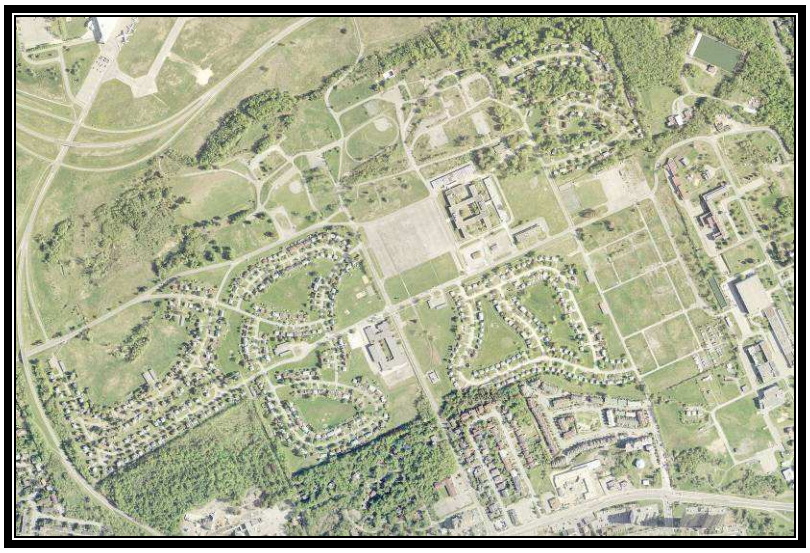
PHASE II ENVIRONMENTAL SITE ASSESSMENT

Lands Associated with the Remediation of Various Former Building Sites
at Canadian Forces Base Rockcliffe
Ottawa, Ontario



Prepared for

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FINAL REPORT

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EXECUTIVE SUMMARY

DST Consulting Engineers Inc. (DST) was retained by the Canada Lands Company (CLC) and Public Works Government Services Canada (PWGSC) to carry out a Phase II Environmental Site Assessment (ESA) at selected areas within the former Canadian Forces Base (CFB) Rockcliffe located in Ottawa, Ontario (the "site").

The most recent round of site investigations conducted by DST consisted of the advancement of 26 boreholes and 73 testpits, as well as a groundwater investigation which included the installation of groundwater monitoring wells at each of the 26 borehole locations. The primary objective of the Phase II ESA was to evaluate the levels of environmental risk with respect to the existing site conditions, in support of the decommissioning of in-situ underground steam lines, remediation of various former building sites and future development of the site.

Representative soil and groundwater samples collected from the testpits and boreholes/monitoring wells were submitted for laboratory analysis of suspected chemical parameters of concern including petroleum hydrocarbons (PHCs) Fractions 1 to 4, benzene, toluene, ethylbenzene, and xylenes (BTEX), inductively coupled plasma (ICP) metals, polycyclic aromatic hydrocarbons (PAHs), and dioxins/furans. As part of the study, environmental reports previously completed by others at former building sites were reviewed by DST. Sites where environmental impacts were confirmed by previous studies were also investigated as required and included under this Phase II ESA program. Parameters analyzed as part of the previous environmental investigations included the following: (PHCs, BTEX, ICP metals, PAHs, Volatile Organic Compounds (VOCs), pH and dioxin/furans)

The results of the Phase II ESA confirmed the presence of soil and groundwater contamination above the provincial standards (residential/parkland land use) and/or federal guidelines (commercial land use) at various locations within the site. The selection of appropriate land use criteria was completed in consultation with CLC and PWGSC. Based on the information available from this Phase II ESA, as well as the results of previous investigations provided to DST, the quantities of contaminated soil material estimated to be present at the site are summarized in the following table.

Groundwater concentrations for petroleum hydrocarbons were confirmed at Building Nos. 80 (BHMW26) and 137 (BHMW15) and in the southwestern sector (BHMW7 and BHMW8) to be greater than the established site specific criteria (10,000 µg/L).

Summary of Estimated Contaminated Soil Quantities

Site Building No. / Location	Contaminants	Estimated Depth Interval (m)	Extent of Aerial Impact (m^2)		Contaminated Soil Volume (m^3)		Contaminated Soil Metric Tonnage (m.t.)	
			MOE[(1)]	CCME[(2)]	MOE[(1)]	CCME[(2)]	MOE[(1)]	CCME[(2)]
3	TPH (heavy oils)	0 – 2.3	165	0	380	0	836	0
12	Electrical Conductivity, Zinc	0 – 1.0	120	120	120	120	264	264
16	pH	2.0 – 4.4	0	795	0	1908	0	4,198
22	TPH (gas/diesel and heavy oils) , PHC (F2, F3, F4), Nickel	0.2 – 3.3	800	800	2,480	2,480	5,456	5,456
29	TPH (gas/diesel and heavy oils), PHC (F2, F3, F4)	0.5 – 2.2	2,030	2,030	3,451	3,451	7,592	7,592
43/45	TPH (heavy oils), Metals (arsenic, barium, total chromium, copper, lead, nickel, zinc)	0.2 – 1.2	1,530	1,275	1,530	1,275	3,366	2,805
47	TPH (gas/diesel)	4.4 – 5.0	155	155	93	93	205	205
80	Arsenic, PHC (F2)	0 - 1.3	695	710	904	923	1,989	2,031
	Arsenic [@TP48]	0.5 – 0.8	135	135	41	41	90	90
	PHC (F3) [@ BHMW25]	3.2 – 4.2	450	0	450	0	990	0
84	TPH (gas/diesel)	0 – 1.0	150	150	150	150	330	330
90	TPH (gas/diesel)	2.0 – 3.0	315	315	315	315	693	693
	Vanadium	0 – 3.0	0	280	0	840	0	1,848
	Dioxins/Furans	0 – 3.0	325	325	975	975	2,145	2,145

Site Building No. / Location	Contaminants	Estimated Depth Interval (m)	Extent of Aerial Impact (m^2)		Contaminated Soil Volume (m^3)		Contaminated Soil Metric Tonnage (m.t.)	
			MOE[(1)]	CCME[(2)]	MOE[(1)]	CCME[(2)]	MOE[(1)]	CCME[(2)]
110	pH	1.0 – 3.4	0	355	0	852	0	1,874
126	TPH (heavy oils), PHC (F2, F3, F4)	0 – 0.8	215	215	172	172	378	378
	PHC (F2, F3, F4)	0.6 – 0.9	200	200	60	60	132	132
137	TPH (gas/diesel and heavy oils), PHC (F1, F2, F3)	1.5 – 3.2	2,680	2,680	4,556	4,556	10,023	10,023
178/179	TPH (heavy oils)	0 – 1.3	220	0	286	0	629	0
Steam line – North Sector	PHC (F2, F3, F4), Nickel [@TP52]	0 – 0.6	320	320	192	192	422	422
	Zinc [@ TP31]	0.1 – 1.2	0	85	0	94	0	207
Steam line – Southeast Sector	Zinc [@ TP15]	0.9 – 1.5	0	85	0	51	0	112
Sub-Totals	Petroleum Hydrocarbons	-	6,580	5,745	9,913	8,797	21,809	19,354
	Metals	-	255	705	161	1,146	354	2,521
	Petroleum Hydrocarbons & Metals	-	3,345	3,105	5,106	4,870	11,233	10,714
	Dioxins/Furans	-	325	325	975	975	2,145	2,145
	pH		0	1,150	0	2,760		6,072
TOTAL	-	-	**10,505 m^2**	**11,030 m^2**	**16,155 m^3**	**18,548 m^3**	**35,541 m.t.**	**40,806 m.t.**

Notes:

1. MOE – Quantities under the MOE columns are associated with soils that exceed either 1) the former evaluation standard (for specific contaminants of concern ie. TPH): Ontario Ministry of the Environment "Guideline for Use at Contaminated Sites in Ontario", September 1998, Table B or 2). The present evaluation standards: Ontario Regulation 153, Ontario Ministry of the Environment "Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004, Table 3, residential property use in a non-potable setting.
2. CCME – Quantities under the CCME columns are associated with soils that exceed the Canadian Council of Ministers of the Environment "Canadian Environmental Quality Guidelines" for commercial land use, 1999, Updated 2008
3. Residential/Parkland provincial standards have been included to assist with future redevelopment planning that would require a provincial Record of Site Condition.
4. Commercial Land Use federal guidelines have been included to meet federal requirements with respect to land transfers to and/or from federal agencies.
5. Contaminated soil extent and volume is estimated based on half-way rule (i.e. it is assumed that soils would be impacted halfway to the next clean borehole or testpit). This approach was adopted in consultation with PWGSC and DND. Only soil sample locations that exceeded the MOE standards (or previous guidelines) were included in the calculation of the MOE contaminated volumes. Similarly, only CCME exceedances were included in the calculation of the CCME contaminated volumes. The contaminant volume is the total amount considering exceedances above one or both of the provincial and federal criteria.
6. Volumes and quantities are based on the regulations and standards at the time of preparing this assessment. As such quantities may vary based on future regulatory changes.
7. TPH – Total Petroleum Hydrocarbons (gas/diesel, oil and grease). These impacts are in reference to soil locations exceeding the pervious MOE Table B guidelines.
8. PHCs – Petroleum Hydrocarbons (Fractions F1-F4). The impacts are in reference to soil locations exceeding the present MOE Table 3 standards.
9. An assumed soil density of 2.2 tonnes / m^3 was used.
10. Native soil samples (clay soil type) with concentrations of Ni and/or Cr in excess of the CCME Soil Quality Guidelines for Ecological Health and that are statistically similar to local background samples have not been included within the calculated Aerial Impacts or Contaminated Volumes.

The estimated totals of contaminated soil material at the site are presented in the table above, separated into the following contaminant categories: 1) Petroleum Hydrocarbons; 2) Metals; 3) Petroleum Hydrocarbons and Metals; 4) Dioxins/Furans; and 5) pH. For soils impacted above the MOE Table 3 residential standards, the total impacted soil area was estimated to be 10,505 m^2, with an estimated impacted soil volume of 16,155 m^3. The total tonnage of MOE impacted soil on site was estimated to be 35,541 tonnes. For soils impacted above the CCME commercial guidelines the total impacted soil area was estimated to be 11,030 m^2, with an estimated impacted soil volume of 18,548 m^3. The total tonnage of CCME impacted soil on site was estimated to be 40,806 tonnes. It should be noted that the aerial extent of the contaminant plumes may differ between CCME and MOE and do not overlap in all cases. DST does recommend that the groundwater be assessed, as required, during the above mentioned soil remediation to manage any groundwater infiltration that may inhibit remedial activities.

Based on the type of soil contaminants identified on site, the following are considered as potential remedial alternatives for the management of the contaminated soil:

1. Excavation and Off-Site Disposal.
2. Biocell Landfarming.
3. Soil Washing.

PHASE II ENVIRONMENTAL SITE ASSESSMENT

Lands Associated with the Decommissioning of the Underground Steam Line Network and Various Former Building Sites at Canadian Forces Base Rockcliffe Ottawa, Ontario

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1.0 INTRODUCTION

DST Consulting Engineers Inc. (DST) was retained by the Canada Lands Company (CLC) and Public Works Government Services Canada (PWGSC) to carry out a Phase II Environmental Site Assessment (ESA) at selected areas within the former Canadian Forces Base (CFB) Rockcliffe located in Ottawa, Ontario (for delineation of the "site", refer to site figures presented in Appendix A). The field program associated with the Phase II ESA was completed between October 2004 and February 2005.

The Phase II ESA was carried out as a component of an overall work program, which included the decommissioning of an underground steam line network used to heat the various building facilities which formerly existed at the site. The purpose of the overall work program is the reduction of environmental liabilities associated with the site in support of the proposed future divestment and redevelopment of the site for residential and some small-scale service oriented commercial land uses.

The tasks completed by DST within the steam line decommissioning project included the removal of buried inactive steam lines, as well as the removal of any related infrastructure including manhole structures, conduits, insulation, and casings, as well as contaminated soil above provincial and/or federal standards/criteria that was encountered. All contaminated soils directly associated with the steamlines were removed off-site for landfill disposal. The steam line decommissioning project was completed in December 2006, and the project methodologies, results and recommendations were reported and issued under the following document:

- *"Underground Steam Line Decommissioning Program, Canadian Forces Base (CFB) Rockcliffe, Ottawa, Ontario – Final Report" dated August 2007.* (DST Ref File No. OE-OT-005835)

The recommendations outlined in the subject report should be read in concordance with the Phase II ESA study for future site remediation.

The Phase II ESA was carried out to identify the presence of contaminated soil and/or groundwater plumes that may be encountered during the removal of the steam lines and related structures. As part of the study, sites where environmental impacts (independent of the steam

line issues) were confirmed by other previous studies were also investigated as required and included under this program. The results and remedial recommendations of this report and those issued within the Underground Steam Line Decommissioning Program report are further addressed under the following separate document:

- *"Remedial Action Plan, Canadian Forces Base (CFB) Rockcliffe, Ottawa, Ontario – Final Report" dated April 2009.* (DST Ref File No. OE-OT-009825)

1.1 Objectives and Scope of Work

The primary objective of the Phase II ESA was to evaluate the levels of environmental risk with respect to existing site conditions in support of the decommissioning of the steam lines, future divestment, and subsequent re-development of the site. The environmental site assessment was conducted according to standard Phase II ESA procedures, which generally reflect the requirements of the following documents:

- "*Soil, Ground Water and Sediment Standards for Use under Part XV.1 of the Environmental Protection Act",* Ontario Ministry of the Environment (MOE), March 9, 2004.
- *"Guideline for Use at Contaminated Sites in Ontario", MOE, September 1998.*
- *"Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario"*, Ontario M*inistry of Environment and Energy (MOEE), December 199*6.
- *"CSA Standard Z769-00, Phase II Environmental Site Assessment"*, Canadian Standards Association (CSA), 2000.
- *"Canadian Foundation Engineering Manual (CFEM)",* Canadian Geotechnical Society, 2007.
- *Contaminated Site Remediation Section Technical Assistance Bulletins (TABs),* Environment Canada

*The Phase II ESA activities performed to meet the objectives and goals of th*e study included the following:

- A subsurface investigation including the advancement of 26 boreholes and 48 environmental testpits;
- The excavation of 25 testpits with the sole purpose of locating steam line spurs;

- A groundwater investigation including the installation of groundwater monitoring wells at each of the 26 borehole locations;
- Sampling of soil and groundwater media;
- Field sample screening including assessment of staining, odours, and the presence of deleterious materials;
- Laboratory analyses of representative soil and groundwater samples for suspected contaminants of concern, which were based on the results of previously completed intrusive investigations and included petroleum hydrocarbons (PHCs) Fractions 1 to 4, benzene, toluene, ethylbenzene, and xylenes (BTEX), inductively coupled plasma (ICP) metals, polycyclic aromatic hydrocarbons (PAHs), and dioxins/furans;
- Review of environmental reports previously completed by others at former building sites, which included analyses of the following parameters (PHCs, BTEX, ICP metals, pH, PAHs, Volatile Organic Compounds (VOCs), polychlorinated biphenyls (PCBs) and dioxin/furans) and the comparison of the reported analytical date with federal guideline criteria;
- Statistical analysis of nickel and chromium concentrations in native soils from environmental reports previously completed by others and the laboratory analysis of select soil samples for Ni and Cr (obtained in a concurrent geotechnical investigation by DST) in comparison with background levels; and
- An evaluation of the soil and groundwater sample results with respect to provincial quality standards and federal guidelines, as appropriate.

1.2 Evaluation Criteria

The regulatory framework applied during the investigation consisted of the provincial standards document entitled *"Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act",* MOE, March 9, 2004. The specific criteria applied during this investigation consisted of the Table 3 soil or groundwater quality standards for a residential/parkland/institutional land use in a non-potable groundwater condition for coarse soil stratigraphy.

The land use selected was determined subsequent to discussions with the Canada Lands Company , Public Works and Government Services Canada (PWGSC), and the Department of National Defence (DND) and was based on future development plans. Given certain areas on the site have shallow bedrock conditions, a "Shallow Soil Property Evaluation" conducted by DST and

inconsultation with the local Ministry of Environment (MOE) office in October 2004 determined that the site did not meet the conditions of a shallow soil property, and therefore Table 3 background soil quality standards (MOE, 2004) was considered appilcable. This report is presented in Appendix G.

As a requirement of the Department of National Defence (DND) with respect to the property site transfer, all soil laboratory results for this investigation were also compared to the following federal guideline documents:

- Canadian Council of Ministers of the Environment (CCME) document entitled *"Canadian Environmental Quality Guidelines"*, (1999, Updated 2005), Chapter 7: Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health (Commercial Land Use, coarse-grained soil texture, 10^{-5} incremental cancer risk for benzene).
- CCME (2001), "Canada-Wide Standards for Petroleum Hydrocarbons (PHC) in Soil", Table 1: Summary of Tier 1 Levels (mg/kg) for surface soil (Commercial Land Use, coarse-grained soil texture).

As there are currently no federal groundwater criteria for non-potable groundwater conditions, a comparison of groundwater laboratory results with respect to federal guidelines was not carried out.

In addition, for evaluation of soil waste classification for off-site disposal, the toxicity characteristic leaching procedure (TCLP) results were compared to Schedule 4: Leachate Quality Criteria of the following regulation:

- Province of Ontario, "General-Waste Management", Ontario Regulation (O. Reg.) 347/90, as amended, made under the Environmental Protection Act.

1.3 Previous Environmental Investigations

The site has been the focus of a number of previous environmental studies completed by various consultants. For review purposes, DST was provided with relevant reports documenting the findings of some of these previous investigations. Based on a review of the previous studies provided to DST, the following sections provide abbreviated summaries of the work carried out at the site to date, as well as the reported site conditions at each of the former building locations. Discussed below are those sites that exceeded former MOE Table B quality

criteria for residential/parkland land use (surface soil and groundwater criteria for a non-potable groundwater condition). The MOE Table B quality criteria is presented in the *"Guideline for Use at Contaminated Sites in Ontario"* (MOE, September 1998), which is the former provincial guideline that was in place at the time of the previous investigations.

In April 2007 DST completed a Data Gap analysis for the previous environmental studies completed by various consultants. The Data Gap analysis reviewed the previous reports and compared the analytical results to the federal CCME soil quality criteria. DST observed that the CCME commercial quality criterion is more stringent for a number of parameters (including BTEX, dioxin/furans and select PAH, VOC and ICP metal parameters), than the current MOE Table 3 quality criteria for residential/parkland property use. A copy of this letter report is included in Appendix G. The sites that were found to exceed the CCME soil quality criteria for commercial land use, are also discussed below.

The locations of the former buildings discussed below are presented in the site figures, which have been included in Appendix A.

1.3.1 Building 3

Building 3 was reportedly demolished in November 1993 and formerly housed an Officer's Quarters.

The report provided to DST for review purposes was entitled "*Results of Intrusive Investigation, Building #3, Former CFB Rockcliffe, Ottawa*", prepared by Greenbank Environmental Ltd. (Greenbank) and dated November 19, 2004. The key findings of the report are briefly summarized as follows:

- Three testpits were advanced in the area of former Building 3 to obtain soil samples to test for total petroleum hydrocarbons (TPH), and BTEX; and
- The soil sample collected from testpit location TP3-2 exceeded the MOE Table B soil quality criteria (residential/parkland land use) for TPH (heavy oils).

1.3.2 Building 12

Building 12 was reportedly demolished in 1974 and formerly housed a Railway and Camera Club. It was inferred that photo finishing equipment and chemicals were historically stored within this building.

The report provided to DST for review purposes was entitled "*Results of Intrusive Investigation, Building #12, Former CFB Rockcliffe, Ottawa*", prepared by Greenbank and dated November 24, 2004. The key findings of the report are briefly summarized as follows:

- Three testpits were advanced in the area of former Building 12 to obtain soil samples to test for metals, inorganics (sulfate, nitrate, iodide, chloride, bromide, acetate), and volatile organic compounds (VOCs);
- The soil sample collected from testpit TP12-2 exceeded the MOE Table B soil quality criteria (industrial/commercial and residential/parkland land use) for electrical conductivity; and
- Based on the data gap analysis completed by DST, it was noted that testpit sample TP12-2 also exceeded the CCME soil quality criteria (industrial/commercial land use) for Zinc.

1.3.3 Building 16

Building 16 was reportedly constructed in 1936 and demolished in 1997. This building was formerly located within the northeast portion of the site and was reportedly occupied for use by the Space Agency/SIU, as well as living quarters. A 909 litre (L) aboveground storage tank (AST) was reportedly removed from this location in 1997.

The report provided to DST for review purposes was entitled "*Results of Intrusive Investigation, Building #16, Former CFB Rockcliffe, Ottawa*", prepared by Greenbank and dated November 23, 2004. The key findings of the report are briefly summarized as follows:

- Three testpits were advanced in the area of former Building 16 to obtain soil and groundwater samples to test for VOCs, TPH, polychlorinated biphenyls (PCBs), metals and inorganics (sulfate, nitrate, iodide, chloride, bromide and acetate);
- No exceedances to the MOE Table B soil quality criteria (residential/parkland land use) were identified in the soil samples collected;

- A groundwater grab sample collected from the bottom of a testpit, TP16-2, was found to have exceedances to the MOE Table B groundwater quality criteria for cobalt, copper and lead. Due to the sample collection method, it was not possible to filter the groundwater sample which may have resulted in elevated metal concentrations. It was recommended that the groundwater condition should be investigated through the instrumentation, monitoring and sampling of a minimum of one monitoring well in the vicinity of testpit TP16-2; and
- Based on the data gap analysis completed by DST, it was noted that the soil samples collected from testpit locations TP16-1, TP16-2 and TP16-3 exceeded the CCME soil quality criteria (industrial/commercial land use) for pH.

1.3.4 Building 22

Building 22 was formerly located within the northern portion of the site and was reportedly occupied by a postal outlet and dry cleaning facility. The building was demolished in 1993.

The report provided to DST for review purposes was entitled "*Results of Intrusive Investigation, Building #22, Former CFB Rockcliffe, Ottawa*", prepared by Environmental Management Solutions Inc. (EMS) and dated August 4, 2004. The key findings of the report are briefly summarized as follows:

- Five testpits and six boreholes were advanced in the area of former Building 22 to test soil for TPH and VOCs;
- Four of the boreholes were instrumented as monitoring wells;
- Soil samples collected from the test locations MW1, MW5, TP4, and TP5 exceeded the MOE Table B soil quality criteria (industrial/commercial land use) for TPH in the gas/diesel range;
- Soil samples collected from the test locations MW1, MW5, and TP4 exceeded MOE Table B soil quality criteria (residential/parkland land use) for TPH in the heavy oils range;
- Concentrations of TPH, which met the MOE Table B quality criteria, were detected in the groundwater;
- No exceedances for VOCs above the MOE Table B soil quality criteria (residential/parkland land use) were reported; and

- Recommendations included a supplemental soil and groundwater investigation through the advancement, instrumentation and sampling of three boreholes/monitoring wells. The proposed locations for the monitoring wells were to the northwest, west and southwest of the areas of known impacts.

1.3.5 Building 29

Building 29 was formerly located within the northern portion of the site and was reportedly occupied by an auto hobby club. The building was demolished in 1993.

The report provided to DST for review purposes was entitled "*Results of Intrusive Investigation, Building #29, Former CFB Rockcliffe, Ottawa*", prepared by EMS and dated August 13, 2004. The key findings of the report are briefly summarized as follows:

- Fourteen testpits were advanced in the area of former Building 29 to evaluate soil quality for VOCs, TPH, PAHs, metals and glycol;
- MOE Table B (residential/parkland land use) soil quality criteria exceedances for TPH (gas/diesel) were found in samples taken from testpit locations TP2 and TP12;
- MOE Table B (residential/parkland land use) soil quality criteria exceedances for TPH (heavy oil) were encountered in samples taken from testpit locations TP2, TP8, and TP12; and
- Recommendations included delineation of soil impacts.

1.3.6 Buildings 43 and 45

Buildings 43 and 45 were formerly located within the southeast portion of the site and were formerly used by the DND construction engineering division as storage facilities. Building 43 was demolished in 1974, while building 45 was demolished in 1993. According to a previous report reviewed by DST, a petroleum, oil, and lubricant (POL) storage area may have existed in the vicinity of these buildings.

The report provided to DST for review purposes was entitled "*Results of Intrusive Investigation, Building #43 and 45, Former CFB Rockcliffe, Ottawa*", prepared by Greenbank and dated November 18, 2004. The key findings of the report are briefly summarized as follows:

- Four testpits were advanced in the area of former Buildings 43 and 45, and soil and groundwater samples were collected and analysed for TPH (gasoline/diesel and heavy oils), PAHs, VOCs and PCBs;
- At Building 43, testpit location TP43-2 had exceedances of the MOE Table B soil quality criteria (residential/parkland land use) for barium, TPH (heavy oils) and zinc;
- At Building 45, testpit location TP45-1 had exceedances of the MOE Table B soil quality criteria (residential/parkland land use) for copper, lead, and zinc;
- Testpit location TP45-2 had exceedances of the MOE Table B soil quality criteria (residential/parkland land use) for copper, nickel, and arsenic;
- It was recommended that the groundwater condition be investigated through the instrumentation, monitoring and sampling of groundwater wells;
- The Greenbank report sites exceedances of dioxins and furans in soil. A quality assurance review of this data noted a unit error with this data, where concentrations were reported in parts per trillion (ppt) and compared directly to MOE criteria in parts per billion (ppb). Therefore, no dioxin/furan exceedances were actually present with respect to MOE Table B soil quality criteria; and
- Based on the data gap analysis completed by DST, it was noted that the soil samples of the fill material collected at various testpit locations in the vicinity of Buildings 43 and 45 exceeded the CCME soil quality criteria (industrial/commercial land use) for various metal parameters as follows:
    - TP43-1 for nickel;
    - TP43-2 for copper, nickel, and zinc;
    - TP45-1 for arsenic, copper, lead, nickel, and zinc; and
    - TP45-2 for arsenic, chromium, copper, nickel, and zinc.

1.3.7 Building 47

Building 47 was reportedly demolished in November, 1993 and formerly housed a ceramics club, “Teen Town”, Base Exchange, IGA grocery store, and council hall. According to a previous report, two 900 L ASTs may have existed in the vicinity of these buildings.

The report provided for review purposes was entitled “*Results of Intrusive Investigation, Building #47, Former CFB Rockcliffe, Ottawa*”, prepared by Greenbank and dated November 18, 2004. The key findings of the report are briefly summarized as follows:

- Three testpits were advanced in the area of former Building 47 to test soil samples for TPH (gasoline/diesel and heavy oils) and lead;
- An exceedance of the MOE Table B soil quality criteria (residential/parkland land use) for TPH (gas/diesel) was reported in the soil sample from testpit location TP47-3; and
- Recommendations included delineation of soil and possible groundwater impacts.

1.3.8 Building 80

Building 80 formerly housed the central heating plant at CFB Rockcliffe. In 1992, two leaking 67,500 L underground storage tanks (USTs) located south of the building were removed from the site, along with 234.5 tonnes of impacted soil. This building was then decommissioned in 1993. In 1996, an additional concrete chamber was discovered and removed to 2.4 metres (m) below surface grade, along with 52 tonnes of impacted soil.

The reports provided for review purposes included the following:

- "*Public Works and Government Services Canada, Former Central Heating Plant (Building 80), Former Canadian Forces Base - Rockcliffe, Ottawa, Ontario, Final Report*", a Phase II ESA prepared by Trow Consulting Engineers Ltd. and dated October 2002. The key findings of the report are briefly summarized as follows:

  - Twelve testpits were advanced in the area of former Building 80 to test soil samples for PAHs, BTEX, PHCs and metals. Groundwater samples were collected from the base of two testpits, as well as one previous monitoring well, and submitted for analyses of TPH, BTEX, PAHs and metals;
  - Three Areas of Potential Environmental Concern (APEC) were identified;
    - Soil petroleum hydrocarbon impacts were confirmed in APEC-1 exceeding CCME Canada-Wide Standards (CWS) (industrial land use) for PHC F3 in two testpits (TP1 and TP6);
    - Soil benzo(a)pyrene impacts were confirmed in APEC-2 exceeding CCME guidelines (industrial land use) in one testpit (TP3);
    - Soil petroleum hydrocarbon impacts were confirmed in APEC-3 exceeding CCME guidelines (industrial land use) for toluene and PHC F3 in black fill materials located 0.5 m below grade surface (TP12).

- It was recommended that the site soil and groundwater condition be investigated through the advancement of five boreholes, three monitoring wells and ten testpits.

- *"Phase III Environmental Site Assessment and Remediation Program, Former Central Heating Plant (Building 80), CFSU Rockcliffe, Ottawa, Ontario*", prepared by Trow Associates Inc. and dated June 2004. The key findings of the report are briefly summarized as follows:

  - Sixteen testpits, five boreholes and three monitoring wells were advanced in the area of former Building 80 to test soil and groundwater samples for PAHs, BTEX, and PHCs (for the purposes of delineation and post remediation confirmatory sampling);
  - Approximately 615 cubic metres (m^3) (1,169 tonnes) of petroleum impacted soil was excavated and disposed of at a licensed landfill. Approximately 25,600 litres of groundwater was also removed from the excavated areas;
  - Confirmatory groundwater sampling following remediation indicated that petroleum hydrocarbon (TPH heavy oil) impacted groundwater was present at the subject site;
  - Confirmatory soil sampling indicated that site soil remediation was completed to MOE Table B commercial/industrial and CCME commercial criteria; and
  - No recommendations were given. Considering that the source of TPH impact had been removed, it was expected that the TPH concentrations in groundwater would naturally attenuate over time.

- *"Proposed Groundwater Monitoring Event, Building #80, Former CFB Rockcliffe, Ottawa*", prepared by Greenbank and dated November 18, 2004. The key findings of the report are briefly summarized as follows:

  - A subsequent groundwater sampling event in November 2004 was unsuccessful, as the monitoring wells were not found and had possibly been destroyed or decommissioned.

As the above soil remediation program (Trow, 2004) was completed to meet MOE Table B commercial/industrial and CCME commercial criteria, it should be noted that the site soil quality would still exceed MOE Table B for residential/parkland land use at some locations.

1.3.9 Building 84

Building 84 was formerly located near the Codd's Street entrance to CFB Rockcliffe and was reportedly occupied as a guardhouse. The building was constructed in 1942 and demolished in 1993. Based on information gathered from previous reports, a 900 L heating oil AST was present in the basement of this building.

The report provided for review purposes was entitled "*Results of Intrusive Investigation, Building #84, Former CFB Rockcliffe, Ottawa*", prepared by Greenbank and dated November 18, 2004. The key findings of the report are briefly summarized as follows:

- Three testpits were advanced in the area of former Building 84 to test soil for BTEX and TPH;
- An exceedance of the MOE Table B soil quality criteria (residential/parkland) for TPH (gasoline/diesel) was found in testpit location TP84-3. This impact was noted to exist at the south side of the former building; and
- Recommendations included further intrusive investigation to delineate the extent of soil impacts and possible groundwater impacts.

1.3.10 Building 90

Building 90 was formerly located within the southeast portion of the site and was reportedly used as a barracks facility. The building was constructed in 1941 and demolished in 1994.

The report provided for review purposes was entitled "*Results of Intrusive Investigation, Building #90, Former CFB Rockcliffe, Ottawa*", prepared by Greenbank and dated November 18, 2004. The key findings of the report are briefly summarized as follows:

- Nine testpits were advanced in the area of former Building 90 to allow for the collection of soil samples for analysis of TPH, BTEX, PCBs, metals, PAHs, and dioxins/furans;
- The soil sample collected from testpit location TP90-3 was found to exceed the MOE Table B soil quality criteria (residential/parkland land use) for TPH (gas/diesel);
- Recommendations included delineation to the north of testpit TP90-3;
- The Greenbank report documents exceedances of dioxins and furans in soil. A quality assurance review of this data noted a unit error with this data, where concentrations were reported in ppt and compared directly to MOE criteria in ppb. Therefore, no

dioxin/furan exceedances were actually present with respect to MOE Table B soil quality criteria. However, the soil sample collected from testpit location TP90-7 was found to still exceed the CCME soil quality criteria (industrial/commercial) for dioxin/furans; and

- Based on the data gap analysis completed by DST, it was noted that the native clay soil samples collected from testpit locations TP90-1 through TP90-6, TP90-8 and TP90-9 exceeded the CCME soil quality criteria (industrial/commercial land use) for nickel and chromium; testpit location TP90-8 also had a vanadium exceedance;

1.3.11 Building 97

Building 97 was reportedly demolished in 1993 and was formerly utilized as the HMCS Bytown Stores and as a temporary dependant's school.

The report provided for review purposes was entitled "*Results of Intrusive Investigation, Building #97, Former CFB Rockcliffe, Ottawa*", prepared by Greenbank and dated November 18, 2004. The key findings of the report are briefly summarized as follows:

- Three testpits were advanced in the area of former Building 97 to test soil for VOCs, metals and TPH;
- It was concluded that no concentrations of VOCs, TPH or metals were found to exceed the MOE Table B soil quality criteria (residential/parkland or commercial/industrial land use); and
- Based on the data gap analysis completed by DST, it was noted that the native clay soil samples collected from testpit locations TP97-1 and TP97-2 exceeded the CCME soil quality criteria (industrial/commercial land use) for nickel and chromium and TP97-3 exceeded for nickel.

1.3.11 Building 110

Building 110 was reportedly demolished in 1993 and formerly served as headquarters and offices.

The report provided for review purposes was entitled "*Results of Intrusive Investigation, Building #110, Former CFB Rockcliffe, Ottawa*", prepared by Greenbank and dated November 18, 2004. The key findings of the report are briefly summarized as follows:

- Three testpits were advanced in the area of former Building 110 to test soil for VOCs and TPH;
- It was concluded that no concentrations of VOCs and TPH were found to exceed the MOE Table B soil quality criteria (residential/parkland or commercial/industrial land use); and
- Based on the data gap analysis completed by DST, it was noted that the soil samples collected from testpit locations TP110-1 and TP110-3 exceeded the CCME soil quality criteria (industrial/commercial land use) for pH.

1.3.11 Building 126

Building 126 was reportedly demolished in 1968 and formerly housed a transmitter tower .

The report provided for review purposes was entitled "*Results of Intrusive Investigation, Building #126, Former CFB Rockcliffe, Ottawa*", prepared by Greenbank and dated November 23, 2004. The key findings of the report are briefly summarized as follows:

- Two testpits were advanced in the area of former Building 126 to test soil for BTEX and TPH;
- Soil exceedances of the MOE Table B soil quality criteria (residential/parkland land use) were reported for TPH (heavy oils) at testpit location TP126-1; and
- Recommendations include delineation of soil impacts.

1.3.12 Building 137

Building 137 was reportedly demolished in 1997. This building was formerly an indoor pool house located within the northwest portion of the site. A 1,136 L gasoline UST was reportedly removed in 1992 and a 900 L AST was also known to be present at this location.

The report provided for review purposes was entitled *"Results of Intrusive Investigation, Building #137, Former CFB Rockcliffe, Ottawa*", prepared by EMS and dated August 17, 2004. The key findings of the report are briefly summarized as follows:

- Eight testpits were advanced in the area of former Building 137 to evaluate soil quality for BTEX, TPH, chloride and lead;

- Soil exceedances of the MOE Table B soil quality criteria (residential/parkland land use) were reported for TPH (gas/diesel) at testpit locations TP1, TP3, TP4, and TP5;
- Soil exceedances of the MOE Table B soil quality criteria (residential/parkland land use) were reported for TPH (heavy oils) at testpit locations TP3, TP4, and TP5;
- As no groundwater samples were collected, there is no indication as to whether groundwater has been affected by petroleum hydrocarbons; and
- Recommendations included delineation of soil impacts and the determination of the presence or absence of groundwater impacts.

1.3.13 Buildings 178 and 179

Buildings 178 and 179 were reportedly demolished in 1975 and 1992, respectively, and formerly used as storage areas for construction engineering.

The report provided for review purposes was entitled "*Results of Intrusive Investigation, Buildings #178 and 179, Former CFB Rockcliffe, Ottawa*", prepared by Greenbank and dated November 23, 2004. The key findings of the report are briefly summarized as follows:

- Four testpits were advanced in the area of former Buildings 178 and 179 to test soil for VOCs, BTEX and TPH;
- An exceedance of the MOE Table B soil quality criteria (residential/parkland land use) was reported for TPH (heavy oils) in a soil sample taken from testpit TP178-1; and
- Recommendations included delineation of soil impacts.

1.3.14 Trailer Storage Compound

The Trailer Storage Compound located in the southeast portion of the site was utilized for the storage (and possible maintenance) of vehicles, boats and RVs since approximately 1988. Two possible storage buildings were removed from site by 1968, and six storage buildings and a barracks/office building were removed from site by 1988.

The reports provided to DST for review purposes included the following:

- "*Environmental Site Assessment, Trailer Storage Compound, Rockcliffe, Final Report*", prepared by Aqua Terre Solutions Inc. and dated March 19, 2002. The key findings of the report are briefly summarized as follows:

- *Fifteen boreholes, including three monitoring wells, were advanced in the area of* the trailer storage compound to test soil for BTEX, PHC, PAHs, metals and PCBs, and groundwater for BTEX, TPH, metals and PAHs;
- Although less than the MOE Table B soil quality criteria (residential/parkland and commercial/industrial land use), exceedances of the CCME guidelines (residential/parkland land use) were reported for chromium in the soil sample taken at borehole locations BH-6-1, BH-9-1 and BH-13-1, as well as for zinc in the soil sample taken at BH-14-1;
- No exceedances of the MOE Table B groundwater quality criteria were reported for the groundwater samples collected at the Trailer Storage Compound. Although exceedances of the federal drinking water guidelines in place at the time of the investigation (Canadian Drinking Water Guidelines, Health Canada, 1998) were reported for manganese, sodium and chloride for the groundwater samples, the guidelines for these parameters are aesthetic objectives and the elevated concentrations were not considered to be indicative of contamination; and
- Further action was not recommended unless the site was redeveloped.

➢ "*Screening Level Risk Assessment, Rockcliffe Trailer Storage Area, Ottawa, Ontario*", prepared by Trow Consulting Engineers Ltd. and dated February 2003. The key findings of the report are briefly summarized as follows:

- A Screening Level Risk Assessment (SLRA) was carried out for the Trailer Storage Compound in order to estimate the potential risk at the subject site as a result of chromium and zinc exceedances reported in the soil with respect to the CCME soil quality guidelines (residential/parkland land use).
- As there are no sensitive terrestrial environmental receptors on site, an evaluation of the elevated chromium and zinc concentrations was completed with respect to human health considerations only. Based on that review, chromium and zinc concentrations at the Trailer Storage Compound do not exceed the relevant human health derived CCME soil quality guidelines; and
- Since no contaminants of concern are present above risk-based criteria, no risk is anticipated at the subject site and the SLRA concluded that no further action is required regarding human health.

Although the soil and groundwater quality at the Trailer Storage Compound did not exceed the MOE Table B quality criteria for residential/parkland land use, a summary of the previous environmental investigations has been provided above for information purposes and no further action is recommended at this time given the landuse and non-potable groundwater conditions.

1.4 Areas of Investigation

The work program for the Phase II ESA was developed to meet two specific objectives: 1) to further investigate previously reported contaminated site locations that exceeded provincial standards for residential/parkland land use (refer to Section 1.4.1 below for further details on the evaluation of contaminated building sites), and 2) to delineate the extent of steam line piping on site and assess the soil and groundwater quality at representative locations along the steam line (refer to Section 1.4.2 below for further details on the steam line corridor evaluation).

1.4.1 Contaminated Building Sites

A number of historical buildings formerly occupied various areas throughout the site. Based on the findings of numerous environmental investigations previously carried out in the vicinity of the historical buildings, a number of impacted areas were documented. Former buildings for which the available documentation reported impacts that were above MOE Table B quality criteria for residential/parkland land use included Building Nos. 3, 12, 16, 22, 29, 43/45, 47, 80, 84, 90, 126, 137, and 178/179 (refer to Section 1.3). As such, these former building locations were targeted as investigation areas for the Phase II ESA. Former buildings for which the data gap analysis indicated that there were impacts above CCME soil quality criteria for commercial/industrial land use included Building Nos. 97 and 110 (refer to Section 1.3). These buildings were not included within the original scope of work which focussed on the MOE table B exceedances, however all exceedances associated with Building Nos. 97 and 110 have been incorporated within the plume delineations discussed within this report.

1.4.2 Steam Line Corridor

In preparation of the decommissioning activities along the length of the underground steam lines, an evaluation of the soil and groundwater within the proposed excavation corridor was required in order to identify any potential contamination plumes that may be uncovered during the excavation activities.

In 2006, a steam line decommissioning program was implemented by Canada Lands Company CLC Limited in consultation with DND and PWGSC. To coordinate the investigation of the steam line corridor in an efficient manner, the area was sectioned into three investigation sectors referred to as: 1) the "north sector", 2) the "southeast sector", and 3) the "southwest sector":

- The area referred to as the North Sector comprises a total area of 346,000 square metres (m^2) (34.6 hectares) in which a total of approximately 3,520 linear metres of steam line trench was decommissioned;
- The area referred to as the Southeast Sector comprises a total area of 285,000 m^2 (28.5 hectares) in which a total of approximately 2,350 linear metres of steam line trench was decommissioned; and
- The area referred to as the Southwest Sector comprises a total area of 178,000 m^2 (17.8 hectares) in which a total of approximately 550 linear metres of steam line trench was decommissioned.

Throughout the course of the steam line decommissioning program areas, suspected of soil contamination not directly associated with the steam lines were investigated. In total, 25 soil samples were collected and submitted for chemical analysis for contaminants of potential concern, including PHCs (F1-F4), BTEX, ICP metals and PAHs. Based on a comparison of the laboratory analytical results with the applicable soil evaluation criteria, the following exceedances not directly associated with the steam line were noted:

- The following soil samples reported concentrations above provincial MOE Table 3 (Residential/Parkland) standards: OE04940-S-69, OE04940-S-82, OE04940-S-184, OE04940-S-187, OE04940-S-198, OE04940-S-201, OE04940-S-208, OE04940-S-214 AND OE04940-S-215. Parameters that exceeded the applicable standards included PAHs, ICP metals and/or PHCs; and
- The following soil samples reported concentrations above federal CCME (Commercial Land Use) guidelines: OE04940-S-55, OE04940-S-58, OE04940-S-69, OE04940-S-82, OE04940-S-184, OE04940-S-187, OE04940-S-198, OE04940-S-201, OE04940-S-202, OE04940-S-208, OE04940-S-214 and OE04940-S-215. Parameters that exceeded the applicable standards included PAHs, ICP metals, PHCs and/or BTEX.

It should be noted that the soil samples collected during the steam line decommissioning program were collected and analyzed after the certification date of field activities corresponding to the current Phase II ESA. As such they have not been incorporated within the contaminant plumes and associated volumes. They are included for information purposes only and as a cross reference to ensure that no future data gaps occur during any remedial options analysis, action plans or risk management programs. Complete details regarding the steam line decommissioning activities, including analytical results, are reported under a separate report entitled:

> "*Underground Steam Line Decommissioning Program, Canadian Forces Base (CFB) Rockcliffe, Ottawa, ON"* prepared by DST Consulting Engineers Inc., dated August 2007 (DST Ref. File: OE-OT-005835)

2.0 METHODOLOGY

2.1 Subsurface Investigation

Prior to initiating any intrusive activities, the appropriate utility companies were contacted to identify above and below ground services within the work area.

2.1.1 Health and Safety Plan

A health and safety plan was maintained throughout the field program. Worker health and safety standards were assured by following stringent safety precautions in accordance with the relevant sections specified under the Canada Labour Code and the Canada Health and Safety Act. Potential hazards during inspection and sampling included work conducted in close proximity to heavy machinery, exposure to adverse weather conditions and exposure to contaminated soil and groundwater. Throughout the duration of the field activities, DST's General Health and Safety Policy, Part II of the Canada Labour Code (Occupational Health and Safety) and the Ontario Occupational Health and Safety Act (OHSA) were strictly followed.

2.1.2 Borehole Drilling

DST co-ordinated the advancement of 26 boreholes to depths ranging from 3.7 to 9.5 m below existing grade surface using a Central Mining Equipment (CME) 75 truck-mounted drill rig equipped with hollow stem augers and split-spoon samplers. Groundwater monitoring wells were installed at each of the 26 borehole locations. The borehole/monitoring wells were referred to as BHMW1 through to BHMW26, and were located throughout the site (with no numbering correlation between the borehole/monitoring well ID numbers and the building ID of

the site investigated under this Phase II ESA). Borehole locations were chosen to evaluate the previously identified subsurface soil and/or groundwater contamination and to establish the geological and hydrogeological characteristics beneath the study area. Building sites with previous groundwater exceedances and/or had recommendations for groundwater studies were further assessed within the current field program. Some of the borehole locations also served to investigate the subsurface soil and groundwater quality in the vicinity of the underground steam line corridor.

Bedrock was encountered at several of the borehole locations during the investigation. Bedrock coring was required to facilitate the installation of groundwater monitoring wells at these borehole locations. Bedrock drilling was completed using diamond-coring techniques.

The locations of borehole/monitoring wells advanced during the program are illustrated on the site figures presented in Appendix A. Detailed borehole/monitoring well logs are presented in Appendix D.

2.1.3 Testpit Excavation

DST coordinated the advancement of 73 testpits using a rubber-tired backhoe. The locations of the testpits excavated during the program are presented on the site figures included in Appendix A. Detailed testpit logs are presented in Appendix E.

Testpits were excavated during the Phase II ESA to serve three general purposes: 1) conventional environmental testpits were advanced at representative locations along the length of the steam line to evaluate the soil quality along the steam line corridor; 2) environmental testpits were advanced to evaluate soil quality in areas where previous investigations indicated that contamination was present independent of the steam lines (i.e. contaminated building sites); and 3) exploratory testpits were excavated to uncover and identify the construction materials of the steam line piping, as well as to collect samples of the subsurface soils immediately surrounding the steam line piping material. Some of these exploratory testpit locations also served to evaluate the soil quality in the vicinity of the previously identified contaminated building sites.

Environmental Testpits

DST coordinated the advancement of 48 conventional environmental/exploratory testpits to depths ranging from 1.1 to 3.1 m below existing grade surface using a rubber-tired backhoe in the north, southeast and southwest sectors of the site, including various contaminated building sites within each of these sectors. Soil samples were collected from these testpits at regular intervals or discernable changes in soil stratigraphy within the overburden. All soil samples retrieved during the field investigation were examined, classified, and logged according to soil type, colour, consistency, and presence of visual and/or olfactory indicators of negative impact such as discolouration and the presence of deleterious materials.

Soil samples were placed in 200 millilitre (mL) sample jars with teflon-lined lids and subsequently stored in coolers and placed on ice for future potential laboratory analysis. All soil sampling equipment was decontaminated between soil sample locations to prevent potential cross-contamination. The environmental testpits were referred to as TP1 through TP20, TP22 through

TP39, and TP67 through TP75 (with no numbering correlation between the testpit ID numbers and the building ID of the site investigated under this Phase II ESA). Testpit location "TP37" was deleted during the field program. Detailed testpit logs are presented in Appendix E.

Exploratory Testpits

An additional 25 exploratory testpits were advanced directly over sections of the steam line in order to expose the steam line piping material and to collect soil samples surrounding the pipes. The exploratory testpits were referred to as TP21, TP40 through TP57, and TP60 through TP66 (with no numbering correlation between the testpit ID numbers and the building ID of the site investigated under this Phase II ESA). It should be noted that testpit locations "TP58" and "TP59" were deleted during the field program. A total of six soil samples were collected from exploratory testpit locations and submitted for laboratory analysis based on visual observations of the soil. These results are discussed in Section 3.5.4 of this report. The soil samples were collected from locations surrounding the piping material in order to evaluate the soil quality with respect to potential contaminants that may be present within the construction material of the piping. Testpit logs for these testpits are presented in Appendix E.

In addition, the recovered soil samples were examined, classified, and logged according to soil type, colour, consistency, and presence of visual and/or olfactory indicators of negative impact such as discolouration and the presence of deleterious materials. Soil samples were placed in 200 mL sample jars with Teflon-lined lids and subsequently stored in coolers and placed on ice for future potential laboratory analysis. All soil sampling equipment was decontaminated between soil sample locations to prevent potential cross-contamination.

2.1.4 Field Screening

All samples were screened in the field for visual and olfactory evidence of environmental impacts including staining and odours. Soil samples were also screened using a RKI Eagle 101 catalytic combustible gas detector (CCGD), in methane elimination mode, to provide a measure of relative organic vapour levels within soil samples attributable to petroleum hydrocarbon-based contaminants. The notable findings reported during the field screening program are summarized in Table 1. Additional information is provided within the borehole and testpit logs included in Appendices D and E.

Table 1: Summary of Notable Field Screening Observations

Sample ID	Study Area	CCGD	Observations
BHMW7 SS8	Southwest Sector	70 ppm	Strong petroleum hydrocarbon odour
BHMW8 SS2		310 ppm	Petroleum hydrocarbon odour
BHMW8 SS3		>1,000 ppm	
BHMW9 SS2		10 ppm	Black staining and light odour
BHMW15 SS4	Building 137	0 ppm	Strong petroleum hydrocarbon odour
TP9 SGS2	Buildings 43 & 45	20 ppm	Burnt debris
TP9 SGS4		0 ppm	
TP10 SGS2		130 ppm	10 mm layer of black material
TP34 SGS4	Building 137	5 ppm	Light whitish-green material with strong odour
TP39 SGS1		60 ppm	Hydrocarbon odour
TP39 SGS3		15 ppm	Black hydrocarbon staining
TP39 SGS4		45 ppm	Very strong hydrocarbon odour

2.2 Laboratory Analyses

Selected soil samples collected during the field investigation were submitted for laboratory analysis of contaminants of concern including petroleum hydrocarbons (PHC Fractions 1 to 4), BTEX, ICP Metals, PAHs, and Dioxins/Furans. Selection of analytical parameters for each soil sample was based on site location, historical review (i.e. previous reports), field screening and on-site visual observations. Chemical analyses were conducted by Paracel Laboratories Ltd. (Paracel). A summary of the soil analytical program is presented in Tables 2 and 3.

In addition, TCLP analysis in accordance with O. Reg. 347/90, as amended, was completed for a composite soil sample collected from each sector (North Sector, Southeast Sector and Southwest Sector). The TCLP analysis included PHCs, ICP, Metals, VOCs and pH, as applicable.

Table 2: Summary of Soil Analytical Program – Borehole Investigation

Borehole Locations	Analyses				
	PHCs	BTEX	ICP Metals	PAHs	Dioxins / Furans
BHMW1	✓				
BHMW2	✓		✓	✓	
BHMW3	✓		✓	✓	
BHMW4	✓		✓	✓	
BHMW5	✓	✓	✓	✓	✓
BHMW6	✓	✓	✓	✓	
BHMW7	✓	✓	✓	✓	
BHMW8	✓	✓	✓	✓	
BHMW9	✓				
BHMW10	✓		✓	✓	
BHMW11	✓		✓	✓	
BHMW12	✓	✓	✓	✓	
BHMW13	✓	✓	✓	✓	
BHMW14	✓	✓	✓	✓	
BHMW15	✓	✓	✓	✓	
BHMW16	✓		✓	✓	
BHMW17	✓		✓	✓	
BHMW18	✓		✓	✓	
BHMW19	✓	✓	✓	✓	
BHMW20	✓	✓	✓	✓	
BHMW21	✓	✓	✓	✓	
BHMW22	✓	✓			
BHMW23	✓	✓			
BHMW24	✓		✓	✓	
BHMW25	✓	✓			
BHMW26	✓	✓			

Table 3: Summary of Soil Analytical Program – Testpit Investigation

Testpit Locations	Analyses				
	PHCs	BTEX	ICP Metals	PAHs	Dioxins / Furans
TP1	✓		✓	✓	
TP2	✓		✓	✓	
TP2(B)	✓		✓	✓	
TP3					✓
TP4					✓
TP5					✓
TP6	✓				
TP7	✓				
TP8	✓		✓		✓
TP9	✓		✓		✓
TP10	✓		✓		✓
TP11	✓		✓		✓

Table 3: Summary of Soil Analytical Program – Testpit Investigation (cont.' d)

Testpit Locations	Analyses				
	PHCs	BTEX	ICP Metals	PAHs	Dioxins / Furans
TP12			✓	✓	
TP13	✓		✓	✓	
TP14	✓		✓	✓	
TP15			✓		
TP16			✓		
TP17			✓		
TP18			✓		
TP19	✓				
TP20	✓				
TP22			✓		
TP23			✓		
TP24			✓		
TP25			✓		
TP26	✓		✓	✓	
TP27	✓		✓	✓	
TP28			✓		
TP29	✓		✓	✓	
TP30	✓		✓	✓	
TP31	✓		✓	✓	
TP32	✓		✓	✓	
TP33			✓		
TP34	✓				
TP35	✓				
TP36	✓				
TP38	✓				
TP39	✓				
TP48	✓		✓	✓	
TP52	✓		✓	✓	
TP56	✓		✓	✓	
TP57	✓		✓	✓	
TP61	✓		✓	✓	
TP62	✓		✓	✓	
TP67	✓	✓	✓	✓	
TP68	✓	✓			
TP69	✓	✓	✓		
TP70	✓	✓			
TP72	✓	✓			
TP73	✓	✓			
TP74	✓	✓			
TP75	✓	✓	✓		

Groundwater samples collected from the monitoring wells installed during the field investigation were submitted for laboratory analysis of contaminants of concern including PHC Fractions 1 to 4, BTEX, ICP Metals, PAHs, and Dioxins/Furans, as presented in Table 4.

Table 4: Summary of Groundwater Analytical Program

Monitoring Well Locations	Analyses				
	PHCs	BTEX	ICP Metals	PAHs	Dioxins / Furans
BHMW1	✓				
BHMW2	✓		✓	✓	✓
BHMW3	✓	✓	✓	✓	✓
BHMW4	✓		✓	✓	
BHMW5	✓		✓	✓	
BHMW6			✓		
BHMW7	✓	✓	✓	✓	
BHMW8	✓		✓	✓	
BHMW9	✓				
BHMW10	✓		✓	✓	
BHMW11	✓		✓	✓	
BHMW12	✓	✓	✓	✓	
BHMW13	✓	✓	✓	✓	
BHMW14	✓	✓	✓	✓	
BHMW15	✓	✓	✓	✓	
BHMW16	✓		✓	✓	
BHMW17	✓	✓	✓	✓	
BHMW18	✓		✓	✓	
BHMW19	✓	✓	✓	✓	
BHMW20	✓	✓	✓	✓	
BHMW21	✓	✓	✓	✓	
BHMW22	✓	✓			
BHMW23	✓	✓			
BHMW24	✓		✓	✓	
BHMW25	✓	✓		✓	
BHMW26	✓	✓		✓	

Summary tables outlining the results of the laboratory analyses for soil and groundwater, along with the environmental quality standards, are presented in Appendices B and C, respectively. A copy of the laboratory certificates of analysis is presented in Appendix F.

2.3 Quality Assurance/Quality Control

A QA/QC program was implemented for the project to address the office and fieldwork programs. All project documentation was maintained and controlled under each specific project QA file with a unique project file identifier. An internal quality assurance review was completed for this report,

including verification of the laboratory data presented in tables in Appendices B and C, as well as confirmation of the laboratory data comparison to provincial standards and/or federal guidelines, as applicable.

As a minimum, sampling equipment was cleaned using a soap and water wash between samples. For all intrusive locations, detailed borehole/monitoring well and testpit logs containing all pertinent information were prepared. As required, soil samples were collected and placed in laboratory-supplied containers. A duplicate portion of each sample was also sealed in a plastic bag (double bagged) for subsequent screening. Soil sampling and classification were completed in accordance with the Canadian Foundation Engineering Manual (CFEM) standards and Environment Canada TABs.

The dedicated Waterra sampling tube and foot valve installed in each monitoring well were used to purge the monitoring wells and to collect groundwater samples, as well as to prevent cross contamination between monitoring wells. Prior to sampling, all monitoring wells were purged a minimum of three well volumes (or until dry) to ensure the samples would be representative of formation waters. The purge water removed from the monitoring wells was inspected for visual and olfactory evidence of environmental impacts. Groundwater samples were collected in amber glass containers provided by the laboratory, appropriate for the analysis to be conducted. For groundwater samples collected for analysis of inorganic metals parameters, dedicated FHT-700 Waterra field filters were used. These are capsule style filters which attach to the discharge end of the Waterra inertial flow pumping system.

Selected soil and groundwater samples were preserved during transport to Paracel Laboratory Ltd. (Paracel) or Maxxam Analytics Inc. for chemical analysis. Paracel is accredited by the Canadian Association for Environmental Analytical Laboratories (CAEAL), while Maxxam is a certified laboratory, accredited by the Standards Council of Canada in the program specialty area of Environmental (conforms with requirements of CAN−P−1598, CAN−P−4E (ISO/IEC 17025:2005)). A chain of custody form accompanied the samples at all points of handling. A QC supervisor was present throughout the duration of the fieldwork. Field sampling was completed in accordance with applicable environmental protocols and applicable industry practices.

3.0 RESULTS

3.1 Subsurface Conditions

The general soil stratigraphy observed throughout the site generally consisted of fill material overlying a native overburden comprised of various materials including sands, silts, and clays. Bedrock was confirmed at several of the borehole and testpit locations during the investigation. Bedrock was encountered at 17 of the 26 borehole locations at an average depth of approximately 2 m. In addition, boreholes BHMW7, BHMW17, BHMW25 and BHMW26 encountered split spoon refusal and/or possible bedrock at depths ranging from 4.2 to 5.2 m below grade. Five boreholes did not encounter split spoon refusal or possible bedrock and were drilled to depths ranging from 3.7 to 6.1 m. Details of the subsurface soil conditions encountered are provided in the borehole and testpit logs included in Appendix D and Appendix E, respectively.

3.2 Evaluation Criteria

The regulatory framework applied during the investigation consisted of the document entitled *"Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act",* MOE*,* March 9, 2004. The specific criteria applied during this investigation consisted of the Table 3 soil or groundwater quality standards for a residential/parkland/institutional land use in a non-potable groundwater condition and with coarse soil stratigraphy.

As discussed in Section 1.2, all soil laboratory results for this investigation were also compared to the following federal guideline documents:

- CCME document entitled *"Canadian Environmental Quality Guidelines"*, (1999, Updated 2005), Chapter 7: Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health (Commercial Land Use, coarse-grained soil texture, 10^{-5} incremental cancer risk for benzene).
- CCME (2001), "Canada-Wide Standards for Petroleum Hydrocarbons (PHC) in Soil", Table 1: Summary of Tier 1 Levels (mg/kg) for surface soil (Commercial Land Use, coarse-grained soil texture).

As there are currently no federal groundwater criteria for non-potable groundwater conditions a comparison of groundwater laboratory results with respect to federal guidelines was not carried out.

In addition, the TCLP results were compared to Schedule 4: Leachate Quality Criteria of the following regulation (for evaluation of soil waste classification for off-site disposal):

- Province of Ontario, "General-Waste Management", O. Reg. 347/90, as amended, made under the Environmental Protection Act.

3.3 Soil Quality – Former Buildings 16, 22, 29, 43/45, 80, 84, 90 and 137

Soil impacts, including PHCs, BTEX, ICP Metals and Dioxins/Furans, above the provincial standards and/or federal guidelines were confirmed at several of the previously documented contaminated building site locations (see section 1.3). It should be noted that the objective of completing the investigations at these locations by DST was not to determine the absence or presence of environmental impacts, but rather to further delineate the extent of the previously documented impacts. The findings of the soil quality assessment for these study areas within the current Phase II ESA are summarized in the following sections.

3.3.1 Soil Quality – Former Building 16

Based on a comparison of the laboratory analytical results (PHCs, ICP Metals, PAHs) with the soil evaluation criteria, all soil samples submitted for laboratory analysis from Building 16 reported concentrations below the provincial standards and federal guidelines for the parameters analysed (Ref.: Appendix B, Tables B1.1 to B1.3).

3.3.2 Soil Quality – Former Building 22

Based on a comparison of the laboratory analytical results (PHCs, BTEX, ICP Metals, PAHs) with the selected soil evaluation criteria, all soil samples submitted for laboratory analysis from Building 22 reported concentrations below the provincial standards and federal guidelines for the parameters analysed (Ref.: Appendix B, Tables B2.1 to B2.3).

3.3.3 Soil Quality – Former Building 29

Based on a comparison of the laboratory analytical results (PHCs, BTEX, ICP Metals, PAHs) with the selected soil evaluation criteria, the following was noted with respect to the soil samples analysed for Building 29 (Ref.: Appendix B, Tables B3.1 to B3.3):

- Soil sample TP26 SGS2 reported concentrations of PHC Fractions 3 and 4 above the provincial standards for residential/parkland use. The concentration of PHC Fraction 4 for TP26 SGS2 also exceeded the federal guideline for commercial land use.

- Soil sample TP27 SGS2 reported concentrations of PHC Fractions 2, 3 and 4 above both the provincial standards for residential/parkland land use and the federal guidelines for commercial land use.

All other soil samples submitted for laboratory analysis from Building 29 reported concentrations below the provincial standards and federal guidelines for the parameters analysed.

3.3.4 Soil Quality – Former Buildings 43 and 45

Based on a comparison of the laboratory analytical results (PHCs, ICP Metals, PAHs, Dioxins/Furans) with the selected soil evaluation criteria, the following was noted with respect to the soil samples analysed for Buildings 43 and 45 (Ref.: Appendix B, Tables B4.1 to B4.4):

- Soil sample TP8 SGS6 reported concentrations of barium, lead, and zinc above the provincial standards for residential/parkland land use. The zinc concentration for TP8 SGS6 also exceeded the federal guideline for commercial land use.
- Soil sample TP9 SGS5 reported a concentration of barium above the provincial standard for residential/parkland land use.

All other soil samples submitted for laboratory analysis from Buildings 43 and 45 reported concentrations below the provincial standards and federal guidelines for the parameters analysed.

3.3.5 Soil Quality – Former Building 80

Based on a comparison of the laboratory analytical results (PHCs, BTEX, ICP Metals, PAHs) with the selected soil evaluation criteria, the following was noted with respect to the soil samples analysed for Building 80 (Ref.: Appendix B, Tables B5.1 to B5.3):

- Soil sample TP68 SGS2 reported concentrations of benzene, ethylbenzene and toluene above the federal guidelines for commercial land use, but below the provincial standards for residential/parkland land use.
- Soil sample TP73 SGS1 reported a concentration of PHC Fraction 2 above the provincial standard for residential/parkland land use.

- Soil sample BHMW25 SS7 reported a concentration of PHC Fraction 3 above the provincial standard for residential/parkland land use.
- Soil sample TP67 SGS2 reported an arsenic concentration above the federal guideline for commercial land use.
- Soil sample TP69 SGS2 reported an arsenic concentration above the provincial standard for residential/parkland land use and the federal guideline for commercial land use.

All other soil samples submitted for laboratory analysis from Building 80 reported concentrations below the provincial standards and federal guidelines for the parameters analysed.

3.3.6 Soil Quality – Former Building 84

Based on a comparison of the laboratory analytical results (PHCs) with the selected soil evaluation criteria, all soil samples submitted for laboratory analysis from Building 84 reported concentrations below the provincial standards and federal guidelines for the parameters analysed (Ref.: Appendix B, Table B6.1).

3.3.7 Soil Quality – Former Building 90

Based on a comparison of the laboratory analytical results (PHCs, Dioxins/Furans) with the soil evaluation criteria, the following was noted with respect to the soil samples analysed for Building 90 (Ref.: Appendix B, Tables B7.1 to B7.2):

- Soil sample TP3 SGS1 reported a concentration of dioxins/furans above the federal guideline for commercial land use, but well below the provincial standard for residential/parkland land use.

All other soil samples submitted for laboratory analysis from Building 90 reported concentrations below the provincial standards and federal guidelines for the parameters analysed.

3.3.8 Soil Quality – Former Building 137

Based on a comparison of the laboratory analytical results (PHCs, BTEX, ICP Metals, PAHs) with the soil evaluation criteria, the following was noted with respect to the soil samples analysed for Building 137 (Ref.: Appendix B, Tables B8.1 to B8.3):

- Soil sample TP34 SGS5 reported concentrations of PHC Fractions 2 and 3 above both the provincial standards for residential/parkland land use and federal guidelines for commercial land use.
- Soil sample TP39 SGS5 reported concentrations of PHC Fractions 2 and 3 above the provincial standards for residential/parkland land use. The concentration of PHC Fraction 2 for TP39 SGS5 also exceeded the federal guideline for commercial land use.
- Soil sample BHMW15 SS5 reported concentrations of PHC Fractions 1, 2 and 3 above the provincial standards for residential/parkland land use. The concentration of PHC Fraction 2 for BHMW15 SS5 also exceeded the federal guideline for commercial land use.

All other soil samples submitted for laboratory analysis from Building 137 reported concentrations below the provincial standards and federal guidelines for the parameters analysed.

3.4 Soil Quality – Former Buildings 3, 12, 47, 126 and 178/179

These former building sites were investigated as part of previous investigations. DST did not carry out additional testing for these building sites as part of this Phase II ESA. In consultation with CLC, the existing data contained within previous reports was utilized to develop estimated quantities of contaminated soil for these building sites. Based on discussions with CLC, further delineation at these sites would be completed at the time of remediation.

Soil impacts above the former provincial guidelines (MOE Table B for residential/parkland land use) were confirmed at all of the above former building sites during previous investigations, which are discussed in Section 1 of this report. These sites contain TPH (gas/diesel or heavy oils) (Buildings 3, 47, 126 and 178/179) and electrical conductivity (Building 12) impacts to soil quality that exceed the provincial guidelines for residential/parkland land use. Existing data from previous reports was utilized by DST to create the limited delineation presented in this report for the above former building sites. However, through the advancement of exploratory testpits to investigate the

steam lines, some additional soil quality data was available in the vicinity of Building 126 and contributed to the estimated quantity of contaminated soil for that building site.

3.5 Soil Quality – Steam Line Corridor

Soil impacts, including PHCs, BTEX and ICP Metals, above the provincial soil quality standards and/or federal guidelines were confirmed at some of the intrusive testing locations along the steam line corridor. The findings of the soil quality assessment for these study areas (North Sector, Southeast Sector and Southwest Sector) are summarized in the following sections.

3.5.1 Soil Quality - North Sector

Based on a comparison of the laboratory analytical results (PHCs, BTEX, ICP Metals, PAHs) with the soil evaluation criteria, the following was noted with respect to the soil samples analysed for the North Sector (Ref.: Appendix B, Tables B9.1 to B9.3):

- Soil sample TP26 SGS2 reported concentrations of PHC Fractions 3 and 4 above the provincial standards for residential/parkland use. The concentration of PHC Fraction 4 for TP26 SGS2 also exceeded the federal guideline for commercial land use. This testpit is located near Building 29 (a former auto hobby club). Thus, the estimation of impacted soil at testpit location TP26 is included in the quantity estimates for Building 29 in Table 5: Summary of Contaminated Soil Quantities in the Conclusions section of this report.
- Soil sample TP27 SGS2 reported concentrations of PHC Fractions 2, 3 and 4 above both the provincial standards for residential/parkland land use and the federal guidelines for commercial land use. This testpit is also located near Building 29 (a former auto hobby club). Thus, the estimation of impacted soil at testpit location TP27 is included in the quantity estimates for Building 29 in Table 5.
- Soil sample BHMW15 SS5 reported concentrations of PHC Fractions 1, 2 and 3 above the provincial standards for residential/parkland land use. The concentration of PHC Fraction 2 for BHMW15 SS5 also exceeded the federal guideline for commercial land use. This borehole is located near Building 137 (former indoor swimming pool with fuel storage tanks). Thus, the estimation of impacted soil at borehole location BHMW15 is included in the quantity estimates for Building 137 in Table 5: Summary of Contaminated Soil Quantities.

- Soil samples TP31 SGS2 and TP31 SGS5 reported concentrations of zinc above the federal guideline for commercial land use, but below the provincial standard for residential/parkland land use. This testpit location is not located in close proximity to any site buildings. Thus, the estimation of impacted soil at TP31 is presented separately (under "steam line") in Table 5: Summary of Contaminated Soil Quantities.

All other soil samples submitted for laboratory analysis from the North Sector reported concentrations below the provincial standards and federal guidelines for the parameters analysed.

3.5.2 Soil Quality - Southeast Sector

Based on a comparison of the laboratory analytical results (PHCs, BTEX, ICP Metals, PAHs, Dioxins/Furans) with the soil evaluation criteria, the following was noted with respect to the soil samples analysed for the Southeast Sector (Ref.: Appendix B, Tables B10.1 to B10.4):

- Soil sample TP1 SGS5 reported a chromium concentration above the federal guideline for commercial land use, but below the provincial standard for residential/parkland land use.
- Soil sample TP15 SGS5 reported a zinc concentration above the federal guideline for commercial land use, but below the provincial standard for residential/parkland land use.
- These two testpit locations are not located in close proximity to any site buildings. Thus, the estimations of impacted soil at testpit locations TP1 and TP15 are presented separately (under steam line) in Table 5: Summary of Contaminated Soil Quantities in the Conclusions section of this report.

All other soil samples submitted for laboratory analysis from the Southeast Sector reported concentrations below the provincial standards and federal guidelines for the parameters analysed.

3.5.3 Soil Quality - Southwest Sector

Based on a comparison of the laboratory analytical results (PHCs, BTEX, ICP Metals, PAHs) with the soil evaluation criteria, the following was noted with respect to the soil samples analysed for the Southwest Sector (Ref.: Appendix B, Tables B11.1 to B11.3):

- Soil sample BHMW7 SS8 reported an ethylbenzene concentration above the federal guideline for commercial land use.
- Soil sample BHMW8 SS3 reported a concentration of PHC Fraction 1 above the provincial standard for residential/parkland land use, and concentrations of benzene and ethylbenzene above the federal guidelines for commercial land use.
- Soil sample BHMW8 SS3 also reported concentrations of chromium and nickel above the federal guideline for commercial land use.
- These two soil samples are located south of the former Canex Building, which was located on the north side of Via Venus and included a gas station. These soil samples were collected prior to subsequent testing and remediation work completed at the Canex Building site. In consultation with PWGSC and DND, DST was not to investigate this site. Thus, estimated quantities of contaminated soil associated with the above soil samples have not been illustrated on the report figures or included in Table 5: Summary of Contaminated Soil Quantities. The remediation of the Canex Building was completed by others and documented in a separate report, referenced as follows:

  "Canadian Forces Exchange System (CANEX), The Department Of National Defence(DND) And Shell Canada Products (Shell), Demolition, Soil Source Removal And Remediation, Former Shell/CANEX Service Station, 196 Via Venus Avenue, CFB Rockcliffe, Ottawa, Ontario Final Report," prepared by Terrapex Environmental, and dated December 2006.

  Confirmation of the current soil and groundwater quality at the Canex Building Site is recommended since BHMW7 and BHMW8 were advanced prior to the remediation program completed by others. Since the remediation works were completed following the certification date of the Phase II ESA, DST cannot confirm the status of the monitoring wells subsequent to the remediation program.

All other soil samples submitted for laboratory analysis from the Southwest Sector reported concentrations below the provincial standards and federal guidelines for the parameters analysed.

3.5.4 Soil Quality – Exploratory Testpits

Based on visual observations, soil samples from six of the exploratory testpits exhibited signs of impacts and were submitted for laboratory analysis. Based on a comparison of the laboratory analytical results (PHCs, ICP Metals, PAHs) with the soil evaluation criteria, the following was noted with respect to the soil samples analysed (Ref.: Appendix B, Tables B12.1 to B12.3):

- Soil sample TP52 SGS1 reported concentrations of PHC Fractions 2, 3 and 4 above both the provincial standards for residential/parkland land use and the federal guidelines for commercial land use. In addition, soil sample TP52 SGS1 reported a nickel concentration above the federal guideline for commercial land use. This testpit location is not located in close proximity to any site buildings. Thus, the estimation of impacted soil at TP52 is presented separately in Table 5: Summary of Contaminated Soil Quantities in the Conclusions section of this report.
- Soil sample TP56 SGS1 reported concentrations of PHC Fractions 2, 3 and 4 above both the provincial standards for residential/parkland land use and the federal guidelines for commercial land use. In addition, soil sample TP56 SGS1 reported a nickel concentration above the federal guideline for commercial land use. This testpit is located near Building 22. Thus, the estimation of impacted soil at TP56 is included in the quantity estimates for Building 22 in Table 5: Summary of Contaminated Soil Quantities.
- Soil samples TP61 SGS1 and TP62 SGS1 reported concentrations of PHC Fractions 2, 3 and 4 above both the provincial standards for residential/parkland land use and the federal guidelines for commercial land use. These two testpits are located near Building 126. Thus, the estimation of impacted soil at TP61 and TP62 is included in the quantity estimates for Building 126 in Table 5: Summary of Contaminated Soil Quantities.
- Soil sample TP48 SGS1 reported concentrations of arsenic above both the provincial standard for residential/parkland land use and the federal guideline for commercial land use. This testpit is located near Building 80, at the southeast corner of the intersection of Burma Road and Via Venus. Thus, the estimation of impacted soil at TP48 is included with Building 80 in Table 5: Summary of Contaminated Soil Quantities.

The remaining soil sample submitted for laboratory analysis from the exploratory testpits (TP57 SGS1) reported concentrations below the provincial standards and federal guidelines for the parameters analysed.

3.6 Groundwater Quality – Former Building Sites

Petroleum hydrocarbon groundwater impacts were confirmed at two of the eight contaminated building sites during the investigation. The findings of the groundwater quality assessment for these study areas are summarized in the following sections.

3.6.1 Groundwater Quality – Former Building 16

Based on a comparison of the laboratory analytical results (PHCs, BTEX, ICP Metals, PAHs) with the groundwater evaluation criteria, all groundwater samples submitted for laboratory analysis from Building 16 reported concentrations below the provincial standards for the parameters analysed (Ref.: Appendix C, Tables C1.1 to C1.3).

3.6.2 Groundwater Quality – Former Building 22

Based on a comparison of the laboratory analytical results (PHCs, BTEX, ICP Metals, PAHs) with the groundwater evaluation criteria, all groundwater samples submitted for laboratory analysis from Building 22 reported concentrations below the provincial standards for the parameters analysed (Ref.: Appendix C, Tables C2.1 to C2.3).

3.6.3 Groundwater Quality – Former Building 29

Based on a comparison of the laboratory analytical results (PHCs, BTEX, ICP Metals, PAHs) with the groundwater evaluation criteria, the groundwater sample submitted for laboratory analysis from Building 29 reported concentrations below the provincial standards for the parameters analysed (Ref.: Appendix C, Tables C3.1 to C3.3).

3.6.4 Groundwater Quality – Former Buildings 43 and 45

Based on a comparison of the laboratory analytical results (PHCs, BTEX, ICP Metals, PAHs, Dioxins/Furans) with the groundwater evaluation criteria, all groundwater samples submitted for laboratory analysis from Buildings 43 and 45 reported concentrations below the provincial standards for the parameters analysed (Ref.: Appendix C, Tables C4.1 to C4.4).

3.6.5 Groundwater Quality – Former Building 80

Based on a comparison of the laboratory analytical results (PHCs, BTEX, PAHs) with the groundwater evaluation criteria, the following was noted with respect to the groundwater samples analysed for Building 80 (Ref.: Appendix C, Tables C5.1 to C5.2):

- Groundwater sample BHMW26 WGS1 reported concentrations of PHC Fractions 2, 3 and 4 of 2,600 micrograms per litre (µg/L), 13,000 µg/L and 500 µg/L, respectively. Based on preliminary discussion held between project stakeholders and regulatory officials, a target value of 10,000 µg/L was agreed upon as a groundwater quality objective. Therefore, based on the reported concentrations of PHCs in this groundwater sample, the groundwater quality at BHMW26 is considered to exceed the agreed upon cleanup criteria.

All other groundwater samples submitted for laboratory analysis from Building 80 reported concentrations below the provincial standards for the parameters analysed.

3.6.6 Groundwater Quality – Former Building 84

Based on a comparison of the laboratory analytical results (PHCs) with the groundwater evaluation criteria, the groundwater sample submitted for laboratory analysis from Building 84 reported concentrations below the provincial standards for the parameters analysed (Ref.: Appendix C, Table C6.1).

3.6.7 Groundwater Quality – Former Building 90

Based on a comparison of the laboratory analytical results (PHCs) with the groundwater evaluation criteria, the groundwater sample submitted for laboratory analysis from Building 90 reported concentrations below the provincial standards for the parameters analysed (Ref.: Appendix C, Table C7.1).

3.6.8 Groundwater Quality – Former Building 137

Based on a comparison of the laboratory analytical results (PHCs, BTEX, ICP Metals, PAHs) with the groundwater evaluation criteria, the following was noted with respect to the groundwater samples analysed for Building 137 (Ref.: Appendix C, Tables C8.1 to C8.3):

- Groundwater sample BHMW15 WGS1 reported concentrations of PHC Fractions 2 and 3 of 140,000 µg/L and 65,000 µg/L, respectively. A second groundwater sample collected at a later date from the same location, BHMW15 WGS2, reported concentrations of PHC Fractions 2 and 3 of 67,000 µg/L and 34,000 µg/L, respectively. Based on preliminary discussion held between project stakeholders and regulatory officials, a target value of 10,000 µg/L was agreed upon as a groundwater quality objective for the aggregate total of the four PHC fractions. Therefore, based on the reported concentrations of PHCs in these groundwater samples, the groundwater quality at BHMW15 is considered to exceed the agreed upon cleanup criteria.

The two groundwater samples submitted for laboratory analysis from Building 137 reported concentrations below the provincial standards for all other parameters analysed.

3.7 Groundwater Quality – Steam line Corridor

Petroleum hydrocarbon groundwater impacts were confirmed at two of the intrusive testing locations along the steam line corridor. The findings of the groundwater quality assessment for these study areas (North Sector, Southeast Sector and Southwest Sector) are summarized in the following sections.

3.7.1 Groundwater Quality - North Sector

Based on a comparison of the laboratory analytical results (PHCs, BTEX, ICP Metals, PAHs) with the groundwater evaluation criteria, the following was noted with respect to groundwater samples analysed for the North Sector (Ref.: Appendix C, Tables C9.1 to C9.3):

- As previously discussed in Section 3.6.8 (Former Building 137), a target value of 10,000 µg/L was agreed upon as a groundwater quality objective, based on preliminary discussion held between project stakeholders and regulatory officials. Based on the concentrations of PHC Fractions 2 and 3 reported for groundwater samples BHMW15 WGS1 and BHMW15 WGS2, the groundwater quality at BHMW15 is considered to exceed the agreed upon cleanup criteria.

All other groundwater samples submitted for laboratory analysis within the North Sector reported concentrations below the provincial standards for the parameters analysed.

3.7.2 Groundwater Quality - Southeast Sector

Based on a comparison of the laboratory analytical results (PHCs, ICP Metals, PAHs, Dioxins/Furans) with the groundwater evaluation criteria, all groundwater samples submitted for laboratory analysis from the Southeast Sector reported concentrations below the provincial standards for the parameters analysed (Ref.: Appendix C, Tables C10.1 to C10.4).

3.7.3 Groundwater Quality - Southwest Sector

Based on a comparison of the laboratory analytical results (PHCs, BTEX, ICP Metals, PAHs) with the groundwater evaluation criteria, the following was noted with respect to groundwater samples analysed for the Southwest Sector (Ref.: Appendix C, Tables C11.1 to C11.3):

- Although no numerical value has been derived for the provincial standard for PHCs in non-potable groundwater (Table 3), the following must be met (in order for the standard to be met): no evidence of free product, including but not limited to visible petroleum hydrocarbon film or sheen present on groundwater, surface water or in any groundwater or surface water samples. As a sheen was noted on the groundwater for BHMW7, this is considered to be an exceedance to the provincial standard for PHCs in non-potable groundwater (Table 3); and
- It should be noted that subsequent to the sampling and analysis of groundwater from BHMW7, the area in the vicinity underwent additional remediation. The results of the post remediation sampling have been discussed in the following report:

  "Canadian Forces Exchange System (CANEX), The Department Of National Defence(DND) And Shell Canada Products (Shell), Demolition, Soil Source Removal And Remediation, Former Shell/CANEX Service Station, 196 Via Venus Avenue, CFB Rockcliffe, Ottawa, Ontario Final Report," prepared by Terrapex Environmental, and dated December 2006.

  Since the remediation works were completed following the certification date of the Phase II ESA, DST cannot confirm the status of the monitoring wells subsequent to the remediation program.

All other groundwater samples submitted for laboratory analysis from the Southwest Sector reported concentrations below the provincial standards for the parameters analyzed.

3.8 Background Soil Statistical Analysis

A data gap analysis of the previous assessment reports was requested to the additional comparison of the soil data to the CCME Soil Quality Guidleines for commercial land use. The results of the data gap analysis have been included as part the building descriptions within Section 1 of this report and are further discussed in the following report, which is attached in Appendix G:

> *"Review of EMS/GREENBANK Phase II ESA Reports in Comparison to CCME Criteria, CFB Rockcliffe, Ottawa, ON,"* prepared by DST, and dated April 16, 2007. (DST Ref File: OE-OT-005848)

3.9 Background Soil Statistical Analysis

Following the above mentioned data gap analysis and in consultation with CLC, PWGSC and DND, DST was requested to complete a statistical analysis with regards to specific metals of concern. The statistical analysis consisted of the comparison of nickel (Ni) and chromium (Cr) concentrations within areas of former building sites with background concentrations that typically have elevated concentrations. Elevated nickel (Ni) and chromium (Cr) concentrations have previously been identified throughout the local depositional environment within the native clay layers found within the national capital region. The sample set considered for the statistical analysis was located in native clay and had Ni and Cr concentrations below the MOE Table 3 residential standards; however, the Ni and/or Cr concentrations exceeded the CCME commercial guidelines.

Native background conditions for Chromium and Nickel concentrations were determined by the submittal of on-site soils samples from the native clay within areas of low anthropogenic impacts and/or undeveloped areas of CFB Rockcliffe. Laboratory analysis of 23 native background soil samples for Chromium and Nickel were completed on soil originally collected as part of the Preliminary Geotechnical Investigation field program completed by DST in 2006 (File No. OG06562) for Canada Lands Company at CFB Rockcliffe.

Using two sample data sets (the potentially impacted samples and the background condition samples) preliminary statistical tests were completed to determine if the elevated levels of soil Cr and Ni concentrations reported previously were statistically similar to the measured background concentrations. The statistical test reviewed the distribution of Cr/Ni concentrations

for each sample. Graphic representation of the preliminary statistical analysis results are included within Appendix G.

The preliminary statistical analysis indicated that there was no correlation between sample specific concentrations of Ni/Cr but was inconclusive in determining if the individual parameters were similar to background concentrations. As such, a second statistical analysis was completed by Jacques Whitford in September 2008. The methodology and statistical analysis results have been summarized below but are discussed in detail in the following report:

> *"Nickel and Chromium Statistical Analysis at CFB Rockcliffe,"* prepared by Jacques Whitford, and dated September 17, 2008.

The Jacques Whitford statistical analysis utilized the Shaprio-Wilk test (a preferred test for sample sizes less than 50) and confirmed that the site data is not normally distributed. As such, the Wilcoxon rank sum (or Mann-Whitney U) test was utilized for testing the difference between means of two independent populations. Results of the non-parametric testing indicated that there was not a significant difference (using a 95% confidence level) between background and site concentrations for either Ni or Cr.

Based on the findings of the statistical analysis, the concentrations of Ni and Cr within native clay soils as reported by others in the previous reports are considered as statistically similar to background concentrations. Ni and Cr concentrations in areas and/or at depths associated with sand or silty sand soils, which are considered to be fill and anthropogenic in origin. As such, these soils have been included within the delineation and estimation of contaminated soil volumes.

3.10 Ecological Risk Assessment

Based on current and historical data for the site, concentrations of Nickel (Ni) and Chromium (Cr) meet the CCME soil quality guidelines for human health (SQGHH). However, several samples have Ni and/or Cr concentrations that exceed the CCME soil quality guidelines for ecological health (SQGEH). Similarly, the mean concentrations of Ni and Cr within the background sample set also exceed the CCME SQGEH. While it was determined that Ni and Cr concentrations on-site are statistically similar to the background concentrations found in the general vicinity of the site (as discussed in section 3.8 above). In the interest of conservatism, a quantitative ecological risk assessment (PQERA) for the site was completed. The results of

the PQERA are discussed in the following report:

> *"Preliminary Quantitative Ecological Risk Assessment for Nickel and Chromium at CFB Rockcliffe, Ottawa, Ontario Final Report," prepared by Jacques Whitford, and dated November 12, 2008.*

The PQERA considered 5 receptors for the risk characterization of the site: Masked Shrew, Meadow Vole, Red Fox, American Robin, and Terrestrial Plants/Soil Invertebrates. A Hazard Quotient (HQ) was calculated for each receptor for both contaminants of potential concern (COPC). An HQ less than 1.0 indicates that the exposure concentration is less than the threshold of toxicity for the COPC being evaluated and adverse environmental effects are not expected. An HQ of greater than 1.0 does not necessarily indicate an unacceptable level of risk, rather that there is a possibility of adverse environmental effects and indicates that more careful review and/or investigations may be required.

The PQERA concluded that the HQ for both COPCs for the meadow vole and red fox were less than the benchmark of 1.0, indicating that Cr and Ni concentrations do not pose a risk to either species. The HQ for Cr for the American Robin and both Cr and Ni for the Masked Shrew and Terrestrial Plants/Soil Invertebrates exceeded the benchmark of 1.0. Because of inherently conservative assumptions and based on the evidence of a healthy and abundant ecosystem witnessed during site visits, the estimated risk for these populations can be assumed to be over-estimated. As such, the HQ estimated for these populations does not necessarily indicate a risk to these populations.

Overall, the conservative results of the PQERA suggest that Cr and Ni soil concentrations at the Site are not considered to pose a realistic risk to ecological receptors at the Site. The PQERA recommended that no risk management measures are required with respect to elevated Ni and Cr concentrations. As such, all background and site native soil samples with Ni and/or Cr concentrations in excess of the CCME SQG_{EH} are not considered to be impacted and have been excluded from the estimate of contaminated soils quantity. Soil samples collected from fill material (including Buildings 43 and 45) that have Ni and/or Cr concentrations in excess of the CCME SQG_{EH} represent anthropogenically disturbed soils and could not be compared to background soils. As such, these soils have been included within the delineation and estimation of contaminated soil volumes requiring remediation.

3.11 Soil Leachate Analysis

A composite soil sample for each sector was collected and submitted for TCLP analysis in accordance with O. Reg. 347/90 (as amended to O. Reg. 461/05) to evaluate the soil waste classification for off-site disposal. The results of the TCLP analysis were compared to Schedule 4: Leachate Quality Criteria of O. Reg. 461/05, and no exceedances were reported.

The results of the leachate analyses did not exceed O. Reg. 461/05, Schedule 4 criteria. Therefore, the impacted soil will be classified as non-hazardous waste upon removal from site and may be disposed at a licensed non-hazardous waste landfill facility. These results are presented in Table B14.1 in Appendix B and the laboratory certificate of analysis is presented in Appendix E.

4.0 CONCLUSIONS

DST has performed a Phase II ESA at selected areas within the former CFB Rockcliffe located in Ottawa, Ontario. The primary objective of the Phase II ESA was to evaluate the levels of environmental risk with respect to the existing site conditions, in support of the decommissioning of inactive underground steam lines and subsequent redevelopment of the site. This Phase II ESA was intended to supplement the results of previous environmental investigations completed by others at CFB Rockcliffe.

The most recent round of site investigations conducted by DST, completed between October 2004 and February 2005, consisted of the advancement of 26 boreholes equipped with groundwater monitoring wells, 48 environmental testpits and 25 exploratory testpits. Representative soil and groundwater samples collected from the test pits and borehole/monitoring wells were submitted for laboratory analysis of suspected chemical parameters of concern. The laboratory analytical program included the submission of 151 soil samples and 28 groundwater samples for select parameters including PHCs, BTEX, ICP Metals, PAHs and Dioxins/Furans.

The results of the Phase II ESA have confirmed the presence of soil and groundwater contamination above the provincial standards (residential/parkland land use) and/or federal guidelines (commercial land use) at various locations within the site. Based on the information available from this Phase II ESA, as well as the results of previous investigations the quantities of contaminated soil material estimated to be present at the site are summarized in Table 5. The aerial extents of the contaminated sites are illustrated on the site figures included in Appendix A. As this program did not include a Phase III ESA (detailed site delineation), there may be some variance between estimated contaminated soil quantities presented in Table 5 and actual conditions existing on site. Furthermore, Table 5 does not reflect the impacted soils identified at the time of the steam line decommissioning program and referenced within the recommendations of the steam line report issued in August 2007 under a separate title.

Groundwater concentrations for petroleum hydrocarbons were confirmed at Building Nos. 80 (BHMW26) and 137 (BHMW15) and in the southwestern sector (BHMW7 and BHMW8) to be greater than the site specific criteria (10,000 µg/L). It should be noted that DST cannot confirm the status of the monitoring wells BHMW7 and BHMW8 subsequent to the remediation program completed by others at the CANEX Site.

Table 5 - Summary of Estimated Contaminated Soil Quantities

Site Building No. / Location	Contaminants	Estimated Depth Interval (m)	Extent of Aerial Impact (m^2)		Contaminated Soil Volume (m^3)		Contaminated Soil Metric Tonnage (m.t.)	
			MOE[1]	CCME[2]	MOE[1]	CCME[2]	MOE[1]	CCME[2]
3	TPH (heavy oils)	0 – 2.3	165	0	380	0	836	0
12	Electrical Conductivity, Zinc	0 – 1.0	120	120	120	120	264	264
16	pH	2.0 – 4.4	0	795	0	1908	0	4,198
22	TPH (gas/diesel and heavy oils), PHC (F2, F3, F4), Nickel	0.2 – 3.3	800	800	2,480	2,480	5,456	5,456
29	TPH (gas/diesel and heavy oils), PHC (F2, F3, F4)	0.5 – 2.2	2,030	2,030	3,451	3,451	7,592	7,592
43/45	TPH (heavy oils), Metals (arsenic, barium, total chromium, copper, lead, nickel, zinc)	0.2 – 1.2	1,530	1,275	1,530	1,275	3,366	2,805
47	TPH (gas/diesel)	4.4 – 5.0	155	155	93	93	205	205
80	Arsenic, PHC (F2)	0 - 1.3	695	710	904	923	1,989	2,031
	Arsenic [@TP48]	0.5 – 0.8	135	135	41	41	90	90
	PHC (F3) [@ BHMW25]	3.2 – 4.2	450	0	450	0	990	0
84	TPH (gas/diesel)	0 – 1.0	150	150	150	150	330	330
90	TPH (gas/diesel)	2.0 – 3.0	315	315	315	315	693	693
	Vanadium	0 – 3.0	0	280	0	840	0	1,848
	Dioxins/Furans	0 – 3.0	325	325	975	975	2,145	2,145

Site Building No. / Location	Contaminants	Estimated Depth Interval (m)	Extent of Aerial Impact (m^2)		Contaminated Soil Volume (m^3)		Contaminated Soil Metric Tonnage (m.t.)	
			MOE[(1)]	CCME[(2)]	MOE[(1)]	CCME[(2)]	MOE[(1)]	CCME[(2)]
110	pH	1.0 – 3.4	0	355	0	852	0	1,874
126	TPH (heavy oils), PHC (F2, F3, F4)	0 – 0.8	215	215	172	172	378	378
	PHC (F2, F3, F4)	0.6 – 0.9	200	200	60	60	132	132
137	TPH (gas/diesel and heavy oils), PHC (F1, F2, F3)	1.5 – 3.2	2,680	2,680	4,556	4,556	10,023	10,023
178/179	TPH (heavy oils)	0 – 1.3	220	0	286	0	629	0
Steam line – North Sector	PHC (F2, F3, F4), Nickel [@TP52]	0 – 0.6	320	320	192	192	422	422
	Zinc [@ TP31]	0.1 – 1.2	0	85	0	94	0	207
Steam line – Southeast Sector	Zinc [@ TP15]	0.9 – 1.5	0	85	0	51	0	112
Sub-Totals	Petroleum Hydrocarbons	-	6,580	5,745	9,913	8,797	21,809	19,354
	Metals	-	255	705	161	1,146	354	2,521
	Petroleum Hydrocarbons & Metals	-	3,345	3,105	5,106	4,870	11,233	10,714
	Dioxins/Furans	-	325	325	975	975	2,145	2,145
	pH		0	1,150	0	2,760		6,072
TOTAL	-	-	**10,505 m^2**	**11,030 m^2**	**16,155 m^3**	**18,548 m^3**	**35,541 m.t.**	**40,806 m.t.**

Notes:

1. MOE – Quantities under the MOE columns are associated with soils that exceed either 1) the former evaluation standard (for specific contaminants of concern ie. TPH): Ontario Ministry of the Environment "Guideline for Use at Contaminated Sites in Ontario", September 1998, Table B or 2). The present evaluation standards: Ontario Regulation 153, Ontario Ministry of the Environment "Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004, Table 3, residential property use in a non-potable setting.
2. CCME – Quantities under the CCME columns are associated with soils that exceed the Canadian Council of Ministers of the Environment "Canadian Environmental Quality Guidelines" for commercial land use, 1999, Updated 2008
3. Residential/Parkland provincial standards have been included to assist with future redevelopment planning that would require a provincial Record of Site Condition.
4. Commercial Land Use federal guidelines have been included to meet federal requirements with respect to land transfers to and/or from federal agencies.
5. Contaminated soil extent and volume is estimated based on half-way rule (i.e. it is assumed that soils would be impacted halfway to the next clean borehole or testpit). This approach was adopted in consultation with PWGSC and DND. Only soil sample locations that exceeded the MOE standards (or previous guidelines) were included in the calculation of the MOE contaminated volumes. Similarly only CCME exceedances were included in the calculation of the CCME contaminated volumes. The contaminant volume is the total amount considering exceedances above one or both of the provincial and federal criteria.
6. Volumes and quantities are based on the regulations and standards at the time of preparing this assessment. As such quantities may vary based on future regulatory changes.
7. TPH – Total Petroleum Hydrocarbons (gas/diesel, oil and grease). These impacts are in reference to soil locations exceeding the pervious MOE Table B guidelines.
8. PHCs – Petroleum Hydrocarbons (Fractions F1-F4). The impacts are in reference to soil locations exceeding the present MOE Table 3 standards.
9. An assumed soil density of 2.2 tonnes / m^3 was used.
10. Native soil samples (clay soil type) with concentrations of Ni and/or Cr in excess of the CCME Soil Quality Guidelines for Ecological Health and that are statistically similar to local background samples have not been included within the calculated Aerial Impacts or Contaminated Volumes.

The estimated totals of contaminated soil material at the site are presented in the table above, separated into the following contaminant categories: 1) Petroleum Hydrocarbons; 2) Metals; 3) Petroleum Hydrocarbons and Metals; 4) Dioxins/Furans; and 5) pH. For soils impacted above the MOE Table 3 residential standards the total impacted soil area was estimated to be 10,505 m^2, with an estimated impacted soil volume of 16,155 m^3. The total tonnage of MOE impacted soil on site was estimated to be 35,541 tonnes. For soils impacted above the CCME commercial guidelines the total impacted soil area was estimated to be 11,030 m^2, with an estimated impacted soil volume of 18,548 m^3. The total tonnage of CCME impacted soil on site was estimated to be 40,806 tonnes. It should be noted that the aerial extent of the contaminant plumes may differ between CCME and MOE and do not overlap in all cases.

5.0 RECOMMENDATIONS

Given the extent of contamination identified, CLC has request DST to evaluate green, sustainable remedial technologies for evaluation. As part of the process DST considered and reviewed a number of viable green technologies in addition to the conventional excavation and disposal option.

Based on the type of soil contaminants identified on site, the following are considered as potential remedial alternatives for the management of the contaminated soil:

1. Excavation and Off-Site Disposal.
2. Biocell Landfarming.
3. Soil Washing.

Excavation and Off-Site Disposal

This remedial option would involve the excavation and off-site disposal (to a MOE approved waste disposal facility) of all impacted soil with parameter concentrations in excess of provincial standards and/or federal guidelines. This is an ex-situ remedial option that would allow removal of all soil contaminants (with high effectiveness in meeting clean-up criteria), with low complexity and completion within a relatively short timeframe (approximately 3 months). However, it does not involve the use of a sustainable technology, and would be completed at a relatively high cost and by relocating contaminated soils off-site.

Biocell Landfarming

Bioremediation uses microorganisms to transform or degrade contaminants to non-hazardous or less hazardous chemicals, with the addition of substances such as nutrients, additional microorganisms and oxygen. Biocell landfarming involves the excavation and placement of contaminated soil in a controlled cell, the addition of substances such as nutrients, additional “microorganisms” and periodic tilling to provide aeration and oxygen to assist in the degradation process.

This remedial option would be applicable for the bioremediation of petroleum hydrocarbon impacted soil with parameter concentrations in excess of provincial standards and/or federal guidelines. However, as bioremediation is not considered appropriate for soil impacted with metals and contaminants other than petroleum hydrocarbons, excavation and off-site disposal

would be required for the soil impacted with metals and other contaminants (electrical conductivity and dioxins/furans). This remedial option involves the use of a sustainable technology for treatment of partial soil contaminants at a relatively low cost. However, it would be implemented over a relatively longer timeframe (2 to 3 years), and would include landfill disposal of soil with non-treatable soil contaminants, as well as potential landfill disposal of additional soil which was deemed to be not effectively treatable by bioremediation due to soil type or conditions (e.g. high clay content, etc.)

Soil Washing

Soil washing is a treatment technology that removes hazardous substances from soil particles by excavating the soil, employing bulk separation techniques such as screening, and then washing impacted soils with water or other approved cleaning agents. The contaminated water resulting from this process is subject to further process water treatment, and the cleaned soil would typically be placed back in the excavation. This soil washing process can be implemented with a process rate of 50 to 100 tonnes per hour. Limitations such as clay soils may reduce or affect the treatment process. This process will result in a 10% waste stream that would require disposal at an authorized landfill.

This remedial option would be applicable for the remediation of the majority of impacted soil, including petroleum hydrocarbon and metals soil contaminants with parameter concentrations in excess of provincial standards and/or federal guidelines. Excavation and off-site disposal may be required for a small quantity of soil impacted with other contaminants, including electrical conductivity and dioxins/furans. This remedial option involves the use of a sustainable treatment technology for the majority of soil contaminants within a relatively short timeframe (3 to 4 months) and at a relatively lower than average cost, compared to excavation and off-site disposal.

The remedial program consisting of the sustainable soil washing technology is considered the most appropriate for the given site conditions.

It should be noted that a Phase III ESA program for delineating some of the sites should be integrated under the remedial program. In addition, further to the completion of the decommissioning of the underground steam lines in December 2006 (Ref DST File No. OE-OT-005835), a number of additional areas were identified following the completion of this Phase II

ESA,. The remedial program shall integrate the results of this study and the recommendations of the closeout report completed for the decommissioned steam lines.

Groundwater

DST recommends groundwater monitoring at Building Nos 80 and 137 for PHCs of the groundwater following the removal of the impacted soils. Since there are no applicable standards/guidelines for PHCs the site specific criteria of 10,000 µg/L should be used.

DST does recommend that the groundwater quality be assessed following the completioin of the site remediation. Furthermore, the soil remediation program should consider the management of any groundwater infiltration that may inhibit the remedial activities.

6.0 LIMITATIONS

A description of limitations, which are inherent in carrying out site investigation studies, is given in Appendix H and forms an integral part of this report.

7.0 CLOSURE

We trust the above information is satisfactory. If you have any questions, please do not hesitate to contact the undersigned.

Respectfully submitted,

DST Consulting Engineers Inc.

Shahid Mansur, P. Eng.
Associate, Senior Engineer

George Thomas, P. Eng.
Principal

Encl.:

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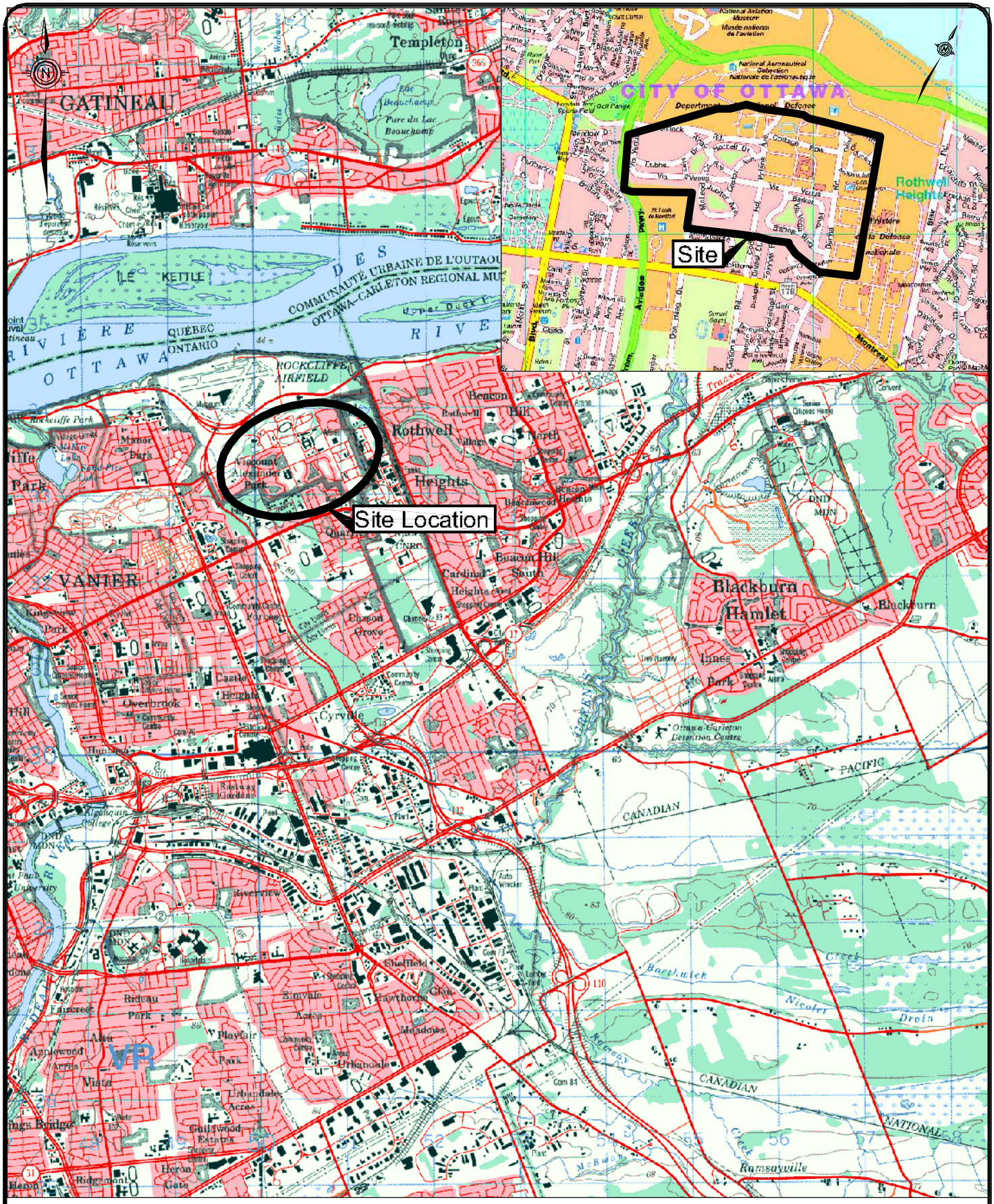
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APPENDIX A
SITE FIGURES

Appendix A - List of Site Figures	
Figure ID	**Project: Phase II ESA, CFB Rockcliffe, Ottawa, Ontario**
	Figure Title
1	Site Location Plan
2	Site Plan
A	Building 3
B	Building 12
C	Building 16
D	Building 22
E	Building 29
F	Buildings 43, 45 & 110
G	Building 47
H	Building 80
I	Building 84
J	Buildings 90 & 97
K	Building 126
L	Building 137
M	Buildings 178 & 179
N	Trailer Storage Compound
O	North Sector
P	Southeast Sector
Q	Southwest Sector



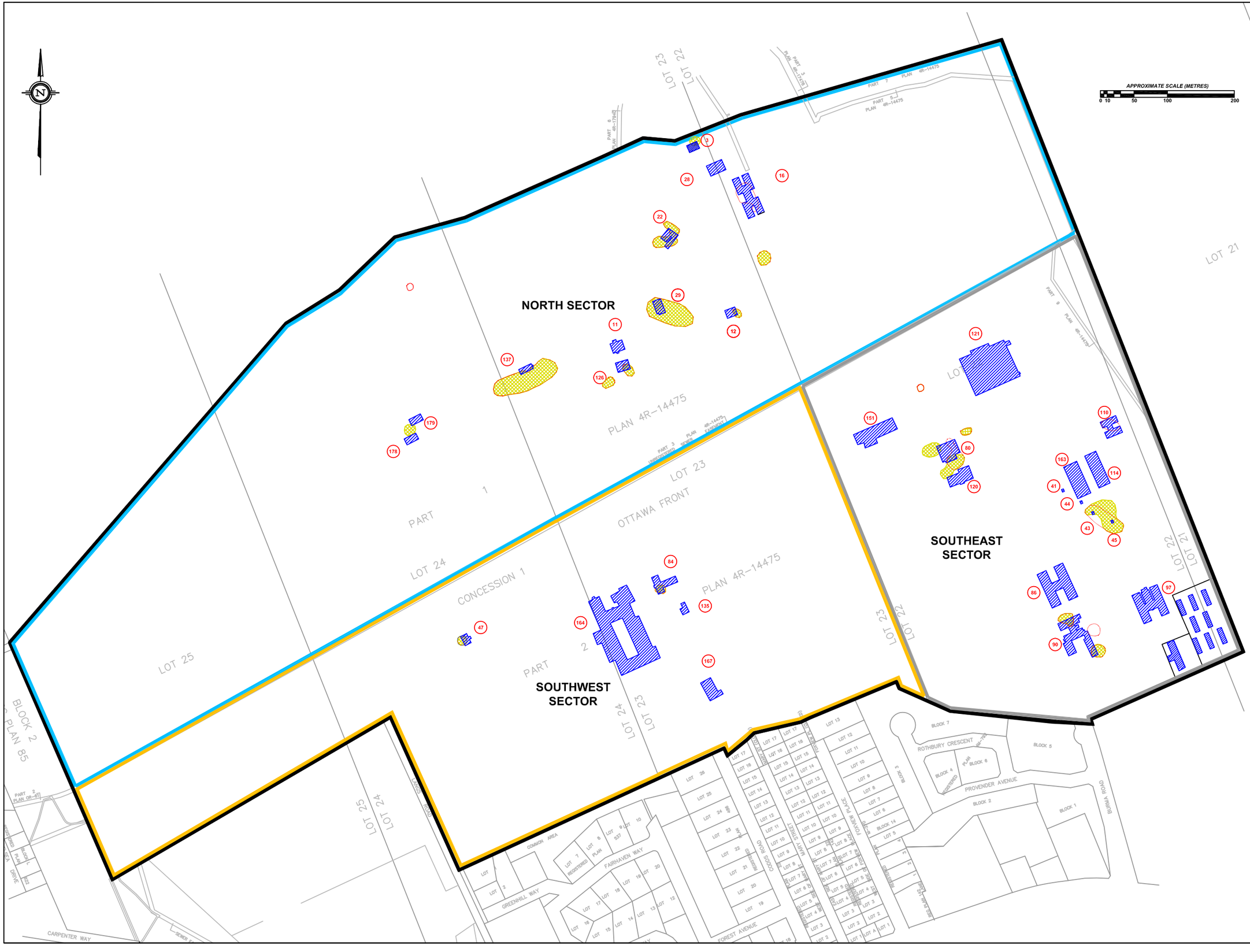
Notes: 1. BASE MAP PROVIDED BY QUOVADIS NAVIGATOR, DIGITAL MAPS, SOUTHERN ONTARIO (2000).
2. INSERT MAP PROVIDED BY MAPART PUBLISHING, DIGITAL MAPS, OTTAWA HULL & ENVIRONS (2001).

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Phase II ESA CFB Rockcliffe, Ottawa, Ontario		PROJECT NO.: OE-OT-009825	DATE: April 2009
SITE LOCATION PLAN		FIGURE 1	SCALE: Grid = 1 km

PHASE II ESA, CFB ROCKCLIFFE, OTTAWA, ONTARIO
SITE PLAN

FIGURE 2



Legend

- 123 — Building Identification
- Former Building Location
- Property Boundary
- Southeast Sector Boundary
- Southwest Sector Boundary
- North Sector Boundary
- Approximate Extent of Soil Contamination In Excess of MOE Standards
- Approximate Extent of Soil Contamination In Excess of CCME Commercial Guidelines

NOTES:

1. *DO NOT SCALE DRAWING*
2. *THIS DRAWING SHALL BE READ AND INTERPRETED IN CONJUNCTION WITH THE ASSOCIATED REPORT*
3. *EXTENT OF CONTAMINATION PLUME BASED ON MIDWAY POINT TO NEXT INTRUSIVE LOCATION MEETING PROVINCIAL STANDARDS (TABLE 3 - RESIDENTIAL/PARKLAND) AND/OR FEDERAL GUIDELINES (COMMERCIAL)*

REV.	DESCRIPTION	DATE
4	PWGSC COMMENTS	04/09
3	PWGSC COMMENTS	03/09
2	PWGSC COMMENTS	10/07
1	PWGSC COMMENTS	08/06
0	ORIGINAL	12/05

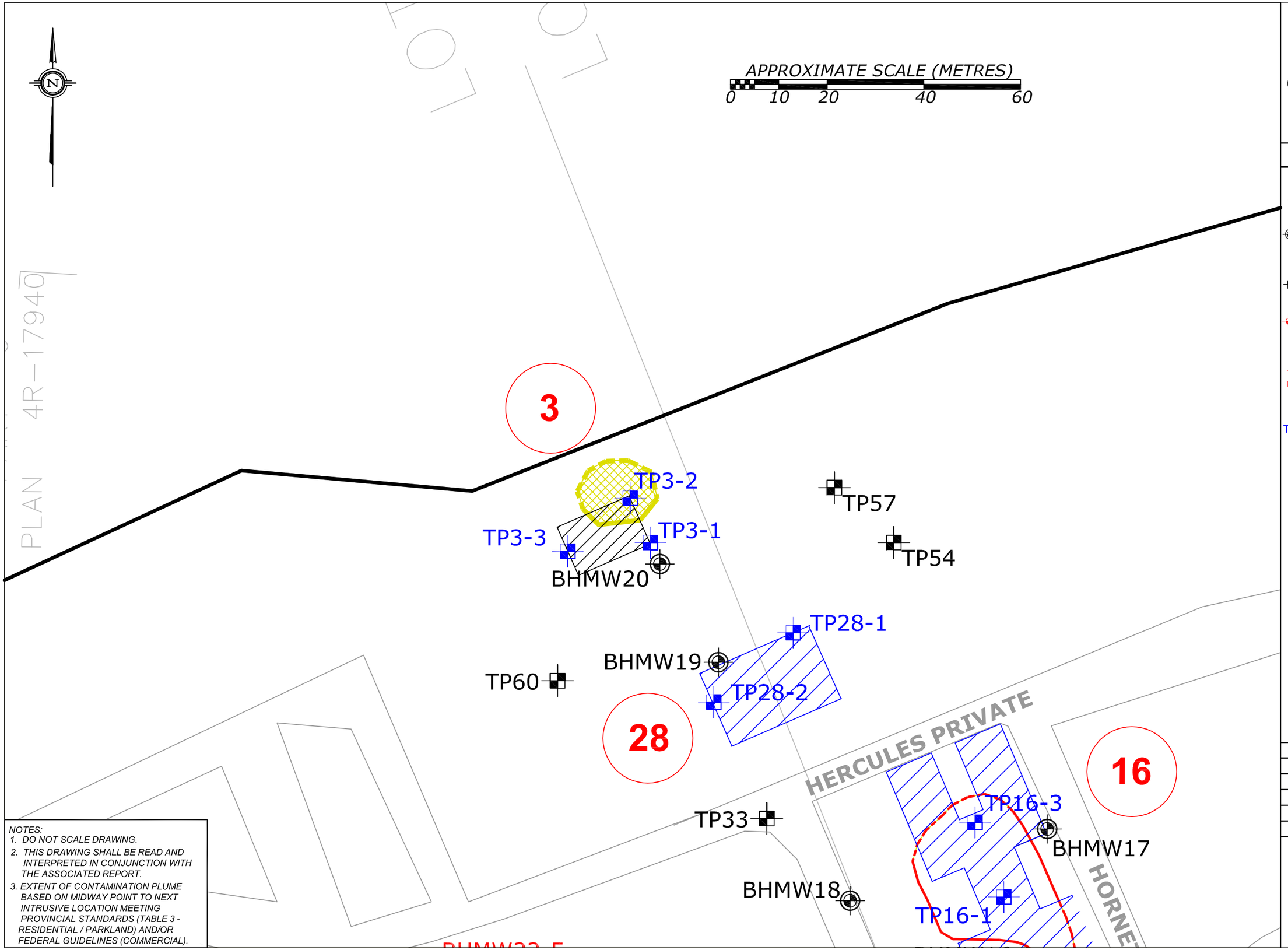
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PHASE II ESA, CFB ROCKCLIFFE, OTTAWA, ONTARIO
BUILDING 3

FIGURE A

APPROXIMATE SCALE (METRES)

0 10 20 40 60



Legend

- 123 — Building Identification
- BHMW12 — DST Borehole / Monitoring Well Location and ID Number
- TP 49 — DST Testpit Location and ID Number
- P-98-109 — Previous Borehole Location and ID Number Advanced by Others
- BHMW22-1 — Previous Borehole / Monitoring Well Location and ID Number Advanced by Others
- TP29-14 — Previous Testpit Location and ID Number Advanced by Others
- Former Building Location (Building of Concern)
- Former Building Location (Neighboring Building)
- Approximate Extent of Soil Contamination In Excess of MOE Standards
- Inferred Extent of Soil Contamination (Undefined) In Excess of MOE Standards
- Approximate Extent of Soil Contamination In Excess of CCME Commercial Guidelines
- Inferred Extent of Soil Contamination (Undefined) In Excess of CCME Commercial Guidelines

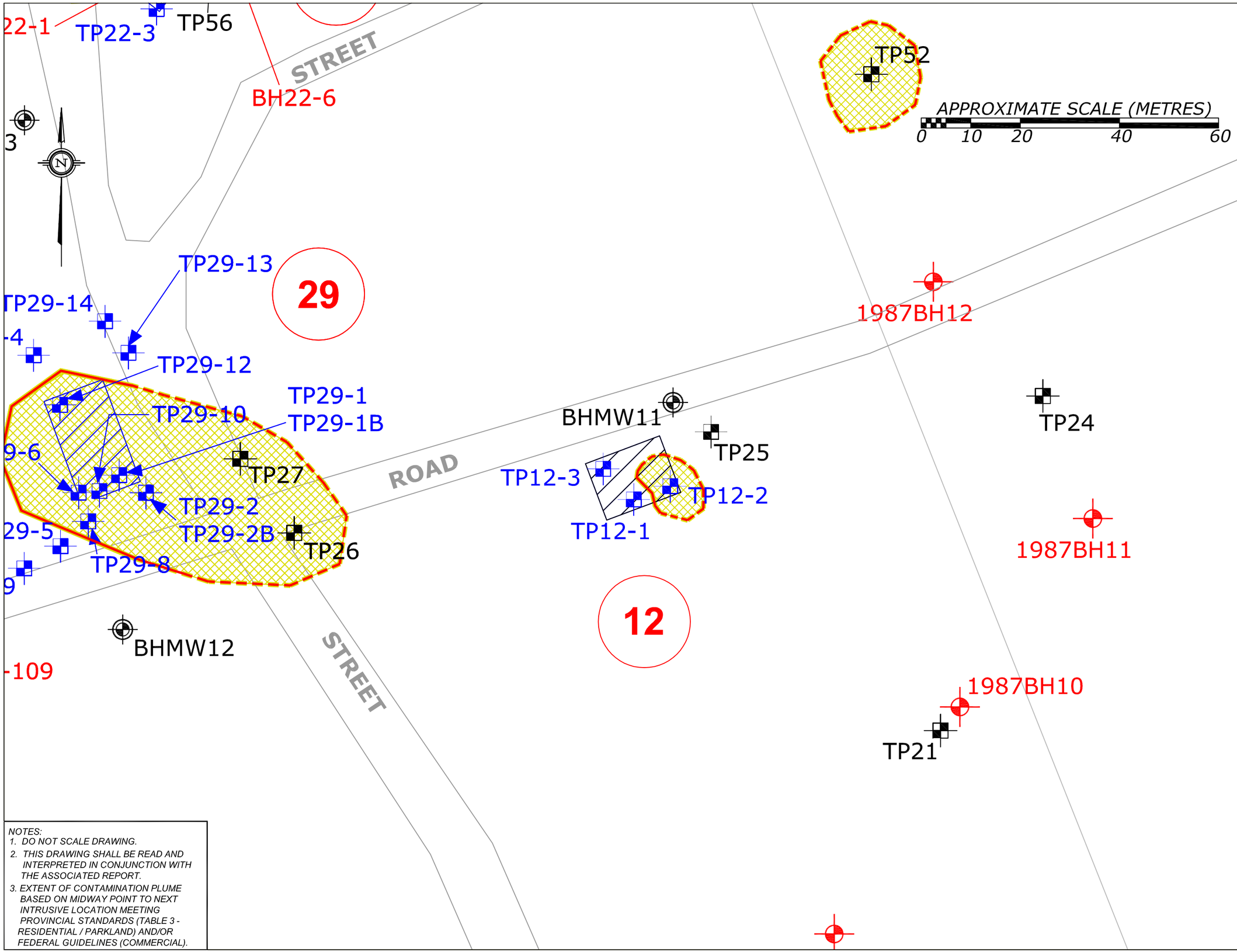
REV.	DESCRIPTION	DATE
4	PWGSC COMMENTS	04/09
3	PWGSC COMMENTS	03/09
2	PWGSC COMMENTS	10/07
1	PWGSC COMMENTS	08/06
0	ORIGINAL	12/05

NOTES:
1. DO NOT SCALE DRAWING.
2. THIS DRAWING SHALL BE READ AND INTERPRETED IN CONJUNCTION WITH THE ASSOCIATED REPORT.
3. EXTENT OF CONTAMINATION PLUME BASED ON MIDWAY POINT TO NEXT INTRUSIVE LOCATION MEETING PROVINCIAL STANDARDS (TABLE 3 - RESIDENTIAL / PARKLAND) AND/OR FEDERAL GUIDELINES (COMMERCIAL).

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PHASE II ESA, CFB ROCKCLIFFE, OTTAWA, ONTARIO
BUILDING 12

FIGURE B



NOTES:
1. DO NOT SCALE DRAWING.
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3. EXTENT OF CONTAMINATION PLUME BASED ON MIDWAY POINT TO NEXT INTRUSIVE LOCATION MEETING PROVINCIAL STANDARDS (TABLE 3 - RESIDENTIAL / PARKLAND) AND/OR FEDERAL GUIDELINES (COMMERCIAL).

