thallium (Tl)	2015/09/17	102	75 - 125	101	75 - 125	<0.050	mg/kg	NC	30	108	70 - 130
8038124	Total Tin (Sn)	2015/09/17	93	75 - 125	95	75 - 125	<0.10	mg/kg	1.5	35		
8038124	Total Titanium (Ti)	2015/09/17	NC	75 - 125	97	75 - 125	<1.0	mg/kg	3.1	35	112	70 - 130
8038124	Total Uranium (U)	2015/09/17	104	75 - 125	101	75 - 125	<0.050	mg/kg	2.7	30	104	70 - 130
8038124	Total Vanadium (V)	2015/09/17	NC	75 - 125	100	75 - 125	<2.0	mg/kg	1.5	30	103	70 - 130
8038124	Total Zinc (Zn)	2015/09/17	NC	75 - 125	103	75 - 125	<1.0	mg/kg	0.11	30	92	70 - 130
8038124	Total Zirconium (Zr)	2015/09/17					<0.50	mg/kg	0.82	30		
8038135	Soluble (2:1) pH	2015/09/16			100	97 - 103			1.1	N/A		
8038175	2-Methylnaphthalene	2015/09/15	93	50 - 130	84	50 - 130	<0.020	mg/kg	NC	50		
8038175	Acenaphthene	2015/09/15	95	50 - 130	82	50 - 130	<0.0050	mg/kg	NC	50		
8038175	Acenaphthylene	2015/09/15	90	50 - 130	81	50 - 130	<0.0050	mg/kg	NC	50		
8038175	Anthracene	2015/09/15	97	60 - 130	91	60 - 130	<0.0040	mg/kg	NC	50		
8038175	Benzo(a)anthracene	2015/09/15	87	60 - 130	76	60 - 130	<0.020	mg/kg	NC	50		
8038175	Benzo(a)pyrene	2015/09/15	87	60 - 130	76	60 - 130	<0.020	mg/kg	NC	50		
8038175	Benzo(b&j)fluoranthene	2015/09/15	95	60 - 130	81	60 - 130	<0.020	mg/kg	NC	50		
8038175	Benzo(b)fluoranthene	2015/09/15	95	60 - 130	81	60 - 130	<0.020	mg/kg	NC	20		
8038175	Benzo(g,h,i)perylene	2015/09/15	93	60 - 130	77	60 - 130	<0.050	mg/kg	NC	50		
8038175	Benzo(k)fluoranthene	2015/09/15	87	60 - 130	79	60 - 130	<0.020	mg/kg	NC	50		
8038175	Chrysene	2015/09/15	90	60 - 130	78	60 - 130	<0.020	mg/kg	NC	50		
8038175	Dibenz(a,h)anthracene	2015/09/15	97	60 - 130	80	60 - 130	<0.050	mg/kg	NC	50		
8038175	Fluoranthene	2015/09/15	103	60 - 130	92	60 - 130	<0.020	mg/kg	NC	50		
8038175	Fluorene	2015/09/15	96	50 - 130	84	50 - 130	<0.020	mg/kg	NC	50		
8038175	Indeno(1,2,3-cd)pyrene	2015/09/15	94	60 - 130	78	60 - 130	<0.050	mg/kg	NC	50		
8038175	Naphthalene	2015/09/15	90	50 - 130	81	50 - 130	<0.010	mg/kg	NC	50		
8038175	Phenanthrene	2015/09/15	92	60 - 130	80	60 - 130	<0.020	mg/kg	NC	50		
8038175	Pyrene	2015/09/15	100	60 - 130	89	60 - 130	<0.020	mg/kg	NC	50		
8038846	Benzene	2015/09/16	89	60 - 140	88	60 - 140	<0.0050	mg/kg	NC	40		
8038846	Ethylbenzene	2015/09/16	94	60 - 140	93	60 - 140	<0.010	mg/kg	NC	40		
8038846	F1 (C6-C10)	2015/09/16			98	60 - 140	<10	mg/kg	NC	40		
8038846	m & p-Xylene	2015/09/16	96	60 - 140	95	60 - 140	<0.040	mg/kg	NC	40		

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Maxxam Job #: B579247
Report Date: 2015/09/17

QUALITY ASSURANCE REPORT(CONT'D)

GOLDER ASSOCIATES LTD
Client Project #: 1535154
Site Location: PARCEL 44
Your P.O. #: 700326766
Sampler Initials: SM

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8038846	Methyl-tert-butylether (MTBE)	2015/09/16					<0.10	mg/kg	NC	40		
8038846	o-Xylene	2015/09/16	94	60 - 140	93	60 - 140	<0.040	mg/kg	NC	40		
8038846	Styrene	2015/09/16					<0.030	mg/kg	NC	40		
8038846	Toluene	2015/09/16	90	60 - 140	89	60 - 140	<0.020	mg/kg	NC	40		
8038846	Xylenes (Total)	2015/09/16					<0.040	mg/kg	NC	40		

N/A = Not Applicable

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

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

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

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

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

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

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

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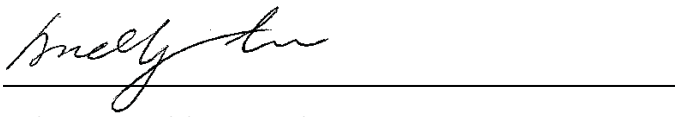
GOLDER ASSOCIATES LTD
Client Project #: 1535154
Site Location: PARCEL 44
Your P.O. #: 700326766
Sampler Initials: SM

VALIDATION SIGNATURE PAGE

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



Andy Lu, Data Validation Coordinator

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

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

B579247

CHAIN OF CUSTODY RECORD/ANALYSIS REQUEST

No. 00922 page 1 of _

Golder Associates
200 – 2920 Virtual Way
Vancouver, British Columbia, Canada V5M 0C4
Telephone (604) 296-4200 Fax (604) 298-5253

Project Number: 1535154			Laboratory Name: Maxxam Analytics
Short Title: TC Lot 44	Golder Contact: Wendy Beairsto		Address: 4606 Canada Way
Golder E-mail Address 1: WBeairsto @golder.com	Golder E-mail Address 2: SMorse @golder.com	Telephone/Fax: 604-639-2614	Contact: Namita Sahni

Office Name: Victoria

EQuIS Facility Code: _____
EQuIS upload: ☐

Turnaround Time: ☐ 24 hr ☐ 48 hr ☐ 72 hr ☒ Regular (5 Days)
Criteria: ☐ CSR ☐ CCME ☐ BC Water Quality ☐ Other

Note: Final Reports to be issued by e-mail

Quote No.:

Analyses Required

Sample Control Number (SCN)	Sample Location	Sa. #	Sample Depth ~~(m)~~ (ft)	Sample Matrix (over)	Date Sampled (D / M / Y)	Time Sampled (HH:MM)	Sample Type (over)	QAQC Code (over)	Related SCN (over)	Number of Containers	Total Metals	BTEX/F1	F2 - F4	PAH	Grain Size		Hold			RUSH (Select TAT above)	Remarks (over)
00922-01	BH15-12	1	1'6"-2'	SOIL	08/09/15	-	AUGER	-	-	2							X				NC4919
-02	BH15-12	2	4'6"-5'			-		-	-	2	X			X	X						NC4920
-03	BH15-12	3	12'-12'6"			-		-	-	2							X				NC4921
-04	BH15-13	1	3'~~6~~-3'6"			-		-	-	~~2~~ 4	X	X	X	X	X						NC4922
-05	BH15-13	2	7'-7'6"			-		-	-	5	X			X							NC4923
-06	BH15-14	1	4'6"-5'			-		-	-	5	X	X	X	X	X						NC4924
-07	BH15-14	2	5'6"-6'			-		FDA	00922-08	2	X			X							NC4925
-08	BH15-14	2	5'6"-6'			-		FD	00922-07	2	X			X							NC4926
-09	BH15-15	1	1'6"-2'		08/09/15	-		-	-	2	X			X	X						NC4927
-10	BH15-15	2	5'-5'6"			-		-	-	2							X				NC4928
-11	BH15-17	1	1'-1'6"			-		-	-	2	X			X	X						NC4929
-12	BH15-16	1	1'-2'			-		-	-	2	X			X	X						NC4930

Sampler's Signature:	Relinquished by: Signature	Company: Golder	Date: Sept. 9, 2015	Time: 16:17	Received by: Signature	Company	
Comments: ON ICE	Method of Shipment:	Waybill No.:	Received for Lab by:		Date: 09/09/15	Time: 1620	
	Shipped by:	Shipment Condition: Seal Intact:	Temp (°C): 8,8,8	Cooler opened by:	Date:	Time:	

B579247

WHITE: Golder Copy **YELLOW:** Lab Copy

Received by: KEVIN CHONG 2015/09/11 9:45

Coolers (on ice): 1 - 3,3,3; 2 - 3,3,3; 3 - 4,4,3; 4 - 2,1,3; 5 - 4,3,1

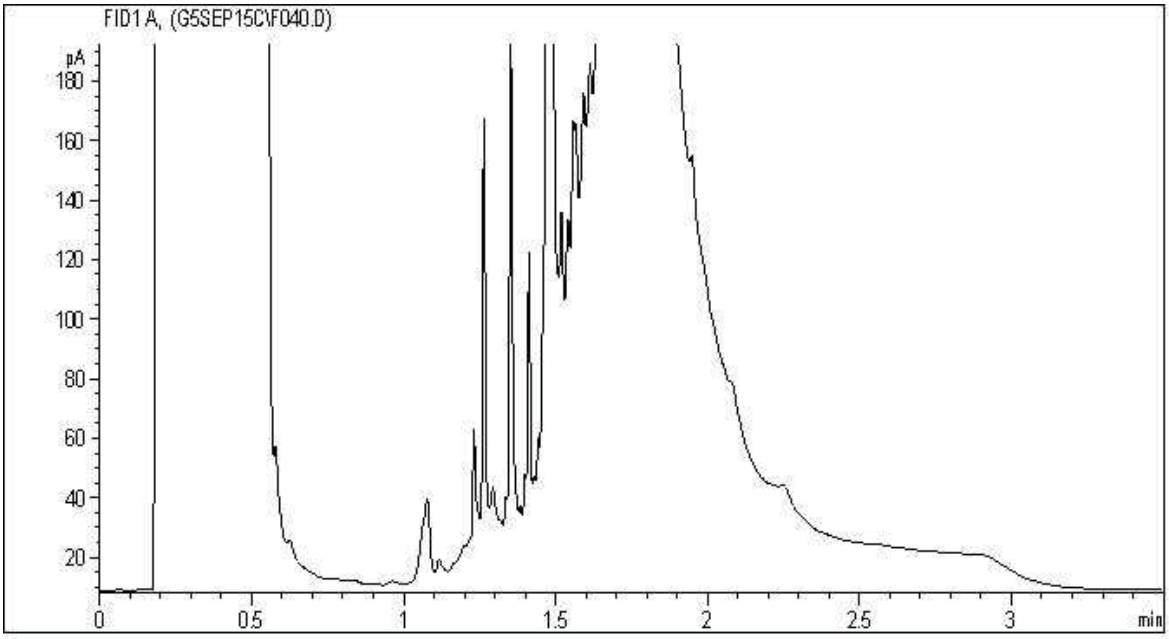
NO CUSTODY SEAL

ESED

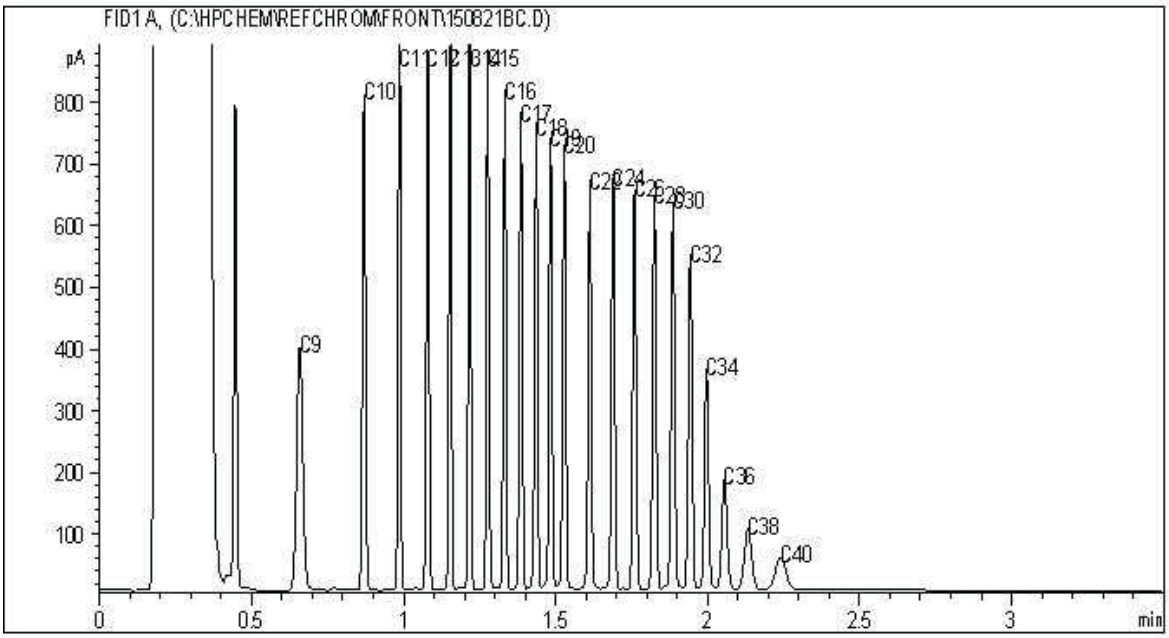
Maxxam Job #: B579247
Report Date: 2015/09/17
Maxxam Sample: NC4922

GOLDER ASSOCIATES LTD
Client Project #: 1535154
Site Reference: PARCEL 44
Client ID: 00922-04

CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



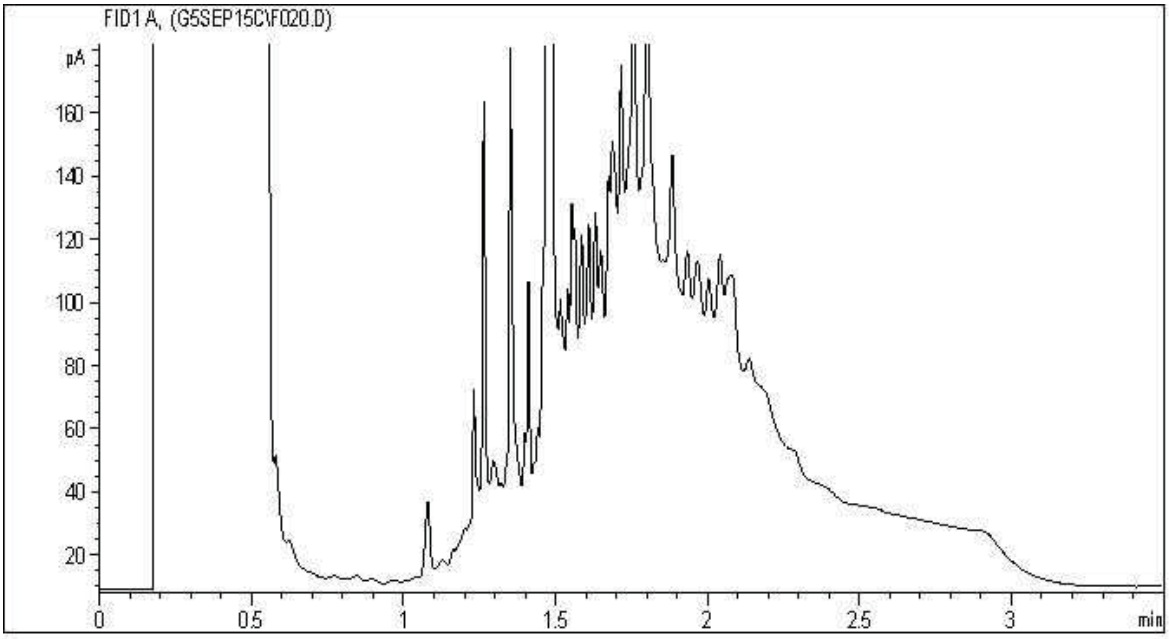
TYPICAL PRODUCT CARBON NUMBER RANGES

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

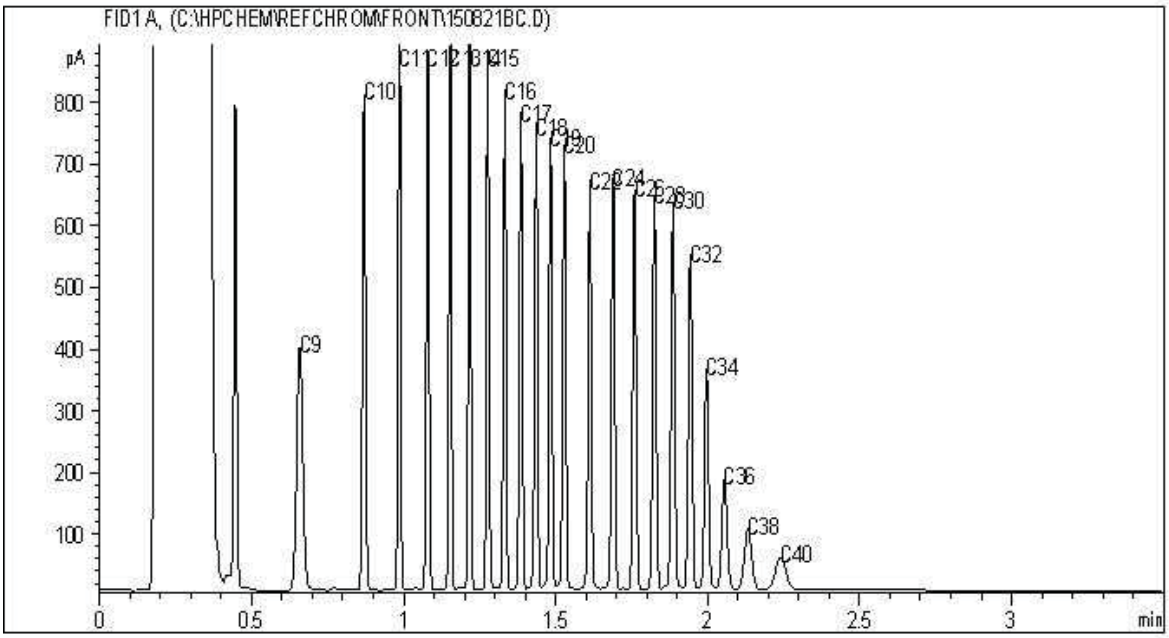
Maxxam Job #: B579247
Report Date: 2015/09/17
Maxxam Sample: NC4924

GOLDER ASSOCIATES LTD
Client Project #: 1535154
Site Reference: PARCEL 44
Client ID: 00922-06

CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

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

Maxxam
A Bureau Veritas Group Company

Success Through Science®

Your P.O. #: 700326766
Your Project #: 1535154
Site Location: PARCEL 44
Your C.O.C. #: 00923, 00919

Attention:Alanna Umphrey

GOLDER ASSOCIATES LTD
3795 CAREY ROAD
(2nd Floor)
VICTORIA, BC
Canada V8Z 6T8

Report Date: 2015/09/21
Report #: R2045001
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B580234
Received: 2015/09/15, 11:00

Sample Matrix: Soil
Samples Received: 17

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
BTEX/MTBE LH VH F1 in Soil - Field Pres. (1)	4	N/A	2015/09/17	BBY8SOP-00010/11	EPA 8260c R3 m
Volatile F1-BTEX	4	N/A	2015/09/17	BBY WI-00033	Auto Calc
CCME Hydrocarbons (F2-F4 in soil) (2)	4	2015/09/16	2015/09/18	BBY8SOP-00030	CCME PHC-CWS
Elements by ICPMS (total)	12	2015/09/17	2015/09/18	BBY7SOP-00001	EPA 6020a R1 m
Elements by ICPMS (total)	5	2015/09/17	2015/09/19	BBY7SOP-00001	EPA 6020a R1 m
Particulate Mesh 200	14	N/A	2015/09/19	BBY6SOP-00039	Carter 2nd ed 55.4
Moisture	14	N/A	2015/09/16	BBY8SOP-00017	OMOE E3139 3.1 m
Moisture	3	N/A	2015/09/17	BBY8SOP-00017	OMOE E3139 3.1 m
PAH in Soil by GC/MS (SIM) - CCME	14	2015/09/16	2015/09/17	BBY8SOP-00022	EPA 8270d R4 m
PAH in Soil by GC/MS (SIM) - CCME	1	2015/09/17	2015/09/17	BBY8SOP-00022	EPA 8270d R4 m
PAH in Soil by GC/MS (SIM) - CCME	2	2015/09/18	2015/09/19	BBY8SOP-00022	EPA 8270d R4 m
Benzo[a]pyrene Equivalency	15	N/A	2015/09/18	BBY WI-00033	Auto Calc
Benzo[a]pyrene Equivalency	2	N/A	2015/09/21	BBY WI-00033	Auto Calc
Total LMW, HMW, Total PAH Calc	15	N/A	2015/09/18	BBY WI-00033	Auto Calc
Total LMW, HMW, Total PAH Calc	2	N/A	2015/09/21	BBY WI-00033	Auto Calc
pH (2:1 DI Water Extract)	1	2015/09/17	2015/09/17	BBY6SOP-00028	BCMOE BCLM Mar2005 m
pH (2:1 DI Water Extract)	16	2015/09/17	2015/09/18	BBY6SOP-00028	BCMOE BCLM Mar2005 m

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

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

(1) The extraction date for VOC, BTEX, VH, or F1 samples that are field preserved with methanol equals the date sampled, unless otherwise stated.
(2) All CCME results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following the 'Alberta Environment Draft Addenda to the CWS-PHC, Appendix 6, Validation of Alternate Methods'. Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Your P.O. #: 700326766
Your Project #: 1535154
Site Location: PARCEL 44
Your C.O.C. #: 00923, 00919

Attention:Alanna Umphrey

GOLDER ASSOCIATES LTD
3795 CAREY ROAD
(2nd Floor)
VICTORIA, BC
Canada V8Z 6T8

Report Date: 2015/09/21
Report #: R2045001
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B580234
Received: 2015/09/15, 11:00

Encryption Key Samantha Fregien
21 Sep 2015 18:02:11 -07:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Samantha Fregien, Project Manager
Email: SFregien@maxxam.ca
Phone# (604)639-8418

==========

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

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B580234
Report Date: 2015/09/21

GOLDER ASSOCIATES LTD
Client Project #: 1535154
Site Location: PARCEL 44
Your P.O. #: 700326766
Sampler Initials: AM

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		ND0997	ND1000	ND1002	ND1025		
Sampling Date		2015/09/10	2015/09/10	2015/09/10	2015/09/11		
COC Number		00923	00923	00923	00919		
	UNITS	**00923-07**	**00923-10**	**00923-12**	**00919-07**	**RDL**	**QC Batch**
Ext. Pet. Hydrocarbon							
F2 (C10-C16 Hydrocarbons)	mg/kg	16	18	<10	13	10	8041489
F3 (C16-C34 Hydrocarbons)	mg/kg	620	720	460	240	10	8041489
F4 (C34-C50 Hydrocarbons)	mg/kg	410	340	200	84	10	8041489
Reached Baseline at C50	mg/kg	No	No	No	No	N/A	8041489
Surrogate Recovery (%)							
O-TERPHENYL (sur.)	%	97	89	92	104		8041489

RDL = Reportable Detection Limit
N/A = Not Applicable

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Maxxam Job #: B580234
Report Date: 2015/09/21

GOLDER ASSOCIATES LTD
Client Project #: 1535154
Site Location: PARCEL 44
Your P.O. #: 700326766
Sampler Initials: AM

PARTICLE SIZE DISTRIBUTION ANALYSIS (SOIL)

Maxxam ID		ND0993	ND0994	ND0995	ND0996	ND0997	ND0998	ND1000		
Sampling Date		2015/09/10	2015/09/10	2015/09/10	2015/09/10	2015/09/10	2015/09/10	2015/09/10		
COC Number		00923	00923	00923	00923	00923	00923	00923		
	UNITS	**00923-03**	**00923-04**	**00923-05**	**00923-06**	**00923-07**	**00923-08**	**00923-10**	**RDL**	**QC Batch**
Physical Properties										
200 mesh (>.075 mm)	%	79.5	89.5	93.9	90.4	80.7	75.1	70.4	0.10	8043503
200 mesh (<.075 mm)	%	20.6	10.5	6.10	9.56	19.4	24.9	29.6	0.10	8043503
RDL = Reportable Detection Limit										

