

Appendix F

Soil and Sediment Survey



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Soil and Sediment Study

Kami Concentrate Storage and Load-Out Facility, Québec

Prepared for

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EXECUTIVE SUMMARY

Stantec Experts-conseils ltée (Stantec) was contracted by Alderon Iron Ore Corp. (Alderon) to conduct a Soil and Sediment Study for the area encompassing the Kami Concentrate Storage and Load-Out Facility (Kami Terminal), in Sept-Îles, Québec. Surface soil and sediment quality sampling was conducted at the Kami Terminal site in July 2012 in support of the Project and to supplement information on soils and sediment in the vicinity of the Kami Terminal for use in the EIS. The principal objective of this study was to establish the baseline environmental quality of the soils and sediments located in the vicinity of the site.

Field work consisted of collecting surface soil (46) and sediment (4) samples located in the vicinity of the proposed Kami Terminal. The samples were analyzed for the following parameters: Metals (Ag, As, Ba, Cd, Co, Cr, Cu, Sn, Mn, Mo, Ni, Pb, Zn, Fe), Mercury, Polycyclic Aromatic Hydrocarbons (PAH), and Petroleum Hydrocarbons (PH C₁₀-C₅₀).

Of the four sediment samples taken, two (SED-12-02 and SED-12-04) showed concentrations above the applicable CCME threshold effect level. SED-12-02 exhibited concentrations of chromium and copper greater than the threshold effect but less than the probable effect level. SED-12-04 exhibited concentrations of benzo(a)anthracene, benzo(a)pyrene, chrysene, fluoranthene, phenanthrene, pyrene and copper greater than the threshold effect but less than the probable effect level. It should be noted that reported detection limits for Polycyclic Aromatic Hydrocarbons (PAH) were higher than the applicable criteria. However, when no detections of PAH occurred, it was assumed that the parameter respected the applicable criteria.

Analytical results show concentrations that are inferior to the applicable industrial criteria of the CCME for soils samples SS-12-05 to SS-12-50. However, nickel concentrations of sample SS-12-38 are above the applicable industrial criteria.

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1.0 INTRODUCTION

Alderon Iron Ore Corp. (Alderon) is proposing to develop an iron ore mine in western Labrador, and build associated infrastructure at the Port of Sept-Îles, Québec. The mine Property is located approximately 6 km south from the Wabush Mines mining lease owned by Cliffs Natural Resources Inc. (Cliffs) and in the vicinity of the towns of Wabush, Labrador City, and Fermont. The Kami Iron Ore Mine is located entirely within Labrador, and includes construction, operation and maintenance, and decommissioning and rehabilitation of an open pit, waste rock disposal areas, processing infrastructure, a tailings management facility (TMF), ancillary infrastructure to support the mine and process plant, and a rail transportation component. The mine will produce up to 16 million metric tonnes of iron ore concentrate per year. Concentrate will be transported by existing rail to Kami Iron Ore Concentrate Storage and Load-out Facility (the Kami Terminal) at the Port of Sept-Îles, where Kami Terminal-related components will be located on land within the jurisdiction of the Port Authority of Sept-Îles. No Kami Terminal activities are proposed within the marine environment. The Kami Terminal general location is indicated on Figure 1.1.

Federal approvals will be required, which trigger the requirement for a federal environmental assessment under the Canadian Environmental Assessment Act (CEAA), at the comprehensive study level. The Kami Terminal was registered in accordance with the CEAA in October 2011.

This Study was conducted in support of the federal environmental assessment.

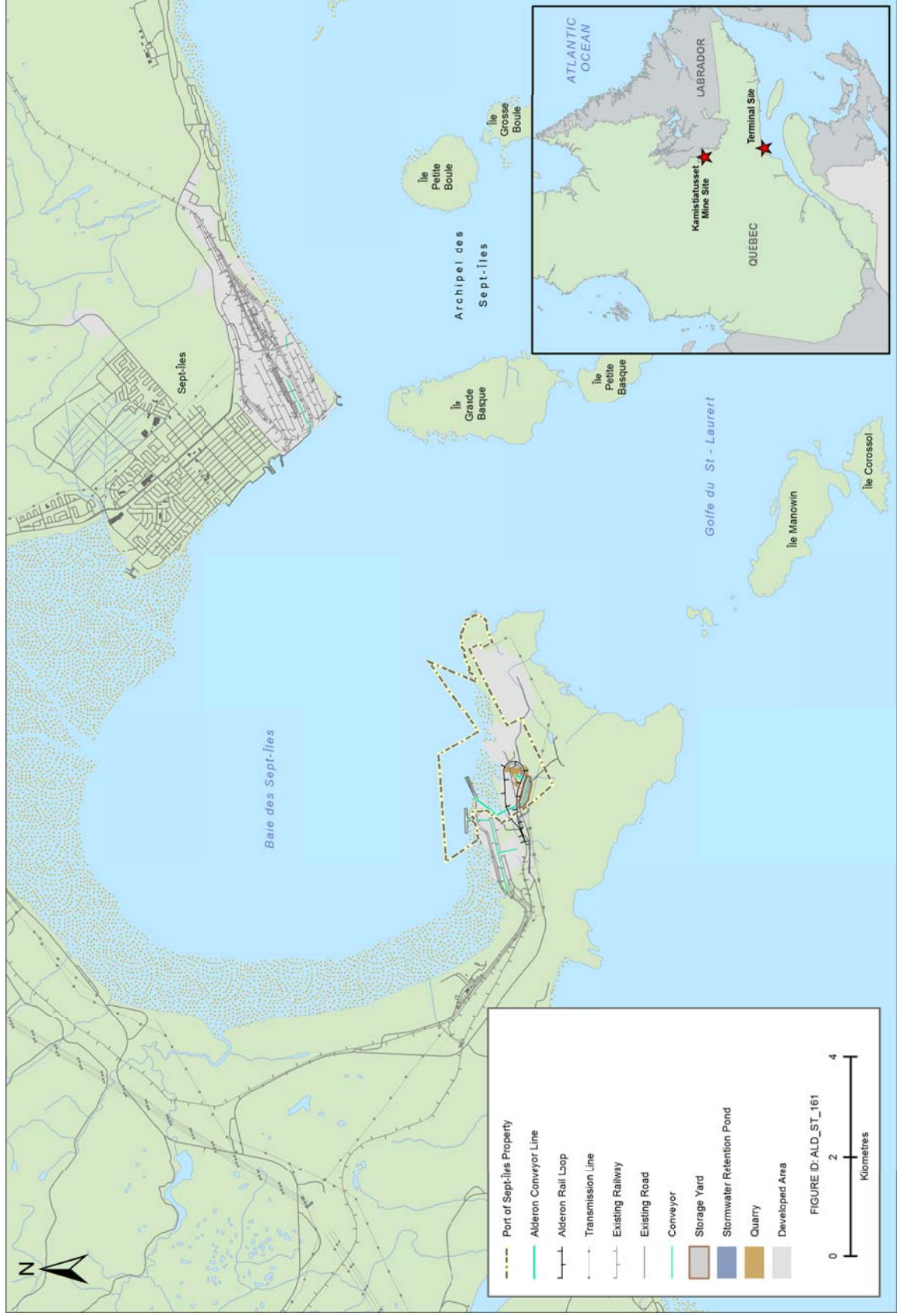
1.1 Overview of Kami Iron Ore Project

The Kami Terminal is located on Port Authority lands and will provide the required infrastructure to transport and store iron ore concentrate (up to 16 million tonnes per year) prior to shipping the product to market. The concentrate will first be transported from the proposed Kami Iron Ore Mine in western Labrador by the existing Québec North Shore and Labrador (QNS&L) and Chemin de fer Arnaud (CFA) railways to the Port of Sept-Îles, where it will be stored for a short time prior to shipping. Concentrate will be stored in a live stockpile managed by a stacker-reclaimer unit. The volume of concentrate stored at any one time will depend on the rail delivery schedule from the mine and the vessel loading schedule.

Alderon's proposed Kami Terminal facility in Sept-Îles, Québec will include:

- A Concentrate Unloading, Stacking, Storage and Reclaiming Facility; and
- Associated Rail Infrastructure (Rail Loop).

Figure 1.1 General Kami Terminal Location



1.2 Overview of Soil and Sediment Quality

The Port of Sept-Îles requires that the Kami Terminal be in compliance with *Directive 019* of the *ministère du Développement durable, de l'Environnement et des Parcs* (MDDEP). This report is intended to satisfy the requirements of both jurisdictions including any requirements that may be unique to only one. It was prepared with the assistance and guidance of the EIS Guidelines for the Project prepared by the Canadian Environmental Assessment Agency (CEA Agency) and the Newfoundland and Labrador Department of Environment and Conservation (NLDEC).

This report presents baseline chemical information for the surface soil as well as sediment in the baie des Sept-Îles and on the Marconi Peninsula in the vicinity of the Kami Terminal.

1.3 Study Team

The Soil and Sediment Baseline Study was conducted by Stantec. The Study Team included a study manager, a reviewer, a field lead, a data analyst and report writers (Table 2.1). All team members have in-depth knowledge and experience in their fields of expertise and a broad knowledge of the work conducted by other experts in related fields. Brief biographical statements, highlighting project roles and responsibilities and relevant education and employment experience, are provided below.

Table 1.1 Study Team –Soil and Sediment Study

Role	Personnel
Study Manager	Pierre-Olivier Laliberté
Reviewer	Graeme Wallace
Field Lead	Patrick Marcoux
Data Analysis and Report Preparation	Julie Massicotte, Fabien Pitre
GIS	Heather Ward

Pierre-Olivier Laliberté, B.Sc., holds a bachelor's degree in biology and has followed environmental studies at the graduate level at the Université de Sherbrooke. He has taken part in several environmental and social impact assessments. The main projects he has participated in include assessments for wharves, roads and mining projects. These projects have also included various biophysical characterization studies (avifauna, water quality, vegetation, fish habitat and sediment characterization) as well as public and aboriginal consultations, which involved the collection and analysis of interview data. He has also completed over 300 Phase I and II environmental site assessments, including soil and groundwater sampling, asbestos containing material surveys and the rehabilitation of industrial, commercial and residential properties. He is fluently bilingual.

Graeme Wallace, B.Sc., M.Sc., P. Geo. holds a bachelor's and master's degrees in geology and a diploma in groundwater contamination and waste management. He is a geologist with over 20 years of experience in the environmental consulting industry. Since 2004, Mr. Wallace has been recognized as an accredited expert by the Québec MDDEP. He has been involved in over thirty environmental assessments and remedial projects at industrial and commercial sites

(gas stations, manufacturing plants, etc.) that were triggered as a result of the application of Section IV.2.1 of the *Québec Environment Quality Act*. The work performed included planning, supervision of the field work, development of remedial action plans, attestation of characterization and remediation reports, and preparation of any required Notices of Contamination and Decontamination. He has worked on a broad range of environmental projects including Phase I, Phase II and Phase III ESAs of commercial industrial properties, hydrogeological and methane studies of landfills, implementation of product recovery systems, remediation of contaminated sites, and risk assessments in Canada and the United States. He was an internal consultant at the Canadian Pacific Railway Company for 12 years where he acted as a project manager for a wide number of environmental projects involving many different railway sites across Eastern Canada.

Patrick Marcoux, B.Sc., is a junior environmental technician at Stantec. He is currently completing his master's degree in environmental assessment at Concordia University, in Montréal. He is holder of a bachelor's degree in biology, with a specialization in molecular and cellular biology. During his first year with Stantec, Mr. Marcoux has participated in many soil and groundwater characterization campaigns. In addition, Mr. Marcoux has worked as a research scientist in a clinical research facility and was research assistant at Concordia University.

Julie Massicotte, B.Sc., M.Sc., has a background in biology and a master's degree in environmental sciences. As part of the Environmental Management Group in the Montréal office of Stantec, she has been involved with many environmental assessments as a data researcher, assessor, co-author of reports and project manager. She plays a key role in project coordination of many EAs. Her main accomplishments include the Renard Diamond Mine (Stornoway Diamond), the Cross Lake Mine and access road (Xstrata Nickel), the Mistissini Bridge, Borrow pit and Access (Cree Nation of Mistissini), the Deception Baie Wharf Refurbishment (Xstrata Nickel), the Rabaska LNG (SNC Lavalin), the Laniel Dam Refurbishment Project (Public Works Government Services Canada), the refurbishment of two bridges near Deception Baie (Falconbridge) and the permitting of a quarry in Whapmagoostui, Nunavik (Whapmagoostui First Nation / 6016961 Canada Inc). She also prepared terms of reference for a follow up of EIA (Macal River Upstream Storage Facility, Belize). Before joining Stantec, Julie contributed to the natural resources management of the Gatineau Park through several projects (monitoring, survey, mapping). She also participated in different research projects as a research assistant (weeds, bats, spruce budworm).

Fabien Pitre, B.Sc., M.Sc., P. Geo., has a bachelor's degree in environmental geology and a master's degree in earth sciences from the Université du Québec à Montréal. Before joining Stantec, Mr. Pitre has worked, among others, for Dillon Consulting Limited as an Environmental Scientist and for the Université du Québec à Montréal as a Research Associate. Mr. Pitre has worked on various environmental projects for the railway industry and for the hydrocarbon exploration and extraction industry. Mr. Pitre is bilingual. He is licensed as a Professional Geologist in Québec and holds a reliability status clearance with the Canadian and International Industrial Security Directorate of Public Works and Government Services Canada.

2.0 RATIONALE AND OBJECTIVES

Monitoring of the surface soil and sediment is a component of *Directive 019 sur l'industrie minière* of the MDDEP. In order to later evaluate future monitoring results, a baseline survey of the environmental quality of the soil and sediment located in the vicinity of the Kami Terminal is required.

The Soil And Sediment Study is intended to characterize the baseline conditions within the area that potentially could be affected by the proposed development of the Kami Terminal. The study was designed to gain a better understanding of the current condition of the soil and sediment in the vicinity of the Kami Terminal and at the baie des Sept-Îles in order to facilitate interpretation of the results of future soil and sediment environmental investigations. The scope of work of the Study included:

- Delineation and presentation of study area(s) of adequate scales for the soil and sediment baseline investigation;
- Presentation of the methods used to describe and characterize the existing environmental soil and sediment quality; and,
- Collection of representative soil and sediment samples from the vicinity of the Kami Terminal.

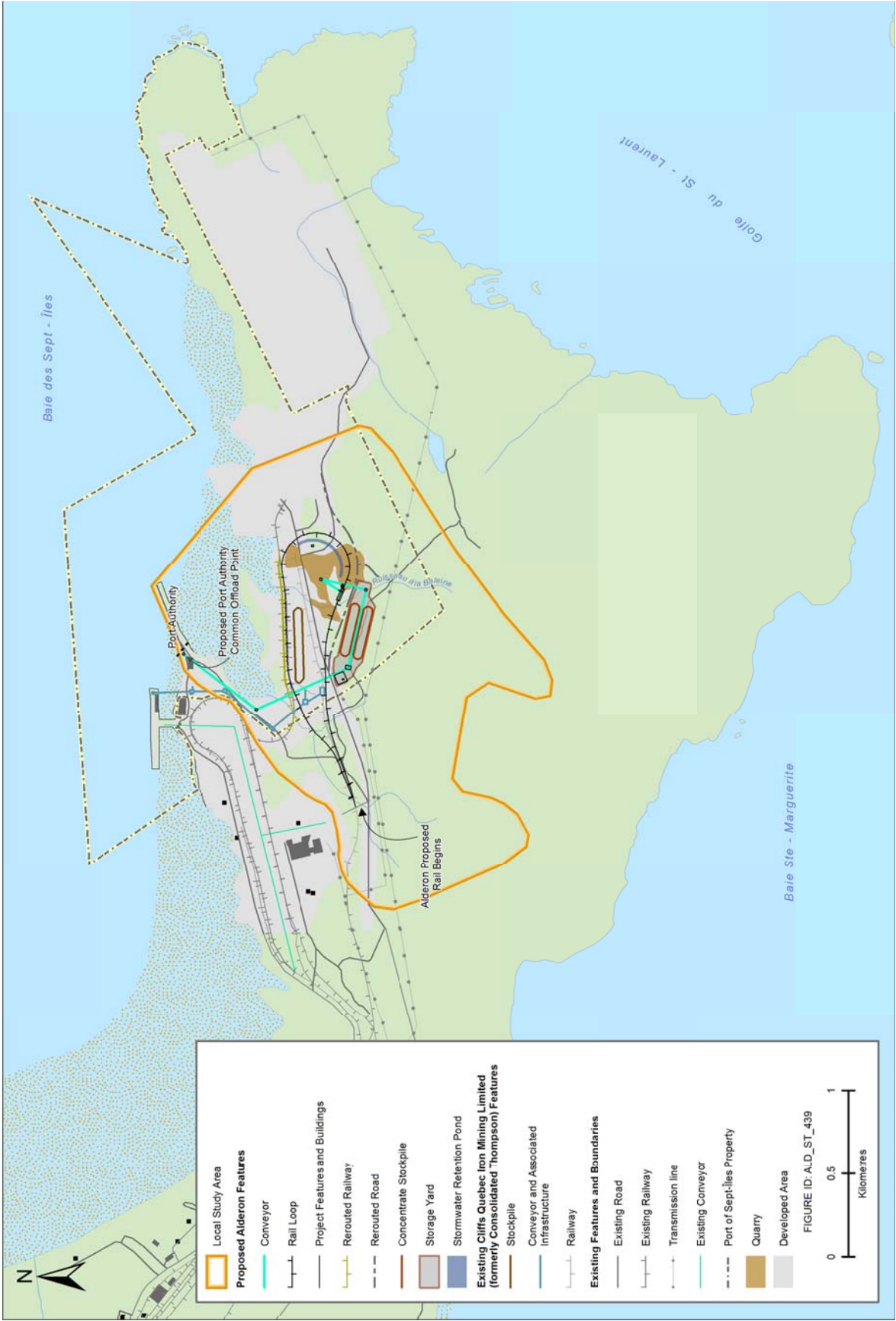
3.0 STUDY AREA

3.1 Description of the Survey Area

The Local Study Area (LSA) represents the boundaries for the Soil and Sediment Study and encompass the area where equipment and infrastructures for the Kami Terminal will be located. It includes a buffer area to the south. The purpose of the buffer is to include “untouched areas” for comparison purposes (Figure 3.1).

