THE COLLECTION OF LANDFILL MONITORING DATA - FOX-5 AND FOX-M FORMER DEW LINE SITES: DRAFT FINAL REPORT 2008

Qikiqtaaluk Region, Nunavut

Preliminary Version
(Y/Ref.: DLCMON (Qikiq 08))(O/Ref.: CD8177)

DEFENCE CONSTRUCTION CANADA

December 2008

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DEFENCE CONSTRUCTION CANADA

December 2008

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1 INTRODUCTION

1.1 LOCATION AND SITE FEATURES

The FOX-5 Broughton Island DEW Line site is located on the southeastern edge of Broughton Island. Broughton Island is a small island off the east coast of the Cumberland Peninsula of Baffin Island. The FOX-5 site is located at 67° 33' north latitude and 63° 49' west longitude. The site is located approximately 9 km east of the community of Qikiqtarjuaq (formerly Broughton Island) and sits on a high point about 2 km inland of Davis Strait. The main site is approximately 550 m above sea level and is accessed by an all-season road; however, the road has not been maintained since the completion of the site clean-up.

FOX-5 was originally an auxiliary station within the original DEW Line system that was decommissioned in 1991. A remotely operated North Warning System Short Range Radar Station has been constructed in its vicinity. The environmental clean-up and demolition of facilities not required for the operation of the SRR site commenced in 2001 and was completed during the summer of 2006. The clean-up included the closure and remediation of two existing landfills as well as the construction of two landfills for the disposal of non-hazardous wastes generated from demolition, and collection of site debris, one of which was also constructed to contain Tier II soils in a separate cell. These landfills, as shown on the overall site plan, Figure 1 FOX-5, include:

- Station Non-Hazardous Waste Landfill;
- Main Landfill; and
- Middle Site Tier II Soil Disposal Facility/Non-Hazardous Waste Landfill.

The Airstrip Landfill, not shown in Figure 1, does not require monitoring as it was completely excavated.

In accordance with the NTI-DND Cooperation Agreement, landfill monitoring is to be carried out following clean-up of the site. The monitoring schedule for the 2008 FOX-5 Broughton Island site is provided in Table I.

Table I : 2008 Monitoring Requirements for FOX-5 Landfills

Landfill	Visual Inspection	Soil Sampling	Groundwater Sampling	Thermal Monitoring
Station Area NHWLF	✓			
Main Landfill	✓	✓	✓	✓
Middle Site Tier II Disposal Facility / NHWLF	✓	✓	✓	✓

1.2 OBJECTIVES AND SCOPE OF WORK

The objective of the Defence Construction Canada (hereinafter called "DCC") Landfill Monitoring Program is to collect sufficient information to assess the landfills' performance, from a geotechnical and environmental perspective. DCC has specified the requirements for the Landfill Monitoring Program in the document *Terms of Reference* (ToR) – *Consulting Services for the Collection of Landfill Monitoring Data - FOX-5 Broughton Island and FOX-M Hall Beach DEW Line Sites, Nunavut Territory, Qikiqtaaluk Region, DCC Project # DLC MON*, December 14, 2007 (ToR, reference B).

The scope of work for the Landfill Monitoring Program is defined in the ToR (reference B) and in Biogenie S.R.D.C. Inc's (hereinafter called "Biogenie") accepted proposal dated February 2008 (reference C) that was submitted to DCC. The scope of work generally includes the following activities:

- Landfill Monitoring for each of the FOX-5 Landfills:
- Visual inspection;
- Soil sampling;

- Groundwater sampling;
- Thermal monitoring (Main Landfill and DCC Tier II Disposal Facility);
- Create photographic record; and
- Draft and Final reports.

1.3 REPORT FORMAT

This report describes the work carried out in August 2008 at three landfill sites at FOX-5 Broughton Island. Results from soil and groundwater sampling, thermal monitoring, and visual inspection of the sites are also presented in the formats described in the ToR (reference B). An electronic version of the report and its component tables, figures and data files is included in a CD-ROM, which is enclosed with the report.

The report is organized with a separate chapter for each of the landfill areas. Each chapter contains all relevant information for that landfill area, for the 2008 Landfill Monitoring Program. The following information is provided in each landfill section:

- Visual inspection checklist;
- Visual inspection drawing mark-up;
- A selection of visual inspection photos;
- Thermal monitoring summary (where applicable);
- Plots of ground temperatures with depth at each thermistor installation (where applicable);
- Summary of 2008 soil analytical data;
- Evaluation of 2008 soil analytical data, as compared to baseline conditions;
- Summary of 2008 groundwater analytical data; and
- Monitoring well development/sampling reports (where applicable).

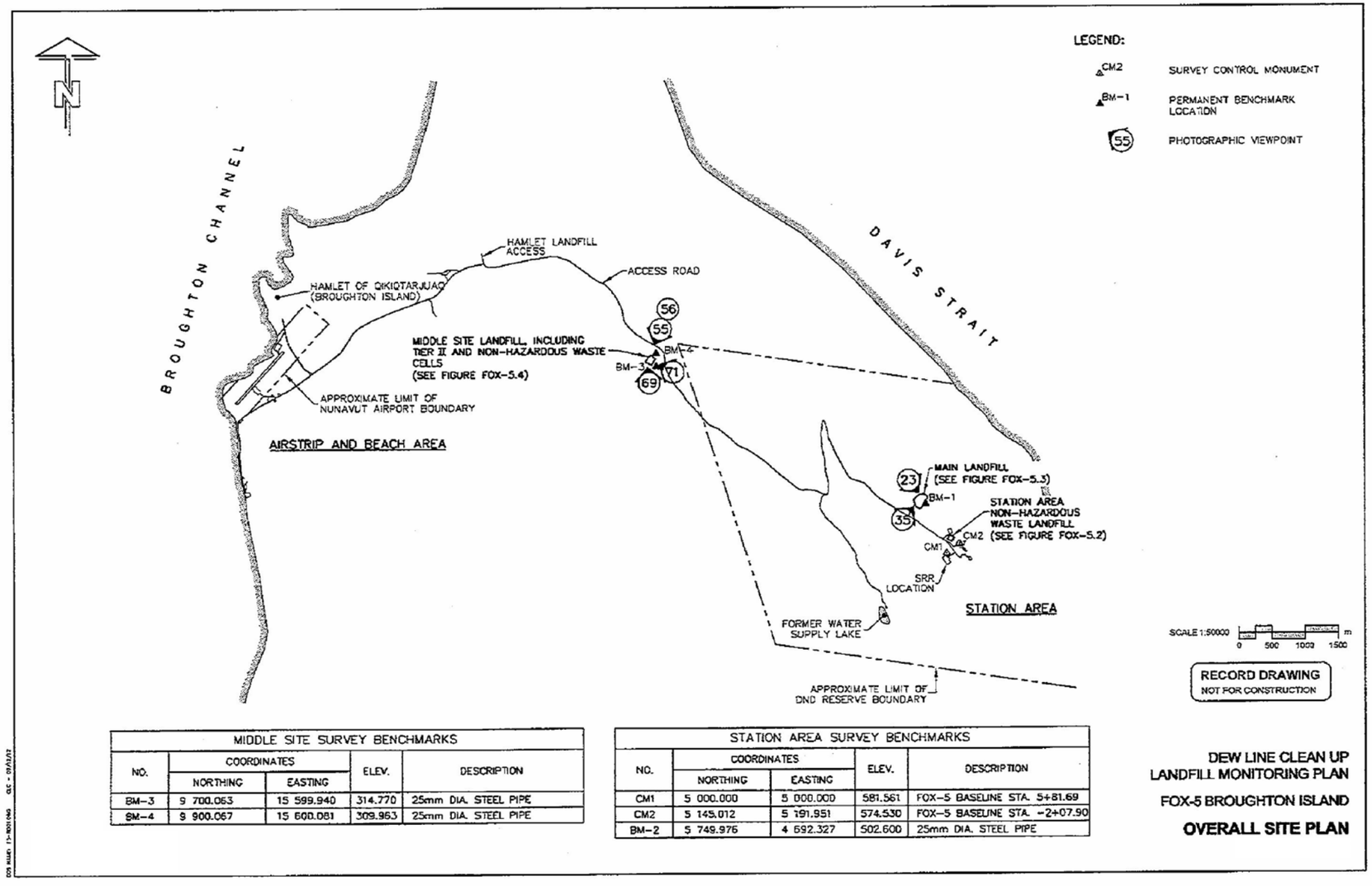
For the photographic record, the printed copy of the report only includes an index and thumbnail image of photos for each of the landfill areas. The actual photos are included in electronic format in the CD-ROM. Certificates of Analysis, QA/QC analytical results and field notes are attached in appendices.

1.4 PROJECT REFERENCES

The following references are specifically relevant to the 2008 Landfill Monitoring activities:

A. *Request for Abbreviated Proposal- Consultant Services – Collection of Landfill Monitoring Data for the DEW Line Sites: FOX-M Hall Beach and FOX-5 Broughton Island, Nunavut Territory - Qikiqtaaluk Region, Nunavut. DCC Project # DLC MON (Qikiq 08)*, January 14, 2008.
B. *Terms of Reference – Consulting Services for the Collection of Landfill Monitoring Data - FOX-5 Broughton Island and FOX-M Hall Beach DEW Line Sites, Nunavut Territory, Qikiqtaaluk Region, DCC Project # DLC MON*, December 14, 2007.
C. Technical Proposal – The Collection of Landfill Monitoring Data for the DEW Line Sites: *FOX-M Hall Beach and FOX-5 Broughton Island, Nunavut Territory - Qikiqtaaluk Region, Nunavut. Project Ref. 6121-045*, February 2008.
D. *Post-Field Progress Report, FOX-5 Landfill Monitoring 2008*, September 5, 2008.

The range of the report, limitation of responsibilities as well as the detailed procedures for the use of this report are presented in Appendix A.



MIDDLE SITE SURVEY BENCHMARKS				
NO.	COORDINATES		ELEV.	DESCRIPTION
	NORTHING	EASTING		
BM-3	9 700.063	15 599.940	314.770	25mm DIA. STEEL PIPE
BM-4	9 900.067	15 600.081	309.963	25mm DIA. STEEL PIPE

STATION AREA SURVEY BENCHMARKS				
NO.	COORDINATES		ELEV.	DESCRIPTION
	NORTHING	EASTING		
CM1	5 000.000	5 000.000	581.561	FOX-5 BASELINE STA. 5+81.69
CM2	5 145.012	5 191.951	574.530	FOX-5 BASELINE STA. -2+07.90
BM-2	5 749.976	4 692.327	502.600	25mm DIA. STEEL PIPE

DEW LINE CLEAN UP
LANDFILL MONITORING PLAN
FOX-5 BROUGHTON ISLAND
OVERALL SITE PLAN

0 75m 150m 225m 300m 375m

NO.	VERSION	DATE	PAR	VERIF.	APPR.
A	FINAL VERSION	08-12-18	P.L.	J.P.P.	J.P.P.