Legend

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- Former Building Location (Neighboring Building)
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- Inferred Extent of Soil Contamination (Undefined) In Excess of MOE Standards
- Approximate Extent of Soil Contamination In Excess of CCME Commercial Guidelines
- Inferred Extent of Soil Contamination (Undefined) In Excess of CCME Commercial Guidelines

REV.	DESCRIPTION	DATE
4	PWGSC COMMENTS	04/09
3	PWGSC COMMENTS	03/09
2	PWGSC COMMENTS	10/07
1	PWGSC COMMENTS	08/06
0	ORIGINAL	12/05

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203-2150 Thurston Drive, Ottawa, Ontario, K1G 5T9
TEL: (613) 748-1415 FAX: (613) 748-1356

PHASE II ESA, CFB ROCKCLIFFE, OTTAWA, ONTARIO
BUILDING 16

FIGURE C

Legend

- 123 — Building Identification
- BHMW12 — DST Borehole / Monitoring Well Location and ID Number
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1	PWGSC COMMENTS	08/06
0	ORIGINAL	12/05

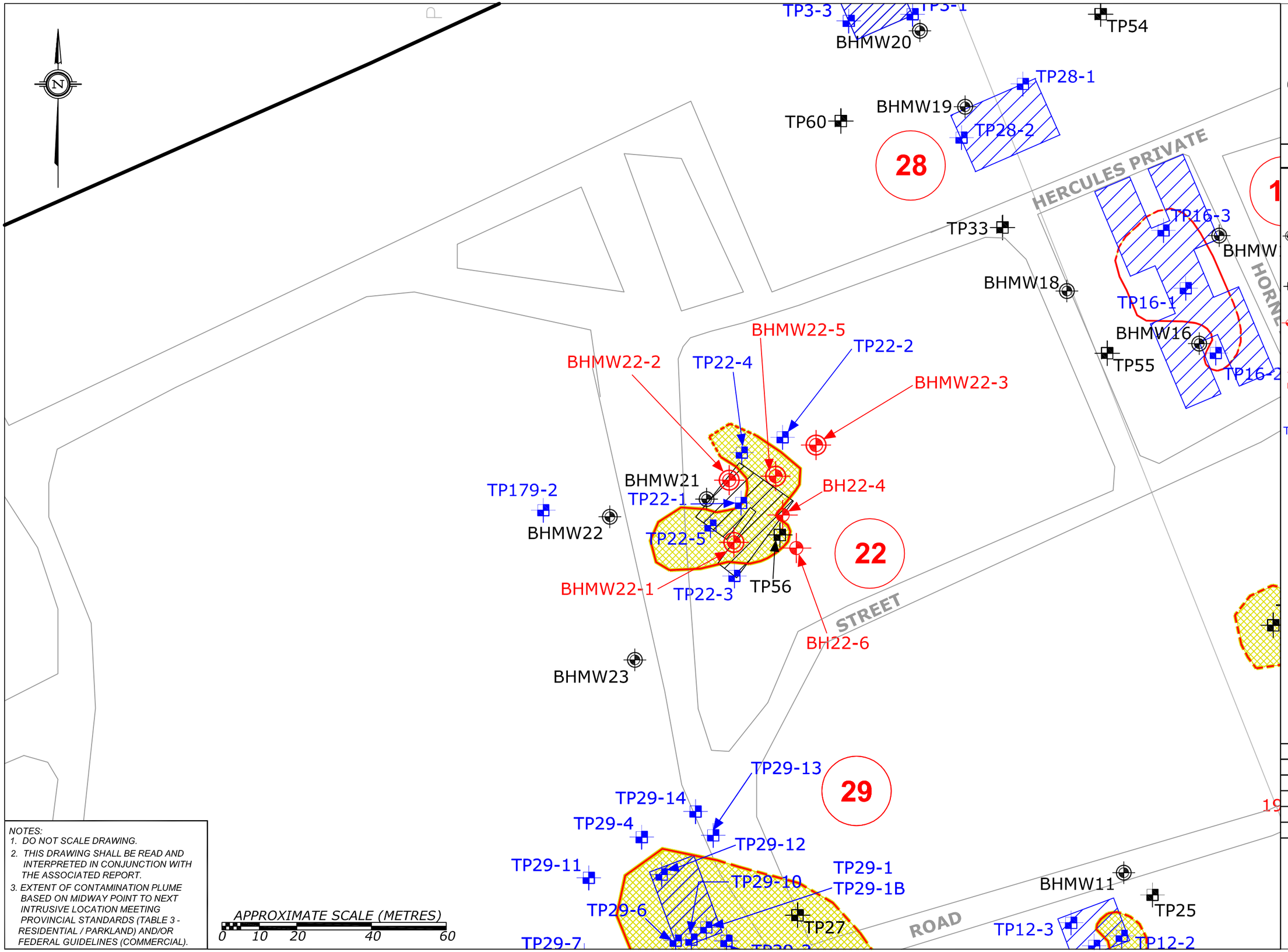
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APPROXIMATE SCALE (METRES)
0 10 20 40 60

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PHASE II ESA, CFB ROCKCLIFFE, OTTAWA, ONTARIO
BUILDING 22

FIGURE D



Legend

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PHASE II ESA, CFB ROCKCLIFFE, OTTAWA, ONTARIO
BUILDING 29

FIGURE E

BHMW22-1
TP22-3
TP36
STREET
BH22-6
BHMW23
TP29-13
29
TP29-14
TP29-4
TP29-12
TP29-11
TP29-1
TP29-10
TP29-1B
TP29-6
TP27
TP29-7
TP29-2
TP29-5
TP29-2B
TP26
TP29-8
TP29-9
ROAD
11
BHMW12
P-98-109
STREET
BHMW13
TP11-3
TP11-1
TP11-2
TP126-2

APPROXIMATE SCALE (METRES)
0 10 20 40 60

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Legend

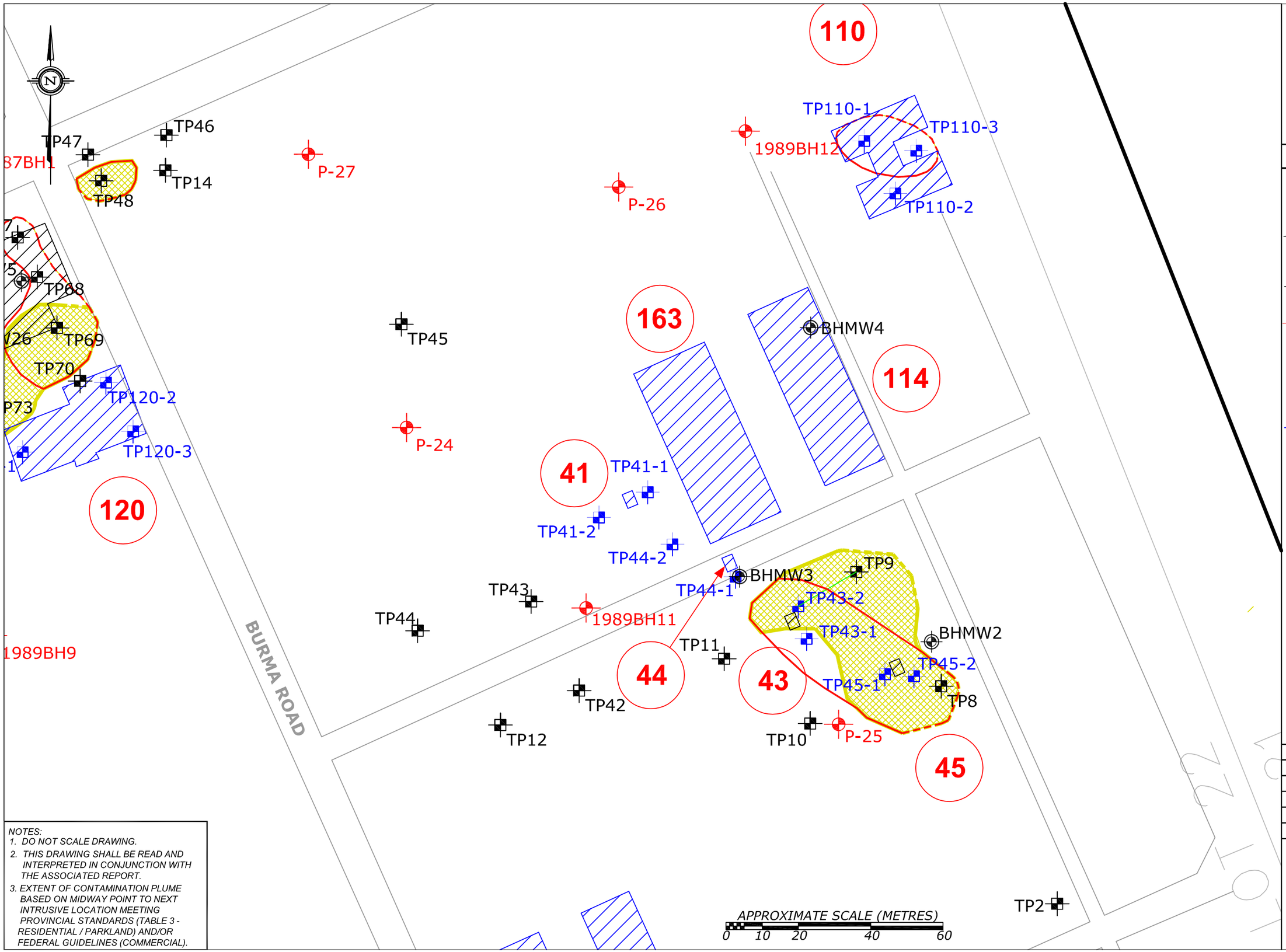
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PHASE II ESA, CFB ROCKCLIFFE, OTTAWA, ONTARIO
BUILDINGS 43, 45 & 110

FIGURE F



Legend

- 123 — Building Identification
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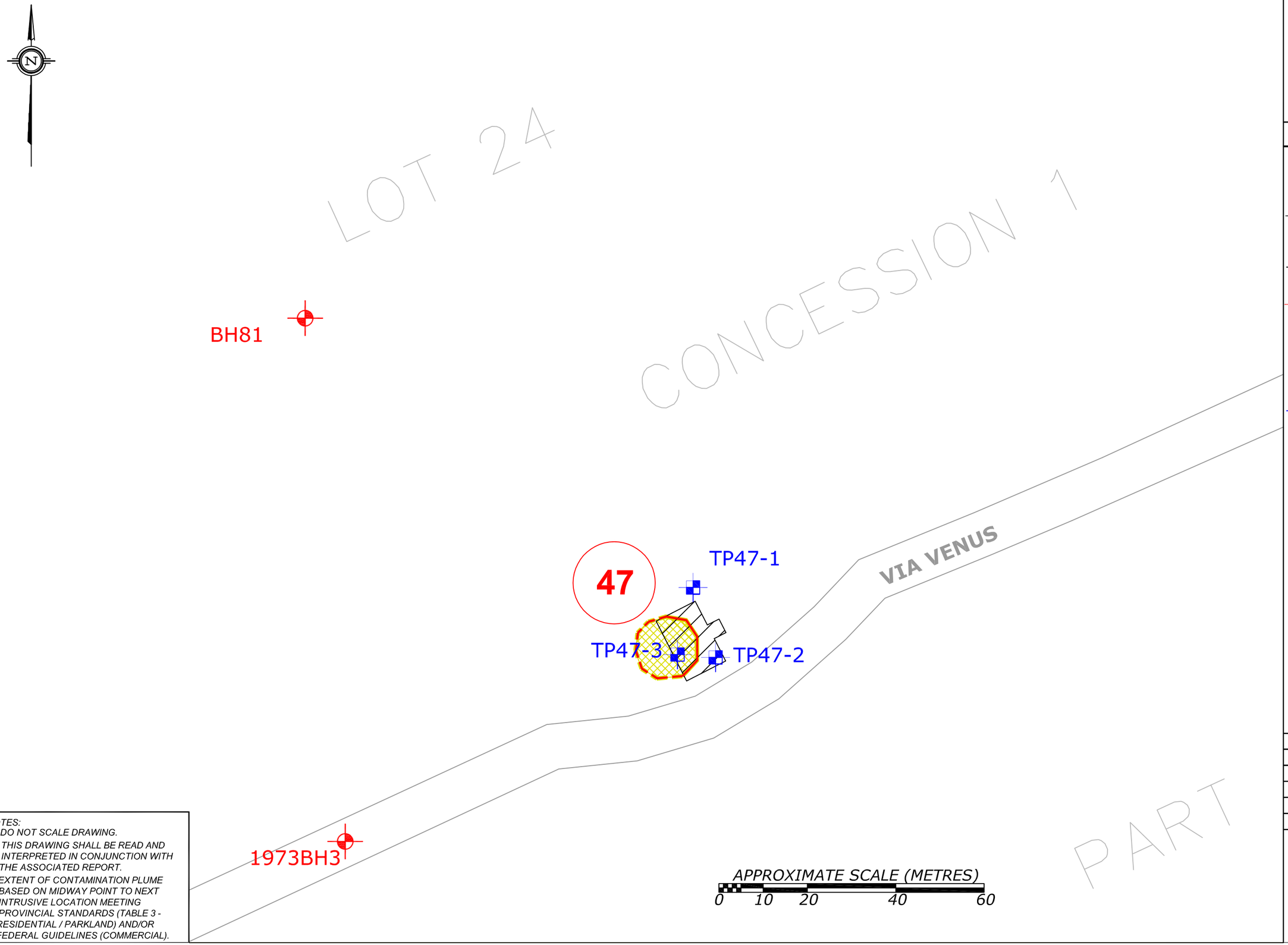
REV.	DESCRIPTION	DATE
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PHASE II ESA, CFB ROCKCLIFFE, OTTAWA, ONTARIO
BUILDING 47

FIGURE G



Legend

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REV.	DESCRIPTION	DATE
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PHASE II ESA, CFB ROCKCLIFFE, OTTAWA, ONTARIO
BUILDING 80

FIGURE H

Legend

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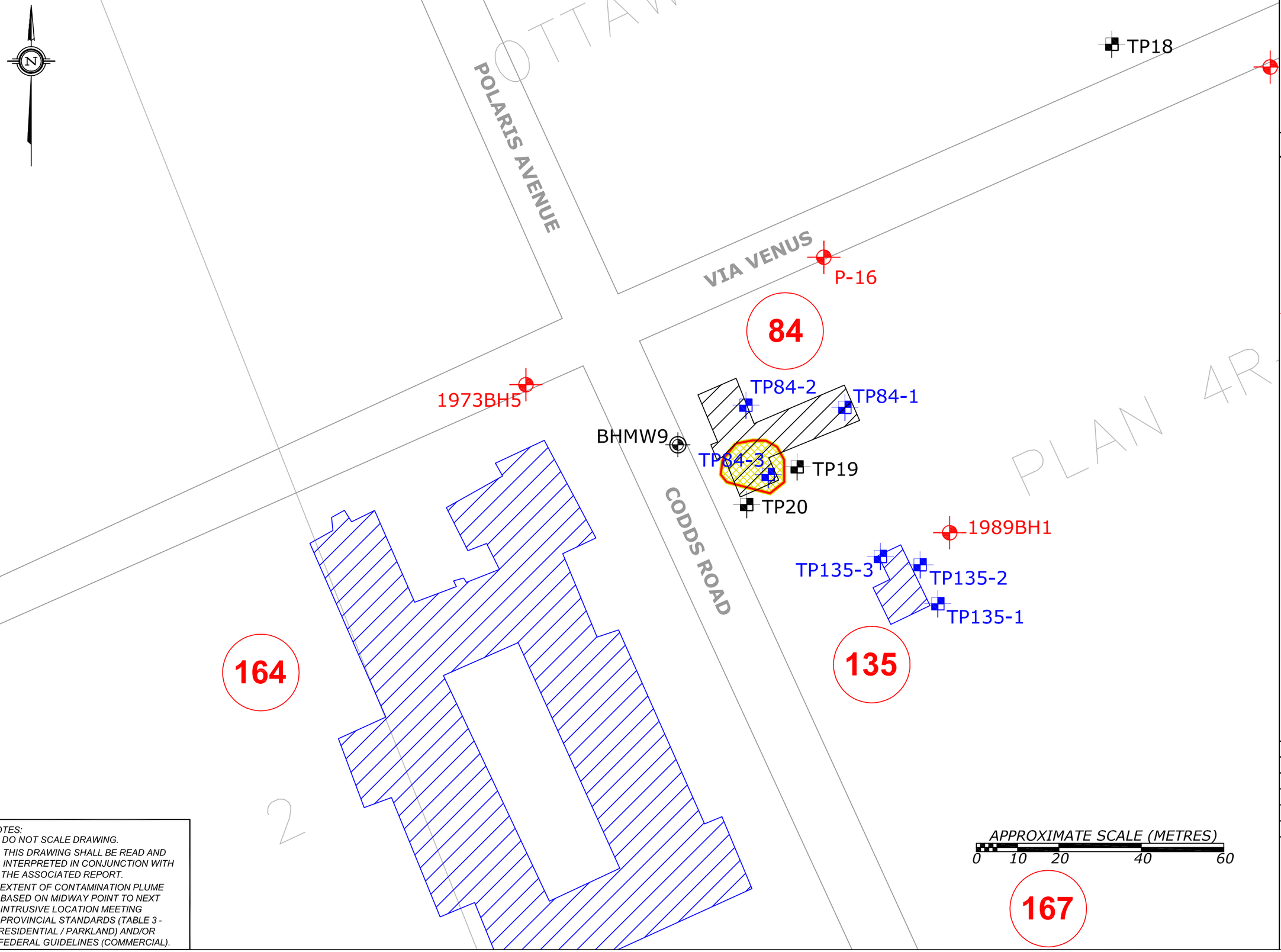
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APPROXIMATE SCALE (METRES)
0 10 20 40 60

VIA VENUS
BURMA ROAD

PHASE II ESA, CFB ROCKCLIFFE, OTTAWA, ONTARIO
BUILDING 84

FIGURE I



Legend

- 123 — Building Identification
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APPROXIMATE SCALE (METRES)
0 10 20 40 60

REV.	DESCRIPTION	DATE
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PHASE II ESA, CFB ROCKCLIFFE, OTTAWA, ONTARIO
BUILDING 90

FIGURE J

APPROXIMATE SCALE (METRES)
0 10 20 40 60

TP86-3
TP86-2
TP86-1
TP41
TP2
TP2B
97
TP97-3
1989BH13
86
TP7
BHMW1
1989BH10
TP90-3
TP90-4
TP6
TP90-5
TP90-2
TP90-8
TP90-6
TP66
P-23
TP90-1
90
TP90-9
TP3
TP90-7
TP5
TP4
TP97-2
TP97-1
TP1
1989BH14
TP40
BURMA ROAD
BH-11
BH-12
MW

Legend

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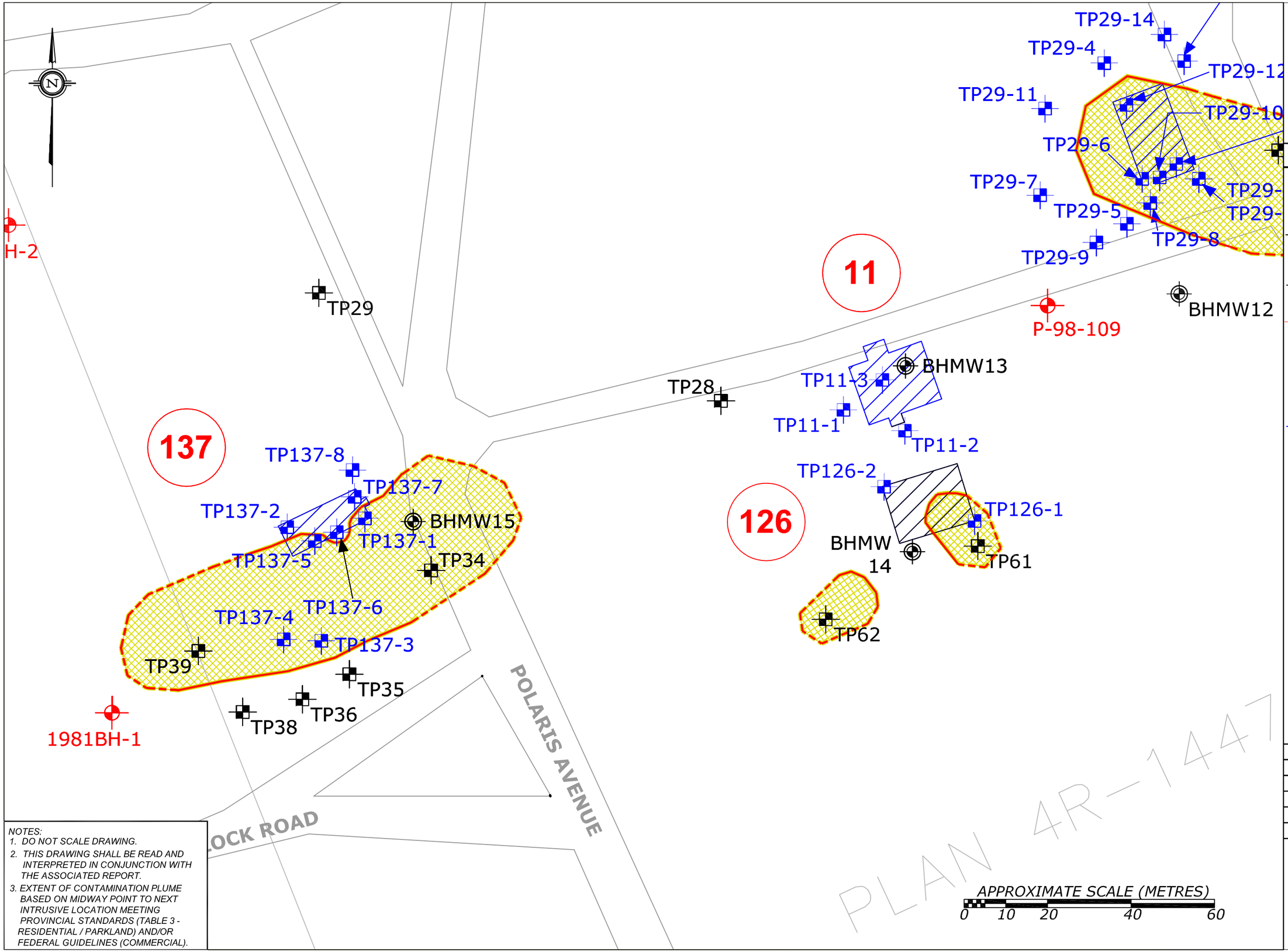
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PHASE II ESA, CFB ROCKCLIFFE, OTTAWA, ONTARIO
BUILDING 126

FIGURE K



Legend

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APPROXIMATE SCALE (METRES)
0 10 20 40 60

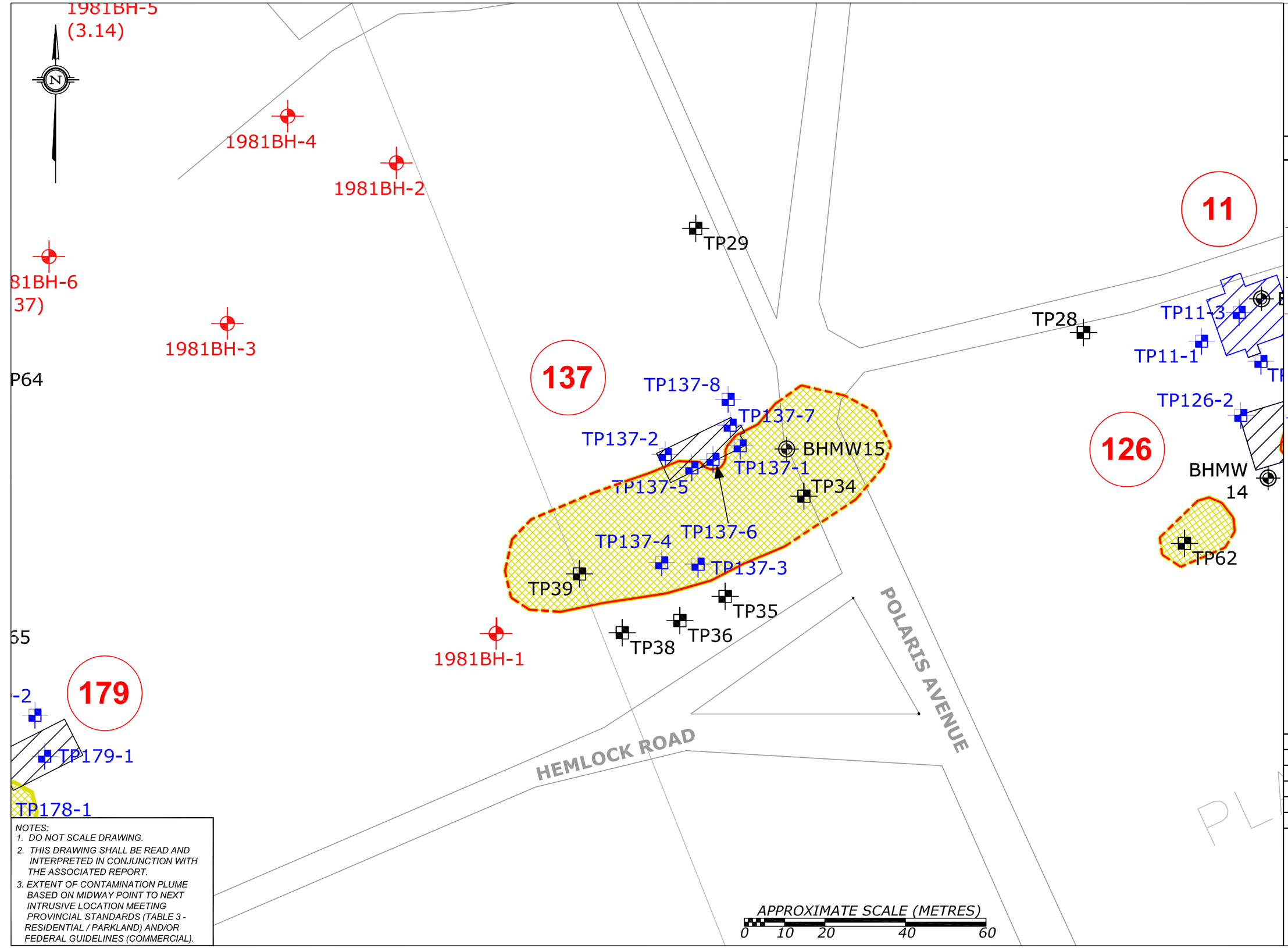
PLAN 4R-1447

REV.	DESCRIPTION	DATE
4	PWGSC COMMENTS	04/09
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1	PWGSC COMMENTS	08/06
0	ORIGINAL	12/05

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PHASE II ESA, CFB ROCKCLIFFE, OTTAWA, ONTARIO BUILDING 137

FIGURE L



Legend

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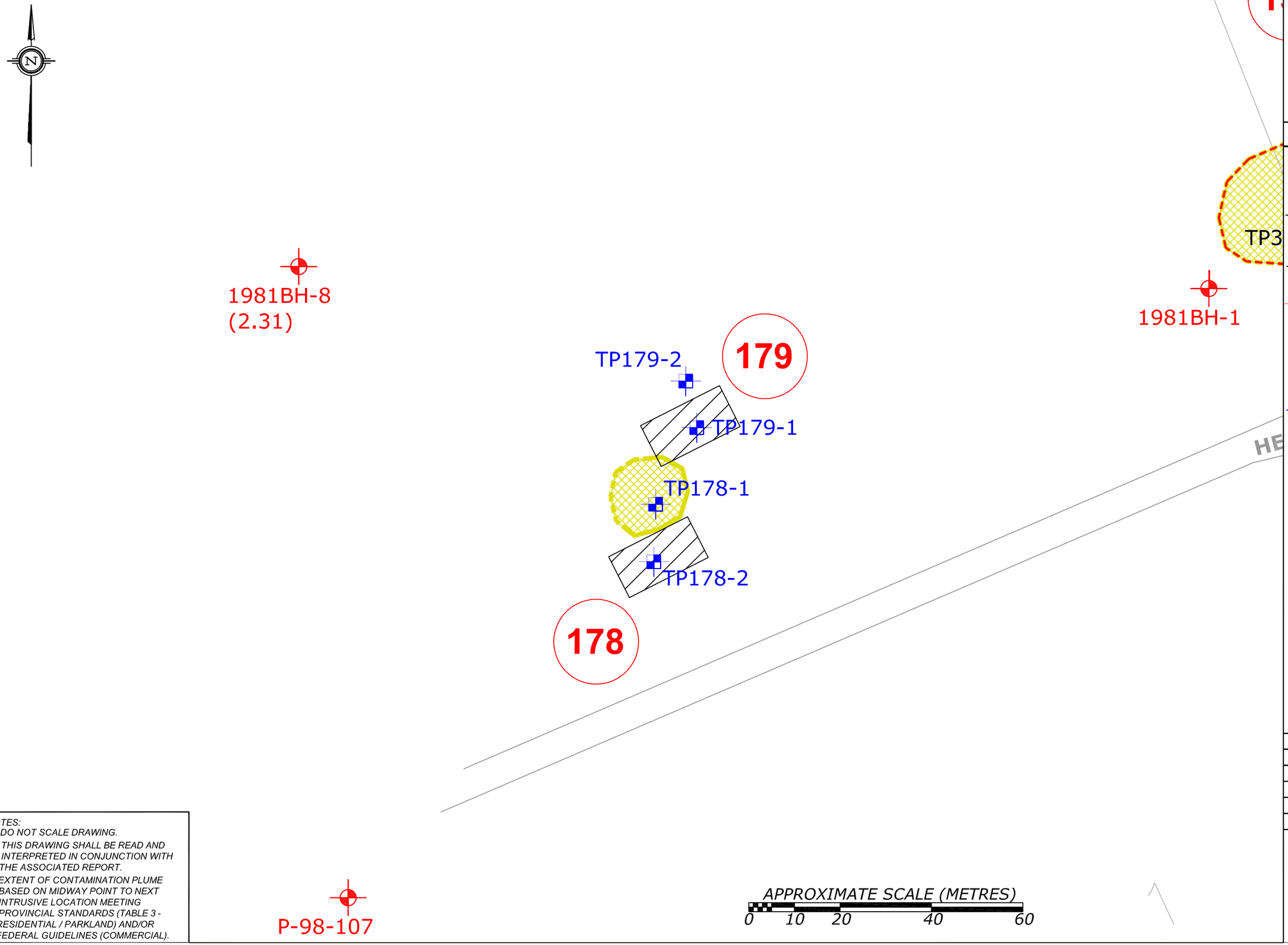
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PHASE II ESA, CFB ROCKCLIFFE, OTTAWA, ONTARIO
BUILDINGS 178 & 179

FIGURE M



Legend

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APPROXIMATE SCALE (METRES)

0 10 20 40 60

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PHASE II ESA, CFB ROCKCLIFFE, OTTAWA, ONTARIO TRAILER STORAGE COMPOUND

FIGURE N

APPROXIMATE SCALE (METRES)
0 10 20 40 60

N

TP86-3
TP86-2
TP86-1
TP41
TP7
BHMW1
TP90-3
TP90-4
TP6
TP90-5
TP90-2
TP90-8
TP90-6
TP66
P-23
TP90-1
TP3
TP90-9
TP90-7
TP5
TP4
90
BURMA ROAD
TP40
1989BH14
TP2
TP2B
97
TP97-3
1989BH13
TP97-2
TP97-1
TP1
BH-1
MW-2
BH-3
BH-5
BH-4
MW-6
BH-8
BH-7
BH-9
BH-11
BH-10
BH-15
BH-12
BH-14
MW-13

Legend

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PHASE II ESA, CFB ROCKCLIFFE, OTTAWA, ONTARIO
NORTH SECTOR

FIGURE O

APPROXIMATE SCALE (METRES)
0 10 50 100 200

NORTH SECTOR

SOUTHEAST SECTOR

LOT 23 LOT 22 PART 6 PLAN 4R-17948 PART 3 PLAN 4R-17478 PART 7 PLAN 4R-14475 PART 5 PLAN 4R-14475 PLAN 4R-14475 PART 3 UNREGISTERED SEWER PLAN 4R-14475 EASEMENT LOT 23 OTTAWA FRONT PART 1 LOT 24 CONCESSION 1 PLAN 4R-14475 PLAN 4R-14475 LOT 22

BH98-105 BH98-106 BH98-103 BH79 BH114 BH129 BH81 P-98-107 P-98-109 P-16 P-19 P-20 P-21 P-27 P-24

TP30 TP31 TP63 TP64 TP65 TP29 TP24 TP25 TP26 TP27 TP21 TP50 TP17 TP18 TP19 TP20 TP22 TP23 TP32 TP51 TP45 TP44 TP15 TP16 TP54 TP55 TP56 TP57 TP60 TP53 TP52 TP61 TP62 TP34 TP35 TP36 TP38 TP39

BHMW1 BHMW2 BHMW3 BHMW4 BHMW5 BHMW6 BHMW7 BHMW8 BHMW9 BHMW10 BHMW11 BHMW12 BHMW13 BHMW14 BHMW15 BHMW16 BHMW17 BHMW18 BHMW19 BHMW20 BHMW21 BHMW22 BHMW23 BHMW24 BHMW25 & TP 71 BHMW26

3 16 28 22 29 11 12 137 126 84 135 86 123 121 151 80 120 179 178

TP3-1 TP3-2 TP28-1 TP28-2 TP16-1 TP16-2 TP22-1 TP22-2 TP22-3 TP22-4 BHMW22-1 BHMW22-2 BHMW22-3 BHMW22-5 BH22-4 BH22-6 TP179-1 TP179-2 TP178-1 TP178-2 TP29-1 TP29-1B TP29-2 TP29-2B TP29-4 TP29-5 TP29-6 TP29-7 TP29-8 TP29-9 TP29-10 TP29-11 TP29-12 TP29-13 TP29-14 TP11-1 TP11-2 TP11-3 P-98-109 TP12-1 TP12-2 TP12-3 TP126-1 TP126-2 TP137-1 TP137-2 TP137-3 TP137-4 TP137-5 TP137-6 TP137-7 TP137-8 TP84-1 TP84-2 TP135-1 TP135-2 TP135-3 TP121-1 TP121-2 TP121-3 TP121-4 TP121-5 TP151-1 TP151-2 TP151-3 TP151-4 TP46 TP47 TP48 TP49 TP14 TP67 TP68 TP69 TP70 TP71 TP72 TP73 TP74 TP75 TP120-1 TP120-2 TP120-3

Legend

- 123 — Building Identification
- BHMW 3 — DST Borehole / Monitoring Well Location and ID Number
- TP 49 — DST Testpit Location and ID Number
- P–24 — Previous Borehole Location and ID Number Advanced by Others
- TP16–1 — Previous Testpit Location and ID Number Advanced by Others
- BHMW 22–3 — Previous Borehole/ Monitoring Well Location and ID Number Advanced by Others
- Former Building Location
- Property Boundary
- North Sector Boundary
- Approximate Extent of Soil Contamination In Excess of MOE Standards
- Approximate Extent of Soil Contamination In Excess of CCME Commercial Guidelines

NOTES:
1. DO NOT SCALE DRAWING
2. THIS DRAWING SHALL BE READ AND INTERPRETED IN CONJUNCTION WITH THE ASSOCIATED REPORT
3. EXTENT OF CONTAMINATION PLUME BASED ON MIDWAY POINT TO NEXT INTRUSIVE LOCATION MEETING PROVINCIAL STANDARDS (TABLE 3 - RESIDENTIAL/PARKLAND) AND/OR FEDERAL GUIDELINES (COMMERCIAL)

REV.	DESCRIPTION	DATE
4	PWGSC COMMENTS	04/09
3	PWGSC COMMENTS	03/09
2	PWGSC COMMENTS	10/07
1	PWGSC COMMENTS	08/06
0	ORIGINAL	12/05

DST CONSULTING ENGINEERS
203-2150 Thurston Drive, Ottawa, Ontario, K1G 5T9
TEL: (613) 748-1415 FAX: (613) 748-1356

PHASE II ESA, CFB ROCKCLIFFE, OTTAWA, ONTARIO
SOUTHEAST SECTOR

FIGURE P

Legend

- 123 — Building Identification
- BHMW 3 — DST Borehole / Monitoring Well Location and ID Number
- TP 49 — DST Testpit Location and ID Number
- P–24 — Previous Borehole Location and ID Number Advanced by Others
- TP16–1 — Previous Testpit Location and ID Number Advanced by Others
- BHMW 22–3 — Previous Borehole/ Monitoring Well Location and ID Number Advanced by Others
- Former Building Location
- Property Boundary
- Southeast Sector Boundary
- Approximate Extent of Soil Contamination In Excess of MOE Standards
- Approximate Extent of Soil Contamination In Excess of CCME Commercial Guidelines

SOUTHEAST SECTOR

APPROXIMATE SCALE (METRES)

0 10 50 100 200

NOTES:

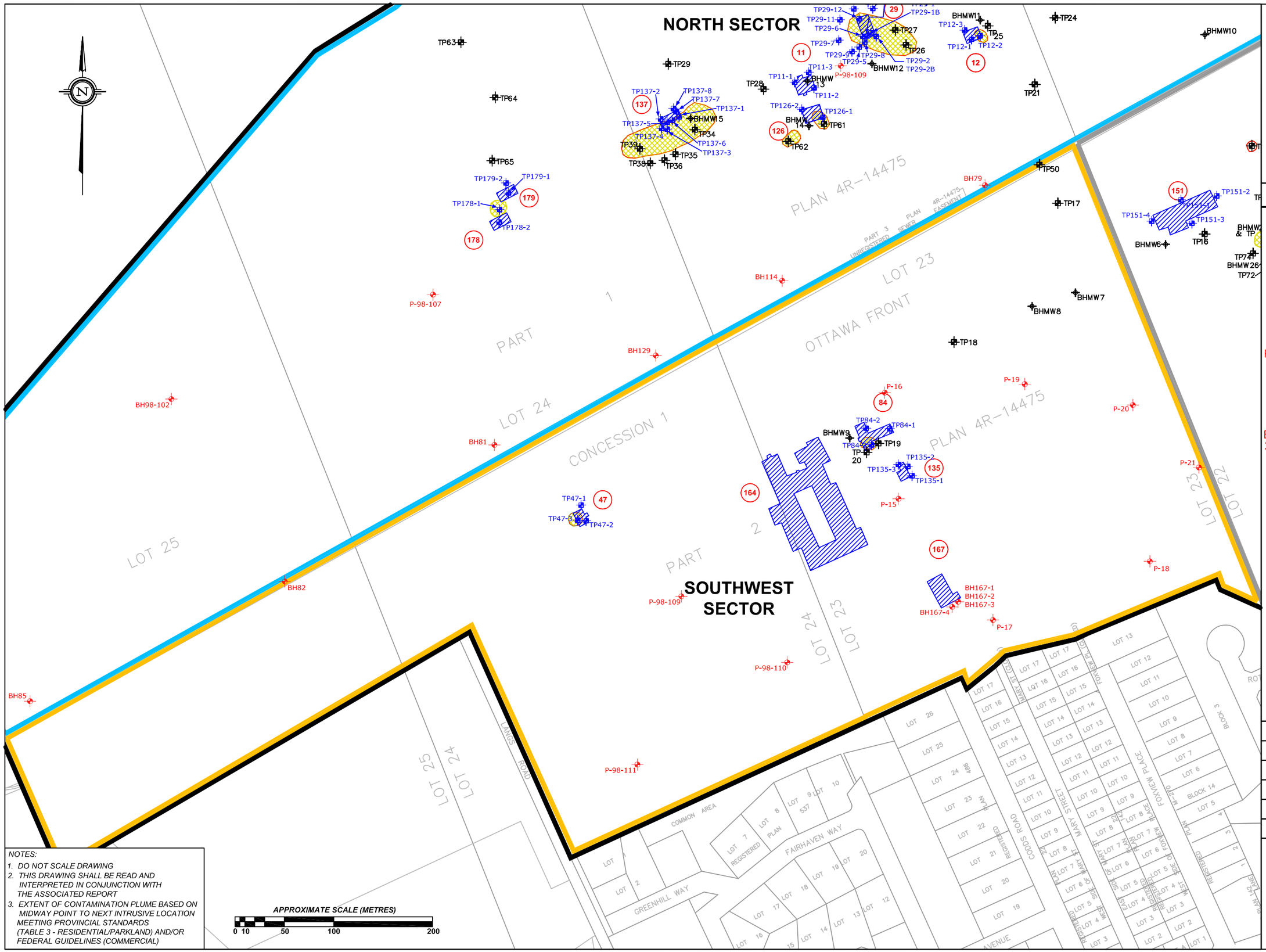
1. *DO NOT SCALE DRAWING*
2. *THIS DRAWING SHALL BE READ AND INTERPRETED IN CONJUNCTION WITH THE ASSOCIATED REPORT*
3. *EXTENT OF CONTAMINATION PLUME BASED ON MIDWAY POINT TO NEXT INTRUSIVE LOCATION MEETING PROVINCIAL STANDARDS (TABLE 3 - RESIDENTIAL/PARKLAND) AND/OR FEDERAL GUIDELINES (COMMERCIAL)*

REV.	DESCRIPTION	DATE
4	PWGSC COMMENTS	04/09
3	PWGSC COMMENTS	03/09
2	PWGSC COMMENTS	10/07
1	PWGSC COMMENTS	08/06
0	ORIGINAL	12/05

DST CONSULTING ENGINEERS
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PHASE II ESA, CFB ROCKCLIFFE, OTTAWA, ONTARIO
SOUTHWEST SECTOR

FIGURE Q



Legend

123	Building Identification
BHMW 3	DST Borehole / Monitoring Well Location and ID Number
TP 49	DST Testpit Location and ID Number
P–24	Previous Borehole Location and ID Number Advanced by Others
TP16–1	Previous Testpit Location and ID Number Advanced by Others
BHMW 22–3	Previous Borehole/ Monitoring Well Location and ID Number Advanced by Others
	Former Building Location
	Property Boundary
	Southwest Sector Boundary
	Approximate Extent of Soil Contamination In Excess of MOE Standards
	Approximate Extent of Soil Contamination In Excess of CCME Commercial Guidelines

NOTES:

1. *DO NOT SCALE DRAWING*
2. *THIS DRAWING SHALL BE READ AND INTERPRETED IN CONJUNCTION WITH THE ASSOCIATED REPORT*
3. *EXTENT OF CONTAMINATION PLUME BASED ON MIDWAY POINT TO NEXT INTRUSIVE LOCATION MEETING PROVINCIAL STANDARDS (TABLE 3 - RESIDENTIAL/PARKLAND) AND/OR FEDERAL GUIDELINES (COMMERCIAL)*

APPROXIMATE SCALE (METRES)

0 10 50 100 200

REV.	DESCRIPTION	DATE
4	PWGSC COMMENTS	04/09
3	PWGSC COMMENTS	03/09
2	PWGSC COMMENTS	10/07
1	PWGSC COMMENTS	08/06
0	ORIGINAL	12/05

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APPENDIX B
LABORATORY SUMMARY TABLES – SOIL QUALITY

Appendix B, Soil Quality - List of Laboratory Summary Tables			
Location	**Table ID**	**Analytical Parameters**	**DST Sample ID(s)**
Building 16	B1.1	PHCs	BHMW16 SS5; BHMW17 SS7; BHMW18 SS2
	B1.2	ICP Metals	
	B1.3	PAHs	
Building 22	B2.1	BTEX, PHCs	BHMW21 SS4; BHMW22 SS4; BHMW23 SS4
	B2.2	ICP Metals	BHMW21 SS2
	B2.3	PAHs	BHMW21 SS4
Building 29	B3.1	PHCs	TP26 SGS2; TP27 SGS2
		BTEX, PHCs	BHMW12 SS2
	B3.2	ICP Metals	TP26 SGS2; TP27 SGS2; BHMW12 SS2
	B3.3	PAHs	
Buildings 43 & 45	B4.1	PHCs	TP8 SGS2; TP8 SGS6; TP9 SGS5; TP10 SGS6; TP11 SGS1; BHMW2 SS1; BHMW3 SS2
	B4.2	ICP Metals	
	B4.3	PAHs	BHMW2 SS1; BHMW3 SS2
	B4.4	Dioxins / Furans	TP8 SGS2; TP9 SGS5; TP10 SGS6; TP11 SGS1; BHMW2 SS1; BHMW3 SS2
Building 80	B5.1	BTEX, PHCs	TP67 SGS2; TP68 SGS2; TP69 SGS1; TP69 SGS2; TP70 SGS1; TP72 SGS1; TP73 SGS1; TP74 SGS1; TP75 SGS1; BHMW25 SS7; BHMW26 SS8
	B5.2	ICP Metals	TP67 SGS2; TP69 SGS1; TP69 SGS2; TP75 SGS2
	B5.3	PAHs	TP67 SGS2
Building 84	B6.1	PHCs	TP19 SGS3; TP20 SGS2; BHMW9 SS2
Building 90	B7.1	PHCs	TP6 SGS2; TP7 SGS5; BHMW1 SS3
	B7.2	Dioxins / Furans	TP3 SGS1; TP4 SGS5; TP5 SGS2
Building 137	B8.1	PHCs	TP34 SGS5; TP35 SGS3; TP36 SGS2; TP38 SGS3; TP39 SGS5
		BTEX, PHCs	BHMW15 SS5
	B8.2	ICP Metals	BHMW15 SS5
	B8.3	PAHs	
North Sector	B9.1	PHCs	TP26 SGS2; TP27 SGS2; TP29 SGS2; TP29 SGS3; TP29 SGS5; TP30 SGS2; TP30 SGS3; TP30 SGS5; TP31 SGS2; TP31 SGS3; TP31 SGS5; TP32 SGS2; TP32 SGS3; TP32 SGS5; BHMW10 SS3; BHMW11 SS3; BHMW16 SS5; BHMW17 SS7; BHMW18 SS2; BHMW24 SS1; North Sector
		BTEX, PHCs	BHMW12 SS2; BHMW13 SS3; BHMW14 SS2; BHMW15 SS5; BHMW19 SS3; BHMW20 SS2; BHMW21 SS4
	B9.2	ICP Metals	TP22 SGS2; TP22 SGS3; TP22 SGS5; TP23 SGS2; TP23 SGS3; TP23 SGS5; TP24 SGS2; TP24 SGS3; TP24 SGS5; TP25 SGS2; TP25 SGS3; TP25 SGS5; TP26 SGS2; TP27 SGS2; TP28 SGS2; TP28 SGS3; TP28 SGS5; TP29 SGS2; TP29 SGS3; TP29 SGS5; TP30 SGS2; TP30 SGS3; TP30 SGS5; TP31 SGS2; TP31 SGS3; TP31 SGS5; TP32 SGS2; TP32 SGS3; TP32 SGS5; TP33 SGS2; TP33 SGS3; TP33 SGS5; BHMW10 SS3; BHMW11 SS3; BHMW12 SS2; BHMW13 SS3; BHMW14 SS2; BHMW15 SS5; BHMW16 SS5; BHMW17 SS7; BHMW18 SS2; BHMW19 SS3; BHMW20 SS2; BHMW21 SS2; BHMW24 SS1

TABLE B1.1: Summary of Petroleum Hydrocarbon Soil Analyses - Building 16

Parameters	Analytical Results - µg/g (Sample Location / Sample No. / Depth - metres)			Guideline / Standard (µg/g)[4]	
	BHMW16 SS5 2.5 - 3.0 m	BHMW17 SS7 3.6 - 4.2 m	BHMW18 SS2 0.6 - 1.0 m	Federal CCME Guidelines [1, 2] Commercial Land Use	Provincial MOE Standards [3] - Table 3 - Residential / Parkland Land Use
Petroleum Hydrocarbons (Fraction 1)	<20	<20	<20	320	30
Petroleum Hydrocarbons (Fraction 2)	<10	<10	<10	260	150
Petroleum Hydrocarbons (Fraction 3)	<10	<10	<10	1,700	400
Petroleum Hydrocarbons (Fraction 4)	<10	<10	<10	3,300	2,800

Notes: All units in micrograms per gram (µg/g)
CCME [1] = Canadian Council of Ministers of the Environment (CCME) "Canadian Environmental Quality Guidelines", 1999 (Updated 2007).
Chapter 7: Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health.
CCME [2] = Canadian Council of Ministers of the Environment (CCME) "Canada-Wide Standards for Petroleum Hydrocarbons (PHC) in Soil", 2008.
MOE [3] = Ontario Ministry of the Environment (MOE) "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004.
Guideline/Standard[4] - Coarse grained criteria used.
NG = No guideline value or standard available
NA = Parameter not analyzed
Value = Sample result exceeds applicable CCME guidelines
Value = Sample result exceeds applicable MOE standards

TABLE B1.2: Summary of ICP Metals Soil Analyses - Building 16

Parameters	Analytical Results - µg/g (Sample Location / Sample No. / Depth - metres)			Guideline / Standard (µg/g)[4]	
	BHMW16 SS5 2.5 - 3.0 m	BHMW17 SS7 3.6 - 4.2 m	BHMW18 SS2 0.6 - 1.0 m	Federal CCME Guidelines [1] Commercial Land Use	Provincial MOE Standards [2] - Table 3 - Residential / Parkland Land Use
Antimony	<1	<1	<1	40	13
Arsenic	<1	<1	<1	12	20
Barium	60	50	40	2,000	750
Beryllium	<0.5	<0.5	<0.5	8	1.2
Cadmium	<0.5	<0.5	<0.5	22	12
Calcium	60,000	35,000	4,600	NG	NG
Chromium	10	10	15	87	750
Cobalt	5	<5	5	300	40
Copper	10	10	5	91	225
Iron	12,000	11,000	12,000	NG	NG
Lead	7	3	4	260	200
Magnesium	9,400	5,000	3,200	NG	NG
Molybdenum	<1	<1	<1	40	40
Nickel	10	10	10	50	150
Selenium	<1	<1	<1	2.9	10
Silver	<0.3	<0.3	<0.3	40	20
Sodium	200	400	<200	NG	NG
Thallium	<1	<1	<1	1	4.1
Tin	<5	<5	<5	300	NG
Vanadium	20	20	30	130	200
Zinc	<20	20	<20	360	600

Notes: All units in micrograms per gram (µg/g)
CCME [1] = Canadian Council of Ministers of the Environment (CCME) "Canadian Environmental Quality Guidelines", 1999 (Updated 2007). Chapter 7: Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health.
MOE [2] = Ontario Ministry of the Environment (MOE) "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004.
Guideline/Standard[4] - Coarse grained criteria used.
NG = No guideline value or standard available
NA = Parameter not analyzed
Value = Sample result exceeds applicable CCME guidelines
Value = Sample result exceeds applicable MOE standards

TABLE B1.3: Summary of Polycyclic Aromatic Hydrocarbon Soil Analyses - Building 16

Parameters	Analytical Results - µg/g (Sample Location / Sample No. / Depth - metres)			Guideline / Standard (µg/g)[4]	
	BHMW16 SS5 2.5 - 3.0 m	BHMW17 SS7 3.6 - 4.2 m	BHMW18 SS2 0.6 - 1.0 m	Federal CCME Guidelines[1] Commercial Land Use	Provincial MOE Standards[2] - Table 3 - Residential / Parkland Land Use
Acenaphthene	<0.02	<0.02	<0.02	NG	1,000
Acenaphthylene	<0.02	<0.02	<0.02	NG	100
Anthracene	<0.02	<0.02	<0.02	NG	28
Benzo(a)anthracene	<0.02	<0.02	<0.02	10	40
Benzo(a)pyrene	<0.02	<0.02	<0.02	0.7	1.2
Benzo(b)fluoranthene	<0.02	<0.02	<0.02	10	12
Benzo(g,h,i)perylene	<0.02	<0.02	<0.02	NG	40
Benzo(k)fluoranthene	<0.02	<0.02	<0.02	10	12
Biphenyl	<0.02	<0.02	<0.02	NG	4.3
Chrysene	<0.02	<0.02	<0.02	NG	12
Dibenzo(a,h)anthracene	<0.02	<0.02	<0.02	10	1.2
Fluoranthene	<0.02	<0.02	<0.02	NG	40
Fluorene	<0.02	<0.02	<0.02	NG	350
Indeno(1,2,3,c,d)pyrene	<0.02	<0.02	<0.02	10	12
Methylnaphthalene, 1-	<0.02	<0.02	<0.02	NG	280
Methylnaphthalene, 2-	<0.02	<0.02	<0.02	NG	
Naphthalene	<0.02	<0.02	<0.02	22	40
Phenanthrene	<0.02	<0.02	<0.02	50	40
Pyrene	<0.02	<0.02	<0.02	100	250

Notes: All units in micrograms per gram (µg/g)

CCME [1] = Canadian Council of Ministers of the Environment (CCME) "Canadian Environmental Quality Guidelines", 1999 (Updated 2006). Chapter 7: Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health.

MOE [2] = Ontario Ministry of the Environment (MOE) "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004.

Guideline/Standard[4] - Coarse grained criteria used.

NG = No guideline value or standard available

NA = Parameter not analyzed

Value = Sample result exceeds applicable CCME guidelines

Value = Sample result exceeds applicable MOE standards

TABLE B2.1: Summary of Petroleum Hydrocarbon & BTEX Soil Analyses - Building 22

Parameters	Analytical Results - µg/g (Sample Location / Sample No. / Depth - metres)			Guideline / Standard (µg/g)[4]	
	BHMW21 SS4 1.8 - 2.4 m	BHMW22 SS4 1.8 - 2.2 m	BHMW23 SS4 1.8 - 2.4 m	Federal CCME Guidelines[1, 2] Commercial Land Use	Provincial MOE Standards[3] - Table 3 - Residential / Parkland Land Use
Petroleum Hydrocarbons (Fraction 1)	<20	<20	<20	320	30
Petroleum Hydrocarbons (Fraction 2)	<10	<10	<10	260	150
Petroleum Hydrocarbons (Fraction 3)	20	<10	<10	1,700	400
Petroleum Hydrocarbons (Fraction 4)	20	<10	<10	3,300	2,800
Benzene	*<0.05*	*<0.05*	*<0.05*	0.03	5.3
Toluene	<0.05	<0.05	<0.05	0.37	34
Ethylbenzene	<0.05	<0.05	<0.05	0.082	290
m/p-Xylene	<0.1	<0.1	<0.1	11	34
o-Xylene	<0.05	<0.05	<0.05		

Notes: All units in micrograms per gram (µg/g)
CCME [1] = Canadian Council of Ministers of the Environment (CCME) "Canadian Environmental Quality Guidelines", 1999 (Updated 2007).
Chapter 7: Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health.
CCME [2] = Canadian Council of Ministers of the Environment (CCME) "Canada-Wide Standards for Petroleum Hydrocarbons (PHC) in Soil", 2008.
MOE [3] = Ontario Ministry of the Environment (MOE) "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004.
Guideline/Standard[4] - Coarse grained criteria used.
NG = No guideline value or standard available
NA = Parameter not analyzed
Value = Sample result exceeds applicable CCME guidelines
Value = Sample result exceeds applicable MOE standards
Italic = Laboratory Method Detection Limit exceeds applicable guideline and/or standard

TABLE B2.2: Summary of ICP Metals Soil Analyses - Building 22

Parameters	Analytical Results - µg/g (Sample Location / Sample No. / Depth - metres)	Guideline / Standard (µg/g)[4]	
	BHMW21 SS2 1.8 - 2.4 m	Federal CCME Guidelines[1] Commercial Land Use	Provincial MOE Standards[2] - Table 3 - Residential / Parkland Land Use
Antimony	<1	40	13
Arsenic	<1	12	20
Barium	40	2,000	750
Beryllium	<0.5	8	1.2
Cadmium	<0.5	22	12
Calcium	4,400	NG	NG
Chromium	15	87	750
Cobalt	<5	300	40
Copper	<5	91	225
Iron	8,200	NG	NG
Lead	5	260	200
Magnesium	2,000	NG	NG
Molybdenum	<1	40	40
Nickel	10	50	150
Selenium	<1	2.9	10
Silver	<0.3	40	20
Sodium	<200	NG	NG
Thallium	<1	1	4.1
Tin	<5	300	NG

Notes: All units in micrograms per gram (µg/g)
CCME [1] = Canadian Council of Ministers of the Environment (CCME) "Canadian Environmental Quality Guidelines", 1999 (Updated 2007).
Chapter 7: Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health.
MOE [2] = Ontario Ministry of the Environment (MOE) "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004.
Guideline/Standard[4] - Coarse grained criteria used.
NG = No guideline value or standard available
NA = Parameter not analyzed
Value = Sample result exceeds applicable CCME guidelines
Value = Sample result exceeds applicable MOE standards

TABLE B2.3: Summary of Polycyclic Aromatic Hydrocarbon Soil Analyses - Building 22

Parameters	Analytical Results - µg/g (Sample Location / Sample No. / Depth - metres)	Guideline / Standard (µg/g)[4]	
	BHMW21 SS4 1.8 - 2.4 m	Federal CCME Guidelines [1] Commercial Land Use	Provincial MOE Standards [2] - Table 3 - Residential / Parkland Land Use
Acenaphthene	<0.02	NG	1,000
Acenaphthylene	<0.02	NG	100
Anthracene	<0.02	NG	28
Benzo(a)anthracene	<0.02	10	40
Benzo(a)pyrene	<0.02	0.7	1.2
Benzo(b)fluoranthene	<0.02	10	12
Benzo(g,h,i)perylene	<0.02	NG	40
Benzo(k)fluoranthene	<0.02	10	12
Biphenyl	<0.02	NG	4.3
Chrysene	<0.02	NG	12
Dibenzo(a,h)anthracene	<0.02	10	1.2
Fluoranthene	<0.02	NG	40
Fluorene	<0.02	NG	350
Indeno(1,2,3,c,d)pyrene	<0.02	10	12
Methylnaphthalene, 1-	<0.02	NG	280
Methylnaphthalene, 2-	<0.02	NG	
Naphthalene	<0.02	22	40
Phenanthrene	<0.02	50	40
Pyrene	<0.02	100	250

Notes: All units in micrograms per gram (µg/g)
CCME [1] = Canadian Council of Ministers of the Environment (CCME) "Canadian Environmental Quality Guidelines", 1999 (Updated 2007).
Chapter 7: Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health.
MOE [2] = Ontario Ministry of the Environment (MOE) "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004.
Guideline/Standard[4] - Coarse grained criteria used.
NG = No guideline value or standard available
NA = Parameter not analyzed
Value = Sample result exceeds applicable CCME guidelines
Value = Sample result exceeds applicable MOE standards

TABLE B3.1: Summary of Petroleum Hydrocarbon & BTEX Soil Analyses - Building 29

Parameters	Analytical Results - µg/g (Sample Location / Sample No. / Depth - metres)			Guideline / Standard (µg/g)[4]	
	TP26 SS2 0.5 - 1.0 m	TP27 SS2 0.5 - 1.0 m	BHMW12 SS2 0.6 - 1.1 m	Federal CCME Guidelines [1, 2] Commercial Land Use	Provincial MOE Standards [3] - Table 3 - Residential / Parkland Land Use
Petroleum Hydrocarbons (Fraction 1)	<20	<20	<20	320	30
Petroleum Hydrocarbons (Fraction 2)	40	**2,100**	<10	260	150
Petroleum Hydrocarbons (Fraction 3)	**1,000**	**23,000**	<10	1,700	400
Petroleum Hydrocarbons (Fraction 4)	**3,500**	**24,000**	<10	3,300	2,800
Benzene	NA	NA	*<0.05*	0.03	5.3
Toluene	NA	NA	<0.05	0.37	34
Ethylbenzene	NA	NA	<0.05	0.082	290
m/p-Xylene	NA	NA	<0.1	11	34
o-Xylene	NA	NA	<0.05		

Notes: All units in micrograms per gram (µg/g)

CCME [1] = Canadian Council of Ministers of the Environment (CCME) "Canadian Environmental Quality Guidelines", 1999 (Updated 2007). Chapter 7: Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health.

CCME [2] = Canadian Council of Ministers of the Environment (CCME) "Canada-Wide Standards for Petroleum Hydrocarbons (PHC) in Soil", 2008.

MOE [3] = Ontario Ministry of the Environment (MOE) "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004.

Guideline/Standard[4] - Coarse grained criteria used.

NG = No guideline value or standard available

NA = Parameter not analyzed

Value = Sample result exceeds applicable CCME guidelines

Value = Sample result exceeds applicable MOE standards

Italic = Laboratory Method Detection Limit exceeds applicable guideline and/or standard

TABLE B3.2: Summary of ICP Metals Soil Analyses - Building 29

Parameters	Analytical Results - µg/g (Sample Location / Sample No. / Depth - metres)			Guideline / Standard (µg/g)[4]	
	TP26 SGS2 0.5 - 1.0 m	TP27 SGS2 0.5 - 1.0 m	BHMW12 SS2 0.6 - 1.1 m	Federal CCME Guidelines [1] Commercial Land Use	Provincial MOE Standards [2] - Table 3 - Residential / Parkland Land Use
Antimony	<1	<1	<1	40	13
Arsenic	<1	<1	<1	12	20
Barium	60	220	100	2,000	750
Beryllium	<0.5	<0.5	<0.5	8	1.2
Cadmium	<0.5	<0.5	<0.5	22	12
Calcium	110,000	10,000	180,000	NG	NG
Chromium	15	25	<5	87	750
Cobalt	<5	10	<5	300	40
Copper	5	15	<5	91	225
Iron	9,200	14,000	9,000	NG	NG
Lead	9	13	3	260	200
Magnesium	32,000	4,600	53,000	NG	NG
Molybdenum	<1	<1	<1	40	40
Nickel	15	15	10	50	150
Selenium	<1	<1	<1	2.9	10
Silver	<0.3	<0.3	<0.3	40	20
Sodium	<200	400	<200	NG	NG
Thallium	<1	<1	<1	1	4.1
Tin	<5	<5	<5	300	NG
Vanadium	20	30	<10	130	200
Zinc	<20	40	<20	360	600

Notes: All units in micrograms per gram (µg/g)

CCME [1] = Canadian Council of Ministers of the Environment (CCME) "Canadian Environmental Quality Guidelines", 1999 (Updated 2007). Chapter 7: Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health.

MOE [2] = Ontario Ministry of the Environment (MOE) "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004.

Guideline/Standard[4] - Coarse grained criteria used.

NG = No guideline value or standard available

NA = Parameter not analyzed

Value = Sample result exceeds applicable CCME guidelines

Value = Sample result exceeds applicable MOE standards

TABLE B3.3: Summary of Polycyclic Aromatic Hydrocarbon Soil Analyses - Building 29

Parameters	Analytical Results - µg/g (Sample Location / Sample No. / Depth - metres)			Guideline / Standard (µg/g)[4]	
	TP26 SGS2 0.5 - 1.0 m	TP27 SGS2 0.5 - 1.0 m	BHMW12 SS2 0.6 - 1.1 m	Federal CCME Guidelines [1] Commercial Land Use	Provincial MOE Standards [2] - Table 3 - Residential / Parkland Land Use
Acenaphthene	<0.2	<0.02	<0.02	NG	1,000
Acenaphthylene	<0.2	<0.02	<0.02	NG	100
Anthracene	<0.2	<0.02	<0.02	NG	28
Benzo(a)anthracene	0.5	<0.02	<0.02	10	40
Benzo(a)pyrene	0.7	<0.02	<0.02	0.7	1.2
Benzo(b)fluoranthene	1	<0.02	<0.02	10	12
Benzo(g,h,i)perylene	5	<0.02	<0.02	NG	40
Benzo(k)fluoranthene	0.2	<0.02	<0.02	10	12
Biphenyl	1	<0.02	<0.02	NG	4.3
Chrysene	1	<0.02	<0.02	NG	12
Dibenzo(a,h)anthracene	0.7	<0.02	<0.02	10	1.2
Fluoranthene	<0.2	<0.02	<0.02	NG	40
Fluorene	<0.2	<0.02	<0.02	NG	350
Indeno(1,2,3,c,d)pyrene	1	<0.02	<0.02	10	12
Methylnaphthalene, 1-	<0.2	<0.02	<0.02	NG	280
Methylnaphthalene, 2-	1	<0.02	<0.02	NG	
Naphthalene	0.5	<0.02	<0.02	22	40
Phenanthrene	1.4	<0.02	<0.02	50	40
Pyrene	0.7	<0.02	<0.02	100	250

Notes: All units in micrograms per gram (µg/g)
CCME [1] = Canadian Council of Ministers of the Environment (CCME) "Canadian Environmental Quality Guidelines", 1999 (Updated 2007). Chapter 7: Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health.
MOE [2] = Ontario Ministry of the Environment (MOE) "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004.
Guideline/Standard[4] - Coarse grained criteria used.
NG = No guideline value or standard available
NA = Parameter not analyzed
Value = Sample result exceeds applicable CCME guidelines
Value = Sample result exceeds applicable MOE standards

TABLE B4.1: Summary of Petroleum Hydrocarbon Soil Analyses - Building 43/45

Parameters	Analytical Results - µg/g (Sample Location / Sample No. / Depth - metres)							Guideline / Standard (µg/g)[4]	
	TP8 SGS2 0.3 - 0.6 m	TP8 SGS6 0.6 - 1.1 m	TP9 SGS5 1.2 m	TP10 SGS6 0.5 m	TP11 SGS1 0.1 - 0.6 m	BHMW2 SS1 0.0 - 0.6 m	BHMW3 SS2 0.6 - 1.2 m	Federal CCME Guidelines [1, 2] Commercial Land Use	Provincial MOE Standards [3] - Table 3 - Residential / Parkland Land Use
Petroleum Hydrocarbons (Fraction 1)	<20	<20	<20	<20	<20	<20	<20	320	30
Petroleum Hydrocarbons (Fraction 2)	<10	30	<10	<10	<10	20	<10	260	150
Petroleum Hydrocarbons (Fraction 3)	<10	20	30	20	30	220	<10	1700	400
Petroleum Hydrocarbons (Fraction 4)	<10	<10	<10	<10	<10	140	<10	3,300	2,800

Notes: All units in micrograms per gram (µg/g)
CCME [1] = Canadian Council of Ministers of the Environment (CCME) "Canadian Environmental Quality Guidelines", 1999 (Updated 2007).
Chapter 7: Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health.
CCME [2] = Canadian Council of Ministers of the Environment (CCME) "Canada-Wide Standards for Petroleum Hydrocarbons (PHC) in Soil", 2008.
MOE [3] = Ontario Ministry of the Environment (MOE) "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004.
Guideline/Standard[4] - Coarse grained criteria used.
NG = No guideline value or standard available
NA = Parameter not analyzed
Value = Sample result exceeds applicable CCME guidelines
Value = Sample result exceeds applicable MOE standards

TABLE B4.2: Summary of ICP Metals Soil Analyses - Building 43/45

Parameters	Analytical Results - µg/g (Sample Location / Sample No. / Depth - metres)							Guideline / Standard (µg/g)[4]	
	TP8 SGS2 0.3 - 0.7 m	TP8 SGS6 0.6 - 1.1 m	TP9 SGS5 1.2 m	TP10 SGS6 0.5 m	TP11 SGS1 0.1 - 0.6 m	BHMW2 SS1 0.0 - 0.6 m	BHMW3 SS2 0.6 - 1.2 m	Federal CCME Guidelines [1] Commercial Land Use	Provincial MOE Standards [2] - Table 3 - Residential / Parkland Land Use
Antimony	<1	1	<1	<1	<1	<1	<1	40	13
Arsenic	<1	4	3	<1	<1	3	1	12	20
Barium	60	**1300**	**820**	190	200	160	190	2,000	750
Beryllium	<0.5	<0.5	0.5	1	<0.5	<0.5	0.5	8	1.2
Cadmium	<0.5	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	22	12
Calcium	3,800	25,000	17,000	30,000	10,000	130,000	12,000	NG	NG
Chromium	20	45	55	15	45	15	45	87	750
Cobalt	5	10	15	<5	10	5	10	300	40
Copper	5	35	55	20	25	10	15	91	225
Iron	15,000	25,000	25,000	9,200	22,000	12,000	26,000	NG	NG
Lead	6	**250**	78	9	21	10	9	260	200
Magnesium	2,600	8,600	8,800	4,800	6,400	8,400	8,600	NG	NG
Molybdenum	<1	1	<1	<1	<1	<1	<1	40	40
Nickel	10	40	50	10	30	25	20	50	150
Selenium	<1	<1	<1	<1	<1	<1	<1	2.9	10
Silver	<0.3	<0.3	<0.3	<0.3	<0.3	0.3	<0.3	40	20
Sodium	<200	<200	200	200	200	<200	400	NG	NG
Thallium	<1	<1	<1	<1	<1	<1	<1	1	4.1
Tin	<5	5	5	<5	<5	<5	<5	300	NG
Vanadium	30	30	50	20	50	20	50	130	200
Zinc	40	**800**	240	20	100	40	60	360	600

Notes: All units in micrograms per gram (µg/g)

CCME [1] = Canadian Council of Ministers of the Environment (CCME) "Canadian Environmental Quality Guidelines", 1999 (Updated 2007).
Chapter 7: Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health.

MOE [2] = Ontario Ministry of the Environment (MOE) "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004.

Guideline/Standard[4] - Coarse grained criteria used.

NG = No guideline value or standard available

NA = Parameter not analyzed

Value = Sample result exceeds applicable CCME guidelines

Value = Sample result exceeds applicable MOE standards

TABLE B4.3: Summary of Polycyclic Aromatic Hydrocarbon Soil Analyses - Buildings 43/45

Parameters	Analytical Results - µg/g (Sample Location / Sample No. / Depth - metres)		Guideline / Standard (µg/g)[4]	
	BHMW2 SS1 0.0 - 0.6 m	BHMW3 SS2 0.6 - 1.2 m	Federal CCME Guidelines [1] Commercial Land Use	Provincial MOE Standards [2] - Table 3 - Residential / Parkland Land Use
Acenaphthene	<0.02	<0.02	NG	1,000
Acenaphthylene	<0.02	<0.02	NG	100
Anthracene	<0.02	<0.02	NG	28
Benzo(a)anthracene	<0.02	<0.02	10	40
Benzo(a)pyrene	<0.02	<0.02	0.7	1.2
Benzo(b)fluoranthene	<0.02	<0.02	10	12
Benzo(g,h,i)perylene	<0.02	<0.02	NG	40
Benzo(k)fluoranthene	<0.02	<0.02	10	12
Biphenyl	<0.02	<0.02	NG	4.3
Chrysene	<0.02	<0.02	NG	12
Dibenzo(a,h)anthracene	<0.02	<0.02	10	1.2
Fluoranthene	<0.02	<0.02	NG	40
Fluorene	<0.02	<0.02	NG	350
Indeno(1,2,3,c,d)pyrene	<0.02	<0.02	10	12
Methylnaphthalene, 1-	<0.02	<0.02	NG	280
Methylnaphthalene, 2-	<0.02	<0.02	NG	
Naphthalene	<0.02	<0.02	22	40
Phenanthrene	<0.02	<0.02	50	40
Pyrene	<0.02	<0.02	100	250

Notes: All units in micrograms per gram (µg/g)

CCME [1] = Canadian Council of Ministers of the Environment (CCME) "Canadian Environmental Quality Guidelines", 1999 (Updated 2007).
Chapter 7: Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health.

MOE [2] = Ontario Ministry of the Environment (MOE) "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004.

Guideline/Standard[4] - Coarse grained criteria used.

NG = No guideline value or standard available

NA = Parameter not analyzed

Value = Sample result exceeds applicable CCME guidelines

Value = Sample result exceeds applicable MOE standards

TABLE B4.4: Summary of Dioxin/Furan Soil Analyses - Buildings 43/45

Parameters	Analytical Results - pg/g (Sample Location / Sample No. / Depth - metres)						Guideline / Standard (pg/g)[4]	
	TP8 SGS2 0.3 - 0.6 m	TP9 SGS5 1.2 m	TP10 SGS6 0.5 m	TP11 SGS1 0.1 - 0.6 m	BHMW2 SS1 0.0 - 0.6 m	BHMW3 SS2 0.6 - 1.2 m	Federal CCME Guidelines[1] Commercial Land Use	Provincial MOE Standards[2] - Table 3 - Residential / Parkland Land Use
2,3,7,8-Tetra CDD	0	0	0.166	0	IS	IS	NG	NG
1,2,3,7,8-Penta CDD	0	0.138	0	0.101	IS	IS	NG	NG
1,2,3,4,7,8-Hexa CDD	0.131	0	0	0	IS	IS	NG	NG
1,2,3,6,7,8-Hexa CDD	0.307	0.625	0	0	IS	IS	NG	NG
1,2,3,7,8,9-Hexa CDD	0.276	0.489	0	0.203	IS	IS	NG	NG
1,2,3,4,6,7,8-Hepta CDD	2.21	4.65	1.67	1.61	IS	IS	NG	NG
Octa CDD	8.87	20.3	7.19	9.97	IS	IS	NG	NG
Total Tetra CDD	3.17	0	0.166	2.07	IS	IS	NG	NG
Total Penta CDD	0.433	0.54	0.679	0.101	IS	IS	NG	NG
Total Hexa CDD	6.66	5.75	1.63	2.18	IS	IS	NG	NG
Total Hepta CDD	4.63	8.93	2.61	3.6	IS	IS	NG	NG
2,3,7,8-Tetra CDF	0.343	0.768	8.47	0.12	IS	IS	NG	NG
1,2,3,7,8-Penta CDF	0.225	0	1.2	0	IS	IS	NG	NG
2,3,4,7,8-Penta CDF	0.575	0.228	1.34	0.139	IS	IS	NG	NG
1,2,3,4,7,8-Hexa CDF	2.86	0.64	0.7	0.524	IS	IS	NG	NG
1,2,3,6,7,8-Hexa CDF	0.247	0.202	0.226	0	IS	IS	NG	NG
2,3,4,6,7,8-Hexa CDF	0.646	0	0.208	0	IS	IS	NG	NG
1,2,3,7,8,9-Hexa CDF	0	0	0	0	IS	IS	NG	NG
1,2,3,4,6,7,8-Hepta CDF	1.08	1.41	0.553	0.871	IS	IS	NG	NG
1,2,3,4,7,8,9-Hepta CDF	0	0	0	0	IS	IS	NG	NG
Octa CDF	0.567	1.26	0	1.1	IS	IS	NG	NG
Total Tetra CDF	20.6	4.2	44.7	2.21	IS	IS	NG	NG
Total Penta CDF	57.4	5.88	13	3.06	IS	IS	NG	NG
Total Hexa CDF	18.5	3	2.51	2.7	IS	IS	NG	NG
Total Hepta CDF	2.38	2.54	1.1	1.58	IS	IS	NG	NG
TOTAL TOXIC EQUIVALENCY	0.997	0.687	2.11	0.44	IS	IS	4	1000

Notes: All units in picograms per gram (pg/g)
CCME [1] = Canadian Council of Ministers of the Environment (CCME) "Canadian Environmental Quality Guidelines", 1999 (Updated 2007).
Chapter 7: Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health.
MOE [2] = Ontario Ministry of the Environment (MOE) "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004.
Guideline/Standard[4] - Coarse grained criteria used.
NG = No guideline value or standard available
NA = Parameter not analyzed
IS = Insufficient Sample Recovered to allow for analysis of Dioxins/Furans
Value = Sample result exceeds applicable CCME guidelines
Value = Sample result exceeds applicable MOE standards

TABLE B5.1: Summary of Petroleum Hydrocarbon & BTEX Soil Analyses - Building 80 (Page 1 of 2)

Parameters	Analytical Results - µg/g (Sample Location / Sample No. / Depth - metres)						Guideline / Standard (µg/g)[4]	
	TP67 SGS2 0.6 m to 1.3 m	TP68 SGS2 0.5 m to 1.5 m	TP69 SGS1 0.0 m to 0.5 m	TP69 SGS2 0.5 m to 1.0 m	TP70 SGS1 0.0 m to 0.5 m	TP72 SGS1 0.0 m to 0.5 m	Federal CCME Guidelines [1, 2] Commercial Land Use	Provincial MOE Standards [3] - Table 3 - Residential / Parkland Land Use
Benzene	*< 0.05*	0.40	*< 0.05*	*< 0.05*	*< 0.05*	*< 0.05*	0.03	5.3
Ethylbenzene	< 0.05	0.10	< 0.05	< 0.05	< 0.05	< 0.05	0.082	290
Toluene	< 0.05	0.75	< 0.05	< 0.05	< 0.05	< 0.05	0.37	34
m,p-Xylenes	< 0.1	0.4	< 0.1	< 0.1	< 0.1	< 0.1	NG	NG
o-Xylenes	< 0.05	0.25	< 0.05	< 0.05	< 0.05	< 0.05	NG	NG
Total Xylenes	< 0.15	0.65	< 0.15	< 0.15	< 0.15	< 0.15	11	34
Petroleum Hydrocarbons (C6 - C10, Fraction 1)	< 20	< 20	< 20	< 20	< 20	< 20	320	30
Petroleum Hydrocarbons (C11 - C16, Fraction 2)	60	40	< 10	30	< 10	< 10	260	150
Petroleum Hydrocarbons (C17 - C34, Fraction 3)	210	100	40	290	40	50	1,700	400
Petroleum Hydrocarbons (> C34, Fraction 4)	30	50	< 10	40	170	20	3,300	2,800

Notes: All units in micrograms per gram (µg/g)
CCME [1] = Canadian Council of Ministers of the Environment (CCME) "Canadian Environmental Quality Guidelines", 1999 (Updated 2007).
Chapter 7: Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health.
CCME [2] = Canadian Council of Ministers of the Environment (CCME) "Canada-Wide Standards for Petroleum Hydrocarbons (PHC) in Soil", 2008.
MOE [3] = Ontario Ministry of the Environment (MOE) "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004.
Guideline/Standard[4] - Coarse grained criteria used.
NG = No guideline value or standard available
NA = Parameter not analyzed
Value = Sample result exceeds applicable CCME guidelines
Value = Sample result exceeds applicable MOE standards
Italic = Laboratory Method Detection Limit exceeds applicable guideline and/or standard

TABLE B5.1: Summary of Petroleum Hydrocarbon & BTEX Soil Analyses - Building 80 (Page 2 of 2)

Parameters	Analytical Results - µg/g (Sample Location / Sample No. / Depth - metres)					Guideline / Standard (µg/g)[4]	
	TP73 SGS1 0.0 m to 0.4 m	TP74 SGS1 0.0 m to 0.4 m	TP75 SGS1 0.0 m to 0.5 m	BHMW25 SS7 3.7 m to 4.2 m	BHMW26 SS8 4.3 m to 4.6 m	Federal CCME Guidelines [1,2] Commercial Land Use	Provincial MOE Standards [3] - Table 3 - Residential / Parkland Land Use
Benzene	*< 0.05*	*< 0.05*	*< 0.05*	*< 0.05*	*< 0.05*	0.03	5.3
Ethylbenzene	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.082	290
Toluene	0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.37	34
m,p-Xylenes	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	NG	NG
o-Xylenes	0.05	< 0.05	< 0.05	< 0.05	< 0.05	NG	NG
Total Xylenes	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15	11	34
Petroleum Hydrocarbons (C6 - C10, Fraction 1)	< 20	< 20	< 20	< 20	< 20	320	30
Petroleum Hydrocarbons (C11 - C16, Fraction 2)	**170**	30	20	< 10	< 10	260	150
Petroleum Hydrocarbons (C17 - C34, Fraction 3)	390	150	110	**440**	50	1,700	400
Petroleum Hydrocarbons (> C34, Fraction 4)	130	60	80	220	10	3,300	2,800

Notes: All units in micrograms per gram (µg/g)

CCME [1] = Canadian Council of Ministers of the Environment (CCME) "Canadian Environmental Quality Guidelines", 1999 (Updated 2007).
Chapter 7: Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health.
CCME [2] = Canadian Council of Ministers of the Environment (CCME) "Canada-Wide Standards for Petroleum Hydrocarbons (PHC) in Soil", 2008.
MOE [3] = Ontario Ministry of the Environment (MOE) "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004.
Guideline/Standard[4] - Coarse grained criteria used.
NG = No guideline value or standard available
NA = Parameter not analyzed
Value = Sample result exceeds applicable CCME guidelines
Value = Sample result exceeds applicable MOE standards
Italic = Laboratory Method Detection Limit exceeds applicable guideline and/or standard

TABLE B5.2: Summary of ICP Metals Soil Analyses - Building 80

Parameters	Analytical Results - µg/g (Sample Location / Sample No. / Depth - metres)				Guideline / Standard (µg/g)[4]	
	TP67 SGS2 0.6 m to 1.3 m	TP69 SGS1 0.0 m to 0.5 m	TP69 SGS2 0.5 m to 1.0 m	TP75 SGS2 0.5 m to 1.0 m	Federal CCME Guidelines [1] Commercial Land Use	Provincial MOE Standards [2] – Table 3 - Residential / Parkland Land Use
Antimony	< 1	< 1	<1	< 1	40	13
Arsenic	17	3	**38**	9	12	20
Barium	190	40	160	40	2000	750
Beryllium	< 0.5	< 0.5	1.0	< 0.5	8	1.2
Cadmium	< 0.5	< 0.5	< 0.5	< 0.5	22	12
Calcium	11,000	3,800	7,000	2,800	NG	NG
Chromium	10	15	20	10	87	750
Cobalt	5	5	10	< 5	300	40
Copper	25	10	20	5	91	225
Iron	46,000	13,000	20,000	20,000	NG	NG
Lead	5	8	38	4	260	200
Magnesium	1,400	3,400	3,200	1,600	NG	NG
Molybdenum	2	< 1	1	< 1	40	40
Nickel	20	10	15	< 5	50	150
Selenium	< 1	< 1	< 1	< 1	2.9	10
Silver	< 0.3	< 0.3	< 0.3	< 0.3	40	20
Sodium	400	< 200	400	200	NG	NG
Thallium	< 1	< 1	< 1	< 1	1	4.1
Tin	< 5	< 5	< 5	< 5	300	NG
Vanadium	20	20	30	20	130	200
Zinc	20	20	120	< 20	360	600

Notes: All units in micrograms per gram (µg/g)
CCME [1] = Canadian Council of Ministers of the Environment (CCME) "Canadian Environmental Quality Guidelines", 1999 (Updated 2007).
Chapter 7: Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health.
MOE [2] = Ontario Ministry of the Environment (MOE) "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004.
Guideline/Standard[4] - Coarse grained criteria used.
NG = No guideline value or standard available
NA = Parameter not analyzed
Value = Sample result exceeds applicable CCME guidelines
Value = Sample result exceeds applicable MOE standards

TABLE B5.3: Summary of Polycyclic Aromatic Hydrocarbon Soil Analyses - Building 80

Parameters	Analytical Results - µg/g (Sample Location / Sample No. / Depth - metres)	Guideline / Standard (µg/g)[4]	
	TP67 SGS2 0.6 m to 1.3 m	Federal CCME Guidelines [1] Commercial Land Use	Provincial MOE Standards [2] - Table 3 - Residential / Parkland Land Use
Acenaphthene	0.04	NG	1,000
Acenaphthylene	0.04	NG	100
Anthracene	< 0.02	NG	28
Benzo(a)anthracene	0.10	10	40
Benzo(a)pyrene	0.06	0.7	1.2
Benzo(b)fluoranthene	0.06	10	12
Benzo(g,h,i)perylene	0.04	NG	40
Benzo(k)fluoranthene	0.02	10	12
Biphenyl	0.14	NG	4.3
Chrysene	0.14	NG	12
Dibenzo(a,h)anthracene	0.02	10	1.2
Fluoranthene	0.10	NG	40
Fluorene	< 0.02	NG	350
Indeno(1,2,3,c,d)pyrene	< 0.02	10	12
Methylnaphthalene, 1-	2.0	NG	280
Methylnaphthalene, 2-	2.3	NG	
Naphthalene	1.2	22	40
Phenanthrene	1.4	50	40
Pyrene	0.18	100	250

Notes: All units in micrograms per gram (µg/g)
CCME [1] = Canadian Council of Ministers of the Environment (CCME) "Canadian Environmental Quality Guidelines", 1999 (Updated 2007). Chapter 7: Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health.
MOE [2] = Ontario Ministry of the Environment (MOE) "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004.
Guideline/Standard[4] - Coarse grained criteria used.
NG = No guideline value or standard available
NA = Parameter not analyzed
Value = Sample result exceeds applicable CCME guidelines
Value = Sample result exceeds applicable MOE standards

TABLE B6.1: Summary of Petroleum Hydrocarbon Soil Analyses - Building 84

Parameters	Analytical Results - µg/g (Sample ID / Sample No. / Depth - metres)			Guideline / Standard (µg/g)[4]	
	TP19 SGS3 1.2 - 1.8 m	TP20 SGS2 0.6 - 1.2 m	BHMW9 SS2 1.6 - 1.2 m	Federal CCME Guidelines [1,,2] Commercial Land Use	Provincial MOE Standards [3] - Table 3 - Residential / Parkland Land Use
Petroleum Hydrocarbons (Fraction 1)	<20	<20	<20	320	30
Petroleum Hydrocarbons (Fraction 2)	<10	30	<10	260	150
Petroleum Hydrocarbons (Fraction 3)	30	50	150	1,700	400
Petroleum Hydrocarbons (Fraction 4)	10	30	100	3,300	2,800

Notes: All units in micrograms per gram (µg/g)
CCME [1] = Canadian Council of Ministers of the Environment (CCME) "Canadian Environmental Quality Guidelines", 1999 (Updated 2007). Chapter 7: Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health.
CCME [2] = Canadian Council of Ministers of the Environment (CCME) "Canada-Wide Standards for Petroleum Hydrocarbons (PHC) in Soil", 2008.
MOE [3] = Ontario Ministry of the Environment (MOE), "Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004.
Guideline/Standard[4] - Coarse grained criteria used.
NG = No guideline value or standard available
NA = Parameter not analyzed
Value = Sample result exceeds applicable CCME guidelines
Value = Sample result exceeds applicable MOE standards

TABLE B7.1: Summary of Petroleum Hydrocarbon Soil Analyses - Building 90

Parameters	Analytical Results - µg/g (Sample ID / Sample No. / Depth - metres)			Guideline / Standard (µg/g)[4]	
	TP6 SGS2 0.2 - 0.3 m	TP7 SGS5 1.8 - 2.5 m	BHMW1 SS3 1.2 - 1.8 m	Federal CCME Guidelines [1, 2] Commercial Land Use	Provincial MOE Standards [3] - Table 3 - Residential / Parkland Land Use
Petroleum Hydrocarbons (Fraction 1)	<20	<20	<20	320	30
Petroleum Hydrocarbons (Fraction 2)	40	<10	10	260	150
Petroleum Hydrocarbons (Fraction 3)	170	<10	20	1700	400
Petroleum Hydrocarbons (Fraction 4)	220	<10	20	3,300	2,800

Notes: All units in micrograms per gram (µg/g)
CCME [1] = Canadian Council of Ministers of the Environment (CCME) "Canadian Environmental Quality Guidelines", 1999 (Updated 2007).
Chapter 7: Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health.
CCME [2] = Canadian Council of Ministers of the Environment (CCME) "Canada-Wide Standards for Petroleum Hydrocarbons (PHC) in Soil", 2008.
MOE [3] = Ontario Ministry of the Environment (MOE) "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004.
Guideline/Standard[4] - Coarse grained criteria used.
NG = No guideline value or standard available
NA = Parameter not analyzed
Value = Sample result exceeds applicable CCME guidelines
Value = Sample result exceeds applicable MOE standards

TABLE B7.2: Summary of Dioxin/Furan Soil Analyses - Building 90

Parameters	Analytical Results - pg/g (Sample ID / Sample No. / Depth - metres)			Guidelines/Standards (pg/g)[4]	
	TP3 SGS1 0.0 - 0.6 m	TP4 SGS5 1.8 - 2.4 m	TP5 SGS2 0.6 - 1.2 m	Federal CCME Guidelines [1] Commercial Land Use	Provincial MOE Standards [2] - Table 3 - Residential / Parkland Land Use
2,3,7,8-Tetra CDD	0	0	0	NG	NG
1,2,3,7,8-Penta CDD	1.72	0	0	NG	NG
1,2,3,4,7,8-Hexa CDD	3.49	0	0	NG	NG
1,2,3,6,7,8-Hexa CDD	46.3	0	0	NG	NG
1,2,3,7,8,9-Hexa CDD	10.4	0	0	NG	NG
1,2,3,4,6,7,8-Hepta CDD	1,510	1.05	0.562	NG	NG
Octa CDD	10,100	6.88	3.33	NG	NG
Total Tetra CDD	11.7	0	0	NG	NG
Total Penta CDD	10.4	0.187	0.435	NG	NG
Total Hexa CDD	204	0.757	1.1	NG	NG
Total Hepta CDD	2,510	1.7	1.04	NG	NG
2,3,7,8-Tetra CDF	3.18	0	0.101	NG	NG
1,2,3,7,8-Penta CDF	1.23	0	0	NG	NG
2,3,4,7,8-Penta CDF	7.07	0	0	NG	NG
1,2,3,4,7,8-Hexa CDF	28.4	0	0	NG	NG
1,2,3,6,7,8-Hexa CDF	7.7	0	0	NG	NG
2,3,4,6,7,8-Hexa CDF	17.9	0	0	NG	NG
1,2,3,7,8,9-Hexa CDF	0	0	0	NG	NG
1,2,3,4,6,7,8-Hepta CDF	562	0.552	1.5	NG	NG
1,2,3,4,7,8,9-Hepta CDF	26.5	0	0	NG	NG
Octa CDF	2,920	1.3	0	NG	NG
Total Tetra CDF	187	0.874	0.6	NG	NG
Total Penta CDF	643	0.622	0.69	NG	NG
Total Hexa CDF	714	0.86	1.18	NG	NG
Total Hepta CDF	2,520	1.52	2.31	NG	NG
TOTAL TOXIC EQUIVALENCY	50.3	0.373	0.373	4	1000

Notes: All units in picograms per gram (pg/g)
CCME [1] = Canadian Council of Ministers of the Environment (CCME) "Canadian Environmental Quality Guidelines", 1999 (Updated 2007).
Chapter 7: Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health.
MOE [2] = Ontario Ministry of the Environment (MOE) "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004.
Guideline/Standard[4] - Coarse grained criteria used.
NG = No guideline value or standard available
NA = Parameter not analyzed
Value = Sample result exceeds applicable CCME guidelines
Value = Sample result exceeds applicable MOE standards

TABLE B8.1: Summary of Petroleum Hydrocarbon & BTEX Soil Analyses - Building 137

Parameters	Analytical Results - µg/g (Sample Location / Sample No. / Depth - metres)						Guideline / Standard (µg/g)[4]	
	TP34 SGS5 2.5 - 3.1 m	TP35 SGS3 0.4 - 0.6 m	TP36 SGS2 0.6 - 0.9 m	TP38 SGS3 1.5 - 2.1 m	TP39 SGS5 1.8 m	BHMW15 SS5 2.4 - 3.0 m	Federal CCME Guidelines [1,2] Commercial Land Use	Provincial MOE Standards [3] - Table 3 - Residential / Parkland Land Use
Petroleum Hydrocarbons (Fraction 1)	20	<20	<20	<20	20	**40**	320	30
Petroleum Hydrocarbons (Fraction 2)	**12,000**	40	20	30	**3,000**	**2,200**	260	150
Petroleum Hydrocarbons (Fraction 3)	**5,900**	50	40	50	**1,500**	**930**	1,700	400
Petroleum Hydrocarbons (Fraction 4)	40	20	20	20	<10	<10	3,300	2,800
Benzene	NA	NA	NA	NA	NA	*<0.05*	0.03	5.3
Toluene	NA	NA	NA	NA	NA	<0.05	0.37	34
Ethylbenzene	NA	NA	NA	NA	NA	<0.05	0.082	290
m/p-Xylene	NA	NA	NA	NA	NA	<0.1	11	34
o-Xylene	NA	NA	NA	NA	NA	<0.05		

Notes: All units in micrograms per gram (µg/g)

CCME [1] = Canadian Council of Ministers of the Environment (CCME) "Canadian Environmental Quality Guidelines", 1999 (Updated 2007). Chapter 7: Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health.

CCME [2] = Canadian Council of Ministers of the Environment (CCME) "Canada-Wide Standards for Petroleum Hydrocarbons (PHC) in Soil", 2008.

MOE [3] = Ontario Ministry of the Environment (MOE), "Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9. 2004.

Guideline/Standard[4] - Coarse grained criteria used.

NG = No guideline or standard available

NA = Parameter not analyzed

Value = Sample result exceeds applicable CCME guidelines

Value = Sample result exceeds applicable MOE standards

Italic = Laboratory Method Detection Limit exceeds applicable guideline and/or standard

TABLE B8.2: Summary of ICP Metals Soil Analyses - Building 137

Parameters	Analytical Results - µg/g (Sample Location / Sample No. / Depth - metres)	Guideline / Standard (µg/g)[4]	
	BHMW15 SS5 2.4 - 3.0 m	Federal CCME Guidelines [1] Commercial Land Use	Provincial MOE Standards [2] - Table 3 - Residential / Parkland Land Use
Antimony	<1	40	13
Arsenic	<1	12	20
Barium	430	2,000	750
Beryllium	0.5	8	1.2
Cadmium	<0.5	22	12
Calcium	39,000	NG	NG
Chromium	70	87	750
Cobalt	15	300	40
Copper	35	91	225
Iron	35,000	NG	NG
Lead	12	260	200
Magnesium	17,000	NG	NG
Molybdenum	<1	40	40
Nickel	40	50	150
Selenium	<1	2.9	10
Silver	<0.3	40	20
Sodium	1,200	NG	NG
Thallium	<1	1	4.1
Tin	<5	300	NG
Vanadium	70	130	200
Zinc	80	360	600

Notes: All units in micrograms per gram (µg/g)
CCME [1] = Canadian Council of Ministers of the Environment (CCME) "Canadian Environmental Quality Guidelines", 1999 (Updated 2007).
Chapter 7: Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health.
MOE [2] = Ontario Ministry of the Environment (MOE) "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004.
Guideline/Standard[4] - Coarse grained criteria used.
NG = No guideline value or standard available
NA = Parameter not analyzed
Value = Sample result exceeds applicable CCME guidelines
Value = Sample result exceeds applicable MOE standards

TABLE B8.3: Summary of Polycyclic Aromatic Hydrocarbon Soil Analyses - Building 137

Parameters	Analytical Results - µg/g (Sample Location / Sample No. / Depth - metres)	Guideline / Standard (µg/g)[4]	
	BHMW15 SS5 2.4 - 3.0 m	Federal CCME Guidelines [1] Commercial Land Use	Provincial MOE Standards [2] - Table 3 - Residential / Parkland Land Use
Acenaphthene	0.24	NG	1,000
Acenaphthylene	0.2	NG	100
Anthracene	<0.02	NG	28
Benzo(a)anthracene	<0.02	10	40
Benzo(a)pyrene	<0.02	0.7	1.2
Benzo(b)fluoranthene	<0.02	10	12
Benzo(g,h,i)perylene	<0.02	NG	40
Benzo(k)fluoranthene	<0.02	10	12
Biphenyl	<0.02	NG	4.3
Chrysene	<0.02	NG	12
Dibenzo(a,h)anthracene	<0.02	10	1.2
Fluoranthene	<0.02	NG	40
Fluorene	0.18	NG	350
Indeno(1,2,3,c,d)pyrene	<0.02	10	12
Methylnaphthalene, 1-	0.1	NG	280
Methylnaphthalene, 2-	0.08	NG	
Naphthalene	1.2	22	40
Phenanthrene	<0.02	50	40
Pyrene	<0.02	100	250

Notes: All units in micrograms per gram (µg/g)
CCME [1] = Canadian Council of Ministers of the Environment (CCME) "Canadian Environmental Quality Guidelines", 1999 (Updated 2007).
Chapter 7: Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health.
MOE [2] = Ontario Ministry of the Environment (MOE) "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004.
Guideline/Standard[4] - Coarse grained criteria used.
NG = No guideline value or standard available
NA = Parameter not analyzed
Value = Sample result exceeds applicable CCME guidelines
Value = Sample result exceeds applicable MOE standards

TABLE B9.1: Summary of Petroleum Hydrocarbon and BTEX Soil Analyses - North Sector (Page 4 of 4)

Parameters	Analytical Results - µg/g (Sample Location / Sample No. / Depth - metres)							Guideline / Standard (µg/g)	
	BHMW17 SS7 3.6 - 4.2 m	BHMW18 SS2 0.6 - 1.0 m	BHMW19 SS3 1.2 - 1.6 m	BHMW20 SS2 0.6 - 1.0 m	BHMW21 SS4 1.8 - 2.4 m	BHMW24 SS1 0.0 - 0.6 m	North Sector Composite	Federal CCME Guidelines (1, 2) Commercial Land Use	Provincial MOE Standards (3) - Table 3 - Residential / Parkland Land Use
Petroleum Hydrocarbons (Fraction 1)	<20	<20	<20	<20	<20	<20	<20	320	30
Petroleum Hydrocarbons (Fraction 2)	<10	<10	<10	<10	<10	<10	<10	260	150
Petroleum Hydrocarbons (Fraction 3)	<10	<10	<10	<10	20	30	<10	1,700	400
Petroleum Hydrocarbons (Fraction 4)	<10	<10	<10	<10	20	10	<10	3,300	2,800
Benzene	NA	NA	*<0.05*	*<0.05*	*<0.05*	NA	NA	0.03	5.3
Toluene	NA	NA	<0.05	<0.05	<0.05	NA	NA	0.37	34
Ethylbenzene	NA	NA	<0.05	<0.05	<0.05	NA	NA	0.082	290
m/p-Xylene	NA	NA	<0.1	<0.1	<0.1	NA	NA	NG	NG
o-Xylene	NA	NA	<0.05	<0.05	<0.05	NA	NA	NG	NG
Xylenes	NA	NA	<0.15	<0.15	<0.15	NA	NA	11	34

Notes: All units in micrograms per gram (µg/g)

CCME (1) = Canadian Council of Ministers of the Environment (CCME) "Canadian Environmental Quality Guidelines", 1999 (Updated 2007). Chapter 7: Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health.

CCME (2) = Canadian Council of Ministers of the Environment (CCME) "Canada-Wide Standards for Petroleum Hydrocarbons (PHC) in Soil", 2008.

MOE (3) = Ontario Ministry of the Environment (MOE) "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004.

Guideline/Standard(4) - Coarse grained criteria used.

NG = No guideline value or standard available

NA = Parameter not analyzed

Value = Sample result exceeds applicable CCME guidelines

Value = Sample result exceeds applicable MOE standards

Italic = Laboratory Method Detection Limit exceeds applicable guideline and/or standard

TABLE B9.2: Summary of ICP Metals Soil Analyses - North Sector (Page 1 of 7)

Parameters	Analytical Results - µg/g (Sample Location / Sample No. / Depth - metres)							Guideline / Standard (µg/g)[4]	
	TP22 SGS2 0.1 m	TP22 SGS3 0.6 m	TP22 SGS5 1.2 m	TP23 SGS2 0.8 m	TP23 SGS3 1.8 m	TP23 SGS5 2.1 m	TP24 SGS2 0.1 m	Federal CCME Guidelines [1] Commercial Land Use	Provincial MOE Standards [2] - Table 3 - Residential / Parkland Land Use
Antimony	<1	<1	<1	<1	<1	<1	<1	40	13
Arsenic	1	1	<1	<1	<1	<1	1	12	20
Barium	100	90	70	110	60	60	70	2,000	750
Beryllium	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	8	1.2
Cadmium	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	22	12
Calcium	25,000	11,000	74,000	7,600	5,600	5,200	120,000	NG	NG
Chromium	30	30	15	25	15	20	10	87	750
Cobalt	5	5	5	5	<5	<5	<5	300	40
Copper	15	15	10	15	10	10	5	91	225
Iron	14,000	13,000	12,000	181,000	13,000	21,000	8,600	NG	NG
Lead	17	7	5	8	4	4	6	260	200
Magnesium	8,000	5,400	4,200	5,000	3,600	3,800	7,400	NG	NG
Molybdenum	<1	<1	<1	<1	<1	<1	<1	40	40
Nickel	15	15	10	15	10	10	15	50	150
Selenium	<1	<1	<1	<1	<1	<1	<1	2.9	10
Silver	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	40	20
Sodium	<200	200	<200	<200	<200	<200	<200	NG	NG
Thallium	<1	<1	<1	<1	<1	<1	<1	1	4.1
Tin	<5	<5	<5	<5	<5	<5	<5	300	NG
Vanadium	30	20	20	30	20	30	10	130	200
Zinc	80	80	20	320	20	80	<20	360	600

Notes: All units in micrograms per gram (µg/g)
CCME [1] = Canadian Council of Ministers of the Environment (CCME) "Canadian Environmental Quality Guidelines", 1999 (Updated 2007).
Chapter 7: Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health.
MOE [2] = Ontario Ministry of the Environment (MOE) "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004.
Guideline/Standard[4] - Coarse grained criteria used.
NG = No guideline value or standard available
NA = Parameter not analyzed
Value = Sample result exceeds applicable CCME guidelines
Value = Sample result exceeds applicable MOE standards

TABLE B9.2: Summary of ICP Metals Soil Analyses - North Sector (Page 2 of 7)

Parameters	Analytical Results - µg/g (Sample Location / Sample No. / Depth - metres)							Guideline / Standard (µg/g)[4]	
	TP24 SGS3 0.7 m	TP24 SGS5 1.6 m	TP25 SGS2 0.3 m	TP25 SGS3 0.6 m	TP25 SGS5 1.0 m	TP26 SGS2 0.5 - 1.0 m	TP27 SGS2 0.5 - 1.0 m	Federal CCME Guidelines [1] Commercial Land Use	Provincial MOE Standards [2] - Table 3 - Residential / Parkland Land Use
Antimony	<1	<1	<1	<1	<1	<1	<1	40	13
Arsenic	1	<1	1	2	1	<1	<1	12	20
Barium	140	330	130	80	70	60	220	2,000	750
Beryllium	<0.5	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	8	1.2
Cadmium	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	22	12
Calcium	230,000	41,000	5,400	5,000	4,400	110,000	10,000	NG	NG
Chromium	10	55	25	20	15	15	25	87	750
Cobalt	5	15	10	10	5	<5	10	300	40
Copper	5	35	15	10	10	5	15	91	225
Iron	9,000	31,000	19,000	18,000	14,000	9,200	14,000	NG	NG
Lead	5	8	8	7	6	9	13	260	200
Magnesium	10,000	12,000	5,800	5,800	3,800	32,000	4,600	NG	NG
Molybdenum	<1	<1	<1	<1	<1	<1	<1	40	40
Nickel	30	30	15	15	10	15	15	50	150
Selenium	<1	<1	<1	<1	<1	<1	<1	2.9	10
Silver	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	40	20
Sodium	<200	800	200	<200	<200	<200	400	NG	NG
Thallium	<1	<1	<1	<1	<1	<1	<1	1	4.1
Tin	<5	<5	<5	<5	<5	<5	<5	300	NG
Vanadium	<10	70	40	30	30	20	30	130	200
Zinc	<20	80	40	40	20	<20	40	360	600

Notes: All units in micrograms per gram (µg/g)
CCME [1] = Canadian Council of Ministers of the Environment (CCME) "Canadian Environmental Quality Guidelines", 1999 (Updated 2007).
Chapter 7: Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health.
MOE [2] = Ontario Ministry of the Environment (MOE) "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004.
Guideline/Standard[4] - Coarse grained criteria used.
NG = No guideline value or standard available
NA = Parameter not analyzed
Value = Sample result exceeds applicable CCME guidelines
Value = Sample result exceeds applicable MOE standards

TABLE B9.2: Summary of ICP Metals Soil Analyses - North Sector (Page 3 of 7)

Parameters	Analytical Results - µg/g (Sample Location / Sample No. / Depth - metres)							Guideline / Standard (µg/g)[4]	
	TP28 SGS2 0.6 m	TP28 SGS3 1.1 m	TP28 SGS5 1.8 m	TP29 SGS2 0.6 m	TP29 SGS3 1.0 m	TP29 SGS5 1.6 m	TP30 SGS2 0.6 m	Federal CCME Guidelines [1] Commercial Land Use	Provincial MOE Standards [2] - Table 3 - Residential / Parkland Land Use
Antimony	<1	<1	<1	<1	<1	<1	<1	40	13
Arsenic	2	3	2	2	2	2	2	12	20
Barium	30	60	40	80	100	130	100	2,000	750
Beryllium	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	8	1.2
Cadmium	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	22	12
Calcium	9,400	15,000	4,200	5,200	6,600	11,000	9,200	NG	NG
Chromium	15	25	15	25	30	30	25	87	750
Cobalt	5	10	5	5	10	10	10	300	40
Copper	15	20	10	15	15	20	15	91	225
Iron	14,000	20,000	16,000	16,000	18,000	19,000	21,000	NG	NG
Lead	5	9	6	23	31	46	13	260	200
Magnesium	5,600	8,000	4,600	4,600	5,600	6,400	4,800	NG	NG
Molybdenum	<1	<1	<1	<1	<1	<1	<1	40	40
Nickel	15	25	15	15	20	20	25	50	150
Selenium	<1	<1	<1	<1	<1	<1	<1	2.9	10
Silver	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	40	20
Sodium	<200	<200	<200	<200	<200	<200	<200	NG	NG
Thallium	<1	<1	<1	<1	<1	<1	<1	1	4.1
Tin	<5	<5	<5	<5	<5	<5	<5	300	NG
Vanadium	20	30	20	30	30	30	30	130	200
Zinc	<20	300	20	60	40	100	40	360	600

Notes: All units in micrograms per gram (µg/g)
CCME [1] = Canadian Council of Ministers of the Environment (CCME) "Canadian Environmental Quality Guidelines", 1999 (Updated 2007).
Chapter 7: Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health.
MOE [2] = Ontario Ministry of the Environment (MOE) "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004.
Guideline/Standard[4] - Coarse grained criteria used.
NG = No guideline value or standard available
NA = Parameter not analyzed
Value = Sample result exceeds applicable CCME guidelines
Value = Sample result exceeds applicable MOE standards

TABLE B9.2: Summary of ICP Metals Soil Analyses - North Sector (Page 4 of 7)

Parameters	Analytical Results - µg/g (Sample Location / Sample No. / Depth - metres)							Guideline / Standard (µg/g)[4]	
	TP30 SGS3 0.7 m	TP30 SGS5 1.3 m	TP31 SGS2 0.5 m	TP31 SGS3 0.9 m	TP31 SGS5 1.2 m	TP32 SGS2 0.1 m	TP32 SGS3 0.5 m	Federal CCME Guidelines [1] Commercial Land Use	Provincial MOE Standards [2] - Table 3 - Residential / Parkland Land Use
Antimony	<1	<1	<1	<1	<1	<1	<1	40	13
Arsenic	2	2	1	<1	<1	<1	<1	12	20
Barium	70	100	70	20	30	30	30	2,000	750
Beryllium	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	8	1.2
Cadmium	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	22	12
Calcium	11,000	12,000	7,200	4,000	7,000	6,200	4,000	NG	NG
Chromium	20	20	15	<5	5	5	5	87	750
Cobalt	10	10	5	<5	<5	<5	<5	300	40
Copper	15	15	15	10	10	<5	<5	91	225
Iron	18,000	20,000	13,000	6,800	7,800	6,600	6,600	NG	NG
Lead	12	17	22	2	10	4	1	260	200
Magnesium	4,800	5,200	3,200	800	1,400	1,600	1,600	NG	NG
Molybdenum	<1	<1	<1	<1	<1	<1	<1	40	40
Nickel	20	25	15	<5	5	10	10	50	150
Selenium	<1	<1	<1	<1	<1	<1	<1	2.9	10
Silver	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	40	20
Sodium	<200	<200	<200	<200	<200	<200	<200	NG	NG
Thallium	<1	<1	<1	<1	<1	<1	<1	1	4.1
Tin	<5	<5	<5	<5	<5	<5	<5	300	NG
Vanadium	30	30	20	10	10	<10	<10	130	200
Zinc	20	40	520	<20	460	20	<20	360	600

Notes: All units in micrograms per gram (µg/g)
CCME [1] = Canadian Council of Ministers of the Environment (CCME) "Canadian Environmental Quality Guidelines", 1999 (Updated 2007).
Chapter 7: Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health.
MOE [2] = Ontario Ministry of the Environment (MOE) "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004.
Guideline/Standard[4] - Coarse grained criteria used.
NG = No guideline value or standard available
NA = Parameter not analyzed
Value = Sample result exceeds applicable CCME guidelines
Value = Sample result exceeds applicable MOE standards

TABLE B9.2: Summary of ICP Metals Soil Analyses - North Sector (Page 5 of 7)

Parameters	Analytical Results - µg/g (Sample Location / Sample No. / Depth - metres)							Guideline / Standard (µg/g)[4]	
	TP32 SGS5 1.2 m	TP33 SGS2 0.6 m	TP33 SGS3 0.9 m	TP33 SGS5 1.5 m	BHMW10 SS3 1.2 - 1.8 m	BHMW11 SS3 1.2 - 1.8 m	BHMW12 SS2 0.6 - 1.2 m	Federal CCME Guidelines [1] Commercial Land Use	Provincial MOE Standards [2] - Table 3 - Residential / Parkland Land Use
Antimony	<1	<1	<1	<1	<1	<1	<1	40	13
Arsenic	<1	2	<1	<1	<1	<1	<1	12	20
Barium	30	60	40	60	80	80	100	2,000	750
Beryllium	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	8	1.2
Cadmium	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	22	12
Calcium	8,200	5,000	3,600	4,000	170,000	3,600	180,000	NG	NG
Chromium	5	15	20	10	10	15	<5	87	750
Cobalt	<5	5	5	5	5	<5	<5	300	40
Copper	<5	20	10	10	5	10	<5	91	225
Iron	7,000	14,000	15,000	11,000	18,000	14,000	9,000	NG	NG
Lead	3	32	8	4	4	5	3	260	200
Magnesium	2,000	3,200	3,200	3,200	69,000	4,400	53,000	NG	NG
Molybdenum	<1	<1	<1	<1	<1	<1	<1	40	40
Nickel	10	10	10	10	10	10	10	50	150
Selenium	<1	<1	<1	<1	<1	<1	<1	2.9	10
Silver	<0.3	0.3	<0.3	<0.3	<0.3	<0.3	<0.3	40	20
Sodium	<200	400	800	<200	200	400	<200	NG	NG
Thallium	<1	<1	<1	<1	<1	<1	<1	1	4.1
Tin	<5	<5	<5	<5	<5	<5	<5	300	NG
Vanadium	10	20	30	20	10	20	<10	130	200
Zinc	<20	100	40	<20	<20	<20	<20	360	600

Notes: All units in micrograms per gram (µg/g)
CCME [1] = Canadian Council of Ministers of the Environment (CCME) "Canadian Environmental Quality Guidelines", 1999 (Updated 2007).
Chapter 7: Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health.
MOE [2] = Ontario Ministry of the Environment (MOE) "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004.
Guideline/Standard[4] - Coarse grained criteria used.
NG = No guideline value or standard available
NA = Parameter not analyzed
Value = Sample result exceeds applicable CCME guidelines
Value = Sample result exceeds applicable MOE standards

TABLE B9.2: Summary of ICP Metals Soil Analyses - North Sector (Page 6 of 7)

Parameters	Analytical Results - µg/g (Sample Location / Sample No. / Depth - metres)							Guideline / Standard (µg/g)[4]	
	BHMW13 SS3 1.2 - 1.8 m	BHMW14 SS2 0.6 - 1.0 m	BHMW15 SS5 2.4 - 3.0 m	BHMW16 SS5 2.4 - 3.0 m	BHMW17 SS7 3.6 - 4.2 m	BHMW18 SS2 0.6 - 1.0 m	BHMW19 SS3 1.2 - 1.6 m	Federal CCME Guidelines [1] Commercial Land Use	Provincial MOE Standards [2] - Table 3 - Residential / Parkland Land Use
Antimony	<1	<1	<1	<1	<1	<1	<1	40	13
Arsenic	<1	1	<1	<1	<1	<1	<1	12	20
Barium	60	130	430	60	50	40	20	2,000	750
Beryllium	<0.5	<0.5	0.5	<0.5	<0.5	<0.5	<0.5	8	1.2
Cadmium	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	22	12
Calcium	160,000	4,600	39,000	60,000	35,000	4,600	170,000	NG	NG
Chromium	5	25	70	10	10	15	10	87	750
Cobalt	<5	10	15	5	<5	5	<5	300	40
Copper	5	15	35	10	10	5	<5	91	225
Iron	11,000	22,000	35,000	12,000	11,000	12,000	14,000	NG	NG
Lead	5	14	12	7	3	4	3	260	200
Magnesium	49,000	4,200	17,000	9,400	5,000	3,200	47,000	NG	NG
Molybdenum	<1	<1	<1	<1	<1	<1	<1	40	40
Nickel	10	20	40	10	10	10	10	50	150
Selenium	<1	<1	<1	<1	<1	<1	<1	2.9	10
Silver	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	40	20
Sodium	<200	<200	1,200	200	400	<200	<200	NG	NG
Thallium	<1	<1	<1	<1	<1	<1	<1	1	4.1
Tin	<5	<5	<5	<5	<5	<5	<5	300	NG
Vanadium	<10	30	70	20	20	30	<10	130	200
Zinc	<20	20	80	<20	20	<20	<20	360	600

Notes: All units in micrograms per gram (µg/g)
CCME [1] = Canadian Council of Ministers of the Environment (CCME) "Canadian Environmental Quality Guidelines", 1999 (Updated 2007).
Chapter 7: Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health.
MOE [2] = Ontario Ministry of the Environment (MOE) "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004.
Guideline/Standard[4] - Coarse grained criteria used.
NG = No guideline value or standard available
NA = Parameter not analyzed
Value = Sample result exceeds applicable CCME guidelines
Value = Sample result exceeds applicable MOE standards

TABLE B9.2: Summary of ICP Metals Soil Analyses - North Sector (Page 7 of 7)

Parameters	Analytical Results - µg/g (Sample Location / Sample No. / Depth - metres)			Guideline / Standard (µg/g)[4]	
	BHMW20 SS2 0.6 - 1.0 m	BHMW21 SS2 1.8 - 2.4 m	BHMW24 SS1 0.0 - 0.6 m	Federal CCME Guidelines [1] Commercial Land Use	Provincial MOE Standards [2] - Table 3 - Residential / Parkland Land Use
Antimony	<1	<1	<1	40	13
Arsenic	1	<1	2	12	20
Barium	10	40	100	2000	750
Beryllium	<0.5	<0.5	0.5	8	1.2
Cadmium	<0.5	<0.5	<0.5	22	12
Calcium	430,000	4,400	34,000	NG	NG
Chromium	5	15	20	87	750
Cobalt	<5	<5	10	300	40
Copper	5	<5	15	91	225
Iron	6,400	8,200	43,000	NG	NG
Lead	8	5	52	260	200
Magnesium	4,800	2,000	2,800	NG	NG
Molybdenum	1	<1	<1	40	40
Nickel	20	10	20	50	150
Selenium	<1	<1	<1	2.9	10
Silver	<0.3	<0.3	<0.3	40	20
Sodium	<200	<200	<200	NG	NG
Thallium	<1	<1	<1	1	4.1
Tin	<5	<5	<5	300	NG
Vanadium	<10	20	20	130	200
Zinc	<20	20	40	360	600

Notes: All units in micrograms per gram (µg/g)
CCME [1] = Canadian Council of Ministers of the Environment (CCME) "Canadian Environmental Quality Guidelines", 1999 (Updated 2007).
Chapter 7: Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health.
MOE [2] = Ontario Ministry of the Environment (MOE) "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004.
Guideline/Standard[4] - Coarse grained criteria used.
NG = No guideline value or standard available
NA = Parameter not analyzed
Value = Sample result exceeds applicable CCME guidelines
Value = Sample result exceeds applicable MOE standards

TABLE B9.3: Summary of Polycyclic Aromatic Hydrocarbon Soil Analyses - North Sector (Page 1 of 3)

Parameters	Analytical Results - µg/g (Sample Location / Sample No. / Depth - metres)								Guideline / Standard (µg/g)[4]	
	TP29 SGS2 0.6 m	TP29 SGS3 1.0 m	TP29 SGS5 1.6 m	TP30 SGS2 0.6 m	TP30 SGS3 0.7 m	TP30 SGS5 1.3 m	TP31 SGS2 0.4 m	TP31 SGS3 0.9 m	Federal CCME Guidelines [1] Commercial Land Use	Provincial MOE Standards [2] - Table 3 - Residential / Parkland Land Use
Acenaphthene	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	NG	1,000
Acenaphthylene	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	NG	100
Anthracene	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	NG	28
Benzo(a)anthracene	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	10	40
Benzo(a)pyrene	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.7	1.2
Benzo(b)fluoranthene	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	10	12
Benzo(g,h,i)perylene	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	NG	40
Benzo(k)fluoranthene	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	10	12
Biphenyl	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	NG	4.3
Chrysene	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	NG	12
Dibenzo(a,h)anthracene	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	10	1.2
Fluoranthene	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	NG	40
Fluorene	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	NG	350
Indeno(1,2,3,c,d)pyrene	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	10	12
Methylnaphthalene, 1-	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	NG	280
Methylnaphthalene, 2-	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.04	<0.02	NG	
Naphthalene	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	22	40
Phenanthrene	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	50	40
Pyrene	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	100	250

Notes: All units in micrograms per gram (µg/g)
CCME [1] = Canadian Council of Ministers of the Environment (CCME) "Canadian Environmental Quality Guidelines", 1999 (Updated 2007).
Chapter 7: Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health.
MOE [2] = Ontario Ministry of the Environment (MOE) "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004.
Guideline/Standard[4] - Coarse grained criteria used.
NG = No guideline value or standard available
NA = Parameter not analyzed
Value = Sample result exceeds applicable CCME guidelines
Value = Sample result exceeds applicable MOE standards

TABLE B9.3: Summary of Polycyclic Aromatic Hydrocarbon Soil Analyses - North Sector (Page 2 of 3)

Parameters	Analytical Results - µg/g (Sample Location / Sample No. / Depth - metres)								Guideline / Standard (µg/g)[4]	
	TP31 SGS5 1.2 m	TP32 SGS2 0.1 m	TP32 SGS3 0.6 m	TP32 SGS5 1.2 m	BHMW10 SS3 1.2 - 1.8 m	BMW11 SS3 1.2 - 1.8 m	BHMW12 SS2 0.6 - 1.2 m	BHMW13 SS3 1.2 - 1.8 m	Federal CCME Guidelines [1] Commercial Land Use	Provincial MOE Standards [2] - Table 3 - Residential / Parkland Land Use
Acenaphthene	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	NG	1,000
Acenaphthylene	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	NG	100
Anthracene	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	NG	28
Benzo(a)anthracene	0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	10	40
Benzo(a)pyrene	0.08	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.7	1.2
Benzo(b)fluoranthene	0.08	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	10	12
Benzo(g,h,i)perylene	0.06	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	NG	40
Benzo(k)fluoranthene	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	10	12
Biphenyl	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	NG	4.3
Chrysene	0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	NG	12
Dibenzo(a,h)anthracene	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	10	1.2
Fluoranthene	0.24	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	NG	40
Fluorene	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	NG	350
Indeno(1,2,3,c,d)pyrene	0.06	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	10	12
Methylnaphthalene, 1-	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	NG	280
Methylnaphthalene, 2-	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	NG	
Naphthalene	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	22	40
Phenanthrene	0.14	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	50	40
Pyrene	0.2	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	100	250

Notes: All units in micrograms per gram (µg/g)
CCME [1] = Canadian Council of Ministers of the Environment (CCME) "Canadian Environmental Quality Guidelines", 1999 (Updated 2007).
Chapter 7: Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health.
MOE [2] = Ontario Ministry of the Environment (MOE) "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004.
Guideline/Standard[4] - Coarse grained criteria used.
NG = No guideline value or standard available
NA = Parameter not analyzed
Value = Sample result exceeds applicable CCME guidelines
Value = Sample result exceeds applicable MOE standards

TABLE B9.3: Summary of Polycyclic Aromatic Hydrocarbon Soil Analyses - North Sector (Page 3 of 3)

Parameters	Analytical Results - µg/g (Sample Location / Sample No. / Depth - metres)									Guideline / Standard (µg/g)[4]	
	BHMW14 SS2 0.6 - 1.0 m	BHMW15 SS5 2.4 - 3.0 m	BHMW16 SS5 2.4 - 3.0 m	BHMW17 SS7 3.6 - 4.2 m	BHMW18 SS2 0.6 - 1.0 m	BHMW19 SS3 1.2 - 1.6 m	BHMW20 SS2 0.6 - 1.0 m	BHMW21 SS4 1.8 - 2.4 m	BHMW24 SS1 0.0 - 0.6 m	Federal CCME Guidelines [1] Commercial Land Use	Provincial MOE Standards [2] - Table 3 - Residential / Parkland Land Use
Acenaphthene	<0.02	0.24	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	NG	1,000
Acenaphthylene	<0.02	0.2	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	NG	100
Anthracene	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	NG	28
Benzo(a)anthracene	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.04	10	40
Benzo(a)pyrene	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	0.7	1.2
Benzo(b)fluoranthene	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.06	10	12
Benzo(g,h,i)perylene	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	NG	40
Benzo(k)fluoranthene	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	10	12
Biphenyl	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	NG	4.3
Chrysene	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.04	NG	12
Dibenzo(a,h)anthracene	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	10	1.2
Fluoranthene	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.06	NG	40
Fluorene	<0.02	0.18	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	NG	350
Indeno(1,2,3,c,d)pyrene	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	10	12
Methylnaphthalene, 1-	<0.02	0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.04	NG	280
Methylnaphthalene, 2-	<0.02	0.08	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.04	NG	
Naphthalene	<0.02	1.2	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.04	22	40
Phenanthrene	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.06	50	40
Pyrene	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.06	100	250

Notes: All units in micrograms per gram (µg/g)
CCME [1] = Canadian Council of Ministers of the Environment (CCME) "Canadian Environmental Quality Guidelines", 1999 (Updated 2007).
Chapter 7: Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health.
MOE [2] = Ontario Ministry of the Environment (MOE) "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004.
Guideline/Standard[4] - Coarse grained criteria used.
NG = No guideline value or standard available
NA = Parameter not analyzed
Value = Sample result exceeds applicable CCME guidelines
Value = Sample result exceeds applicable MOE standards

TABLE 10.1: Summary of Petroleum Hydrocarbon and BTEX Soil Analyses - Southeast Sector (Page 3 of 3)

Parameters	Analytical Results - µg/g (Sample ID / Sample No. / Depth - metres)							Guideline / Standard (µg/g)[4]	
	TP14 SGS5 1.2 m	BHMW1 SS3 1.2-1.8 m	BHMW2 SS1 0.0-0.6 m	BHMW4 SGS3	BHMW5 SS3 1.2-1.6 m	BHMW6 SS5 3.1-3.6 m	Southeast Sector Composite	Federal CCME Guidelines [1, 2] Industrial / Commercial Land Use	Provincial MOE Standards [3] - Table 3 - Residential / Parkland Land Use
Petroleum Hydrocarbons (Fraction 1)	<20	<20	<20	<20	<20	<20	<20	320	30
Petroleum Hydrocarbons (Fraction 2)	30	10	20	10	10	<10	<10	260	150
Petroleum Hydrocarbons (Fraction 3)	140	20	220	20	50	<10	<10	1,700	400
Petroleum Hydrocarbons (Fraction 4)	590	20	140	10	80	<10	<10	3,300	2,800
Benzene	NA	NA	NA	NA	*<0.05*	*<0.05*	NA	0.03	5.3
Toluene	NA	NA	NA	NA	<0.05	0.1	NA	0.37	34
Ethylbenzene	NA	NA	NA	NA	<0.05	<0.05	NA	0.082	290
m/p-Xylene	NA	NA	NA	NA	<0.1	0.3	NA	NG	NG
o-Xylene	NA	NA	NA	NA	<0.05	0.1	NA	NG	NG
Xylenes	NA	NA	NA	NA	<0.15	0.4	NA	11	34

Notes: All units in micrograms per gram (µg/g)

CCME [1] = Canadian Council of Ministers of the Environment (CCME) "Canadian Environmental Quality Guidelines", 1999 (Updated 2007).
Chapter 7: Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health.
CCME [2] = Canadian Council of Ministers of the Environment (CCME) "Canada-Wide Standards for Petroleum Hydrocarbons (PHC) in Soil", 2008.
MOE [3] = Ontario Ministry of the Environment (MOE) "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004.
Guideline/Standard[4] - Coarse grained criteria used.
NG = No guideline value or standard available
NA = Parameter not analyzed

Value = Sample result exceeds applicable CCME guidelines
Value = Sample result exceeds applicable MOE standards
Italic = Laboratory Method Detection Limit exceeds applicable guideline and/or standard

TABLE B10.2: Summary of ICP Metals Soil Analyses - Southeast Sector (Page 1 of 3)

Parameters	Analytical Results - µg/g (Sample Location / Sample No. / Depth - metres)									Guideline / Standard (µg/g)[4]	
	TP1 SGS2 1.5 m	TP1 SGS3 1.8 m	TP1 SGS5 2.1 m	TP2 SGS2 1.2 m	TP2 SGS3 1.8 m	TP2 SGS5 2.1 m	TP2(B) SGS2 0.6 m	TP2(B) SGS3 0.9 m	TP2(B) SGS5 1.5 m	Federal CCME Guidelines [1] Commercial Land Use	Provincial MOE Standards [2] - Table 3 - Residential / Parkland Land Use
Antimony	<1	<1	<1	<1	<1	<1	<1	<1	<1	40	13
Arsenic	2	3	2	2	2	2	2	2	2	12	20
Barium	340	370	400	260	200	270	130	150	150	2,000	750
Beryllium	<0.5	0.5	0.5	0.5	0.5	<0.5	<0.5	<0.5	<0.5	8	1.2
Cadmium	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	22	12
Calcium	59,000	34,000	17,000	10,000	11,000	12,000	12,000	9,000	9,200	NG	NG
Chromium	60	65	90	50	40	55	25	30	30	87	750
Cobalt	15	15	20	10	10	15	10	10	5	300	40
Copper	35	40	45	25	25	25	15	15	15	91	225
Iron	30,000	34,000	38,000	28,000	25,000	28,000	17,000	18,000	18,000	NG	NG
Lead	16	14	11	11	15	16	13	9	9	260	200
Magnesium	12,000	12,000	16,000	9,800	8,600	11,000	6,600	6,600	6,200	NG	NG
Molybdenum	<1	<1	<1	<1	<1	<1	<1	<1	<1	40	40
Nickel	40	40	50	30	25	35	15	20	20	50	150
Selenium	<1	<1	<1	<1	<1	<1	<1	<1	<1	2.9	10
Silver	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	40	20
Sodium	800	800	1200	400	400	400	200	200	200	NG	NG
Thallium	<1	<1	<1	<1	<1	<1	<1	<1	<1	1	4.1
Tin	<5	<5	<5	<5	<5	<5	<5	<5	<5	300	NG
Vanadium	60	60	80	50	50	50	30	40	30	130	200
Zinc	80	100	140	100	80	100	40	40	40	360	600

Notes: All units in micrograms per gram (µg/g)
CCME [1] = Canadian Council of Ministers of the Environment (CCME) "Canadian Environmental Quality Guidelines", 1999 (Updated 2007).
Chapter 7: Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health.
MOE [2] = Ontario Ministry of the Environment (MOE) "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004.
Guideline/Standard[4] - Coarse grained criteria used.
NG = No guideline value or standard available
NA = Parameter not analyzed
Value = Sample result exceeds applicable CCME guidelines
Value = Sample result exceeds applicable MOE standards

TABLE 10.2: Summary of ICP Metals Soil Analyses - Southeast Sector (Page 2 of 3)

Parameters	Analytical Results - µg/g (Sample Location / Sample No. / Depth - metres)									Guideline / Standard (µg/g)[4]	
	TP12 SGS2 0.3 m	TP12 SGS3 1.3 m	TP12 SGS5 1.5 m	TP13 SGS2 3.0 m	TP13 SGS3 1.5 m	TP13 SGS5 1.6 m	TP14 SGS2 0.6 m	TP14 SGS3 0.7 m	TP14 SGS5 1.2 m	Federal CCME Guidelines [1] Commercial Land Use	Provincial MOE Standards [2] - Table 3 - Residential / Parkland Land Use
Antimony	<1	<1	<1	<1	<1	<1	<1	<1	<1	40	13
Arsenic	2	2	2	1	1	1	1	1	1	12	20
Barium	330	350	360	70	80	70	70	60	70	2,000	750
Beryllium	<0.5	0.5	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	8	1.2
Cadmium	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	22	12
Calcium	13,000	10,000	17,000	16,000	18,000	14,000	5,400	5,200	36,000	NG	NG
Chromium	60	65	65	15	15	15	15	15	10	87	750
Cobalt	15	15	15	5	5	5	5	5	<5	300	40
Copper	30	35	30	10	10	10	10	10	10	91	225
Iron	31,000	34,000	36,000	13,000	14,000	12,000	15,000	14,000	12,000	NG	NG
Lead	17	21	22	13	20	10	6	6	10	260	200
Magnesium	12,000	13,000	13,000	5,200	5,800	5,200	3,800	3,800	3,600	NG	NG
Molybdenum	<1	<1	<1	<1	<1	<1	<1	<1	<1	40	40
Nickel	35	35	35	10	10	10	10	10	10	50	150
Selenium	<1	<1	<1	<1	<1	<1	<1	<1	<1	2.9	10
Silver	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	40	20
Sodium	600	600	600	<200	200	<200	200	<200	<200	NG	NG
Thallium	<1	<1	<1	<1	<1	<1	<1	<1	<1	1	4.1
Tin	<5	<5	<5	<5	<5	<5	<5	<5	<5	300	NG
Vanadium	60	60	70	20	20	20	30	20	20	130	200
Zinc	80	100	140	40	60	40	20	<20	180	360	600

Notes: All units in micrograms per gram (µg/g)
CCME [1] = Canadian Council of Ministers of the Environment (CCME) "Canadian Environmental Quality Guidelines", 1999 (Updated 2007).
Chapter 7: Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health.
MOE [2] = Ontario Ministry of the Environment (MOE) "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004.
Guideline/Standard[4] - Coarse grained criteria used.
NG = No guideline value or standard available
NA = Parameter not analyzed
Value = Sample result exceeds applicable CCME guidelines
Value = Sample result exceeds applicable MOE standards

TABLE B10.2: Summary of ICP Metals Soil Analyses - Southeast Sector (Page 3 of 3)

Parameters	Analytical Results - µg/g (Sample Location / Sample No. / Depth - metres)										Guideline / Standard (µg/g)[4]	
	TP15 SGS2 0.6 m	TP15 SGS3 0.9 m	TP15 SGS5 1.5 m	TP16 SGS2 0.1 m	TP16 SGS3 0.3 m	TP16 SGS5 1.2 m	BHMW2 SS1 0.0 - 0.6 m	BHMW4 SGS3 0.0 - 1.2 m	BHMW5 SS3 1.2 - 1.6 m	BHMW6 SS5 2.4 - 3.0 m	Federal CCME Guidelines [1] Commercial Land Use	Provincial MOE Standards [2] - Table 3 - Residential / Parkland Land Use
Antimony	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	40	13
Arsenic	<1	<1	2	2	2	2	3	2	2	<1	12	20
Barium	40	50	70	90	100	200	160	100	70	70	2,000	750
Beryllium	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	8	1.2
Cadmium	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	22	12
Calcium	13,000	18,000	13,000	11,000	15,000	230,000	130,000	29,000	40,000	11,000	NG	NG
Chromium	15	15	25	25	20	10	15	25	20	15	87	750
Cobalt	<5	<5	5	5	5	<5	5	5	5	5	300	40
Copper	5	5	10	15	15	5	10	15	15	10	91	225
Iron	9,400	9,000	15,000	12,000	12,000	7,000	12,000	16,000	13,000	16,000	NG	NG
Lead	5	4	10	13	12	5	10	10	9	5	260	200
Magnesium	4,800	5,800	6,800	4,800	4,800	7,200	8,400	5,400	10,000	9,000	NG	NG
Molybdenum	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	40	40
Nickel	10	10	15	10	10	25	25	20	15	10	50	150
Selenium	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	2.9	10
Silver	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	0.3	<0.3	0.9	<0.3	40	20
Sodium	<200	<200	<200	<200	400	<200	<200	<200	200	400	NG	NG
Thallium	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1	4.1
Tin	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	300	NG
Vanadium	20	20	30	20	20	<10	20	30	20	20	130	200
Zinc	<20	60	380	20	20	<20	40	40	20	20	360	600

Notes: All units in micrograms per gram (µg/g)
CCME [1] = Canadian Council of Ministers of the Environment (CCME) "Canadian Environmental Quality Guidelines", 1999 (Updated 2007).
Chapter 7: Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health.
MOE [2] = Ontario Ministry of the Environment (MOE) "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004.
Guideline/Standard[4] - Coarse grained criteria used.
NG = No guideline value or standard available
NA = Parameter not analyzed
Value = Sample result exceeds applicable CCME guidelines
Value = Sample result exceeds applicable MOE standards

TABLE B10.3: Summary of Polycyclic Aromatic Hydrocarbon Soil Analyses - Southeast Sector (Page 1 of 3)

Parameters	Analytical Results - µg/g (Sample Location / Sample No. / Depth - metres)							Guideline / Standard (µg/g)[4]	
	TP1 SGS2 1.5 m	TP1 SGS3 1.8 m	TP1 SGS5 2.1 m	TP2 SGS2 1.2 m	TP2 SGS3 1.8 m	TP2 SGS5 2.1 m	TP2(B) SGS2 0.6 m	Federal CCME Guidelines[1] Commercial Land Use	Provincial MOE Standards[2] - Table 3 - Residential / Parkland Land Use
Acenaphthene	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	NG	1,000
Acenaphthylene	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	NG	100
Anthracene	<0.02	0.04	<0.02	<0.02	0.04	<0.02	<0.02	NG	28
Benzo(a)anthracene	0.04	0.58	<0.02	0.04	0.2	0.06	0.02	10	40
Benzo(a)pyrene	0.04	0.52	<0.02	0.04	0.2	0.08	<0.02	0.7	1.2
Benzo(b)fluoranthene	0.04	0.88	<0.02	0.04	0.26	0.12	<0.02	10	12
Benzo(g,h,i)perylene	0.04	0.6	<0.02	0.04	0.22	0.08	<0.02	NG	40
Benzo(k)fluoranthene	0.02	0.38	<0.02	0.02	0.12	0.06	<0.02	10	12
Biphenyl	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	NG	4.3
Chrysene	0.04	0.62	<0.02	0.04	0.2	0.1	0.02	NG	12
Dibenzo(a,h)anthracene	<0.02	0.22	<0.02	<0.02	0.04	0.02	<0.02	10	1.2
Fluoranthene	0.06	0.64	<0.02	0.06	0.3	0.1	0.04	NG	40
Fluorene	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	NG	350
Indeno(1,2,3,c,d)pyrene	0.04	0.66	<0.02	0.04	0.2	0.08	<0.02	10	12
Methylnaphthalene, 1-	0.04	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	NG	280
Methylnaphthalene, 2-	0.04	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	NG	
Naphthalene	0.04	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	22	40
Phenanthrene	0.04	0.14	<0.02	0.02	0.1	0.02	0.02	50	40
Pyrene	0.04	0.58	<0.02	0.06	0.3	0.1	0.04	100	250

Notes: All units in micrograms per gram (µg/g)
CCME [1] = Canadian Council of Ministers of the Environment (CCME) "Canadian Environmental Quality Guidelines", 1999 (Updated 2007).
Chapter 7: Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health.
MOE [2] = Ontario Ministry of the Environment (MOE) "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004.
Guideline/Standard[4] - Coarse grained criteria used.
NG = No guideline value or standard available
NA = Parameter not analyzed
Value = Sample result exceeds applicable CCME guidelines
Value = Sample result exceeds applicable MOE standards

TABLE B10.3: Summary of Polycyclic Aromatic Hydrocarbon Soil Analyses - Southeast Sector (Page 2 of 3)

Parameters	Analytical Results - µg/g (Sample Location / Sample No. / Depth - metres)							Guideline / Standard (µg/g)[4]	
								Federal CCME Guidelines [1] Commercial Land Use	Provincial MOE Standards [2] - Table 3 - Residential / Parkland Land Use
	TP2(B) TSGS3 0.9 m	TP2(B) SGS5 1.5 m	TP12 SGS2 0.3 m	TP12 SGS3 1.0 m	TP12 SGS5 1.5 m	TP13 SGS2 3.0 m	TP13 SGS3 1.5 m		
Acenaphthene	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	NG	1,000
Acenaphthylene	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	NG	100
Anthracene	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	NG	28
Benzo(a)anthracene	0.02	0.02	<0.02	<0.02	<0.02	0.06	0.12	10	40
Benzo(a)pyrene	0.02	<0.02	<0.02	<0.02	<0.02	0.06	0.12	0.7	1.2
Benzo(b)fluoranthene	<0.02	<0.02	<0.02	<0.02	<0.02	0.08	0.16	10	12
Benzo(g,h,i)perylene	0.04	0.02	<0.02	<0.02	<0.02	0.06	0.12	NG	40
Benzo(k)fluoranthene	<0.02	<0.02	<0.02	<0.02	<0.02	0.04	0.08	10	12
Biphenyl	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	NG	4.3
Chrysene	0.02	<0.02	<0.02	<0.02	<0.02	0.06	0.14	NG	12
Dibenzo(a,h)anthracene	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.04	10	1.2
Fluoranthene	0.02	0.04	<0.02	<0.02	<0.02	0.1	0.22	NG	40
Fluorene	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	NG	350
Indeno(1,2,3,c,d)pyrene	0.02	0.02	<0.02	<0.02	<0.02	0.06	0.12	10	12
Methylnaphthalene, 1-	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	NG	280
Methylnaphthalene, 2-	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	NG	
Naphthalene	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.04	22	40
Phenanthrene	<0.02	<0.02	<0.02	<0.02	<0.02	0.06	0.1	50	40
Pyrene	0.02	0.02	<0.02	<0.02	<0.02	0.1	0.18	100	250

Notes: All units in micrograms per gram (µg/g)
CCME [1] = Canadian Council of Ministers of the Environment (CCME) "Canadian Environmental Quality Guidelines", 1999 (Updated 2007).
Chapter 7: Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health.
MOE [2] = Ontario Ministry of the Environment (MOE) "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004.
Guideline/Standard[4] - Coarse grained criteria used.
NG = No guideline value or standard available
NA = Parameter not analyzed
Value = Sample result exceeds applicable CCME guidelines
Value = Sample result exceeds applicable MOE standards

TABLE B10.3: Summary of Polycyclic Aromatic Hydrocarbon Soil Analyses - Southeast Sector (Page 3 of 3)

Parameters	Analytical Results - µg/g (Sample Location / Sample No. / Depth - metres)								Guideline / Standard (µg/g)[4]	
	TP13 SGS5 1.6 m	TP14 SGS2 0.6 m	TP14 SGS3 0.7 m	TP14 SGS5 1.2 m	BHMW2 SS1 0.0 - 0.6 m	BHMW4 SGS3 0.0 - 1.2 m	BHMW5 SS3 1.2 - 1.6 m	BHMW6 SS5 2.4 - 3.0 m	Federal CCME Guidelines [1] Commercial Land Use	Provincial MOE Standards [2] - Table 3 - Residential / Parkland Land Use
Acenaphthene	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	NG	1,000
Acenaphthylene	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	NG	100
Anthracene	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	NG	28
Benzo(a)anthracene	0.04	<0.02	<0.02	0.06	<0.02	<0.02	0.06	<0.02	10	40
Benzo(a)pyrene	0.04	<0.02	<0.02	0.06	<0.02	<0.02	0.04	<0.02	0.7	1.2
Benzo(b)fluoranthene	0.04	<0.02	<0.02	0.08	<0.02	<0.02	0.06	<0.02	10	12
Benzo(g,h,i)perylene	0.04	<0.02	<0.02	0.1	<0.02	<0.02	0.04	<0.02	NG	40
Benzo(k)fluoranthene	0.02	<0.02	<0.02	0.04	<0.02	<0.02	0.04	<0.02	10	12
Biphenyl	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	NG	4.3
Chrysene	0.04	<0.02	<0.02	0.08	<0.02	<0.02	0.06	<0.02	NG	12
Dibenzo(a,h)anthracene	<0.02	<0.02	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	10	1.2
Fluoranthene	0.06	<0.02	<0.02	0.1	<0.02	<0.02	0.1	<0.02	NG	40
Fluorene	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	NG	350
Indeno(1,2,3,c,d)pyrene	0.04	<0.02	<0.02	0.06	<0.02	<0.02	0.04	<0.02	10	12
Methylnaphthalene, 1-	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	NG	280
Methylnaphthalene, 2-	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	NG	
Naphthalene	<0.02	<0.02	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	22	40
Phenanthrene	0.02	<0.02	<0.02	0.04	<0.02	<0.02	0.1	<0.02	50	40
Pyrene	0.06	<0.02	<0.02	0.08	<0.02	<0.02	0.08	<0.02	100	250

Notes: All units in micrograms per gram (µg/g)
CCME [1] = Canadian Council of Ministers of the Environment (CCME) "Canadian Environmental Quality Guidelines", 1999 (Updated 2007).
Chapter 7: Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health.
MOE [2] = Ontario Ministry of the Environment (MOE) "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004.
Guideline/Standard[4] - Coarse grained criteria used.
NG = No guideline value or standard available
NA = Parameter not analyzed
Value = Sample result exceeds applicable CCME guidelines
Value = Sample result exceeds applicable MOE standards

TABLE B10.4: Summary of Dioxin/Furan Soil Analyses - Southeast Sector

Parameters	Analytical Results - pg/g (Sample Location / Sample No. / Depth - metres)	Guideline / Standard (pg/g)[4]	
	BHMW5 SS4 1.8 m to 2.1 m	Federal CCME Guidelines [1] Commercial Land Use	Provincial MOE Standards [2] - Table 3 - Residential / Parkland Land Use
2,3,7,8-Tetra CDD	0	NG	NG
1,2,3,7,8-Penta CDD	0	NG	NG
1,2,3,4,7,8-Hexa CDD	0	NG	NG
1,2,3,6,7,8-Hexa CDD	1.03	NG	NG
1,2,3,7,8,9-Hexa CDD	0.694	NG	NG
1,2,3,4,6,7,8-Hepta CDD	52.9	NG	NG
Octa CDD	333	NG	NG
Total Tetra CDD	1.67	NG	NG
Total Penta CDD	1.55	NG	NG
Total Hexa CDD	10.3	NG	NG
Total Hepta CDD	91.6	NG	NG
2,3,7,8-Tetra CDF	0.752	NG	NG
1,2,3,7,8-Penta CDF	0.414	NG	NG
2,3,4,7,8-Penta CDF	0.278	NG	NG
1,2,3,4,7,8-Hexa CDF	0.700	NG	NG
1,2,3,6,7,8-Hexa CDF	0.236	NG	NG
2,3,4,6,7,8-Hexa CDF	0	NG	NG
1,2,3,7,8,9-Hexa CDF	0	NG	NG
1,2,3,4,6,7,8-Hepta CDF	3.22	NG	NG
1,2,3,4,7,8,9-Hepta CDF	0	NG	NG
Octa CDF	7.48	NG	NG
Total Tetra CDF	1.99	NG	NG
Total Penta CDF	3.25	NG	NG
Total Hexa CDF	2.80	NG	NG
Total Hepta CDF	8.46	NG	NG
TOTAL TOXIC EQUIVALENCY	1.61	4	1000

Notes: All units in picograms per gram (pg/g)
CCME [1] = Canadian Council of Ministers of the Environment (CCME) "Canadian Environmental Quality Guidelines", 1999 (Updated 2007).
Chapter 7: Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health.
MOE [2] = Ontario Ministry of the Environment (MOE) "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004.
Guideline/Standard[4] - Coarse grained criteria used.
NG = No guideline value or standard available
NA = Parameter not analyzed
Value = Sample result exceeds applicable CCME guidelines
Value = Sample result exceeds applicable MOE standards

TABLE B11.1: Summary of Petroleum Hydrocarbon Soil and BTEX Analyses - Southwest Sector

Parameters	Analytical Results - µg/g (Sample ID / Sample No. / Depth - metres)			Guideline / Standard (µg/g)[4]	
	BHMW7 SS8 4.3 - 4.9 m	BHMW8 SS3 1.2 - 1.8 m	Southwest Sector Composite	Federal CCME Guidelines [1, 2] Commercial Land Use	Provincial MOE Standards [3] - Table 3 - Residential / Parkland Land Use
Petroleum Hydrocarbons (Fraction 1)	20	**40**	<20	320	30
Petroleum Hydrocarbons (Fraction 2)	<10	20	<10	260	150
Petroleum Hydrocarbons (Fraction 3)	<10	<10	20	1,700	400
Petroleum Hydrocarbons (Fraction 4)	<10	<10	30	3,300	2,800
Benzene	*<0.05*	0.1	NA	0.03	5.3
Toluene	0.05	0.1	NA	0.37	34
Ethylbenzene	0.35	2.4	NA	0.082	290
m/p-Xylene	0.4	4.5	NA	NG	NG
o-Xylene	0.1	0.2	NA	NG	NG
Xylenes	0.5	4.7	NA	11	34

Notes: All units in micrograms per gram (µg/g)

CCME [1] = Canadian Council of Ministers of the Environment (CCME) "Canadian Environmental Quality Guidelines", 1999 (Updated 2007). Chapter 7: Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health.