The LSA is currently occupied by the installations of the Port of Sept-Îles. The Port is connected to railway systems connecting to northern Québec and Labrador. There are hangars, pipelines, conveyors and ship-loading equipment present.

Figure 3.1 Local Study Area



4.0 METHODS

4.1 Sample Collection

Four (4) sediment samples and forty-six (46) surface soil samples were collected from July 16th to July 19th 2012 from the Marconi Peninsula and baie des Sept-Îles (Figure 4.1). Field duplicate samples were also collected.

Soil and sediment samples were collected by manual grab sampling and submitted to Maxxam analytical labs for analysis. The soil and sediment sampling procedures followed the requirements contained in the *Guide de caractérisation des terrains* (MDDEP 2003) and its associated documents.

At each soil sampling location, a small hole was dug with a hand shovel. Soil samples were collected by hand with clean nitrile gloves directly from the holes and transferred into laboratory supplied jars (a single 250 mL ambered glass for each sample). Sediment samples were taken by hand with clean nitrile gloves directly from the sediment-water interface at low tide. The shovel was cleaned using a cloth between sampling locations.

Samples were sent to Montréal for analysis using Expedibus. During transport, all the samples were stored in coolers equipped with ice packs. The samples were picked up by Maxxam Analytics Inc. (Maxxam) laboratory at the Gare d'autocars de Montréal. Maxxam is a member of, and accredited by, the Canadian Association for Laboratory Accreditation (CALA) in addition to being accredited by the *Centre d'Expertise d'Analyse Environnementale du Québec* of the MDDEP.

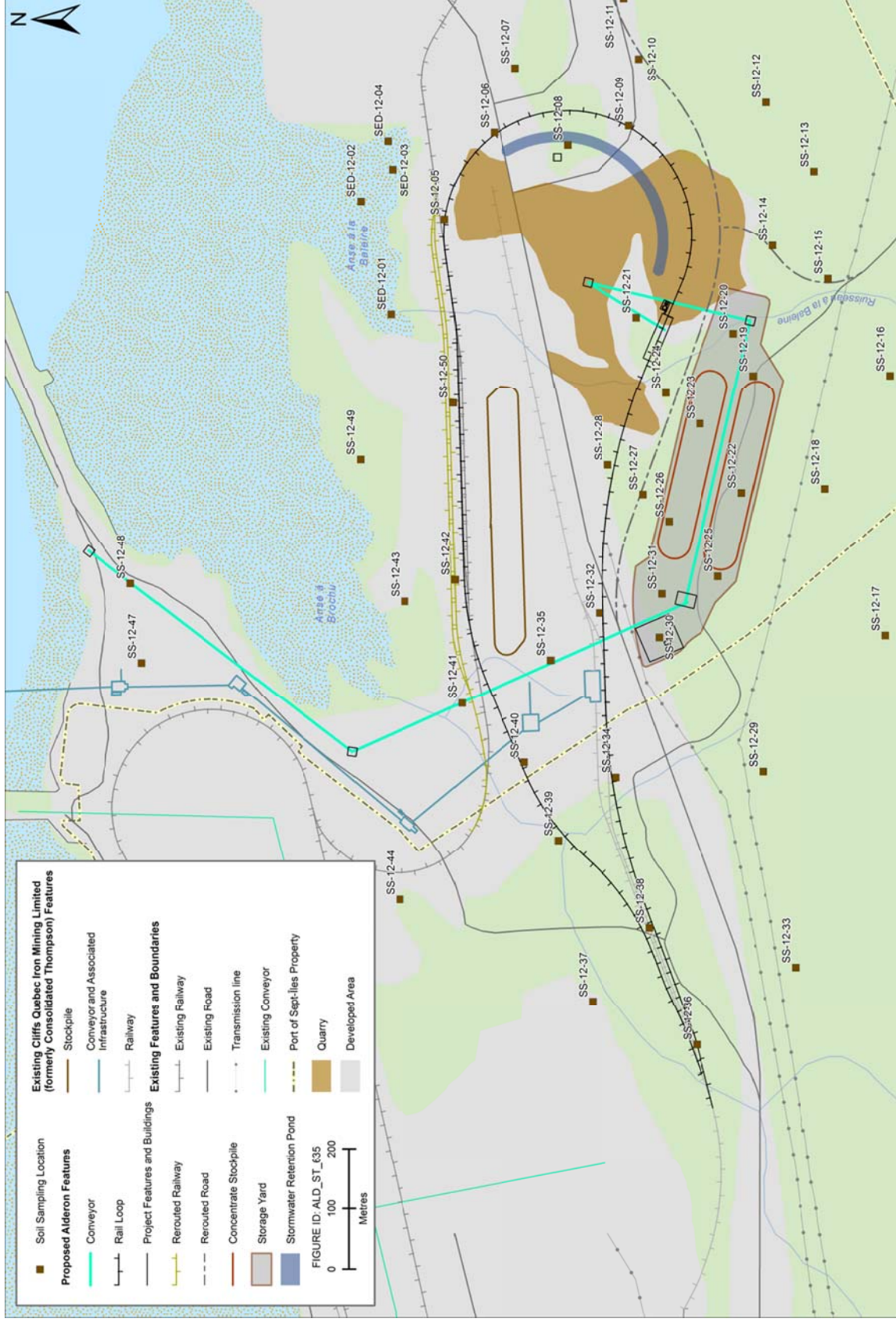
4.2 Analytical Program

All samples were analyzed by Maxxam. Analytical parameters for soil and sediment quality samples are provided in Table 4.1.

Table 4.1 Soil and Sediment Quality Sampling Analytical Constituents

Metals	Other Constituents
Arsenic, Barium, Cadmium, Chromium, Cobalt, Copper, Iron, Lead, Manganese, Mercury, Molybdenum, Nickel, Silver, Tin, Zinc	Polycyclic Aromatic Hydrocarbons, Total Petroleum Hydrocarbons C ₁₀ -C ₅₀

Figure 4.1 Soil and Sediment Sampling Locations



4.3 Quality Assurance / Quality Control Procedures

Sampling quality assurance (QA) and quality control (QC) was conducted in keeping with laboratory, regulatory and industry standards. The QA / QC protocol followed included the following measures:

- Laboratory sample jar pre-labeling;
- Trained and experienced sampling technician team of at least two persons;
- Routine random field duplicate collection of 5 soil samples ;
- Sample thermal preservation plans;
- Primary chain of custody form completion and secondary review by alternate sampling technician;
- Ensuring the integrity of the samples with proper shipping protocols for sample delivery to lab;
- Internal QA / QC program of the Maxxam lab;
- Analytical data review by qualified person subsequent to lab reporting; and
- Study Outputs.

4.4 Regulatory Guidance and Criteria

Analytical results of soil and sediment samples were compared to the following criteria, when applicable:

- Industrial criteria for coarse-grained soil found in the *Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health* (CCME);
- *Regulation Respecting the Burial of Contaminated Soils* (RRBCS), MDDEP;
- Note explicative – Cadre de gestion des teneurs naturelles en manganèse (MDDEP, 2012);
- *Criteria for the Assessment of Sediment Quality in Québec and Application Frameworks: Prevention, Dredging and Remediation* (Environment Canada and MDDEP); and,
- Soil quality criteria contained in the MDDEP *Politique de protection des sols et de réhabilitation des terrains contaminés* (1999, rev 2011) referred to as MDDEP Policy.

4.4.1 MDDEP Policy

Under the MDDEP Policy, soil criteria are utilised to assess the level of environmental impact at a property. The MDDEP Policy also contains general guidelines for managing excavated soil according to its degree of contamination. The following levels of impact are contained in the MDDEP Policy:

- <A: Soil is not contaminated and no restrictions are placed on its use;
- A-B Range: Soil is suitable for use in residential, recreational and institutional land uses. If excavated, A-B soil can be: used as fill on a contaminated property being cleaned up

for future residential, industrial or commercial use provided its use does not result in an increase in the level of contamination of the receiving property and the soil does not emit perceptible hydrocarbon odours; used as daily cover at a sanitary landfill (LES); or used as final cover material in a LES provided it is covered with 15 cm of clean soil;

- B-C Range: Soil exceeds residential/recreational/institutional standards but is suitable for commercial/industrial properties not located in a residential area. If excavated, B-C soil can be: sent for decontamination at an authorised treatment site; used as fill on the source site provided its use does not increase the level of contamination on the property and the property is used for industrial or commercial purposes; or used as daily cover material in a LES;
- >C: Soil exceeds commercial/industrial standards and remedial action may be required for soil. If excavated, >C soil can be sent offsite for optimal decontamination in an authorised treatment site; or, if the preceding option is impractical, final disposal in an authorised secure landfill.

Soil samples (46, plus duplicates) were collected in July 2012 from the LSA. In addition, four sediment samples were collected from the baie des Sept-Îles near the Kami Terminal.

Analytical results of the samples were compared to the MDDEP *Soil Protection and Contaminated Sites Rehabilitation Policy* (Policy), the MDDEP *Regulation Respecting the Burial of Contaminated Soils* (RRBCS), the CCME *Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health's* industrial criteria for coarse-grained soils and/or to the CCME/MDDEP *Sediment Quality in Québec and Application Frameworks*.

5.0 RESULTS

5.1 Sediment Analytical Results

The full results of the sediment analysis are shown in Appendix B. Notable results are summarized in this sub-section. Of the four sediment samples collected, two (SED-12-02 and SED-12-04) exhibited concentrations above the applicable Threshold Effect Level (TEL) for some metals and hydrocarbons. SED-12-02 shows concentrations of chromium and copper greater than the TEL but less than the Probable Effect Level (PEL). SED-12-04 exhibited concentrations of benzo(a)anthracene, benzo(a)pyrene, chrysene, fluoranthene, phenanthrene, pyrene and copper greater than the TEL but less than the PEL.

It should be noted that reported detection limits for some of the Polycyclic Aromatic Hydrocarbons (PAHs) were higher than the TEL and/or PEL. However, when no detections of PAH occurred, it was assumed that the parameter respected the applicable criteria.

5.2 Soil Results

The results of the soil analysis are presented in Appendix C, while notable results are described in this sub-section. With one exception, the analytical results show concentrations that are inferior to the applicable industrial criteria of the CCME for soil samples SS-12-05 to SS-12-50. The nickel concentrations of sample SS-12-38 are above the applicable industrial criteria for coarse-grained soil.

Table 5.1 shows in which range the soil samples fall when compared to the Policy with the exception of samples that would be considered non-contaminated. In addition, the parameter(s) showing an exceedence is shown in parentheses.

Table 5.1 Summary Table of Soil Results Compared to MDDEP Policy

A-B Range	B-C Range	>C but <RRCBS	> RRCBS
SS-12-07 (Mn)	SS-12-11 (Mn)	SS-12-10 (Mn)	SS-12-37 (Mn)
SS-12-12 (Hg)	SS-12-14 (Mn)	SS-12-22 (Mn)	
SS-12-16 (Hg)	SS-12-15 (Mn)	SS-12-30 (Mn)	
SS-12-18 (Hg)	SS-12-16 (Mn)	SS-12-39 (Mn)	
SS-12-23 (Cu)	SS-12-17 (Mn)	SS-12-44 (Mn)	
SS-12-24 (Mn)	SS-12-23 (Mn)	SS-12-48 (Mn)	
SS-12-25 (Hg)	SS-12-25 (Mn)		
SS-12-26 (Mn)	SS-12-28 (Mn)		
SS-12-28 (Pb)	SS-12-33 (Mn)		
SS-12-29 (Mn)	SS-12-42 (Mn)		
SS-12-32 (Co)	SS-12-43 (Mn)		
SS-12-36 (Ba)	SS-12-49 (Mn)		
SS-12-37 (As, Ba)			

SS-12-38 (Co, Ni)			
SS-12-41 (Ba)			
SS-12-42 (Cu)			
SS-12-43 (As)			
SS-12-45 (Mn, Mo)			
SS-12-49 (Hg)			

5.3 Summary

The principal objective of this study was to establish the baseline environmental quality of the soils and sediments located in the vicinity of the site.

Of the four sediment samples taken, two (SED-12-02 and SED-12-04) show concentrations above the applicable CCME threshold effect level. SED-12-02 exhibited concentrations of chromium and copper greater than the guideline but less than the probable effect level. SED-12-04 exhibited concentrations of benzo(a)anthracene, benzo(a)pyrene, chrysene, fluoranthene, phenanthrene, pyrene and copper greater than the guideline but less than the probable effect level. It should be noted that reported detection limits for Polycyclic Aromatic Hydrocarbons (PAH) were higher than the applicable criteria. However, when no detections of PAH occurred, it was assumed that the parameter respected the applicable criteria.

Analytical results show concentrations that are inferior to the applicable industrial criteria of the CCME for soils samples SS-12-05 to SS-12-50. However, nickel concentrations of sample SS-12-38 are above the applicable industrial criteria.

6.0 INFORMATION SOURCES

6.1 Literature Cited

Canadian Council of Ministers of the Environment (CCME). Canadian Environmental Quality Guidelines. Online Accessed in June 2012.

Ministère du Développement durable, de l'Environnement, et des Parcs (MDDEP). Directive 019 sur l'industrie minière. March 2012.

Politique de protection des sols et de réhabilitation des terrains contaminés (MDDEP), June 1998.

APPENDIX A

Certificates of Analysis for Soil and Sediment Samples

Attention:
Pierre-Olivier Laliberté
 STANTEC CONSULTING LTD
 Montreal
 100, boulevard Alexis-Nihon
 Suite 110
 Ville Saint-Laurent, PQ
 CANADA H4M 2N6

Your P.O. #: 16300R-40
 Your Project #: 12164000
 Your C.O.C. #: e808631, e-808631, e-808632

Report Date: 2012/09/11
Report #: NM-410843

This report supersedes all previous reports with the same Maxxam job number

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B239420

Received: 2012/07/24, 18:30

Sample Matrix: SOIL
 # Samples Received: 55

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Primary reference
Petroleum Hydrocarbons (C10-C50)	11	2012/07/26	2012/07/27	STL SOP-00172	MA. 416-C10-C50 1.0
Total Extractable Metals	53	2012/07/28	2012/07/28	STL SOP-00006	MA.200- Mét 1.2
Total Extractable Metals	1	2012/07/28	2012/08/01	STL SOP-00006	MA.200- Mét 1.2
Total Extractable Metals	1	2012/08/01	2012/08/02	STL SOP-00006	MA.200- Mét 1.2
Polycyclic Aromatic Hydrocarbons	3	2012/07/26	2012/07/27	STL SOP-00178	MA. 400 - HAP 1.1
Polycyclic Aromatic Hydrocarbons	8	2012/07/26	2012/07/28	STL SOP-00178	MA. 400 - HAP 1.1

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

Encryption Key

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

Maria Manarolis, Customer Service
 Email: MManarolis@maxxam.ca
 Phone# (514) 448-9001 Ext:4236

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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.