Maxxam ID		ND1001	ND1002	ND1020	ND1022	ND1023	ND1024	ND1025		
Sampling Date		2015/09/10	2015/09/10	2015/09/11	2015/09/11	2015/09/11	2015/09/11	2015/09/11		
COC Number		00923	00923	00919	00919	00919	00919	00919		
	UNITS	**00923-11**	**00923-12**	**00919-02**	**00919-04**	**00919-05**	**00919-06**	**00919-07**	**RDL**	**QC Batch**
Physical Properties										
200 mesh (>.075 mm)	%	71.7	76.1	70.9	79.4	83.6	79.8	80.2	0.10	8043503
200 mesh (<.075 mm)	%	28.3	23.9	29.1	20.6	16.4	20.2	19.9	0.10	8043503
RDL = Reportable Detection Limit										

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Maxxam Job #: B580234
Report Date: 2015/09/21

GOLDER ASSOCIATES LTD
Client Project #: 1535154
Site Location: PARCEL 44
Your P.O. #: 700326766
Sampler Initials: AM

PHYSICAL TESTING (SOIL)

Maxxam ID		ND0993	ND0994	ND0995	ND0996	ND0997	ND0998		
Sampling Date		2015/09/10	2015/09/10	2015/09/10	2015/09/10	2015/09/10	2015/09/10		
COC Number		00923	00923	00923	00923	00923	00923		
	UNITS	**00923-03**	**00923-04**	**00923-05**	**00923-06**	**00923-07**	**00923-08**	**RDL**	**QC Batch**
Physical Properties									
Moisture	%	76	31	20	24	17	23	0.30	8039211
RDL = Reportable Detection Limit									

Maxxam ID		ND0999		ND1000	ND1001	ND1002	ND1019		
Sampling Date		2015/09/10		2015/09/10	2015/09/10	2015/09/10	2015/09/10		
COC Number		00923		00923	00923	00923	00919		
	UNITS	**00923-09**	**QC Batch**	**00923-10**	**00923-11**	**00923-12**	**00919-01**	**RDL**	**QC Batch**
Physical Properties									
Moisture	%	27	8038955	35	35	13	64	0.30	8039211
RDL = Reportable Detection Limit									

Maxxam ID		ND1020		ND1022	ND1023	ND1024	ND1025	ND1026		
Sampling Date		2015/09/11		2015/09/11	2015/09/11	2015/09/11	2015/09/11	2015/09/11		
COC Number		00919		00919	00919	00919	00919	00919		
	UNITS	**00919-02**	**QC Batch**	**00919-04**	**00919-05**	**00919-06**	**00919-07**	**00919-08**	**RDL**	**QC Batch**
Physical Properties										
Moisture	%	59	8038955	66	29	32	37	24	0.30	8039211
RDL = Reportable Detection Limit										

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GOLDER ASSOCIATES LTD
Client Project #: 1535154
Site Location: PARCEL 44
Your P.O. #: 700326766
Sampler Initials: AM

CCME BTEX/F1IN SOIL - FIELD PRESERVED (SOIL)

Maxxam ID		ND0997	ND1000	ND1002	ND1025		
Sampling Date		2015/09/10	2015/09/10	2015/09/10	2015/09/11		
COC Number		00923	00923	00923	00919		
	UNITS	**00923-07**	**00923-10**	**00923-12**	**00919-07**	**RDL**	**QC Batch**
Calculated Parameters							
F1 (C6-C10) - BTEX	mg/kg	<10	<10	<10	<10	10	8038939
Volatiles							
Methyl-tert-butylether (MTBE)	mg/kg	<0.10	<0.10	<0.10	<0.10	0.10	8040323
Benzene	mg/kg	0.010	0.013	<0.0050	0.021	0.0050	8040323
Toluene	mg/kg	0.040	0.041	<0.020	0.061	0.020	8040323
Ethylbenzene	mg/kg	0.014	<0.010	<0.010	0.026	0.010	8040323
m & p-Xylene	mg/kg	<0.040	<0.040	<0.040	<0.040	0.040	8040323
o-Xylene	mg/kg	<0.040	<0.040	<0.040	<0.040	0.040	8040323
Styrene	mg/kg	<0.030	<0.030	<0.030	<0.030	0.030	8040323
Xylenes (Total)	mg/kg	<0.040	<0.040	<0.040	<0.040	0.040	8040323
F1 (C6-C10)	mg/kg	<10	<10	<10	<10	10	8040323
Surrogate Recovery (%)							
1,4-Difluorobenzene (sur.)	%	103	104	104	102		8040323
4-Bromofluorobenzene (sur.)	%	94	94	94	97		8040323
D10-ETHYLBENZENE (sur.)	%	84	91	91	92		8040323
D4-1,2-Dichloroethane (sur.)	%	95	89	90	89		8040323
RDL = Reportable Detection Limit							

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Maxxam Job #: B580234
Report Date: 2015/09/21

GOLDER ASSOCIATES LTD
Client Project #: 1535154
Site Location: PARCEL 44
Your P.O. #: 700326766
Sampler Initials: AM

CSR/CCME METALS IN SOIL (SOIL)

Maxxam ID		ND0993	ND0994		ND0995		ND0996	ND0997		
Sampling Date		2015/09/10	2015/09/10		2015/09/10		2015/09/10	2015/09/10		
COC Number		00923	00923		00923		00923	00923		
	UNITS	**00923-03**	**00923-04**	**QC Batch**	**00923-05**	**QC Batch**	**00923-06**	**00923-07**	**RDL**	**QC Batch**
Physical Properties										
Soluble (2:1) pH	pH	6.94 (1)	7.63	8041567	8.21	8041580	8.12	6.98	N/A	8041567
Total Metals by ICPMS										
Total Aluminum (Al)	mg/kg	6500	15800	8041563	15000	8041578	13300	19200	100	8041563
Total Antimony (Sb)	mg/kg	0.37	1.61	8041563	1.08	8041578	0.62	1.02	0.10	8041563
Total Arsenic (As)	mg/kg	6.64	25.2	8041563	6.92	8041578	7.99	6.91	0.50	8041563
Total Barium (Ba)	mg/kg	20.4	71.9	8041563	28.3	8041578	46.7	73.4	0.10	8041563
Total Beryllium (Be)	mg/kg	<0.40	<0.40	8041563	<0.40	8041578	<0.40	<0.40	0.40	8041563
Total Bismuth (Bi)	mg/kg	<0.10	<0.10	8041563	<0.10	8041578	<0.10	<0.10	0.10	8041563
Total Cadmium (Cd)	mg/kg	0.720	0.224	8041563	0.149	8041578	0.204	0.269	0.050	8041563
Total Calcium (Ca)	mg/kg	6580	9270	8041563	12500	8041578	9650	14300	100	8041563
Total Chromium (Cr)	mg/kg	18.6	50.9	8041563	33.4	8041578	37.6	80.3	1.0	8041563
Total Cobalt (Co)	mg/kg	3.98	13.6	8041563	12.4	8041578	9.54	15.5	0.30	8041563
Total Copper (Cu)	mg/kg	38.7	113	8041563	75.1	8041578	43.0	77.2	0.50	8041563
Total Iron (Fe)	mg/kg	17200	50000	8041563	31400	8041578	32100	31400	100	8041563
Total Lead (Pb)	mg/kg	34.1	57.9	8041563	33.8	8041578	52.4	34.1	0.10	8041563
Total Lithium (Li)	mg/kg	7.2	16.6	8041563	17.8	8041578	18.3	10.0	5.0	8041563
Total Magnesium (Mg)	mg/kg	4820	11700	8041563	10400	8041578	7520	11000	100	8041563
Total Manganese (Mn)	mg/kg	422	674	8041563	391	8041578	277	673	0.20	8041563
Total Mercury (Hg)	mg/kg	5.42	0.103	8041563	0.103	8041578	0.102	0.110	0.050	8041563
Total Molybdenum (Mo)	mg/kg	11.4	3.77	8041563	2.04	8041578	2.69	1.28	0.10	8041563
Total Nickel (Ni)	mg/kg	13.4	33.0	8041563	29.6	8041578	25.2	35.9	0.80	8041563
Total Phosphorus (P)	mg/kg	639	618	8041563	701	8041578	914	736	10	8041563
Total Potassium (K)	mg/kg	971	1040	8041563	827	8041578	775	871	100	8041563
Total Selenium (Se)	mg/kg	0.52	<0.50	8041563	<0.50	8041578	<0.50	<0.50	0.50	8041563
Total Silver (Ag)	mg/kg	0.092	0.568	8041563	<0.050	8041578	0.054	0.168	0.050	8041563
Total Sodium (Na)	mg/kg	7900	5540	8041563	3800	8041578	4240	1540	100	8041563
Total Strontium (Sr)	mg/kg	61.0	68.3	8041563	71.2	8041578	85.5	59.4	0.10	8041563
Total Thallium (Tl)	mg/kg	0.083	<0.050	8041563	<0.050	8041578	<0.050	<0.050	0.050	8041563
Total Tin (Sn)	mg/kg	5.54	14.1	8041563	8.91	8041578	14.2	3.11	0.10	8041563
Total Titanium (Ti)	mg/kg	416	1310	8041563	1360	8041578	1100	1340	1.0	8041563
Total Uranium (U)	mg/kg	3.33	0.637	8041563	0.535	8041578	0.608	0.324	0.050	8041563
Total Vanadium (V)	mg/kg	32.8	68.8	8041563	68.2	8041578	57.7	78.8	2.0	8041563
Total Zinc (Zn)	mg/kg	126	174	8041563	144	8041578	107	119	1.0	8041563

RDL = Reportable Detection Limit
N/A = Not Applicable
(1) Due to high absorbtivity of the sample the water soil extraction ratio has changed from 2:1 to 4:1.

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Maxxam Job #: B580234
Report Date: 2015/09/21

GOLDER ASSOCIATES LTD
Client Project #: 1535154
Site Location: PARCEL 44
Your P.O. #: 700326766
Sampler Initials: AM

CSR/CCME METALS IN SOIL (SOIL)

Maxxam ID		ND0993	ND0994		ND0995		ND0996	ND0997		
Sampling Date		2015/09/10	2015/09/10		2015/09/10		2015/09/10	2015/09/10		
COC Number		00923	00923		00923		00923	00923		
	UNITS	**00923-03**	**00923-04**	**QC Batch**	**00923-05**	**QC Batch**	**00923-06**	**00923-07**	**RDL**	**QC Batch**
Total Zirconium (Zr)	mg/kg	2.83	5.76	8041563	6.65	8041578	3.98	5.48	0.50	8041563
RDL = Reportable Detection Limit										

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Report Date: 2015/09/21

GOLDER ASSOCIATES LTD
Client Project #: 1535154
Site Location: PARCEL 44
Your P.O. #: 700326766
Sampler Initials: AM

CSR/CCME METALS IN SOIL (SOIL)

Maxxam ID		ND0998	ND0999		ND1000		ND1001	ND1002		
Sampling Date		2015/09/10	2015/09/10		2015/09/10		2015/09/10	2015/09/10		
COC Number		00923	00923		00923		00923	00923		
	UNITS	**00923-08**	**00923-09**	**QC Batch**	**00923-10**	**QC Batch**	**00923-11**	**00923-12**	**RDL**	**QC Batch**
Physical Properties										
Soluble (2:1) pH	pH	8.02	7.43	8041567	7.09	8040883	7.19	6.22	N/A	8041567
Total Metals by ICPMS										
Total Aluminum (Al)	mg/kg	20400	17800	8041563	17600	8040862	17900	17400	100	8041563
Total Antimony (Sb)	mg/kg	0.65	0.99	8041563	1.18	8040862	1.20	5.35	0.10	8041563
Total Arsenic (As)	mg/kg	5.23	5.94	8041563	5.50	8040862	5.19	4.95	0.50	8041563
Total Barium (Ba)	mg/kg	67.9	67.3	8041563	126	8040862	125	104	0.10	8041563
Total Beryllium (Be)	mg/kg	<0.40	<0.40	8041563	<0.40	8040862	<0.40	<0.40	0.40	8041563
Total Bismuth (Bi)	mg/kg	<0.10	<0.10	8041563	0.10	8040862	0.10	0.11	0.10	8041563
Total Cadmium (Cd)	mg/kg	0.178	0.249	8041563	0.476	8040862	0.521	0.670	0.050	8041563
Total Calcium (Ca)	mg/kg	25100	15300	8041563	14000	8040862	17000	13600	100	8041563
Total Chromium (Cr)	mg/kg	60.4	64.6	8041563	40.1	8040862	39.6	87.0	1.0	8041563
Total Cobalt (Co)	mg/kg	15.7	14.2	8041563	11.8	8040862	12.1	13.5	0.30	8041563
Total Copper (Cu)	mg/kg	64.7	67.9	8041563	78.8	8040862	77.8	168	0.50	8041563
Total Iron (Fe)	mg/kg	31800	31300	8041563	26800	8040862	27700	34900	100	8041563
Total Lead (Pb)	mg/kg	19.0	30.3	8041563	63.3	8040862	69.8	129	0.10	8041563
Total Lithium (Li)	mg/kg	8.6	9.0	8041563	10.8	8040862	11.4	9.2	5.0	8041563
Total Magnesium (Mg)	mg/kg	12400	10100	8041563	7440	8040862	7520	8090	100	8041563
Total Manganese (Mn)	mg/kg	595	583	8041563	680	8040862	686	765	0.20	8041563
Total Mercury (Hg)	mg/kg	0.083	0.094	8041563	1.50	8040862	1.70	0.491	0.050	8041563
Total Molybdenum (Mo)	mg/kg	0.69	0.96	8041563	1.58	8040862	1.67	5.59	0.10	8041563
Total Nickel (Ni)	mg/kg	31.3	31.4	8041563	29.6	8040862	30.2	45.2	0.80	8041563
Total Phosphorus (P)	mg/kg	612	714	8041563	1280	8040862	1260	1100	10	8041563
Total Potassium (K)	mg/kg	831	872	8041563	1010	8040862	919	726	100	8041563
Total Selenium (Se)	mg/kg	<0.50	<0.50	8041563	<0.50	8040862	<0.50	<0.50	0.50	8041563
Total Silver (Ag)	mg/kg	0.068	0.094	8041563	0.091	8040862	0.104	2.42	0.050	8041563
Total Sodium (Na)	mg/kg	2030	1920	8041563	468	8040862	399	371	100	8041563
Total Strontium (Sr)	mg/kg	74.3	58.0	8041563	75.7	8040862	88.1	59.5	0.10	8041563
Total Thallium (Tl)	mg/kg	<0.050	<0.050	8041563	<0.050	8040862	0.054	<0.050	0.050	8041563
Total Tin (Sn)	mg/kg	2.01	2.67	8041563	4.74	8040862	5.61	19.5	0.10	8041563
Total Titanium (Ti)	mg/kg	1670	1430	8041563	931	8040862	1040	1190	1.0	8041563
Total Uranium (U)	mg/kg	0.320	0.304	8041563	0.480	8040862	0.529	0.397	0.050	8041563
Total Vanadium (V)	mg/kg	83.3	74.0	8041563	61.9	8040862	62.4	66.9	2.0	8041563
Total Zinc (Zn)	mg/kg	83.5	108	8041563	173	8040862	164	281	1.0	8041563
Total Zirconium (Zr)	mg/kg	7.33	5.90	8041563	2.69	8040862	2.79	4.35	0.50	8041563

RDL = Reportable Detection Limit
N/A = Not Applicable

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B580234
Report Date: 2015/09/21

GOLDER ASSOCIATES LTD
Client Project #: 1535154
Site Location: PARCEL 44
Your P.O. #: 700326766
Sampler Initials: AM

CSR/CCME METALS IN SOIL (SOIL)

Maxxam ID		ND1019		ND1020		ND1022		ND1023		
Sampling Date		2015/09/10		2015/09/11		2015/09/11		2015/09/11		
COC Number		00919		00919		00919		00919		
	UNITS	**00919-01**	**QC Batch**	**00919-02**	**QC Batch**	**00919-04**	**QC Batch**	**00919-05**	**RDL**	**QC Batch**
Physical Properties										
Soluble (2:1) pH	pH	6.40	8041567	6.56	8041580	7.71	8041567	7.93	N/A	8041580
Total Metals by ICPMS										
Total Aluminum (Al)	mg/kg	12400	8041563	7740	8041578	8990	8041563	11600	100	8041578
Total Antimony (Sb)	mg/kg	1.59	8041563	1.96	8041578	0.67	8041563	1.18	0.10	8041578
Total Arsenic (As)	mg/kg	6.02	8041563	13.9	8041578	12.6	8041563	5.30	0.50	8041578
Total Barium (Ba)	mg/kg	63.5	8041563	21.8	8041578	32.2	8041563	19.5	0.10	8041578
Total Beryllium (Be)	mg/kg	<0.40	8041563	<0.40	8041578	<0.40	8041563	<0.40	0.40	8041578
Total Bismuth (Bi)	mg/kg	<0.10	8041563	<0.10	8041578	<0.10	8041563	<0.10	0.10	8041578
Total Cadmium (Cd)	mg/kg	0.474	8041563	0.377	8041578	1.04	8041563	0.160	0.050	8041578
Total Calcium (Ca)	mg/kg	15500	8041563	8680	8041578	95900	8041563	24700	100	8041578
Total Chromium (Cr)	mg/kg	40.8	8041563	1100	8041578	29.7	8041563	35.7	1.0	8041578
Total Cobalt (Co)	mg/kg	9.03	8041563	12.7	8041578	7.04	8041563	10.9	0.30	8041578
Total Copper (Cu)	mg/kg	169	8041563	93.1	8041578	64.7	8041563	46.3	0.50	8041578
Total Iron (Fe)	mg/kg	34700	8041563	130000	8041578	18800	8041563	50400	100	8041578
Total Lead (Pb)	mg/kg	123	8041563	143	8041578	39.2	8041563	18.9	0.10	8041578
Total Lithium (Li)	mg/kg	10.1	8041563	9.1	8041578	9.9	8041563	11.7	5.0	8041578
Total Magnesium (Mg)	mg/kg	5410	8041563	7600	8041578	8760	8041563	9850	100	8041578
Total Manganese (Mn)	mg/kg	582	8041563	884	8041578	231	8041563	479	0.20	8041578
Total Mercury (Hg)	mg/kg	0.944	8041563	0.214	8041578	0.176	8041563	<0.050	0.050	8041578
Total Molybdenum (Mo)	mg/kg	3.00	8041563	193	8041578	3.68	8041563	2.34	0.10	8041578
Total Nickel (Ni)	mg/kg	27.0	8041563	101	8041578	18.5	8041563	26.6	0.80	8041578
Total Phosphorus (P)	mg/kg	1220	8041563	767	8041578	1700	8041563	548	10	8041578
Total Potassium (K)	mg/kg	709	8041563	1130	8041578	1920	8041563	775	100	8041578
Total Selenium (Se)	mg/kg	<0.50	8041563	<0.50	8041578	1.58	8041563	<0.50	0.50	8041578
Total Silver (Ag)	mg/kg	0.152	8041563	0.058	8041578	0.096	8041563	<0.050	0.050	8041578
Total Sodium (Na)	mg/kg	622	8041563	12200	8041578	21500	8041563	5190	100	8041578
Total Strontium (Sr)	mg/kg	81.5	8041563	76.9	8041578	668	8041563	182	0.10	8041578
Total Thallium (Tl)	mg/kg	<0.050	8041563	<0.050	8041578	0.099	8041563	<0.050	0.050	8041578
Total Tin (Sn)	mg/kg	9.63	8041563	39.8	8041578	6.74	8041563	5.15	0.10	8041578
Total Titanium (Ti)	mg/kg	839	8041563	551	8041578	450	8041563	1060	1.0	8041578
Total Uranium (U)	mg/kg	0.498	8041563	1.68	8041578	2.54	8041563	0.401	0.050	8041578
Total Vanadium (V)	mg/kg	43.5	8041563	86.1	8041578	39.5	8041563	54.6	2.0	8041578
Total Zinc (Zn)	mg/kg	188	8041563	1130	8041578	106	8041563	65.2	1.0	8041578
Total Zirconium (Zr)	mg/kg	3.24	8041563	2.96	8041578	2.58	8041563	5.08	0.50	8041578

RDL = Reportable Detection Limit
N/A = Not Applicable

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B580234
Report Date: 2015/09/21

GOLDER ASSOCIATES LTD
Client Project #: 1535154
Site Location: PARCEL 44
Your P.O. #: 700326766
Sampler Initials: AM

CSR/CCME METALS IN SOIL (SOIL)

Maxxam ID		ND1024	ND1025		ND1026		
Sampling Date		2015/09/11	2015/09/11		2015/09/11		
COC Number		00919	00919		00919		
	UNITS	**00919-06**	**00919-07**	**QC Batch**	**00919-08**	**RDL**	**QC Batch**
Physical Properties							
Soluble (2:1) pH	pH	6.99	7.72	8041580	7.27	N/A	8041567
Total Metals by ICPMS							
Total Aluminum (Al)	mg/kg	19000	15900	8041578	25600	100	8041563
Total Antimony (Sb)	mg/kg	0.45	3.30	8041578	0.33	0.10	8041563
Total Arsenic (As)	mg/kg	4.20	6.96	8041578	5.31	0.50	8041563
Total Barium (Ba)	mg/kg	45.6	171	8041578	118	0.10	8041563
Total Beryllium (Be)	mg/kg	<0.40	<0.40	8041578	0.47	0.40	8041563
Total Bismuth (Bi)	mg/kg	<0.10	0.13	8041578	0.11	0.10	8041563
Total Cadmium (Cd)	mg/kg	0.136	0.740	8041578	0.129	0.050	8041563
Total Calcium (Ca)	mg/kg	5880	28900	8041578	6710	100	8041563
Total Chromium (Cr)	mg/kg	30.2	34.1	8041578	43.2	1.0	8041563
Total Cobalt (Co)	mg/kg	12.6	11.5	8041578	14.2	0.30	8041563
Total Copper (Cu)	mg/kg	60.0	92.1	8041578	40.1	0.50	8041563
Total Iron (Fe)	mg/kg	27500	29700	8041578	33200	100	8041563
Total Lead (Pb)	mg/kg	62.8	60.8	8041578	40.5	0.10	8041563
Total Lithium (Li)	mg/kg	21.9	9.6	8041578	15.4	5.0	8041563
Total Magnesium (Mg)	mg/kg	9250	7970	8041578	7300	100	8041563
Total Manganese (Mn)	mg/kg	498	694	8041578	478	0.20	8041563
Total Mercury (Hg)	mg/kg	0.075	0.205	8041578	0.104	0.050	8041563
Total Molybdenum (Mo)	mg/kg	1.31	2.29	8041578	0.39	0.10	8041563
Total Nickel (Ni)	mg/kg	25.3	26.5	8041578	32.7	0.80	8041563
Total Phosphorus (P)	mg/kg	680	1760	8041578	725	10	8041563
Total Potassium (K)	mg/kg	1110	960	8041578	960	100	8041563
Total Selenium (Se)	mg/kg	<0.50	<0.50	8041578	<0.50	0.50	8041563
Total Silver (Ag)	mg/kg	<0.050	0.131	8041578	0.060	0.050	8041563
Total Sodium (Na)	mg/kg	6310	996	8041578	416	100	8041563
Total Strontium (Sr)	mg/kg	45.6	167	8041578	51.8	0.10	8041563
Total Thallium (Tl)	mg/kg	<0.050	0.079	8041578	0.059	0.050	8041563
Total Tin (Sn)	mg/kg	82.1	11.7	8041578	6.86	0.10	8041563
Total Titanium (Ti)	mg/kg	1300	1070	8041578	1180	1.0	8041563
Total Uranium (U)	mg/kg	0.466	0.840	8041578	0.437	0.050	8041563
Total Vanadium (V)	mg/kg	71.9	61.8	8041578	84.9	2.0	8041563
Total Zinc (Zn)	mg/kg	72.6	267	8041578	77.3	1.0	8041563
Total Zirconium (Zr)	mg/kg	4.97	4.36	8041578	3.61	0.50	8041563

RDL = Reportable Detection Limit
N/A = Not Applicable

Maxxam Job #: B580234
Report Date: 2015/09/21

GOLDER ASSOCIATES LTD
Client Project #: 1535154
Site Location: PARCEL 44
Your P.O. #: 700326766
Sampler Initials: AM

CCME PAH IN SOIL BY GC-MS (SOIL)

Maxxam ID		ND0993		ND0994	ND0995	ND0996	ND0997	ND0998		
Sampling Date		2015/09/10		2015/09/10	2015/09/10	2015/09/10	2015/09/10	2015/09/10		
COC Number		00923		00923	00923	00923	00923	00923		
	UNITS	**00923-03**	**RDL**	**00923-04**	**00923-05**	**00923-06**	**00923-07**	**00923-08**	**RDL**	**QC Batch**
Calculated Parameters										
Index of Additive Cancer Risk(IARC)	N/A	1.2	0.10	0.54	0.48	0.41	0.67	0.79	0.10	8038648
Benzo[a]pyrene equivalency	N/A	0.16	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	8038648
Polycyclic Aromatics										
Naphthalene	mg/kg	<0.19 (1)	0.19	0.060	0.063	0.028	0.042	0.051	0.010	8040987
2-Methylnaphthalene	mg/kg	<0.078 (2)	0.078	0.073	0.028	0.022	0.028	0.037	0.020	8040987
Acenaphthylene	mg/kg	0.023 (2)	0.020	0.0054	0.0092	0.0057	0.0063	0.0064	0.0050	8040987
Acenaphthene	mg/kg	0.071 (2)	0.020	0.014	0.015	0.011	0.054	0.077	0.0050	8040987
Fluorene	mg/kg	<0.078 (2)	0.078	0.030	0.025	<0.020	0.051	0.068	0.020	8040987
Phenanthrene	mg/kg	0.19 (2)	0.078	0.076	0.095	0.062	0.20	0.28	0.020	8040987
Anthracene	mg/kg	0.072 (2)	0.016	0.020	0.024	0.015	0.027	0.044	0.0040	8040987
Fluoranthene	mg/kg	0.60 (2)	0.078	0.13	0.10	0.082	0.19	0.26	0.020	8040987
Pyrene	mg/kg	0.53 (2)	0.078	0.11	0.088	0.071	0.16	0.22	0.020	8040987
Benzo(a)anthracene	mg/kg	<0.078 (2)	0.078	0.023	0.022	<0.020	0.035	0.050	0.020	8040987
Chrysene	mg/kg	0.085 (2)	0.078	0.051	0.030	0.034	0.056	0.081	0.020	8040987
Benzo(b&j)fluoranthene	mg/kg	<0.078 (2)	0.078	0.037	0.030	0.024	0.047	0.054	0.020	8040987
Benzo(b)fluoranthene	mg/kg	<0.078 (2)	0.078	0.026	<0.020	<0.020	0.033	0.036	0.020	8040987
Benzo(k)fluoranthene	mg/kg	<0.078 (2)	0.078	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	8040987
Benzo(a)pyrene	mg/kg	<0.078 (2)	0.078	<0.020	<0.020	<0.020	0.021	0.030	0.020	8040987
Indeno(1,2,3-cd)pyrene	mg/kg	<0.20 (2)	0.20	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	8040987
Dibenz(a,h)anthracene	mg/kg	<0.20 (2)	0.20	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	8040987
Benzo(g,h,i)perylene	mg/kg	<0.20 (2)	0.20	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	8040987
Low Molecular Weight PAH`s	mg/kg	0.35	0.20	0.28	0.26	0.14	0.41	0.57	0.050	8038551
High Molecular Weight PAH`s	mg/kg	1.2	0.20	0.35	0.27	0.21	0.51	0.69	0.050	8038551
Total PAH	mg/kg	1.6	0.20	0.62	0.53	0.36	0.92	1.3	0.050	8038551
Surrogate Recovery (%)										
D10-ANTHRACENE (sur.)	%	85		103	111	104	107	115		8040987
D8-ACENAPHTHYLENE (sur.)	%	73		99	101	97	99	102		8040987
D8-NAPHTHALENE (sur.)	%	103		103	111	101	99	107		8040987
TERPHENYL-D14 (sur.)	%	90		101	105	100	109	104		8040987

RDL = Reportable Detection Limit
(1) RDL raised due to sample matrix interference.
(2) Detection limit raised due to high moisture content.