CCME [2] = Canadian Council of Ministers of the Environment (CCME) "Canada-Wide Standards for Petroleum Hydrocarbons (PHC) in Soil", 2008.

MOE [3] = Ontario Ministry of the Environment (MOE) "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004.

Guideline/Standard[4] - Coarse grained criteria used.

NG = No guideline value or standard available

NA = Parameter not analyzed

Value = Sample result exceeds applicable CCME guidelines

Value = Sample result exceeds applicable MOE standards

Italic = Laboratory Method Detection Limit exceeds applicable guideline and/or standard

TABLE 11.2: Summary of ICP Metals Soil Analyses - Southwest Sector (Page 1 of 2)

Parameters	Analytical Results - µg/g (Sample Location / Sample No. / Depth - metres)				Guideline / Standard (µg/g)[4]	
	TP17 SGS2 0.3 m	TP17 SGS3 0.4 m	TP17 SGS5 1.2 m	TP18 SGS2 0.2 m	Federal CCME Guidelines [1] Commercial Land Use	Provincial MOE Standards [2] - Table 3 - Residential / Parkland Land Use
Antimony	<1	<1	<1	<1	40	13
Arsenic	1	1	1	2	12	20
Barium	110	160	310	220	2,000	750
Beryllium	<0.5	<0.5	<0.5	0.5	8	1.2
Cadmium	<0.5	<0.5	<0.5	<0.5	22	12
Calcium	110,000	140,000	210,000	15,000	NG	NG
Chromium	15	15	10	55	87	750
Cobalt	5	10	5	10	300	40
Copper	10	10	5	30	91	225
Iron	12,000	11,000	8,800	25,000	NG	NG
Lead	8	7	7	200	260	200
Magnesium	10,000	12,000	9,400	9,000	NG	NG
Molybdenum	<1	<1	<1	<1	40	40
Nickel	20	25	30	30	50	150
Selenium	<1	<1	<1	<1	2.9	10
Silver	<0.3	<0.3	<0.3	<0.3	40	20
Sodium	<200	<200	<200	400	NG	NG
Thallium	<1	<1	<1	<1	1	4.1
Tin	<5	<5	<5	<5	300	NG
Vanadium	20	20	<10	60	130	200
Zinc	20	20	<20	100	360	600

Notes: All units in micrograms per gram (µg/g)
CCME [1] = Canadian Council of Ministers of the Environment (CCME) "Canadian Environmental Quality Guidelines", 1999 (Updated 2007).
Chapter 7: Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health.
MOE [2] = Ontario Ministry of the Environment (MOE) "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004.
Guideline/Standard[4] - Coarse grained criteria used.
NG = No guideline value or standard available
NA = Parameter not analyzed
Value = Sample result exceeds applicable CCME guidelines
Value = Sample result exceeds applicable MOE standards

TABLE B11.2: Summary of ICP Metals Soil Analyses - Southwest Sector (Page 2 of 2)

Parameters	Analytical Results - µg/g (Sample Location / Sample No. / Depth - metres)				Guideline / Standard (µg/g)[4]	
	TP18 SGS3 0.8 m	TP18 SGS5 0.9 m	BHMW7 SS8 4.3 - 4.9 m	BHMW8 SS3 1.2 - 1.8 m	Federal CCME Guidelines [1] Commercial Land Use	Provincial MOE Standards [2] - Table 3 - Residential / Parkland Land Use
Antimony	<1	<1	<1	1	40	13
Arsenic	1	2	2	<1	12	20
Barium	230	280	90	410	2,000	750
Beryllium	<0.5	<0.5	<0.5	<0.5	8	1.2
Cadmium	<0.5	<0.5	<0.5	<0.5	22	12
Calcium	11,000	14,000	210,000	12,000	NG	NG
Chromium	60	65	15	110	87	750
Cobalt	15	15	<5	25	300	40
Copper	30	35	15	55	91	225
Iron	28,000	30,000	48,000	59,000	NG	NG
Lead	27	21	7	7	260	200
Magnesium	10,000	11,000	94,000	30,000	NG	NG
Molybdenum	<1	<1	<1	<1	40	40
Nickel	35	40	15	65	50	150
Selenium	<1	<1	<1	<1	2.9	10
Silver	<0.3	<0.3	<0.3	<0.3	40	20
Sodium	600	600	400	2,000	NG	NG
Thallium	<1	<1	<1	<1	1	4.1
Tin	<5	<5	<5	<5	300	NG
Vanadium	60	70	70	100	130	200
Zinc	80	100	20	120	360	600

Notes: All units in micrograms per gram (µg/g)

CCME [1] = Canadian Council of Ministers of the Environment (CCME) "Canadian Environmental Quality Guidelines", 1999 (Updated 2007). Chapter 7: Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health.

MOE [2] = Ontario Ministry of the Environment (MOE) "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004.

Guideline/Standard[4] - Coarse grained criteria used.

NG = No guideline value or standard available

NA = Parameter not analyzed

Value = Sample result exceeds applicable CCME guidelines

Value = Sample result exceeds applicable MOE standards

TABLE 11.3: Summary of Polycyclic Aromatic Hydrocarbon Soil Analyses - Southwest Sector

Parameters	Analytical Results - µg/g (Sample Location / Sample No. / Depth - metres)		Guideline / Standard (µg/g)[4]	
	BHMW7 SS8 4.3 - 4.9 m	BHMW8 SS3 1.2 - 1.8 m	Federal CCME Guidelines [1] Commercial Land Use	Provincial MOE Standards [2] - Table 3 - Residential / Parkland Land Use
Acenaphthene	<0.02	<0.02	NG	1,000
Acenaphthylene	<0.02	<0.02	NG	100
Anthracene	<0.02	<0.02	NG	28
Benzo(a)anthracene	<0.02	<0.02	10	40
Benzo(a)pyrene	<0.02	<0.02	0.7	1.2
Benzo(b)fluoranthene	<0.02	<0.02	10	12
Benzo(g,h,i)perylene	<0.02	<0.02	NG	40
Benzo(k)fluoranthene	<0.02	<0.02	10	12
Biphenyl	<0.02	<0.02	NG	4.3
Chrysene	<0.02	<0.02	NG	12
Dibenzo(a,h)anthracene	<0.02	<0.02	10	1.2
Fluoranthene	<0.02	<0.02	NG	40
Fluorene	<0.02	<0.02	NG	350
Indeno(1,2,3,c,d)pyrene	<0.02	<0.02	10	12
Methylnaphthalene, 1-	0.06	0.22	NG	280
Methylnaphthalene, 2-	0.06	0.4	NG	
Naphthalene	0.06	0.46	22	40
Phenanthrene	<0.02	<0.02	50	40
Pyrene	<0.02	<0.02	100	250

Notes: All units in micrograms per gram (µg/g)

CCME [1] = Canadian Council of Ministers of the Environment (CCME) "Canadian Environmental Quality Guidelines", 1999 (Updated 2007). Chapter 7: Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health.

MOE [2] = Ontario Ministry of the Environment (MOE) "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004.

Guideline/Standard[4] - Coarse grained criteria used.

NG = No guideline value or standard available

NA = Parameter not analyzed

Value = Sample result exceeds applicable CCME guidelines

Value = Sample result exceeds applicable MOE standards

TABLE B12.1: Summary of Petroleum Hydrocarbon Soil Analyses - Exploratory Testpits

Parameters	Analytical Results - µg/g (Sample ID / Sample No. / Depth - metres)						Guideline / Standard (µg/g)[4]	
	TP48 SGS1 0.5-0.8 m	TP52 SGS1 0.0-0.4 m	TP56 SGS1 0.2-0.5 m	TP57 SGS1 0.1-1.0 m	TP61 SGS1 0.08-0.42 m	TP62 SGS1 0.6-0.9 m	Federal CCME Guidelines [1,2] Commercial Land Use	Provincial MOE Standards [3] - Table 3 - Residential / Parkland Land Use
Petroleum Hydrocarbons (Fraction 1)	<20	<20	<20	<20	<20	<20	320	30
Petroleum Hydrocarbons (Fraction 2)	<200	**5,100**	**3,600**	10	**4,000**	**2,500**	260	150
Petroleum Hydrocarbons (Fraction 3)	<200	**30,000**	**20,000**	200	**13,000**	**23,000**	1,700	400
Petroleum Hydrocarbons (Fraction 4)	<200	**17,000**	**12,000**	560	**18,000**	**15,000**	3,300	2,800

Notes: All units in micrograms per gram (µg/g)
CCME [1] = Canadian Council of Ministers of the Environment (CCME) "Canadian Environmental Quality Guidelines", 1999 (Updated 2007).
Chapter 7: Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health.
CCME [2] = Canadian Council of Ministers of the Environment (CCME) "Canada-Wide Standards for Petroleum Hydrocarbons (PHC) in Soil", 2008.
MOE [3] = Ontario Ministry of the Environment (MOE) "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004.
Guideline/Standard[4] - Coarse grained criteria used.
NG = No guideline value or standard available
NA = Parameter not analyzed
Value = Sample result exceeds applicable CCME guidelines
Value = Sample result exceeds applicable MOE standards

TABLE B12.2: Summary of ICP Metals Soil Analyses - Exploratory Testpits

Parameters	Analytical Results - µg/g (Sample Location / Sample No. / Depth - metres)						Guideline / Standard (µg/g)[4]	
	TP48 SGS1 0.5-0.8	TP52 SGS1 0.0-0.4	TP56 SGS1 0.2-0.5	TP57 SGS1 0.1-1.0	TP61 SGS1 0.08-0.42	TP62 SGS1 0.6-0.9	Federal CCME Guidelines[1] Commercial Land Use	Provincial MOE Standards[2] - Table 3 - Residential / Parkland Land Use
Antimony	<1	<1	<1	<1	<1	<1	40	13
Arsenic	**23**	<1	2	<1	2	1	12	20
Barium	240	<10	<10	300	20	<10	2,000	750
Beryllium	<0.5	<0.5	<0.5	0.5	<0.5	<0.5	8	1.2
Cadmium	1	<0.5	<0.5	<0.5	<0.5	<0.5	22	12
Calcium	13,000	800	1,200	37,000	2,400	600	NG	NG
Chromium	20	<5	<5	40	5	<5	87	750
Cobalt	10	10	10	10	5	5	300	40
Copper	30	<5	5	25	<5	<5	91	225
Iron	22,000	800	1,200	25,000	3,800	800	NG	NG
Lead	73	3	2	8	4	<1	260	200
Magnesium	2,800	400	400	11,000	1,000	<200	NG	NG
Molybdenum	1	1	1	<1	1	<1	40	40
Nickel	20	60	65	30	40	35	50	150
Selenium	<1	<1	<1	<1	<1	<1	2.9	10
Silver	0.3	<0.3	<0.3	<0.3	<0.3	<0.3	40	20
Sodium	<200	<200	200	600	<200	<200	NG	NG
Thallium	<1	<1	<1	<1	<1	<1	1	4.1
Tin	<5	<5	<5	<5	<5	<5	300	NG
Vanadium	30	<10	<10	5	<10	<10	130	200
Zinc	50	<20	<20	60	<20	<20	360	600

Notes: All units in micrograms per gram (µg/g)
CCME [1] = Canadian Council of Ministers of the Environment (CCME) "Canadian Environmental Quality Guidelines", 1999 (Updated 2007).
Chapter 7: Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health.
MOE [2] = Ontario Ministry of the Environment (MOE) "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004.
Guideline/Standard[4] - Coarse grained criteria used.
NG = No guideline value or standard available
NA = Parameter not analyzed
Value = Sample result exceeds applicable CCME guidelines
Value = Sample result exceeds applicable MOE standards

TABLE B12.3: Summary of Polycyclic Aromatic Hydrocarbon Soil Analyses - Exploratory Testpits

Parameters	Analytical Results - µg/g (Sample Location / Sample No. / Depth - metres)						Guideline / Standard (µg/g)[4]	
	TP48 SGS1 0.5-0.8 m	TP52 SGS1 0.0-0.4 m	TP56 SGS1 0.2-0.5 m	TP57 SGS1 0.1-1.0 m	TP61 SGS1 0.08-0.42 m	TP62 SGS1 0.6-0.9 m	Federal CCME Guidelines[1] Commercial Land Use	Provincial MOE Standards (2) - Table 3 - Residential / Parkland Land Use
Acenaphthene	0.14	<.0.08	<0.08	<0.02	<0.01	<1	NG	1,000
Acenaphthylene	0.12	<0.08	<0.08	<0.02	<0.01	<1	NG	100
Anthracene	0.3	<0.08	<0.08	0.02	<0.01	<1	NG	28
Benzo(a)anthracene	0.98	<0.08	<0.08	<0.02	<0.01	<1	10	40
Benzo(a)pyrene	0.68	<0.08	<0.08	<0.02	<0.01	<1	0.7	1.2
Benzo(b)fluoranthene	1.1	<0.08	<0.08	<0.02	<0.01	<1	10	12
Benzo(g,h,i)perylene	0.44	<0.08	0.16	0.02	<0.01	<1	NG	40
Benzo(k)fluoranthene	0.48	<0.08	<0.08	<0.02	<0.01	<1	10	12
Biphenyl	0.22	<0.08	<0.08	<0.02	<0.01	<1	NG	4.3
Chrysene	1.1	<0.08	<0.08	<0.02	<0.01	<1	NG	12
Dibenzo(a,h)anthracene	0.22	0.16	0.16	<0.02	0.02	<1	10	1.2
Fluoranthene	2	<0.08	<0.08	<0.02	<0.01	<1	NG	40
Fluorene	0.14	<0.08	<0.08	<0.02	<0.01	<1	NG	350
Indeno(1,2,3,c,d)pyrene	0.56	0.16	0.16	0.04	0.02	<1	10	12
Methylnaphthalene, 1-	2.6	<0.08	<0.08	<0.02	<0.01	2	NG	280
Methylnaphthalene, 2-	3.1	<0.08	<0.08	<0.02	<0.01	2	NG	
Naphthalene	1.8	<0.08	<0.08	<0.02	<0.01	<1	22	40
Phenanthrene	2.7	<0.08	<0.08	<0.02	0.02	<1	50	40
Pyrene	1.6	<0.08	<0.08	<0.02	<0.01	<1	100	250

Notes: All units in micrograms per gram (µg/g)
CCME [1] = Canadian Council of Ministers of the Environment (CCME) "Canadian Environmental Quality Guidelines", 1999 (Updated 2007).
Chapter 7: Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health.
MOE [2] = Ontario Ministry of the Environment (MOE) "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004.
Guideline/Standard[4] - Coarse grained criteria used.
NG = No guideline value or standard available
NA = Parameter not analyzed
Value = Sample result exceeds applicable CCME guidelines
Value = Sample result exceeds applicable MOE standards

TABLE B13.1: Summary of Composite Soil Leachate Analyses

Parameters	Analytical Results - mg/L (Sample ID / Sample Date)			MOE[1] (mg/L)
	North Sector (05/04/2005)	Southwest Sector (05/04/2005)	Southeast Sector (05/04/2005)	O. Reg. 347 (amended to O. Reg. 461/05)
Arsenic	ns	ns	< 0.05	2.5
Barium	ns	ns	0.8	100.0
Boron	ns	ns	< 0.05	500.0
Cadmium	ns	ns	< 0.01	0.5
Chromium	ns	ns	< 0.05	5.0
Lead	ns	ns	0.1	5.0
Selenium	ns	ns	< 0.05	1.0
Silver	ns	ns	< 0.05	5.0
Uranium	ns	ns	< 0.05	10.0
Mercury	ns	ns	< 0.0005	0.1
Benzene	< 0.03	< 0.03	< 0.03	0.5
2-Butonone (MEK)	< 1	< 1	< 1	200.0
Carbon Tetrachloride	< 0.03	< 0.03	< 0.03	0.5
Chlorobenzene	< 0.02	< 0.02	< 0.02	8.0
Chloroform	< 0.03	< 0.03	< 0.03	10.0
1,2-Dichlorobenzene	< 0.05	< 0.05	< 0.05	20.0
1,4-Dichlorobenzene	< 0.05	< 0.05	< 0.05	0.5
1,2-Dichloroethane	< 0.03	< 0.03	< 0.03	0.5
1,1-Dichloroethylene	< 0.03	< 0.03	< 0.03	1.4
Methylene Chloride	< 0.2	< 0.2	< 0.2	5.0
Tetrachloroethylene	< 0.03	< 0.03	< 0.03	3.0
Trichloroethylene	< 0.02	< 0.02	< 0.02	5.0
Vinyl Chloride	< 0.03	< 0.03	< 0.03	0.2
Final pH (pH units)	ns	ns	5.01	2 < pH < 12.5
Intial pH (pH units)	ns	ns	8.68	2 < pH < 12.5

Notes: All units in milligrams per litre (mg/L), unless otherwise specified
MOE [1] = Province of Ontario, "General - Waste Management", Ontario Regulation (O. Reg.) 347/90 (as amended to O. Reg. 461/05) made under the Environmental Protection Act. Schedule 4: Leachate Quality Criteria.
ns = Sample not collected for this analysis

Appendix B, Soil Quality - List of Laboratory Summary Tables			
Location	**Table ID**	**Analytical Parameters**	**DST Sample ID(s)**
North Sector (cont.' d)	B9.3	PAHs	TP29 SGS2; TP29 SGS3; TP29 SGS5; TP30 SGS2; TP30 SGS3; TP30 SGS5; TP31 SGS2; TP31 SGS3; TP31 SGS5; TP32 SGS2; TP32 SGS3; TP32 SGS5; BHMW10 SS3; BHMW11 SS3; BHMW12 SS2; BHMW13 SS3; BHMW14 SS2; BHMW15 SS5; BHMW16 SS5; BHMW17 SS7; BHMW18 SS2; BHMW19 SS3; BHMW20 SS2; BHMW21 SS4; BHMW24 SS1
Southeast Sector	B10.1	PHCs	TP1 SGS2; TP1 SGS3; TP1 SGS5; TP2 SGS2; TP2 SGS3; TP2 SGS5; TP2(B) SGS2; TP2(B) SGS3; TP2(B) SGS5; TP13 SGS2; TP13 SGS3; TP13 SGS5; TP14 SGS2; TP14 SGS3; TP14 SGS5; BHMW1 SS3; BHMW2 SS1; BHMW4 SGS3; Southeast Sector
		BTEX, PHCs	BHMW5 SS3; BHMW6 SS5
	B10.2	ICP Metals	TP1 SGS2; TP1 SGS3; TP1 SGS5; TP2 SGS2; TP2 SGS3; TP2 SGS5; TP2(B) SGS2; TP2(B) SGS3; TP2(B) SGS5; TP12 SGS2; TP12 SGS3; TP12 SGS5; TP13 SGS2; TP13 SGS3; TP13 SGS5; TP14 SGS2; TP14 SGS3; TP14 SGS5; TP15 SGS2; TP15 SGS3; TP15 SGS5; TP16 SGS2; TP16 SGS3; TP16 SGS5; BHMW2 SS1; BHMW4 SGS3; BHMW5 SS3; BHMW6 SS5
	B10.3	PAHs	TP1 SGS2; TP1 SGS3; TP1 SGS5; TP2 SGS2; TP2 SGS3; TP2 SGS5; TP2(B) SGS2; TP2(B) SGS3; TP2(B) SGS5; TP12 SGS2; TP12 SGS3; TP12 SGS5; TP13 SGS2; TP13 SGS3; TP13 SGS5; TP14 SGS2; TP14 SGS3; TP14 SGS5; BHMW2 SS1; BHMW4 SGS3; BHMW5 SS3; BHMW6 SS5
	B10.4	Dioxins / Furans	BHMW5 SS4
Southwest Sector	B11.1	BTEX, PHCs	BHMW7 SS8; BHMW8 SS3
		PHCs	Southwest Sector
	B11.2	ICP Metals	TP17 SGS2; TP17 SGS3; TP17 SGS5; TP18 SGS2; TP18 SGS3; TP18 SGS5; BHMW7 SS8; BHMW8 SS3
	B11.3	PAHs	BHMW7 SS8; BHMW8 SS3
Exploratory Testpits	B12.1	PHCs	TP48 SGS1; TP52 SGS1; TP56 SGS1; TP57 SGS1; TP61 SGS1; TP62 SGS1
	B12.2	ICP Metals	
	B12.3	PAHs	
Steam line Sectors	B13.1	Leachate Analysis	North Sector; Southeast Sector; Southwest Sector

APPENDIX C
LABORATORY SUMMARY TABLES – GROUNDWATER QUALITY

Appendix C, Groundwater Quality - List of Laboratory Summary Tables			
Location	**Table ID**	**Analytical Parameters**	**DST Sample ID(s)**
Building 16	C1.1	BTEX, PHCs	BHMW17 WGS1
		PHCs	BHMW16 WGS1; BHMW17 WGS1; BHMW18 WGS1
	C1.2	ICP Metals	
	C1.3	PAHs	
Building 22	C2.1	BTEX, PHCs	BHMW21 WGS1; BHMW22 WGS1; BHMW23 WGS1
	C2.2	ICP Metals	BHMW21 WGS1
	C2.3	PAHs	BHMW21 WGS1
Building 29	C3.1	BTEX, PHCs	BHMW12 WGS1
	C3.2	ICP Metals	
	C3.3	PAHs	
Buildings 43 & 45	C4.1	PHCs	BHMW2 WGS1
		BTEX, PHCs	BHMW3 WGS1
	C4.2	ICP Metals	BHMW2 WGS1; BHMW3 WGS1
	C4.3	PAHs	
	C4.4	Dioxins / Furans	
Building 80	C5.1	BTEX, PHCs	BHMW25 WGS1; BHMW26 WGS1
	C5.2	PAHs	
Building 84	C6.1	PHCs	BHMW9 WGS1
Building 90	C7.1	PHCs	BHMW1 WGS1
Building 137	C8.1	BTEX, PHCs	BHMW15 WGS1; BHMW15 WGS2
	C8.2	ICP Metals	BHMW15 WGS1
	C8.3	PAHs	
North Sector	C9.1	PHCs	BHMW10 WGS1; BHMW11 WGS1; BHMW16 WGS1; BHMW17 WGS1; BHMW18 WGS1; BHMW24 WGS1
		BTEX, PHCs	BHMW12 WGS1; BHMW13 WGS1; BHMW14 WGS1; BHMW15 WGS1; BHMW15 WGS2; BHMW17 WGS1; BHMW19 WGS1; BHMW20 WGS1; BHMW21 WGS1
	C9.2	ICP Metals	BHMW10 WGS1; BHMW11 WGS1; BHMW12 WGS1; BHMW13 WGS1; BHMW14 WGS1; BHMW15 WGS1; BHMW16 WGS1; BHMW17 WGS1; BHMW18 WGS1; BHMW19 WGS1; BHMW20 WGS1; BHMW21 WGS1; BHMW24 WGS1
	C9.3	PAHs	
Southeast Sector	C10.1	PHCs	BHMW1 WGS1; BHMW2 WGS1; BHMW4 WGS1 BHMW5 WGS1
	C10.2	ICP Metals	BHMW2 WGS1; BHMW4 WGS1; BHMW5 WGS1; BHMW6 WGS1
	C10.3	PAHs	BHMW2 WGS1; BHMW4 WGS1; BHMW5 WGS1
	C10.4	Dioxins / Furans	BHMW2 WGS1
Southwest Sector	C11.1	BTEX, PHCs	BHMW7 WGS1
		PHCs	BHMW8 WGS1
	C11.2	ICP Metals	BHMW7 WGS1; BHMW8 WGS1
	C11.3	PAHs	

TABLE C1.1: Summary of Petroleum Hydrocarbon and BTEX Ground Water Analyses - Building 16

Parameters	Analytical Results - µg/L (Sample ID / Sample Date)				Standard (µg/L) MOE[(1)] Table 3: Non-Potable Ground Water
	BHMW16-WGS1 29-Nov-04	BHMW17-WGS1 29-Nov-04	BHMW17-WGS1 13-Dec-04	BHMW18-WGS1 29-Nov-04	
Petroleum Hydrocarbons (Fraction 1)	<200	<200	<200	<200	NG*
Petroleum Hydrocarbons (Fraction 2)	<100	<100	<100	<100	NG*
Petroleum Hydrocarbons (Fraction 3)	<100	<100	<100	<100	NG*
Petroleum Hydrocarbons (Fraction 4)	<100	<100	<100	<100	NG*
Benzene	NA	NA	<0.5	NA	1,900
Ethylbenzene	NA	NA	<0.5	NA	28,000
Toluene	NA	NA	<0.5	NA	5,900
m/p - Xylenes	NA	NA	<1	NA	NG
o - Xylenes	NA	NA	<0.5	NA	NG
Total Xylenes	NA	NA	<1.5	NA	5,600

Notes: All units in micrograms per litre (µg/L)

MOE [(1)] = Ontario Ministry of the Environment (MOE), "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004.

* = For a site to meet this standard, there must be no evidence of free product, including but not limited to, visible petroleum hydrocarbon film or sheen present on ground water, surface water or in any ground water or surface water samples.

NG = No guideline value/standard available

NA = Parameter not analyzed

Value = Sample result exceeds applicable MOE standards

TABLE C1.2: Summary of ICP Metals Ground Water Analyses - Building 16

Parameters	Analytical Results - µg/L (Sample ID / Sample Date)				Standard (µg/L)
					MOE[(1)]
	BHMW16-WGS1 29-Nov-04	BHMW17-WGS1 29-Nov-04	BHMW17-WGS1 13-Dec-04	BHMW18-WGS1 29-Nov-04	Table 3: Non-Potable Ground Water
Aluminum	<10	30	<10	20	NG
Antimony	<1	<1	<1	<1	16,000
Arsenic	<10	<10	<10	<10	480
Barium	40	40	50	30	23,000
Beryllium	<1	<1	<1	<1	53
Boron	<50	<50	<50	550	50,000
Cadmium	<1	<1	<1	<1	11
Calcium	92,000	34,000	60,000	58,000	NG
Chromium	<50	<50	<50	<50	2,000
Cobalt	<5	<5	<5	<5	100
Copper	<5	5	<5	<5	23
Iron	<200	<200	<200	<200	NG
Lead	<1	<1	<1	<1	32
Magnesium	18,000	5,400	7,000	19,000	NG
Manganese	<50	<50	<50	<50	NG
Molybdenum	<5	10	5	<5	7,300
Nickel	5	5	<5	<5	1,600
Potassium	3,400	4,200	4,000	6,600	NG
Selenium	<5	<5	<5	<5	50
Silver	<1	<1	<1	<1	1.2
Sodium	59,000	35,000	42,000	35,000	NG
Thallium	<1	<1	<1	<1	400
Tin	<10	<10	<10	<10	NG
Vanadium	<10	<10	<10	<10	200
Zinc	<20	40	<20	<20	1,100

Notes: All units in micrograms per litre (µg/L)
MOE [(1)] = Ontario Ministry of the Environment (MOE), "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004.
NG = No guideline value/standard available
NA = Parameter not analyzed
Value = Sample result exceeds applicable MOE standards

TABLE C1.3: Summary of Polycyclic Aromatic Hydrocarbon Ground Water Analyses - Building 16

Parameters	Analytical Results - µg/L (Sample ID / Sample Date)				Standard (µg/L) MOE[1]
	BHMW16-WGS1 29-Nov-04	BHMW17-WGS1 29-Nov-04	BHMW17-WGS1 13-Dec-04	BHMW18-WGS1 29-Nov-04	Table 3: Non-Potable Ground Water
Acenaphthene	0.3	<0.1	0.05	0.05	1,700
Acenaphthylene	<0.05	<0.1	<0.05	<0.05	2,000
Anthracene	<0.01	<0.02	<0.01	<0.01	12
Benzo(a)anthracene	<0.01	<0.02	<0.01	<0.01	5.0
Benzo(a)pyrene	<0.01	<0.02	<0.01	<0.01	1.9
Benzo(b)fluoranthene	<0.05	<0.1	<0.05	<0.05	7.0
Benzo(g,h,i)perylene	<0.05	<0.1	<0.05	<0.05	0.2
Benzo(k)fluoranthene	<0.05	<0.1	<0.05	<0.05	0.4
Biphenyl	<0.05	<0.1	<0.05	<0.05	1,700
Chrysene	<0.05	<0.1	<0.05	<0.05	3.0
Dibenzo(a,h)anthracene	<0.05	<0.1	<0.05	<0.05	0.25
Fluoranthene	<0.01	0.04	0.03	<0.01	130
Fluorene	<0.05	<0.1	<0.05	<0.05	290
Indeno(1,2,3,c,d)pyrene	<0.05	<0.1	<0.05	<0.05	0.27
Methylnaphthalene, 1-	<0.05	<0.1	<0.05	<0.05	13,000
Methylnaphthalene, 2-	0.05	<0.1	<0.05	<0.05	
Naphthalene	0.35	0.1	<0.05	0.15	5,900
Phenanthrene	<0.05	<0.1	0.1	0.05	63
Pyrene	<0.01	<0.02	<0.01	<0.01	40

Notes: All units in micrograms per litre (µg/L)

MOE [1] = Ontario Ministry of the Environment (MOE), "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004.

NG = No guideline value/standard available

NA = Parameter not analyzed

Value = Sample result exceeds applicable MOE standards

TABLE C2.1: Summary of Petroleum Hydrocarbon and BTEX Ground Water Analyses - Building 22

Parameters	Analytical Results - µg/L (Sample ID / Sample Date)			Standard (µg/L) MOE[1] Table 3: Non-Potable Ground Water
	BHMW21-WGS1 29-Nov-04	BHMW22-WGS1 29-Nov-04	BHMW23-WGS1 29-Nov-04	
Petroleum Hydrocarbons (Fraction 1)	<200	<200	<200	NG*
Petroleum Hydrocarbons (Fraction 2)	<100	<100	<100	NG*
Petroleum Hydrocarbons (Fraction 3)	<100	<100	<100	NG*
Petroleum Hydrocarbons (Fraction 4)	<100	<100	<100	NG*
Benzene	<0.5	<0.5	<0.5	1,900
Ethylbenzene	<0.5	<0.5	<0.5	28,000
Toluene	<0.5	<0.5	<0.5	5,900
m/p - Xylenes	<1	<1	<1	NG
o - Xylenes	<0.5	<0.5	<0.5	NG
Total Xylenes	<1.5	<1.5	<1.5	5,600

Notes: All units in micrograms per litre (µg/L)

MOE [1] = Ontario Ministry of the Environment (MOE), "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004.

* = For a site to meet this standard, there must be no evidence of free product, including but not limited to, visible petroleum hydrocarbon film or sheen present on ground water, surface water or in any ground water or surface water samples.

NG = No guideline value/standard available

NA = Parameter not analyzed

Value = Sample result exceeds applicable MOE standards

TABLE C2.2: Summary of ICP Metals Ground Water Analyses - Building 22

Parameters	Analytical Results - µg/L (Sample ID / Sample Date)	Standard (µg/L)
		MOE[1]
	BHMW21-WGS1 29-Nov-04	Table 3: Non-Potable Ground Water
Aluminum	<10	NG
Antimony	<1	16,000
Arsenic	<10	480
Barium	50	23,000
Beryllium	<1	53
Boron	<50	50,000
Cadmium	<1	11
Calcium	80,000	NG
Chromium	<50	2,000
Cobalt	<5	100
Copper	<5	23
Iron	<200	NG
Lead	<1	32
Magnesium	9,400	NG
Manganese	400	NG
Molybdenum	<5	7,300
Nickel	<5	1,600
Potassium	2,000	NG
Selenium	<5	50
Silver	<1	1.2
Sodium	71,000	NG
Thallium	<1	400
Tin	<10	NG
Vanadium	<10	200
Zinc	20	1,100

Notes: All units in micrograms per litre (µg/L)

MOE [1] = Ontario Ministry of the Environment (MOE), "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004.

NG = No guideline value/standard available

NA = Parameter not analyzed

Value = Sample result exceeds applicable MOE standards

TABLE C2.3: Summary of Polycyclic Aromatic Hydrocarbon Ground Water Analyses - Building 22

Parameters	Analytical Results - µg/L (Sample ID / Sample Date)	Standard (µg/L)
		MOE[1]
	BHMW21-WGS1 29-Nov-04	Table 3: Non-Potable Ground Water
Acenaphthene	0.6	1,700
Acenaphthylene	<0.05	2,000
Anthracene	<0.01	12
Benzo(a)anthracene	<0.01	5.0
Benzo(a)pyrene	<0.01	1.9
Benzo(b)fluoranthene	<0.05	7.0
Benzo(g,h,i)perylene	<0.05	0.2
Benzo(k)fluoranthene	<0.05	0.4
Biphenyl	<0.05	1,700
Chrysene	<0.05	3.0
Dibenzo(a,h)anthracene	<0.05	0.25
Fluoranthene	<0.01	130
Fluorene	<0.05	290
Indeno(1,2,3,c,d)pyrene	<0.05	0.27
Methylnaphthalene, 1-	<0.05	13,000
Methylnaphthalene, 2-	<0.05	
Naphthalene	0.25	5,900
Phenanthrene	<0.05	63
Pyrene	<0.01	40

Notes: All units in micrograms per litre (µg/L)

MOE [1] = Ontario Ministry of the Environment (MOE), "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004.

NG = No guideline value/standard available

NA = Parameter not analyzed

Value = Sample result exceeds applicable MOE standards

TABLE C3.1: Summary of Petroleum Hydrocarbon and BTEX Ground Water Analyses - Building 29

Parameters	Analytical Results - µg/L (Sample ID / Sample Date)	Standard (µg/L)
		MOE[1]
	BHMW12-WGS1 29-Nov-04	Table 3: Non-Potable Ground Water
Petroleum Hydrocarbons (Fraction 1)	<200	NG*
Petroleum Hydrocarbons (Fraction 2)	<100	NG*
Petroleum Hydrocarbons (Fraction 3)	<100	NG*
Petroleum Hydrocarbons (Fraction 4)	<100	NG*
Benzene	<0.5	1,900
Ethylbenzene	<0.5	28,000
Toluene	<0.5	5,900
m/p - Xylenes	<1	NG
o - Xylenes	<0.5	NG
Total Xylenes	<1.5	5,600

Notes: All units in micrograms per litre (µg/L)

MOE [1] = Ontario Ministry of the Environment (MOE), "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004.

* = For a site to meet this standard, there must be no evidence of free product, including but not limited to, visible petroleum hydrocarbon film or sheen present on ground water, surface water or in any ground water or surface water samples.

NG = No guideline value/standard available

NA = Parameter not analyzed

Value = Sample result exceeds applicable MOE standards

TABLE C3.2: Summary of ICP Metals Ground Water Analyses - Building 29

Parameters	Analytical Results - µg/L (Sample ID / Sample Date)	Standard (µg/L) MOE[1]
	BHMW12-WGS1 29-Nov-04	Table 3: Non-Potable Ground Water
Aluminum	<10	NG
Antimony	<1	16,000
Arsenic	<10	480
Barium	150	23,000
Beryllium	<1	53
Boron	<50	50,000
Cadmium	<1	11
Calcium	90,000	NG
Chromium	<50	2,000
Cobalt	<5	100
Copper	<5	23
Iron	200	NG
Lead	<1	32
Magnesium	21,000	NG
Manganese	350	NG
Molybdenum	<5	7,300
Nickel	<5	1,600
Potassium	2,200	NG
Selenium	<5	50
Silver	<1	1.2
Sodium	30,000	NG
Thallium	<1	400
Tin	<10	NG
Vanadium	<10	200
Zinc	<20	1,100

Notes: All units in micrograms per litre (µg/L)
MOE [1] = Ontario Ministry of the Environment (MOE), "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004.
NG = No guideline value/standard available
NA = Parameter not analyzed
Value = Sample result exceeds applicable MOE standards

TABLE C3.3: Summary of Polycyclic Aromatic Hydrocarbon Ground Water Analyses - Building 29

Parameters	Analytical Results - µg/L (Sample ID / Sample Date)	Standard (µg/L)
		MOE [1]
	BHMW12-WGS1 29-Nov-04	Table 3: Non-Potable Ground Water
Acenaphthene	0.55	1,700
Acenaphthylene	<0.05	2,000
Anthracene	<0.01	12
Benzo(a)anthracene	<0.01	5.0
Benzo(a)pyrene	<0.01	1.9
Benzo(b)fluoranthene	<0.05	7.0
Benzo(g,h,i)perylene	<0.05	0.2
Benzo(k)fluoranthene	<0.05	0.4
Biphenyl	0.1	1,700
Chrysene	<0.05	3.0
Dibenzo(a,h)anthracene	<0.05	0.25
Fluoranthene	<0.01	130
Fluorene	<0.05	290
Indeno(1,2,3,c,d)pyrene	<0.05	0.27
Methylnaphthalene, 1-	<0.05	13,000
Methylnaphthalene, 2-	<0.05	
Naphthalene	0.75	5,900
Phenanthrene	<0.05	63
Pyrene	<0.01	40

Notes: All units in micrograms per litre (µg/L)

MOE [1] = Ontario Ministry of the Environment (MOE), "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004.

NG = No guideline value/standard available

NA = Parameter not analyzed

Value = Sample result exceeds applicable MOE standards

TABLE C4.1: Summary of Petroleum Hydrocarbon Ground Water and BTEX Analyses - Buildings 43/45

Parameters	Analytical Results - µg/L (Sample ID / Sample Date)		Standard (µg/L) MOE[(1)] Table 3: Non-Potable Ground Water
	BHMW2-WGS1 29-Nov-04	BHMW3-WGS1 13-Dec-04	
Petroleum Hydrocarbons (Fraction 1)	<200	<200	NG*
Petroleum Hydrocarbons (Fraction 2)	<100	<100	NG*
Petroleum Hydrocarbons (Fraction 3)	<100	<100	NG*
Petroleum Hydrocarbons (Fraction 4)	<100	<100	NG*
Benzene	NA	<0.5	1,900
Ethylbenzene	NA	<0.5	28,000
Toluene	NA	<0.5	5,900
m/p - Xylenes	NA	<1	NG
o - Xylenes	NA	<0.5	NG
Total Xylenes	NA	<1.5	5,600

Notes: All units in micrograms per litre (µg/L)

MOE [(1)] = Ontario Ministry of the Environment (MOE), "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004.

* = For a site to meet this standard, there must be no evidence of free product, including but not limited to, visible petroleum hydrocarbon film or sheen present on ground water, surface water or in any ground water or surface water samples.

NG = No guideline value/standard available

NA = Parameter not analyzed

Value = Sample result exceeds applicable MOE standards

TABLE C4.2: Summary of ICP Metals Ground Water Analyses - Buildings 43/45

Parameters	Analytical Results - µg/L (Sample ID / Sample Date)		Standard (µg/L) MOE[1]
	BHMW2-WGS1 29-Nov-04	BHMW3-WGS1 13-Dec-04	Table 3: Non-Potable Ground Water
Aluminum	<10	10	NG
Antimony	<1	<1	16,000
Arsenic	<10	<10	480
Barium	50	40	23,000
Beryllium	<1	<1	53
Boron	<50	50	50,000
Cadmium	<1	<1	11
Calcium	110,000	170,000	NG
Chromium	<50	<50	2,000
Cobalt	<5	<5	100
Copper	<5	<5	23
Iron	<200	<200	NG
Lead	<1	<1	32
Magnesium	15,000	25,000	NG
Manganese	<50	<50	NG
Molybdenum	<5	<5	7,300
Nickel	5	5	1,600
Potassium	3,200	1,600	NG
Selenium	<5	<5	50
Silver	<1	<1	1.2
Sodium	37,000	26,000	NG
Thallium	<1	<1	400
Tin	<10	<10	NG
Vanadium	<10	<10	200
Zinc	20	<20	1,100

Notes: All units in micrograms per litre (µg/L)
MOE [1] = Ontario Ministry of the Environment (MOE), "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004.
NG = No guideline value/standard available
NA = Parameter not analyzed
Value = Sample result exceeds applicable MOE standards

TABLE C4.3: Summary of Polycyclic Aromatic Hydrocarbon Ground Water Analyses - Buildings 43/45

Parameters	Analytical Results - µg/L (Sample ID / Sample Date)		Standard (µg/L) MOE[(1)]
	BHMW2-WGS1 29-Nov-04	BHMW3-WGS1 13-Dec-04	Table 3: Non-Potable Ground Water
Acenaphthene	<0.05	<0.05	1,700
Acenaphthylene	<0.05	<0.05	2,000
Anthracene	<0.01	<0.01	12
Benzo(a)anthracene	<0.01	<0.01	5
Benzo(a)pyrene	<0.01	<0.01	1.9
Benzo(b)fluoranthene	<0.05	<0.05	7
Benzo(g,h,i)perylene	<0.05	<0.05	0.2
Benzo(k)fluoranthene	<0.05	<0.05	0.4
Biphenyl	<0.05	<0.05	1,700
Chrysene	<0.05	<0.05	3
Dibenzo(a,h)anthracene	<0.05	<0.05	0.25
Fluoranthene	<0.01	<0.01	130
Fluorene	<0.05	<0.05	290
Indeno(1,2,3,c,d)pyrene	<0.05	<0.05	0.27
Methylnaphthalene, 1-	<0.05	<0.05	13,000
Methylnaphthalene, 2-	<0.05	<0.05	
Naphthalene	<0.05	<0.05	5,900
Phenanthrene	<0.05	<0.05	63
Pyrene	<0.01	<0.01	40

Notes: All units in micrograms per litre (µg/L)
MOE [(1)] = Ontario Ministry of the Environment (MOE), "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004.
NG = No guideline value/standard available
NA = Parameter not analyzed
Value = Sample result exceeds applicable MOE standards

TABLE C4.4: Summary of Dioxin/Furan Ground Water Analyses - Buildings 43/45

Parameters	Analytical Results - ng/L (Sample ID / Sample Date)		Standard (ng/L) MOE[(1)] Table 3: Non-Potable Ground Water
	BHMW2-WGS1 29-Nov-04	BHMW3-WGS1 13-Dec-04	
2,3,7,8-Tetra CDD	0	0	NG
1,2,3,7,8-Penta CDD	0	0	NG
1,2,3,4,7,8-Hexa CDD	0	0	NG
1,2,3,6,7,8-Hexa CDD	0	0	NG
1,2,3,7,8,9-Hexa CDD	0	0	NG
1,2,3,4,6,7,8-Hepta CDD	0	0.0177	NG
Octa CDD	0	0.228	NG
Total Tetra CDD	0	0	NG
Total Penta CDD	0	0	NG
Total Hexa CDD	0	0	NG
Total Hepta CDD	0	0.0297	NG
2,3,7,8-Tetra CDF	0.0022	0	NG
1,2,3,7,8-Penta CDF	0	0	NG
2,3,4,7,8-Penta CDF	0	0	NG
1,2,3,4,7,8-Hexa CDF	0	0	NG
1,2,3,6,7,8-Hexa CDF	0	0	NG
2,3,4,6,7,8-Hexa CDF	0	0	NG
1,2,3,7,8,9-Hexa CDF	0	0	NG
1,2,3,4,6,7,8-Hepta CDF	0	0	NG
1,2,3,4,7,8,9-Hepta CDF	0	0	NG
Octa CDF	0	0	NG
Total Tetra CDF	0.007	0	NG
Total Penta CDF	0.00547	0.0034	NG
Total Hexa CDF	0	0.0034	NG
Total Hepta CDF	0	0	NG
TOTAL TOXIC EQUIVALENCY	0.00471	0.00491	0.015[(2)]

Notes: All units in nanograms per litre (ng/L)
MOE [(1)] = Ontario Ministry of the Environment (MOE), "Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004.
[(2)] = Based on a unit discrepancy in the current MOE standard[(1)], the following guideline was referenced for this parameter: MOE, "Guideline for Use at Contaminated Sites in Ontario", September 1998. Table B: Nonpotable Groundwater Criteria.
NG = No guideline value/standard available
NA = Parameter not analyzed
Value = Sample result exceeds applicable MOE standards

TABLE C5.1: Summary of Petroleum Hydrocarbon and BTEX Ground Water Analyses - Building 80

Parameters	Analytical Results - µg/L (Sample ID / Sample Date)		Standard (µg/L) MOE[1]
	BHMW25-WGS1 2-Feb-05	BHMW26-WGS1 2-Feb-05	Table 3: Non-Potable Ground Water
Petroleum Hydrocarbons (Fraction 1)	<200	**<u><200</u>**	NG*
Petroleum Hydrocarbons (Fraction 2)	<100	**<u>2,600</u>**	NG*
Petroleum Hydrocarbons (Fraction 3)	<100	**<u>13,000</u>**	NG*
Petroleum Hydrocarbons (Fraction 4)	<100	**<u>500</u>**	NG*
Benzene	<0.5	<0.5	1,900
Ethylbenzene	<0.5	<0.5	28,000
Toluene	<0.5	<0.5	5,900
m/p - Xylenes	<1.0	<1.0	NG
o - Xylenes	<0.5	<0.5	NG
Total Xylenes	<1.5	<1.5	5,600

Notes: All units in micrograms per litre (µg/L)

MOE [1] = Ontario Ministry of the Environment (MOE), "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004.

* = For a site to meet this standard, there must be no evidence of free product, including but not limited to, visible petroleum hydrocarbon film or sheen present on ground water, surface water or in any ground water or surface water samples.

NG = No guideline value/standard available

NA = Parameter not analyzed

Value = Sample result exceeds applicable MOE standards

<u>Value</u> = Sample result exceeds target value of 10,000 µg/L as a non-potable grounwater quality objective for PHCs (based on preliminary discussions held between project stakeholders and regulatory officials)

TABLE C5.2: Summary of Polycyclic Aromatic Hydrocarbon Ground Water Analyses - Building 80

Parameters	Analytical Results - µg/L (Sample ID / Sample Date)		Standard (µg/L) MOE[(1)] Table 3: Non-Potable Ground Water
	BHMW25-WGS1 2-Feb-05	BHMW26-WGS1 2-Feb-05	
Acenaphthene	0.1	<0.5	1,700
Acenaphthylene	<0.05	<0.5	2,000
Anthracene	<0.01	<0.1	12
Benzo(a)anthracene	<0.01	0.1	5.0
Benzo(a)pyrene	<0.01	0.1	1.9
Benzo(b)fluoranthene	<0.05	<0.5	7.0
Benzo(g,h,i)perylene	<0.05	*<0.5*	0.2
Benzo(k)fluoranthene	<0.05	*<0.5*	0.4
Biphenyl	0.1	<0.5	1,700
Chrysene	<0.05	<0.5	3.0
Dibenzo(a,h)anthracene	<0.05	*<0.5*	0.25
Fluoranthene	0.02	<0.1	130
Fluorene	0.05	1.0	290
Indeno(1,2,3,c,d)pyrene	<0.05	*<0.5*	0.27
Methylnaphthalene, 1-	0.25	<0.5	13,000
Methylnaphthalene, 2-	0.45	<0.5	
Naphthalene	0.45	1.0	5,900
Phenanthrene	0.15	<0.5	63
Pyrene	<0.01	0.6	40

Notes: All units in micrograms per litre (µg/L)

MOE [(1)] = Ontario Ministry of the Environment (MOE), "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004.

NG = No guideline value/standard available

NA = Parameter not analyzed

Value = Sample result exceeds applicable MOE standards

Italic = Laboratory Method Detection Limit exceeds applicable standard

TABLE C6.1: Summary of Petroleum Hydrocarbon Ground Water Analyses - Building 84

Parameters	Analytical Results - µg/L (Sample ID / Sample Date)	Standard (µg/L)
		MOE[1]
	BHMW9-WGS1 26-Nov-04	Table 3: Non-Potable Ground Water
Petroleum Hydrocarbons (Fraction 1)	<200	NG*
Petroleum Hydrocarbons (Fraction 2)	<100	NG*
Petroleum Hydrocarbons (Fraction 3)	<100	NG*
Petroleum Hydrocarbons (Fraction 4)	<100	NG*

Notes: All units in micrograms per litre (µg/L)

MOE [(1)] = Ontario Ministry of the Environment (MOE), "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004.

* = For a site to meet this standard, there must be no evidence of free product, including but not limited to, visible petroleum hydrocarbon film or sheen present on ground water, surface water or in any ground water or surface water samples.

NG = No guideline value/standard available

NA = Parameter not analyzed

Value = Sample result exceeds applicable MOE standards

TABLE C7.1: Summary of Petroleum Hydrocarbon Ground Water Analyses - Building 90

Parameters	Analytical Results - µg/L (Sample ID / Sample Date)	Standard (µg/L) MOE[1]
	BHMW1-WGS1 26-Nov-04	Table 3: Non-Potable Ground Water
Petroleum Hydrocarbons (Fraction 1)	<200	NG*
Petroleum Hydrocarbons (Fraction 2)	<100	NG*
Petroleum Hydrocarbons (Fraction 3)	<100	NG*
Petroleum Hydrocarbons (Fraction 4)	<100	NG*

Notes: All units in micrograms per litre (µg/L)

MOE [(1)] = Ontario Ministry of the Environment (MOE), "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004.

* = For a site to meet this standard, there must be no evidence of free product, including but not limited to, visible petroleum hydrocarbon film or sheen present on ground water, surface water or in any ground water or surface water samples.

NG = No guideline value/standard available

NA = Parameter not analyzed

Value = Sample result exceeds applicable MOE standards

TABLE C8.1: Summary of Petroleum Hydrocarbon and BTEX Ground Water Analyses - Building 137

Parameters	Analytical Results - µg/L (Sample ID / Sample Date)		Standard (µg/L) MOE[1] Table 3: Non-Potable Ground Water
	BHMW15-WGS1 29-Nov-04	BHMW15-WGS2 22-Dec-04	
Petroleum Hydrocarbons (Fraction 1)	**<u><200</u>**	**<u><200</u>**	NG*
Petroleum Hydrocarbons (Fraction 2)	**<u>140,000</u>**	**<u>67,000</u>**	NG*
Petroleum Hydrocarbons (Fraction 3)	**<u>65,000</u>**	**<u>34,000</u>**	NG*
Petroleum Hydrocarbons (Fraction 4)	**<u><100</u>**	**<u><100</u>**	NG*
Benzene	<0.5	<0.5	1,900
Ethylbenzene	<0.5	<0.5	28,000
Toluene	<0.5	<0.5	5,900
m/p - Xylenes	<1	<1	NG
o - Xylenes	<0.5	<0.5	NG
Total Xylenes	<1.5	<1.5	5,600

Notes: All units in micrograms per litre (µg/L)

MOE [1] = Ontario Ministry of the Environment (MOE), "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004.

* = For a site to meet this standard, there must be no evidence of free product, including but not limited to, visible petroleum hydrocarbon film or sheen present on ground water, surface water or in any ground water or surface water samples.

NG = No guideline value/standard available

NA = Parameter not analyzed

Value = Sample result exceeds applicable MOE standards

<u>Value</u> = Sample result exceeds target value of 10,000 µg/L as a non-potable grounwater quality objective for PHCs (based on preliminary discussions held between project stakeholders and regulatory officials)

TABLE C8.2: Summary of ICP Metals Ground Water Analyses - Building 137

Parameters	Analytical Results - µg/L (Sample ID / Sample Date)	Standard (µg/L)
		MOE[1]
	BHMW15-WGS1 29-Nov-04	Table 3: Non-Potable Ground Water
Aluminum	<10	NG
Antimony	<1	16,000
Arsenic	<10	480
Barium	130	23,000
Beryllium	<1	53
Boron	<50	50,000
Cadmium	<1	11
Calcium	76,000	NG
Chromium	<50	2,000
Cobalt	<5	100
Copper	<5	23
Iron	3,000	NG
Lead	<1	32
Magnesium	20,000	NG
Manganese	150	NG
Molybdenum	<5	7,300
Nickel	<5	1,600
Potassium	2,800	NG
Selenium	<5	50
Silver	<1	1.2
Sodium	120,000	NG
Thallium	<1	400
Tin	<10	NG
Vanadium	<10	200
Zinc	<20	1,100

Notes: All units in micrograms per litre (µg/L)
MOE [1] = Ontario Ministry of the Environment (MOE), "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004.
NG = No guideline value/standard available
NA = Parameter not analyzed
Value = Sample result exceeds applicable MOE standards

TABLE C8.3: Summary of Polycyclic Aromatic Hydrocarbon Ground Water Analyses - Building 137

Parameters	Analytical Results - µg/L (Sample ID / Sample Date)	Standard (µg/L) MOE[1]
	BHMW15-WGS1 29-Nov-04	Table 3: Non-Potable Ground Water
Acenaphthene	<1	1,700
Acenaphthylene	10	2,000
Anthracene	2.2	12
Benzo(a)anthracene	<0.2	5.0
Benzo(a)pyrene	<0.2	1.9
Benzo(b)fluoranthene	<1	7.0
Benzo(g,h,i)perylene	*<1*	0.2
Benzo(k)fluoranthene	*<1*	0.4
Biphenyl	7	1,700
Chrysene	<1	3.0
Dibenzo(a,h)anthracene	*<1*	0.25
Fluoranthene	1.2	130
Fluorene	8	290
Indeno(1,2,3,c,d)pyrene	*<1*	0.27
Methylnaphthalene, 1-	87	13,000
Methylnaphthalene, 2-	31	
Naphthalene	52	5,900
Phenanthrene	12	63
Pyrene	1.2	40

Notes: All units in micrograms per litre (µg/L)

MOE [1] = Ontario Ministry of the Environment (MOE), "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004.

NG = No guideline value/standard available

NA = Parameter not analyzed

Value = Sample result exceeds applicable MOE standards

Italic = Laboratory Method Detection Limit exceeds applicable standard

TABLE C9.1: Summary of Petroleum Hydrocarbon and BTEX Ground Water Analyses - North Sector (Page 1 of 3)

Parameters	Analytical Results - µg/L (Sample ID / Sample Date)					Standard (µg/L) MOE[(1)] Table 3: Non-Potable Ground Water
	BHMW10-WGS1 29-Nov-04	BHMW11-WGS1 29-Nov-04	BHMW12-WGS1 29-Nov-04	BHMW13-WGS1 29-Nov-04	BHMW14-WGS1 29-Nov-04	
Petroleum Hydrocarbons (Fraction 1)	<200	<200	<200	<200	<200	NG*
Petroleum Hydrocarbons (Fraction 2)	<100	<100	<100	<100	<100	NG*
Petroleum Hydrocarbons (Fraction 3)	<100	<100	<100	<100	<100	NG*
Petroleum Hydrocarbons (Fraction 4)	<100	<100	<100	<100	<100	NG*
Benzene	NA	NA	<0.5	<0.5	<0.5	1,900
Ethylbenzene	NA	NA	<0.5	<0.5	<0.5	28,000
Toluene	NA	NA	<0.5	<0.5	<0.5	5,900
m/p - Xylenes	NA	NA	<1	<1	<1	NG
o - Xylenes	NA	NA	<0.5	<0.5	<0.5	NG
Total Xylenes	NA	NA	<1.5	<1.5	<1.5	5,600

Notes: All units in micrograms per litre (µg/L)

MOE [(1)] = Ontario Ministry of the Environment (MOE), "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004.

* = For a site to meet this standard, there must be no evidence of free product, including but not limited to, visible petroleum hydrocarbon film or sheen present on ground water, surface water or in any ground water or surface water samples.

NG = No guideline value/standard available

NA = Parameter not analyzed

Value = Sample result exceeds applicable MOE standards

Value = Sample result exceeds target value of 10,000 µg/L as a non-potable grounwater quality objective for PHCs (based on preliminary discussions held between project stakeholders and regulatory officials)

TABLE C9.1: Summary of Petroleum Hydrocarbon and BTEX Ground Water Analyses - North Sector (Page 2 of 3)

Parameters	Analytical Results - µg/L (Sample ID / Sample Date)					Standard (µg/L) MOE[(1)] Table 3: Non-Potable Ground Water
	BHMW15-WGS1 29-Nov-04	BHMW15-WGS2 22-Dec-04	BHMW16-WGS1 29-Nov-04	BHMW17-WGS1 29-Nov-04	BHMW17-WGS1 13-Dec-04	
Petroleum Hydrocarbons (Fraction 1)	**<u><200</u>**	**<u><200</u>**	<200	<200	<200	NG*
Petroleum Hydrocarbons (Fraction 2)	**<u>140,000</u>**	**<u>67,000</u>**	<100	<100	<100	NG*
Petroleum Hydrocarbons (Fraction 3)	**<u>65,000</u>**	**<u>34,000</u>**	<100	<100	<100	NG*
Petroleum Hydrocarbons (Fraction 4)	**<u><100</u>**	**<u><100</u>**	<100	<100	<100	NG*
Benzene	<0.5	<0.5	NA	NA	<0.5	1,900
Ethylbenzene	<0.5	<0.5	NA	NA	<0.5	28,000
Toluene	<0.5	<0.5	NA	NA	<0.5	5,900
m/p - Xylenes	<1	<1	NA	NA	<1	NG
o - Xylenes	<0.5	<0.5	NA	NA	<0.5	NG
Total Xylenes	<1.5	<1.5	NA	NA	<1.5	5,600

Notes: All units in micrograms per litre (µg/L)

MOE [(1)] = Ontario Ministry of the Environment (MOE), "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004.

* = For a site to meet this standard, there must be no evidence of free product, including but not limited to, visible petroleum hydrocarbon film or sheen present on ground water, surface water or in any ground water or surface water samples.

NG = No guideline value/standard available

NA = Parameter not analyzed

Value = Sample result exceeds applicable MOE standards

<u>Value</u> = Sample result exceeds target value of 10,000 µg/L as a non-potable grounwater quality objective for PHCs (based on preliminary discussions held between project stakeholders and regulatory officials)

TABLE C9.1: Summary of Petroleum Hydrocarbon and BTEX Ground Water Analyses - North Sector (Page 3 of 3)

Parameters	Analytical Results - µg/L (Sample ID / Sample Date)					Standard (µg/L) MOE[(1)] Table 3: Non-Potable Ground Water
	BHMW18-WGS1 29-Nov-04	BHMW19-WGS1 29-Nov-04	BHMW20-WGS1 29-Nov-04	BHMW21-WGS1 29-Nov-04	BHMW24-WGS1 29-Nov-04	
Petroleum Hydrocarbons (Fraction 1)	<200	<200	<200	<200	<200	NG*
Petroleum Hydrocarbons (Fraction 2)	<100	<100	<100	<100	<100	NG*
Petroleum Hydrocarbons (Fraction 3)	<100	<100	<100	<100	<100	NG*
Petroleum Hydrocarbons (Fraction 4)	<100	<100	<100	<100	<100	NG*
Benzene	NA	<0.5	<0.5	<0.5	NA	1,900
Ethylbenzene	NA	<0.5	<0.5	<0.5	NA	28,000
Toluene	NA	<0.5	<0.5	<0.5	NA	5,900
m/p - Xylenes	NA	<1	<1	<1	NA	NG
o - Xylenes	NA	<0.5	<0.5	<0.5	NA	NG
Total Xylenes	NA	<1.5	<1.5	<1.5	NA	5,600

Notes: All units in micrograms per litre (µg/L)

MOE [(1)] = Ontario Ministry of the Environment (MOE), "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004.

* = For a site to meet this standard, there must be no evidence of free product, including but not limited to, visible petroleum hydrocarbon film or sheen present on ground water, surface water or in any ground water or surface water samples.

NG = No guideline value/standard available

NA = Parameter not analyzed

Value = Sample result exceeds applicable MOE standards

Value = Sample result exceeds target value of 10,000 µg/L as a non-potable grounwater quality objective for PHCs (based on preliminary discussions held between project stakeholders and regulatory officials)

TABLE C9.2: Summary of ICP Metals Ground Water Analyses - North Sector (Page 1 of 2)

Parameters	Analytical Results - µg/L (Sample ID / Sample Date)							Standard (µg/L) MOE [1] Table 3: Non-Potable Ground Water
	BHMW10-WGS1 29-Nov-04	BHMW11-WGS1 29-Nov-04	BHMW12-WGS1 29-Nov-04	BHMW13-WGS1 29-Nov-04	BHMW14-WGS1 29-Nov-04	BHMW15-WGS1 29-Nov-04	BHMW16-WGS1 29-Nov-04	
Aluminum	<10	<10	<10	<10	<10	<10	<10	NG
Antimony	<1	<1	<1	<1	<1	<1	<1	16,000
Arsenic	<10	<10	<10	<10	<10	<10	<10	480
Barium	150	80	150	90	100	130	40	23,000
Beryllium	<1	<1	<1	<1	<1	<1	<1	53
Boron	<50	<50	<50	<50	<50	<50	<50	50,000
Cadmium	<1	<1	<1	<1	<1	<1	<1	11
Calcium	97,000	32,000	90,000	86,000	110,000	76,000	92,000	NG
Chromium	<50	<50	<50	<50	<50	<50	<50	2,000
Cobalt	<5	<5	<5	<5	<5	<5	<5	100
Copper	10	<5	<5	<5	<5	<5	<5	23
Iron	<200	<200	200	<200	<200	3,000	<200	NG
Lead	<1	<1	<1	<1	<1	<1	<1	32
Magnesium	22,000	7,600	21,000	21,000	22,000	20,000	18,000	NG
Manganese	<50	<50	350	<50	50	150	<50	NG
Molybdenum	<5	5	<5	<5	<5	<5	<5	7,300
Nickel	5	<5	<5	<5	5	<5	5	1,600
Potassium	3,200	4,800	2,200	3,400	2,200	2,800	3,400	NG
Selenium	<5	<5	<5	<5	<5	<5	<5	50
Silver	<1	<1	<1	<1	<1	<1	<1	1.2
Sodium	160,000	180,000	30,000	17,000	7,600	120,000	59,000	NG
Thallium	<1	<1	<1	<1	<1	<1	<1	400
Tin	<10	<10	<10	<10	<10	<10	<10	NG
Vanadium	<10	<10	<10	<10	<10	<10	<10	200
Zinc	20	<20	<20	<20	<20	<20	<20	1,100

Notes: All units in micrograms per litre (µg/L)

MOE [1] = Ontario Ministry of the Environment (MOE), "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004.

NG = No guideline value/standard available

NA = Parameter not analyzed

Value = Sample result exceeds applicable MOE standards

TABLE C9.2: Summary of ICP Metals Ground Water Analyses - North Sector (Page 2 of 2)

Parameters	Analytical Results - µg/L (Sample ID / Sample Date)							Standard (µg/L) MOE (1) Table 3: Non-Potable Ground Water
	BHMW17-WGS1 29-Nov-04	BHMW17-WGS1 13-Dec-04	BHMW18-WGS1 29-Nov-04	BHMW19-WGS1 29-Nov-04	BHMW20-WGS1 29-Nov-04	BHMW21-WGS1 29-Nov-04	BHMW24-WGS1 29-Nov-04	
Aluminum	30	<10	20	<10	30	<10	<10	NG
Antimony	<1	<1	<1	<1	<1	<1	<1	16,000
Arsenic	<10	<10	<10	<10	<10	<10	<10	480
Barium	40	50	30	30	20	50	80	23,000
Beryllium	<1	<1	<1	<1	<1	<1	<1	53
Boron	<50	<50	550	50	100	<50	<50	50,000
Cadmium	<1	<1	<1	<1	<1	<1	<1	11
Calcium	34,000	60,000	58,000	94,000	84,000	80,000	85,000	NG
Chromium	<50	<50	<50	<50	<50	<50	<50	2,000
Cobalt	<5	<5	<5	<5	<5	<5	<5	100
Copper	5	<5	<5	<5	<5	<5	<5	23
Iron	<200	<200	<200	<200	<200	<200	<200	NG
Lead	<1	<1	<1	<1	<1	<1	<1	32
Magnesium	5,400	7,000	19,000	13,000	16,000	9,400	18,000	NG
Manganese	<50	<50	<50	<50	<50	400	<50	NG
Molybdenum	10	5	<5	<5	<5	<5	<5	7,300
Nickel	5	<5	<5	5	<5	<5	5	1,600
Potassium	4,200	4,000	6,600	2,400	4,600	2,000	3,000	NG
Selenium	<5	<5	<5	<5	<5	<5	<5	50
Silver	<1	<1	<1	<1	<1	<1	<1	1.2
Sodium	35,000	42,000	35,000	41,000	22,000	71,000	29,000	NG
Thallium	<1	<1	<1	<1	<1	<1	<1	400
Tin	<10	<10	<10	<10	<10	<10	<10	NG
Vanadium	<10	<10	<10	<10	<10	<10	<10	200
Zinc	40	<20	<20	20	<20	20	<20	1,100

Notes: All units in micrograms per litre (µg/L)

MOE (1) = Ontario Ministry of the Environment (MOE), "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004.

NG = No guideline value/standard available

NA = Parameter not analyzed

Value = Sample result exceeds applicable MOE standards

TABLE C9.3: Summary of Polycyclic Aromatic Hydrocarbon Ground Water Analyses - North Sector (Page 1 of 2)

Parameters	Analytical Results - µg/L (Sample ID / Sample Date)							Standard (µg/L) MOE [1] Table 3: Non-Potable Ground Water
	BHMW10-WGS1 29-Nov-04	BHMW11-WGS1 29-Nov-04	BHMW12-WGS1 29-Nov-04	BHMW13-WGS1 29-Nov-04	BHMW14-WGS1 29-Nov-04	BHMW15-WGS1 29-Nov-04	BHMW16-WGS1 29-Nov-04	
Acenaphthene	<0.05	<0.05	0.55	0.1	0.2	<1	0.3	1,700
Acenaphthylene	<0.05	<0.05	<0.05	<0.05	<0.05	10	<0.05	2,000
Anthracene	<0.01	<0.01	<0.01	<0.01	<0.01	2.2	<0.01	12
Benzo(a)anthracene	<0.01	<0.01	<0.01	<0.01	0.03	<0.2	<0.01	5.0
Benzo(a)pyrene	<0.01	<0.01	<0.01	<0.01	0.03	<0.2	<0.01	1.9
Benzo(b)fluoranthene	<0.05	<0.05	<0.05	<0.05	0.05	<1	<0.05	7.0
Benzo(g,h,i)perylene	<0.05	<0.05	<0.05	<0.05	0.05	*<1*	<0.05	0.2
Benzo(k)fluoranthene	<0.05	<0.05	<0.05	<0.05	<0.05	*<1*	<0.05	0.4
Biphenyl	<0.05	<0.05	0.1	<0.05	<0.05	7	<0.05	1,700
Chrysene	<0.05	<0.05	<0.05	<0.05	<0.05	<1	<0.05	3.0
Dibenzo(a,h)anthracene	<0.05	<0.05	<0.05	<0.05	<0.05	*<1*	<0.05	0.25
Fluoranthene	<0.01	<0.01	<0.01	<0.01	<0.01	1.2	<0.01	130
Fluorene	<0.05	<0.05	<0.05	<0.05	<0.05	8	<0.05	290
Indeno(1,2,3,c,d)pyrene	<0.05	<0.05	<0.05	<0.05	<0.05	*<1*	<0.05	0.27
Methylnaphthalene, 1-	<0.05	<0.05	<0.05	<0.05	<0.05	87	<0.05	13,000
Methylnaphthalene, 2-	<0.05	<0.05	<0.05	<0.05	<0.05	31	0.05	
Naphthalene	<0.05	<0.05	0.75	0.3	0.3	52	0.35	5,900
Phenanthrene	<0.05	<0.05	<0.05	<0.05	<0.05	12	<0.05	63
Pyrene	<0.01	<0.01	<0.01	<0.01	<0.01	1.2	<0.01	40

Notes: All units in micrograms per litre (µg/L)

MOE [1] = Ontario Ministry of the Environment (MOE), "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004.

NG = No guideline value/standard available

NA = Parameter not analyzed

Value = Sample result exceeds applicable MOE standards

Italic = Laboratory Method Detection Limit exceeds applicable standard

TABLE C9.3: Summary of Polycyclic Aromatic Hydrocarbon Ground Water Analyses - North Sector (Page 2 of 2)

Parameters	Analytical Results - µg/L (Sample ID / Sample Date)							Standard (µg/L) MOE[1] Table 3: Non-Potable Ground Water
	BHMW17-WGS1 29-Nov-04	BHMW17-WGS1 13-Dec-04	BHMW18-WGS1 29-Nov-04	BHMW19-WGS1 29-Nov-04	BHMW20-WGS1 29-Nov-04	BHMW21-WGS1 29-Nov-04	BHMW24-WGS1 29-Nov-04	
Acenaphthene	<0.1	0.05	0.05	<0.05	<0.05	0.6	<0.05	1,700
Acenaphthylene	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	2,000
Anthracene	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	12
Benzo(a)anthracene	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	5
Benzo(a)pyrene	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	1.9
Benzo(b)fluoranthene	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	7
Benzo(g,h,i)perylene	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.2
Benzo(k)fluoranthene	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.4
Biphenyl	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	1,700
Chrysene	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	3
Dibenzo(a,h)anthracene	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.25
Fluoranthene	0.04	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	130
Fluorene	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	290
Indeno(1,2,3,c,d)pyrene	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.27
Methylnaphthalene, 1-	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	13,000
Methylnaphthalene, 2-	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Naphthalene	0.1	<0.05	0.15	<0.05	<0.05	0.25	<0.05	5,900
Phenanthrene	<0.1	0.1	0.05	<0.05	<0.05	<0.05	<0.05	63
Pyrene	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	40

Notes: All units in micrograms per litre (µg/L)

MOE [1] = Ontario Ministry of the Environment (MOE), "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004.

NG = No guideline value/standard available

NA = Parameter not analyzed

Value = Sample result exceeds applicable MOE standards

TABLE C10.1: Summary of Petroleum Hydrocarbon Ground Water Analyses - Southeast Sector

Parameters	Analytical Results - µg/L (Sample ID / Sample Date)				Standard (µg/L) MOE[1] Table 3: Non-Potable Ground Water
	BHMW1-WGS1 26-Nov-04	BHMW2-WGS1 29-Nov-04	BHMW4-WGS1 26-Nov-04	BHMW5-WGS1 29-Nov-04	
Petroleum Hydrocarbons (Fraction 1)	<200	<200	<200	<200	NG*
Petroleum Hydrocarbons (Fraction 2)	<100	<100	<100	<100	NG*
Petroleum Hydrocarbons (Fraction 3)	<100	<100	<100	<100	NG*
Petroleum Hydrocarbons (Fraction 4)	<100	<100	<100	<100	NG*

Notes: All units in micrograms per litre (µg/L)

MOE [(1)] = Ontario Ministry of the Environment (MOE), "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004.

* = For a site to meet this standard, there must be no evidence of free product, including but not limited to, visible petroleum hydrocarbon film or sheen present on ground water, surface water or in any ground water or surface water samples.

NG = No guideline value/standard available

NA = Parameter not analyzed

Value = Sample result exceeds applicable MOE standards

TABLE C10.2: Summary of ICP Metals Ground Water Analyses - Southeast Sector

Parameters	Analytical Results - µg/L (Sample ID / Sample Date)				Standard (µg/L) MOE[1]
	BHMW2-WGS1 29-Nov-04	BHMW4-WGS1 28-Nov-04	BHMW5-WGS1 29-Nov-04	BHMW6-WGS1 13-Dec-04	Table 3: Non-Potable Ground Water
Aluminum	<10	<10	<10	70	NG
Antimony	<1	<1	<1	<1	16,000
Arsenic	<10	<10	<10	<10	480
Barium	80	40	80	130	23,000
Beryllium	<1	<1	<1	<1	53
Boron	<50	50	100	100	50,000
Cadmium	<1	<1	<1	<1	11
Calcium	110,000	95,000	88,000	140,000	NG
Chromium	<50	<50	<50	<50	2,000
Cobalt	<5	<5	<5	<5	100
Copper	<5	20	<5	5	23
Iron	<200	<200	<200	<200	NG
Lead	<1	<1	<1	<1	32
Magnesium	15,000	17,000	12,000	31,000	NG
Manganese	<50	<50	450	300	NG
Molybdenum	<5	<5	10	10	7,300
Nickel	5	5	5	15	1,600
Potassium	3,200	3,400	4,200	9,000	NG
Selenium	<5	<5	<5	<5	50
Silver	<1	<1	<1	<1	1.2
Sodium	37,000	32,000	56,000	200,000	NG
Thallium	<1	<1	<1	<1	400
Tin	<10	<10	<10	<10	NG
Vanadium	<10	<10	<10	<10	200
Zinc	20	20	<20	<20	1,100

Notes: All units in micrograms per litre (µg/L)

MOE [1] = Ontario Ministry of the Environment (MOE), "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004.

NG = No guideline value/standard available

NA = Parameter not analyzed

Value = Sample result exceeds applicable MOE standards

TABLE C10.3: Summary of Polycyclic Aromatic Hydrocarbon Ground Water Analyses - Southeast Sector

Parameters	Analytical Results - µg/L (Sample ID / Sample Date)			Standard (µg/L)
				MOE[(1)]
	BHMW2-WGS1 29-Nov-04	BHMW4-WGS1 26-Nov-04	BHMW5-WGS1 29-Nov-04	Table 3: Non-Potable Ground Water
Acenaphthene	<0.05	0.25	0.1	1,700
Acenaphthylene	<0.05	<0.05	<0.05	2,000
Anthracene	<0.01	<0.01	<0.01	12
Benzo(a)anthracene	<0.01	<0.01	<0.01	5.0
Benzo(a)pyrene	<0.01	<0.01	<0.01	1.9
Benzo(b)fluoranthene	<0.05	<0.05	<0.05	7.0
Benzo(g,h,i)perylene	<0.05	<0.05	<0.05	0.2
Benzo(k)fluoranthene	<0.05	<0.05	<0.05	0.4
Biphenyl	<0.05	<0.05	<0.05	1,700
Chrysene	<0.05	<0.05	<0.05	3.0
Dibenzo(a,h)anthracene	<0.05	<0.05	<0.05	0.25
Fluoranthene	<0.01	0.04	<0.01	130
Fluorene	<0.05	<0.05	<0.05	290
Indeno(1,2,3,c,d)pyrene	<0.05	<0.05	<0.05	0.29
Methylnaphthalene, 1-	<0.05	<0.05	<0.05	13,000
Methylnaphthalene, 2-	<0.05	<0.05	<0.05	
Naphthalene	<0.05	<0.05	<0.05	5,900
Phenanthrene	<0.05	0.15	<0.05	63
Pyrene	<0.01	<0.01	<0.01	40

Notes: All units in micrograms per litre (µg/L)

MOE [(1)] = Ontario Ministry of the Environment (MOE), "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004.

NG = No guideline value/standard available

NA = Parameter not analyzed

Value = Sample result exceeds applicable MOE standards

TABLE C10.4: Summary of Dioxin/Furan Ground Water Analyses - Southeast Sector

Parameters	Analytical Results - ng/L (Sample ID / Sample Date)	Standard (ng/L)
		MOE[(1)]
	BHMW2-WGS1 29-Nov-04	Table 3: Non-Potable Ground Water
2,3,7,8-Tetra CDD	0	NG
1,2,3,7,8-Penta CDD	0	NG
1,2,3,4,7,8-Hexa CDD	0	NG
1,2,3,6,7,8-Hexa CDD	0	NG
1,2,3,7,8,9-Hexa CDD	0	NG
1,2,3,4,6,7,8-Hepta CDD	0	NG
Octa CDD	0	NG
Total Tetra CDD	0	NG
Total Penta CDD	0	NG
Total Hexa CDD	0	NG
Total Hepta CDD	0	NG
2,3,7,8-Tetra CDF	0.0022	NG
1,2,3,7,8-Penta CDF	0	NG
2,3,4,7,8-Penta CDF	0	NG
1,2,3,4,7,8-Hexa CDF	0	NG
1,2,3,6,7,8-Hexa CDF	0	NG
2,3,4,6,7,8-Hexa CDF	0	NG
1,2,3,7,8,9-Hexa CDF	0	NG
1,2,3,4,6,7,8-Hepta CDF	0	NG
1,2,3,4,7,8,9-Hepta CDF	0	NG
Octa CDF	0	NG
Total Tetra CDF	0.007	NG
Total Penta CDF	0.00547	NG
Total Hexa CDF	0	NG
Total Hepta CDF	0	NG
TOTAL TOXIC EQUIVALENCY	0.00471	0.015[(2)]

Notes: All units in nanograms per litre (ng/L)

MOE [(1)] = Ontario Ministry of the Environment (MOE), "Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protectio Act", March 9, 2004.

[(2)] = Based on a unit discrepancy in the current MOE standard[(1)], the following guideline was referenced for this parameter: MOE, "Guideline for Use at Contaminated Sites in Ontario", September 1998. Table B: Nonpotable Groundwater Criteria.

NG = No guideline value/standard available

NA = Parameter not analyzed

Value = Sample result exceeds applicable MOE standards

TABLE C11.1: Summary of Petroleum Hydrocarbon and BTEX Ground Water Analyses - Southwest Sector

Parameters	Analytical Results - µg/L (Sample ID / Sample Date)		Standard (µg/L) MOE[1] Table 3: Non-Potable Ground Water
	BHMW7-WGS1 26-Nov-04	BHMW8-WGS1 29-Nov-04	
Petroleum Hydrocarbons (Fraction 1)	**8,000**	400	NG*
Petroleum Hydrocarbons (Fraction 2)	**600**	<100	NG*
Petroleum Hydrocarbons (Fraction 3)	<100	<100	NG*
Petroleum Hydrocarbons (Fraction 4)	<100	<100	NG*
Benzene	20	NA	1,900
Ethylbenzene	20	NA	28,000
Toluene	10	NA	5,900
m/p - Xylenes	580	NA	NG
o - Xylenes	20	NA	NG
Total Xylenes	600	NA	5,600

Notes: All units in micrograms per litre (µg/L)

MOE [1] = Ontario Ministry of the Environment (MOE), "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004.

* = For a site to meet this standard, there must be no evidence of free product, including but not limited to, visible petroleum hydrocarbon film or sheen present on ground water, surface water or in any ground water or surface water samples.

NA = Parameter not analyzed

Value = Sample result exceeds applicable MOE standards

TABLE C11.2: Summary of ICP Metals Ground Water Analyses - Southwest Sector

Parameters	Analytical Results - µg/L (Sample ID / Sample Date)		Standard (µg/L) MOE[1] Table 3: Non-Potable Ground Water
	BHMW7-WGS1 26-Nov-04	BHMW8-WGS1 29-Nov-04	
Aluminum	<10	<10	NG
Antimony	<1	<1	16,000
Arsenic	<10	<10	480
Barium	160	330	23,000
Beryllium	<1	<1	53
Boron	100	<50	50,000
Cadmium	<1	1	11
Calcium	190,000	670,000	NG
Chromium	<50	<50	2,000
Cobalt	<5	10	100
Copper	10	10	23
Iron	4,200	<200	NG
Lead	4	1	32
Magnesium	35,000	120,000	NG
Manganese	1,600	3,100	NG
Molybdenum	10	<5	7,300
Nickel	5	35	1,600
Potassium	5,400	8,400	NG
Selenium	<5	<5	50
Silver	<1	<1	1.2
Sodium	160,000	420,000	NG
Thallium	<1	<1	400
Tin	<10	<10	NG
Vanadium	<10	<10	200
Zinc	<20	100	1,100

Notes: All units in micrograms per litre (µg/L)

MOE [1] = Ontario Ministry of the Environment (MOE), "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004.

NG = No guideline value/standard available

NA = Parameter not analyzed

Value = Sample result exceeds applicable MOE standards

TABLE C11.3: Summary of Polycyclic Aromatic Hydrocarbon Ground Water Analyses - Southwest Sector

Parameters	Analytical Results - µg/L (Sample ID / Sample Date)		Standard (µg/L) MOE[(1)]
	BHMW7-WGS1 26-Nov-04	BHMW8-WGS1 29-Nov-04	Table 3: Non-Potable Ground Water
Acenaphthene	<0.7	0.3	1,700
Acenaphthylene	<0.7	<0.05	2,000
Anthracene	<0.1	<0.01	12
Benzo(a)anthracene	0.3	<0.01	5
Benzo(a)pyrene	<0.1	<0.01	1.9
Benzo(b)fluoranthene	<0.7	<0.05	7
Benzo(g,h,i)perylene	*<0.7*	<0.05	0.2
Benzo(k)fluoranthene	*<0.7*	<0.05	0.4
Biphenyl	0.7	0.05	1,700
Chrysene	<0.7	<0.05	3
Dibenzo(a,h)anthracene	*<0.7*	<0.05	0.25
Fluoranthene	<0.1	0.02	130
Fluorene	1.5	<0.05	290
Indeno(1,2,3,c,d)pyrene	*<0.7*	<0.05	0.27
Methylnaphthalene, 1-	40	1.4	13,000
Methylnaphthalene, 2-	55	0.7	
Naphthalene	76	6	5,900
Phenanthrene	0.7	0.15	63
Pyrene	0.1	<0.01	40

Notes: All units in micrograms per litre (µg/L)

MOE [(1)] = Ontario Ministry of the Environment (MOE), "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004.

NG = No guideline value/standard available

NA = Parameter not analyzed

Value = Sample result exceeds applicable MOE standards

Italic = Laboratory Method Detection Limit exceeds applicable standard

APPENDIX D
BOREHOLE/MONITORING WELL LOGS

LOG OF BOREHOLE / MONITORING WELL BHMW1

DST REF. No.: **OE04940**
CLIENT: **Canada Lands Company**
PROJECT: **Phase II Environmental Site Assessment**
LOCATION: **Canadian Forces Base, Rockcliffe, Ottawa, Ontario**
SURFACE ELEV.: **--/--**

Drilling Data
METHOD: **CME 45 Trailer Mounted Drill Rig**
DIAMETER: **200 mm**

DATE: **October 25 2004**

CCGD * (○ PPM 20 40 60 80 / □ % LEL 5 10 15 20)	PPM	SAMPLES No.	Type	SPT N-Value	SUBSURFACE PROFILE SYMBL	MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
		SS1		25		ASPHALT - 100 mm FILL - sand, some gravel, trace silt, compact, brown	0.5			Groundwater level observed 1.6m below grade on November 25, 2004.
○	15	SS2		20		CLAY - silty, stiff to soft, olive grey	1.0			
○	15	SS3		11			1.5			
○	20	SS4		11			2.0			
○	10	SS5		8			2.5			
○	35	SS6		3			3.0			
○	15	SS7		2			3.5			
○	10	SS8		2			4.0			
						End of borehole at 4.9 m depth.	4.5			

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SAMPLE TYPE LEGEND

Auger Sample | Rock Core | Ponar Sample
Split Spoon Sample | Side Sampler
Thin Wall Tube | Grab Sample

APPENDIX D

GASTECBH (OTTAWA) OE04940.GPJ DST_MIN.GDT 9/1/06

LOG OF BOREHOLE / MONITORING WELL BHMW2

DST REF. No.: **OE04940**
CLIENT: **Canada Lands Company**
PROJECT: **Phase II Environmental Site Assessment**
LOCATION: **Canadian Forces Base, Rockcliffe, Ottawa, Ontario**
SURFACE ELEV.: **--/--**

Drilling Data
METHOD: **CME 45 Trailer Mounted Drill Rig**
DIAMETER: **200 mm**

DATE: **October 26 2004**

CCGD * (○ PPM 20 40 60 80 / □ % LEL 5 10 15 20)	PPM	SAMPLES No.	Type	SPT N-Value	SUBSURFACE PROFILE SYMBL	MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
		SS1		21		FILL - sand and gravel, compact, grey	0.5			Groundwater level observed 2.7m below grade on November 25, 2004.
		SS2		14		- sand, silty, compact, light brown	1.0			
		SS3		>100			1.5			
		RC1				BEDROCK - limestone, light grey, fossiliferous with very narrow black shale horizons				Recovery = 77% RQD = 46%
		RC2					2.0			
							2.5			Recovery = 86% RQD = 57%
							3.0			
							3.5			
		RC3					4.0			Recovery = 87% RQD = 82%
							4.5			
						End of borehole at 4.6 m depth.				

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SAMPLE TYPE LEGEND

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- Split Spoon Sample
- Thin Wall Tube
- Rock Core
- Side Sampler
- Grab Sample
- Ponar Sample

APPENDIX D

LOG OF BOREHOLE / MONITORING WELL BHMW3

DST REF. No.: **OE04940**
CLIENT: **Canada Lands Company**
PROJECT: **Phase II Environmental Site Assessment**
LOCATION: **Canadian Forces Base, Rockcliffe, Ottawa, Ontario**
SURFACE ELEV.: **--/--**

Drilling Data
METHOD: **CME 45 Trailer Mounted Drill Rig**
DIAMETER: **200 mm**

DATE: **October 27 2004**

CCGD * PPM (○ 20 40 60 80 / □ % LEL 5 10 15 20)	PPM	SAMPLES No.	Type	SPT N-Value	SYMBL	SUBSURFACE PROFILE MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
		SS1		>100		FILL - sand and gravel, very dense, grey				Groundwater level observed 2.4 m below grade on November 25, 2004.
						- sand, silty, brown	0.5			
○	10	SS2		16		CLAY - silty, stiff, olive grey	1.0			
		SS3		>100						
		RC1				BEDROCK - limestone, fossiliferous, bedding at 90° to core axis	1.5			Recovery = 53% RQD = 0%
		RC2					2.0			Recovery = 87% RQD = 65%
							2.5			
							3.0			
							3.5			
		RC3					4.0			Recovery = 87% RQD = 75%
							4.5			
						End of borehole at 4.7 m depth.				

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SAMPLE TYPE LEGEND

Auger Sample · Rock Core · Ponar Sample
Split Spoon Sample · Side Sampler
Thin Wall Tube · Grab Sample

APPENDIX D

LOG OF BOREHOLE / MONITORING WELL BHMW4

DST REF. No.: **OE04940**
CLIENT: **Canada Lands Company**
PROJECT: **Phase II Environmental Site Assessment**
LOCATION: **Canadian Forces Base, Rockcliffe, Ottawa, Ontario**
SURFACE ELEV.: **--/--**

Drilling Data
METHOD: **CME 45 Trailer Mounted Drill Rig**
DIAMETER: **200 mm**

DATE: **October 25 2004**

CCGD * ○ PPM 20 40 60 80 □ % LEL 5 10 15 20	PPM	SAMPLES No.	Type	SPT N-Value	SUBSURFACE PROFILE SYMBOL	MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
		SS1		27		SILT - clayey, compact, brown				Groundwater level observed 2.3 m below grade on November 25, 2004.
						GRAVEL AND COBBLES	0.5			
		SS2		>100		BEDROCK - Limestone, bedding at 90° to core axis with narrow black shale horizons	1.0			Recovery = 100% RQD = 87%
		RC1					1.5			
		RC2					2.0			Recovery = 80% RQD = 50%
							2.5			
		RC3					3.0			Recovery = 84% RQD = 84%
							3.5			
		RC4					4.0			Recovery = 90% RQD = 80%
						End of borehole at 4.7 m depth.	4.5			

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SAMPLE TYPE LEGEND

Auger Sample | Rock Core | Ponar Sample
Split Spoon Sample | Side Sampler
Thin Wall Tube | Grab Sample

APPENDIX D

GASTECBH (OTTAWA) OE04940.GPJ DST_MIN.GDT 9/1/06

LOG OF BOREHOLE / MONITORING WELL BHMW5

DST REF. No.: **OE04940**
CLIENT: **Canada Lands Company**
PROJECT: **Phase II Environmental Site Assessment**
LOCATION: **Canadian Forces Base, Rockcliffe, Ottawa, Ontario**
SURFACE ELEV.: **--/--**

Drilling Data
METHOD: **CME 45 Trailer Mounted Drill Rig**
DIAMETER: **200 mm**

DATE: **October 27 2004**

CCGD * ○ PPM 20 40 60 80 □ % LEL 5 10 15 20	PPM	SAMPLES No.	Type	SPT N-Value	SYMBL	SUBSURFACE PROFILE MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
		SS1		27		FILL - sand and gravel, compact to very dense, light brown	0.5			36 mm concrete slab
		SS2		>100			1.0			Groundwater level observed 2.7 m below grade on November 25, 2004.
		SS3		>100		- sand, silty, trace brick cinders, very dense, brownish grey	1.5			
		SS4		>100		TILL - sand, silty, trace clay and gravel, very dense to compact with depth, light brown	2.0			
		SS5		78			2.5			
		SS6		33			3.0			
	10	SS7		27			3.5			
						End of borehole at 4.3 m depth.	4.0			

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SAMPLE TYPE LEGEND

Auger Sample | Rock Core | Ponar Sample
Split Spoon Sample | Side Sampler
Thin Wall Tube | Grab Sample

APPENDIX D

GASTECBH (OTTAWA) OE04940.GPJ DST_MIN.GDT 9/1/06

LOG OF BOREHOLE / MONITORING WELL BHMW6

DST REF. No.: **OE04940**
CLIENT: **Canada Lands Company**
PROJECT: **Phase II Environmental Site Assessment**
LOCATION: **Canadian Forces Base, Rockcliffe, Ottawa, Ontario**
SURFACE ELEV.: **--/--**

Drilling Data
METHOD: **CME 55 Track Mounted Drill Rig**
DIAMETER: **200 mm**

DATE: **November 11 2004**

CCGD *		SAMPLES			SUBSURFACE PROFILE					
○ RKI EAGLE (PPM) 20 40 60 80 □ *MINIRAE (PPM)* 5 10 15 20	PPM	No.	Type	SPT N-Value	SYMBL	MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
						GRASS COVER				
○	0	SS1		9		FILL - sand, silty, some gravel, trace clay, loose to compact, dark brown	0.5			Groundwater level observed 3.2 m below grade on November 25, 2004.
○	0	SS2		21		- sand, some gravel, compact, orange brown	1.0			
○	0	SS3		16		CLAY - silty, trace sand, very stiff to hard, brownish grey with limonite staining	1.5			
						- olive grey	2.0			
○	0	SS4		48		- boulders				
○	0	SS5		22		SAND - silty, some clay, compact to very dense, light brown	2.5			SS6: Insufficient sample recovery to collect duplicate fraction for CCGD
		SS6		89			3.0			
						End of borehole at 3.7 m depth.	3.5			

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SAMPLE TYPE LEGEND

Auger Sample | Rock Core | Ponar Sample
Split Spoon Sample | Side Sampler
Thin Wall Tube | Grab Sample

APPENDIX D

LOG OF BOREHOLE / MONITORING WELL BHMW7

DST REF. No.: **OE04940**
CLIENT: **Canada Lands Company**
PROJECT: **Phase II Environmental Site Assessment**
LOCATION: **Canadian Forces Base, Rockcliffe, Ottawa, Ontario**
SURFACE ELEV.: **--/--**

Drilling Data
METHOD: **CME 55 Track Mounted Drill Rig**
DIAMETER: **200 mm**

DATE: **November 11 2004**

CCGD * (○ PPM 20 40 60 80; □ % LEL 5 10 15 20)	PPM	SAMPLES No.	Type	SPT N-Value	SYMBL	SUBSURFACE PROFILE MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
		SS1		10		FILL - sand and gravel, some silt, loose, brown	0.5			Groundwater level observed 2.1 m below grade on November 25, 2004.
		SS2		13		- clay, sandy, some silt, compact, olive grey	1.0			
○	55	SS3		5		- silt, clayey, some sand, trace gravel, loose, brown	1.5			
○	5	SS4		5		CLAY - silty, firm to stiff, olive grey	2.0			
○	5	SS5		12			2.5			
○	5	SS6		10			3.0			
○	0	SS7		12			3.5			
○	70	SS8		12		- clayey sand layer ~20 cm thick	4.0			
		SS9		>100		- trace cobbles	4.5			Strong petroleum hydrocarbon odour noted
						End of borehole at 5.2 m depth.	5.0			Sheen noted on water

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SAMPLE TYPE LEGEND

- Auger Sample
- Split Spoon Sample
- Thin Wall Tube
- Rock Core
- Side Sampler
- Grab Sample
- Ponar Sample

APPENDIX D

GASTECBH (OTTAWA) OE04940.GPJ DST_MIN.GDT 9/1/06

LOG OF BOREHOLE / MONITORING WELL BHMW8

DST REF. No.: **OE04940**
CLIENT: **Canada Lands Company**
PROJECT: **Phase II Environmental Site Assessment**
LOCATION: **Canadian Forces Base, Rockcliffe, Ottawa, Ontario**
SURFACE ELEV.: **--/--**

Drilling Data
METHOD: **CME 55 Track Mounted Drill Rig**
DIAMETER: **200 mm**

DATE: **November 11 2004**

CCGD * (○ PPM 20 40 60 80 / □ % LEL 5 10 15 20)	PPM	SAMPLES No.	Type	SPT N-Value	SYMBL	SUBSURFACE PROFILE MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
○	70	SS1		17		ASPHALT - ~100 mm thick FILL - sand and gravel, some silt, compact				
>>○	310	SS2		18		CLAY - silty, very stiff to stiff, olive grey	0.5			Groundwater level observed 2.0 m below grade on November 25, 2004.
>>○	>1000	SS3		13			1.0			Petroleum hydrocarbon odour noted
○	30	SS4		22			1.5			
○	10	SS5		11			2.0			
○	50	SS6		9			2.5			
○	20	SS7		8			3.0			
○	0	SS8		11			3.5			
						End of borehole at 4.9 m depth.	4.0			
							4.5			

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SAMPLE TYPE LEGEND

Auger Sample | Rock Core | Ponar Sample
Split Spoon Sample | Side Sampler
Thin Wall Tube | Grab Sample

APPENDIX D

LOG OF BOREHOLE / MONITORING WELL BHMW9

DST REF. No.: **OE04940**
CLIENT: **Canada Lands Company**
PROJECT: **Phase II Environmental Site Assessment**
LOCATION: **Canadian Forces Base, Rockcliffe, Ottawa, Ontario**
SURFACE ELEV.: **--/--**

Drilling Data
METHOD: **CME 55 Track Mounted Drill Rig**
DIAMETER: **200 mm**

DATE: **November 12 2004**

CCGD * (○ PPM 20 40 60 80 / □ % LEL 5 10 15 20)	PPM	SAMPLES No.	Type	SPT N-Value	SYMBL	SUBSURFACE PROFILE MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
						ASPHALT - ~100 mm thick				
	0	SS1		23		FILL - sand and gravel, some silt, compact to loose	0.5			Groundwater level observed 1.5 m below grade on November 25, 2004.
	10	SS2		8		- sand, silty, some clay	1.0			Black staining noted. Light odour.
	5	SS3		10		CLAY - silty, olive grey, stiff to soft with depth	1.5			
	0	SS4		17			2.0			
	5	SS5		7			2.5			
	0	SS6		5			3.0			
	5	SS7		4			3.5			
	0	SS8		2			4.0			
	0	SS9		3			4.5			
	0	SS10		1			5.0			
						End of borehole at 6.1 m depth.	5.5			
							6.0			

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Web: www.dstgroup.com

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SAMPLE TYPE LEGEND

Auger Sample | Rock Core | Ponar Sample
Split Spoon Sample | Side Sampler
Thin Wall Tube | Grab Sample

APPENDIX D

GASTECBH (OTTAWA) OE04940.GPJ DST_MIN.GDT 9/1/06

LOG OF BOREHOLE / MONITORING WELL BHMW10

DST REF. No.: **OE04940**
CLIENT: **Canada Lands Company**
PROJECT: **Phase II Environmental Site Assessment**
LOCATION: **Canadian Forces Base, Rockcliffe, Ottawa, Ontario**
SURFACE ELEV.: **--/--**

Drilling Data
METHOD: **CME 55 Track Mounted Drill Rig**
DIAMETER: **200 mm**

DATE: **November 12 2004**

CCGD * PPM (○ 20 40 60 80 / □ % LEL 5 10 15 20)	PPM	SAMPLES No.	Type	SPT N-Value	SUBSURFACE PROFILE SYMBL	MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
		SS1		8		GRASS COVER FILL - sand, silty, trace clay and gravel, rootlets to 0.2 m, loose to compact, brown	0.5			Groundwater level observed 5.9 m below grade on November 25, 2004.
		SS2		9			1.0			
○	0	SS3		17		TILL - silt, sandy, trace gravel, compact, light brown	1.5			
		RC1				BEDROCK- limestone, light grey, fossiliferous with bedding noted at 90° to core axis.	2.0			
							2.5			Recovery = 100% RQD = 85%
							3.0			
		RC2					3.5			Recovery = 83% RQD = 58%
							4.0			
							4.5			
		RC3					5.0			Recovery = 100% RQD = 77%
							5.5			
						End of borehole at 6.1 m depth.	6.0			

GASTECBH (OTTAWA) OE04940.GPJ DST_MIN.GDT 9/1/06

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SAMPLE TYPE LEGEND

Auger Sample | Rock Core | Ponar Sample
Split Spoon Sample | Side Sampler
Thin Wall Tube | Grab Sample

APPENDIX D

LOG OF BOREHOLE / MONITORING WELL BHMW11

DST REF. No.: **OE04940**
CLIENT: **Canada Lands Company**
PROJECT: **Phase II Environmental Site Assessment**
LOCATION: **Canadian Forces Base, Rockcliffe, Ottawa, Ontario**
SURFACE ELEV.: **--/--**

Drilling Data
METHOD: **CME 55 Track Mounted Drill Rig**
DIAMETER: **200 mm**

DATE: **November 12 2004**

CCGD * (○ PPM 20 40 60 80 / □ % LEL 5 10 15 20)	PPM	SAMPLES No.	Type	SPT N-Value	SUBSURFACE PROFILE SYMBL	MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
○	0	SS1		8		GRASS COVER FILL - sand, some silt, trace gravel, organics to 0.2 m depth, loose, brown	0.5			Groundwater level observed 5.8 m below grade on November 25, 2004.
○	0	SS2		12		- silt, sandy, trace gravel, compact, brown	1.0			
○	0	SS3		12		- silt, sandy, trace clay, some gravel, grading to sandy silt with depth, dense to very dense with depth	1.5			
○	0	SS4		36			2.0			
○	0	SS5		49			2.5			
		SS6		78			3.0			
						TILL - sandy silt, trace clay and gravel, very dense, grey	3.5			
						BEDROCK - limestone, grey, fossiliferous with bedding noted at 90° to core axis.				
		RC1					4.0			Recovery = 67% RQD = 48%
							4.5			
		RC2					5.0			Recovery = 88% RQD = 87%
							5.5			
		RC3					6.0			Recovery = 100% RQD = 92%
						End of borehole at 6.1 m depth.				

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SAMPLE TYPE LEGEND

Auger Sample | Rock Core | Ponar Sample
Split Spoon Sample | Side Sampler
Thin Wall Tube | Grab Sample

APPENDIX D

LOG OF BOREHOLE / MONITORING WELL BHMW12

DST REF. No.: **OE04940**
CLIENT: **Canada Lands Company**
PROJECT: **Phase II Environmental Site Assessment**
LOCATION: **Canadian Forces Base, Rockcliffe, Ottawa, Ontario**
SURFACE ELEV.: **--/--**

Drilling Data
METHOD: **CME 55 Track Mounted Drill Rig**
DIAMETER: **200 mm**

DATE: **November 15 2004**

CCGD * PPM (○ 20 40 60 80 / □ % LEL 5 10 15 20)	PPM	SAMPLES No.	Type	SPT N-Value	SUBSURFACE PROFILE SYMBL	MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
	0	SS1		9		GRASS COVER FILL - sand, silty, loose, black - sand, silty, some gravel, very dense, light brown	0.5			Groundwater level observed 4.3 m below grade on November 25, 2004.
	0	SS2		89			1.0			
		SS3		100			1.5			
		RC1				BEDROCK - Limestone with silty sand seams throughout	2.0			Recovery = 97% RQD = 58%
							2.5			
		RC2					3.0			Recovery = 83% RQD = 30%
							3.5			
							4.0			
		RC3					4.5			
							5.0			Recovery = 100% RQD = 91%
							5.5			
		RC4					6.0			
							6.5			Recovery = 100% RQD = 80%
		RC5					7.0			Recovery = 100% RQD = 38%
							7.5			
		RC6					8.0			Recovery = 87% RQD = 77%
							8.5			
		RC7					9.0			Recovery = 82% RQD = 82%
						End of borehole at 9.5 m depth.				

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SAMPLE TYPE LEGEND

Auger Sample | Rock Core | Ponar Sample
Split Spoon Sample | Side Sampler
Thin Wall Tube | Grab Sample

APPENDIX D

LOG OF BOREHOLE / MONITORING WELL BHMW13

DST REF. No.: **OE04940**
CLIENT: **Canada Lands Company**
PROJECT: **Phase II Environmental Site Assessment**
LOCATION: **Canadian Forces Base, Rockcliffe, Ottawa, Ontario**
SURFACE ELEV.: **--/--**

Drilling Data
METHOD: **CME 55 Track Mounted Drill Rig**
DIAMETER: **200 mm**

DATE: **November 15 2004**

CCGD * (○ PPM 20 40 60 80 / □ % LEL 5 10 15 20)	PPM	SAMPLES No.	Type	SPT N-Value	SYMBL	MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
○	0	SS1		6		GRASS COVER FILL - sand, silty, some gravel, trace of clay, loose, brown	0.5			Groundwater level observed 4.8 m below grade on November 25, 2004.
○	0	SS2		29		- sand, silty, gravel, compact, brown	1.0			
		SS3		17		- sand, silty, trace gravel and clay, loose to very dense, brown	1.5			
		SS4		>100			2.0			
		RC1				BEDROCK- limestone, grey, fossiliferous, bedding noted at ~90° to core axis, surface highly weathered with limonite staining, narrow black shale horizons throughout	2.5			Recovery = 100% RQD = 65%
		RC2					3.0			
							3.5			Recovery = 85% RQD = 52%
							4.0			
							4.5			
		RC3					5.0			Recovery = 97% RQD = 70%
							5.5			
		RC4					6.0			
						End of borehole at 6.3 m depth.				

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SAMPLE TYPE LEGEND

Auger Sample | Rock Core | Ponar Sample
Split Spoon Sample | Side Sampler
Thin Wall Tube | Grab Sample

APPENDIX D

GASTECBH (OTTAWA) OE04940.GPJ DST_MIN.GDT 9/1/06

LOG OF BOREHOLE / MONITORING WELL BHMW14

DST REF. No.: **OE04940**
CLIENT: **Canada Lands Company**
PROJECT: **Phase II Environmental Site Assessment**
LOCATION: **Canadian Forces Base, Rockcliffe, Ottawa, Ontario**
SURFACE ELEV.: **--/--**

Drilling Data
METHOD: **CME 55 Track Mounted Drill Rig**
DIAMETER: **200 mm**

DATE: **November 16 2004**

CCGD * PPM (○ 20 40 60 80 / □ % LEL 5 10 15 20)	PPM	SAMPLES No.	Type	SPT N-Value	SUBSURFACE PROFILE SYMBL	MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
○	0	SS1		4		FILL - sand, silty, some gravel, loose to very dense, brown to reddish-brown	0.5			Groundwater level observed 4.3 m below grade on November 25, 2004.
○	0	SS2		>100			1.0			Split spoon refusal at 1.0 m Auger from 1.0 to 1.5m
		SS3				SILT- light brown	1.5			
		RC1				BEDROCK - limestone, grey to dark grey, fossiliferous, bedding at 90° to core axis	2.0			Recovery = 100% RQD = 77%
							2.5			
		RC2					3.0			
							3.5			Recovery = 89% RQD = 70%
							4.0			
		RC3					4.5			
							5.0			Recovery = 98% RQD = 70%
		RC4					5.5			
							6.0			Recovery = 94% RQD = 94%
						End of borehole at 6.2 m depth.				

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SAMPLE TYPE LEGEND

Auger Sample | Rock Core | Ponar Sample
Split Spoon Sample | Side Sampler
Thin Wall Tube | Grab Sample

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GASTECBH (OTTAWA) OE04940.GPJ DST_MIN.GDT 9/1/06

LOG OF BOREHOLE / MONITORING WELL BHMW15

DST REF. No.: **OE04940**
CLIENT: **Canada Lands Company**
PROJECT: **Phase II Environmental Site Assessment**
LOCATION: **Canadian Forces Base, Rockcliffe, Ottawa, Ontario**
SURFACE ELEV.: **--/--**

Drilling Data
METHOD: **CME 55 Track Mounted Drill Rig**
DIAMETER: **200 mm**

DATE: **November 16 2004**

CCGD * (○ PPM 20 40 60 80 / □ % LEL 5 10 15 20)	PPM	SAMPLES No.	Type	SPT N-Value	SYMBL	SUBSURFACE PROFILE MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
						GRASS COVER				
○	0	SS1		15		FILL - silty, trace gravel, compact to very loose, brown	0.5			Groundwater level observed 3.5 m below grade on November 25, 2004.
○	0	SS2		8			1.0			
○	0	SS3		8			1.5			
○	0	SS4		2		- trace clay	2.0			Strong petroleum hydrocarbon odour noted at approximately 2.7 m
○	0	SS5		10		TILL - clay, silty, compact, dark grey	2.5			
○	0	SS6		100		BEDROCK - limestone, grey, fossiliferous, bedding at ~90° to core axis with narrow black shale horizons	3.0			
		RC1					3.5			Recovery = 100% RQD = 69%
							4.0			
		RC2					4.5			
							5.0			Recovery = 100% RQD = 86%
		RC3					5.5			
							6.0			Recovery = 100% RQD = 51%
						End of borehole at 6.1 m depth.				

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SAMPLE TYPE LEGEND

Auger Sample; Split Spoon Sample; Thin Wall Tube; Rock Core; Side Sampler; Grab Sample; Ponar Sample

APPENDIX D

GASTECBH (OTTAWA) OE04940.GPJ DST_MIN.GDT 9/1/06

LOG OF BOREHOLE / MONITORING WELL BHMW16

DST REF. No.: **OE04940**
CLIENT: **Canada Lands Company**
PROJECT: **Phase II Environmental Site Assessment**
LOCATION: **Canadian Forces Base, Rockcliffe, Ottawa, Ontario**
SURFACE ELEV.: **--/--**

Drilling Data
METHOD: **CME 55 Track Mounted Drill Rig**
DIAMETER: **200 mm**

DATE: **November 16 2004**

CCGD * (○ PPM 20 40 60 80 / □ % LEL 5 10 15 20)	PPM	SAMPLES No.	Type	SPT N-Value	SUBSURFACE PROFILE SYMBL	MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
○	0	SS1		6		FILL - sand, some gravel, loose to compact, light brown	0.5			Groundwater level observed 4.6 m below grade on November 26, 2004.
○	0	SS2		5			1.0			
○	0	SS3		4			1.5			Concrete debris
		SS4		17			2.0			
						- trace cobbles	2.5			
		SS5		52		TILL - sand, silty, some gravel and cobbles, very dense	3.0			
○	0	SS6		63			3.5			
		SS7		>100		silt, very dense, dark grey				
		RC1				BEDROCK - limestone, dark grey to grey, blocky to 5 m depth with 100 mm thick fault gouge at 4.5 m	4.0			Recovery = 100% RQD = 65%
		RC2					4.5			Recovery = 95% RQD = 36%
							5.0			
		RC3					5.5			Recovery = 100% RQD = 88%
						End of borehole at 6.1 m depth.	6.0			

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SAMPLE TYPE LEGEND

Auger Sample | Rock Core | Ponar Sample
Split Spoon Sample | Side Sampler
Thin Wall Tube | Grab Sample

APPENDIX D

GASTECBH (OTTAWA) OE04940.GPJ DST_MIN.GDT 9/1/05

LOG OF BOREHOLE / MONITORING WELL BHMW17

DST REF. No.: **OE04940**
CLIENT: **Canada Lands Company**
PROJECT: **Phase II Environmental Site Assessment**
LOCATION: **Canadian Forces Base, Rockcliffe, Ottawa, Ontario**
SURFACE ELEV.: **--/--**

Drilling Data
METHOD: **CME 55 Track Mounted Drill Rig**
DIAMETER: **200 mm**

DATE: **November 17 2004**

CCGD * ○ RKI EAGLE (PPM) 20 40 60 80 □ *MINIRAE (PPM)* 5 10 15 20	PPM	SAMPLES No.	Type	SPT N-Value	SYMBL	SUBSURFACE PROFILE MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
						GRASS COVER				
○	10	SS1		8		FILL - sand, some silt, very loose to compact, light brown	0.5			Groundwater level observed 4.4 m below grade on November 26, 2004.
○	0	SS2		4			1.0			
○	0	SS3		2			1.5			
○	0	SS4		15			2.0			
○	0	SS5		29		SAND- silty, reddish pockets, some gravel, compact to dense	2.5			
○	0	SS6		35			3.0			
○	15	SS7		44		TILL - silt, grey, trace of gravel, dense to very dense	3.5			
○	0	SS8		32			4.0			
		SS9		>100			4.5			
						End of borehole at 5.0 m depth.	5.0			

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SAMPLE TYPE LEGEND

Auger Sample | Rock Core | Ponar Sample
Split Spoon Sample | Side Sampler
Thin Wall Tube | Grab Sample

APPENDIX D

LOG OF BOREHOLE / MONITORING WELL BHMW18

DST REF. No.: **OE04940**
CLIENT: **Canada Lands Company**
PROJECT: **Phase II Environmental Site Assessment**
LOCATION: **Canadian Forces Base, Rockcliffe, Ottawa, Ontario**
SURFACE ELEV.: **--/--**

Drilling Data
METHOD: **CME 55 Track Mounted Drill Rig**
DIAMETER: **200 mm**

DATE: **November 17 2004**

CCGD * (○ PPM 20 40 60 80 / □ % LEL 5 10 15 20)	PPM	SAMPLES No.	Type	SPT N-Value	SYMBL	MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
○	0	SS1		10		ASPHALT - 100 mm thick FILL - sand and gravel, compact to very dense with depth.	0.5			Groundwater level observed 3.5 m below grade on November 26, 2004.
		SS2		>100			1.0			Split spoon refusal at 1.0 m Auger from 1.0 m to 1.6 m depth.
							1.5			
		RC1				BEDROCK - limestone, dark grey to grey, fossiliferous, bedding at ~90° to core axis with narrow shale horizons noted throughout	2.0			Recovery = 90% RQD = 49%
							2.5			
							3.0			
		RC2					3.5			Recovery = 79% RQD = 41%
							4.0			
							4.5			
		RC3					5.0			Recovery = 100% RQD = 88%
							5.5			
		RC4					6.0			Recovery = 100% RQD = 85%
						End of borehole at 6.2 m depth.				

GASTECBH (OTTAWA) OE04940.GPJ DST_MIN.GDT 9/1/06

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SAMPLE TYPE LEGEND

Auger Sample | Rock Core | Ponar Sample
Split Spoon Sample | Side Sampler
Thin Wall Tube | Grab Sample

APPENDIX D

LOG OF BOREHOLE / MONITORING WELL BHMW19

DST REF. No.: **OE04940**
CLIENT: **Canada Lands Company**
PROJECT: **Phase II Environmental Site Assessment**
LOCATION: **Canadian Forces Base, Rockcliffe, Ottawa, Ontario**
SURFACE ELEV.: **--/--**

Drilling Data
METHOD: **CME 55 Track Mounted Drill Rig**
DIAMETER: **200 mm**

DATE: **November 18 2004**

CCGD * (○ PPM 20 40 60 80 / □ % LEL 5 10 15 20)	PPM	No.	Type	SPT N-Value	SYMBL	MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
○	0	SS1		8		ASPHALT - ~100 mm thick FILL - sand, silty, trace clay and gravel, loose to very loose	0.5			Groundwater level observed 4.4 m below grade on November 26, 2004.
○	0	SS2		7			1.0			
		SS3		>100			1.5			
		RC1				BEDROCK - Limestone, grey, fossiliferous, bedding noted at 90° to core axis, with narrow black shale horizons throughout	2.0			Recovery = 100% RQD = 51%
						- fault gouge noted at 2.3 m	2.5			
		RC2					3.0			
							3.5			Recovery = 98% RQD = 61%
							4.0			
						- fault gouge at 4.35 m	4.5			
		RC3					5.0			Recovery = 100% RQD = 65%
							5.5			
						End of borehole at 6.2 m depth.	6.0			

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SAMPLE TYPE LEGEND

Auger Sample · Rock Core · Ponar Sample · Split Spoon Sample · Side Sampler · Thin Wall Tube · Grab Sample

APPENDIX D

LOG OF BOREHOLE / MONITORING WELL BHMW20

DST REF. No.: **OE04940**
CLIENT: **Canada Lands Company**
PROJECT: **Phase II Environmental Site Assessment**
LOCATION: **Canadian Forces Base, Rockcliffe, Ottawa, Ontario**
SURFACE ELEV.: **--/--**

Drilling Data
METHOD: **CME 55 Track Mounted Drill Rig**
DIAMETER: **200 mm**

DATE: **November 18 2004**

CCGD * (○ PPM 20 40 60 80 / □ % LEL 5 10 15 20)	PPM	SAMPLES No.	Type	SPT N-Value	SYMBL	MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
		SS1		10		GRASS COVER FILL - sand and gravel, silty, rootlets to 0.5 m, loose to very dense with depth	0.5			Rust colour noted in SS2
		SS2		>100			1.0			Advance augers to 1.2 m due to split spoon refusal at 0.9 m depth.
						BEDROCK - limestone, grey, fossiliferous with black shale horizons throughout bedding at ~90° to core axis.	1.5			
		RC1					2.0			Recovery = 82% RQD = 55%
							2.5			
							3.0			
		RC2				- fault gouge at 3.4 m depth	3.5			Recovery = 96% RQD = 14%
							4.0			
		RC3					4.5			
							5.0			Recovery = 98% RQD = 52%
							5.5			
		RC4					6.0			Recovery = 90% RQD = 82%
							6.5			
							7.0			Groundwater level observed 8.2 m below grade on November 26, 2004.
							7.5			
		RC5					8.0			Recovery = 97% RQD = 68%
							8.5			
						End of borehole at 8.8 m depth.				

GASTECBH (OTTAWA) OE04940.GPJ DST_MIN.GDT 9/1/06

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SAMPLE TYPE LEGEND

Auger Sample · Rock Core · Ponar Sample
Split Spoon Sample · Side Sampler
Thin Wall Tube · Grab Sample

APPENDIX D

LOG OF BOREHOLE / MONITORING WELL BHMW21

DST REF. No.: **OE04940**
CLIENT: **Canada Lands Company**
PROJECT: **Phase II Environmental Site Assessment**
LOCATION: **Canadian Forces Base, Rockcliffe, Ottawa, Ontario**
SURFACE ELEV.: **--/--**

Drilling Data
METHOD: **CME 55 Track Mounted Drill Rig**
DIAMETER: **200 mm**

DATE: **November 18 2004**

CCGD * (○ PPM 20 40 60 80 / □ % LEL 5 10 15 20)	PPM	SAMPLES No.	Type	SPT N-Value	SYMBL	MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
		SS1		11		ASPHALT - ~100 mm thick FILL - sand, some silt trace gravel compact to loose, brown	0.5			Groundwater level observed 2.8 m below grade on November 26, 2004.
○	0	SS2		6			1.0			
○	0	SS3		2		TILL - sand, silty, trace gravel, very loose to very dense, grey	1.5			
○	0	SS4		100			2.0			Brick noted at 0.9 m depth
		RC1				BEDROCK - limestone, grey, fossiliferous with narrow black shale horizons, bedding at ~90° to core axis	2.5			Recovery = 100% RQD = 92%
		RC2					3.5			Recovery = 100% RQD = 49%
		RC3					5.5			Recovery = 100% RQD = 81%
						End of borehole at 6.3 m depth.	6.0			

GASTECBH (OTTAWA) OE04940.GPJ DST_MIN.GDT 9/1/06

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SAMPLE TYPE LEGEND

Auger Sample | Rock Core | Ponar Sample
Split Spoon Sample | Side Sampler
Thin Wall Tube | Grab Sample

APPENDIX D

LOG OF BOREHOLE / MONITORING WELL BHMW22

DST REF. No.: **OE04940**
CLIENT: **Canada Lands Company**
PROJECT: **Phase II Environmental Site Assessment**
LOCATION: **Canadian Forces Base, Rockcliffe, Ottawa, Ontario**
SURFACE ELEV.: **--/--**

Drilling Data
METHOD: **CME 55 Track Mounted Drill Rig**
DIAMETER: **200 mm**

DATE: **November 18 2004**

CCGD * PPM (○ 20 40 60 80 / □ % LEL 5 10 15 20)	PPM	SAMPLES No.	Type	SPT N-Value	SYMBL	MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
						GRASS COVER				
○	0	SS1		6		FILL - sand, silty, some gravel, loose				
						CLAY- silty, firm	0.5			Groundwater level observed 2.0 m below grade on November 26, 2004.
						TILL - silt, sandy, some gravel, reddish seams, loose to very dense with depth, grey				
○	0	SS2		9			1.0			
		SS3		23			1.5			
		SS4		≤100			2.0			
		RC1				BEDROCK - limestone, dark grey, fossiliferous with narrow black shale horizon bedding noted at ~90° to core axis	2.5			Recovery = 100% RQD = 29%
							3.0			
		RC2					3.5			Recovery = 86% RQD = 68%
							4.0			
							4.5			
		RC3				- fault gouge at 4.6 m, limonite staining noted along fault face	5.0			Recovery = 100% RQD = 77%
							5.5			
		RC4					6.0			Recovery = 100% RQD = 93%
						End of Borehole at 6.3 m depth.				

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SAMPLE TYPE LEGEND

Auger Sample | Rock Core | Ponar Sample
Split Spoon Sample | Side Sampler
Thin Wall Tube | Grab Sample

APPENDIX D

GASTECBH (OTTAWA) OE04940.GPJ DST_MIN.GDT 9/1/06

LOG OF BOREHOLE / MONITORING WELL BHMW23

DST REF. No.: **OE04940**
CLIENT: **Canada Lands Company**
PROJECT: **Phase II Environmental Site Assessment**
LOCATION: **Canadian Forces Base, Rockcliffe, Ottawa, Ontario**
SURFACE ELEV.: **--/--**

Drilling Data
METHOD: **CME 55 Track Mounted Drill Rig**
DIAMETER: **200 mm**

DATE: **November 22 2004**

CCGD *		SAMPLES			SUBSURFACE PROFILE					
○ RKI EAGLE (PPM) 20 40 60 80 □ *MINIRAE (PPM)* 5 10 15 20	PPM	No.	Type	SPT N-Value	SYMBL	MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
○	0	SS1		7		GRASS COVER FILL - sand, silty, organics, loose, black	0.5			
○	0	SS2		11		SAND- some silt, trace gravel, loose to compact, reddish seams throughout, light brown matrix	1.0			
○	0	SS3		7			1.5		▼	Groundwater level observed 1.4 m below grade on November 26, 2004.
○	35	SS4		20			2.0			
○	0	SS5		100			2.5			
		RC1				BEDROCK - limestone, grey, bedding at ~90° to core axis	3.0			Recovery = 100% RQD = 77%
							3.5			
							4.0			
							4.5			
		RC2					5.0			Recovery = 100% RQD = 79%
							5.5			
						End of borehole at 6.0 m depth.				