Maxxam Job #: B239420
Report Date: 2012/09/11

STANTEC CONSULTING LTD
Client Project #: 12164000

Your P.O. #: 16300R-40

PAH BY GCMS (SOIL)

Maxxam ID					R70628	R70629	R70630	R70631	R70632		
Sampling Date					2012/07/19	2012/07/19	2012/07/19	2012/07/19	2012/07/19		
COC Number					e-808631	e-808631	e-808631	e-808631	e-808631		
	Units	A	B	C	SED-12-01	SED-12-02	SED-12-03	SED-12-04	SS-12-05	RDL	QC Batch
% Moisture	%	-	-	-	21	31	32	46	19	N/A	N/A
PAH											
Acenaphthene	mg/kg	0.1	10	100	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	1035281
Acenaphthylene	mg/kg	0.1	10	100	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	1035281
Anthracene	mg/kg	0.1	10	100	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	1035281
Benzo(a)anthracene	mg/kg	0.1	1	10	<0.1	<0.1	<0.1	0.2	<0.1	0.1	1035281
Benzo(a)pyrene	mg/kg	0.1	1	10	<0.1	<0.1	<0.1	0.3	<0.1	0.1	1035281
Benzo(b+j+k)fluoranthene	mg/kg	0.1	1	10	<0.1	<0.1	0.1	0.5	<0.1	0.1	1035281
Benzo(c)phenanthrene	mg/kg	0.1	1	10	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	1035281
Benzo(ghi)perylene	mg/kg	0.1	1	10	<0.1	<0.1	<0.1	0.2	<0.1	0.1	1035281
Chrysene	mg/kg	0.1	1	10	<0.1	<0.1	<0.1	0.4	<0.1	0.1	1035281
Dibenz(a,h)anthracene	mg/kg	0.1	1	10	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	1035281
Dibenzo(a,i)pyrene	mg/kg	0.1	1	10	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	1035281
Dibenzo(a,h)pyrene	mg/kg	0.1	1	10	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	1035281
Dibenzo(a,l)pyrene	mg/kg	0.1	1	10	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	1035281
7,12-Dimethylbenzanthracene	mg/kg	0.1	1	10	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	1035281
Fluoranthene	mg/kg	0.1	10	100	<0.1	<0.1	<0.1	0.2	<0.1	0.1	1035281
Fluorene	mg/kg	0.1	10	100	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	1035281
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	1	10	<0.1	<0.1	<0.1	0.2	<0.1	0.1	1035281
3-Methylcholanthrene	mg/kg	0.1	1	10	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	1035281
Naphthalene	mg/kg	0.1	5	50	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	1035281
Phenanthrene	mg/kg	0.1	5	50	<0.1	<0.1	<0.1	0.2	<0.1	0.1	1035281
Pyrene	mg/kg	0.1	10	100	<0.1	<0.1	<0.1	0.3	<0.1	0.1	1035281
2-Methylnaphthalene	mg/kg	0.1	1	10	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	1035281
1-Methylnaphthalene	mg/kg	0.1	1	10	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	1035281
1,3-Dimethylnaphthalene	mg/kg	0.1	1	10	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	1035281
2,3,5-Trimethylnaphthalene	mg/kg	0.1	1	10	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	1035281
Surrogate Recovery (%)											
D10-Anthracene	%	-	-	-	94	89	90	94	87	N/A	1035281
D12-Benzo(a)pyrene	%	-	-	-	87	77	82	84	75	N/A	1035281
D14-Terphenyl	%	-	-	-	100	97	97	100	95	N/A	1035281
D8-Acenaphthylene	%	-	-	-	99	94	94	96	91	N/A	1035281
N/A = Not Applicable RDL = Reportable Detection Limit QC Batch = Quality Control Batch											

Maxxam Job #: B239420
Report Date: 2012/09/11

STANTEC CONSULTING LTD
Client Project #: 12164000

Your P.O. #: 16300R-40

PAH BY GCMS (SOIL)

Maxxam ID					R70628	R70629	R70630	R70631	R70632		
Sampling Date					2012/07/19	2012/07/19	2012/07/19	2012/07/19	2012/07/19		
COC Number					e-808631	e-808631	e-808631	e-808631	e-808631		
	Units	A	B	C	SED-12-01	SED-12-02	SED-12-03	SED-12-04	SS-12-05	RDL	QC Batch

D8-Naphthalene	%	-	-	-	85	68	81	68	82	N/A	1035281
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N/A = Not Applicable
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: B239420
Report Date: 2012/09/11

STANTEC CONSULTING LTD
Client Project #: 12164000

Your P.O. #: 16300R-40

PAH BY GCMS (SOIL)

Maxxam ID					R70632	R70665	R70669	R70676	R70678		
Sampling Date					2012/07/19	2012/07/18	2012/07/16	2012/07/17	2012/07/16		
COC Number					e-808631						
	Units	A	B	C	SS-12-05 Lab-Dup	SS-12-31	SS-12-35	SS-12-42	SS-12-44	RDL	QC Batch

% Moisture	%	-	-	-	19	22	2.1	26	7.6	N/A	N/A
PAH											
Acenaphthene	mg/kg	0.1	10	100	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	1035281
Acenaphthylene	mg/kg	0.1	10	100	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	1035281
Anthracene	mg/kg	0.1	10	100	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	1035281
Benzo(a)anthracene	mg/kg	0.1	1	10	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	1035281
Benzo(a)pyrene	mg/kg	0.1	1	10	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	1035281
Benzo(b+j+k)fluoranthene	mg/kg	0.1	1	10	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	1035281
Benzo(c)phenanthrene	mg/kg	0.1	1	10	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	1035281
Benzo(ghi)perylene	mg/kg	0.1	1	10	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	1035281
Chrysene	mg/kg	0.1	1	10	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	1035281
Dibenz(a,h)anthracene	mg/kg	0.1	1	10	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	1035281
Dibenzo(a,i)pyrene	mg/kg	0.1	1	10	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	1035281
Dibenzo(a,h)pyrene	mg/kg	0.1	1	10	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	1035281
Dibenzo(a,l)pyrene	mg/kg	0.1	1	10	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	1035281
7,12-Dimethylbenzanthracene	mg/kg	0.1	1	10	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	1035281
Fluoranthene	mg/kg	0.1	10	100	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	1035281
Fluorene	mg/kg	0.1	10	100	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	1035281
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	1	10	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	1035281
3-Methylcholanthrene	mg/kg	0.1	1	10	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	1035281
Naphthalene	mg/kg	0.1	5	50	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	1035281
Phenanthrene	mg/kg	0.1	5	50	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	1035281
Pyrene	mg/kg	0.1	10	100	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	1035281
2-Methylnaphthalene	mg/kg	0.1	1	10	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	1035281
1-Methylnaphthalene	mg/kg	0.1	1	10	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	1035281
1,3-Dimethylnaphthalene	mg/kg	0.1	1	10	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	1035281
2,3,5-Trimethylnaphthalene	mg/kg	0.1	1	10	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	1035281
Surrogate Recovery (%)											
D10-Anthracene	%	-	-	-	85	89	93	84	96	N/A	1035281
D12-Benzo(a)pyrene	%	-	-	-	72	80	84	84	93	N/A	1035281
D14-Terphenyl	%	-	-	-	92	98	101	94	104	N/A	1035281

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

Maxxam Job #: B239420
Report Date: 2012/09/11

STANTEC CONSULTING LTD
Client Project #: 12164000

Your P.O. #: 16300R-40

PAH BY GCMS (SOIL)

Maxxam ID					R70632	R70665	R70669	R70676	R70678		
Sampling Date					2012/07/19	2012/07/18	2012/07/16	2012/07/17	2012/07/16		
COC Number					e-808631						
	Units	A	B	C	SS-12-05 Lab-Dup	SS-12-31	SS-12-35	SS-12-42	SS-12-44	RDL	QC Batch

D8-Acenaphthylene	%	-	-	-	90	94	80	84	99	N/A	1035281
D8-Naphthalene	%	-	-	-	79	84	69	73	85	N/A	1035281

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

Maxxam Job #: B239420
Report Date: 2012/09/11

STANTEC CONSULTING LTD
Client Project #: 12164000

Your P.O. #: 16300R-40

PAH BY GCMS (SOIL)

Maxxam ID					R70683	R70689		
Sampling Date					2012/07/16	2012/07/16		
COC Number								
	Units	A	B	C	SS-12-49	DUP.2012.07.17-B	RDL	QC Batch
% Moisture	%	-	-	-	74	46	N/A	N/A
PAH								
Acenaphthene	mg/kg	0.1	10	100	<0.1	<0.1	0.1	1035281
Acenaphthylene	mg/kg	0.1	10	100	<0.1	<0.1	0.1	1035281
Anthracene	mg/kg	0.1	10	100	<0.1	<0.1	0.1	1035281
Benzo(a)anthracene	mg/kg	0.1	1	10	<0.1	0.1	0.1	1035281
Benzo(a)pyrene	mg/kg	0.1	1	10	<0.1	0.2	0.1	1035281
Benzo(b+j+k)fluoranthene	mg/kg	0.1	1	10	<0.1	0.3	0.1	1035281
Benzo(c)phenanthrene	mg/kg	0.1	1	10	<0.1	<0.1	0.1	1035281
Benzo(ghi)perylene	mg/kg	0.1	1	10	<0.1	0.1	0.1	1035281
Chrysene	mg/kg	0.1	1	10	<0.1	0.2	0.1	1035281
Dibenz(a,h)anthracene	mg/kg	0.1	1	10	<0.1	<0.1	0.1	1035281
Dibenzo(a,i)pyrene	mg/kg	0.1	1	10	<0.1	<0.1	0.1	1035281
Dibenzo(a,h)pyrene	mg/kg	0.1	1	10	<0.1	<0.1	0.1	1035281
Dibenzo(a,l)pyrene	mg/kg	0.1	1	10	<0.1	<0.1	0.1	1035281
7,12-Dimethylbenzanthracene	mg/kg	0.1	1	10	<0.1	<0.1	0.1	1035281
Fluoranthene	mg/kg	0.1	10	100	<0.1	0.2	0.1	1035281
Fluorene	mg/kg	0.1	10	100	<0.1	<0.1	0.1	1035281
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	1	10	<0.1	0.1	0.1	1035281
3-Methylcholanthrene	mg/kg	0.1	1	10	<0.1	<0.1	0.1	1035281
Naphthalene	mg/kg	0.1	5	50	<0.1	<0.1	0.1	1035281
Phenanthrene	mg/kg	0.1	5	50	<0.1	0.2	0.1	1035281
Pyrene	mg/kg	0.1	10	100	<0.1	0.2	0.1	1035281
2-Methylnaphthalene	mg/kg	0.1	1	10	<0.1	<0.1	0.1	1035281
1-Methylnaphthalene	mg/kg	0.1	1	10	<0.1	<0.1	0.1	1035281
1,3-Dimethylnaphthalene	mg/kg	0.1	1	10	<0.1	<0.1	0.1	1035281
2,3,5-Trimethylnaphthalene	mg/kg	0.1	1	10	<0.1	<0.1	0.1	1035281
Surrogate Recovery (%)								
D10-Anthracene	%	-	-	-	81	92	N/A	1035281
D12-Benzo(a)pyrene	%	-	-	-	78	79	N/A	1035281
D14-Terphenyl	%	-	-	-	113	100	N/A	1035281
D8-Acenaphthylene	%	-	-	-	105	97	N/A	1035281
N/A = Not Applicable RDL = Reportable Detection Limit QC Batch = Quality Control Batch								

Maxxam Job #: B239420
Report Date: 2012/09/11

STANTEC CONSULTING LTD
Client Project #: 12164000

Your P.O. #: 16300R-40

PAH BY GCMS (SOIL)

Maxxam ID					R70683	R70689		
Sampling Date					2012/07/16	2012/07/16		
COC Number								
	Units	A	B	C	SS-12-49	DUP.2012.07.17-B	RDL	QC Batch

D8-Naphthalene	%	-	-	-	92	80	N/A	1035281
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N/A = Not Applicable
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: B239420
Report Date: 2012/09/11

STANTEC CONSULTING LTD
Client Project #: 12164000

Your P.O. #: 16300R-40

HYDROCARBONS BY GCFID (SOIL)

Maxxam ID					R70628	R70629	R70630	R70631		
Sampling Date					2012/07/19	2012/07/19	2012/07/19	2012/07/19		
COC Number					e-808631	e-808631	e-808631	e-808631		
	Units	A	B	C	SED-12-01	SED-12-02	SED-12-03	SED-12-04	RDL	QC Batch

% Moisture	%	-	-	-	21	31	32	46	N/A	N/A
Total Petroleum Hydro.										
Petroleum Hydrocarbons (C10-C50)	mg/kg	300	700	3500	<100	<100	<100	<100	100	1035280
Surrogate Recovery (%)										
1-Chlorooctadecane	%	-	-	-	87	84	82	86	N/A	1035280
N/A = Not Applicable RDL = Reportable Detection Limit QC Batch = Quality Control Batch										

Maxxam ID					R70632	R70632	R70665	R70669		
Sampling Date					2012/07/19	2012/07/19	2012/07/18	2012/07/16		
COC Number					e-808631	e-808631				
	Units	A	B	C	SS-12-05	SS-12-05 Lab-Dup	SS-12-31	SS-12-35	RDL	QC Batch

% Moisture	%	-	-	-	19	19	22	2.1	N/A	N/A
Total Petroleum Hydro.										
Petroleum Hydrocarbons (C10-C50)	mg/kg	300	700	3500	<100	<100	<100	<100	100	1035280
Surrogate Recovery (%)										
1-Chlorooctadecane	%	-	-	-	82	85	84	87	N/A	1035280
N/A = Not Applicable RDL = Reportable Detection Limit QC Batch = Quality Control Batch										

Maxxam Job #: B239420
Report Date: 2012/09/11

STANTEC CONSULTING LTD
Client Project #: 12164000

Your P.O. #: 16300R-40

HYDROCARBONS BY GCFID (SOIL)

Maxxam ID					R70676	R70678	R70683	R70689		
Sampling Date					2012/07/17	2012/07/16	2012/07/16	2012/07/16		
COC Number										
	Units	A	B	C	SS-12-42	SS-12-44	SS-12-49	DUP.2012.07.17-B	RDL	QC Batch

% Moisture	%	-	-	-	26	7.6	74	46	N/A	N/A
Total Petroleum Hydro.										
Petroleum Hydrocarbons (C10-C50)	mg/kg	300	700	3500	<100	<100	110	<100	100	1035280
Surrogate Recovery (%)										
1-Chlorooctadecane	%	-	-	-	87	88	97	86	N/A	1035280

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

Maxxam Job #: B239420
Report Date: 2012/09/11

STANTEC CONSULTING LTD
Client Project #: 12164000

Your P.O. #: 16300R-40

TOTAL EXTRACTABLE METALS (SOIL)

Maxxam ID					R70628	R70629	R70630	R70631	R70632	R70633		
Sampling Date					2012/07/19	2012/07/19	2012/07/19	2012/07/19	2012/07/19	2012/07/19		
COC Number					e-808631	e-808631	e-808631	e-808631	e-808631	e-808631		
	Units	A	B	C	SED-12-01	SED-12-02	SED-12-03	SED-12-04	SS-12-05	SS-12-06	RDL	QC Batch

% Moisture	%	-	-	-	21	31	32	46	19	N/A	N/A	N/A
METALS												
Mercury (Hg)	mg/kg	0.2	2	10	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	1035843
Silver (Ag)	mg/kg	2	20	40	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	0.8	1035843
Arsenic (As)	mg/kg	6	30	50	<5	<5	<5	6	<5	<5	5	1035843
Barium (Ba)	mg/kg	200	500	2000	32	260	110	160	40	32	5	1035843
Cadmium (Cd)	mg/kg	1.5	5	20	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	1035843
Cobalt (Co)	mg/kg	15	50	300	5	13	6	10	2	8	2	1035843
Chromium (Cr)	mg/kg	85	250	800	9	57	22	41	5	12	2	1035843
Copper (Cu)	mg/kg	40	100	500	9	34	14	23	7	24	2	1035843
Tin (Sn)	mg/kg	5	50	300	<4	<4	<4	<4	<4	<4	4	1035843
Manganese (Mn)	mg/kg	770	1000	2200	340	430	420	820	76	260	2	1035843
Molybdenum (Mo)	mg/kg	2	10	40	<1	<1	<1	2	<1	<1	1	1035843
Nickel (Ni)	mg/kg	50	100	500	12	34	14	24	6	24	1	1035843
Lead (Pb)	mg/kg	50	500	1000	<5	5	<5	17	<5	<5	5	1035843
Zinc (Zn)	mg/kg	110	500	1500	56	72	47	110	13	73	10	1035843
Iron (Fe)	mg/kg	-	-	-	11000	27000	17000	27000	4900	13000	10	1035843

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

Maxxam Job #: B239420
Report Date: 2012/09/11

STANTEC CONSULTING LTD
Client Project #: 12164000

Your P.O. #: 16300R-40

TOTAL EXTRACTABLE METALS (SOIL)

Maxxam ID					R70634	R70635	R70636	R70636	R70637	R70640		
Sampling Date					2012/07/19	2012/07/19	2012/07/19	2012/07/19	2012/07/19	2012/07/19		
COC Number					e-808631	e-808631	e-808631	e-808631	e-808631	e-808632		
	Units	A	B	C	SS-12-07	SS-12-08	SS-12-09	SS-12-09 Lab-Dup	SS-12-10	SS-12-11	RDL	QC Batch

METALS												
Mercury (Hg)	mg/kg	0.2	2	10	0.02	0.11	<0.02	<0.02	0.05	0.16	0.02	1035843
Silver (Ag)	mg/kg	2	20	40	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	0.8	1035843
Arsenic (As)	mg/kg	6	30	50	<5	<5	<5	<5	<5	<5	5	1035843
Barium (Ba)	mg/kg	200	500	2000	30	16	30	31	80	51	5	1035843
Cadmium (Cd)	mg/kg	1.5	5	20	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	1035843
Cobalt (Co)	mg/kg	15	50	300	4	<2	8	7	12	2	2	1035843
Chromium (Cr)	mg/kg	85	250	800	3	5	20	16	15	21	2	1035843
Copper (Cu)	mg/kg	40	100	500	14	4	12	12	29	6	2	1035843
Tin (Sn)	mg/kg	5	50	300	<4	<4	<4	<4	<4	<4	4	1035843
Manganese (Mn)	mg/kg	770	1000	2200	840	190	330	300	2500	1300	2	1035843
Molybdenum (Mo)	mg/kg	2	10	40	<1	<1	<1	<1	<1	<1	1	1035843
Nickel (Ni)	mg/kg	50	100	500	8	4	30	23	28	11	1	1035843
Lead (Pb)	mg/kg	50	500	1000	8	<5	16	16	10	21	5	1035843
Zinc (Zn)	mg/kg	110	500	1500	31	<10	49	36	110	31	10	1035843
Iron (Fe)	mg/kg	-	-	-	14000	2700	14000	12000	41000	9700	10	1035843

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: B239420
Report Date: 2012/09/11

STANTEC CONSULTING LTD
Client Project #: 12164000

Your P.O. #: 16300R-40

TOTAL EXTRACTABLE METALS (SOIL)

Maxxam ID					R70641	R70642	R70643	R70644	R70645	R70646		
Sampling Date					2012/07/18	2012/07/18	2012/07/18	2012/07/17	2012/07/17	2012/07/17		
COC Number					e-808632	e-808632	e-808632	e-808632	e-808632	e-808632		
	Units	A	B	C	SS-12-12	SS-12-13	SS-12-14	SS-12-15	SS-12-16	SS-12-17	RDL	QC Batch

METALS												
Mercury (Hg)	mg/kg	0.2	2	10	0.40	0.09	0.11	0.15	0.24	0.11	0.02	1035843
Silver (Ag)	mg/kg	2	20	40	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	0.8	1035843
Arsenic (As)	mg/kg	6	30	50	<5	<5	<5	<5	<5	7	5	1035843
Barium (Ba)	mg/kg	200	500	2000	37	25	28	96	84	44	5	1035843
Cadmium (Cd)	mg/kg	1.5	5	20	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	1035843
Cobalt (Co)	mg/kg	15	50	300	<2	<2	<2	<2	2	2	2	1035843
Chromium (Cr)	mg/kg	85	250	800	16	3	<2	<2	<2	2	2	1035843
Copper (Cu)	mg/kg	40	100	500	5	4	<2	4	4	5	2	1035843
Tin (Sn)	mg/kg	5	50	300	<4	<4	<4	<4	<4	<4	4	1035843
Manganese (Mn)	mg/kg	770	1000	2200	680	660	1100	1100	1900	1900	2	1035843
Molybdenum (Mo)	mg/kg	2	10	40	<1	<1	<1	<1	<1	<1	1	1035843
Nickel (Ni)	mg/kg	50	100	500	5	3	3	4	5	4	1	1035843
Lead (Pb)	mg/kg	50	500	1000	23	13	12	17	35	10	5	1035843
Zinc (Zn)	mg/kg	110	500	1500	16	11	<10	54	23	12	10	1035843
Iron (Fe)	mg/kg	-	-	-	6500	5900	10000	2400	14000	24000	10	1035843