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Defence Construction Canada

DRAFT FINAL REPORT
COLLECTION OF LANDFILL MONITORING DATA
FOX-5, QIKIQTAALUK REGION (NUNAVUT)
OVERALL
SITE PLAN

SITE REMEDIATION SOLUTIONS
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Quebec (Quebec) CANADA G1P 2J7
Phone: (418) 653-4422 Fax.: (418) 653-3583

MEASUREMENT UNIT	SCALE:	DATE (month-year):
Meter	1 : 75,000	AUGUST 2008
DRAWN BY: P. LÉGARÉ	VERIFIED BY: J.-P. PELLETIER	APPROVED BY: J.-P. PELLETIER
PROJECT NO: CD8177_001_160	DRAWING NO: CD8177_001_160-PL1	PAGE PL

FIGURE 1

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2 OUTLINE AND METHODOLOGY

2.1 FIELD PROGRAM STAFF

On-site 2008 field program at FOX-5 Broughton Island took place from August 19 to 22, 2008. Biogenie sub-contracted Sila Remediation Inc. from Igloolik, Nunavut to perform the field work. The Sila field program was executed by Mr. Andrew Passalis and four local Inuit representatives.

The Sila Field Team (Table II) consisted of an engineer and local support personnel. The team was made up of the following individuals:

Table II : Sila's Field Team

Personnel	Role
Andrew Passalis	Project Engineer
Mina Kunilusie	Field Technician
Danny Audlakiak	Field Technician
Alan Kooneeliusie	Wildlife Monitor
George Kuniluisee	Wildlife Monitor

2.2 VISUAL INSPECTION

Data and information collected during the visual inspection of the FOX-5 landfills are included in the visual inspection datasheets. These data sheets include such inspection data as the location of settlement, erosion, frost action, sloughing and cracking, animal burrows, vegetation cover and stress, staining, seepage points, exposed debris, and any other features of note.

Each feature was identified with an alphabetical tag to be used consistently each year in an effort to track changes in condition for each specific feature. New features are added to the checklist and are noted as new observations. This letter is shown on the figures for each landfill along with the symbol for the particular feature.

Digital photos with a measure of scale were taken to show the actual general state of the landfills as well as features of interest. Annotated sketches/diagrams are included in the present report for each landfill.

The photos were taken with a Sony Cyber-shot 7.2 megapixel (MP) digital camera. Full resolution digital jpg copies are furnished on a CD-ROM appended with the final report. The photo log, including the local coordinates from where the photo was taken, orientation (relative to map north), feature of note and picture number is included with each landfill report.

2.3 SOIL SAMPLING

The soil sampling methodology conformed to guidance provided in the following Canadian Council of Ministers of the Environment (CCME) documents:

- CCME *Guidance Document on the Management of Contaminated Sites In Canada*, April 1997, CCME PN 1279. (CCME catalogue - http://www.ccme.ca/pdfs/cat_eng.pdf);
- CCME EPC-NCS62E *Guidance Manual on Sampling, Analysis, and Data Management for Contaminated Sites - Volume I: Main Report*, December 1993 (CCME catalogue - http://www.ccme.ca/pdfs/cat_eng.pdf);
- CCME EPC-NCS66E *Guidance Manual on Sampling, Analysis, and Data Management for Contaminated Sites - Volume II: Analytical Method Summaries*, December 1993 (CCME catalogue - http://www.ccme.ca/pdfs/cat_eng.pdf);
- Reference method for the Determination of Petroleum Hydrocarbons in Soil – Tier I Method, 2001; and

- CCME *Subsurface Assessment Handbook for Contaminated Sites*, March 1994, EPC-NCSRP-48E (CCME catalogue - www.ccme.ca/pdfs/cat_eng.pdf).

For the 2008 monitoring event, 12 soil-sampling stations were visited. One surface sample (0-15 cm depth below surface) and one subsurface sample (40-50 cm depth below surface) were collected from each sampling station. The laboratory's Certificates of Analysis for the 2008 monitoring campaign are presented in Appendix B. No frozen ground or frost was encountered at the soil sampling stations during the August 2008 sampling.

As specified in the ToR (reference B), the soil sampling procedures were adhered to:

- Where required, the soil samples were collected from locations between two to four meter radius of the monitoring wells;
- Blind field duplicates (10 %) were collected for Quality Assurance and Quality Control purposes;
- Duplicate samples (10 %) were also collected and submitted to a second laboratory for quality control purposes; and
- An additional 10 % of soil samples collected were sent to the owner's representative (ESG OPS CENTRE) in Kingston for archiving as specified by DCC.

The soil samples were analyzed for requested parameters (TPH, Total metals and PCBs) as specified by DCC. Table III below summarizes the soil sampling locations at FOX-5 during the August 2008 field program.

Table III : Summary of Soil Sampling at FOX-5, August 2008 Landfill Site
Soil Sampling Stations

Landfill Site	Soil Sample Locations				
Main Landfill	MW-10	MW-11	MW-12	MW-13	MW-14
Middle Site Tier II/NHWLF	MW-5	MW-6	MW-7	MW-8	MW-9

Notes:
Soil samples annotated as "MW" were collected as per the ToR (reference B) between 2-4 metres from monitoring wells.
All soil samples (except F4-25) were collected from two depths (0-15 cm and 40-50 cm generally)

2.4 GROUNDWATER SAMPLING

The soil sampling methodology conformed to guidance provided in the following Canadian Council of Ministers of the Environment (CCME) documents:

- CCME EPC-NCS62E *Guidance Manual on Sampling, Analysis, and Data Management for Contaminated Sites - Volume I*: Main Report, December 1993 (CCME catalogue - http://www.ccme.ca/pdfs/cat_eng.pdf); and
- CCME EPC-NCS66E *Guidance Manual on Sampling, Analysis, and Data Management for Contaminated Sites - Volume II*: Analytical Method Summaries, December 1993 (CCME catalogue - http://www.ccme.ca/pdfs/cat_eng.pdf).

Wells were purged as specified and measurements of *in situ* temperature, conductivity and pH were taken. Sampling took place when these parameters were stabilized. Turbidity readings were also collected at each station. The samples were not acidified and were not filtered (as directed in ToR).

There are 15 monitoring wells at FOX-5. During the 2006 field program, it was possible to sample 14 out of 15 monitoring wells. One monitoring well (MW-14) could not be sampled due to dry conditions at the time of sampling. A summary of the status of the monitoring wells and the attempts made are summarized in Table IV.

In sampled wells, no signs of free-phase hydrocarbon product were detected. Monitoring Well Development and Sampling Record forms are included in appropriate sections in this report.

Table IV : Summary of Groundwater Sampling at FOX-5, August 2006

Landfill Site	Groundwater Sample Locations				
Station AREA NHWLF	MW-15	MW-16	MW-17	MW-18	MW-19
Main Landfill	MW-10	MW-11	MW-12	MW-13	
Middle Site Tier II/NHWLF	MW-5	MW-6	MW-7	MW-8	MW-9

Notes: All monitoring wells were inspected and found to be in good condition with no significant concerns identified.

2.5 THERMAL MONITORING

All thermistors at the Main Landfill and Middle Site Tier II Disposal Facility were inspected and found to be in good condition with no significant concerns identified. With the exception of two manual temperature readings at VT-4 and VT-10, all analogues/ thermocouples were observed to be functioning properly. Data from all thermistors were successfully retrieved. All clocks exhibited slight drift and were syncronized using the Prolog software.

Specific detailed information regarding temperature data is contained in the report section on the Main Landfill and Middle Site Tier II Soil Disposal Facility.

2.6 FIELD NOTES AND DATA

Field notes from the 2008 landfill monitoring program, including soil and water sampling are included in Appendix C for reference. Notes were written in field notebooks with indelible pen and were scanned to an Adobe pdf document for future reference and back-up. Locations of all observations and features for the visual inspection were recorded using a hand-held Garmin 60Cx GPS device, which included a combination of continuous tracks and discrete waypoints. Data packages collected from the individual vertical thermistors was downloaded directly to a field laptop computer.

2.7 QUALITY CONTROL

Standards for sample collection were implemented to decrease the likelihood of compromising collected samples. The methods used for sample collection are summarized in Section 2.3 and 2.4 of this report. Ensuring the following minimized sample cross contamination:

- All samples were placed directly into an appropriate laboratory supplied containers (for the particular analysis);
- Soil samples were collected with the use of decontaminated sampling equipment and/or nitrile gloves that were used only once;
- Water samples were collected through the use of dedicated Waterra footvalves and tubing; and
- All samples were stored in chilled coolers/refrigerators throughout the field program and chilled coolers during subsequent transfer to the respective laboratory.

Chains of custody (COC) forms were completed by the Project Engineer after sample collection. The samples were refrigerated prior to off-site shipment by First Air Cargo directly to Bodycote and Maxxam in Ottawa, Ontario and ESG, via Ottawa to Kingston, Ontario where they were checked in by laboratory representatives. All analysis was completed as specified on COC forms.

2.8 QA/QC PROCEDURES

Standard QA/QC procedures as specified in the TOR and CCME Guidance Documents for this project were used. The following is a summary of the analytical QA/QC samples collected:

- 10% Blind Duplicate Samples of soil and water were sent to Bodycote;
- 10% Interlab Duplicate Samples were sent to Maxxam (looking for variation in procedures causing significant difference in analytical result). Results for both the blind duplicates and the interlab duplicates can be found in in corresponding sections of each report, as actual values and relative percent differences; and
- 10% Archival Samples of soil to ESG (soils).

Bodycote has QA/QC measures for the analysis of the samples. Bodycote QC samples will typically be introduced into the analytical stream on a batch basis, normally comprising 20% – 30% of the total sample throughput. A batch size of 15 – 20 typically includes one of each control standard, reference standard, surrogate spike, duplicate sample, and method blank. A **control sample** is a blank matrix fortified with analyte of interest and carried through all analytical steps to monitor lab performance (recovery & basis) on clean matrix. A **reference sample** is a sample with predetermined certified characteristics that undergoes the same processing as samples used to evaluate accuracy of procedure. A **surrogate spike** is an organic compound with similar chemical composition and behaviour in the analytical process used to monitor recovery in each sample. A **duplicate sample** occurs when client samples are analyzed in duplicate to monitor reproducibility in analysis and preparation. Finally, a **method blank** is a blank sample matrix carried through the same procedure as the samples, it is used to monitor for process contamination.

Maxxam follows similar in-house QA/QC procedures. Bodycote and Maxxam QA/QC reports can be found in Appendix D.

3 STATION AREA NON-HAZARDOUS WASTE LANDFILL

3.1 BACKGROUND AND MONITORING PROGRAM

The Station Area Non-Hazardous Waste Landfill (SANHWLF) was constructed east of the station area for the disposal of non-hazardous materials generated from the demolition of facilities not required for the operation of the SRR, for site debris collected during clean-up and for Tier I contaminated soil. The location of this landfill encompasses the former sewage outfall, and is located within the vicinity of an area of hydrocarbon contamination originating at the garage area. Several areas of contaminated soil were also identified up-gradient of this landfill during the site investigation, including Tier I and II levels of lead, Tier I PCBs and a large Type B (fuel oil) hydrocarbon plume that extended into the footprint for the new landfill construction. All of the above-noted contaminated soil areas were reportedly excavated during clean-up, however it is expected that residual contaminant levels may be observed in the up-gradient vicinity of this landfill.