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SAMPLE TYPE LEGEND

Auger Sample | Rock Core | Ponar Sample
Split Spoon Sample | Side Sampler
Thin Wall Tube | Grab Sample

APPENDIX D

LOG OF BOREHOLE / MONITORING WELL BHMW24

DST REF. No.: **OE04940**
CLIENT: **Canada Lands Company**
PROJECT: **Phase II Environmental Site Assessment**
LOCATION: **Canadian Forces Base, Rockcliffe, Ottawa, Ontario**
SURFACE ELEV.: **--/--**

Drilling Data
METHOD: **CME 55 Track Mounted Drill Rig**
DIAMETER: **200 mm**

DATE: **November 23 2004**

CCGD * (○ PPM 20 40 60 80 / □ % LEL 5 10 15 20)	PPM	SAMPLES No.	Type	SPT N-Value	SYMBL	MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
		SS1		8		GRASS COVER FILL - sand, silty, some gravel, rootlets, loose	0.5			
		SS2		11			1.0			
○	0	SS3		100		SILT - some sand, gravel, light brown, very dense	1.5			
		RC1				BEDROCK - limestone, grey, highly fractured, fossiliferous with narrow black shale horizons, bedding at ~90° to core axis	2.0			Recovery = 73% RQD = 8%
							2.5			
							3.0		▼	Groundwater level observed 3.1 m below grade on November 26, 2004.
		RC2					3.5			Recovery = 100% RQD = 59%
							4.0			
							4.5			
		RC3					5.0			Recovery = 100% RQD = 78%
							5.5			
						End of borehole at 6.2 m depth.	6.0			

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SAMPLE TYPE LEGEND

Auger Sample · Rock Core · Ponar Sample
Split Spoon Sample · Side Sampler
Thin Wall Tube · Grab Sample

APPENDIX D

GASTECBH (OTTAWA) OE04940.GPJ DST_MIN.GDT 9/1/06

LOG OF BOREHOLE / MONITORING WELL BHMW25

DST REF. No.: **OE04940**
CLIENT: **Canada Lands Company**
PROJECT: **Phase II Environmental Site Assessment**
LOCATION: **Canadian Forces Base, Rockcliffe, Ottawa, Ontario**
SURFACE ELEV.: **--/--**

Drilling Data
METHOD: **CME 45c Track Mounted Drill Rig**
DIAMETER: **200 mm**

DATE: **February 01 2005**

CCGD * PPM (○ 20 40 60 80 / □ % LEL 5 10 15 20)	PPM	SAMPLES No.	Type	SPT N-Value	SUBSURFACE PROFILE SYMBL	MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
○	0	SS1		17		FILL - sand, some gravel, trace silt and brick, compact, yellowish orange	0.5			
○	0	SS2		4		- sand, silty, trace gravel, loose	1.0			
○	0	SS3		3		- sand, silty, loose to compact with depth	1.5			
○	0	SS4		5			2.0			
○	0	SS5		16		- reddish brown	2.5			
○	35	SS6		19		TILL - sand, some gravel, compact, grey	3.0			Groundwater level observed 2.7 m below grade on February 2, 2005.
○	5	SS7		41		- silt, trace gravel, grey, dense	3.5			
						End of borehole at 4.2 m depth on possible bedrock.	4.0			

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SAMPLE TYPE LEGEND

Auger Sample | Rock Core | Ponar Sample
Split Spoon Sample | Side Sampler
Thin Wall Tube | Grab Sample

APPENDIX D

GASTECBH (OTTAWA) OE04940.GPJ DST_MIN.GDT 9/1/06

LOG OF BOREHOLE / MONITORING WELL BHMW26

DST REF. No.: **OE04940**
CLIENT: **Canada Lands Company**
PROJECT: **Phase II Environmental Site Assessment**
LOCATION: **Canadian Forces Base, Rockcliffe, Ottawa, Ontario**
SURFACE ELEV.: **--/--**

Drilling Data
METHOD: **CME 45c Track Mounted Drill Rig**
DIAMETER: **200 mm**

DATE: **February 01 2005**

CCGD * (○ PPM 20 40 60 80 / □ % LEL 5 10 15 20)	PPM	SAMPLES No.	Type	SPT N-Value	SYMBL	MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
○	0	SS1		21		FILL - sand, some silt, compact, brown	0.5			
○	5	SS2		15		- silt, sandy, compact, brown	1.0			
○	0	SS3		10		- sand, silty, compact, dark brown	1.5			
		SS4		5			2.0			
		SS5		7		- gravel, trace sand, loose, grey	2.5		▼	Groundwater level observed 2.6 m below grade on February 2, 2005.
		SS6		4			3.0			
		SS7		3			3.5			
○	0	SS8		>100		TILL - silt, some gravel, trace clay, very dense, grey	4.0			
						End of borehole at 4.6 m depth on possible bedrock.	4.5			

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SAMPLE TYPE LEGEND

Auger Sample | Rock Core | Ponar Sample
Split Spoon Sample | Side Sampler
Thin Wall Tube | Grab Sample

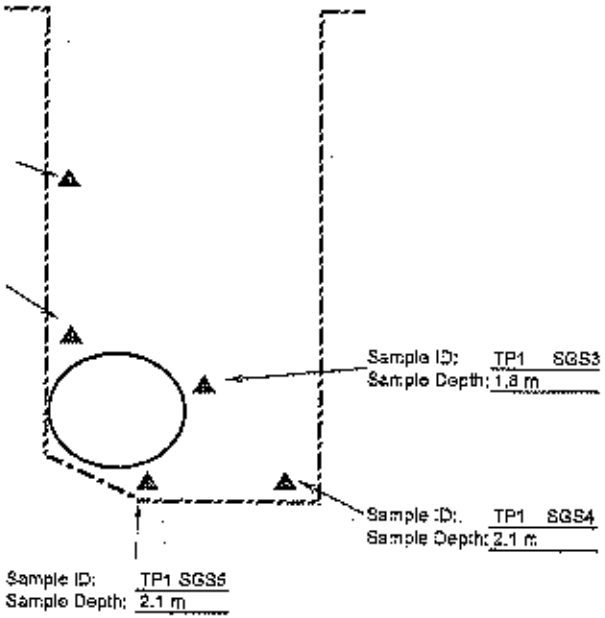
APPENDIX D

GASTECBH (OTTAWA) OE04940.GPJ DST_MIN.GDT 9/1/06

APPENDIX E
TESTPIT LOGS

FIELD TESTPIT LOG

Test Pit ID: TP1
Date: Oct. 25/04
DST Staff: JL/KB
Contractor: Colton & Cohen



Depth	Soil Description	Observations/Notes
0-2.1 m	FILL - sand, silty, some gravel, cobbles	
± 2.1 m		Water noted

Steamline Pipe Construction Material Log:

Rio-Will:	Galvanized steel conduit with service pipes insulated and supported therein. External surface is waterproofed.
Z-crete:	Insulating concrete poured into trench around pipes with external waterproofing membrane. Look for a brownish cement-like material.
Gilsulate / Protexulate:	Consists of three layers - a plastic layer at the pipe, sintered layer around the plastic, and a granular zone at the outside. Look for a chalky white powder.
Wood Casing:	Typical wood casing type of conduits.
Inverted Trench:	Cement conduit. Access will not be possible for these types of conduits.

Select applicable pipe material:

Rio-Will: ☐
Z-crete: ☐
Gilsulate / Protexulate: ☒
Wood Casing: ☐
Inverted Trench: ☐
Other (describe): ☐

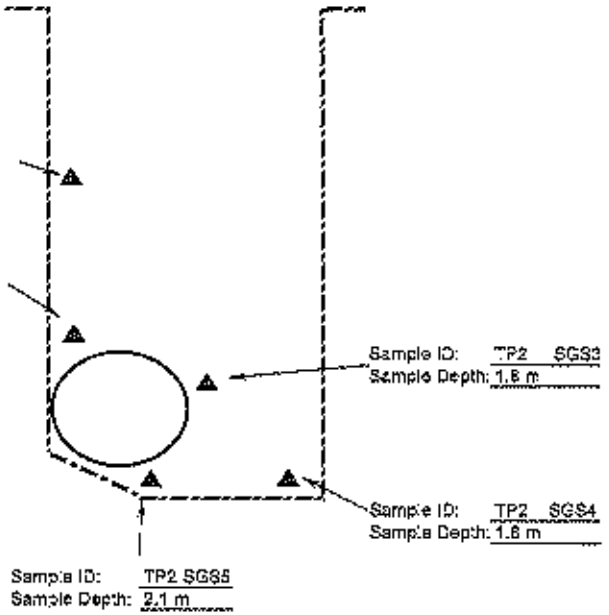
Pipe Insulation Log:

Is the pipe covered with an insulation material? Yes ☒ No ☐

If yes, collect and submit a sample for analysis of ASBESTOS
Asbestos Sample ID: **TP__AS1**

FIELD TESTPIT LOG

Test Pit ID: TP2
Date: Oct. 25/04
DST Staff: JL
Contractor: Cohen & Cohen



Depth	Soil Description	Observations/Notes
0- 1.8 m	FILL - sand, silty, some gravel and	
1.8 m	clay	pipe covered in gilsulate
1.8- 2.1 m	Clay around pipe	/protexulate

Steamline Pipe Construction Material Log:

Ric-Will:	Galvanized steel conduit with service pipes insulated and supported therein. External surface is waterproofed.
Z-crete:	Insulating concrete poured into trench around pipes with external waterproofing membrane. Look for a brownish cement-like material.
Gilsulate / Protexulate:	Consists of three layers - a plastic layer at the pipe, sintered layer around the plastic, and a granular zone at the outside. Look for a chalky white powder.
Wood Casing:	Typical wood casing type of conduits.
Inverted Trench:	Cement conduit. Access will not be possible for these types of conduits.

Select applicable pipe material:

Ric-Will: ☐
Z-crete: ☐
Gilsulate / Protexulate: ☐
Wood Casing: ☐
Inverted Trench: ☐
Other (describe): ☐

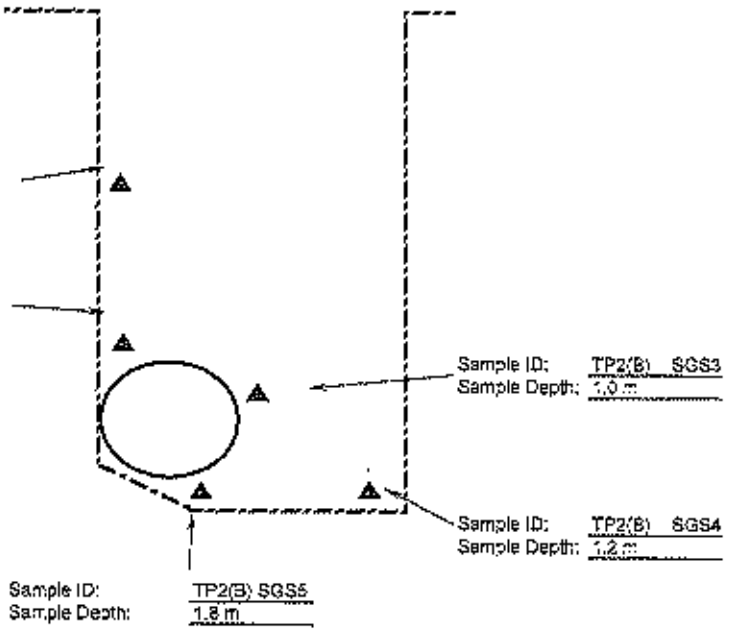
Pipe Insulation Log:

Is the pipe covered with an insulation material? Yes ☒ No ☐

If yes, collect and submit a sample for analysis of ASBESTOS
Asbestos Sample ID: **TP __2__ AS1**

FIELD TESTPIT LOG

Test Pit ID: TP2 (B)
Date: Oct. 26/04
DST Staff: JL
Contractor: Cohen & Cohen



Depth	Soil Description	Observations/Notes
0- 1.8 m	FILL - sand, silty, clayey, some boulders	

Streamline Pipe Construction Material Log:

Re-Wil.:	Galvanized steel conduit with service pipes insulated and supported therein. External surface is waterproofed.
Z-crete:	Insulating concrete poured into trench around pipes with external waterproofing membrane. Look for a brownish cement-like material.
Gilsulate / Protexulate:	Consists of three layers - a plastic layer at the pipe, sintered layer around the plastic, and a granular zone at the outside. Look for a chalky white powder.
Wood Casing:	Typical wood casing type of conduits.
Inverted Trench:	Cement conduit. Access will not be possible for these types of conduits.

Select applicable pipe material:

Re-Wil.:	☐
Z-crete:	☐
Gilsulate / Protexulate:	☑
Wood Casing:	☐
Inverted Trench:	☐
Other (describe):	☐

Pipe Insulation Log:

Is the pipe covered with an insulation material? Yes ☑ No ☐

If yes, collect and submit a sample for analysis of ASBESTOS
Asbestos Sample ID: **TP_2(B)_AS1**

LOG OF TESTPIT TP3

DST REF. No.: **OE04940**
CLIENT: **Canada Lands Company**
PROJECT: **Phase II Environmental Site Assessment**
LOCATION: **Canadian Forces Base, Rockcliffe, Ottawa, Ontario**
SURFACE ELEV.: **--/--**

Testpit Data
METHOD: **Backhoe**
DIAMETER: **N/A**

DATE: **October 27 2004**

CCGD * PPM (○ 20 40 60 80 / □ % LEL 5 10 15 20)	PPM	SAMPLES No.	SAMPLES Type	SPT N-Value	SYMBL	SUBSURFACE PROFILE MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
	0	SGS1				GRASS COVERED FILL - sand, clayey, some silt, some cobbles, trace organics, black				Wood debris (plywood), glass and shoe
						- clay, silty, trace gravel and organics, brown to olive brown	0.5			
	0	SGS2					1.0			
						CLAY - silty, trace organics, brown				
	0	SGS3					1.5			
							2.0			
	0	SGS4								
						CLAY - trace organics, olive brown	2.5			
	0	SGS5								
						End of testpit at 3.1 m depth.	3.0			

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SAMPLE TYPE LEGEND

Auger Sample | Rock Core | Piston Sample
Split Spoon Sample | Slide Sampler
Thin Wall Tube | Grab Sample

APPENDIX E

GASTECBH (OTTAWA) OE04940 TP LOGS.GPJ 95"_MIN.GDT 9/1/05

LOG OF TESTPIT TP4

DST REF. No.: **OE04940**
CLIENT: **Canada Lands Company**
PROJECT: **Phase II Environmental Site Assessment**
LOCATION: **Canadian Forces Base, Rockcliffe, Ottawa, Ontario**
SURFACE ELEV.: **--/--**

Testpit Data
METHOD: **Backhoe**
DIAMETER: **N/A**

DATE: **October 28 2004**

CCGD * RKI EAGLE (PPM) 20 40 60 80 / MINIRAE (PPM) 5 10 15 20	PPM	SAMPLES No.	Type	SPT N-Value	SYMBL	SUBSURFACE PROFILE MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
						GRASS COVER				
	0	SGS1				FILL - sand, clayey, silty, some organics	0.6			Concrete and pottery.
	0	SGS2				- some silt, trace organics				
	5	SGS3				SAND - reddish brown	1.0			
	5	SGS4				CLAY - silty, trace organics	1.5			
	75	SGS5				CLAY - trace organics, olive brown	2.0			
	65	SGS6					2.5			
						End of testpit at 3.1 m depth.	3.0			

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SAMPLE TYPE LEGEND

Auger Sample; Rock Core; Power Sample; Split Spoon Sample; Slide Sampler; Thin Wall Tube; Grab Sample

APPENDIX E

GASTECBH (OTTAWA) OE04940 TP LOGS.GPJ DST_VIN.GDT 9/5/06

LOG OF TESTPIT TP5

DST REF. No.: OE04940
CLIENT: Canada Lands Company
PROJECT: Phase II Environmental Site Assessment
LOCATION: Canadian Forces Base, Rockcliffe, Ottawa, Ontario
SURFACE ELEV.: --/--

Testpit Data
METHOD: Backhoe
DIAMETER: N/A

DATE: October 28 2004

CCGD * PPM (20 40 60 80) % LEL (5 10 15 20)	PPM	SAMPLES No.	Type	SPT N-Value	SYMBOL	SUBSURFACE PROFILE MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
						GRASS COVER				
	0	SGS1				FILL - sand, clayey, some gravel, some organics, brown	0.5			Construction debris at surface (concrete, metal)
>>	150	SGS2				CLAY - silty, some sand, trace organics, olive brown	1.0			
	0	SGS3					1.5			
	0	SGS4					2.0			
	5	SGS5				CLAY - olive brown	2.5			
							3.0			
						End of testpit at 3.1 m depth.				

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SAMPLE TYPE LEGEND

Auger Sample | Rock Core | Piston Sample
Split Spoon Sample | Slide Sampler
Thin Wall Tube | Grab Sample

APPENDIX E

GASTEDBH (OTTAWA) OE04940 TP LOGS.GPJ DST_MNG2T 9/1/05

LOG OF TESTPIT TP6

DST REF. No.: **OE04940**
CLIENT: **Canada Lands Company**
PROJECT: **Phase II Environmental Site Assessment**
LOCATION: **Canadian Forces Base, Rockcliffe, Ottawa, Ontario**
SURFACE ELEV.: **--/--**

Testpit Data
METHOD: **Backhoe**
DIAMETER: **N/A**

DATE: **October 28 2004**

CCGD * PPM (20 40 60 80) / % LEL (5 10 15 20)	PPM	SAMPLES No.	Type	SPT N-Value	SYMBL	SUBSURFACE PROFILE MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
	0	SGS1				GRASS COVERED FILL - sand, silty, some clay, trace organics - black layer	0.5			Construction debris (bricks)
	0	SGS3					1.0			
	0	SGS4					1.5			
	40	SGS5				CLAY - silty, brown	2.0		▼	Groundwater observed at approximately 2.1 m below grade
	5	SGS6				End of testpit at 3.1 m depth.	2.5 3.0			

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SAMPLE TYPE LEGEND

Auger Sample | Rock Core | Power Sample
Split Spoon Sample | Slide Sampler
Thin Wall Tube | Grab Sample

APPENDIX E

GASTECBH (OTTAWA) OE04940 TP LOGS.GPJ DST_JOIN.GDT 9/1/06

LOG OF TESTPIT TP7

DST REF. No.: **OE04940**
CLIENT: **Canada Lands Company**
PROJECT: **Phase II Environmental Site Assessment**
LOCATION: **Canadian Forces Base, Rockcliffe, Ottawa, Ontario**
SURFACE ELEV.: **--/--**

Testpit Data
METHOD: **Backhoe**
DIAMETER: **N/A**
DATE: **October 28 2004**

CCGD * PPM (20 40 60 80) % LEL (5 10 15 20)	PPM	SAMPLES No.	SAMPLES Type	SPT N-Value	SYMBL	SUBSURFACE PROFILE MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
						GRASS COVER				Debris, old post in concrete
						FILL - silty, some clay, trace gravel, trace organics				
O	0	SGS1								Rust colour in soils noted at 0.3 m depth
							0.5			
O	0	SGS2					1.0			
						CLAY - silty, trace organics				
O	0	SGS3					1.5			
						CLAY - trace organics				
>>O	210	SGS5					2.0			
							2.5			
O	0	SGS6								
							3.0		▼	
						End of testpit at 3.1 m depth.				Groundwater observed at bottom of testpit.

* - Catalytic Combustible Gas Detector

SAMPLE TYPE LEGEND

Auger Sample; Rock Core; Power Sample
Split Spoon Sample; Slotted Sampler
Thin Wall Tube; Grab Sample

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APPENDIX E

S:\ENGINEERING\GEOTECH\OTTAWA\OE04940 TP LOGS.GPJ DST_MIN.GDT 9/1/05

LOG OF TESTPIT TP8

DST REF. No.: **OE04940**
CLIENT: **Canada Lands Company**
PROJECT: **Phase II Environmental Site Assessment**
LOCATION: **Canadian Forces Base, Rockcliffe, Ottawa, Ontario**
SURFACE ELEV.: **-/-**

Testpit Data
METHOD: **Backhoe**
DIAMETER: **N/A**

DATE: **October 28 2004**

CCGD * PPM (20 40 60 80) % LEL (5 10 15 20)	PPM	SAMPLES No.	Type	SPT N-Value	SYMBL	SUBSURFACE PROFILE MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
	0	SGS1				FILL - sand and gravel, silty				
>>	120	SGS2				- sand, silty, trace clay, reddish orange	0.5			Wood and construction debris
	10	SGS3				- some boulders and cobbles - clayey, boulders and cobbles	1.0			
	0	SGS4				CLAY - silty, some sand				Layer of burnt material found at 1.0 m depth. Soil sample SGS6 taken at 1.0 m depth.
	15	SGS5					1.5			
						End of testpit at 1.7 m depth on possible bedrock.				

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Email: ottawa@dstgroup.com
Web: www.dstgroup.com

* - Catalytic Combustible Gas Detector

SAMPLE TYPE LEGEND

Auger Sample | Rock Core | Piston Sample
Split Spoon Sample | Slide Sampler
Thin Wall Tube | Grab Sample

APPENDIX E

GA/STEC/BH (OTTAWA) OE04940 TP LOGS.GPJ DST_MTK.GDT 9/1/05

LOG OF TESTPIT TP9

DST REF. No.: **OE04940**
CLIENT: **Canada Lands Company**
PROJECT: **Phase II Environmental Site Assessment**
LOCATION: **Canadian Forces Base, Rockcliffe, Ottawa, Ontario**
SURFACE ELEV.: **--/--**

Testpit Data
METHOD: **Backhoe**
DIAMETER: **N/A**
DATE: **October 29 2004**

CCGD * PPM (20 40 60 80) % LEL (5 10 15 20)	PPM	SAMPLES No.	SAMPLES Type	SPT N-Value	SYMBL	SUBSURFACE PROFILE: MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
						GRASS COVER				
	0	SGS1				FILL - sand, silty, some gravel, some organics, trace cobbles, brown	0.5			Debris noted at 1.2 m depth (wood, plaster siding)
	20	SGS2				- some silt, some gravel, trace cobbles, light brown	1.0			Burnt debris noted at 0.8 m depth Steel rod and pipe found at 0.9 m depth
	0	SGS3				- sand and silt, some gravel, trace cobbles, trace organic	1.5			Debris noted at 1.2 m depth (wood, plaster siding) and 0.3 m of burnt debris also noted at 1.2 m depth. Soil sample SGS5 taken at 1.2 m depth.
	0	SGS4				- sand, silty, trace clay, some gravel, trace organics	2.0			
						End of testpit at 2.4 m on possible bedrock.				

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SAMPLE TYPE LEGEND

Auger Sample | Rock Core | Pistar Sample
Split Spoon Sample | Slide Sampler
Thin Wall Tube | Grab Sample

APPENDIX E

GAS TEC8H (OTTAWA) 0604940 TP LOGS.GPJ DST_M.K.GDT 9/1/05

LOG OF TESTPIT TP10

DST REF. No.: **OE04940**
CLIENT: **Canada Lands Company**
PROJECT: **Phase II Environmental Site Assessment**
LOCATION: **Canadian Forces Base, Rockcliffe, Ottawa, Ontario**
SURFACE ELEV.: **-/--**

Testpit Data
METHOD: **Backhoe**
DIAMETER: **N/A**

DATE: **October 28 2004**

COGD * PPM (20 40 60 80) / % LEL (5 10 15 20)	PPM	SAMPLES No.	SAMPLES Type	SPT N-Value	SYMBOL	SUBSURFACE PROFILE MATERIAL DESCRIPTION	DEPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
						GRASS COVER				Building debris noted, siding, wood, nails, insulation, concrete between 0.2 and 1.0 m depth.
	5	SGS1				FILL - sand and gravel, silty, some organics				
						- sand, silty, some clay and gravel, trace cobbles	0.5			Black layer approximately 10 mm thick found at 0.46 m depth. Soil sample SGS6 taken at 0.5 m depth.
>>	130	SGS2								
						- clayey, some silt, trace gravel and cobbles	1.0			
	0	SGS3								
	0	SGS4				TILL - silt, sandy, clayey, trace cobbles and boulder	1.5			
	40	SGS5				End of testpit at 1.8 m on possible bedrock.				

* - Catalytic Combustible Gas Detector

SAMPLE TYPE LEGEND

Auger Sample | Rock Core | Piezo Sample
Split Spoon Sample | Slide Sample
Thin Wall Tube | Grab Sample

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APPENDIX E

G:\GEOTECH\OTTAWA\ OE04940 TP LOGS.GPJ DST_M.K.GDT 9/1/05

LOG OF TESTPIT TP11

DST REF. No.: OE04940
CLIENT: Canada Lands Company
PROJECT: Phase II Environmental Site Assessmont
LOCATION: Canadian Forces Base, Rockcliffe, Ottawa, Ontario
SURFACE ELEV.: --/--

Testpit Data
METHOD: Backhoe
DIAMETER: N/A

DATE: October 29 2004

CCGD * PPM (20 40 60 80) % LEL (5 10 15 20)	PPM	SAMPLES No.	Type	SPT N-Value	SYMBL	SUBSURFACE PROFILE MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
						GRASS COVER				
						SAND - some silt, trace gravel				
	20	SGS1				- sand, silty, trace clay and cobbles, some gravel	0.5			Concrete slab 100 mm thick, possible side walk at 0.5 m depth
	0	SGS2				- clay, sandy, some silt, trace cobbles, trace organics	1.0			Glass noted at 0.91 m depth.
	5	SGS3				- clay, silty, some sand, trace gravel	1.5			
	5	SGS4				CLAY - silty, olive green				
						End of testpit at 1.7 m on possible bedrock.				

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* - Catalytic Combustible Gas Detector

SAMPLE TYPE LEGEND

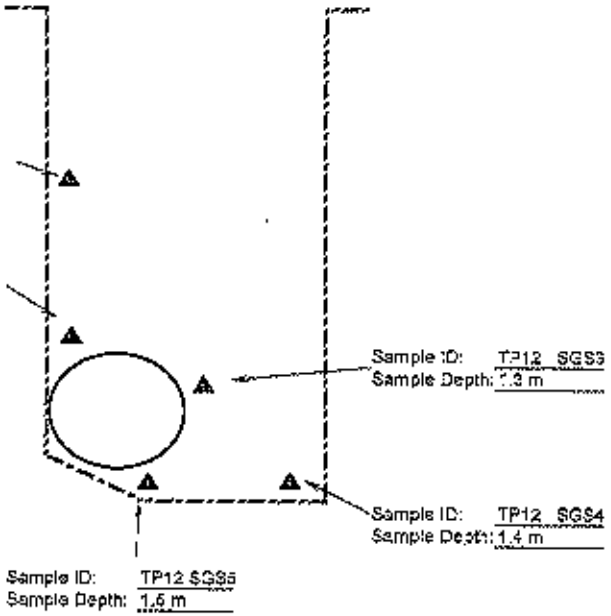
Auger Sample | Rock Core | Pedal Sample
Split Spoon Sample | Slide Sampler
Thin Wall Tube | Grab Sample

APPENDIX E

GAS-TECBH (OTTAWA) OE04940 TP LOGS.GPJ DST_MIN.GDT 8/1/05

FIELD TESTPIT LOG

Test Pit ID: TP12
Date: Oct. 25/04
DST Staff: JL/KB
Contractor: Cohen & Conen



Depth	Soil Description	Observations/Notes
0-1.6 m	FILL - sand, silty, some gravel, concrete debris	Two pipes found.

Steamline Pipe Construction Material Log:

Rio-Will:	Galvanized steel conduit with service pipes insulated and supported therein. External surface is waterproofed.
Z-crete:	Insulating concrete poured into trench around pipes with external waterproofing membrane. Look for a brownish cement-like material.
Gilsulate / Protexulate:	Consists of three layers - a plastic layer at the pipe, sintered layer around the plastic, and a granular zone at the outside. Look for a chalky white powder.
Wood Casing:	Typical wood casing type of conduits.
Inverted Trench:	Cement conduit. Access will not be possible for these types of conduits.

Select applicable pipe material:

Rio-Will: ☐
Z-crete: ☑
Gilsulate / Protexulate: ☐
Wood Casing: ☐
Inverted Trench: ☐
Other (describe): ☐

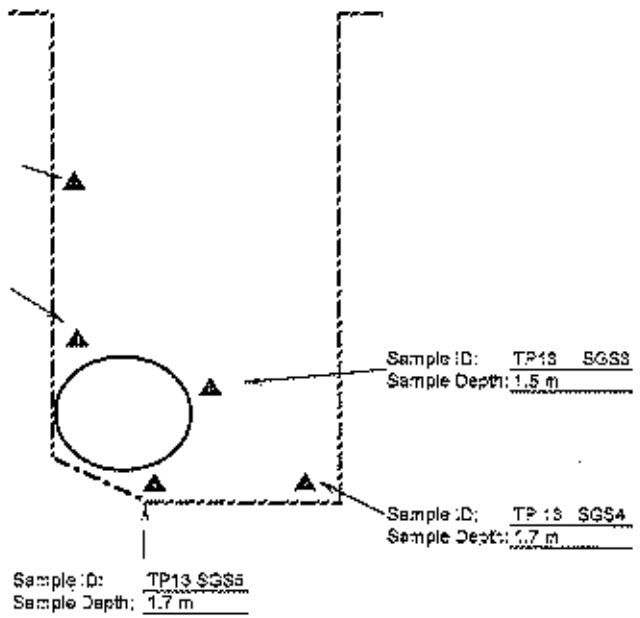
Pipe Insulation Log:

Is the pipe covered with an insulation material Yes ☑ No ☐

If yes, collect and submit a sample for analysis of ASBESTOS
Asbestos Sample ID: **TP_12_AS1**

FIELD TESTPIT LOG

Test Pit ID: TP13
Date: Oct. 25/04
DST Staff: JL
Contractor: Cohen & Cohen



Depth	Soil Description	Observations/Notes
0-1.5 m	FILL - sand and gravel, silty	

Steamline Pipe Construction Material Log:

Ric-Wil:	Galvanized steel conduit with service pipes insulated and supported therein. External surface is waterproofed.
Z-crete:	Insulating concrete poured into trench around pipes with external waterproofing membrane. Look for a brownish cement-like material.
Gilsulate / Protexulate:	Consists of three layers – a plastic layer at the pipe, sintered layer around the plastic, and a granular zone at the outside. Look for a chalky white powder.
Wood Casing:	Typical wood casing type of conduits.
Inverted Trench:	Cement conduit. Access will not be possible for these types of conduits.

Select applicable pipe material:

Ric-Wil: ☐
Z-crete: ☐
Gilsulate / Protexulate: ☒
Wood Casing: ☐
Inverted Trench: ☐
Other (describe): ☐

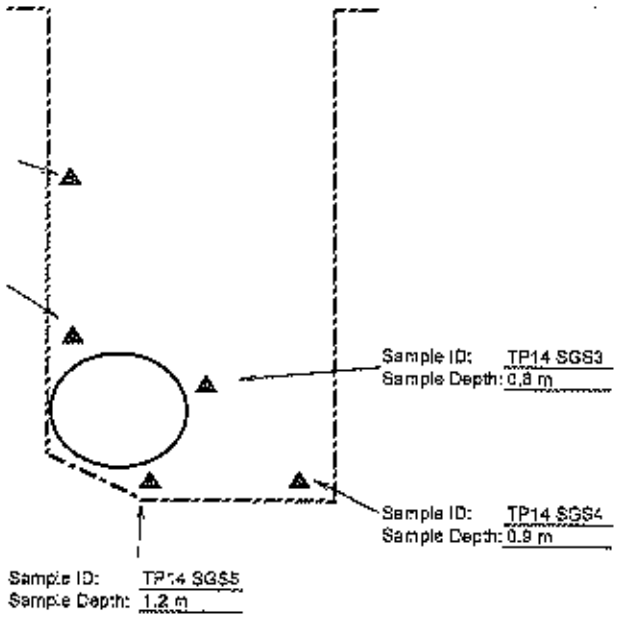
Pipe Insulation Log:

Is the pipe covered with an insulation material? Yes ☒ No ☐

If yes, collect and submit a sample for analysis of ASBESTOS
Asbestos Sample ID: **TP_13_AS1**

FIELD TESTPIT LOG

Test Pit ID: TP14
Date: Oct. 24/04
DST Staff: JL
Contractor: Cohen & Cohen



Depth	Soil Description	Observations/Notes
0-1.2 m	FILL - sand/gravel, some cobbles, some silt	Construction debris, metal

Steamline Pipe Construction Material Log:

Ric-Will:	Galvanized steel conduit with service pipes insulated and supported therein. External surface is waterproofed.
Z-crete:	Insulating concrete poured into trench around pipes with external waterproofing membrane. Look for a brownish cement-like material.
Gilsulate / Protexulate:	Consists of three layers - a plastic layer at the pipe, sintered layer around the plastic, and a granular zone at the outside. Look for a chalky white powder.
Wood Casing:	Typical wood casing type of conduits.
Inverted Trench:	Cement conduit. Access will not be possible for these types of conduits.

Select applicable pipe material:

Ric-Will: ☐
Z-crete: ☑
Gilsulate / Protexulate: ☐
Wood Casing: ☐
Inverted Trench: ☐
Other (describe): ☐

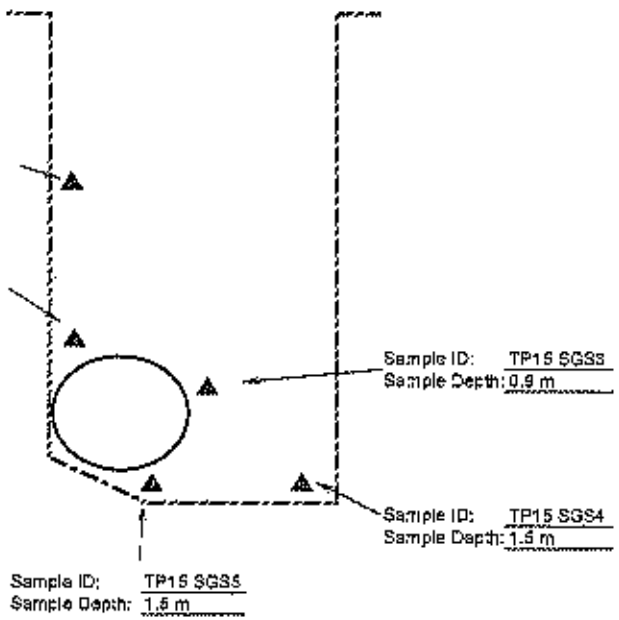
Pipe Insulation Log:

Is the pipe covered with an insulation material? Yes ☑ No ☐

If yes, collect and submit a sample for analysis of ASBESTOS
Asbestos Sample ID: **TP_14_AS1**

FIELD TESTPIT LOG

Test Pit ID: TP15
Date: Oct. 26/04
DST Staff: JL
Contractor: Cohen & Corsen



Depth	Soil Description	Observations/Notes
0-1.5m	FILL - sand, silty, some gravel, trace organics	2 pipes seen inside ~50 cm culvert, (~10 cm dia.) possibly 3 pipes inside.

Steamline Pipe Construction Material Log:

Rip-Will:	Galvanized steel conduit with service pipes insulated and supported therein. External surface is waterproofed.
Z-crete:	Insulating concrete poured into trench around pipes with external waterproofing membrane. Look for a brownish cement-like material.
Gilsulate / Protexulate:	Consists of three layers - a plastic layer at the pipe, sintered layer around the plastic, and a granular zone at the outside. Look for a chalky white powder.
Wood Casing:	Typical wood casing type of conduits.
Inverted Trench:	Cement conduit. Access will not be possible for these types of conduits.

Select applicable pipe material:

Rip-Will: ☑
Z-crete: ☐
Gilsulate / Protexulate: ☐
Wood Casing: ☐
Inverted Trench: ☐
Other (describe): ☐

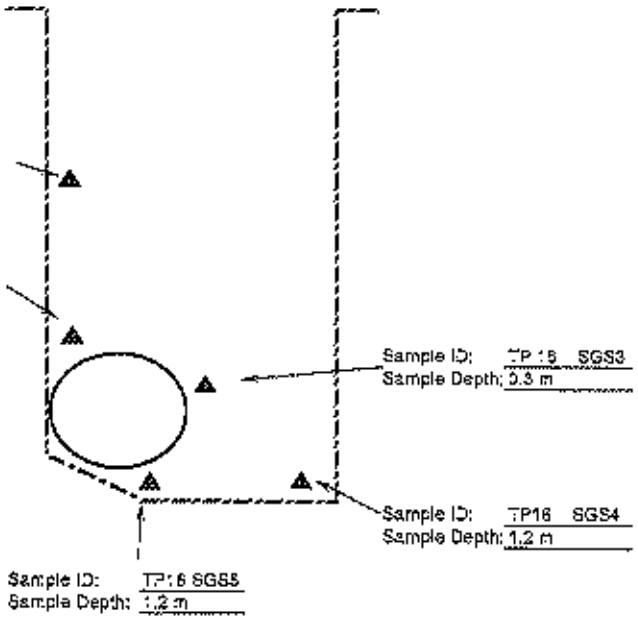
Pipe Insulation Log:

Is the pipe covered with an insulation material? Yes ☑ No ☐

If yes, collect and submit a sample for analysis of ASBESTOS
Asbestos Sample ID: **TP_15_AS1**
TP_15_AS2

FIELD TESTPIT LOG

Test Pit ID: TP16
Date: Oct. 26/04
DST Staff: JL
Contractor: Cohen & Cohen



Depth	Soil Description	Observations/Notes
0-0.3m	FILL - silty sand	
0.3 – 1.2m	sand and gravel	Aggregates surrounded by plywood and plastic sheet

Steamline Pipe Construction Material Log:

Rio-Will: Galvanized steel conduit with service pipes insulated and supported therein. External surface is waterproofed.
Z-crete: Insulating concrete poured into trench around pipes with external waterproofing membrane. Look for a brownish cement-like material.
Gilsulate / Pretexulate: Consists of three layers - a plastic layer at the pipe, sintered layer around the plastic, and a granular zone at the outside. Look for a chalky white powder.
Wood Casing: Typical wood casing type of conduits.
Inverted Trench: Cement conduit. Access will not be possible for these types of conduits.

Select applicable pipe material:

Rio-Will: ☐
Z-crete: ☐
Gilsulate / Pretexulate: ☐
Wood Casing: ☐
Inverted Trench: ☐
Other (describe): ☐

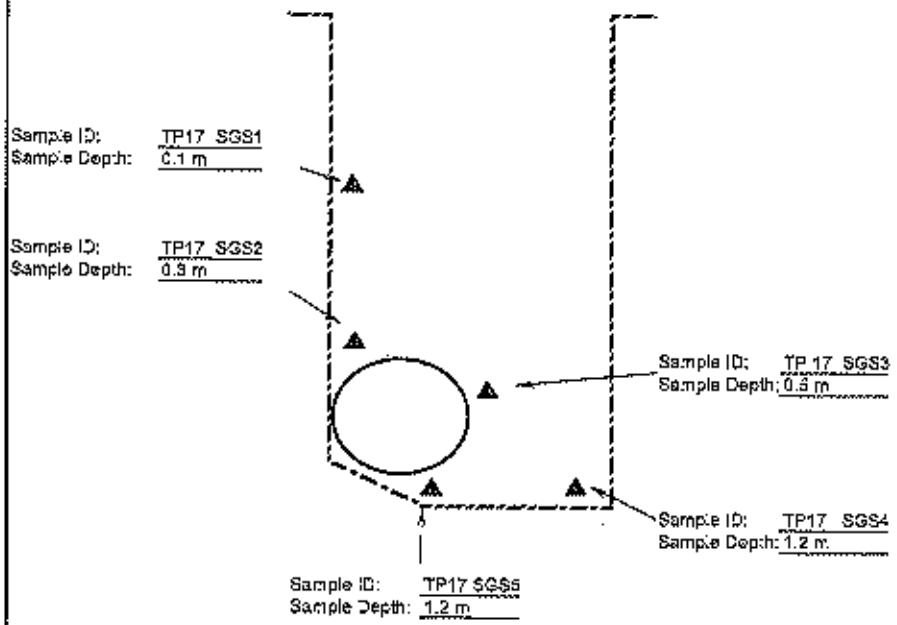
Pipe Insulation Log:

Is the pipe covered with an insulation material Yes ☐ No ☐

If yes, collect and submit a sample for analysis of ASBESTOS
Asbestos Sample ID: TP__**AS1**

FIELD TESTPIT LOG

Test Pit ID: TP17
Date: Oct. 26/04
DST Staff: JL
Contractor: Cohen & Cohen



Depth	Soil Description	Observations/Notes
0-0.3m:	FILL - sand, silty, some gravel	
0.3-1.2m:	Inverted trench surrounded by sand and gravel fill	Granular boxed in wood and concrete covered in plastic wrap

Steamline Pipe Construction Material Log:

Ric-Will:	Galvanized steel conduit with service pipes insulated and supported therein. External surface is waterproofed.
Z-crete:	Insulating concrete poured into trench around pipes with external waterproofing membrane. Look for a brownish cement-like material.
Gilsulate / Protexulate:	Consists of three layers - a plastic layer at the pipe, sintered layer around the plastic, and a granular zone at the outside. Look for a chalky white powder.
Wood Casing:	Typical wood casing type of conduits.
Inverted Trench:	Cement conduit. Access will not be possible for these types of conduits.

Select applicable pipe material:

Ric-Will: ☐
Z-crete: ☐
Gilsulate / Protexulate: ☐
Wood Casing: ☐
Inverted Trench: ☑
Other (describe): ☐

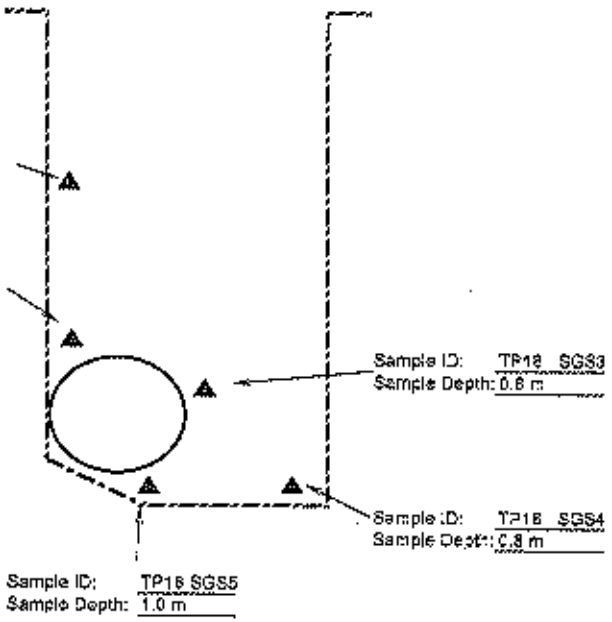
Pipe Insulation Log:

Is the pipe covered with an insulation material? Yes ☐ No ☐

If yes, collect and submit a sample for analysis of ASBESTOS
Asbestos Sample ID: TP ____ AS1

FIELD TESTPIT LOG

Test Pit ID: TP18
Date: Oct. 26/04
DST Staff: JL
Contractor: Cohen & Cohen



Depth	Soil Description	Observations/Notes
0-0.3m	F.I.L. - sand, silty (topsoil)	
0.3-0.9m	- clay, silty	Inverted trench broken and pushed aside for installation of new sewer line.

Steamline Pipe Construction Material Log:

Ric-Wil:	Galvanized steel conduit with service pipes insulated and supported therein. External surface is waterproofed.
Z-crete:	Insulating concrete poured into trench around pipes with external waterproofing membrane. Look for a brownish cement-like material.
Gilsulate / Protexulate:	Consists of three layers - a plastic layer at the pipe, sintered layer around the plastic, and a granular zone at the outside. Look for a chalky white powder.
Wood Casing:	Typical wood casing type of conduits.
Inverted Trench:	Cement conduit. Access will not be possible for these types of conduits.

Select applicable pipe material:

Ric-Wil: ☐
Z-crete: ☐
Gilsulate / Protexulate: ☐
Wood Casing: ☐
Inverted Trench: ☒
Other (describe): ☐

Pipe Insulation Log:

Is the pipe covered with an insulation material Yes ☐ No ☐

If yes, collect and submit a sample for analysis of ASBESTOS
Asbestos Sample ID: TP ____ **AS**t

LOG OF TESTPIT TP19

DST REF. No.: **OE04940**
CLIENT: **Canada Lands Company**
PROJECT: **Phase II Environmental Site Assessment**
LOCATION: **Canadian Forces Base, Rockcliffe, Ottawa, Ontario**
SURFACE ELEV.: **--/--**

Testpit Data
METHOD: **Backhoe**
DIAMETER: **N/A**

DATE: **October 29 2004**

CCGD * PPM (20 40 60 80) / % LEL (5 10 15 20)	PPM	SAMPLES No.	Type	SPT N-Value	SYMBOL	SUBSURFACE PROFILE MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
						GRASS COVER				
						FILL - sand, silty, cobbles, some gravel				
	0	SGS1				- sand, some gravel	0.5			Black layer at 0.3 m below grade, very rocky, shale like
	10	SGS2				- trace gravel and clay	1.0			Clay has a red tint at 0.6 m, above olive green clay
						CLAY - silty, olive green				
	70	SGS3					1.5			
	0	SGS4					2.0			
							2.5			
	0	SGS5								
						End of testpit at 3.1 m depth.	3.0			

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* - Catalytic Combustible Gas Detector

SAMPLE TYPE LEGEND

Auger Sample | Rock Core | Pistar Sample
Split Spoon Sample | Slide Sampler
Thin Wall Tube | Grab Sample

APPENDIX E

G:\ASTEC\BH\OTTAWA_OE04940-2 TP LOGS.GPJ_DST_MIN.GDT 9/1/05

LOG OF TESTPIT TP20

DST REF. No.: OE04940
CLIENT: Canada Lands Company
PROJECT: Phase II Environmental Site Assessment
LOCATION: Canadian Forces Base, Rockcliffe, Ottawa, Ontario
SURFACE ELEV.: --/--

Testpit Data
METHOD: Backhoe
DIAMETER: N/A

DATE: October 29 2004

CCGD *		SAMPLES				SUBSURFACE PROFILE				
○ RKI EAGLE (PPM) 20 40 60 80	PPM	No.	Type	SPT N-Value	SYMBL	MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	REMARKS
□ MINIRAE (PPM) 5 10 15 20						SURFACE				
						GRASS COVER				
						FILL - sand, silty, gravel, some cobbles				
	0	SGS1					0.5			Building debris, concrete slab 100 mm thick, brick pieces, large concrete pieces.
						- sand and clay, silty, trace gravel, trace slag, olive green				
	85	SGS2					1.0			Light orange layer noted between 0.5 m and 0.8 m in all the debris.
						- clay, silty, trace sand and gravel				
	15	SGS3					1.5			
						CLAY - silty, olive green				
	0	SGS5					2.0			Soil sample SGS4 taken between 0.5 m and 0.8 m depth in area of concern.
							2.5			
	5	SGS6								
						End of testpit at 3.1 m depth.	3.0			

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SAMPLE TYPE LEGEND

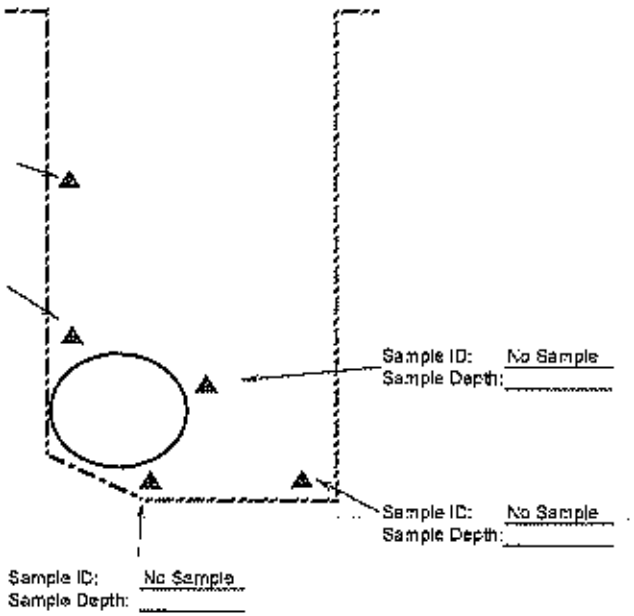
Auger Sample | Rock Core | Planar Sample
Split Spoon Sample | Slide Sampler
Thin Wall Tube | Grab Sample

APPENDIX E

GASTECBH (OTTAWA) OE04940 TP LOGS.GPJ DST_WIN.GDT 9/5/06

FIELD TESTPIT LOG

Test Pit ID: TP21
Date: Oct. 27/04
DST Staff: JL
Contractor: Cohen & Cohen



Depth	Soil Description	Observations/Notes
0-0.6m	FILL - sand and gravel, some silt	Concrete debris
		Insulation debris
		Pipe not found, must have been removed with demolition of
		former building at this site.

Steamline Pipe Construction Material Log:

Rio-Will:	Galvanized steel conduit with service pipes insulated and supported therein. External surface is waterproofed.
Z-crete:	Insulating concrete poured into trench around pipes with external waterproofing membrane. Look for a brownish cement-like material.
Gilsulate / Protexulate:	Consists of three layers - a plastic layer at the pipe, sintered layer around the plastic, and a granular zone at the outside. Look for a chalky white powder.
Wood Casing:	Typical wood casing type of conduits.
Inverted Trench:	Cement conduit. Access will not be possible for these types of conduits.

Select applicable pipe material:

Rio-Will: ☐
Z-crete: ☐
Gilsulate / Protexulate: ☐
Wood Casing: ☐
Inverted Trench: ☐
Other (describe): ☐

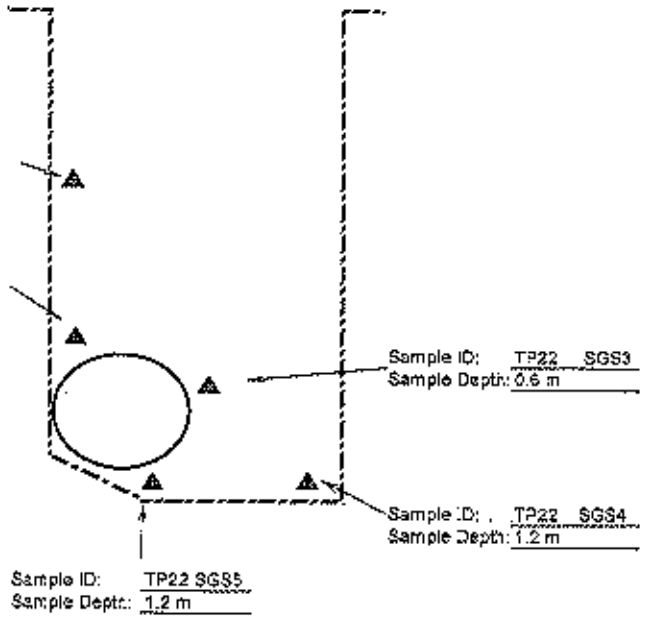
Pipe Insulation Log:

Is the pipe covered with an insulation material? Yes ☐ No ☐

If yes, collect and submit a sample for analysis of ASBESTOS
Asbestos Sample ID: **TP_21_AS1**
TP_21_AS2

FIELD TESTPIT LOG

Test Pit ID: TP22
Date: Oct. 28/04
DST Staff: JL
Contractor: Cohen & Cohen



Depth	Soil Description	Observations/Notes
0-1.2m	Sand and gravel, some silt	Pipes in culvert insulated
		2 pipes approx. 10 cm in diameter

Steamline Pipe Construction Material Log:

Rio-Will:	Galvanized steel conduit with service pipes insulated and supported therein. External surface is waterproofed.
Z-crete:	Insulating concrete poured into trench around pipes with external waterproofing membrane. Look for a brownish cement-like material.
Gilsulate / Protexulate:	Consists of three layers – a plastic layer at the pipe, sintered layer around the plastic, and a granular zone at the outside. Look for a chalky white powder.
Wood Casing:	Typical wood casing type of conduits.
Inverted Trench:	Cement conduit. Access will not be possible for these types of conduits.

Select applicable pipe material:

Rio-Will: ☒
Z-crete: ☐
Gilsulate / Protexulate: ☐
Wood Casing: ☐
Inverted Trench: ☐
Other (describe): ☐

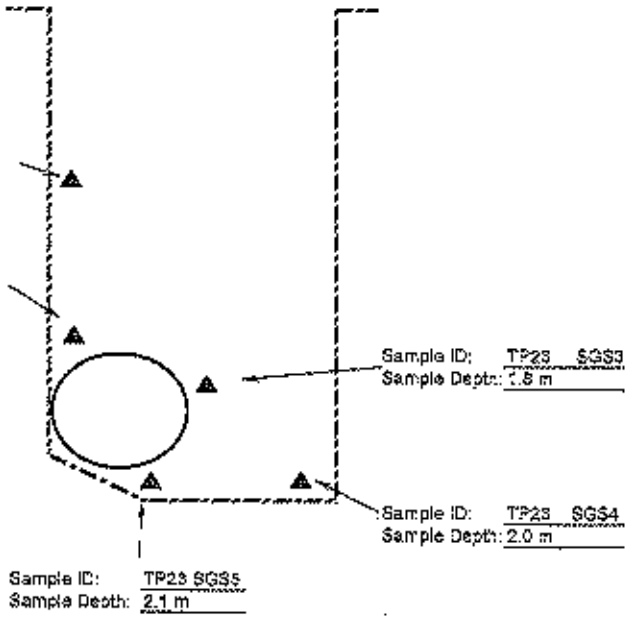
Pipe Insulation Log:

Is the pipe covered with an insulation material? Yes ☒ No ☐

If yes, collect and submit a sample for analysis of ASBESTOS
Asbestos Sample ID: **TP__22__ AS1**

FIELD TESTPIT LOG

Test Pit ID: TP23
Date: Oct. 25/04
DST Staff: JL
Contractor: Cohen & Cohen



Depth	Soil Description	Observations/Notes
0-2.1m	FILL - silty sand, some cobbles	3 pipes in ~60 cm culvert
		2 ~10 cm diameter
		1 ~20 cm diameter

Steamline Pipe Construction Material Log:

Rio-Will:	Galvanized steel conduit with service pipes insulated and supported therein. External surface is waterproofed.
Z-crete:	Insulating concrete poured into trench around pipes with external waterproofing membrane. Look for a brownish cement-like material.
Gilsulate / Protexulate:	Consists of three layers - a plastic layer at the pipe, sintered layer around the plastic, and a granular zone at the outside. Look for a chalky white powder.
Wood Casing:	Typical wood casing type of conduits.
Inverted Trench:	Cement conduit. Access will not be possible for these types of conduits.

Select applicable pipe material:

Rio-Will:	☑
Z-crete:	☐
Gilsulate / Protexulate:	☐
Wood Casing:	☐
Inverted Trench:	☐
Other (describe):	☐

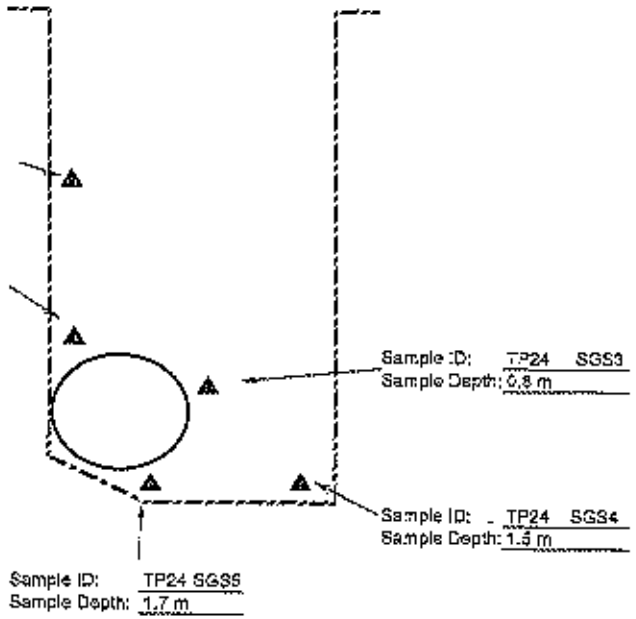
Pipe Insulation Log:

Is the pipe covered with an insulation material? Yes ☑ No ☐

If yes, collect and submit a sample for analysis of ASBESTOS
Asbestos Sample ID: **TP_23_AS1**
TP_23_AS2

FIELD TESTPIT LOG

Test Pit ID: TP24
Date: Oct. 26/04
DST Staff: JL
Contractor: Cohen & Cohen



Depth	Soil Description	Observations/Notes
0-1.7 m	FILL - sand and gravel	sandy silt around trench

Steamline Pipe Construction Material Log:

Rio-Will:	Galvanized steel conduit with service pipes insulated and supported therein. External surface is waterproofed.
Z-crete:	Insulating concrete poured into trench around pipes with external waterproofing membrane. Look for a brownish cement-like material.
Gilsulate / Protexulate:	Consists of three layers - a plastic layer at the pipe, sintered layer around the plastic, and a granular zone at the outside. Look for a chalky white powder.
Wood Casing:	Typical wood casing type of conduits.
Inverted Trench:	Cement conduit. Access will not be possible for these types of conduits.

Select applicable pipe material:

Rio-Will: ☐
Z-crete: ☐
Gilsulate / Protexulate: ☐
Wood Casing: ☐
Inverted Trench: ☒
Other (describe): ☐

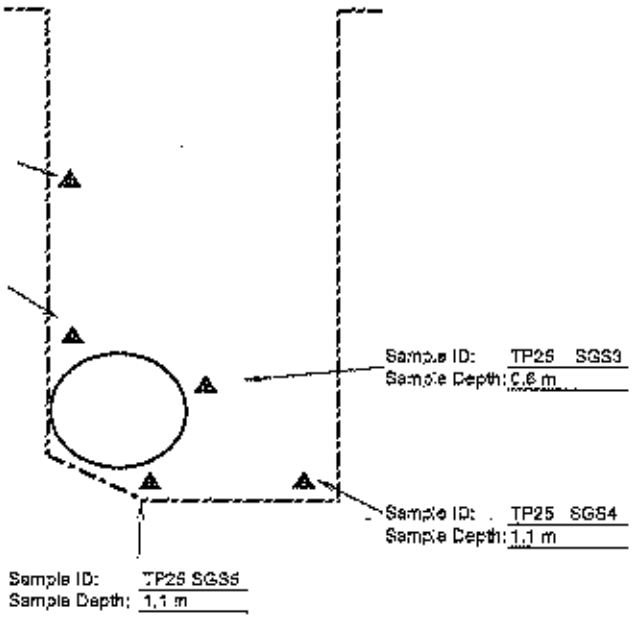
Pipe Insulation Log:

Is the pipe covered with an insulation material? Yes ☐ No ☐

If yes, collect and submit a sample for analysis of ASBESTOS
Asbestos Sample ID: TP ____ **AS1**

FIELD TESTPIT LOG

Test Pit ID: TP25
Date: Oct. 27/04
DST Staff: JL
Contractor: Cohen & Cohen



Depth	Soil Description	Observations/Notes
0-1.1 m	FILL - sand, silty, trace clay	2 pipes visible, possibly 3 pipes
		as per TP23
		1 ~10 cm
		1 ~20 cm

Steamline Pipe Construction Material Log:

Rio-Wil: Galvanized steel conduit with service pipes insulated and supported therein. External surface is waterproofed.
Z-crete: Insulating concrete poured into trench around pipes with external waterproofing membrane. Look for a brownish cement-like material.
Gilsulate / Protexulate: Consists of three layers - a plastic layer at the pipe, sintered layer around the plastic, and a granular zone at the outside. Look for a chalky white powder.
Wood Casing: Typical wood casing type of conduits.
Inverted Trench: Cement conduit. Access will not be possible for these types of conduits.

Select applicable pipe material:

Rio-Wil: ☑
Z-crete: ☐
Gilsulate / Protexulate: ☐
Wood Casing: ☐
Inverted Trench: ☐
Other (describe): ☐

Pipe insulation Log:

Is the pipe covered with an insulation material? Yes ☑ No ☐

If yes, collect and submit a sample for analysis of ASBESTOS
Asbestos Sample ID: **TP_25_AS1**
TP_25_AS2

LOG OF TESTPIT TP26

DST REF. No.: **OE04940**
CLIENT: **Canada Lands Company**
PROJECT: **Phase II Environmental Site Assessment**
LOCATION: **Canadian Forces Base, Rockcliffe, Ottawa, Ontario**
SURFACE ELEV.: **--/--**

Testpit Data
METHOD: **Backhoe**
DIAMETER: **N/A**

DATE: **November 03 2004**

CCGD * PPM (20 40 60 80) % LEL (5 10 15 20)	PPM	SAMPLES No.	Type	SPT N-Value	SYMBL	SUBSURFACE PROFILE MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
	0	SGS1				FILL - sand, silty, some gravel and boulders, some asphalt, trace brickettes of gilsulate, rootlets to 0.3 m				
	5	SGS2					0.5			
	0	SGS3					1.0			
	0	SGS4				- sand, yellowish orange				
						GILSULATE / PROTEXULATE - surrounding one 10cm steel pipe.	1.5			
						End of Testpit at 2.0 m depth.	2.0			

* - Catalytic Combustible Gas Detector

SAMPLE TYPE LEGEND

- Auger Sample
- Split Spoon Sample
- Thin Wall Tube
- Rock Core
- Slide Sampler
- Grab Sample
- Power Sample

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APPENDIX E

GAS/TECH (OTTAWA) OE04940 TP LOGS.GPJ DST_MIN.GDT 6/1/05

LOG OF TESTPIT TP27

DST REF. No.: **OE04940**
CLIENT: **Canada Lands Company**
PROJECT: **Phase II Environmental Site Assessment**
LOCATION: **Canadian Forces Base, Rockcliffe, Ottawa, Ontario**
SURFACE ELEV.: **--/--**

Testpit Data
METHOD: **Backhoe**
DIAMETER: **N/A**

DATE: **November 03 2004**

OVGD * PPM (20 40 60 80) % LEL (5 10 15 20)	PPM	SAMPLES No.	SAMPLES Type	SPT N-Value	SYMBOL	SUBSURFACE PROFILE MATERIAL DESCRIPTION	DEPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
						ASPHALT				
						FILL - sand and silt, yellowish orange				
O	5	SGS1								
						- clay, silty, trace sand, yellowish orange to yellowish grey	0.5			
O	10	SGS2								
							1.0			
O	5	SGS3								
						End of testpit at 1.5 m depth.	1.5			

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* - Catalytic Combustible Gas Detector

SAMPLE TYPE LEGEND

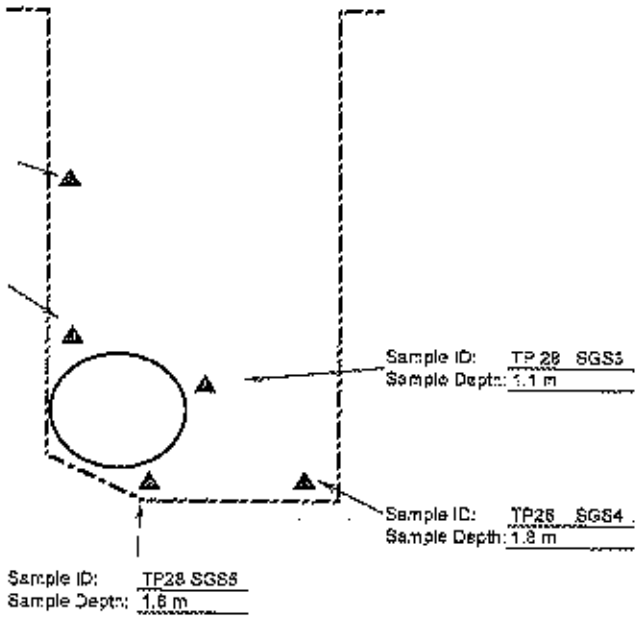
Auger Sample | Rock Core | Penac Sample
Split Spoon Sample | Slide Sampler
Thin Wall Tube | Grab Sample

APPENDIX E

GAS\TECBH\OTTAWA_OE04940-TP LOGS.GPJ DST_MN.GDT 9/1/05

FIELD TESTPIT LOG

Test Pit ID: TP28
Date: Oct. 27/04
DST Staff: JL
Contractor: Cohen & Coren



Depth	Soil Description	Observations/Notes
0 - 0.3m	Topsoil	
0.3 - 1.8m	FILL - sand, silty, some gravel, some cobbles	Construction debris: Concrete, abandoned wires

Steamline Pipe Construction Material Log:

Rio-Will: Galvanized steel conduit with service pipes insulated and supported therein. External surface is waterproofed.
Z-crete: Insulating concrete poured into trench around pipes with external waterproofing membrane. Look for a brownish cement-like material.
Gilsulate / Protexulate: Consists of three layers - a plastic layer at the pipe, sintered layer around the plastic, and a granular zone at the outside. Look for a chalky white powder.
Wood Casing: Typical wood casing type of conduits.
Inverted Trench: Cement conduit. Access will not be possible for these types of conduits.

Select applicable pipe material:

Rio-Will: ☐
Z-crete: ☐
Gilsulate / Protexulate: ☐
Wood Casing: ☐
Inverted Trench: ☐
Other (describe): ☐

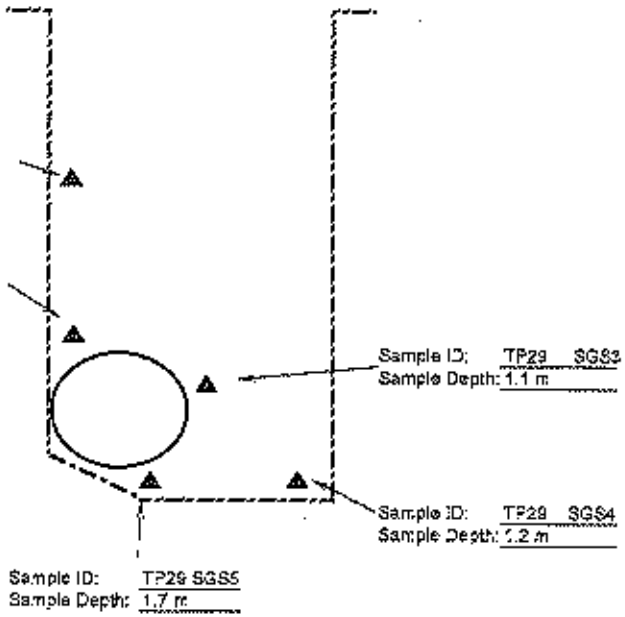
Pipe Insulation Log:

Is the pipe covered with an insulation material? Yes ☒ No ☐

If yes, collect and submit a sample for analysis of ASBESTOS
Asbestos Sample ID: **TP_28_AS1**
TP_28_AS2

FIELD TESTPIT LOG

Test Pit ID: TP29
Date: Oct. 27/04
DST Staff: JL
Contractor: Cohen & Cohen



Depth	Soil Description	Observations/Notes
0 - 1.6m	FILL - sand, silty, trace clay	Some black insulation noted to be scattered around trench

Steamline Pipe Construction Material Log:

Ric-Will:	Galvanized steel conduit with service pipes insulated and supported therein. External surface is waterproofed.
Z-crete:	Insulating concrete poured into trench around pipes with external waterproofing membrane. Look for a brownish cement-like material.
Glisulate / Protexulate:	Consists of three layers - a plastic layer at the pipe, sintered layer around the plastic, and a granular zone at the outside. Look for a chalky white powder.
Wood Casing:	Typical wood casing type of conduits.
Inverted Trench:	Cement conduit. Access will not be possible for these types of conduits.

Select applicable pipe material:

Ric-Will: ☐
Z-crete: ☐
Glisulate / Protexulate: ☒
Wood Casing: ☐
Inverted Trench: ☐
Other (describe): ☐

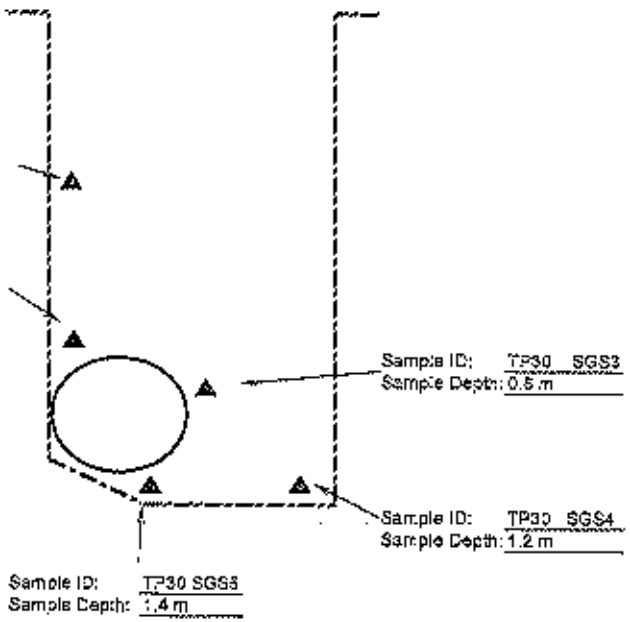
Pipe Insulation Log:

Is the pipe covered with an insulation material Yes ☒ No ☐

If yes, collect and submit a sample for analysis of ASBESTOS
Asbestos Sample ID: **TP__29__ AS1**

FIELD TESTPIT LOG

Test Pit ID: TP30
Date: Oct. 26/04
DST Staff: JL
Contractor: Cohen & Cohen



Depth	Soil Description	Observations/Notes
0 – 1.5 m	FILL - sand and gravel, some silt and cobbles	Construction Debris noted: Concrete, Metal

Steamline Pipe Construction Material Log:

Rio-Will:	Galvanized steel conduit with service pipes insulated and supported therein. External surface is waterproofed.
Z-crete:	Insulating concrete poured into trench around pipes with external waterproofing membrane. Look for a brownish cement-like material.
Gilsulate / Protexulate:	Consists of three layers - a plastic layer at the pipe, sintered layer around the plastic, and a granular zone at the outside. Look for a chalky white powder.
Wood Casing:	Typical wood casing type of conduits.
Inverted Trench:	Cement conduit. Access will not be possible for these types of conduits.

Select applicable pipe material:

Rio-Will: ☐
Z-crete: ☐
Gilsulate / Protexulate: ☒
Wood Casing: ☐
Inverted Trench: ☐
Other (describe): ☐

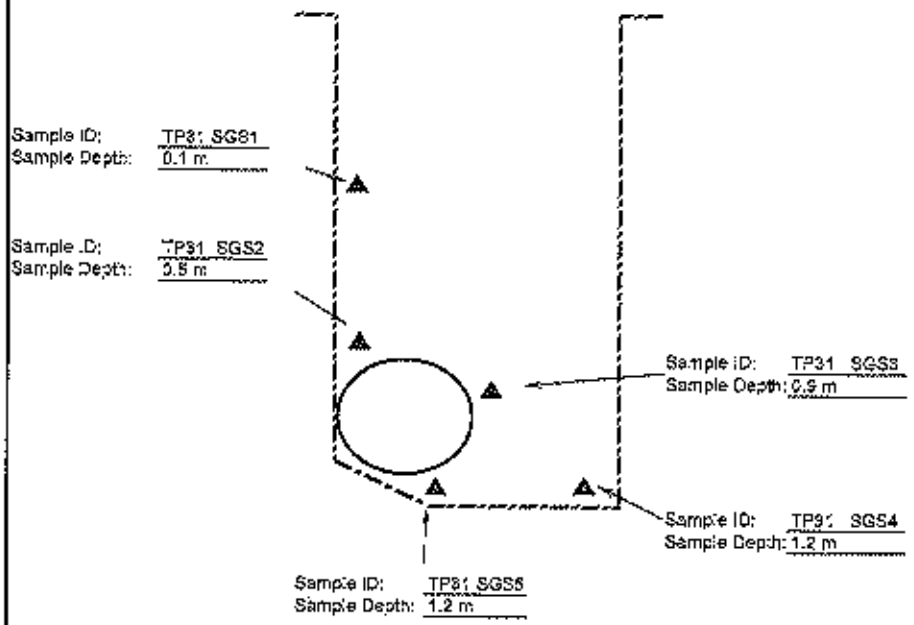
Pipe Insulation Log:

Is the pipe covered with an insulation material? Yes ☒ No ☐

If yes, collect and submit a sample for analysis of ASBESTOS
Asbestos Sample ID: TP_30_ AS1

FIELD TESTPIT LOG

Test Pit ID: TP31
Date: Oct. 28/04
DST Staff: JL
Contractor: Cohen & Cohen



Depth	Soil Description	Observations/Notes
0 - 0.1 m	Asphalt	
0.1 - 0.76m	FILL - sand, silty, trace gravel	3 Pipes in culvert
0.76 - 1.2m	- sand, light brown	1 ~10 cm Not Insulated
		1 ~10 cm Insulated
		1 ~20 cm Insulated
		Construction Debris noted; concrete slab

Steamline Pipe Construction Material Log:

Rio-Will:	Galvanized steel conduit with service pipes insulated and supported therein. External surface is waterproofed.
Z-crete:	Insulating concrete poured into trench around pipes with external waterproofing membrane. Look for a brownish cement-like material.
Gilsulate / Protexulate:	Consists of three layers - a plastic layer at the pipe, sintered layer around the plastic, and a granular zone at the outside. Look for a chalky white powder.
Wood Casing:	Typical wood casing type of conduits.
Inverted Trench:	Cement conduit. Access will not be possible for these types of conduits.

Select applicable pipe material:

Rio-Will: ☑
Z-crete: ☐
Gilsulate / Protexulate: ☐
Wood Casing: ☐
Inverted Trench: ☐
Other (describe): ☐

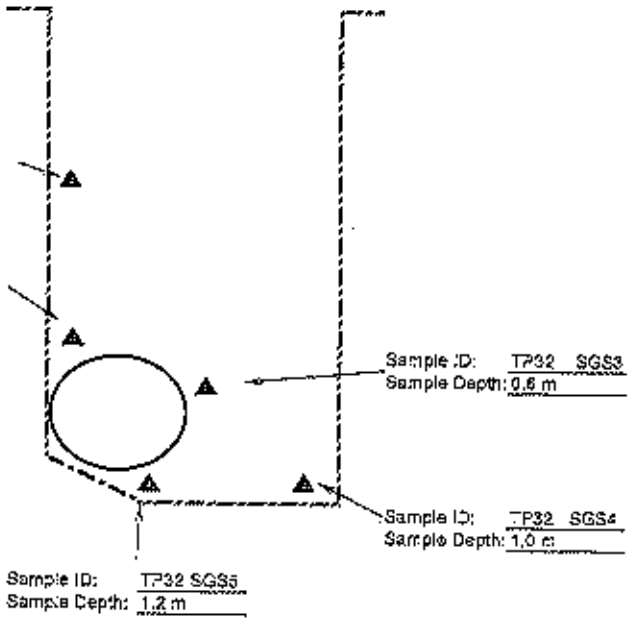
Pipe Insulation Log:

Is the pipe covered with an insulation material? Yes ☑ No ☐

If yes, collect and submit a sample for analysis of ASBESTOS
Asbestos Sample ID: **TP_31_AS1**
TP_31_AS2

FIELD TESTPIT LOG

Test Pit ID: TP32
Date: Oct. 28/04
DST Staff: JL
Contractor: Cohen & Cohen



Depth	Soil Description	Observations/Notes
0 - 0.1 m	Asphalt	
0.1 - 0.2m	FILL - sand and gravel	Inverted trench bigger than usual
0.2 - 0.6 m	- sand, yellowish brown	(1.5 x 1.0 m)

Steamline Pipe Construction Material Log:

Ric-Will:	Galvanized steel conduit with service pipes insulated and supported therein. External surface is waterproofed.
Z-crete:	Insulating concrete poured into trench around pipes with external waterproofing membrane. Look for a brownish cement-like material.
Gilsulate / Protexulate:	Consists of three layers - a plastic layer at the pipe, sintered layer around the plastic, and a granular zone at the outside. Look for a chalky white powder.
Wood Casing:	Typical wood casing type of conduits.
Inverted Trench:	Cement conduit. Access will not be possible for these types of conduits.

Select applicable pipe material:

Ric-Will: ☐
Z-crete: ☐
Gilsulate / Protexulate: ☐
Wood Casing: ☐
Inverted Trench: ☑
Other (describe): ☐

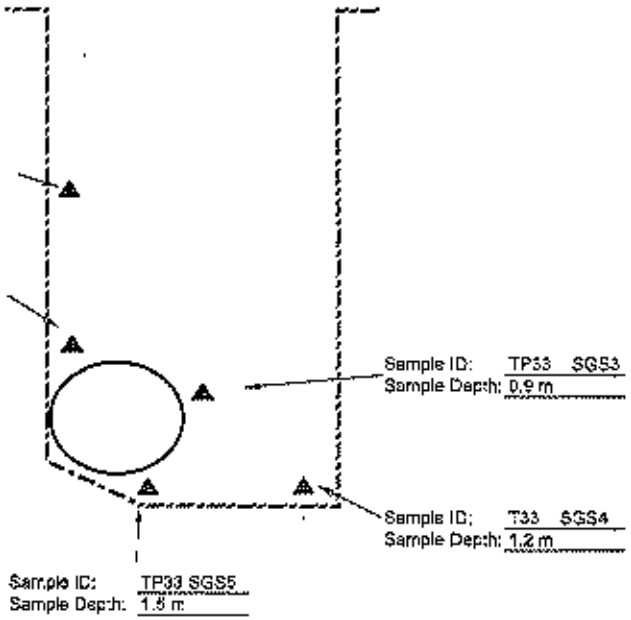
Pipe Insulation Log:

Is the pipe covered with an insulation material? Yes ☐ No ☐

If yes, collect and submit a sample for analysis of ASBESTOS
Asbestos Sample ID: TP ____ AS1

FIELD TESTPIT LOG

Test Pit ID: TP33
Date: Oct. 26/04
DST Staff: JL
Contractor: Cohen & Cohen



Depth	Soil Description	Observations/Notes
0 - 0.15 m	Asphalt	
0.15 - 0.31 m	FILL - shale used as granular, debris (metal, glass)	inverted trench with out-of-use forms, concrete appears poured in open trench.
0.31 - 0.92 m	- sand, silty, orange brown	
0.92 - 1.53 m	- sand, silty, yellowish brown	

Steamline Pipe Construction Material Log:

Rio-Will:	Galvanized steel conduit with service pipes insulated and supported therein. External surface is waterproofed.
Z-crete:	Insulating concrete poured into trench around pipes with external waterproofing membrane. Look for a brownish cement-like material.
Gilsulate / Protexulate:	Consists of three layers - a plastic layer at the pipe, sintered layer around the plastic, and a granular zone at the outside. Look for a chalky white powder.
Wood Casing:	Typical wood casing type of conduits.
Inverted Trench:	Cement conduit. Access will not be possible for these types of conduits.

Select applicable pipe material:

Rio-Will: ☐
Z-crete: ☐
Gilsulate / Protexulate: ☐
Wood Casing: ☐
Inverted Trench: ☐
Other (describe): ☐

Pipe Insulation Log:

Is the pipe covered with an insulation material? Yes ☐ No ☐

If yes, collect and submit a sample for analysis of ASBESTOS
Asbestos Sample ID: **TP____ AS1**

LOG OF TESTPIT TP34

DST REF. No.: OE04940
CLIENT: Canada Lands Company
PROJECT: Phase II Environmental Site Assessment
LOCATION: Canadian Forces Base, Rockcliffe, Ottawa, Ontario
SURFACE ELEV.: --/--

Testpit Data
METHOD: Backhoe
DIAMETER: N/A

DATE: November 01 2004

CCGD * PPM (20 40 60 80) % LEL (5 10 15 20)	PPM	SAMPLES No.	Type	SPT N-Value	SUBSURFACE PROFILE SYMBOL	MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
						GRASS COVER				
						FILL - silt, some sand, some organics, black				
	5	SGS1				- sand, silty, trace clay, light brown	0.5			
	5	SGS2				- some boulders, dark red soil pocket	1.0			
						- silt, trace clay, trace roots & rootlets, dark brown				
	15	SGS3					1.5			Bone uncovered at 1.5 m.
						TILL - silt and cobbles, grey, some orange and red seams scattered throughout	2.0			
	5	SGS4								Light whitish-green material at 2.1 m - strong odour.
						- silt, some clay, grey	2.5			
	65	SGS5								
						End of testpit at 3.1 m depth.	3.0			

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* - Catalytic Combustible Gas Detector

SAMPLE TYPE LEGEND

Auger Sample | Rock Core | Postar Sample
Split Spoon Sample | Slide Sampler
Thin Wall Tube | Grab Sample

APPENDIX E

GASTECBH:\OTTAWA\ OE04940 TP LOGS.GPJ DST_MIN.GDT 9/1/05

LOG OF TESTPIT TP35

DST REF. No.: **OE04940**
CLIENT: **Canada Lands Company**
PROJECT: **Phase II Environmental Site Assessment**
LOCATION: **Canadian Forces Base, Rockcliffe, Ottawa, Ontario**
SURFACE ELEV.: **--/--**

Testpit Data
METHOD: **Backhoe**
DIAMETER: **N/A**

DATE: **November 01 2004**

CCGD * RKI EAGLE (PPM) 20 40 60 80 / MINIRAE (PPM) 5 10 15 20	PPM	SAMPLES No.	SAMPLES Type	SPT N-Value	SYMBL	SUBSURFACE PROFILE MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
	0	SGS1				TOPSOIL - grass, silt, sandy, wood, boulders, black				
	5	SGS1								
	5	SGS3				SAND -gravel and cobbles, silty, trace clay, light brown	0.5			
						COBBLES & BOULDERS - traco sand, possible weathered bedrock				
	5	SGS2					1.0			
						End of testpit at 1.1 m depth on possible bedrock.				

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* - Catalytic Combustible Gas Detector

SAMPLE TYPE LEGEND

Auger Sample | Rock Core | Piston Sample
Split Spoon Sample | Slide Sampler
Thin Wall Tube | Grab Sample

APPENDIX E

GAS\ECBH\OTTAWA\ OE4940 TP LOGS.GPJ DST_MIN.GDT 9/6/05

LOG OF TESTPIT TP36

DST REF. No.: OE04940
CLIENT: Canada Lands Company
PROJECT: Phase II Environmental Site Assessment
LOCATION: Canadian Forces Base, Rockcliffe, Ottawa, Ontario
SURFACE ELEV.: --/--

Testpit Data
METHOD: Backhoe
DIAMETER: N/A

DATE: November 01 2004

CCGD * PPM (20, 40, 60, 80 / 5, 10, 15, 20 % LEL)	PPM	SAMPLES No.	Type	SPT N-Value	SYMBOL	SUBSURFACE PROFILE MATERIAL DESCRIPTION	DEPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
O	10	SGS1				FILL - silty sand, some cobbles, trace clay, trace organics				Asphalt, wood, metal
							0.5			
>>O	320	SGS2				- some boulders, trace clay				
O	5	SGS3				- some clay, some boulders, some cobbles	1.0			
O	5	SGS4				- some clay, trace boulders, brown				
						- cobbles, trace clay, light brown	1.5			
O	5	SGS5								
							2.0			
						End of testpit at 2.3 m depth on possible bedrock.				

GASTECH (OTTAWA) OE04940 TP LOGS.GPJ DST_MIN.GDT 5/1/06

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* - Catalytic Combustible Gas Detector

SAMPLE TYPE LEGEND

Auger Sample | Rock Core | Power Sample
Split Spoon Sample | Ride Sampler
Thin Wall Tube | Grab Sample

APPENDIX E

LOG OF TESTPIT TP38

DST REF. No.: OE04940
CLIENT: Canada Lands Company
PROJECT: Phase II Environmental Site Assessment
LOCATION: Canadian Forces Base, Rockcliffe, Ottawa, Ontario
SURFACE ELEV.: --/--

Testpit Data
METHOD: Backhoe
DIAMETER: N/A

DATE: November 01 2004

CCGD * O RKI EAGLE (PPM) 20 40 60 80 □ MINIRAE (PPM) 5 10 15 20	PPM	SAMPLES No.	Type	SPT N-Value	SYMBOL	SUBSURFACE PROFILE MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
	0	SGS1				FILL - sand and gravel, silty, trace clay, trace organics, trace cobbles				
							0.5			
						- sand, boulders, light brown				
						- silt, sandy, some cobbles, trace gravel, brown	1.0			Solid green/blue substance noted at 0.5 m below grade.
	0	SGS2								
							1.5			
	10	SGS3								
							2.0			
						TILL - silt, clayey, olive green				
	5	SGS4								
						- sand, silty, trace clay, black	2.5			
	0	SGS5								
						End of testpit at 2.7 m depth on possible bedrock.				

GASTECBH (OTTAWA: OE04940 TP - 038.GPJ DST_MIN.GDT 9/6/06

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* - Catalytic Combustible Gas Detector

SAMPLE TYPE LEGEND

Auger Sample | Rock Core | Power Sample
Split Spoon Sample | Slide Sampler
Thin Wall Tube | Grab Sample

APPENDIX E

LOG OF TESTPIT TP39

DST REF. No.: OE04940
CLIENT: **Canada Lands Company**
PROJECT: **Phase II Environmental Site Assessment**
LOCATION: **Canadian Forces Base, Rockcliffe, Ottawa, Ontario**
SURFACE ELEV.: **--/--**

Testpit Data
METHOD: **Backhoe**
DIAMETER: **N/A**

DATE: **November 01 2004**

CCGD * PPM (20, 40, 60, 80) / % LEL (5, 10, 15, 20)	PPM	SAMPLES No.	Type	SPT N-Value	SYMBL	SUBSURFACE PROFILE MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
						GRASS COVER				
						FILL - sand and gravel, silty, trace clay, dark brown				
	60	SGS1				- silt, trace clay, black	0.5			Hydrocarbon odour noted at 0.3 m depth. Black hydrocarbon staining noted at 1.2 m depth
	0	SGS2				- clay, silty, trace sand, light olive grey	1.0			
	15	SGS3				- silt, some clay, trace sand, light orange brown				
	45	SGS4				TILL - clay, silty, grey	1.5			Very strong hydrocarbon odour noted at 1.5 m depth.
						End of testpit at 1.8 m depth on possible bedrock.				Sample SGS5 taken at possible bedrock interface at bottom of testpit.

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* - Catalytic Combustible Gas Detector

SAMPLE TYPE LEGEND

Auger Sample; Rock Core; Piston Sample; Split Spoon Sample; Slotted Sampler; Thin Wall Tube; Grab Sample

APPENDIX E

GAS/TECBH (OTTAWA) OE04940 TP LOGS.GPJ DST_MIN.GDT 5/1/06

LOG OF TESTPIT TP40

DST REF. No.: **OE04940**
CLIENT: **Canada Lands Company**
PROJECT: **Phase II Environmental Site Assessment**
LOCATION: **Canadian Forces Base, Rockcliffe, Ottawa, Ontario**
SURFACE ELEV.: **--/--**

Testpit Data
METHOD: **Backhoe**
DIAMETER: **N/A**

DATE: **November 01 2004**

CCGD * PPM (0 / 20 / 40 / 60 / 80) % LEL (5 / 10 / 15 / 20)	PPM	SAMPLES No.	Type	SPT N-Value	SYMBOL	SUBSURFACE PROFILE MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
						GRASS COVER				Soils stratigraphy provided in this log are for information only. This testpit was advanced solely for the purpose of confirming the buried steamline.
						FILL - sand, silty				
						- clay, silty, concrete, rebar, miscellaneous construction debris	0.5			
							1.0			
							1.5			
							2.0			
						End of testpit at 2.2 m depth on concrete slab. No pipe found.				

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* - Catalytic Combustible Gas Detector

SAMPLE TYPE LEGEND

Auger Sample | Rock Core | Piezometer Sample
Split Spoon Sample | Slide Sample
Thin Wall Tube | Grab Sample

APPENDIX E

GASTECBH (OTTAWA) OE04940 TP LOGS.GPJ DST_MK.GDT 9/1/05

LOG OF TESTPIT TP41

DST REF. No.: **OE04940**
CLIENT: **Canada Lands Company**
PROJECT: **Phase II Environmental Site Assessment**
LOCATION: **Canadian Forces Base, Rockcliffe, Ottawa, Ontario**
SURFACE ELEV.: **--/--**

Testpit Data
METHOD: **Backhoe**
DIAMETER: **N/A**

DATE: **November 01 2004**

CGSD * O PPM 20 40 60 80 C % LEL 5 10 15 20	PPM	SAMPLES No.	Type	SPT N-Value	SYMBL	SUBSURFACE PROFILE MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
						FILL - sand, silty, some clay and gravel, concrete, metal, miscellaneous construction debris	0.5			Soils stratigraphy provided in this log are for information only. This testpit was advanced solely for the purpose of confirming the buried steamline.
						End of testpit at 0.9 m depth. Pipe found in wood casing.				

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* - Catalytic Combustible Gas Detector

SAMPLE TYPE LEGEND

Auger Sample
Split Spoon Sample
Thin Wall Tube
Rock Core
Slide Sampler
Grab Sample
Piezo Sample

APPENDIX E

G:\ACTIVE\BH (OTTAWA)\OE04940\TP LOGS.GPJ DST_MINI.GDT 9/1/05

LOG OF TESTPIT TP42

DST REF. No.: **OE04940**
CLIENT: **Canada Lands Company**
PROJECT: **Phase II Environmental Site Assessment**
LOCATION: **Canadian Forces Base, Rockcliffe, Ottawa, Ontario**
SURFACE ELEV.: **--/--**

Testpit Data
METHOD: **Backhoe**
DIAMETER: **N/A**

DATE: **November 01 2004**

CCGD * PPM (20 40 60 80) / % LEL (5 10 15 20)	PPM	SAMPLES No.	Type	SPT N-Value	SYMBOL	SUBSURFACE PROFILE MATERIAL DESCRIPTION	DEPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
						FILL - sand and gravel, silty, concrete debris				Soils stratigraphy provided in this log are for information only. This testpit was advanced solely for the purpose of confirming the buried steamline.
							0.5			
						End of testpit at 0.9 m depth. Pipe found.				

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* - Catalytic Combustible Gas Detector

SAMPLE TYPE LEGEND

Auger Sample | Rock Core | Piston Sample
Split Spoon Sample | Slide Sampler
Thin Wall Tube | Grab Sample

APPENDIX E

GAS\TECBH\OTTAWA\ OE04940 TP LOGS.GPJ DST_M.N.GDT 9/1/05

LOG OF TESTPIT TP43

DST REF. No.: **OE04940**
CLIENT: **Canada Lands Company**
PROJECT: **Phase II Environmental Site Assessment**
LOCATION: **Canadian Forces Base, Rockcliffe, Ottawa, Ontario**
SURFACE ELEV.: **--/--**

Testpit Data
METHOD: **Backhoe**
DIAMETER: **N/A**

DATE: **November 01 2004**

CCGD * PPM	SAMPLES No.	SAMPLES Type	SAMPLES SPT N-Value	SUBSURFACE PROFILE SYMBOL	MATERIAL DESCRIPTION	DEPTH m	ELEV m	WATER DATA	REMARKS
					SURFACE				
					FILL - sand and gravel, some silt and cobbles				Soils stratigraphy provided in this log are for information only. This testpit was advanced solely for the purpose of confirming the buried steamline.
						0.5			
					End of testpit at 0.9 m depth. Pipe found in insulation encased in wood tied with metal wrap.				

PPM: 20 40 60 80 | % LEL: 5 10 15 20

* - Catalytic Combustible Gas Detector

SAMPLE TYPE LEGEND

Auger Sample | Rock Core | Power Sample
Split Spoon Sample | Slide Sampler
Thin Wall Tube | Grab Sample

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APPENDIX E

G:\ASTE\GBH\OTTAWA_OE04940 TP LOGS.GPJ DST_MIN.GDT 8/1/05

LOG OF TESTPIT TP44

DST REF. No.: OE04940
CLIENT: **Canada Lands Company**
PROJECT: **Phase II Environmental Site Assessment**
LOCATION: **Canadian Forces Base, Rockcliffe, Ottawa, Ontario**
SURFACE ELEV.: **--/--**

Testpit Data
METHOD: **Backhoe**
DIAMETER: **N/A**

DATE: **November 01 2004**

CCGD * PPM (20 40 60 80) % LEL (5 10 15 20)	PPM	SAMPLES No.	Type	SPT N-Value	SYMBOL	MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
						FILL - sand and gravel, silty, concrete, metal and miscellaneous construction debris	0.5			Soils stratigraphy provided in this log are for information only. This testpit was advanced solely for the purpose of confirming the buried steamline.
						- clay, silty	1.0			
						End of testpit at 1.3 m depth. Pipe found.				

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* Catalytic Combustible Gas Detector

SAMPLE TYPE LEGEND

Auger Sample | Rock Core | Planar Sample
Split Spoon Sample | Slide Sampler
Thin Wall Tube | Grab Sample

APPENDIX E

GASTEC8H (OTTAWA) OE04940 TP LOGS.GPJ DST_MIN.GDT 3/1/06

LOG OF TESTPIT TP45

DST REF. No.: OE04940
CLIENT: Canada Lands Company
PROJECT: Phase II Environmental Site Assessment
LOCATION: Canadian Forces Base, Rockcliffe, Ottawa, Ontario
SURFACE ELEV.: --/--

Testpit Data
METHOD: Backhoe
DIAMETER: N/A

DATE: November 02 2004

CCGD * PPM 20 40 60 80 / % LEL 5 10 15 20	PPM	SAMPLES No.	SAMPLES Type	SAMPLES SPT N-Value	SUBSURFACE PROFILE SYMBOL	MATERIAL DESCRIPTION	DEPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
						FILL, - sand, silty, trace clay and organics, dark brown				Soils stratigraphy provided in this log are for information only. This testpit was advanced solely for the purpose of confirming the buried steamline.
						- sand, trace silt, yellowish orange				
						- sand, cobbles, boulders, concrete and miscellaneous construction debris	0.5			
							1.0			
						End of testpit at 1.1 m depth. Pipe found in insulation encased in wood tied with metal wrap.				

GAS TECH: (OTTAWA) OE04940 TP LOGS.GPJ DST_MIN.GDT 8/1/06

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* - Catalytic Combustible Gas Detector

SAMPLE TYPE LEGEND

Auger Sample | Rock Core | Power Sample
Split Spoon Sample | Slide Sampler
Thin Wall Tube | Grab Sample

APPENDIX E

LOG OF TESTPIT TP46

DST REF. No.: **OE04940**
CLIENT: **Canada Lands Company**
PROJECT: **Phase II Environmental Site Assessment**
LOCATION: **Canadian Forces Base, Rockcliffe, Ottawa, Ontario**
SURFACE ELEV.: **--/--**

Testpit Data
METHOD: **Backhoe**
DIAMETER: **N/A**
DATE: **November 02 2004**

CCGD * PPM (O 20 40 60 80; □ % LEL 5 10 15 20)	PPM	SAMPLES No.	Type	SPT N-Value	SYMBOL	SUBSURFACE PROFILE MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
						FILL - sand, silty, grey				Soils stratigraphy provided in this log are for information only. This testpit was advanced solely for the purpose of confirming the buried steamline.
						- sand, silty, trace gravel and cobbles, light brown	0.5			
							1.0			
							1.5			
							2.0			
						- sand, silty, light brown, boulders of limestone bedrock				
							2.5			
						End of testpit at 2.5 m depth. No pipe found.				

* - Catalytic Combustible Gas Detector

SAMPLE TYPE LEGEND

Auger Sample | Rock Core | Penar Sample
SpX Spoon Sample | Side Sampler
Thin Well Tube | Grab Sample

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LOG OF TESTPIT TP47

DST REF. No.: **OE04940**
CLIENT: **Canada Lands Company**
PROJECT: **Phase II Environmental Site Assessment**
LOCATION: **Canadian Forces Base, Rockcliffe, Ottawa, Ontario**
SURFACE ELEV.: --/--

Testpit Data
METHOD: **Backhoe**
DIAMETER: **N/A**

DATE: **November 02 2004**

CCGD * PPM (O 20 40 60 80 / D % LEL 5 10 15 20)	PPM	SAMPLES No.	SAMPLES Type	SPT N-Value	SYMBL	SUBSURFACE PROFILE MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
						FILL - sand, silty, trace organics, dark grey				Soils stratigraphy provided in this log are for information only. This testpit was advanced solely for the purpose of confirming the buried steamline.
						- sand, silty, trace gravel, brown to yellowish orange	0.5			
							1.0			
						End of testpit at 1.3 m depth. Pipe found in Gilsutafe.				

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* - Catalytic Combustible Gas Detector

SAMPLE TYPE LEGEND

Auger Sample | Rock Core | Piston Sample
Split Spoon Sample | Slide Sample
Thin Wall Tube | Grab Sample

APPENDIX E

G:\GTECH\OTTAWA\ OE04940-TP LOGS.GPJ DST_MIN.GDT 6/1/05

LOG OF TESTPIT TP48

DST REF. No.: OE04940
CLIENT: Canada Lands Company
PROJECT: Phase II Environmental Site Assessment
LOCATION: Canadian Forces Base, Rockcliffe, Ottawa, Ontario
SURFACE ELEV.: --/--

Testpit Data
METHOD: Backhoe
DIAMETER: N/A

DATE: November 02 2004

CCGD * PPM (O: 20 40 60 80; □: % LEL 5 10 15 20)	PPM	SAMPLES No.	SAMPLES Type	SPT N-Value	SYMBL	MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
O	10	SGS1				FILL - sand, silty, trace organics, grey				Soils stratigraphy provided in this log are for information only. This testpit was advanced solely for the purpose of confirming the buried steamline.
						- sand, trace silt, yellowish brown				
						- sand, silty, black	0.5			
						- sand, silty, trace clay and gravel, light brown	1.0			
						- concrete slab, possible inverted trench	1.5			
						End of testpit at 1.7 m depth. No pipe found.				

GASTECBH (OTTAWA) OE04940 TP LOGS.GPJ DST_MIN.GDT 5/1/08

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* - Catalytic Combustible Gas Detector

SAMPLE TYPE LEGEND

Auger Sample; Rock Core; Penar Sample
Split Spoon Sample; Slotted Sampler
Thin Wall Tube; Grab Sample

APPENDIX E

LOG OF TESTPIT TP49

DST REF. No.: **OE04940**
CLIENT: **Canada Lands Company**
PROJECT: **Phase II Environmental Site Assessment**
LOCATION: **Canadian Forces Base, Rockcliffe, Ottawa, Ontario**
SURFACE ELEV.: **--/--**

Testpit Data
METHOD: **Backhoe**
DIAMETER: **N/A**

DATE: **November 02 2004**

CCGD * PPM (○ 20 40 60 80 / □ % LEL 5 10 15 20)	PPM	SAMPLES No.	SAMPLES Type	SPT N-Value	SYMBL	SUBSURFACE PROFILE MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
						FILL - sand, silty, trace organics, dark grey				Soils stratigraphy provided in this log are for information only. This testpit was advanced solely for the purpose of confirming the buried steamline.
						- sand, silty, yellowish brown	0.5			
						End of testpit at 1.0 m depth. Pipe found in Ric-Will.	1.0			

* - Catalytic Combustible Gas Detector

SAMPLE TYPE LEGEND

Auger Sample; Spilt Spoon Sample; Thin Wall Tube; Rock Core; Slide Sampler; Grab Sample; Panar Sample

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APPENDIX E

GAS/TECER (OTTAWA) 02EM840 TP LOGS.GPJ DST_MIN.GDT 3/1/05

LOG OF TESTPIT TP50

DST REF. No.: OE04940
CLIENT: Canada Lands Company
PROJECT: Phase II Environmental Site Assessment
LOCATION: Canadian Forces Base, Rockcliffe, Ottawa, Ontario
SURFACE ELEV.: --/--

Testpit Data
METHOD: Backhoe
DIAMETER: N/A

DATE: November 02 2004

CCGD * (O: PPM 20 40 60 80; G: % LEL 5 10 15 20)	PPM	SAMPLES No.	SAMPLES Type	SPT N-Value	SYMBOL	SUBSURFACE PROFILE — MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
						FILL - sand, silty, grey brown, concrete, brick, rebar, structural steel and miscellaneous construction debris				Soils stratigraphy provided in this log are for information only. This testpit was advanced solely for the purpose of confirming the buried steamline.
							0.5			
						End of testpit at 0.8 m depth on concrete slab, possible inverted trench.				

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* - Catalytic Combustible Gas Detector

SAMPLE TYPE LEGEND

Auger Sample; Rock Core; Piezo Sample
Split Spoon Sample; Slide Sampler
Thin Wall Tube; Grab Sample

APPENDIX E

GASTECSN (OTTAWA) OE04940 TP LOGS.GPJ DST_MIN.GDT 9/1/06

LOG OF TESTPIT TP51

DST REF. No.: **OE04940**
CLIENT: **Canada Lands Company**
PROJECT: **Phase II Environmental Site Assessment**
LOCATION: **Canadian Forces Base, Rockcliffe, Ottawa, Ontario**
SURFACE ELEV.: **--/--**

Testpit Data
METHOD: **Backhoe**
DIAMETER: **N/A**

DATE: **November 02 2004**

CCGD * O PPM 20 40 60 80 / U % LEL 5 10 15 20	PPM	SAMPLES No.	SAMPLES Type	SPT N-Value	SYMBL	SUBSURFACE PROFILE MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
						FILL - sand, silt, some cobbles, trace gravel, light brown				Soils stratigraphy provided in this log are for information only. This testpit was advanced solely for the purpose of confirming the buried steamline.
						- sand, trace silt, yellowish orange	0.5			
						End of test pit at 0.9 m depth. Pipe found, inverted trench.				

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SAMPLE TYPE LEGEND

Auger Sample | Rock Core | Power Sample
Split Spoon Sample | Slide Sampler
Thin Wall Tube | Grab Sample

APPENDIX E

G:\GEOTECH\OTTAWA\ OE04940 TP LOGS.GPJ DST_XIN.GDT 9/11/06

LOG OF TESTPIT TP52

DST REF. No.: OE04940
CLIENT: Canada Lands Company
PROJECT: Phase II Environmental Site Assessment
LOCATION: Canadian Forces Base, Rockcliffe, Ottawa, Ontario
SURFACE ELEV.: --/--

Testpit Data
METHOD: Backhoe
DIAMETER: N/A

DATE: November 02 2004

CCGD * PPM (○ 20 40 60 80; □ % LEL 5 10 15 20)	PPM	SAMPLES No.	SAMPLES Type	SPT N-Value	SYMBOL	SUBSURFACE PROFILE MATERIAL DESCRIPTION	DEPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
⊖	10	SS1				FILL - sand, silty, brown, possible black hydrocarbon staining				Soils stratigraphy provided in this log are for information only. This testpit was advanced solely for the purpose of confirming the buried steamline.
						- Gilsulate/Protexulate	0.5			
						End of test pit at 0.6 m depth. Pipe found in Gilsulate/Protexulate.				

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* - Catalytic Combustible Gas Detector

SAMPLE TYPE LEGEND

Auger Sample | Rock Core | Penar Sample
Split Spoon Sample | Slide Sampler
Thin Wall Tube | Grab Sample

APPENDIX E

GAS/TEG/BH (OTTAWA) OE04940 TP LOGS.GPJ DST_MIN.GDT 9/1/05

LOG OF TESTPIT TP53

DST REF. No.: **OE04940**
CLIENT: **Canada Lands Company**
PROJECT: **Phase II Environmental Site Assessment**
LOCATION: **Canadian Forces Base, Rockcliffe, Ottawa, Ontario**
SURFACE ELEV.: **--/--**

Testpit Data
METHOD: **Backhoe**
DIAMETER: **N/A**

DATE: **November 02 2004**

CCGD * PPM (○ 20 40 60 80, □ % LEL 5 10 15 20)	PPM	SAMPLES No.	Type	SPT N-Value	SYMBL	SUBSURFACE PROFILE MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
						FILL - gravel, grey				Soils stratigraphy provided in this log are for information only. This testpit was advanced solely for the purpose of confirming the buried steamline.
						- sand, silty, brownish yellow				
						- inverted trench	0.5			
						End of testpit at 1.0 m depth. Pipe found in inverted trench.	1.0			

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* - Catalytic Combustible Gas Detector

SAMPLE TYPE LEGEND

Auger Sample · Rock Core · Piston Sample
Split Spoon Sample · Slotted Sampler
Thin Wall Tube · Grab Sample

APPENDIX E

GAS:TECGH (OTTAWA) OE04940 TP LOGS.GPJ DST_MIN.GDT 9/1/06

LOG OF TESTPIT TP54

DST REF. No.: OE04940
CLIENT: Canada Lands Company
PROJECT: Phase II Environmental Site Assessment
LOCATION: Canadian Forces Base, Rockcliffe, Ottawa, Ontario
SURFACE ELEV.: --/--

Testpit Data
METHOD: Backhoe
DIAMETER: N/A

DATE: November 02 2004

CCGD * O PPM 20 40 60 80 □ % LEL 5 10 15 20	PPM	SAMPLES No.	Type	SPT N-Value	SYMBOL	SUBSURFACE PROFILE MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
						FILL - clay, silty, traco sand				Soils stratigraphy provided in this log are for information only. This testpit was advanced solely for the purpose of confirming the buried steamline.
						- sand, silty, yellowish orange				
						- Gilsulate/Protexulate	0.5			
						End of testpit at 0.7 m depth. Pipe found in Gilsulate/Protexulate.				

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* - Catalytic Combustible Gas Detector

SAMPLE TYPE LEGEND

Auger Sample; Rock Core; Power Sample
Split Spoon Sample; Slide Sampler
Thin Wall Tube; Grab Sample

APPENDIX E

GASTECSH (OTTAWA) OE04940 TP LOGS.GPJ DST_MIN.GDT 9/1/06

LOG OF TESTPIT TP55

DST REF. No.: **OE04940**
CLIENT: **Canada Lands Company**
PROJECT: **Phase II Environmental Site Assessment**
LOCATION: **Canadian Forces Base, Rockcliffe, Ottawa, Ontario**
SURFACE ELEV.: **--/--**

Testpit Data
METHOD: **Backhoe**
DIAMETER: **N/A**

DATE: **November 02 2004**

CCGD * PPM	SAMPLES No.	SAMPLES Type	SAMPLES SPT N-Value	SYMBL	SUBSURFACE PROFILE MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	REMARKS
					SURFACE				
					ASPHALT - 55 mm FILL - gravel, grey - sand, silty, yellowish orange				Soils stratigraphy provided in this log are for information only. This testpit was advanced solely for the purpose of confirming the buried steamline.
					- inverted trench	0.5			
					End of testpit at 1.0 m depth. Pipe found in inverted trench.	1.0			

PPM: 0 20 40 60 80 | % LEL: 5 10 15 20

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* - Catalytic Combustible Gas Detector

SAMPLE TYPE LEGEND

Auger Sample | Rock Core | Penar Sample
Split Spoon Sample | Slide Sampler
Thin Wall Tube | Grab Sample

APPENDIX E

GAS TECH (OTTAWA) OE04940 TP LOGS.GPJ DST_MIN.GDT 8/1/06

LOG OF TESTPIT TP56

DST REF. No.: **OE04940**
CLIENT: **Canada Lands Company**
PROJECT: **Phase II Environmental Site Assessment**
LOCATION: **Canadian Forces Base, Rockcliffe, Ottawa, Ontario**
SURFACE ELEV.: **--/--**

Testpit Data
METHOD: **Backhoe**
DIAMETER: **N/A**

DATE: **November 02 2004**

CCGD * PPM (20 40 60 80) % LEL (5 10 15 20)	PPM	SAMPLES No.	SAMPLES Type	SAMPLES SPT N-Value	SUBSURFACE PROFILE SYMBL	MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
	10	SS1		6 6 6		FILL - sand, silty, grey brown				Soils stratigraphy provided in this log are for information only. This testpit was advanced solely for the purpose of confirming the buried steamline.
						- sand, silty, yellowish orange, black cementitious possible hydrocarbon staining and silt like material				
						- Gilsulate/Protexulate	0.5			
						End of testpit at 0.8 m depth. Pipe found in Gilsulate/Protexulate.				

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* - Catalytic Combustible Gas Detector

SAMPLE TYPE LEGEND

Auger Sample; Rock Core; Power Sample
Split Spoon Sample; Sidio Sampler
Thin Wall Tube; Grab Sample

APPENDIX E

GAS TECH\M (OTTAWA) OE04940 TP LOGS.GPJ DST_MIN.GDT 9/1/06

LOG OF TESTPIT TP57

DST REF. No.: OE04940
CLIENT: Canada Lands Company
PROJECT: Phase II Environmental Site Assessment
LOCATION: Canadian Forces Base, Rockcliffe, Ottawa, Ontario
SURFACE ELEV.: --/--

Testpit Data
METHOD: Backhoe
DIAMETER: N/A

DATE: November 02 2004

CCGD * PPM (20 40 60 80) % LEL (5 10 15 20)	PPM	SAMPLES No.	Type	SPT N-Value	SYMBL	SUBSURFACE PROFILE MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
	10	SGS1				FILL - clay, silty, grey, trace sand				Soils stratigraphy provided in this log are for information only. This testpit was advanced solely for the purpose of confirming the buried steamline.
						- sand, silty, brown, black layers of shale like material, possible hydrocarbon staining. Pipe found at 0.4 m depth.	0.5			Four inch pipe found wrapped in aircell.
						End of testpit at 1.0 m depth.	1.0			

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* - Catalytic Combustible Gas Detector

SAMPLE TYPE LEGEND

Auger Sample
Split Spoon Sample
Thin Wall Tube
Rock Core
Slide Sampler
Grab Sample
Penar Sample

APPENDIX E

GAS TECBH (OTTAWA) OE04940 TP LOGS.GPJ DST_MIN.GDT 9/1/06

LOG OF TESTPIT TP60

DST REF. No.: **OE04940**
CLIENT: **Canada Lands Company**
PROJECT: **Phase II Environmental Site Assessment**
LOCATION: **Canadian Forces Base, Rockcliffe, Ottawa, Ontario**
SURFACE ELEV.: **--/--**

Testpit Data
METHOD: **Backhoe**
DIAMETER: **N/A**

DATE: **November 02 2004**

CCGD * PPM (20 40 60 80) / % LEL (5 10 15 20)	PPM	SAMPLES No.	Type	SPT N-Value	SYMBL	MATERIAL DESCRIPTION	DEPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
						ASPHALT - 100 mm FILL - sand, gravel, grey				Soils stratigraphy provided in this log are for information only. This testpit was advanced solely for the purpose of confirming the buried steamline.
						ASPHALT - 100 mm FILL - sand, silty, yellowish orange	0.5			
							1.0			
						End of testpit at 1.4 m depth. Pipe found in Ric-Will.				

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SAMPLE TYPE LEGEND

Auger Sample · Rock Core · Piston Sample
Split Spoon Sample · Slide Sampler
Thin Wall Tube · Grab Sample

APPENDIX E

G:\GASTECBH (OTTAWA)\OE04940 TP LOGS.GPJ DST_MIN.GDT 8/11/08

LOG OF TESTPIT TP61

DST REF. No.: OE04940
CLIENT: Canada Lands Company
PROJECT: Phase II Environmental Site Assessment
LOCATION: Canadian Forces Base, Rockcliffe, Ottawa, Ontario
SURFACE ELEV.: --/--

Testpit Data
METHOD: Backhoe
DIAMETER: N/A

DATE: November 02 2004

CGGD * PPM (20 40 60 80) % LEL (5 10 15 20)	PPM	SAMPLES No.	Type	SPT N-Value	SYMBL	SUBSURFACE PROFILE MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
O	10	SGS1				Fill - silt, sandy, trace organics, brown				Soils stratigraphy provided in this log are for information only. This testpit was advanced solely for the purpose of confirming the buried steamline.
						- silt, sandy, brown, trace to some black possible hydrocarbon nodules				
						- Pipe found at 0.53 m depth in Gilsulate/Protexulate.	0.5			
						End of testpit at 0.8 m depth.				

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SAMPLE TYPE LEGEND

Auger Sample
Spit Spoon Sample
Thin Wall Tube
Rock Core
Side Sampler
Grab Sample
Piezometer Sample

APPENDIX E

GASTECBH (OTTAWA) OE04940 TP LOGS.GPJ DST_MIN.GDT 6/1/06

LOG OF TESTPIT TP62

DST REF. No.: **OE04940**
CLIENT: **Canada Lands Company**
PROJECT: **Phase II Environmental Site Assessment**
LOCATION: **Canadian Forces Base, Rockcliffe, Ottawa, Ontario**
SURFACE ELEV.: --/--

Testpit Data
METHOD: **Backhoe**
DIAMETER: **N/A**

DATE: **November 03 2004**

CGCD * PPM (○ 20 40 60 80 / □ % LEL 5 10 15 20)	PPM	SAMPLES No.	SAMPLES Type	SAMPLES SPT N-Value	SYMBOL	SUBSURFACE PROFILE: MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
						FILL - sand, gravel, trace organics, grey				Soils stratigraphy provided in this log are for information only. This testpit was advanced solely for the purpose of confirming the buried steamline.
						- sand, trace silt				
○	10	SS1	G			- black (possible petroleum) staining. Pipe found at 0.60 m depth.	0.5			
						- clay, silty, trace sand, reddish brown	1.0			
						End of testpit at 1.2 m depth.				

* - Catalytic Combustible Gas Detector

SAMPLE TYPE LEGEND

Auger Sample · Rock Core · Piston Sample
Split Spoon Sample · Slide Sampler
Thin Wall Tube · Grab Sample

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APPENDIX E

G:\GSTECH\ (OTTAWA) OE04940 TP LOGS.GPJ DST_MIN.GDT 9/1/05

LOG OF TESTPIT TP63

DST REF. No.: OE04940
CLIENT: Canada Lands Company
PROJECT: Phase II Environmental Site Assessment
LOCATION: Canadian Forces Base, Rockcliffe, Ottawa, Ontario
SURFACE ELEV.: --/--

Testpit Data
METHOD: Backhoe
DIAMETER: N/A

DATE: November 03 2004

CCGD * PPM	SAMPLES No.	SAMPLES Type	SAMPLES SPT N-Value	SUBSURFACE PROFILE SYMBOL	MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	REMARKS
PPM					SURFACE				
					ASPHALT FILL - sand, gravel, grey				Soils stratigraphy provided in this log are for information only. This testpit was advanced solely for the purpose of confirming the buried steamline.
					- sand, silt, yellowish orange				
					- pipe found at joint of inverted trench and Ric-Will	0.5			
						1.0			
					End of testpit at 1.30 m depth.				Testpit 63 uncovered joint in steamline linking the inverted trench to a Ric-Will pipe.

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SAMPLE TYPE LEGEND

Auger Sample | Rock Core | Piston Sample
Split Spoon Sample | Slide Sampler
Thin Wall Tube | Grab Sample

APPENDIX E

GASTECBH (OTTAWA) OE04940.TP LOGS.GPJ DST_MIN.GDT 9/1/05

LOG OF TESTPIT TP64

DST REF. No.: **OE04940**
CLIENT: **Canada Lands Company**
PROJECT: **Phase II Environmental Site Assessment**
LOCATION: **Canadian Forces Base, Rockcliffe, Ottawa, Ontario**
SURFACE ELEV.: **--/--**

Testpit Data
METHOD: **Backhoe**
DIAMETER: **N/A**

DATE: **November 03 2004**

CCGD * O RKI EAGLE (PPM) 20 40 60 80 □ MINIRAE (PPM) 5 10 15 20	PPM	SAMPLES No.	SAMPLES Type	SAMPLES SPT N-Value	SYMBOL	SUBSURFACE PROFILE MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
						FILL - silt, sandy, trace clay and organics, grey brown				Soils stratigraphy provided in this log are for information only. This testpit was advanced solely for the purpose of confirming the buried steamline.
						- sand, silty, yellowish orange				
						- pipe found in Ric-Wrl	0.5			
						End of testpit at 0.75 m depth.				Concrete thrust block found at 22.5 degree turn.

GA8TECBH (OTTAWA) 02e4940 TP LOGS.GPJ DST_MIN.GDT 8/5/06

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SAMPLE TYPE LEGEND

Auger Sample | Rock Core | Power Sample
Split Spoon Sample | Slide Sampler
Thin Wall Tube | Grab Sample

APPENDIX E

LOG OF TESTPIT TP65

DST REF. No.: **OE04940**
CLIENT: **Canada Lands Company**
PROJECT: **Phase II Environmental Site Assessment**
LOCATION: **Canadian Forces Base, Rockcliffe, Ottawa, Ontario**
SURFACE ELEV.: **--/--**

Testpit Data
METHOD: **Backhoe**
DIAMETER: **N/A**

DATE: **November 03 2004**

CCGD * PPM (20 40 60 80) / % LEL (5 10 15 20)	PPM	SAMPLES No.	Type	SPT N-Value	SYMBOL	SUBSURFACE PROFILE MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
						FILL - clay, silty, trace sand and organics, brown				Soils stratigraphy provided in this log are for information only. This testpit was advanced solely for the purpose of confirming the buried steamline.
						- sand, silt, yellowish orange	0.5			
						- pipe found in culvert Rlc-Wifl	1.0			
						End of testpit at 1.1 m depth.				

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SAMPLE TYPE LEGEND

Auger Sample; Rock Core; Power Sample
Spit Spoon Sample; Slide Sampler
Thin Wall Tube; Grab Sample

APPENDIX E

GAS/TECH/N (OTTAWA) CE04940 TP LOGS.GPJ DST_MIN.GDT 8/1/06

LOG OF TESTPIT TP66

DST REF. No.: OE04940
CLIENT: **Canada Lands Company**
PROJECT: **Phase II Environmental Site Assessment**
LOCATION: **Canadian Forces Base, Rockcliffe, Ottawa, Ontario**
SURFACE ELEV.: --/--

Testpit Data
METHOD: **Backhoe**
DIAMETER: **N/A**

DATE: **November 01 2004**

OVGD * PPM (○ 20 40 60 80 / □ % LEL 5 10 15 20)	PPM	SAMPLES No.	Type	SPT N-Value	SYMBOL	SUBSURFACE PROFILE MATERIAL DESCRIPTION	DEPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
						GRASS COVER FILL - sand, silty, some gravel				Soils stratigraphy provided in this log are for information only. This testpit was advanced solely for the purpose of confirming the buried steamline.
							0.5			
						- clay, silty, some sand				
							1.0			
							1.5			Uncovered 90 degree pipe elbow "turning" east.
						End of testpit at 1.65 m depth. Pipe found in wood box.				

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SAMPLE TYPE LEGEND

Auger Sample · Rock Core · Power Sample
Split Spoon Sample · Soil Sampler
Thin Wall Tube · Grab Sample

APPENDIX E

GA9TEC8H (OTTAWA) OE04940 TP LOGS.GPJ DST_MIN.GDT 5/1/06

LOG OF TESTPIT TP67

DST REF. No.: **OE04940**
CLIENT: **Canada Lands Company**
PROJECT: **Phase II Environmental Site Assessment**
LOCATION: **Canadian Forces Base, Rockcliffe, Ottawa, Ontario**
SURFACE ELEV.: **--/--**

Testpit Data
METHOD: **Backhoe**
DIAMETER: **N/A**

DATE: **January 27 2005**

CCGD * PPM	SAMPLES No.	Type	SPT N-Value	SYMBL	SUBSURFACE PROFILE — MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	REMARKS
					SURFACE				
0	SG51				FILL - sand, trace silt and rootlets, yellowish brown				
					- trace brick, concrete, ash, cinders and coal	0.5			
0	SG52					1.0			
					End of testpit at 1.3 m depth on possible concrete.				

PPM: 20 40 60 80
% LEL: 5 10 15 20

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SAMPLE TYPE LEGEND

- Auger Sample
- Split Spoon Sample
- Thin Wall Tube
- Rock Core
- Slide Sampler
- Grab Sample
- Panar Sample

APPENDIX E

GASTECBH (OTTAWA) QE04940 TP LOGS.GPJ DST_MIN.GDT 9/1/05

LOG OF TESTPIT TP68

DST REF. No.: OE04940
CLIENT: Canada Lands Company
PROJECT: Phase II Environmental Site Assessment
LOCATION: Canadian Forces Base, Rockcliffe, Ottawa, Ontario
SURFACE ELEV.: --/--

Testpit Data
METHOD: Backhoe
DIAMETER: N/A

DATE: January 27 2005

CCGD * PPM (O: 20 40 60 80; □: % LEL 5 10 15 20)	PPM	SAMPLES No.	SAMPLES Type	SPT N-Value	SYMBL	SUBSURFACE PROFILE MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
O	0	SGS1				FILL - sand, trace silt, yellowish brown				
						- concrete, brick, pipe	0.5			
O	5	SGS2					1.0			
						End of testpit at 1.5 m depth on possible concrete.	1.5			

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* - Catalytic Combustible Gas Detector

SAMPLE TYPE LEGEND

Auger Sample | Rock Core | Piston Sample
Split Spoon Sample | Slide Sampler
Thin Wall Tube | Grab Sample

APPENDIX E

GASTECBH (OTTAWA) OE04940 TP LOGS.GPJ DST_MIN.GDT 6/1/06

LOG OF TESTPIT TP69

DST REF. No.: OE04940
CLIENT: Canada Lands Company
PROJECT: Phase II Environmental Site Assessment
LOCATION: Canadian Forces Base, Rockcliffe, Ottawa, Ontario
SURFACE ELEV.: --/--

Testpit Data
METHOD: Backhoe
DIAMETER: N/A

DATE: January 27 2005

CCGD * PPM (20 40 60 80) % LEL (5 10 15 20)	PPM	SAMPLES No.	Type	SPT N-Value	SYMBL	SUBSURFACE PROFILE MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
O	5	SGS1				FILL - sand, gravel and cobbles, yellowish orange with red lenses, trace transite, steel and concrete				
							0.5			Possible petroleum hydrocarbon staining noted.
O	10	SGS2								
							1.0			
O	5	SGS3								
							1.5			
O	5	SGS4								
						End of testpit at 2.0 m depth.	2.0			

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* - Catalytic Combustible Gas Detector

SAMPLE TYPE LEGEND

Auger Sample
Split Spoon Sample
Thin Wall Tube
Rock Core
Side Sampler
Grab Sample
Panar Sample

APPENDIX E

GASTECBH (OTTAWA): OE04940 TP LOGS.GPJ DST_MIN.GDT 8/1/05

LOG OF TESTPIT TP70

DST REF. No.: **OE04940**
CLIENT: **Canada Lands Company**
PROJECT: **Phase II Environmental Site Assessment**
LOCATION: **Canadian Forces Base, Rockcliffe, Ottawa, Ontario**
SURFACE ELEV.: **--/--**

Testpit Data
METHOD: **Backhoe**
DIAMETER: **N/A**

DATE: **January 27 2005**

CCGD * PPM (O 20 40 60 80 / % LEL 5 10 15 20)	PPM	SAMPLES No.	Type	SPT N-Value	SUBSURFACE PROFILE SYMBOL	MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
	0	SGS1				FILL - sand and gravel, yellowish brown, trace coal				Possible petroleum hydrocarbon staining noted.
	0	SGS2					0.5			
	0	SGS3					1.0			
						End of testpit at 1.3 m depth on possible bedrock.				

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SAMPLE TYPE LEGEND

Auger Sample; Rock Core; Power Sample
Split Spoon Sample; Slide Sampler
Thin Wall Tube; Grab Sample

APPENDIX E

G:\ASTECH\OTTAWA_OE04940_TP LOGS.GPJ DST_MIN.GDT 8/1/06

LOG OF TESTPIT TP71

DST REF. No.: OE04940
CLIENT: Canada Lands Company
PROJECT: Phase II Environmental Site Assessment
LOCATION: Canadian Forces Base, Rockcliffe, Ottawa, Ontario
SURFACE ELEV.: --/--

Testpit Data
METHOD: Backhoe
DIAMETER: N/A

DATE: January 27 2005

CCGD * PPM (○ 20 40 60 80; □ % LEL 5 10 15 20)	PPM	SAMPLES No.	SAMPLES Type	SPT N-Value	SYMBL	SUBSURFACE PROFILE MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
						FILL - sand, trace silt, yellowish orange, block of concrete and cobble size coal	0.5			
							1.0			
							1.5			
						End of testpit at 2.0 m depth.	2.0			

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SAMPLE TYPE LEGEND

Auger Sample
Split Spoon Sample
Thin Wall Tube
Rock Core
Slide Samples
Grab Sample
Piezo Sample

APPENDIX E

GAS TECBH (OTTAWA) OE04940 TP LOGS.GPJ DST_MIN.GDT 9/1/05

LOG OF TESTPIT TP72

DST REF. No.: OE04940
CLIENT: Canada Lands Company
PROJECT: Phase II Environmental Site Assessment
LOCATION: Canadian Forces Base, Rockcliffe, Ottawa, Ontario
SURFACE ELEV.: --/--

Testpit Data
METHOD: Backhoe
DIAMETER: N/A

DATE: January 27 2005

CCGD * PPM (20 40 60 80) % LEL (5 10 15 20)	PPM	SAMPLES No.	Type	SPT N-Value	SUBSURFACE PROFILE SYMBL	MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
	0	SGS1				FILL - sand, trace silt, yellowish brown to yellowish orange with depth	0.5			
	0	SGS2					1.0			
	0	SGS3				End of testpit at 1.5 m depth.	1.5			

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SAMPLE TYPE LEGEND

Auger Sample | Rock Core | Penar Sample
Split Spoon Sample | Slide Sampler
Thin Wall Tube | Grab Sample

APPENDIX E

SASTECBM (OTTAWA) OE04940 TP LOGS.GPJ DST_MIN.GDT 9/10/05

LOG OF TESTPIT TP73

DST REF. No.: OE04940
CLIENT: Canada Lands Company
PROJECT: Phase II Environmental Site Assessment
LOCATION: Canadian Forces Base, Rockcliffe, Ottawa, Ontario
SURFACE ELEV.: --/--

Testpit Data
METHOD: Backhoe
DIAMETER: N/A

DATE: January 27 2005

CCGD * PPM (20 40 60 80) % LEL (5 10 15 20)	PPM	SAMPLES No.	Type	SPT N-Value	SYMBL	SUBSURFACE PROFILE MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
	0	SGS1				FILL - sand, gravel and coal, black				
						- sand, orange brown	0.5			
	0	SGS2								
						End of testpit at 1.0 m depth	1.0			

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SAMPLE TYPE LEGEND

Auger Sample
Split Spoon Sample
Thin Wall Tube
Rock Core
Slide Sampler
Grab Sample
Power Sample

APPENDIX E

G:\ASTED\BH (OTTAWA) OE04940 TP LOGS.GPJ DST_MIN.GDT 3/1/06

LOG OF TESTPIT TP74

DST REF. No.: OE04940
CLIENT: Canada Lands Company
PROJECT: Phase II Environmental Site Assessment
LOCATION: Canadian Forces Base, Rockcliffe, Ottawa, Ontario
SURFACE ELEV.: --/--

Testpit Data
METHOD: Backhoe
DIAMETER: N/A

DATE: January 27 2005

CCGD * PPM (20 40 60 80) % LEL (5 10 15 20)	PPM	SAMPLES No.	Type	SPT N-Value	SYMBOL	SUBSURFACE PROFILE MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
	0	SGS1				FILL - sand, silty, trace clay and coal, dark brown				
	0	SGS2				- trace silt, timonite cementation, orange to yellowish orange with depth	0.5			
	0	SGS3					1.0			
						End of testpit at 1.5 m depth.	1.5			

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SAMPLE TYPE LEGEND

Auger Sample | Rock Core | Power Sample
Split Spoon Sample | Slide Sampler
Thin Wall Tube | Grab Sample

APPENDIX E

GA:\TECSH\OTTAWA\ OE04940 TP LOGS.GPJ DST_MIN.GDT 9/1/05

LOG OF TESTPIT TP75

DST REF. No.: **OE04940**
CLIENT: **Canada Lands Company**
PROJECT: **Phase II Environmental Site Assessment**
LOCATION: **Canadian Forces Base, Rockcliffe, Ottawa, Ontario**
SURFACE ELEV.: **--/--**

Testpit Data
METHOD: **Backhoe**
DIAMETER: **N/A**

DATE: **January 27 2005**

CCGD * PPM (20 40 60 80)	CCGD * % LEL (5 10 15 20)	PPM	SAMPLES No.	SAMPLES Type	SAMPLES SPT N-Value	SUBSURFACE PROFILE SYMBOL	MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	REMARKS
							SURFACE				
O		5	SGS1				FILL - sand, gravel and coal, trace rootlets, dark grey to black				
							- sand, some gravel, orange	0.5			
O		0	SGS2					1.0			
O		0	SGS3					1.5			
O		0	SGS4								
							End of testpit at 2.0 m depth.	2.0			

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SAMPLE TYPE LEGEND

- Auger Sample
- Split Spoon Sample
- Thin Wall Tube
- Rock Core
- Slide Sampler
- Grab Sample
- Panel Sample

APPENDIX E

GAS\ECBH (OTTAWA) OE04940 TP LOGS.GPJ DST_KIN.GDT 9/1/06

APPENDIX F
LABORATORY CERTIFICATES OF ANALYSIS

SOIL
LABORATORY CERTIFICATES OF ANALYSIS

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Certificate of Analysis

DST Consulting Engineers Inc.

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Attn: Mr. Ken Budel

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Client PO: **OE04940**
Project: **6558**
Custody #: **15452**

Report Date: 04-Nov-2004
Order Date: 27-Oct-2004

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID	Client ID
J4704.1	TP1-SGS2
J4704.2	TP1-SGS3
J4704.3	TP1-SGS5
J4704.4	TP2-SGS2
J4704.5	TP2-SGS3
J4704.6	TP2-SGS5
J4704.7	TP12-SGS2
J4704.8	TP12-SGS3
J4704.9	TP12-SGS5
J4704.10	TP13-SGS2
J4704.11	TP13-SGS3
J4704.12	TP13-SGS5
J4704.13	TP14-SGS2
J4704.14	TP14-SGS3
J4704.15	TP14-SGS5

Approved By: _____ Dale Robertson, B.Sc.
Laboratory Director

Any use of these test results implies your agreement that our total liability in connection with this work, however arising, shall be limited to the amount paid by you for this work, and that our employees or agents shall not under any circumstance be liable to you in connection with this work.

Certificate of Analysis

Client: **DST Consulting Engineers Inc.**

Client PO: OR04940

Project: 6558

Report Date: 04-Nov-2004

Order Date: 27-Oct-2004

Analysis Summary Table

Analysis	Method Reference/Description
Metals	EPA 6020 - ICP-MS
PHC F1 (CCME)	CWS PHCs - P&T GC-FID
PHC F2-F4 (CCME)	CWS PHC - GC-FID
PAHs	modified EPA 8270 - GC-MS

n/a: not applicable

MDL: Method Detection Limit

Soil results calculated on a dry weight basis.