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: B239420
Report Date: 2012/09/11

STANTEC CONSULTING LTD
Client Project #: 12164000

Your P.O. #: 16300R-40

TOTAL EXTRACTABLE METALS (SOIL)

Maxxam ID					R70647	R70648	R70649	R70651	R70651	R70652		
Sampling Date					2012/07/17	2012/07/17	2012/07/18	2012/07/17	2012/07/17	2012/07/18		
COC Number					e-808632	e-808632	e-808632					
	Units	A	B	C	SS-12-18	SS-12-19	SS-12-20	SS-12-21	SS-12-21 Lab-Dup	SS-12-22	RDL	QC Batch

METALS												
Mercury (Hg)	mg/kg	0.2	2	10	0.23	<0.02	0.08	0.04	0.04	0.18	0.02	1035843
Silver (Ag)	mg/kg	2	20	40	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	0.8	1035843
Arsenic (As)	mg/kg	6	30	50	<5	<5	<5	<5	<5	11	5	1035843
Barium (Ba)	mg/kg	200	500	2000	20	22	41	34	37	50	5	1035843
Cadmium (Cd)	mg/kg	1.5	5	20	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	1035843
Cobalt (Co)	mg/kg	15	50	300	<2	5	<2	9	11	5	2	1035843
Chromium (Cr)	mg/kg	85	250	800	10	10	<2	22	33 (1)	13	2	1035843
Copper (Cu)	mg/kg	40	100	500	4	9	<2	19	22	29	2	1035843
Tin (Sn)	mg/kg	5	50	300	<4	<4	<4	<4	<4	<4	4	1035843
Manganese (Mn)	mg/kg	770	1000	2200	220	290	540	680	720	3000	2	1035843
Molybdenum (Mo)	mg/kg	2	10	40	<1	<1	<1	<1	<1	1	1	1035843
Nickel (Ni)	mg/kg	50	100	500	6	13	2	31	37	14	1	1035843
Lead (Pb)	mg/kg	50	500	1000	7	<5	8	<5	7	12	5	1035843
Zinc (Zn)	mg/kg	110	500	1500	<10	24	<10	29	32	20	10	1035843
Iron (Fe)	mg/kg	-	-	-	2400	8700	2800	16000	18000	19000	10	1035843

RDL = Reportable Detection Limit

QC Batch = Quality Control Batch

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

Maxxam Job #: B239420
Report Date: 2012/09/11

STANTEC CONSULTING LTD
Client Project #: 12164000

Your P.O. #: 16300R-40

TOTAL EXTRACTABLE METALS (SOIL)

Maxxam ID					R70653	R70654	R70655	R70656	R70657		
Sampling Date					2012/07/17	2012/07/18	2012/07/17	2012/07/18	2012/07/18		
COC Number											
	Units	A	B	C	SS-12-23	SS-12-24	SS-12-25	SS-12-26	SS-12-27	RDL	QC Batch

METALS											
Mercury (Hg)	mg/kg	0.2	2	10	0.15	0.04	0.22	0.06	<0.02	0.02	1035843
Silver (Ag)	mg/kg	2	20	40	<0.8	<0.8	<0.8	<0.8	<0.8	0.8	1035843
Arsenic (As)	mg/kg	6	30	50	<5	<5	<5	<5	<5	5	1035843
Barium (Ba)	mg/kg	200	500	2000	45	37	45	72	6	5	1035843
Cadmium (Cd)	mg/kg	1.5	5	20	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	1035843
Cobalt (Co)	mg/kg	15	50	300	7	10	9	7	<2	2	1035843
Chromium (Cr)	mg/kg	85	250	800	27	23	19	22	<2	2	1035843
Copper (Cu)	mg/kg	40	100	500	54	14	21	9	<2	2	1035843
Tin (Sn)	mg/kg	5	50	300	<4	<4	<4	<4	<4	4	1035843
Manganese (Mn)	mg/kg	770	1000	2200	1100	850	1700	1000	120	2	1035843
Molybdenum (Mo)	mg/kg	2	10	40	<1	<1	1	<1	<1	1	1035843
Nickel (Ni)	mg/kg	50	100	500	16	25	12	13	<1	1	1035843
Lead (Pb)	mg/kg	50	500	1000	11	<5	10	7	<5	5	1035843
Zinc (Zn)	mg/kg	110	500	1500	16	29	39	42	<10	10	1035843
Iron (Fe)	mg/kg	-	-	-	13000	29000	30000	17000	780	10	1035843

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: B239420
Report Date: 2012/09/11

STANTEC CONSULTING LTD
Client Project #: 12164000

Your P.O. #: 16300R-40

TOTAL EXTRACTABLE METALS (SOIL)

Maxxam ID					R70658	R70659	R70660	R70665	R70666	R70667		
Sampling Date					2012/07/18	2012/07/17	2012/07/18	2012/07/18	2012/07/18	2012/07/17		
COC Number												
	Units	A	B	C	SS-12-28	SS-12-29	SS-12-30	SS-12-31	SS-12-32	SS-12-33	RDL	QC Batch

% Moisture	%	-	-	-	N/A	N/A	N/A	22	N/A	N/A	N/A	N/A
METALS												
Mercury (Hg)	mg/kg	0.2	2	10	0.16	0.04	0.17	<0.02	<0.02	0.10	0.02	1035851
Silver (Ag)	mg/kg	2	20	40	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	0.8	1035851
Arsenic (As)	mg/kg	6	30	50	<5	<5	5	<5	<5	<5	5	1035851
Barium (Ba)	mg/kg	200	500	2000	54	27	63	<5	25	85	5	1035851
Cadmium (Cd)	mg/kg	1.5	5	20	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	1035851
Cobalt (Co)	mg/kg	15	50	300	<2	<2	3	<2	17	<2	2	1035851
Chromium (Cr)	mg/kg	85	250	800	<2	<2	4	<2	8	<2	2	1035851
Copper (Cu)	mg/kg	40	100	500	5	<2	5	<2	22	3	2	1035851
Tin (Sn)	mg/kg	5	50	300	<4	<4	<4	<4	<4	<4	4	1035851
Manganese (Mn)	mg/kg	770	1000	2200	1400	1000	2600	120	460	1200	2	1035851
Molybdenum (Mo)	mg/kg	2	10	40	<1	<1	<1	<1	<1	<1	1	1035851
Nickel (Ni)	mg/kg	50	100	500	4	2	7	<1	26	3	1	1035851
Lead (Pb)	mg/kg	50	500	1000	64	14	11	<5	7	<5	5	1035851
Zinc (Zn)	mg/kg	110	500	1500	13	<10	18	<10	33	30	10	1035851
Iron (Fe)	mg/kg	-	-	-	7900	5200	13000	2600	17000	1400	10	1035851

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

Maxxam Job #: B239420
Report Date: 2012/09/11

STANTEC CONSULTING LTD
Client Project #: 12164000

Your P.O. #: 16300R-40

TOTAL EXTRACTABLE METALS (SOIL)

Maxxam ID					R70668	R70669		R70670	R70670		
Sampling Date					2012/07/17	2012/07/16		2012/07/17	2012/07/17		
COC Number											
	Units	A	B	C	SS-12-34	SS-12-35	QC Batch	SS-12-36	SS-12-36 Lab-Dup	RDL	QC Batch
% Moisture	%	-	-	-	N/A	2.1	N/A	N/A	N/A	N/A	N/A
METALS											
Mercury (Hg)	mg/kg	0.2	2	10	<0.02	<0.02	1035851	<0.02	<0.02	0.02	1035843
Silver (Ag)	mg/kg	2	20	40	<0.8	<0.8	1035851	<0.8	<0.8	0.8	1035843
Arsenic (As)	mg/kg	6	30	50	<5	<5	1035851	<5	<5	5	1035843
Barium (Ba)	mg/kg	200	500	2000	66	9	1035851	240	250	5	1035843
Cadmium (Cd)	mg/kg	1.5	5	20	<0.5	<0.5	1035851	<0.5	<0.5	0.5	1035843
Cobalt (Co)	mg/kg	15	50	300	6	3	1035851	14	14	2	1035843
Chromium (Cr)	mg/kg	85	250	800	15	4	1035851	65	65	2	1035843
Copper (Cu)	mg/kg	40	100	500	12	4	1035851	25	25	2	1035843
Tin (Sn)	mg/kg	5	50	300	<4	<4	1035851	<4	<4	4	1035843
Manganese (Mn)	mg/kg	770	1000	2200	220	130	1035851	510	540	2	1035843
Molybdenum (Mo)	mg/kg	2	10	40	<1	<1	1035851	1	1	1	1035843
Nickel (Ni)	mg/kg	50	100	500	16	7	1035851	30	31	1	1035843
Lead (Pb)	mg/kg	50	500	1000	<5	<5	1035851	7	7	5	1035843
Zinc (Zn)	mg/kg	110	500	1500	26	<10	1035851	83	83	10	1035843
Iron (Fe)	mg/kg	-	-	-	10000	13000	1035851	30000	30000	10	1035843
N/A = Not Applicable RDL = Reportable Detection Limit QC Batch = Quality Control Batch											

Maxxam Job #: B239420
Report Date: 2012/09/11

STANTEC CONSULTING LTD
Client Project #: 12164000

Your P.O. #: 16300R-40

TOTAL EXTRACTABLE METALS (SOIL)

Maxxam ID					R70671	R70672	R70672	R70673	R70674	R70675		
Sampling Date					2012/07/17	2012/07/17	2012/07/17	2012/07/17	2012/07/16	2012/07/16		
COC Number												
	Units	A	B	C	SS-12-37	SS-12-38	SS-12-38 Lab-Dup	SS-12-39	SS-12-40	SS-12-41	RDL	QC Batch

METALS												
Mercury (Hg)	mg/kg	0.2	2	10	0.06	<0.02	0.04	0.04	0.03	0.03	0.02	1035851
Silver (Ag)	mg/kg	2	20	40	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	0.8	1035851
Arsenic (As)	mg/kg	6	30	50	10	<5	<5	<5	<5	<5	5	1035851
Barium (Ba)	mg/kg	200	500	2000	330	25	21	100	130	230	5	1035851
Cadmium (Cd)	mg/kg	1.5	5	20	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	1035851
Cobalt (Co)	mg/kg	15	50	300	8	23	22	3	8	13	2	1035851
Chromium (Cr)	mg/kg	85	250	800	12	33	30	3	23	57	2	1035851
Copper (Cu)	mg/kg	40	100	500	8	12	16	<2	16	32	2	1035851
Tin (Sn)	mg/kg	5	50	300	<4	<4	<4	<4	<4	<4	4	1035851
Manganese (Mn)	mg/kg	770	1000	2200	14000	760	560 (l)	3400	410	420	2	1035851
Molybdenum (Mo)	mg/kg	2	10	40	2	<1	3	<1	<1	<1	1	1035851
Nickel (Ni)	mg/kg	50	100	500	10	99	86	1	18	33	1	1035851
Lead (Pb)	mg/kg	50	500	1000	23	<5	<5	10	<5	5	5	1035851
Zinc (Zn)	mg/kg	110	500	1500	55	32	28	28	46	70	10	1035851
Iron (Fe)	mg/kg	-	-	-	43000	30000	26000	20000	17000	27000	10	1035851

RDL = Reportable Detection Limit

QC Batch = Quality Control Batch

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

Maxxam Job #: B239420
Report Date: 2012/09/11

STANTEC CONSULTING LTD
Client Project #: 12164000

Your P.O. #: 16300R-40

TOTAL EXTRACTABLE METALS (SOIL)

Maxxam ID					R70676		R70676		R70676	R70677		
Sampling Date					2012/07/17		2012/07/17		2012/07/17	2012/07/16		
COC Number												
	Units	A	B	C	SS-12-42	QC Batch	SS-12-42 REPEAT	QC Batch	SS-12-42 Lab-Dup	SS-12-43	RDL	QC Batch

% Moisture	%	-	-	-	26	N/A	26	N/A	26	N/A	N/A	N/A
METALS												
Mercury (Hg)	mg/kg	0.2	2	10	0.09	1035851	0.04	1038649	0.07	0.16	0.02	1035851
Silver (Ag)	mg/kg	2	20	40	<0.8	1035851	<0.8	1038649	<0.8	<0.8	0.8	1035851
Arsenic (As)	mg/kg	6	30	50	<5	1035851	<5	1038649	<5	8	5	1035851
Barium (Ba)	mg/kg	200	500	2000	140	1035851	130	1038649	130	78	5	1035851
Cadmium (Cd)	mg/kg	1.5	5	20	<0.5	1035851	<0.5	1038649	<0.5	<0.5	0.5	1035851
Cobalt (Co)	mg/kg	15	50	300	7	1035851	8	1038649	7	<2	2	1035851
Chromium (Cr)	mg/kg	85	250	800	28	1035851	26	1038649	28	10	2	1035851
Copper (Cu)	mg/kg	40	100	500	42	1035851	18	1038649	17 (1)	12	2	1035851
Tin (Sn)	mg/kg	5	50	300	<4	1035851	<4	1038649	<4	<4	4	1035851
Manganese (Mn)	mg/kg	770	1000	2200	1400	1035851	1200	1038649	1400	1100	2	1035851
Molybdenum (Mo)	mg/kg	2	10	40	1	1035851	2	1038649	1	1	1	1035851
Nickel (Ni)	mg/kg	50	100	500	23	1035851	18	1038649	17	10	1	1035851
Lead (Pb)	mg/kg	50	500	1000	6	1035851	5	1038649	6	13	5	1035851
Zinc (Zn)	mg/kg	110	500	1500	40	1035851	39	1038649	38	17	10	1035851
Iron (Fe)	mg/kg	-	-	-	19000	1035851	18000	1038649	18000	28000	10	1035851

N/A = Not Applicable

RDL = Reportable Detection Limit

QC Batch = Quality Control Batch

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

Maxxam Job #: B239420
Report Date: 2012/09/11

STANTEC CONSULTING LTD
Client Project #: 12164000

Your P.O. #: 16300R-40

TOTAL EXTRACTABLE METALS (SOIL)

Maxxam ID					R70678	R70678	R70679	R70680	R70681	R70682		
Sampling Date					2012/07/16	2012/07/16	2012/07/16	2012/07/16	2012/07/16	2012/07/16		
COC Number												
	Units	A	B	C	SS-12-44	SS-12-44 Lab-Dup	SS-12-45	SS-12-46	SS-12-47	SS-12-48	RDL	QC Batch

% Moisture	%	-	-	-	7.6	7.6	N/A	N/A	N/A	N/A	N/A	N/A
METALS												
Mercury (Hg)	mg/kg	0.2	2	10	0.03	0.03	0.06	<0.02	<0.02	0.08	0.02	1035851
Silver (Ag)	mg/kg	2	20	40	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	0.8	1035851
Arsenic (As)	mg/kg	6	30	50	<5	<5	<5	<5	<5	<5	5	1035851
Barium (Ba)	mg/kg	200	500	2000	61	66	90	90	16	72	5	1035851
Cadmium (Cd)	mg/kg	1.5	5	20	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	1035851
Cobalt (Co)	mg/kg	15	50	300	3	3	3	10	8	14	2	1035851
Chromium (Cr)	mg/kg	85	250	800	4	5	27	<2	6	9	2	1035851
Copper (Cu)	mg/kg	40	100	500	2	3	26	22	6	16	2	1035851
Tin (Sn)	mg/kg	5	50	300	<4	<4	<4	<4	<4	<4	4	1035851
Manganese (Mn)	mg/kg	770	1000	2200	3500	3800	810	450	270	2600	2	1035851
Molybdenum (Mo)	mg/kg	2	10	40	<1	<1	3	<1	<1	<1	1	1035851
Nickel (Ni)	mg/kg	50	100	500	3	4	15	10	28	34	1	1035851
Lead (Pb)	mg/kg	50	500	1000	<5	<5	5	<5	<5	22	5	1035851
Zinc (Zn)	mg/kg	110	500	1500	<10	<10	23	64	17	48	10	1035851
Iron (Fe)	mg/kg	-	-	-	13000	14000	7800	23000	17000	25000	10	1035851

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

Maxxam Job #: B239420
Report Date: 2012/09/11

STANTEC CONSULTING LTD
Client Project #: 12164000

Your P.O. #: 16300R-40

TOTAL EXTRACTABLE METALS (SOIL)

Maxxam ID					R70683	R70684		R70685		
Sampling Date					2012/07/16	2012/07/16		2012/07/16		
COC Number										
	Units	A	B	C	SS-12-49	SS-12-50	QC Batch	DUP.2012.07.16-A	RDL	QC Batch