The design of the Station Non-Hazardous Waste Landfill included the construction of compacted perimeter berms, and the placement of a cover of compacted granular fill over the landfilled material. Five groundwater monitoring wells are installed at the landfill perimeter. The long term monitoring plan consists of visual monitoring, and the collection of soil and groundwater samples.

As requested in the ToR, the 2008 monitoring of this landfill only includes visual inspection to verify for evidence of settlement or erosion.

3.2 VISUAL INSPECTION REPORT

The visual inspection of the Station Area Non-Hazardous Waste Landfill was conducted on August 19 and 20, 2008. The Visual Inspection Checklist/Report has been completed as per the ToR (reference B) and is included as Table V of this report.

Settlement

Indications of consolidation or differential settlement were not noted.

Erosion

Erosion of the capping material was not noted.

Frost Action

Evidence of frost action was not noted.

Evidence of Burrowing Animals

Indications of burrowing animals were not noted.

Re-establishment of Vegetation

Based on the regional setting of this landfill reestablishment of vegetation is not likely.

Staining

Areas of staining were not observed at the time of the inspection.

Seepage Points

There were no seepage points observed at this landfill.

Debris

Two pieces of partially exposed metal debris, including a crushed barrel and braided cable were observed adjacent to the west toe of the landfill. The location of this debris is illustrated on Figure 2 FOX-5 Broughton Island – Station Area Non-Hazardous Waste Landfill.

Discussion

The Station Area Landfill performance with respect to containment of the debris within the landfill is rated as acceptable. Visual inspection report, including supporting photos and drawing, is presented in the following pages.

It was noted that surface runoff directed overtop of the landfill and either continues flowing over the capping material or infiltrates the landfill. The surface water run off has not resulted in any significant erosion of note. No frost action was observed near the wells MW-15 to MW-19 of this area (see Figure 2 FOX-5 Broughton Island – Station Area Non-Hazardous Waste Landfill).

Table V : Visual Inspection Checklist – Inspection Report – Station Area Non-Hazardous Waste Landfill

SITE NAME:	STATION AREA NON-HAZARDOUS WASTE LANDFILL
LANDFILL DESIGNATION:	
DATE OF INSPECTION:	AUGUST 19-20, 2008
DATE OF PREVIOUS INSPECTION:	AUGUST 19-21, 2007
INSPECTED BY:	A. PASSALIS
REPORT PREPARED BY:	SILA REMEDIATION INC. / BIOGENIE S.R.D.C. INC.
The inspector/reporter represents to the best of their knowledge, the following statements and observations are true and correct and to the best of the preparer's actual knowledge, no material facts have been suppressed or misstated.	

Table VI : Station Area Non-hazardous Waste Landfill Inspection Sheet

Checklist Item	Present (Yes/No)	Location	Length	Width	Depth	Extent	Description	Photographic Record	Severity Rating	Additional Comments
Settlement	No	N/A	N/A	N/A	N/A	None	N/A	N/A	Not observed	N/A
Erosion	No	N/A	N/A	N/A	N/A	None	N/A	N/A	Not observed	N/A
Frost Action	No	N/A	N/A	N/A	N/A	None	N/A	N/A	Not observed	N/A
Animal Burrows	No	N/A	N/A	N/A	N/A	None	N/A	N/A	Not observed	N/A
Vegetation	No	N/A	N/A	N/A	N/A	None	N/A	N/A	Not observed	N/A
Staining	No	N/A	N/A	N/A	N/A	None	N/A	N/A	Not observed	N/A
Vegetation Stress	No	N/A	N/A	N/A	N/A	None	N/A	N/A	Not observed	N/A
Seepage Points	No	N/A	N/A	N/A	N/A	None	N/A	N/A	Not observed	N/A
Debris Exposed	Yes	Feature H (new) See Figure 2 for location	N/A	N/A	0.3 m	Isolated	Partially exposed crushed drum and braided cable noted at toe of landfill	F5_08-0533, 0534	Acceptable	5025E, 5193N: 2 x 1 m area located between 5-7 m SW of CLS monument
Presence/Condition of Monitoring Instruments	No	N/A	N/A	N/A	N/A	None	N/A	N/A	Not observed	N/A
Other Features of Note	No									
Overall Landfill Performance:	**Acceptable**									

3.3 PRELIMINARY STABILITY ASSESSMENT

The Preliminary Stability Assessment for Station Area Non-Hazardous Waste Landfill has been completed as per the ToR and is included as Table VII of this report.

3.4 LOCATION PLAN

The Location Plan has been completed as per the ToR and is included in the following Figure 2 FOX-5 Broughton Island – Station Area Non-Hazardous Waste Landfill.

3.5 PHOTOGRAPHIC RECORDS

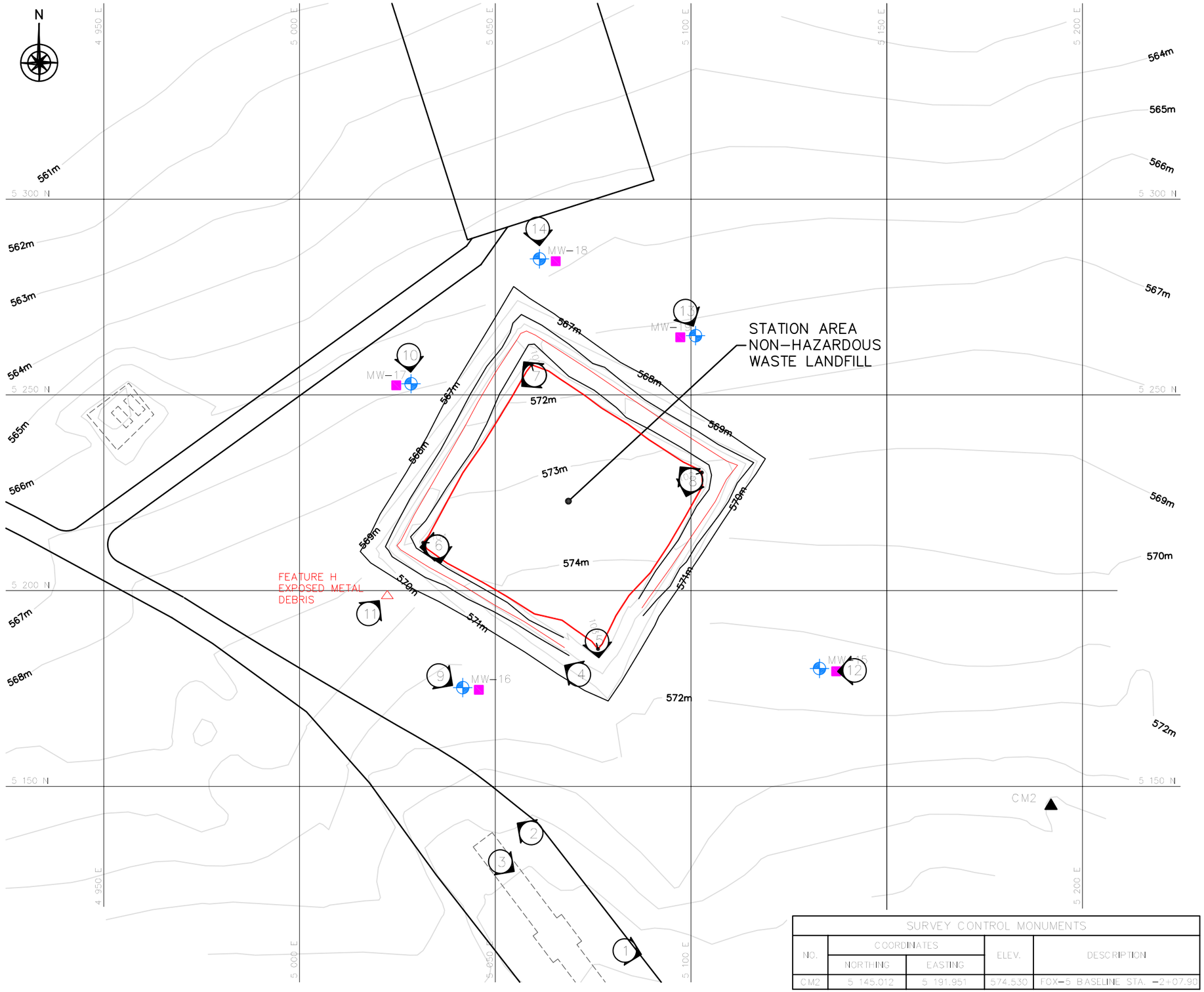
The Photographic Record for Station Area Non-Hazardous Waste Landfill has been completed as per the Terms of Reference and is included in the following Table VIII. The Photographic Record only contains an index and “thumbnail” photographs; full sized photographs are contained in the Addendum CD-ROM.

Table VII : Preliminary Stability Assessment – SA NHWLF

Feature	Severity Rating	Extent
Settlement	Not observed	None
Erosion	Not observed	None
Frost Action	Not observed	None
Staining	Not observed	None
Vegetation Stress	Not observed	None
Seepage/Ponded Water	Not observed	None
Debris exposure	Acceptable	Isolated
Overall Landfill Performance	**Acceptable**	

Performance/ Severity Rating	Description
Acceptable	Noted features are of little consequence. The landfill is performing as designed. Minor deviations in environmental or physical performance may be observed, such as isolated areas of erosion, settlement.
Marginal	Physical/environmental performance appears to be deteriorating with time. Observations may include an increase in size or number of features of note, such as differential settlement, erosion or cracking. No significant impact on landfill stability to date, but potential for failure is assessed as low or moderate.
Significant	Significant or potentially significant changes affecting landfill stability, such as significant changes in slope geometry, significant erosion or differential settlement; scarp development. The potential for failure is assessed as imminent.
Unacceptable	Stability of landfill is compromised to the extent that ability to contain waste materials is compromised. Examples may include:
	• Debris exposed in erosion channels or areas of differential settlement.
	• Liner exposed.
	• Slope failure.