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B580234
Report Date: 2015/09/21

GOLDER ASSOCIATES LTD
Client Project #: 1535154
Site Location: PARCEL 44
Your P.O. #: 700326766
Sampler Initials: AM

CCME PAH IN SOIL BY GC-MS (SOIL)

Maxxam ID		ND0999	ND1000	ND1001		ND1002		
Sampling Date		2015/09/10	2015/09/10	2015/09/10		2015/09/10		
COC Number		00923	00923	00923		00923		
	UNITS	**00923-09**	**00923-10**	**00923-11**	**RDL**	**00923-12**	**RDL**	**QC Batch**
Calculated Parameters								
Index of Additive Cancer Risk(IARC)	N/A	1.2	0.67	1.1	0.10	0.31	0.10	8038648
Benzo[a]pyrene equivalency	N/A	<0.10	<0.10	<0.10	0.10	<0.10	0.10	8038648
Polycyclic Aromatics								
Naphthalene	mg/kg	0.090	0.071	0.040	0.010	<0.010	0.010	8040987
2-Methylnaphthalene	mg/kg	0.064	0.041	0.027	0.020	<0.020	0.020	8040987
Acenaphthylene	mg/kg	0.011	0.022	0.019	0.0050	<0.0050	0.0050	8040987
Acenaphthene	mg/kg	0.13	0.015	0.010	0.0050	<0.0050	0.0050	8040987
Fluorene	mg/kg	0.12	<0.020	<0.020	0.020	<0.020	0.020	8040987
Phenanthrene	mg/kg	0.52	0.15	0.13	0.020	0.023	0.020	8040987
Anthracene	mg/kg	0.074	0.024	0.046	0.0040	0.0043	0.0040	8040987
Fluoranthene	mg/kg	0.40	0.16	0.22	0.020	<0.033 (1)	0.033	8040987
Pyrene	mg/kg	0.34	0.16	0.19	0.020	0.024	0.020	8040987
Benzo(a)anthracene	mg/kg	0.082	0.035	0.055	0.020	<0.020	0.020	8040987
Chrysene	mg/kg	0.12	0.063	0.069	0.020	<0.020	0.020	8040987
Benzo(b&j)fluoranthene	mg/kg	0.075	0.045	0.066	0.020	<0.020	0.020	8040987
Benzo(b)fluoranthene	mg/kg	0.049	0.029	0.043	0.020	<0.020	0.020	8040987
Benzo(k)fluoranthene	mg/kg	0.024	<0.020	0.045	0.020	<0.020	0.020	8040987
Benzo(a)pyrene	mg/kg	0.046	0.023	0.035	0.020	<0.020	0.020	8040987
Indeno(1,2,3-cd)pyrene	mg/kg	<0.050	<0.050	<0.050	0.050	<0.050	0.050	8040987
Dibenz(a,h)anthracene	mg/kg	<0.050	<0.050	<0.050	0.050	<0.050	0.050	8040987
Benzo(g,h,i)perylene	mg/kg	<0.050	<0.050	<0.050	0.050	<0.050	0.050	8040987
Low Molecular Weight PAH`s	mg/kg	1.0	0.32	0.28	0.050	<0.050	0.050	8038551
High Molecular Weight PAH`s	mg/kg	1.1	0.49	0.68	0.050	<0.050	0.050	8038551
Total PAH	mg/kg	2.1	0.81	0.96	0.050	0.051	0.050	8038551
Surrogate Recovery (%)								
D10-ANTHRACENE (sur.)	%	112	82	88		99		8040987
D8-ACENAPHTHYLENE (sur.)	%	100	95	95		93		8040987
D8-NAPHTHALENE (sur.)	%	102	100	94		97		8040987
TERPHENYL-D14 (sur.)	%	100	91	91		104		8040987

RDL = Reportable Detection Limit
(1) RDL raised due to sample matrix interference.

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B580234
Report Date: 2015/09/21

GOLDER ASSOCIATES LTD
Client Project #: 1535154
Site Location: PARCEL 44
Your P.O. #: 700326766
Sampler Initials: AM

CCME PAH IN SOIL BY GC-MS (SOIL)

Maxxam ID		ND1019			ND1020		ND1022		ND1023		
Sampling Date		2015/09/10			2015/09/11		2015/09/11		2015/09/11		
COC Number		00919			00919		00919		00919		
	UNITS	**00919-01**	**RDL**	**QC Batch**	**00919-02**	**RDL**	**00919-04**	**RDL**	**00919-05**	**RDL**	**QC Batch**
Calculated Parameters											
Index of Additive Cancer Risk(IARC)	N/A	1.0	0.10	8038648	1.1	0.10	2.9	0.10	0.31	0.10	8038648
Benzo[a]pyrene equivalency	N/A	0.12	0.10	8038648	<0.10	0.10	0.21	0.10	<0.10	0.10	8038648
Polycyclic Aromatics											
Naphthalene	mg/kg	0.042 (1)	0.028	8043024	0.073 (2)	0.022	0.032 (2)	0.029	<0.010	0.010	8040987
2-Methylnaphthalene	mg/kg	<0.056 (1)	0.056	8043024	<0.044 (2)	0.044	<0.058 (2)	0.058	<0.020	0.020	8040987
Acenaphthylene	mg/kg	<0.014 (1)	0.014	8043024	0.027 (2)	0.011	0.029 (2)	0.015	<0.0050	0.0050	8040987
Acenaphthene	mg/kg	0.099 (1)	0.014	8043024	0.018 (2)	0.011	<0.015 (2)	0.015	<0.0052 (3)	0.0052	8040987
Fluorene	mg/kg	<0.056 (1)	0.056	8043024	<0.044 (2)	0.044	<0.058 (2)	0.058	<0.020	0.020	8040987
Phenanthrene	mg/kg	0.22 (1)	0.056	8043024	0.12 (2)	0.044	0.12 (2)	0.058	0.021	0.020	8040987
Anthracene	mg/kg	0.044 (1)	0.011	8043024	0.021 (2)	0.0088	0.062 (2)	0.012	<0.0044	0.0044	8040987
Fluoranthene	mg/kg	0.21 (1)	0.056	8043024	0.24 (2)	0.044	0.58 (2)	0.058	0.068	0.020	8040987
Pyrene	mg/kg	0.20 (1)	0.056	8043024	0.25 (2)	0.044	0.38 (2)	0.058	0.065	0.020	8040987
Benzo(a)anthracene	mg/kg	0.065 (1)	0.056	8043024	<0.044 (2)	0.044	0.093 (2)	0.058	<0.020	0.020	8040987
Chrysene	mg/kg	0.082 (1)	0.056	8043024	0.081 (2)	0.044	0.21 (2)	0.058	0.021	0.020	8040987
Benzo(b&j)fluoranthene	mg/kg	<0.056 (1)	0.056	8043024	0.090 (2)	0.044	0.24 (2)	0.058	<0.020	0.020	8040987
Benzo(b)fluoranthene	mg/kg	<0.056 (1)	0.056	8043024	0.067 (2)	0.044	0.16 (2)	0.058	<0.020	0.020	8040987
Benzo(k)fluoranthene	mg/kg	<0.056 (1)	0.056	8043024	<0.044 (2)	0.044	0.072 (2)	0.058	<0.020	0.020	8040987
Benzo(a)pyrene	mg/kg	<0.056 (1)	0.056	8043024	<0.044 (2)	0.044	0.091 (2)	0.058	<0.020	0.020	8040987
Indeno(1,2,3-cd)pyrene	mg/kg	<0.14 (1)	0.14	8043024	<0.11 (2)	0.11	<0.15 (2)	0.15	<0.050	0.050	8040987
Dibenz(a,h)anthracene	mg/kg	<0.14 (1)	0.14	8043024	<0.11 (2)	0.11	<0.15 (2)	0.15	<0.050	0.050	8040987
Benzo(g,h,i)perylene	mg/kg	<0.14 (1)	0.14	8043024	<0.11 (2)	0.11	<0.15 (2)	0.15	<0.050	0.050	8040987
Low Molecular Weight PAH`s	mg/kg	0.40	0.14	8038551	0.26	0.11	0.24	0.15	<0.050	0.050	8038551
High Molecular Weight PAH`s	mg/kg	0.56	0.14	8038551	0.66	0.11	1.7	0.15	0.15	0.050	8038551
Total PAH	mg/kg	0.96	0.14	8038551	0.92	0.11	1.9	0.15	0.18	0.050	8038551
Surrogate Recovery (%)											
D10-ANTHRACENE (sur.)	%	96		8043024	96		101		102		8040987
D8-ACENAPHTHYLENE (sur.)	%	91		8043024	97		102		96		8040987
D8-NAPHTHALENE (sur.)	%	97		8043024	97		108		101		8040987
TERPHENYL-D14 (sur.)	%	96		8043024	91		95		95		8040987

RDL = Reportable Detection Limit
(1) Detection limits raised due to high moisture content.
(2) Detection limit raised due to high moisture content.
(3) RDL raised due to sample matrix interference.

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Client Project #: 1535154
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Sampler Initials: AM

CCME PAH IN SOIL BY GC-MS (SOIL)

Maxxam ID		ND1024		ND1025	ND1026		
Sampling Date		2015/09/11		2015/09/11	2015/09/11		
COC Number		00919		00919	00919		
	UNITS	**00919-06**	**QC Batch**	**00919-07**	**00919-08**	**RDL**	**QC Batch**
Calculated Parameters							
Index of Additive Cancer Risk(IARC)	N/A	0.31	8038648	0.31	0.31	0.10	8038648
Benzo[a]pyrene equivalency	N/A	<0.10	8038648	<0.10	<0.10	0.10	8038648
Polycyclic Aromatics							
Naphthalene	mg/kg	0.011	8043024	0.14	0.013	0.010	8040987
2-Methylnaphthalene	mg/kg	0.022	8043024	0.039	<0.020	0.020	8040987
Acenaphthylene	mg/kg	<0.0050	8043024	0.013	<0.0050	0.0050	8040987
Acenaphthene	mg/kg	<0.0050	8043024	0.0068	<0.0050	0.0050	8040987
Fluorene	mg/kg	<0.020	8043024	<0.020	<0.020	0.020	8040987
Phenanthrene	mg/kg	<0.020	8043024	0.088	0.021	0.020	8040987
Anthracene	mg/kg	<0.0040	8043024	0.010	<0.0040	0.0040	8040987
Fluoranthene	mg/kg	0.037	8043024	0.061	<0.020	0.020	8040987
Pyrene	mg/kg	0.051	8043024	0.069	<0.020	0.020	8040987
Benzo(a)anthracene	mg/kg	<0.020	8043024	<0.020	<0.020	0.020	8040987
Chrysene	mg/kg	<0.020	8043024	<0.020	<0.020	0.020	8040987
Benzo(b&j)fluoranthene	mg/kg	<0.020	8043024	<0.020	<0.020	0.020	8040987
Benzo(b)fluoranthene	mg/kg	<0.020	8043024	<0.020	<0.020	0.020	8040987
Benzo(k)fluoranthene	mg/kg	<0.020	8043024	<0.020	<0.020	0.020	8040987
Benzo(a)pyrene	mg/kg	<0.020	8043024	<0.020	<0.020	0.020	8040987
Indeno(1,2,3-cd)pyrene	mg/kg	<0.050	8043024	<0.050	<0.050	0.050	8040987
Dibenz(a,h)anthracene	mg/kg	<0.050	8043024	<0.050	<0.050	0.050	8040987
Benzo(g,h,i)perylene	mg/kg	<0.050	8043024	<0.050	<0.050	0.050	8040987
Low Molecular Weight PAH`s	mg/kg	<0.050	8038551	0.30	<0.050	0.050	8038551
High Molecular Weight PAH`s	mg/kg	0.088	8038551	0.13	<0.050	0.050	8038551
Total PAH	mg/kg	0.12	8038551	0.43	<0.050	0.050	8038551
Surrogate Recovery (%)							
D10-ANTHRACENE (sur.)	%	112	8043024	66	109		8040987
D8-ACENAPHTHYLENE (sur.)	%	98	8043024	85	99		8040987
D8-NAPHTHALENE (sur.)	%	101	8043024	95	99		8040987
TERPHENYL-D14 (sur.)	%	107	8043024	76	113		8040987
RDL = Reportable Detection Limit							

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GOLDER ASSOCIATES LTD
Client Project #: 1535154
Site Location: PARCEL 44
Your P.O. #: 700326766
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GENERAL COMMENTS

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

Package 1	3.0°C
Package 2	2.0°C

Results relate only to the items tested.

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QUALITY ASSURANCE REPORT

GOLDER ASSOCIATES LTD
Client Project #: 1535154
Site Location: PARCEL 44
Your P.O. #: 700326766
Sampler Initials: AM

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8040323	1,4-Difluorobenzene (sur.)	2015/09/16	99	60 - 140	106	60 - 140	102	%				
8040323	4-Bromofluorobenzene (sur.)	2015/09/16	98	60 - 140	77	60 - 140	96	%				
8040323	D10-ETHYLBENZENE (sur.)	2015/09/16	87	60 - 130	89	60 - 130	83	%				
8040323	D4-1,2-Dichloroethane (sur.)	2015/09/16	88	60 - 140	94	60 - 140	84	%				
8040987	D10-ANTHRACENE (sur.)	2015/09/17	100	60 - 130	109	60 - 130	119	%				
8040987	D8-ACENAPHTHYLENE (sur.)	2015/09/17	100	50 - 130	102	50 - 130	104	%				
8040987	D8-NAPHTHALENE (sur.)	2015/09/17	97	50 - 130	104	50 - 130	112	%				
8040987	TERPHENYL-D14 (sur.)	2015/09/17	103	60 - 130	109	60 - 130	118	%				
8041489	O-TERPHENYL (sur.)	2015/09/18	82	50 - 130	80	50 - 130	106	%				
8043024	D10-ANTHRACENE (sur.)	2015/09/18	101	60 - 130	106	60 - 130	112	%				
8043024	D8-ACENAPHTHYLENE (sur.)	2015/09/18	104	50 - 130	100	50 - 130	99	%				
8043024	D8-NAPHTHALENE (sur.)	2015/09/18	101	50 - 130	100	50 - 130	101	%				
8043024	TERPHENYL-D14 (sur.)	2015/09/18	102	60 - 130	101	60 - 130	104	%				
8038955	Moisture	2015/09/17					<0.30	%	3.2	20		
8039211	Moisture	2015/09/17					<0.30	%	9.4	20		
8040323	Benzene	2015/09/16	80	60 - 140	96	60 - 140	<0.0050	mg/kg				
8040323	Ethylbenzene	2015/09/16	88	60 - 140	96	60 - 140	<0.010	mg/kg				
8040323	F1 (C6-C10)	2015/09/16			111	60 - 140	<10	mg/kg				
8040323	m & p-Xylene	2015/09/16	84	60 - 140	84	60 - 140	<0.040	mg/kg				
8040323	Methyl-tert-butylether (MTBE)	2015/09/16					<0.10	mg/kg				
8040323	o-Xylene	2015/09/16	84	60 - 140	93	60 - 140	<0.040	mg/kg				
8040323	Styrene	2015/09/16					<0.030	mg/kg				
8040323	Toluene	2015/09/16	81	60 - 140	89	60 - 140	<0.020	mg/kg				
8040323	Xylenes (Total)	2015/09/16					<0.040	mg/kg				
8040862	Total Aluminum (Al)	2015/09/18					<100	mg/kg			101	70 - 130
8040862	Total Antimony (Sb)	2015/09/18	93	75 - 125	93	75 - 125	<0.10	mg/kg			91	70 - 130
8040862	Total Arsenic (As)	2015/09/18	104	75 - 125	97	75 - 125	<0.50	mg/kg	NC	30	99	70 - 130
8040862	Total Barium (Ba)	2015/09/18	NC	75 - 125	99	75 - 125	<0.10	mg/kg	15	35	106	70 - 130
8040862	Total Beryllium (Be)	2015/09/18	108	75 - 125	104	75 - 125	<0.40	mg/kg				
8040862	Total Bismuth (Bi)	2015/09/18					<0.10	mg/kg				

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QUALITY ASSURANCE REPORT(CONT'D)

GOLDER ASSOCIATES LTD
Client Project #: 1535154
Site Location: PARCEL 44
Your P.O. #: 700326766
Sampler Initials: AM

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8040862	Total Cadmium (Cd)	2015/09/18	107	75 - 125	106	75 - 125	<0.050	mg/kg			95	70 - 130
8040862	Total Calcium (Ca)	2015/09/18					<100	mg/kg			99	70 - 130
8040862	Total Chromium (Cr)	2015/09/18	103	75 - 125	104	75 - 125	<1.0	mg/kg	0.90	30	109	70 - 130
8040862	Total Cobalt (Co)	2015/09/18	103	75 - 125	104	75 - 125	<0.30	mg/kg			95	70 - 130
8040862	Total Copper (Cu)	2015/09/18	104	75 - 125	104	75 - 125	<0.50	mg/kg	1.4	30	95	70 - 130
8040862	Total Iron (Fe)	2015/09/18					<100	mg/kg			97	70 - 130
8040862	Total Lead (Pb)	2015/09/18	102	75 - 125	98	75 - 125	<0.10	mg/kg	1.4	35	99	70 - 130
8040862	Total Lithium (Li)	2015/09/18	106	75 - 125	101	75 - 125	<5.0	mg/kg				
8040862	Total Magnesium (Mg)	2015/09/18					<100	mg/kg			97	70 - 130
8040862	Total Manganese (Mn)	2015/09/18	NC	75 - 125	103	75 - 125	<0.20	mg/kg			100	70 - 130
8040862	Total Mercury (Hg)	2015/09/18	99	75 - 125	99	75 - 125	<0.050	mg/kg			79	70 - 130
8040862	Total Molybdenum (Mo)	2015/09/18	101	75 - 125	97	75 - 125	<0.10	mg/kg			96	70 - 130
8040862	Total Nickel (Ni)	2015/09/18	102	75 - 125	105	75 - 125	<0.80	mg/kg			93	70 - 130
8040862	Total Phosphorus (P)	2015/09/18					<10	mg/kg			92	70 - 130
8040862	Total Potassium (K)	2015/09/18					<100	mg/kg				
8040862	Total Selenium (Se)	2015/09/18	114	75 - 125	109	75 - 125	<0.50	mg/kg				
8040862	Total Silver (Ag)	2015/09/18	96	75 - 125	87	75 - 125	<0.050	mg/kg			90	60 - 140
8040862	Total Sodium (Na)	2015/09/18					<100	mg/kg				
8040862	Total Strontium (Sr)	2015/09/18	105	75 - 125	98	75 - 125	<0.10	mg/kg			94	70 - 130
8040862	Total Thallium (Tl)	2015/09/18	94	75 - 125	90	75 - 125	<0.050	mg/kg			87	70 - 130
8040862	Total Tin (Sn)	2015/09/18	94	75 - 125	90	75 - 125	<0.10	mg/kg				
8040862	Total Titanium (Ti)	2015/09/18	NC	75 - 125	98	75 - 125	<1.0	mg/kg			109	70 - 130
8040862	Total Uranium (U)	2015/09/18	104	75 - 125	100	75 - 125	<0.050	mg/kg			102	70 - 130
8040862	Total Vanadium (V)	2015/09/18	NC	75 - 125	102	75 - 125	<2.0	mg/kg			104	70 - 130
8040862	Total Zinc (Zn)	2015/09/18	NC	75 - 125	108	75 - 125	<1.0	mg/kg	2.2	30	95	70 - 130
8040862	Total Zirconium (Zr)	2015/09/18					<0.50	mg/kg				
8040883	Soluble (2:1) pH	2015/09/17			100	97 - 103			1.5	N/A		
8040987	2-Methylnaphthalene	2015/09/17	91	50 - 130	96	50 - 130	<0.020	mg/kg	NC	50		
8040987	Acenaphthene	2015/09/17	95	50 - 130	99	50 - 130	<0.0050	mg/kg	NC	50		
8040987	Acenaphthylene	2015/09/17	91	50 - 130	95	50 - 130	<0.0050	mg/kg	NC	50		

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QUALITY ASSURANCE REPORT(CONT'D)

GOLDER ASSOCIATES LTD
Client Project #: 1535154
Site Location: PARCEL 44
Your P.O. #: 700326766
Sampler Initials: AM