% Moisture	%	-	-	-	74	N/A	N/A	N/A	N/A	N/A
METALS										
Mercury (Hg)	mg/kg	0.2	2	10	0.27	0.03	1035851	0.12	0.02	1035918
Silver (Ag)	mg/kg	2	20	40	<0.8	<0.8	1035851	<0.8	0.8	1035918
Arsenic (As)	mg/kg	6	30	50	6	<5	1035851	7	5	1035918
Barium (Ba)	mg/kg	200	500	2000	45	150	1035851	53	5	1035918
Cadmium (Cd)	mg/kg	1.5	5	20	<0.5	<0.5	1035851	<0.5	0.5	1035918
Cobalt (Co)	mg/kg	15	50	300	5	9	1035851	<2	2	1035918
Chromium (Cr)	mg/kg	85	250	800	12	27	1035851	9	2	1035918
Copper (Cu)	mg/kg	40	100	500	28	9	1035851	10	2	1035918
Tin (Sn)	mg/kg	5	50	300	<4	<4	1035851	<4	4	1035918
Manganese (Mn)	mg/kg	770	1000	2200	2100	280	1035851	930	2	1035918
Molybdenum (Mo)	mg/kg	2	10	40	<1	<1	1035851	<1	1	1035918
Nickel (Ni)	mg/kg	50	100	500	16	19	1035851	9	1	1035918
Lead (Pb)	mg/kg	50	500	1000	28	6	1035851	12	5	1035918
Zinc (Zn)	mg/kg	110	500	1500	15	62	1035851	15	10	1035918
Iron (Fe)	mg/kg	-	-	-	15000	21000	1035851	33000	10	1035918

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

Maxxam Job #: B239420
Report Date: 2012/09/11

STANTEC CONSULTING LTD
Client Project #: 12164000

Your P.O. #: 16300R-40

TOTAL EXTRACTABLE METALS (SOIL)

Maxxam ID					R70686	R70687	R70688	R70689		
Sampling Date					2012/07/16	2012/07/16	2012/07/16	2012/07/16		
COC Number										
	Units	A	B	C	DUP.2012.07.19-E	DUP.2012.07.19-D	DUP.2012.07.18-C	DUP.2012.07.17-B	RDL	QC Batch

% Moisture	%	-	-	-	N/A	N/A	N/A	46	N/A	N/A
METALS										
Mercury (Hg)	mg/kg	0.2	2	10	<0.02	0.24	0.03	0.05	0.02	1035851
Silver (Ag)	mg/kg	2	20	40	<0.8	<0.8	<0.8	<0.8	0.8	1035851
Arsenic (As)	mg/kg	6	30	50	<5	<5	<5	10	5	1035851
Barium (Ba)	mg/kg	200	500	2000	230	64	12	300	5	1035851
Cadmium (Cd)	mg/kg	1.5	5	20	<0.5	<0.5	<0.5	<0.5	0.5	1035851
Cobalt (Co)	mg/kg	15	50	300	13	2	<2	8	2	1035851
Chromium (Cr)	mg/kg	85	250	800	57	9	<2	8	2	1035851
Copper (Cu)	mg/kg	40	100	500	32	7	<2	6	2	1035851
Tin (Sn)	mg/kg	5	50	300	<4	<4	<4	<4	4	1035851
Manganese (Mn)	mg/kg	770	1000	2200	450	1600	220	14000	2	1035851
Molybdenum (Mo)	mg/kg	2	10	40	<1	<1	<1	2	1	1035851
Nickel (Ni)	mg/kg	50	100	500	33	11	<1	8	1	1035851
Lead (Pb)	mg/kg	50	500	1000	6	30	<5	15	5	1035851
Zinc (Zn)	mg/kg	110	500	1500	72	37	<10	46	10	1035851
Iron (Fe)	mg/kg	-	-	-	26000	8900	1900	43000	10	1035851

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

Maxxam Job #: B239420
Report Date: 2012/09/11

STANTEC CONSULTING LTD
Client Project #: 12164000

Your P.O. #: 16300R-40

GENERAL COMMENTS

Condition of sample(s) upon receipt: GOOD

All results are calculated on a dry weight basis except where not applicable.

A,B,C: Criteria following appendix 2 of the " Soil Protection and Contaminated Sites Rehabilitation Policy " entitled " Generic criteria for soils and groundwater ". For all metals analyses in soil, the criterion A refers to " Background Level of St. Lawrence Lowlands Sector ".

For groundwaters:

The A and B criteria follow the appendix 2 of the " Soil Protection and Contaminated Sites Rehabilitation Policy " entitled " Generic criteria for soils and groundwater ". The criterion A refers to " Drinking Water " and the criterion B refers to "Seepage into Surface Water or Infiltration into Sewers ".

These criteria references are shown for visual aid only, and should not be interpreted otherwise.

- = This parameter is not part of the regulation.

PAH BY GCMS (SOIL)

Please note that the results have not been corrected for QC recoveries (spiked blank and method blank) nor for the surrogates.

HYDROCARBONS BY GCFID (SOIL)

Please note that the results have not been corrected for QC recoveries (spiked blank and surrogates). Please note that the results have been corrected for the method blank.

TOTAL EXTRACTABLE METALS (SOIL)

Please note that the results have not been corrected for QC recoveries nor for the method blank results.

Results relate only to the items tested.

STANTEC CONSULTING LTD
Attention: Pierre-Olivier Laliberté
Client Project #: 12164000
P.O. #: 16300R-40
Site Location:

Quality Assurance Report

Maxxam Job Number: B239420

QA/QC Batch			Date Analyzed			
Num Init	QC Type	Parameter	yyyy/mm/dd	Value	Recovery	Units
1035280 AM8	Spiked Blank	1-Chlorooctadecane	2012/07/27		81	%
	Spiked Blank DUP	1-Chlorooctadecane	2012/07/27		80	%
	Spiked Blank	Petroleum Hydrocarbons (C10-C50)	2012/07/27		87	%
	Spiked Blank DUP	Petroleum Hydrocarbons (C10-C50)	2012/07/27		86	%
	Method Blank	1-Chlorooctadecane	2012/07/27		84	%
		Petroleum Hydrocarbons (C10-C50)	2012/07/27	110, RDL=100		mg/kg
1035281 CB5	Spiked Blank	D10-Anthracene	2012/07/27		91	%
		D12-Benzo(a)pyrene	2012/07/27		94	%
		D14-Terphenyl	2012/07/27		95	%
		D8-Acenaphthylene	2012/07/27		90	%
		D8-Naphthalene	2012/07/27		82	%
		Acenaphthene	2012/07/27		87	%
		Acenaphthylene	2012/07/27		93	%
		Anthracene	2012/07/27		92	%
		Benzo(a)anthracene	2012/07/27		87	%
		Benzo(a)pyrene	2012/07/27		90	%
		Benzo(b+j+k)fluoranthene	2012/07/27		93	%
		Benzo(c)phenanthrene	2012/07/27		86	%
		Benzo(ghi)perylene	2012/07/27		91	%
		Chrysene	2012/07/27		86	%
		Dibenz(a,h)anthracene	2012/07/27		93	%
		Dibenzo(a,i)pyrene	2012/07/27		74	%
		Dibenzo(a,h)pyrene	2012/07/27		90	%
		Dibenzo(a,l)pyrene	2012/07/27		97	%
		7,12-Dimethylbenzanthracene	2012/07/27		59	%
		Fluoranthene	2012/07/27		88	%
		Fluorene	2012/07/27		91	%
		Indeno(1,2,3-cd)pyrene	2012/07/27		95	%
		3-Methylcholanthrene	2012/07/27		85	%
		Naphthalene	2012/07/27		85	%
		Phenanthrene	2012/07/27		88	%
		Pyrene	2012/07/27		90	%
		2-Methylnaphthalene	2012/07/27		74	%
		1-Methylnaphthalene	2012/07/27		73	%
		1,3-Dimethylnaphthalene	2012/07/27		95	%
		2,3,5-Trimethylnaphthalene	2012/07/27		76	%
	Method Blank	D10-Anthracene	2012/07/27		94	%
		D12-Benzo(a)pyrene	2012/07/27		83	%
		D14-Terphenyl	2012/07/27		99	%
		D8-Acenaphthylene	2012/07/27		98	%
		D8-Naphthalene	2012/07/27		86	%
		Acenaphthene	2012/07/27	<0.1		mg/kg
		Acenaphthylene	2012/07/27	<0.1		mg/kg
		Anthracene	2012/07/27	<0.1		mg/kg
		Benzo(a)anthracene	2012/07/27	<0.1		mg/kg
		Benzo(a)pyrene	2012/07/27	<0.1		mg/kg
		Benzo(b+j+k)fluoranthene	2012/07/27	<0.1		mg/kg
		Benzo(c)phenanthrene	2012/07/27	<0.1		mg/kg
		Benzo(ghi)perylene	2012/07/27	<0.1		mg/kg
		Chrysene	2012/07/27	<0.1		mg/kg
		Dibenz(a,h)anthracene	2012/07/27	<0.1		mg/kg
		Dibenzo(a,i)pyrene	2012/07/27	<0.1		mg/kg
		Dibenzo(a,h)pyrene	2012/07/27	<0.1		mg/kg
		Dibenzo(a,l)pyrene	2012/07/27	<0.1		mg/kg
		7,12-Dimethylbenzanthracene	2012/07/27	<0.1		mg/kg

STANTEC CONSULTING LTD
Attention: Pierre-Olivier Laliberté
Client Project #: 12164000
P.O. #: 16300R-40
Site Location:

Quality Assurance Report (Continued)

Maxxam Job Number: B239420

QA/QC Batch				Date Analyzed			
Num Init	QC Type	Parameter	yyyy/mm/dd	Value	Recovery	Units	
1035281	CB5	Method Blank	Fluoranthene	2012/07/27	<0.1		mg/kg
			Fluorene	2012/07/27	<0.1		mg/kg
			Indeno(1,2,3-cd)pyrene	2012/07/27	<0.1		mg/kg
			3-Methylcholanthrene	2012/07/27	<0.1		mg/kg
			Naphthalene	2012/07/27	<0.1		mg/kg
			Phenanthrene	2012/07/27	<0.1		mg/kg
			Pyrene	2012/07/27	<0.1		mg/kg
			2-Methylnaphthalene	2012/07/27	<0.1		mg/kg
			1-Methylnaphthalene	2012/07/27	<0.1		mg/kg
			1,3-Dimethylnaphthalene	2012/07/27	<0.1		mg/kg
			2,3,5-Trimethylnaphthalene	2012/07/27	<0.1		mg/kg
1035843	MCA	Spiked Blank	Mercury (Hg)	2012/07/28		100	%
			Silver (Ag)	2012/07/28		105	%
			Arsenic (As)	2012/07/28		104	%
			Barium (Ba)	2012/07/28		110	%
			Cadmium (Cd)	2012/07/28		105	%
			Cobalt (Co)	2012/07/28		97	%
			Chromium (Cr)	2012/07/28		95	%
			Copper (Cu)	2012/07/28		100	%
			Tin (Sn)	2012/07/28		101	%
			Manganese (Mn)	2012/07/28		91	%
			Molybdenum (Mo)	2012/07/28		100	%
			Nickel (Ni)	2012/07/28		101	%
			Lead (Pb)	2012/07/28		99	%
			Zinc (Zn)	2012/07/28		100	%
			Iron (Fe)	2012/07/28		91	%
		Method Blank	Mercury (Hg)	2012/07/28	<0.02		mg/kg
			Silver (Ag)	2012/07/28	<0.8		mg/kg
			Arsenic (As)	2012/07/28	<5		mg/kg
			Barium (Ba)	2012/07/28	<5		mg/kg
			Cadmium (Cd)	2012/07/28	<0.5		mg/kg
			Cobalt (Co)	2012/07/28	<2		mg/kg
			Chromium (Cr)	2012/07/28	<2		mg/kg
			Copper (Cu)	2012/07/28	<2		mg/kg
			Tin (Sn)	2012/07/28	<4		mg/kg
			Manganese (Mn)	2012/07/28	<2		mg/kg
			Molybdenum (Mo)	2012/07/28	<1		mg/kg
			Nickel (Ni)	2012/07/28	<1		mg/kg
			Lead (Pb)	2012/07/28	<5		mg/kg
			Zinc (Zn)	2012/07/28	<10		mg/kg
			Iron (Fe)	2012/07/28	<10		mg/kg
1035851	MCA	Spiked Blank	Mercury (Hg)	2012/07/28		101	%
			Silver (Ag)	2012/07/28		104	%
			Arsenic (As)	2012/07/28		99	%
			Barium (Ba)	2012/07/28		111	%
			Cadmium (Cd)	2012/07/28		104	%
			Cobalt (Co)	2012/07/28		92	%
			Chromium (Cr)	2012/07/28		89	%
			Copper (Cu)	2012/07/28		91	%
			Tin (Sn)	2012/07/28		101	%
			Manganese (Mn)	2012/07/28		86	%
			Molybdenum (Mo)	2012/07/28		105	%
			Nickel (Ni)	2012/07/28		96	%
			Lead (Pb)	2012/07/28		104	%
			Zinc (Zn)	2012/07/28		95	%

STANTEC CONSULTING LTD
Attention: Pierre-Olivier Laliberté
Client Project #: 12164000
P.O. #: 16300R-40
Site Location:

Quality Assurance Report (Continued)

Maxxam Job Number: B239420

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units
1035851 MCA	Spiked Blank	Iron (Fe)	2012/07/28		85	%
	Method Blank	Mercury (Hg)	2012/07/28	0.03, RDL=0.02		mg/kg
		Silver (Ag)	2012/07/28	<0.8		mg/kg
		Arsenic (As)	2012/07/28	<5		mg/kg
		Barium (Ba)	2012/07/28	<5		mg/kg
		Cadmium (Cd)	2012/07/28	<0.5		mg/kg
		Cobalt (Co)	2012/07/28	<2		mg/kg
		Chromium (Cr)	2012/07/28	<2		mg/kg
		Copper (Cu)	2012/07/28	<2		mg/kg
		Tin (Sn)	2012/07/28	<4		mg/kg
		Manganese (Mn)	2012/07/28	<2		mg/kg
		Molybdenum (Mo)	2012/07/28	<1		mg/kg
		Nickel (Ni)	2012/07/28	<1		mg/kg
		Lead (Pb)	2012/07/28	<5		mg/kg
		Zinc (Zn)	2012/07/28	<10		mg/kg
		Iron (Fe)	2012/07/28	<10		mg/kg
1035918 KK	Spiked Blank	Mercury (Hg)	2012/07/30		105	%
		Silver (Ag)	2012/07/30		105	%
		Arsenic (As)	2012/07/30		102	%
		Barium (Ba)	2012/07/30		99	%
		Cadmium (Cd)	2012/07/30		103	%
		Cobalt (Co)	2012/07/30		107	%
		Chromium (Cr)	2012/07/30		99	%
		Copper (Cu)	2012/07/30		102	%
		Tin (Sn)	2012/07/30		94	%
		Manganese (Mn)	2012/07/30		104	%
		Molybdenum (Mo)	2012/07/30		101	%
		Nickel (Ni)	2012/07/30		106	%
		Lead (Pb)	2012/07/30		108	%
		Zinc (Zn)	2012/07/30		107	%
		Iron (Fe)	2012/07/30		102	%
	Method Blank	Mercury (Hg)	2012/07/30	<0.02		mg/kg
		Silver (Ag)	2012/07/30	<0.8		mg/kg
		Arsenic (As)	2012/07/30	<5		mg/kg
		Barium (Ba)	2012/07/30	<5		mg/kg
		Cadmium (Cd)	2012/07/30	<0.5		mg/kg
		Cobalt (Co)	2012/07/30	<2		mg/kg
		Chromium (Cr)	2012/07/30	<2		mg/kg
		Copper (Cu)	2012/07/30	<2		mg/kg
		Tin (Sn)	2012/07/30	<4		mg/kg
		Manganese (Mn)	2012/07/30	<2		mg/kg
		Molybdenum (Mo)	2012/07/30	<1		mg/kg
		Nickel (Ni)	2012/07/30	<1		mg/kg
		Lead (Pb)	2012/07/30	<5		mg/kg
		Zinc (Zn)	2012/07/30	<10		mg/kg
		Iron (Fe)	2012/07/30	<10		mg/kg
1038649 KK	Spiked Blank	Mercury (Hg)	2012/08/02		108	%
		Silver (Ag)	2012/08/02		118	%
		Arsenic (As)	2012/08/02		104	%
		Barium (Ba)	2012/08/02		118	%
		Cadmium (Cd)	2012/08/02		117	%
		Cobalt (Co)	2012/08/02		102	%
		Chromium (Cr)	2012/08/02		97	%
		Copper (Cu)	2012/08/02		106	%
		Tin (Sn)	2012/08/02		109	%

STANTEC CONSULTING LTD
Attention: Pierre-Olivier Laliberté
Client Project #: 12164000
P.O. #: 16300R-40
Site Location:

Quality Assurance Report (Continued)

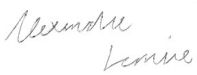
Maxxam Job Number: B239420

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units
1038649 KK	Spiked Blank	Manganese (Mn)	2012/08/02		92	%
		Molybdenum (Mo)	2012/08/02		113	%
		Nickel (Ni)	2012/08/02		105	%
		Lead (Pb)	2012/08/02		113	%
		Zinc (Zn)	2012/08/02		104	%
		Iron (Fe)	2012/08/02		98	%
	Method Blank	Mercury (Hg)	2012/08/02	<0.02		mg/kg
		Silver (Ag)	2012/08/02	<0.8		mg/kg
		Arsenic (As)	2012/08/02	<5		mg/kg
		Barium (Ba)	2012/08/02	<5		mg/kg
		Cadmium (Cd)	2012/08/02	<0.5		mg/kg
		Cobalt (Co)	2012/08/02	<2		mg/kg
		Chromium (Cr)	2012/08/02	<2		mg/kg
		Copper (Cu)	2012/08/02	<2		mg/kg
		Tin (Sn)	2012/08/02	<4		mg/kg
		Manganese (Mn)	2012/08/02	<2		mg/kg
		Molybdenum (Mo)	2012/08/02	<1		mg/kg
		Nickel (Ni)	2012/08/02	<1		mg/kg
		Lead (Pb)	2012/08/02	<5		mg/kg
		Zinc (Zn)	2012/08/02	<10		mg/kg
		Iron (Fe)	2012/08/02	<10		mg/kg
RDL = Reportable Detection Limit						
Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.						
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.						