Extent	Description
Isolated	Singular feature
Occasional	Features of note occurring at irregular intervals/locations
Numerous	Many features of note, impacted less than 50% of the surface area of the landfill
Extensive	Impacting greater than 50% of the surface area of the landfill



LEGEND

- TBM4 — TEMPORARY BENCHMARK
- BM-1 — PERMANENT BENCHMARK
- 101 — COORDINATE POINT
- MONITORING SOIL SAMPLE LOCATION
- MONITORING WELL LOCATION
- EXPOSED FEATURE

COORDINATE POINTS (AS BUILT)
NON-HAZARDOUS WASTE LANDFILL

NO.	NORTHING	EASTING	ELEV.
101	5 257.7	5 059.3	571.4
102	5 230.2	5 102.8	573.5
103	5 185.1	5 076.2	574.6
104	5 212.3	5 031.6	573.5

COORDINATE POINTS (AS BUILT)
MONITORING WELLS

NO.	NORTHING	EASTING	ELEV.
MW-15	5 180.1	5 132.8	571.50
MW-16	5 175.2	5 041.7	570.63
MW-17	5 252.9	5 028.5	567.00
MW-18	5 284.7	5 061.3	565.82
MW-19	5 265.1	5 101.2	567.33

0 10m 20m 30m 40m 50m

SURVEY CONTROL MONUMENTS

NO.	COORDINATES		ELEV.	DESCRIPTION
	NORTHING	EASTING		
CM2	5 145.012	5 191.951	574.530	FOX-5 BASELINE STA. -2+07.90

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DRAFT FINAL REPORT
COLLECTION OF LANDFILL MONITORING DATA
FOX-5, BROUGHTON ISLAND (NUNAVUT)
STATION AREA NON-HAZARDEOUS WASTE LANDFILL

SITE REMEDIATION SOLUTIONS

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FIGURE 2

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Table VIII : Photographic Record – Station Area Non-Hazardous Waste Landfill

Photo	Thumbnail	Filename	Date	Vantage Point		Caption
				Easting	Northing	
1		F5_08-0478-0480	19/08/2008	5082E	5108N	Panoramic view SE to E across former station area pad.
2		F5_08-0481	19/08/2008	5055E	5139N	View NW along access road to former station area pad.
3		F5_08-0483	19/08/2008	5048E	5133N	View SE of Commemorative Plaque.
4		F5_08-0484-0486	19/08/2008	5071E	5174N	45 panoramic view looking NW to W along west side of Station NHWLF. MW16 in background.
5		F5_08-0487-0490	19/08/2008	5076E	5186N	45 panoramic view looking S to SW from south corner of Station NHWLF.
6		F5_08-0500-0506	19/08/2008	5033E	5211N	150 panoramic view looking W through SE from west corner of Station NHWLF.

All photo locations in local coordinates unless otherwise noted.

Table VIII (continued): Photographic Record – Station Area Non-Hazardous Waste Landfill

Photo	Thumbnail	Filename	Date	Vantage Point		Caption
				Easting	Northing	
7		F5_08-0507-0511	19/08/2008	5060E	5256N	90 panoramic view looking SW to NW from north corner of Station NHWLF.
8		F5_08-0525-0527	19/08/2008	5101E	5228N	90 panoramic view looking NW to SW from east corner of Station NHWLF.
9		F5_08-0528	19/08/2008	5039E	5177N	Looking SE at MW16
10		F5_08-0532	19/08/2008	5028E	5255N	Soil samples 104 and 105.
11		F5_08-0534	19/08/2008	5025E	5193N	View NNW at explosed edge of buried metal (crushed drum) and cable located 57 m SE of CLS Monument at toe of Station NHWLF.
12		F5_08-0537	20/08/2008	5133E	5180N	Looking W at soil samples 107 and 108 at MW-15.
13		F5_08-0538	20/08/2008	5101E	5265N	MW-19.
14		F5_08-0542	20/08/2008	5060E	5288N	Looking S at MW-18.

All photo locations in local coordinates unless otherwise noted.

3.6 THERMAL MONITORING DATA

Not applicable to this landfill area.

3.7 SOIL SAMPLE ANALYTICAL DATA

Soil samples were not scheduled to be collected during the 2008 inspection period.

3.8 GROUNDWATER SAMPLE ANALYTICAL DATA

Groundwater samples were not scheduled to be collected during the 2008 inspection period.

3.9 MONITORING WELL SAMPLING/INSPECTION LOGS

Monitoring well sampling was not scheduled during the 2008 inspection period.

4 MAIN LANDFILL

4.1 BACKGROUND AND MONITORING PROGRAM

The Main Landfill is located in a broad valley approximately 1 km northwest of the Station Area. The landfill including engineered cover encompasses an area of approximately 30,000 m^2 with a toe extending approximately 3.5 m above existing grade. Based on existing information regarding this landfill as a source of contamination, its potential migration pathways and receptors, the Main Landfill was classified as moderate potential environmental risk. The remediation consisted of a leachate containment, the design of which consisted of a synthetic liner system, and the placement of sufficient granular fill at surface to cause aggradation of permafrost through the landfill contents. Existing drainage channels for surface water were backfilled and drainage was rerouted towards the north, south and west sides of the landfill.

Five groundwater monitoring wells are installed at the landfill perimeter, and eight thermistors are installed within the landfill footprint to monitor freeze back conditions. In addition, four of the downgradient thermistor installations are also equipped with pore pressure piezometers to monitor pore pressure in the downgradient landfill area for slope stability.

The long term monitoring plan consists of visual monitoring, collection of soil and groundwater samples and monitoring of subsurface ground temperatures. Pore pressures were reported to have stabilized at the time of the 2007 monitoring period in the downgradient landfill area and consequently did not require monitoring during the 2008 period.

The 2008 monitoring of this landfill includes visual inspection to verify for evidence of settlement or erosion and collection of soil and groundwater samples to monitor for the presence of leachate. Groundwater monitoring well locations, as well as soil sample and thermistor installation locations are identified on Figure 3 Location Plan of Main Landfill.

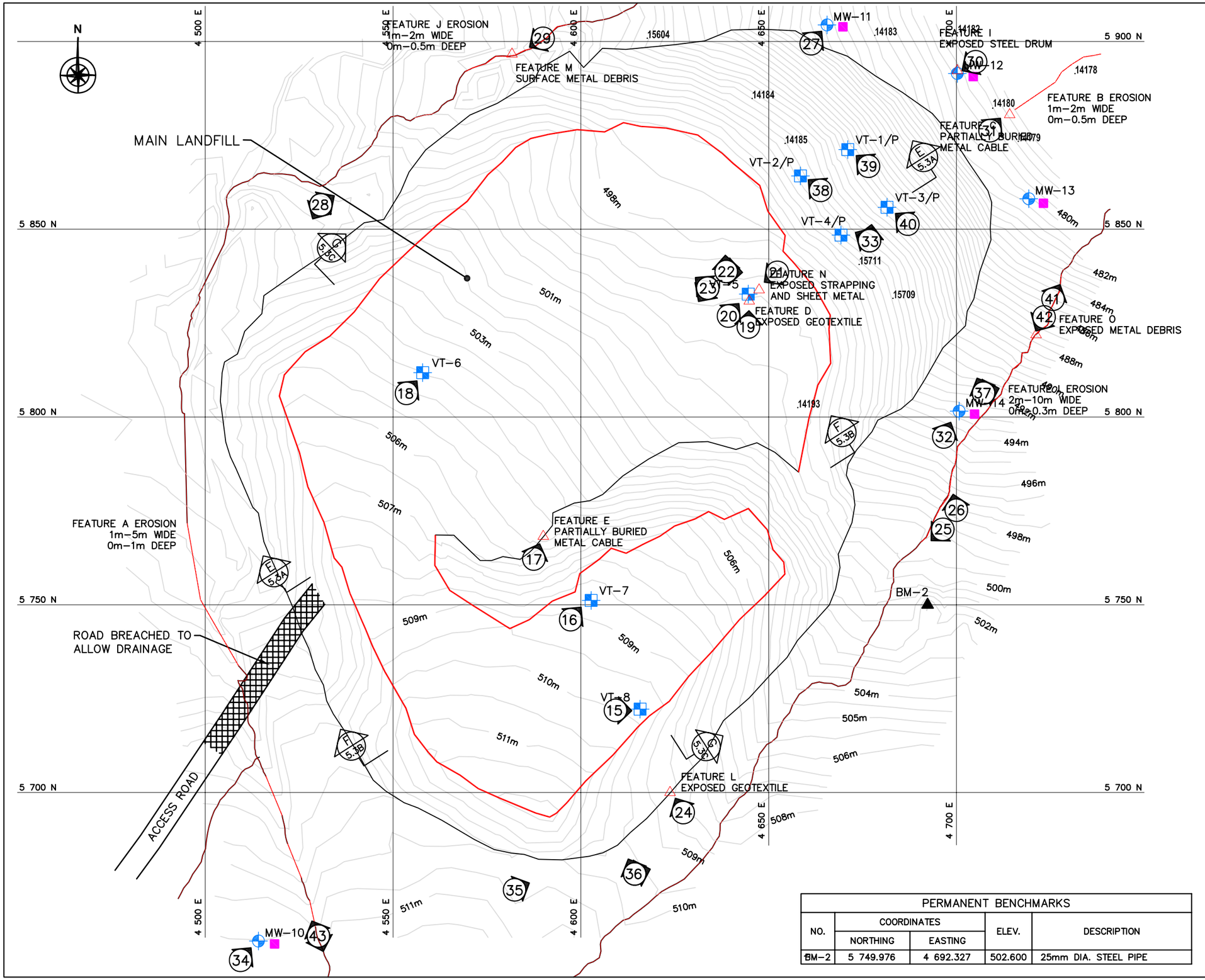
The soil and groundwater analytical data are presented in Tables IX and X, respectively. Soil at all stations was sampled as specified. Groundwater from each of the monitoring wells was sampled for all parameters as per the ToR (reference B), with the exception of MW-14 which was found dry at the time of monitoring.

Table IX : Soil Analytical Results

Sample #	Location	Depth (cm)	Cu [mg/L]	Ni [mg/L]	Co [mg/L]	Cd [mg/L]	Pb [mg/L]	Zn [mg/L]	Cr [mg/L]	As [mg/L]	Hg [mg/L]	PCBs [mg/L]	F1 C_8-C_{10}	F2 C_{10}-C_{16}	F3 C_{16}-C_{32}
200808-116-FOX5	MW-11	0-10	12	13	6	<0.5	12	53	28	4.0	<0.1	<0.02	<20	<20	<20
200808-117-FOX5	MW-11	40-50	11	12	5	<0.5	16	42	27	2.8	<0.1	<0.02	<20	<20	<20
200808-119-FOX5	MW-12	0-10	10	8	4	<0.5	11	57	17	2.2	<0.1	<0.02	<20	<20	<20
200808-120-FOX5	MW-12	0-10	10	14	4	<0.5	14	57	31	1.8	<0.1	<0.02	<20	<20	<20
200808-121-FOX5	MW-12	40-50	11	14	5	<0.5	17	59	32	3.0	<0.1	<0.02	<20	<20	<20
200808-122-FOX5	MW-13	0-10	11	15	5	<0.5	11	52	30	1.9	<0.1	<0.02	<20	<20	47
200808-123-FOX5	MW-13	40-50	7	25	3	<0.5	7	35	56	<1.0	<0.1	<0.02	<20	<20	<20
200808-125-FOX5	MW-14	0-10	8	10	4	<0.5	10	41	20	1.1	<0.1	<0.02	<20	<20	<20
200808-126-FOX5	MW-14	40-50	9	12	4	<0.5	11	43	24	1.3	<0.1	<0.02	<20	<20	<20
200808-128-FOX5	MW-10	0-10	11	14	5	<0.5	10	44	28	2.0	<0.1	<0.02	<20	<20	1,750
200808-129-FOX5	MW-10	40-50	13	24	7	<0.5	10	60	54	2.3	<0.1	<0.02	<20	<20	<20