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8040987	Anthracene	2015/09/17	95	60 - 130	100	60 - 130	<0.0040	mg/kg	NC	50		
8040987	Benzo(a)anthracene	2015/09/17	74	60 - 130	85	60 - 130	<0.020	mg/kg	NC	50		
8040987	Benzo(a)pyrene	2015/09/17	64	60 - 130	87	60 - 130	<0.020	mg/kg	NC	50		
8040987	Benzo(b&j)fluoranthene	2015/09/17	69	60 - 130	82	60 - 130	<0.020	mg/kg	NC	50		
8040987	Benzo(b)fluoranthene	2015/09/17	69	60 - 130	82	60 - 130	<0.020	mg/kg	NC	20		
8040987	Benzo(g,h,i)perylene	2015/09/17	54 (1)	60 - 130	85	60 - 130	<0.050	mg/kg	NC	50		
8040987	Benzo(k)fluoranthene	2015/09/17	75	60 - 130	88	60 - 130	<0.020	mg/kg	NC	50		
8040987	Chrysene	2015/09/17	77	60 - 130	92	60 - 130	<0.020	mg/kg	NC	50		
8040987	Dibenz(a,h)anthracene	2015/09/17	63	60 - 130	82	60 - 130	<0.050	mg/kg	NC	50		
8040987	Fluoranthene	2015/09/17	91	60 - 130	103	60 - 130	<0.020	mg/kg	NC	50		
8040987	Fluorene	2015/09/17	90	50 - 130	91	50 - 130	<0.020	mg/kg	NC	50		
8040987	Indeno(1,2,3-cd)pyrene	2015/09/17	59 (1)	60 - 130	85	60 - 130	<0.050	mg/kg	NC	50		
8040987	Naphthalene	2015/09/17	87	50 - 130	95	50 - 130	<0.010	mg/kg	NC	50		
8040987	Phenanthrene	2015/09/17	89	60 - 130	96	60 - 130	<0.020	mg/kg	NC	50		
8040987	Pyrene	2015/09/17	92	60 - 130	105	60 - 130	<0.020	mg/kg	NC	50		
8041489	F2 (C10-C16 Hydrocarbons)	2015/09/18	NC	50 - 130	109	70 - 130	<10	mg/kg	18	40		
8041489	F3 (C16-C34 Hydrocarbons)	2015/09/18	NC	50 - 130	121	70 - 130	<10	mg/kg	18	40		
8041489	F4 (C34-C50 Hydrocarbons)	2015/09/18	112	50 - 130	115	70 - 120	<10	mg/kg				
8041489	Reached Baseline at C50	2015/09/18					YES	mg/kg	NC	50		
8041563	Total Aluminum (Al)	2015/09/18					<100	mg/kg	4.9	35	103	70 - 130
8041563	Total Antimony (Sb)	2015/09/18	88	75 - 125	86	75 - 125	<0.10	mg/kg	NC	30	94	70 - 130
8041563	Total Arsenic (As)	2015/09/18	98	75 - 125	92	75 - 125	<0.50	mg/kg	8.7	30	97	70 - 130
8041563	Total Barium (Ba)	2015/09/18	NC	75 - 125	92	75 - 125	<0.10	mg/kg	2.1	35	104	70 - 130
8041563	Total Beryllium (Be)	2015/09/18	102	75 - 125	97	75 - 125	<0.40	mg/kg	NC	30		
8041563	Total Bismuth (Bi)	2015/09/18					<0.10	mg/kg	NC	30		
8041563	Total Cadmium (Cd)	2015/09/18	102	75 - 125	97	75 - 125	<0.050	mg/kg	NC	30	93	70 - 130
8041563	Total Calcium (Ca)	2015/09/18					<100	mg/kg	7.1	30	104	70 - 130
8041563	Total Chromium (Cr)	2015/09/18	111	75 - 125	103	75 - 125	<1.0	mg/kg	2.9	30	114	70 - 130
8041563	Total Cobalt (Co)	2015/09/18	109	75 - 125	105	75 - 125	<0.30	mg/kg	2.2	30	100	70 - 130
8041563	Total Copper (Cu)	2015/09/18	NC	75 - 125	106	75 - 125	<0.50	mg/kg	4.0	30	99	70 - 130

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QUALITY ASSURANCE REPORT(CONT'D)

GOLDER ASSOCIATES LTD
Client Project #: 1535154
Site Location: PARCEL 44
Your P.O. #: 700326766
Sampler Initials: AM

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8041563	Total Iron (Fe)	2015/09/18					<100	mg/kg	0.87	30	100	70 - 130
8041563	Total Lead (Pb)	2015/09/18	102	75 - 125	93	75 - 125	<0.10	mg/kg	7.3	35	96	70 - 130
8041563	Total Lithium (Li)	2015/09/18	101	75 - 125	92	75 - 125	<5.0	mg/kg	NC	30		
8041563	Total Magnesium (Mg)	2015/09/18					<100	mg/kg	3.0	30	98	70 - 130
8041563	Total Manganese (Mn)	2015/09/18	NC	75 - 125	103	75 - 125	<0.20	mg/kg	0.34	30	105	70 - 130
8041563	Total Mercury (Hg)	2015/09/18	97	75 - 125	94	75 - 125	<0.050	mg/kg	NC	35	108	70 - 130
8041563	Total Molybdenum (Mo)	2015/09/18	100	75 - 125	91	75 - 125	<0.10	mg/kg	30	35	98	70 - 130
8041563	Total Nickel (Ni)	2015/09/18	109	75 - 125	105	75 - 125	<0.80	mg/kg	2.4	30	98	70 - 130
8041563	Total Phosphorus (P)	2015/09/18					<10	mg/kg	5.2	30	98	70 - 130
8041563	Total Potassium (K)	2015/09/18					<100	mg/kg	2.5	35		
8041563	Total Selenium (Se)	2015/09/18	99	75 - 125	96	75 - 125	<0.50	mg/kg	NC	30		
8041563	Total Silver (Ag)	2015/09/18	91	75 - 125	89	75 - 125	<0.050	mg/kg	NC	35	86	60 - 140
8041563	Total Sodium (Na)	2015/09/18					<100	mg/kg	NC	35		
8041563	Total Strontium (Sr)	2015/09/18	NC	75 - 125	96	75 - 125	<0.10	mg/kg	15	35	98	70 - 130
8041563	Total Thallium (Tl)	2015/09/18	93	75 - 125	84	75 - 125	<0.050	mg/kg	NC	30	85	70 - 130
8041563	Total Tin (Sn)	2015/09/18	92	75 - 125	86	75 - 125	<0.10	mg/kg	NC	35		
8041563	Total Titanium (Ti)	2015/09/18	NC	75 - 125	97	75 - 125	<1.0	mg/kg	0.12	35	115	70 - 130
8041563	Total Uranium (U)	2015/09/18	100	75 - 125	93	75 - 125	<0.050	mg/kg	14	30	101	70 - 130
8041563	Total Vanadium (V)	2015/09/18	NC	75 - 125	101	75 - 125	<2.0	mg/kg	4.6	30	108	70 - 130
8041563	Total Zinc (Zn)	2015/09/18	NC	75 - 125	107	75 - 125	<1.0	mg/kg	1.8	30	96	70 - 130
8041563	Total Zirconium (Zr)	2015/09/18					<0.50	mg/kg	NC	30		
8041567	Soluble (2:1) pH	2015/09/18			100	97 - 103			0.23	N/A		
8041578	Total Aluminum (Al)	2015/09/19					<100	mg/kg	2.1	35	96	70 - 130
8041578	Total Antimony (Sb)	2015/09/19	101	75 - 125	99	75 - 125	<0.10	mg/kg	5.6	30	100	70 - 130
8041578	Total Arsenic (As)	2015/09/19	97	75 - 125	104	75 - 125	<0.50	mg/kg	0.31	30	104	70 - 130
8041578	Total Barium (Ba)	2015/09/19	NC	75 - 125	94	75 - 125	<0.10	mg/kg	13	35	109	70 - 130
8041578	Total Beryllium (Be)	2015/09/19	97	75 - 125	93	75 - 125	<0.40	mg/kg	NC	30		
8041578	Total Bismuth (Bi)	2015/09/19					<0.10	mg/kg	NC	30		
8041578	Total Cadmium (Cd)	2015/09/19	102	75 - 125	97	75 - 125	<0.050	mg/kg	0.63	30	92	70 - 130
8041578	Total Calcium (Ca)	2015/09/19					<100	mg/kg	5.9	30	99	70 - 130

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B580234
Report Date: 2015/09/21

QUALITY ASSURANCE REPORT(CONT'D)

GOLDER ASSOCIATES LTD
Client Project #: 1535154
Site Location: PARCEL 44
Your P.O. #: 700326766
Sampler Initials: AM

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8041578	Total Chromium (Cr)	2015/09/19	NC	75 - 125	110	75 - 125	<1.0	mg/kg	0.55	30	111	70 - 130
8041578	Total Cobalt (Co)	2015/09/19	105	75 - 125	108	75 - 125	<0.30	mg/kg	1.8	30	97	70 - 130
8041578	Total Copper (Cu)	2015/09/19	105	75 - 125	109	75 - 125	<0.50	mg/kg	2.2	30	97	70 - 130
8041578	Total Iron (Fe)	2015/09/19					<100	mg/kg	6.7	30	95	70 - 130
8041578	Total Lead (Pb)	2015/09/19	100	75 - 125	93	75 - 125	<0.10	mg/kg	5.9	35	99	70 - 130
8041578	Total Lithium (Li)	2015/09/19	98	75 - 125	92	75 - 125	<5.0	mg/kg	NC	30		
8041578	Total Magnesium (Mg)	2015/09/19					<100	mg/kg	3.5	30	96	70 - 130
8041578	Total Manganese (Mn)	2015/09/19	NC	75 - 125	109	75 - 125	<0.20	mg/kg	0.67	30	102	70 - 130
8041578	Total Mercury (Hg)	2015/09/19	98	75 - 125	93	75 - 125	<0.050	mg/kg	NC	35	102	70 - 130
8041578	Total Molybdenum (Mo)	2015/09/19	100	75 - 125	100	75 - 125	<0.10	mg/kg	8.0	35	104	70 - 130
8041578	Total Nickel (Ni)	2015/09/19	NC	75 - 125	109	75 - 125	<0.80	mg/kg	2.7	30	99	70 - 130
8041578	Total Phosphorus (P)	2015/09/19					<10	mg/kg	0.87	30	91	70 - 130
8041578	Total Potassium (K)	2015/09/19					<100	mg/kg	NC	35		
8041578	Total Selenium (Se)	2015/09/19	109	75 - 125	110	75 - 125	<0.50	mg/kg	NC	30		
8041578	Total Silver (Ag)	2015/09/19	86	75 - 125	91	75 - 125	<0.050	mg/kg	NC	35	84	60 - 140
8041578	Total Sodium (Na)	2015/09/19					<100	mg/kg	NC	35		
8041578	Total Strontium (Sr)	2015/09/19	107	75 - 125	96	75 - 125	<0.10	mg/kg	8.4	35	95	70 - 130
8041578	Total Thallium (Tl)	2015/09/19	98	75 - 125	92	75 - 125	<0.050	mg/kg	NC	30	90	70 - 130
8041578	Total Tin (Sn)	2015/09/19	104	75 - 125	97	75 - 125	<0.10	mg/kg	NC	35		
8041578	Total Titanium (Ti)	2015/09/19	NC	75 - 125	99	75 - 125	<1.0	mg/kg	6.5	35	105	70 - 130
8041578	Total Uranium (U)	2015/09/19	101	75 - 125	94	75 - 125	<0.050	mg/kg	2.7	30	107	70 - 130
8041578	Total Vanadium (V)	2015/09/19	NC	75 - 125	107	75 - 125	<2.0	mg/kg	2.6	30	107	70 - 130
8041578	Total Zinc (Zn)	2015/09/19	NC	75 - 125	112	75 - 125	2.3, RDL=1.0 (2)	mg/kg	2.6	30	95	70 - 130
8041578	Total Zirconium (Zr)	2015/09/19					<0.50	mg/kg	NC	30		
8041580	Soluble (2:1) pH	2015/09/18			100	97 - 103			0.39	N/A		
8043024	2-Methylnaphthalene	2015/09/19	94	50 - 130	94	50 - 130	<0.020	mg/kg	NC	50		
8043024	Acenaphthene	2015/09/19	96	50 - 130	96	50 - 130	<0.0050	mg/kg	NC	50		
8043024	Acenaphthylene	2015/09/19	95	50 - 130	94	50 - 130	<0.0050	mg/kg	NC	50		
8043024	Anthracene	2015/09/19	93	60 - 130	98	60 - 130	<0.0040	mg/kg	NC	50		

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B580234
Report Date: 2015/09/21

QUALITY ASSURANCE REPORT(CONT'D)

GOLDER ASSOCIATES LTD
Client Project #: 1535154
Site Location: PARCEL 44
Your P.O. #: 700326766
Sampler Initials: AM

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8043024	Benzo(a)anthracene	2015/09/19	82	60 - 130	84	60 - 130	<0.020	mg/kg	NC	50		
8043024	Benzo(a)pyrene	2015/09/19	81	60 - 130	83	60 - 130	<0.020	mg/kg	NC	50		
8043024	Benzo(b&j)fluoranthene	2015/09/19	79	60 - 130	78	60 - 130	<0.020	mg/kg	NC	50		
8043024	Benzo(b)fluoranthene	2015/09/19	79	60 - 130	78	60 - 130	<0.020	mg/kg	NC	20		
8043024	Benzo(g,h,i)perylene	2015/09/19	81	60 - 130	80	60 - 130	<0.050	mg/kg	NC	50		
8043024	Benzo(k)fluoranthene	2015/09/19	89	60 - 130	87	60 - 130	<0.020	mg/kg	NC	50		
8043024	Chrysene	2015/09/19	86	60 - 130	90	60 - 130	<0.020	mg/kg	NC	50		
8043024	Dibenz(a,h)anthracene	2015/09/19	80	60 - 130	77	60 - 130	<0.050	mg/kg	NC	50		
8043024	Fluoranthene	2015/09/19	96	60 - 130	97	60 - 130	<0.020	mg/kg	NC	50		
8043024	Fluorene	2015/09/19	91	50 - 130	92	50 - 130	<0.020	mg/kg	NC	50		
8043024	Indeno(1,2,3-cd)pyrene	2015/09/19	82	60 - 130	80	60 - 130	<0.050	mg/kg	NC	50		
8043024	Naphthalene	2015/09/19	92	50 - 130	92	50 - 130	<0.010	mg/kg	NC	50		
8043024	Phenanthrene	2015/09/19	93	60 - 130	93	60 - 130	<0.020	mg/kg	NC	50		
8043024	Pyrene	2015/09/19	97	60 - 130	99	60 - 130	<0.020	mg/kg	NC	50		
8043503	200 mesh (<.075 mm)	2015/09/19							6.4	35		
8043503	200 mesh (>.075 mm)	2015/09/19							0.40	35		

N/A = Not Applicable

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

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

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

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

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

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

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

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

(2) Method Blank exceeds acceptance limits for Zn. Sample values for Zn are >20x the concentration of the method blank and the contamination is considered irrelevant.

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B580234
Report Date: 2015/09/21

GOLDER ASSOCIATES LTD
Client Project #: 1535154
Site Location: PARCEL 44
Your P.O. #: 700326766
Sampler Initials: AM

VALIDATION SIGNATURE PAGE

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

Rob Reinert, Data Validation Coordinator

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

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

CHAIN OF CUSTODY RECORD/ANALYSIS REQUEST

No. 00923 page 1 of 2

B580234

20 Va... Telephone (604) 296-4200 Fax (604) 298-5253

Project Number: 1535154			Laboratory Name: Maxxam
Short Title: TC Parcel 44	Golder Contact: Wendy Beairsto		Address: 4606 Canada Way
Golder E-mail Address 1: WBeairsto@golder.com	Golder E-mail Address 2: SMorse@golder.com	Telephone/Fax:	Contact: [redacted] Namita Sahni

Office Name: Victoria

EQuIS Facility Code:
EQuIS upload: ☐

Turnaround Time: ☐ 24 hr ☐ 48 hr ☐ 72 hr ☒ Regular (5 Days)
Criteria: ☐ CSR ☐ CCME ☐ BC Water Quality ☐ Other

Note: Final Reports to be issued by e-mail

Quote No.:

MAXXAM JOB # B580234

Sample Control Number (SCN)	Sample Location	Sa. #	Sample Depth (m) (ft)	Sample Matrix (over)	Date Sampled (D / M / Y)	Time Sampled (HH:MM)	Sample Type (over)	QAQC Code (over)	Related SCN (over)	Number of Containers	Analyses Required: Total Metals	BTEX/F1	F2-F4	PAH	Grain Size		Hold			RUSH (Select TAT above)	Remarks (over) LAB I.D.
00923-01	BH15-22	1	1'-1'6"	SOIL	10/09/15	-	AUGER	FDA	00923-02	2							X				ND0991
-02	BH15-22	2	1'-1'6"			-		FD	00923-01	2							X				ND0992
-03	BH15-22	3	4'6"-5'			-		-	-	2	X			X	X						ND0993
-04	BH15-23	1	1'-1'6"			-		-	-	2	X			X	X						ND0994
-05	BH15-24	1	1'-1'6"			-		-	-	2	X			X	X						ND0995
-06	BH15-25	1	1'-1'6"			-		-	-	2	X			X	X						ND0996
-07	BH15-26	1	1'-1'6"			-		-	-	4	X	X	X	X	X						ND0997
-08	BH15-26	2	4'-4'6"			-		FDA	00923-09	3	X			X	X						ND0998
-09	BH15-26	3	4'-4'6"			-		FD	00923-08	3	X			X			X				ND0999
-10	BH15-27	1	4'6"-5'			-		-	-	4	X	X	X	X	X						ND1000
-11	BH15-27	2	9'6"-10'			-		-	-	3	X			X	X						ND1001
-12	BH15-28	1	4'6"-5'			-		-	-	4	X	X	X	X	X						~~ND0002~~ ND1002

Sampler's Signature:	Relinquished by: Signature	Company: Golder	Date: Sept 14, 2015	Time: 08:00	Received by: Signature	Company: OPS 2015/09/15	
Comments: ON ICE *PWGSC PO number Parcel 44 R.077399.001	Method of Shipment:	Waybill No.:	Received for Lab by: MATVEYEVENKO	Date: 2015/09/14	Time: 08:04		
	Shipped by:	Shipment Condition: Seal Intact: NA	Temp (°C): 4.5 4	Cooler opened by:	Date:	Time:	

WHITE: Golder Copy YELLOW: Lab Copy

342/222

Received by Laurel Bertier 2015/09/15 11:00

ESED

CHAIN OF CUSTODY RECORD/ANALYSIS REQUEST

No. 00919 page 2 of 2

B580234

2(Va... Telephone (604) 296-4200 Fax (604) 298-5253

Project Number: 1535154			Laboratory Name: Maxxam Analytics
Short Title: TC Parcel 44	Golder Contact: Wendy Beairsto		Address: 4606 Canada Way
Golder E-mail Address 1: WBeairsto@golder.com	Golder E-mail Address 2: SMorse@golder.com	Telephone/Fax:	Contact: Nomita Sahni

Office Name: Victoria

EQuIS Facility Code: _____
EQuIS upload: ☐

Turnaround Time: ☐ 24 hr ☐ 48 hr ☐ 72 hr ☒ Regular (5 Days)
Criteria: ☐ CSR ☐ CCME ☐ BC Water Quality ☐ Other

Note: Final Reports to be issued by e-mail

Quote No.:

MAXXAM JOB # B580234

Sample Control Number (SCN)	Sample Location	Sa. #	Sample Depth (m)	Sample Matrix (over)	Date Sampled (D / M / Y)	Time Sampled (HH:MM)	Sample Type (over)	QAQC Code (over)	Related SCN (over)	Number of Containers	Analyses Required: Total Metals	BTEX/F1	F2 - F4	PAH	Grain Size		Hold			RUSH (Select TAT above)	Remarks (over) LAB I.D.
00919 - 01	BH15-28	2	9'6"-10'	SOIL	10/09/15	-	AUGER	-	-	2	X			X							ND1019
- 02	BH15-29	1	1'6"-2'		11/09/15	-		-	-	2	X			X	X						ND1020
- 03	BH15-29	2	4'6"-5'			-		-	-	2							X				ND1021
- 04	BH15-30	1	6"-1'			-		-	-	2	X			X	X						ND1022
- 05	BH15-31	1	6"-1'			-		-	-	2	X			X	X						ND1023
- 06	BH15-32	1	6"-1'			-		-	-	2	X			X	X						ND1024
- 07	BH15-33	1	4'6"-5'			-		-	-	4	X	X	X	X	X						ND1025
- 08	BH15-33	2	9'-9'6"			-		-	-	2	X			X							ND1026
- 09																					
- 10																					
- 11																					
- 12																					

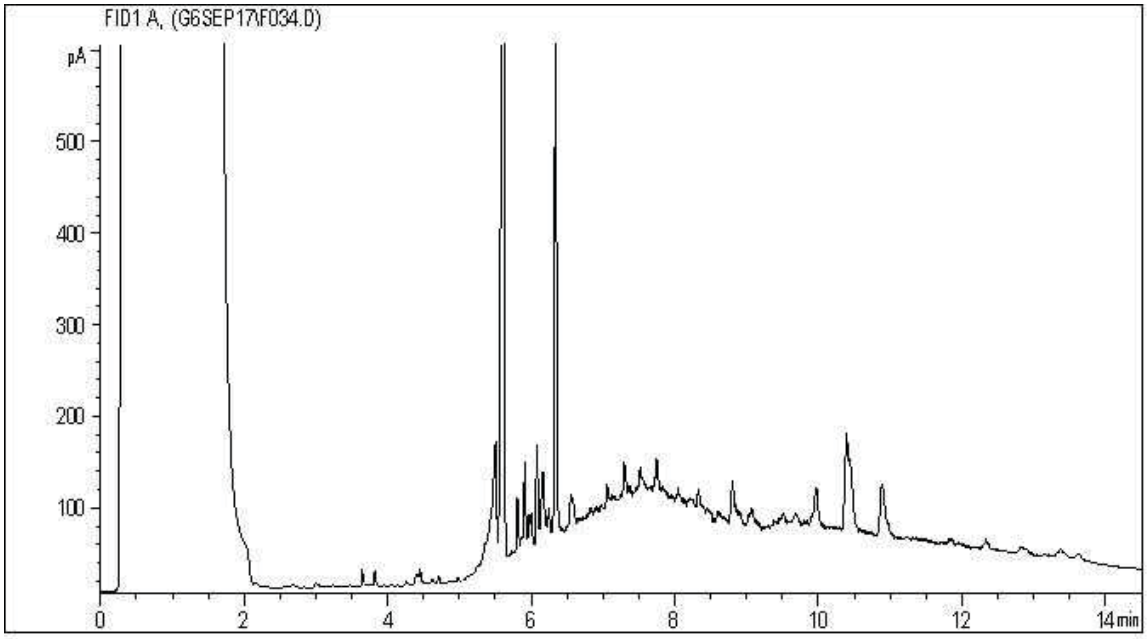
Sampler's Signature:	Relinquished by: Signature	Company: Golder	Date: Sept 14, 2015	Time: 08:00	Received by: Signature	Company
Comments: ON ICE *AWGSC PO number Parcel 44 R.077399.001	Method of Shipment:	Waybill No.:	Received for Lab by:	Date: 2015/09/14	Time: 08:04	
	Shipped by:	Shipment Condition: Seal Intact: NA	Temp (°C): 4.5.4	Cooler opened by:	Date	Time

WHITE: Golder Copy YELLOW: Lab Copy 3,4,2/2,2,2

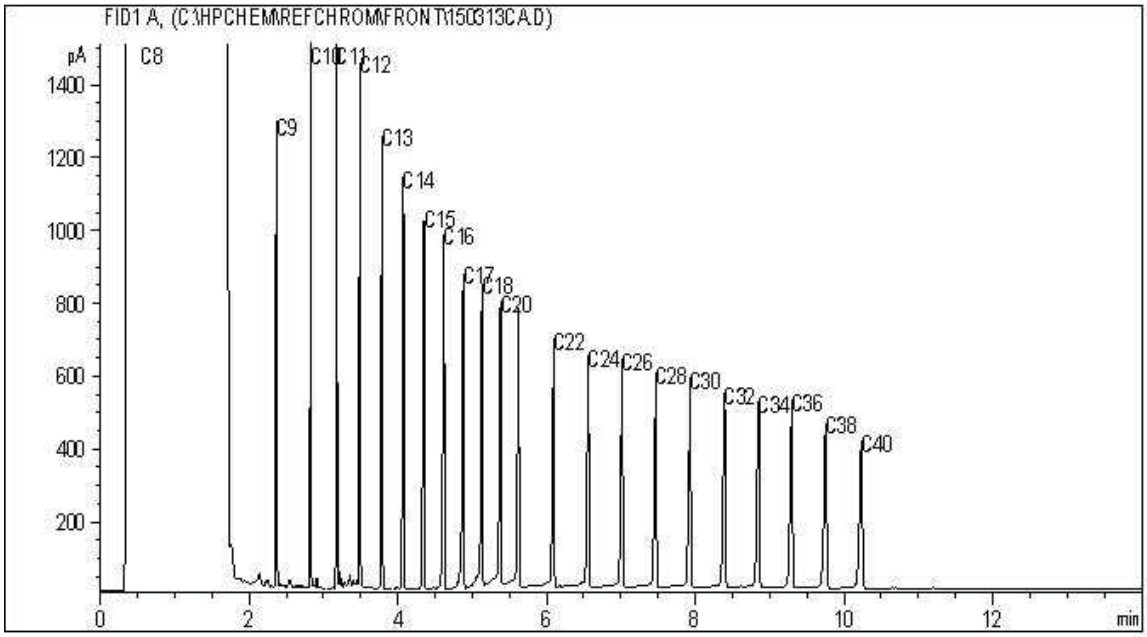
Rcvd TBL Laurel Berthier 2015/09/15 11:00