Validation Signature Page

Maxxam Job #: B239420

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

 
 Alexandre Lemire, M.Sc., Analyst 2

 
 Kathie Quevillon, B.Sc., Chemist

 
 Abdeslam Siaida, Analyst II

 
 Caroline Bougie, B.Sc. Chemist

 
 Maria Chrifi Alaoui, B.Sc., Chemist

=====

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.

24-Jul-12 18:30

Maria Manarolis



B239420

RG2

MTL-0065

- ☐ 889 Montée de Liesse, Ville
☐ 2890 Avenue Dalton, Sainte
☐ 737 boul. Beattie, Chicoutimi

Maxxam

FREEZE

Téléphone : (418) 448-9199
 Télécopieur : (418) 658-6594
 Courriel : (418) 543-8894

Bordereau de transmission d'échantillons

Ligne sans frais : 1-877-4MA-XXAM (462-9626)

Page 1 de 2

E-808631

www.maxxamfreezest.com

Info. Rapport (si différent de Facturation)

Compagnie : STANTEC

Adresse : ST LOURENT, QU.

Attention de : PO LAURENT

Téléphone : (514) 340-2180

Télécopieur :

Échantillonneur : P. HENRI

Je déclare par la présente comprendre et accepter les conditions et modalités de Maxxam telles que décrites au verso du présent formulaire.

Identification de l'échantillon

Type d'eau Autre

Prélèvement (date / heure)

à filtrer

nombre de

contrats

2012.01.19

SED-12.01

SED-12.02

SED-12.03

SED-12.04

SED-12.05

SED-12.06

SED-12.07

SED-12.08

SED-12.09

SED-12.10

LÉGENDE : ** Métaux 13 éléments (Ag, As, Ba, Cd, Co, Cr, Cu, Sn, Mn, Mo, Ni, Pb, Zn).

*** Métaux 16 éléments (Al, Sb, Ag, As, Ba, Cd, Cr, Co, Cu, Mn, Mo, Ni, Pb, Se, Na, Zn).

Types d'eau : S = Souterraine P = Potable DL = Déchet liquide

Sur = Surface E = Eau usée C = Captage

Normes/Réglement Applicables : (A remplir)

Chaîne de responsabilité

Dessais par :

Dessais par :

Nombre de glacières :

Transport des échantillons : ☐ Par client ☐ Personnel Maxxam

Personnel Maxxam

Page 28 of 33

Bleu : FACTURATION Blanc : MAXXAM

Jaune : RETOURNER AU CLIENT AVEC RAPPORT FINAL

No. de commande :

No. de cotation :

Projet / Site :

No. de projet :

121614000

Autre (spécifier) :

Explosif EPA 8095 ☐ EPA 8330 ☐COLIF (fec) ☐ COLIF (tot) ☐ BAVA ☐Eau Potable : ORG. ☐ INOR. ☐ THM ☐CUM ART. 10 ☐ ART. 11 ☐RDS ☐ RMD ☐DBOs ☐ DCO ☐ Turbidité ☐ COT ☐CN-Tot. ☐ CN-Ox. ☐ CN Libre ☐Sulfure (SH₂) ☐ Sulfure (S-Tot) ☐pH ☐ Conductivité ☐ MES ☐NTK ☐ NH₃ ☐ P-Tot. ☐F ☐ Cl ☐ SO₄ ☐ NO₃ ☐ NO₂ ☐ NO₃ ☐Mercure ☐ Sélénium-sol ☐ Autres ☐Métaux ICP poliqui - 13 élé-sol ☐ 16 élé-eau ☐

Métaux Lourds (Cd, Cr, Cu, Ni, Pb, Zn)

BPC (Congénères) (GC-MS)

HAP

Phénols (GC/MS) ☐ Phénols (Color) ☐COV (EPA 624) ☐ BTEX ☐ HAM ☐H & G Min. ☐ H & G Tot. ☐

HP (C-10-C-20)

PIERRE-OLIVIER UNIVERSITÉ TO CONFERM VIA

EVAL.

PIERRE-OLIVIER UNIVERSITÉ @ STANTEC.COM

Condition générale à la réception :

Remarques :

TACHE 1200 544

2012/09/11 12:53

ROSE : CLIENT

JAUNE : RETOURNER AU CLIENT AVEC RAPPORT FINAL

BLEU : FACTURATION

BLANC : MAXXAM

000-1003 (03/10)



- ☐ 889 Montée de Liessa, Ville St-Jovite
☐ 2580 Avenue Dutton, Sainte-Félicité
☐ 737 boul. Barette, Chicoutimi

Maxxam

FREEZE

Numéro : (514) 448-9199
Fax : (418) 658-6594
Téléphone : (418) 543-8894

www.maxxamalytics.com

Bordereau de transmission d'échantillons
Ligne sans frais : 1-877-AMA-XXAM (462-9926) Page 2 de 4

E-808632

Info. Facturation		Info. Rapport (si différent de Facturation)		No. de commande : _____		Projet / Site : _____	
Compagnie : _____		Compagnie : <u>STATTEC</u>		No. de cotation : _____		No. de projet : <u>1210A000</u>	
Adresse : _____		Adresse : <u>DE LAURENT, QU</u>					
Attention de : _____		Attention de : <u>P.O. LAURENT</u>					
Téléphone : _____		Téléphone : <u>(514) 210-2100</u>					
Télécopieur : _____		Télécopieur : _____					
Échantillonneur : _____		Échantillonneur : <u>P. HANCOCK</u>					
Je déclare par la présente comprendre et accepter les conditions et modalités de Maxxam telles que décrites au verso du présent formulaire.							
Identification de l'échantillon (point de prélèvement)	Échantillon Type Sol	Prélèvement (date / heure)	nombre à filtrer	nombre de contenants	Autre (spécifier) :		
SS-12-11	✓	2012-01-17			Explosif EPA 8095 ☐ EPA 8330 ☐		
SS-12-12	✓	2012-01-18			COLUF (Fec.) ☐ COLUF (Tot.) ☐ BHA ☐		
SS-12-13	✓				Eau Potable : ORG. ☐ INOR. ☐ THM ☐		
SS-12-14	✓				CUM ART. 10 ☐ ART. 11 ☐		
SS-12-15	✓				RDS ☐ RMD ☐		
SS-12-16	✓				DBOs ☐ DCO ☐ Turbidité ☐ COT ☐		
SS-12-17	✓				CN-Tot. ☐ CN-Ox. ☐ CN Libre ☐		
SS-12-18	✓				Sulfure (SH ₂) ☐ Soufre (S-Tot.) ☐		
SS-12-19	✓				pH ☐ Conductivité ☐ MES ☐		
SS-12-20	✓				NTK ☐ NH ₃ ☐ P-Tot. ☐		
					F ☐ Cl ☐ SO ₄ ☐ NO ₂ ☐ NO ₃ ☐		
					Mercure ☐ Sélénium-sol ☐ Autres ☐		
					Métaux ICP politique - 13 élé-sol ☐ 16 élé-eau ☐		
					Métaux Lourds (Cd, Cr, Cu, Ni, Pb, Zn)		
					BPC (Congénères) (GC-MS) ☐		
					HAP ☐		
					Phénols (GC/MS) ☐ Phénols (Color.) ☐		
					COV (EPA 624) ☐ BTEX ☐ HAM ☐		
					H & G Min. ☐ H & G Tot. ☐		
					HP (C10-C50) ☐		
LÉGENDE : ** Métaux 13 éléments (Ag, As, Ba, Cd, Co, Cr, Cu, Sn, Mn, Mo, Ni, Pb, Zn) *** Métaux 16 éléments (Al, Sb, Ag, As, Ba, Cd, Cr, Cu, Mn, Mo, Ni, Pb, Se, Na, Zn)					Condition générale à la réception :		
Types d'eau : S = Souterraine P = Potable DL = Déchet liquide Sur = Surface E = Eau usée C = Captage					Délais : ☐ 24h ☐ 48h ☐ 72h ☐ Régulier ☐ Date : _____		
Normes/Réglement Applicables : _____ (À remplir)					A moins d'être clairement identifié, tout échantillon d'eau reçu chez Maxxam sera considéré comme non-potable et ne sera pas soumis aux exigences du règlement sur la qualité de l'eau potable.		
Chaîne de responsabilité					Remarques : <u>1. ACHÈVE NO. 544.</u>		
Dessais par : <u>[Signature]</u>					Reçu par : <u>REÇU 10 VP</u>		
Dessais par : _____					Reçu par : _____		
Nombre de glacières : _____					Heure : <u>18:30</u> Reçu par : _____		
Température de réception : <u>14, 18, 13, 12, 13, 13</u>					Heure : <u>18:30</u> Reçu par : _____		
Transport des échantillons : ☐ Par client ☐ Pers. Page 29 of 63 ☐ Courrier (spécifier) : <u>Rép: [Signature]</u>					2012/09/11 12:53		

COO-1023 (03/10)

BLANC : MAXXAM

BLEU : FACTURATION

JAUNE : RETOURNER AU CLIENT AVEC RAPPORT FINAL

ROSE : CLIENT

Info. Facturation Compagnie : <u>STANTEC</u> Adresse : <u>ST-LOUIS, QU.</u> Attention de : <u>P.O. LAURETTE</u> Téléphone : <u>(514) 340-2180</u> Télécopieur : <u></u> Échantillonneur : <u>P. HANCOCK</u>		Info. Rapport (si différent de Facturation) Compagnie : <u>STANTEC</u> Adresse : <u>ST-LOUIS, QU.</u> Attention de : <u>P.O. LAURETTE</u> Téléphone : <u>(514) 340-2180</u> Télécopieur : <u></u> Échantillonneur : <u>P. HANCOCK</u>		No. de commande : <u></u> No. de cotation : <u></u> Projet / Site : <u>VILLE HOCO</u> No. de projet : <u></u>	
Je déclare par la présente comprendre et accepter les conditions et modalités de Maxxam telles que décrites au verso du présent formulaire.					
Identification de l'échantillon (point de prélèvement)	Échantillon Type Sol d'eau Autre	Prélèvement (date / heure)	nombre à filtrer contenants	HP (C10-C50) ☐ H & G Min. ☐ H & G Tot. ☐ COV (EPA 624) ☐ BTEX ☐ HAM ☐ Phénols (Color) ☐ HAP ☐ BPC (Congénères) (GC-MS) ☐ Métaux ICP polaire - 13 élé.-sol ☐ 16 élé. eau ☐ Métaux Lourds (Cd, Cr, Cu, Ni, Pb, Zn) ☐ Sélénium-sol ☐ Autres ☐ F ☐ Cl ☐ SO ₄ ☐ NO ₃ ☐ NO ₂ ☐ NO ₃ ☐ P-Tot. ☐ NTK ☐ NH ₃ ☐ MES ☐ Conductivité ☐ Sulfure (SH ₂) ☐ Soufre (S-Tot) ☐ CN-Tot ☐ CN-Ox. ☐ CN Libre ☐ DBO ₅ ☐ DCO ☐ Turbidité ☐ eCOT ☐ RDS ☐ RMD ☐ CUM ART. 10 ☐ ART. 11 ☐ INOR. ☐ THM ☐ BHA ☐ COLIF (Tot.) ☐ COLIF (Fec.) ☐ EPA 8095 ☐ EPA 8330 ☐ Autre (spécifier) : <u></u>	
SS-12-31	↓	2012-07-18			
SS-12-32		↓			
SS-12-33		2012-07-17			
SS-12-34		↓			
SS-12-35		2012-07-16			
SS-12-36		↓			
SS-12-37		2012-07-17			
SS-12-38		↓			
SS-12-39					
SS-12-40	↓	2012-07-16			
LÉGENDE : ** Métaux 13 éléments (Ag, As, Ba, Cd, Co, Cr, Cu, Sn, Mn, Mo, Ni, Pb, Zn). *** Métaux 16 éléments (Al, Sb, Ag, As, Ba, Cd, Cr, Co, Cu, Mn, Mo, Ni, Pb, Se, Na, Zn). Types d'eau : S = Souterraine P = Potable DL = Déchet liquide Sur = Surface E = Eau usée C = Captage Normes/Réglement Applicables : <u></u> (À remplir) Chaîne de responsabilité Dessais par : <u>[Signature]</u> Dessais par : <u></u> Nombre de glacières : <u></u> Température de réception : <u>14, 4, 13, 12, 13, 13</u> Date : <u>2012-07-24</u> Heure : <u>18:30</u> Date : <u>2012-07-20</u> Heure : <u>18:30</u> Reçu par : <u>REQU 10</u> Reçu par : <u>24 JUL 2012</u> Remarques : <u>1. AUCUNE NO. 544</u> Transport des échantillons : ☐ Par client ☐ PersPage 34x08.93 ☐ Courrier (spécifier) : <u>Rép</u> Transport des échantillons : ☐ Par client ☐ Courrier (spécifier) : <u>Rép</u>					

Maxxam

FREEZE

Maxxam

Info. Facturation Compagnie : <u>STANTEC</u> Adresse : <u>500 LAURENT, OL</u> Attention de : <u>PO LAURENTE</u> Téléphone : <u>(514) 310-7180</u> Télécopieur : <u></u> Échantillonneur : <u>P. HANSEN</u>		Info. Rapport (si différent de Facturation) Compagnie : <u>STANTEC</u> Adresse : <u>500 LAURENTE, OL</u> Attention de : <u>PO LAURENTE</u> Téléphone : <u>(514) 310-7180</u> Télécopieur : <u></u> Échantillonneur : <u>P. HANSEN</u>	
No. de commande : <u></u> No. de cotation : <u></u>		Projet / Site : <u></u> No. de projet : <u>12161000</u>	
Je déclare par la présente comprendre et accepter les conditions et modalités de Maxxam telles que décrites au verso du présent formulaire.			
Identification de l'échantillon (point de prélèvement)		Échantillon Type d'eau	Prélèvement (date / heure)
55.12.41 55.12.42 55.12.43 55.12.44 55.12.45 55.12.46 55.12.47 55.12.48 55.12.49 55.12.50		Spl ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓	2012-07-16 2012-07-17 2012-07-16 ↓ ↓ ↓ ↓ ↓ ↓ ↓
nombre de contenants		Autre	
HP (C10-C50) ☐ H & G Min. ☐ H & G Tot. ☐ HAM ☐ COV (EPA 624) ☐ BTEX ☐ Phénols (Color) ☐ HAP ☐ BPC (Congénères) (GC-MS) ☐ Métaux Lourds (Cd, Cr, Cu, Ni, Pb, Zn) ☐ Métaux ICP polémique - 13 élé- ^{so} ☐ 16 élé- ^{eur} ☐ Métaux ☐ Sélénium-sol ☐ Autres ☐ F ☐ Cl ☐ SO ₄ ☐ NO ₃ ☐ NO ₂ ☐ NH ₃ ☐ P-Tot. ☐ NTK ☐ Conductivité ☐ MES ☐ Sulfure (SH ₂) ☐ Source (S-Tot.) ☐ CN-Tot. ☐ CN-Ox. ☐ CN Libre ☐ DBOs ☐ RDS ☐ RMD ☐ CUM ART. 10 ☐ ART. 11 ☐ Eau Potable : ORG. ☐ INOR. ☐ THM ☐ COLIF (Fec.) ☐ COLIF (Tot.) ☐ BHA ☐ Explosif EPA 8095 ☐ EPA 8330 ☐ Autre (spécifier) : <u></u>			

Chaine de responsabilité Dessaisi par : <u>[Signature]</u> Dessaisi par : <u></u>		Date : <u>2012-07-24</u> Date : <u></u>		Heure : <u>18:30</u> Heure : <u>18:30</u>		Réçu par : <u></u> Réçu par : <u></u>		Date : <u>24 JUL. 2012</u> Date : <u></u>		Rép. : <u></u>	
Température de réception : <u>17,14,13°</u> / <u>12,13,13°</u>		Réçu par : <u></u>		Réçu par : <u></u>		Réçu par : <u></u>		Réçu par : <u></u>		Réçu par : <u></u>	

Condition générale à la réception : <u></u>		Remarques : <u>1. AUCUNE NO. 544</u>	
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LÉGENDE : ... Métaux 13 éléments (Ag, As, Ba, Cd, Co, Cr, Cu, Sn, Mn, Mo, Ni, Pb, Zn).
 ... Métaux 16 éléments (Al, Sb, Ag, As, Ba, Cd, Cr, Co, Cu, Mn, Mo, Ni, Pb, Se, Na, Zn).
 Types d'eau : S = Souterraine P = Potable DL = Déchet liquide
 Sur = Surface E = Eau usée C = Captage
 Normes/Règlement Applicables : (À remplir)
 Chaine de responsabilité