CCME PHC additional information:

- The method for the analysis of PHCs complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
- F1 range corrected for BTEX where available
- F2 to F3 ranges corrected for appropriate PAHs where available.
- The gravimetric TPH (heavy oil) result is not to be added to the PHC fractions.

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Report Date: 04-Nov-2004
Order Date: 27-Oct-2004

Client: **DST Consulting Engineers Inc.**
Client PO: OE04940

Project: 6558

Matrix: Soil

Parameter	MDL/Units	Sample ID: TP1-SGS2	TP1-SGS3	TP1-SGS5
		Sample Date: 25/10/2004	25/10/2004	25/10/2004
		J4704.1	J4704.2	J4704.3
Antimony	1 ug/g	< 1	< 1	< 1
Arsenic	1 ug/g	2	3	2
Barium	10 ug/g	340	370	400
Beryllium	0.5 ug/g	< 0.5	0.5	0.5
Cadmium	0.5 ug/g	< 0.5	< 0.5	< 0.5
Calcium	200 ug/g	59,000	34,000	17,000
Chromium	5 ug/g	60	65	90
Cobalt	5 ug/g	15	15	20
Copper	5 ug/g	35	40	45
Iron	200 ug/g	30,000	34,000	38,000
Lead	1 ug/g	16	14	11
Magnesium	200 ug/g	12,000	12,000	16,000
Molybdenum	1 ug/g	< 1	< 1	< 1
Nickel	5 ug/g	40	40	50
Selenium	1 ug/g	< 1	< 1	< 1
Silver	0.3 ug/g	< 0.3	< 0.3	< 0.3
Sodium	200 ug/g	800	800	1,200
Thallium	1 ug/g	< 1	< 1	< 1
Tin	5 ug/g	< 5	< 5	< 5
Vanadium	10 ug/g	60	60	80
Zinc	20 ug/g	80	100	140
F1 PHCs (C6-C10)	20 ug/g	< 20	< 20	< 20
F2 PHCs (C10-C16)	10 ug/g	40	30	30
F3 PHCs (C16-C34)	10 ug/g	30	50	20
F4 PHCs (C34-C50)	10 ug/g	20	70	30
Acenaphthene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Acenaphthylene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Anthracene	0.02 ug/g	< 0.02	0.04	< 0.02
Benzo[a]anthracene	0.02 ug/g	0.04	0.58	< 0.02

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Client: DST Consulting Engineers Inc.

Client PO: O1004948

Project: 6558

Report Date: 04-Nov-2004
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		TP1-SGS2	TP1-SGS3	TP1-SGS5
		25/10/2004	25/10/2004	25/10/2004
		J4704.1	J4704.2	J4704.3
Benzo[a]pyrene	0.02 ug/g	0.04	0.52	< 0.02
Benzo[b]fluoranthene	0.02 ug/g	0.04	0.88	< 0.02
Benzo[ghi]perylene	0.02 ug/g	0.04	0.60	< 0.02
Benzo[k]fluoranthene	0.02 ug/g	0.02	0.38	< 0.02
Biphenyl	0.02 ug/g	< 0.02	< 0.02	< 0.02
Chrysene	0.02 ug/g	0.04	0.62	< 0.02
Dibenzo[a,h]anthracene	0.02 ug/g	< 0.02	0.22	< 0.02
Fluoranthene	0.02 ug/g	0.06	0.64	< 0.02
Fluorene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Indeno[1,2,3-cd]pyrene	0.02 ug/g	0.04	0.66	< 0.02
1-Methylnaphthalene	0.02 ug/g	0.04	0.04	< 0.02
2-Methylnaphthalene	0.02 ug/g	0.04	0.04	< 0.02
Naphthalene	0.02 ug/g	0.04	0.04	< 0.02
Phenanthrene	0.02 ug/g	0.04	0.14	< 0.02
Pyrene	0.02 ug/g	0.04	0.58	< 0.02
2-Fluorobiphenyl	surrogate	67%	69%	55%
p-Terphenyl d-14	surrogate	68%	76%	83%

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Report Date: 04-Nov-2004
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Client: DST Consulting Engineers Inc.
Client PO: 0604940 Project: 6558

Matrix: Soil

Parameter	MDL/Units	Sample ID: TP2-SG82	TP2-SG83	TP2-SG85
	Sample Date:	25/10/2004	25/10/2004	25/10/2004
		J4704.4	J4704.5	J4704.6
Antimony	1 ug/g	< 1	< 1	< 1
Arsenic	1 ug/g	2	2	2
Barium	10 ug/g	260	200	270
Beryllium	0.5 ug/g	0.5	0.5	< 0.5
Cadmium	0.5 ug/g	< 0.5	< 0.5	< 0.5
Calcium	200 ug/g	10,000	11,000	12,000
Chromium	5 ug/g	50	40	55
Cobalt	5 ug/g	10	10	15
Copper	5 ug/g	25	25	25
Iron	200 ug/g	28,000	25,000	28,000
Lead	1 ug/g	11	15	16
Magnesium	200 ug/g	9,800	8,600	11,000
Molybdenum	1 ug/g	< 1	< 1	< 1
Nickel	5 ug/g	30	25	35
Selenium	1 ug/g	< 1	< 1	< 1
Silver	0.3 ug/g	< 0.3	< 0.3	< 0.3
Sodium	200 ug/g	400	400	400
Thallium	1 ug/g	< 1	< 1	< 1
Tin	5 ug/g	< 5	< 5	< 5
Vanadium	10 ug/g	50	50	50
Zinc	20 ug/g	100	80	100
F1 PHCs (C6-C10)	20 ug/g	< 20	< 20	< 20
F2 PHCs (C10-C16)	10 ug/g	30	30	30
F3 PHCs (C16-C34)	10 ug/g	30	50	40
F4 PHCs (C34-C50)	10 ug/g	30	80	60
Acenaphthene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Acenaphthylene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Anthracene	0.02 ug/g	< 0.02	0.04	< 0.02
Benzo[a]anthracene	0.02 ug/g	0.04	0.20	0.06

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Client PO: OE04940

Project: 6558

Report Date: 04-Nov-2004
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		TP2-SGS2	TP2-SGS3	TP2-SGS5
		25/10/2004	25/10/2004	25/10/2004
		J4704.4	J4704.5	J4704.6
Benzo[a]pyrene	0.02 ug/g	0.04	0.20	0.08
Benzo[b]fluoranthene	0.02 ug/g	0.04	0.26	0.12
Benzo[ghi]perylene	0.02 ug/g	0.04	0.22	0.08
Benzo[k]fluoranthene	0.02 ug/g	0.02	0.12	0.06
Biphenyl	0.02 ug/g	< 0.02	< 0.02	< 0.02
Chrysene	0.02 ug/g	0.04	0.20	0.10
Dibenzo[a,h]anthracene	0.02 ug/g	< 0.02	0.04	0.02
Fluoranthene	0.02 ug/g	0.06	0.30	0.10
Fluorene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Indeno[1,2,3-cd]pyrene	0.02 ug/g	0.04	0.20	0.08
1-Methylnaphthalene	0.02 ug/g	< 0.02	< 0.02	< 0.02
2-Methylnaphthalene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Naphthalene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Phenanthrene	0.02 ug/g	0.02	0.10	0.02
Pyrene	0.02 ug/g	0.06	0.30	0.10
2-Fluorobiphenyl	surrogate	53%	63%	71%
p-Terphenyl d-14	surrogate	66%	66%	62%

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Report Date: 04-Nov-2004
Order Date: 27-Oct-2004

Client: DST Consulting Engineers Inc.

Client PO: OR04940 Project: 6558

Matrix: Soil

Parameter	MDL/Units	Sample ID: TP12-SGS2	TP12-SGS3	TP12-SGS5
	Sample Date:	25/10/2004	25/10/2004	25/10/2004
		J4704.7	J4704.8	J4704.9
Antimony	1 ug/g	< 1	< 1	< 1
Arsenic	1 ug/g	2	2	2
Barium	10 ug/g	330	350	360
Beryllium	0.5 ug/g	< 0.5	0.5	0.5
Cadmium	0.5 ug/g	< 0.5	< 0.5	< 0.5
Calcium	200 ug/g	13,000	10,000	17,000
Chromium	5 ug/g	60	65	65
Cobalt	5 ug/g	15	15	15
Copper	5 ug/g	30	35	30
Iron	200 ug/g	31,000	34,000	36,000
Lead	1 ug/g	17	21	22
Magnesium	200 ug/g	12,000	13,000	13,000
Molybdenum	1 ug/g	< 1	< 1	< 1
Nickel	5 ug/g	35	35	35
Selenium	1 ug/g	< 1	< 1	< 1
Silver	0.3 ug/g	< 0.3	< 0.3	< 0.3
Sodium	200 ug/g	600	600	600
Thallium	1 ug/g	< 1	< 1	< 1
Tin	5 ug/g	< 5	< 5	< 5
Vanadium	10 ug/g	60	60	70
Zinc	20 ug/g	80	100	140
Acenaphthene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Acenaphthylene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Anthracene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Benzo[a]anthracene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Benzo[a]pyrene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Benzo[b]fluoranthene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Benzo[ghi]perylene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Benzo[k]fluoranthene	0.02 ug/g	< 0.02	< 0.02	< 0.02

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Order Date: 27-Oct-2004

Client: **DST Consulting Engineers Inc.**
Client PO: OI604940

Project: 6558

		TP12-SGS2	TP12-SGS3	TP12-SGS5
		25/10/2004	25/10/2004	25/10/2004
		J4704.7	J4704.8	J4704.9
Biphenyl	0.02 ug/g	< 0.02	< 0.02	< 0.02
Chrysene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Dibenzo[a,h]anthracene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Fluoranthene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Fluorene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Indeno[1,2,3-cd]pyrene	0.02 ug/g	< 0.02	< 0.02	< 0.02
1-Methylnaphthalene	0.02 ug/g	< 0.02	< 0.02	< 0.02
2-Methylnaphthalene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Naphthalene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Phenanthrene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Pyrene	0.02 ug/g	< 0.02	< 0.02	< 0.02
2-Fluorobiphenyl	surrogate	75%	46%	55%
p-Terphenyl d-14	surrogate	79%	69%	49%

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Order Date: 27-Oct-2004

Client: **DST Consulting Engineers Inc.**
Client PO: OM04940

Project: 6558

Matrix: Soil

Parameter	Sample ID:	TP13-SGS2	TP13-SGS3	TP13-SGS5
	Sample Date:	25/10/2004	25/10/2004	25/10/2004
	MDL/Units	J4704.10	J4704.11	J4704.12
Antimony	1 ug/g	< 1	< 1	< 1
Arsenic	1 ug/g	1	1	1
Barium	10 ug/g	70	80	70
Beryllium	0.5 ug/g	< 0.5	< 0.5	< 0.5
Cadmium	0.5 ug/g	< 0.5	< 0.5	< 0.5
Calcium	200 ug/g	16,000	18,000	14,000
Chromium	5 ug/g	15	15	15
Cobalt	5 ug/g	5	5	5
Copper	5 ug/g	10	10	10
Iron	200 ug/g	13,000	14,000	12,000
Lead	1 ug/g	13	20	10
Magnesium	200 ug/g	5,200	5,800	5,200
Molybdenum	1 ug/g	< 1	< 1	< 1
Nickel	5 ug/g	10	10	10
Selenium	1 ug/g	< 1	< 1	< 1
Silver	0.3 ug/g	< 0.3	< 0.3	< 0.3
Sodium	200 ug/g	< 200	200	< 200
Thallium	1 ug/g	< 1	< 1	< 1
Tin	5 ug/g	< 5	< 5	< 5
Vanadium	10 ug/g	20	20	20
Zinc	20 ug/g	40	60	40
F1 PHCs (C6-C10)	20 ug/g	< 20	< 20	< 20
F2 PHCs (C10-C16)	10 ug/g	30	20	20
F3 PHCs (C16-C34)	10 ug/g	110	40	20
F4 PHCs (C34-C50)	10 ug/g	310	120	60
Acenaphthene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Acenaphthylene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Anthracene	0.02 ug/g	< 0.02	0.02	< 0.02
Benzo[a]anthracene	0.02 ug/g	0.06	0.12	0.04

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		TP13-SGS2	TP13-SG93	TP13-SG95
		25/10/2004	25/10/2004	25/10/2004
		J4704.10	J4704.11	J4704.12
Benzo[a]pyrene	0.02 ug/g	0.06	0.12	0.04
Benzo[b]fluoranthene	0.02 ug/g	0.08	0.16	0.04
Benzo[ghi]perylene	0.02 ug/g	0.06	0.12	0.04
Benzo[k]fluoranthene	0.02 ug/g	0.04	0.08	0.02
Biphenyl	0.02 ug/g	< 0.02	< 0.02	< 0.02
Chrysene	0.02 ug/g	0.06	0.14	0.04
Dibenzo[a,h]anthracene	0.02 ug/g	< 0.02	0.04	< 0.02
Fluoranthene	0.02 ug/g	0.10	0.22	0.06
Fluorene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Indeno[1,2,3-cd]pyrene	0.02 ug/g	0.06	0.12	0.04
1-Methylnaphthalene	0.02 ug/g	< 0.02	0.02	< 0.02
2-Methylnaphthalene	0.02 ug/g	< 0.02	0.02	< 0.02
Naphthalene	0.02 ug/g	< 0.02	0.04	< 0.02
Phenanthrene	0.02 ug/g	0.06	0.10	0.02
Pyrene	0.02 ug/g	0.10	0.18	0.06
2-Fluorobiphenyl	surrogate	56%	50%	53%
p-Terphenyl d-14	surrogate	54%	52%	58%

Certificate of Analysis

Client: DST Consulting Engineers Inc.

Client PO: O0004940 Project: 6558

Report Date: 04-Nov-2004
Order Date: 27-Oct-2004

Matrix: Soil

Parameter	MDL/Units	Sample ID: TP14-SGS2	TP14-SGS3	TP14-SGS5
	Sample Date:	25/10/2004	25/10/2004	25/10/2004
		J4704.13	J4704.14	J4704.15
Antimony	1 ug/g	< 1	< 1	< 1
Arsenic	1 ug/g	1	1	1
Barium	10 ug/g	70	60	70
Beryllium	0.5 ug/g	< 0.5	< 0.5	< 0.5
Cadmium	0.5 ug/g	< 0.5	< 0.5	< 0.5
Calcium	200 ug/g	5,400	5,200	36,000
Chromium	5 ug/g	15	15	10
Cobalt	5 ug/g	5	5	< 5
Copper	5 ug/g	10	10	10
Iron	200 ug/g	15,000	14,000	12,000
Lead	1 ug/g	6	6	10
Magnesium	200 ug/g	3,800	3,800	3,600
Molybdenum	1 ug/g	< 1	< 1	< 1
Nickel	5 ug/g	10	10	10
Selenium	1 ug/g	< 1	< 1	< 1
Silver	0.3 ug/g	< 0.3	< 0.3	< 0.3
Sodium	200 ug/g	200	< 200	< 200
Thallium	1 ug/g	< 1	< 1	< 1
Tin	5 ug/g	< 5	< 5	< 5
Vanadium	10 ug/g	30	20	20
Zinc	20 ug/g	20	< 20	180
F1 PHCs (C6-C10)	20 ug/g	< 20	< 20	< 20
F2 PHCs (C10-C16)	10 ug/g	20	20	30
F3 PHCs (C16-C34)	10 ug/g	10	20	140
F4 PHCs (C34-C50)	10 ug/g	60	30	590
Acenaphthene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Acenaphthylene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Anthracene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Benzo[a]anthracene	0.02 ug/g	< 0.02	< 0.02	0.06

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Client PO: OE04940

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		TP14-SGS2	TP14-SGS3	TP14-SGS5
		25/10/2004	25/10/2004	25/10/2004
		J4704.13	J4704.14	J4704.15
Benzo[a]pyrene	0.02 ug/g	< 0.02	< 0.02	0.06
Benzo[b]fluoranthene	0.02 ug/g	< 0.02	< 0.02	0.08
Benzo[ghi]perylene	0.02 ug/g	< 0.02	< 0.02	0.10
Benzo[k]fluoranthene	0.02 ug/g	< 0.02	< 0.02	0.04
Biphenyl	0.02 ug/g	< 0.02	< 0.02	< 0.02
Chrysene	0.02 ug/g	< 0.02	< 0.02	0.08
Dibenzo[a,h]anthracene	0.02 ug/g	< 0.02	< 0.02	0.02
Fluoranthene	0.02 ug/g	< 0.02	< 0.02	0.10
Fluorene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Indeno[1,2,3-cd]pyrene	0.02 ug/g	< 0.02	< 0.02	0.06
1-Methylnaphthalene	0.02 ug/g	< 0.02	< 0.02	< 0.02
2-Methylnaphthalene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Naphthalene	0.02 ug/g	< 0.02	< 0.02	0.02
Phenanthrene	0.02 ug/g	< 0.02	< 0.02	0.04
Pyrene	0.02 ug/g	< 0.02	< 0.02	0.08
2-Fluorobiphenyl	surrogate	54%	57%	66%
p-Terphenyl d-14	surrogate	63%	64%	54%

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Report Date: 04-Nov-2004
Order Date: 27-Oct-2004

Client: DST Consulting Engineers Inc.

Client PO: OE04940 Project: 6558

QA/QC Results

	Blank	Spike (QC Limits)	Duplicate	
Antimony	< 1 ug/g	100% (70 - 130%)	< 1	< 1
Arsenic	< 1 ug/g	101% (70 - 130%)	2	2
Barium	< 10 ug/g	103% (70 - 130%)	370	340
Beryllium	< 0.5 ug/g	85% (70 - 130%)	< 0.5	< 0.5
Cadmium	< 0.5 ug/g	97% (70 - 130%)	< 0.5	< 0.5
Chromium	< 5 ug/g	92% (70 - 130%)	65	60
Cobalt	< 5 ug/g	92% (70 - 130%)	15	15
Copper	< 5 ug/g	92% (70 - 130%)	35	35
Lead	< 1 ug/g	90% (70 - 130%)	17	16
Molybdenum	< 1 ug/g	99% (70 - 130%)	< 1	< 1
Nickel	< 5 ug/g	91% (70 - 130%)	40	40
Selenium	< 1 ug/g	98% (70 - 130%)	< 1	< 1
Silver	< 0.3 ug/g	107% (70 - 130%)	< 0.3	< 0.3
Thallium	< 1 ug/g	95% (70 - 130%)	< 1	< 1
Tin	< 5 ug/g	102% (70 - 130%)	< 5	< 5
Vanadium	< 10 ug/g	93% (70 - 130%)	60	60
Zinc	< 20 ug/g	90% (70 - 130%)	80	80
F1 PHCs (C6-C10)	< 20 ug/g	85% (50 - 150%)	< 20	< 20
F2-F4 PHCs (C10-C50)	< 10 ug/g	78% (50 - 150%)	160	140
Acenaphthene	< 0.02 ug/g	59% (47 - 147%)	< 0.02	< 0.02
Acenaphthylene	< 0.02 ug/g	57% (33 - 145%)	< 0.02	< 0.02
Anthracene	< 0.02 ug/g	59% (27 - 133%)	< 0.02	< 0.02
Benzo[a]anthracene	< 0.02 ug/g	64% (33 - 143%)	0.06	0.04
Benzo[a]pyrene	< 0.02 ug/g	61% (17 - 163%)	0.06	0.04
Benzo[b]fluoranthene	< 0.02 ug/g	53% (11 - 162%)	0.06	0.04
Benzo[ghi]perylene	< 0.02 ug/g	57% (25 - 121%)	0.04	0.04
Benzo[k]fluoranthene	< 0.02 ug/g	67% (11 - 162%)	0.02	0.02
Biphenyl	< 0.02 ug/g	53% (23 - 120%)	< 0.02	< 0.02
Chrysene	< 0.02 ug/g	59% (17 - 168%)	0.06	0.04
Dibenzo[a,h]anthracene	< 0.02 ug/g	54% (23 - 117%)	< 0.02	< 0.02

Certificate of Analysis

Report Date: 04-Nov-2004
Order Date: 27-Oct-2004

Client: DST Consulting Engineers Inc.
Client PO: OE04940

Project: 6558

	Blank	Spike (QC Limits)	Duplicate	
Fluoranthene	< 0.02 ug/g	66% (29 - 130%)	0.08	0.06
Fluorene	< 0.02 ug/g	50% (29 - 115%)	< 0.02	< 0.02
Indeno[1,2,3-cd]pyrene	< 0.02 ug/g	59% (1 - 171%)	0.04	0.04
1-Methylnaphthalene	< 0.02 ug/g	56% (23 - 120%)	< 0.02	< 0.02
2-Methylnaphthalene	< 0.02 ug/g	54% (23 - 120%)	< 0.02	< 0.02
Naphthalene	< 0.02 ug/g	61% (21 - 133%)	< 0.02	< 0.02
Phenanthrene	< 0.02 ug/g	62% (54 - 120%)	0.02	0.02
Pyrene	< 0.02 ug/g	66% (29 - 130%)	0.08	0.06

PARACEL Laboratories Ltd.
Environmental & Indoor Air Quality

300-2319 St. Laurent Blvd.
Ottawa ON K1G 4J8
Phone: (613) 731-9577
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Toll Free: 800-7491947
email: paracel@paracellabs.com

Order #: J4722

Certificate of Analysis

DST Consulting Engineers Inc.

1304 Algoma Road
Ottawa, ON K1B 3W8
Attn: Mr. Ken Budel

Phone: (613)-748-1415
Fax: (613)-748-1356

Client PO:
Project: OE04940
Custody #: 15491

Report Date: 03-Nov-2004
Order Date: 27-Oct-2004

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID	Client ID
J4722.1	BHMW1-SS3
J4722.2	BHMW2-SS1
J4722.3	BHMW4-SGS3
J4722.4	TP23-SGS2
J4722.5	TP23-SGS3
J4722.6	TP23-SGS5
J4722.7	TP18-SGS2
J4722.8	TP18-SGS3
J4722.9	TP18-SGS5
J4722.10	TP17-SGS2
J4722.11	TP17-SGS3
J4722.12	TP17-SGS5
J4722.13	TP22-SGS2
J4722.14	TP22-SGS3
J4722.15	TP22-SGS5
J4722.16	TP24-SGS2
J4722.17	TP24-SGS3
J4722.18	TP24-SGS5
J4722.19	TP15-SGS2
J4722.20	TP15-SGS3
J4722.21	TP15-SGS5
J4722.22	TP16-SGS2
J4722.23	TP16-SGS3
J4722.24	TP16-SGS5
J4722.25	TP2 (B)-SGS2
J4722.26	TP2 (B)-SGS3
J4722.27	TP2 (B)-SGS5

Approved By: _____
Dale Robertson, B.Sc.
Laboratory Director

Any use of these test results implies your agreement that our total liability in connection with this work, however arising, shall be limited to the amount paid by you for this work, and that our employees or agents shall not under any circumstance be liable to you in connection with this work.

Certificate of Analysis

Client: DST Consulting Engineers Inc.

Client PO:

Project: OE04940

Report Date: 03-Nov-2004

Order Date: 27-Oct-2004

Analysis Summary Table

Analysis	Method Reference/Description
Metals	EPA 6020 - ICP-MS
PHC F1 (CCME)	CWS PHCs - P&T GC-FID
PHC F2-F4 (CCME)	CWS PHC - GC-FID
PAHs	modified EPA 8270 - GC-MS

n/a: not applicable

MDL: Method Detection Limit

Soil results calculated on a dry weight basis.

CCME PHC additional information:

- The method for the analysis of PHCs complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
- F1 range corrected for BTEX where available
- F2 to F3 ranges corrected for appropriate PAHs where available.
- The gravimetric TPH (heavy oil) result is not to be added to the PHC fractions.

Certificate of Analysis

Report Date: 03-Nov-2004
Order Date: 27-Oct-2004

Client: **DST Consulting Engineers Inc.**

Client PO: Project: OE04940

Matrix: Soil

Parameter	MDL/Units	Sample ID: BHMW1-SS3	BHMW2-SS1	BHMW4-SS3
	Sample Date:	26/10/2004	26/10/2004	26/10/2004
		J4722.1	J4722.2	J4722.3
Antimony	1 ug/g		< 1	< 1
Arsenic	1 ug/g		3	2
Barium	10 ug/g		160	100
Beryllium	0.5 ug/g		< 0.5	< 0.5
Cadmium	0.5 ug/g		< 0.5	< 0.5
Calcium	200 ug/g		130,000	29,000
Chromium	5 ug/g		15	25
Cobalt	5 ug/g		5	5
Copper	5 ug/g		10	15
Iron	200 ug/g		12,000	16,000
Lead	1 ug/g		10	10
Magnesium	200 ug/g		8,400	5,400
Molybdenum	1 ug/g		< 1	< 1
Nickel	5 ug/g		25	20
Selenium	1 ug/g		< 1	< 1
Silver	0.3 ug/g		0.3	< 0.3
Sodium	200 ug/g		< 200	< 200
Thallium	1 ug/g		< 1	< 1
Tin	5 ug/g		< 5	< 5
Vanadium	10 ug/g		20	30
Zinc	20 ug/g		40	40
F1 PHCs (C6-C10)	20 ug/g	< 20	< 20	< 20
F2 PHCs (C10-C16)	10 ug/g	10	20	10
F3 PHCs (C16-C34)	10 ug/g	20	220	20
F4 PHCs (C34-C50)	10 ug/g	20	140	10
Acenaphthene	0.02 ug/g		< 0.02	< 0.02
Acenaphthylene	0.02 ug/g		< 0.02	< 0.02
Anthracene	0.02 ug/g		< 0.02	< 0.02
Benzo[a]anthracene	0.02 ug/g		< 0.02	< 0.02

Certificate of Analysis

Report Date: 03-Nov-2004
Order Date: 27-Oct-2004

Client: **DST Consulting Engineers Inc.**

Client PO:

Project: **OE04940**

		BHMW1-SS3	BHMW2-SS1	BHMW4-SGS3
		26/10/2004	26/10/2004	26/10/2004
		J4722.1	J4722.2	J4722.3
Benzo[a]pyrene	0.02 ug/g		< 0.02	< 0.02
Benzo[b]fluoranthene	0.02 ug/g		< 0.02	< 0.02
Benzo[ghi]perylene	0.02 ug/g		< 0.02	< 0.02
Benzo[k]fluoranthene	0.02 ug/g		< 0.02	< 0.02
Biphenyl	0.02 ug/g		< 0.02	< 0.02
Chrysene	0.02 ug/g		< 0.02	< 0.02
Dibenzo[a,h]anthracene	0.02 ug/g		< 0.02	< 0.02
Fluoranthene	0.02 ug/g		< 0.02	< 0.02
Fluorene	0.02 ug/g		< 0.02	< 0.02
Indeno[1,2,3-cd]pyrene	0.02 ug/g		< 0.02	< 0.02
1-Methylnaphthalene	0.02 ug/g		< 0.02	< 0.02
2-Methylnaphthalene	0.02 ug/g		< 0.02	< 0.02
Naphthalene	0.02 ug/g		< 0.02	< 0.02
Phenanthrene	0.02 ug/g		< 0.02	< 0.02
Pyrene	0.02 ug/g		< 0.02	< 0.02
2-Fluorobiphenyl	surrogate		70%	70%
p-Terphenyl d-14	surrogate		60%	50%

Certificate of Analysis

Report Date: 03-Nov-2004
Order Date: 27-Oct-2004

Client: DST Consulting Engineers Inc.

Client PO:

Project: OM04940

Matrix: Soil

Parameter	Sample ID:	TP23-SGS2	TP23-SGS3	TP23-SGS5
	Sample Date:	26/10/2004	26/10/2004	26/10/2004
	MDL/Units	J4722.4	J4722.5	J4722.6
Antimony	1 ug/g	< 1	< 1	< 1
Arsenic	1 ug/g	< 1	< 1	< 1
Barium	10 ug/g	110	60	60
Beryllium	0.5 ug/g	< 0.5	< 0.5	< 0.5
Cadmium	0.5 ug/g	< 0.5	< 0.5	< 0.5
Calcium	200 ug/g	7,600	5,600	5,200
Chromium	5 ug/g	25	15	20
Cobalt	5 ug/g	5	< 5	< 5
Copper	5 ug/g	15	10	10
Iron	200 ug/g	18,000	13,000	21,000
Lead	1 ug/g	8	4	4
Magnesium	200 ug/g	5,000	3,600	3,800
Molybdenum	1 ug/g	< 1	< 1	< 1
Nickel	5 ug/g	15	10	10
Selenium	1 ug/g	< 1	< 1	< 1
Silver	0.3 ug/g	< 0.3	< 0.3	< 0.3
Sodium	200 ug/g	< 200	< 200	< 200
Thallium	1 ug/g	< 1	< 1	< 1
Tin	5 ug/g	< 5	< 5	< 5
Vanadium	10 ug/g	30	20	30
Zinc	20 ug/g	320	20	80

Certificate of Analysis

Client: **DST Consulting Engineers Inc.**

Client PO:

Project: OE04940

Report Date: 03-Nov-2004
Order Date: 27-Oct-2004

Matrix: Soil

Parameter	MDL/Units	Sample ID: TP18-SGS2	TP18-SGS3	TP18-SGS5
	Sample Date:	26/10/2004	26/10/2004	26/10/2004
		J4722.7	J4722.8	J4722.9
Antimony	1 ug/g	< 1	< 1	< 1
Arsenic	1 ug/g	2	1	2
Barium	10 ug/g	220	230	280
Beryllium	0.5 ug/g	0.5	< 0.5	< 0.5
Cadmium	0.5 ug/g	< 0.5	< 0.5	< 0.5
Calcium	200 ug/g	15,000	11,000	14,000
Chromium	5 ug/g	55	60	65
Cobalt	5 ug/g	10	15	15
Copper	5 ug/g	30	30	35
Iron	200 ug/g	25,000	28,000	30,000
Lead	1 ug/g	200	27	21
Magnesium	200 ug/g	9,000	10,000	11,000
Molybdenum	1 ug/g	< 1	< 1	< 1
Nickel	5 ug/g	30	35	40
Selenium	1 ug/g	< 1	< 1	< 1
Silver	0.3 ug/g	< 0.3	< 0.3	< 0.3
Sodium	200 ug/g	400	600	600
Thallium	1 ug/g	< 1	< 1	< 1
Tin	5 ug/g	< 5	< 5	< 5
Vanadium	10 ug/g	60	60	70
Zinc	20 ug/g	100	80	100

Certificate of Analysis

Report Date: 03-Nov-2004
Order Date: 27-Oct-2004

Client: DST Consulting Engineers Inc.

Client PO: Project: OE04940

Matrix: Soil

Parameter	MDL/Units	Sample ID: TP17-SGS2	TP17-SGS3	TP17-SGS5
		Sample Date: 26/10/2004	26/10/2004	26/10/2004
		J4722.10	J4722.11	J4722.12
Antimony	1 ug/g	< 1	< 1	< 1
Arsenic	1 ug/g	1	1	1
Barium	10 ug/g	110	160	310
Beryllium	0.5 ug/g	< 0.5	< 0.5	< 0.5
Cadmium	0.5 ug/g	< 0.5	< 0.5	< 0.5
Calcium	200 ug/g	110,000	140,000	210,000
Chromium	5 ug/g	15	15	10
Cobalt	5 ug/g	5	10	5
Copper	5 ug/g	10	10	5
Iron	200 ug/g	12,000	11,000	8,800
Lead	1 ug/g	8	7	7
Magnesium	200 ug/g	10,000	12,000	9,400
Molybdenum	1 ug/g	< 1	< 1	< 1
Nickel	5 ug/g	20	25	30
Selenium	1 ug/g	< 1	< 1	< 1
Silver	0.3 ug/g	< 0.3	< 0.3	< 0.3
Sodium	200 ug/g	< 200	< 200	< 200
Thallium	1 ug/g	< 1	< 1	< 1
Tin	5 ug/g	< 5	< 5	< 5
Vanadium	10 ug/g	20	20	< 10
Zinc	20 ug/g	20	20	< 20

Certificate of Analysis

Report Date: 03-Nov-2004
Order Date: 27-Oct-2004

Client: DST Consulting Engineers Inc.

Client PO: Project: OE04940

Matrix: Soil

Parameter	MDL/Units	Sample ID: TP22-SGS2	TP22-SG33	TP22-SGS5
	Sample Date:	26/10/2004	26/10/2004	26/10/2004
		J4722.13	J4722.14	J4722.15
Antimony	1 ug/g	< 1	< 1	< 1
Arsenic	1 ug/g	1	1	< 1
Barium	10 ug/g	100	90	70
Beryllium	0.5 ug/g	< 0.5	< 0.5	< 0.5
Cadmium	0.5 ug/g	< 0.5	< 0.5	< 0.5
Calcium	200 ug/g	25,000	11,000	7,400
Chromium	5 ug/g	30	30	15
Cobalt	5 ug/g	5	5	5
Copper	5 ug/g	15	15	10
Iron	200 ug/g	14,000	13,000	12,000
Lead	1 ug/g	17	7	5
Magnesium	200 ug/g	8,000	5,400	4,200
Molybdenum	1 ug/g	< 1	< 1	< 1
Nickel	5 ug/g	15	15	10
Selenium	1 ug/g	< 1	< 1	< 1
Silver	0.3 ug/g	< 0.3	< 0.3	< 0.3
Sodium	200 ug/g	< 200	200	< 200
Thallium	1 ug/g	< 1	< 1	< 1
Tin	5 ug/g	< 5	< 5	< 5
Vanadium	10 ug/g	30	20	20
Zinc	20 ug/g	80	80	20

Certificate of Analysis

Report Date: 03-Nov-2004
Order Date: 27-Oct-2004

Client: DST Consulting Engineers Inc.

Client PO:

Project: OE04940

Matrix: Soil

Parameter	MDL/Units	Sample ID:	TP24-SGS2	TP24-SGS3	TP24-SGS5
		Sample Date:	26/10/2004	26/10/2004	26/10/2004
			J4722.16	J4722.17	J4722.18
Antimony	1 ug/g		< 1	< 1	< 1
Arsenic	1 ug/g		1	1	< 1
Barium	10 ug/g		70	140	330
Beryllium	0.5 ug/g		< 0.5	< 0.5	0.5
Cadmium	0.5 ug/g		< 0.5	< 0.5	< 0.5
Calcium	200 ug/g		120,000	230,000	41,000
Chromium	5 ug/g		10	10	55
Cobalt	5 ug/g		< 5	5	15
Copper	5 ug/g		5	5	35
Iron	200 ug/g		8,600	9,000	31,000
Lead	1 ug/g		6	5	8
Magnesium	200 ug/g		7,400	10,000	12,000
Molybdenum	1 ug/g		< 1	< 1	< 1
Nickel	5 ug/g		15	30	30
Selenium	1 ug/g		< 1	< 1	< 1
Silver	0.3 ug/g		< 0.3	< 0.3	< 0.3
Sodium	200 ug/g		< 200	< 200	800
Thallium	1 ug/g		< 1	< 1	< 1
Tin	5 ug/g		< 5	< 5	< 5
Vanadium	10 ug/g		10	< 10	70
Zinc	20 ug/g		< 20	< 20	80

Certificate of Analysis

Client: DST Consulting Engineers Inc.

Client PO:

Project: OE04940

Report Date: 03-Nov-2004
Order Date: 27-Oct-2004

Matrix: Soil

Parameter	MDL/Units	Sample ID: TP15-SGS2	TP15-SGS3	TP15-SGS5
		Sample Date: 26/10/2004	26/10/2004	26/10/2004
		J4722.19	J4722.20	J4722.21
Antimony	1 ug/g	< 1	< 1	< 1
Arsenic	1 ug/g	< 1	< 1	2
Barium	10 ug/g	40	50	70
Beryllium	0.5 ug/g	< 0.5	< 0.5	< 0.5
Cadmium	0.5 ug/g	< 0.5	< 0.5	< 0.5
Calcium	200 ug/g	13,000	10,000	13,000
Chromium	5 ug/g	15	15	25
Cobalt	5 ug/g	< 5	< 5	5
Copper	5 ug/g	5	5	10
Iron	200 ug/g	9,400	9,000	15,000
Lead	1 ug/g	5	4	10
Magnesium	200 ug/g	4,800	5,800	6,800
Molybdenum	1 ug/g	< 1	< 1	< 1
Nickel	5 ug/g	10	10	15
Selenium	1 ug/g	< 1	< 1	< 1
Silver	0.3 ug/g	< 0.3	< 0.3	< 0.3
Sodium	200 ug/g	< 200	< 200	< 200
Thallium	1 ug/g	< 1	< 1	< 1
Tin	5 ug/g	< 5	< 5	< 5
Vanadium	10 ug/g	20	20	30
Zinc	20 ug/g	< 20	60	380

Certificate of Analysis

Report Date: 03-Nov-2004
Order Date: 27-Oct-2004

Client: **DST Consulting Engineers Inc.**
Client PO:

Project: O1604940

Matrix: Soil

Parameter	MDL/Units	Sample ID: TP16-SGS2	TP16-SGS3	TP16-SGS5
		Sample Date: 26/10/2004	26/10/2004	26/10/2004
		J4722.22	J4722.23	J4722.24
Antimony	1 ug/g	< 1	< 1	< 1
Arsenic	1 ug/g	2	2	2
Barium	10 ug/g	90	100	200
Beryllium	0.5 ug/g	< 0.5	< 0.5	< 0.5
Cadmium	0.5 ug/g	< 0.5	< 0.5	< 0.5
Calcium	200 ug/g	11,000	15,000	230,000
Chromium	5 ug/g	25	20	10
Cobalt	5 ug/g	5	5	< 5
Copper	5 ug/g	15	15	5
Iron	200 ug/g	12,000	12,000	7,000
Lead	1 ug/g	13	12	5
Magnesium	200 ug/g	4,800	4,800	7,200
Molybdenum	1 ug/g	< 1	< 1	< 1
Nickel	5 ug/g	10	10	25
Selenium	1 ug/g	< 1	< 1	< 1
Silver	0.3 ug/g	< 0.3	< 0.3	< 0.3
Sodium	200 ug/g	< 200	400	< 200
Thallium	1 ug/g	< 1	< 1	< 1
Tin	5 ug/g	< 5	< 5	< 5
Vanadium	10 ug/g	20	20	< 10
Zinc	20 ug/g	20	20	< 20

Certificate of Analysis

Client: **DST Consulting Engineers Inc.**

Client PO:

Project: OB04940

Report Date: 03-Nov-2004
Order Date: 27-Oct-2004

Matrix: Soil

Parameter	MDL/Units	Sample ID: TP2 (B)-SGS2	TP2 (B)-SGS3	TP2 (B)-SGS5
	Sample Date:	26/10/2004	26/10/2004	26/10/2004
		J4722.25	J4722.26	J4722.27
Antimony	1 ug/g	< 1	< 1	< 1
Arsenic	1 ug/g	2	2	2
Barium	10 ug/g	130	150	150
Beryllium	0.5 ug/g	< 0.5	< 0.5	< 0.5
Cadmium	0.5 ug/g	< 0.5	< 0.5	< 0.5
Calcium	200 ug/g	12,000	9,000	9,200
Chromium	5 ug/g	25	30	30
Cobalt	5 ug/g	10	10	5
Copper	5 ug/g	15	15	15
Iron	200 ug/g	17,000	18,000	18,000
Lead	1 ug/g	13	9	9
Magnesium	200 ug/g	6,600	6,600	6,200
Molybdenum	1 ug/g	< 1	< 1	< 1
Nickel	5 ug/g	15	20	20
Selenium	1 ug/g	< 1	< 1	< 1
Silver	0.3 ug/g	< 0.3	< 0.3	< 0.3
Sodium	200 ug/g	200	200	200
Thallium	1 ug/g	< 1	< 1	< 1
Tin	5 ug/g	< 5	< 5	< 5
Vanadium	10 ug/g	30	40	30
Zinc	20 ug/g	40	40	40
F1 PHCs (C6-C10)	20 ug/g	< 20	< 20	< 20
F2 PHCs (C10-C16)	10 ug/g	10	10	< 10
F3 PHCs (C16-C34)	10 ug/g	20	20	40
F4 PHCs (C34-C50)	10 ug/g	< 10	20	20
Acenaphthene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Acenaphthylene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Anthracene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Benzo[a]anthracene	0.02 ug/g	0.02	0.02	0.02

Certificate of Analysis

Report Date: 03-Nov-2004
Order Date: 27-Oct-2004

Client: DST Consulting Engineers Inc.

Client PO:

Project: OE04940

		TP2 (B)-SGS2	TP2 (B)-SGS3	TP2 (B)-SGS5
		26/10/2004	26/10/2004	26/10/2004
		J4722.25	J4722.26	J4722.27
Benzo[a]pyrene	0.02 ug/g	< 0.02	0.02	< 0.02
Benzo[b]fluoranthene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Benzo[ghi]perylene	0.02 ug/g	< 0.02	0.04	0.02
Benzo[k]fluoranthene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Biphenyl	0.02 ug/g	< 0.02	< 0.02	< 0.02
Chrysene	0.02 ug/g	0.02	0.02	< 0.02
Dibenzo[a,h]anthracene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Fluoranthene	0.02 ug/g	0.04	0.02	0.04
Fluorene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Indeno[1,2,3-cd]pyrene	0.02 ug/g	< 0.02	0.02	0.02
1-Methylnaphthalene	0.02 ug/g	< 0.02	< 0.02	< 0.02
2-Methylnaphthalene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Naphthalene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Phenanthrene	0.02 ug/g	0.02	< 0.02	< 0.02
Pyrene	0.02 ug/g	0.04	0.02	0.02
2-Fluorobiphenyl	surrogate	63%	59%	67%
p-Terphenyl d-14	surrogate	66%	63%	73%

Certificate of Analysis

Client: DST Consulting Engineers Inc.

Client PO:

Project: OE04940

Report Date: 03-Nov-2004
Order Date: 27-Oct-2004

QA/QC Results

	Blank	Spike (QC Limits)	Duplicate	
Antimony	< 1 ug/g	100% (70 - 130%)	< 1	< 1
Arsenic	< 1 ug/g	101% (70 - 130%)	3	3
Barium	< 10 ug/g	103% (70 - 130%)	150	140
Beryllium	< 0.5 ug/g	85% (70 - 130%)	1.0	1.0
Cadmium	< 0.5 ug/g	97% (70 - 130%)	0.5	0.5
Chromium	< 5 ug/g	92% (70 - 130%)	35	35
Cobalt	< 5 ug/g	92% (70 - 130%)	15	15
Copper	< 5 ug/g	92% (70 - 130%)	30	30
Lead	< 1 ug/g	90% (70 - 130%)	7	7
Molybdenum	< 1 ug/g	99% (70 - 130%)	< 1	< 1
Nickel	< 5 ug/g	91% (70 - 130%)	35	35
Selenium	< 1 ug/g	98% (70 - 130%)	< 1	< 1
Silver	< 0.3 ug/g	107% (70 - 130%)	< 0.3	< 0.3
Thallium	< 1 ug/g	95% (70 - 130%)	< 1	< 1
Tin	< 5 ug/g	102% (70 - 130%)	< 5	< 5
Vanadium	< 10 ug/g	93% (70 - 130%)	40	40
Zinc	< 20 ug/g	90% (70 - 130%)	60	60
F1 PHCs (C6-C10)	< 20 ug/g	94% (50 - 150%)	< 20	< 20
F2-F4 PHCs (C10-C50)	< 10 ug/g	115% (50 - 150%)	330	420
Acenaphthene	< 0.02 ug/g	59% (47 - 147%)	< 0.02	< 0.02
Acenaphthylene	< 0.02 ug/g	57% (33 - 145%)	< 0.02	< 0.02
Anthracene	< 0.02 ug/g	59% (27 - 133%)	< 0.02	< 0.02
Benzo[a]anthracene	< 0.02 ug/g	64% (33 - 143%)	0.06	0.04
Benzo[a]pyrene	< 0.02 ug/g	61% (17 - 163%)	0.06	0.04
Benzo[b]fluoranthene	< 0.02 ug/g	53% (11 - 162%)	0.06	0.04
Benzo[ghi]perylene	< 0.02 ug/g	57% (25 - 121%)	0.04	0.04
Benzo[k]fluoranthene	< 0.02 ug/g	67% (11 - 162%)	0.02	0.02
Biphenyl	< 0.02 ug/g	53% (23 - 120%)	< 0.02	< 0.02
Chrysene	< 0.02 ug/g	59% (17 - 168%)	0.06	0.04
Dibenzo[a,h]anthracene	< 0.02 ug/g	54% (23 - 117%)	< 0.02	< 0.02

Certificate of Analysis

Report Date: 03-Nov-2004
Order Date: 27-Oct-2004

Client: DST Consulting Engineers Inc.

Client PO: Project: OE04940

	Blank	Spike (QC Limits)	Duplicate	
Fluoranthene	< 0.02 ug/g	66% (29 - 130%)	0.08	0.06
Fluorene	< 0.02 ug/g	56% (29 - 115%)	< 0.02	< 0.02
Indeno[1,2,3-cd]pyrene	< 0.02 ug/g	59% (1 - 171%)	0.04	0.04
1-Methylnaphthalene	< 0.02 ug/g	56% (23 - 120%)	< 0.02	< 0.02
2-Methylnaphthalene	< 0.02 ug/g	54% (23 - 120%)	< 0.02	< 0.02
Naphthalene	< 0.02 ug/g	61% (21 - 133%)	< 0.02	< 0.02
Phenanthrene	< 0.02 ug/g	62% (54 - 120%)	0.02	0.02
Pyrene	< 0.02 ug/g	66% (29 - 130%)	0.08	0.06

PARACEL Laboratories Ltd.
Environmental & Indoor Air Quality

300-2319 St. Laurent Blvd.
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Toll Free: 800-7491947
email: paracel@paracellabs.com

Order #: J4770

Certificate of Analysis

DST Consulting Engineers Inc.

1304 Algoma Road
Ottawa, ON K1B 3W8
Attn: Mr. Ken Budel

Phone: (613)-748-1415
Fax: (613)-748-1356

Client PO:
Project: OE04940
Custody #: 15494

Report Date: 04-Nov-2004
Order Date: 28-Oct-2004

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID	Client ID
J4770.1	BHMW3-SS2
J4770.2	BHMW5-SS3
J4770.3	TP28-SGS2
J4770.4	TP28-SGS3
J4770.5	TP28-SGS5
J4770.6	TP25-SGS2
J4770.7	TP25-SGS3
J4770.8	TP25-SGS5
J4770.9	TP29-SGS2
J4770.10	TP29-SGS3
J4770.11	TP29-SGS5
J4770.12	TP33-SGS2
J4770.13	TP33-SGS3
J4770.14	TP33-SGS5
J4770.15	TP30-SGS2
J4770.16	TP30-SGS3
J4770.17	TP30-SGS5

Approved By: _____ Dale Robertson, B.Sc.
Laboratory Director

Any use of these test results implies your agreement that our total liability in connection with this work, however arising, shall be limited to the amount paid by you for this work, and that our employees or agents shall not under any circumstance be liable to you in connection with this work.

Certificate of Analysis

Report Date: 04-Nov-2004
Order Date: 28-Oct-2004

Client: DST Consulting Engineers Inc.
Client PO: Project: OE04940

Analysis Summary Table

Analysis	Method Reference/Description
Metals	EPA 6020 - ICP-MS
BTEX, PHC F1 (CCME)	EPA 8260, CWS PHCs - P&T GC-MS/FID
PHC F1 (CCME)	CWS PHCs - P&T GC-FID
PHC F2-F4 (CCME)	CWS PHC - GC-FID
PAHs	modified EPA 8270 - GC-MS

n/a: not applicable
MDL: Method Detection Limit
Soil: results calculated on a dry weight basis.

CCME PHC additional information:

- The method for the analysis of PHCs complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
- F1 range corrected for BTEX where available
- F2 to F3 ranges corrected for appropriate PAHs where available.
- The gravimetric TPH (heavy oil) result is not to be added to the PHC fractions.

Certificate of Analysis

Report Date: 04-Nov-2004
Order Date: 28-Oct-2004

Client: DST Consulting Engineers Inc.

Client PO:

Project: OI004940

Matrix: Soil

Parameter	MDL/Units	Sample ID:	BHMW3-SS2	BHMW5-SS3	TP28-SG52
		Sample Date:	27/10/2004	27/10/2004	27/10/2004
			J4770.1	J4770.2	J4770.3
Antimony	1 ug/g		< 1	< 1	< 1
Arsenic	1 ug/g		1	2	2
Barium	10 ug/g		190	70	30
Beryllium	0.5 ug/g		0.5	< 0.5	< 0.5
Cadmium	0.5 ug/g		< 0.5	< 0.5	< 0.5
Calcium	200 ug/g		12,000	40,000	9,400
Chromium	5 ug/g		45	20	15
Cobalt	5 ug/g		10	5	5
Copper	5 ug/g		15	15	15
Iron	200 ug/g		26,000	13,000	14,000
Lead	1 ug/g		9	9	5
Magnesium	200 ug/g		8,600	10,000	5,600
Molybdenum	1 ug/g		< 1	< 1	< 1
Nickel	5 ug/g		20	15	15
Selenium	1 ug/g		< 1	< 1	< 1
Silver	0.3 ug/g		< 0.3	0.9	< 0.3
Sodium	200 ug/g		400	200	< 200
Thallium	1 ug/g		< 1	< 1	< 1
Tin	5 ug/g		< 5	< 5	< 5
Vanadium	10 ug/g		50	20	20
Zinc	20 ug/g		60	20	< 20
Benzene	0.05 ug/g			< 0.05	
Ethylbenzene	0.05 ug/g			< 0.05	
Toluene	0.05 ug/g			< 0.05	
m/p-Xylene	0.1 ug/g			< 0.1	
o-Xylene	0.05 ug/g			< 0.05	
Toluene-d8	surrogate			84%	
F1 PHCs (C6-C10)	20 ug/g			< 20	
F1 PHCs (C6-C10)	20 ug/g		< 20		

Certificate of Analysis

Client: DST Consulting Engineers Inc.

Client PO:

Report Date: 04-Nov-2004
Order Date: 28-Oct-2004

Project: OK04940

		BHMW3-SS2	BHMW5-SS3	TP28-SGS2
		27/10/2004	27/10/2004	27/10/2004
		J4770.1	J4770.2	J4770.3
F2 PHCs (C10-C16)	10 ug/g	< 10	10	
F3 PHCs (C16-C34)	10 ug/g	< 10	50	
F4 PHCs (C34-C50)	10 ug/g	< 10	80	
Acenaphthene	0.02 ug/g	< 0.02	< 0.02	
Acenaphthylene	0.02 ug/g	< 0.02	< 0.02	
Anthracene	0.02 ug/g	< 0.02	< 0.02	
Benzo[a]anthracene	0.02 ug/g	< 0.02	0.06	
Benzo[a]pyrene	0.02 ug/g	< 0.02	0.04	
Benzo[b]fluoranthene	0.02 ug/g	< 0.02	0.06	
Benzo[ghi]perylene	0.02 ug/g	< 0.02	0.04	
Benzo[k]fluoranthene	0.02 ug/g	< 0.02	0.04	
Biphenyl	0.02 ug/g	< 0.02	< 0.02	
Chrysene	0.02 ug/g	< 0.02	0.06	
Dibenzo[a,h]anthracene	0.02 ug/g	< 0.02	< 0.02	
Fluoranthene	0.02 ug/g	< 0.02	0.10	
Fluorene	0.02 ug/g	< 0.02	< 0.02	
Indeno[1,2,3-cd]pyrene	0.02 ug/g	< 0.02	0.04	
1-Methylnaphthalene	0.02 ug/g	< 0.02	< 0.02	
2-Methylnaphthalene	0.02 ug/g	< 0.02	< 0.02	
Naphthalene	0.02 ug/g	< 0.02	< 0.02	
Phenanthrene	0.02 ug/g	< 0.02	0.10	
Pyrene	0.02 ug/g	< 0.02	0.08	
2-Fluorobiphenyl	surrogate	60%	60%	
p-Terphenyl d-14	surrogate	66%	38%	

Certificate of Analysis

Report Date: 04-Nov-2004
Order Date: 28-Oct-2004

Client: DST Consulting Engineers Inc.

Client PO: Project: OE04940

Matrix: Soil

Parameter	MDL/Units	Sample ID: TP28-SGS3	TP28-SGS5	TP25-SGS2
		Sample Date: 27/10/2004	27/10/2004	27/10/2004
		J4770.4	J4770.5	J4770.6
Antimony	1 ug/g	< 1	< 1	< 1
Arsenic	1 ug/g	3	2	1
Barium	10 ug/g	60	40	130
Beryllium	0.5 ug/g	< 0.5	< 0.5	< 0.5
Cadmium	0.5 ug/g	< 0.5	< 0.5	< 0.5
Calcium	200 ug/g	15,000	4,200	5,400
Chromium	5 ug/g	25	15	25
Cobalt	5 ug/g	10	5	10
Copper	5 ug/g	20	10	15
Iron	200 ug/g	20,000	16,000	19,000
Lead	1 ug/g	9	6	8
Magnesium	200 ug/g	8,000	4,600	5,800
Molybdenum	1 ug/g	< 1	< 1	< 1
Nickel	5 ug/g	25	15	15
Selenium	1 ug/g	< 1	< 1	< 1
Silver	0.3 ug/g	< 0.3	< 0.3	< 0.3
Sodium	200 ug/g	< 200	< 200	200
Thallium	1 ug/g	< 1	< 1	< 1
Tin	5 ug/g	< 5	< 5	< 5
Vanadium	10 ug/g	30	20	40
Zinc	20 ug/g	300	20	40

Certificate of Analysis

Client: **DST Consulting Engineers Inc.**

Client PO:

Project: OE04940

Report Date: 04-Nov-2004
Order Date: 28-Oct-2004

Matrix: Soil

Parameter	MDL/Units	Sample ID: TP25-SGS3	TP25-SGS5	TP29-SGS2
	Sample Date:	27/10/2004	27/10/2004	27/10/2004
		J4770.7	J4770.8	J4770.9
Antimony	1 ug/g	< 1	< 1	< 1
Arsenic	1 ug/g	2	1	2
Barium	10 ug/g	80	70	80
Beryllium	0.5 ug/g	< 0.5	< 0.5	< 0.5
Cadmium	0.5 ug/g	< 0.5	< 0.5	< 0.5
Calcium	200 ug/g	5,000	4,400	5,200
Chromium	5 ug/g	20	15	25
Cobalt	5 ug/g	10	5	5
Copper	5 ug/g	10	10	15
Iron	200 ug/g	18,000	14,000	16,000
Lead	1 ug/g	7	6	23
Magnesium	200 ug/g	5,800	3,800	4,600
Molybdenum	1 ug/g	< 1	< 1	< 1
Nickel	5 ug/g	15	10	15
Selenium	1 ug/g	< 1	< 1	< 1
Silver	0.3 ug/g	< 0.3	< 0.3	< 0.3
Sodium	200 ug/g	< 200	< 200	< 200
Thallium	1 ug/g	< 1	< 1	< 1
Tin	5 ug/g	< 5	< 5	< 5
Vanadium	10 ug/g	30	30	30
Zinc	20 ug/g	40	20	60
F1 PHCs (C6-C10)	20 ug/g			< 20
F2 PHCs (C10-C16)	10 ug/g			< 10
F3 PHCs (C16-C34)	10 ug/g			< 10
F4 PHCs (C34-C50)	10 ug/g			< 10
Acenaphthene	0.02 ug/g			< 0.02
Acenaphthylene	0.02 ug/g			< 0.02
Anthracene	0.02 ug/g			< 0.02
Benzo[a]anthracene	0.02 ug/g			< 0.02

Certificate of Analysis

Report Date: 04-Nov-2004
Order Date: 28-Oct-2004

Client: DST Consulting Engineers Inc.

Client PO:

Project: OE04940

		TP25-SGS3	TP25-SGS5	TP29-SGS2
		27/10/2004	27/10/2004	27/10/2004
		J4770.7	J4770.8	J4770.9
Benzo[a]pyrene	0.02 ug/g			< 0.02
Benzo[b]fluoranthene	0.02 ug/g			< 0.02
Benzo[ghi]perylene	0.02 ug/g			< 0.02
Benzo[k]fluoranthene	0.02 ug/g			< 0.02
Biphenyl	0.02 ug/g			< 0.02
Chrysene	0.02 ug/g			< 0.02
Dibenzo[a,h]anthracene	0.02 ug/g			< 0.02
Fluoranthene	0.02 ug/g			< 0.02
Fluorene	0.02 ug/g			< 0.02
Indeno[1,2,3-cd]pyrene	0.02 ug/g			< 0.02
1-Methylnaphthalene	0.02 ug/g			< 0.02
2-Methylnaphthalene	0.02 ug/g			< 0.02
Naphthalene	0.02 ug/g			< 0.02
Phenanthrene	0.02 ug/g			< 0.02
Pyrene	0.02 ug/g			< 0.02
2-Fluorobiphenyl	surrogate			58%
p-Terphenyl d-14	surrogate			58%

Certificate of Analysis

Client: **DST Consulting Engineers Inc.**

Client PO:

Project: **OK04940**

Report Date: 04-Nov-2004
Order Date: 28-Oct-2004

Matrix: Soil

Parameter	MDL/Units	Sample ID: TP29-SGS3	TP29-SGS5	TP33-SGS2
		Sample Date: 27/10/2004	27/10/2004	27/10/2004
		J4770.10	J4770.11	J4770.12
Antimony	1 ug/g	< 1	< 1	< 1
Arsenic	1 ug/g	2	2	2
Barium	10 ug/g	100	130	60
Beryllium	0.5 ug/g	< 0.5	< 0.5	< 0.5
Cadmium	0.5 ug/g	< 0.5	< 0.5	< 0.5
Calcium	200 ug/g	6,600	11,000	5,000
Chromium	5 ug/g	30	30	15
Cobalt	5 ug/g	10	10	5
Copper	5 ug/g	15	20	20
Iron	200 ug/g	18,000	19,000	14,000
Lead	1 ug/g	31	46	32
Magnesium	200 ug/g	5,600	6,400	3,200
Molybdenum	1 ug/g	< 1	< 1	< 1
Nickel	5 ug/g	20	20	10
Selenium	1 ug/g	< 1	< 1	< 1
Silver	0.3 ug/g	< 0.3	< 0.3	0.3
Sodium	200 ug/g	< 200	< 200	400
Thallium	1 ug/g	< 1	< 1	< 1
Tin	5 ug/g	< 5	< 5	< 5
Vanadium	10 ug/g	30	30	20
Zinc	20 ug/g	40	100	100
F1 PHCs (C6-C10)	20 ug/g	< 20	< 20	
F2 PHCs (C10-C16)	10 ug/g	< 10	< 10	
F3 PHCs (C16-C34)	10 ug/g	< 10	< 10	
F4 PHCs (C34-C50)	10 ug/g	< 10	< 10	
Acenaphthene	0.02 ug/g	< 0.02	< 0.02	
Acenaphthylene	0.02 ug/g	< 0.02	< 0.02	
Anthracene	0.02 ug/g	< 0.02	< 0.02	
Benzo[a]anthracene	0.02 ug/g	< 0.02	< 0.02	

Certificate of Analysis

Report Date: 04-Nov-2004
Order Date: 28-Oct-2004

Client: DST Consulting Engineers Inc.
Client PO:

Project: OE04940

		TP29-SGS3	TP29-SGS5	TP33-SGS2
		27/10/2004	27/10/2004	27/10/2004
		J4770.10	J4770.11	J4770.12
Benzo[a]pyrene	0.02 ug/g	< 0.02	< 0.02	
Benzo[b]fluoranthene	0.02 ug/g	< 0.02	< 0.02	
Benzo[ghi]perylene	0.02 ug/g	< 0.02	< 0.02	
Benzo[k]fluoranthene	0.02 ug/g	< 0.02	< 0.02	
Biphenyl	0.02 ug/g	< 0.02	< 0.02	
Chrysene	0.02 ug/g	< 0.02	< 0.02	
Dibenzo[a,h]anthracene	0.02 ug/g	< 0.02	< 0.02	
Fluoranthene	0.02 ug/g	< 0.02	< 0.02	
Fluorene	0.02 ug/g	< 0.02	< 0.02	
Indeno[1,2,3-cd]pyrene	0.02 ug/g	< 0.02	< 0.02	
1-Methylnaphthalene	0.02 ug/g	< 0.02	< 0.02	
2-Methylnaphthalene	0.02 ug/g	< 0.02	< 0.02	
Naphthalene	0.02 ug/g	< 0.02	< 0.02	
Phenanthrene	0.02 ug/g	< 0.02	< 0.02	
Pyrene	0.02 ug/g	< 0.02	< 0.02	
2-Fluorobiphenyl	surrogate	63%	54%	
p-Terphenyl d-14	surrogate	68%	59%	

Certificate of Analysis

Report Date: 04-Nov-2004
Order Date: 28-Oct-2004

Client: **DST Consulting Engineers Inc.**
Client PO: Project: **OE04940**

Matrix: Soil

Parameter	MDL/Units	Sample ID: TP33-SGS3	TP33-SGS5	TP30-SGS2
		Sample Date: 27/10/2004	27/10/2004	27/10/2004
		J4770.13	J4770.14	J4770.15
Antimony	1 ug/g	< 1	< 1	< 1
Arsenic	1 ug/g	< 1	< 1	2
Barium	10 ug/g	40	60	100
Beryllium	0.5 ug/g	< 0.5	< 0.5	< 0.5
Cadmium	0.5 ug/g	< 0.5	< 0.5	< 0.5
Calcium	200 ug/g	3,600	4,000	9,200
Chromium	5 ug/g	20	10	25
Cobalt	5 ug/g	5	5	10
Copper	5 ug/g	10	10	15
Iron	200 ug/g	15,000	11,000	21,000
Lead	1 ug/g	8	4	13
Magnesium	200 ug/g	3,200	3,200	4,800
Molybdenum	1 ug/g	< 1	< 1	< 1
Nickel	5 ug/g	10	10	25
Selenium	1 ug/g	< 1	< 1	< 1
Silver	0.3 ug/g	< 0.3	< 0.3	< 0.3
Sodium	200 ug/g	800	< 200	< 200
Thallium	1 ug/g	< 1	< 1	< 1
Tin	5 ug/g	< 5	< 5	< 5
Vanadium	10 ug/g	30	20	30
Zinc	20 ug/g	40	< 20	40
F1 PHCs (C6-C10)	20 ug/g			< 20
F2 PHCs (C10-C16)	10 ug/g			< 10
F3 PHCs (C16-C34)	10 ug/g			< 10
F4 PHCs (C34-C50)	10 ug/g			< 10
Acenaphthene	0.02 ug/g			< 0.02
Acenaphthylene	0.02 ug/g			< 0.02
Anthracene	0.02 ug/g			< 0.02
Benzo[a]anthracene	0.02 ug/g			< 0.02

Certificate of Analysis

Report Date: 04-Nov-2004
Order Date: 28-Oct-2004

Client: DST Consulting Engineers Inc.

Client PO:

Project: OE04940

		TP33-SGS3	TP33-SGS5	TP30-SGS2
		27/10/2004	27/10/2004	27/10/2004
		J4770.13	J4770.14	J4770.15
Benzo[a]pyrene	0.02 ug/g			< 0.02
Benzo[b]fluoranthene	0.02 ug/g			< 0.02
Benzo[ghi]perylene	0.02 ug/g			< 0.02
Benzo[k]fluoranthene	0.02 ug/g			< 0.02
Biphenyl	0.02 ug/g			< 0.02
Chrysene	0.02 ug/g			< 0.02
Dibenzo[a,h]anthracene	0.02 ug/g			< 0.02
Fluoranthene	0.02 ug/g			< 0.02
Fluorene	0.02 ug/g			< 0.02
Indeno[1,2,3-cd]pyrene	0.02 ug/g			< 0.02
1-Methylnaphthalene	0.02 ug/g			< 0.02
2-Methylnaphthalene	0.02 ug/g			< 0.02
Naphthalene	0.02 ug/g			< 0.02
Phenanthrene	0.02 ug/g			< 0.02
Pyrene	0.02 ug/g			< 0.02
2-Fluorobiphenyl	surrogate			58%
p-Terphenyl d-14	surrogate			67%

Certificate of Analysis

Report Date: 04-Nov-2004
Order Date: 28-Oct-2004

Client: DST Consulting Engineers Inc.

Client PO: Project: OE04940

Matrix: Soil

Parameter	MDL/Units	Sample ID: TP30-SGS3	TP30-SGS5
		Sample Date: 27/10/2004	27/10/2004
		J4770.16	J4770.17
Antimony	1 ug/g	< 1	< 1
Arsenic	1 ug/g	2	2
Barium	10 ug/g	70	100
Beryllium	0.5 ug/g	< 0.5	< 0.5
Cadmium	0.5 ug/g	< 0.5	< 0.5
Calcium	200 ug/g	11,000	12,000
Chromium	5 ug/g	20	20
Cobalt	5 ug/g	10	10
Copper	5 ug/g	15	15
Iron	200 ug/g	18,000	20,000
Lead	1 ug/g	12	17
Magnesium	200 ug/g	4,800	5,200
Molybdenum	1 ug/g	< 1	< 1
Nickel	5 ug/g	20	25
Selenium	1 ug/g	< 1	< 1
Silver	0.3 ug/g	< 0.3	< 0.3
Sodium	200 ug/g	< 200	< 200
Thallium	1 ug/g	< 1	< 1
Tin	5 ug/g	< 5	< 5
Vanadium	10 ug/g	30	30
Zinc	20 ug/g	20	40
F1 PHCs (C6-C10)	20 ug/g	< 20	< 20
F2 PHCs (C10-C16)	10 ug/g	< 10	< 10
F3 PHCs (C16-C34)	10 ug/g	< 10	< 10
F4 PHCs (C34-C50)	10 ug/g	< 10	< 10
Acenaphthene	0.02 ug/g	< 0.02	< 0.02
Acenaphthylene	0.02 ug/g	< 0.02	< 0.02
Anthracene	0.02 ug/g	< 0.02	< 0.02
Benzo[a]anthracene	0.02 ug/g	< 0.02	< 0.02

Certificate of Analysis

Report Date: 04-Nov-2004
Order Date: 28-Oct-2004

Client: **DST Consulting Engineers Inc.**

Client PO:

Project: O1604940

		TP30-SS83	TP30-SS85
		27/10/2004	27/10/2004
		J4770.16	J4770.17
Benzo[a]pyrene	0.02 ug/g	< 0.02	< 0.02
Benzo[b]fluoranthene	0.02 ug/g	< 0.02	< 0.02
Benzo[ghi]perylene	0.02 ug/g	< 0.02	< 0.02
Benzo[k]fluoranthene	0.02 ug/g	< 0.02	< 0.02
Biphenyl	0.02 ug/g	< 0.02	< 0.02
Chrysene	0.02 ug/g	< 0.02	< 0.02
Dibenzo[a,h]anthracene	0.02 ug/g	< 0.02	< 0.02
Fluoranthene	0.02 ug/g	< 0.02	< 0.02
Fluorene	0.02 ug/g	< 0.02	< 0.02
Indeno[1,2,3-cd]pyrene	0.02 ug/g	< 0.02	< 0.02
1-Methylnaphthalene	0.02 ug/g	< 0.02	< 0.02
2-Methylnaphthalene	0.02 ug/g	< 0.02	< 0.02
Naphthalene	0.02 ug/g	< 0.02	< 0.02
Phenanthrene	0.02 ug/g	< 0.02	< 0.02
Pyrene	0.02 ug/g	< 0.02	< 0.02
2-Fluorobiphenyl	surrogate	57%	54%
p-Terphenyl d-14	surrogate	63%	50%

Certificate of Analysis

Client: DST Consulting Engineers Inc.

Client PO:

Project: OE04940

Report Date: 04-Nov-2004

Order Date: 28-Oct-2004

QA/QC Results

	Blank	Spike (QC Limits)	Duplicate	
Antimony	< 1 ug/g	100% (70 - 130%)	< 1	< 1
Arsenic	< 1 ug/g	101% (70 - 130%)	2	2
Barium	< 10 ug/g	103% (70 - 130%)	370	340
Beryllium	< 0.5 ug/g	85% (70 - 130%)	< 0.5	< 0.5
Cadmium	< 0.5 ug/g	97% (70 - 130%)	< 0.5	< 0.5
Chromium	< 5 ug/g	92% (70 - 130%)	65	60
Cobalt	< 5 ug/g	92% (70 - 130%)	15	15
Copper	< 5 ug/g	92% (70 - 130%)	35	35
Lead	< 1 ug/g	90% (70 - 130%)	17	16
Molybdenum	< 1 ug/g	99% (70 - 130%)	< 1	< 1
Nickel	< 5 ug/g	91% (70 - 130%)	40	40
Selenium	< 1 ug/g	98% (70 - 130%)	< 1	< 1
Silver	< 0.3 ug/g	107% (70 - 130%)	< 0.3	< 0.3
Thallium	< 1 ug/g	95% (70 - 130%)	< 1	< 1
Tin	< 5 ug/g	102% (70 - 130%)	< 5	< 5
Vanadium	< 10 ug/g	93% (70 - 130%)	60	60
Zinc	< 20 ug/g	90% (70 - 130%)	80	80
Benzene	< 0.05 ug/g	99% (61 - 134%)	< 0.05	< 0.05
Ethylbenzene	< 0.05 ug/g	85% (66 - 128%)	< 0.05	< 0.05
Toluene	< 0.05 ug/g	85% (66 - 133%)	< 0.05	< 0.05
m/p-Xylene	< 0.1 ug/g	79% (65 - 132%)	< 0.1	< 0.1
o-Xylene	< 0.05 ug/g	102% (66 - 134%)	< 0.05	< 0.05
F1 PHCs (C6-C10)	< 20 ug/g	85% (50 - 150%)	< 20	< 20
F1 PHCs (C6-C10)	< 20 ug/g	85% (50 - 150%)	< 20	< 20
F2-F4 PHCs (C10-C50)	< 10 ug/g	78% (50 - 150%)	160	140
Acenaphthene	< 0.02 ug/g	56% (47 - 147%)	< 0.02	< 0.02
Acenaphthylene	< 0.02 ug/g	54% (33 - 145%)	< 0.02	< 0.02
Anthracene	< 0.02 ug/g	54% (27 - 133%)	< 0.02	< 0.02
Benzo[a]anthracene	< 0.02 ug/g	60% (33 - 143%)	< 0.02	< 0.02
Benzo[a]pyrene	< 0.02 ug/g	61% (17 - 163%)	< 0.02	< 0.02

Certificate of Analysis

Report Date: 04-Nov-2004
Order Date: 28-Oct-2004

Client: DST Consulting Engineers Inc.
Client PO:

Project: OE04940

	Blank	Spike (QC Limits)	Duplicate	
Benzo[b]fluoranthene	< 0.02 ug/g	53% (11 - 162%)	< 0.02	< 0.02
Benzo[ghi]perylene	< 0.02 ug/g	52% (25 - 121%)	< 0.02	< 0.02
Benzo[k]fluoranthene	< 0.02 ug/g	67% (11 - 162%)	< 0.02	< 0.02
Biphenyl	< 0.02 ug/g	49% (23 - 120%)	< 0.02	< 0.02
Chrysene	< 0.02 ug/g	56% (17 - 168%)	< 0.02	< 0.02
Dibenzo[a,h]anthracene	< 0.02 ug/g	52% (23 - 117%)	< 0.02	< 0.02
Fluoranthene	< 0.02 ug/g	60% (29 - 130%)	0.02	0.02
Fluorene	< 0.02 ug/g	48% (29 - 115%)	< 0.02	< 0.02
Indeno[1,2,3-cd]pyrene	< 0.02 ug/g	56% (1 - 171%)	< 0.02	< 0.02
1-Methylnaphthalene	< 0.02 ug/g	56% (23 - 120%)	< 0.02	< 0.02
2-Methylnaphthalene	< 0.02 ug/g	52% (23 - 120%)	< 0.02	< 0.02
Naphthalene	< 0.02 ug/g	61% (21 - 133%)	< 0.02	< 0.02
Phenanthrene	< 0.02 ug/g	57% (54 - 120%)	< 0.02	< 0.02
Pyrene	< 0.02 ug/g	60% (29 - 130%)	< 0.02	< 0.02

PARACEL Laboratories Ltd.
Environmental & Indoor Air Quality

300-2319 St. Laurent Blvd.
Ottawa, ON K1G 4J8
tel: 613-731-9577
fax: 613-731-9064
email: paracel@paracellabs.com

November 12, 2004

Attn: Ken Buell

From: Dale Robertson

re: Subcontracted Analyses 8 Pages

Your samples, identified below, were subcontracted for the listed parameters. Samples in the attached subcontractor report are identified with Paracel sample references with your references manually added.

Project Reference	0E04940
Submission Date	Oct 28/04
Parameter	Dioxin / Furan

Your sample ID's correlate to the Paracel sample references as indicated in the table below

Client ID	Paracel Sample Reference
RH MW5 SS4	34771-1

Maxxam
Analytics Inc

FOR: DST Consulting Engineers

Paracel Laboratories Ltd
2319 St Laurent Blvd
Unit 300
Ottawa, ON
K1G 4J8

Attention: Dale Robertson

KEN BUDEL

Report Date: 2004/11/11

Your Project #: 4771

project OE04940

ANALYTICAL REPORT

MAXXAM JOB #: A451174
Received: 2004/11/01, 11:09

Sample Matrix: SOLID
Samples Received: 1

Analyses	Number of Tests	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Dibenzodioxins / Furans (HRMS)	1	2004/11/02	2004/11/10	Ont SOP [illegible]	EPS 1/RM/23 / 3

MAXXAM ANALYTICS INC.

2004 11 12

BRANKO VRZIC, A.SC.T.
Senior Analyst, HRMS Services

APPLIED SCIENCE TECHNOLOGIST
OACETT
ONTARIO
BRANKO VRZIC
No 057009

Total pages: 7

000001

Maxxam
Analytics Inc

DIBENZODIOXINS/FURANS
CONTROL LIMITS

ANALYTE	ION RATIO Limits	% RECOVERY LIMITS LOWER	UPPER
2,3,7,8-TETRA CDD*	0.65-0.89	30	130
1,2,3,7,8-PENTA CDD	1.32-1.78	30	130
1,2,3,4,7,8-HEXA CDD	1.05-1.43	30	130
1,2,3,6,7,8-HEXA CDD	1.05-1.43	30	130
1,2,3,7,8,9-HEXA CDD	1.05-1.43		
1,2,3,4,6,7,8-HEPTA CDD	0.88-1.20	30	130
OCTA CDD	0.76-1.02	30	130
TOTAL TETRA CDD	0.65-0.89		
TOTAL PENTA CDD	1.32-1.78		
TOTAL HEXA CDD	1.05-1.43		
TOTAL HEPTA CDD	0.88-1.20		

2,3,7,8-TETRA CDF**	0.65-0.89	30	130
1,2,3,7,8-PENTA CDF	1.32-1.78	30	130
2,3,4,7,8-PENTA CDF	1.32-1.78	30	130
1,2,3,4,7,8-HEXA CDF	1.05-1.43	30	130
1,2,3,6,7,8-HEXA CDF	1.05-1.43	30	130
2,3,4,6,7,8-HEXA CDF	1.05-1.43	30	130
1,2,3,7,8,9-HEXA CDF	1.05-1.43	30	130
1,2,3,4,6,7,8-HEPTA CDF	0.88-1.20	30	130
1,2,3,4,7,8,9-HEPTA CDF	0.88-1.20	30	130
OCTA CDF	0.76-1.02		
TOTAL TETRA CDF	0.65-0.89		
TOTAL PENTA CDF	1.32-1.78		
TOTAL HEXA CDF	1.05-1.43		
TOTAL HEPTA CDF	0.88-1.20		

Ion Ratio Limits:
The ratio of the major ion to the secondary or confirming ion is used to identify presence/absence of Dibenzo-p-dioxins and Furans.

% Recovery Limits:
The recovery of C13-labelled surrogates must fall within the limits given.

000002

Maxxam Analytics Inc

Evaluation Questions

MAXXAM ANALYTICS INC. Report No: A462174

	All Congeners	2,3,7,8-TCDD	2,3,7,8-TCDF
1. Surrogate Recovery (Fig 8, Part I)			
a) Are all surrogate recoveries within specified limits ? (see Section 8(c) of the RM)	✓		
b) Are all reported detection limits at or below maximum target values ? (see Table 5 of the RM)	✓		
2. Ion Ratio (Fig 8, Part II) All ion abundance ratios with acceptable limits for 2,3,7,8-TCDD & 2,3,7,8-TCDF ? (see Section 6.5 & 6.7 of the RM)		✓	✓
3. Method Performance Test (Fig 10)			
a) Are all surrogate recoveries within the range of 40 to 120% for each of the 3 tests ? (see Section 5.2 of the RM)			
b) Are all native congener recoveries within 20% of the spiked amount for each of the 3 tests ?			
4. Calibration (Fig 11) Are % RSD values within specification for native congeners ? (see Section 6.6 of the RM)			
5. Calibration Verification (Fig 12)			
a) Was calibration verified within 12 hours from analysis of each reported compliance sample ? (see Section 8(j) of the RM)	✓		
b) Are (calculated/actual) concentration ratios for native congeners within the specified limits ? (see Section 8(j) of the RM)	✓		
c) Are all surrogate recoveries within the range of 75 to 125 % ?	✓		
6. Detection Limits of Verification (Fig 13) Were analyte identification criteria satisfied for 2,3,7,8-TCDD and 2,3,7,8-TCDF in CS1 for each date on which compliance sample analyses were performed ? (see Section 6.2 and 8(k) of the RM)		✓	✓
7. GC Performance Were windows verified and were acceptable chromatographic performance confirmed for each date on which compliance sample analysis were performed ? (see Section 6.2 and 6.3 of the RM)	✓		
8. High Resolution Were all compliance samples analyzed at MS resolution of 10,000 or better ?	✓		
9. Contamination Was PCDD/PCDF contamination below maximum allowable levels in all blank samples ? (see Section 8(a) of the RM)	✓		

I CERTIFY THAT ANSWERS TO ALL QUESTIONS ABOVE ARE ACCURATE.

Name: BRANKO VRZIC Title: Technical Specialist

Signature: [signature] Title:

BRANKO VRZIC

000003

Maxxam Analytics Inc

DIBENZODIOXINS / FURANS (HRMS) IN SOLID

MAXXAM JOB #: A451174
MAXXAM SAMPLE #: D93276
Sampling Date: 2004/10/27

PROJECT NAME:
PROJECT #: 4771
Report Date: 2004/11/11

CONC. UNITS = ppt = pg/g
RL Units = ppt = pg/g

BH MW5-SS4

	4771-10BMW5-SS4		TOXIC EQUIVALENCY			RECOVERIES OF INTERNAL STANDARDS	
Compounds	CONC	RL	TEF	TEQ(DF)	TEQ(0.5RL)	pg SPIKED	% RECOVERED
2,3,7,8-Tetra CDD *	0	0.100	1.00	0.100	0.0500	1000	88
1,2,3,7,8-Penta CDD	0	0.100	0.500	0.0500	0.0250	1000	104
1,2,3,4,7,8-Hexa CDD	0	0.141	0.100	0.0141	0.00705	1000	94
1,2,3,6,7,8-Hexa CDD	1.03	0.200	0.100	0.103	0.103	1000	91
1,2,3,7,8,9-Hexa CDD	0.694	0.200	0.100	0.0694	0.0694		
1,2,3,4,6,7,8-Hepta CDD	52.9	0.400	0.0100	0.529	0.529	1000	85
Octa CDD	333	0.400	0.00100	0.333	0.333	2000	70
Total Tetra CDD	1.67	0.100					
Total Penta CDD	1.55	0.100					
Total Hexa CDD	100	0.200					
Total Hepta CDD	9.10	0.400					
2,3,7,8-Tetra CDF **	0.752	0.100	0.100	0.0752	0.0752	1000	82
1,2,3,7,8-Penta CDF	0.414	0.100	0.0500	0.0207	0.0207	1000	88
2,3,4,7,8-Penta CDF	0.278	0.100	0.500	0.139	0.139	1000	88
1,2,3,4,7,8-Hexa CDF	0.700	0.200	0.100	0.0700	0.0700	1000	87
1,2,3,6,7,8-Hexa CDF	0.236	0.200	0.100	0.0236	0.0236	1000	86
2,3,4,6,7,8-Hexa CDF	0	0.200	0.100	0.0200	0.0100	1000	86
1,2,3,7,8,9-Hexa CDF	0	0.200	0.100	0.0200	0.0100	1000	70
1,2,3,4,6,7,8-Hepta CDF	3.22	0.400	0.0100	0.0322	0.0322	1000	71
1,2,3,4,7,8,9-Hepta CDF	0	0.400	0.0100	0.00400	0.00200	1000	60
Octa CDF	7.48	0.400	0.00100	0.00748	0.00748		
Total Tetra CDF	1.99	0.100					
Total Penta CDF	3.25	0.100					
Total Hexa CDF	2.80	0.200					
Total Hepta CDF	8.46	0.400					
TOTAL TOXIC EQUIVALENCY				1.51	1.51		

* CDD = CHLORO DIBENZO-P-DIOXIN
** CDF = CHLORO DIBENZOFURAN
RL = REPORTING LIMIT
0 values = U = NOT DETECTED
TR = TRACE AMOUNT DETECTED
The RL were raised for 1,2,3,4,7,8 H6CDD due to a background interference.

2004/11/11

VICA CIORANICA, Analyst, HRMS Services

000004

Maxxam Analytics Inc

DIBENZODIOXINS / FURANS (HRMS) IN SOLID

MAXXAM JOB #: A451174
MAXXAM SAMPLE #: SPIKED BLANK

PROJECT NAME:
PROJECT #: 4771
Report Date: 2004/11/11

CONC. UNITS = ppt = pg/g
RL Units = ppt = pg/g

	SPIKED BLANK		TOXIC EQUIVALENCY			RECOVERIES OF C13 SURROGATE	
COMPOUND	% RECOVERY	RL	TEF	TEQ(DF)	TEQ(0.5RL)	SPIKED	% RECOVERED
2,3,7,8-Tetra CDD	105	0.100	1.00	105	105	1000	68
1,2,3,7,8-Penta CDD	92	0.100	0.500	46.0	46.0	1000	95
1,2,3,4,7,8-Hexa CDD	103	0.141	0.100	10.3	10.3	1000	91
1,2,3,6,7,8-Hexa CDD	103	0.200	0.100	10.3	10.3	1000	89
1,2,3,7,8,9-Hexa CDD	94	0.200	0.100	9.40	9.40		
1,2,3,4,6,7,8-Hepta CDD	90	0.400	0.0100	0.900	0.900	1000	94
Octa CDD	115	0.400	0.00100	0.115	0.115	2000	81
2,3,7,8-Tetra CDF	102	0.100	0.100	10.2	10.2	1000	72
1,2,3,7,8-Penta CDF	93	0.200	0.0500	4.65	4.65	1000	77
2,3,4,7,8-Penta CDF	85	0.100	0.500	42.5	42.5	1000	88
1,2,3,4,7,8-Hexa CDF	105	0.200	0.100	10.5	10.5	1000	76
1,2,3,6,7,8-Hexa CDF	108	0.200	0.100	10.8	10.8	1000	79
2,3,4,6,7,8-Hexa CDF	107	0.200	0.100	10.7	10.7	1000	84
1,2,3,7,8,9-Hexa CDF	94	0.200	0.100	9.40	9.40	1000	73
1,2,3,4,6,7,8-Hepta CDF	94	0.400	0.0100	0.940	0.940	1000	73
1,2,3,4,7,8,9-Hepta CDF	90	0.400	0.0100	0.900	0.900	1000	74
Octa CDF	95	0.400	0.00100	0.0950	0.0950		
TOTAL TOXIC EQUIVALENCY							

* CDD = CHLORO-DIBENZO-P-DIOXIN
** CDF = CHLORO DIBENZOFURAN
RL = REPORTING LIMIT
Values = "U" = NOT DETECTED
TR = TRACE AMOUNT DETECTED.
The RL were raised for 1,2,3,4,7,8 H6CDD due to a background interference.

VICA CIORANIC, Analyst, HRMS Services

000005

Maxxam Analytics Inc

DIBENZODIOXINS / FURANS (HRMS) IN SOLID

MAXXAM JOB #: A451174
MAXXAM SAMPLE #: SPIKED BLANK Duplicate

PROJECT NAME:
PROJECT #: 4771
Report Date: 2004/11/11

CONC. UNITS = ppt = pg/g
RL Units = ppt = pg/g

	SPIKED BLANK		TOXICITY EQUIVALENCY			RECOVERIES OF C13 SURROGATE	
Compounds	%RECOVER	RL	TEF	TEQ(TL)	TEQ(0.5RL)	SPIKED	%RECOVERED
2,3,7,8-Tetra CDD *	109	0.100	1.00	109	109	1000	74
1,2,3,7,8-Penta CDD	106	0.100	0.500	53.0	53.0	1000	97
1,2,3,4,7,8-Hexa CDD	103	0.141	0.100	10.3	10.3	1000	93
1,2,3,6,7,8-Hexa CDD	99	0.200	0.100	9.90	9.90	1000	96
1,2,3,7,8,9-Hexa CDD	99	0.200	0.100	9.90	9.90		
1,2,3,4,6,7,8-Hepta CDD	93	0.400	0.0100	0.930	0.930	1000	102
Octa CDD	105	0.400	0.00100	0.105	0.105	2000	88
2,3,7,8-Tetra CDF	101	0.100	0.100	10.1	10.1	1000	75
1,2,3,7,8-Penta CDF	93	0.100	0.0500	4.65	4.65	1000	86
2,3,4,7,8-Penta CDF	94	0.100	0.500	47.0	47.0	1000	93
1,2,3,4,7,8-Hexa CDF	98	0.200	0.100	9.80	9.80	1000	81
1,2,3,6,7,8-Hexa CDF	102	0.200	0.100	10.2	10.2	1000	89
2,3,4,6,7,8-Hexa CDF	96	0.200	0.100	9.60	9.60	1000	94
1,2,3,7,8,9-Hexa CDF	108	0.200	0.100	10.8	10.8	1000	76
1,2,3,4,6,7,8-Hepta CDF	102	0.400	0.0100	1.02	1.02	1000	77
1,2,3,4,7,8,9-Hepta CDF	98	0.400	0.0100	0.980	0.980	1000	76
Octa CDF	93	0.400	0.00100	0.0930	0.0930		
TOTAL TOXICITY EQUIVALENCY				297	297		

* CDD = CHLORO DIBENZO-P-DIOXIN
** CDF = CHLORO DIBENZOFURAN
RL = REPORTING LIMIT
ND = NOT DETECTED
TR = TRACE AMOUNT DETECTED
The RL were raised for 1,2,3,4,7,8 H6CDD due to a background interference.

Ciorani 2004/11/11

VICA CIORANIC, Analyst, HRMS Services

000006

MaxXam Analytics Inc

DIBENZODIOXINS / FURANS (HRMS) IN SOLID

MAXXAM JOB #: A451174
MAXXAM SAMPLE #: METHOD BLANK

PROJECT NAME:
PROJECT #: 4771
Report Date: 2004/11/11

CONC. UNITS = ppt = pg/g
RL Units = ppt = pg/g

	METHOD BLANK		TOXIC EQUIVALENCY			RECOVERIES OF C13 SURROGATE	
Compound	CONC	RL	TEF	TEQ(DL)	TEQ(TR)	SPIKED	%RECOVERED
2,3,7,8-Tetra CDD *	0	0.100	1.00	0.100	0.0500	1000	69
1,2,3,7,8-Penta CDD	0	0.100	0.500	0.0500	0.0250	1000	87
1,2,3,4,7,8-Hexa CDD	0	0.141	0.100	0.0141	0.00705	1000	78
1,2,3,6,7,8-Hexa CDD	0	0.200	0.100	0.0200	0.0100	1000	77
1,2,3,7,8,9-Hexa CDD	0	0.200	0.100	0.0200	0.0100		
1,2,3,4,6,7,8-Hepta CDD	0	0.400	0.0100	0.00400	0.00200	1000	85
Octa CDD	0	0.400	0.00100	0.000400	0.000200	2000	75
Total Tetra CDD	0	0.100					
Total Penta CDD	0	0.100					
Total Hexa CDD	0	0.200					
Total Hepta CDD	0	0.400					
2,3,7,8-Tetra CDF **	0	0.100	0.100	0.0100	0.00500	1000	74
1,2,3,7,8-Penta CDF	0	0.100	0.0500	0.00500	0.00250	1000	76
2,3,4,7,8-Penta CDF	0	0.100	0.500	0.0500	0.0250	1000	85
1,2,3,4,7,8-Hexa CDF	0	0.200	0.100	0.0200	0.0100	1000	67
1,2,3,6,7,8-Hexa CDF	0	0.200	0.100	0.0200	0.0100	1000	72
2,3,4,6,7,8-Hexa CDF	0	0.200	0.100	0.0200	0.0100	1000	76
1,2,3,7,8,9-Hexa CDF	0	0.200	0.100	0.0200	0.0100	1000	66
1,2,3,4,6,7,8-Hepta CDF	0	0.400	0.0100	0.00400	0.00200	1000	62
1,2,3,4,7,8,9-Hepta CDF	0	0.400	0.0100	0.00400	0.00200	1000	61
Octa CDF	0	0.400	0.00100	0.000400	0.000200		
Total Tetra CDF	0	0.100					
Total Penta CDF	0	0.100					
Total Hexa CDF	0	0.200					
Total Hepta CDF	0	0.400					
TOTAL TOXIC EQUIVALENCY				0.362	0.181		

* CDD = CHLORO DIBENZO-P-DIOXIN
** CDF = CHLORO DIBENZOFURAN
RL = REPORTING LIMIT
0 values = U = NOT DETECTED
TR = TRACE AMOUNT DETECTED
The RL were raised for 1,2,3,4,7,8 H6CDD due to a background interference.

2004/11/11

VICA GORANC, Analyst, HRMS Services

000067

PARACEL Laboratories Ltd.
Environmental & Indoor Air Quality

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Tel: 613-731-9577 Fax: (613) 731-9064
Toll Free: 1-800-749-1947 email: paracel@magma.ca

№ 15494

CHAIN OF CUSTODY REPORT

CONTACT: Ken Budd
COMPANY: DST Consulting Engineers
ADDRESS: 1504 Algoma Road
CITY: Ottawa
PROV: ON POSTAL: K1B 3W8
TEL: 748-1415 FAX: 748-1356

DATE: October 28, 2004

TURN AROUND TIME
[ ] 1-day [ ] 2-day [ ] Regular

REPORTING REQUIREMENTS
[ ] Hard Copy [ ] Email – PDF
[ ] FAX [ ] Email – Spreadsheet

P.O. NUMBER: PROJECT: 004940 REFERENCE: 6558

SAMPLE INFORMATION / **ANALYSIS REQUIRED**

Paracel Order Number: 4071

	SAMPLE IDENTIFICATION	MATRIX	NO. OF BOTTLES	SAMPLE DATE	ICP Metals	PAHs	PHC F1→F4	BTEX	Biological Parameters				
1	BHMW3 - SS2	Soil	1	Oct 27	✓	✓	✓						
2	BHMW5 - SS3				✓	✓	✓	✓					
3	BHMW5 - SS4								✓				
4	TP28 - SGS2				✓								
5	TP28 - SGS3				✓								
6	TP28 - SGS5				✓								
7	TP25 - SGS2				✓								
8	TP25 - SGS3				✓								
9	TP25 - SGS5				✓								
10	TP29 - SGS2	↓	↓	↓	✓	✓	✓						

Preservation done in field (Y/N):
Preservative to be added by Paracel (Y/N):

Comments: *see note on p. 2

Relinquished by: [signature]
Date: Oct 28/04 Time:
Relinquished by:

Received by: [signature]
Date: Oct 28/04 Time: 2:45
Verified by:

PARACEL Laboratories Ltd.
Environmental & Indoor Air Quality

300-2319 St. Laurent Blvd.
Ottawa ON K1G 4J8
Phone: (613) 731-9577
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Toll Free: 800-749-1947
email: paracel@paracellabs.com

Order #: J4849

Certificate of Analysis

DST Consulting Engineers Inc.

1304 Algoma Road
Ottawa, ON K1B 3W8
Attn: Mr. Ken Budel

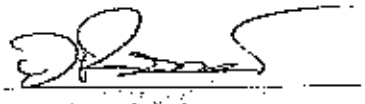
Phone: (613)-748-1415
Fax: (613)-748-1356

Client PO: **USLR**
Project: **OE04940**
Custody #: 13364

Report Date: 09-Nov-2004
Order Date: 02-Nov-2004

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID	Client ID
J4849.1	TP7 SGS5
J4849.2	TP8 SGS2
J4849.3	TP8 SGS6
J4849.4	TP6 SGS2
J4849.5	TP9 SGS5
J4849.6	TP19 SGS3
J4849.7	TP20 SGS2
J4849.8	TP10 SGS6
J4849.9	TP11 SGS1
J4849.10	TP39 SGS5
J4849.11	TP34 SGS5
J4849.12	TP35 SGS3
J4849.13	TP36 SGS2
J4849.14	TP38 SGS3
J4849.15	TP31 SGS2
J4849.16	TP31 SGS3
J4849.17	TP31 SGS5
J4849.18	TP32 SGS2
J4849.19	TP32 SGS3
J4849.20	TP32 SGS5

Approved By: 
Dale Robertson, B.Sc.
Laboratory Director

Any use of these test results implies your agreement that our total liability in connection with this work, however arising, shall be limited to the amount paid by you for this work, and that our employees or agents shall not under any circumstance be liable to you in connection with this work.

Certificate of Analysis

Client: **DST Consulting Engineers Inc.**

Client PO: USLR

Project: OE04940

Report Date: 09-Nov-2004
Order Date: 02-Nov-2004

Analysis Summary Table

Analysis	Method Reference/Description
Metals	EPA 6020 - ICP-MS
PHC F1 (CCME)	CWS PHCs - P&T GC-FID
PHC F2-F4 (CCME)	CWS - Tier 1 Method, GC-FID
PAHs	modified EPA 8270 - GC-MS

n/a: not applicable
MDL: Method Detection Limit
Soil results calculated on a dry weight basis.
CCME PHC additional information:

- The method for the analysis of PHCs complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
- F1 range corrected for BTEX where available
- F2 to F3 ranges corrected for appropriate PAHs where available.
- The gravimetric TPH (heavy oil) result is not to be added to the PHC fractions.

Certificate of Analysis

Client: DST Consulting Engineers Inc.

Client PO: USLR

Project: OE04940

Report Date: 09-Nov-2004

Order Date: 02-Nov-2004

Matrix: Soil

Parameter	MDL/Units	Sample ID: TP7 SGS5	TP8 SGS2	TP8 SGS6
		Sample Date: 28/10/2004	28/10/2004	28/10/2004
		J4849.1	J4849.2	J4849.3
Antimony	1 ug/g		< 1	1
Arsenic	1 ug/g		< 1	4
Barium	10 ug/g		60	1,300
Beryllium	0.5 ug/g		< 0.5	< 0.5
Cadmium	0.5 ug/g		< 0.5	0.5
Calcium	200 ug/g		3,800	25,000
Chromium	5 ug/g		20	45
Cobalt	5 ug/g		5	10
Copper	5 ug/g		5	35
Iron	200 ug/g		15,000	25,000
Lead	1 ug/g		6	250
Magnesium	200 ug/g		2,600	8,600
Molybdenum	1 ug/g		< 1	1
Nickel	5 ug/g		10	40
Selenium	1 ug/g		< 1	< 1
Silver	0.3 ug/g		< 0.3	< 0.3
Sodium	200 ug/g		< 200	< 200
Thallium	1 ug/g		< 1	< 1
Tin	5 ug/g		< 5	5
Vanadium	10 ug/g		30	30
Zinc	20 ug/g		40	800
F1 PHCs (C6-C10)	20 ug/g	< 20	< 20	< 20
F2 PHCs (C10-C16)	10 ug/g	< 10	< 10	30
F3 PHCs (C16-C34)	10 ug/g	< 10	< 10	20
F4 PHCs (C34-C50)	10 ug/g	< 10	< 10	< 10

Certificate of Analysis

Client: **DST Consulting Engineers Inc.**

Client PO: USLR

Project: OE04940

Report Date: 09-Nov-2004
Order Date: 02-Nov-2004

Matrix: Soil

Parameter	MDL/Units	Sample ID: TP6 SG52	TP9 SG55	TP19 SG33
		Sample Date: 28/10/2004	28/10/2004	28/10/2004
		J4849.4	J4849.5	J4849.6
Antimony	1 ug/g		< 1	
Arsenic	1 ug/g		3	
Barium	10 ug/g		820	
Beryllium	0.5 ug/g		0.5	
Cadmium	0.5 ug/g		< 0.5	
Calcium	200 ug/g		17,000	
Chromium	5 ug/g		55	
Cobalt	5 ug/g		15	
Copper	5 ug/g		55	
Iron	200 ug/g		25,000	
Lead	1 ug/g		78	
Magnesium	200 ug/g		8,800	
Molybdenum	1 ug/g		< 1	
Nickel	5 ug/g		50	
Selenium	1 ug/g		< 1	
Silver	0.3 ug/g		< 0.3	
Sodium	200 ug/g		200	
Thallium	1 ug/g		< 1	
Tin	5 ug/g		5	
Vanadium	10 ug/g		50	
Zinc	20 ug/g		240	
F1 PHCs (C6-C10)	20 ug/g	< 20	< 20	< 20
F2 PHCs (C10-C16)	10 ug/g	40	< 10	< 10
F3 PHCs (C16-C34)	10 ug/g	170	30	30
F4 PHCs (C34-C50)	10 ug/g	220	< 10	10

Certificate of Analysis

Report Date: 09-Nov-2004
Order Date: 02-Nov-2004

Client: **DST Consulting Engineers Inc.**
Client PO: USLR

Project: OE04940

Matrix: Soil

Parameter	MDL/Units	Sample ID: TP20 SGS2	TP10 SGS6	TP11 SGS1
	Sample Date:	28/10/2004	28/10/2004	28/10/2004
		J4849.7	J4849.8	J4849.9
Antimony	1 ug/g		< 1	< 1
Arsenic	1 ug/g		< 1	< 1
Barium	10 ug/g		190	200
Beryllium	0.5 ug/g		1.0	< 0.5
Cadmium	0.5 ug/g		< 0.5	< 0.5
Calcium	200 ug/g		30,000	10,000
Chromium	5 ug/g		15	45
Cobalt	5 ug/g		< 5	10
Copper	5 ug/g		20	25
Iron	200 ug/g		9,200	22,000
Lead	1 ug/g		9	21
Magnesium	200 ug/g		4,800	6,400
Molybdenum	1 ug/g		< 1	< 1
Nickel	5 ug/g		10	30
Selenium	1 ug/g		< 1	< 1
Silver	0.3 ug/g		< 0.3	< 0.3
Sodium	200 ug/g		200	200
Thallium	1 ug/g		< 1	< 1
Tin	5 ug/g		<.5	< 5
Vanadium	10 ug/g		20	50
Zinc	20 ug/g		20	100
F1 PHCs (C6-C10)	20 ug/g	< 20	< 20	< 20
F2 PHCs (C10-C16)	10 ug/g	30	< 10	< 10
F3 PHCs (C16-C34)	10 ug/g	50	20	30
F4 PHCs (C34-C50)	10 ug/g	30	< 10	< 10

Certificate of Analysis

Report Date: 09-Nov-2004
Order Date: 02-Nov-2004

Client: DST Consulting Engineers Inc.
Client PO: USJR

Project: OE04940

Matrix: Soil

Parameter	MDL/Units	Sample ID: TP39 SGS5	TP34 SGS5	TP35 SGS3
		Sample Date: 01/11/2004	01/11/2004	01/11/2004
		J4849.10	J4849.11	J4849.12
F1 PHCs (C6-C10)	20 ug/g	20	20	< 20
F2 PHCs (C10-C16)	10 ug/g	3,000	12,000	40
F3 PHCs (C16-C34)	10 ug/g	1,500	5,900	50
F4 PHCs (C34-C50)	10 ug/g	< 10	40	20

Certificate of Analysis

Report Date: 09-Nov-2004
Order Date: 02-Nov-2004

Client: DST Consulting Engineers Inc.
Client PO: USLR

Project: OE04940

Matrix: Soil

Parameter	MDL/Units	Sample ID: TP36 SGS2	TP38 SGS3	TP31 SGS2
	Sample Date:	01/11/2004	01/11/2004	01/11/2004
		J4849.13	J4849.14	J4849.15
Antimony	1 ug/g			< 1
Arsenic	1 ug/g			1
Barium	10 ug/g			70
Beryllium	0.5 ug/g			< 0.5
Cadmium	0.5 ug/g			< 0.5
Calcium	200 ug/g			7,200
Chromium	5 ug/g			15
Cobalt	5 ug/g			5
Copper	5 ug/g			15
Iron	200 ug/g			13,000
Lead	1 ug/g			22
Magnesium	200 ug/g			3,200
Molybdenum	1 ug/g			< 1
Nickel	5 ug/g			15
Selenium	1 ug/g			< 1
Silver	0.3 ug/g			< 0.3
Sodium	200 ug/g			< 200
Thallium	1 ug/g			< 1
Tin	5 ug/g			< 5
Vanadium	10 ug/g			20
Zinc	20 ug/g			520
F1 PHCs (C6-C10)	20 ug/g	< 20	< 20	< 20
F2 PHCs (C10-C16)	10 ug/g	20	30	30
F3 PHCs (C16-C34)	10 ug/g	40	50	30
F4 PHCs (C34-C50)	10 ug/g	20	20	30
Acenaphthene	0.02 ug/g			< 0.02
Acenaphthylene	0.02 ug/g			< 0.02
Anthracene	0.02 ug/g			< 0.02
Benzo[a]anthracene	0.02 ug/g			< 0.02

Certificate of Analysis

Client: DST Consulting Engineers Inc.

Client PO: USLR

Project: OE04940

Report Date: 09-Nov-2004

Order Date: 02-Nov-2004

		TP36 SGS2	TP38 SGS3	TP31 SGS2
		01/11/2004	01/11/2004	01/11/2004
		04849.13	04849.14	04849.15
Benzo[a]pyrene	0.02 ug/g			< 0.02
Benzo[b]fluoranthene	0.02 ug/g			< 0.02
Benzo[ghi]perylene	0.02 ug/g			< 0.02
Benzo[k]fluoranthene	0.02 ug/g			< 0.02
Biphenyl	0.02 ug/g			< 0.02
Chrysene	0.02 ug/g			0.02
Dibenzo[a,h]anthracene	0.02 ug/g			< 0.02
Fluoranthene	0.02 ug/g			0.02
Fluorene	0.02 ug/g			< 0.02
Indeno[1,2,3-cd]pyrene	0.02 ug/g			< 0.02
1-Methylnaphthalene	0.02 ug/g			0.02
2-Methylnaphthalene	0.02 ug/g			0.04
Naphthalene	0.02 ug/g			0.02
Phenanthrene	0.02 ug/g			0.02
Pyrene	0.02 ug/g			0.02
2-Fluorobiphenyl	surrogate			67%
p-Terphenyl d-14	surrogate			71%

Certificate of Analysis

Report Date: 09-Nov-2004
Order Date: 02-Nov-2004

Client: **DST Consulting Engineers Inc.**
Client PO: USLR

Project: OE04940

Matrix: Soil

Parameter	MDL/Units	Sample ID: TP31 SGS3	TP31 SGS5	TP32 SGS2
		Sample Date: 01/11/2004	01/11/2004	01/11/2004
		J4849.16	J4849.17	J4849.18
Antimony	1 ug/g	< 1	< 1	< 1
Arsenic	1 ug/g	< 1	< 1	< 1
Barium	10 ug/g	20	30	30
Beryllium	0.5 ug/g	< 0.5	< 0.5	< 0.5
Cadmium	0.5 ug/g	< 0.5	< 0.5	< 0.5
Calcium	200 ug/g	4,000	7,000	6,200
Chromium	5 ug/g	< 5	5	5
Cobalt	5 ug/g	< 5	< 5	< 5
Copper	5 ug/g	10	10	< 5
Iron	200 ug/g	6,800	7,000	6,600
Lead	1 ug/g	2	10	4
Magnesium	200 ug/g	800	1,400	1,600
Molybdenum	1 ug/g	< 1	< 1	< 1
Nickel	5 ug/g	< 5	5	10
Selenium	1 ug/g	< 1	< 1	< 1
Silver	0.3 ug/g	< 0.3	< 0.3	< 0.3
Sodium	200 ug/g	< 200	< 200	< 200
Thallium	1 ug/g	< 1	< 1	< 1
Tin	5 ug/g	< 5	< 5	< 5
Vanadium	10 ug/g	10	10	< 10
Zinc	20 ug/g	< 20	460	20
F1 PHCs (C6-C10)	20 ug/g	< 20	< 20	< 20
F2 PHCs (C10-C16)	10 ug/g	20	20	20
F3 PHCs (C16-C34)	10 ug/g	30	30	20
F4 PHCs (C34-C50)	10 ug/g	10	50	20
Acenaphthene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Acenaphthylene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Anthracene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Benzo[a]anthracene	0.02 ug/g	< 0.02	0.10	< 0.02

Client: DST Consulting Engineers Inc.

Client PO: USLR

Project: OE04940

Report Date: 09-Nov-2004

Order Date: 02-Nov-2004

		TP31 SGS3	TP31 SGS5	TP32 SGS2
		01/11/2004	01/11/2004	01/11/2004
		J4849.16	J4849.17	J4849.18
Benzo[a]pyrene	0.02 ug/g	< 0.02	0.08	< 0.02
Benzo[b]fluoranthene	0.02 ug/g	< 0.02	0.08	< 0.02
Benzo[ghi]perylene	0.02 ug/g	< 0.02	0.06	< 0.02
Benzo[k]fluoranthene	0.02 ug/g	< 0.02	0.04	< 0.02
Biphenyl	0.02 ug/g	< 0.02	< 0.02	< 0.02
Chrysene	0.02 ug/g	< 0.02	0.10	< 0.02
Dibenzo[a,h]anthracene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Fluoranthene	0.02 ug/g	< 0.02	0.24	< 0.02
Fluorene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Indeno[1,2,3-cd]pyrene	0.02 ug/g	< 0.02	0.06	< 0.02
1-Methylnaphthalene	0.02 ug/g	< 0.02	< 0.02	< 0.02
2-Methylnaphthalene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Naphthalene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Phenanthrene	0.02 ug/g	< 0.02	0.14	< 0.02
Pyrene	0.02 ug/g	< 0.02	0.20	< 0.02
2-Fluorobiphenyl	surrogate	54%	59%	57%
p-Terphenyl d-14	surrogate	60%	65%	61%

Certificate of Analysis

Report Date: 09-Nov-2004
Order Date: 02-Nov-2004

Client: DST Consulting Engineers Inc.

Client PO: USLR

Project: OE04940

Matrix: Soil

Parameter	MDL/Units	Sample ID: TP32 SGS3	Sample ID: TP32 SGS5
		Sample Date: 01/11/2004	Sample Date: 01/11/2004
		J4849.19	J4849.20
Antimony	1 ug/g	< 1	< 1
Arsenic	1 ug/g	< 1	< 1
Barium	10 ug/g	30	30
Beryllium	0.5 ug/g	< 0.5	< 0.5
Cadmium	0.5 ug/g	< 0.5	< 0.5
Calcium	200 ug/g	4,000	8,200
Chromium	5 ug/g	5	5
Cobalt	5 ug/g	< 5	< 5
Copper	5 ug/g	< 5	< 5
Iron	200 ug/g	6,600	7,000
Lead	1 ug/g	1	3
Magnesium	200 ug/g	1,600	2,000
Molybdenum	1 ug/g	< 1	< 1
Nickel	5 ug/g	10	10
Selenium	1 ug/g	< 1	< 1
Silver	0.3 ug/g	< 0.3	< 0.3
Sodium	200 ug/g	< 200	< 200
Thallium	1 ug/g	< 1	< 1
Tin	5 ug/g	< 5	< 5
Vanadium	10 ug/g	< 10	10
Zinc	20 ug/g	< 20	< 20
F1 PHCs (C6-C10)	20 ug/g	< 20	< 20
F2 PHCs (C10-C16)	10 ug/g	< 10	< 10
F3 PHCs (C16-C34)	10 ug/g	< 10	< 10
F4 PHCs (C34-C50)	10 ug/g	< 10	< 10
Acenaphthene	0.02 ug/g	< 0.02	< 0.02
Acenaphthylene	0.02 ug/g	< 0.02	< 0.02
Anthracene	0.02 ug/g	< 0.02	< 0.02
Benzo[a]anthracene	0.02 ug/g	< 0.02	< 0.02

Certificate of Analysis

Client: **DST Consulting Engineers Inc.**

Client PO: USLR

Project: OE04940

Report Date: 09-Nov-2004
Order Date: 02-Nov-2004

		TP32 SGS3	TP32 SGS5
		01/11/2004	01/11/2004
		J4849.19	J4849.20
Benzo[a]pyrene	0.02 ug/g	< 0.02	< 0.02
Benzo[b]fluoranthene	0.02 ug/g	< 0.02	< 0.02
Benzo[ghi]perylene	0.02 ug/g	< 0.02	< 0.02
Benzo[k]fluoranthene	0.02 ug/g	< 0.02	< 0.02
Biphenyl	0.02 ug/g	< 0.02	< 0.02
Chrysene	0.02 ug/g	< 0.02	< 0.02
Dibenzo[a,h]anthracene	0.02 ug/g	< 0.02	< 0.02
Fluoranthene	0.02 ug/g	< 0.02	< 0.02
Fluorene	0.02 ug/g	< 0.02	< 0.02
Indeno[1,2,3-cd]pyrene	0.02 ug/g	< 0.02	< 0.02
1-Methylnaphthalene	0.02 ug/g	< 0.02	< 0.02
2-Methylnaphthalene	0.02 ug/g	< 0.02	< 0.02
Naphthalene	0.02 ug/g	< 0.02	< 0.02
Phenanthrene	0.02 ug/g	< 0.02	< 0.02
Pyrene	0.02 ug/g	< 0.02	< 0.02
2-Fluorobiphenyl	surrogate	62%	59%
p-Terphenyl d-14	surrogate	67%	63%

Certificate of Analysis

Report Date: 09-Nov-2004
Order Date: 02-Nov-2004

Client: DST Consulting Engineers Inc.
Client PO: USLR

Project: OE04940

QA/QC Results

	Blank	Spike (QC Limits)	Duplicate	
Antimony	< 1 ug/g	84% (70 - 130%)	< 1	< 1
Arsenic	< 1 ug/g	87% (70 - 130%)	3	2
Barium	< 10 ug/g	97% (70 - 130%)	110	110
Beryllium	< 0.5 ug/g	95% (70 - 130%)	< 0.5	< 0.5
Cadmium	< 0.5 ug/g	92% (70 - 130%)	< 0.5	< 0.5
Chromium	< 5 ug/g	93% (70 - 130%)	20	20
Cobalt	< 5 ug/g	91% (70 - 130%)	10	10
Copper	< 5 ug/g	88% (70 - 130%)	25	25
Lead	< 1 ug/g	91% (70 - 130%)	16	16
Molybdenum	< 1 ug/g	93% (70 - 130%)	< 1	< 1
Nickel	< 5 ug/g	89% (70 - 130%)	70	75
Selenium	< 1 ug/g	88% (70 - 130%)	< 1	< 1
Silver	< 0.3 ug/g	94% (70 - 130%)	< 0.3	< 0.3
Thallium	< 1 ug/g	95% (70 - 130%)	< 1	< 1
Tin	< 5 ug/g	91% (70 - 130%)	< 5	< 5
Vanadium	< 10 ug/g	94% (70 - 130%)	30	30
Zinc	< 20 ug/g	89% (70 - 130%)	60	60
F1 PHCs (C6-C10)	< 20 ug/g	96% (50 - 150%)	20	20
F2-F4 PHCs (C10-C50)	< 10 ug/g	85% (50 - 150%)	90	80
Acenaphthene	< 0.02 ug/g	63% (47 - 147%)	< 0.02	< 0.02
Acenaphthylene	< 0.02 ug/g	60% (33 - 145%)	< 0.02	< 0.02
Anthracene	< 0.02 ug/g	62% (27 - 133%)	< 0.02	< 0.02
Benzo[a]anthracene	< 0.02 ug/g	65% (33 - 143%)	< 0.02	< 0.02
Benzo[a]pyrene	< 0.02 ug/g	64% (17 - 163%)	< 0.02	< 0.02
Benzo[b]fluoranthene	< 0.02 ug/g	63% (11 - 162%)	< 0.02	< 0.02
Benzo[ghi]perylene	< 0.02 ug/g	78% (25 - 121%)	< 0.02	< 0.02
Benzo[k]fluoranthene	< 0.02 ug/g	87% (11 - 162%)	< 0.02	< 0.02
Biphenyl	< 0.02 ug/g	60% (23 - 120%)	< 0.02	< 0.02
Chrysene	< 0.02 ug/g	72% (17 - 168%)	0.04	0.02
Dibenzo[a,h]anthracene	< 0.02 ug/g	71% (23 - 117%)	< 0.02	< 0.02

Certificate of Analysis

Client: DST Consulting Engineers Inc.

Client PO: USLR

Project: OE04940

Report Date: 09-Nov-2004

Order Date: 02-Nov-2004

	Blank	Spike (QC Limits)	Duplicate	
Fluoranthene	< 0.02 ug/g	67% (29 - 130%)	0.02	0.02
Fluorene	< 0.02 ug/g	53% (29 - 115%)	< 0.02	< 0.02
Indeno[1,2,3-cd]pyrene	< 0.02 ug/g	89% (1 - 171%)	< 0.02	< 0.02
1-Methylnaphthalene	< 0.02 ug/g	67% (23 - 120%)	0.04	0.02
2-Methylnaphthalene	< 0.02 ug/g	56% (23 - 120%)	0.06	0.04
Naphthalene	< 0.02 ug/g	50% (21 - 133%)	0.04	0.02
Phenanthrene	< 0.02 ug/g	63% (54 - 120%)	0.04	0.02
Pyrene	< 0.02 ug/g	68% (29 - 130%)	0.02	0.02

PARACEL Laboratories Ltd.
Environmental & Indoor Air Quality

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fax: 613-731-9064
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November 12, 2004

Attn: Ken Buck

From: Dale Robertson

re: **Subcontracted Analyses**

Your samples, identified below, were subcontracted for the listed parameters. Samples in the attached subcontractor report are identified with Paracel sample references with your references manually added.

Project Reference	OE 04940
Submission Date	Nov 1, 2004
Parameter	Dioxin / Furan

Your sample ID's correlate to the Paracel sample references as indicated in the table below

Client ID	Paracel Sample Reference
TP4 SGS5	J4850.2
TP3 SGS1	J4850.3
TP5 SGS2	J4850.4

Maxxam Analytics Inc

Paracel Laboratories Ltd
2319 St Laurent Blvd
Unit 300
Ottawa, ON
K1G 4J8

FOR: DST Consulting Engineers

Attention: Dale Robertson

KEN BUDEL

Report Date: 2004/11/23

Your Project #: 4850

OE 04943

ANALYTICAL REPORT

MAXXAM JOB #: A452493
Received: 2004/11/05, 23:18

Sample Matrix: SOLID
Samples Received: 3

Analyses	Number of Tests	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Dibenzodioxins / Furans (HR) (S)	3	2004/11/15	2004/11/22	Out SOP-00	EPS 1/RM/23 / 3

MAXXAM ANALYTICS INC.

2004 11 23

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No 057009

Total pages: 9

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DIBENZODIOXINS/FURANS
CONTROL LIMITS

ANALYTE	ION RATIO Limits	% RECOVERY LIMITS LOWER	UPPER
2,3,7,8-TETRA CDD*	0.65-0.89	30	130
1,2,3,7,8-PENTA CDD	1.32-1.78	30	130
1,2,3,4,7,8-HEXA CDD	1.05-1.43	30	130
1,2,3,6,7,8-HEXA CDD	1.05-1.43	30	130
1,2,3,7,8,9-HEXA CDD	1.05-1.43		
1,2,3,4,6,7,8-HEPTA CDD	0.88-1.20	30	130
OCTA CDD	0.76-1.02	30	130
TOTAL TETRA CDD	0.65-0.89		
TOTAL PENTA CDD	1.32-1.78		
TOTAL HEXA CDD	1.05-1.43		
TOTAL HEPTA CDD	0.88-1.20		

2,3,7,8-TETRA CDF**	0.65-0.89	30	130
1,2,3,7,8-PENTA CDF	1.32-1.78	30	130
2,3,4,7,8-PENTA CDF	1.32-1.78	30	130
1,2,3,4,7,8-HEXA CDF	1.05-1.43	30	130
1,2,3,6,7,8-HEXA CDF	1.05-1.43	30	130
1,2,3,7,8,9-HEXA CDF	1.05-1.43	30	130
2,3,4,6,7,8-HEXA CDF	1.05-1.43	30	130
1,2,3,4,6,7,8-HEPTA CDF	0.88-1.20	30	130
1,2,3,4,7,8,9-HEPTA CDF	0.88-1.20		
OCTA CDF	0.76-1.02		
TOTAL TETRA CDF	0.65-0.89		
TOTAL PENTA CDF	1.32-1.78		
TOTAL HEXA CDF	1.05-1.43		
TOTAL HEPTA CDF	0.88-1.20		

Ion Ratio Limits:
The ratio of the major ion to the secondary or confirming ion is used to identify presence/absence of Dibenzo-p-dioxins and furans.

% Recovery Limits:
The recovery of C13-labelled surrogates must fall within the limits given.

Maxxam Analytics Inc

Evaluation Questions

MAXXAM ANALYTICS INC. Report No: A452493

	All Congeners	2,3,7,8-TCDD	2,3,7,8-TCDF
1. Surrogate Recovery (Fig 8, Part I)			
a) Are all surrogate recoveries within specified limits ? (see Section 8(c) of the RM)	X		
b) Are all reported detection limits at or below maximum target values ? (see Table 5 of the RM)	X		
2. Ion Ratio (Fig 8, Part II) All ion abundance ratios with acceptable limits for 2,3,7,8-TCDD & 2,3,7,8-TCDF ? (see Section 6.5 & 6.7 of the RM)		X	Y
3. Method Performance Test (Fig 10)			
a) Are all surrogate recoveries within the range of 40 to 120% for each of the 3 tests ? (see Section 5.2 of the RM)	X		
b) Are all native congener recoveries within 20% of the spiked amount for each of the 3 tests ?	X		
4. Calibration (Fig 11) Are % RSD values within specification for native congeners ? (see Section 6.6 of the RM)	X		
5. Calibration Verification			
a) Was calibration verified within 12 hours from analysis for each reported compliance sample ? (see Section 8(j) of the RM)	X		
b) Are (calculated/actual) concentration ratios for native congeners within the specified limits ? (see Section 8(j) of the RM)	Y		
c) Are all surrogate recoveries within the range of 75 to 125 % ?	X		
6. Detection Limits of Verification (Fig 13) Were analyte identification criteria satisfied for 2,3,7,8-TCDD and 2,3,7,8-TCDF in CS1 for each date on which compliance sample analyses were performed ? (see Section 6.2 and 8(k) of the RM)		X	X
7. GC Performance Were windows verified and were acceptable chromatographic performance confirmed for each date on which compliance sample analysis were performed ? (see Section 6.2 and 6.3 of the RM)	Y		
8. High Resolution Were all compliance samples analyzed at MS resolution of 10,000 or better ?	X		
9. Contamination Was PCDD/PCDF contamination below maximum allowable levels in all blank samples ? (see Section 8(a) of the RM)	X		

I CERTIFY THAT ANSWERS TO ALL QUESTIONS ABOVE ARE ACCURATE.

Name: BRANKO VRZIC Title: Technical Specialist

Signature: Title:

APPLIED SCIENCE TECHNOLOGIST · OACETT · ONTARIO
BRANKO VRZIC

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Maxxam Analytics Inc

DIBENZODIOXINS / FURANS (HRMS) IN SOLID

MAXXAM JOB #: A452493
MAXXAM SAMPLE #: D98250
Sampling Date: 2004/10/28

PROJECT NAME:
PROJECT #: 4850
Report Date: 2004/11/23

CONC. UNITS = ppt = pg/g
RL Units = ppt = pg/g

TPH SGS5

Compounds	4850-1 TP4 SGS5 CONC	RL	TOXIC EQUIVALENCY FACTOR	TEQ(LB)	TEQ(UB)	RECOVERIES OF C13-SURROGATE STD FLAGGED	% RECOVERED
2,3,7,8-Tetra CDD *	0	0.100	1.00	0.100	0.0500	1000	72
1,2,3,7,8-Penta CDD	0	0.100	0.500	0.0500	0.0250	1000	126
1,2,3,4,7,8-Hexa CDD	0	0.100	0.100	0.0100	0.00500	1000	78
1,2,3,6,7,8-Hexa CDD	0	0.200	0.100	0.0200	0.0100	1000	81
1,2,3,7,8,9-Hexa CDD	0	0.200	0.100	0.0200	0.0100		
1,2,3,4,6,7,8-Hepta CDD	0.914	0.400	0.0100	0.00914	0.00914	1000	117
Octa CDD	4.46	0.400	0.00100	0.00446	0.00446	2000	109
Total Tetra CDD	0.428	0.100					
Total Penta CDD	0.315	0.100					
Total Hexa CDD	1.04	0.200					
Total Hepta CDD	1.01	0.200					
2,3,7,8-Tetra CDF **	0	0.100	0.100	0.0100	0.00500	1000	90
1,2,3,7,8-Penta CDF	0.104	0.100	0.0500	0.00520	0.00520	1000	120
2,3,4,7,8-Penta CDF	0	0.100	0.500	0.0500	0.0250	1000	115
1,2,3,4,7,8-Hexa CDF	0.203	0.200	0.100	0.0203	0.0203	1000	85
1,2,3,6,7,8-Hexa CDF	0	0.200	0.100	0.0200	0.0100	1000	86
2,3,4,6,7,8-Hexa CDF	0	0.200	0.100	0.0200	0.0100	1000	87
1,2,3,7,8,9-Hexa CDF	0	0.200	0.100	0.0200	0.0100	1000	79
1,2,3,4,6,7,8-Hepta CDF	0.624	0.400	0.0100	0.00624	0.00624	1000	111
1,2,3,4,7,8,9-Hepta CDF	0	0.400	0.0100	0.00400	0.00200	1000	104
Octa CDF	0.600	0.400	0.00100	0.000600	0.000600		
Total Tetra CDF	0.958	0.100					
Total Penta CDF	0.947	0.100					
Total Hexa CDF	1.02	0.200					
Total Hepta CDF	1.18	0.200					
TOTAL TOXIC EQUIVALENCY				0.0379	0.0208		

* CDD = CHLORO DIBENZO-P-DIOXIN
** CDF = CHLORO DIBENZOFURAN
RL = REPORTING LIMIT
0 values = U = NOT DETECTED
TR = TRACE AMOUNT DETECTED
The detection limit for 123478-HxCDD is elevated in some samples due to a chlorobiphenyl ether interference.

2004/11/23

EDMOND MCNEIL B.Sc.(Hons), C.Chem.

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CHEMIST

Maxxam Analytics Inc

DIBENZODIOXINS / FURANS (HRMS) IN SOLID

MAXXAM JOB #: A452493
MAXXAM SAMPLE #: D98251
Sampling Date: 2004/10/28

PROJECT NAME:
PROJECT #: 4850
Report Date: 2004/11/23

CONC. UNITS = ppt = pg/g
RL Units = ppt = pg/g

TP3 SG51

	RESULTS		TOXIC EQUIVALENCY			RECOVERIES OF C-13 SURROGATES	
COMPOUND	CONC	RL	TEF	TEQ(CONC)	TEQ(0=RL)	pg SPIKED	%RECOVERED
2,3,7,8-Tetra CDD *	0.230	0.100	1.00	0.230	0.230	1000	66
1,2,3,7,8-Penta CDD	1.40	0.100	0.500	0.700	0.700	1000	89
1,2,3,4,7,8-Hexa CDD	1.47	0.100	0.100	0.147	0.147	1000	72
1,2,3,6,7,8-Hexa CDD	5.12	0.200	0.100	0.512	0.512	1000	83
1,2,3,7,8,9-Hexa CDD	4.68	0.200	0.100	0.468	0.468		
1,2,3,4,6,7,8-Hepta CDD	93.2	0.400	0.0100	0.932	0.932	1000	99
Octa CDD	482	0.400	0.00100	0.482	0.482	2000	87
Total Tetra CDD	6.31	0.100					
Total Penta CDD	12.7	0.100					
Total Hexa CDD	80.4	0.200					
Total Hepta CDD	185	0.200					
2,3,7,8-Tetra CDF **	4.35	0.100	0.100	0.435	0.435	1000	78
1,2,3,7,8-Penta CDF	1.75	0.100	0.0500	0.0875	0.0875	1000	106
2,3,4,7,8-Penta CDF	6.32	0.100	0.500	3.16	3.16	1000	100
1,2,3,4,7,8-Hexa CDF	0	35.0	0.100	3.50	3.50	1000	90
1,2,3,6,7,8-Hexa CDF	5.32	0.200	0.100	0.532	0.532	1000	92
2,3,4,6,7,8-Hexa CDF	11.0	0.200	0.100	1.10	1.10	1000	93
1,2,3,7,8,9-Hexa CDF	0	0.200	0.100	0.0200	0.0200	1000	73
1,2,3,4,6,7,8-Hepta CDF	42.0	0.400	0.0100	0.420	0.420	1000	110
1,2,3,4,7,8,9-Hepta CDF	2.23	0.400	0.0100	0.0223	0.0223	1000	89
Octa CDF	41.2	0.400	0.00100	0.0412	0.0412		
Total Tetra CDF	163	0.100					
Total Penta CDF	641	0.100					
Total Hexa CDF	282	0.200					
Total Hepta CDF	94.2	0.200					
TOTAL TOXIC EQUIVALENCY				12.8	13.0		

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0 values = U = NOT DETECTED
TR = TRACE AMOUNT DETECTED
The detection limit for 123478-HxCDD is elevated in some samples due to a chlorobiphenyl ether interference.

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DIBENZODIOXINS / FURANS (HRMS) IN SOLID

MAXXAM JOB #: A452493
MAXXAM SAMPLE #: D98251 Duplicate
Sampling Date: 2004/10/28

PROJECT NAME:
PROJECT #: 4850
Report Date: 2004/11/23

CONC. UNITS = ppt = pg/g
RL Units = ppt = pg/g

TP3 SS1

	4850-TP3-SS1		TOXIC EQUIVALENT			RECOVERIES OF C-13 SURROGATE	
Compounds	CONC	RL	TEF	TEQ(DF)	TEQ(0-RL)	ppt SPIKED	%RECOVERED
2,3,7,8-Tetra CDD *	0.428	0.100	1.00	0.428	0.428	1000	74
1,2,3,7,8-Penta CDD	0.840	0.100	0.500	0.420	0.420	1000	103
1,2,3,4,7,8-Hexa CDD	1.18	0.100	0.100	0.118	0.118	1000	81
1,2,3,6,7,8-Hexa CDD	4.16	0.200	0.100	0.416	0.416	1000	81
1,2,3,7,8,9-Hexa CDD	4.10	0.200	0.100	0.410	0.410		
1,2,3,4,6,7,8-Hepta CDD	69.2	0.400	0.0100	0.692	0.692	1000	99
Octa CDD	432	0.400	0.00100	0.0432	0.432	2000	79
Total Tetra CDD	5.98	0.100					
Total Penta CDD	6.33	0.100					
Total Hexa CDD	65.5	0.200					
Total Hepta CDD	143	0.200					
2,3,7,8-Tetra CDF **	4.45	0.100	0.100	0.445	0.445	1000	88
1,2,3,7,8-Penta CDF	1.61	0.100	0.0500	0.0805	0.0805	1000	115
2,3,4,7,8-Penta CDF	6.94	0.100	0.500	3.47	3.47	1000	109
1,2,3,4,7,8-Hexa CDF	0	34.0	0.100	3.40	3.40	1000	96
1,2,3,6,7,8-Hexa CDF	5.14	0.200	0.100	0.514	0.514	1000	91
2,3,4,6,7,8-Hexa CDF	9.05	0.200	0.100	0.905	0.905	1000	91
1,2,3,7,8,9-Hexa CDF	0	0.200	0.100	0.0200	0.0100	1000	78
1,2,3,4,6,7,8-Hepta CDF	42.8	0.400	0.0100	0.428	0.428	1000	101
1,2,3,4,7,8,9-Hepta CDF	0.899	0.400	0.0100	0.00899	0.00899	1000	88
Octa CDF	35.9	0.400	0.00100	0.0359	0.0359		
Total Tetra CDF	177	0.100					
Total Penta CDF	708	0.100					
Total Hexa CDF	182	0.200					
Total Hepta CDF	94.0	0.200					
TOTAL TOXIC EQUIVALENT				7.12	7.05		

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TR = TRACE AMOUNT DETECTED
The detection limit for 123478-HxCDD is elevated in some samples due to a chlorobiphenyl matrix interference.