ESED

CCME Hydrocarbons (F2-F4 in soil) Chromatogram



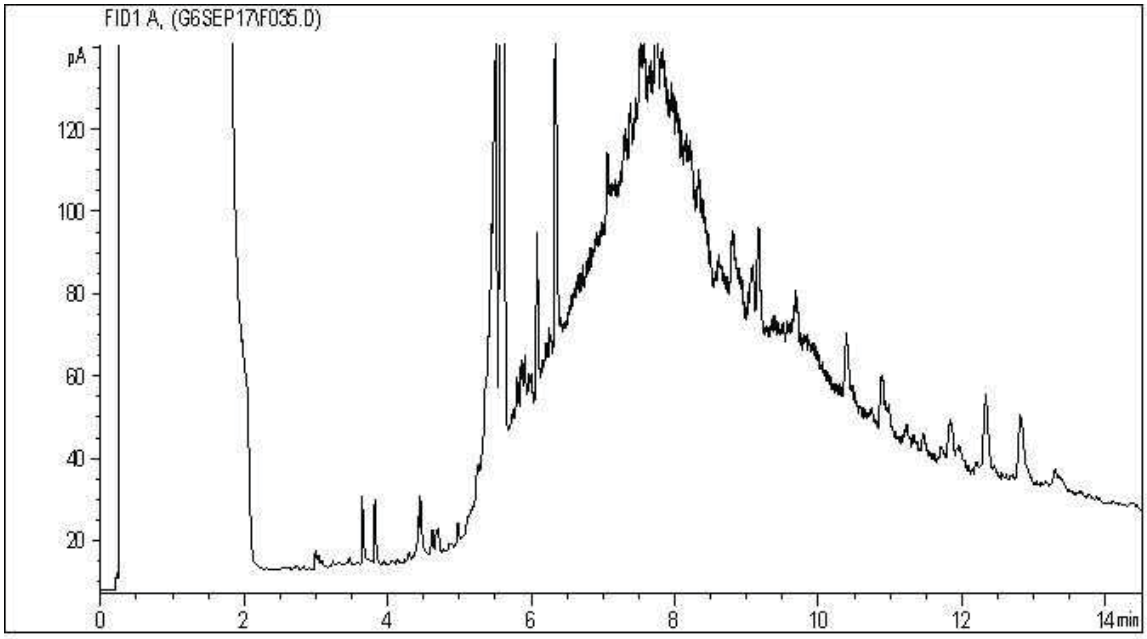
Carbon Range Distribution - Reference Chromatogram



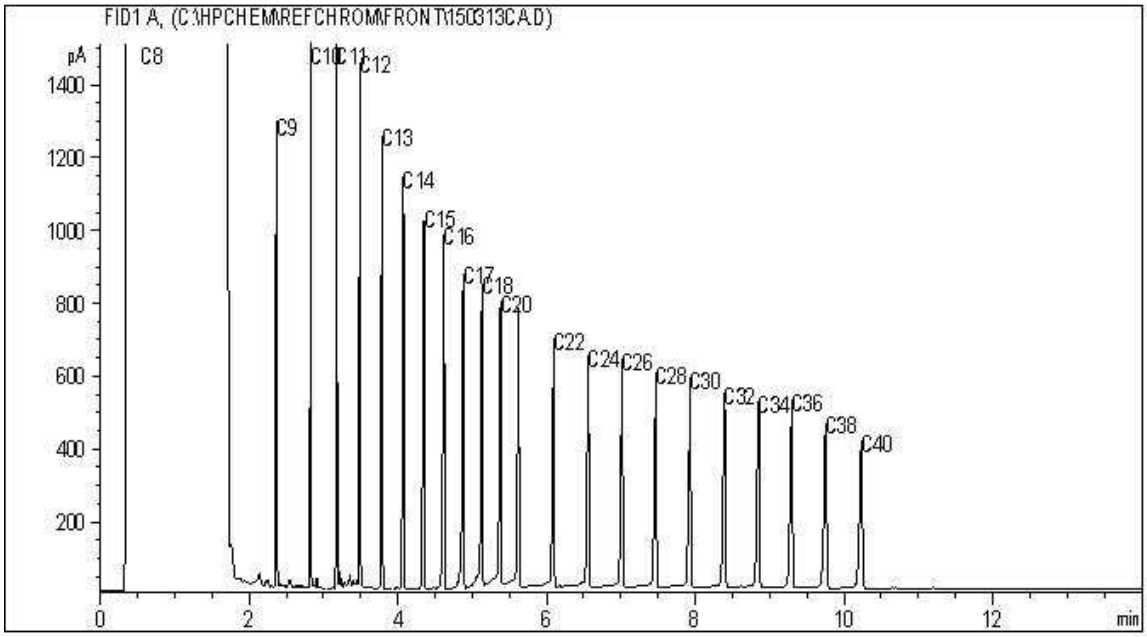
TYPICAL PRODUCT CARBON NUMBER RANGES

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

CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



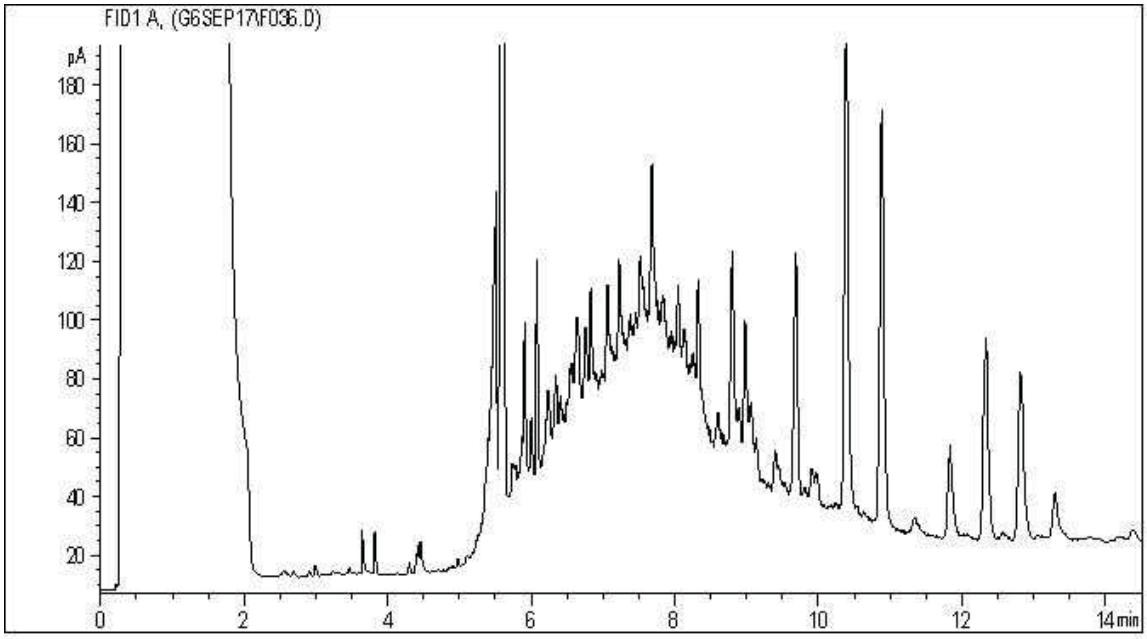
TYPICAL PRODUCT CARBON NUMBER RANGES

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

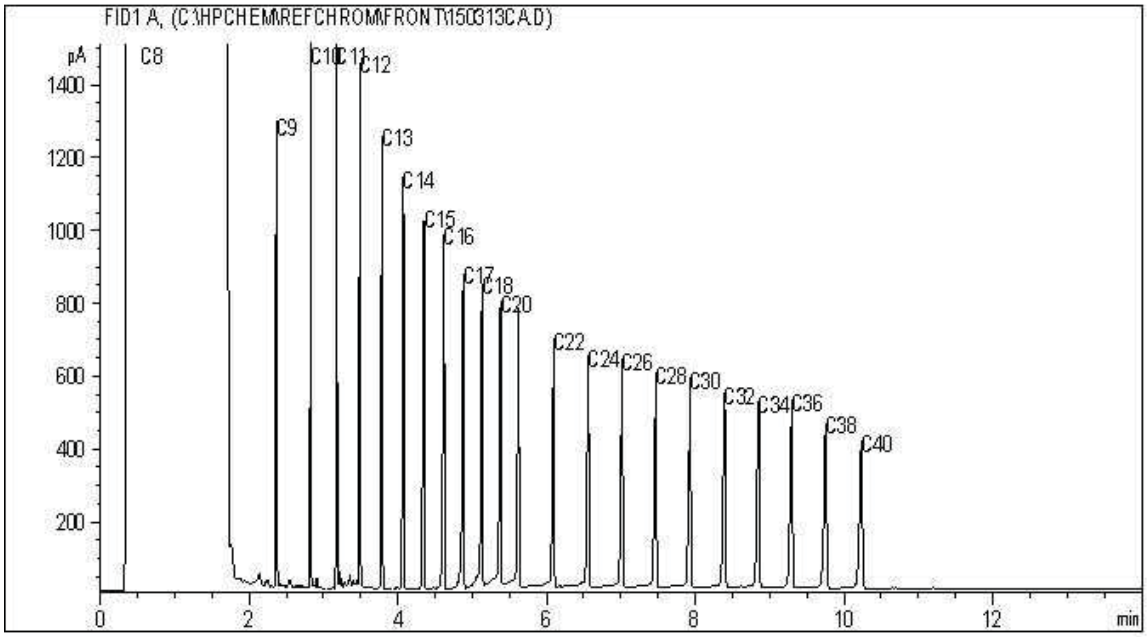
Maxxam Job #: B580234
Report Date: 2015/09/21
Maxxam Sample: ND1002

GOLDER ASSOCIATES LTD
Client Project #: 1535154
Site Reference: PARCEL 44
Client ID: 00923-12

CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



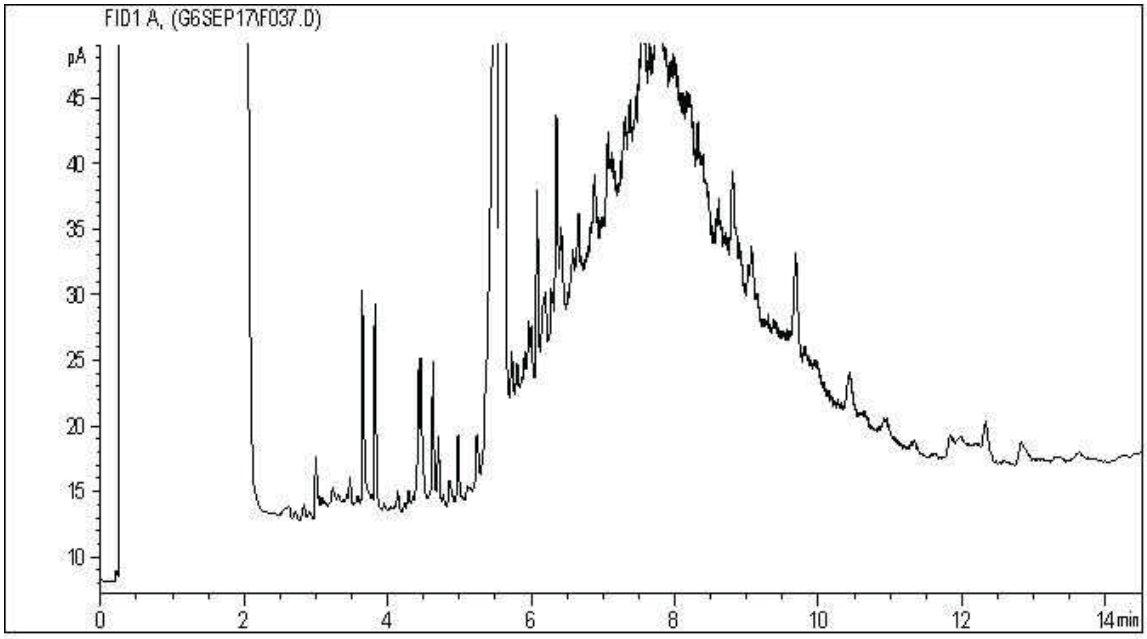
TYPICAL PRODUCT CARBON NUMBER RANGES

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

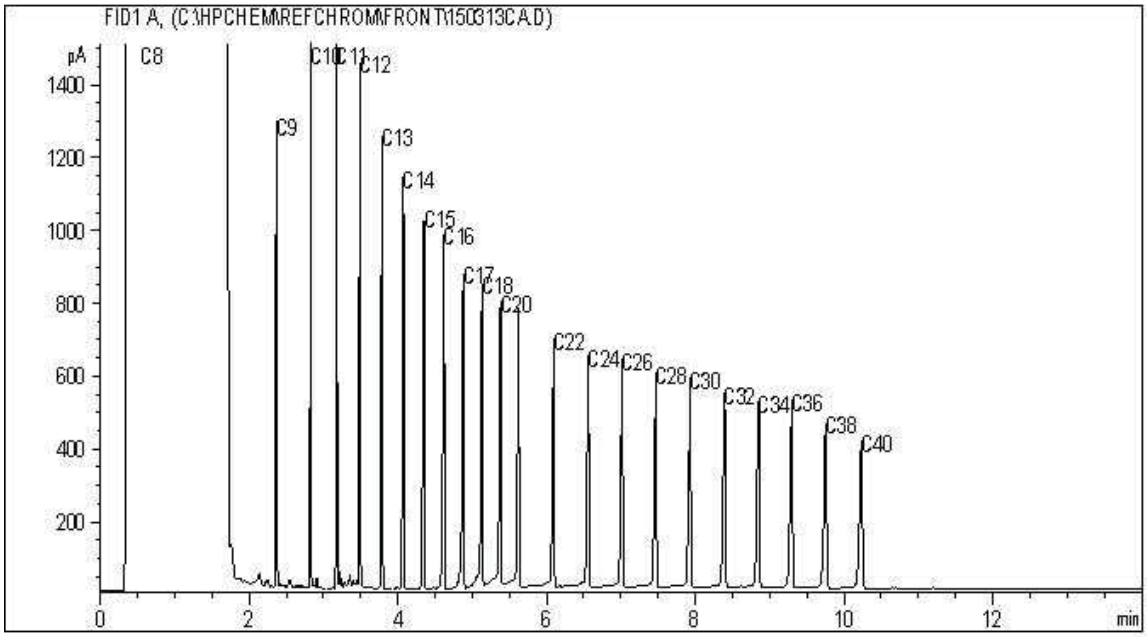
Maxxam Job #: B580234
Report Date: 2015/09/21
Maxxam Sample: ND1025

GOLDER ASSOCIATES LTD
Client Project #: 1535154
Site Reference: PARCEL 44
Client ID: 00919-07

CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

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

Maxxam
A Bureau Veritas Group Company

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Your P.O. #: 700326766
Your Project #: 1535154
Site Location: PARCEL 44
Your C.O.C. #: 00921, 00771

Attention:Alanna Umphrey

GOLDER ASSOCIATES LTD
3795 CAREY ROAD
(2nd Floor)
VICTORIA, BC
Canada V8Z 6T8

Report Date: 2015/11/22
Report #: R2083125
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

MAXXAM JOB #: B581238
Received: 2015/09/17, 10:35

Sample Matrix: Soil
Samples Received: 12

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
BTEX/MTBE LH VH F1 in Soil - Field Pres. (1)	1	N/A	2015/09/19	BBY8SOP-00010/11	EPA 8260c R3 m
BTEX/MTBE LH VH F1 in Soil - Field Pres. (1)	1	N/A	2015/09/24	BBY8SOP-00010/11	EPA 8260c R3 m
Volatile F1-BTEX	1	N/A	2015/09/21	BBY WI-00033	Auto Calc
Volatile F1-BTEX	1	N/A	2015/09/24	BBY WI-00033	Auto Calc
CCME Hydrocarbons (F2-F4 in soil) (2)	2	2015/09/18	2015/09/22	BBY8SOP-00030	CCME PHC-CWS
Elements by ICPMS (total)	11	2015/09/21	2015/09/22	BBY7SOP-00001	EPA 6020a R1 m
Metals - TCLP	1	2015/11/19	2015/11/20	BBY7SOP-00001	EPA 6020a R1 m
Particulate Mesh 200	1	N/A	2015/09/19	BBY6SOP-00039	Carter 2nd ed 55.4
Moisture	12	N/A	2015/09/19	BBY8SOP-00017	BC MOE Lab Manual
PAH in Soil by GC/MS (SIM) - CCME	9	2015/09/18	2015/09/19	BBY8SOP-00022	EPA 8270d R4 m
PAH in Soil by GC/MS (SIM) - CCME	2	2015/09/18	2015/09/22	BBY8SOP-00022	EPA 8270d R4 m
Benzo[a]pyrene Equivalency	9	N/A	2015/09/21	BBY WI-00033	Auto Calc
Benzo[a]pyrene Equivalency	2	N/A	2015/09/23	BBY WI-00033	Auto Calc
PAH in TCLP Leachate by GC/MS (SIM)	1	2015/11/20	2015/11/20	BBY8SOP-00021	EPA 8270d R4 m
Total LMW, HMW, Total PAH Calc	1	N/A	2015/11/20	BBY WI-00033	Auto Calc
Total LMW, HMW, Total PAH Calc	9	N/A	2015/09/21	BBY WI-00033	Auto Calc
Total LMW, HMW, Total PAH Calc	2	N/A	2015/09/23	BBY WI-00033	Auto Calc
pH (2:1 DI Water Extract)	2	2015/09/21	2015/09/21	BBY6SOP-00028	BCMOE BCLM Mar2005 m
pH (2:1 DI Water Extract)	9	2015/09/21	2015/09/22	BBY6SOP-00028	BCMOE BCLM Mar2005 m
TCLP pH Measurements	1	N/A	2015/11/20	BBY7SOP-00005	EPA 1311 R1992

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

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

(1) The extraction date for VOC, BTEX, VH, or F1 samples that are field preserved with methanol equals the date sampled, unless otherwise stated.
(2) All CCME results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following the 'Alberta Environment Draft Addenda to the CWS-PHC, Appendix 6, Validation of Alternate Methods'. Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Your P.O. #: 700326766
Your Project #: 1535154
Site Location: PARCEL 44
Your C.O.C. #: 00921, 00771

Attention:Alanna Umphrey

GOLDER ASSOCIATES LTD
3795 CAREY ROAD
(2nd Floor)
VICTORIA, BC
Canada V8Z 6T8

Report Date: 2015/11/22
Report #: R2083125
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

MAXXAM JOB #: B581238
Received: 2015/09/17, 10:35

Encryption Key Samantha Fregien
22 Nov 2015 19:21:25 -08:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Samantha Fregien, Project Manager
Email: SFregien@maxxam.ca
Phone# (604)639-8418

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

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Maxxam Job #: B581238
Report Date: 2015/11/22

GOLDER ASSOCIATES LTD
Client Project #: 1535154
Site Location: PARCEL 44
Your P.O. #: 700326766
Sampler Initials: AV

RESULTS OF CHEMICAL ANALYSES OF SOIL

Maxxam ID		ND6016		
Sampling Date		2015/09/14		
COC Number		00921		
	UNITS	**00921-01**	**RDL**	**QC Batch**
Polycyclic Aromatics				
Leachate Low Molecular Weight PAH`s	ug/L	<0.50	0.50	8117310
Leachate High Molecular Weight PAH`s	ug/L	<0.20	0.20	8117310
Leachate Total PAH	ug/L	<0.50	0.50	8117310
RDL = Reportable Detection Limit				

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GOLDER ASSOCIATES LTD
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Your P.O. #: 700326766
Sampler Initials: AV

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		ND6016	ND6017		
Sampling Date		2015/09/14	2015/09/14		
COC Number		00921	00921		
	UNITS	**00921-01**	**00921-02**	**RDL**	**QC Batch**
Ext. Pet. Hydrocarbon					
F2 (C10-C16 Hydrocarbons)	mg/kg	43	88	10	8046037
F3 (C16-C34 Hydrocarbons)	mg/kg	570	680	10	8046037
F4 (C34-C50 Hydrocarbons)	mg/kg	130	170	10	8046037
Reached Baseline at C50	mg/kg	Yes	Yes	N/A	8046037
Surrogate Recovery (%)					
O-TERPHENYL (sur.)	%	86	88		8046037

RDL = Reportable Detection Limit
N/A = Not Applicable

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GOLDER ASSOCIATES LTD
Client Project #: 1535154
Site Location: PARCEL 44
Your P.O. #: 700326766
Sampler Initials: AV

PARTICLE SIZE DISTRIBUTION ANALYSIS (SOIL)

Maxxam ID		ND6016		
Sampling Date		2015/09/14		
COC Number		00921		
	UNITS	**00921-01**	**RDL**	**QC Batch**
Physical Properties				
200 mesh (>.075 mm)	%	81.8	0.10	8043503
200 mesh (<.075 mm)	%	18.2	0.10	8043503
RDL = Reportable Detection Limit				

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Report Date: 2015/11/22

GOLDER ASSOCIATES LTD
Client Project #: 1535154
Site Location: PARCEL 44
Your P.O. #: 700326766
Sampler Initials: AV

PHYSICAL TESTING (SOIL)

Maxxam ID		ND6016	ND6017	ND6018	ND6020	ND6023	ND6024	ND6053		
Sampling Date		2015/09/14	2015/09/14	2015/09/14	2015/09/14	2015/09/14	2015/09/14	2015/09/15		
COC Number		00921	00921	00921	00921	00921	00921	00771		
	UNITS	**00921-01**	**00921-02**	**00921-03**	**00921-05**	**00921-08**	**00921-09**	**00771-01**	**RDL**	**QC Batch**
Physical Properties										
Moisture	%	13	16	34	33	32	12	26	0.30	8041956
RDL = Reportable Detection Limit										

Maxxam ID		ND6054	ND6055	ND6056	ND6057	ND6058		
Sampling Date		2015/09/15	2015/09/15	2015/09/15	2015/09/15	2015/09/15		
COC Number		00771	00771	00771	00771	00771		
	UNITS	**00771-02**	**00771-03**	**00771-04**	**00771-05**	**00771-06**	**RDL**	**QC Batch**
Physical Properties								
Moisture	%	35	12	20	23	32	0.30	8041956
RDL = Reportable Detection Limit								

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GOLDER ASSOCIATES LTD
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Sampler Initials: AV

SEMIVOLATILE ORGANICS BY GC-MS (SOIL)

Maxxam ID		ND6016		
Sampling Date		2015/09/14		
COC Number		00921		
	UNITS	**00921-01**	**RDL**	**QC Batch**
Polycyclic Aromatics				
Leachate Naphthalene	ug/L	<0.10	0.10	8119672
Leachate 2-Methylnaphthalene	ug/L	<0.10	0.10	8119672
Leachate Quinoline	ug/L	<0.50	0.50	8119672
Leachate Acenaphthylene	ug/L	<0.10	0.10	8119672
Leachate Acenaphthene	ug/L	<0.10	0.10	8119672
Leachate Fluorene	ug/L	<0.10	0.10	8119672
Leachate Phenanthrene	ug/L	<0.10	0.10	8119672
Leachate Anthracene	ug/L	<0.10	0.10	8119672
Leachate Acridine	ug/L	<0.50	0.50	8119672
Leachate Fluoranthene	ug/L	<0.10	0.10	8119672
Leachate Pyrene	ug/L	<0.10	0.10	8119672
Leachate Benzo(a)anthracene	ug/L	<0.10	0.10	8119672
Leachate Chrysene	ug/L	<0.10	0.10	8119672
Leachate Benzo(b&j)fluoranthene	ug/L	<0.10	0.10	8119672
Leachate Benzo(k)fluoranthene	ug/L	<0.10	0.10	8119672
Leachate Benzo(a)pyrene	ug/L	<0.10	0.10	8119672
Leachate Indeno(1,2,3-cd)pyrene	ug/L	<0.20	0.20	8119672
Leachate Dibenz(a,h)anthracene	ug/L	<0.20	0.20	8119672
Leachate Benzo(g,h,i)perylene	ug/L	<0.20	0.20	8119672
Surrogate Recovery (%)				
Leachate D10-ANTHRACENE (sur.)	%	122		8119672
Leachate D8-ACENAPHTHYLENE (sur.)	%	102		8119672
Leachate D8-NAPHTHALENE (sur.)	%	120		8119672
Leachate TERPHENYL-D14 (sur.)	%	110		8119672
RDL = Reportable Detection Limit				

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Your P.O. #: 700326766
Sampler Initials: AV