APPENDIX B

Results for Sediment Samples

Analytical Results for SEDIMENTS

Parameters	Units	Criteria for the Assessment of Sediment Quality in Quebec ¹		Analytical Results				
		Threshold Effect Level ²	Probable Effect Level ³					
Sample ID				SED-12-01	SED-12-02	SED-12-03	SED-12-04	RDL
Sampling Date (mm/dd/yyyy)				2012-07-19	2012-07-19	2012-07-19	2012-07-19	
PAH								
Acenaphthene	mg/kg	0.00671	0.0889	<0.1*	<0.1*	<0.1*	<0.1*	0,1
Acenaphthylene	mg/kg	0.00587	0.128	<0.1*	<0.1*	<0.1*	<0.1*	0,1
Anthracene	mg/kg	NC	NC	<0.1	<0.1	<0.1	<0.1	0,1
Benzo(a)anthracene	mg/kg	0.0748	0.693	<0.1*	<0.1*	<0.1*	0.2	0,1
Benzo(a)pyrene	mg/kg	0.0888	0.763	<0.1*	<0.1*	<0.1*	0.3	0,1
Benzo(b+j+k)fluoranthene	mg/kg	NC	NC	<0.1	<0.1	0,1	0,5	0,1
Benzo(c)phenanthrene	mg/kg	NC	NC	<0.1	<0.1	<0.1	<0.1	0,1
Benzo(ghi)perylene	mg/kg	NC	NC	<0.1	<0.1	<0.1	0,2	0,1
Chrysene	mg/kg	0.108	0.846	<0.1	<0.1	<0.1	0.4	0,1
Dibenz(a,h)anthracene	mg/kg	0.00622	0.135	<0.1*	<0.1*	<0.1*	<0.1*	0,1
Dibenzo(a,i)pyrene	mg/kg	NC	NC	<0.1	<0.1	<0.1	<0.1	0,1
Dibenzo(a,h)pyrene	mg/kg	NC	NC	<0.1	<0.1	<0.1	<0.1	0,1
Dibenzo(a,l)pyrene	mg/kg	NC	NC	<0.1	<0.1	<0.1	<0.1	0,1
7,12-Dimethylbenzanthracene	mg/kg	NC	NC	<0.1	<0.1	<0.1	<0.1	0,1
Fluoranthene	mg/kg	0.113	1.494	<0.1	<0.1	<0.1	0.2	0,1
Fluorene	mg/kg	0.0212	0.144	<0.1*	<0.1*	<0.1*	<0.1*	0,1
Indeno(1,2,3-cd)pyrene	mg/kg	NC	NC	<0.1	<0.1	<0.1	0,2	0,1
3-Methylcholanthrene	mg/kg	NC	NC	<0.1	<0.1	<0.1	<0.1	0,1
Naphthalene	mg/kg	0.0346	0.391	<0.1*	<0.1*	<0.1*	<0.1*	0,1
Phenanthrene	mg/kg	0.0867	0.544	<0.1*	<0.1*	<0.1*	0.2	0,1
Pyrene	mg/kg	0.153	1.398	<0.1	<0.1	<0.1	0.3	0,1
2-Methylnaphthalene	mg/kg	0.0202	0.201	<0.1*	<0.1	<0.1	<0.1	0,1
1-Methylnaphthalene	mg/kg	NC	NC	<0.1	<0.1	<0.1	<0.1	0,1
1,3-Dimethylnaphthalene	mg/kg	NC	NC	<0.1	<0.1	<0.1	<0.1	0,1
2,3,5-Trimethylnaphthalene	mg/kg	NC	NC	<0.1	<0.1	<0.1	<0.1	0,1
Total Petroleum Hydro.								
Petroleum Hydrocarbons (C10-	mg/kg	NC	NC	<100	<100	<100	<100	100
METALS								
Mercury (Hg)	mg/kg	0.13	0.7	<0.02	<0.02	<0.02	<0.02	0,02
Silver (Ag)	mg/kg	NC	NC	<0.8	<0.8	<0.8	<0.8	0,8
Arsenic (As)	mg/kg	7.24	41.6	<5	<5	<5	6	5
Barium (Ba)	mg/kg	NC	NC	32	260	110	160	5
Cadmium (Cd)	mg/kg	0.7	4.2	<0.5	<0.5	<0.5	<0.5	0,5
Cobalt (Co)	mg/kg	NC	NC	5	13	6	10	2
Chromium (Cr)	mg/kg	52.3	160	9	57	22	41	2
Copper (Cu)	mg/kg	18.7	108	9	34	14	23	2
Tin (Sn)	mg/kg	NC	NC	<4	<4	<4	<4	4
Manganese (Mn)	mg/kg	NC	NC	340	430	420	820	2
Molybdenum (Mo)	mg/kg	NC	NC	<1	<1	<1	2	1
Nickel (Ni)	mg/kg	NC	NC	12	34	14	24	1
Lead (Pb)	mg/kg	30.2	112	<5	5	<5	17	5
Zinc (Zn)	mg/kg	124	271	56	72	47	110	10
Iron (Fe)	mg/kg	NC	NC	11000	27000	17000	27000	10

Notes:

- (1) : Criteria for the Assessment of Sediment Quality in Quebec and Application Frameworks: Prevention, Dredging and Remediation (CCME and MDDEP)
 - (2) : Concentration at which biological effects are rarely observed.
 - (3) : Concentration at which biological effects are expected.
- * : Detection limit above Threshold Effect Level.
- RDL : Laboratory Reported Detection Limit
- NC : No available criterion
- : Not Analyzed
- 0.7** : Concentration over Threshold Effect Level.
- 5.9** : Concentration above the Probable Effect Level.

Analytical Results for SEDIMENTS

Parameters	Units	MDDEP Policy ¹			RRBCS ³	Analytical Results				
		A ⁴	B	C	Schedule I					
Sample ID						SED-12-01	SED-12-02	SED-12-03	SED-12-04	RDL
Sampling Date (mm/dd/yyyy)						2012-07-19	2012-07-19	2012-07-19	2012-07-19	
PAH										
Acenaphthene	mg/kg	<u>0.1</u>	10	100	100	<0.1	<0.1	<0.1	<0.1	0.1
Acenaphthylene	mg/kg	<u>0.1</u>	10	100	100	<0.1	<0.1	<0.1	<0.1	0.1
Anthracene	mg/kg	<u>0.1</u>	10	100	100	<0.1	<0.1	<0.1	<0.1	0.1
Benzo(a)anthracene	mg/kg	<u>0.1</u>	1	10	34	<0.1	<0.1	<0.1	<u>0.2</u>	0.1
Benzo(a)pyrene	mg/kg	<u>0.1</u>	1	10	34	<0.1	<0.1	<0.1	<u>0.3</u>	0.1
Benzo(b+j+k)fluoranthene	mg/kg	<u>0.1</u>	1	10	136	<0.1	<0.1	0.1	<u>0.5</u>	0.1
Benzo(c)phenanthrene	mg/kg	<u>0.1</u>	1	10	56	<0.1	<0.1	<0.1	<0.1	0.1
Benzo(ghi)perylene	mg/kg	<u>0.1</u>	1	10	18	<0.1	<0.1	<0.1	<u>0.2</u>	0.1
Chrysene	mg/kg	<u>0.1</u>	1	10	34	<0.1	<0.1	<0.1	<u>0.4</u>	0.1
Dibenz(a,h)anthracene	mg/kg	<u>0.1</u>	1	10	82	<0.1	<0.1	<0.1	<0.1	0.1
Dibenzo(a,i)pyrene	mg/kg	<u>0.1</u>	1	10	34	<0.1	<0.1	<0.1	<0.1	0.1
Dibenzo(a,h)pyrene	mg/kg	<u>0.1</u>	1	10	34	<0.1	<0.1	<0.1	<0.1	0.1
Dibenzo(a,l)pyrene	mg/kg	<u>0.1</u>	1	10	34	<0.1	<0.1	<0.1	<0.1	0.1
7,12-Dimethylbenzanthracene	mg/kg	<u>0.1</u>	1	10	34	<0.1	<0.1	<0.1	<0.1	0.1
Fluoranthene	mg/kg	<u>0.1</u>	10	100	100	<0.1	<0.1	<0.1	<u>0.2</u>	0.1
Fluorene	mg/kg	<u>0.1</u>	10	100	100	<0.1	<0.1	<0.1	<0.1	0.1
Indeno(1,2,3-cd)pyrene	mg/kg	<u>0.1</u>	1	10	34	<0.1	<0.1	<0.1	<u>0.2</u>	0.1
3-Methylcholanthrene	mg/kg	<u>0.1</u>	1	10	150	<0.1	<0.1	<0.1	<0.1	0.1
Naphthalene	mg/kg	<u>0.1</u>	5	50	56	<0.1	<0.1	<0.1	<0.1	0.1
Phenanthrene	mg/kg	<u>0.1</u>	5	50	56	<0.1	<0.1	<0.1	<u>0.2</u>	0.1
Pyrene	mg/kg	<u>0.1</u>	10	100	100	<0.1	<0.1	<0.1	<u>0.3</u>	0.1
2-Methylnaphthalene	mg/kg	<u>0.1</u>	1	10	56	<0.1	<0.1	<0.1	<0.1	0.1
1-Methylnaphthalene	mg/kg	<u>0.1</u>	1	10	56	<0.1	<0.1	<0.1	<0.1	0.1
1,3-Dimethylnaphthalene	mg/kg	<u>0.1</u>	1	10	56	<0.1	<0.1	<0.1	<0.1	0.1
2,3,5-Trimethylnaphthalene	mg/kg	<u>0.1</u>	1	10	56	<0.1	<0.1	<0.1	<0.1	0.1
Total Petroleum Hydro.										
Petroleum Hydrocarbons (C10-C50)	mg/kg	300	700	3500	10000	<100	<100	<100	<100	100
METALS										
Mercury (Hg)	mg/kg	<u>0.2</u>	2	10	50	<0.02	<0.02	<0.02	<0.02	0.02
Silver (Ag)	mg/kg	<u>2</u>	20	40	200	<0.8	<0.8	<0.8	<0.8	0.8
Arsenic (As)	mg/kg	<u>6</u>	30	50	250	<5	<5	<5	6	5
Barium (Ba)	mg/kg	200	500	2000	10000	32	260	110	160	5
Cadmium (Cd)	mg/kg	<u>1.5</u>	5	20	100	<0.5	<0.5	<0.5	<0.5	0.5
Cobalt (Co)	mg/kg	15	50	300	1500	5	13	6	10	2
Chromium (Cr)	mg/kg	<u>85</u>	250	800	4000	9	57	22	41	2
Copper (Cu)	mg/kg	<u>40</u>	100	500	2500	9	34	14	23	2
Tin (Sn)	mg/kg	<u>5</u>	50	300	1500	<4	<4	<4	<4	4
Manganese (Mn)	mg/kg	770	1000	2200	11000	340	430	420	<u>820</u>	2
Molybdenum (Mo)	mg/kg	<u>2</u>	10	40	200	<1	<1	<1	2	1
Nickel (Ni)	mg/kg	<u>50</u>	100	500	2500	12	34	14	24	1
Lead (Pb)	mg/kg	<u>50</u>	500	1000	5000	<5	5	<5	17	5
Zinc (Zn)	mg/kg	<u>110</u>	500	1500	7500	56	72	47	110	10
Iron (Fe)	mg/kg	NC	NC	NC	NC	11000	27000	17000	27000	10

Notes:

- : Soil Protection and Contaminated Sites Rehabilitation Policy, MDDEP, 1999, rev. november 2001.
- : Land Protection and Rehabilitation Regulation (c. Q-2, r.18.1.01), MDDEP.
- : Regulation Respecting the Burial of Contaminated Soils (c. Q-2, r.6.01), MDDEP.
- : For all metals in soils, criterion A refers to the background level of the St. Lawrence Lowlands Sector.

RDL : Laboratory Reported Detection Limit

NC : No available criterion

- : Not Analyzed

0.7 : Concentration falls within the A-B criteria of the MDDEP Policy.

5.9 : Concentration falls within the B-C criteria of the MDDEP Policy.

300 : Concentration is above the C criteria of the MDDEP Policy.

300 : Concentration is above or equal to the limit value of schedule I of the RBCS.

APPENDIX C

Results for Soil Samples

Analytical Results for SOILS
1 of 2

Parameters	Units	CCME Soil Criteria 1	Analytical Results																								
		Industrial																									
Sample ID			SS-12-05	SS-12-06	SS-12-07	SS-12-08	SS-12-09	SS-12-10	SS-12-11	SS-12-12	SS-12-13	SS-12-14	SS-12-15	SS-12-16	SS-12-17	SS-12-18	SS-12-19	SS-12-20	SS-12-21	SS-12-22	SS-12-23	SS-12-24	SS-12-25	SS-12-26	SS-12-27		
Sampling Date (mm/dd/yyyy)			2012-07-19	2012-07-19	2012-07-19	2012-07-19	2012-07-19	2012-07-19	2012-07-19	2012-07-18	2012-07-18	2012-07-18	2012-07-17	2012-07-17	2012-07-17	2012-07-17	2012-07-17	2012-07-18	2012-07-17	2012-07-18	2012-07-17	2012-07-18	2012-07-17	2012-07-18	2012-07-18		
PAH ^{2,3}																											
Acenaphthene	mg/kg	NC	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Acenaphthylene	mg/kg	NC	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Anthracene	mg/kg	32	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Benzo(a)anthracene	mg/kg	10	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Benzo(a)pyrene	mg/kg	72	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Benzo(b+j+k)fluoranthene	mg/kg	10	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Benzo(c)phenanthrene	mg/kg	NC	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Benzo(ghi)perylene	mg/kg	NC	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Chrysene	mg/kg	NC	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Dibenz(a,h)anthracene	mg/kg	10	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Dibenzo(a,i)pyrene	mg/kg	NC	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Dibenzo(a,h)pyrene	mg/kg	NC	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Dibenzo(a,l)pyrene	mg/kg	NC	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
7,12-Dimethylbenzanthracene	mg/kg	NC	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Fluoranthene	mg/kg	180	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Fluorene	mg/kg	NC	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Indeno(1,2,3-cd)pyrene	mg/kg	10	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
3-Methylcholanthrene	mg/kg	NC	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Naphthalene	mg/kg	22	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Phenanthrene	mg/kg	50	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Pyrene	mg/kg	100	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
2-Methylnaphthalene	mg/kg	NC	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
1-Methylnaphthalene	mg/kg	NC	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
1,3-Dimethylnaphthalene	mg/kg	NC	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
2,3,5-Trimethylnaphthalene	mg/kg	NC	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Total Petroleum Hydro.																											
Petroleum Hydrocarbons (C10-C50)	mg/kg	NC	<100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
METALS																											
Mercury (Hg)	mg/kg	50	<0.02	<0.02	0.02	0.11	<0.02	0.05	0.16	0.4	0.09	0.11	0.15	0.24	0.11	0.23	<0.02	0.08	0.04	0.18	0.15	0.04	0.22	0.06	<0.02		
Silver (Ag)	mg/kg	40	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8		
Arsenic (As)	mg/kg	12	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	7	<5	<5	<5	<5	11	<5	<5	<5	<5	<5		
Barium (Ba)	mg/kg	2000	40	32	30	16	30	80	51	37	25	28	96	84	44	20	22	41	34	50	45	37	45	72	6		
Cadmium (Cd)	mg/kg	22	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		
Cobalt (Co)	mg/kg	300	2	8	4	<2	8	12	2	<2	<2	<2	<2	2	2	<2	5	<2	9	5	7	10	9	7	<2		
Chromium (Cr)	mg/kg	87	5	12	3	5	20	15	21	16	3	<2	<2	<2	2	10	10	<2	22	13	27	23	19	22	<2		
Copper (Cu)	mg/kg	91	7	24	14	4	12	29	6	5	4	<2	4	4	5	4	9	<2	19	29	54	14	21	9	<2		
Tin (Sn)	mg/kg	300	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4		
Manganese (Mn)	mg/kg	NC	76	260	840	190	330	2500	1300	680	660	1100	1100	1900	1900	220	290	540	680	3000	1100	850	1700	1000	120		
Molybdenum (Mo)	mg/kg	40	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1	<1	<1	1	<1	<1		
Nickel (Ni)	mg/kg	50	6	24	8	4	30	28	11	5	3	3	4	5	4	6	13	2	31	14	16	25	12	13	<1		
Lead (Pb)	mg/kg	600	<5	<5	8	<5	16	10	21	23	13	12	17	35	10	7	<5	8	<5	12	11	<5	10	7	<5		
Zinc (Zn)	mg/kg	360	13	73	31	<10	49	110	31	16	11	<10	54	23	12	<10	24	<10	29	20	16	29	39	42	<10		
Iron (Fe)	mg/kg	NC	4900	13000	14000	2700	14000	41000	9700	6500	5900	10000	2400	14000	24000	2400	8700	2800	16000	19000	13000	29000	30000	17000	780		

Notes:

- (1) : CCME Canadian Environmental Quality Guidelines Summary Table for Industrial Land Use and Coarse-Grained Soil. (CCEQG Online, accessed September 30th, 2012)
- (2) : Canadian Soil Quality Guidelines for the Protection of Enviromental and Human Health: Polycyclic Aromatic Hydrocarbons (2010)
- (3) : Since PAH concentrations were lower than the detection limit, the Benzo[a]pyrene Total Potency Equivalents were not calculated.
- RDL : Laboratory Reported Detection Limit
- NC : No available criterion
- : Not Analyzed
- 0.7 : Concentration over applicable soil guideline.