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Maxxam Analytics Inc

DIBENZODIOXINS / FURANS (HRMS) IN SOLID

MAXXAM JOB #: A452493
MAXXAM SAMPLE #: D98252
Sampling Date: 2004/10/28

PROJECT NAME:
PROJECT #: 4850
Report Date: 2004/11/23

CONC. UNITS = ppt = pg/g
RL Units = ppt = pg/g

TPS SGS2

Compounds	RESULT CONC	RL	TOXIC EQUIVALENCY FACTOR	TEQ (DF=2)	TEQ (DF=1)	RECOVERIES OF C13 SURROGATE COMPOUNDS SPIKED	% RECOVERED
2,3,7,8-Tetra CDD *	0	0.100	1.00	0.100	0.0500	1000	68
1,2,3,7,8-Penta CDD	0	0.100	0.500	0.0500	0.0250	1000	108
1,2,3,4,7,8-Hexa CDD	0	0.100	0.100	0.0100	0.00500	1000	57
1,2,3,6,7,8-Hexa CDD	0	0.200	0.100	0.0200	0.0100	1000	73
1,2,3,7,8,9-Hexa CDD	0	0.200	0.100	0.0200	0.0100		
1,2,3,4,6,7,8-Hepta CDD	0.562	0.400	0.0100	0.00562	0.00562	1000	81
Octa CDD	3.33	0.400	0.00100	0.00333	0.00333	2000	65
Total Tetra CDD	0	0.100					
Total Penta CDD	0.435	0.100					
Total Hexa CDD	1.10	0.200					
Total Hepta CDD	1.04	0.200					
2,3,7,8-Tetra CDF **	0.101	0.100	0.100	0.0101	0.0101	1000	80
1,2,3,7,8-Penta CDF	0	0.100	0.0500	0.00500	0.00250	1000	114
2,3,4,7,8-Penta CDF	0	0.100	0.500	0.0500	0.0250	1000	117
1,2,3,4,7,8-Hexa CDF	0	0.200	0.100	0.0200	0.0100	1000	63
1,2,3,6,7,8-Hexa CDF	0	0.200	0.100	0.0200	0.0100	1000	78
2,3,4,6,7,8-Hexa CDF	0	0.200	0.100	0.0200	0.0100	1000	71
1,2,3,7,8,9-Hexa CDF	0	0.200	0.100	0.0200	0.0100	1000	61
1,2,3,4,6,7,8-Hepta CDF	1.50	0.400	0.0100	0.0150	0.00750	1000	79
1,2,3,4,7,8,9-Hepta CDF	0	0.400	0.0100	0.00400	0.00200	1000	60
Octa CDF	0	0.400	0.00100	0.000400	0.000200		
Total Tetra CDF	0.000	0.100					
Total Penta CDF	0.690	0.100					
Total Hexa CDF	1.18	0.200					
Total Hepta CDF	2.31	0.200					
TOTAL TOXIC EQUIVALENCY				0.374	0.204		

* CDD = CHLORO DIBENZO-P-DIOXIN
** CDF = CHLORO DIBENZOFURAN
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The detection limit for 123478-HxCDD is elevated in some samples due to a chlorobiphenyl ether interference.

EDMOND MCNEIL, B.Sc.(Hons), C.Chem.

23/11/23

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Maxxam Analytics Inc

DIBENZODIOXINS / FURANS (HRMS) IN SOLID

MAXXAM JOB #: A452493
MAXXAM SAMPLE #: SPIKED BLANK

PROJECT NAME:
PROJECT #: 4850
Report Date: 2004/11/23

CONC. UNITS = ppt = pg/g
RL Units = ppt = pg/g

Compounds	SPIKED BLANK % RECOVERY	RL	TOXIC EQUIVALENCY TEF	TEQ(RL)	TEQ(0.5RL)	RECOVERIES OF C13 SURROGATES ng SPIKED	% RECOVERED
2,3,7,8-Tetra CDD *	114	0.100	1.00	114	114	1000	65
1,2,3,7,8-Penta CDD	114	0.100	0.500	57.0	57.0	1000	107
1,2,3,4,7,8-Hexa CDD	116	0.100	0.100	11.6	11.6	1000	60
1,2,3,6,7,8-Hexa CDD	119	0.200	0.100	11.9	11.9	1000	76
1,2,3,7,8,9-Hexa CDD	116	0.200	0.100	11.6	11.6		
1,2,3,4,6,7,8-Hepta CDD	118	0.400	0.0100	1.18	1.18	1000	109
Octa CDD	111	0.400	0.00100	0.111	0.111	2000	115
2,3,7,8-Tetra CDF	117	0.100	0.100	11.7	11.7	1000	80
1,2,3,7,8-Penta CDF	118	0.100	0.0500	5.90	5.90	1000	112
2,3,4,7,8-Penta CDF	118	0.100	0.500	59.0	59.0	1000	117
1,2,3,4,7,8-Hexa CDF	99	0.200	0.100	9.90	9.90	1000	76
1,2,3,6,7,8-Hexa CDF	115	0.200	0.100	11.5	11.5	1000	81
2,3,4,6,7,8-Hexa CDF	103	0.200	0.100	10.3	10.3	1000	78
1,2,3,7,8,9-Hexa CDF	106	0.200	0.100	10.6	10.6	1000	73
1,2,3,4,6,7,8-Hepta CDF	113	0.400	0.0100	1.13	1.13	1000	108
1,2,3,4,7,8,9-Hepta CDF	117	0.400	0.0100	1.17	1.17	1000	98
Octa CDF	100	0.400	0.00100	0.100	0.100		
TOTAL TOXIC EQUIVALENCY				329	329		

* CDD = CHLORO DIBENZO-P-DIOXIN
** CDF = CHLORO DIBENZOFURAN
RL = REPORTING LIMIT
ND = NOT DETECTED
TR = TRACE AMOUNT DETECTED
The detection limit for 123478-HxCDD is elevated in some samples due to a chlorobiphenyl ether interference.

Edmond McNeil, B.Sc. (Hons), C.Chem.

CHEMICAL PROFESSION OF ONTARIO
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Edmond J. McNeil, C.Chem.
CHEMIST

Maxxam Analytics Inc

DIBENZODIOXINS / FURANS (HRMS) IN SOLID

MAXXAM JOB #: A452493
MAXXAM SAMPLE #: METHOD BLANK

PROJECT NAME:
PROJECT #: 4850
Report Date: 2004/11/23

CONC. UNITS = ppt = pg/g
RL Units = ppt = pg/g

	METHOD BLANK		TOXIC EQUIVALENCY			RECOVERIES OF C13 SURROGATES	
Compounds	CONC	RL	TEF	TEQ(RL)	TEQ 0.5RL	Spiked	%RECOVERED
2,3,7,8-Tetra CDD *	0	0.100	1.00	0.100	0.0500	1000	78
1,2,3,7,8-Penta CDD	0	0.100	0.500	0.0500	0.0250	1000	124
1,2,3,4,7,8-Hexa CDD	0	0.100	0.100	0.0100	0.00500	1000	73
1,2,3,6,7,8-Hexa CDD	0	0.200	0.100	0.0200	0.0100	1000	79
1,2,3,7,8,9-Hexa CDD	0	0.200	0.100	0.0200	0.0100		
1,2,3,4,6,7,8-Hepta CDD	0	0.400	0.0100	0.00400	0.00200	1000	115
Octa CDD	0	0.400	0.00100	0.000400	0.000200	2000	109
Total Tetra CDD	0	0.100					
Total Penta CDD	0	0.100					
Total Hexa CDD	0	0.200					
Total Hepta CDD	0	0.200					
2,3,7,8-Tetra CDF **	0	0.100	0.100	0.0100	0.00500	1000	95
1,2,3,7,8-Penta CDF	0	0.100	0.0500	0.00500	0.00250	1000	113
2,3,4,7,8-Penta CDF	0	0.100	0.500	0.0500	0.0250	1000	118
1,2,3,4,7,8-Hexa CDF	0	0.200	0.100	0.0200	0.0100	1000	78
1,2,3,6,7,8-Hexa CDF	0	0.200	0.100	0.0200	0.0100	1000	82
2,3,4,6,7,8-Hexa CDF	0	0.200	0.100	0.0200	0.0100	1000	82
1,2,3,7,8,9-Hexa CDF	0	0.200	0.100	0.0200	0.0100	1000	73
1,2,3,4,6,7,8-Hepta CDF	0	0.400	0.0100	0.00400	0.00200	1000	103
1,2,3,4,7,8,9-Hepta CDF	0	0.400	0.0100	0.00400	0.00200	1000	98
Octa CDF	0	0.400	0.00100	0.000400	0.000200		
Total Tetra CDF	0	0.100					
Total Penta CDF	0	0.100					
Total Hexa CDF	0	0.200					
Total Hepta CDF	0	0.200					
TOTAL TOXIC EQUIVALENCY				0.208	0.179		

* CDD = CHLORO DIBENZO-P-DIOXIN
** CDF = CHLORO DIBENZOFURAN
RL = REPORTING LIMIT
0 values = U = NOT DETECTED
TR = TRACE AMOUNT DETECTED
The detection limit for 123478-HxCDD is elevated in some samples due to a chlorobiphenyl/other interference.

EDMOND MCNEIL, B.Sc.(Hons), C.Chem. 23/11/23

CHARTERED CHEMIST — Edmond J. McNeil, C.Chem. — Associate of the Chemical Profession of Ontario

PARACEL Laboratories Ltd.
Environmental & Indoor Air Quality

300-2319 St. Laurent Blvd., Ottawa, ON K1G 4J8
Tel: 613-731-9577 Fax: (613) 731-9064
Toll Free: 1-800-749-1947 email: paracel@magma.ca

№ 13364

CHAIN OF CUSTODY REPORT

pg 1 of 3

CONTACT: Ken Budel
COMPANY: DST
ADDRESS: 1304 Algoma
CITY: Ottawa
PROV: ON POSTAL: K1B 3W8
TEL: 748 1415 FAX: 748 1356
P.O. NUMBER: USLR PROJECT: OE 04940

DATE: Nov. 1 2004

TURN AROUND TIME
[ ] 1-day [ ] 2-day [ ] Regular

REPORTING REQUIREMENTS
[ ] Hard Copy [ ] Email – PDF
[ ] FAX [ ] Email – Spreadsheet

REFERENCE: 6558

SAMPLE INFORMATION

Paracel Order Number: 4850

	SAMPLE IDENTIFICATION	MATRIX	NO. OF BOTTLES	SAMPLE DATE	PHC F1 to F4	ICP metals	Diesel/Furan.
1	TP7 SGS 5	Soil	1	Nov 01 04	✓	✓	✓
2	TP8 SGS 2				✓	✓	✓
3	TP5 SGS 6				✓	✓	
4	TP4 SGS 5						✓
5	TP3 SGS 1						✓
6	TP6 SGS 2				✓		
7	TP3 SGS 2						✓
8	TP9 SGS 5				✓	✓	✓
9	TP 19 SGS 3				✓		
10	TP20 SGS 2				✓		

ANALYSIS REQUIRED

Preservation done in field (Y/N):
Preservative to be added by Paracel (Y/N):

Comments: (1) MDLs meet provincial MOE & CCME Res/parkland potable water.
(2) Hold samples for further testing/ANALYSIS

Relinquished by: J. Jaques. Date: Nov 1 2004 Time: 6:05 pm
Relinquished by:

Received by: Date: Nov-1-04 Time: 6:05
Verified by:

PARACEL Laboratories Ltd.
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Toll Free: 1-800-749-1947 email: paracel@magma.ca

№ 15487

CHAIN OF CUSTODY REPORT

CONTACT: Ken Buell
DATE: Nov 1, 2004

COMPANY: DSI

ADDRESS: 1304 Algoma Rd

CITY: Ottawa

PROV: Ont POSTAL: K1B 3W8

TEL: 748 1415 FAX: 748 1356

P.O. NUMBER: USLR PROJECT: GE 04 748 REFERENCE: 6556

TURN AROUND TIME
[ ] 1-day [ ] 2-day [ ] Regular

REPORTING REQUIREMENTS
[ ] Hard Copy [ ] Email – PDF
[ ] FAX [ ] Email – Spreadsheet

SAMPLE INFORMATION / **ANALYSIS REQUIRED**

	Paracel Order Number: / SAMPLE IDENTIFICATION		MATRIX	NO. OF BOTTLES	SAMPLE DATE	PAH + Hold	PCB Total	PCB + Hold	PAH						
1	TP 10	SGS 0	Soil	1	Remains	✓	✓	✓							
2	TP 11	SGS 1			↓	✓	✓	✓							
3	TP 39	SGS 5			2004 Nov 01	✓									
4	TP 34	SGS 5				✓									
5	TP 35	SGS 3				✓									
6	TP 36	SGS 2				✓									
7	TP 38	SGS 3				✓									
8	TP 31	SGS 2				✓	✓		✓						
9	TP 31	SGS 3				✓	✓		✓						
10	TP 31	SGS 5	↓			✓	✓		✓						
	Preservation done in field (Y/N):														
	Preservative to be added by Paracel (Y/N):														

Comments: See Page 1

Relinquished by: Jason
Date: Nov 1-04 Time: 6:05

Received by: Paracel
Date: Nov-1-04 Time: 6:05

Relinquished by:
Date: Time:

Verified by: RMO
Date: Time: 6:21

PARACEL Laboratories Ltd.
Environmental & Indoor Air Quality

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Toll Free: 800-7491947
email: paracel@paracellabs.com

Order #: J4879

Certificate of Analysis

DST Consulting Engineers Inc.

1304 Algoma Road
Ottawa, ON K1B 3W8
Attn: Mr. Ken Budel

Phone: (613)-748-1415
Fax: (613)-748-1356

Client PO:
Project: OE04940
Custody #: 10571

Report Date: 11-Nov-2004
Order Date: 02-Nov-2004

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID	Client ID
J4879.1	TP48 SGS1
J4879.2	TP52 SGS1
J4879.3	TP56 SGS1
J4879.4	TP57 SGS1

Approved By: _____ Dale Robertson, B.Sc.
Laboratory Director

Any use of these test results implies your agreement that our total liability in connection with this work, however arising, shall be limited to the amount paid by you for this work, and that our employees or agents shall not under any circumstance be liable to you in connection with this work.

Certificate of Analysis

Report Date: 11-Nov-2004
Order Date: 02-Nov-2004

Client: DST Consulting Engineers Inc.

Client PO: Project: ON04940.

Analysis Summary Table

Analysis	Method Reference/Description
Metals	EPA 6020 - ICP-MS
PHC F1 (CCME)	CWS PHCs - P&T GC-FID
PHC F2-F4 (CCME)	CWS PHC - GC-FID
PAHs	modified EPA 8270 - GC-MS

n/a: not applicable
MDL: Method Detection Limit
Soil results calculated on a dry weight basis.
CCME PHC additional information:

- The method for the analysis of PHCs complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
- F1 range corrected for BTEX where available
- F2 to F3 ranges corrected for appropriate PAHs where available.
- The gravimetric TPH (heavy oil) result is not to be added to the PHC fractions.

Sample/Test Specific Notes

SampleID	Analysis	Note
TP52 SGS1	PAHs	elevated detection limits due to matrix interference
TP56 SGS1	PAHs	elevated detection limits due to matrix interference

Certificate of Analysis

Report Date: 11-Nov-2004
Order Date: 02-Nov-2004

Client: **DST Consulting Engineers Inc.**

Client PO: Project: OE04940

Matrix: Soil

Parameter	MDL/Units	Sample ID: TP48 SGS1	TP52 SGS1	TP56 SGS1
	Sample Date:	02/11/2004	02/11/2004	02/11/2004
		J4879.1	J4879.2	J4879.3
Antimony	1 ug/g	< 1	< 1	< 1
Arsenic	1 ug/g	23	< 1	2
Barium	10 ug/g	240	< 10	< 10
Beryllium	0.5 ug/g	< 0.5	< 0.5	< 0.5
Cadmium	0.5 ug/g	1.0	< 0.5	< 0.5
Calcium	200 ug/g	13,000	800	1,200
Chromium	5 ug/g	20	< 5	< 5
Cobalt	5 ug/g	10	10	10
Copper	5 ug/g	30	< 5	5
Iron	200 ug/g	22,000	800	1,200
Lead	1 ug/g	73	3	2
Magnesium	200 ug/g	2,800	400	400
Molybdenum	1 ug/g	1	1	1
Nickel	5 ug/g	20	60	65
Selenium	1 ug/g	< 1	< 1	< 1
Silver	0.3 ug/g	< 0.3	< 0.3	< 0.3
Sodium	200 ug/g	< 200	< 200	200
Thallium	1 ug/g	< 1	< 1	< 1
Tin	5 ug/g	< 5	< 5	< 5
Vanadium	10 ug/g	30	< 10	< 10
Zinc	20 ug/g	100	< 20	< 20
F1 PHCs (C6-C10)	20 ug/g	< 20	< 20	< 20
F2 PHCs (C10-C16)	10 ug/g	< 200	5,100	3,600
F3 PHCs (C16-C34)	10 ug/g	< 200	30,000	20,000
F4 PHCs (C34-C50)	10 ug/g	< 200	17,000	12,000
Acenaphthene	0.02 ug/g	0.14	< 0.08	< 0.08
Acenaphthylene	0.02 ug/g	0.12	< 0.08	< 0.08
Anthracene	0.02 ug/g	0.30	< 0.08	< 0.08
Benzo[a]anthracene	0.02 ug/g	0.98	< 0.08	< 0.08

Certificate of Analysis

Report Date: 11-Nov-2004
Order Date: 02-Nov-2004

Client: **DST Consulting Engineers Inc.**

Client PO:

Project: **OE04940**

		TP48 SGS1	TP52 SGS1	TP56 SGS1
		02/11/2004	02/11/2004	02/11/2004
		J4879.1	J4879.2	J4879.3
Benzo[a]pyrene	0.02 ug/g	0.68	< 0.08	< 0.08
Benzo[b]fluoranthene	0.02 ug/g	1.1	< 0.08	< 0.08
Benzo[ghi]perylene	0.02 ug/g	0.44	< 0.08	0.16
Benzo[k]fluoranthene	0.02 ug/g	0.68	< 0.08	< 0.08
Biphenyl	0.02 ug/g	0.22	< 0.08	< 0.08
Chrysene	0.02 ug/g	1.1	< 0.08	< 0.08
Dibenzo[a,h]anthracene	0.02 ug/g	0.22	0.16	0.16
Fluoranthene	0.02 ug/g	2.0	< 0.08	< 0.08
Fluorene	0.02 ug/g	0.14	< 0.08	< 0.08
Indeno[1,2,3-cd]pyrene	0.02 ug/g	0.56	0.16	0.16
1-Methylnaphthalene	0.02 ug/g	2.6	< 0.08	< 0.08
2-Methylnaphthalene	0.02 ug/g	3.1	< 0.08	< 0.08
Naphthalene	0.02 ug/g	1.8	< 0.08	< 0.08
Phenanthrene	0.02 ug/g	2.7	< 0.08	< 0.08
Pyrene	0.02 ug/g	1.6	< 0.08	< 0.08
2-Fluorobiphenyl	surrogate	62%	NA - Dilution	NA - Dilution
p-Terphenyl d-14	surrogate	65%	NA - Dilution	NA - Dilution

Certificate of Analysis

Report Date: 11-Nov-2004
Order Date: 02-Nov-2004

Client: DST Consulting Engineers Inc.
Client PO:

Project: Ot04940

Matrix: Soil

Parameter	MDL/Units	Sample ID: TP57 SGS1 Sample Date: 02/11/2004 J4879.4
Antimony	1 ug/g	< 1
Arsenic	1 ug/g	< 1
Barium	10 ug/g	300
Beryllium	0.5 ug/g	0.5
Cadmium	0.5 ug/g	< 0.5
Calcium	200 ug/g	37,000
Chromium	5 ug/g	40
Cobalt	5 ug/g	10
Copper	5 ug/g	25
Iron	200 ug/g	25,000
Lead	1 ug/g	8
Magnesium	200 ug/g	11,000
Molybdenum	1 ug/g	< 1
Nickel	5 ug/g	30
Selenium	1 ug/g	< 1
Silver	0.3 ug/g	< 0.3
Sodium	200 ug/g	600
Thallium	1 ug/g	< 1
Tin	5 ug/g	< 5
Vanadium	10 ug/g	50
Zinc	20 ug/g	60
F1 PHCs (C6-C10)	20 ug/g	< 20
F2 PHCs (C10-C16)	10 ug/g	10
F3 PHCs (C16-C34)	10 ug/g	200
F4 PHCs (C34-C50)	10 ug/g	560
Acenaphthene	0.02 ug/g	< 0.02
Acenaphthylene	0.02 ug/g	< 0.02
Anthracene	0.02 ug/g	0.02
Benzo[a]anthracene	0.02 ug/g	< 0.02

Certificate of Analysis

Client: **DST Consulting Engineers Inc.**

Client PO:

Project: OE04940

Report Date: 11-Nov-2004

Order Date: 02-Nov-2004

		TP57 SGS1
		02/11/2004
		J4879.4
Benzo[a]pyrene	0.02 ug/g	< 0.02
Benzo[b]fluoranthene	0.02 ug/g	< 0.02
Benzo[ghi]perylene	0.02 ug/g	0.02
Benzo[k]fluoranthene	0.02 ug/g	< 0.02
Biphenyl	0.02 ug/g	< 0.02
Chrysene	0.02 ug/g	< 0.02
Dibenzo[a,h]anthracene	0.02 ug/g	< 0.02
Fluoranthene	0.02 ug/g	< 0.02
Fluorene	0.02 ug/g	< 0.02
Indeno[1,2,3-cd]pyrene	0.02 ug/g	0.04
1-Methylnaphthalene	0.02 ug/g	< 0.02
2-Methylnaphthalene	0.02 ug/g	< 0.02
Naphthalene	0.02 ug/g	< 0.02
Phenanthrene	0.02 ug/g	< 0.02
Pyrene	0.02 ug/g	< 0.02
2-Fluorobiphenyl	surrogate	64%
p-Terphenyl d-14	surrogate	54%

Certificate of Analysis

Report Date: 11-Nov-2004
Order Date: 02-Nov-2004

Client: DST Consulting Engineers Inc.

Client PO: Project: OE04940

QA/QC Results

	Blank	Spike (QC Limits)	Duplicate	
Antimony	< 1 ug/g	97% (70 - 130%)	< 1	< 1
Arsenic	< 1 ug/g	97% (70 - 130%)	3	2
Barium	< 10 ug/g	98% (70 - 130%)	110	110
Beryllium	< 0.5 ug/g	95% (70 - 130%)	< 0.5	< 0.5
Cadmium	< 0.5 ug/g	95% (70 - 130%)	< 0.5	< 0.5
Chromium	< 5 ug/g	93% (70 - 130%)	20	20
Cobalt	< 5 ug/g	91% (70 - 130%)	10	10
Copper	< 5 ug/g	99% (70 - 130%)	25	25
Lead	< 1 ug/g	97% (70 - 130%)	2	3
Molybdenum	< 1 ug/g	99% (70 - 130%)	1	1
Nickel	< 5 ug/g	89% (70 - 130%)	70	75
Selenium	< 1 ug/g	97% (70 - 130%)	< 1	< 1
Silver	< 0.3 ug/g	94% (70 - 130%)	< 0.3	< 0.3
Thallium	< 1 ug/g	95% (70 - 130%)	< 1	< 1
Tin	< 5 ug/g	91% (70 - 130%)	< 5	< 5
Vanadium	< 10 ug/g	94% (70 - 130%)	30	30
Zinc	< 20 ug/g	97% (70 - 130%)	60	60
F1 PHCs (C6-C10)	< 20 ug/g	96% (50 - 150%)	< 20	< 20
F2-F4 PHCs (C10-C50)	< 10 ug/g	85% (50 - 150%)	90	80
Acenaphthene	< 0.02 ug/g	63% (47 - 147%)	< 0.02	< 0.02
Acenaphthylene	< 0.02 ug/g	60% (33 - 145%)	< 0.02	< 0.02
Anthracene	< 0.02 ug/g	62% (27 - 133%)	< 0.02	< 0.02
Benzo[a]anthracene	< 0.02 ug/g	65% (33 - 143%)	< 0.02	< 0.02
Benzo[a]pyrene	< 0.02 ug/g	64% (17 - 163%)	< 0.02	< 0.02
Benzo[b]fluoranthene	< 0.02 ug/g	63% (11 - 162%)	< 0.02	< 0.02
Benzo[ghi]perylene	< 0.02 ug/g	78% (25 - 121%)	< 0.02	< 0.02
Benzo[k]fluoranthene	< 0.02 ug/g	87% (11 - 162%)	< 0.02	< 0.02
Biphenyl	< 0.02 ug/g	60% (23 - 120%)	< 0.02	< 0.02
Chrysene	< 0.02 ug/g	72% (17 - 168%)	0.04	0.02
Dibenzo[a,h]anthracene	< 0.02 ug/g	71% (23 - 117%)	< 0.02	< 0.02

Certificate of Analysis

Report Date: 11-Nov-2004
Order Date: 02-Nov-2004

Client: DST Consulting Engineers Inc.

Client PO: Project: OE04940

	Blank	Spike (QC Limits)	Duplicate	
Fluoranthene	< 0.02 ug/g	67% (29 - 130%)	0.02	0.02
Fluorene	< 0.02 ug/g	53% (29 - 115%)	< 0.02	< 0.02
Indeno[1,2,3-cd]pyrene	< 0.02 ug/g	89% (1 - 171%)	< 0.02	< 0.02
1-Methylnaphthalene	< 0.02 ug/g	67% (23 - 120%)	0.04	0.02
2-Methylnaphthalene	< 0.02 ug/g	56% (23 - 120%)	0.06	0.04
Naphthalene	< 0.02 ug/g	58% (21 - 133%)	0.04	0.02
Phenanthrene	< 0.02 ug/g	63% (54 - 120%)	0.04	0.02
Pyrene	< 0.02 ug/g	68% (29 - 130%)	0.02	0.02

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Environmental & Indoor Air Quality

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email: paracel@paracellabs.com

November 12, 2004

Attn: KEN RUDEL

From: Dale Robertson

re: Subcontracted Analyses

Your samples, identified below, were subcontracted for the listed parameters. Samples in the attached subcontractor report are identified with Paracel sample references with your references manually added.

Project Reference	OE 04940
Submission Date	Nov 3, 2004
Parameter	Dioxin / Furan

Your sample ID's correlate to the Paracel sample references as indicated in the table below

Client ID	Paracel Sample Reference
TP3 SGS1	J4907.1
TP4 SGS5	J4907.2
TP8 SGS2	J4907.3
TP9 SGS5	J4907.4
TP10 SGS6	J4907.5
TP11 SGS1	J4907.6

Maxxam Analytics Inc

Paracel Laboratories Ltd
2319 St Laurent Blvd
Unit 300
Ottawa, ON
K1G 4J8

For: DST Consulting Engineers

Attention: Dale Robertson

Attn: Ken Bader

Report Date: 2004/11/24

Your Project #: 4907

Project: OE04940

ANALYTICAL REPORT

MAXXAM JOB #: A452495
Received: 2004/11/05, 23:29

Sample Matrix: SOLID
Samples Received: 6

Analyses	Number of Tests	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Dibenzodioxins / Furans (HRMS)	6	2004/11/15	2004/11/22	Ont SOP [illegible]	EPS 1/RM/23 / 3

MAXXAM ANALYTICS INC.

BRANKO VRZIC, A.SC.T.
Senior Analyst, HRMS Services

APPLIED SCIENCE TECHNOLOGIST
OACETT
ONTARIO
BRANKO VRZIC
No 057009

Total pages: 11

000001

Maxxam Analytics Inc

DIBENZODIOXINS/FURANS
CONTROL LIMITS

ANALYTE	ION RATIO Limits	% RECOVERY LIMITS LOWER	UPPER
2,3,7,8-TETRA CDD*	0.65-0.89	30	130
1,2,3,7,8-PENTA CDD	1.32-1.78	30	130
1,2,3,4,7,8-HEXA CDD	1.05-1.43	30	130
1,2,3,6,7,8-HEXA CDD	1.05-1.43	30	130
1,2,3,7,8,9-HEXA CDD	1.05-1.43		
1,2,3,4,6,7,8-HEPTA CDD	0.88-1.20	30	130
OCTA CDD	0.76-1.02	30	130
TOTAL TETRA CDD	0.65-0.89		
TOTAL PENTA CDD	1.32-1.78		
TOTAL HEXA CDD	1.05-1.43		
TOTAL HEPTA CDD	0.88-1.20		

2,3,7,8-TETRA CDF*	0.65-0.89	30	130
1,2,3,7,8-PENTA CDF	1.32-1.78	30	130
2,3,4,7,8-PENTA CDF	1.32-1.78	30	130
1,2,3,4,7,8-HEXA CDF	1.05-1.43	30	130
1,2,3,6,7,8-HEXA CDF	1.05-1.43	30	130
2,3,4,6,7,8-HEXA CDF	1.05-1.43	30	130
1,2,3,7,8,9-HEXA CDF	1.05-1.43	30	130
1,2,3,4,6,7,8-HEPTA CDF	0.88-1.20	30	130
1,2,3,4,7,8,9-HEPTA CDF	0.88-1.20	30	130
OCTA CDF	0.76-1.02		
TOTAL TETRA CDF	0.65-0.89		
TOTAL PENTA CDF	1.32-1.78		
TOTAL HEXA CDF	1.05-1.43		
TOTAL HEPTA CDF	0.88-1.20		

Ion Ratio Limits:
The ratio of the major ion to the secondary or confirming ion is used to identify presence/absence of Dibenzo-p-dioxins and furans.

% Recovery Limits:
The recovery of C13-labelled surrogates must fall within the limits given.

Maxxam Analytics Inc

Evaluation Questions

MAXXAM ANALYTICS INC. Report No: A452495

		All Congeners	2,3,7,8-TCDD	2,3,7,8-TCDF
1.	Surrogate Recovery (Fig 8, Part I)			
	a) Are all surrogate recoveries within specified limits ? (see Section 8(c) of the RM)	Y		
	b) Are all reported detection limits at or below maximum target values ? (see Table 5 of the RM)	Y		
2.	Ion Ratio (Fig 8, Part II) All ion abundance ratios with acceptable limits for 2,3,7,8-TCDD & 2,3,7,8-TCDF ? (see Section 6.5 & 6.7 of the RM)		Y	Y
3.	Method Performance Test (Fig 10)			
	a) Are all surrogate recoveries within the range of 40 to 120% for each of the 3 tests ? (see Section 5.2 of the RM)	Y		
	b) Are all native congener recoveries within 20% of the spiked amount for each of the 3 tests ?	Y		
4.	Calibration (Fig 11) Are % RSD values within specification for native congeners ? (see Section 6.6 of the RM)	Y		
5.	Calibration Verification (Fig 12)			
	a) Was calibration verified within 12 hours from analysis of each reported compliance sample ? (see Section 8(j) of the RM)	Y		
	b) Are (calculated/actual) concentration ratios for native congeners within the specified limits ? (see Section 8(j) of the RM)	Y		
	Are all surrogate recoveries within the range of 75 to 125 % ?	Y		
6.	Detection Limits of Verification (Fig 13) Were analyte identification criteria satisfied for 2,3,7,8-TCDD and 2,3,7,8-TCDF in CS1 for each date on which compliance sample analyses were performed ? (see Section 6.2 and 8(k) of the RM)		Y	Y
7.	GC Performance Were windows verified and were acceptable chromatographic performance confirmed for each date on which compliance sample analysis were performed ? (see Section 6.2 and 6.3 of the RM)	Y		
8.	High Resolution Were all compliance samples analyzed at HR resolution of 10,000 or better ?	Y		
9.	Contamination Was PCDD/PCDF contamination below maximum allowable levels in all blank samples ? (see Section 8(a) of the RM)	Y		

I CERTIFY THAT ANSWERS TO ALL QUESTIONS ABOVE ARE ACCURATE.

Name: Branko Vrzic Title: Technical Specialist

Signature: Title:

APPLIED SCIENCE TECHNOLOGIST * OACETT * ONTARIO BRANKO VRZIC No. 05700

0000003

Maxxam Analytics Inc

DIBENZODIOXINS / FURANS (HRMS) IN SOLID

MAXXAM JOB #: A152495
MAXXAM SAMPLE #: D98261
Sampling Date: 2004/11/03

PROJECT NAME:
PROJECT #: 4907
Report Date: 2004/11/24

CONC. UNITS = ppt = pg/g
RL Units = ppt = pg/g

TP3 SG51

	4907-1		TOXIC EQUIVALENCY			RECOVERIES OF C13 SURROGATES	
Compound	CONC	RL	FACTOR	TEQ(DF)	TEQ(CRL)	%SPIKED	%RECOVERED
2,3,7,8-Tetra CDD *	0	0.100	1.00	0.100	0.0500	1000	44
1,2,3,7,8-Penta CDD	1.72	0.100	0.500	0.860	0.860	1000	62
1,2,3,4,7,8-Hexa CDD	3.49	0.100	0.100	0.349	0.349	1000	47
1,2,3,6,7,8-Hexa CDD	46.3	0.200	0.100	4.63	4.63	1000	48
1,2,3,7,8,9-Hexa CDD	10.4	0.200	0.100	1.04	1.04		
1,2,3,4,6,7,8-Hepta CDD	1510	0.400	0.0100	15.1	15.1	1000	70
Octa CDD	10100	0.400	0.00100	10.1	10.1	2000	73
Total Tetra CDD	11.7	0.100					
Total Penta CDD	10.4	0.100					
Total Hexa CDD	204	0.200					
Total Hepta CDD	2510	0.200					
2,3,7,8-Tetra CDF **	3.18	0.100	0.100	0.318	0.318	1000	44
1,2,3,7,8-Penta CDF	1.23	0.100	0.0500	0.0615	0.0615	1000	85
2,3,4,7,8-Penta CDF	7.07	0.100	0.500	3.54	3.54	1000	58
1,2,3,4,7,8-Hexa CDF	28.4	0.200	0.100	2.84	2.84	1000	69
1,2,3,6,7,8-Hexa CDF	7.70	0.200	0.100	0.770	0.770	1000	67
2,3,4,6,7,8-Hexa CDF	17.9	0.200	0.100	1.79	1.79	1000	41
1,2,3,7,8,9-Hexa CDF	0	0.200	0.100	0.0200	0.0100	1000	50
1,2,3,4,6,7,8-Hepta CDF	562	0.400	0.0100	5.62	5.62	1000	88
1,2,3,4,7,8,9-Hepta CDF	26.5	0.400	0.0100	0.265	0.265	1000	68
Octa CDF	2920	0.400	0.00100	2.92	2.92		
Total Tetra CDF	187	0.100					
Total Penta CDF	643	0.100					
Total Hexa CDF	714	0.200					
Total Hepta CDF	2520	0.200					
TOTAL TOXIC EQUIVALENCY				30.2	30.1		

* CDD = CHLORO DIBENZO-P-DIOXIN
** CDF = CHLORO DIBENZOFURAN
RL = REPORTING LIMIT
0 values = U = NOT DETECTED
TR = TRACE AMOUNT DETECTED

EDMOND MONETA, BSc.(Hons), C.Chem.

REGISTERED PROFESSIONAL CHEMIST OF ONTARIO

000001

Maxxam Analytics Inc

DIBENZODIOXINS / FURANS (HRMS) IN SOLID

MAXXAM JOB #: A452495
MAXXAM SAMPLE #: D98262
Sampling Date: 2004/11/03

PROJECT NAME:
PROJECT #: 4907
Report Date: 2004/11/24

CONC. UNITS = ppt = pg/g
RL Units = ppt = pg/g

TP4 S655

Compounds	CONC	RL	TOXIC EQUIVALENCY CONC	TEQ(DF)	TEQ(RL)	RECOVERIES OF C13 SURROGATES Conc. SPIKED	% RECOVERED
2,3,7,8-Tetra CDD *	0	0.100	1.00	0.100	0.0500	1000	63
1,2,3,7,8-Penta CDD	0	0.100	0.500	0.0500	0.0250	1000	88
1,2,3,4,7,8-Hexa CDD	0	0.100	0.100	0.0100	0.00500	1000	55
1,2,3,6,7,8-Hexa CDD	0	0.200	0.100	0.0200	0.0100	1000	70
1,2,3,7,8,9-Hexa CDD	0	0.200	0.100	0.0200	0.0100		
1,2,3,4,6,7,8-Hepta CDD	1.05	0.400	0.0100	0.0105	0.00105	1000	75
Octa CDD	6.88	0.400	0.00100	0.00688	0.00688	2000	68
Total Tetra CDD	0	0.100					
Total Penta CDD	0.187	0.100					
Total Hexa CDD	0.750	0.200					
Total Hepta CDD	0.570	0.200					
2,3,7,8-Tetra CDF **	0	0.100	0.100	0.0100	0.00500	1000	74
1,2,3,7,8-Penta CDF	0	0.100	0.0500	0.00500	0.00250	1000	95
2,3,4,7,8-Penta CDF	0	0.100	0.500	0.0500	0.0250	1000	97
1,2,3,4,7,8-Hexa CDF	0	0.200	0.100	0.0200	0.0100	1000	65
1,2,3,6,7,8-Hexa CDF	0	0.200	0.100	0.0200	0.0100	1000	70
2,3,4,6,7,8-Hexa CDF	0	0.200	0.100	0.0200	0.0100	1000	68
1,2,3,7,8,9-Hexa CDF	0	0.200	0.100	0.0200	0.0100	1000	62
1,2,3,4,6,7,8-Hepta CDF	0.552	0.400	0.0100	0.00552	0.00552	1000	81
1,2,3,4,7,8,9-Hepta CDF	0	0.400	0.0100	0.00400	0.00200	1000	72
Octa CDF	1.30	0.400	0.00100	0.00130	0.00130		
Total Tetra CDF	0.874	0.100					
Total Penta CDF	0.622	0.100					
Total Hexa CDF	0.860	0.200					
Total Hepta CDF	1.52	0.200					
TOTAL TOXIC EQUIVALENCY				0.378	0.199		

* CDD = CHLORO DIBENZO-P-DIOXIN
** CDF = CHLORO DIBENZOFURAN
RL = REPORTING LIMIT
0 values = U = NOT DETECTED
TR = TRACE AMOUNT DETECTED

EDMOND MONETI, B.Sc.(Hons), C.Chem.

2004/11/24

CHEMICAL PROFESSION OF ONTARIO
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Maxxam Analytics Inc

DIBENZODIOXINS / FURANS (HRMS) IN SOLID

MAXXAM JOB #: A452495
MAXXAM SAMPLE #: D98263
Sampling Date: 2004/11/03

PROJECT NAME:
PROJECT #: 4907
Report Date: 2004/11/24

CONC. UNITS = ppt = pg/g
RL Units = ppt = pg/g

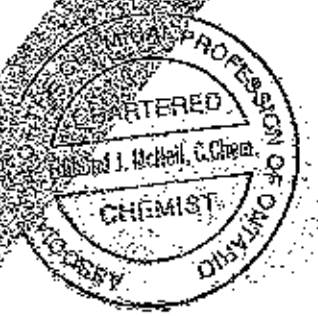
TP8 SGS 2

	CONC.	RL	TOXIC EQUIVALENCY TEF	TEQ(RL)	TEQ(0.5RL)	RECOVERIES OF ISOTOPE LABELLED SURROGATE ng SPIKED	% RECOVERED
2,3,7,8-Tetra CDD *	0	0.100	1.00	0.100	0.0500	1000	59
1,2,3,7,8-Penta CDD	0	0.100	0.500	0.0500	0.0250	1000	99
1,2,3,4,7,8-Hexa CDD	0.131	0.100	0.100	0.0131	0.0131	1000	52
1,2,3,6,7,8-Hexa CDD	0.307	0.200	0.100	0.0307	0.0307	1000	68
1,2,3,7,8,9-Hexa CDD	0.276	0.200	0.100	0.0276	0.0276		
1,2,3,4,6,7,8-Hepta CDD	2.21	0.400	0.0100	0.0221	0.0221	1000	75
Octa CDD	8.87	0.400	0.00100	0.00887	0.00887	2000	62
Total Tetra CDD	3.17	0.100					
Total Penta CDD	0.433	0.100					
Total Hexa CDD	5.68	0.200					
Total Hepta CDD	4.03	0.200					
2,3,7,8-Tetra CDF **	0.343	0.100	0.100	0.0343	0.0343	1000	71
1,2,3,7,8-Penta CDF	0.225	0.100	0.0500	0.0113	0.0113	1000	100
2,3,4,7,8-Penta CDF	0.575	0.100	0.500	0.288	0.288	1000	98
1,2,3,4,7,8-Hexa CDF	2.86	0.200	0.100	0.286	0.286	1000	64
1,2,3,6,7,8-Hexa CDF	0.247	0.200	0.100	0.0247	0.0247	1000	80
2,3,4,6,7,8-Hexa CDF	0.646	0.200	0.100	0.0646	0.0646	1000	69
1,2,3,7,8,9-Hexa CDF	0	0.200	0.100	0.0200	0.0100	1000	52
1,2,3,4,6,7,8-Hepta CDF	1.08	0.400	0.0100	0.0108	0.0108	1000	78
1,2,3,4,7,8,9-Hepta CDF	0	0.400	0.0100	0.00400	0.00200	1000	61
Octa CDF	0.567	0.400	0.00100	0.000567	0.000567		
Total Tetra CDF	20.5	0.100					
Total Penta CDF	57.4	0.100					
Total Hexa CDF	18.5	0.200					
Total Hepta CDF	2.38	0.200					
TOTAL TOXIC EQUIVALENCY				0.907	0.900		

* CDD = CHLORO DIBENZO-P-DIOXIN
** CDF = CHLORO DIBENZOFURAN
RL = REPORTING LIMIT
0 values = U = NOT DETECTED
TR = TRACE AMOUNT DETECTED

2004/11/24

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Maxxam Analytics Inc

DIBENZODIOXINS / FURANS (HRMS) IN SOLID

MAXXAM JOB #: A452495
MAXXAM SAMPLE #: D98264
Sampling Date: 2004/11/03

PROJECT NAME:
PROJECT #: 4907
Report Date: 2004/11/24

CONC. UNITS = ppt = pg/g
RL Units = ppt = pg/g

TPQ SGS5

Compound	CONC	RL	TOXIC EQUIVALENCY TEF	TEQ(RL)	TEQ(0.5RL)	RECOVERIES OF LABELLED STANDARDS SPIKED	% RECOVERED
2,3,7,8-Tetra CDD *	0	0.100	1.00	0.100	0.0500	1000	71
1,2,3,7,8-Penta CDD	0.138	0.100	0.500	0.0690	0.0690	1000	97
1,2,3,4,7,8-Hexa CDD	0	0.100	0.100	0.0100	0.00500	1000	81
1,2,3,6,7,8-Hexa CDD	0.625	0.200	0.100	0.0625	0.0625	1000	79
1,2,3,7,8,9-Hexa CDD	0.469	0.200	0.100	0.0469	0.0469		
1,2,3,4,6,7,8-Hepta CDD	4.65	0.400	0.0100	0.0465	0.0465	1000	95
Octa CDD	20.3	0.400	0.00100	0.0203	0.0203	2000	70
Total Tetra CDD	0	0.100					
Total Penta CDD	0.540	0.100					
Total Hexa CDD	5.75	0.200					
Total Hepta CDD	8.03	0.200					
2,3,7,8-Tetra CDF **	0.768	0.100	0.100	0.0768	0.0768	1000	80
1,2,3,7,8-Penta CDF	0	0.100	0.0500	0.00500	0.00250	1000	103
2,3,4,7,8-Penta CDF	0.228	0.100	0.500	0.114	0.114	1000	103
1,2,3,4,7,8-Hexa CDF	0.540	0.200	0.100	0.0540	0.0540	1000	90
1,2,3,6,7,8-Hexa CDF	0.202	0.200	0.100	0.0202	0.0202	1000	87
2,3,4,6,7,8-Hexa CDF	0	0.200	0.100	0.0200	0.0100	1000	84
1,2,3,7,8,9-Hexa CDF	0	0.200	0.100	0.0200	0.0100	1000	73
1,2,3,4,6,7,8-Hepta CDF	1.41	0.400	0.0100	0.0141	0.0141	1000	99
1,2,3,4,7,8,9-Hepta CDF	0	0.400	0.0100	0.00400	0.00200	1000	81
Octa CDF	1.26	0.400	0.00100	0.00126	0.00126		
Total Tetra CDF	4.20	0.100					
Total Penta CDF	5.98	0.100					
Total Hexa CDF	3.00	0.200					
Total Hepta CDF	2.54	0.200					
TOTAL TOXIC EQUIVALENCY				0.567	0.507		

* CDD = CHLORO DIBENZO-P-DIOXIN
** CDF = CHLORO DIBENZOFURAN
RL = REPORTING LIMIT
0 values = U = NOT DETECTED
TR = TRACE AMOUNT DETECTED

EDMOND MCNEIL, B.Sc.(Hons), C.Chem.

Nov 11/04

CHARTERED CHEMIST
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THE CHEMICAL PROFESSION OF ONTARIO

Maxxam Analytics Inc

DIBENZODIOXINS / FURANS (HRMS) IN SOLID

MAXXAM JOB #: A452495
MAXXAM SAMPLE #: D98265
Sampling Date: 2004/11/03

PROJECT NAME:
PROJECT #: 4907
Report Date: 2004/11/24

CONC. UNITS = ppt = pg/g
RL Units = ppt = pg/g

TP10 SG56

Compounds	CONC	RL	TOXIC EQUIVALENCY TEF	TEQ(RL)	TEQ(0.5RL)	RECOVERIES OF C13 SURROGATES % SPIKED	% RECOVERED
2,3,7,8-Tetra CDD *	0.166	0.100	1.00	0.166	0.166	1000	73
1,2,3,7,8-Penta CDD	0	0.100	0.500	0.0500	0.0250	1000	107
1,2,3,4,7,8-Hexa CDD	0	0.100	0.100	0.0100	0.00500	1000	92
1,2,3,6,7,8-Hexa CDD	0	0.200	0.100	0.0200	0.0100	1000	93
1,2,3,7,8,9-Hexa CDD	0	0.200	0.100	0.0200	0.0100		
1,2,3,4,6,7,8-Hepta CDD	1.57	0.400	0.0100	0.0157	0.0157	1000	115
Octa CDD	7.19	0.400	0.00100	0.00719	0.00719	2000	87
Total Tetra CDD	0.166	0.100					
Total Penta CDD	0.679	0.100					
Total Hexa CDD	1.63	0.200					
Total Hepta CDD	2.61	0.200					
2,3,7,8-Tetra CDF **	9.47	0.100	0.100	0.947	0.947	1000	84
1,2,3,7,8-Penta CDF	1.20	0.100	0.0500	0.0600	0.0600	1000	110
2,3,4,7,8-Penta CDF	1.34	0.100	0.500	0.670	0.670	1000	115
1,2,3,4,7,8-Hexa CDF	0.700	0.200	0.100	0.0700	0.0700	1000	102
1,2,3,6,7,8-Hexa CDF	0.226	0.200	0.100	0.0226	0.0226	1000	107
2,3,4,6,7,8-Hexa CDF	0.208	0.200	0.100	0.0208	0.0208	1000	103
1,2,3,7,8,9-Hexa CDF	0	0.200	0.100	0.0200	0.0100	1000	90
1,2,3,4,6,7,8-Hepta CDF	0.553	0.400	0.0100	0.00553	0.00553	1000	123
1,2,3,4,7,8,9-Hepta CDF	0	0.400	0.0100	0.00400	0.00200	1000	102
Octa CDF	0	0.400	0.00100	0.000400	0.000200		
Total Tetra CDF	44.7	0.100					
Total Penta CDF	13.0	0.100					
Total Hexa CDF	2.51	0.200					
Total Hepta CDF	1.10	0.200					
TOTAL TOXIC EQUIVALENCY				2.11	2.05		

* CDD = CHLORO DIBENZO-P-DIOXIN
** CDF = CHLORO DIBENZOFURAN
RL = REPORTING LIMIT
0 values = U = NOT DETECTED
TR = TRACE AMOUNT DETECTED

EDMOND MCNEIL B.Sc.(Hons), C.Chem.

CHARTERED CHEMICAL PROFESSION OF ONTARIO
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CHEMIST

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Maxxam Analytics Inc

DIBENZODIOXINS / FURANS (HRMS) IN SOLID

MAXXAM JOB #: A452495
MAXXAM SAMPLE #: D98266
Sampling Date: 2004/11/03

PROJECT NAME:
PROJECT #: 4907
Report Date: 2004/11/24

CONC. UNITS = ppt = pg/g
RL Units = ppt = pg/g

TPH SGS

Compounds	CONC	RL	TOXICEQUIVALENCY I-TEF	TEQ(RL)	TEQ(0.5RL)	% RECOVERY-SPIKED	% RECOVERY-REP
2,3,7,8-Tetra CDD *	0	0.100	1.00	0.100	0.0500	1000	73
1,2,3,7,8-Penta CDD	0.101	0.100	0.500	0.0505	0.0505	1000	112
1,2,3,4,7,8-Hexa CDD	0	0.100	0.100	0.0100	0.00500	1000	75
1,2,3,6,7,8-Hexa CDD	0	0.200	0.100	0.0200	0.0100	1000	92
1,2,3,7,8,9-Hexa CDD	0.203	0.200	0.100	0.0203	0.0203		
1,2,3,4,6,7,8-Hepta CDD	1.61	0.400	0.0100	0.0161	0.0161	1000	104
Octa CDD	9.97	0.400	0.00100	0.00997	0.00997	2000	84
Total Tetra CDD	2.07	0.100					
Total Penta CDD	0.101	0.100					
Total Hexa CDD	2.18	0.200					
Total Hepta CDD	3.60	0.200					
2,3,7,8-Tetra CDF **	0.120	0.100	0.100	0.0120	0.0120	1000	81
1,2,3,7,8-Penta CDF	0	0.100	0.0500	0.00500	0.00250	1000	110
2,3,4,7,8-Penta CDF	0.139	0.100	0.500	0.0695	0.0695	1000	114
1,2,3,4,7,8-Hexa CDF	0.524	0.200	0.100	0.0524	0.0524	1000	89
1,2,3,6,7,8-Hexa CDF	0	0.200	0.100	0.0200	0.0100	1000	101
2,3,4,6,7,8-Hexa CDF	0	0.200	0.100	0.0200	0.0100	1000	99
1,2,3,7,8,9-Hexa CDF	0	0.200	0.100	0.0200	0.0100	1000	81
1,2,3,4,6,7,8-Hepta CDF	0.871	0.400	0.0100	0.00871	0.00871	1000	114
1,2,3,4,7,8,9-Hepta CDF	0	0.400	0.0100	0.00400	0.00200	1000	90
Octa CDF	1.10	0.400	0.00100	0.00110	0.00110		
Total Tetra CDF	2.21	0.100					
Total Penta CDF	3.96	0.100					
Total Hexa CDF	2.70	0.200					
Total Hepta CDF	1.58	0.200					
TOTAL TOXICEQUIVALENCY				0.340	0.340		

* CDD = CHLORO DIBENZO-P-DIOXIN
** CDF = CHLORO DIBENZOFURAN
RL = REPORTING LIMIT
0 values = U = NOT DETECTED
TR = TRACE AMOUNT DETECTED

2004/11/24

EDMOND MONETA, B.Sc.(Hons), C.Chem.

ASSOCIATION OF CHEMICAL PROFESSION OF ONTARIO
CHARTERED
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CHEMIST

000009

Maxxam Analytics Inc

DIBENZODIOXINS / FURANS (HRMS) IN SOLID

MAXXAM JOB #: A452495
MAXXAM SAMPLE #: SPIKED BLANK

PROJECT NAME:
PROJECT #: 4907
Report Date: 2004/11/24

CONC. UNITS = ppt = pg/g
RL Units = ppt = pg/g

Compounds	SPIKED BLANK %RECOVERY	RL	TOXIC EQUIVALENCY TEF	TEQ(DF)	TEQ(0.5RD)	RECOVERY OF C13 SURROGATE SPIKED	%RECOVERED
2,3,7,8-Tetra CDD *	114	0.100	1.00	114	114	1000	65
1,2,3,7,8-Penta CDD	114	0.100	0.500	57.0	57.0	1000	107
1,2,3,4,7,8-Hexa CDD	116	0.100	0.100	11.6	11.6	1000	60
1,2,3,6,7,8-Hexa CDD	119	0.200	0.100	11.9	11.9	1000	76
1,2,3,7,8,9-Hexa CDD	116	0.200	0.100	11.6	11.6		
1,2,3,4,6,7,8-Hepta CDD	118	0.400	0.0100	1.18	1.18	1000	109
Octa CDD	111	0.400	0.00100	0.111	0.111	2000	115
2,3,7,8-Tetra CDF	117	0.100	0.100	11.7	11.7	1000	80
1,2,3,7,8-Penta CDF	118	0.100	0.0500	5.90	5.90	1000	112
2,3,4,7,8-Penta CDF	118	0.100	0.500	59.0	59.0	1000	117
1,2,3,4,7,8-Hexa CDF	99	0.200	0.100	9.90	9.90	1000	76
1,2,3,6,7,8-Hexa CDF	115	0.200	0.100	11.5	11.5	1000	81
2,3,4,6,7,8-Hexa CDF	103	0.200	0.100	10.3	10.3	1000	78
1,2,3,7,8,9-Hexa CDF	106	0.200	0.100	10.6	10.6	1000	73
1,2,3,4,6,7,8-Hepta CDF	113	0.400	0.0100	1.13	1.13	1000	108
1,2,3,4,7,8,9-Hepta CDF	117	0.400	0.0100	1.17	1.17	1000	93
Octa CDF	100	0.400	0.00100	0.100	0.100		
TOTAL TOXIC EQUIVALENCY				329	329		

* CDD = CHLORO DIBENZO-P-DIOXIN
** CDF = CHLORO DIBENZOFURAN
RL = REPORTING LIMIT
DNR = U = NOT DETECTED
B = TRACE AMOUNT DETECTED

EDMOND MCNEIL, B.Sc.(Hons), C.Chem.

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000010

Maxxam Analytics Inc

DIBENZODIOXINS / FURANS (HRMS) IN SOLID

MAXXAM JOB #: A452495
MAXXAM SAMPLE #: METHOD BLANK

PROJECT NAME:
PROJECT #: 4907
Report Date: 2004/11/24

CONC. UNITS = ppt = pg/g
RL Units = ppt = pg/g

	METHOD BLANK		TOXIC EQUIVALENCY			RECOVERIES OF C13 SURROGATE	
Compounds	CONC	RL	TEF	TEQ(RL)	TEQ(ZERO)	pg SPIKED	% RECOVERED
2,3,7,8-Tetra CDD *	0	0.100	1.00	0.100	0.0500	1000	78
1,2,3,7,8-Penta CDD	0	0.100	0.500	0.0500	0.0250	1000	124
1,2,3,4,7,8-Hexa CDD	0	0.100	0.100	0.0100	0.00500	1000	73
1,2,3,6,7,8-Hexa CDD	0	0.200	0.100	0.0200	0.0100	1000	79
1,2,3,7,8,9-Hexa CDD	0	0.200	0.100	0.0200	0.0100		
1,2,3,4,6,7,8-Hepta CDD	0	0.400	0.0100	0.00400	0.000200	1000	115
Octa CDD	0	0.400	0.00100	0.000400	0.0000200	2000	109
Total Tetra CDD	0	0.100					
Total Penta CDD	0	0.100					
Total Hexa CDD	0	0.200					
Total Hepta CDD	0	0.200					
2,3,7,8-Tetra CDF **	0	0.100	0.100	0.0100	0.00500	1000	95
1,2,3,7,8-Penta CDF	0	0.100	0.0500	0.00500	0.00250	1000	113
2,3,4,7,8-Penta CDF	0	0.100	0.500	0.0500	0.0250	1000	118
1,2,3,4,7,8-Hexa CDF	0	0.200	0.100	0.0200	0.0100	1000	78
1,2,3,6,7,8-Hexa CDF	0	0.200	0.100	0.0200	0.0100	1000	82
2,3,4,6,7,8-Hexa CDF	0	0.200	0.100	0.0200	0.0100	1000	82
1,2,3,7,8,9-Hexa CDF	0	0.200	0.100	0.0200	0.0100	1000	73
1,2,3,4,6,7,8-Hepta CDF	0	0.400	0.0100	0.00400	0.000200	1000	103
1,2,3,4,7,8,9-Hepta CDF	0	0.400	0.0100	0.00400	0.000200	1000	98
Octa CDF	0	0.400	0.00100	0.000400	0.0000200		
Total Tetra CDF	0	0.100					
Total Penta CDF	0	0.100					
Total Hexa CDF	0	0.200					
Total Hepta CDF	0	0.200					
TOTAL TOXIC EQUIVALENCY				0.358	0.179		

* CDD = CHLORO DIBENZO-P-DIOXIN
** CDF = CHLORO DIBENZOFURAN
RL = REPORTING LIMIT
0 values = U = NOT DETECTED
TR = TRACE AMOUNT DETECTED

EDMOND MONCEUR, B.Sc.(Hons), C.Chem.

24/11/24

ASSOCIATE OF THE CHEMICAL PROFESSION OF ONTARIO
CHARTERED CHEMIST
Edmond J. Monceur, B.Sc.(Hons), C.Chem.

000011

PARACEL Laboratories Ltd.
Environmental & Indoor Air Quality

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Order #: 14908

Certificate of Analysis

DST Consulting Engineers Inc.

1304 Algoma Road
Ottawa, ON K1B 3W8
Attn: Mr. Ken Budel

Phone: (613)-748-1415
Fax: (613)-748-1356

Client PO:
Project: OE04940
Custody #: 15489

Report Date: 16-Nov-2004
Order Date: 03-Nov-2004

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID	Client ID
J4908.1	TP26 SGS2
J4908.2	TP27 SGS2
J4908.3	TP61 SGS1
J4908.4	TP62 SGS1

Approved By: Dale Robertson, B.Sc.
Laboratory Director

Any use of these test results implies your agreement that our total liability in connection with this work, however arising, shall be limited to the amount paid by you for this work, and that our employees or agents shall not under any circumstance be liable to you in connection with this work.

Certificate of Analysis

Client: **DST Consulting Engineers Inc.**

Client PO:

Project: **OE04940**

Report Date: 16-Nov-2004
Order Date: 03-Nov-2004

Analysis Summary Table

Analysis	Method Reference/Description
Metals	EPA 6020 - ICP-MS
PHC F1 (CCME)	CWS PHCs - P&T GC-FID
PHC F2-F4 (CCME)	CWS - Tier 1 Method, GC-FID
PAHs	modified EPA 8270 - GC-MS

n/a: not applicable
MDL: Method Detection Limit
Soil results calculated on a dry weight basis.
CCME PHC additional information:

- The method for the analysis of PHCs complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
- F1 range corrected for BTEX where available
- F2 to F3 ranges corrected for appropriate PAHs where available.
- The gravimetric TPH (heavy oil) result is not to be added to the PHC fractions.

Sample/Test Specific Notes

SampleID	Analysis	Note
TP26 SGS2	PAHs	elevated detection limits due to matrix interference
TP61 SGS1	PAHs	elevated detection limits due to matrix interference
TP62 SGS1	PAHs	elevated detection limits due to matrix interference

Certificate of Analysis

Report Date: 16-Nov-2004
Order Date: 03-Nov-2004

Client: DST Consulting Engineers Inc.
Client PO:

Project: OE04940

Matrix: Soil

Parameter	MDL/Units	Sample ID: TP26 SGS2	TP27 SGS2	TP61 SGS1
	Sample Date:	03/11/2004	03/11/2004	03/11/2004
		J4908.1	J4908.2	J4908.3
Antimony	1 ug/g	< 1	< 1	< 1
Arsenic	1 ug/g	< 1	< 1	2
Barium	10 ug/g	60	220	20
Beryllium	0.5 ug/g	< 0.5	< 0.5	< 0.5
Cadmium	0.5 ug/g	< 0.5	< 0.5	< 0.5
Calcium	200 ug/g	110,000	10,000	2,400
Chromium	5 ug/g	15	25	5
Cobalt	5 ug/g	< 5	10	5
Copper	5 ug/g	5	15	< 5
Iron	200 ug/g	9,200	14,000	3,800
Lead	1 ug/g	9	13	4
Magnesium	200 ug/g	32,000	4,600	1,000
Molybdenum	1 ug/g	< 1	< 1	1
Nickel	5 ug/g	15	15	40
Selenium	1 ug/g	< 1	< 1	< 1
Silver	0.3 ug/g	< 0.3	< 0.3	< 0.3
Sodium	200 ug/g	< 200	400	< 200
Thallium	1 ug/g	< 1	< 1	< 1
Tin	5 ug/g	< 5	< 5	< 5
Vanadium	10 ug/g	20	30	< 10
Zinc	20 ug/g	< 20	40	< 20
F1 PHCs (C6-C10)	20 ug/g	< 20	< 20	< 20
F2 PHCs (C10-C16)	10 ug/g	40	2,100	4,000
F3 PHCs (C16-C34)	10 ug/g	1,000	23,000	13,000
F4 PHCs (C34-C50)	10 ug/g	3,500	24,000	18,000
Acenaphthene	0.02 ug/g	< 0.2	< 0.02	< 0.1
Acenaphthylene	0.02 ug/g	< 0.2	< 0.02	< 0.1
Anthracene	0.02 ug/g	< 0.2	< 0.02	< 0.1
Benzo[a]anthracene	0.02 ug/g	0.5	< 0.02	< 0.1

Certificate of Analysis

Client: **DST Consulting Engineers Inc.**

Client PO:

Project: **OE04940**

Report Date: 16-Nov-2004
Order Date: 03-Nov-2004

		TP26 SGS2	TP27 SGS2	TP61 SGS1
		03/11/2004	03/11/2004	03/11/2004
		J4908.1	J4908.2	J4908.3
Benzo[a]pyrene	0.02 ug/g	0.7	< 0.02	< 0.1
Benzo[b]fluoranthene	0.02 ug/g	1.0	< 0.02	< 0.1
Benzo[ghi]perylene	0.02 ug/g	5.0	< 0.02	< 0.1
Benzo[k]fluoranthene	0.02 ug/g	0.2	< 0.02	< 0.1
Biphenyl	0.02 ug/g	1.0	< 0.02	< 0.1
Chrysene	0.02 ug/g	1.0	< 0.02	< 0.1
Dibenzo[a,h]anthracene	0.02 ug/g	0.7	< 0.02	0.2
Fluoranthene	0.02 ug/g	< 0.2	< 0.02	< 0.1
Fluorene	0.02 ug/g	< 0.2	< 0.02	< 0.1
Indeno[1,2,3-cd]pyrene	0.02 ug/g	1.0	< 0.02	0.2
1-Methylnaphthalene	0.02 ug/g	< 0.2	< 0.02	< 0.1
2-Methylnaphthalene	0.02 ug/g	1.0	< 0.02	< 0.1
Naphthalene	0.02 ug/g	0.5	< 0.02	< 0.1
Phenanthrene	0.02 ug/g	1.4	< 0.02	0.2
Pyrene	0.02 ug/g	0.7	< 0.02	< 0.1
2-Fluorobiphenyl	surrogate	NA - Dilution	83%	NA - Dilution
p-Terphenyl d-14	surrogate	NA - Dilution	53%	NA - Dilution

Certificate of Analysis

Report Date: 16-Nov-2004
Order Date: 03-Nov-2004

Client: DST Consulting Engineers Inc.
Client PO:

Project: OT04940

Matrix: Soil

Parameter	MDL/Units	Sample ID: T262 SG31 Sample Date: 03/11/2004 J4908.4
Antimony	1 ug/g	< 1
Arsenic	1 ug/g	1
Barium	10 ug/g	< 10
Beryllium	0.5 ug/g	< 0.5
Cadmium	0.5 ug/g	< 0.5
Calcium	200 ug/g	600
Chromium	5 ug/g	< 5
Cobalt	5 ug/g	5
Copper	5 ug/g	< 5
Iron	200 ug/g	800
Lead	1 ug/g	< 1
Magnesium	200 ug/g	< 200
Molybdenum	1 ug/g	< 1
Nickel	5 ug/g	35
Selenium	1 ug/g	< 1
Silver	0.3 ug/g	< 0.3
Sodium	200 ug/g	< 200
Thallium	1 ug/g	< 1
Tin	5 ug/g	< 5
Vanadium	10 ug/g	< 10
Zinc	20 ug/g	< 20
F1 PHCs (C6-C10)	20 ug/g	< 20
F2 PHCs (C10-C16)	10 ug/g	2,500
F3 PHCs (C16-C34)	10 ug/g	23,000
F4 PHCs (C34-C50)	10 ug/g	15,000
Acenaphthene	0.02 ug/g	< 1
Acenaphthylene	0.02 ug/g	< 1
Anthracene	0.02 ug/g	< 1
Benzo[a]anthracene	0.02 ug/g	< 1

Certificate of Analysis

Client: DST Consulting Engineers Inc.

Client PO:

Project: OE04940

Report Date: 16-Nov-2004
Order Date: 03-Nov-2004

		TP62 SGS1
		03/11/2004
		J4908.4
Benzo[a]pyrene	0.02 ug/g	< 1
Benzo[b]fluoranthene	0.02 ug/g	< 1
Benzo[ghi]perylene	0.02 ug/g	< 1
Benzo[k]fluoranthene	0.02 ug/g	< 1
Biphenyl	0.02 ug/g	< 1
Chrysene	0.02 ug/g	< 1
Dibenzo[a,h]anthracene	0.02 ug/g	< 1
Fluoranthene	0.02 ug/g	< 1
Fluorene	0.02 ug/g	< 1
Indeno[1,2,3-cd]pyrene	0.02 ug/g	< 1
1-Methylnaphthalene	0.02 ug/g	2
2-Methylnaphthalene	0.02 ug/g	2
Naphthalene	0.02 ug/g	< 1
Phenanthrene	0.02 ug/g	< 1
Pyrene	0.02 ug/g	< 1
2-Fluorobiphenyl	surrogate	NA - Dilution
p-Terphenyl d-14	surrogate	NA - Dilution

Certificate of Analysis

Client: **DST Consulting Engineers Inc.**

Client PO:

Project: **OE04940**

Report Date: 16-Nov-2004
Order Date: 03-Nov-2004

QA/QC Results

	Blank	Spike (QC Limits)	Duplicate	
Antimony	< 1 ug/g	97% (70 - 130%)	< 1	< 1
Arsenic	< 1 ug/g	97% (70 - 130%)	3	2
Barium	< 10 ug/g	98% (70 - 130%)	110	110
Beryllium	< 0.5 ug/g	95% (70 - 130%)	< 0.5	< 0.5
Cadmium	< 0.5 ug/g	95% (70 - 130%)	< 0.5	< 0.5
Chromium	< 5 ug/g	93% (70 - 130%)	20	20
Cobalt	< 5 ug/g	91% (70 - 130%)	10	10
Copper	< 5 ug/g	99% (70 - 130%)	25	25
Lead	< 1 ug/g	97% (70 - 130%)	2	3
Molybdenum	< 1 ug/g	99% (70 - 130%)	1	1
Nickel	< 5 ug/g	89% (70 - 130%)	70	75
Selenium	< 1 ug/g	97% (70 - 130%)	< 1	< 1
Silver	< 0.3 ug/g	94% (70 - 130%)	< 0.3	< 0.3
Thallium	< 1 ug/g	95% (70 - 130%)	< 1	< 1
Tin	< 5 ug/g	91% (70 - 130%)	< 5	< 5
Vanadium	< 10 ug/g	94% (70 - 130%)	30	30
Zinc	< 20 ug/g	97% (70 - 130%)	60	60
F1 PHCs (C6-C10)	< 20 ug/g	98% (50 - 150%)	< 20	< 20
F2-F4 PHCs (C10-C50)	< 10 ug/g	120% (50 - 150%)	30	20
Acenaphthene	< 0.02 ug/g	86% (47 - 147%)	< 0.1	< 0.1
Acenaphthylene	< 0.02 ug/g	83% (33 - 145%)	0.04	< 0.02
Anthracene	< 0.02 ug/g	80% (27 - 133%)	0.04	< 0.02
Benzo[a]anthracene	< 0.02 ug/g	92% (33 - 143%)	0.08	0.02
Benzo[a]pyrene	< 0.02 ug/g	80% (17 - 163%)	0.10	< 0.02
Benzo[b]fluoranthene	< 0.02 ug/g	68% (11 - 162%)	0.18	0.04
Benzo[ghi]perylene	< 0.02 ug/g	79% (25 - 121%)	0.10	0.02
Benzo[k]fluoranthene	< 0.02 ug/g	81% (11 - 162%)	0.08	< 0.02
Biphenyl	< 0.02 ug/g	75% (23 - 120%)	< 0.1	< 0.1
Chrysene	< 0.02 ug/g	95% (17 - 168%)	0.12	0.02
Dibenzo[a,h]anthracene	< 0.02 ug/g	82% (23 - 117%)	0.2	0.2

Certificate of Analysis

Report Date: 16-Nov-2004
Order Date: 03-Nov-2004

Client: DST Consulting Engineers Inc.

Client PO: Project: OE04940

	Blank	Spike (QC Limits)	Duplicate	
Fluoranthene	< 0.02 ug/g	91% (29 - 130%)	0.22	0.02
Fluorene	< 0.02 ug/g	72% (29 - 115%)	0.02	< 0.02
Indeno[1,2,3-cd]pyrene	< 0.02 ug/g	95% (1 - 171%)	0.2	0.2
1-Methylnaphthalene	< 0.02 ug/g	91% (23 - 120%)	0.04	0.04
2-Methylnaphthalene	< 0.02 ug/g	83% (23 - 120%)	0.06	0.04
Naphthalene	< 0.02 ug/g	84% (21 - 133%)	0.08	0.04
Phenanthrene	< 0.02 ug/g	80% (54 - 120%)	0.4	0.2
Pyrene	< 0.02 ug/g	93% (29 - 130%)	0.18	0.02

PARACEL Laboratories Ltd.
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Order #: J5068

Certificate of Analysis

DST Consulting Engineers Inc.

1304 Algoma Road
Ottawa, ON K1B 3W8
Attn: Mr. Ken Budel

Phone: (613)-748-1415
Fax: (613)-748-1356

Client PO:
Project: **OE04940**
Custody #: **10576**

Report Date: 19-Nov-2004
Order Date: 12-Nov-2004

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID	Client ID
J5068.1	BHMW6 SS5
J5068.2	BHMW7 SS8
J5068.3	BHMW8 SS3

Approved By: _____ Dale Robertson, B.Sc.
Laboratory Director

Any use of these test results implies your agreement that our total liability in connection with this work, however arising, shall be limited to the amount paid by you for this work, and that our employees or agents shall not under any circumstance be liable to you in connection with this work.

Certificate of Analysis

Client: **DST Consulting Engineers Inc.**
Client PO:

Report Date: 19-Nov-2004
Order Date: 12-Nov-2004

Project: **OE04940**

Analysis Summary Table

Analysis	Method Reference/Description
Metals	EPA 6020 - ICP-MS
BTEX, PHC F1 (CCME)	EPA 8260, CWS PHCs - P&T GC-MS/FID
PHC F2-F4 (CCME)	CWS PHC - GC-FID
PAHs	modified EPA 8270 - GC-MS

n/a: not applicable
MDL: Method Detection Limit
Soil results calculated on a dry weight basis.
CCME PHC additional information:

- The method for the analysis of PHCs complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
- F1 range corrected for BTEX where available
- F2 to F3 ranges corrected for appropriate PAHs where available.
- The gravimetric TPH (heavy oil) result is not to be added to the PHC fractions.

Certificate of Analysis

Report Date: 19-Nov-2004
Order Date: 12-Nov-2004

Client: DST Consulting Engineers Inc.

Client PO: Project: OE04940

Matrix: Soil

Parameter	MDL/Units	Sample ID: BHMW6 SS5	BHMW7 SS8	BHMW8 SS3
		Sample Date: 11/11/2004	11/11/2004	11/11/2004
		J5068.1	J5068.2	J5068.3
Antimony	1 ug/g	< 1	< 1	< 1
Arsenic	1 ug/g	< 1	2	< 1
Barium	10 ug/g	70	90	410
Beryllium	0.5 ug/g	< 0.5	< 0.5	< 0.5
Cadmium	0.5 ug/g	< 0.5	< 0.5	< 0.5
Calcium	200 ug/g	11,000	210,000	12,000
Chromium	5 ug/g	15	15	110
Cobalt	5 ug/g	5	< 5	25
Copper	5 ug/g	10	15	55
Iron	200 ug/g	16,000	48,000	59,000
Lead	1 ug/g	5	7	7
Magnesium	200 ug/g	9,000	94,000	30,000
Molybdenum	1 ug/g	< 1	< 1	< 1
Nickel	5 ug/g	10	15	65
Selenium	1 ug/g	< 1	< 1	< 1
Silver	0.3 ug/g	< 0.3	< 0.3	< 0.3
Sodium	200 ug/g	400	400	2,000
Thallium	1 ug/g	< 1	< 1	< 1
Tin	5 ug/g	< 5	< 5	< 5
Vanadium	10 ug/g	20	70	100
Zinc	20 ug/g	20	20	120
Benzene	0.05 ug/g	< 0.05	< 0.05	0.10
Ethylbenzene	0.05 ug/g	< 0.05	0.35	2.4
Toluene	0.05 ug/g	0.10	0.05	0.10
m/p-Xylene	0.1 ug/g	0.3	0.4	4.5
o-Xylene	0.05 ug/g	0.10	0.10	0.20
Toluene-d8	surrogate	79%	77%	78%
F1 PHCs (C6-C10)	20 ug/g	< 20	20	40
F2 PHCs (C10-C16)	10 ug/g	< 10	< 10	20

Certificate of Analysis

Client: DST Consulting Engineers Inc.

Client PO:

Project: OI604940

Report Date: 19-Nov-2004
Order Date: 12-Nov-2004

		BHMW6 SS5	BHMW7 SS8	BHMW8 SS3
		11/11/2004	11/11/2004	11/11/2004
		J5068.1	J5068.2	J5068.3
F3 PHCs (C16-C34)	10 ug/g	< 10	< 10	< 10
F4 PHCs (C34-C50)	10 ug/g	< 10	< 10	< 10
Acenaphthene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Acenaphthylene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Anthracene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Benzo[a]anthracene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Benzo[a]pyrene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Benzo[b]fluoranthene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Benzo[ghi]perylene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Benzo[k]fluoranthene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Biphenyl	0.02 ug/g	< 0.02	< 0.02	< 0.02
Chrysene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Dibenzo[a,h]anthracene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Fluoranthene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Fluorene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Indeno[1,2,3-cd]pyrene	0.02 ug/g	< 0.02	< 0.02	< 0.02
1-Methylnaphthalene	0.02 ug/g	< 0.02	0.06	0.22
2-Methylnaphthalene	0.02 ug/g	< 0.02	0.06	0.40
Naphthalene	0.02 ug/g	< 0.02	0.06	0.46
Phenanthrene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Pyrene	0.02 ug/g	< 0.02	< 0.02	< 0.02
2-Fluorobiphenyl	surrogate	72%	79%	68%
p-Terphenyl d-14	surrogate	93%	64%	60%

Certificate of Analysis

Report Date: 19-Nov-2004
Order Date: 12-Nov-2004

Client: DST Consulting Engineers Inc.

Client PO:

Project: OE04940

QA/QC Results

	Blank	Spike (QC Limits)	Duplicate	
Antimony	< 1 ug/g	93% (70 - 130%)	< 1	< 1
Arsenic	< 1 ug/g	90% (70 - 130%)	6	6
Barium	< 10 ug/g	91% (70 - 130%)	110	110
Beryllium	< 0.5 ug/g	91% (70 - 130%)	< 0.5	< 0.5
Cadmium	< 0.5 ug/g	91% (70 - 130%)	1.0	1.5
Chromium	< 5 ug/g	88% (70 - 130%)	40	40
Cobalt	< 5 ug/g	88% (70 - 130%)	15	15
Copper	< 5 ug/g	85% (70 - 130%)	35	40
Lead	< 1 ug/g	88% (70 - 130%)	38	39
Molybdenum	< 1 ug/g	91% (70 - 130%)	3	3
Nickel	< 5 ug/g	86% (70 - 130%)	40	40
Selenium	< 1 ug/g	91% (70 - 130%)	< 1	< 1
Silver	< 0.3 ug/g	91% (70 - 130%)	< 0.3	< 0.3
Thallium	< 1 ug/g	92% (70 - 130%)	< 1	< 1
Tin	< 5 ug/g	99% (70 - 130%)	< 5	< 5
Vanadium	< 10 ug/g	90% (70 - 130%)	50	50
Zinc	< 20 ug/g	94% (70 - 130%)	240	240
Benzene	< 0.05 ug/g	101% (61 - 134%)	< 0.05	< 0.05
Ethylbenzene	< 0.05 ug/g	77% (66 - 128%)	< 0.05	< 0.05
Toluene	< 0.05 ug/g	101% (66 - 133%)	< 0.05	< 0.05
m/p-Xylene	< 0.1 ug/g	107% (65 - 132%)	< 0.1	< 0.1
o-Xylene	< 0.05 ug/g	106% (66 - 134%)	< 0.05	< 0.05
F1 PHCs (C6-C10)	< 20 ug/g	96% (50 - 150%)	< 20	< 20
F2-F4 PHCs (C10-C50)	< 10 ug/g	113% (50 - 150%)	< 10	< 10
Acenaphthene	< 0.02 ug/g	75% (47 - 147%)	< 0.1	< 0.1
Acenaphthylene	< 0.02 ug/g	69% (33 - 145%)	< 0.1	< 0.1
Anthracene	< 0.02 ug/g	64% (27 - 133%)	< 0.1	< 0.1
Benzo[a]anthracene	< 0.02 ug/g	76% (33 - 143%)	< 0.1	< 0.1
Benzo[a]pyrene	< 0.02 ug/g	72% (17 - 163%)	< 0.1	< 0.1
Benzo[b]fluoranthene	< 0.02 ug/g	55% (11 - 162%)	< 0.1	< 0.1

Certificate of Analysis

Client: DST Consulting Engineers Inc.

Client PO:

Project: OK004940

Report Date: 19-Nov-2004
Order Date: 12-Nov-2004

	Blank	Spike (QC Limits)	Duplicate	
Benzo[ghi]perylene	< 0.02 ug/g	60% (25 - 121%)	< 0.1	< 0.1
Benzo[k]fluoranthene	< 0.02 ug/g	59% (11 - 162%)	< 0.1	< 0.1
Biphenyl	< 0.02 ug/g	66% (23 - 120%)	< 0.1	< 0.1
Chrysene	< 0.02 ug/g	75% (17 - 168%)	< 0.1	< 0.1
Dibenzo[a,h]anthracene	< 0.02 ug/g	56% (23 - 117%)	0.2	0.2
Fluoranthene	< 0.02 ug/g	75% (29 - 130%)	< 0.1	< 0.1
Fluorene	< 0.02 ug/g	66% (29 - 115%)	< 0.1	< 0.1
Indeno[1,2,3-cd]pyrene	< 0.02 ug/g	63% (1 - 171%)	0.2	0.2
1-Methylnaphthalene	< 0.02 ug/g	70% (23 - 120%)	< 0.1	< 0.1
2-Methylnaphthalene	< 0.02 ug/g	63% (23 - 120%)	< 0.1	< 0.1
Naphthalene	< 0.02 ug/g	68% (21 - 133%)	< 0.1	< 0.1
Phenanthrene	< 0.02 ug/g	67% (54 - 120%)	0.4	0.2
Pyrene	< 0.02 ug/g	74% (29 - 130%)	< 0.1	< 0.1

PARACEL Laboratories Ltd.
Environmental & Indoor Air Quality

300-2319 St. Laurent Blvd.
Ottawa ON K1G 4J8
Phone: (613) 731-9577
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Toll Free: 800-7491947
email: paracel@paracellabs.com

Order #: J5097

Certificate of Analysis

DST Consulting Engineers Inc.

1304 Algoma Road
Ottawa, ON K1B 3W8
Attn: Mr. Ken Budel

Phone: (613)-748-1415
Fax: (613)-748-1356

Client PO:
Project: OE04940
Custody #: 10570

Report Date: 19-Nov-2004
Order Date: 15-Nov-2004

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID	Client ID
J5097.1	BHMW9 SS2
J5097.2	BHMW10 SS3

Approved By: _____ Dale Robertson, B.Sc.
Laboratory Director

Any use of these test results implies your agreement that our total liability in connection with this work, however arising, shall be limited to the amount paid by you for this work, and that our employees or agents shall not under any circumstances be liable to you in connection with this work.

Certificate of Analysis

Client: **DST Consulting Engineers Inc.**

Client PO:

Project: **OE04948**

Report Date: 19-Nov-2004

Order Date: 15-Nov-2004

Analysis Summary Table

Analysis	Method Reference/Description
Metals	EPA 6020 - ICP-MS
PHC F1 (CCME)	CWS PHCs - P&T GC-FID
PHC F2-F4 (CCME)	CWS PHC - GC-FID
PAHs	modified EPA 8270 - GC-MS

n/a: not applicable

MDL: Method Detection Limit

Soil results calculated on a dry weight basis.

CCME PHC additional information:

- The method for the analysis of PHCs complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
- F1 range corrected for BTEX where available
- F2 to F3 ranges corrected for appropriate PAHs where available.
- The gravimetric TPH (heavy oil) result is not to be added to the PHC fractions.

Certificate of Analysis

Report Date: 19-Nov-2004
Order Date: 15-Nov-2004

Client: DST Consulting Engineers Inc.

Client PO: Project: OE04940

Matrix: Soil

Parameter	MDL/Units	Sample ID: BHMW9 SS2	Sample ID: BHMW10 SS3
		Sample Date: 12/11/2004	Sample Date: 12/11/2004
		J5097.1	J5097.2
Antimony	1 ug/g		< 1
Arsenic	1 ug/g		< 1
Barium	10 ug/g		80
Beryllium	0.5 ug/g		< 0.5
Cadmium	0.5 ug/g		< 0.5
Calcium	200 ug/g		170,000
Chromium	5 ug/g		10
Cobalt	5 ug/g		5
Copper	5 ug/g		5
Iron	200 ug/g		18,000
Lead	1 ug/g		4
Magnesium	200 ug/g		69,000
Molybdenum	1 ug/g		< 1
Nickel	5 ug/g		10
Selenium	1 ug/g		< 1
Silver	0.3 ug/g		< 0.3
Sodium	200 ug/g		200
Thallium	1 ug/g		< 1
Tin	5 ug/g		< 5
Vanadium	10 ug/g		10
Zinc	20 ug/g		< 20
F1 PHCs (C6-C10)	20 ug/g	< 20	< 20
F2 PHCs (C10-C16)	10 ug/g	< 10	< 10
F3 PHCs (C16-C34)	10 ug/g	150	< 10
F4 PHCs (C34-C50)	10 ug/g	100	< 10
Acenaphthene	0.02 ug/g		< 0.02
Acenaphthylene	0.02 ug/g		< 0.02
Anthracene	0.02 ug/g		< 0.02
Benzo[a]anthracene	0.02 ug/g		< 0.02

Certificate of Analysis

Report Date: 19-Nov-2004
Order Date: 15-Nov-2004

Client: **DST Consulting Engineers Inc.**

Client PO:

Project: **OE04940**

		BHMW9 SS2	BHMW10 SS3
		12/11/2004	12/11/2004
		J5097.1	J5097.2
Benzo[a]pyrene	0.02 ug/g		< 0.02
Benzo[b]fluoranthene	0.02 ug/g		< 0.02
Benzo[ghi]perylene	0.02 ug/g		< 0.02
Benzo[k]fluoranthene	0.02 ug/g		< 0.02
Biphenyl	0.02 ug/g		< 0.02
Chrysene	0.02 ug/g		< 0.02
Dibenzo[a,h]anthracene	0.02 ug/g		< 0.02
Fluoranthene	0.02 ug/g		< 0.02
Fluorene	0.02 ug/g		< 0.02
Indeno[1,2,3-cd]pyrene	0.02 ug/g		< 0.02
1-Methylnaphthalene	0.02 ug/g		< 0.02
2-Methylnaphthalene	0.02 ug/g		< 0.02
Naphthalene	0.02 ug/g		< 0.02
Phenanthrene	0.02 ug/g		< 0.02
Pyrene	0.02 ug/g		< 0.02
2-Fluorobiphenyl	surrogate		68%
p-Terphenyl d-14	surrogate		83%

Certificate of Analysis

Report Date: 19-Nov-2004
Order Date: 15-Nov-2004

Client: DST Consulting Engineers Inc.

Client PO: Project: OE04940

QA/QC Results

	Blank	Spike (QC Limits)	Duplicate	
Antimony	< 1 ug/g	93% (70 - 130%)	< 1	< 1
Arsenic	< 1 ug/g	98% (70 - 130%)	6	6
Barium	< 10 ug/g	91% (70 - 130%)	110	110
Beryllium	< 0.5 ug/g	91% (70 - 130%)	< 0.5	< 0.5
Cadmium	< 0.5 ug/g	91% (70 - 130%)	1.0	1.5
Chromium	< 5 ug/g	88% (70 - 130%)	40	40
Cobalt	< 5 ug/g	88% (70 - 130%)	15	15
Copper	< 5 ug/g	85% (70 - 130%)	35	40
Lead	< 1 ug/g	88% (70 - 130%)	38	39
Molybdenum	< 1 ug/g	91% (70 - 130%)	3	3
Nickel	< 5 ug/g	86% (70 - 130%)	40	40
Selenium	< 1 ug/g	91% (70 - 130%)	< 1	< 1
Silver	< 0.3 ug/g	91% (70 - 130%)	< 0.3	< 0.3
Thallium	< 1 ug/g	92% (70 - 130%)	< 1	< 1
Tin	< 5 ug/g	99% (70 - 130%)	< 5	< 5
Vanadium	< 10 ug/g	90% (70 - 130%)	50	50
Zinc	< 20 ug/g	94% (70 - 130%)	240	240
F1 PHCs (C6-C10)	< 20 ug/g	100% (50 - 150%)	60	60
F2-F4 PHCs (C10-C50)	< 10 ug/g	99% (50 - 150%)	50	70
Acenaphthene	< 0.02 ug/g	75% (47 - 147%)	< 0.02	< 0.02
Acenaphthylene	< 0.02 ug/g	69% (33 - 145%)	< 0.02	< 0.02
Anthracene	< 0.02 ug/g	64% (27 - 133%)	< 0.02	< 0.02
Benzo[a]anthracene	< 0.02 ug/g	76% (33 - 143%)	< 0.02	< 0.02
Benzo[a]pyrene	< 0.02 ug/g	72% (17 - 163%)	< 0.02	< 0.02
Benzo[b]fluoranthene	< 0.02 ug/g	52% (11 - 162%)	< 0.02	< 0.02
Benzo[ghi]perylene	< 0.02 ug/g	60% (25 - 121%)	< 0.02	< 0.02
Benzo[k]fluoranthene	< 0.02 ug/g	59% (11 - 162%)	< 0.02	< 0.02
Biphenyl	< 0.02 ug/g	66% (23 - 120%)	< 0.02	< 0.02
Chrysene	< 0.02 ug/g	75% (17 - 168%)	< 0.02	< 0.02
Dibenzo[a,h]anthracene	< 0.02 ug/g	56% (23 - 117%)	< 0.02	< 0.02

Certificate of Analysis

Client: DST Consulting Engineers Inc.

Report Date: 19-Nov-2004
Order Date: 15-Nov-2004

Client PO:

Project: OE04940

	Blank	Spike (QC Limits)	Duplicate	
Fluoranthene	< 0.02 ug/g	75% (29 - 130%)	< 0.02	< 0.02
Fluorene	< 0.02 ug/g	66% (29 - 115%)	< 0.02	< 0.02
Indeno[1,2,3-cd]pyrene	< 0.02 ug/g	63% (1 - 171%)	< 0.02	< 0.02
1-Methylnaphthalene	< 0.02 ug/g	70% (23 - 120%)	< 0.02	< 0.02
2-Methylnaphthalene	< 0.02 ug/g	63% (23 - 120%)	< 0.02	< 0.02
Naphthalene	< 0.02 ug/g	68% (21 - 133%)	< 0.02	< 0.02
Phenanthrene	< 0.02 ug/g	67% (54 - 120%)	< 0.02	< 0.02
Pyrene	< 0.02 ug/g	74% (29 - 130%)	< 0.02	< 0.02

PARACEL Laboratories Ltd.
Environmental & Indoor Air Quality

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Order #: J5124

Certificate of Analysis

DST Consulting Engineers Inc.

1304 Algoma Road
Ottawa, ON K1B 3W8
Attn: Mr. Ken Budel

Phone: (613)-748-1415
Fax: (613)-748-1356

Client PO:
Project: OE04940
Custody #: 10572

Report Date: 24-Nov-2004
Order Date: 16-Nov-2004

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID	Client ID
J5124.1	BHMW11 SS3
J5124.2	BHMW12 SS2
J5124.3	BHMW13 SS3

Approved By: _____ Dale Robertson, B.Sc.
Laboratory Director

Any use of these test results implies your agreement that our total liability in connection with this work, however arising, shall be limited to the amount paid by you for this work, and that our employees or agents shall not under any circumstance be liable to you in connection with this work.

Certificate of Analysis

Client: DST Consulting Engineers Inc.

Client PO:

Project: OE04940

Report Date: 24-Nov-2004
Order Date: 16-Nov-2004

Analysis Summary Table

Analysis	Method Reference/Description
Metals	EPA 6020 - ICP-MS
BTEX, PHC F1 (CCME)	EPA 8260, CWS PHCs - P&T GC-MS/FID
PHC F1 (CCME)	CWS PHCs - P&T GC-FID
PHC F2-F4 (CCME)	CWS PHC - GC-FID
PAHs	modified EPA 8270 - GC-MS

n/a: not applicable
MDL: Method Detection Limit
Soil results calculated on a dry weight basis.

CCME PHC additional information:

- The method for the analysis of PHCs complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
- F1 range corrected for BTEX where available
- F2 to F3 ranges corrected for appropriate PAHs where available.
- The gravimetric TPH (heavy oil) result is not to be added to the PHC fractions.

Certificate of Analysis

Report Date: 24-Nov-2004
Order Date: 16-Nov-2004

Client: DST Consulting Engineers Inc.

Client PO: Project: OE04940

Matrix: Soil

Parameter	MDL/Units	Sample ID: BHMW11 SS3	BHMW12 SS2	BHMW13 SS3
	Sample Date:	12/11/2004	12/11/2004	12/11/2004
		J5124.1	J5124.2	J5124.3
Antimony	1 ug/g	< 1	< 1	< 1
Arsenic	1 ug/g	< 1	< 1	< 1
Barium	10 ug/g	80	100	60
Beryllium	0.5 ug/g	< 0.5	< 0.5	< 0.5
Cadmium	0.5 ug/g	< 0.5	< 0.5	< 0.5
Calcium	200 ug/g	3,600	180,000	160,000
Chromium	5 ug/g	15	< 5	5
Cobalt	5 ug/g	< 5	< 5	< 5
Copper	5 ug/g	10	< 5	5
Iron	200 ug/g	14,000	9,000	11,000
Lead	1 ug/g	5	3	5
Magnesium	200 ug/g	4,400	53,000	49,000
Molybdenum	1 ug/g	< 1	< 1	< 1
Nickel	5 ug/g	10	10	10
Selenium	1 ug/g	< 1	< 1	< 1
Silver	0.3 ug/g	< 0.3	< 0.3	< 0.3
Sodium	200 ug/g	400	< 200	< 200
Thallium	1 ug/g	< 1	< 1	< 1
Tin	5 ug/g	< 5	< 5	< 5
Vanadium	10 ug/g	20	< 10	< 10
Zinc	20 ug/g	< 20	< 20	< 20
Benzene	0.05 ug/g		< 0.05	< 0.05
Ethylbenzene	0.05 ug/g		< 0.05	< 0.05
Toluene	0.05 ug/g		< 0.05	< 0.05
m/p-Xylene	0.1 ug/g		< 0.1	< 0.1
o-Xylene	0.05 ug/g		< 0.05	< 0.05
Toluene-d8	surrogate		100%	101%
F1 PHCs (C6-C10)	20 ug/g		< 20	< 20
F1 PHCs (C6-C10)	20 ug/g	< 20		

Certificate of Analysis

Client: DST Consulting Engineers Inc.

Client PO:

Project: OT04948

Report Date: 24-Nov-2004
Order Date: 16-Nov-2004

		BHMW11 SS3	BHMW12 SS2	BHMW13 SS3
		12/11/2004	12/11/2004	12/11/2004
		J5124.1	J5124.2	J5124.3
F2 PHCs (C10-C16)	10 ug/g	< 10	< 10	< 10
F3 PHCs (C16-C34)	10 ug/g	< 10	< 10	< 10
F4 PHCs (C34-C50)	10 ug/g	< 10	< 10	< 10
Acenaphthene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Acenaphthylene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Anthracene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Benzo[a]anthracene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Benzo[a]pyrene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Benzo[b]fluoranthene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Benzo[ghi]perylene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Benzo[k]fluoranthene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Biphenyl	0.02 ug/g	< 0.02	< 0.02	< 0.02
Chrysene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Dibenzo[a,h]anthracene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Fluoranthene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Fluorene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Indeno[1,2,3-cd]pyrene	0.02 ug/g	< 0.02	< 0.02	< 0.02
1-Methylnaphthalene	0.02 ug/g	< 0.02	< 0.02	< 0.02
2-Methylnaphthalene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Naphthalene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Phenanthrene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Pyrene	0.02 ug/g	< 0.02	< 0.02	< 0.02
2-Fluorobiphenyl	surrogate	58%	61%	64%
p-Terphenyl d-14	surrogate	74%	89%	80%

Certificate of Analysis

Report Date: 24-Nov-2004
Order Date: 16-Nov-2004

Client: DST Consulting Engineers Inc.
Client PO: Project: OE04940

QA/QC Results

	Blank	Spike (QC limits)	Duplicate	
Antimony	< 1 ug/g	94% (70 - 130%)	< 1	< 1
Arsenic	< 1 ug/g	121% (70 - 130%)	< 1	< 1
Barium	< 10 ug/g	127% (70 - 130%)	90	80
Beryllium	< 0.5 ug/g	101% (70 - 130%)	< 0.5	< 0.5
Cadmium	< 0.5 ug/g	102% (70 - 130%)	< 0.5	< 0.5
Chromium	< 5 ug/g	111% (70 - 130%)	15	15
Cobalt	< 5 ug/g	107% (70 - 130%)	< 5	< 5
Copper	< 5 ug/g	106% (70 - 130%)	10	10
Lead	< 1 ug/g	119% (70 - 130%)	5	5
Molybdenum	< 1 ug/g	115% (70 - 130%)	< 1	< 1
Nickel	< 5 ug/g	106% (70 - 130%)	10	10
Selenium	< 1 ug/g	121% (70 - 130%)	< 1	< 1
Silver	< 0.3 ug/g	104% (70 - 130%)	< 0.3	< 0.3
Thallium	< 1 ug/g	124% (70 - 130%)	< 1	< 1
Tin	< 5 ug/g	106% (70 - 130%)	< 5	< 5
Vanadium	< 10 ug/g	114% (70 - 130%)	20	20
Zinc	< 20 ug/g	123% (70 - 130%)	< 20	< 20
Benzene	< 0.05 ug/g	90% (61 - 134%)	< 0.05	< 0.05
Ethylbenzene	< 0.05 ug/g	86% (66 - 128%)	< 0.05	< 0.05
Toluene	< 0.05 ug/g	104% (66 - 133%)	< 0.05	< 0.05
m/p-Xylene	< 0.1 ug/g	106% (65 - 132%)	< 0.1	< 0.1
o-Xylene	< 0.05 ug/g	122% (66 - 134%)	< 0.05	< 0.05
F1 PHCs (C6-C10)	< 20 ug/g	96% (50 - 150%)	< 20	< 20
F1 PHCs (C6-C10)	< 20 ug/g	96% (50 - 150%)	< 20	< 20
F2-F4 PHCs (C10-C50)	< 10 ug/g	99% (50 - 150%)	50	70
Acenaphthene	< 0.02 ug/g	75% (47 - 147%)	< 0.02	< 0.02
Acenaphthylene	< 0.02 ug/g	69% (33 - 145%)	< 0.02	< 0.02
Anthracene	< 0.02 ug/g	64% (27 - 133%)	< 0.02	< 0.02
Benzo[a]anthracene	< 0.02 ug/g	76% (33 - 143%)	< 0.02	< 0.02
Benzo[a]pyrene	< 0.02 ug/g	72% (17 - 163%)	< 0.02	< 0.02

Certificate of Analysis

Client: DST Consulting Engineers Inc.

Client PO:

Project: OE04940

Report Date: 24-Nov-2004
Order Date: 16-Nov-2004

	Blank	Spike (QC Limits)	Duplicate	
Benzo[b]fluoranthene	< 0.02 ug/g	52% (11 - 162%)	< 0.02	< 0.02
Benzo[ghi]perylene	< 0.02 ug/g	60% (25 - 121%)	< 0.02	< 0.02
Benzo[k]fluoranthene	< 0.02 ug/g	59% (11 - 162%)	< 0.02	< 0.02
Biphenyl	< 0.02 ug/g	66% (23 - 120%)	< 0.02	< 0.02
Chrysene	< 0.02 ug/g	75% (17 - 168%)	< 0.02	< 0.02
Dibenzo[a,h]anthracene	< 0.02 ug/g	56% (23 - 117%)	< 0.02	< 0.02
Fluoranthene	< 0.02 ug/g	75% (29 - 130%)	< 0.02	< 0.02
Fluorene	< 0.02 ug/g	66% (29 - 115%)	< 0.02	< 0.02
Indeno[1,2,3-cd]pyrene	< 0.02 ug/g	63% (1 - 171%)	< 0.02	< 0.02
1-Methylnaphthalene	< 0.02 ug/g	70% (23 - 120%)	< 0.02	< 0.02
2-Methylnaphthalene	< 0.02 ug/g	63% (23 - 120%)	< 0.02	< 0.02
Naphthalene	< 0.02 ug/g	68% (21 - 133%)	< 0.02	< 0.02
Phenanthrene	< 0.02 ug/g	67% (54 - 120%)	< 0.02	< 0.02
Pyrene	< 0.02 ug/g	74% (29 - 130%)	< 0.02	< 0.02

PARACEL Laboratories Ltd.
Environmental & Indoor Air Quality

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Order #: J5146

Certificate of Analysis

DST Consulting Engineers Inc.

1304 Algoma Road
Ottawa, ON K1B 3W8
Attn: Mr. Ken Budel

Phone: (613)-748-1415
Fax: (613)-748-1356

Client PO:
Project: OF04940
Custody #: 10573

Report Date: 24-Nov-2004
Order Date: 17-Nov-2004

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID	Client ID
J5146.1	BHMW 14 SS2
J5146.2	BHMW 15 SS5

Approved By: Dale Robertson, B.Sc.
Laboratory Director

Any use of these test results implies your agreement that our total liability in connection with this work, however arising, shall be limited to the amount paid by you for this work; and that our employees or agents shall not under any circumstance be liable to you in connection with this work.

Certificate of Analysis

Client: DST Consulting Engineers Inc.

Client PO:

Project: OE04940

Report Date: 24-Nov-2004

Order Date: 17-Nov-2004

Analysis Summary Table

Analysis	Method Reference/Description
Metals	EPA 6020 - ICP-MS
BTEX, PHC F1 (CCME)	EPA 8260, CWS PHCs - P&T GC-MS/FID
PHC F2-F4 (CCME)	CWS PHC - GC-FID
PAHs	modified EPA 8270 - GC-MS

n/a: not applicable

MDL: Method Detection Limit

Soil results calculated on a dry weight basis.

CCME PHC additional information:

- The method for the analysis of PHCs complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
- F1 range corrected for BTEX where available
- F2 to F3 ranges corrected for appropriate PAHs where available.
- The gravimetric TPH (heavy oil) result is not to be added to the PHC fractions.

Certificate of Analysis

Report Date: 24-Nov-2004
Order Date: 17-Nov-2004

Client: DST Consulting Engineers Inc.

Client PO: Project: OE04940

Matrix: Soil

Parameter	MDL/Units	Sample ID: BHMW 14 SS2	BHMW 15 SS5
	Sample Date:	16/11/2004	16/11/2004
		J5146.1	J5146.2
Antimony	1 ug/g	< 1	< 1
Arsenic	1 ug/g	1	< 1
Barium	10 ug/g	130	430
Beryllium	0.5 ug/g	< 0.5	0.5
Cadmium	0.5 ug/g	< 0.5	< 0.5
Calcium	200 ug/g	4,600	39,000
Chromium	5 ug/g	25	70
Cobalt	5 ug/g	10	15
Copper	5 ug/g	15	35
Iron	200 ug/g	22,000	35,000
Lead	1 ug/g	14	12
Magnesium	200 ug/g	4,200	17,000
Molybdenum	1 ug/g	< 1	< 1
Nickel	5 ug/g	20	40
Selenium	1 ug/g	< 1	< 1
Silver	0.3 ug/g	< 0.3	< 0.3
Sodium	200 ug/g	< 200	1,200
Thallium	1 ug/g	< 1	< 1
Tin	5 ug/g	< 5	< 5
Vanadium	10 ug/g	30	70
Zinc	20 ug/g	20	80
Benzene	0.05 ug/g	< 0.05	< 0.05
Ethylbenzene	0.05 ug/g	< 0.05	< 0.05
Toluene	0.05 ug/g	< 0.05	< 0.05
m/p-Xylene	0.1 ug/g	< 0.1	< 0.1
o-Xylene	0.05 ug/g	< 0.05	< 0.05
Toluene-d8	surrogate	104%	101%
F1 PHCs (C6-C10)	20 ug/g	< 20	40
F2 PHCs (C10-C16)	10 ug/g	< 10	2,200

Certificate of Analysis

Report Date: 24-Nov-2004
Order Date: 17-Nov-2004

Client: DST Consulting Engineers Inc.
Client PO:

Project: OT04940

		BHMW 14 SS2	BHMW 15 SS5
		16/11/2004	16/11/2004
		J5146.1	J5146.2
F3 PHCs (C16-C34)	10 ug/g	< 10	930
F4 PHCs (C34-C50)	10 ug/g	< 10	< 10
Acenaphthene	0.02 ug/g	< 0.02	0.24
Acenaphthylene	0.02 ug/g	< 0.02	0.20
Anthracene	0.02 ug/g	< 0.02	< 0.02
Benzo[a]anthracene	0.02 ug/g	< 0.02	< 0.02
Benzo[a]pyrene	0.02 ug/g	< 0.02	< 0.02
Benzo[b]fluoranthene	0.02 ug/g	< 0.02	< 0.02
Benzo[ghi]perylene	0.02 ug/g	< 0.02	< 0.02
Benzo[k]fluoranthene	0.02 ug/g	< 0.02	< 0.02
Biphenyl	0.02 ug/g	< 0.02	< 0.02
Chrysene	0.02 ug/g	< 0.02	< 0.02
Dibenzo[a,h]anthracene	0.02 ug/g	< 0.02	< 0.02
Fluoranthene	0.02 ug/g	< 0.02	< 0.02
Fluorene	0.02 ug/g	< 0.02	0.18
Indeno[1,2,3-cd]pyrene	0.02 ug/g	< 0.02	< 0.02
1-Methylnaphthalene	0.02 ug/g	< 0.02	0.10
2-Methylnaphthalene	0.02 ug/g	< 0.02	0.08
Naphthalene	0.02 ug/g	< 0.02	1.2
Phenanthrene	0.02 ug/g	< 0.02	< 0.02
Pyrene	0.02 ug/g	< 0.02	< 0.02
2-Fluorobiphenyl	surrogate	80%	100%
p-Terphenyl d-14	surrogate	73%	65%

Certificate of Analysis

Report Date: 24-Nov-2004
Order Date: 17-Nov-2004

Client: **DST Consulting Engineers Inc.**

Client PO: Project: OE04940

QA/QC Results

	Blank	Spike (QC Limits)	Duplicate	
Antimony	< 1 ug/g	94% (70 - 130%)	< 1	< 1
Arsenic	< 1 ug/g	121% (70 - 130%)	< 1	< 1
Barium	< 10 ug/g	127% (70 - 130%)	90	80
Beryllium	< 0.5 ug/g	101% (70 - 130%)	< 0.5	< 0.5
Cadmium	< 0.5 ug/g	102% (70 - 130%)	< 0.5	< 0.5
Chromium	< 5 ug/g	111% (70 - 130%)	15	15
Cobalt	< 5 ug/g	107% (70 - 130%)	< 5	< 5
Copper	< 5 ug/g	106% (70 - 130%)	10	10
Lead	< 1 ug/g	119% (70 - 130%)	5	5
Molybdenum	< 1 ug/g	115% (70 - 130%)	< 1	< 1
Nickel	< 5 ug/g	106% (70 - 130%)	10	10
Selenium	< 1 ug/g	121% (70 - 130%)	< 1	< 1
Silver	< 0.3 ug/g	104% (70 - 130%)	< 0.3	< 0.3
Thallium	< 1 ug/g	124% (70 - 130%)	< 1	< 1
Tin	< 5 ug/g	106% (70 - 130%)	< 5	< 5
Vanadium	< 10 ug/g	114% (70 - 130%)	20	20
Zinc	< 20 ug/g	123% (70 - 130%)	< 20	< 20
Benzene	< 0.05 ug/g	79% (61 - 134%)	< 0.05	< 0.05
Ethylbenzene	< 0.05 ug/g	75% (66 - 128%)	< 0.05	< 0.05
Toluene	< 0.05 ug/g	98% (66 - 133%)	< 0.05	< 0.05
m/p-Xylene	< 0.1 ug/g	90% (65 - 132%)	< 0.1	< 0.1
o-Xylene	< 0.05 ug/g	90% (66 - 134%)	< 0.05	< 0.05
F1 PHCs (C6-C10)	< 20 ug/g	98% (50 - 150%)	< 20	< 20
F2-F4 PHCs (C10-C50)	< 10 ug/g	113% (50 - 150%)	20	20
Acenaphthene	< 0.02 ug/g	55% (47 - 147%)	0.28	0.24
Acenaphthylene	< 0.02 ug/g	51% (33 - 145%)	0.22	0.20
Anthracene	< 0.02 ug/g	60% (27 - 133%)	< 0.02	< 0.02
Benzo[a]anthracene	< 0.02 ug/g	67% (33 - 143%)	< 0.02	< 0.02
Benzo[a]pyrene	< 0.02 ug/g	65% (17 - 163%)	< 0.02	< 0.02
Benzo[b]fluoranthene	< 0.02 ug/g	57% (11 - 162%)	< 0.02	< 0.02

Certificate of Analysis

Report Date: 24-Nov-2004
Order Date: 17-Nov-2004

Client: **DST Consulting Engineers Inc.**

Client PO:

Project: **OE04940**

	Blank	Spike (QC Limits)	Duplicate	
Benzo[ghi]perylene	< 0.02 ug/g	50% (25 - 121%)	< 0.02	< 0.02
Benzo[k]fluoranthene	< 0.02 ug/g	80% (11 - 162%)	< 0.02	< 0.02
Biphenyl	< 0.02 ug/g	46% (23 - 120%)	< 0.02	< 0.02
Chrysene	< 0.02 ug/g	69% (17 - 168%)	< 0.02	< 0.02
Dibenzo[a,h]anthracene	< 0.02 ug/g	51% (23 - 117%)	< 0.02	< 0.02
Fluoranthene	< 0.02 ug/g	58% (29 - 130%)	< 0.02	< 0.02
Fluorene	< 0.02 ug/g	46% (29 - 115%)	0.20	0.18
Indeno[1,2,3-cd]pyrene	< 0.02 ug/g	59% (1 - 171%)	< 0.02	< 0.02
1-Methylnaphthalene	< 0.02 ug/g	53% (23 - 120%)	0.10	0.10
2-Methylnaphthalene	< 0.02 ug/g	56% (23 - 120%)	0.06	0.08
Naphthalene	< 0.02 ug/g	56% (21 - 133%)	1.1	1.2
Phenanthrene	< 0.02 ug/g	52% (54 - 120%)	< 0.02	< 0.02
Pyrene	< 0.02 ug/g	57% (29 - 130%)	< 0.02	< 0.02

PARACEL Laboratories Ltd.
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Order #: J5177

Certificate of Analysis

DST Consulting Engineers Inc.

1304 Algoma Road
Ottawa, ON K1B 3W8
Attn: Mr. Ken Budel

Phone: (613)-748-1415
Fax: (613)-748-1356

Client PO:
Project: OE04940
Custody #: 10575

Report Date: 25-Nov-2004
Order Date: 18-Nov-2004

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID	Client ID
J5177.1	BHMW 16 SS5
J5177.2	BHMW 17 SS7

Approved By: _____ Dale Robertson, B.Sc.
Laboratory Director

Any use of these test results implies your agreement that our total liability in connection with this work, however arising, shall be limited to the amount paid by you for this work, and that our employees or agents shall not under any circumstance be liable to you in connection with this work.

Certificate of Analysis

Client: DST Consulting Engineers Inc.

Client PO:

Project: OE04940

Report Date: 25-Nov-2004
Order Date: 18-Nov-2004

Analysis Summary Table

Analysis	Method Reference/Description
Metals	EPA 6020 - ICP-MS
PHC F1 (CCME)	CWS PHCs - P&T GC-FID
PHC F2-F4 (CCME)	CWS PHC - GC-FID
PAHs	modified EPA 8270 - GC-MS

n/a: not applicable
MDL: Method Detection Limit
Soil results calculated on a dry weight basis.

CCME PHC additional information:

- The method for the analysis of PHCs complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
- F1 range corrected for BTEX where available
- F2 to F3 ranges corrected for appropriate PAHs where available.
- The gravimetric TPH (heavy oil) result is not to be added to the PHC fractions.

Certificate of Analysis

Report Date: 25-Nov-2004
Order Date: 18-Nov-2004

Client: DST Consulting Engineers Inc.

Client PO: Project: OE04940

Matrix: Soil

Parameter	MDL/Units	Sample ID: BHMW 16 S8S Sample Date: 17/11/2004 J5177.1	Sample ID: BHMW 17 S8T Sample Date: 17/11/2004 J5177.2
Antimony	1 ug/g	< 1	< 1
Arsenic	1 ug/g	< 1	< 1
Barium	10 ug/g	60	50
Beryllium	0.5 ug/g	< 0.5	< 0.5
Cadmium	0.5 ug/g	< 0.5	< 0.5
Calcium	200 ug/g	60,000	35,000
Chromium	5 ug/g	10	10
Cobalt	5 ug/g	5	< 5
Copper	5 ug/g	10	10
Iron	200 ug/g	12,000	11,000
Lead	1 ug/g	7	3
Magnesium	200 ug/g	9,400	5,000
Molybdenum	1 ug/g	< 1	< 1
Nickel	5 ug/g	10	10
Selenium	1 ug/g	< 1	< 1
Silver	0.3 ug/g	< 0.3	< 0.3
Sodium	200 ug/g	200	400
Thallium	1 ug/g	< 1	< 1
Tin	5 ug/g	< 5	< 5
Vanadium	10 ug/g	20	20
Zinc	20 ug/g	< 20	20
F1 PHCs (C6-C10)	20 ug/g	< 20	< 20
F2 PHCs (C10-C16)	10 ug/g	< 10	< 10
F3 PHCs (C16-C34)	10 ug/g	< 10	< 10
F4 PHCs (C34-C50)	10 ug/g	< 10	< 10
Acenaphthene	0.02 ug/g	< 0.02	< 0.02
Acenaphthylene	0.02 ug/g	< 0.02	< 0.02
Anthracene	0.02 ug/g	< 0.02	< 0.02
Benzo[a]anthracene	0.02 ug/g	< 0.02	< 0.02

Certificate of Analysis

Report Date: 25-Nov-2004
Order Date: 18-Nov-2004

Client: DST Consulting Engineers Inc.

Client PO:

Project: OE04948

		BHMW 16 SS5	BHMW 17 SS7
		17/11/2004	17/11/2004
		J5177.1	J5177.2
Benzo[a]pyrene	0.02 ug/g	< 0.02	< 0.02
Benzo[b]fluoranthene	0.02 ug/g	< 0.02	< 0.02
Benzo[ghi]perylene	0.02 ug/g	< 0.02	< 0.02
Benzo[k]fluoranthene	0.02 ug/g	< 0.02	< 0.02
Biphenyl	0.02 ug/g	< 0.02	< 0.02
Chrysene	0.02 ug/g	< 0.02	< 0.02
Dibenzo[a,h]anthracene	0.02 ug/g	< 0.02	< 0.02
Fluoranthene	0.02 ug/g	< 0.02	< 0.02
Fluorene	0.02 ug/g	< 0.02	< 0.02
Indeno[1,2,3-cd]pyrene	0.02 ug/g	< 0.02	< 0.02
1-Methylnaphthalene	0.02 ug/g	< 0.02	< 0.02
2-Methylnaphthalene	0.02 ug/g	< 0.02	< 0.02
Naphthalene	0.02 ug/g	< 0.02	< 0.02
Phenanthrene	0.02 ug/g	< 0.02	< 0.02
Pyrene	0.02 ug/g	< 0.02	< 0.02
2-Fluorobiphenyl	surrogate	104%	77%
p-Terphenyl d-14	surrogate	93%	72%

Certificate of Analysis

Report Date: 25-Nov-2004
Order Date: 18-Nov-2004

Client: DST Consulting Engineers Inc.

Client PO:

Project: OE04940

QA/QC Results

	Blank	Spike (QC Limits)	Duplicate	
Antimony	< 1 ug/g	95% (70 - 130%)	< 1	< 1
Arsenic	< 1 ug/g	104% (70 - 130%)	< 1	< 1
Barium	< 10 ug/g	107% (70 - 130%)	70	60
Beryllium	< 0.5 ug/g	110% (70 - 130%)	< 0.5	< 0.5
Cadmium	< 0.5 ug/g	93% (70 - 130%)	< 0.5	< 0.5
Chromium	< 5 ug/g	106% (70 - 130%)	10	10
Cobalt	< 5 ug/g	105% (70 - 130%)	< 5	< 5
Copper	< 5 ug/g	104% (70 - 130%)	10	10
Lead	< 1 ug/g	112% (70 - 130%)	5	5
Molybdenum	< 1 ug/g	100% (70 - 130%)	< 1	< 1
Nickel	< 5 ug/g	104% (70 - 130%)	10	10
Selenium	< 1 ug/g	105% (70 - 130%)	< 1	< 1
Silver	< 0.3 ug/g	98% (70 - 130%)	< 0.3	< 0.3
Thallium	< 1 ug/g	115% (70 - 130%)	< 1	< 1
Tin	< 5 ug/g	103% (70 - 130%)	< 5	< 5
Vanadium	< 10 ug/g	107% (70 - 130%)	20	20
Zinc	< 20 ug/g	107% (70 - 130%)	< 20	< 20
F1 PHCs (C6-C10)	< 20 ug/g	96% (50 - 150%)	< 20	< 20
F2-F4 PHCs (C10-C50)	< 10 ug/g	113% (50 - 150%)	20	20
Acenaphthene	< 0.02 ug/g	76% (47 - 147%)	0.16	0.16
Acenaphthylene	< 0.02 ug/g	72% (33 - 145%)	0.06	0.06
Anthracene	< 0.02 ug/g	73% (27 - 133%)	0.48	0.44
Benzo[a]anthracene	< 0.02 ug/g	88% (33 - 143%)	0.92	0.84
Benzo[a]pyrene	< 0.02 ug/g	76% (17 - 163%)	0.58	0.56
Benzo[b]fluoranthene	< 0.02 ug/g	83% (11 - 162%)	0.64	0.64
Benzo[ghi]perylene	< 0.02 ug/g	62% (25 - 121%)	0.32	0.32
Benzo[k]fluoranthene	< 0.02 ug/g	93% (11 - 162%)	0.32	0.30
Biphenyl	< 0.02 ug/g	66% (23 - 120%)	< 0.02	< 0.02
Chrysene	< 0.02 ug/g	98% (17 - 168%)	0.76	0.72
Dibenzo[a,h]anthracene	< 0.02 ug/g	56% (23 - 117%)	0.10	0.12

Certificate of Analysis

Report Date: 25-Nov-2004
Order Date: 18-Nov-2004

Client: **DST Consulting Engineers Inc.**

Client PO: Project: OI004940

	Blank	Spike (QC Limits)	Duplicate	
Fluoranthene	< 0.02 ug/g	84% (29 - 130%)	1.8	1.7
Fluorene	< 0.02 ug/g	68% (29 - 115%)	0.18	0.16
Indeno[1,2,3-cd]pyrene	< 0.02 ug/g	69% (1 - 171%)	0.38	0.38
1-Methylnaphthalene	< 0.02 ug/g	74% (23 - 120%)	0.04	0.04
2-Methylnaphthalene	< 0.02 ug/g	63% (23 - 120%)	0.04	0.04
Naphthalene	< 0.02 ug/g	76% (21 - 133%)	0.08	0.06
Phenanthrene	< 0.02 ug/g	68% (54 - 120%)	1.6	1.5
Pyrene	< 0.02 ug/g	83% (29 - 130%)	1.4	1.3

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email: paracel@paracellabs.com

Order #: J5214

Certificate of Analysis

DST Consulting Engineers Inc.

1304 Algoma Road
Ottawa, ON K1B 3W8
Attn: Mr. Ken Budel

Phone: (613)-748-1415
Fax: (613)-748-1356

Client PO:
Project: OE04940
Custody #: 10574

Report Date: 29-Nov-2004
Order Date: 19-Nov-2004

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID	Client ID
J5214.1	BHMW 18 SS2
J5214.2	BHMW 19 SS3
J5214.3	BHMW 20 SS2

Approved By: _____ Dale Robertson, B.Sc.
Laboratory Director

Any use of these test results implies your agreement that our total liability in connection with this work, however arising, shall be limited to the amount paid by you for this work, and that our employees or agents shall not under any circumstance be liable to you in connection with this work.

Analysis Summary Table

Analysis	Method Reference/Description
Metals	EPA 6020 - ICP-MS
BTEX, PHC F1 (CCME)	EPA 8260, CWS PHCs - P&T GC-MS/FID
PHC F1 (CCME)	CWS PHCs - P&T GC-FID
PHC F2-F4 (CCME)	CWS - Tier I Method, GC-FID
PAHs	modified EPA 8270 - GC-MS

n/a: not applicable

MDL: Method Detection Limit

Soil results calculated on a dry weight basis.

CCME PHC additional information:

- The method for the analysis of PHCs complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
- F1 range corrected for BTEX where available
- F2 to F3 ranges corrected for appropriate PAHs where available.
- The gravimetric TPH (heavy oil) result is not to be added to the PHC fractions.

Certificate of Analysis

Report Date: 29-Nov-2004
Order Date: 19-Nov-2004

Client: DST Consulting Engineers Inc.

Client PO: Project: OE04940

Matrix: Soil

Parameter	MDL/Units	Sample ID: BHMW 18 SS2	BHMW 19 SS3	BHMW 20 SS2
	Sample Date:	17/11/2004	18/11/2004	18/11/2004
		J5214.1	J5214.2	J5214.3
Antimony	1 ug/g	< 1	< 1	< 1
Arsenic	1 ug/g	< 1	< 1	1
Barium	10 ug/g	40	20	10
Beryllium	0.5 ug/g	< 0.5	< 0.5	< 0.5
Cadmium	0.5 ug/g	< 0.5	< 0.5	< 0.5
Calcium	200 ug/g	4,600	170,000	430,000
Chromium	5 ug/g	15	10	5
Cobalt	5 ug/g	5	< 5	< 5
Copper	5 ug/g	5	< 5	5
Iron	200 ug/g	12,000	14,000	6,400
Lead	1 ug/g	4	3	8
Magnesium	200 ug/g	3,200	47,000	4,800
Molybdenum	1 ug/g	< 1	< 1	1
Nickel	5 ug/g	10	10	20
Selenium	1 ug/g	< 1	< 1	< 1
Silver	0.3 ug/g	< 0.3	< 0.3	< 0.3
Sodium	200 ug/g	< 200	< 200	< 200
Thallium	1 ug/g	< 1	< 1	< 1
Tin	5 ug/g	< 5	< 5	< 5
Vanadium	10 ug/g	30	< 10	< 10
Zinc	20 ug/g	< 20	< 20	< 20
Benzene	0.05 ug/g		< 0.05	< 0.05
Ethylbenzene	0.05 ug/g		< 0.05	< 0.05
Toluene	0.05 ug/g		< 0.05	< 0.05
m/p-Xylene	0.1 ug/g		< 0.1	< 0.1
o-Xylene	0.05 ug/g		< 0.05	< 0.05
Toluene-d8	surrogate		107%	100%
F1 PHCs (C6-C10)	20 ug/g		< 20	< 20
F1 PHCs (C6-C10)	20 ug/g	< 20		

Certificate of Analysis

Report Date: 29-Nov-2004
Order Date: 19-Nov-2004

Client: **DST Consulting Engineers Inc.**

Client PO: Project: ON04940

		BHMW 18 SS2	BHMW 19 SS3	BHMW 20 SS2
		17/11/2004	18/11/2004	18/11/2004
		J5214.1	J5214.2	J5214.3
F2 PHCs (C10-C16)	10 ug/g	< 10	< 10	< 10
F3 PHCs (C16-C34)	10 ug/g	< 10	< 10	< 10
F4 PHCs (C34-C50)	10 ug/g	< 10	< 10	< 10
Acenaphthene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Acenaphthylene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Anthracene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Benzo[a]anthracene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Benzo[a]pyrene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Benzo[b]fluoranthene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Benzo[ghi]perylene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Benzo[k]fluoranthene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Biphenyl	0.02 ug/g	< 0.02	< 0.02	< 0.02
Chrysene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Dibenzo[a,h]anthracene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Fluoranthene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Fluorene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Indeno[1,2,3-cd]pyrene	0.02 ug/g	< 0.02	< 0.02	< 0.02
1-Methylnaphthalene	0.02 ug/g	< 0.02	< 0.02	< 0.02
2-Methylnaphthalene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Naphthalene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Phenanthrene	0.02 ug/g	< 0.02	< 0.02	< 0.02
Pyrene	0.02 ug/g	< 0.02	< 0.02	< 0.02
2-Fluorobiphenyl	surrogate	57%	68%	78%
p-Terphenyl d-14	surrogate	74%	64%	70%

Certificate of Analysis

Report Date: 29-Nov-2004
Order Date: 19-Nov-2004

Client: DST Consulting Engineers Inc.

Client PO: Project: OE04940

QA/QC Results

	Blank	Spike (QC Limits)	Duplicate	
Antimony	< 1 ug/g	92% (70 - 130%)	19	18
Arsenic	< 1 ug/g	89% (70 - 130%)	2	2
Barium	< 10 ug/g	101% (70 - 130%)	100	100
Beryllium	< 0.5 ug/g	98% (70 - 130%)	< 0.5	< 0.5
Cadmium	< 0.5 ug/g	87% (70 - 130%)	< 0.5	< 0.5
Chromium	< 5 ug/g	101% (70 - 130%)	15	15
Cobalt	< 5 ug/g	98% (70 - 130%)	5	5
Copper	< 5 ug/g	96% (70 - 130%)	30	25
Lead	< 1 ug/g	99% (70 - 130%)	140	130
Molybdenum	< 1 ug/g	98% (70 - 130%)	< 1	< 1
Nickel	< 5 ug/g	97% (70 - 130%)	15	15
Selenium	< 1 ug/g	90% (70 - 130%)	< 1	< 1
Silver	< 0.3 ug/g	81% (70 - 130%)	< 0.3	< 0.3
Thallium	< 1 ug/g	102% (70 - 130%)	< 1	< 1
Tin	< 5 ug/g	95% (70 - 130%)	< 5	< 5
Vanadium	< 10 ug/g	100% (70 - 130%)	20	20
Zinc	< 20 ug/g	94% (70 - 130%)	100	80
Benzene	< 0.05 ug/g	79% (61 - 134%)	< 0.05	< 0.05
Ethylbenzene	< 0.05 ug/g	75% (66 - 128%)	< 0.05	< 0.05
Toluene	< 0.05 ug/g	98% (66 - 133%)	< 0.05	< 0.05
m/p-Xylene	< 0.1 ug/g	90% (65 - 132%)	< 0.1	< 0.1
o-Xylene	< 0.05 ug/g	90% (66 - 134%)	< 0.05	< 0.05
F1 PHCs (C6-C10)	< 20 ug/g	98% (50 - 150%)	< 20	< 20
F1 PHCs (C6-C10)	< 20 ug/g	98% (50 - 150%)	< 20	< 20
F2-F4 PHCs (C10-C50)	< 10 ug/g	124% (50 - 150%)	70	70
Acenaphthene	< 0.02 ug/g	76% (47 - 147%)	0.16	0.16
Acenaphthylene	< 0.02 ug/g	72% (33 - 145%)	0.06	0.06
Anthracene	< 0.02 ug/g	73% (27 - 133%)	0.48	0.44
Benzo[a]anthracene	< 0.02 ug/g	88% (33 - 143%)	0.92	0.84
Benzo[a]pyrene	< 0.02 ug/g	76% (17 - 163%)	0.58	0.56

Certificate of Analysis

Report Date: 29-Nov-2004
Order Date: 19-Nov-2004

Client: **DST Consulting Engineers Inc.**

Client PO:

Project: OE04948

	Blank	Spike (QC Limits)	Duplicate	
Benzo[b]fluoranthene	< 0.02 ug/g	83% (11 - 162%)	0.64	0.64
Benzo[ghi]perylene	< 0.02 ug/g	62% (25 - 121%)	0.32	0.32
Benzo[k]fluoranthene	< 0.02 ug/g	93% (11 - 162%)	0.32	0.30
Biphenyl	< 0.02 ug/g	66% (23 - 120%)	< 0.02	< 0.02
Chrysene	< 0.02 ug/g	90% (17 - 168%)	0.76	0.72
Dibenzo[a,h]anthracene	< 0.02 ug/g	56% (23 - 117%)	0.10	0.12
Fluoranthene	< 0.02 ug/g	84% (29 - 130%)	1.8	1.7
Fluorene	< 0.02 ug/g	68% (29 - 115%)	0.16	0.16
Indeno[1,2,3-cd]pyrene	< 0.02 ug/g	69% (1 - 171%)	0.38	0.38
1-Methylnaphthalene	< 0.02 ug/g	74% (23 - 120%)	0.04	0.04
2-Methylnaphthalene	< 0.02 ug/g	63% (23 - 120%)	0.04	0.04
Naphthalene	< 0.02 ug/g	76% (21 - 133%)	0.08	0.06
Phenanthrene	< 0.02 ug/g	68% (54 - 120%)	1.6	1.5
Pyrene	< 0.02 ug/g	83% (29 - 130%)	1.4	1.3

PARACEL Laboratories Ltd.
Environmental & Indoor Air Quality

300-2319 St. Laurent Blvd.
Ottawa ON K1G 4J8
Phone: (613) 731-9577
Fax: (613) 731-9064
Toll Free: 800-7491947
email: paracel@paracellabs.com

Order #: J5258

Certificate of Analysis

DST Consulting Engineers Inc.