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		ND6018	
Sampling Date		2015/09/14	
COC Number		00921	
	UNITS	**00921-03**	**QC Batch**
TCLP Extraction Procedure			
Initial pH of Sample	pH	8.41	8118736
pH after HCl	pH	1.44	8118736
Final pH of Leachate	pH	6.00	8118736
pH of Leaching Fluid	pH	4.93	8118736

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GOLDER ASSOCIATES LTD
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CCME BTEX/F1IN SOIL - FIELD PRESERVED (SOIL)

Maxxam ID		ND6016		ND6017		
Sampling Date		2015/09/14		2015/09/14		
COC Number		00921		00921		
	UNITS	**00921-01**	**QC Batch**	**00921-02**	**RDL**	**QC Batch**
Calculated Parameters						
F1 (C6-C10) - BTEX	mg/kg	<10	8041979	<10	10	8041979
Volatiles						
Methyl-tert-butylether (MTBE)	mg/kg	<0.10	8043100	<0.10	0.10	8046773
Benzene	mg/kg	0.41	8043100	0.70	0.0050	8046773
Toluene	mg/kg	0.23	8043100	0.47	0.020	8046773
Ethylbenzene	mg/kg	0.066	8043100	0.12	0.010	8046773
m & p-Xylene	mg/kg	0.11	8043100	0.22	0.040	8046773
o-Xylene	mg/kg	<0.040	8043100	0.091	0.040	8046773
Styrene	mg/kg	<0.030	8043100	<0.030	0.030	8046773
Xylenes (Total)	mg/kg	0.11	8043100	0.31	0.040	8046773
F1 (C6-C10)	mg/kg	<10	8043100	<10	10	8046773
Surrogate Recovery (%)						
1,4-Difluorobenzene (sur.)	%	107	8043100	103		8046773
4-Bromofluorobenzene (sur.)	%	105	8043100	98		8046773
D10-ETHYLBENZENE (sur.)	%	87	8043100	101		8046773
D4-1,2-Dichloroethane (sur.)	%	95	8043100	98		8046773
RDL = Reportable Detection Limit						

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GOLDER ASSOCIATES LTD
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CSR/CCME METALS IN SOIL (SOIL)

Maxxam ID		ND6016	ND6018		ND6020		ND6023	ND6024		
Sampling Date		2015/09/14	2015/09/14		2015/09/14		2015/09/14	2015/09/14		
COC Number		00921	00921		00921		00921	00921		
	UNITS	**00921-01**	**00921-03**	**QC Batch**	**00921-05**	**QC Batch**	**00921-08**	**00921-09**	**RDL**	**QC Batch**
Physical Properties										
Soluble (2:1) pH	pH	7.54	7.75	8044501	5.26	8045163	6.66	6.46	N/A	8044537
Total Metals by ICPMS										
Total Aluminum (Al)	mg/kg	16800	20900	8044487	19100	8045132	16500	22300	100	8044533
Total Antimony (Sb)	mg/kg	2.67	2.20	8044487	0.29	8045132	3.46	0.49	0.10	8044533
Total Arsenic (As)	mg/kg	8.15	7.71	8044487	2.22	8045132	10.8	6.94	0.50	8044533
Total Barium (Ba)	mg/kg	135	144	8044487	49.1	8045132	214	89.2	0.10	8044533
Total Beryllium (Be)	mg/kg	<0.40	<0.40	8044487	<0.40	8045132	<0.40	0.44	0.40	8044533
Total Bismuth (Bi)	mg/kg	0.13	0.16	8044487	<0.10	8045132	<0.10	<0.10	0.10	8044533
Total Cadmium (Cd)	mg/kg	0.667	0.493	8044487	0.113	8045132	0.681	0.117	0.050	8044533
Total Calcium (Ca)	mg/kg	24100	31600	8044487	9300	8045132	12200	7580	100	8044533
Total Chromium (Cr)	mg/kg	43.5	41.5	8044487	34.0	8045132	78.1	48.7	1.0	8044533
Total Cobalt (Co)	mg/kg	12.7	13.4	8044487	13.3	8045132	13.6	16.3	0.30	8044533
Total Copper (Cu)	mg/kg	149	107	8044487	63.7	8045132	234	53.0	0.50	8044533
Total Iron (Fe)	mg/kg	48500	31700	8044487	25400	8045132	52500	34800	100	8044533
Total Lead (Pb)	mg/kg	67.9	308	8044487	13.0	8045132	161	31.3	0.10	8044533
Total Lithium (Li)	mg/kg	9.0	14.2	8044487	7.5	8045132	10.6	17.6	5.0	8044533
Total Magnesium (Mg)	mg/kg	7030	7530	8044487	11900	8045132	9210	8970	100	8044533
Total Manganese (Mn)	mg/kg	841	708	8044487	494	8045132	847	865	0.20	8044533
Total Mercury (Hg)	mg/kg	0.096	6.67	8044487	0.066	8045132	0.172	0.077	0.050	8044533
Total Molybdenum (Mo)	mg/kg	2.04	1.25	8044487	0.36	8045132	4.61	0.76	0.10	8044533
Total Nickel (Ni)	mg/kg	36.0	33.1	8044487	28.8	8045132	46.4	39.7	0.80	8044533
Total Phosphorus (P)	mg/kg	1540	3080	8044487	500	8045132	1100	810	10	8044533
Total Potassium (K)	mg/kg	1250	1950	8044487	543	8045132	1080	1330	100	8044533
Total Selenium (Se)	mg/kg	<0.50	<0.50	8044487	<0.50	8045132	<0.50	<0.50	0.50	8044533
Total Silver (Ag)	mg/kg	0.164	0.294	8044487	0.181	8045132	1.44	0.071	0.050	8044533
Total Sodium (Na)	mg/kg	1850	1160	8044487	1480	8045132	2960	324	100	8044533
Total Strontium (Sr)	mg/kg	122	180	8044487	30.8	8045132	76.9	48.7	0.10	8044533
Total Thallium (Tl)	mg/kg	<0.050	0.070	8044487	<0.050	8045132	<0.050	0.054	0.050	8044533
Total Tin (Sn)	mg/kg	6.85	6.62	8044487	2.20	8045132	8.31	0.98	0.10	8044533
Total Titanium (Ti)	mg/kg	1030	929	8044487	1480	8045132	1150	1240	1.0	8044533
Total Uranium (U)	mg/kg	0.423	0.830	8044487	0.180	8045132	0.650	0.388	0.050	8044533
Total Vanadium (V)	mg/kg	61.1	72.7	8044487	71.8	8045132	66.8	92.0	2.0	8044533
Total Zinc (Zn)	mg/kg	542	202	8044487	51.7	8045132	231	80.2	1.0	8044533
Total Zirconium (Zr)	mg/kg	2.94	3.74	8044487	7.71	8045132	3.13	4.28	0.50	8044533

RDL = Reportable Detection Limit
N/A = Not Applicable

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Maxxam Job #: B581238
Report Date: 2015/11/22

GOLDER ASSOCIATES LTD
Client Project #: 1535154
Site Location: PARCEL 44
Your P.O. #: 700326766
Sampler Initials: AV

CSR/CCME METALS IN SOIL (SOIL)

Maxxam ID		ND6053	ND6054	ND6055	ND6056	ND6057	ND6058		
Sampling Date		2015/09/15	2015/09/15	2015/09/15	2015/09/15	2015/09/15	2015/09/15		
COC Number		00771	00771	00771	00771	00771	00771		
	UNITS	**00771-01**	**00771-02**	**00771-03**	**00771-04**	**00771-05**	**00771-06**	**RDL**	**QC Batch**
Physical Properties									
Soluble (2:1) pH	pH	7.77	7.47	7.53	7.51	7.42	6.88	N/A	8044537
Total Metals by ICPMS									
Total Aluminum (Al)	mg/kg	22600	21800	21700	18700	19200	16500	100	8044533
Total Antimony (Sb)	mg/kg	0.74	0.48	0.51	0.91	0.88	0.74	0.10	8044533
Total Arsenic (As)	mg/kg	5.63	7.93	5.97	5.99	5.61	6.62	0.50	8044533
Total Barium (Ba)	mg/kg	104	78.6	78.9	116	116	84.7	0.10	8044533
Total Beryllium (Be)	mg/kg	0.43	0.41	<0.40	<0.40	<0.40	<0.40	0.40	8044533
Total Bismuth (Bi)	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	8044533
Total Cadmium (Cd)	mg/kg	0.174	0.163	0.252	0.401	0.407	0.375	0.050	8044533
Total Calcium (Ca)	mg/kg	10400	6680	8540	10600	11000	8320	100	8044533
Total Chromium (Cr)	mg/kg	49.0	46.7	43.1	38.3	35.6	32.2	1.0	8044533
Total Cobalt (Co)	mg/kg	15.2	15.9	15.6	12.7	12.5	10.3	0.30	8044533
Total Copper (Cu)	mg/kg	57.3	53.5	77.3	62.1	61.7	49.2	0.50	8044533
Total Iron (Fe)	mg/kg	32000	33100	31800	27600	26900	21900	100	8044533
Total Lead (Pb)	mg/kg	77.0	51.5	25.8	63.1	66.5	68.9	0.10	8044533
Total Lithium (Li)	mg/kg	16.6	19.4	16.1	12.5	11.6	10.1	5.0	8044533
Total Magnesium (Mg)	mg/kg	9140	9180	9380	7080	7210	6200	100	8044533
Total Manganese (Mn)	mg/kg	591	438	660	628	621	418	0.20	8044533
Total Mercury (Hg)	mg/kg	0.120	0.093	0.127	0.908	0.694	0.429	0.050	8044533
Total Molybdenum (Mo)	mg/kg	0.44	1.04	0.72	0.85	0.80	0.98	0.10	8044533
Total Nickel (Ni)	mg/kg	36.8	39.8	35.9	31.1	29.8	24.0	0.80	8044533
Total Phosphorus (P)	mg/kg	904	780	757	1170	1330	914	10	8044533
Total Potassium (K)	mg/kg	1110	1920	1030	1030	939	835	100	8044533
Total Selenium (Se)	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	8044533
Total Silver (Ag)	mg/kg	0.113	0.082	0.151	0.085	0.098	0.098	0.050	8044533
Total Sodium (Na)	mg/kg	674	1170	352	286	262	349	100	8044533
Total Strontium (Sr)	mg/kg	65.8	48.8	51.5	61.8	63.8	48.5	0.10	8044533
Total Thallium (Tl)	mg/kg	0.054	0.054	0.052	0.051	<0.050	<0.050	0.050	8044533
Total Tin (Sn)	mg/kg	4.98	2.80	0.91	4.12	4.00	3.47	0.10	8044533
Total Titanium (Ti)	mg/kg	1210	1200	1140	904	996	1010	1.0	8044533
Total Uranium (U)	mg/kg	0.387	0.492	0.367	0.395	0.383	0.336	0.050	8044533
Total Vanadium (V)	mg/kg	84.3	84.6	84.1	66.2	68.1	58.7	2.0	8044533
Total Zinc (Zn)	mg/kg	103	85.0	99.5	157	165	119	1.0	8044533
Total Zirconium (Zr)	mg/kg	5.27	5.27	3.80	2.66	2.73	3.34	0.50	8044533

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N/A = Not Applicable

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Maxxam Job #: B581238
Report Date: 2015/11/22

GOLDER ASSOCIATES LTD
Client Project #: 1535154
Site Location: PARCEL 44
Your P.O. #: 700326766
Sampler Initials: AV

TCLP METALS (SOIL)

Maxxam ID		ND6018		
Sampling Date		2015/09/14		
COC Number		00921		
	UNITS	**00921-03**	**RDL**	**QC Batch**
Metals				
LEACHATE Antimony (Sb)	mg/L	<0.10	0.10	8119171
LEACHATE Arsenic (As)	mg/L	<0.10	0.10	8119171
LEACHATE Barium (Ba)	mg/L	0.35	0.10	8119171
LEACHATE Beryllium (Be)	mg/L	<0.10	0.10	8119171
LEACHATE Boron (B)	mg/L	0.17	0.10	8119171
LEACHATE Cadmium (Cd)	mg/L	<0.10	0.10	8119171
LEACHATE Chromium (Cr)	mg/L	<0.10	0.10	8119171
LEACHATE Cobalt (Co)	mg/L	<0.10	0.10	8119171
LEACHATE Copper (Cu)	mg/L	<0.10	0.10	8119171
LEACHATE Iron (Fe)	mg/L	<0.50	0.50	8119171
LEACHATE Lead (Pb)	mg/L	<0.10	0.10	8119171
LEACHATE Mercury (Hg)	mg/L	<0.0020	0.0020	8119171
LEACHATE Molybdenum (Mo)	mg/L	<0.10	0.10	8119171
LEACHATE Nickel (Ni)	mg/L	<0.10	0.10	8119171
LEACHATE Selenium (Se)	mg/L	<0.10	0.10	8119171
LEACHATE Silver (Ag)	mg/L	<0.10	0.10	8119171
LEACHATE Thallium (Tl)	mg/L	<0.10	0.10	8119171
LEACHATE Uranium (U)	mg/L	<0.10	0.10	8119171
LEACHATE Vanadium (V)	mg/L	<0.10	0.10	8119171
LEACHATE Zinc (Zn)	mg/L	0.14	0.10	8119171
LEACHATE Zirconium (Zr)	mg/L	<0.10	0.10	8119171
RDL = Reportable Detection Limit				

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B581238
Report Date: 2015/11/22

GOLDER ASSOCIATES LTD
Client Project #: 1535154
Site Location: PARCEL 44
Your P.O. #: 700326766
Sampler Initials: AV

CCME PAH IN SOIL BY GC-MS (SOIL)

Maxxam ID		ND6016		ND6018	ND6020	ND6023	ND6024		
Sampling Date		2015/09/14		2015/09/14	2015/09/14	2015/09/14	2015/09/14		
COC Number		00921		00921	00921	00921	00921		
	UNITS	**00921-01**	**QC Batch**	**00921-03**	**00921-05**	**00921-08**	**00921-09**	**RDL**	**QC Batch**
Calculated Parameters									
Index of Additive Cancer Risk(IARC)	N/A	1.7	8041662	0.31	0.36	0.32	0.31	0.10	8041662
Benzo[a]pyrene equivalency	N/A	0.11	8041662	<0.10	<0.10	<0.10	<0.10	0.10	8041662
Polycyclic Aromatics									
Naphthalene	mg/kg	0.21	8046969	0.047	0.023	0.026	<0.010	0.010	8043024
2-Methylnaphthalene	mg/kg	0.36	8046969	0.045	0.025	0.021	<0.020	0.020	8043024
Acenaphthylene	mg/kg	<0.0050	8046969	<0.0050	0.0092	<0.0050	<0.0050	0.0050	8043024
Acenaphthene	mg/kg	0.069	8046969	0.030	0.019	0.0072	<0.0050	0.0050	8043024
Fluorene	mg/kg	0.070	8046969	0.030	0.024	<0.020	<0.020	0.020	8043024
Phenanthrene	mg/kg	0.51	8046969	0.076	0.12	0.071	<0.020	0.020	8043024
Anthracene	mg/kg	0.099	8046969	0.013	0.020	0.013	<0.0040	0.0040	8043024
Fluoranthene	mg/kg	0.63	8046969	0.041	0.12	0.064	<0.020	0.020	8043024
Pyrene	mg/kg	0.49	8046969	0.033	0.13	0.056	<0.020	0.020	8043024
Benzo(a)anthracene	mg/kg	0.11	8046969	<0.020	0.023	<0.020	<0.020	0.020	8043024
Chrysene	mg/kg	0.15	8046969	<0.020	0.032	0.033	<0.020	0.020	8043024
Benzo(b&j)fluoranthene	mg/kg	0.12	8046969	<0.020	<0.020	<0.020	<0.020	0.020	8043024
Benzo(b)fluoranthene	mg/kg	0.076	8046969	<0.020	<0.020	<0.020	<0.020	0.020	8043024
Benzo(k)fluoranthene	mg/kg	0.038	8046969	<0.020	<0.020	<0.020	<0.020	0.020	8043024
Benzo(a)pyrene	mg/kg	0.057	8046969	<0.020	<0.020	<0.020	<0.020	0.020	8043024
Indeno(1,2,3-cd)pyrene	mg/kg	<0.050	8046969	<0.050	<0.050	<0.050	<0.050	0.050	8043024
Dibenz(a,h)anthracene	mg/kg	<0.050	8046969	<0.050	<0.050	<0.050	<0.050	0.050	8043024
Benzo(g,h,i)perylene	mg/kg	<0.050	8046969	<0.050	<0.050	<0.050	<0.050	0.050	8043024
Low Molecular Weight PAH`s	mg/kg	1.3	8040879	0.24	0.24	0.14	<0.050	0.050	8040879
High Molecular Weight PAH`s	mg/kg	1.6	8040879	0.074	0.30	0.15	<0.050	0.050	8040879
Total PAH	mg/kg	2.9	8040879	0.31	0.54	0.29	<0.050	0.050	8040879
Surrogate Recovery (%)									
D10-ANTHRACENE (sur.)	%	68	8046969	100	106	102	113		8043024
D8-ACENAPHTHYLENE (sur.)	%	81	8046969	98	99	99	112		8043024
D8-NAPHTHALENE (sur.)	%	83	8046969	97	97	98	112		8043024
TERPHENYL-D14 (sur.)	%	72	8046969	100	104	103	103		8043024

RDL = Reportable Detection Limit

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Maxxam Job #: B581238
Report Date: 2015/11/22

GOLDER ASSOCIATES LTD
Client Project #: 1535154
Site Location: PARCEL 44
Your P.O. #: 700326766
Sampler Initials: AV

CCME PAH IN SOIL BY GC-MS (SOIL)

Maxxam ID		ND6053		ND6054			ND6055		
Sampling Date		2015/09/15		2015/09/15			2015/09/15		
COC Number		00771		00771			00771		
	UNITS	**00771-01**	**RDL**	**00771-02**	**RDL**	**QC Batch**	**00771-03**	**RDL**	**QC Batch**
Calculated Parameters									
Index of Additive Cancer Risk(IARC)	N/A	0.31	0.10	0.31	0.10	8041662	0.31	0.10	8041662
Benzo[a]pyrene equivalency	N/A	<0.10	0.10	<0.10	0.10	8041662	<0.10	0.10	8041662
Polycyclic Aromatics									
Naphthalene	mg/kg	<0.010	0.010	<0.017 (1)	0.017	8043024	<0.010	0.010	8046400
2-Methylnaphthalene	mg/kg	<0.020	0.020	0.061	0.020	8043024	<0.020	0.020	8046400
Acenaphthylene	mg/kg	<0.0050	0.0050	<0.0060 (1)	0.0060	8043024	<0.0050	0.0050	8046400
Acenaphthene	mg/kg	<0.0050	0.0050	<0.086 (1)	0.086	8043024	<0.0050	0.0050	8046400
Fluorene	mg/kg	<0.020	0.020	0.064	0.020	8043024	<0.020	0.020	8046400
Phenanthrene	mg/kg	<0.020	0.020	0.11	0.020	8043024	0.030	0.020	8046400
Anthracene	mg/kg	<0.0040	0.0040	<0.0040	0.0040	8043024	<0.0040	0.0040	8046400
Fluoranthene	mg/kg	0.025	0.020	0.047	0.020	8043024	0.032	0.020	8046400
Pyrene	mg/kg	0.033	0.020	0.067	0.020	8043024	0.029	0.020	8046400
Benzo(a)anthracene	mg/kg	<0.020	0.020	<0.020	0.020	8043024	<0.020	0.020	8046400
Chrysene	mg/kg	<0.020	0.020	<0.020	0.020	8043024	<0.020	0.020	8046400
Benzo(b&j)fluoranthene	mg/kg	<0.020	0.020	<0.020	0.020	8043024	<0.020	0.020	8046400
Benzo(b)fluoranthene	mg/kg	<0.020	0.020	<0.020	0.020	8043024	<0.020	0.020	8046400
Benzo(k)fluoranthene	mg/kg	<0.020	0.020	<0.020	0.020	8043024	<0.020	0.020	8046400
Benzo(a)pyrene	mg/kg	<0.020	0.020	<0.020	0.020	8043024	<0.020	0.020	8046400
Indeno(1,2,3-cd)pyrene	mg/kg	<0.050	0.050	<0.050	0.050	8043024	<0.050	0.050	8046400
Dibenz(a,h)anthracene	mg/kg	<0.050	0.050	<0.050	0.050	8043024	<0.050	0.050	8046400
Benzo(g,h,i)perylene	mg/kg	<0.050	0.050	<0.050	0.050	8043024	<0.050	0.050	8046400
Low Molecular Weight PAH`s	mg/kg	<0.050	0.050	0.24	0.086	8040879	<0.050	0.050	8040879
High Molecular Weight PAH`s	mg/kg	0.058	0.050	0.11	0.050	8040879	0.062	0.050	8040879
Total PAH	mg/kg	0.058	0.050	0.35	0.086	8040879	0.091	0.050	8040879
Surrogate Recovery (%)									
D10-ANTHRACENE (sur.)	%	108		110		8043024	92		8046400
D8-ACENAPHTHYLENE (sur.)	%	102		102		8043024	84		8046400
D8-NAPHTHALENE (sur.)	%	102		102		8043024	85		8046400
TERPHENYL-D14 (sur.)	%	104		104		8043024	93		8046400

RDL = Reportable Detection Limit
(1) Detection limits raised due to matrix interference.

Maxxam Job #: B581238
Report Date: 2015/11/22

GOLDER ASSOCIATES LTD
Client Project #: 1535154
Site Location: PARCEL 44
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Sampler Initials: AV

CCME PAH IN SOIL BY GC-MS (SOIL)

Maxxam ID		ND6056	ND6057	ND6058		
Sampling Date		2015/09/15	2015/09/15	2015/09/15		
COC Number		00771	00771	00771		
	UNITS	**00771-04**	**00771-05**	**00771-06**	**RDL**	**QC Batch**
Calculated Parameters						
Index of Additive Cancer Risk(IARC)	N/A	0.46	0.37	0.44	0.10	8041662
Benzo[a]pyrene equivalency	N/A	<0.10	<0.10	<0.10	0.10	8041662
Polycyclic Aromatics						
Naphthalene	mg/kg	0.029	0.037	0.060	0.010	8043024
2-Methylnaphthalene	mg/kg	<0.020	<0.020	0.037	0.020	8043024
Acenaphthylene	mg/kg	0.013	0.010	0.019	0.0050	8043024
Acenaphthene	mg/kg	<0.0050	0.0085	0.011	0.0050	8043024
Fluorene	mg/kg	<0.020	<0.020	<0.020	0.020	8043024
Phenanthrene	mg/kg	0.086	0.12	0.10	0.020	8043024
Anthracene	mg/kg	0.020	0.021	0.020	0.0040	8043024
Fluoranthene	mg/kg	0.10	0.11	0.12	0.020	8043024
Pyrene	mg/kg	0.10	0.11	0.13	0.020	8043024
Benzo(a)anthracene	mg/kg	0.026	0.025	0.026	0.020	8043024
Chrysene	mg/kg	0.043	0.039	0.039	0.020	8043024
Benzo(b&j)fluoranthene	mg/kg	0.023	<0.020	0.021	0.020	8043024
Benzo(b)fluoranthene	mg/kg	0.023	<0.020	0.021	0.020	8043024
Benzo(k)fluoranthene	mg/kg	<0.020	<0.020	<0.020	0.020	8043024
Benzo(a)pyrene	mg/kg	<0.020	<0.020	<0.020	0.020	8043024
Indeno(1,2,3-cd)pyrene	mg/kg	<0.050	<0.050	<0.050	0.050	8043024
Dibenz(a,h)anthracene	mg/kg	<0.050	<0.050	<0.050	0.050	8043024
Benzo(g,h,i)perylene	mg/kg	<0.050	<0.050	<0.050	0.050	8043024
Low Molecular Weight PAH`s	mg/kg	0.15	0.19	0.25	0.050	8040879
High Molecular Weight PAH`s	mg/kg	0.30	0.28	0.34	0.050	8040879
Total PAH	mg/kg	0.44	0.47	0.59	0.050	8040879
Surrogate Recovery (%)						
D10-ANTHRACENE (sur.)	%	102	90	84		8043024
D8-ACENAPHTHYLENE (sur.)	%	100	99	92		8043024
D8-NAPHTHALENE (sur.)	%	100	98	94		8043024
TERPHENYL-D14 (sur.)	%	99	94	84		8043024
RDL = Reportable Detection Limit						

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GENERAL COMMENTS

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

Package 1	1.3°C
Package 2	2.0°C

[Revision V2R SF] Added the additional requested analysis:
- ND6016 – Leachable PAHs
- ND6018 – Leachable Metals

Results relate only to the items tested.