Table X : Groundwater Analytical Results

Sample #	Location	Cu [µg/L]	Ni [µg/L]	Co [µg/L]	Cd [µg/L]	Pb [µg/L]	Zn [µg/L]	Cr [µg/L]	As [µg/L]	Hg [µg/L]	PCBs [µg/L]	F1 C_6-C_{10}	F2 C_{10}-C_{16}	F3 C_{16}-C_{34}
200808-118-FOX5	MW-11	0.002	0.006	0.0003	0.0006	<0.001	0.01	0.007	<0.001	<0.0001	<0.1	<0.2	<0.2	<0.2
200808-124-FOX5	MW-13	0.075	0.023	0.0013	0.0003	0.004	0.07	0.083	<0.001	<0.0001	<0.1	<0.2	<0.2	<0.2
200808-127-FOX5	MW-12	0.010	0.005	0.0004	0.0014	0.001	0.02	0.012	<0.001	<0.0001	<0.1	<0.2	<0.2	<0.2
200808-130-FOX5	MW-10	0.001	<0.005	<0.0002	0.0001	<0.001	0.01	0.001	<0.001	<0.0001	<0.1	<0.2	<0.2	<0.2
200808-131-FOX5	MW-16	0.005	<0.005	0.0016	0.0003	0.004	0.07	0.004	<0.001	<0.0001	<0.1	<0.2	0.3	0.3



LEGEND

- TBM4 — TEMPORARY BENCHMARK
- BM–1 — PERMANENT BENCHMARK
- 101 — COORDINATE POINT
- MONITORING SOIL SAMPLE LOCATION
- MONITORING WELL LOCATION
- VERTICAL THERMISTOR LOCATION
- EXPOSED FEATURE

COORDINATE POINTS (AS–BUILT)
VERTICAL THERMISTORS

NO.	NORTHING	EASTING
VT–1	5 871.2	4 671.1
VT–2	5 864.2	4 658.5
VT–3	5 855.8	4 681.5
VT–4	5 848.4	4 669.3
VT–5	5 832.7	4 644.6
VT–6	5 811.8	4 557.9
VT–7	5 751.2	4 602.7
VT–8	5 722.2	4 615.8

COORDINATE POINTS (AS BUILT)
MONITORING WELLS

NO.	NORTHING	EASTING	ELEV.
MW–10	5 660.5	4 514.2	511.18
MW–11	5 904.4	4 665.5	484.41
MW–12	5 891.5	4 700.2	479.79
MW–13	5 858.1	4 719.3	480.55
MW–14	5 801.6	4 700.7	493.43

0 10m 20m 30m 40m 50m

PERMANENT BENCHMARKS

NO.	COORDINATES		ELEV.	DESCRIPTION
	NORTHING	EASTING		
BM–2	5 749.976	4 692.327	502.600	25mm DIA. STEEL PIPE

NO.	VERSION	DATE	BY	VERIF.	APPR.
A	FINAL VERSION	08–12–18	P.L.	J.P.P.	J.P.P.

Construction de Défense Canada
Defence Construction Canada

DRAFT FINAL REPORT
COLLECTION OF LANDFILL MONITORING DATA
FOX-5, BROUGHTON ISLAND (NUNAVUT)

MAIN LANDFILL

SITE REMEDIATION SOLUTIONS
Biogenie S.R.D.C. inc.
4495 Wilfrid-Hamel Blvd., Suite 200
Quebec (Quebec) CANADA G1P 2J7
Phone: (418) 653-4422 Fax.: (418) 653-3583

MEASUREMENT UNIT: Meter	SCALE: 1 : 1,000	DATE (month–year): DECEMBER 2008
DRAWN BY: P. LÉGARÉ	VERIFIED BY: J.–P. PELLETIER	APPROVED BY: J.–P. PELLETIER
PROJECT NO: CD8177_001_160	DRAWING NO: CD8177_001_160-PL3	PAGE PL

FIGURE 3

4.2 VISUAL INSPECTION REPORT

The visual inspection of the Main Landfill was conducted on August 20, 2008. The Visual Inspection Checklist/Report has been completed as per the ToR and is included as Table XI in this report.

Settlement

Indications of consolidation or differential settlement were not noted.

Erosion

Erosion of the capping material was not noted. Erosion in several peripheral areas to the southeast, southwest and north of the landfill appear to be active. The observed surface runoff pattern is consistent with planned remedial measures to direct flow around the landfill. Surface runoff has resulted in the erosion and re-deposition of sandy soil along the various perimeter drainage areas. The erosion is not in direct contact with the landfill, however has resulted in the recent exposure of various pieces of metal debris in areas to the north and southeast of the landfill. Further erosion is expected to continue until the channels naturally stabilize.

Frost Action

Evidence of frost action was not noted.

Evidence of Burrowing Animals

Indications of burrowing animals were not noted.

Re-establishment of Vegetation

Based on the regional setting of this landfill re-establishment of vegetation is not likely.

Staining

Areas of staining were not observed at the time of the inspection.

Seepage Points

There were no seepage points observed at this landfill.

Debris

In addition to the two locations of exposed debris identified in 2007, several new areas of surface and partially exposed debris were noted, including one location on the landfill and three locations in perimeter areas to the north, east and southeast.

New debris on the landfill included a piece of exposed metal strapping and sheet metal located immediately northeast of VT-5. A piece of exposed geotextile material previously noted in this area during the 2007 inspection was renoted in 2008. In addition, a small piece of exposed geotextile material was also noted near the south toe of the landfill. Debris exposed in the perimeter areas included: a partially exposed crushed barrel located immediately adjacent MW-12; a heavy equipment track cleat located in drainage channel on north side of landfill; and various pieces of metal debris (pipe, angle iron and conduit) exposed in the erosion feature east of landfill. Two pieces of exposed cable noted during the 2007 inspection were also noted in 2008. The location of this debris is illustrated on Figure 3 FOX-5 Broughton Island – Main Landfill.

Presence/Condition of Monitoring Instruments

Protective surface casings at VT-1 to VT4 are leaning down gradient, inclined between 10º (VT-1) and 20º (VT-4) from vertical. Observations are consistent with 2007 inspection results. No frost action was observed near the wells MW-9 to MW-14 of this area (see Figure 3 FOX-5 Broughton Island – Main Landfill).

Discussion

The Main Landfill performance with respect to containment of the debris within the landfill is rated as acceptable. Visual inspection report, including supporting photos and drawing, is presented in the following pages.

It was noted that surface runoff has continued to erode sandy soil from the drainage channels situated along the southwest, northwest and southeast sides of the landfill. The channel to the southwest appears less pronounced from previous year with gradual widening along the sides of the channel. The observed surface runoff pattern is consistent with planned remedial measures to direct flow around the landfill. The erosion is not in direct contact with the landfill, however it is anticipated that additional debris may be continue to be exposed with ongoing erosion of the peripheral drainage areas.

Table XI : Visual Inspection Checklist – Inspection Report – Main Landfill

SITE NAME:	MAIN LANDFILL
LANDFILL DESIGNATION:	
DATE OF INSPECTION:	AUGUST 20, 2008
DATE OF PREVIOUS INSPECTION:	AUGUST 19-21, 2007
INSPECTED BY:	A. PASSALIS
REPORT PREPARED BY:	SILA REMEDIATION INC. / BIOGENIE S.R.C.C. INC.
The inspector/reporter represents to the best of their knowledge, the following statements and observations are true and correct and to the best of the preparer's actual knowledge, no material facts have been suppressed or misstated.	

Table XII : Main Landfill Inspection Sheet

Checklist Item	Present (Yes/No)	Location	Length	Width	Depth	Extent	Description	Photographic Record	Severity Rating	Additional Comments
Settlement	No	N/A	N/A	N/A	N/A	None	N/A	N/A	Not observed	N/A
Erosion	Yes	Feature A See Figure 3 (southwest and northwest side of landfill)	~100 m	1 to 5 m	0 to 1 m	Isolated	Surface runoff erosion channel	F5_08-0638 to 0644	Acceptable	Surface runoff has continued to erode a channel in sandy soil along the southwest side of the landfill and deposited material along the northwest side of the landfill. The channel appears less pronounced from previous year with gradual widening along the sides of the channel. The erosion is not in direct contact with the landfill. Further erosion could occur along the up gradient section of the channel, where the soils are particularly sandy, until the channel naturally stabilizes. The observed surface runoff pattern is consistent with planned remedial measures to direct flow around the landfill.
		Feature I See Figure 3 (southwest side of landfill)	~90 m	2 to 8 m	0 to 0.3 m	Isolated	Surface runoff erosion	F5_08-0573 to 0578, 0630 and 0631	Acceptable	Surface runoff has eroded sandy soil along the runoff channel parallel to the southeast side of the landfill and deposited material in a localized area at the end of the armoured channel (4697E, 5771N - east of the landfill). Further erosion has occured downgradient of the channel that has resulted in exposure of metal debris. The erosion should naturally stabilize given the cobbly and bouldery terrain adjacent and downslope of the landfill. The erosion is not in direct contact with the landfill however limited erosion has occured within 6 m of MW-14. The observed surface runoff pattern is consistent with planned remedial measures to direct flow around the landfill.
		Feature B See Figure 3 (northeast side, down slope of landfill)	20 m	0 to 2 m	0 to 0.5 m	Isolated	Surface runoff erosion channel	F5_08-0598 and 0599	Acceptable	Early seasonal surface runoff has eroded a small channel down slope of the landfill. Runoff appears to have originated from the toe of the landfill . No apparent changes from previous years observations.
		Feature J (new) See Figure 3 (northeast side, down slope of landfill)	40 m	1 to 2 m	0 to 0.5 m	Isolated	Surface runoff erosion channel	F5_08-0588	Acceptable	Surface runoff has eroded a small channel on the north side of the landfill. The erosion should naturally stabilize given the cobbly and bouldery terrain. The observed surface runoff pattern is consistent with planned remedial measures to direct flow around the landfill.