1304 Algoma Road
Ottawa, ON K1B 3W8
Attn: Mr. Ken Budel

Phone: (613)-748-1415
Fax: (613)-748-1356

Client PO:
Project: **OE04940**
Custody #: **10577**

Report Date: 30-Nov-2004
Order Date: 19-Nov-2004

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID	Client ID
J5258.1	BHMW 21 SS2
J5258.2	BHMW 21 SS4
J5258.3	BHMW 22 SS4

Approved By: _____ Dale Robertson, B.Sc.
Laboratory Director

Any use of these test results implies your agreement that our total liability in connection with this work, however arising, shall be limited to the amount paid by you for this work, and that our employees or agents shall not under any circumstance be liable to you in connection with this work.

Certificate of Analysis

Client: DST Consulting Engineers Inc.

Client PO: Project: OE04948

Report Date: 30-Nov-2004
Order Date: 19-Nov-2004

Analysis Summary Table

Analysis	Method Reference/Description
Metals	EPA 6020 - ICP-MS
BTEX, PHC F1 (CCME)	EPA 8260, CWS PHCs - P&T GC-MS/FID
PHC F2-F4 (CCME)	CWS - Tier 1 Method, GC-FID
PAHs	modified EPA 8270 - GC-MS

n/a: not applicable
MDL: Method Detection Limit
Soil results calculated on a dry weight basis.

CCME PHC additional information:

- The method for the analysis of PHCs complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
- F1 range corrected for BTEX where available
- F2 to F3 ranges corrected for appropriate PAHs where available.
- The gravimetric TPH (heavy oil) result is not to be added to the PHC fractions.

Certificate of Analysis

Report Date: 30-Nov-2004
Order Date: 19-Nov-2004

Client: **DST Consulting Engineers Inc.**

Client PO:

Project: OE04940

Matrix: Soil

Parameter	MDL/Units	Sample ID: BHMW 21 SS2	BHMW 21 SS4	BHMW 22 SS4
		Sample Date: 18/11/2004	18/11/2004	18/11/2004
		J5258.1	J5258.2	J5258.3
Antimony	1 ug/g	< 1		
Arsenic	1 ug/g	< 1		
Barium	10 ug/g	40		
Beryllium	0.5 ug/g	< 0.5		
Cadmium	0.5 ug/g	< 0.5		
Calcium	200 ug/g	4,400		
Chromium	5 ug/g	15		
Cobalt	5 ug/g	< 5		
Copper	5 ug/g	< 5		
Iron	200 ug/g	8,200		
Lead	1 ug/g	5		
Magnesium	200 ug/g	2,000		
Molybdenum	1 ug/g	< 1		
Nickel	5 ug/g	10		
Selenium	1 ug/g	< 1		
Silver	0.3 ug/g	< 0.3		
Sodium	200 ug/g	< 200		
Thallium	1 ug/g	< 1		
Tin	5 ug/g	< 5		
Vanadium	10 ug/g	20		
Zinc	20 ug/g	20		
Benzene	0.05 ug/g		< 0.05	< 0.05
Ethylbenzene	0.05 ug/g		< 0.05	< 0.05
Toluene	0.05 ug/g		< 0.05	< 0.05
m/p-Xylene	0.1 ug/g		< 0.1	< 0.1
o-Xylene	0.05 ug/g		< 0.05	< 0.05
Toluene-d8	surrogate		101%	104%
F1 PHCs (C6-C10)	20 ug/g		< 20	< 20
F2 PHCs (C10-C16)	10 ug/g		< 10	< 10

Certificate of Analysis

Client: DST Consulting Engineers Inc.

Client PO:

Project: OE04940

Report Date: 30-Nov-2004
Order Date: 19-Nov-2004

		BHMW 21 SS2	BHMW 21 SS4	BHMW 22 SS4
		18/11/2004	18/11/2004	18/11/2004
		J5258.1	J5258.2	J5258.3
F3 PHCs (C16-C34)	10 ug/g		20	< 10
F4 PHCs (C34-C50)	10 ug/g		20	< 10
Acenaphthene	0.02 ug/g		< 0.02	
Acenaphthylene	0.02 ug/g		< 0.02	
Anthracene	0.02 ug/g		< 0.02	
Benzo[a]anthracene	0.02 ug/g		< 0.02	
Benzo[a]pyrene	0.02 ug/g		< 0.02	
Benzo[b]fluoranthene	0.02 ug/g		< 0.02	
Benzo[ghi]perylene	0.02 ug/g		< 0.02	
Benzo[k]fluoranthene	0.02 ug/g		< 0.02	
Biphenyl	0.02 ug/g		< 0.02	
Chrysene	0.02 ug/g		< 0.02	
Dibenzo[a,h]anthracene	0.02 ug/g		< 0.02	
Fluoranthene	0.02 ug/g		< 0.02	
Fluorene	0.02 ug/g		< 0.02	
Indeno[1,2,3-cd]pyrene	0.02 ug/g		< 0.02	
1-Methylnaphthalene	0.02 ug/g		< 0.02	
2-Methylnaphthalene	0.02 ug/g		< 0.02	
Naphthalene	0.02 ug/g		< 0.02	
Phenanthrene	0.02 ug/g		< 0.02	
Pyrene	0.02 ug/g		< 0.02	
2-Fluorobiphenyl	surrogate		51%	
p-Terphenyl d-14	surrogate		56%	

Certificate of Analysis

Report Date: 30-Nov-2004
Order Date: 19-Nov-2004

Client: DST Consulting Engineers Inc.

Client PO: Project: OE04940

QA/QC Results

	Blank	Spike (QC Limits)	Duplicate	
Antimony	< 1 ug/g	105% (70 - 130%)	5	5
Arsenic	< 1 ug/g	104% (70 - 130%)	8	8
Barium	< 10 ug/g	92% (70 - 130%)	100	110
Beryllium	< 0.5 ug/g	103% (70 - 130%)	0.5	0.5
Cadmium	< 0.5 ug/g	104% (70 - 130%)	1.0	1.0
Chromium	< 5 ug/g	106% (70 - 130%)	15	15
Cobalt	< 5 ug/g	105% (70 - 130%)	5	5
Copper	< 5 ug/g	105% (70 - 130%)	65	70
Lead	< 1 ug/g	105% (70 - 130%)	240	260
Molybdenum	< 1 ug/g	106% (70 - 130%)	2	2
Nickel	< 5 ug/g	104% (70 - 130%)	20	20
Selenium	< 1 ug/g	105% (70 - 130%)	< 1	< 1
Silver	< 0.3 ug/g	107% (70 - 130%)	0.6	0.6
Thallium	< 1 ug/g	109% (70 - 130%)	< 1	< 1
Tin	< 5 ug/g	113% (70 - 130%)	10	10
Vanadium	< 10 ug/g	107% (70 - 130%)	20	20
Zinc	< 20 ug/g	106% (70 - 130%)	220	240
Benzene	< 0.05 ug/g	79% (61 - 134%)	< 0.05	< 0.05
Ethylbenzene	< 0.05 ug/g	75% (66 - 128%)	< 0.05	< 0.05
Toluene	< 0.05 ug/g	98% (66 - 133%)	< 0.05	< 0.05
m/p-Xylene	< 0.1 ug/g	90% (65 - 132%)	< 0.1	< 0.1
o-Xylene	< 0.05 ug/g	90% (66 - 134%)	< 0.05	< 0.05
F1 PHCs (C6-C10)	< 20 ug/g	98% (50 - 150%)	< 20	< 20
F2-F4 PHCs (C10-C50)	< 10 ug/g	124% (50 - 150%)	70	70
Acenaphthene	< 0.02 ug/g	76% (47 - 147%)	0.16	0.16
Acenaphthylene	< 0.02 ug/g	72% (33 - 145%)	0.06	0.06
Anthracene	< 0.02 ug/g	73% (27 - 133%)	0.48	0.44
Benzo[a]anthracene	< 0.02 ug/g	88% (33 - 143%)	0.92	0.84
Benzo[a]pyrene	< 0.02 ug/g	76% (17 - 163%)	0.58	0.56
Benzo[b]fluoranthene	< 0.02 ug/g	83% (11 - 162%)	0.64	0.64

Certificate of Analysis

Client: **DST Consulting Engineers Inc.**

Client PO:

Project: OE04940

Report Date: 30-Nov-2004
Order Date: 19-Nov-2004

	Blank	Spike (QC Limits)	Duplicate	
Benzo[ghi]perylene	< 0.02 ug/g	62% (25 - 121%)	0.32	0.32
Benzo[k]fluoranthene	< 0.02 ug/g	93% (11 - 162%)	0.32	0.30
Biphenyl	< 0.02 ug/g	66% (23 - 120%)	< 0.02	< 0.02
Chrysene	< 0.02 ug/g	98% (17 - 168%)	0.76	0.72
Dibenzo[a,h]anthracene	< 0.02 ug/g	56% (23 - 117%)	0.10	0.12
Fluoranthene	< 0.02 ug/g	84% (29 - 130%)	1.8	1.7
Fluorene	< 0.02 ug/g	68% (29 - 115%)	0.18	0.16
Indeno[1,2,3-cd]pyrene	< 0.02 ug/g	69% (1 - 171%)	0.38	0.38
1-Methylnaphthalene	< 0.02 ug/g	74% (23 - 120%)	0.04	0.04
2-Methylnaphthalene	< 0.02 ug/g	63% (23 - 120%)	0.04	0.04
Naphthalene	< 0.02 ug/g	76% (21 - 133%)	0.08	0.06
Phenanthrene	< 0.02 ug/g	68% (54 - 120%)	1.6	1.5
Pyrene	< 0.02 ug/g	83% (29 - 130%)	1.4	1.3

PARACEL Laboratories Ltd.
Environmental & Indoor Air Quality

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Toll Free: 800-7491947
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Order #: J5290

Certificate of Analysis

DST Consulting Engineers Inc.

1304 Algoma Road
Ottawa, ON K1B 3W8
Attn: Mr. Ken Budel

Phone: (613)-748-1415
Fax: (613)-748-1356

Client PO:
Project: OE04940
Custody #: 10578

Report Date: 01-Dec-2004
Order Date: 23-Nov-2004

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID	Client ID
J5290.1	BHMW23 SS4
J5290.2	BHMW24 SS1

Approved By: _____
Dale Robertson, B.Sc.
Laboratory Director

Any use of these test results implies your agreement that our total liability in connection with this work, however arising, shall be limited to the amount paid by you for this work, and that our employees or agents shall not under any circumstance be liable to you in connection with this work.

Certificate of Analysis

Report Date: 01-Dec-2004
Order Date: 23-Nov-2004

Client: **DST Consulting Engineers Inc.**

Client PO:

Project: **OE04940**

Analysis Summary Table

Analysis	Method Reference/Description
Metals	EPA 6020 - ICP-MS
BTEX, PHC F1 (CCME)	EPA 8260, CWS PHCs - P&T GC-MS/FID
PHC F1 (CCME)	CWS PHCs - P&T GC-FID
PHC F2-F4 (CCME)	CWS PHC - GC-FID
PAHs	modified EPA 8270 - GC-MS

n/a: not applicable
MDL: Method Detection Limit
Soil results calculated on a dry weight basis.
CCME PHC additional information:

- The method for the analysis of PHCs complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
- F1 range corrected for BTEX where available
- F2 to F3 ranges corrected for appropriate PAHs where available.
- The gravimetric TPH (heavy oil) result is not to be added to the PHC fractions.

Certificate of Analysis

Report Date: 01-Dec-2004
Order Date: 23-Nov-2004

Client: DST Consulting Engineers Inc.

Client PO: Project: OE04940

Matrix: Soil

Parameter	MDL/Units	Sample ID: BHMW23 SS4	BHMW24 SS1
	Sample Date: 22/11/2004	22/11/2004	
		J5290.1	J5290.2
Antimony	1 ug/g		< 1
Arsenic	1 ug/g		2
Barium	10 ug/g		100
Beryllium	0.5 ug/g		0.5
Cadmium	0.5 ug/g		< 0.5
Calcium	200 ug/g		34,000
Chromium	5 ug/g		20
Cobalt	5 ug/g		10
Copper	5 ug/g		15
Iron	200 ug/g		43,000
Lead	1 ug/g		52
Magnesium	200 ug/g		2,800
Molybdenum	1 ug/g		< 1
Nickel	5 ug/g		20
Selenium	1 ug/g		< 1
Silver	0.3 ug/g		< 0.3
Sodium	200 ug/g		< 200
Thallium	1 ug/g		< 1
Tin	5 ug/g		< 5
Vanadium	10 ug/g		20
Zinc	20 ug/g		40
Benzene	0.05 ug/g	< 0.05	
Ethylbenzene	0.05 ug/g	< 0.05	
Toluene	0.05 ug/g	< 0.05	
m/p-Xylene	0.1 ug/g	< 0.1	
o-Xylene	0.05 ug/g	< 0.05	
Toluene-d8	surrogate	108%	
F1 PHCs (C6-C10)	20 ug/g	< 20	
F1 PHCs (C6-C16)	20 ug/g		< 20

Certificate of Analysis

Report Date: 01-Dec-2004
Order Date: 23-Nov-2004

Client: **DST Consulting Engineers Inc.**

Client PO: Project: OE04940

		BHMW23 SS4	BHMW24 SS1
		22/11/2004	22/11/2004
		J5290.1	J5290.2
F2 PHCs (C10-C16)	10 ug/g	< 10	< 10
F3 PHCs (C16-C34)	10 ug/g	< 10	30
F4 PHCs (C34-C50)	10 ug/g	< 10	10
Acenaphthene	0.02 ug/g		< 0.02
Acenaphthylene	0.02 ug/g		< 0.02
Anthracene	0.02 ug/g		< 0.02
Benzo[a]anthracene	0.02 ug/g		0.04
Benzo[a]pyrene	0.02 ug/g		0.02
Benzo[b]fluoranthene	0.02 ug/g		0.06
Benzo[ghi]perylene	0.02 ug/g		0.02
Benzo[k]fluoranthene	0.02 ug/g		0.02
Biphenyl	0.02 ug/g		< 0.02
Chrysene	0.02 ug/g		0.04
Dibenzo[a,h]anthracene	0.02 ug/g		< 0.02
Fluoranthene	0.02 ug/g		0.06
Fluorene	0.02 ug/g		< 0.02
Indeno[1,2,3-cd]pyrene	0.02 ug/g		0.02
1-Methylnaphthalene	0.02 ug/g		0.04
2-Methylnaphthalene	0.02 ug/g		0.04
Naphthalene	0.02 ug/g		0.04
Phenanthrene	0.02 ug/g		0.06
Pyrene	0.02 ug/g		0.06
2-Fluorobiphenyl	surrogate		65%
p-Terphenyl d-14	surrogate		60%

Certificate of Analysis

Report Date: 01-Dec-2004
Order Date: 23-Nov-2004

Client: DST Consulting Engineers Inc.

Client PO: Project: OE04940

QA/QC Results

	Blank	Spike (QC Limits)	Duplicate	
Antimony	< 1 ug/g	97% (70 - 130%)	< 1	< 1
Arsenic	< 1 ug/g	98% (70 - 130%)	1	1
Barium	< 10 ug/g	95% (70 - 130%)	90	90
Beryllium	< 0.5 ug/g	95% (70 - 130%)	< 0.5	< 0.5
Cadmium	< 0.5 ug/g	96% (70 - 130%)	< 0.5	< 0.5
Chromium	< 5 ug/g	96% (70 - 130%)	15	20
Cobalt	< 5 ug/g	96% (70 - 130%)	5	5
Copper	< 5 ug/g	96% (70 - 130%)	15	15
Lead	< 1 ug/g	94% (70 - 130%)	7	8
Molybdenum	< 1 ug/g	98% (70 - 130%)	< 1	< 1
Nickel	< 5 ug/g	95% (70 - 130%)	15	15
Selenium	< 1 ug/g	97% (70 - 130%)	< 1	< 1
Silver	< 0.3 ug/g	97% (70 - 130%)	< 0.3	< 0.3
Thallium	< 1 ug/g	99% (70 - 130%)	< 1	< 1
Tin	< 5 ug/g	106% (70 - 130%)	< 5	< 5
Vanadium	< 10 ug/g	97% (70 - 130%)	30	30
Zinc	< 20 ug/g	97% (70 - 130%)	40	40
Benzene	< 0.05 ug/g	108% (61 - 134%)	< 0.05	< 0.05
Ethylbenzene	< 0.05 ug/g	72% (66 - 128%)	< 0.05	< 0.05
Toluene	< 0.05 ug/g	103% (66 - 133%)	< 0.05	< 0.05
m/p-Xylene	< 0.1 ug/g	97% (65 - 132%)	< 0.1	< 0.1
o-Xylene	< 0.05 ug/g	108% (66 - 134%)	< 0.05	< 0.05
F1 PHCs (C6-C10)	< 20 ug/g	98% (50 - 150%)	< 20	< 20
F1 PHCs (C6-C10)	< 20 ug/g	98% (50 - 150%)	< 20	< 20
F2-F4 PHCs (C10-C50)	< 10 ug/g	112% (50 - 150%)	20	20
Acenaphthene	< 0.02 ug/g	75% (47 - 147%)	0.16	0.32
Acenaphthylene	< 0.02 ug/g	76% (33 - 145%)	0.16	0.24
Anthracene	< 0.02 ug/g	78% (27 - 133%)	0.52	1.0
Benzo[a]anthracene	< 0.02 ug/g	83% (33 - 143%)	1.1	2.0
Benzo[a]pyrene	< 0.02 ug/g	70% (17 - 163%)	0.90	1.7

Certificate of Analysis

Report Date: 01-Dec-2004
Order Date: 23-Nov-2004

Client: **DST Consulting Engineers Inc.**

Client PO:

Project: OT04940

	Blank	Spike (QC Limits)	Duplicate	
Benzo[b]fluoranthene	< 0.02 ug/g	77% (11 - 162%)	1.6	2.9
Benzo[ghi]perylene	< 0.02 ug/g	73% (25 - 121%)	0.72	1.2
Benzo[k]fluoranthene	< 0.02 ug/g	83% (11 - 162%)	0.84	1.4
Biphenyl	< 0.02 ug/g	76% (23 - 120%)	0.04	0.08
Chrysene	< 0.02 ug/g	85% (17 - 168%)	1.2	2.1
Dibenzo[a,h]anthracene	< 0.02 ug/g	65% (23 - 117%)	0.26	0.44
Fluoranthene	< 0.02 ug/g	72% (29 - 130%)	2.2	4.4
Fluorene	< 0.02 ug/g	77% (29 - 115%)	0.16	0.36
Indeno[1,2,3-cd]pyrene	< 0.02 ug/g	66% (1 - 171%)	0.78	1.4
1-Methylnaphthalene	< 0.02 ug/g	80% (23 - 120%)	0.32	0.42
2-Methylnaphthalene	< 0.02 ug/g	69% (23 - 120%)	0.38	0.50
Naphthalene	< 0.02 ug/g	73% (21 - 133%)	0.30	0.42
Phenanthrene	< 0.02 ug/g	76% (54 - 120%)	2.1	4.3
Pyrene	< 0.02 ug/g	72% (29 - 130%)	1.9	3.6

PARACEL Laboratories Ltd.
Environmental & Indoor Air Quality

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email: paracel@paracellabs.com

Order #: K6425

Certificate of Analysis

DST Consulting Engineers Inc.

1304 Algoma Road
Ottawa, ON K1B 3W8
Attn: Mr. George Thomas

Phone: (613)-748-1415
Fax: (613)-748-1356

Client PO:
Project: OE04940
Custody #: 26345-BB6558

Report Date: 01-Feb-2005
Order Date: 27-Jan-2005

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID	Client ID
K6425.1	TP69 SGS1
K6425.2	TP69 SGS2
K6425.3	TP70 SGS1
K6425.4	TP75 SGS1
K6425.5	TP75 SGS2
K6425.6	TP73 SGS1
K6425.7	TP74 SGS1
K6425.8	TP72 SGS1
K6425.9	TP68 SGS2
K6425.10	TP67 SGS2

Approved By: _____ Dale Robertson, B.Sc.
Laboratory Director

Any use of these test results implies your agreement that our total liability in connection with this work, however arising, shall be limited to the amount paid by you for this work, and that our employees or agents shall not under any circumstance be liable to you in connection with this work.

Certificate of Analysis

Report Date: 01-Feb-2005
Order Date: 27-Jan-2005

Client: DST Consulting Engineers Inc.
Client PO: Project: OE04940

Analysis Summary Table

Analysis	Method Reference/Description
Metals	EPA 6020 - ICP-MS
BTEX, PHC F1 (CCME)	EPA 8260, CWS PHCs - P&T GC-MS/FID
PHC F2-F4 (CCME)	CWS PHC - GC-FID
PAHs	modified EPA 8270 - GC-MS

n/a: not applicable
MDL: Method Detection Limit
Soil results calculated on a dry weight basis.

CCME PHC additional information:

- The method for the analysis of PHCs complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
- F1 range corrected for BTEX where available
- F2 to F3 ranges corrected for appropriate PAHs where available.
- The gravimetric TPH (heavy oil) result is not to be added to the PHC fractions.

Certificate of Analysis

Report Date: 01-Feb-2005
Order Date: 27-Jan-2005

Client: DST Consulting Engineers Inc.

Client PO: Project: OE04940

Matrix: Soil

Parameter	MDL/Units	Sample ID: TP69 SGS1	TP69 SGS2	TP70 SGS1
	Sample Date:	27/01/2005	27/01/2005	27/01/2005
		K6425.1	K6425.2	K6425.3
Antimony	1 ug/g	< 1	< 1	
Arsenic	1 ug/g	3	38	
Barium	10 ug/g	40	160	
Beryllium	0.5 ug/g	< 0.5	1.0	
Cadmium	0.5 ug/g	< 0.5	< 0.5	
Calcium	200 ug/g	3,800	7,000	
Chromium	5 ug/g	15	20	
Cobalt	5 ug/g	5	10	
Copper	5 ug/g	10	20	
Iron	200 ug/g	13,000	20,000	
Lead	1 ug/g	8	38	
Magnesium	200 ug/g	3,400	3,200	
Molybdenum	1 ug/g	< 1	1	
Nickel	5 ug/g	10	15	
Selenium	1 ug/g	< 1	< 1	
Silver	0.3 ug/g	< 0.3	< 0.3	
Sodium	200 ug/g	< 200	400	
Thallium	1 ug/g	< 1	< 1	
Tin	5 ug/g	< 5	< 5	
Vanadium	10 ug/g	20	30	
Zinc	20 ug/g	20	120	
Benzene	0.05 ug/g	< 0.05	< 0.05	< 0.05
Ethylbenzene	0.05 ug/g	< 0.05	< 0.05	< 0.05
Toluene	0.05 ug/g	< 0.05	< 0.05	< 0.05
m/p-Xylene	0.1 ug/g	< 0.1	< 0.1	< 0.1
o-Xylene	0.05 ug/g	< 0.05	< 0.05	< 0.05
Toluene-d8	surrogate	85%	87%	86%
F1 PHCs (C6-C10)	20 ug/g	< 20	< 20	< 20
F2 PHCs (C10-C16)	10 ug/g	< 10	30	< 10

Certificate of Analysis

Client: **DST Consulting Engineers Inc.**

Client PO:

Report Date: 08-Feb-2005
Order Date: 27-Jan-2005

Project: **OE04940**

			TP69 SGS1	TP69 SGS2	TP70 SGS1
			27/01/2005	27/01/2005	27/01/2005
			K6425.1	K6425.2	K6425.3
F3 PHCs (C16-C34)	10	ug/g	40	290	40
F4 PHCs (C34-C50)	10	ug/g	< 10	40	170

Certificate of Analysis

Report Date: 01-Feb-2005
Order Date: 27-Jan-2005

Client: **DST Consulting Engineers Inc.**

Client PO: Project: OE04940

Matrix: Soil

Parameter	MDL/Units	Sample ID: TP75 SGS1	TP75 SGS2	TP73 SGS1
	Sample Date:	27/01/2005	27/01/2005	27/01/2005
		K6425.4	K6425.5	K6425.6
Antimony	1 ug/g		< 1	
Arsenic	1 ug/g		9	
Barium	10 ug/g		40	
Beryllium	0.5 ug/g		< 0.5	
Cadmium	0.5 ug/g		< 0.5	
Calcium	200 ug/g		2,800	
Chromium	5 ug/g		10	
Cobalt	5 ug/g		< 5	
Copper	5 ug/g		5	
Iron	200 ug/g		20,000	
Lead	1 ug/g		4	
Magnesium	200 ug/g		1,600	
Molybdenum	1 ug/g		< 1	
Nickel	5 ug/g		< 5	
Selenium	1 ug/g		< 1	
Silver	0.3 ug/g		< 0.3	
Sodium	200 ug/g		200	
Thallium	1 ug/g		< 1	
Tin	5 ug/g		< 5	
Vanadium	10 ug/g		20	
Zinc	20 ug/g		< 20	
Benzene	0.05 ug/g	< 0.05		< 0.05
Ethylbenzene	0.05 ug/g	< 0.05		< 0.05
Toluene	0.05 ug/g	< 0.05		0.05
m/p-Xylene	0.1 ug/g	< 0.1		< 0.1
o-Xylene	0.05 ug/g	< 0.05		0.05
Toluene-d8	surrogate	87%		88%
F1 PHCs (C6-C10)	20 ug/g	< 20		< 20
F2 PHCs (C10-C16)	10 ug/g	20		170

Certificate of Analysis

Client: **DST Consulting Engineers Inc.**

Client PO:

Project: **OE04940**

Report Date: 01-Feb-2005
Order Date: 27-Jan-2005

		TP75 SGS1	TP75 SGS2	TP73 SGS1
		27/01/2005	27/01/2005	27/01/2005
		K6425.4	K6425.5	K6425.6
F3 PHCs (C16-C34)	10 ug/g	110		390
F4 PHCs (C34-C50)	10 ug/g	80		130

Certificate of Analysis

Report Date: 01-Feb-2005
Order Date: 27-Jan-2005

Client: DST Consulting Engineers Inc.
Client PO:

Project: OE04940

Matrix: Soil

Parameter	Sample ID: / Sample Date: / MDL/Units	TP74 SGS1 27/01/2005 K6425.7	TP72 SGS1 27/01/2005 K6425.8	TP68 SGS2 27/01/2005 K6425.9
Benzene	0.05 ug/g	< 0.05	< 0.05	0.40
Ethylbenzene	0.05 ug/g	< 0.05	< 0.05	0.10
Toluene	0.05 ug/g	< 0.05	< 0.05	0.75
m/p-Xylene	0.1 ug/g	< 0.1	< 0.1	0.4
o-Xylene	0.05 ug/g	< 0.05	< 0.05	0.25
Toluene-d8	surrogate	89%	88%	89%
F1 PHCs (C6-C10)	20 ug/g	< 20	< 20	< 20
F2 PHCs (C10-C16)	10 ug/g	30	< 10	40
F3 PHCs (C16-C34)	10 ug/g	150	50	100
F4 PHCs (C34-C50)	10 ug/g	60	20	50

Certificate of Analysis

Report Date: 01-Feb-2005
Order Date: 27-Jan-2005

Client: DST Consulting Engineers Inc.

Client PO:

Project: OE04940

Matrix: Soil

Parameter	MDL/Units	Sample ID: TP67 SGS2 Sample Date: 27/01/2005 K6425.10
Antimony	1 ug/g	< 1
Arsenic	1 ug/g	17
Barium	10 ug/g	190
Beryllium	0.5 ug/g	< 0.5
Cadmium	0.5 ug/g	< 0.5
Calcium	200 ug/g	11,000
Chromium	5 ug/g	10
Cobalt	5 ug/g	5
Copper	5 ug/g	25
Iron	200 ug/g	46,000
Lead	1 ug/g	5
Magnesium	200 ug/g	1,400
Molybdenum	1 ug/g	2
Nickel	5 ug/g	20
Selenium	1 ug/g	< 1
Silver	0.3 ug/g	< 0.3
Sodium	200 ug/g	400
Thallium	1 ug/g	< 1
Tin	5 ug/g	< 5
Vanadium	10 ug/g	20
Zinc	20 ug/g	20
Benzene	0.05 ug/g	< 0.05
Ethylbenzene	0.05 ug/g	< 0.05
Toluene	0.05 ug/g	< 0.05
m/p-Xylene	0.1 ug/g	< 0.1
o-Xylene	0.05 ug/g	< 0.05
Toluene-d8	surrogate	88%
F1 PHCs (C6-C10)	20 ug/g	< 20
F2 PHCs (C10-C16)	10 ug/g	60

Certificate of Analysis

Report Date: 01-Feb-2005
Order Date: 27-Jan-2005

Client: **DST Consulting Engineers Inc.**

Client PO:

Project: OR04940

		TP67 SGS2
		27/01/2005
		K6425.10
F3 PHCs (C16-C34)	10 ug/g	210
F4 PHCs (C34-C50)	10 ug/g	30
Acenaphthene	0.02 ug/g	0.04
Acenaphthylene	0.02 ug/g	0.04
Anthracene	0.02 ug/g	< 0.02
Benzo[a]anthracene	0.02 ug/g	0.10
Benzo[a]pyrene	0.02 ug/g	0.06
Benzo[b]fluoranthene	0.02 ug/g	0.06
Benzo[ghi]perylene	0.02 ug/g	0.04
Benzo[k]fluoranthene	0.02 ug/g	0.02
Biphenyl	0.02 ug/g	0.14
Chrysene	0.02 ug/g	0.14
Dibenzo[a,h]anthracene	0.02 ug/g	0.02
Fluoranthene	0.02 ug/g	0.10
Fluorene	0.02 ug/g	< 0.02
Indeno[1,2,3-cd]pyrene	0.02 ug/g	< 0.02
1-Methylnaphthalene	0.02 ug/g	2.0
2-Methylnaphthalene	0.02 ug/g	2.3
Naphthalene	0.02 ug/g	1.2
Phenanthrene	0.02 ug/g	1.4
Pyrene	0.02 ug/g	0.18
2-Fluorobiphenyl	surrogate	61%
p-Terphenyl d-14	surrogate	100%

Certificate of Analysis

Client: DST Consulting Engineers Inc.

Client PO:

Project: OE04940

Report Date: 01-Feb-2005
Order Date: 27-Jan-2005

QA/QC Results

	Blank	Spike (QC Limits)	Duplicate	
Antimony	< 1 ug/g	103% (70 - 130%)	1	1
Arsenic	< 1 ug/g	100% (70 - 130%)	2	2
Barium	< 10 ug/g	103% (70 - 130%)	90	100
Beryllium	< 0.5 ug/g	110% (70 - 130%)	< 0.5	< 0.5
Cadmium	< 0.5 ug/g	99% (70 - 130%)	< 0.5	< 0.5
Chromium	< 5 ug/g	100% (70 - 130%)	15	15
Cobalt	< 5 ug/g	102% (70 - 130%)	5	5
Copper	< 5 ug/g	102% (70 - 130%)	20	20
Lead	< 1 ug/g	102% (70 - 130%)	190	220
Molybdenum	< 1 ug/g	100% (70 - 130%)	< 1	< 1
Nickel	< 5 ug/g	101% (70 - 130%)	10	10
Selenium	< 1 ug/g	99% (70 - 130%)	< 1	< 1
Silver	< 0.3 ug/g	101% (70 - 130%)	< 0.3	< 0.3
Thallium	< 1 ug/g	111% (70 - 130%)	< 1	< 1
Tin	< 5 ug/g	105% (70 - 130%)	< 5	< 5
Vanadium	< 10 ug/g	103% (70 - 130%)	20	20
Zinc	< 20 ug/g	107% (70 - 130%)	140	120
Benzene	< 0.05 ug/g	102% (61 - 134%)	< 0.05	< 0.05
Ethylbenzene	< 0.05 ug/g	87% (66 - 128%)	< 0.05	< 0.05
Toluene	< 0.05 ug/g	79% (66 - 133%)	< 0.05	< 0.05
m/p-Xylene	< 0.1 ug/g	80% (65 - 132%)	< 0.1	< 0.1
o-Xylene	< 0.05 ug/g	107% (66 - 134%)	< 0.05	< 0.05
F1 PHCs (C6-C10)	< 20 ug/g	90% (50 - 150%)	< 20	< 20
F2-F4 PHCs (C10-C50)	< 10 ug/g	91% (50 - 150%)	90	100
Acenaphthene	< 0.02 ug/g	95% (47 - 147%)	0.06	0.04
Acenaphthylene	< 0.02 ug/g	123% (33 - 145%)	0.04	0.04
Anthracene	< 0.02 ug/g	121% (27 - 133%)	< 0.02	< 0.02
Benzo[a]anthracene	< 0.02 ug/g	64% (33 - 143%)	0.12	0.10
Benzo[a]pyrene	< 0.02 ug/g	67% (17 - 163%)	0.08	0.06
Benzo[b]fluoranthene	< 0.02 ug/g	66% (11 - 162%)	0.10	0.06

Certificate of Analysis

Report Date: 01-Feb-2005
Order Date: 27-Jan-2005

Client: **DST Consulting Engineers Inc.**

Client PO: Project: OE04940

	Blank	Spike (QC Limits)	Duplicate	
Benzo[ghi]perylene	< 0.02 ug/g	59% (25 - 121%)	0.06	0.04
Benzo[k]fluoranthene	< 0.02 ug/g	81% (11 - 162%)	0.04	0.02
Biphenyl	< 0.02 ug/g	79% (23 - 120%)	0.22	0.14
Chrysene	< 0.02 ug/g	105% (17 - 168%)	0.20	0.14
Dibenzo[a,h]anthracene	< 0.02 ug/g	79% (23 - 117%)	0.02	0.02
Fluoranthene	< 0.02 ug/g	93% (29 - 130%)	0.16	0.10
Fluorene	< 0.02 ug/g	102% (29 - 115%)	0.02	< 0.02
Indeno[1,2,3-cd]pyrene	< 0.02 ug/g	75% (1 - 171%)	0.02	< 0.02
1-Methylnaphthalene	< 0.02 ug/g	103% (23 - 120%)	3.1	2.0
2-Methylnaphthalene	< 0.02 ug/g	70% (23 - 120%)	4.0	2.3
Naphthalene	< 0.02 ug/g	86% (21 - 133%)	2.0	1.2
Phenanthrene	< 0.02 ug/g	76% (54 - 120%)	1.8	1.4
Pyrene	< 0.02 ug/g	93% (29 - 130%)	0.24	0.18

PARACEL Laboratories Ltd.
Environmental & Indoor Air Quality

300-2319 St. Laurent Blvd.
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Phone: (613) 731-9577
Fax: (613) 731-9064
Toll Free: 800-7491947
email: paracel@paracellabs.com

Order #: K6498

Certificate of Analysis

DST Consulting Engineers Inc.

1304 Algoma Road
Ottawa, ON K1B 3W8
Attn: Mr. George Thomas

Phone: (613)-748-1415
Fax: (613)-748-1356

Client PO:
Project: **OE04940**
Custody #: **26347-BB6558**

Report Date: 04-Feb-2005
Order Date: 01-Feb-2005

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID	Client ID
K6498.1	BHMW 25 SS7
K6498.2	BHMW 26 SS8

Approved By: Mark Foto for Dale Robertson, B.Sc.
Laboratory Director

Any use of these test results implies your agreement that our total liability in connection with this work, however arising, shall be limited to the amount paid by you for this work, and that our employees or agents shall not under any circumstance be liable to you in connection with this work.

Certificate of Analysis

Client: DST Consulting Engineers Inc.

Client PO:

Project: OE04940

Report Date: 04-Feb-2005
Order Date: 01-Feb-2005

Analysis Summary Table

Analysis	Method Reference/Description
BTEX, PHC F1 (CCME)	EPA 8260, CWS PHCs - P&T GC-MS/FID
PHC F2-F4 (CCME)	CWS PHC - GC-FID

n/a: not applicable
MDL: Method Detection Limit
Soil results calculated on a dry weight basis.

CCME PHC additional information:

- The method for the analysis of PHCs complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
- F1 range corrected for BTEX where available
- F2 to F3 ranges corrected for appropriate PAHs where available.
- The gravimetric TPH (heavy oil) result is not to be added to the PHC fractions.

Certificate of Analysis

Report Date: 04-Feb-2005
Order Date: 01-Feb-2005

Client: DST Consulting Engineers Inc.

Client PO:

Project: OE04940

Matrix: Soil

Parameter	Sample ID: / Sample Date: / MDL/Units	BHMW 25 SS7 01/02/2005 K6498.1	BHMW 26 SS8 01/02/2005 K6498.2
Benzene	0.05 ug/g	< 0.05	< 0.05
Ethylbenzene	0.05 ug/g	< 0.05	< 0.05
Toluene	0.05 ug/g	< 0.05	< 0.05
m/p-Xylene	0.1 ug/g	< 0.1	< 0.1
o-Xylene	0.05 ug/g	< 0.05	< 0.05
Toluene-d8	surrogate	96%	97%
F1 PHCs (C6-C10)	20 ug/g	< 20	< 20
F2 PHCs (C10-C16)	10 ug/g	< 10	< 10
F3 PHCs (C16-C34)	10 ug/g	440	50
F4 PHCs (C34-C50)	10 ug/g	220	10

Certificate of Analysis

Client: DST Consulting Engineers Inc.

Client PO:

Project: OE04940

Report Date: 04-Feb-2005
Order Date: 01-Feb-2005

QA/QC Results

	Blank	Spike (QC Limits)	Duplicate	
Benzene	< 0.05 ug/g	115% (61 - 134%)	< 0.05	< 0.05
Ethylbenzene	< 0.05 ug/g	94% (66 - 128%)	< 0.05	< 0.05
Toluene	< 0.05 ug/g	89% (66 - 133%)	< 0.05	< 0.05
m/p-Xylene	< 0.1 ug/g	74% (65 - 132%)	< 0.1	< 0.1
o-Xylene	< 0.05 ug/g	96% (66 - 134%)	< 0.05	< 0.05
F1 PHCs (C6-C10)	< 20 ug/g	101% (50 - 150%)	< 20	< 20
F2-F4 PHCs (C10-C50)	< 10 ug/g	94% (50 - 150%)	290	240

PARACEL Laboratories Ltd.

Environmental & Indoor Air Quality

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Toll Free: (800) 749-1947 email: paracel@paracellabs.com

Chain of Custody Record

N° 26347 Pg. __ of __

Contact: George Thomas
Company: DST Consulting Eng.
Address: 604 Algoma Rd.
Tel: 613-748-1415 Fax: 613-748-1356

Project Ref: OEO4940
PO #:
Quote #: ☐Not Quoted
Email: gthomas@dstgroup.com
Preservative to be added by Paracel? ☐Yes ☐No

REPORTING REQUIREMENTS
[✓] Hard Copy [✓] Email - PDF
[✓] FAX [✓] Email - spreadsheet

TURN AROUND TIME
[ ] 1-day [ ] 2-day [✓] Regular

REGULATORY/GUIDELINE REQUIREMENTS
MOE Potable Groundwater

Matrix Types: S–Soil/Sed GW–Ground Water SW–Surface Water SS–Storm/Sanitary Sewer A–Air O–Other

Paracel Order #	Sample Identification	Matrix	# Bottles	Date Sampled d/m/y	PHC F1-F4	BTEX
6498					Analysis Required	
1	BHMW 25 SS 7	S	1	FEB 1 '05	✓	✓
2	BHMW 26 SS 8	S	1	FEB 1 '05	✓	✓
3						
4						
5						
6						
7						
8						
9						
10						

Comments:

Relinquished by: Joel Lajeunesse
Date: Feb 1 '05 Time: 2:48pm

Received by:
Date: Feb 1/05 Time: 2:48

Verified by:
Date: Feb 1/05 Time: 3:01

PARACEL Laboratories Ltd.
Environmental & Indoor Air Quality

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Order # K7574

Certificate of Analysis

DST Consulting Engineers Inc.

1304 Algoma Road
Ottawa, ON K1B 3W8
Attn: Mr. George Thomas

Phone: (613)-748-1415
Fax: (613)-748-1356

Client PO:
Project: OE04940
Custody #: 10579

Report Date: 11-Apr-2005
Order Date: 05-Apr-2005

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID	Client ID
K7574.1	North Sector
K7574.2	Southwest Sector
K7574.3	Southeast Sector

Approved By: Dale Robertson, B.Sc.
Laboratory Director

Any use of these test results implies your agreement that our total liability in connection with this work, however arising, shall be limited to the amount paid by you for this work, and that our employees or agents shall not under any circumstance be liable to you in connection with this work.

Certificate of Analysis

Report Date: 11-Apr-2005
Order Date: 05-Apr-2005

Client: DST Consulting Engineers Inc.

Client PO: Project: OE04940

Analysis Summary Table

Analysis	Method Reference/Description
Metals	REG558, EPA 200.8 - ICP-MS
Mercury	REG550, 7470A - CVAA
PHC F1 (CCME)	CWS PHCs - P&T GC-FID
PHC F2-F4 (CCME)	CWS PHC - GC-FID
VOCs	REG558, EPA 624 - P&T GC-MS
pH, final	EPA 150.1 - pH probe
pH, initial	EPA 150.1 - pH probe

n/a: not applicable
MDL: Method Detection Limit
CCME PHC additional information:

- The method for the analysis of PHCs complies with the Reference Method for the CWS PHC and is validated for use in the laboratory. All prescribed quality criteria identified in the method has been met.
- F1 range corrected for BTEX.
- F2 to F3 ranges corrected for appropriate PAHs where available.
- The gravimetric heavy hydrocarbons (F4G) are not to be added to C6 to C50 hydrocarbons.
- In the case where F4 and F4G are both reported, the greater of the two results is to be used for comparison to CWS PHC criteria.

Certificate of Analysis

Report Date: 11-Apr-2005
Order Date: 05-Apr-2005

Client: DST Consulting Engineers Inc.
Client PO:

Project: OE04940

Matrix: Leachate

Parameter	Sample ID:	North Sector	Southwest Sector	Southeast Sector
	Sample Date:	05/04/2005	05/04/2005	05/04/2005
	MDL/Units	K7574.1	K7574.2	K7574.3
Arsenic	0.05 mg/L			< 0.05
Barium	0.05 mg/L			0.80
Boron	0.05 mg/L			< 0.05
Cadmium	0.01 mg/L			< 0.01
Chromium	0.05 mg/L			< 0.05
Lead	0.05 mg/L			0.10
Selenium	0.05 mg/L			< 0.05
Silver	0.05 mg/L			< 0.05
Uranium	0.05 mg/L			< 0.05
Mercury	0.0005 mg/L			< 0.0005
Benzene	0.03 mg/L	< 0.03	< 0.03	< 0.03
2-Butanone (MEK)	1 mg/L	< 1	< 1	< 1
Carbon Tetrachloride	0.03 mg/L	< 0.03	< 0.03	< 0.03
Chlorobenzene	0.02 mg/L	< 0.02	< 0.02	< 0.02
Chloroform	0.03 mg/L	< 0.03	< 0.03	< 0.03
1,2-Dichlorobenzene	0.05 mg/L	< 0.05	< 0.05	< 0.05
1,4-Dichlorobenzene	0.05 mg/L	< 0.05	< 0.05	< 0.05
1,2-Dichloroethane	0.03 mg/L	< 0.03	< 0.03	< 0.03
1,1-Dichloroethylene	0.03 mg/L	< 0.03	< 0.03	< 0.03
Methylene Chloride	0.2 mg/L	< 0.2	< 0.2	< 0.2
Tetrachloroethylene	0.03 mg/L	< 0.03	< 0.03	< 0.03
Trichloroethylene	0.02 mg/L	< 0.02	< 0.02	< 0.02
Vinyl Chloride	0.03 mg/L	< 0.03	< 0.03	< 0.03
final pH	0.05 pH units			5.01
Intial pH	0.05 pH units			8.68

Certificate of Analysis

Report Date: 11-Apr-2005
Order Date: 08-Apr-2005

Client: **DST Consulting Engineers Inc.**
Client PO:

Project: **OE04948**

Matrix: Soil

	Sample ID:	North Sector	Southwest Sector	Southeast Sector
	Sample Date:	05/04/2005	05/04/2005	05/04/2005
Parameter	MDL/Units	K7574.1	K7574.2	K7574.3
F1 PHCs (C6-C10)	20 ug/g	< 20	< 20	< 20
F2 PHCs (C10-C16)	10 ug/g	< 10	< 10	< 10
F3 PHCs (C16-C34)	10 ug/g	< 10	20	< 10
F4 PHCs (C34-C50)	10 ug/g	< 10	30	< 10

Certificate of Analysis

Report Date: 11-Apr-2005
Order Date: 05-Apr-2005

Client: **DST Consulting Engineers Inc.**

Client PO:

Project: OE04940

QA/QC Results

	Blank	Spike (QC Limits)	Duplicate	
Arsenic	< 0.05 mg/L	104% (70 - 130%)	< 0.05	< 0.05
Barium	< 0.05 mg/L	97% (70 - 130%)	0.75	0.80
Boron	< 0.05 mg/L	103% (70 - 130%)	< 0.05	< 0.05
Cadmium	< 0.01 mg/L	91% (70 - 130%)	< 0.01	< 0.01
Chromium	< 0.05 mg/L	95% (70 - 130%)	< 0.05	< 0.05
Lead	< 0.05 mg/L	89% (70 - 130%)	0.10	0.10
Selenium	< 0.05 mg/L	101% (70 - 130%)	< 0.05	< 0.05
Silver	< 0.05 mg/L	94% (70 - 130%)	< 0.05	< 0.05
Uranium	< 0.05 mg/L	101% (70 - 130%)	< 0.05	< 0.05
Mercury	< 0.0005 mg/L	87% (75 - 125%)	< 0.0005	< 0.0005
Benzene	< 0.03 mg/L	90% (61 - 135%)	< 0.03	< 0.03
2-Butanone (MEK)	< 1 mg/L	94% (0 - 150%)	< 1	< 1
Carbon Tetrachloride	< 0.03 mg/L	89% (19 - 155%)	< 0.03	< 0.03
Chlorobenzene	< 0.02 mg/L	92% (61 - 139%)	< 0.02	< 0.02
Chloroform	< 0.03 mg/L	88% (52 - 134%)	< 0.03	< 0.03
1,2-Dichlorobenzene	< 0.05 mg/L	106% (55 - 141%)	< 0.05	< 0.05
1,4-Dichlorobenzene	< 0.05 mg/L	94% (64 - 134%)	< 0.05	< 0.05
1,2-Dichloroethane	< 0.03 mg/L	88% (38 - 164%)	< 0.03	< 0.03
1,1-Dichloroethylene	< 0.03 mg/L	102% (47 - 150%)	< 0.03	< 0.03
Tetrachloroethylene	< 0.03 mg/L	94% (33 - 153%)	< 0.03	< 0.03
Trichloroethylene	< 0.02 mg/L	90% (55 - 152%)	< 0.02	< 0.02
Vinyl Chloride	< 0.03 mg/L	84% (51 - 168%)	< 0.03	< 0.03
F1 PHCs (C6-C10)	< 20 ug/g	80% (50 - 150%)	< 20	< 20
F2-F4 PHCs (C10-C50)	< 10 ug/g	119% (50 - 150%)	420	250

PARACEL Laboratories Ltd.
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№ 10579

CHAIN OF CUSTODY REPORT

pg ___ of ___

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PROV: ___ POSTAL: K1B 3W8
TEL: 748 1415 FAX: 748 1356
P.O. NUMBER: OE04 942 PROJECT: ___ REFERENCE: ___

DATE: 2005 04 05

TURN AROUND TIME
[ ] 1-day [ ] 2-day [ ] Regular

REPORTING REQUIREMENTS
[ ] Hard Copy [ ] Email – PDF
[ ] FAX [ ] Email – Spreadsheet

SAMPLE INFORMATION / **ANALYSIS REQUIRED**

Paracel Order Number: 7574

	SAMPLE IDENTIFICATION	MATRIX	NO. OF BOTTLES	SAMPLE DATE	TCLP PHC & VOC	TCLP metals/PHC/VOC
1	North Sector	Soil	1		X	X
2	Southwest Sector					
3						
4	Southeast Sector					
5						
6						
7						
8						
9						
10						

Preservation done in field (Y/N):
Preservative to be added by Paracel (Y/N):

Comments: HDL O Reg 347 as amended

Relinquished by: [signature]
Date: 2005 04 05 Time: 16:24
Relinquished by:
Date: Time:

Received by: [signature]
Date: April 5/05 Time: 4:25
Verified by: [signature]
Date: April 5/05 Time: 4:26

GROUNDWATER
LABORATORY CERTIFICATES OF ANALYSIS

PARACEL Laboratories Ltd.
Environmental & Indoor Air Quality

300-2319 St. Laurent Blvd.
Ottawa ON K1G 4J8
Phone: (613) 731-9577
Fax: (613) 731-9064
Toll Free: 800-7491947
email: paracel@paracellabs.com

Order #: J5429

Certificate of Analysis

DST Consulting Engineers Inc.

1304 Algoma Road
Ottawa, ON K1B 3W8
Attn: Mr. Ken Budel

Phone: (613)-748-1415
Fax: (613)-748-1356

Client PO:
Project: OE04940
Custody #: 11841

Report Date: 08-Dec-2004
Order Date: 29-Nov-2004

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID	Client ID
J5429.1	940 BHMW22 WGS1
J5429.2	940 BHMW23 WGS1
J5429.3	940 BHMW1 WGS1
J5429.4	940 BHMW4 WGS1
J5429.5	940 BHMW9 WGS1
J5429.6	940 BHMW7 WGS1

Approved By: _____ Dale Robertson, B.Sc.
Laboratory Director

Any use of these test results implies your agreement that our total liability in connection with this work, however arising, shall be limited to the amount paid by you for this work, and that our employees or agents shall not under any circumstances be liable to you in connection with this work.

Certificate of Analysis

Client: DST Consulting Engineers Inc.

Client PO:

Project: O1604940

Report Date: 08-Dec-2004
Order Date: 29-Nov-2004

Analysis Summary Table

Analysis	Method Reference/Description
Metals	EPA 200.8 - ICP-MS
BTEX, PHC - F1 (CCME)	EPA 8260, CWS PHCs - P&T GC-MS/FID
PHC F2-F4 (CCME)	CWS - Tier 1 Method, GC-FID
PAHs	modified EPA 625 - GC-MS

n/a: not applicable
MDL: Method Detection Limit

Sample/Test Specific Notes

SampleID	Analysis	Note
940 BHMW1 WGS1	PAHs	elevated detection limits due to limited sample amount

Certificate of Analysis

Report Date: 08-Dec-2004
Order Date: 29-Nov-2004

Client: DST Consulting Engineers Inc.

Client PO: Project: OE04940

Matrix: Water

Parameter	MDL/Units	Sample ID: 940 BHMW22 WGS1	940 BHMW23 WGS1	940 BHMW1 WGS1
	Sample Date:	26/11/2004	26/11/2004	26/11/2004
		05429.1	05429.2	05429.3
Benzene	0.0005 mg/L	< 0.0005	< 0.0005	
Ethylbenzene	0.0005 mg/L	< 0.0005	< 0.0005	
Toluene	0.0005 mg/L	< 0.0005	< 0.0005	
m/p-Xylene	0.001 mg/L	< 0.001	< 0.001	
o-Xylene	0.0005 mg/L	< 0.0005	< 0.0005	
Toluene-d8	surrogate	88%	84%	
F1 PHCs (C6-C10)	0.2 mg/L	< 0.2	< 0.2	< 0.2
F2 PHCs (C10-C16)	0.1 mg/L	< 0.1	< 0.1	< 0.1
F3 PHCs (C16-C34)	0.1 mg/L	< 0.1	< 0.1	< 0.1
F4 PHCs (C34-C50)	0.1 mg/L	< 0.1	< 0.1	< 0.1

Certificate of Analysis

Report Date: 08-Dec-2004
Order Date: 29-Nov-2004

Client: DST Consulting Engineers Inc.

Client PO:

Project: OE04940

Matrix: Water

Parameter	MDL/Units	Sample ID: 940 BHMW4 WGS1	940 BHMW9 WGS1	940 BHMW7 WGS1
	Sample Date:	26/11/2004	26/11/2004	26/11/2004
		J5429.4	J5429.5	J5429.6
Aluminum	0.01 mg/L	< 0.01		< 0.01
Antimony	0.001 mg/L	< 0.001		< 0.001
Arsenic	0.01 mg/L	< 0.01		< 0.01
Barium	0.01 mg/L	0.04		0.16
Beryllium	0.001 mg/L	< 0.001		< 0.001
Boron	0.05 mg/L	0.05		0.10
Cadmium	0.001 mg/L	< 0.001		< 0.001
Calcium	0.2 mg/L	95		190
Chromium	0.05 mg/L	< 0.05		< 0.05
Cobalt	0.005 mg/L	< 0.005		< 0.005
Copper	0.005 mg/L	0.020		0.010
Iron	0.2 mg/L	< 0.2		4.2
Lead	0.001 mg/L	< 0.001		0.004
Magnesium	0.2 mg/L	17		35
Manganese	0.05 mg/L	< 0.05		1.6
Molybdenum	0.005 mg/L	< 0.005		0.010
Nickel	0.005 mg/L	0.005		0.005
Potassium	0.2 mg/L	3.4		5.4
Selenium	0.005 mg/L	< 0.005		< 0.005
Silver	0.001 mg/L	< 0.001		< 0.001
Sodium	0.2 mg/L	32		160
Thallium	0.001 mg/L	< 0.001		< 0.001
Tin	0.01 mg/L	< 0.01		< 0.01
Vanadium	0.01 mg/L	< 0.01		< 0.01
Zinc	0.02 mg/L	0.02		< 0.02
Benzene	0.0005 mg/L			0.02
Ethylbenzene	0.0005 mg/L			0.02
Toluene	0.0005 mg/L			0.01
m/p-Xylene	0.001 mg/L			0.58

Certificate of Analysis

Report Date: 08-Dec-2004
Order Date: 29-Nov-2004

Client: **DST Consulting Engineers Inc.**

Client PO:

Project: **OE04940**

		940 BHMW4 WGS1	940 BHMW9 WGS1	940 BHMW7 WGS1
		26/11/2004	26/11/2004	26/11/2004
		J5429.4	J5429.5	J5429.6
o-Xylene	0.0005 mg/L			0.02
Toluene-d8	surrogate			104%
F1 PHCs (C6-C10)	0.2 mg/L	< 0.2	< 0.2	0
F2 PHCs (C10-C16)	0.1 mg/L	< 0.1	< 0.1	0.6
F3 PHCs (C16-C34)	0.1 mg/L	< 0.1	< 0.1	< 0.1
F4 PHCs (C34-C50)	0.1 mg/L	< 0.1	< 0.1	< 0.1
Acenaphthene	0.05 ug/L	0.25		< 0.7
Acenaphthylene	0.05 ug/L	< 0.05		< 0.7
Anthracene	0.01 ug/L	< 0.01		< 0.1
Benzo[a]anthracene	0.01 ug/L	< 0.01		0.3
Benzo[a]pyrene	0.01 ug/L	< 0.01		< 0.1
Benzo[b]fluoranthene	0.05 ug/L	< 0.05		< 0.7
Benzo[ghi]perylene	0.05 ug/L	< 0.05		< 0.7
Benzo[k]fluoranthene	0.05 ug/L	< 0.05		< 0.7
Biphenyl	0.05 ug/L	< 0.05		0.7
Chrysene	0.05 ug/L	< 0.05		< 0.7
Dibenzo[a,h]anthracene	0.05 ug/L	< 0.05		< 0.7
Fluoranthene	0.01 ug/L	0.04		< 0.1
Fluorene	0.05 ug/L	< 0.05		1.5
Indeno[1,2,3-cd]pyrene	0.05 ug/L	< 0.05		< 0.7
1-Methylnaphthalene	0.05 ug/L	< 0.05		40
2-Methylnaphthalene	0.05 ug/L	< 0.05		55
Naphthalene	0.05 ug/L	< 0.05		76
Phenanthrene	0.05 ug/L	0.15		0.7
Pyrene	0.01 ug/L	< 0.01		0.1
2-Fluorobiphenyl	surrogate	80%		NA - Dilution
p-Terphenyl d-14	surrogate	122%		NA - Dilution

Certificate of Analysis

Client: DST Consulting Engineers Inc.

Client PO:

Project: OE04940

Report Date: 08-Dec-2004
Order Date: 29-Nov-2004

QA/QC Results

	Blank	Spike (QC Limits)	Duplicate	
Aluminum	< 0.01 mg/L	108% (70 - 130%)	0.12	0.10
Antimony	< 0.001 mg/L	89% (70 - 130%)	< 0.001	< 0.001
Arsenic	< 0.01 mg/L	93% (70 - 130%)	< 0.01	< 0.01
Barium	< 0.01 mg/L	98% (70 - 130%)	0.03	0.03
Beryllium	< 0.001 mg/L	96% (70 - 130%)	< 0.001	< 0.001
Boron	< 0.05 mg/L	90% (70 - 130%)	< 0.05	< 0.05
Cadmium	< 0.001 mg/L	94% (70 - 130%)	< 0.001	< 0.001
Chromium	< 0.05 mg/L	95% (70 - 130%)	< 0.05	< 0.05
Cobalt	< 0.005 mg/L	95% (70 - 130%)	< 0.005	< 0.005
Copper	< 0.005 mg/L	95% (70 - 130%)	< 0.005	< 0.005
Lead	< 0.001 mg/L	93% (70 - 130%)	< 0.001	< 0.001
Manganese	< 0.05 mg/L	95% (70 - 130%)	< 0.05	< 0.05
Molybdenum	< 0.005 mg/L	92% (70 - 130%)	< 0.005	< 0.005
Nickel	< 0.005 mg/L	94% (70 - 120%)	< 0.005	< 0.005
Selenium	< 0.005 mg/L	93% (70 - 130%)	< 0.005	< 0.005
Silver	< 0.001 mg/L	91% (70 - 108%)	< 0.001	< 0.001
Thallium	< 0.001 mg/L	97% (70 - 130%)	< 0.001	< 0.001
Tin	< 0.01 mg/L	97% (70 - 130%)	< 0.01	< 0.01
Vanadium	< 0.01 mg/L	95% (70 - 130%)	< 0.01	< 0.01
Zinc	< 0.02 mg/L	95% (70 - 130%)	0.34	0.34
Benzene	< 0.0005 mg/L	70% (50 - 150%)	< 0.0005	< 0.0005
Ethylbenzene	< 0.0005 mg/L	113% (50 - 150%)	< 0.0005	< 0.0005
Toluene	< 0.0005 mg/L	87% (50 - 150%)	< 0.0005	< 0.0005
m/p-Xylene	< 0.001 mg/L	91% (50 - 150%)	< 0.001	< 0.001
o-Xylene	< 0.0005 mg/L	75% (50 - 150%)	< 0.0005	< 0.0005
F1 PHCs (C6-C10)	< 0.2 mg/L	94% (50 - 150%)	< 0.2	< 0.2
F2-F4 PHCs (C10-C50)	< 0.1 mg/L	103% (50 - 150%)		
Acenaphthene	< 0.05 ug/L	89% (47 - 147%)		
Acenaphthylene	< 0.05 ug/L	95% (33 - 145%)		
Anthracene	< 0.01 ug/L	104% (27 - 133%)		

Certificate of Analysis

Report Date: 08-Dec-2004
Order Date: 29-Nov-2004

Client: DST Consulting Engineers Inc.

Client PO: Project: OE04940

	Blank	Spike (QC Limits)	Duplicate
Benzo[a]anthracene	< 0.01 ug/L	76% (33 - 143%)	
Benzo[a]pyrene	< 0.01 ug/L	96% (17 - 163%)	
Benzo[b]fluoranthene	< 0.05 ug/L	88% (11 - 162%)	
Benzo[ghi]perylene	< 0.05 ug/L	82% (25 - 132%)	
Benzo[k]fluoranthene	< 0.05 ug/L	119% (11 - 162%)	
Biphenyl	< 0.05 ug/L	81% (23 - 120%)	
Chrysene	< 0.05 ug/L	90% (17 - 168%)	
Dibenzo[a,h]anthracene	< 0.05 ug/L	79% (20 - 140%)	
Fluoranthene	< 0.01 ug/L	99% (26 - 137%)	
Fluorene	< 0.05 ug/L	97% (34 - 121%)	
Indeno[1,2,3-cd]pyrene	< 0.05 ug/L	78% (30 - 140%)	
1-Methylnaphthalene	< 0.05 ug/L	77% (23 - 120%)	
2-Methylnaphthalene	< 0.05 ug/L	65% (23 - 120%)	
Naphthalene	< 0.05 ug/L	77% (21 - 133%)	
Phenanthrene	< 0.05 ug/L	92% (54 - 120%)	
Pyrene	< 0.01 ug/L	99% (52 - 115%)	

PARACEL Laboratories Ltd.
Environmental & Indoor Air Quality

300-2319 St. Laurent Blvd., Ottawa, ON K1G 4J8
Tel: 613-731-9577 Fax: (613) 731-9064
Toll Free: 1-800-749-1947 email: paracel@magma.ca

№ 11841

CHAIN OF CUSTODY REPORT

pg 1 of 1

CONTACT: KEN BADER
COMPANY: DST CONSULTING ENGINEERS
ADDRESS: 604 ALGOMA RD.
CITY: OTTAWA
PROV: ON POSTAL:
TEL: 613 748 1415 FAX: 613 748 8506

DATE: Nov 26 04

TURN AROUND TIME
[ ] 1-day [ ] 2-day [✓] Regular

REPORTING REQUIREMENTS
[✓] Hard Copy [✓] Email – PDF
[ ] FAX [ ] Email – Spreadsheet

P.O. NUMBER: PROJECT: OE04940 REFERENCE: 6558

SAMPLE INFORMATION / **ANALYSIS REQUIRED**

Paracel Order Number: 5429

	SAMPLE IDENTIFICATION	MATRIX	NO. OF BOTTLES	SAMPLE DATE	PAH	PHC F1-F4	BTEX	ICP METALS
1	940 BHMW22 WGS1	W	4	Nov26		✓	✓	
2	940 BHMW 23 WGS1	W	4	Nov 26		✓	✓	
3	940 BHMW 1 WGS1	W	2	Nov 26		✓		
4	940 BHMW 4 WGS1	W	4	Nov 26	✓	✓		✓
5	940 BHMW 9 WGS1	W	2	Nov 26		✓		
6	940 BHMW 7 WGS1	W	8	Nov 26	✓	✓	✓	✓
7								
8								
9								
10								

Preservation done in field (Y/N): YES — Y
Preservative to be added by Paracel (Y/N):

Comments: MDL MOE POTABLE WATER & CCME AQUATIC LIFE.

Relinquished by: Joe Dejesse
Date: Nov 26 04 Time: 6:23 pm

Received by:
Date: 11/26/04 Time: 6:23

Relinquished by:
Date: Time:

Verified by:
Date: Nov 26/04 Time: 8:42

PARACEL Laboratories Ltd.
Environmental & Indoor Air Quality

300-2319 St. Laurent Blvd.
Ottawa ON K1G 4J8
Phone: (613) 731-9577
Fax: (613) 731-9064
Toll Free: 800-749-1947
email: paracel@paracellabs.com

Order #: J5472

Certificate of Analysis

DST Consulting Engineers Inc.
1304 Algonna Road
Ottawa, ON K1B 3W8
Attn: Mr. Ken Badel

Phone: (613)-748-1415
Fax: (613)-748-1356

Client PO:
Project: OE04940
Custody #: 11845

Report Date: 10-Dec-2004
Order Date: 30-Nov-2004

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID	Client ID
J5472.1	940 BHMW16 WGS1
J5472.2	940 BHMW17 WGS1
J5472.3	940 BHMW18 WGS1
J5472.4	940 BHMW19 WGS1
J5472.5	940 BHMW20 WGS1
J5472.6	940 BHMW21 WGS1
J5472.7	940 BHMW24 WGS1
J5472.8	940 BHMW2 WGS1
J5472.9	940 BHMW5 WGS1
J5472.10	940 BHMW8 WGS1
J5472.11	940 BHMW10 WGS1
J5472.12	940 BHMW11 WGS1
J5472.13	940 BHMW12 WGS1
J5472.14	940 BHMW13 WGS1
J5472.15	940 BHMW14 WGS1
J5472.16	940 BHMW15 WGS1

Approved By: _____ Dale Robertson, B.Sc.
Laboratory Director

Any use of these test results implies your agreement that our total liability in connection with this work, however arising, shall be limited to the amount paid by you for this work, and that our employees or agents shall not under any circumstance be liable to you in connection with this work.

Analysis Summary Table

Analysis	Method Reference/Description
Metals	EPA 200.8 - ICP-MS
BTEX, PHC - F1 (CCME)	EPA 8260, CWS PHCs - P&T GC-MS/FID
PHC - F1 (CCME)	CWS-PHC - P&T GC-FID
PHC F2-F4 (CCME)	CWS - Tier 1 Method, GC-FID
PAHs	Modified EPA 625 - GC-MS

n/a: not applicable

MDL: Method Detection Limit

CCME PHC additional information:

- The method for the analysis of PHCs complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
- F1 range corrected for BTEX where available
- F2 to F3 ranges corrected for appropriate PAHs where available.
- The gravimetric TPH (heavy oil) result is not to be added to the PHC fractions.

Sample/Test Specific Notes

SampleID	Analysis	Note
940 BHMW17 WGS1	PAHs	elevated detection limits due to limited sample amount
940 BHMW15 WGS1	PHC F2-F4 (CCME)	Free product phase visible on sample.
940 BHMW15 WGS1	PAHs	elevated detection limits due to matrix interference

Certificate of Analysis

Report Date: 10-Dec-2004
Order Date: 30-Nov-2004

Client: DST Consulting Engineers Inc.

Client PO:

Project: OE04940

Matrix: Water

Parameter	MDL/Units	Sample ID: 940 BHMW16 WGS1	940 BHMW17 WGS1	940 BHMW18 WGS1
	Sample Date:	29/11/2004	29/11/2004	29/11/2004
		J5472.1	J5472.2	J5472.3
Aluminum	0.01 mg/L	< 0.01	0.03	0.02
Antimony	0.001 mg/L	< 0.001	< 0.001	< 0.001
Arsenic	0.01 mg/L	< 0.01	< 0.01	< 0.01
Barium	0.01 mg/L	0.04	0.04	0.03
Beryllium	0.001 mg/L	< 0.001	< 0.001	< 0.001
Boron	0.05 mg/L	< 0.05	< 0.05	0.55
Cadmium	0.001 mg/L	< 0.001	< 0.001	< 0.001
Calcium	0.2 mg/L	92	34	58
Chromium	0.05 mg/L	< 0.05	< 0.05	< 0.05
Cobalt	0.005 mg/L	< 0.005	< 0.005	< 0.005
Copper	0.005 mg/L	< 0.005	0.005	< 0.005
Iron	0.2 mg/L	< 0.2	< 0.2	< 0.2
Lead	0.001 mg/L	< 0.001	< 0.001	< 0.001
Magnesium	0.2 mg/L	18	5.4	19
Manganese	0.05 mg/L	< 0.05	< 0.05	< 0.05
Molybdenum	0.005 mg/L	< 0.005	0.010	< 0.005
Nickel	0.005 mg/L	0.005	0.005	< 0.005
Potassium	0.2 mg/L	3.4	4.2	6.6
Selenium	0.005 mg/L	< 0.005	< 0.005	< 0.005
Silver	0.001 mg/L	< 0.001	< 0.001	< 0.001
Sodium	0.2 mg/L	59	35	35
Thallium	0.001 mg/L	< 0.001	< 0.001	< 0.001
Tin	0.01 mg/L	< 0.01	< 0.01	< 0.01
Vanadium	0.01 mg/L	< 0.01	< 0.01	< 0.01
Zinc	0.02 mg/L	< 0.02	0.04	< 0.02
F1 PHCs (C6-C10)	0.2 mg/L	< 0.2	< 0.2	< 0.2
F2 PHCs (C10-C16)	0.1 mg/L	< 0.1	< 0.1	< 0.1
F3 PHCs (C16-C34)	0.1 mg/L	< 0.1	< 0.1	< 0.1
F4 PHCs (C34-C50)	0.1 mg/L	< 0.1	< 0.1	< 0.1

Certificate of Analysis

Report Date: 10-Dec-2004
Order Date: 30-Nov-2004

Client: DST Consulting Engineers Inc.
Client PO:

Project: OE04940

		940 BHMW16 WGS1	940 BHMW17 WGS1	940 BHMW18 WGS1
		29/11/2004	29/11/2004	29/11/2004
		J5472.1	J5472.2	J5472.3
Acenaphthene	0.05 ug/L	0.30	< 0.10	0.05
Acenaphthylene	0.05 ug/L	< 0.05	< 0.10	< 0.05
Anthracene	0.01 ug/L	< 0.01	< 0.02	< 0.01
Benzo[a]anthracene	0.01 ug/L	< 0.01	< 0.02	< 0.01
Benzo[a]pyrene	0.01 ug/L	< 0.01	< 0.02	< 0.01
Benzo[b]fluoranthene	0.05 ug/L	< 0.05	< 0.10	< 0.05
Benzo[ghi]perylene	0.05 ug/L	< 0.05	< 0.10	< 0.05
Benzo[k]fluoranthene	0.05 ug/L	< 0.05	< 0.10	< 0.05
Biphenyl	0.05 ug/L	< 0.05	< 0.10	< 0.05
Chrysene	0.05 ug/L	< 0.05	< 0.10	< 0.05
Dibenzo[a,h]anthracene	0.05 ug/L	< 0.05	< 0.10	< 0.05
Fluoranthene	0.01 ug/L	< 0.01	0.04	< 0.01
Fluorene	0.05 ug/L	< 0.05	< 0.10	< 0.05
Indeno[1,2,3-cd]pyrene	0.05 ug/L	< 0.05	< 0.10	< 0.05
1-Methylnaphthalene	0.05 ug/L	< 0.05	< 0.10	< 0.05
2-Methylnaphthalene	0.05 ug/L	0.05	< 0.10	< 0.05
Naphthalene	0.05 ug/L	0.35	0.10	0.15
Phenanthrene	0.05 ug/L	< 0.05	< 0.10	0.05
Pyrene	0.01 ug/L	< 0.01	< 0.02	< 0.01
2-Fluorobiphenyl	surrogate	78%	75%	71%
p-Terphenyl d-14	surrogate	123%	127%	122%

Certificate of Analysis

Report Date: 10-Dec-2004
Order Date: 30-Nov-2004

Client: DST Consulting Engineers Inc.

Client PO: Project: OE04940

Matrix: Water

Parameter	MDL/Units	Sample ID: 940 BHMW19 WGSI	940 BHMW20 WGSI	940 BHMW21 WGSI
	Sample Date:	29/11/2004	29/11/2004	29/11/2004
		J5472.4	J5472.5	J5472.6
Aluminum	0.01 mg/L	< 0.01	0.03	< 0.01
Antimony	0.001 mg/L	< 0.001	< 0.001	< 0.001
Arsenic	0.01 mg/L	< 0.01	< 0.01	< 0.01
Barium	0.01 mg/L	0.03	0.02	0.05
Beryllium	0.001 mg/L	< 0.001	< 0.001	< 0.001
Boron	0.05 mg/L	0.05	0.10	< 0.05
Cadmium	0.001 mg/L	< 0.001	< 0.001	< 0.001
Calcium	0.2 mg/L	94	84	80
Chromium	0.05 mg/L	< 0.05	< 0.05	< 0.05
Cobalt	0.005 mg/L	< 0.005	< 0.005	< 0.005
Copper	0.005 mg/L	< 0.005	< 0.005	< 0.005
Iron	0.2 mg/L	< 0.2	< 0.2	< 0.2
Lead	0.001 mg/L	< 0.001	< 0.001	< 0.001
Magnesium	0.2 mg/L	13	16	9.4
Manganese	0.05 mg/L	< 0.05	< 0.05	0.46
Molybdenum	0.005 mg/L	< 0.005	< 0.005	< 0.005
Nickel	0.005 mg/L	0.005	< 0.005	< 0.005
Potassium	0.2 mg/L	2.4	4.6	2.0
Selenium	0.005 mg/L	< 0.005	< 0.005	< 0.005
Silver	0.001 mg/L	< 0.001	< 0.001	< 0.001
Sodium	0.2 mg/L	41	22	71
Thallium	0.001 mg/L	< 0.001	< 0.001	< 0.001
Tin	0.01 mg/L	< 0.01	< 0.01	< 0.01
Vanadium	0.01 mg/L	< 0.01	< 0.01	< 0.01
Zinc	0.02 mg/L	0.02	< 0.02	0.02
Benzene	0.0005 mg/L	< 0.0005	< 0.0005	< 0.0005
Ethylbenzene	0.0005 mg/L	< 0.0005	< 0.0005	< 0.0005
Toluene	0.0005 mg/L	< 0.0005	< 0.0005	< 0.0005
m/p-Xylene	0.001 mg/L	< 0.001	< 0.001	< 0.001

Certificate of Analysis

Report Date: 10-Dec-2004
Order Date: 30-Nov-2004

Client: DST Consulting Engineers Inc.

Client PO: Project: OE04940

		940 BHMW19 WGS1	940 BHMW20 WGS1	940 BHMW21 WGS1
		29/11/2004	29/11/2004	29/11/2004
		J5472.4	J5472.5	J5472.6
o-Xylene	0.0005 mg/L	< 0.0005	< 0.0005	< 0.0005
Toluene-d8	surrogate	98%	99%	100%
F1 PHCs (C6-C10)	0.2 mg/L	< 0.2	< 0.2	< 0.2
F2 PHCs (C10-C16)	0.1 mg/L	< 0.1	< 0.1	< 0.1
F3 PHCs (C16-C34)	0.1 mg/L	< 0.1	< 0.1	< 0.1
F4 PHCs (C34-C50)	0.1 mg/L	< 0.1	< 0.1	< 0.1
Acenaphthene	0.05 ug/L	< 0.05	< 0.05	0.60
Acenaphthylene	0.05 ug/L	< 0.05	< 0.05	< 0.05
Anthracene	0.01 ug/L	< 0.01	< 0.01	< 0.01
Benzo[a]anthracene	0.01 ug/L	< 0.01	< 0.01	< 0.01
Benzo[a]pyrene	0.01 ug/L	< 0.01	< 0.01	< 0.01
Benzo[b]fluoranthene	0.05 ug/L	< 0.05	< 0.05	< 0.05
Benzo[ghi]perylene	0.05 ug/L	< 0.05	< 0.05	< 0.05
Benzo[k]fluoranthene	0.05 ug/L	< 0.05	< 0.05	< 0.05
Biphenyl	0.05 ug/L	< 0.05	< 0.05	< 0.05
Chrysene	0.05 ug/L	< 0.05	< 0.05	< 0.05
Dibenzo[a,h]anthracene	0.05 ug/L	< 0.05	< 0.05	< 0.05
Fluoranthene	0.01 ug/L	< 0.01	< 0.01	< 0.01
Fluorene	0.05 ug/L	< 0.05	< 0.05	< 0.05
Indeno[1,2,3-cd]pyrene	0.05 ug/L	< 0.05	< 0.05	< 0.05
1-Methylnaphthalene	0.05 ug/L	< 0.05	< 0.05	< 0.05
2-Methylnaphthalene	0.05 ug/L	< 0.05	< 0.05	< 0.05
Naphthalene	0.05 ug/L	< 0.05	< 0.05	0.25
Phenanthrene	0.05 ug/L	< 0.05	< 0.05	< 0.05
Pyrene	0.01 ug/L	< 0.01	< 0.01	< 0.01
2-Fluorobiphenyl	surrogate	77%	71%	76%
p-Terphenyl d-14	surrogate	120%	104%	124%

Certificate of Analysis

Report Date: 10-Dec-2004
Order Date: 30-Nov-2004

Client: DST Consulting Engineers Inc.

Client PO: Project: OE04940

Matrix: Water

Parameter	MDL/Units	Sample ID: 940 BHMW24 WGS1	940 BHMW2 WGS1	940 BHMW5 WGS1
	Sample Date:	29/11/2004	29/11/2004	29/11/2004
		J5472.7	J5472.8	J5472.9
Aluminum	0.01 mg/L	< 0.01	< 0.01	< 0.01
Antimony	0.001 mg/L	< 0.001	< 0.001	< 0.001
Arsenic	0.01 mg/L	< 0.01	< 0.01	< 0.01
Barium	0.01 mg/L	0.09	0.05	0.08
Beryllium	0.001 mg/L	< 0.001	< 0.001	< 0.001
Boron	0.05 mg/L	< 0.05	< 0.05	0.10
Cadmium	0.001 mg/L	< 0.001	< 0.001	< 0.001
Calcium	0.2 mg/L	85	110	88
Chromium	0.05 mg/L	< 0.05	< 0.05	< 0.05
Cobalt	0.005 mg/L	< 0.005	< 0.005	< 0.005
Copper	0.005 mg/L	< 0.005	< 0.005	< 0.005
Iron	0.2 mg/L	< 0.2	< 0.2	< 0.2
Lead	0.001 mg/L	< 0.001	< 0.001	< 0.001
Magnesium	0.2 mg/L	18	15	12
Manganese	0.05 mg/L	< 0.05	< 0.05	0.45
Molybdenum	0.005 mg/L	< 0.005	< 0.005	0.010
Nickel	0.005 mg/L	0.005	0.005	0.005
Potassium	0.2 mg/L	3.0	3.2	4.2
Selenium	0.005 mg/L	< 0.005	< 0.005	< 0.005
Silver	0.001 mg/L	< 0.001	< 0.001	< 0.001
Sodium	0.2 mg/L	29	37	56
Thallium	0.001 mg/L	< 0.001	< 0.001	< 0.001
Tin	0.01 mg/L	< 0.01	< 0.01	< 0.01
Vanadium	0.01 mg/L	< 0.01	< 0.01	< 0.01
Zinc	0.02 mg/L	< 0.02	0.02	< 0.02
F1 PHCs (C6-C10)	0.2 mg/L	< 0.2	< 0.2	< 0.2
F2 PHCs (C10-C16)	0.1 mg/L	< 0.1	< 0.1	< 0.1
F3 PHCs (C16-C34)	0.1 mg/L	< 0.1	< 0.1	< 0.1
F4 PHCs (C34-C50)	0.1 mg/L	< 0.1	< 0.1	< 0.1

Certificate of Analysis

Report Date: 10-Dec-2004
Order Date: 30-Nov-2004

Client: DST Consulting Engineers Inc.

Client PO: Project: OE04940

		940 BHMW24 WGS1	940 BHMW2 WGS1	940 BHMW5 WGS1
		29/11/2004	29/11/2004	29/11/2004
		J5472.7	J5472.8	J5472.9
Acenaphthene	0.05 ug/L	< 0.05	< 0.05	0.10
Acenaphthylene	0.05 ug/L	< 0.05	< 0.05	< 0.05
Anthracene	0.01 ug/L	< 0.01	< 0.01	< 0.01
Benzo[a]anthracene	0.01 ug/L	< 0.01	< 0.01	< 0.01
Benzo[a]pyrene	0.01 ug/L	< 0.01	< 0.01	< 0.01
Benzo[b]fluoranthene	0.05 ug/L	< 0.05	< 0.05	< 0.05
Benzo[ghi]perylene	0.05 ug/L	< 0.05	< 0.05	< 0.05
Benzo[k]fluoranthene	0.05 ug/L	< 0.05	< 0.05	< 0.05
Biphenyl	0.05 ug/L	< 0.05	< 0.05	< 0.05
Chrysene	0.05 ug/L	< 0.05	< 0.05	< 0.05
Dibenzo[a,h]anthracene	0.05 ug/L	< 0.05	< 0.05	< 0.05
Fluoranthene	0.01 ug/L	< 0.01	< 0.01	< 0.01
Fluorene	0.05 ug/L	< 0.05	< 0.05	< 0.05
Indeno[1,2,3-cd]pyrene	0.05 ug/L	< 0.05	< 0.05	< 0.05
1-Methylnaphthalene	0.05 ug/L	< 0.05	< 0.05	< 0.05
2-Methylnaphthalene	0.05 ug/L	< 0.05	< 0.05	< 0.05
Naphthalene	0.05 ug/L	< 0.05	< 0.05	< 0.05
Phenanthrene	0.05 ug/L	< 0.05	< 0.05	< 0.05
Pyrene	0.01 ug/L	< 0.01	< 0.01	< 0.01
2-Fluorobiphenyl	surrogate	83%	77%	74%
p-Terphenyl d-14	surrogate	131%	122%	108%

Certificate of Analysis

Report Date: 10-Dec-2004
Order Date: 30-Nov-2004

Client: DST Consulting Engineers Inc.

Client PO: Project: OE04940

Matrix: Water

Parameter	MDL/Units	Sample ID:	940 BHMW8 WGS1	940 BHMW10 WGS1	940 BHMW11 WGS1
		Sample Date:	29/11/2004	29/11/2004	29/11/2004
			J5472.10	J5472.11	J5472.12
Aluminum	0.01 mg/L		< 0.01	< 0.01	< 0.01
Antimony	0.001 mg/L		< 0.001	< 0.001	< 0.001
Arsenic	0.01 mg/L		< 0.01	< 0.01	< 0.01
Barium	0.01 mg/L		0.33	0.15	0.08
Beryllium	0.001 mg/L		< 0.001	< 0.001	< 0.001
Boron	0.05 mg/L		< 0.05	< 0.05	< 0.05
Cadmium	0.001 mg/L		0.001	< 0.001	< 0.001
Calcium	0.2 mg/L		670	97	32
Chromium	0.05 mg/L		< 0.05	< 0.05	< 0.05
Cobalt	0.005 mg/L		0.010	< 0.005	< 0.005
Copper	0.005 mg/L		0.010	0.010	< 0.005
Iron	0.2 mg/L		< 0.2	< 0.2	< 0.2
Lead	0.001 mg/L		0.001	< 0.001	< 0.001
Magnesium	0.2 mg/L		120	22	7.6
Manganese	0.05 mg/L		3.1	< 0.05	< 0.05
Molybdenum	0.005 mg/L		< 0.005	< 0.005	0.005
Nickel	0.005 mg/L		0.035	0.005	< 0.005
Potassium	0.2 mg/L		8.4	3.2	4.8
Selenium	0.005 mg/L		< 0.005	< 0.005	< 0.005
Silver	0.001 mg/L		< 0.001	< 0.001	< 0.001
Sodium	0.2 mg/L		420	160	180
Thallium	0.001 mg/L		< 0.001	< 0.001	< 0.001
Tin	0.01 mg/L		< 0.01	< 0.01	< 0.01
Vanadium	0.01 mg/L		< 0.01	< 0.01	< 0.01
Zinc	0.02 mg/L		0.10	0.02	< 0.02
F1 PHCs (C6-C10)	0.2 mg/L		0.4	< 0.2	< 0.2
F2 PHCs (C10-C16)	0.1 mg/L		< 0.1	< 0.1	< 0.1
F3 PHCs (C16-C34)	0.1 mg/L		< 0.1	< 0.1	< 0.1
F4 PHCs (C34-C50)	0.1 mg/L		< 0.1	< 0.1	< 0.1

Certificate of Analysis

Report Date: 10-Dec-2004
Order Date: 30-Nov-2004

Client: **DST Consulting Engineers Inc.**
Client PO:

Project: **OE04940**

		940 BHMW8 WGS1	940 BHMW10 WGS1	940 BHMW11 WGS1
		29/11/2004	29/11/2004	29/11/2004
		J5472.10	J5472.11	J5472.12
Acenaphthene	0.05 ug/L	0.30	< 0.05	< 0.05
Acenaphthylene	0.05 ug/L	< 0.05	< 0.05	< 0.05
Anthracene	0.01 ug/L	< 0.01	< 0.01	< 0.01
Benzo[a]anthracene	0.01 ug/L	< 0.01	< 0.01	< 0.01
Benzo[a]pyrene	0.01 ug/L	< 0.01	< 0.01	< 0.01
Benzo[b]fluoranthene	0.05 ug/L	< 0.05	< 0.05	< 0.05
Benzo[ghi]perylene	0.05 ug/L	< 0.05	< 0.05	< 0.05
Benzo[k]fluoranthene	0.05 ug/L	< 0.05	< 0.05	< 0.05
Biphenyl	0.05 ug/L	0.05	< 0.05	< 0.05
Chrysene	0.05 ug/L	< 0.05	< 0.05	< 0.05
Dibenzo[a,h]anthracene	0.05 ug/L	< 0.05	< 0.05	< 0.05
Fluoranthene	0.01 ug/L	0.02	< 0.01	< 0.01
Fluorene	0.05 ug/L	< 0.05	< 0.05	< 0.05
Indeno[1,2,3-cd]pyrene	0.05 ug/L	< 0.05	< 0.05	< 0.05
1-Methylnaphthalene	0.05 ug/L	1.4	< 0.05	< 0.05
2-Methylnaphthalene	0.05 ug/L	0.70	< 0.05	< 0.05
Naphthalene	0.05 ug/L	6.0	< 0.05	< 0.05
Phenanthrene	0.05 ug/L	0.15	< 0.05	< 0.05
Pyrene	0.01 ug/L	< 0.01	< 0.01	< 0.01
2-Fluorobiphenyl	surrogate	78%	76%	79%
p-Terphenyl d-14	surrogate	109%	118%	124%

Certificate of Analysis

Report Date: 10-Dec-2004
Order Date: 30-Nov-2004

Client: DST Consulting Engineers Inc.

Client PO: Project: OE04940

Matrix: Water

Parameter	MDL/Units	Sample ID: 940 BHMW12 WGS1	940 BHMW13 WGS1	940 BHMW14 WGS1
	Sample Date:	29/11/2004	29/11/2004	29/11/2004
		J5472.13	J5472.14	J5472.15
Aluminum	0.01 mg/L	< 0.01	< 0.01	< 0.01
Antimony	0.001 mg/L	< 0.001	< 0.001	< 0.001
Arsenic	0.01 mg/L	< 0.01	< 0.01	< 0.01
Barium	0.01 mg/L	0.15	0.09	0.10
Beryllium	0.001 mg/L	< 0.001	< 0.001	< 0.001
Boron	0.05 mg/L	< 0.05	< 0.05	< 0.05
Cadmium	0.001 mg/L	< 0.001	< 0.001	< 0.001
Calcium	0.2 mg/L	90	86	110
Chromium	0.05 mg/L	< 0.05	< 0.05	< 0.05
Cobalt	0.005 mg/L	< 0.005	< 0.005	< 0.005
Copper	0.005 mg/L	< 0.005	< 0.005	< 0.005
Iron	0.2 mg/L	0.2	< 0.2	< 0.2
Lead	0.001 mg/L	< 0.001	< 0.001	< 0.001
Magnesium	0.2 mg/L	21	21	22
Manganese	0.05 mg/L	0.35	< 0.05	0.05
Molybdenum	0.005 mg/L	< 0.005	< 0.005	< 0.005
Nickel	0.005 mg/L	< 0.005	< 0.005	0.005
Potassium	0.2 mg/L	2.2	3.4	2.2
Selenium	0.005 mg/L	< 0.005	< 0.005	< 0.005
Silver	0.001 mg/L	< 0.001	< 0.001	< 0.001
Sodium	0.2 mg/L	30	17	7.6
Thallium	0.001 mg/L	< 0.001	< 0.001	< 0.001
Tin	0.01 mg/L	< 0.01	< 0.01	< 0.01
Vanadium	0.01 mg/L	< 0.01	< 0.01	< 0.01
Zinc	0.02 mg/L	< 0.02	< 0.02	< 0.02
Benzene	0.0005 mg/L	< 0.0005	< 0.0005	< 0.0005
Ethylbenzene	0.0005 mg/L	< 0.0005	< 0.0005	< 0.0005
Toluene	0.0005 mg/L	< 0.0005	< 0.0005	< 0.0005
m/p-Xylene	0.001 mg/L	< 0.001	< 0.001	< 0.001

Certificate of Analysis

Client: **DST Consulting Engineers Inc.**

Client PO:

Project: **OE04940**

Report Date: 10-Dec-2004
Order Date: 30-Nov-2004

		940 BHMW12 WGSI	940 BHMW13 WGSI	940 BHMW14 WGSI
		29/11/2004	29/11/2004	29/11/2004
		J5472.13	J5472.14	J5472.15
o-Xylene	0.0005 mg/L	< 0.0005	< 0.0005	< 0.0005
Toluene-d8	surrogate	100%	99%	98%
F1 PHCs (C6-C10)	0.2 mg/L	< 0.2	< 0.2	< 0.2
F2 PHCs (C10-C16)	0.1 mg/L	< 0.1	< 0.1	< 0.1
F3 PHCs (C16-C34)	0.1 mg/L	< 0.1	< 0.1	< 0.1
F4 PHCs (C34-C50)	0.1 mg/L	< 0.1	< 0.1	< 0.1
Acenaphthene	0.05 ug/L	0.55	0.10	0.20
Acenaphthylene	0.05 ug/L	< 0.05	< 0.05	< 0.05
Anthracene	0.01 ug/L	< 0.01	< 0.01	< 0.01
Benzo[a]anthracene	0.01 ug/L	< 0.01	< 0.01	0.03
Benzo[a]pyrene	0.01 ug/L	< 0.01	< 0.01	0.03
Benzo[b]fluoranthene	0.05 ug/L	< 0.05	< 0.05	0.05
Benzo[ghi]perylene	0.05 ug/L	< 0.05	< 0.05	0.05
Benzo[k]fluoranthene	0.05 ug/L	< 0.05	< 0.05	< 0.05
Biphenyl	0.05 ug/L	0.10	< 0.05	< 0.05
Chrysene	0.05 ug/L	< 0.05	< 0.05	< 0.05
Dibenzo[a,h]anthracene	0.05 ug/L	< 0.05	< 0.05	< 0.05
Fluoranthene	0.01 ug/L	< 0.01	< 0.01	< 0.01
Fluorene	0.05 ug/L	< 0.05	< 0.05	< 0.05
Indeno[1,2,3-cd]pyrene	0.05 ug/L	< 0.05	< 0.05	< 0.05
1-Methylnaphthalene	0.05 ug/L	< 0.05	< 0.05	< 0.05
2-Methylnaphthalene	0.05 ug/L	< 0.05	< 0.05	< 0.05
Naphthalene	0.05 ug/L	0.75	0.30	0.30
Phenanthrene	0.05 ug/L	< 0.05	< 0.05	< 0.05
Pyrene	0.01 ug/L	< 0.01	< 0.01	< 0.01
2-Fluorobiphenyl	surrogate	74%	78%	72%
p-Terphenyl d-14	surrogate	114%	125%	111%

Certificate of Analysis

Report Date: 10-Dec-2004
Order Date: 30-Nov-2004

Client: DST Consulting Engineers Inc.

Client PO: Project: OE04940

Matrix: Water

Parameter	MDL/Units	Sample ID: 940 BHMW15 WGS1 Sample Date: 29/11/2004 J5472.16
Aluminum	0.01 mg/L	< 0.01
Antimony	0.001 mg/L	< 0.001
Arsenic	0.01 mg/L	< 0.01
Barium	0.01 mg/L	0.13
Beryllium	0.001 mg/L	< 0.001
Boron	0.05 mg/L	< 0.05
Cadmium	0.001 mg/L	< 0.001
Calcium	0.2 mg/L	76
Chromium	0.05 mg/L	< 0.05
Cobalt	0.005 mg/L	< 0.005
Copper	0.005 mg/L	< 0.005
Iron	0.2 mg/L	3.0
Lead	0.001 mg/L	< 0.001
Magnesium	0.2 mg/L	20
Manganese	0.05 mg/L	0.15
Molybdenum	0.005 mg/L	< 0.005
Nickel	0.005 mg/L	< 0.005
Potassium	0.2 mg/L	2.8
Selenium	0.005 mg/L	< 0.005
Silver	0.001 mg/L	< 0.001
Sodium	0.2 mg/L	120
Thallium	0.001 mg/L	< 0.001
Tin	0.01 mg/L	< 0.01
Vanadium	0.01 mg/L	< 0.01
Zinc	0.02 mg/L	< 0.02
Benzene	0.0005 mg/L	< 0.0005
Ethylbenzene	0.0005 mg/L	< 0.0005
Toluene	0.0005 mg/L	< 0.0005
m/p-Xylene	0.001 mg/L	< 0.001

		940 BIRWLS WGS1
		29/11/2004
		J5472.16
o-Xylene	0.0005 mg/L	< 0.0005
Toluene-d8	surrogate	96%
F1 PHCs (C6-C10)	0.2 mg/L	< 0.2
F2 PHCs (C10-C16)	0.1 mg/L	140
F3 PHCs (C16-C34)	0.1 mg/L	65
F4 PHCs (C34-C50)	0.1 mg/L	< 1
Acenaphthene	0.05 ug/L	< 1
Acenaphthylene	0.05 ug/L	10
Anthracene	0.01 ug/L	2.2
Benzo[a]anthracene	0.01 ug/L	< 0.2
Benzo[a]pyrene	0.01 ug/L	< 0.2
Benzo[b]fluoranthene	0.05 ug/L	< 1
Benzo[ghi]perylene	0.05 ug/L	< 1
Benzo[k]fluoranthene	0.05 ug/L	< 1
Biphenyl	0.05 ug/L	7
Chrysene	0.05 ug/L	< 1
Dibenzo[a,h]anthracene	0.05 ug/L	< 1
Fluoranthene	0.01 ug/L	1.2
Fluorene	0.05 ug/L	8
Indeno[1,2,3-cd]pyrene	0.05 ug/L	< 1
1-Methylnaphthalene	0.05 ug/L	87
2-Methylnaphthalene	0.05 ug/L	31
Naphthalene	0.05 ug/L	52
Phenanthrene	0.05 ug/L	12
Pyrene	0.01 ug/L	1.2
2-Fluorobiphenyl	surrogate	NA - Dilution
p-Terphenyl d-14	surrogate	NA - Dilution

Certificate of Analysis

Report Date: 10-Dec-2004
Order Date: 30-Nov-2004

Client: DST Consulting Engineers Inc.

Client PO: Project: OE04940

QA/QC Results

	Blank	Spike (QC Limits)	Duplicate	
Aluminum	< 0.01 mg/L	86% (70 - 130%)	< 0.01	< 0.01
Antimony	< 0.001 mg/L	93% (70 - 130%)	< 0.001	< 0.001
Arsenic	< 0.01 mg/L	96% (70 - 130%)	< 0.01	< 0.01
Barium	< 0.01 mg/L	94% (70 - 130%)	0.03	0.04
Beryllium	< 0.001 mg/L	92% (70 - 130%)	< 0.001	< 0.001
Boron	< 0.05 mg/L	85% (70 - 130%)	< 0.05	< 0.05
Cadmium	< 0.001 mg/L	93% (70 - 130%)	< 0.001	< 0.001
Chromium	< 0.05 mg/L	96% (70 - 130%)	< 0.05	< 0.05
Cobalt	< 0.005 mg/L	99% (70 - 130%)	< 0.005	< 0.005
Copper	< 0.005 mg/L	91% (70 - 130%)	< 0.005	< 0.005
Lead	< 0.001 mg/L	93% (70 - 130%)	< 0.001	< 0.001
Manganese	< 0.05 mg/L	92% (70 - 130%)	< 0.05	< 0.05
Molybdenum	< 0.005 mg/L	93% (70 - 130%)	< 0.005	< 0.005
Nickel	< 0.005 mg/L	92% (70 - 120%)	0.005	0.005
Selenium	< 0.005 mg/L	97% (70 - 130%)	< 0.005	< 0.005
Silver	< 0.001 mg/L	95% (70 - 108%)	< 0.001	< 0.001
Thallium	< 0.001 mg/L	96% (70 - 130%)	< 0.001	< 0.001
Tin	< 0.01 mg/L	101% (70 - 130%)	< 0.01	< 0.01
Vanadium	< 0.01 mg/L	99% (70 - 130%)	< 0.01	< 0.01
Zinc	< 0.02 mg/L	94% (70 - 130%)	< 0.02	< 0.02
Benzene	< 0.0005 mg/L	77% (50 - 150%)	< 0.0005	< 0.0005
Ethylbenzene	< 0.0005 mg/L	107% (50 - 150%)	< 0.0005	< 0.0005
Toluene	< 0.0005 mg/L	83% (50 - 150%)	< 0.0005	< 0.0005
m/p-Xylene	< 0.001 mg/L	113% (50 - 150%)	< 0.001	< 0.001
o-Xylene	< 0.0005 mg/L	95% (50 - 150%)	< 0.0005	< 0.0005
F1 PHCs (C6-C10)	< 0.2 mg/L	90% (50 - 150%)	< 0.2	< 0.2
F1 PHCs (C6-C10)	< 0.2 mg/L	94% (50 - 150%)	< 0.2	< 0.2
F2-F4 PHCs (C10-C50)	< 0.1 mg/L	113% (50 - 150%)		
Acenaphthene	< 0.05 ug/L	89% (47 - 147%)		
Acenaphthylene	< 0.05 ug/L	95% (33 - 145%)		

Certificate of Analysis

Report Date: 10-Dec-2004
Order Date: 30-Nov-2004

Client: DST Consulting Engineers Inc.

Client PO:

Project: OE04940

	Blank	Spike (QC Limits)	Duplicate
Anthracene	< 0.01 ug/L	104% (27 - 133%)	
Benzo[a]anthracene	< 0.01 ug/L	76% (33 - 143%)	
Benzo[a]pyrene	< 0.01 ug/L	96% (17 - 163%)	
Benzo[b]fluoranthene	< 0.05 ug/L	88% (11 - 162%)	
Benzo[ghi]perylene	< 0.05 ug/L	82% (25 - 132%)	
Benzo[k]fluoranthene	< 0.05 ug/L	119% (11 - 162%)	
Biphenyl	< 0.05 ug/L	81% (23 - 120%)	
Chrysene	< 0.05 ug/L	90% (17 - 168%)	
Dibenzo[a,h]anthracene	< 0.05 ug/L	79% (20 - 140%)	
Fluoranthene	< 0.01 ug/L	99% (26 - 137%)	
Fluorene	< 0.05 ug/L	97% (34 - 121%)	
Indeno[1,2,3-cd]pyrene	< 0.05 ug/L	78% (30 - 140%)	
1-Methylnaphthalene	< 0.05 ug/L	77% (23 - 120%)	
2-Methylnaphthalene	< 0.05 ug/L	65% (23 - 120%)	
Naphthalene	< 0.05 ug/L	77% (21 - 133%)	
Phenanthrene	< 0.05 ug/L	92% (54 - 120%)	
Pyrene	< 0.01 ug/L	99% (52 - 115%)	

PARACEL Laboratories Ltd.
Environmental & Indoor Air Quality

300-2319 St. Laurent Blvd., Ottawa, ON K:
Tel: 613-731-9577 Fax: (613) 73:
Toll Free: 1-800-749-1947 email: paracel@mag

N° 11845

CHAIN OF CUSTODY REPORT

pg 1 o

CONTACT: Ken Brace
COMPANY: DST Consulting Eng.
ADDRESS: Box Algoma
CITY: Ottawa
PROV: ON POSTAL:
TEL: 613 748 1415 FAX: 613 748 1356
P.O. NUMBER: PROJECT: OE04940 REFERENCE: 4558

DATE:

TURN AROUND TIME
[ ] 1-day [ ] 2-day [✓] Regular

REPORTING REQUIREMENTS
[✓] Hard Copy [✓] Email – PDF
[ ] FAX [✓] Email – Spreadsheet

SAMPLE INFORMATION / **ANALYSIS REQUIRED**

Paracel Order Number: 5402

	SAMPLE IDENTIFICATION	MATRIX	NO. OF BOTTLES	SAMPLE DATE	PAH	PHC F1-F4	BTEX	ICP metals
1	940 BHMW 16 WGS1	W	4	Nov 29	✓	✓		✓
2	940 BHMW 17 WGS1	W	4		✓	✓		✓
3	940 BHMW 18 WGS1	W	4		✓	✓		✓
4	940 BHMW 19 WGS1	W	6		✓	✓	✓	✓
5	940 BHMW 20 WGS1	W	6		✓	✓	✓	✓
6	940 BHMW 21 WGS1	W	6		✓	✓	✓	✓
7	940 BHMW 24 WGS1	W	4		✓	✓		✓
8								
9								
10								

Preservation done in field (Y/N):
Preservative to be added by Paracel (Y/N):

Comments:

MOL MOE POTABLE WATER / CCME AQUATIC LIFE
DISREGARD ANYTHING NOT ON CHAIN OF CUSTODY
IE BHMW6WGS1

Relinquished by: [signature] Date: Nov 29 04 Time: 5:34 pm
Relinquished by: Date: Time:

Received by: [signature] Date: Nov 29 Time: 5:35 PM
Verified by:

PARACEL Laboratories Ltd.
Environmental & Indoor Air Quality

300-2319 St. Laurent Blvd., Ottawa, ON K1G 4J8
Tel: (613) 731-9577 Fax: (613) 731-9064
Toll Free: (800) 749-1947 email: paracel@paracellabs.com

Chain of Custody Record

№ 26194 Pg 1 of 1

Contact: Ben Budel
Company: DST Consulting Engineers Inc
Address: 1304 Algoma Rd
Ottawa Ont
Tel: 613 748 1415 Fax: 6137481356

Project Ref: OE 04 940
PO #:
Quote #: ☐Not Quoted
Email: kbudel@dstgroup.com
Preservative to be added by Paracel? ☐Yes ☐No

REPORTING REQUIREMENTS
[ ] Hard Copy [ ] Email - PDF
[ ] FAX [ ] Email - spreadsheet

TURN AROUND TIME
[ ] 1-day [ ] 2-day [ ] Regular

REGULATORY/GUIDELINE REQUIREMENTS

Matrix Types: S–Soil/Sed. GW–Ground Water SW–Surface Water SS–Storm/Sanitary Sewer A–Air O–Other

Paracel Order #	Sample Identification	Matrix	# Bottles	Date Sampled d/m/y	Analysis Required: PHC F1+F2	Analysis Required: BTEX/PHC
5938						
1	BHMW 15 WGS 2	GO		20041222	✓	✓
2						
3						
4						
5						
6						
7						
8						
9						
10						

Comments: MDL to meet CCME / MOE potable GW condition

Relinquished by:
Date: 2004 12 22 Time: 14:00

Received by:
Date: 2004 12 22 Time: 14:00

Verified by:
Date: Dec 22/04 Time: 2:00

PARACEL Laboratories Ltd.
Environmental & Indoor Air Quality

300-2319 St. Laurent Blvd.
Ottawa, ON K1G 4J8
tel: 613-731-9577
fax: 613-731-9064
email: paracel@paracellabs.com

Date: JAN 4/2005

Attn: KEN BUDD

From: Dale Robertson

re: Subcontracted Analyses

Your samples, identified below, were subcontracted for the listed parameters. Samples in the attached subcontractor report are identified with Paracel sample references with your references manually added.

Project Reference	OE04940
Submission Date	NOV 30/04
Parameter	DIOXNS & FURANS

Your sample ID's correlate to the Paracel sample references as indicated in the table below

Client ID	Paracel Sample Reference
940 BHMW2 WGN	5473-1

Maxxam Analytics Inc

Paracel Laboratories Ltd
2319 St Laurent Blvd
Unit 300
Ottawa, ON
K1G 4J8

FOR DST

Attention: Dale Robertson

KEN RUDER

Report Date: 2004/12/23

Your Project #: 5473

OE04940

ANALYTICAL REPORT

MAXXAM JOB #: A457673
Received: 2004/12/01, 09:13

Sample Matrix: LIQUID
Samples Received: 1

Analysis	Number of Tests	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Dibenzodioxins / Furans (HRMS)	1	2004/12/14	2004/12/21	Ont SOP [illegible]	EPS 1/RM/23 / 19

MAXXAM ANALYTICS INC.

Branko Vrzic 2004-12-24

BRANKO VRZIC, A.SC.T.
Senior Analyst, HRMS Services

APPLIED SCIENCE TECHNOLOGIST
ONTARIO
BRANKO VRZIC
No 3570

000001

Total pages: 6

Maxxam Analytics Inc

DIBENZODIOXINS/FURANS
CONTROL LIMITS

ANALYTE	ION RATIO Limits	% RECOVERY LIMITS LOWER	UPPER
2,3,7,8-TETRA CDD*	0.65-0.89	30	130
1,2,3,7,8-PENTA CDD	1.32-1.78	30	130
1,2,3,4,7,8-HEXA CDD	1.05-1.43	30	130
1,2,3,6,7,8-HEXA CDD	1.05-1.43	30	130
1,2,3,7,8,9-HEXA CDD	1.05-1.43		
1,2,3,4,6,7,8-HEPTA CDD	0.88-1.20	30	130
OCTA CDD	0.76-1.02	30	130
TOTAL TETRA CDD	0.65-0.89		
TOTAL PENTA CDD	1.32-1.78		
TOTAL HEXA CDD	1.05-1.43		
TOTAL HEPTA CDD	0.88-1.20		

2,3,7,8-TETRA CDF**	0.65-0.89	30	130
1,2,3,7,8-PENTA CDF	1.32-1.78	30	130
2,3,4,7,8-PENTA CDF	1.32-1.78	30	130
1,2,3,4,7,8-HEXA CDF	1.05-1.43	30	130
1,2,3,6,7,8-HEXA CDF	1.05-1.43	30	130
1,2,3,7,8,9-HEXA CDF	1.05-1.43	30	130
2,3,4,6,7,8-HEXA CDF	1.05-1.43	30	130
1,2,3,4,6,7,8-HEPTA CDF	0.88-1.20	30	130
1,2,3,4,7,8,9-HEPTA CDF	0.88-1.20	30	130
OCTA CDF	0.76-1.02		
TOTAL TETRA CDF	0.65-0.89		
TOTAL PENTA CDF	1.32-1.78		
TOTAL HEXA CDF	1.05-1.43		
TOTAL HEPTA CDF	0.88-1.20		

Ion Ratio Limits:
The ratio of the major ion to the secondary or confirming ion
is used to identify presence/absence of Dibenzo-p-dioxins and furans.

% Recovery Limits:
The recovery of C13-labelled surrogates must fall within
the limits given.

Maxxam Analytics Inc

Evaluation Questions

MAXXAM ANALYTICS INC. Report No: A457673

	All Congeners	2,3,7,8-TCDD	2,3,7,8-TCDF
1. Surrogate Recovery (Fig 8, Part I)			
a) Are all surrogate recoveries within specified limits ? (see Section 8(c) of the RM)	X		
b) Are all reported detection limits at or below maximum target values ? (see Table 5 of the RM)	X		
2. Ion Ratio (Fig 8, Part II) All ion abundance ratios with acceptable limits for 2,3,7,8-TCDD & 2,3,7,8-TCDF ? (see Section 6.5 & 6.7 of the RM)		X	X
3. Method Performance Test (Fig 10)			
a) Are all surrogate recoveries within the range of 40 to 120% for each of the 3 tests ? (see Section 5.2 of the RM)			
b) Are all native congener recoveries within 20% of the spiked amount for each of the 3 tests ?			
4. Calibration (Fig 11) Are % RSD values within specified limits for native congeners ? (see Section 6.6 of the RM)	X		
5. Calibration Verification (Fig 12)			
a) Was calibration verified within 12 hours from analysis of each reported compliance sample ? (see Section 8(j) of the RM)	X		
b) Are (calculated/actual) concentration ratios for native congeners within the specified limits ? (see Section 8(j) of the RM)	X		
c) Are all surrogate recoveries within the range of 75 to 125 % ?	X		
6. Detection Limits of Verification (Fig 13) Were analyte identification criteria satisfied for 2,3,7,8-TCDD and 2,3,7,8-TCDF in CS1 for each date on which compliance sample analyses were performed ? (see Section 6.2 and 8(k) of the RM)		X	X
7. GC Performance Were windows verified and were acceptable chromatographic performance confirmed for each date on which compliance sample analysis were performed ? (see Section 6.2 and 6.3 of the RM)	X		
8. High Resolution Were all compliance samples analyzed at MS resolution of 10,000 or better ?	X		
9. Contamination Was PCDD/PCDF contamination below maximum allowable levels in all blank samples ? (see Section 8(a) of the RM)	X		

I CERTIFY THAT ANSWERS TO ALL QUESTIONS ABOVE ARE ACCURATE.

Name: BRANKO VRZIC Title: Technical Specialist

Signature: Branko Vrzic Date:

APPLIED SCIENCE TECHNOLOGIST
ONTARIO
BRANKO VRZIC
No 057009

000003

Maxxam Analytics Inc

DIBENZODIOXINS / FURANS (HRMS) IN LIQUID

MAXXAM JOB #: A457673
MAXXAM SAMPLE #: E19109
Sampling Date: 2004/11/29

PROJECT NAME:
PROJECT #: 5473
Report Date: 2004/12/23

CONC. UNITS = ppt = ng/L
RL Units = ppt = ng/L

94D BHMW2 WGSI

	5473-1		TOXIC EQUIVALENCY			RECOVERIES OF 13 SURROGATES	
Compound	CONC	RL	TEF	TEQ(RL)	TEQ(0.5RL)	ng SPIKED	%RECOVERED
2,3,7,8-Tetra CDD *	0	0.00150	1.00	0.00150	0.000750	1000	52
1,2,3,7,8-Penta CDD	0	0.00150	0.500	0.000750	0.000375	1000	61
1,2,3,4,7,8-Hexa CDD	0	0.00150	0.100	0.000150	0.0000750	1000	44
1,2,3,6,7,8-Hexa CDD	0	0.00150	0.100	0.000150	0.0000750	1000	52
1,2,3,7,8,9-Hexa CDD	0	0.00150	0.100	0.000150	0.0000750		
1,2,3,4,6,7,8-Hepta CDD	0	0.0100	0.0100	0.000100	0.0000500	1000	62
Octa CDD	0	0.0300	0.00100	0.0000300	0.0000150	2000	50
Total Tetra CDD	0	0.00150					
Total Penta CDD	0	0.00150					
Total Hexa CDD	0	0.00150					
Total Hepta CDD	0	0.0100					
2,3,7,8-Tetra CDF **	0.00220	0.00150	0.100	0.000220	0.000220	1000	47
1,2,3,7,8-Penta CDF	0	0.00150	0.0500	0.0000750	0.0000375	1000	49
2,3,4,7,8-Penta CDF	0	0.00150	0.500	0.000750	0.000375	1000	50
1,2,3,4,7,8-Hexa CDF	0	0.00150	0.100	0.000150	0.0000750	1000	56
1,2,3,6,7,8-Hexa CDF	0	0.00150	0.100	0.000150	0.0000750	1000	52
2,3,4,6,7,8-Hexa CDF	0	0.00150	0.100	0.000150	0.0000750	1000	48
1,2,3,7,8,9-Hexa CDF	0	0.00150	0.100	0.000150	0.0000750	1000	52
1,2,3,4,6,7,8-Hepta CDF	0	0.0100	0.0100	0.000100	0.0000500	1000	49
1,2,3,4,7,8,9-Hepta CDF	0	0.0100	0.0100	0.000100	0.0000500	1000	47
Octa CDF	0	0.0300	0.00100	0.0000300	0.0000150		
Total Tetra CDF	0.00700	0.00150					
Total Penta CDF	0.00547	0.00150					
Total Hexa CDF	0	0.00150					
Total Hepta CDF	0	0.0100					
TOTAL TOXIC EQUIVALENCY				0.000470	0.000248		

* CDD = CHLORO DIBENZO-P-DIOXIN
** CDF = CHLORO DIBENZOFURAN
RL = REPORTING LIMIT
0 values = U = NOT DETECTED
TR = TRACE AMOUNT DETECTED
Results relate only to the items tested.

Branko Vrzic 2004 12 23
BRANKO VRZIC, A.SC.T.

APPLIED SCIENCE TECHNOLOGIST
ACETT
ONTARIO
BRANKO VRZIC
No 057009

000004

Maxxam Analytics Inc

DIBENZODIOXINS / FURANS (HRMS) IN LIQUID

MAXXAM JOB #: A457673
MAXXAM SAMPLE #: SPIKED BLANK

PROJECT NAME:
PROJECT #: 5473
Report Date: 2004/12/23

CONC. UNITS = ppt = ng/L
RL Units = ppt = ng/L

	SPIKED BLANK		TOXIC EQUIVALENCY			RECOVERY STD / SURROGATE	
Compounds	% RECOVER	RL	TEF	TEQ(RL)	TEQ(0.5RL)	% SPIKED	% RECOVERED
2,3,7,8-Tetra CDD *	116	0.00150	1.00	116	116	1000	49
1,2,3,7,8-Penta CDD	110	0.00150	0.500	55.0	55.0	1000	59
1,2,3,4,7,8-Hexa CDD	109	0.00150	0.100	10.9	10.9	1000	49
1,2,3,6,7,8-Hexa CDD	114	0.00150	0.100	11.4	11.4	1000	62
1,2,3,7,8,9-Hexa CDD	119	0.00150	0.100	11.9	11.9		
1,2,3,4,6,7,8-Hepta CDD	118	0.0100	0.0100	1.18	1.18	1000	65
Octa CDD	120	0.0300	0.00100	0.120	0.120	2000	64
2,3,7,8-Tetra CDF	118	0.00150	0.100	11.8	11.8	1000	43
1,2,3,7,8-Penta CDF	118	0.00150	0.0500	5.90	5.90	1000	51
2,3,4,7,8-Penta CDF	113	0.00150	0.500	56.5	56.5	1000	53
1,2,3,4,7,8-Hexa CDF	118	0.00150	0.100	11.8	11.8	1000	64
1,2,3,6,7,8-Hexa CDF	114	0.00150	0.100	11.4	11.4	1000	66
2,3,4,6,7,8-Hexa CDF	111	0.00150	0.100	11.1	11.1	1000	62
1,2,3,7,8,9-Hexa CDF	106	0.00150	0.100	10.6	10.6	1000	65
1,2,3,4,6,7,8-Hepta CDF	118	0.0100	0.0100	1.18	1.18	1000	62
1,2,3,4,7,8,9-Hepta CDF	120	0.0100	0.0100	1.20	1.20	1000	60
Octa CDF	120	0.0300	0.00100	0.120	0.120		
TOTAL TOXIC EQUIVALENCY					328		

* CDD = CHLORO DIBENZO-P-DIOXIN
** CDF = CHLORO DIBENZOFURAN
RL = REPORTING LIMIT
Q values = U = NOT DETECTED
TR = TRACE AMOUNT DETECTED
Results relate only to the items tested.

BRANKO VRZIC, A.SC.T.

APPLIED SCIENCE TECHNOLOGIST
ONTARIO
BRANKO VRZIC
No 057009

Maxxam Analytics Inc

DIBENZODIOXINS / FURANS (HRMS) IN LIQUID

MAXXAM JOB #: A457673
MAXXAM SAMPLE #: METHOD BLANK

PROJECT NAME:
PROJECT #: 5473
Report Date: 2004/12/23

CONC. UNITS = ppt = ng/L
RL Units = ppt = ng/L

	METHOD BLANK		TOXIC EQUIVALENCY			RECOVERIES OF C13 SURROGATE	
COMPOUND	CONC.	RL	TEF	TEQ(RL)	TEQ(0.5RL)	SPIKED	% RECOVERED
2,3,7,8-Tetra CDD *	0	0.00150	1.00	0.00150	0.000750	1000	45
1,2,3,7,8-Penta CDD	0	0.00150	0.500	0.000750	0.000375	1000	55
1,2,3,4,7,8-Hexa CDD	0	0.00150	0.100	0.000150	0.0000750	1000	49
1,2,3,6,7,8-Hexa CDD	0	0.00150	0.100	0.000150	0.0000750	1000	56
1,2,3,7,8,9-Hexa CDD	0	0.00150	0.100	0.000150	0.0000750		
1,2,3,4,6,7,8-Hepta CDD	0	0.0100	0.0100	0.000100	0.0000500	1000	60
Octa CDD	0	0.0300	0.00100	0.0000300	0.0000150	2000	53
Total Tetra CDD	0	0.00150					
Total Penta CDD	0	0.00150					
Total Hexa CDD	0	0.00150					
Total Hepta CDD	0	0.0100					
2,3,7,8-Tetra CDF **	0	0.00150	0.100	0.000150	0.0000750	1000	40
1,2,3,7,8-Penta CDF	0	0.00150	0.0500	0.0000750	0.0000375	1000	45
2,3,4,7,8-Penta CDF	0	0.00150	0.500	0.000750	0.000375	1000	51
1,2,3,4,7,8-Hexa CDF	0	0.00150	0.100	0.000150	0.0000750	1000	60
1,2,3,6,7,8-Hexa CDF	0	0.00150	0.100	0.000150	0.0000750	1000	53
2,3,4,6,7,8-Hexa CDF	0	0.00150	0.100	0.000150	0.0000750	1000	55
1,2,3,7,8,9-Hexa CDF	0	0.00150	0.100	0.000150	0.0000750	1000	51
1,2,3,4,6,7,8-Hepta CDF	0	0.0100	0.0100	0.000100	0.0000500	1000	50
1,2,3,4,7,8,9-Hepta CDF	0	0.0100	0.0100	0.000100	0.0000500	1000	50
Octa CDF	0	0.0300	0.00100	0.0000300	0.0000150		
Total Tetra CDF	0	0.00150					
Total Penta CDF	0	0.00150					
Total Hexa CDF	0	0.00150					
Total Hepta CDF	0	0.0100					
TOTAL TOXIC EQUIVALENCY				0.00164	0.00232		

* CDD = CHLORO DIBENZO-P-DIOXIN
** CDF = CHLORO DIBENZOFURAN
RL = REPORTING LIMIT
0 values = U = NOT DETECTED
TR = TRACE AMOUNT DETECTED
Results relate only to the items tested.

BRANKO VRZIC, A.S.C.T.

APPLIED SCIENCES TECHNOLOGIST
OACETT
ONTARIO
BRANKO VRZIC
No 057009

PARACEL Laboratories Ltd.
Environmental & Indoor Air Quality

300-2319 St. Laurent Blvd.
Ottawa ON K1G 4J8
Phone: (613) 731-9577
Fax: (613) 731-9064
Toll Free: 800-7491947
email: paracel@paracellabs.com

Order #: J5749

Certificate of Analysis

DST Consulting Engineers Inc.

1304 Algoma Road
Ottawa, ON K1B 3W8
Attn: Mr. Ken Budel

Phone: (613)-748-1415
Fax: (613)-748-1356

Client PO:
Project: OE04940
Custody #: 25977

Report Date: 21-Dec-2004
Order Date: 13-Dec-2004

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID	Client ID
J5749.1	BHMW3 WGS1
J5749.2	BHMW6 WGS1
J5749.3	BHMW17 WGS1

Approved By: _____ Dale Robertson, B.Sc.
Laboratory Director

Any use of these test results implies your agreement that our total liability in connection with this work, however arising, shall be limited to the amount paid by you for this work, and that our employees or agents shall not under any circumstance be liable to you in connection with this work.

Certificate of Analysis

Client: DST Consulting Engineers Inc.

Client PO:

Project: OE04940

Report Date: 21-Dec-2004
Order Date: 13-Dec-2004

Analysis Summary Table

Analysis	Method Reference/Description
Metals	EPA 200.8 - ICP-MS
BTEX, PHC - F1 (CCME)	EPA 8260, CWS PHCs - P&T GC-MS/FID
PHC F2-F4 (CCME)	CWS - Tier 1 Method, GC-FID
PAHs	Modified EPA 625 - GC-MS

n/a: not applicable
MDL: Method Detection Limit

Certificate of Analysis

Report Date: 21-Dec-2004
Order Date: 13-Dec-2004

Client: DST Consulting Engineers Inc.
Client PO:

Project: OE04940

Matrix: Water

Parameter	Sample ID:	BHMW3 WGSI	BHMW6 WGSI	BHMW17 WGSI
	Sample Date:	13/12/2004	13/12/2004	13/12/2004
	MDL/Units	J5749.1	J5749.2	J5749.3
Aluminum	0.01 mg/L	0.01	0.07	< 0.01
Antimony	0.001 mg/L	< 0.001	< 0.001	< 0.001
Arsenic	0.01 mg/L	< 0.01	< 0.01	< 0.01
Barium	0.01 mg/L	0.04	0.13	0.05
Beryllium	0.001 mg/L	< 0.001	< 0.001	< 0.001
Boron	0.05 mg/L	0.05	0.10	< 0.05
Cadmium	0.001 mg/L	< 0.001	< 0.001	< 0.001
Calcium	0.2 mg/L	170	140	60
Chromium	0.05 mg/L	< 0.05	< 0.05	< 0.05
Cobalt	0.005 mg/L	< 0.005	< 0.005	< 0.005
Copper	0.005 mg/L	< 0.005	0.005	< 0.005
Iron	0.2 mg/L	< 0.2	< 0.2	< 0.2
Lead	0.001 mg/L	< 0.001	< 0.001	< 0.001
Magnesium	0.2 mg/L	25	31	7.0
Manganese	0.05 mg/L	< 0.05	0.30	< 0.05
Molybdenum	0.005 mg/L	< 0.005	0.010	0.005
Nickel	0.005 mg/L	0.005	0.015	< 0.005
Potassium	0.2 mg/L	1.6	9.0	4.0
Selenium	0.005 mg/L	< 0.005	< 0.005	< 0.005
Silver	0.001 mg/L	< 0.001	< 0.001	< 0.001
Sodium	0.2 mg/L	26	200	42
Thallium	0.001 mg/L	< 0.001	< 0.001	< 0.001
Tin	0.01 mg/L	< 0.01	< 0.01	< 0.01
Vanadium	0.01 mg/L	< 0.01	< 0.01	< 0.01
Zinc	0.02 mg/L	< 0.02	< 0.02	< 0.02
Benzene	0.0005 mg/L	< 0.0005		< 0.0005
Ethylbenzene	0.0005 mg/L	< 0.0005		< 0.0005
Toluene	0.0005 mg/L	< 0.0005		< 0.0005
m/p-Xylene	0.001 mg/L	< 0.001		< 0.001

Certificate of Analysis

Report Date: 21-Dec-2004
Order Date: 13-Dec-2004

Client: **DST Consulting Engineers Inc.**

Client PO: Project: **OE04940**

		BHMW3 WGS1	BHMW8 WGS1	BHMW17 WGS1
		13/12/2004	13/12/2004	13/12/2004
		J5749.1	J5749.2	J5749.3
o-Xylene	0.0005 mg/L	< 0.0005		< 0.0005
Toluene-d8	surrogate	91%		93%
F1 PHCs (C6-C10)	0.2 mg/L	< 0.2		< 0.2
F2 PHCs (C10-C16)	0.1 mg/L	< 0.1		< 0.1
F3 PHCs (C16-C34)	0.1 mg/L	< 0.1		< 0.1
F4 PHCs (C34-C50)	0.1 mg/L	< 0.1		< 0.1
Acenaphthene	0.05 ug/L	< 0.05		0.05
Acenaphthylene	0.05 ug/L	< 0.05		< 0.05
Anthracene	0.01 ug/L	< 0.01		< 0.01
Benzo[a]anthracene	0.01 ug/L	< 0.01		< 0.01
Benzo[a]pyrene	0.01 ug/L	< 0.01		< 0.01
Benzo[b]fluoranthene	0.05 ug/L	< 0.05		< 0.05
Benzo[ghi]perylene	0.05 ug/L	< 0.05		< 0.05
Benzo[k]fluoranthene	0.05 ug/L	< 0.05		< 0.05
Biphenyl	0.05 ug/L	< 0.05		< 0.05
Chrysene	0.05 ug/L	< 0.05		< 0.05
Dibenzo[a,h]anthracene	0.05 ug/L	< 0.05		< 0.05
Fluoranthene	0.01 ug/L	< 0.01		0.03
Fluorene	0.05 ug/L	< 0.05		< 0.05
Indeno[1,2,3-cd]pyrene	0.05 ug/L	< 0.05		< 0.05
1-Methylnaphthalene	0.05 ug/L	< 0.05		< 0.05
2-Methylnaphthalene	0.05 ug/L	< 0.05		< 0.05
Naphthalene	0.05 ug/L	< 0.05		< 0.05
Phenanthrene	0.05 ug/L	< 0.05		0.10
Pyrene	0.01 ug/L	< 0.01		< 0.01
2-Fluorobiphenyl	surrogate	94%		100%
p-Terphenyl d-14	surrogate	109%		103%

Certificate of Analysis

Report Date: 21-Dec-2004
Order Date: 13-Dec-2004

Client: DST Consulting Engineers Inc.
Client PO:

Project: OE04940

QA/QC Results

	Blank	Spike (QC Limits)	Duplicate	
Aluminum	< 0.01 mg/L	100% (70 - 130%)	0.03	0.04
Antimony	< 0.001 mg/L	96% (70 - 130%)	< 0.001	0.004
Arsenic	< 0.01 mg/L	95% (70 - 130%)	< 0.01	< 0.01
Barium	< 0.01 mg/L	93% (70 - 130%)	0.04	0.04
Beryllium	< 0.001 mg/L	97% (70 - 130%)	< 0.001	< 0.001
Boron	< 0.05 mg/L	94% (70 - 130%)	< 0.05	< 0.05
Cadmium	< 0.001 mg/L	93% (70 - 130%)	< 0.001	< 0.001
Chromium	< 0.05 mg/L	93% (70 - 130%)	< 0.05	< 0.05
Cobalt	< 0.005 mg/L	94% (70 - 130%)	< 0.005	< 0.005
Copper	< 0.005 mg/L	91% (70 - 130%)	< 0.005	< 0.005
Lead	< 0.001 mg/L	95% (70 - 130%)	< 0.001	< 0.001
Manganese	< 0.05 mg/L	98% (70 - 130%)	0.10	0.10
Molybdenum	< 0.005 mg/L	94% (70 - 130%)	< 0.005	< 0.005
Nickel	< 0.005 mg/L	92% (70 - 120%)	< 0.005	< 0.005
Selenium	< 0.005 mg/L	99% (70 - 130%)	< 0.005	< 0.005
Silver	< 0.001 mg/L	90% (70 - 108%)	< 0.001	< 0.001
Thallium	< 0.001 mg/L	101% (70 - 130%)	< 0.001	< 0.001
Tin	< 0.01 mg/L	82% (70 - 130%)	< 0.01	< 0.01
Vanadium	< 0.01 mg/L	96% (70 - 130%)	< 0.01	< 0.01
Zinc	< 0.02 mg/L	95% (70 - 130%)	< 0.02	< 0.02
Benzene	< 0.0005 mg/L	93% (50 - 150%)	< 0.0005	< 0.0005
Ethylbenzene	< 0.0005 mg/L	106% (50 - 150%)	< 0.0005	< 0.0005
Toluene	< 0.0005 mg/L	80% (50 - 150%)	< 0.0005	< 0.0005
m/p-Xylene	< 0.001 mg/L	95% (50 - 150%)	< 0.001	< 0.001
o-Xylene	< 0.0005 mg/L	81% (50 - 150%)	< 0.0005	< 0.0005
F1 PHCs (C6-C10)	< 0.2 mg/L	100% (50 - 150%)	< 0.2	< 0.2
F2-F4 PHCs (C10-C50)	< 0.1 mg/L	93% (50 - 150%)		
Acenaphthene	< 0.05 ug/L	103% (47 - 147%)		
Acenaphthylene	< 0.05 ug/L	106% (33 - 145%)		
Anthracene	< 0.01 ug/L	104% (27 - 133%)		

Certificate of Analysis

Report Date: 21-Dec-2004
Order Date: 13-Dec-2004

Client: **DST Consulting Engineers Inc.**

Client PO: Project: OE04940

	Blank	Spike (QC Limits)	Duplicate
Benzo[a]anthracene	< 0.01 ug/L	85% (33 - 143%)	
Benzo[a]pyrene	< 0.01 ug/L	93% (17 - 163%)	
Benzo[b]fluoranthene	< 0.05 ug/L	89% (11 - 162%)	
Benzo[ghi]perylene	< 0.05 ug/L	107% (25 - 132%)	
Benzo[k]fluoranthene	< 0.05 ug/L	116% (11 - 162%)	
Biphenyl	< 0.05 ug/L	98% (23 - 120%)	
Chrysene	< 0.05 ug/L	87% (17 - 168%)	
Dibenzo[a,h]anthracene	< 0.05 ug/L	96% (20 - 140%)	
Fluoranthene	< 0.01 ug/L	96% (26 - 137%)	
Fluorene	< 0.05 ug/L	105% (34 - 121%)	
Indeno[1,2,3-cd]pyrene	< 0.05 ug/L	98% (30 - 140%)	
1-Methylnaphthalene	< 0.05 ug/L	113% (23 - 120%)	
2-Methylnaphthalene	< 0.05 ug/L	100% (23 - 120%)	
Naphthalene	< 0.05 ug/L	97% (21 - 133%)	
Phenanthrene	< 0.05 ug/L	94% (54 - 120%)	
Pyrene	< 0.01 ug/L	96% (52 - 115%)	

PARACEL Laboratories Ltd.
Environmental & Indoor Air Quality

300-2319 St. Laurent Blvd.
Ottawa, ON K1G 4J8
tel: 613-731-9577
fax: 613-731-9064
email: paracel@paracellabs.com

Date: JAN 12, 2004

Attn: KEN BUDD

From: Dale Robertson

re: Subcontracted Analyses

Your samples, identified below, were subcontracted for the listed parameters.. Samples in the attached subcontractor report are identified with Paracel sample references with your references manually added.