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QUALITY ASSURANCE REPORT

GOLDER ASSOCIATES LTD
Client Project #: 1535154
Site Location: PARCEL 44
Your P.O. #: 700326766
Sampler Initials: AV

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8043024	D10-ANTHRACENE (sur.)	2015/09/18	101	60 - 130	106	60 - 130	112	%				
8043024	D8-ACENAPHTHYLENE (sur.)	2015/09/18	104	50 - 130	100	50 - 130	99	%				
8043024	D8-NAPHTHALENE (sur.)	2015/09/18	101	50 - 130	100	50 - 130	101	%				
8043024	TERPHENYL-D14 (sur.)	2015/09/18	102	60 - 130	101	60 - 130	104	%				
8043100	1,4-Difluorobenzene (sur.)	2015/09/18	94	60 - 140	98	60 - 140	98	%				
8043100	4-Bromofluorobenzene (sur.)	2015/09/18	106	60 - 140	97	60 - 140	95	%				
8043100	D10-ETHYLBENZENE (sur.)	2015/09/18	113	60 - 130	79	60 - 130	85	%				
8043100	D4-1,2-Dichloroethane (sur.)	2015/09/18	109	60 - 140	86	60 - 140	92	%				
8046037	O-TERPHENYL (sur.)	2015/09/22	81	50 - 130	90	50 - 130	106	%				
8046400	D10-ANTHRACENE (sur.)	2015/09/22	89	60 - 130	95	60 - 130	106	%				
8046400	D8-ACENAPHTHYLENE (sur.)	2015/09/22	88	50 - 130	90	50 - 130	91	%				
8046400	D8-NAPHTHALENE (sur.)	2015/09/22	87	50 - 130	89	50 - 130	90	%				
8046400	TERPHENYL-D14 (sur.)	2015/09/22	91	60 - 130	95	60 - 130	99	%				
8046773	1,4-Difluorobenzene (sur.)	2015/09/22	104	60 - 140	103	60 - 140	104	%				
8046773	4-Bromofluorobenzene (sur.)	2015/09/22	102	60 - 140	102	60 - 140	101	%				
8046773	D10-ETHYLBENZENE (sur.)	2015/09/22	66	60 - 130	79	60 - 130	85	%				
8046773	D4-1,2-Dichloroethane (sur.)	2015/09/22	94	60 - 140	94	60 - 140	97	%				
8046969	D10-ANTHRACENE (sur.)	2015/09/22	99	60 - 130	101	60 - 130	104	%				
8046969	D8-ACENAPHTHYLENE (sur.)	2015/09/22	90	50 - 130	90	50 - 130	98	%				
8046969	D8-NAPHTHALENE (sur.)	2015/09/22	90	50 - 130	90	50 - 130	99	%				
8046969	TERPHENYL-D14 (sur.)	2015/09/22	94	60 - 130	94	60 - 130	101	%				
8119672	Leachate D10-ANTHRACENE (sur.)	2015/11/20			130	60 - 130	130	%				
8119672	Leachate D8-ACENAPHTHYLENE (sur.)	2015/11/20			103	50 - 130	93	%				
8119672	Leachate D8-NAPHTHALENE (sur.)	2015/11/20			120	50 - 130	102	%				
8119672	Leachate TERPHENYL-D14 (sur.)	2015/11/20			117	60 - 130	107	%				
8041956	Moisture	2015/09/19					<0.30	%	2.7	20		
8043024	2-Methylnaphthalene	2015/09/19	94	50 - 130	94	50 - 130	<0.020	mg/kg	NC	50		
8043024	Acenaphthene	2015/09/19	96	50 - 130	96	50 - 130	<0.0050	mg/kg	NC	50		
8043024	Acenaphthylene	2015/09/19	95	50 - 130	94	50 - 130	<0.0050	mg/kg	NC	50		
8043024	Anthracene	2015/09/19	93	60 - 130	98	60 - 130	<0.0040	mg/kg	NC	50		

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QUALITY ASSURANCE REPORT(CONT'D)

GOLDER ASSOCIATES LTD
Client Project #: 1535154
Site Location: PARCEL 44
Your P.O. #: 700326766
Sampler Initials: AV

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8043024	Benzo(a)anthracene	2015/09/19	82	60 - 130	84	60 - 130	<0.020	mg/kg	NC	50		
8043024	Benzo(a)pyrene	2015/09/19	81	60 - 130	83	60 - 130	<0.020	mg/kg	NC	50		
8043024	Benzo(b&j)fluoranthene	2015/09/19	79	60 - 130	78	60 - 130	<0.020	mg/kg	NC	50		
8043024	Benzo(b)fluoranthene	2015/09/19	79	60 - 130	78	60 - 130	<0.020	mg/kg	NC	20		
8043024	Benzo(g,h,i)perylene	2015/09/19	81	60 - 130	80	60 - 130	<0.050	mg/kg	NC	50		
8043024	Benzo(k)fluoranthene	2015/09/19	89	60 - 130	87	60 - 130	<0.020	mg/kg	NC	50		
8043024	Chrysene	2015/09/19	86	60 - 130	90	60 - 130	<0.020	mg/kg	NC	50		
8043024	Dibenz(a,h)anthracene	2015/09/19	80	60 - 130	77	60 - 130	<0.050	mg/kg	NC	50		
8043024	Fluoranthene	2015/09/19	96	60 - 130	97	60 - 130	<0.020	mg/kg	NC	50		
8043024	Fluorene	2015/09/19	91	50 - 130	92	50 - 130	<0.020	mg/kg	NC	50		
8043024	Indeno(1,2,3-cd)pyrene	2015/09/19	82	60 - 130	80	60 - 130	<0.050	mg/kg	NC	50		
8043024	Naphthalene	2015/09/19	92	50 - 130	92	50 - 130	<0.010	mg/kg	NC	50		
8043024	Phenanthrene	2015/09/19	93	60 - 130	93	60 - 130	<0.020	mg/kg	NC	50		
8043024	Pyrene	2015/09/19	97	60 - 130	99	60 - 130	<0.020	mg/kg	NC	50		
8043100	Benzene	2015/09/18	95	60 - 140	79	60 - 140	<0.0050	mg/kg	NC	40		
8043100	Ethylbenzene	2015/09/18	99	60 - 140	87	60 - 140	<0.010	mg/kg	NC	40		
8043100	F1 (C6-C10)	2015/09/18					<10	mg/kg				
8043100	m & p-Xylene	2015/09/18	98	60 - 140	84	60 - 140	<0.040	mg/kg	NC	40		
8043100	Methyl-tert-butylether (MTBE)	2015/09/18					<0.10	mg/kg				
8043100	o-Xylene	2015/09/18	94	60 - 140	83	60 - 140	<0.040	mg/kg	NC	40		
8043100	Styrene	2015/09/18					<0.030	mg/kg	NC	40		
8043100	Toluene	2015/09/18	90	60 - 140	81	60 - 140	<0.020	mg/kg	NC	40		
8043100	Xylenes (Total)	2015/09/18					<0.040	mg/kg	NC	40		
8043503	200 mesh (<.075 mm)	2015/09/19							6.4	35		
8043503	200 mesh (>.075 mm)	2015/09/19							0.40	35		
8044487	Total Aluminum (Al)	2015/09/22					<100	mg/kg	7.3	35	97	70 - 130
8044487	Total Antimony (Sb)	2015/09/22	NC	75 - 125	83	75 - 125	<0.10	mg/kg	6.7	30	84	70 - 130
8044487	Total Arsenic (As)	2015/09/22	NC	75 - 125	101	75 - 125	<0.50	mg/kg	0.27	30	104	70 - 130
8044487	Total Barium (Ba)	2015/09/22	NC	75 - 125	92	75 - 125	<0.10	mg/kg	4.4	35	102	70 - 130
8044487	Total Beryllium (Be)	2015/09/22	97	75 - 125	99	75 - 125	<0.40	mg/kg	NC	30		

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QUALITY ASSURANCE REPORT(CONT'D)

GOLDER ASSOCIATES LTD
Client Project #: 1535154
Site Location: PARCEL 44
Your P.O. #: 700326766
Sampler Initials: AV

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8044487	Total Bismuth (Bi)	2015/09/22					<0.10	mg/kg				
8044487	Total Cadmium (Cd)	2015/09/22	NC	75 - 125	101	75 - 125	<0.050	mg/kg	4.6	30	92	70 - 130
8044487	Total Calcium (Ca)	2015/09/22					<100	mg/kg			98	70 - 130
8044487	Total Chromium (Cr)	2015/09/22	106	75 - 125	110	75 - 125	<1.0	mg/kg	1.1	30	109	70 - 130
8044487	Total Cobalt (Co)	2015/09/22	104	75 - 125	110	75 - 125	<0.30	mg/kg	0.84	30	97	70 - 130
8044487	Total Copper (Cu)	2015/09/22	NC	75 - 125	109	75 - 125	<0.50	mg/kg	0.24	30	91	70 - 130
8044487	Total Iron (Fe)	2015/09/22					<100	mg/kg			92	70 - 130
8044487	Total Lead (Pb)	2015/09/22	NC	75 - 125	96	75 - 125	<0.10	mg/kg	3.7	35	96	70 - 130
8044487	Total Lithium (Li)	2015/09/22	96	75 - 125	98	75 - 125	<5.0	mg/kg				
8044487	Total Magnesium (Mg)	2015/09/22					<100	mg/kg			103	70 - 130
8044487	Total Manganese (Mn)	2015/09/22	NC	75 - 125	110	75 - 125	<0.20	mg/kg	0.11	30	102	70 - 130
8044487	Total Mercury (Hg)	2015/09/22	102	75 - 125	98	75 - 125	<0.050	mg/kg	NC	35	101	70 - 130
8044487	Total Molybdenum (Mo)	2015/09/22	80	75 - 125	85	75 - 125	<0.10	mg/kg	2.1	35	86	70 - 130
8044487	Total Nickel (Ni)	2015/09/22	104	75 - 125	111	75 - 125	<0.80	mg/kg	1.7	30	94	70 - 130
8044487	Total Phosphorus (P)	2015/09/22					<10	mg/kg			94	70 - 130
8044487	Total Potassium (K)	2015/09/22					<100	mg/kg				
8044487	Total Selenium (Se)	2015/09/22	104	75 - 125	112	75 - 125	<0.50	mg/kg	NC	30		
8044487	Total Silver (Ag)	2015/09/22	NC	75 - 125	84	75 - 125	<0.050	mg/kg	4.0	35	92	60 - 140
8044487	Total Sodium (Na)	2015/09/22					<100	mg/kg				
8044487	Total Strontium (Sr)	2015/09/22	NC	75 - 125	99	75 - 125	<0.10	mg/kg	4.9	35	97	70 - 130
8044487	Total Thallium (Tl)	2015/09/22	93	75 - 125	86	75 - 125	<0.050	mg/kg			84	70 - 130
8044487	Total Tin (Sn)	2015/09/22	82	75 - 125	82	75 - 125	<0.10	mg/kg	NC	35		
8044487	Total Titanium (Ti)	2015/09/22	NC	75 - 125	105	75 - 125	<1.0	mg/kg	0.44	35	109	70 - 130
8044487	Total Uranium (U)	2015/09/22	101	75 - 125	95	75 - 125	<0.050	mg/kg			102	70 - 130
8044487	Total Vanadium (V)	2015/09/22	NC	75 - 125	106	75 - 125	<2.0	mg/kg	2.0	30	103	70 - 130
8044487	Total Zinc (Zn)	2015/09/22	NC	75 - 125	118	75 - 125	<1.0	mg/kg	2.0	30	92	70 - 130
8044487	Total Zirconium (Zr)	2015/09/22					<0.50	mg/kg				
8044501	Soluble (2:1) pH	2015/09/21			99	97 - 103			0.98	N/A		
8044533	Total Aluminum (Al)	2015/09/22					<100	mg/kg	1.4	35	106	70 - 130
8044533	Total Antimony (Sb)	2015/09/22	90	75 - 125	93	75 - 125	<0.10	mg/kg	NC	30	90	70 - 130

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QUALITY ASSURANCE REPORT(CONT'D)

GOLDER ASSOCIATES LTD
Client Project #: 1535154
Site Location: PARCEL 44
Your P.O. #: 700326766
Sampler Initials: AV

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8044533	Total Arsenic (As)	2015/09/22	110	75 - 125	106	75 - 125	<0.50	mg/kg	3.4	30	111	70 - 130
8044533	Total Barium (Ba)	2015/09/22	NC	75 - 125	102	75 - 125	<0.10	mg/kg	3.3	35	113	70 - 130
8044533	Total Beryllium (Be)	2015/09/22	105	75 - 125	104	75 - 125	<0.40	mg/kg	NC	30		
8044533	Total Bismuth (Bi)	2015/09/22					<0.10	mg/kg	NC	30		
8044533	Total Cadmium (Cd)	2015/09/22	107	75 - 125	108	75 - 125	<0.050	mg/kg	NC	30	101	70 - 130
8044533	Total Calcium (Ca)	2015/09/22					<100	mg/kg	4.7	30	96	70 - 130
8044533	Total Chromium (Cr)	2015/09/22	108	75 - 125	109	75 - 125	<1.0	mg/kg	2.0	30	108	70 - 130
8044533	Total Cobalt (Co)	2015/09/22	104	75 - 125	108	75 - 125	<0.30	mg/kg	3.3	30	96	70 - 130
8044533	Total Copper (Cu)	2015/09/22	NC	75 - 125	107	75 - 125	<0.50	mg/kg	2.2	30	96	70 - 130
8044533	Total Iron (Fe)	2015/09/22					<100	mg/kg	2.1	30	91	70 - 130
8044533	Total Lead (Pb)	2015/09/22	101	75 - 125	103	75 - 125	<0.10	mg/kg	2.4	35	106	70 - 130
8044533	Total Lithium (Li)	2015/09/22	100	75 - 125	100	75 - 125	<5.0	mg/kg	NC	30		
8044533	Total Magnesium (Mg)	2015/09/22					<100	mg/kg	0.87	30	104	70 - 130
8044533	Total Manganese (Mn)	2015/09/22	NC	75 - 125	105	75 - 125	0.32, RDL=0.20	mg/kg	0.87	30	99	70 - 130
8044533	Total Mercury (Hg)	2015/09/22	110	75 - 125	108	75 - 125	<0.050	mg/kg	NC	35	124	70 - 130
8044533	Total Molybdenum (Mo)	2015/09/22	94	75 - 125	94	75 - 125	<0.10	mg/kg	NC	35	90	70 - 130
8044533	Total Nickel (Ni)	2015/09/22	106	75 - 125	109	75 - 125	<0.80	mg/kg	0.13	30	94	70 - 130
8044533	Total Phosphorus (P)	2015/09/22					<10	mg/kg	3.8	30	99	70 - 130
8044533	Total Potassium (K)	2015/09/22					<100	mg/kg	3.7	35		
8044533	Total Selenium (Se)	2015/09/22	117	75 - 125	117	75 - 125	<0.50	mg/kg	NC	30		
8044533	Total Silver (Ag)	2015/09/22	89	75 - 125	98	75 - 125	<0.050	mg/kg	NC	35	94	60 - 140
8044533	Total Sodium (Na)	2015/09/22					<100	mg/kg	NC	35		
8044533	Total Strontium (Sr)	2015/09/22	NC	75 - 125	105	75 - 125	<0.10	mg/kg	0.27	35	107	70 - 130
8044533	Total Thallium (Tl)	2015/09/22	98	75 - 125	92	75 - 125	<0.050	mg/kg	NC	30	91	70 - 130
8044533	Total Tin (Sn)	2015/09/22	90	75 - 125	90	75 - 125	<0.10	mg/kg	NC	35		
8044533	Total Titanium (Ti)	2015/09/22	NC	75 - 125	103	75 - 125	<1.0	mg/kg	1.6	35	110	70 - 130
8044533	Total Uranium (U)	2015/09/22	105	75 - 125	103	75 - 125	<0.050	mg/kg	NC	30	112	70 - 130
8044533	Total Vanadium (V)	2015/09/22	NC	75 - 125	107	75 - 125	<2.0	mg/kg	0.18	30	104	70 - 130
8044533	Total Zinc (Zn)	2015/09/22	NC	75 - 125	112	75 - 125	<1.0	mg/kg	2.2	30	96	70 - 130

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QUALITY ASSURANCE REPORT(CONT'D)

GOLDER ASSOCIATES LTD
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Site Location: PARCEL 44
Your P.O. #: 700326766
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			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8044533	Total Zirconium (Zr)	2015/09/22					<0.50	mg/kg	NC	30		
8044537	Soluble (2:1) pH	2015/09/22			100	97 - 103			1.1	N/A		
8045132	Total Aluminum (Al)	2015/09/22					<100	mg/kg	2.8	35	105	70 - 130
8045132	Total Antimony (Sb)	2015/09/22	95	75 - 125	91	75 - 125	<0.10	mg/kg	NC	30	95	70 - 130
8045132	Total Arsenic (As)	2015/09/22	102	75 - 125	103	75 - 125	<0.50	mg/kg	NC	30	105	70 - 130
8045132	Total Barium (Ba)	2015/09/22	NC	75 - 125	105	75 - 125	<0.10	mg/kg	3.6	35	107	70 - 130
8045132	Total Beryllium (Be)	2015/09/22	117	75 - 125	110	75 - 125	<0.40	mg/kg	NC	30		
8045132	Total Bismuth (Bi)	2015/09/22					<0.10	mg/kg	NC	30		
8045132	Total Cadmium (Cd)	2015/09/22	109	75 - 125	107	75 - 125	<0.050	mg/kg	NC	30	97	70 - 130
8045132	Total Calcium (Ca)	2015/09/22					<100	mg/kg	1.1	30	96	70 - 130
8045132	Total Chromium (Cr)	2015/09/22	106	75 - 125	104	75 - 125	<1.0	mg/kg	4.5	30	104	70 - 130
8045132	Total Cobalt (Co)	2015/09/22	105	75 - 125	106	75 - 125	<0.30	mg/kg	3.1	30	93	70 - 130
8045132	Total Copper (Cu)	2015/09/22	102	75 - 125	106	75 - 125	<0.50	mg/kg	5.1	30	92	70 - 130
8045132	Total Iron (Fe)	2015/09/22					<100	mg/kg	1.1	30	97	70 - 130
8045132	Total Lead (Pb)	2015/09/22	105	75 - 125	108	75 - 125	<0.10	mg/kg	4.7	35	99	70 - 130
8045132	Total Lithium (Li)	2015/09/22	115	75 - 125	106	75 - 125	<5.0	mg/kg	NC	30		
8045132	Total Magnesium (Mg)	2015/09/22					<100	mg/kg	0.43	30	87	70 - 130
8045132	Total Manganese (Mn)	2015/09/22	NC	75 - 125	103	75 - 125	<0.20	mg/kg	0.71	30	97	70 - 130
8045132	Total Mercury (Hg)	2015/09/22	100	75 - 125	102	75 - 125	<0.050	mg/kg	NC	35	94	70 - 130
8045132	Total Molybdenum (Mo)	2015/09/22	94	75 - 125	96	75 - 125	<0.10	mg/kg	NC	35	91	70 - 130
8045132	Total Nickel (Ni)	2015/09/22	107	75 - 125	108	75 - 125	<0.80	mg/kg	0.45	30	92	70 - 130
8045132	Total Phosphorus (P)	2015/09/22					<10	mg/kg	2.7	30	90	70 - 130
8045132	Total Potassium (K)	2015/09/22					<100	mg/kg	NC	35		
8045132	Total Selenium (Se)	2015/09/22	109	75 - 125	116	75 - 125	<0.50	mg/kg	NC	30		
8045132	Total Silver (Ag)	2015/09/22	91	75 - 125	97	75 - 125	<0.050	mg/kg	NC	35	87	60 - 140
8045132	Total Sodium (Na)	2015/09/22					<100	mg/kg	NC	35		
8045132	Total Strontium (Sr)	2015/09/22	103	75 - 125	101	75 - 125	<0.10	mg/kg	3.3	35	91	70 - 130
8045132	Total Thallium (Tl)	2015/09/22	104	75 - 125	101	75 - 125	<0.050	mg/kg	NC	30	101	70 - 130
8045132	Total Tin (Sn)	2015/09/22	96	75 - 125	97	75 - 125	<0.10	mg/kg	NC	35		
8045132	Total Titanium (Ti)	2015/09/22	NC	75 - 125	99	75 - 125	<1.0	mg/kg	9.3	35	105	70 - 130

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Your P.O. #: 700326766
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			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8045132	Total Uranium (U)	2015/09/22	109	75 - 125	108	75 - 125	<0.050	mg/kg	NC	30	101	70 - 130
8045132	Total Vanadium (V)	2015/09/22	107	75 - 125	102	75 - 125	<2.0	mg/kg	0.11	30	99	70 - 130
8045132	Total Zinc (Zn)	2015/09/22	107	75 - 125	112	75 - 125	<1.0	mg/kg	0.78	30	89	70 - 130
8045132	Total Zirconium (Zr)	2015/09/22					<0.50	mg/kg	NC	30		
8045163	Soluble (2:1) pH	2015/09/22			100	97 - 103			1.3	N/A		
8046037	F2 (C10-C16 Hydrocarbons)	2015/09/22	97	50 - 130	94	70 - 130	<10	mg/kg				
8046037	F3 (C16-C34 Hydrocarbons)	2015/09/22	106	50 - 130	107	70 - 130	<10	mg/kg				
8046037	F4 (C34-C50 Hydrocarbons)	2015/09/22	96	70 - 130	95	70 - 130	<10	mg/kg				
8046037	Reached Baseline at C50	2015/09/22					YES	mg/kg				
8046400	2-Methylnaphthalene	2015/09/22	82	50 - 130	82	50 - 130	<0.020	mg/kg	NC	50		
8046400	Acenaphthene	2015/09/22	85	50 - 130	88	50 - 130	<0.0050	mg/kg	NC	50		
8046400	Acenaphthylene	2015/09/22	82	50 - 130	84	50 - 130	<0.0050	mg/kg	NC	50		
8046400	Anthracene	2015/09/22	82	60 - 130	86	60 - 130	<0.0040	mg/kg	NC	50		
8046400	Benzo(a)anthracene	2015/09/22	69	60 - 130	72	60 - 130	<0.020	mg/kg	NC	50		
8046400	Benzo(a)pyrene	2015/09/22	68	60 - 130	77	60 - 130	<0.020	mg/kg	NC	50		
8046400	Benzo(b&j)fluoranthene	2015/09/22	72	60 - 130	70	60 - 130	<0.020	mg/kg	NC	50		
8046400	Benzo(b)fluoranthene	2015/09/22	72	60 - 130	70	60 - 130	<0.020	mg/kg	NC	20		
8046400	Benzo(g,h,i)perylene	2015/09/22	64	60 - 130	78	60 - 130	<0.050	mg/kg	NC	50		
8046400	Benzo(k)fluoranthene	2015/09/22	71	60 - 130	77	60 - 130	<0.020	mg/kg	NC	50		
8046400	Chrysene	2015/09/22	72	60 - 130	77	60 - 130	<0.020	mg/kg	NC	50		
8046400	Dibenz(a,h)anthracene	2015/09/22	68	60 - 130	75	60 - 130	<0.050	mg/kg	NC	50		
8046400	Fluoranthene	2015/09/22	85	60 - 130	90	60 - 130	<0.020	mg/kg	NC	50		
8046400	Fluorene	2015/09/22	80	50 - 130	84	50 - 130	<0.020	mg/kg	NC	50		
8046400	Indeno(1,2,3-cd)pyrene	2015/09/22	66	60 - 130	73	60 - 130	<0.050	mg/kg	NC	50		
8046400	Naphthalene	2015/09/22	80	50 - 130	81	50 - 130	<0.010	mg/kg	NC	50		
8046400	Phenanthrene	2015/09/22	82	60 - 130	86	60 - 130	<0.010	mg/kg	NC	50		
8046400	Pyrene	2015/09/22	88	60 - 130	94	60 - 130	<0.020	mg/kg	NC	50		
8046773	Benzene	2015/09/22	101	60 - 140	79	60 - 140	<0.0050	mg/kg	NC	40		
8046773	Ethylbenzene	2015/09/22	98	60 - 140	76	60 - 140	<0.010	mg/kg	NC	40		
8046773	F1 (C6-C10)	2015/09/22			86	60 - 140	<10	mg/kg				