Table XII (continued): Main Landfill Inspection Sheet

Checklist Item	Present (Yes/No)	Location	Length	Width	Depth	Extent	Description	Photographic Record	Severity Rating	Additional Comments
Frost Action	No	N/A	N/A	N/A	N/A	None	N/A	N/A	Not observed	N/A
Animal Burrows	No	N/A	N/A	N/A	N/A	None	N/A	N/A	Not observed	N/A
Vegetation	No	N/A	N/A	N/A	N/A	None	N/A	N/A	Not observed	N/A
Staining	No	N/A	N/A	N/A	N/A	None	N/A	N/A	Not observed	N/A
Vegetation Stress	No	N/A	N/A	N/A	N/A	None	N/A	N/A	Not observed	N/A
Seepage Points	No	N/A	N/A	N/A	N/A	None	N/A	N/A	Not observed	N/A
Debris Exposed	Yes	Feature C See Figure 3	N/A	N/A	N/A	Isolated	Partially buried metal cable	F5_08-0598, 0599	Acceptable	4714E, 5881N: Partially buried rusted metal cable surface debris.
		Feature K See Figure 3	N/A	N/A	N/A	Isolated	Exposed strapping and sheet metal	F5_08-0555	Acceptable	4648E, 5834N: Piece of exposed strapping (1m x 5 cm) and black sheet metal (0.2 x 0.3 m) located downslope of VT-5.
		Feature M See Figure 3	N/A	N/A	N/A	Isolated	Surface metal debris	F5_08-0587, 0588	Acceptable	4582E, 5896N: Metal debris (track cleat) located in drainage channel on north side of landfill.
		Feature N See Figure 3	N/A	N/A	N/A	Isolated	Exposed steel drum	F5_08-0597	Acceptable	4700E, 5892N: Partially exposed metal drum immediately adjacent MW-12.
		Feature O See Figure 3	N/A	N/A	N/A	Isolated	Exposed metal debris	F5_08-0632 to 0636	Acceptable	4717E, 5828N: Metal debris, including pipe, angle iron and conduit exposed in erosion feature east of landfill.
Presence/Condition of Monitoring Instruments	Yes	See Figure 3 VT-1 to VT-8	N/A	N/A	N/A	N/A	Inclined protective surface casings	F5_08-0545, 0546, 0551, 0554, 0608, 0627 to 0629	Marginal	Protective surface casings at VT-1 to VT4 are leaning down gradient, inclined between 10º (VT-1) and 20º (VT-4) from vertical. Observations are consisent with previous year. Successfully downloaded ground temperature data from loggers.
Other Features of Note: Exposed Non-woven Geotextile	Yes	Feature D See Figure 3	N/A	N/A	N/A	Isolated	Exposed geotextile	F5_08-0553	Acceptable	4644E, 5833N: Non-woven geotextile fabric exposed immediately east of VT-5.
		Feature L See Figure 3	N/A	N/A	N/A	Isolated	Geotextile	F5_08-0569, 0570	Acceptable	4623E, 5700N: Small piece of exposed non-woven geotextile.
Overall Landfill Performance:	**Acceptable**									

4.3 PRELIMINARY STABILITY ASSESSMENT

The Preliminary Stability Assessment for Main Landfill has been completed as per the ToR and is included as Table XIII of this report.

Table XIII : Preliminary Stability Assessment – Main Landfill

Feature	Severity Rating	Extent
Settlement	Not observed	None
Erosion	Acceptable	Isolated
Frost Action	Not observed	None
Staining	Not observed	None
Vegetation Stress	Not observed	None
Seepage/Ponded Water	Not observed	None
Debris exposure	Acceptable	Isolated
Overall Landfill Performance	**Acceptable**	

Performance/ Severity Rating	Description
Acceptable	Noted features are of little consequence. The landfill is performing as designed. Minor deviations in environmental or physical performance may be observed, such as isolated areas of erosion, settlement.
Marginal	Physical/environmental performance appears to be deteriorating with time. Observations may include an increase in size or number of features of note, such as differential settlement, erosion or cracking. No significant impact on landfill stability to date, but potential for failure is assessed as low or moderate.
Significant	Significant or potentially significant changes affecting landfill stability, such as significant changes in slope geometry, significant erosion or differential settlement; scarp development. The potential for failure is assessed as imminent.

Table XIII (continued): Preliminary Stability Assessment – Main Landfill

Unacceptable	Stability of landfill is compromised to the extent that ability to contain waste materials is compromised. Examples may include:
	• Debris exposed in erosion channels or areas of differential settlement.
	• Liner exposed.
	• Slope failure.

Extent	Description
Isolated	Singular feature
Occasional	Features of note occurring at irregular intervals/locations
Numerous	Many features of note, impacted less than 50% of the surface area of the landfill
Extensive	Impacting greater than 50% of the surface area of the landfill

4.4 LOCATION PLAN

The Location Plan for the Main Landfill has been completed as per the ToR and is included in Figure 3.

4.5 PHOTOGRAPHIC RECORDS

The Photographic Record for Main Landfill has been completed as per the ToR and is included in the following page as Table XIV. The Photographic Record only contains an index and “thumbnail” photographs; full sized photographs are contained in the CD-ROM

Table XIV : Photographic Record - Main Landfill

Photo	Thumbnail	Filename	Date	Vantage Point		Caption
				Easting	Northing	
15		F5_08-0545	20/08/2008	4614E	5721N	View NE at VT-8.
16		F5_08-0547	20/08/2008	4599E	5749N	View NE at VT-7.
17		F5_08-0549	20/08/2008	4591E	5768N	View NNE at exposed piece of 0.7 m long braided cable.
18		F5_08-0551	20/08/2008	4554E	5809N	View NE at VT-6.
19		F5_08-0553	20/08/2008	4644E	5833N	Exposed piece of geotextile material east of VT-5.
20		F5_08-0554	20/08/2008	4642E	5830N	View NE at VT-5.
21		F5_08-0555	20/08/2008	4648E	5834N	Piece of exposed strapping (1m x 5 cm) and black sheet metal (20 x 30 cm).

All photo locations in local coordinates unless otherwise noted.

Table XIV (continued): Photographic Record – Main Landfill

Photo	Thumbnail	Filename	Date	Vantage Point		Caption
				Easting	Northing	
22		F5_08-0557-0560	20/08/2008	4648E	5833N	90 panoramic view N through E from VT-5.
23		F5_08-0563-0568	20/08/2008	4648E	5833N	90 panoramic view SW to NW from VT-5.
24		F5_08-0570	20/08/2008	4623E	5700N	View NNW at small piece of exposed geotextile in rocks. VT-8 in background.
25		F5_08-0573-0574	20/08/2008	4697E	5771N	View SW to W at end of rock berm/drainage channel bordering southeast side of Main LF.
26		F5_08-0575-0578	20/08/2008	4697E	5771N	90 panoramic NW to NE from end of rock berm / drainage channel bordering southeast side of Main LF.
27		F5_08-0579	20/08/2008	4666E	5904N	View NE at MW-11.
28		F5_08-0581-0586	20/08/2008	4529E	5858N	180 panoramic view NE to SW through E along drainage channel bordering northeast side of Main LF.

All photo locations in local coordinates unless otherwise noted.

Table XIV (continued): Photographic Record – Main Landfill

Photo	Thumbnail	Filename	Date	Vantage Point		Caption
				Easting	Northing	
29		F5_08-0588	20/08/2008	4582E	5896N	View SW at metal debris (track cleat) located in drainage channel on north side of Main LF.
30		F5_08-0597	20/08/2008	4700E	5892N	View of partially exposed metal drum immediately adjacent MW-12.
31		F5_08-0599	20/08/2008	4710E	5878N	View NE at exposed steel cable SE of MW-12 at Main LF.
32		F5_08-0604	20/08/2008	4697E	5799N	View NE at MW-14 at Main LF.
33		F5_08-0608-0610	20/08/2008	4669E	5848N	80 panoramic view NW to NE from VT-4 at Main LF.
34		F5_08-0614	20/08/2008	4514E	5661N	View NE at MW-10 at Main LF.
35		F5_08-0615-0616	20/08/2008	4583E	5674N	View E to NE at ponded water at south toe of Main LF.

All photo locations in local coordinates unless otherwise noted.

Table XIV (continued): Photographic Record – Main Landfill

Photo	Thumbnail	Filename	Date	Vantage Point		Caption
				Easting	Northing	
36		F5_08-0617-0619	20/08/2008	4615E	5679N	90 panoramic view NE to NW along east toe of Main LF. Near start of drainage channel that borders the east side of Main LF.
37		F5_08-0623-0626	20/08/2008	4707E	5802N	90 panoramic view NE to NW at drainage channel east of MW-14 and east toe of Main LF.
38		F5_08-0627	20/08/2008	4659E	5864N	View NW at VT-2.
39		F5_08-0628	20/08/2008	4671E	5871N	View NW at VT-1.
40		F5_08-0629	20/08/2008	4682E	5856N	View NW at VT-3.
41		F5_08-0630	20/08/2008	4718E	5828N	View NE along drainage channel east of Main LF toe.
42		F5_08-0631	20/08/2008	4718E	5828N	View SW along drainage channel east of Main LF toe.
43		F5_08-0638-043	20/08/2008	4529E	5665N	180 panoramic view NNW to SSE at drainage channel bordering west side of Main LF.

All photo locations in local coordinates unless otherwise noted.

4.6 THERMAL MONITORING DATA

All thermistors at the Main Landfill were inspected and found to be in good condition with no significant concerns identified. Data from all thermistors were successfully retrieved. With the exception one manual temperature reading at VT-4, all analogues/thermocouples were observed to be functioning properly at the time of the inspection. Further review of the downloaded data also identified periodic errors in temperature readings obtained from sensor #10 at VT-6. All clocks exhibited slight drift and were syncronized using the Prolog software.

No datalogger batteries were replaced during the landfill inspection. All dataloggers had batteries that are expected to be functional until the summer of 2011.

4.7 LANDFILL TEMPERATURE DATA FROM DATALOGGERS

Manual resistive and temperature data readings were collected from the thermistor strings as per the ToR. Manual readings and inspection results for each thermistor are presented on the Thermistor Annual Maintenance Reports included in Appendix E. A complete datalogger RAW data set for 2007-2008 period has been forwarded to DCC as per the Terms of Reference.

Figures 4 to 11 in the following pages summarize temperature data obtained from the dataloggers. This data is a representative sampling of monthly data points downloaded from thermistor dataloggers for the 2007-2008 period.