Project Reference	OE 04940
Submission Date	DEC 13, 2004
Parameter	Dioxin / Furans

Your sample ID's correlate to the Paracel sample references as indicated in the table below

Client ID	Paracel Sample Reference
BH MW3 WGS1	5750-1

Maxxam Analytics Inc.

Paracel Laboratories Ltd
2319 St Laurent Blvd
Unit 300
Ottawa, ON
K1G 4J8

For DST Consulting Eng.

Attention: Dale Robertson Attn Ken Budel Report Date: 2005/01/11

Your Project #: 5750 project OE 04940

ANALYTICAL REPORT

MAXXAM JOB #: A460609
Received: 2004/12/13, 19:45

Sample Matrix: LIQUID
Samples Received: 1

Analyses	Number of Tests	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Dibenzodioxins / Furans (HRMS)	1	2005/01/05	2005/01/10	Ont SOP-00-12	EPS 1/RM/23 / 19

MAXXAM ANALYTICS INC.

2005/01/11

BRANKO VRZIC, A.S.C.T.
Senior Analyst, HRMS Services

APPLIED SCIENCE TECHNOLOGIST
A.S.C.T.
ONTARIO
BRANKO VRZIC
No 037009

Total pages: 7

000001

Maxxam Analytics Inc

DIBENZODIOXINS/FURANS
CONTROL LIMITS

ANALYTE	ION RATIO Limits	% RECOVERY LIMITS LOWER	UPPER
2,3,7,8-TETRA CDD*	0.65-0.89	30	130
1,2,3,7,8-PENTA CDD	1.32-1.78	30	130
1,2,3,4,7,8-HEXA CDD	1.05-1.43	30	130
1,2,3,6,7,8-HEXA CDD	1.05-1.43	30	130
1,2,3,7,8,9-HEXA CDD	1.05-1.43		
1,2,3,4,6,7,8-HEPTA CDD	0.88-1.20	30	130
OCTA CDD	0.76-1.02	30	130
TOTAL TETRA CDD	0.65-0.89		
TOTAL PENTA CDD	1.32-1.78		
TOTAL HEXA CDD	1.05-1.43		
TOTAL HEPTA CDD	0.88-1.20		

2,3,7,8-TETRA CDF	0.65-0.89	30	130
1,2,3,7,8-PENTA CDF	1.32-1.78	30	130
2,3,4,7,8-PENTA CDF	1.32-1.78	30	130
1,2,3,4,7,8-HEXA CDF	1.05-1.43	30	130
1,2,3,6,7,8-HEXA CDF	1.05-1.43	30	130
2,3,4,6,7,8-HEXA CDF	1.05-1.43	30	130
1,2,3,7,8,9-HEXA CDF	1.05-1.43	30	130
1,2,3,4,6,7,8-HEPTA CDF	0.88-1.20	30	130
1,2,3,4,7,8,9-HEPTA CDF	0.88-1.20	30	130
OCTA CDF	0.76-1.02		
TOTAL TETRA CDF	0.65-0.89		
TOTAL PENTA CDF	1.32-1.78		
TOTAL HEXA CDF	1.05-1.43		
TOTAL HEPTA CDF	0.88-1.20		

Ion Ratio Limits:
The ratio of the major ion to the secondary or confirming ion is used to identify presence/absence of Dibenzo-p-dioxins and furans.

% Recovery Limits:
The recovery of C13-labelled surrogates must fall within the limits given.

Maxxam Analytics Inc

Evaluation Questions

MAXXAM ANALYTICS INC. Report No: A460609

	All Congeners	2,3,7,8-TCDD	2,3,7,8-TCDF
1. Surrogate Recovery (Fig 8, Part I).			
a) Are all surrogate recoveries within specified limits ? (see Section 8(c) of the RM)	X		
b) Are all reported detection limits at or below maximum target values ? (see Table 5 of the RM)	X		
2. Ion Ratio (Fig 8, Part II) All ion abundance ratios with acceptable limits for 2,3,7,8-TCDD & 2,3,7,8-TCDF ? (see Section 6.5 & 6.7 of the RM)		X	X
3. Method Performance Test (Fig 10)			
a) Are all surrogate recoveries within the range of 40 to 120% for each of the 3 tests ? (see Section 5.2 of the RM)	X		
b) Are all native congener recoveries within 30% of the spiked amount for each of the 3 tests ?	X		
4. Calibration (Fig 11) Are % RSD values within specifications for native congeners ? (see Section 6.6 of the RM)	X		
5. Calibration Verification (Fig 12)			
a) Was calibration verified within 12 hours from analysis for each reported compliance sample ? (see Section 8(j) of the RM)	X		
b) Are (calculated/actual) concentration ratios for native congeners within the specified limits ? (see Section 8(j) of the RM)	X		
c) Are all surrogate recoveries within the range of 75 to 125 % ?	X		
6. Detection Limits of Verification (Fig 13) Were analyte identification criteria satisfied for 2,3,7,8-TCDD and 2,3,7,8-TCDF in CS1 for each date on which compliance sample analyses were performed ? (see Section 6.2 and 8(k) of the RM)		X	X
7. GC Performance Were windows verified and were acceptable chromatographic performance confirmed for each date on which compliance sample analysis were performed ? (see Section 6.2 and 6.3 of the RM)	X		
8. High Resolution Were all compliance samples analyzed at MS resolution of 10,000 or better ?	X		
9. Contamination Was PCDD/PCDF contamination below maximum allowable levels in all blank samples ? (see Section 8(a) of the RM)	X		

I CERTIFY THAT ANSWERS TO ALL QUESTIONS ABOVE ARE ACCURATE.

Name: BRANKO VRZIC Title: Technical Specialist

Signature: Title:

APPLIED SCIENCE TECHNOLOGIST
SAGETT
ONTARIO
BRANKO VRZIC
No 057009

000003

Maxxam Analytics Inc

DIBENZODIOXINS / FURANS (HRMS) IN LIQUID

MAXXAM JOB #: A460609
MAXXAM SAMPLE #: E31000
Sampling Date: 2004/12/13

PROJECT NAME:
PROJECT #: 5750
Report Date: 2005/01/11

CONC. UNITS = ppt = ng/L
RL Units = ppt = ng/L

TSHMW3 WGS1

Compounds	5750 DEW CONC	RL	TOXIC EQUIVALENCY I-TEF	TEQ(RL)	TEQ(0.5RL)	RECOVERIES OF C13 SURROGATE pg SPIKED	% RECOVERED
2,3,7,8-Tetra CDD *	0	0.00150	1.00	0.00150	0.000750	1000	55
1,2,3,7,8-Penta CDD	0	0.00150	0.500	0.000750	0.000375	1000	56
1,2,3,4,7,8-Hexa CDD	0	0.00150	0.100	0.000150	0.0000750	1000	56
1,2,3,6,7,8-Hexa CDD	0	0.00150	0.100	0.000150	0.0000750	1000	65
1,2,3,7,8,9-Hexa CDD	0	0.00150	0.100	0.000150	0.0000750		
1,2,3,4,6,7,8-Hepta CDD	0.0177	0.0100	0.0100	0.000177	0.000177	1000	76
Octa CDD	0.228	0.0300	0.00100	0.000228	0.0000228	2000	65
Total Tetra CDD	0	0.00150					
Total Penta CDD	0	0.00150					
Total Hexa CDD	0	0.00150					
Total Hepta CDD	0.0297	0.0100					
2,3,7,8-Tetra CDF **	0	0.00150	0.100	0.000150	0.0000750	1000	47
1,2,3,7,8-Penta CDF	0	0.00150	0.0500	0.0000750	0.0000375	1000	54
2,3,4,7,8-Penta CDF	0	0.00150	0.500	0.000750	0.000375	1000	50
1,2,3,4,7,8-Hexa CDF	0	0.00150	0.100	0.000150	0.0000750	1000	74
1,2,3,6,7,8-Hexa CDF	0	0.00150	0.100	0.000150	0.0000750	1000	78
2,3,4,6,7,8-Hexa CDF	0	0.00150	0.100	0.000150	0.0000750	1000	61
1,2,3,7,8,9-Hexa CDF	0	0.00150	0.100	0.000150	0.0000750	1000	66
1,2,3,4,6,7,8-Hepta CDF	0	0.0100	0.0100	0.000100	0.0000500	1000	72
1,2,3,4,7,8,9-Hepta CDF	0	0.0100	0.0100	0.000100	0.0000500	1000	60
Octa CDF	0	0.0300	0.00100	0.0000300	0.0000150		
Total Tetra CDF	0	0.00150					
Total Penta CDF	0.00340	0.00150					
Total Hexa CDF	0.00340	0.00150					
Total Hepta CDF	0	0.0100					
TOTAL TOXIC EQUIVALENCY				0.00451	0.00266		

* CDD = CHLORO DIBENZO-P-DIOXIN
** CDF = CHLORO DIBENZOFURAN
RL = REPORTING LIMIT
0 values = U = NOT DETECTED
TR = TRACE AMOUNT DETECTED
Results relate only to the items tested.

BRANKO VRZIC, A.S.C.T.

APPLIED SCIENCE TECHNOLOGIST
ASCT
ONTARIO
BRANKO VRZIC
No 057009

Maxxam Analytics Inc

DIBENZODIOXINS / FURANS (HRMS) IN LIQUID

MAXXAM JOB #: A460609
MAXXAM SAMPLE #: SPIKED BLANK

PROJECT NAME:
PROJECT #: 5750
Report Date: 2005/01/11

CONC. UNITS = ppt = ng/L
RL Units = ppt = ng/L

	SPIKED BLANK		TOXIC EQUIVALENCY			RECOVERIES OF C13 SURROGATE	
Compounds	% RECOVER	RL	TEF	TEQ(RL)	TEQ(0.5RL)	ng SPIKED	% RECOVERED
2,3,7,8-Tetra CDD *	100	0.00150	1.00	100	100	1000	53
1,2,3,7,8-Penta CDD	91	0.00150	0.500	45.5	45.5	1000	60
1,2,3,4,7,8-Hexa CDD	108	0.00150	0.100	10.8	10.8	1000	59
1,2,3,6,7,8-Hexa CDD	112	0.00150	0.100	11.2	11.2	1000	55
1,2,3,7,8,9-Hexa CDD	90	0.00150	0.100	9.00	9.00		
1,2,3,4,6,7,8-Hepta CDD	84	0.0100	0.0100	0.840	0.840	1000	73
Octa CDD	107	0.0300	0.00100	0.107	0.107	2000	67
2,3,7,8-Tetra CDF	117	0.00150	0.100	11.7	11.7	1000	49
1,2,3,7,8-Penta CDF	110	0.00150	0.0500	5.50	5.50	1000	50
2,3,4,7,8-Penta CDF	104	0.00150	0.500	50.5	50.5	1000	54
1,2,3,4,7,8-Hexa CDF	95	0.00150	0.100	9.50	9.50	1000	70
1,2,3,6,7,8-Hexa CDF	106	0.00150	0.100	10.6	10.6	1000	67
2,3,4,6,7,8-Hexa CDF	101	0.00150	0.100	10.1	10.1	1000	65
1,2,3,7,8,9-Hexa CDF	97	0.00150	0.100	9.70	9.70	1000	69
1,2,3,4,6,7,8-Hepta CDF	94	0.0100	0.0100	0.940	0.940	1000	68
1,2,3,4,7,8,9-Hepta CDF	101	0.0100	0.0100	1.01	1.01	1000	60
Octa CDF	90	0.0300	0.00100	0.0900	0.0900		
TOTAL TOXIC EQUIVALENCY				287	287		

* CDD = CHLORODIBENZO-P-DIOXIN
** CDF = CHLORO DIBENZOFURAN
RL = REPORTING LIMIT
DL value = "U" = NOT DETECTED
TR = TRACE AMOUNT DETECTED
Results relate only to the items tested.

BRANKO VRZIC, MASC, P.

APPLIED SCIENCE TECHNOLOGIST
ONTARIO
BRANKO VRZIC
No 057088

000005

Maxxam Analytics Inc

DIBENZODIOXINS / FURANS (HRMS) IN LIQUID

MAXXAM JOB #: A460809
MAXXAM SAMPLE #: METHOD BLANK

PROJECT NAME:
PROJECT #: 5750
Report Date: 2005/01/11

CONC. UNITS = ppt = ng/L
RL Units = ppt = ng/L

	METHOD BLANK		TOXIC EQUIVALENCY			RECOVERIES OF C13 SURROGATE	
Compounds	CONC	RL	ITEF	TEQ(RL)	TEQ(0.5RL)	pg SPIKED	% RECOVERED
2,3,7,8-Tetra CDD *	0	0.00150	1.00	0.00150	0.000750	1000	47
1,2,3,7,8-Penta CDD	0	0.00150	0.500	0.000750	0.000375	1000	55
1,2,3,4,7,8-Hexa CDD	0	0.00150	0.100	0.000150	0.0000750	1000	57
1,2,3,6,7,8-Hexa CDD	0	0.00150	0.100	0.000150	0.0000750	1000	64
1,2,3,7,8,9-Hexa CDD	0	0.00150	0.100	0.000150	0.0000750		
1,2,3,4,6,7,8-Hepta CDD	0	0.0100	0.0100	0.000100	0.0000500	1000	70
Octa CDD	0	0.0300	0.00100	0.0000300	0.0000150	2000	61
Total Tetra CDD	0	0.00150					
Total Penta CDD	0	0.00150					
Total Hexa CDD	0	0.00150					
Total Hepta CDD	0	0.0100					
2,3,7,8-Tetra CDF **	0	0.00150	0.100	0.000150	0.0000750	1000	44
1,2,3,7,8-Penta CDF	0	0.00150	0.0500	0.0000750	0.0000375	1000	48
2,3,4,7,8-Penta CDF	0	0.00150	0.500	0.000750	0.000375	1000	52
1,2,3,4,7,8-Hexa CDF	0	0.00150	0.100	0.000150	0.0000750	1000	71
1,2,3,6,7,8-Hexa CDF	0	0.00150	0.100	0.000150	0.0000750	1000	65
2,3,4,6,7,8-Hexa CDF	0	0.00150	0.100	0.000150	0.0000750	1000	71
1,2,3,7,8,9-Hexa CDF	0	0.00150	0.100	0.000150	0.0000750	1000	71
1,2,3,4,6,7,8-Hepta CDF	0	0.0100	0.0100	0.000100	0.0000500	1000	65
1,2,3,4,7,8,9-Hepta CDF	0	0.0100	0.0100	0.000100	0.0000500	1000	56
Octa CDF	0	0.0300	0.00100	0.0000300	0.0000150		
Total Tetra CDF	0	0.00150					
Total Penta CDF	0	0.00150					
Total Hexa CDF	0	0.00150					
Total Hepta CDF	0	0.0100					
TOTAL TOXIC EQUIVALENCY				0.00464	0.00232		

* CDD = CHLORO DIBENZO-P-DIOXIN
** CDF = CHLORO DIBENZOFURAN
RL = REPORTING LIMIT
0 values = U = NOT DETECTED
TR = TRACE AMOUNT DETECTED
Results relate only to the items tested.

BRANKO VRZIC, A.SC.T.

APPLIED SCIENCE TECHNOLOGIST
A.S.C.T.
ONTARIO
BRANKO VRZIC
No 097609

Maxxam Analytics Inc.

DIBENZODIOXINS / FURANS (HRMS) IN LIQUID

MAXXAM JOB #: A160809
MAXXAM SAMPLE #: METHOD BLANK Duplicate

PROJECT NAME:
PROJECT #: 5750
Report Date: 2005/01/11

CONC. UNITS = ppt = ng/L
RL Units = ppt = ng/L

Compounds	METHOD BLANK CONC	RL	TOXIC EQUIVALENCY I-TEF	TEQ(RL)	TEQ(0.5RL)	RECOVERIES OF C13-SURROGATE pg SPIKED	% RECOVERED
2,3,7,8-Tetra CDD *	0	0.00150	1.00	0.00150	0.000750	1000	52
1,2,3,7,8-Penta CDD	0	0.00150	0.500	0.000750	0.000375	1000	62
1,2,3,4,7,8-Hexa CDD	0	0.00150	0.100	0.000150	0.0000750	1000	62
1,2,3,6,7,8-Hexa CDD	0	0.00150	0.100	0.000150	0.0000750	1000	63
1,2,3,7,8,9-Hexa CDD	0	0.00150	0.100	0.000150	0.0000750		
1,2,3,4,6,7,8-Hepta CDD	0	0.0100	0.0100	0.000100	0.0000500	1000	77
Octa CDD	0	0.0300	0.00100	0.0000300	0.0000150	2000	69
Total Tetra CDD	0	0.00150					
Total Penta CDD	0	0.00150					
Total Hexa CDD	0	0.00150					
Total Hepta CDD	0	0.0100					
2,3,7,8-Tetra CDF **	0	0.00150	0.100	0.000150	0.0000750	1000	48
1,2,3,7,8-Penta CDF	0	0.00150	0.0500	0.0000750	0.0000375	1000	51
2,3,4,7,8-Penta CDF	0	0.00150	0.500	0.000750	0.000375	1000	56
1,2,3,4,7,8-Hexa CDF	0	0.00150	0.100	0.000150	0.0000750	1000	76
1,2,3,6,7,8-Hexa CDF	0	0.00150	0.100	0.000150	0.0000750	1000	71
2,3,4,6,7,8-Hexa CDF	0	0.00150	0.100	0.000150	0.0000750	1000	76
1,2,3,7,8,9-Hexa CDF	0	0.00150	0.100	0.000150	0.0000750	1000	72
1,2,3,4,6,7,8-Hepta CDF	0	0.0100	0.0100	0.000100	0.0000500	1000	71
1,2,3,4,7,8,9-Hepta CDF	0	0.0100	0.0100	0.000100	0.0000500	1000	66
Octa CDF	0	0.0300	0.00100	0.0000300	0.0000150		
Total Tetra CDF	0	0.00150					
Total Penta CDF	0	0.00150					
Total Hexa CDF	0	0.00150					
Total Hepta CDF	0	0.0100					
TOTAL TOXIC EQUIVALENCY				0.000464	0.000232		

* CDD = CHLORO DIBENZO-P-DIOXIN
** CDF = CHLORO DIBENZOFURAN
RL = REPORTING LIMIT
0 values = U = NOT DETECTED
TR = TRACE AMOUNT DETECTED
Results relate only to the items tested.

05 01 11
BRANKO VRZIC, A.SC.T.

APPLIED SCIENCE TECHNOLOGIST
ASTT
ONTARIO
BRANKO VRZIC
No. 057999

000007

PARACEL Laboratories Ltd.
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Chain of Custody Record

№ 25977 Pg. 1 of 1

Contact: Ken Budel
Company: DST Consulting Engineers Inc
Address: 1304 Algoma Rd
Ottawa Ont K1B 3W8
Tel: 613 748 1415 Fax: 613 748 1356

Project Ref: OE 04 240
PO #:
Quote #: ☐ Not Quoted
Email: kbudel@dstgroup.com
Preservative to be added by Paracel? ☐ Yes ☐ No

REPORTING REQUIREMENTS
[ ] Hard Copy [ ] Email - PDF
[X] FAX [X] Email - spreadsheet

TURN AROUND TIME
[ ] 1-day [ ] 2-day [ ] Regular

REGULATORY/GUIDELINE REQUIREMENTS
MOE/CCME for Potable H2O
Res/Park C

Matrix Types: S–Soil/Sed GW–Ground Water SW–Surface Water SS–Storm/Sanitary Sewer A-Air O-Other

Paracel Order #: 5150

	Sample Identification	Matrix	# Bottles	Date Sampled d/m/y	Analysis Required: PHC F1-F4	PHC F1	BTEX	PAH	VOC Metal	PAH	BTEX
1	BHMW 3 WGS 1	H2O	7	13 12 2004	✓	✓	✓				
2	BHMW 6 WGS 1		1						✓		
3	BH MW 17 WGS		6		✓			✓	✓		
4											
5											
6											
7											
8											
9											
10											

Comments:

Relinquished by: [signature]
Date: 17 12 Time: 15:00

Received by: [signature]

Verified by: [signature]

PARACEL Laboratories Ltd.
Environmental & Indoor Air Quality

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Toll Free: 800-7491947
email: paracel@paracellabs.com

Order #: J5938

Certificate of Analysis

DST Consulting Engineers Inc.

1304 Algoma Road
Ottawa, ON K1B 3W8
Attn: Mr. Ken Budel

Phone: (613)-748-1415
Fax: (613)-748-1356

Client PO:
Project: OE04940
Custody #: 26194

Report Date: 31-Dec-2004
Order Date: 22-Dec-2004

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID	Client ID
J5938.1	BHMW15 WGS2

Approved By: Mark Foto for Dale Robertson, B.Sc.
Laboratory Director

Any use of these test results implies your agreement that our total liability in connection with this work, however arising, shall be limited to the amount paid by you for this work, and that our employees or agents shall not under any circumstance be liable to you in connection with this work.

Certificate of Analysis

Client: DST Consulting Engineers Inc.

Client PO:

Project: OE04940

Report Date: 31-Dec-2004
Order Date: 22-Dec-2004

Analysis Summary Table

Analysis	Method Reference/Description
BTEX, PHC - F1 (CCME)	EPA 8260, CWS PHCs - P&T GC-MS/FID
PHC F2-F4 (CCME)	CWS - Tier 1 Method, GC-FID

n/a: not applicable

MDL: Method Detection Limit

CCME PHC additional information:

- The method for the analysis of PHCs complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
- F1 range corrected for BTEX where available
- F2 to F3 ranges corrected for appropriate PAHs where available.
- The gravimetric TPH (heavy oil) result is not to be added to the PHC fractions.

Certificate of Analysis

Report Date: 31-Dec-2004
Order Date: 22-Dec-2004

Client: DST Consulting Engineers Inc.
Client PO: Project: OE04940

Matrix: Water

Parameter	MDL/Units	Sample ID: BHMW15 WGS2 Sample Date: 22/12/2004 J5938.1
Benzene	0.0005 mg/L	< 0.0005
Ethylbenzene	0.0005 mg/L	< 0.0005
Toluene	0.0005 mg/L	< 0.0005
m/p-Xylene	0.001 mg/L	< 0.001
o-Xylene	0.0005 mg/L	< 0.0005
Toluene-d8	surrogate	116%
F1 PHCs (C6-C10)	0.2 mg/L	< 0.2
F2 PHCs (C10-C16)	0.1 mg/L	67
F3 PHCs (C16-C34)	0.1 mg/L	34
F4 PHCs (C34-C50)	0.1 mg/L	< 0.1

Certificate of Analysis

Report Date: 31-Dec-2004
Order Date: 22-Dec-2004

Client: **DST Consulting Engineers Inc.**

Client PO:

Project: **OE04940**

QA/QC Results

	Blank	Spike (QC Limits)	Duplicate	
Benzene	< 0.0005 mg/L	104% (50 - 150%)	< 0.0005	< 0.0005
Ethylbenzene	< 0.0005 mg/L	104% (50 - 150%)	< 0.0005	< 0.0005
Toluene	< 0.0005 mg/L	105% (50 - 150%)	< 0.0005	< 0.0005
m/p-Xylene	< 0.001 mg/L	101% (50 - 150%)	< 0.001	< 0.001
o-Xylene	< 0.0005 mg/L	102% (50 - 150%)	< 0.0005	< 0.0005
F1 PHCs (C6-C10)	< 0.2 mg/L	98% (50 - 150%)	< 0.2	< 0.2
F2-F4 PHCs (C10-C50)	< 0.1 mg/L	120% (50 - 150%)		

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Toll Free: 800-7491947
email: paracel@paracellabs.com

Order #: K6515

Certificate of Analysis

DST Consulting Engineers Inc.

1304 Algoma Road
Ottawa, ON K1B 3W8
Attn: Mr. George Thomas

Phone: (613)-748-1415
Fax: (613)-748-1356

Client PO:
Project: **OE04940**
Custody #: **25377-BB6588**

Report Date: 08-Feb-2005
Order Date: 02-Feb-2005

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID	Client ID
K6515.1	BHMW 25 WGS1
K6515.2	BHMW 26 WGS1

Approved By: Dale Robertson, B.Sc.
Laboratory Director

Any use of these test results implies your agreement that our total liability in connection with this work, however arising, shall be limited to the amount paid by you for this work, and that our employees or agents shall not under any circumstance be liable to you in connection with this work.

Certificate of Analysis

Report Date: 08-Feb-2005
Order Date: 02-Feb-2005

Client: DST Consulting Engineers Inc.

Client PO:

Project: OE04940

Analysis Summary Table

Analysis	Method Reference/Description
BTEX, PHC - F1 (CCME)	EPA 8260, CWS PHCs - P&T GC-MS/FID
PHC F2-F4 (CCME)	CWS - Tier 1 Method, GC-FID
PAHs	modified EPA 625 - GC-MS

n/a: not applicable
MDL: Method Detection Limit
CCME PHC additional information:

- The method for the analysis of PHCs complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
- F1 range corrected for BTEX where available
- F2 to F3 ranges corrected for appropriate PAHs where available.
- The gravimetric TPH (heavy oil) result is not to be added to the PHC fractions.

Sample/Test Specific Notes

SampleID	Analysis	Note
BHMW 26 WGS1	PAHs	Free product phase visible on sample.

Certificate of Analysis

Report Date: 08-Feb-2005
Order Date: 02-Feb-2005

Client: DST Consulting Engineers Inc.

Client PO: Project: OE04940

Matrix: Water

Parameter	Sample ID: / Sample Date: / MDL/Units	BHMW 25 WGS1 02/02/2005 K6515.1	BHMW 26 WGS1 02/02/2005 K6515.2
Benzene	0.0005 mg/L	< 0.0005	< 0.0005
Ethylbenzene	0.0005 mg/L	< 0.0005	< 0.0005
Toluene	0.0005 mg/L	< 0.0005	< 0.0005
m/p-Xylene	0.001 mg/L	< 0.001	< 0.001
o-Xylene	0.0005 mg/L	< 0.0005	< 0.0005
Toluene-d8	surrogate	98%	98%
F1 PHCs (C6-C10)	0.2 mg/L	< 0.2	< 0.2
F2 PHCs (C10-C16)	0.1 mg/L	< 0.1	2.6
F3 PHCs (C16-C34)	0.1 mg/L	< 0.1	13
F4 PHCs (C34-C50)	0.1 mg/L	< 0.1	0.5
Acenaphthene	0.05 ug/L	0.10	< 0.5
Acenaphthylene	0.05 ug/L	< 0.05	< 0.5
Anthracene	0.01 ug/L	< 0.01	< 0.1
Benzo[a]anthracene	0.01 ug/L	< 0.01	0.1
Benzo[a]pyrene	0.01 ug/L	< 0.01	0.1
Benzo[b]fluoranthene	0.05 ug/L	< 0.05	< 0.5
Benzo[ghi]perylene	0.05 ug/L	< 0.05	< 0.5
Benzo[k]fluoranthene	0.05 ug/L	< 0.05	< 0.5
Biphenyl	0.05 ug/L	0.10	< 0.5
Chrysene	0.05 ug/L	< 0.05	< 0.5
Dibenzo[a,h]anthracene	0.05 ug/L	< 0.05	< 0.5
Fluoranthene	0.01 ug/L	0.02	< 0.1
Fluorene	0.05 ug/L	0.05	1.0
Indeno[1,2,3-cd]pyrene	0.05 ug/L	< 0.05	< 0.5
1-Methylnaphthalene	0.05 ug/L	0.25	< 0.5
2-Methylnaphthalene	0.05 ug/L	0.45	< 0.5
Naphthalene	0.05 ug/L	0.45	1.0
Phenanthrene	0.05 ug/L	0.15	< 0.5
Pyrene	0.01 ug/L	< 0.01	0.6

Certificate of Analysis

Report Date: 08-Feb-2005
Order Date: 02-Feb-2005

Client: DST Consulting Engineers Inc.

Client PO:

Project: OE04940

		BHMW 25 WGS1	BHMW 26 WGS1
		02/02/2005	02/02/2005
		K6515.1	K6515.2
2-Fluorobiphenyl	surrogate	58%	NA - Dilution
p-Terphenyl d-14	surrogate	117%	NA - Dilution

Certificate of Analysis

Report Date: 08-Feb-2005
Order Date: 02-Feb-2005

Client: DST Consulting Engineers Inc.

Client PO: Project: OE04940

QA/QC Results

	Blank	Spike (QC Limits)	Duplicate	
Benzene	< 0.0005 mg/L	122% (50 - 150%)	0.021	0.023
Ethylbenzene	< 0.0005 mg/L	105% (50 - 150%)	0.0065	0.0085
Toluene	< 0.0005 mg/L	106% (50 - 150%)	0.020	0.023
m/p-Xylene	< 0.001 mg/L	105% (50 - 150%)	0.028	0.031
o-Xylene	< 0.0005 mg/L	109% (50 - 150%)	0.048	0.050
F1 PHCs (C6-C10)	< 0.2 mg/L	95% (50 - 150%)	1.2	1.0
F2-F4 PHCs (C10-C50)	< 0.1 mg/L	103% (50 - 150%)		
Acenaphthene	< 0.05 ug/L	93% (47 - 147%)		
Acenaphthylene	< 0.05 ug/L	51% (33 - 145%)		
Anthracene	< 0.01 ug/L	105% (27 - 133%)		
Benzo[a]anthracene	< 0.01 ug/L	56% (33 - 143%)		
Benzo[a]pyrene	< 0.01 ug/L	71% (17 - 163%)		
Benzo[b]fluoranthene	< 0.05 ug/L	105% (11 - 162%)		
Benzo[ghi]perylene	< 0.05 ug/L	78% (25 - 132%)		
Benzo[k]fluoranthene	< 0.05 ug/L	79% (11 - 162%)		
Biphenyl	< 0.05 ug/L	78% (23 - 120%)		
Chrysene	< 0.05 ug/L	73% (17 - 168%)		
Dibenzo[a,h]anthracene	< 0.05 ug/L	102% (20 - 140%)		
Fluoranthene	< 0.01 ug/L	69% (26 - 137%)		
Fluorene	< 0.05 ug/L	87% (34 - 121%)		
Indeno[1,2,3-cd]pyrene	< 0.05 ug/L	86% (30 - 140%)		
1-Methylnaphthalene	< 0.05 ug/L	78% (23 - 120%)		
2-Methylnaphthalene	< 0.05 ug/L	69% (23 - 120%)		
Naphthalene	0.050 ug/L	67% (21 - 133%)		
Phenanthrene	< 0.05 ug/L	87% (54 - 120%)		
Pyrene	< 0.01 ug/L	69% (52 - 115%)		

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Chain-of-Custody Record

№ 25377 Pg. of

Contact: George Thomas
Company: DST Consulting Engineers
Address: 1304 Algoma

Tel: 613 748 1415 Fax: 613 748 1352

Project Ref: 0E04940
PO #:
Quote #: ☐Not Quoted
Email: gthomas@dstgroup.com
Preservative to be added by Paracel? ☐Yes ☐No

REPORTING REQUIREMENTS
[✓] Hard Copy [ ] Email - PDF
[ ] FAX [ ] Email - spreadsheet

TURN AROUND TIME
[ ] 1-day [ ] 2-day [✓] Regular

REGULATORY/GUIDELINE REQUIREMENTS
MOE Potable GW.

Matrix Types: S–Soil/Sed GW–Ground Water SW–Surface Water SS–Storm/Sanitary Sewer A–Air O–Other

Paracel Order #: 6515

	Sample Identification	Matrix	# Bottles	Date Sampled d/m/y	Analysis Required: PHC F1-F4	PAH	BTEX
1	BHMW 25 WGS1	W	6	FEB 2	✓	✓	✓
2	BHMW 26 WGS1	W	6	FEB 2	✓	✓	✓
3							
4							
5							
6							
7							
8							
9							
10							

Comments:

Relinquished by: [signature]
Date: FEB 2 05 Time: 11:41 am.

Received by: [signature]
Date: Feb 2/05 Time: 11:41

Verified by: [signature]
Date: Feb 2/05 Time: 11:45

APPENDIX G
SHALLOW SOIL PROPERTY EVALUATION
DATA GAP ANALYSIS - CCME CRITERIA
STATISTICAL BACKGROUND ANALYSIS

DST Consulting Engineers Inc.
1304 Algoma Road
Ottawa, Ontario, Canada, K1B 3W8
Tel: (613) 748-1415 or 1-877-378-3745
Fax: (613) 748-1356
E-mail: ottawa@dstgroup.com

October 19, 2004

Canada Lands Company (CLC) Limited
Eastern Region Office
CFB Rockcliffe, Building 164
Ottawa, Ontario
K1A 0K2

Attn.: Mr. John Dalziel, Director, Project Management (NCR)

Subject: Environmental Remediation – Shallow Soil Property Evaluation
CFB Rockcliffe, Ottawa, Ontario

DST File No.: OE04969

Dear Mr. Dalziel:

This letter report documents the assessment of shallow soil property condition with regards to the subject site. The results of this assessment are discussed in the sections below.

1.0 METHODOLOGY FOR SHALLOW SOIL PROPERTY ANALYSIS

According to Ontario Regulation 153/04, pursuant to the "Environmental Protection Act", shallow soil property refers to a property of which 1/3 or more of the area consists of soil equal to or less than 2 metres in depth beneath the soil surface, excluding any non-soil surface treatment such as asphalt, concrete or aggregate, but does not include either of the following:

1. *"A property that has groundwater within such soil, if the concentrations of the contaminants in the groundwater do not exceed the applicable standards set out in Table 6 of the Soil, Groundwater and Sediment Standards."*

2. *"A property that has groundwater beneath such soil, if an extract test if the soil indicates that the concentrations of the contaminants in the extract do not exceed the applicable standards set out in Table 6 of the Soil, Groundwater and Sediment Standards."*

Thus, if a property is found to contain less than 1/3 of the subject area having overburden soil material less than two metres in depth then the shallow soil property conditions will not be applicable and further evaluation as outlined in Items 1 and 2 in the previous page will not be required.

To evaluate shallow soil properties, the study area was considered as single site as well as divided into three separate sites.

Details of the shallow soil property analysis carried out are presented in the sections below.

2.0 RESULTS AND INTERPRETATION

2.1 SECTOR 1

Sector 1 is defined by Lot 22/Lot21 boundary to the east, site property boundary to the south, Lot 22/Lot 23 boundary to the west and the integrated sewer easement to the north. Total approximate area of Sector 1 is 291,711 square metres. Based on existing test pits and borehole information (based on references listed in Section 4), it is estimated that the area having less than 2 m overburden soil thickness is approximately 61,837 square metres or approximately 21%, which is less than the cut off number of 1/3 (or 33%) of the total area. Therefore, it is determined that Sector 1 is not considered "shallow soil". Refer to Drawing C-2 for boundary of Sector 1.

2.2 SECTOR 2

Sector 2 is defined by Lot 22/Lot 23 boundary to the east, site property boundary to the south and west, and the integrated sewer easement to the north. Total area of Sector 2 is approximately 383,561 square metres. Based on existing test pits and borehole information (based on references listed in Section 4), it is estimated that the area having less than 2 m overburden soil thickness is approximately 2,039 square metres or approximately 1.0%, which is less than the cut off number of 1/3 (or 33%) of the total area. Therefore, it is determined that Sector 2 is not considered "shallow soil". Refer to Drawing C-2 for boundary of Sector 2.

2.3 SECTOR 3

Sector 3 is defined by the integrated sewer easement to the south and property boundaries to the east, north and the west. Total area of Sector 3 is approximately 679,624 square metres. Based on existing test pits and borehole information (refer to Section 4 for references), it is estimated that the area having less than 2 m overburden soil thickness is approximately 180,286 square metres or approximately 26%, which is less than the cut off number of 1/3 (or 33%) of the total area. Therefore, it is determined that Sector 3 is not considered "shallow soil". Refer to Drawing C-2 for boundary of Sector 3.

2.4 ALL AREAS COMBINED AS A SINGLE SITE

The total area for the subject study area (i.e. Sector 1, sector 2 and Sector 3 combined) as a single site is approximately 1,355,027 square metres. Based on existing test pits and borehole information (refer to Section 4 for references), it is estimated that the area having less than 2 m overburden soil thickness is approximately 244,163 square metres or approximately 18%, which is less than the cut off number of 1/3 (or 33%) of the total area. Therefore, it is determined that the subject study area considered as a single site is not considered "shallow soil". Refer to Drawing C-2 for details when analyzed as a single site.

3.0 CONCLUSIONS

Based on existing test pit and borehole information (based on references listed in Section 4), it is determined that for all scenarios considered, areas having less than 2 metres of overburden soil are always less than 1/3 of each scenario considered.

Based on this data, the subject "site" or "sites", as defined earlier, do not meet the conditions for shallow soil property.

4.0 REFERENCES

For evaluating the site overburden thickness overlying the bedrock, the following historic reports were utilized:

1. Environmental Management Solutions Inc. (EMS), "Re: Results of Intrusive Investigation, Building #22, Former CFB Rockcliffe, Ottawa". EMS File #4-6181-031, August 4, 2004.

2. Environmental Management Solutions Inc., "Re: Results of Intrusive Investigation, Building #29, Former CFB Rockcliffe, Ottawa". EMS File #4-6181-031, August 13, 2004.

3. Greenbank Environmental Ltd., "Re: Results of Intrusive Investigation, Building #167, Former CFB Rockcliffe, Ottawa". EMS File #4-6181-058, August 30, 2004.

4. Greenbank Environmental Ltd., "Re: Results of Intrusive Investigation, Building #84, Former CFB Rockcliffe, Ottawa". EMS File #4-6181-045, August 26, 2004.

5. Greenbank Environmental Ltd., "Re: Results of Intrusive Investigation, Building #16, Former CFB Rockcliffe, Ottawa". File #4-6181-039, August 20, 2004.

6. Greenbank Environmental Ltd., "Re: Results of Intrusive Investigation and Limited Designated Substances Survey, Building #151, Former CFB Rockcliffe, Ottawa". File #4-6181-054, September 3, 2004.

7. Environmental Management Solutions Inc. (EMS), "Re: Results of Intrusive Investigation, Building #137, Former CFB Rockcliffe, Ottawa". EMS File #4-6181-031, August 17, 2004.

8. Greenbank Environmental Ltd., "Re: Results of Intrusive Investigation, Building #110, Former CFB Rockcliffe, Ottawa". File #4-6181-049, August 24, 2004.

9. Greenbank Environmental Ltd., "Re: Results of Intrusive Investigation, Building #28, Former CFB Rockcliffe, Ottawa". File #4-6181-040, August 30, 2004.

10. Greenbank Environmental Ltd., "Re: Results of Intrusive Investigation, Building #41, Former CFB Rockcliffe, Ottawa". File #4-6181-041, August 26, 2004.

11. Greenbank Environmental Ltd., "Re: Results of Intrusive Investigation, Building #43, Former CFB Rockcliffe, Ottawa". File #4-6181-042, September 1, 2004.

12. Greenbank Environmental Ltd., "Re: Results of Intrusive Investigation, Buildings #178 and 179, Former CFB Rockcliffe, Ottawa". File #4-6181-059, August 31, 2004.

13. Greenbank Environmental Ltd., "Re: Results of Intrusive Investigation, Building #12, Former CFB Rockcliffe, Ottawa". File #4-6181-038, August 26, 2004.

14. Greenbank Environmental Ltd., "Re: Results of Intrusive Investigation, Building #11, Former CFB Rockcliffe, Ottawa". File #4-6181-037, August 26, 2004.

15. Greenbank Environmental Ltd., "Re: Results of Intrusive Investigation, Building #3, Former CFB Rockcliffe, Ottawa". File #4-6181-036, August 26, 2004.

16. Greenbank Environmental Ltd., "Re: Results of Intrusive Investigation, Building #135, Former CFB Rockcliffe, Ottawa". File #4-6181-053, August 24, 2004.

17. Greenbank Environmental Ltd., "Re: Results of Intrusive Investigation, Building #47, Former CFB Rockcliffe, Ottawa". File #4-6181-043, August 26, 2004.

18. Greenbank Environmental Ltd., "Re: Results of Intrusive Investigation, Building #97, Former CFB Rockcliffe, Ottawa". File #4-6181-048, August 24, 2004.

19. Greenbank Environmental Ltd., "Re: Results of Intrusive Investigation, Building #126, Former CFB Rockcliffe, Ottawa". File #4-6181-052, August 24, 2004.

20. Greenbank Environmental Ltd., "Re: Results of Intrusive Investigation, Building #121, Former CFB Rockcliffe, Ottawa". File #4-6181-051, August 24, 2004.

21. Greenbank Environmental Ltd., "Re: Results of Intrusive Investigation, Building #90, Former CFB Rockcliffe, Ottawa". File #4-6181-047, August 24, 2004.

22. Greenbank Environmental Ltd., "Re: Results of Intrusive Investigation, Building #120, Former CFB Rockcliffe, Ottawa". File #4-6181-050, August 26, 2004.

23. Greenbank Environmental Ltd., "Re: Results of Intrusive Investigation, Building #86, Former CFB Rockcliffe, Ottawa". File #4-6181-046, August 24, 2004.

24. Fondex Outaouais, "Investigation of Underground Steam Lines, Uplands and Rockcliffe Site, Ottawa, Ontario", Dossier: H-G424G, March 2002.

25. McRostie, Genest, St-Louis and Associates Ltd., "Report on Geotechnical Conditions at Rockcliffe Airbase Lands to Canada Lands Company", Report No. SF-4513A, December 1, 1998.

26. McRostie, Genest, St-Louis and Associates Ltd., "Report on Available Subsurface Information at Rockcliffe Airbase Lands to Canada Lands Company", Report No. SF-4513, October 21, 1998.

27. Golder Associates, "Re: Rockcliffe Airbase Lands", letter to McRostie dated October 20, 1998. Contains borehole logs and site plans from two previous geotechnical investigations conducted at the Airbase Lands by Golder Associates in 1981 (Project No. 811-2048) and 1987 (Project No. 871-2093).

The shallow soil property analysis presented herein should be re-evaluated as additional information becomes available for the subject site.

4.0 CLOSURE

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

For DST CONSULTING ENGINEERS INC.

Prepared by:

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ATTACHMENTS

DRAWING C-2 SHALLOW SOIL PROPERTY EVALUATION

CC: Dan Frost, Public Works and Government Services Canada (PWGSC)
Craig Wells, Department of National Defence (DND)



REV.	DESCRIPTION	DATE	APPR.
0	Original	10/04	S.M.

CFB Rockliffe
Steam Line Decommissioning and Site Remediation Program

SHALLOW SOIL PROPERTY EVALUATION

PROJECT NO.: OE04969

DATE: November 2004

C-2

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April 16, 2007

Public Works and Government Services Canada (PWGSC)
90 Elgin Street, 5th Floor
Ottawa, ON
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Attn.: Mr. Dan Drost
National Client Service Team – Department of National Defence,
Environmental Services

Subject: Review of EMS/GREENBANK Phase II Reports in comparison to CCME Criteria, CFB Rockcliffe Ottawa, Ontario

DST File No.: OE-OT-005848 (OE06494)

Dear Mr. Drost,

Further to your request with respect to the additional comparison of the soil analytical data to the *CCME Soil Quality Guidelines for commercial land use*, the following tasks were conducted:

1. Review of *CCME Soil Quality Guidelines for commercial land use* and *MOE Table 3 Standards for commercial/industrial land use* to identify all applicable parameters with CCME guidelines more stringent than MOE standards;
2. Review of 25 EMS/Greenbank reports (refer to attachment 1) previously completed for CFB Rockcliffe to identify soil analytical results for the parameters identified in Step 1;
3. Data compilation of soil analytical results from the EMS/Greenbank reports for the parameters identified in Step 1; and
4. Comparison of the soil analytical results compiled in step 3 to CCME guidelines, and indicate any exceedances.

Table 1 (refer to attachment 2) summarizes only impacted soils (and associated buildings) exceeding the CCME guidelines for the parameters that are more stringent than their respective MOE standards. This table also indicates if there are any exceedances of the MOE Table 3 standards. All MOE Table 3 exceedances, in the attached Table 1, were previously included within as contamination "hot spots" within the DST's Phase II ESA. Table 2 (refer to attachment

2) illustrates the analytical data from the 25 EMS/Greenbank previous reports for all parameters with CCME guideline more stringent than MOE Table 3 standards.

Based on a review of the abovementioned tables, the buildings with impacted soils exceeding CCME Soil Quality Guidelines for commercial land use are summarized in the following table, including the Contaminants of Concern:

Building No.	Contaminants of Concern
Buildings with previously identified Contaminant Plume in Phase II ESA	
12	Zinc
29	Nickel
43	Copper, Nickel, Zinc
45	Arsenic, Chromium, Copper, Lead, Nickel, Zinc
90	Chromium, Nickel, Vanadium, Dioxin/Furan
Buildings not previously identified with a Contaminant Plume in Phase II ESA	
16	pH
97	Chromium, Nickel
110	pH

It should be noted that three of the buildings listed above did not have a previously identified contaminant plume with the current DST Phase II ESA. Buildings Nos. 16 and 110 have pH levels higher than the CCME Soil Quality Guidelines for Commercial land use. Building No. 97 has concentrations of Nickel and Chromium exceeding the CCME Soil Quality Guidelines for Commercial land use.

Should you have any questions or require additional information, please do not hesitate in contacting us.

Yours truly,
DST Consulting Engineers Inc.

Jonathan Markiewicz, B.Sc.H.
Environmental Scientist

Encl.:

Attachment 1: References	
1	Greenbank Environmental Ltd., November 2004, "Results of Intrusive Investigation, Building #3, Former CFB Rockcliffe, Ottawa".
2	Greenbank Environmental Ltd., November 2004, "Results of Intrusive Investigation, Building #11, Former CFB Rockcliffe, Ottawa".
3	Greenbank Environmental Ltd., November 2004, "Results of Intrusive Investigation, Building #12, Former CFB Rockcliffe, Ottawa".
4	Greenbank Environmental Ltd., November 2004, "Results of Intrusive Investigation, Building #16, Former CFB Rockcliffe, Ottawa".
5	EMS Inc., August 2004, "Results of Intrusive Investigation, Building #22, Former CFB Rockcliffe, Ottawa".
6	Greenbank Environmental Ltd., November 2004, "Results of Intrusive Investigation, Building #28, Former CFB Rockcliffe, Ottawa".
7	EMS Inc., August 2004, "Results of Intrusive Investigation, Building #29, Former CFB Rockcliffe, Ottawa".
8	Greenbank Environmental Ltd., November 2004, "Results of Intrusive Investigation, Building #41 and 44, Former CFB Rockcliffe, Ottawa".
9	Greenbank Environmental Ltd., November 2004, "Results of Intrusive Investigation, Building #43 and 45, Former CFB Rockcliffe, Ottawa".
10	Greenbank Environmental Ltd., November 2004, "Results of Intrusive Investigation, Building #47, Former CFB Rockcliffe, Ottawa".
11	Greenbank Environmental Ltd., November 2004, "Results of Intrusive Investigation, Building #84, Former CFB Rockcliffe, Ottawa".
12	Greenbank Environmental Ltd., November 2004, "Results of Intrusive Investigation, Building #86, Former CFB Rockcliffe, Ottawa".
13	Greenbank Environmental Ltd., November 2004, "Results of Intrusive Investigation, Building #90, Former CFB Rockcliffe, Ottawa".
14	Greenbank Environmental Ltd., November 2004, "Results of Intrusive Investigation, Building #97, Former CFB Rockcliffe, Ottawa".
15	Greenbank Environmental Ltd., November 2004, "Results of Intrusive Investigation, Building #110, Former CFB Rockcliffe, Ottawa".
16	Greenbank Environmental Ltd., November 2004, "Results of Intrusive Investigation, Building #114 and 163, Former CFB Rockcliffe, Ottawa".
17	Greenbank Environmental Ltd., November 2004, "Results of Intrusive Investigation, Building #120, Former CFB Rockcliffe, Ottawa".

Attachment 1: References	
18	Greenbank Environmental Ltd., November 2004, "Results of Intrusive Investigation, Building #121, Former CFB Rockcliffe, Ottawa".
19	Greenbank Environmental Ltd., November 2004, "Results of Intrusive Investigation, Building #126, Former CFB Rockcliffe, Ottawa".
20	Greenbank Environmental Ltd., November 2004, "Results of Intrusive Investigation, Building #135, Former CFB Rockcliffe, Ottawa".
21	EMS Inc., August 2004, "Results of Intrusive Investigation, Building #137, Former CFB Rockcliffe, Ottawa".
22	Greenbank Environmental Ltd., November 2004, "Results of Intrusive Investigation and Designated Substances Survey, Building #151, Former CFB Rockcliffe, Ottawa".
23	Greenbank Environmental Ltd., November 2004, "Results of Intrusive Investigation, Building #164, Former CFB Rockcliffe, Ottawa".
24	Greenbank Environmental Ltd., November 2004, "Results of Intrusive Investigation, Building #167, Former CFB Rockcliffe, Ottawa".
25	Greenbank Environmental Ltd., November 2004, "Results of Intrusive Investigation, Building #178 and 179, Former CFB Rockcliffe, Ottawa".

Attachment 2

Table 1- Summary: Buildings with contaminated soils exceeding CCME commercial guidelines

Parameters	Guidelines / Standards		Analytical Results (Sample Location / Sample ID / Depth - metres below existing grade)																	
	CCME[1]	MOE[2] Table 3	Building No. 12			Building No. 16			Building No. 29								Buildings No. 43		Buildings No. 45	
	Commercial	Commercial	TP-12-1-S1 (0-1.65m)	TP-12-2-S1 (0- 1.0 m)	TP-12-3-S1 (0-1.0 m)	TP-16-1-S3 (2.0-3.0 m)	TP-16-2-S2 (2.0- 4.2 m)	TP-16-3-S2 (2.0-4.4 m)	TP10 1.5m S19 (1.5 m)	TP10 0.5m S18 (0.5 m)	TP18 S26 (Duplicate of TP10 0.5m S18 (0.5 m)	TP12 1.5m S20 (1.5 m)	TP8 1.75m S16 (1.75 m)	TP5WW 1.5m S13 (1.5 m)	TP4 0.5m S7 (0.5 m)	TP2 1.75m S3 (1.75 m)	TP43-1-S1 (0-1 m)	TP43-2-S2 (0.3-0.5m)	TP45-1-S2 (0.9-1.10 m)	TP45-2-S2 (0.9-1.10 m)
Metals																				
Arsenic	12	40	2.1	4.3	3.0	0.7	<0.6	<0.6	6.6	1.2	1.1	1	1	2	6.5	0.5	1.1	3.9	12.3	**45.2**
Chromium	87	750	19.5	32	24.6	11.9	10.4	10.9	22.9	16.4	15.8	19	75.7	40.5	16.6	17.6	78.0	31.6	45.4	123
Chromium (VI)	1.4	8	<0.382	<0.382	<0.382	<0.382	<0.382	<0.382	<0.382	<0.382	<0.382	<0.382	<0.382	<0.382	<0.382	<0.382	- -	- -	- -	- -
Copper	91	225	16.4	29.4	18.5	13.7	12.3	11.3	18.6	15	18.1	21.3	41.4	29.9	18.7	17.2	37.9	107	**13900**	**1110**
Cyanide, free	8	100	<0.08	<0.08	<0.08	<7.4	<7.4	<7.4	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	- -	- -	- -	- -
Lead	260	1000	19.8	188	13.6	11.7	3.1	3.1	11.3	63.4	127	19.4	52.9	30.3	10.2	9.4	7.4	151	**1350**	60
Nickel	50	150	20.2	26.1	20.8	13.2	12.2	12.3	20.2	14.5	16.1	21.3	68.6	50.6	16.9	17.9	65.1	88.4	96.4	**285**
Selenium	3.9	10	<0.4	<0.4	<0.4	<0.8	<0.8	<0.8	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.8	<0.8	<0.8	<0.8
Thallium	1	32	<0.2	<0.2	0.2	<0.4	<0.4	<0.4	<0.2	<0.2	<0.2	<0.2	0.4	0.6	<0.2	<0.2	<0.4	<0.4	<0.4	<0.4
Vanadium	130	200	23	41.1	27.9	16.5	17.1	15.6	30.4	17	19.9	14.3	70.7	37.9	22	21.2	83.3	15.2	20.7	25.2
Zinc	360	600	41.3	444	33.1	38.7	18.3	16.5	42.2	49.9	54.6	14.2	138	62.5	27.4	59.5	120	**819**	**1250**	512
pH	6-8	NG	7.66	7.27	7.57	9.02	8.86	8.46	7.13	7.71	7.73	7.93	7.72	7.51	7.49	7.24	- -	**- -**	**- -**	- -
Dioxins/Furans (pg/g)																				
TOTAL TOXIC EQUIVALENCY	4	1000	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	1.37	- -

Parameters	Guidelines / Standards		Analytical Results (Sample Location / Sample ID / Depth - metres below existing grade)															
	CCME[1]	MOE[2] Table 3	Building No. 90										Building No. 97			Building No. 110		
	Commercial	Commercial	TP-90-1-S2 (1.0-2.0 m)	TP-90-2-S2 (1.5-2.5 m)	TP-90-3-S2 (2.0-3.0 m)	TP-90-4-S2 (2.0-3.0 m)	TP-90-5-S5 (5.2-6.3 m)	TP-90-6-S3 (2.5-3.5 m)	TP-90-7-S2 (2.0-3.0 m)	TP-90-8-S2 (2.0-3.0 m)	TP-90-9-S2 (1.0-2.0 m)	TP-90-9-S2* (Duplicate of TP 90-9-S2) (1.0-2.0 m)	TP-97-1-S2 (1.0-2.0 m)	TP-97-2-S3 (4.0-4.6 m)	TP-97-3-S1 (1.0-2.6 m)	TP-110-1-S1 (1.0-1.4 m)	TP-110-2-S1 (1.0-1.4 m)	TP-110-3-S3 (3.0-3.4 m)
Metals																		
Arsenic	12	40	0.6	0.7	0.8	0.9	0.8	0.8	1.8	0.6	<0.6	<0.6	0.7	1.2	1.4	0.8	3.2	0.6
Chromium	87	750	129	126	116	131	112	128	34.8	142	118	116	121	116	78.1	12.6	31.2	11.3
Chromium (VI)	1.4	8	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	<0.382	<0.382	<0.382	<0.382	<0.382	<0.382
Copper	91	225	61.5	59.2	59.1	65.0	61.8	64.8	28.2	74.2	63.7	66.2	55.6	57.7	44.0	14.1	19.4	8.9
Cyanide, free	8	100	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	<7.4	<7.4	<7.4	<7.4	<7.4	<7.4
Lead	260	1000	6.7	6.6	7.0	7.8	6.6	8.3	14.5	6.9	7.2	7.4	7.1	6.9	7.2	5.0	140	4.2
Nickel	50	150	100	102	95.7	107	96.4	107	33.5	113	101	100	106	96.7	68.4	14.9	26.6	12.9
Selenium	3.9	10	<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
Thallium	1	32	0.5	0.5	0.5	0.5	0.5	0.5	<0.4	0.5	0.5	0.5	0.5	0.5	0.4	<0.4	<0.4	<0.4
Vanadium	130	200	120	119	115	124	113	125	37.9	138	116	118	113	114	84.0	18.5	33.9	17.4
Zinc	360	600	140	160	134	139	134	142	86.6	138	135	137	134	139	112	19.6	297	17.5
pH	6-8	NG	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	7.59	7.63	7.62	8.20	7.80	8.48
Dioxins/Furans (pg/g)																		
TOTAL TOXIC EQUIVALENCY	4	1000	- -	- -	- -	- -	- -	- -	5.82	- -	- -	- -	- -	- -	- -	- -	- -	- -

Notes: - All units in micrograms per gram (µg/g) with the exception of Furan/Dioxin (pg/g).

- Refer to Table 2 for complete analytical results for all reviewed buildings.

CCME [1] - Canadian Council of Ministers of the Environment (CCME), "Canadian Environmental Quality Guidelines", 1999 (Updated 2006). Chapter 7: Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health (Commercial Land Use). The guidelines are associated with coarse-grained textured soil.

MOE [2] - Ontario Ministry of the Environment (MOE) "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004. Table 3: Full depth Generic Site Condition Standards in a Non-Potable Ground Water Condition (Industrial/Commercial/Community Property Use). The standards are associated with coarse-grained textured soil.

Value - Sample result exceeds CCME commercial guideline criteria.

Value - Sample result exceeds MOE Table 3 commercial standard criteria.

Value - CCME guideline is less than the laboratory Method Detection Limit.

< - Less than the laboratory Method Detection Limit (value indicated).

- - - Sample not analysed for this parameter.

Attachment 2
Table 2 - Analytical data for parameters with CCME commercial guidelines more stringent than MOE Table 3 industrial/commercial/community standards

Parameters	Guidelines / Standards		Analytical Results (Sample Location / Sample ID / Depth - metres below existing grade)											
			Building No. 3			Building No. 11			Building No. 12			Building No. 16		
	CCME[1] Commercial	MOE[2] Table 3 Commercial	TP-3-1-S1 (0-1.0 m)	TP-3-2-S1 (0-2.3 m)	TP-3-3-S2 (1.0-2.3 m)	TP-11-1-S4 (1.1-1.2 m)	TP-11-2-S3 (0.8-1.3 m)	TP-11-3-S2 (1.0-1.3 m)	TP-12-1-S1 (0-1.65m)	TP-12-2-S1 (0- 1.0 m)	TP-12-3-S1 (0-1.0 m)	TP-16-1-S3 (2.0-3.0 m)	TP-16-2-S2 (2.0- 4.2 m)	TP-16-3-S2 (2.0-4.4 m)
Metals														
Arsenic	12	40	- -	- -	- -	- -	- -	- -	2.1	4.3	3.0	0.7	<0.6	<0.6
Chromium	87	750	- -	- -	- -	- -	- -	- -	19.5	32	24.6	11.9	10.4	10.9
Chromium (VI)	1.4	8	- -	- -	- -	- -	- -	- -	<0.382	<0.382	<0.382	<0.382	<0.382	<0.382
Copper	91	225	- -	- -	- -	- -	- -	- -	16.4	29.4	18.5	13.7	12.3	11.3
Cyanide, free	8	100	- -	- -	- -	- -	- -	- -	<0.08	<0.08	<0.08	<7.4	<7.4	<7.4
Lead	260	1000	- -	- -	- -	- -	- -	- -	19.8	188	13.6	11.7	3.1	3.1
Nickel	50	150	- -	- -	- -	- -	- -	- -	20.2	26.1	20.8	13.2	12.2	12.3
Selenium	3.9	10	- -	- -	- -	- -	- -	- -	<0.4	<0.4	<0.4	<0.8	<0.8	<0.8
Thallium	1	32	- -	- -	- -	- -	- -	- -	<0.2	<0.2	0.2	<0.4	<0.4	<0.4
Vanadium	130	200	- -	- -	- -	- -	- -	- -	23	41.1	27.9	16.5	17.1	15.6
Zinc	360	600	- -	- -	- -	- -	- -	- -	41.3	444	33.1	38.7	18.3	16.5
pH	6-8	NG	- -	- -	- -	- -	- -	- -	7.66	7.27	7.57	9.02	8.86	8.46
PAHs														
Benzo(a)anthracene	10	40	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Benzo(a)pyrene	0.7	1.9	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Benzo(b)fluoranthene	10	19	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Benzo(k)fluoranthene	10	19	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Indeno(1,2,3,c,d)pyrene	10	19	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Naphthalene	22	40	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Pyrene	100	250	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
BTEX														
Benzene	0.03	5.3	0.002	0.003	0.001	<0.001	<0.001	<0.001	- -	- -	- -	- -	- -	- -
Ethylbenzene	0.082	290	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	- -	- -	- -	- -	- -	- -
Toluene	0.37	34	0.004	0.005	0.003	0.002	0.004	0.003	- -	- -	- -	- -	- -	- -
Total Xylenes	11	34	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	- -	- -	- -	- -	- -	- -
VOCs														
1,2-Dichlorobenzene	10	30	- -	- -	- -	- -	- -	- -	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
1,3-Dichlorobenzene	10	30	- -	- -	- -	- -	- -	- -	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
1,4-Dichlorobenzene	10	30	- -	- -	- -	- -	- -	- -	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Trichloroethylene	0.01	1.1	- -	- -	- -	- -	- -	- -	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Dioxins/Furans (pg/g)														
TOTAL TOXIC EQUIVALENCY	4	1000	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -

Notes: - All units in micrograms per gram (µg/g) with the exception of Furan/Dioxin (pg/g).

CCME [1] - Canadian Council of Ministers of the Environment (CCME), "Canadian Environmental Quality Guidelines", 1999 (Updated 2006). Chapter 7: Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health (Commercial Land Use). The guidelines are associated with coarse-grained textured soil.

MOE [2] - Ontario Ministry of the Environment (MOE) "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004. Table 3: Full depth Generic Site Condition Standards in a Non-Potable Ground Water Condition (Industrial/Commercial/Community Property Use). The standards are associated with coarse-grained textured soil.

Value - Sample result exceeds CCME commercial guideline criteria.
Value - Sample result exceeds MOE Table 3 industrial/commercial/community standard criteria.
Value - CCME guideline is less than the laboratory Method Detection Limit.
< - Less than the laboratory Method Detection Limit (value indicated).
- - - Sample not analysed for this parameter.

Attachment 2
Table 2 - Analytical data for parameters with CCME commercial guidelines more stringent than MOE Table 3 industrial/commercial/community standards

Parameters	Guidelines / Standards		Analytical Results (Sample Location / Sample ID / Depth - metres below existing grade)										
			Building No. 22								Building No. 28		
	CCME[1] Commercial	MOE[2] Table 3 Commercial	MW1 S4 B22BH1S4 (1.83-2.44m)	MW5 S4 B22BH5S4 (1.83-2.44 m)	TP4 S2 B22 TP4S2 (1.4-2.8 m)	TP5 S1 B22 TP5S1 (1.5-3.0 m)	MW1 B22BH1S1 (0.15-0.76 m)	MW2 B22BH2S3 (0.61-1.22 m)	BH4 B22BH4S1 (0-0.61 m)	MW3 B22BH3S5 (2.44-2.68m)	TP-28-1-S1 (0-0.5 m)	TP-28-2-S1 (0-0.5 m)	TP-28-2-S1 Duplicate of TP-28-2-S1 (0-0.5 m)
Metals													
Arsenic	12	40	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Chromium	87	750	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Chromium (VI)	1.4	8	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Copper	91	225	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Cyanide, free	8	100	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Lead	260	1000	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Nickel	50	150	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Selenium	3.9	10	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Thallium	1	32	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Vanadium	130	200	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Zinc	360	600	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
pH	6-8	NG	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
PAHs													
Benzo(a)anthracene	10	40	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Benzo(a)pyrene	0.7	1.9	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Benzo(b)fluoranthene	10	19	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Benzo(k)fluoranthene	10	19	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Indeno(1,2,3,c,d)pyrene	10	19	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Naphthalene	22	40	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Pyrene	100	250	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
BTEX													
Benzene	0.03	5.3	<0.03	<0.03	<0.03	<0.03	<0.002	<0.002	<0.002	<0.002	<0.001	0.002	0.003
Ethylbenzene	0.082	290	<0.06	<0.06	<0.06	<0.06	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Toluene	0.37	34	<0.05	<0.05	<0.05	<0.05	<0.001	<0.001	0.001	0.001	0.003	0.003	0.005
Total Xylenes	11	34									<0.002	<0.002	<0.002
VOCs													
1,2-Dichlorobenzene	10	30	<0.07	<0.07	<0.07	<0.07	<0.002	<0.002	<0.002	<0.002	- -	- -	- -
1,3-Dichlorobenzene	10	30	<0.08	<0.08	<0.08	<0.08	<0.002	<0.002	<0.002	<0.002	- -	- -	- -
1,4-Dichlorobenzene	10	30	<0.06	<0.06	<0.06	<0.06	<0.002	<0.002	<0.002	<0.002	- -	- -	- -
Trichloroethylene	0.01	1.1	*<0.03*	*<0.03*	*<0.03*	*<0.03*	<0.004	<0.004	<0.004	<0.004	- -	- -	- -
Dioxins/Furans (pg/g)													
TOTAL TOXIC EQUIVALENCY	4	1000	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -

Notes: - All units in micrograms per gram (µg/g) with the exception of Furan/Dioxin (pg/g).

CCME [1] - Canadian Council of Ministers of the Environment (CCME), "Canadian Environmental Quality Guidelines", 1999 (Updated 2006). Chapter 7: Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health (Commercial Land Use). The guidelines are associated with coarse-grained textured soil.

MOE [2] - Ontario Ministry of the Environment (MOE) "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004. Table 3: Full depth Generic Site Condition Standards in a Non-Potable Ground Water Condition (Industrial/Commercial/Community Property Use). The standards are associated with coarse-grained textured soil.

Value - Sample result exceeds CCME commercial guideline criteria.
Value - Sample result exceeds MOE Table 3 industrial/commercial/community standard criteri
Value - CCME guideline is less than the laboratory Method Detection Limit.
< - Less than the laboratory Method Detection Limit (value indicated).
- - - Sample not analysed for this parameter.

Attachment 2
Table 2 - Analytical data for parameters with CCME commercial guidelines more stringent than MOE Table 3 industrial/commercial/community standards

Parameters	Guidelines / Standards		Analytical Results (Sample Location / Sample ID / Depth - metres below existing grade)											
			Building No. 29								Buildings No. 41		Buildings No. 43	
	CCME[1] Commercial	MOE[2] Table 3 Commercial	TP10 1.5m S19 (1.5 m)	TP10 0.5m S18 (0.5 m)	TP18 S26 Duplicate of TP10 0.5m S18 (0.5 m)	TP12 1.5m S20 (1.5 m)	TP8 1.75m S16 (1.75 m)	TP5WW 1.5m S13 (1.5 m)	TP4 0.5m S7 (0.5 m)	TP2 1.75m S3 (1.75 m)	TP41-1-S1 (0-1.1 m)	TP41--2-S1 (0-1.1 m)	TP43-1-S1 (0-1 m)	TP43-2-S2 (0.3-0.5m)
Metals														
Arsenic	12	40	6.6	1.2	1.1	1	1	2	6.5	0.5	- -	- -	1.1	3.9
Chromium	87	750	22.9	16.4	15.8	19	75.7	40.5	16.6	17.6	- -	- -	78.0	31.6
Chromium (VI)	1.4	8	<0.382	<0.382	<0.382	<0.382	<0.382	<0.382	<0.382	<0.382	- -	- -	- -	- -
Copper	91	225	18.6	15	18.1	21.3	41.4	29.9	18.7	17.2	- -	- -	37.9	107
Cyanide, free	8	100	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	- -	- -	- -	- -
Lead	260	1000	11.3	63.4	127	19.4	52.9	30.3	10.2	9.4	- -	- -	7.4	151
Nickel	50	150	20.2	14.5	16.1	21.3	68.6	50.6	16.9	17.9	- -	- -	65.1	88.4
Selenium	3.9	10	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	- -	- -	<0.8	<0.8
Thallium	1	32	<0.2	<0.2	<0.2	<0.2	0.4	0.6	<0.2	<0.2	- -	- -	<0.4	<0.4
Vanadium	130	200	30.4	17	19.9	14.3	70.7	37.9	22	21.2	- -	- -	83.3	15.2
Zinc	360	600	42.2	49.9	54.6	14.2	138	62.5	27.4	59.5	- -	- -	120	**819**
pH	6-8	NG	7.13	7.71	7.73	7.93	7.72	7.51	7.49	7.24	- -	- -	- -	**- -**
PAHs														
Benzo(a)anthracene	10	40	<0.02	0.15	0.23	0.02	0.02	<0.02	<0.02	<0.02	- -	- -	<0.02	<0.2
Benzo(a)pyrene	0.7	1.9	0.01	0.12	0.2	0.01	0.04	<0.01	0.01	<0.01	- -	- -	0.01	0.11
Benzo(b)fluoranthene	10	19	<0.02	0.16	0.26	<0.02	0.03	<0.02	<0.02	<0.02	- -	- -	<0.02	<0.2
Benzo(k)fluoranthene	10	19	<0.02	0.06	0.1	<0.02	<0.02	<0.02	<0.02	<0.02	- -	- -	<0.02	<0.2
Indeno(1,2,3,c,d)pyrene	10	19	<0.01	0.07	0.14	0.01	0.02	<0.01	<0.01	<0.01	- -	- -	0.01	0.26
Naphthalene	22	40	0.06	<0.03	<0.03	0.07	0.03	0.03	<0.03	0.18	- -	- -	<0.03	<0.3
Pyrene	100	250	0.03	0.27	0.47	0.09	0.08	<0.02	<0.02	<0.02	- -	- -	<0.02	<0.2
BTEX														
Benzene	0.03	5.3	<0.03	<0.004	<0.004	<0.03	<0.03	<0.03	<0.004	<0.03	<0.004	<0.004	<0.004	<0.004
Ethylbenzene	0.082	290	<0.06	<0.003	<0.003	<0.06	<0.06	<0.06	<0.003	<0.06	<0.003	<0.003	<0.003	<0.003
Toluene	0.37	34	<0.05	<0.001	<0.001	<0.05	<0.05	<0.05	0.001	<0.05	<0.001	<0.001	<0.001	<0.001
Total Xylenes	11	34	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
VOCs														
1,2-Dichlorobenzene	10	30	<0.07	<0.004	<0.004	<0.07	<0.07	<0.07	<0.004	<0.07	<0.004	<0.004	<0.004	<0.004
1,3-Dichlorobenzene	10	30	<0.08	<0.004	<0.004	<0.08	<0.08	<0.08	<0.004	<0.08	<0.004	<0.004	<0.004	<0.004
1,4-Dichlorobenzene	10	30	<0.06	<0.005	<0.005	<0.06	<0.06	<0.06	<0.005	<0.06	<0.005	<0.005	<0.005	<0.005
Trichloroethylene	0.01	1.1	<0.03	<0.005	<0.005	<0.03	<0.03	<0.03	<0.005	<0.03	<0.005	<0.005	<0.005	<0.005
Dioxins/Furans (pg/g)														
TOTAL TOXIC EQUIVALENCY	4	1000	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -

Notes: - All units in micrograms per gram (µg/g) with the exception of Furan/Dioxin (pg/g).

CCME [1] - Canadian Council of Ministers of the Environment (CCME), "Canadian Environmental Quality Guidelines", 1999 (Updated 2006). Chapter 7: Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health (Commercial Land Use). The guidelines are associated with coarse-grained textured soil.

MOE [2] - Ontario Ministry of the Environment (MOE) "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004. Table 3: Full depth Generic Site Condition Standards in a Non-Potable Ground Water Condition (Industrial/Commercial/Community Property Use). The standards are associated with coarse-grained textured soil.

Value - Sample result exceeds CCME commercial guideline criteria.
Value - Sample result exceeds MOE Table 3 industrial/commercial/community standard criteri
Value - CCME guideline is less than the laboratory Method Detection Limit.
< - Less than the laboratory Method Detection Limit (value indicated).
- - - Sample not analysed for this parameter.

Attachment 2
Table 2 - Analytical data for parameters with CCME commercial guidelines more stringent than MOE Table 3 industrial/commercial/community standards

Parameters	Guidelines / Standards		Analytical Results (Sample Location / Sample ID / Depth - metres below existing grade)												
			Buildings No. 44		Buildings No. 45		Building No. 47			Building No. 84			Building No. 86		
	CCME[1] Commercial	MOE[2] Table 3 Commercial	TP44-1-S1 (0-1.2 m)	TP44-2-S1 (0-1.2 m)	TP45-1-S2 (0.9-1.10 m)	TP45-2-S2 (0.9-1.10 m)	TP-47-1-S4 (3.0-5.5 m)	TP-47-2-S2 (2.0-4.0 m)	TP-47-3-S3 (4.0-5.0 m)	TP-84-1-S1 (0-1.0 m)	TP-84-2-S2 (1.0-2.0 m)	TP-84-3-S1 (0-1.0 m)	TP-86-1-S1 (0-1.0 m)	TP-86-2-S2 (1.0-2.0 m)	TP-86-3-S4 (3.2-5.6 m)
Metals															
Arsenic	12	40	- -	- -	12.3	**45.2**	- -	- -	- -	- -	- -	- -	- -	- -	- -
Chromium	87	750	- -	- -	45.4	123	- -	- -	- -	- -	- -	- -	- -	- -	- -
Chromium (VI)	1.4	8	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Copper	91	225	- -	- -	**13900**	**1110**	- -	- -	- -	- -	- -	- -	- -	- -	- -
Cyanide, free	8	100	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Lead	260	1000	- -	- -	**1350**	60	8.0	8.2	8.3	- -	- -	- -	- -	- -	- -
Nickel	50	150	- -	- -	96.4	**285**	- -	- -	- -	- -	- -	- -	- -	- -	- -
Selenium	3.9	10	- -	- -	<0.8	<0.8	- -	- -	- -	- -	- -	- -	- -	- -	- -
Thallium	1	32	- -	- -	<0.4	<0.4	- -	- -	- -	- -	- -	- -	- -	- -	- -
Vanadium	130	200	- -	- -	20.7	25.2	- -	- -	- -	- -	- -	- -	- -	- -	- -
Zinc	360	600	- -	- -	**1250**	512	- -	- -	- -	- -	- -	- -	- -	- -	- -
pH	6-8	NG	- -	- -	**- -**	- -	- -	**- -**	**- -**	- -	**- -**	**- -**	- -	**- -**	**- -**
PAHs															
Benzo(a)anthracene	10	40	- -	- -	<0.02	<0.02	- -	- -	- -	- -	- -	- -	- -	- -	- -
Benzo(a)pyrene	0.7	1.9	- -	- -	<0.01	0.01	- -	- -	- -	- -	- -	- -	- -	- -	- -
Benzo(b)fluoranthene	10	19	- -	- -	<0.02	<0.02	- -	- -	- -	- -	- -	- -	- -	- -	- -
Benzo(k)fluoranthene	10	19	- -	- -	<0.02	<0.02	- -	- -	- -	- -	- -	- -	- -	- -	- -
Indeno(1,2,3,c,d)pyrene	10	19	- -	- -	0.01	0.02	- -	- -	- -	- -	- -	- -	- -	- -	- -
Naphthalene	22	40	- -	- -	0.03	0.05	- -	- -	- -	- -	- -	- -	- -	- -	- -
Pyrene	100	250	- -	- -	<0.02	0.03	- -	**- -**	**- -**	- -	**- -**	**- -**	- -	**- -**	**- -**
BTEX															
Benzene	0.03	5.3	<0.004	<0.004	<0.004	<0.004	<0.001	<0.001	<0.02	<0.001	<0.001	<0.02	<0.001	<0.001	<0.001
Ethylbenzene	0.082	290	<0.003	<0.003	<0.003	<0.003	<0.002	<0.002	0.02	<0.002	<0.002	<0.02	<0.002	<0.002	<0.002
Toluene	0.37	34	<0.001	<0.001	<0.001	<0.001	0.002	<0.002	<0.01	<0.002	<0.002	<0.01	<0.002	<0.002	0.004
Total Xylenes	11	34	- -	- -	- -	- -	<0.002	<0.002	<0.01	<0.002	<0.002	<0.01	<0.002	<0.002	<0.002
VOCs															
1,2-Dichlorobenzene	10	30	<0.004	<0.004	<0.004	<0.004	- -	- -	- -	- -	- -	- -	- -	- -	- -
1,3-Dichlorobenzene	10	30	<0.004	<0.004	<0.004	<0.004	- -	- -	- -	- -	- -	- -	- -	- -	- -
1,4-Dichlorobenzene	10	30	<0.005	<0.005	<0.005	<0.005	- -	- -	- -	- -	- -	- -	- -	- -	- -
Trichloroethylene	0.01	1.1	<0.005	<0.005	<0.005	<0.005	- -	**- -**	**- -**	- -	**- -**	**- -**	- -	**- -**	**- -**
Dioxins/Furans (pg/g)															
TOTAL TOXIC EQUIVALENCY	4	1000	- -	- -	1.37	- -	- -	**- -**	**- -**	- -	**- -**	**- -**	- -	**- -**	**- -**

Notes: - All units in micrograms per gram (µg/g) with the exception of Furan/Dioxin (pg/g).

CCME [1] - Canadian Council of Ministers of the Environment (CCME), "Canadian Environmental Quality Guidelines", 1999 (Updated 2006). Chapter 7: Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health (Commercial Land Use). The guidelines are associated with coarse-grained textured soil.

MOE [2] - Ontario Ministry of the Environment (MOE) "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004. Table 3: Full depth Generic Site Condition Standards in a Non-Potable Ground Water Condition (Industrial/Commercial/Community Property Use). The standards are associated with coarse-grained textured soil.

Value - Sample result exceeds CCME commercial guideline criteria.
Value - Sample result exceeds MOE Table 3 industrial/commercial/community standard criteri
Value - CCME guideline is less than the laboratory Method Detection Limit.
< - Less than the laboratory Method Detection Limit (value indicated).
- - - Sample not analysed for this parameter.

Attachment 2
Table 2 - Analytical data for parameters with CCME commercial guidelines more stringent than MOE Table 3 industrial/commercial/community standards

Parameters	Guidelines / Standards		Analytical Results (Sample Location / Sample ID / Depth - metres below existing grade)												
			Building No. 90										Building No. 97		
	CCME[1] Commercial	MOE[2] Table 3 Commercial	TP-90-1-S2 (1.0-2.0 m)	TP-90-2-S2 (1.5-2.5 m)	TP-90-3-S2 (2.0-3.0 m)	TP-90-4-S2 (2.0-3.0 m)	TP-90-5-S5 (5.2-6.3 m)	TP-90-6-S3 (2.5-3.5 m)	TP-90-7-S2 (2.0-3.0 m)	TP-90-8-S2 (2.0-3.0 m)	TP-90-9-S2 (1.0-2.0 m)	TP-90-9-S2 Duplicate of TP-90-9-S2 (1.0-2.0 m)	TP-97-1-S2 (1.0-2.0 m)	TP-97-2-S3 (4.0-4.6 m)	TP-97-3-S1 (1.0-2.6 m)
Metals															
Arsenic	12	40	0.6	0.7	0.8	0.9	0.8	0.8	1.8	0.6	<0.6	<0.6	0.7	1.2	1.4
Chromium	87	750	129	126	116	131	112	128	34.8	142	118	116	121	116	78.1
Chromium (VI)	1.4	8	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	<0.382	<0.382	<0.382
Copper	91	225	61.5	59.2	59.1	65.0	61.8	64.8	28.2	74.2	63.7	66.2	55.6	57.7	44.0
Cyanide, free	8	100	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	<7.4	<7.4	<7.4
Lead	260	1000	6.7	6.6	7.0	7.8	6.6	8.3	14.5	6.9	7.2	7.4	7.1	6.9	7.2
Nickel	50	150	100	102	95.7	107	96.4	107	33.5	113	101	100	106	96.7	68.4
Selenium	3.9	10	<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
Thallium	1	32	0.5	0.5	0.5	0.5	0.5	0.5	<0.4	0.5	0.5	0.5	0.5	0.5	0.4
Vanadium	130	200	120	119	115	124	113	125	37.9	138	116	118	113	114	84.0
Zinc	360	600	140	160	134	139	134	142	86.6	138	135	137	134	139	112
pH	6-8	NG	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	7.59	7.63	7.62
PAHs															
Benzo(a)anthracene	10	40	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	- -	- -	- -
Benzo(a)pyrene	0.7	1.9	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	- -	- -	- -
Benzo(b)fluoranthene	10	19	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	- -	- -	- -
Benzo(k)fluoranthene	10	19	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	- -	- -	- -
Indeno(1,2,3,c,d)pyrene	10	19	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	- -	- -	- -
Naphthalene	22	40	<0.03	0.06	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	- -	- -	- -
Pyrene	100	250	<0.02	0.03	<0.02	<0.02	0.02	<0.02	0.02	<0.02	<0.02	<0.02	- -	- -	- -
BTEX															
Benzene	0.03	5.3	<0.001	<0.02	<0.02	<0.001	<0.001	- -	- -	- -	- -	- -	<0.004	<0.004	<0.004
Ethylbenzene	0.082	290	<0.002	<0.02	<0.02	<0.002	0.003	- -	- -	- -	- -	- -	<0.003	<0.003	<0.003
Toluene	0.37	34	<0.002	<0.01	<0.01	<0.002	<0.002	- -	- -	- -	- -	- -	<0.001	<0.001	<0.001
Total Xylenes	11	34	<0.002	<0.01	<0.01	<0.002	0.002	- -	- -	- -	- -	- -	- -	- -	- -
VOCs															
1,2-Dichlorobenzene	10	30	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	<0.004	<0.004	<0.004
1,3-Dichlorobenzene	10	30	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	<0.004	<0.004	<0.004
1,4-Dichlorobenzene	10	30	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	<0.005	<0.005	<0.005
Trichloroethylene	0.01	1.1	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	<0.005	<0.005	<0.005
Dioxins/Furans (pg/g)															
TOTAL TOXIC EQUIVALENCY	4	1000	- -	- -	- -	- -	- -	- -	5.82	- -	- -	- -	- -	- -	- -

Notes: - All units in micrograms per gram (µg/g) with the exception of Furan/Dioxin (pg/g).

CCME [1] - Canadian Council of Ministers of the Environment (CCME), "Canadian Environmental Quality Guidelines", 1999 (Updated 2006). Chapter 7: Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health (Commercial Land Use). The guidelines are associated with coarse-grained textured soil.

MOE [2] - Ontario Ministry of the Environment (MOE) "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004. Table 3: Full depth Generic Site Condition Standards in a Non-Potable Ground Water Condition (Industrial/Commercial/Community Property Use). The standards are associated with coarse-grained textured soil.

Value - Sample result exceeds CCME commercial guideline criteria.
Value - Sample result exceeds MOE Table 3 industrial/commercial/community standard criteri
Value - CCME guideline is less than the laboratory Method Detection Limit.
< - Less than the laboratory Method Detection Limit (value indicated).
- - - Sample not analysed for this parameter.

Attachment 2
Table 2 - Analytical data for parameters with CCME commercial guidelines more stringent than MOE Table 3 industrial/commercial/community standards

Parameters	Guidelines / Standards		Analytical Results (Sample Location / Sample ID / Depth - metres below existing grade)														
			Building No. 110			Buildings No. 114						Building No. 120			Building No. 126	
	CCME[1] Commercial	MOE[2] Table 3 Commercial	TP-110-1-S1 (1.0-1.4 m)	TP-110-2-S1 (1.0-1.4 m)	TP-110-3-S3 (3.0-3.4 m)	TP-114-1-S1 (0-1.6 m)	TP-114-2-S1 (0-1.2 m)	TP-114-3-S1 (0-1.1 m)	TP-114-4-S1 (0-1.2 m)	TP-114-5-S1 (0-1.2 m)	TP-114-5-S1 Duplicate of TP-114-5-S1 (0-1.2 m)	TP-120-1-S2 (1.0-2.2 m)	TP-120-2-S2 (1.0-2.8 m)	TP-120-3-S1 (0-1.0 m)	TP-126-1-S1 (0-0.8 m)	TP-126-2-S1 (0-0.8 m)
Metals																
Arsenic	12	40	0.8	3.2	0.6	1.6	1.3	1.3	0.8	1.1	0.9	- -	- -	- -	3.7	2.9
Chromium	87	750	12.6	31.2	11.3	26.6	34.5	26.0	49.1	22.9	23.5	- -	- -	- -	39.2	24.1
Chromium (VI)	1.4	8	<0.382	<0.382	<0.382	<0.382	<0.382	<0.382	<0.382	<0.382	<0.382	- -	- -	- -	- -	- -
Copper	91	225	14.1	19.4	8.9	19.0	12.2	14.0	18.7	17.7	17.3	- -	- -	- -	29.1	18.9
Cyanide, free	8	100	<7.4	<7.4	<7.4	<0.08	<0.39	<0.08	<0.08	<0.08	<0.08	- -	- -	- -	- -	- -
Lead	260	1000	5.0	140	4.2	12.4	8.8	12.5	6.6	6.5	6.5	- -	- -	- -	23.1	13.5
Nickel	50	150	14.9	26.6	12.9	24.4	30.5	21.4	39.5	21.6	22.0	- -	- -	- -	31.4	20.6
Selenium	3.9	10	<0.8	<0.8	<0.8	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	- -	- -	- -	<0.4	<0.4
Thallium	1	32	<0.4	<0.4	<0.4	<0.2	<0.2	<0.2	0.2	<0.2	<0.2	- -	- -	- -	0.2	0.2
Vanadium	130	200	18.5	33.9	17.4	30.3	37.8	27.2	53.9	26.9	28.8	- -	- -	- -	49.7	27.4
Zinc	360	600	19.6	297	17.5	52.9	52.9	48.6	62.6	30.4	32.3	- -	- -	- -	81.8	33.1
pH	6-8	NG	8.20	7.80	8.48	7.30	6.53	7.48	6.11	7.63	7.69	- -	- -	- -	- -	- -
PAHs																
Benzo(a)anthracene	10	40	- -	- -	- -	0.27	<0.02	0.06	<0.02	<0.02	0.02	- -	- -	- -	- -	- -
Benzo(a)pyrene	0.7	1.9	- -	- -	- -	0.15	<0.01	0.03	<0.01	<0.01	0.01	- -	- -	- -	- -	- -
Benzo(b)fluoranthene	10	19	- -	- -	- -	0.15	<0.02	0.03	<0.02	<0.02	<0.02	- -	- -	- -	- -	- -
Benzo(k)fluoranthene	10	19	- -	- -	- -	0.11	<0.02	0.02	<0.02	<0.02	<0.02	- -	- -	- -	- -	- -
Indeno(1,2,3,c,d)pyrene	10	19	- -	- -	- -	0.13	<0.01	0.03	<0.01	<0.01	0.01	- -	- -	- -	- -	- -
Naphthalene	22	40	- -	- -	- -	0.04	<0.03	<0.03	<0.03	<0.03	<0.03	- -	- -	- -	- -	- -
Pyrene	100	250	- -	- -	- -	0.39	<0.02	0.09	<0.02	<0.02	0.03	- -	- -	- -	- -	- -
BTEX																
Benzene	0.03	5.3	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.001	<0.001	<0.001	<0.001	<0.001
Ethylbenzene	0.082	290	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.002	<0.002	<0.002	<0.002	<0.002
Toluene	0.37	34	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002
Total Xylenes	11	34	- -	- -	- -	- -	- -	- -	- -	- -	- -	<0.002	<0.002	<0.002	<0.002	<0.002
VOCs																
1,2-Dichlorobenzene	10	30	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	- -	- -	- -	- -	- -
1,3-Dichlorobenzene	10	30	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	- -	- -	- -	- -	- -
1,4-Dichlorobenzene	10	30	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	- -	- -	- -	- -	- -
Trichloroethylene	0.01	1.1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	- -	- -	- -	- -	- -
Dioxins/Furans (pg/g)																
TOTAL TOXIC EQUIVALENCY	4	1000	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -

Notes: - All units in micrograms per gram (µg/g) with the exception of Furan/Dioxin (pg/g).

CCME [1] - Canadian Council of Ministers of the Environment (CCME), "Canadian Environmental Quality Guidelines", 1999 (Updated 2006). Chapter 7: Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health (Commercial Land Use). The guidelines are associated with coarse-grained textured soil.

MOE [2] - Ontario Ministry of the Environment (MOE) "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004. Table 3: Full depth Generic Site Condition Standards in a Non-Potable Ground Water Condition (Industrial/Commercial/Community Property Use). The standards are associated with coarse-grained textured soil.

Value - Sample result exceeds CCME commercial guideline criteria.
Value - Sample result exceeds MOE Table 3 industrial/commercial/community standard criteri
Value - CCME guideline is less than the laboratory Method Detection Limit.
< - Less than the laboratory Method Detection Limit (value indicated).
- - - Sample not analysed for this parameter.

Attachment 2
Table 2 - Analytical data for parameters with CCME commercial guidelines more stringent than MOE Table 3 industrial/commercial/community standards

Parameters	Guidelines / Standards		Analytical Results (Sample Location / Sample ID / Depth - metres below existing grade)											
			Building No. 135			Building No. 137								
	CCME[1] Commercial	MOE[2] Table 3 Commercial	TP-135-1-S1 (0.4-2.0 m)	TP-135-2-S3 (2.4-3.5 m)	TP-135-3-S1 (0.4-2.0 m)	B137 TP1 S2 2.5m (2.5 m)	B137 TP3 S6 2.8m (2.8 m)	B137 TP4 S9 1.8m (1.8 m)	B137 TP9 S16 1.8m Duplicate of B137 TP4 S9 1.8m (1.8 m)	B137 TP5 S11 2.2m (2.2 m)	B137 TP6 S13 2.5m (2.5 m)	B137 TP7 S14 2.25m (2.25m)	B137 TP8 S15 1.70m (1.7 m)
Metals													
Arsenic	12	40	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Chromium	87	750	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Chromium (VI)	1.4	8	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Copper	91	225	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Cyanide, free	8	100	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Lead	260	1000	- -	- -	- -	8.2	7.5	9.3	9.0	9.8	10.6	21.2	4.7
Nickel	50	150	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Selenium	3.9	10	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Thallium	1	32	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Vanadium	130	200	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Zinc	360	600	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
pH	6-8	NG	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
PAHs													
Benzo(a)anthracene	10	40	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Benzo(a)pyrene	0.7	1.9	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Benzo(b)fluoranthene	10	19	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Benzo(k)fluoranthene	10	19	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Indeno(1,2,3,c,d)pyrene	10	19	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Naphthalene	22	40	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Pyrene	100	250	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
BTEX													
Benzene	0.03	5.3	<0.001	<0.02	<0.001	<0.02	<0.02	<0.02	<0.02	<0.02	<0.001	0.001	<0.001
Ethylbenzene	0.082	290	<0.002	<0.02	<0.002	0.03	0.03	0.04	0.04	0.03	<0.002	<0.002	<0.002
Toluene	0.37	34	<0.002	<0.01	<0.002	0.07	0.03	<0.01	0.04	0.03	<0.002	<0.002	<0.002
Total Xylenes	11	34	<0.002	<0.01	<0.002	0.29	0.25	0.36	0.33	0.26	<0.002	<0.002	<0.002
VOCs													
1,2-Dichlorobenzene	10	30	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
1,3-Dichlorobenzene	10	30	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
1,4-Dichlorobenzene	10	30	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Trichloroethylene	0.01	1.1	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Dioxins/Furans (pg/g)													
TOTAL TOXIC EQUIVALENCY	4	1000	- -	- -	-	- -	- -	- -	- -	- -	- -	- -	- -

Notes: - All units in micrograms per gram (µg/g) with the exception of Furan/Dioxin (pg/g).

CCME [1] - Canadian Council of Ministers of the Environment (CCME), "Canadian Environmental Quality Guidelines", 1999 (Updated 2006). Chapter 7: Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health (Commercial Land Use). The guidelines are associated with coarse-grained textured soil.

MOE [2] - Ontario Ministry of the Environment (MOE) "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004. Table 3: Full depth Generic Site Condition Standards in a Non-Potable Ground Water Condition (Industrial/Commercial/Community Property Use). The standards are associated with coarse-grained textured soil.

Value - Sample result exceeds CCME commercial guideline criteria.
Value - Sample result exceeds MOE Table 3 industrial/commercial/community standard criteri
Value - CCME guideline is less than the laboratory Method Detection Limit.
< - Less than the laboratory Method Detection Limit (value indicated).
- - - Sample not analysed for this parameter.

Attachment 2
Table 2 - Analytical data for parameters with CCME commercial guidelines more stringent than MOE Table 3 industrial/commercial/community standards

Parameters	Guidelines / Standards		Analytical Results (Sample Location / Sample ID / Depth - metres below existing grade)														
			Building No. 151				Buildings No. 163				Building No. 164						
	CCME[1] Commercial	MOE[2] Table 3 Commercial	TP-151-1-S1 (0-1.5 m)	TP-151-2-S2 (0.9-1.1 m)	TP-151-3-S2 (1.5-2.1 m)	TP-151-4-S1 (0-1.5 m)	TP-163-1-S1 (0-1.5 m)	TP-163-2-S1 (0-0.8 m)	TP-163-3-S1 (0-1.8 m)	TP-163-4-S1 (0-1.0 m)	MW 164-1-SS2 (0.8-1.4 m)	MW 164-2-SS4 (2.2-2.8 m)	MW 164-3-S9 (4.9-5.5 m)	MW 164-4-SS4 (1.8-2.5 m)	MW 164-5-S2 (0.6-1.2 m)	MW 164-5-S2 Duplicate of MW 164-5-S2 (0.6-1.2 m)	MW 164-X-S4 (3.7-4.0 m)
Metals																	
Arsenic	12	40	0.7	0.3	0.4	1.2	1.2	1.3	0.8	1.3	- -	- -	- -	- -	- -	- -	- -
Chromium	87	750	20.0	10.6	13.0	24.1	22.8	26.0	25.7	29.3	- -	- -	- -	- -	- -	- -	- -
Chromium (VI)	1.4	8	- -	- -	- -	- -	<0.382	<0.382	<0.382	<0.382	- -	- -	- -	- -	- -	- -	- -
Copper	91	225	11.9	5.4	10.6	14.2	13.7	14.6	24.2	19.5	- -	- -	- -	- -	- -	- -	- -
Cyanide, free	8	100	- -	- -	- -	- -	<0.08	<0.08	<0.08	<0.08	- -	- -	- -	- -	- -	- -	- -
Lead	260	1000	7.5	3.4	3.5	8.9	9.1	11.9	5.2	11.2	- -	- -	- -	- -	- -	- -	- -
Nickel	50	150	17.6	11.5	13.8	20.4	22.3	22.6	25.0	27.4	- -	- -	- -	- -	- -	- -	- -
Selenium	3.9	10	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	- -	- -	- -	- -	- -	- -	- -
Thallium	1	32	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	- -	- -	- -	- -	- -	- -	- -
Vanadium	130	200	24.4	12.3	17.4	31.8	27.3	29.6	29.7	34.5	- -	- -	- -	- -	- -	- -	- -
Zinc	360	600	25.0	12.5	17.9	55.1	40.6	44.1	30.3	56.4	- -	- -	- -	- -	- -	- -	- -
pH	6-8	NG	- -	- -	- -	- -	7.44	7.77	7.13	7.43	- -	- -	- -	- -	- -	- -	- -
PAHs																	
Benzo(a)anthracene	10	40	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	- -	- -	- -	- -	- -	- -	- -
Benzo(a)pyrene	0.7	1.9	0.02	0.01	0.01	0.01	0.02	0.01	<0.01	0.01	- -	- -	- -	- -	- -	- -	- -
Benzo(b)fluoranthene	10	19	0.02	<0.02	<0.02	0.02	0.02	<0.02	<0.02	<0.02	- -	- -	- -	- -	- -	- -	- -
Benzo(k)fluoranthene	10	19	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	- -	- -	- -	- -	- -	- -	- -
Indeno(1,2,3,c,d)pyrene	10	19	0.02	0.01	0.01	0.02	0.02	0.01	<0.01	0.01	- -	- -	- -	- -	- -	- -	- -
Naphthalene	22	40	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	- -	- -	- -	- -	- -	- -	- -
Pyrene	100	250	0.04	<0.02	<0.02	0.03	0.02	0.03	<0.02	0.02	- -	- -	- -	- -	- -	- -	- -
BTEX																	
Benzene	0.03	5.3	<0.001	<0.001	<0.001	<0.001	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Ethylbenzene	0.082	290	<0.002	<0.002	<0.002	<0.002	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Toluene	0.37	34	0.002	0.010	0.002	0.013	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Total Xylenes	11	34	<0.002	<0.002	<0.002	<0.002	- -	- -	- -	- -							
VOCs																	
1,2-Dichlorobenzene	10	30	- -	- -	- -	- -	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
1,3-Dichlorobenzene	10	30	- -	- -	- -	- -	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
1,4-Dichlorobenzene	10	30	- -	- -	- -	- -	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Trichloroethylene	0.01	1.1	- -	- -	- -	- -	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.007	<0.005	<0.005
Dioxins/Furans (pg/g)																	
TOTAL TOXIC EQUIVALENCY	4	1000	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -

Notes: - All units in micrograms per gram (µg/g) with the exception of Furan/Dioxin (pg/g).

CCME [1] - Canadian Council of Ministers of the Environment (CCME), "Canadian Environmental Quality Guidelines", 1999 (Updated 2006). Chapter 7: Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health (Commercial Land Use). The guidelines are associated with coarse-grained textured soil.

MOE [2] - Ontario Ministry of the Environment (MOE) "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004. Table 3: Full depth Generic Site Condition Standards in a Non-Potable Ground Water Condition (Industrial/Commercial/Community Property Use). The standards are associated with coarse-grained textured soil.

Value - Sample result exceeds CCME commercial guideline criteria.
Value - Sample result exceeds MOE Table 3 industrial/commercial/community standard criteri
Value - CCME guideline is less than the laboratory Method Detection Limit.
< - Less than the laboratory Method Detection Limit (value indicated).
- - - Sample not analysed for this parameter.

Attachment 2
Table 2 - Analytical data for parameters with CCME commercial guidelines more stringent than MOE Table 3 industrial/commercial/community standards

Parameters	Guidelines / Standards		Analytical Results (Sample Location / Sample ID / Depth - metres below existing grade)								
			Building No. 167				Buildings No. 178		Buildings No. 179		
	CCME[1] Commercial	MOE[2] Table 3 Commercial	BH 167-1-S1 (0-0.61 m)	BH 167-2-S1 (0-0.61 m)	BH 167-3-S5 (2.44-3.05 m)	BH 167-4-S2 (0.61-1.22 m)	TP 178-1-S1 (0-1.3 m)	TP 178-2-S1 (0-1.0 m)	TP 179-1-S1 (0-1.2 m)	TP 179-2-S1 (0-1.0 m)	TP 179-2-S1 Duplicate of TP 179-2-S1 (0-1.0 m)
Metals											
Arsenic	12	40	- -	- -	- -	- -	- -	- -	- -	- -	- -
Chromium	87	750	- -	- -	- -	- -	- -	- -	- -	- -	- -
Chromium (VI)	1.4	8	- -	- -	- -	- -	- -	- -	- -	- -	- -
Copper	91	225	- -	- -	- -	- -	- -	- -	- -	- -	- -
Cyanide, free	8	100	- -	- -	- -	- -	- -	- -	- -	- -	- -
Lead	260	1000	- -	- -	- -	- -	- -	- -	- -	- -	- -
Nickel	50	150	- -	- -	- -	- -	- -	- -	- -	- -	- -
Selenium	3.9	10	- -	- -	- -	- -	- -	- -	- -	- -	- -
Thallium	1	32	- -	- -	- -	- -	- -	- -	- -	- -	- -
Vanadium	130	200	- -	- -	- -	- -	- -	- -	- -	- -	- -
Zinc	360	600	- -	- -	- -	- -	- -	- -	- -	- -	- -
pH	6-8	NG	- -	- -	- -	- -	- -	- -	- -	- -	- -
PAHs											
Benzo(a)anthracene	10	40	- -	- -	- -	- -	- -	- -	- -	- -	- -
Benzo(a)pyrene	0.7	1.9	- -	- -	- -	- -	- -	- -	- -	- -	- -
Benzo(b)fluoranthene	10	19	- -	- -	- -	- -	- -	- -	- -	- -	- -
Benzo(k)fluoranthene	10	19	- -	- -	- -	- -	- -	- -	- -	- -	- -
Indeno(1,2,3,c,d)pyrene	10	19	- -	- -	- -	- -	- -	- -	- -	- -	- -
Naphthalene	22	40	- -	- -	- -	- -	- -	- -	- -	- -	- -
Pyrene	100	250	- -	- -	- -	- -	- -	- -	- -	- -	- -
BTEX											
Benzene	0.03	5.3	<0.001	<0.001	<0.001	<0.001	<0.004	<0.004	<0.004	<0.004	<0.004
Ethylbenzene	0.082	290	<0.002	<0.002	<0.002	<0.002	<0.003	<0.003	<0.003	<0.003	<0.003
Toluene	0.37	34	0.017	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001
Total Xylenes	11	34	<0.002	0.002	<0.002	<0.002	- -	- -	- -	- -	- -
VOCs											
1,2-Dichlorobenzene	10	30	- -	- -	- -	- -	<0.004	<0.004	<0.004	<0.004	<0.004
1,3-Dichlorobenzene	10	30	- -	- -	- -	- -	<0.004	<0.004	<0.004	<0.004	<0.004
1,4-Dichlorobenzene	10	30	- -	- -	- -	- -	<0.005	<0.005	<0.005	<0.005	<0.005
Trichloroethylene	0.01	1.1	- -	- -	- -	- -	<0.005	<0.005	<0.005	<0.005	<0.005
Dioxins/Furans (pg/g)											
TOTAL TOXIC EQUIVALENCY	4	1000	- -	- -	- -	- -	- -	- -	- -	- -	- -

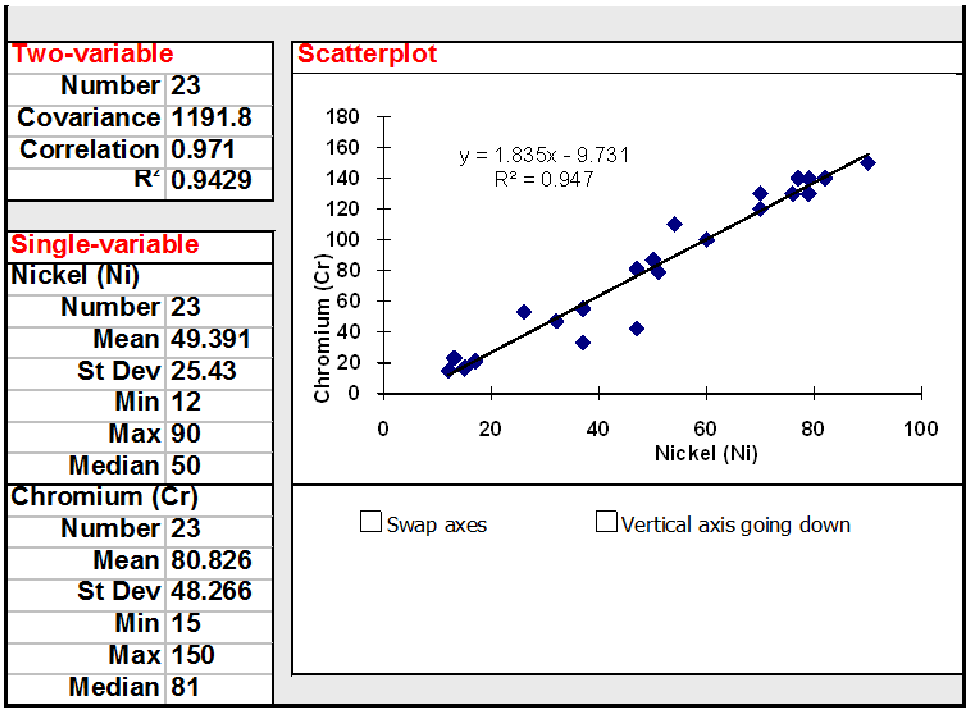
Notes: - All units in micrograms per gram (µg/g) with the exception of Furan/Dioxin (pg/g).

CCME [1] - Canadian Council of Ministers of the Environment (CCME), "Canadian Environmental Quality Guidelines", 1999 (Updated 2006). Chapter 7: Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health (Commercial Land Use). The guidelines are associated with coarse-grained textured soil.

MOE [2] - Ontario Ministry of the Environment (MOE) "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", March 9, 2004. Table 3: Full depth Generic Site Condition Standards in a Non-Potable Ground Water Condition (Industrial/Commercial/Community Property Use). The standards are associated with coarse-grained textured soil.

Value - Sample result exceeds CCME commercial guideline criteria.
Value - Sample result exceeds MOE Table 3 industrial/commercial/community standard criteri
Value - CCME guideline is less than the laboratory Method Detection Limit.
< - Less than the laboratory Method Detection Limit (value indicated).
- - - Sample not analysed for this parameter.

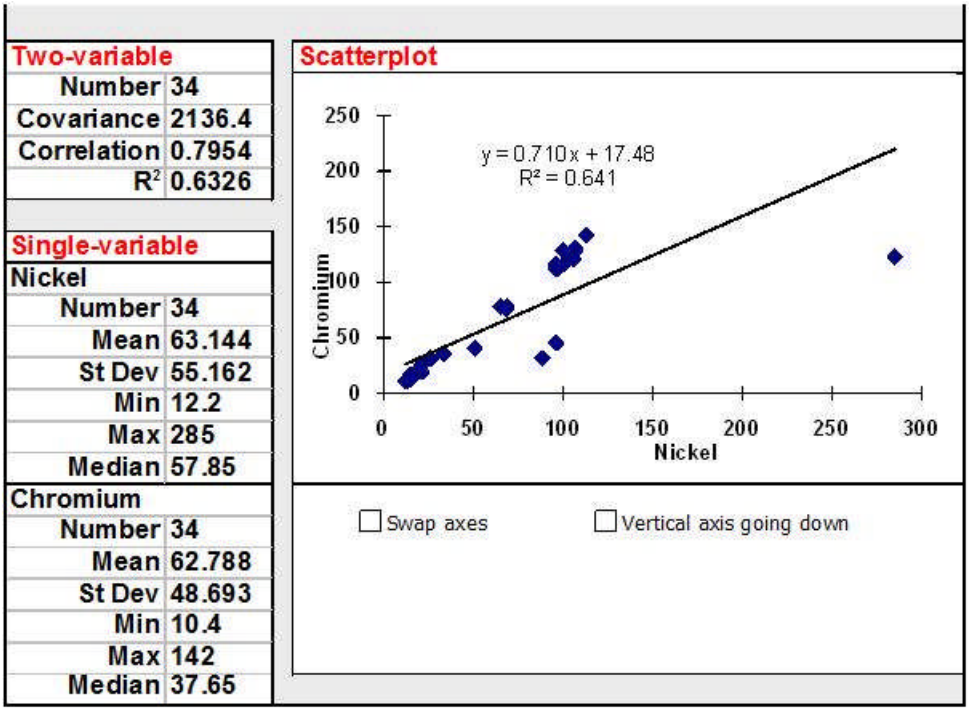
Figure 1 Summary Statistics and Correlation between Nickel & Chromium for Background Data



Two-variable	
Number	23
Covariance	1191.8
Correlation	0.971
R^2	0.9429

Single-variable	
Nickel (Ni)	
Number	23
Mean	49.391
St Dev	25.43
Min	12
Max	90
Median	50
Chromium (Cr)	
Number	23
Mean	80.826
St Dev	48.266
Min	15
Max	150
Median	81

Figure 2 Summary Statistics & Correlation between Nickel & Chromium for site data



Two-variable	
Number	34
Covariance	2136.4
Correlation	0.7954
R^2	0.6326

Single-variable	
Nickel	
Number	34
Mean	63.144
St Dev	55.162
Min	12.2
Max	285
Median	57.85
Chromium	
Number	34
Mean	62.788
St Dev	48.693
Min	10.4
Max	142
Median	37.65

Figure 3 Site Data showing statistical Outliers

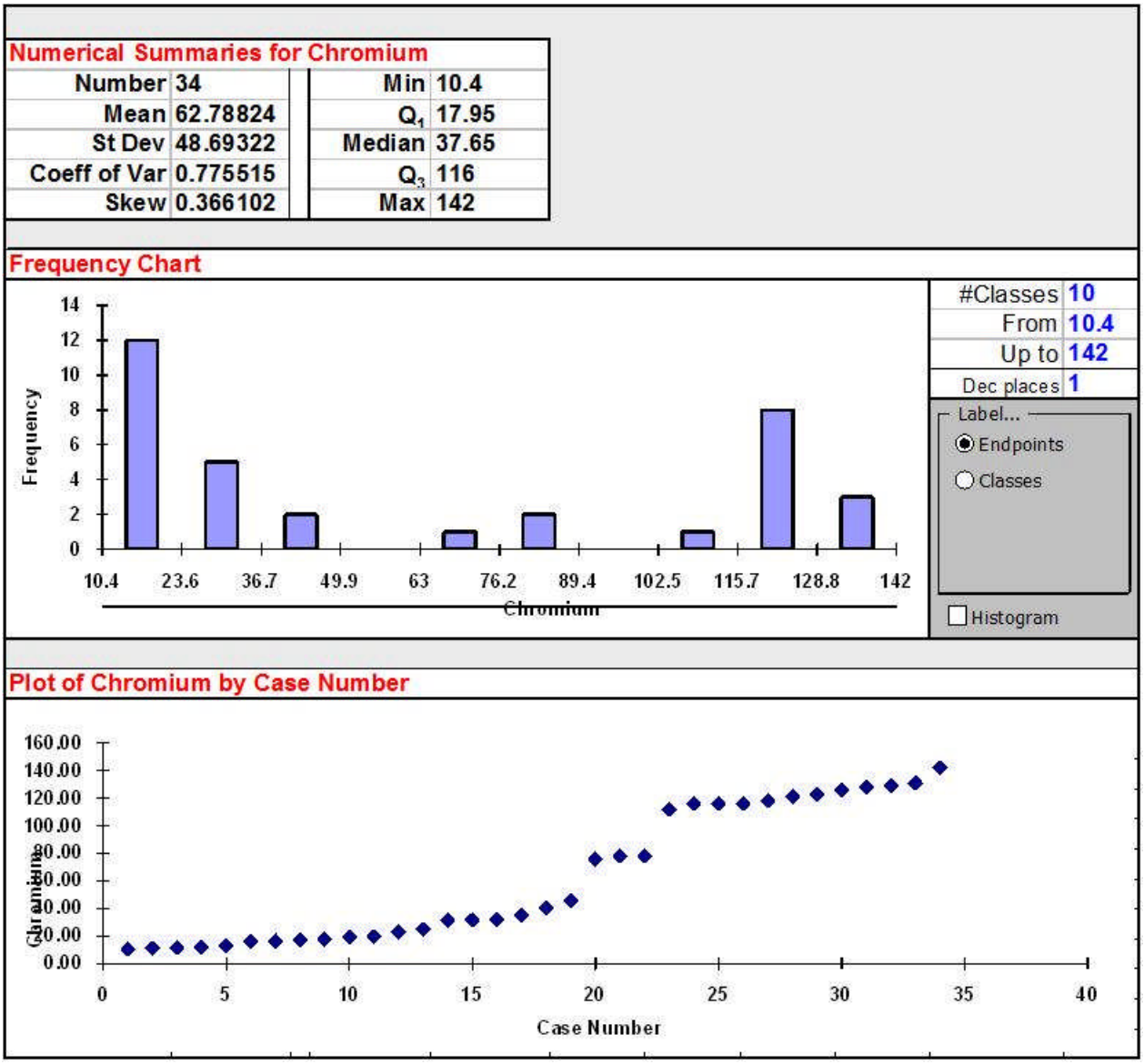
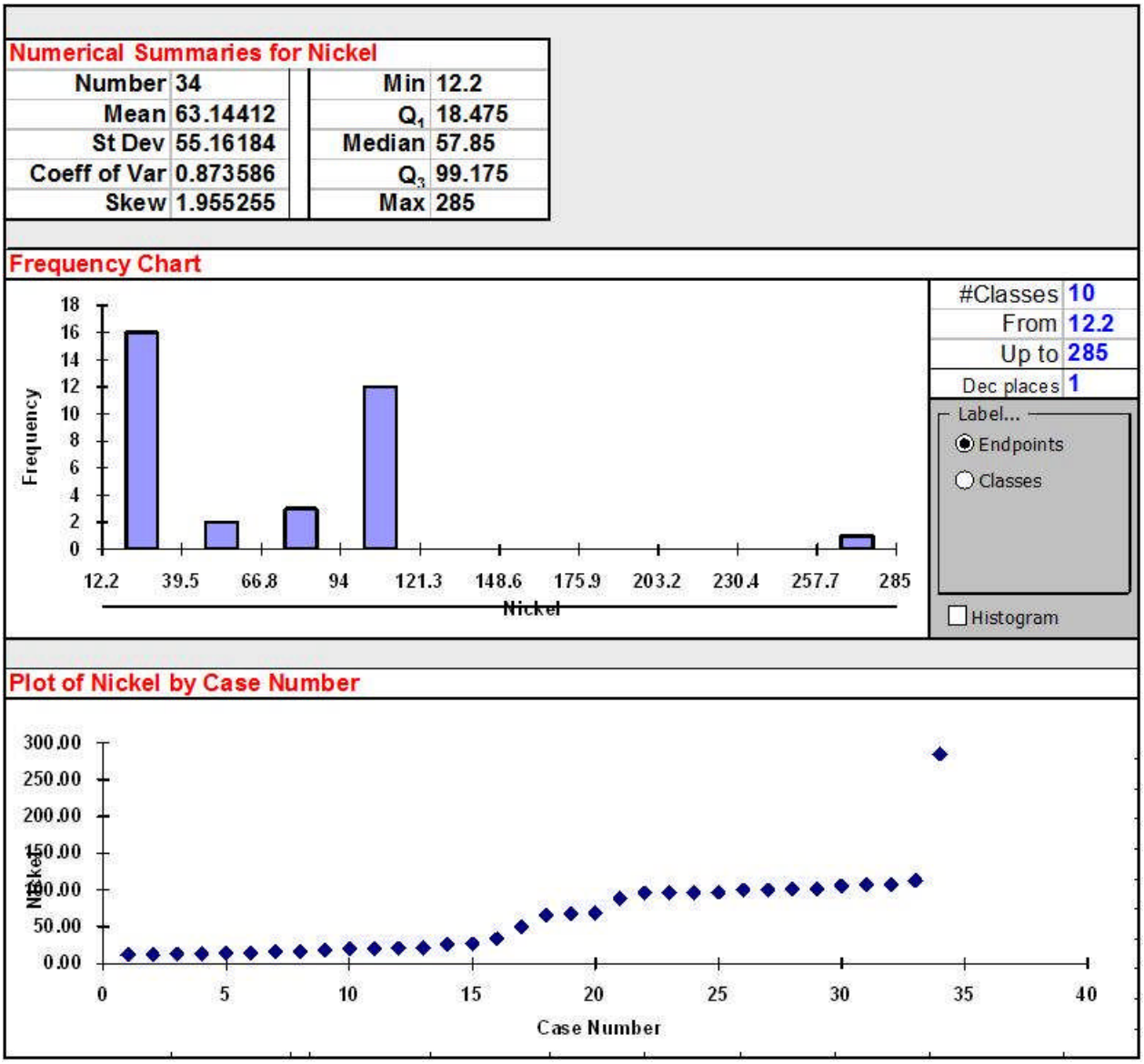
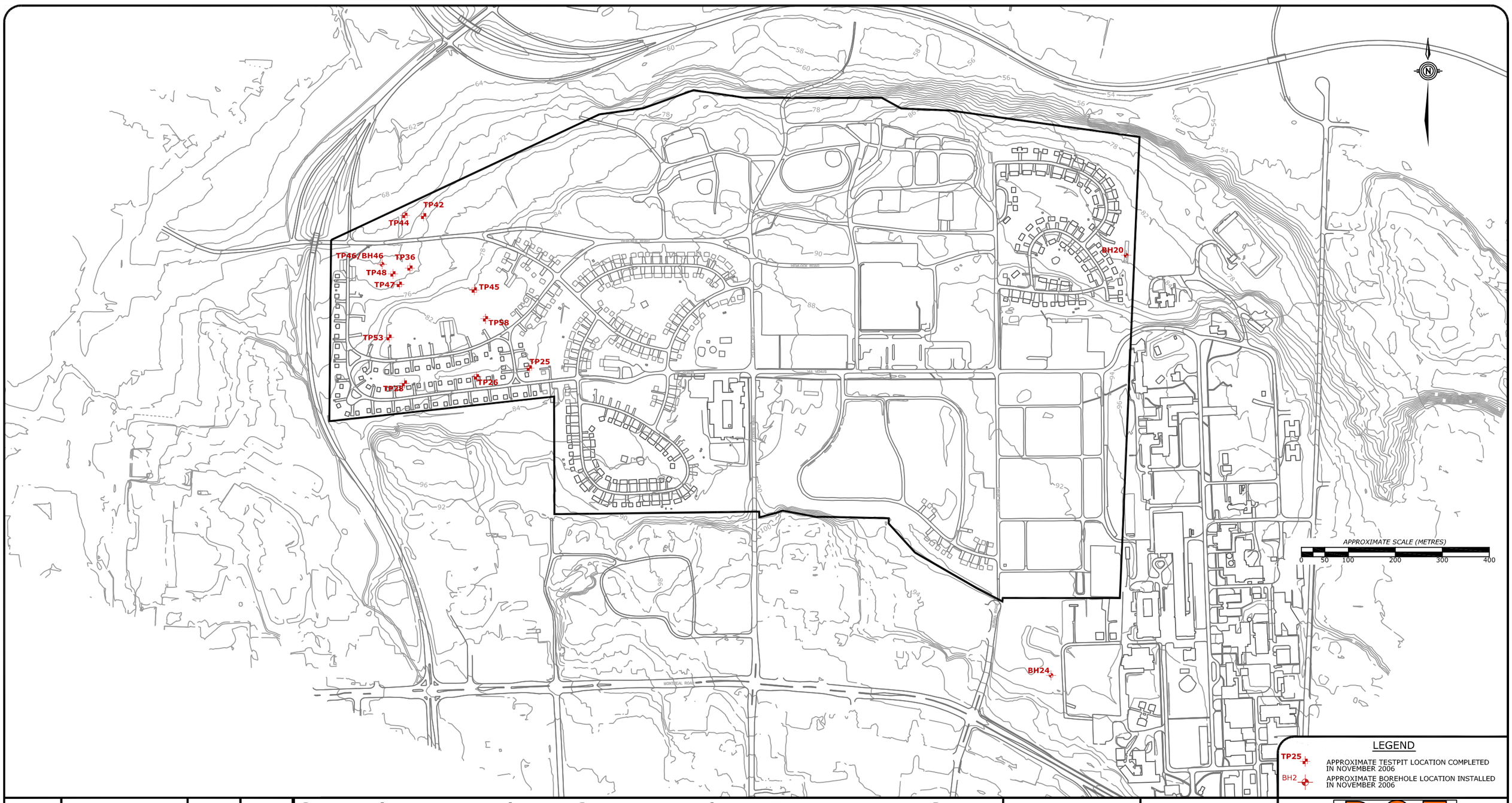


Figure 4 Site Data Showing Outliers





REV.	DESCRIPTION	DATE	APPR.
0	Original	05/08	J.S.M.

Chromium and Nickel Concentrations Background Study
CFB Rockcliffe, Ottawa, Ontario

SITE PLAN

PROJECT NO.: OE-OT-005848

DATE: May 2008

FIGURE 1

DST CONSULTING ENGINEERS
2150 THURSTON DRIVE, SUITE 203
Ottawa, Ontario, K1G 5T9
Tel (613) 748-1415 Fax (613) 748-1356

Your Project #: OE-OT-005848
Your C.O.C. #: 4679

Attention: Jonathan Markiewicz
DST Consulting Engineers
Ottawa - Standing Offer
2150 Thurston Dr
Unit 203
Ottawa, ON
K1G 5T9

Report Date: 2007/06/26

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: A763231
Received: 2007/06/21, 09:36

Sample Matrix: Soil
Samples Received: 27

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Acid Extr. Metals (aqua regia) by ICPMS	27	2007/06/25	2007/06/25	CAM SOP-00447	EPA 6020

Encryption Key

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

LEENA THOMAS, Project Manager
Email: leena.thomas@maxxamanalytics.com
Phone# (905) 817-5700 Ext:5798

==========

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. SCC and CAEAL have approved this reporting process and electronic report format.

Total cover pages: 1

Maxxam Job #: A763231
Report Date: 2007/06/26

DST Consulting Engineers
Client Project #: OE-OT-005848
Project name:
Sampler Initials:

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		T04216	T04217	T04217	T04218		
Sampling Date							
COC Number		4679	4679	4679	4679		
	Units	**BH20 SS2**	**BH20 SS5**	**BH20 SS5 Lab-Dup**	**BH24 SS2**	**RDL**	**QC Batch**
METALS							
Acid Extractable Chromium (Cr)	ug/g	53	79	77	100	1	1280237
Acid Extractable Nickel (Ni)	ug/g	26	51	50	60	0.5	1280237

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		T04219		T04220	T04221		
Sampling Date							
COC Number		4679		4679	4679		
	Units	**BH24 SS4**	**QC Batch**	**BH29 SS9**	**TP25 SGS1**	**RDL**	**QC Batch**
METALS							
Acid Extractable Chromium (Cr)	ug/g	130	1280248	150	130	1	1280237
Acid Extractable Nickel (Ni)	ug/g	76	1280248	90	70	0.5	1280237

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		T04222		T04223	T04224		
Sampling Date							
COC Number		4679		4679	4679		
	Units	**TP25 SGS3**	**QC Batch**	**TP26 SGS2**	**TP26 SGS3**	**RDL**	**QC Batch**
METALS							
Acid Extractable Chromium (Cr)	ug/g	130	1280248	140	110	1	1280237
Acid Extractable Nickel (Ni)	ug/g	79	1280248	77	54	0.5	1280237

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

6740 Campobello Road, Mississauga, Ontario Canada L5N 2L8 Tel: 905-817-5700 Toll free:800-563-6266 Fax: 905-817-5777

Maxxam Job #: A763231
Report Date: 2007/06/26

DST Consulting Engineers
Client Project #: OE-OT-005848
Project name:
Sampler Initials:

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		T04225		T04226	T04227		
Sampling Date							
COC Number		4679		4679	4679		
	Units	**TP28 SGS3**	**QC Batch**	**TP34 SGS1**	**TP36 SGS2**	**RDL**	**QC Batch**
METALS							
Acid Extractable Chromium (Cr)	ug/g	140	1280248	120	16	1	1280237
Acid Extractable Nickel (Ni)	ug/g	82	1280248	67	14	0.5	1280237

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		T04228	T04229		T04230		
Sampling Date							
COC Number		4679	4679		4679		
	Units	**TP36 SGS3**	**TP42 SGS1**	**QC Batch**	**TP42 SGS3**	**RDL**	**QC Batch**
METALS							
Acid Extractable Chromium (Cr)	ug/g	42	140	1280237	33	1	1280248
Acid Extractable Nickel (Ni)	ug/g	47	79	1280237	37	0.5	1280248

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		T04231		T04232	T04233		
Sampling Date							
COC Number		4679		4679	4679		
	Units	**TP44 SGS1**	**QC Batch**	**TP44 SGS3**	**TP45 SGS1**	**RDL**	**QC Batch**
METALS							
Acid Extractable Chromium (Cr)	ug/g	110	1280248	23	100	1	1280237
Acid Extractable Nickel (Ni)	ug/g	64	1280248	13	57	0.5	1280237

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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DST Consulting Engineers
Client Project #: OE-OT-005848
Project name:
Sampler Initials:

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		T04234	T04235		T04236		
Sampling Date							
COC Number		4679	4679		4679		
	Units	**TP45 SGS3**	**TP46 SGS1**	**QC Batch**	**TP47 SGS2**	**RDL**	**QC Batch**
METALS							
Acid Extractable Chromium (Cr)	ug/g	15	120	1280237	55	1	1280248
Acid Extractable Nickel (Ni)	ug/g	12	70	1280237	37	0.5	1280248

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		T04237	T04238	T04238		
Sampling Date						
COC Number		4679	4679	4679		
	Units	**TP48 SGS1**	**TP53 SGS1**	**TP53 SGS1 Lab-Dup**	**RDL**	**QC Batch**
METALS						
Acid Extractable Chromium (Cr)	ug/g	47	21	21	1	1280248
Acid Extractable Nickel (Ni)	ug/g	32	17	17	0.5	1280248

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		T04239	T04240	T04241	T04242		
Sampling Date							
COC Number		4679	4679	4679	4679		
	Units	**TP53 SGS2**	**TP 58 SGS1**	**DUP-1**	**DUP-2**	**RDL**	**QC Batch**
METALS							
Acid Extractable Chromium (Cr)	ug/g	16	17	81	150	1	1280237
Acid Extractable Nickel (Ni)	ug/g	15	15	47	88	0.5	1280237

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: A763231
Report Date: 2007/06/26

DST Consulting Engineers
Client Project #: OE-OT-005848
Project name:
Sampler Initials:

GENERAL COMMENTS

Results relate only to the items tested.

6740 Campobello Road, Mississauga, Ontario Canada L5N 2L8 Tel: 905-817-5700 Toll free:800-563-6266 Fax: 905-817-5777

DST Consulting Engineers
Attention: Jonathan Markiewicz
Client Project #: OE-OT-005848
P.O. #:
Project name:

Quality Assurance Report

Maxxam Job Number: MA763231

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
1280237	VIV	MATRIX SPIKE						
		[T04217-01]	Acid Extractable Chromium (Cr)	2007/06/25		111	%	75 - 125
			Acid Extractable Nickel (Ni)	2007/06/25		108	%	75 - 125
		QC STANDARD	Acid Extractable Chromium (Cr)	2007/06/25		107	%	75 - 125
			Acid Extractable Nickel (Ni)	2007/06/25		109	%	75 - 125
		Method Blank	Acid Extractable Chromium (Cr)	2007/06/25	<1		ug/g	
			Acid Extractable Nickel (Ni)	2007/06/25	<0.5		ug/g	
		RPD [T04217-01]	Acid Extractable Chromium (Cr)	2007/06/25	2.8		%	35
			Acid Extractable Nickel (Ni)	2007/06/25	1.9		%	35
1280248	VIV	MATRIX SPIKE						
		[T04238-01]	Acid Extractable Chromium (Cr)	2007/06/25		106	%	75 - 125
			Acid Extractable Nickel (Ni)	2007/06/25		102	%	75 - 125
		QC STANDARD	Acid Extractable Chromium (Cr)	2007/06/25		98	%	75 - 125
			Acid Extractable Nickel (Ni)	2007/06/25		103	%	75 - 125
		Method Blank	Acid Extractable Chromium (Cr)	2007/06/25	<1		ug/g	
			Acid Extractable Nickel (Ni)	2007/06/25	<0.5		ug/g	
		RPD [T04238-01]	Acid Extractable Chromium (Cr)	2007/06/25	0.4		%	35
			Acid Extractable Nickel (Ni)	2007/06/25	0.3		%	35

RPD = Relative Percent Difference
QC Standard = Quality Control Standard

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APPENDIX H
LIMITATIONS OF REPORT

LIMITATIONS OF REPORT

The information, conclusions and recommendations given herein are specifically for this project and this Client only, and the scope of work described herein. It may not be sufficient for other uses.

The data, conclusions and recommendations which are presented in this report, and the quality thereof, are based on a scope of work authorized by the Client. Note, however, that no scope of work, no matter how exhaustive, can identify all contaminants or all conditions above and below ground. For example, conditions between test holes may differ from those encountered in the investigation, and observed or measured conditions may change with time. This report therefore cannot warranty that all conditions on or off the site are represented by those identified at specific locations.

Any recommendations and conclusions provided that are based on conditions or assumptions reported herein will inherently include any uncertainty associated with those conditions or assumptions. In fact, many aspects involving professional judgment such as subsurface models and remediation criteria contain a degree of uncertainty which cannot be eliminated. This uncertainty should be managed by periodic review and refinement as additional information becomes available.

Note also that standards, guidelines and practices related to environmental investigations may change with time. Those which were applied at the time of this investigation may be obsolete or unacceptable at a later date.

Any topographic benchmarks and elevations documented in this report are primarily to establish relative elevation differences between test locations and should not be used for other purposes such as grading, excavation, planning, development, etc.

Any comments given in this report on potential remediation problems and possible methods are intended only for the guidance of the designer. The scope of work may not be sufficient to determine all of the factors that may affect construction or clean-up methods and costs. Contractors bidding on this project or undertaking clean-ups should, therefore, make their own interpretation of the factual information presented and draw their own conclusions as to how the conditions may affect their work.

Any results from an analytical laboratory, title searcher or other subcontractor reported herein have been carried out by others, and DST Consulting Engineers Inc. cannot warranty their accuracy. Similarly, DST cannot warranty the accuracy of information supplied by the client. DST relied on information provided by various sources that was understood to be factual or correct, and did not validate the data and findings associated with previous reports.