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Site Location: PARCEL 44
Your P.O. #: 700326766
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			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8046773	m & p-Xylene	2015/09/22	100	60 - 140	79	60 - 140	<0.040	mg/kg	NC	40		
8046773	Methyl-tert-butylether (MTBE)	2015/09/22					<0.10	mg/kg				
8046773	o-Xylene	2015/09/22	100	60 - 140	78	60 - 140	<0.040	mg/kg	NC	40		
8046773	Styrene	2015/09/22					<0.030	mg/kg				
8046773	Toluene	2015/09/22	97	60 - 140	76	60 - 140	<0.020	mg/kg	NC	40		
8046773	Xylenes (Total)	2015/09/22					<0.040	mg/kg	NC	40		
8046969	2-Methylnaphthalene	2015/09/22	83	50 - 130	85	50 - 130	<0.020	mg/kg	NC	50		
8046969	Acenaphthene	2015/09/22	88	50 - 130	87	50 - 130	<0.0050	mg/kg	NC	50		
8046969	Acenaphthylene	2015/09/22	83	50 - 130	84	50 - 130	<0.0050	mg/kg	NC	50		
8046969	Anthracene	2015/09/22	95	60 - 130	98	60 - 130	<0.0040	mg/kg	NC	50		
8046969	Benzo(a)anthracene	2015/09/22	73	60 - 130	74	60 - 130	<0.020	mg/kg	NC	50		
8046969	Benzo(a)pyrene	2015/09/22	77	60 - 130	77	60 - 130	<0.020	mg/kg	NC	50		
8046969	Benzo(b&j)fluoranthene	2015/09/22	76	60 - 130	75	60 - 130	<0.020	mg/kg	NC	50		
8046969	Benzo(b)fluoranthene	2015/09/22	76	60 - 130	75	60 - 130	<0.020	mg/kg	NC	20		
8046969	Benzo(g,h,i)perylene	2015/09/22	62	60 - 130	61	60 - 130	<0.050	mg/kg	NC	50		
8046969	Benzo(k)fluoranthene	2015/09/22	79	60 - 130	80	60 - 130	<0.020	mg/kg	NC	50		
8046969	Chrysene	2015/09/22	77	60 - 130	77	60 - 130	<0.020	mg/kg	NC	50		
8046969	Dibenz(a,h)anthracene	2015/09/22	70	60 - 130	68	60 - 130	<0.050	mg/kg	NC	50		
8046969	Fluoranthene	2015/09/22	90	60 - 130	90	60 - 130	<0.020	mg/kg	NC	50		
8046969	Fluorene	2015/09/22	83	50 - 130	84	50 - 130	<0.020	mg/kg	NC	50		
8046969	Indeno(1,2,3-cd)pyrene	2015/09/22	69	60 - 130	67	60 - 130	<0.050	mg/kg	NC	50		
8046969	Naphthalene	2015/09/22	81	50 - 130	84	50 - 130	<0.010	mg/kg	NC	50		
8046969	Phenanthrene	2015/09/22	79	60 - 130	80	60 - 130	<0.010	mg/kg	NC	50		
8046969	Pyrene	2015/09/22	93	60 - 130	94	60 - 130	<0.020	mg/kg	NC	50		
8118736	Final pH of Leachate	2015/11/20					4.93	pH	1.3	N/A		
8118736	Initial pH of Sample	2015/11/20					4.93	pH	1.6	N/A		
8118736	pH after HCl	2015/11/20							3.3	N/A		
8118736	pH of Leaching Fluid	2015/11/20					4.93	pH	0	N/A		
8119171	LEACHATE Antimony (Sb)	2015/11/20					<0.10	mg/L	NC	35		
8119171	LEACHATE Arsenic (As)	2015/11/20	108	75 - 125	107	75 - 125	<0.10	mg/L	NC	35		

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Site Location: PARCEL 44
Your P.O. #: 700326766
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			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8119171	LEACHATE Barium (Ba)	2015/11/20					<0.10	mg/L	1.0	35		
8119171	LEACHATE Beryllium (Be)	2015/11/20	106	75 - 125	104	75 - 125	<0.10	mg/L	NC	35		
8119171	LEACHATE Boron (B)	2015/11/20					<0.10	mg/L	NC	35		
8119171	LEACHATE Cadmium (Cd)	2015/11/20	100	75 - 125	99	75 - 125	<0.10	mg/L	NC	35		
8119171	LEACHATE Chromium (Cr)	2015/11/20	100	75 - 125	97	75 - 125	<0.10	mg/L	NC	35		
8119171	LEACHATE Cobalt (Co)	2015/11/20	97	75 - 125	96	75 - 125	<0.10	mg/L	NC	35		
8119171	LEACHATE Copper (Cu)	2015/11/20	95	75 - 125	95	75 - 125	<0.10	mg/L	NC	35		
8119171	LEACHATE Iron (Fe)	2015/11/20					<0.50	mg/L	NC	35		
8119171	LEACHATE Lead (Pb)	2015/11/20	100	75 - 125	96	75 - 125	<0.10	mg/L	NC	35		
8119171	LEACHATE Mercury (Hg)	2015/11/20					<0.0020	mg/L	NC	35		
8119171	LEACHATE Molybdenum (Mo)	2015/11/20					<0.10	mg/L	NC	35		
8119171	LEACHATE Nickel (Ni)	2015/11/20	97	75 - 125	96	75 - 125	<0.10	mg/L	NC	35		
8119171	LEACHATE Selenium (Se)	2015/11/20	110	75 - 125	107	75 - 125	<0.10	mg/L	NC	35		
8119171	LEACHATE Silver (Ag)	2015/11/20					<0.10	mg/L	NC	35		
8119171	LEACHATE Thallium (Tl)	2015/11/20					<0.10	mg/L	NC	35		
8119171	LEACHATE Uranium (U)	2015/11/20	92	75 - 125	95	75 - 125	<0.10	mg/L	NC	35		
8119171	LEACHATE Vanadium (V)	2015/11/20	99	75 - 125	99	75 - 125	<0.10	mg/L	NC	35		
8119171	LEACHATE Zinc (Zn)	2015/11/20	100	75 - 125	100	75 - 125	<0.10	mg/L	NC	35		
8119171	LEACHATE Zirconium (Zr)	2015/11/20					<0.10	mg/L	NC	35		
8119672	Leachate 2-Methylnaphthalene	2015/11/20			114	50 - 130	<0.10	ug/L				
8119672	Leachate Acenaphthene	2015/11/20			108	50 - 130	<0.10	ug/L				
8119672	Leachate Acenaphthylene	2015/11/20			100	50 - 130	<0.10	ug/L				
8119672	Leachate Acridine	2015/11/20			89	50 - 130	<0.50	ug/L				
8119672	Leachate Anthracene	2015/11/20			125	60 - 130	<0.10	ug/L				
8119672	Leachate Benzo(a)anthracene	2015/11/20			98	60 - 130	<0.10	ug/L				
8119672	Leachate Benzo(a)pyrene	2015/11/20			93	60 - 130	<0.10	ug/L				
8119672	Leachate Benzo(b&j)fluoranthene	2015/11/20			69	60 - 130	<0.10	ug/L				
8119672	Leachate Benzo(g,h,i)perylene	2015/11/20			95	60 - 130	<0.20	ug/L				
8119672	Leachate Benzo(k)fluoranthene	2015/11/20			125	60 - 130	<0.10	ug/L				
8119672	Leachate Chrysene	2015/11/20			102	60 - 130	<0.10	ug/L				

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B581238
Report Date: 2015/11/22

QUALITY ASSURANCE REPORT(CONT'D)

GOLDER ASSOCIATES LTD
Client Project #: 1535154
Site Location: PARCEL 44
Your P.O. #: 700326766
Sampler Initials: AV

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8119672	Leachate Dibenz(a,h)anthracene	2015/11/20			93	60 - 130	<0.20	ug/L				
8119672	Leachate Fluoranthene	2015/11/20			114	60 - 130	<0.10	ug/L				
8119672	Leachate Fluorene	2015/11/20			106	50 - 130	<0.10	ug/L				
8119672	Leachate Indeno(1,2,3-cd)pyrene	2015/11/20			104	60 - 130	<0.20	ug/L				
8119672	Leachate Naphthalene	2015/11/20			109	50 - 130	<0.10	ug/L				
8119672	Leachate Phenanthrene	2015/11/20			102	60 - 130	<0.10	ug/L				
8119672	Leachate Pyrene	2015/11/20			118	60 - 130	<0.10	ug/L				
8119672	Leachate Quinoline	2015/11/20			99	50 - 130	<0.50	ug/L				

N/A = Not Applicable

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

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

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

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

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

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

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

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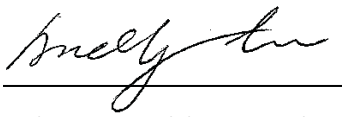
Report Date: 2015/11/22

GOLDER ASSOCIATES LTD
Client Project #: 1535154
Site Location: PARCEL 44
Your P.O. #: 700326766
Sampler Initials: AV

VALIDATION SIGNATURE PAGE

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



Andy Lu, Data Validation Coordinator

Rob Reinert, Data Validation Coordinator

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

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

CHAIN OF CUSTODY RECORD/ANALYSIS REQUEST

No. 00771 page 2 of 2

Golder Associates
200 – 2920 Virtual Way
Vancouver, British Columbia, Canada V5M 0C4
Telephone (604) 296-4200 Fax (604) 298-5253

Project Number: 1535154			Laboratory Name: Maxxam Analytics
Short Title: TC Parcel 44	Golder Contact: Wendy Beairsto		Address: 4606 Canada Way
Golder E-mail Address 1: WBeairsto @golder.com	Golder E-mail Address 2: SMorse @golder.com	Telephone/Fax:	Contact: Namita Sahni

Office Name: Victoria

EQuIS Facility Code:
EQuIS upload: ☐

Turnaround Time: ☐ 24 hr ☐ 48 hr ☐ 72 hr ☑ Regular (5 Days)
Criteria: ☐ CSR ☐ CCME ☐ BC Water Quality ☐ Other

Note: Final Reports to be issued by e-mail

Quote No.:

Analyses Required

MAXXAM JOB#: B581238

Sample Control Number (SCN)	Sample Location	Sa. #	Sample Depth (m) (ft)	Sample Matrix (over)	Date Sampled (D / M / Y)	Time Sampled (HH:MM)	Sample Type (over)	QAQC Code (over)	Related SCN (over)	Number of Containers	Total Metals	BTEX/F1	F2 - F4	PAH	Grain Size		Hold			RUSH (Select TAT above)	Remarks (over) LAB I.D.
00771 - 01	BH15-38	1	36"-4'	SOIL	15/09/15	-	AUGER	-	-	2	X			X							ND6053
- 02	BH15-38	2	7'-76"			-		-	-	2	X			X							ND6054
- 03	BH15-39	1	3'-4'			-		-	-	2	X			X							ND6055
- 04	BH15-40	1	3'-4'			-		FDA	00771-05	2	X			X							ND6056
- 05	BH15-40	2	3'-4'			-		FD	00771-04	2	X			X							ND6057
- 06	BH15-40	3	7'-8'			-		FDA	00771-07	2	X			X							ND6058
- 07	BH15-40	4	7'-8'			-		FD	00771-06	2							X				ND6059
- 08																					
- 09																					
- 10																					
- 11																					
- 12																					

B581238

Sampler's Signature:	Relinquished by: Signature	Company: Golder	Date: Sept. 15, 2015	Time: 15:30	Received by: Signature / Company
Comments: ON ICE *PWGSC PO Number: Parcel 44 R.077399.001	Method of Shipment:	Waybill No.:	Received for Lab by:	Date: Sept 15/15	Time: 1535
	Shipped by:	Shipment Condition: Seal Intact:	Temp (°C): 8,1,8	Cooler opened by:	Date / Time

WHITE: Golder Copy YELLOW: Lab Copy

Rcvd: MM laurel berthier 2015/09/17 10:35 CS:MA 2,1,1/2,2,2

ESED

Revised

CHAIN OF CUSTODY RECORD/ANALYSIS REQUEST

No. 00921 page 1 of 2

B581238

Golder Associates Ltd.
Burnaby, British Columbia, Canada V5M 0C4
Telephone (604) 296-4200 Fax (604) 298-5253

Project Number: 1535154			Laboratory Name: Maxxam Analytics
Short Title: TC Parcel 44	Golder Contact: Wendy Beairsto		Address: 4606 Canada Way
Golder E-mail Address 1: WBeairsto@golder.com	Golder E-mail Address 2: SMorse @golder.com	Telephone/Fax:	Contact: Namita Sahni

Office Name: Victoria

EQuIS Facility Code: _____
EQuIS upload: ☐

Turnaround Time: ☐ 24 hr ☐ 48 hr ☐ 72 hr ☒ Regular (5 Days)
Criteria: ☐ CSR ☐ CCME ☐ BC Water Quality ☐ Other

Note: Final Reports to be issued by e-mail

Quote No.:

Analyses Required

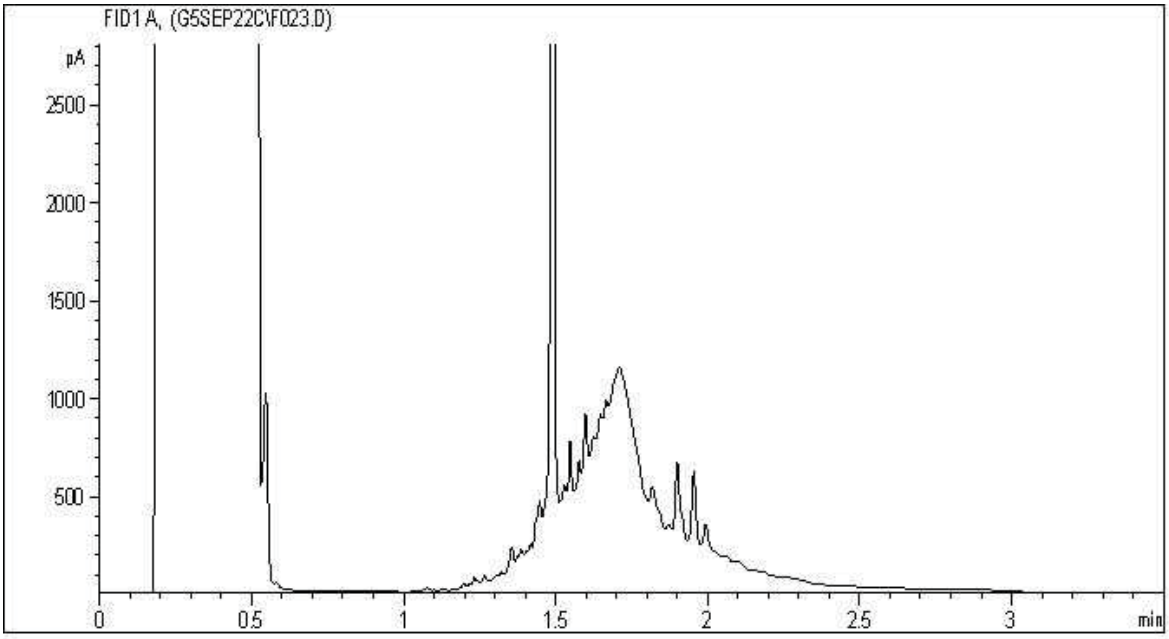
Sample Control Number (SCN)	Sample Location	Sa. #	Sample Depth (mm) (Ft)	Sample Matrix (over)	Date Sampled (D / M / Y)	Time Sampled (HH:MM)	Sample Type (over)	QAQC Code (over)	Related SCN (over)	Number of Containers	Total Metals	BTEX/F1	F2-F4	PAH	Grain Size		Hold			RUSH (Select TAT above)	Remarks (over)
00921 - 01	BH15-34	1	3'-3'6"	SOIL	14/09/15	-	AUGER	FDA	00921-02	4	X	X	X	X	X						ND6016
- 02	BH15-34	2	3'-3'6"			-		FD	00921-01	4	X	X	X	X							ND6017
- 03	BH15-34	3	8'-8'6"			-		FDA	00921-04	2	X			X							ND6018
- 04	BH15-34	4	8'-8'6"			-		FD	00921-03	2							X				ND6019
- 05	BH15-35	1	4'-4'6"			-		-	-	2	X			X							ND6020
- 06	BH15-35	2	9'-9'6"			-		-	-	2							X				ND6021
- 07	BH15-36	1	4'-4'6"			-		-	-	2							X				ND6022
- 08	BH15-36	2	6'-6'6"			-		-	-	2	X			X							ND6023
- 09	BH15-37	1	4'6"-5'			-		FDA	00921-10	2	X			X							ND6024
- 10	BH15-37	2	4'6"-5'			-		FD	00921-09	2							X				ND6025
- 11	BH15-37	3	7'-8'			-		FDA	00921-12	2							X				ND6026
- 12	BH15-37	4	7'-8'			-		FD	00921-11	2							X				ND6027

Sampler's Signature:	Relinquished by: Signature	Company: Golder	Date: Sept. 15, 2015	Time: 15:30	Received by: Signature	Company	
Comments: ON ICE *PWGSC PO Number: Parcel 44 R.077399.001	Method of Shipment:	Waybill No.:	Received for Lab by:	Date: Sept 15/15	Time: 15:35		
	Shipped by:	Shipment Condition: Seal Intact:	Temp (°C)	Cooler opened by:	Date	Time	

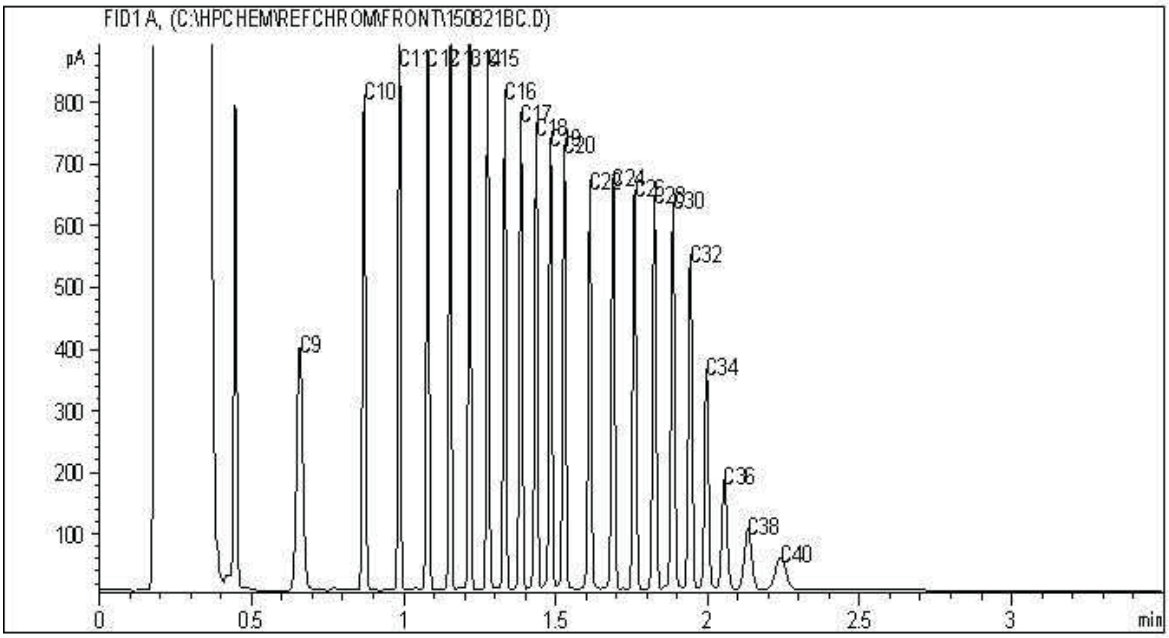
WHITE: Golder Copy YELLOW: Lab Copy

Revd MM Laurel Berthier 2015/09/17 10:35 CS: NA
2.1.1/2.2.2

CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



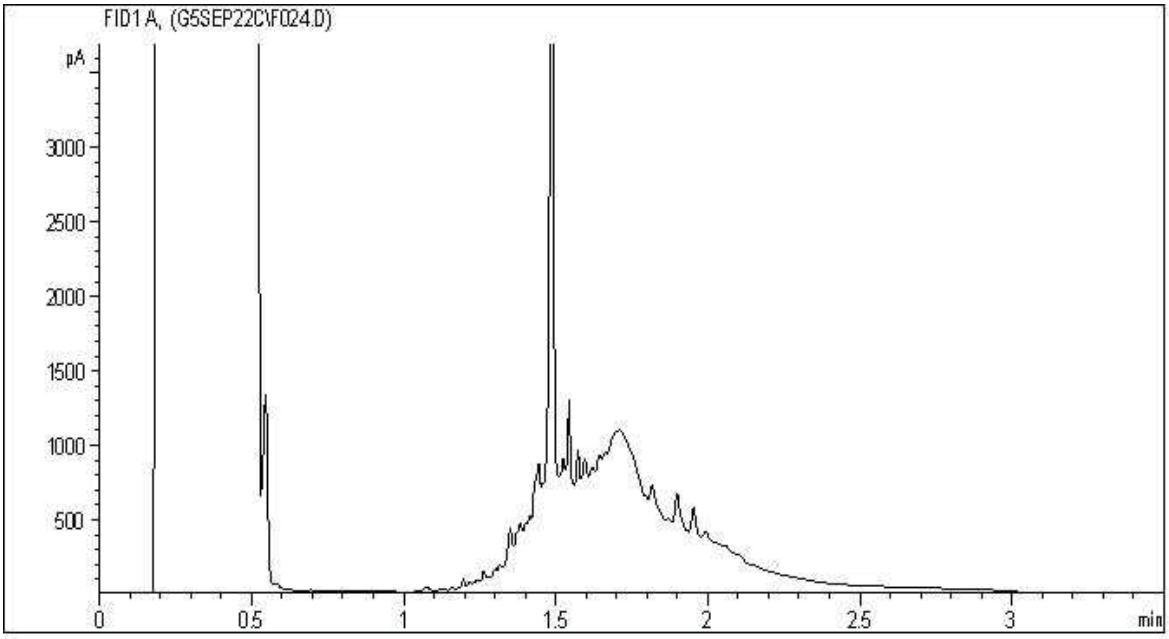
TYPICAL PRODUCT CARBON NUMBER RANGES

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

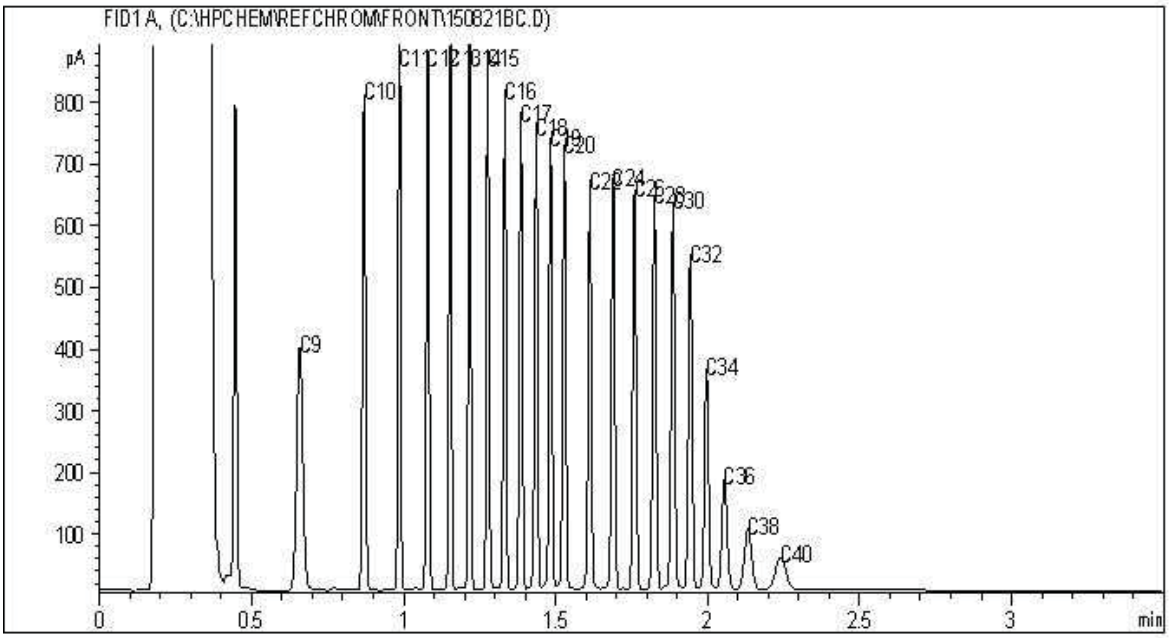
Maxxam Job #: B581238
Report Date: 2015/11/22
Maxxam Sample: ND6017

GOLDER ASSOCIATES LTD
Client Project #: 1535154
Site Reference: PARCEL 44
Client ID: 00921-02

CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

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

As a global, employee-owned organisation with over 50 years of experience, Golder Associates is driven by our purpose to engineer earth's development while preserving earth's integrity. We deliver solutions that help our clients achieve their sustainable development goals by providing a wide range of independent consulting, design and construction services in our specialist areas of earth, environment and energy.

For more information, visit golder.com

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