Figure 4 : FOX-5 Broughton Island VT-1

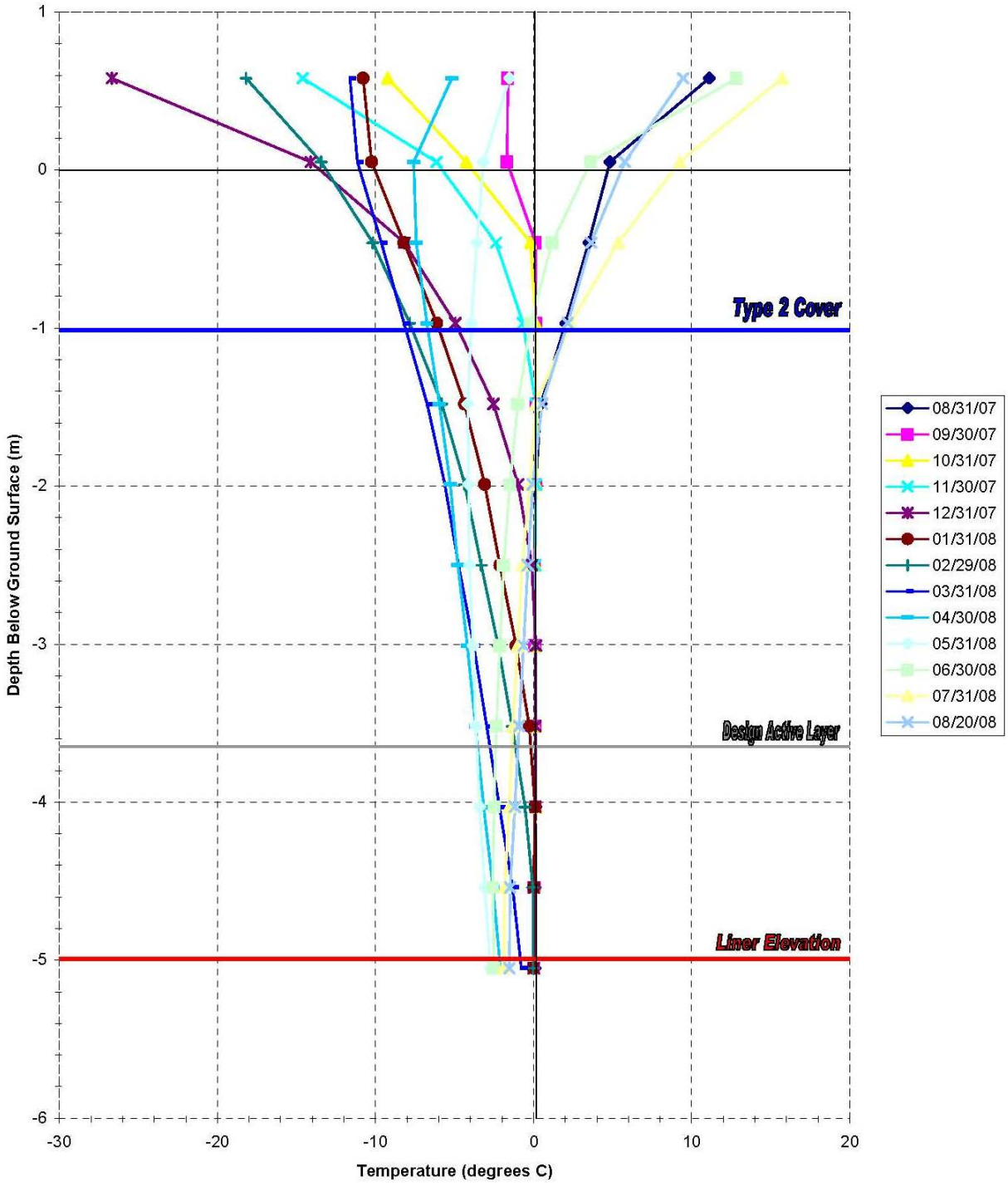


Figure 5 : FOX-5 Broughton Island VT-2

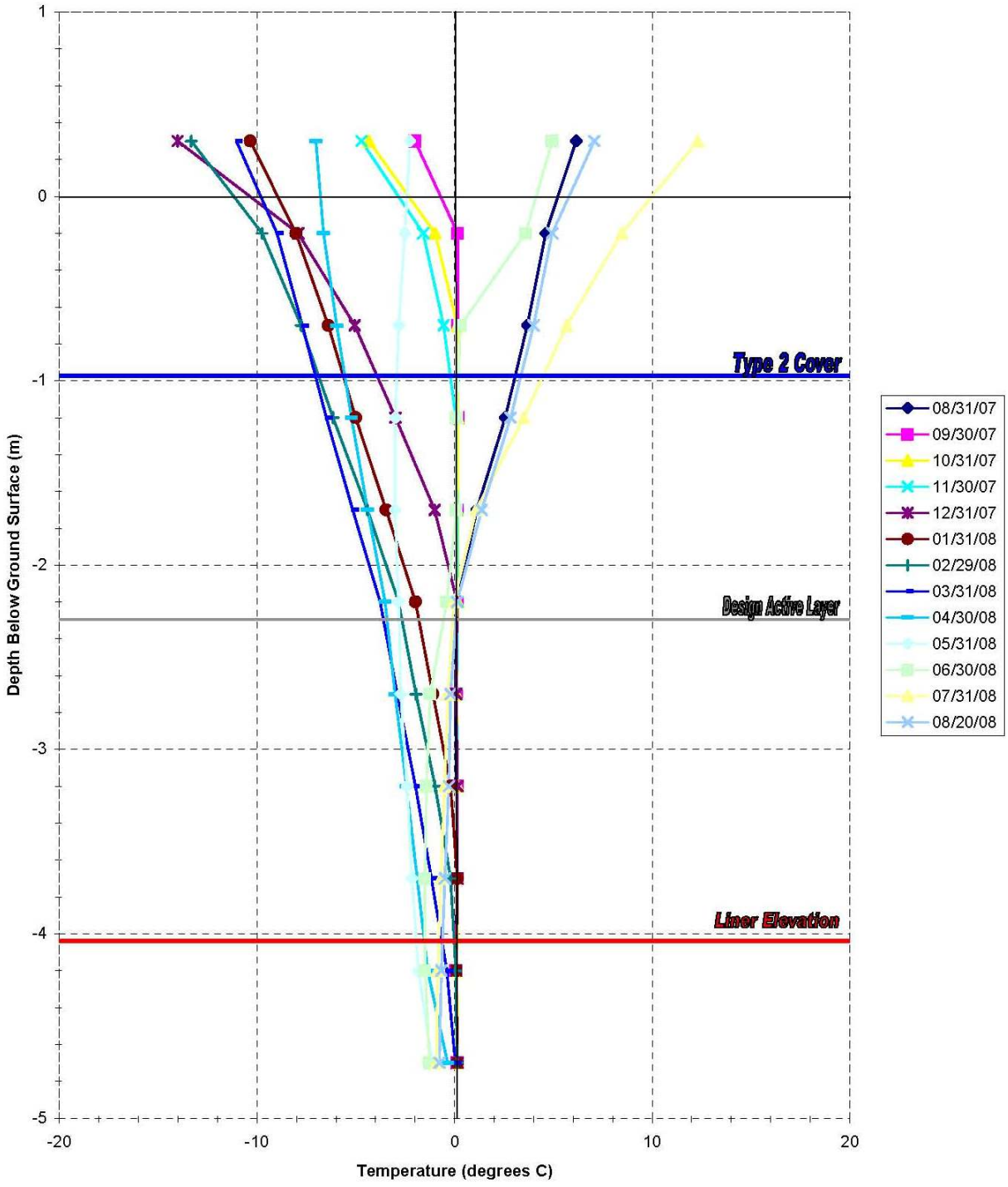


Figure 6 : FOX-5 Broughton Island VT-3

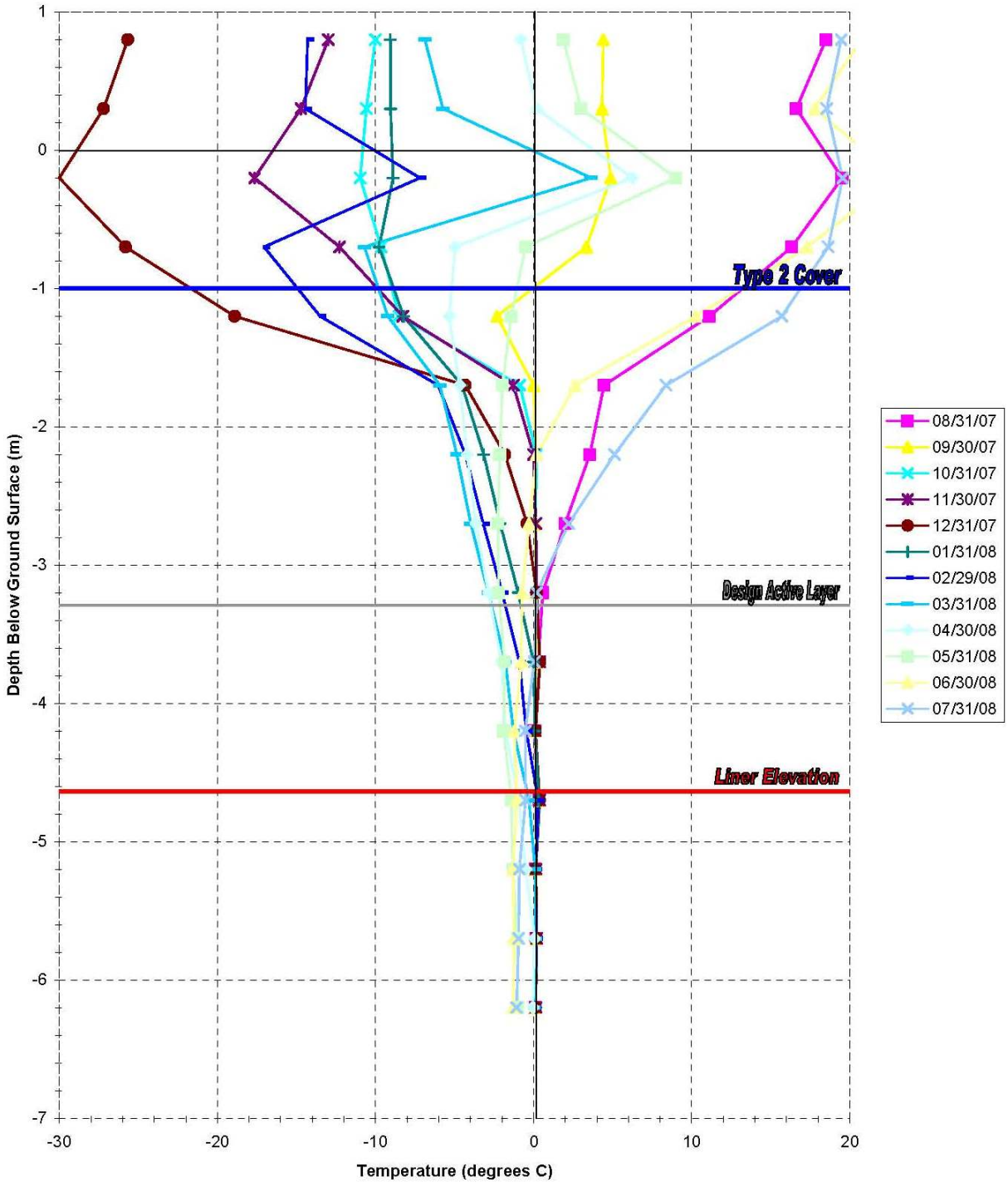


Figure 7 : FOX-5 Broughton Island VT-4