Analytical Results for SOILS 2 of 2																											
Parameters	Units	CCME Soil Criteria 1	Analytical Results																								
		Industrial																									
Sample ID			SS-12-28	SS-12-29	SS-12-30	SS-12-31	SS-12-32	SS-12-33	SS-12-34	SS-12-35	SS-12-36	SS-12-37	SS-12-38	SS-12-39	SS-12-40	SS-12-41	SS-12-42	SS-12-43	SS-12-44	SS-12-45	SS-12-46	SS-12-47	SS-12-48	SS-12-49	SS-12-50	RDL	
Sampling Date (mm/dd/yyyy)			2012-07-18	2012-07-17	2012-07-18	2012-07-18	2012-07-18	2012-07-17	2012-07-17	2012-07-16	2012-07-17	2012-07-17	2012-07-17	2012-07-17	2012-07-16	2012-07-16	2012-07-17	2012-07-16	2012-07-16	2012-07-16	2012-07-16	2012-07-16	2012-07-16	2012-07-16	2012-07-16	2012-07-16	
PAH ^{2,3}																											
Acenaphthene	mg/kg	NC	-	-	-	<0.1	-	-	-	<0.1	-	-	-	-	-	-	<0.1	-	<0.1	-	-	-	-	<0.1	-	0.1	
Acenaphthylene	mg/kg	NC	-	-	-	<0.1	-	-	-	<0.1	-	-	-	-	-	-	<0.1	-	<0.1	-	-	-	-	<0.1	-	0.1	
Anthracene	mg/kg	32	-	-	-	<0.1	-	-	-	<0.1	-	-	-	-	-	-	<0.1	-	<0.1	-	-	-	-	<0.1	-	0.1	
Benzo(a)anthracene	mg/kg	10	-	-	-	<0.1	-	-	-	<0.1	-	-	-	-	-	-	<0.1	-	<0.1	-	-	-	-	<0.1	-	0.1	
Benzo(a)pyrene	mg/kg	72	-	-	-	<0.1	-	-	-	<0.1	-	-	-	-	-	-	<0.1	-	<0.1	-	-	-	-	<0.1	-	0.1	
Benzo(b+j+k)fluoranthene	mg/kg	10	-	-	-	<0.1	-	-	-	<0.1	-	-	-	-	-	-	<0.1	-	<0.1	-	-	-	-	<0.1	-	0.1	
Benzo(c)phenanthrene	mg/kg	NC	-	-	-	<0.1	-	-	-	<0.1	-	-	-	-	-	-	<0.1	-	<0.1	-	-	-	-	<0.1	-	0.1	
Benzo(ghi)perylene	mg/kg	NC	-	-	-	<0.1	-	-	-	<0.1	-	-	-	-	-	-	<0.1	-	<0.1	-	-	-	-	<0.1	-	0.1	
Chrysene	mg/kg	NC	-	-	-	<0.1	-	-	-	<0.1	-	-	-	-	-	-	<0.1	-	<0.1	-	-	-	-	<0.1	-	0.1	
Dibenz(a,h)anthracene	mg/kg	10	-	-	-	<0.1	-	-	-	<0.1	-	-	-	-	-	-	<0.1	-	<0.1	-	-	-	-	<0.1	-	0.1	
Dibenzo(a,i)pyrene	mg/kg	NC	-	-	-	<0.1	-	-	-	<0.1	-	-	-	-	-	-	<0.1	-	<0.1	-	-	-	-	<0.1	-	0.1	
Dibenzo(a,h)pyrene	mg/kg	NC	-	-	-	<0.1	-	-	-	<0.1	-	-	-	-	-	-	<0.1	-	<0.1	-	-	-	-	<0.1	-	0.1	
Dibenzo(a,l)pyrene	mg/kg	NC	-	-	-	<0.1	-	-	-	<0.1	-	-	-	-	-	-	<0.1	-	<0.1	-	-	-	-	<0.1	-	0.1	
7,12-Dimethylbenzanthracene	mg/kg	NC	-	-	-	<0.1	-	-	-	<0.1	-	-	-	-	-	-	<0.1	-	<0.1	-	-	-	-	<0.1	-	0.1	
Fluoranthene	mg/kg	180	-	-	-	<0.1	-	-	-	<0.1	-	-	-	-	-	-	<0.1	-	<0.1	-	-	-	-	<0.1	-	0.1	
Fluorene	mg/kg	NC	-	-	-	<0.1	-	-	-	<0.1	-	-	-	-	-	-	<0.1	-	<0.1	-	-	-	-	<0.1	-	0.1	
Indeno(1,2,3-cd)pyrene	mg/kg	10	-	-	-	<0.1	-	-	-	<0.1	-	-	-	-	-	-	<0.1	-	<0.1	-	-	-	-	<0.1	-	0.1	
3-Methylcholanthrene	mg/kg	NC	-	-	-	<0.1	-	-	-	<0.1	-	-	-	-	-	-	<0.1	-	<0.1	-	-	-	-	<0.1	-	0.1	
Naphthalene	mg/kg	22	-	-	-	<0.1	-	-	-	<0.1	-	-	-	-	-	-	<0.1	-	<0.1	-	-	-	-	<0.1	-	0.1	
Phenanthrene	mg/kg	50	-	-	-	<0.1	-	-	-	<0.1	-	-	-	-	-	-	<0.1	-	<0.1	-	-	-	-	<0.1	-	0.1	
Pyrene	mg/kg	100	-	-	-	<0.1	-	-	-	<0.1	-	-	-	-	-	-	<0.1	-	<0.1	-	-	-	-	<0.1	-	0.1	
2-Methylnaphthalene	mg/kg	NC	-	-	-	<0.1	-	-	-	<0.1	-	-	-	-	-	-	<0.1	-	<0.1	-	-	-	-	<0.1	-	0.1	
1-Methylnaphthalene	mg/kg	NC	-	-	-	<0.1	-	-	-	<0.1	-	-	-	-	-	-	<0.1	-	<0.1	-	-	-	-	<0.1	-	0.1	
1,3-Dimethylnaphthalene	mg/kg	NC	-	-	-	<0.1	-	-	-	<0.1	-	-	-	-	-	-	<0.1	-	<0.1	-	-	-	-	<0.1	-	0.1	
2,3,5-Trimethylnaphthalene	mg/kg	NC	-	-	-	<0.1	-	-	-	<0.1	-	-	-	-	-	-	<0.1	-	<0.1	-	-	-	-	<0.1	-	0.1	
Total Petroleum Hydro.																											
Petroleum Hydrocarbons (C10-C50)	mg/kg	NC	-	-	-	<100	-	-	-	<100	-	-	-	-	-	-	<100	-	<100	-	-	-	-	110	-	100	
METALS																											
Mercury (Hg)	mg/kg	50	0.16	0.04	0.17	<0.02	<0.02	0.1	<0.02	<0.02	<0.02	0.06	<0.02	0.04	0.03	0.03	0.09	0.16	0.03	0.06	<0.02	<0.02	0.08	0.27	0.03	0.02	
Silver (Ag)	mg/kg	40	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8		
Arsenic (As)	mg/kg	12	<5	<5	5	<5	<5	<5	<5	<5	10	<5	<5	<5	<5	<5	8	<5	<5	<5	<5	<5	<5	6	<5	5	
Barium (Ba)	mg/kg	2000	54	27	63	<5	25	85	66	9	240	330	25	100	130	230	140	78	61	90	90	16	72	45	150	5	
Cadmium (Cd)	mg/kg	22	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5		
Cobalt (Co)	mg/kg	300	<2	<2	3	<2	17	<2	6	3	14	8	23	3	8	13	7	<2	3	3	10	8	14	5	9	2	
Chromium (Cr)	mg/kg	87	<2	<2	4	<2	8	<2	15	4	65	12	33	3	23	57	28	10	4	27	<2	6	9	12	27	2	
Copper (Cu)	mg/kg	91	5	<2	5	<2	22	3	12	4	25	8	12	<2	16	32	42	12	2	26	22	6	16	28	9	2	
Tin (Sn)	mg/kg	300	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	4	
Manganese (Mn)	mg/kg	NC	1400	1000	2600	120	460	1200	220	130	510	14000	760	3400	410	420	1400	1100	3500	810	450	270	2600	2100	280	2	
Molybdenum (Mo)	mg/kg	40	<1	<1	<1	<1	<1	<1	<1	<1	1	2	<1	<1	<1	<1	1	1	<1	3	<1	<1	<1	<1	<1	1	
Nickel (Ni)	mg/kg	50	4	2	7	<1	26	3	16	7	30	10	99	1	18	33	23	10	3	15	10	28	34	16	19	1	
Lead (Pb)	mg/kg	600	64	14	11	<5	7	<5	<5	<5	7	23	<5	10	<5	5	6	13	<5	5	<5	<5	22	28	6	5	
Zinc (Zn)	mg/kg	360	13	<10	18	<10	33	30	26	<10	83	55	32	28	46	70	40	17	<10	23	64	17	48	15	62	10	
Iron (Fe)	mg/kg	NC	7900	5200	13000	2600	17000	1400	10000	13000	30000	43000	30000	20000	17000	27000	19000	28000	13000	7800	23000	17000	25000	15000	21000	10	

: CCME Canadian Environmental Quality Guidelines Summary Table
: Canadian Soil Quality Guidelines for the Protection of Enviromental
: Since PAH concentrations were lower than the detection limit, the Br
: Laboratory Reported Detection Limit
: No available criterion
: Not Analyzed
: Concentration over applicable soil guideline.

Analytical Results for SOILS

[illegible]

Notes:

- (1) : Soil Protection and Contaminated Sites Rehabilitation Policy (MDDEP Policy)
- (2) : Regulation Respecting the Burial of Contaminated Soils (RRBCS)
- (3) : For all metals in soils, criterion A refers to the background level of the St. Lawrence Lowlands Sector.

RDL : Laboratory Reported Detection Limit

NC : No available criterion

- : Not Analyzed

0.7 : Concentration falls within the A-B range of the MDDEP Policy.

5.9 : Concentration falls within the B-C range of the MDDEP Policy.

300 : Concentration is above the C criteria of the MDDEP Policy.

300 : Concentration is above or equal to the limit value of Schedule I of the RBCS.

Analytical Results for SOILS
2 of 2

Parameters		Units	MDDEP Policy ¹			RRBCS ²		Analytical Results																				
			A ³	B	C	Schedule I																						
Sample ID								SS-12-32	SS-12-33	SS-12-34	SS-12-35	SS-12-36	SS-12-37	SS-12-38	SS-12-39	SS-12-40	SS-12-41	SS-12-42	SS-12-43	SS-12-44	SS-12-45	SS-12-46	SS-12-47	SS-12-48	SS-12-49	SS-12-50	RDL	
Sampling Date (mm/dd/yyyy)								2012-07-18	2012-07-17	2012-07-17	2012-07-16	2012-07-17	2012-07-17	2012-07-17	2012-07-17	2012-07-16	2012-07-16	2012-07-17	2012-07-16	2012-07-16	2012-07-16	2012-07-16	2012-07-16	2012-07-16	2012-07-16	2012-07-16		2012-07-16
PAH																												
Acenaphthene	mg/kg	0.1	10	100	100	-	-	-	<0.1	-	-	-	-	-	-	<0.1	-	<0.1	-	-	-	-	-	<0.1	-	-	0.1	
Acenaphthylene	mg/kg	0.1	10	100	100	-	-	-	<0.1	-	-	-	-	-	-	<0.1	-	<0.1	-	-	-	-	-	<0.1	-	-	0.1	
Anthracene	mg/kg	0.1	10	100	100	-	-	-	<0.1	-	-	-	-	-	-	<0.1	-	<0.1	-	-	-	-	-	<0.1	-	-	0.1	
Benzo(a)anthracene	mg/kg	0.1	1	10	34	-	-	-	<0.1	-	-	-	-	-	-	<0.1	-	<0.1	-	-	-	-	-	<0.1	-	-	0.1	
Benzo(a)pyrene	mg/kg	0.1	1	10	34	-	-	-	<0.1	-	-	-	-	-	-	<0.1	-	<0.1	-	-	-	-	-	<0.1	-	-	0.1	
Benzo(b+j+k)fluoranthene	mg/kg	0.1	1	10	136	-	-	-	<0.1	-	-	-	-	-	-	<0.1	-	<0.1	-	-	-	-	-	<0.1	-	-	0.1	
Benzo(c)phenanthrene	mg/kg	0.1	1	10	56	-	-	-	<0.1	-	-	-	-	-	-	<0.1	-	<0.1	-	-	-	-	-	<0.1	-	-	0.1	
Benzo(ghi)perylene	mg/kg	0.1	1	10	18	-	-	-	<0.1	-	-	-	-	-	-	<0.1	-	<0.1	-	-	-	-	-	<0.1	-	-	0.1	
Chrysene	mg/kg	0.1	1	10	34	-	-	-	<0.1	-	-	-	-	-	-	<0.1	-	<0.1	-	-	-	-	-	<0.1	-	-	0.1	
Dibenz(a,h)anthracene	mg/kg	0.1	1	10	82	-	-	-	<0.1	-	-	-	-	-	-	<0.1	-	<0.1	-	-	-	-	-	<0.1	-	-	0.1	
Dibenz(a,i)pyrene	mg/kg	0.1	1	10	34	-	-	-	<0.1	-	-	-	-	-	-	<0.1	-	<0.1	-	-	-	-	-	<0.1	-	-	0.1	
Dibenzo(a,h)pyrene	mg/kg	0.1	1	10	34	-	-	-	<0.1	-	-	-	-	-	-	<0.1	-	<0.1	-	-	-	-	-	<0.1	-	-	0.1	
Dibenzo(a,i)pyrene	mg/kg	0.1	1	10	34	-	-	-	<0.1	-	-	-	-	-	-	<0.1	-	<0.1	-	-	-	-	-	<0.1	-	-	0.1	
7,12-Dimethylbenzanthracene	mg/kg	0.1	1	10	34	-	-	-	<0.1	-	-	-	-	-	-	<0.1	-	<0.1	-	-	-	-	-	<0.1	-	-	0.1	
Fluoranthene	mg/kg	0.1	10	100	100	-	-	-	<0.1	-	-	-	-	-	-	<0.1	-	<0.1	-	-	-	-	-	<0.1	-	-	0.1	
Fluorene	mg/kg	0.1	10	100	100	-	-	-	<0.1	-	-	-	-	-	-	<0.1	-	<0.1	-	-	-	-	-	<0.1	-	-	0.1	
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	1	10	34	-	-	-	<0.1	-	-	-	-	-	-	<0.1	-	<0.1	-	-	-	-	-	<0.1	-	-	0.1	
3-Methylcholanthrene	mg/kg	0.1	1	10	150	-	-	-	<0.1	-	-	-	-	-	-	<0.1	-	<0.1	-	-	-	-	-	<0.1	-	-	0.1	
Naphthalene	mg/kg	0.1	5	50	56	-	-	-	<0.1	-	-	-	-	-	-	<0.1	-	<0.1	-	-	-	-	-	<0.1	-	-	0.1	
Phenanthrene	mg/kg	0.1	5	50	56	-	-	-	<0.1	-	-	-	-	-	-	<0.1	-	<0.1	-	-	-	-	-	<0.1	-	-	0.1	
Pyrene	mg/kg	0.1	10	100	100	-	-	-	<0.1	-	-	-	-	-	-	<0.1	-	<0.1	-	-	-	-	-	<0.1	-	-	0.1	
2-Methylnaphthalene	mg/kg	0.1	1	10	56	-	-	-	<0.1	-	-	-	-	-	-	<0.1	-	<0.1	-	-	-	-	-	<0.1	-	-	0.1	
1-Methylnaphthalene	mg/kg	0.1	1	10	56	-	-	-	<0.1	-	-	-	-	-	-	<0.1	-	<0.1	-	-	-	-	-	<0.1	-	-	0.1	
1,3-Dimethylnaphthalene	mg/kg	0.1	1	10	56	-	-	-	<0.1	-	-	-	-	-	-	<0.1	-	<0.1	-	-	-	-	-	<0.1	-	-	0.1	
2,3,5-Trimethylnaphthalene	mg/kg	0.1	1	10	56	-	-	-	<0.1	-	-	-	-	-	-	<0.1	-	<0.1	-	-	-	-	-	<0.1	-	-	0.1	
Total Petroleum Hydro.																												
Petroleum Hydrocarbons (C10-C50)	mg/kg	300	700	3500	10000	-	-	-	<100	-	-	-	-	-	-	<100	-	<100	-	-	-	-	-	-	110	-	100	
METALS																												
Mercury (Hg)	mg/kg	0.2	2	10	50	<0.02	0.1	<0.02	<0.02	<0.02	0.06	<0.02	0.04	0.03	0.03	0.09	0.16	0.03	0.06	<0.02	<0.02	0.08	0.27	0.03	0.02			
Silver (Ag)	mg/kg	2	20	40	200	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	0.8		
Arsenic (As)	mg/kg	6	30	50	250	<5	<5	<5	<5	<5	10	<5	<5	<5	<5	<5	8	<5	<5	<5	<5	<5	6	<5	5			
Barium (Ba)	mg/kg	200	500	2000	10000	25	85	66	9	240	330	25	100	130	230	140	78	61	90	90	16	72	45	150	5			
Cadmium (Cd)	mg/kg	1.5	5	20	100	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5			
Cobalt (Co)	mg/kg	15	50	300	1500	17	<2	6	3	14	8	23	3	8	13	7	<2	3	3	10	8	14	5	9	2			
Chromium (Cr)	mg/kg	85	250	800	4000	8	<2	15	4	65	12	33	3	23	57	28	10	4	27	<2	6	9	12	27	2			
Copper (Cu)	mg/kg	40	100	500	2500	22	3	12	4	25	8	12	<2	16	32	42	12	2	26	22	6	16	28	9	2			
Tin (Sn)	mg/kg	5	50	300	1500	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	4			
Manganese (Mn)	mg/kg	770	1000	2200	11000	460	1200	220	130	510	14000	760	3400	410	420	1400	1100	3500	810	450	270	2600	2100	280	2			
Molybdenum (Mo)	mg/kg	2	10	40	200	<1	<1	<1	<1	1	2	<1	<1	<1	<1	1	1	<1	3	<1	<1	<1	<1	<1	1			
Nickel (Ni)	mg/kg	50	100	500	2500	26	3	16	7	30	10	99	1	18	33	23	10	3	15	10	28	34	16	19	1			
Lead (Pb)	mg/kg	50	500	1000	5000	7	<5	<5	<5	7	23	<5	10	<5	5	6	13	<5	5	<5	<5	22	28	6	5			
Zinc (Zn)	mg/kg	110	500	1500	7500	33	30	26	<10	83	55	32	28	46	70	40	17	<10	23	64	17	48	15	62	10			
Iron (Fe)	mg/kg	NC	NC	NC	NC	17000	1400	10000	13000	30000	43000	30000	20000	17000	27000	19000	28000	13000	7800	23000	17000	25000	15000	21000	10			

Notes:

- (1) : Soil Protection and Contaminated Sites Rehabilitation Policy (MDDEP Policy)
- (2) : Regulation Respecting the Burial of Contaminated Soils (RRBCS)
- (3) : For all metals in soils, criterion A refers to the background level of the St. Lawrence Lowland.

RDL : Laboratory Reported Detection Limit

NC : No available criterion

- : Not Analyzed

0.7 : Concentration falls within the A-B range of the MDDEP Policy.

5.9 : Concentration falls within the B-C range of the MDDEP Policy.

300 : Concentration is above the C criteria of the MDDEP Policy.

300 : Concentration is above or equal to the limit value of Schedule I of the RBCS.