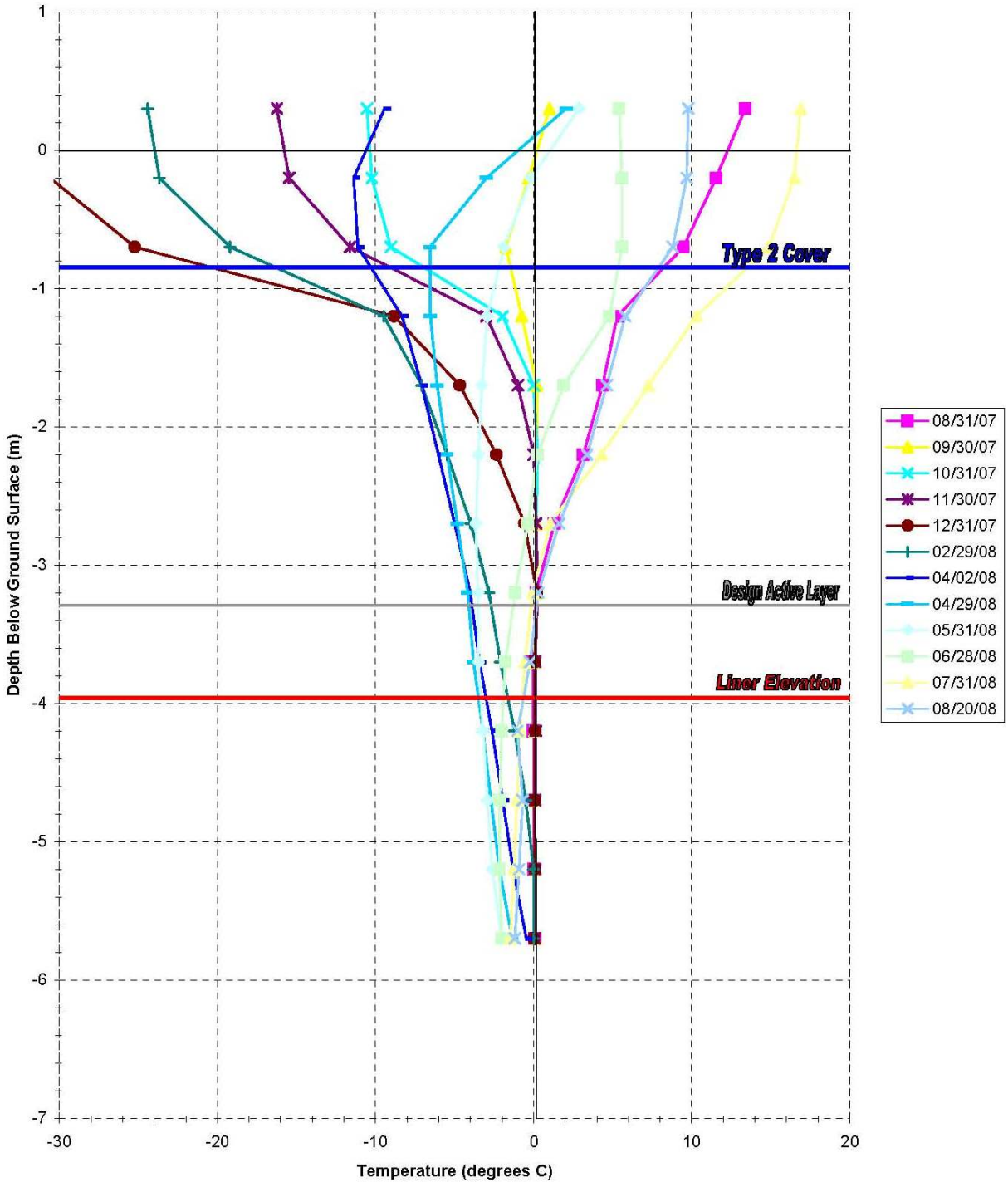


Figure 8 : FOX-5 Broughton Island VT-5

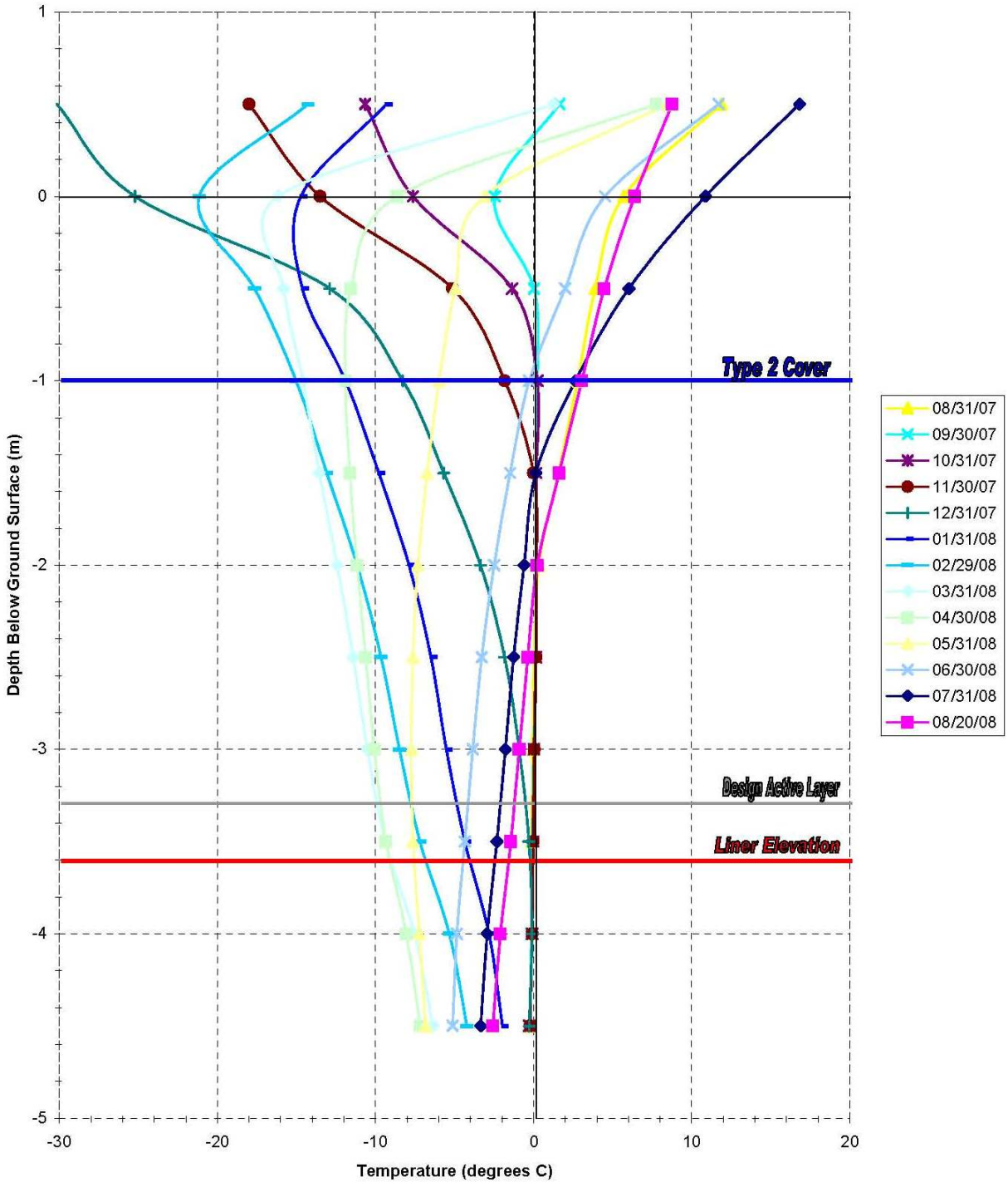


Figure 9 : FOX-5 Broughton Island VT-6

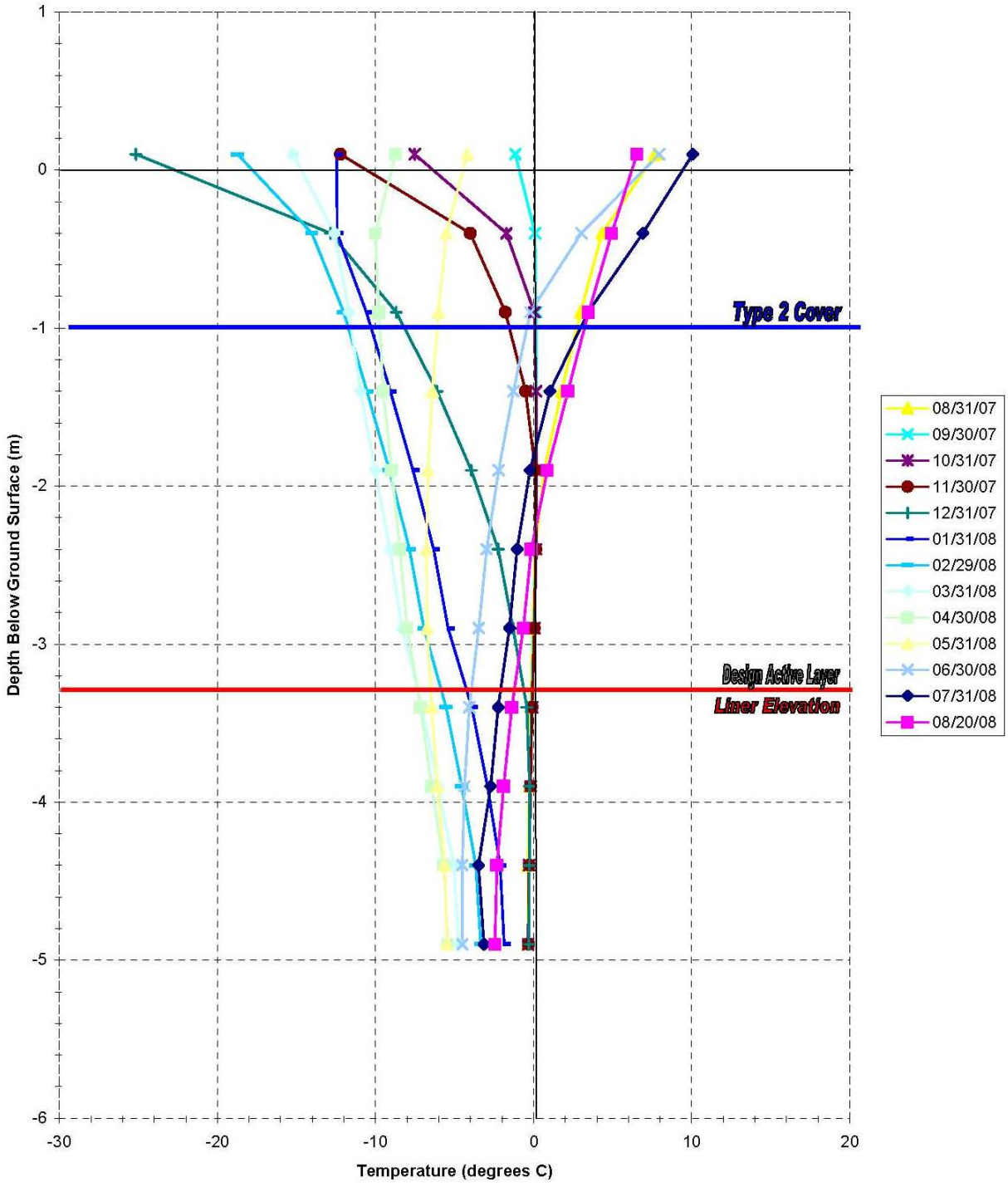


Figure 10 : FOX-5 Broughton Island VT-7

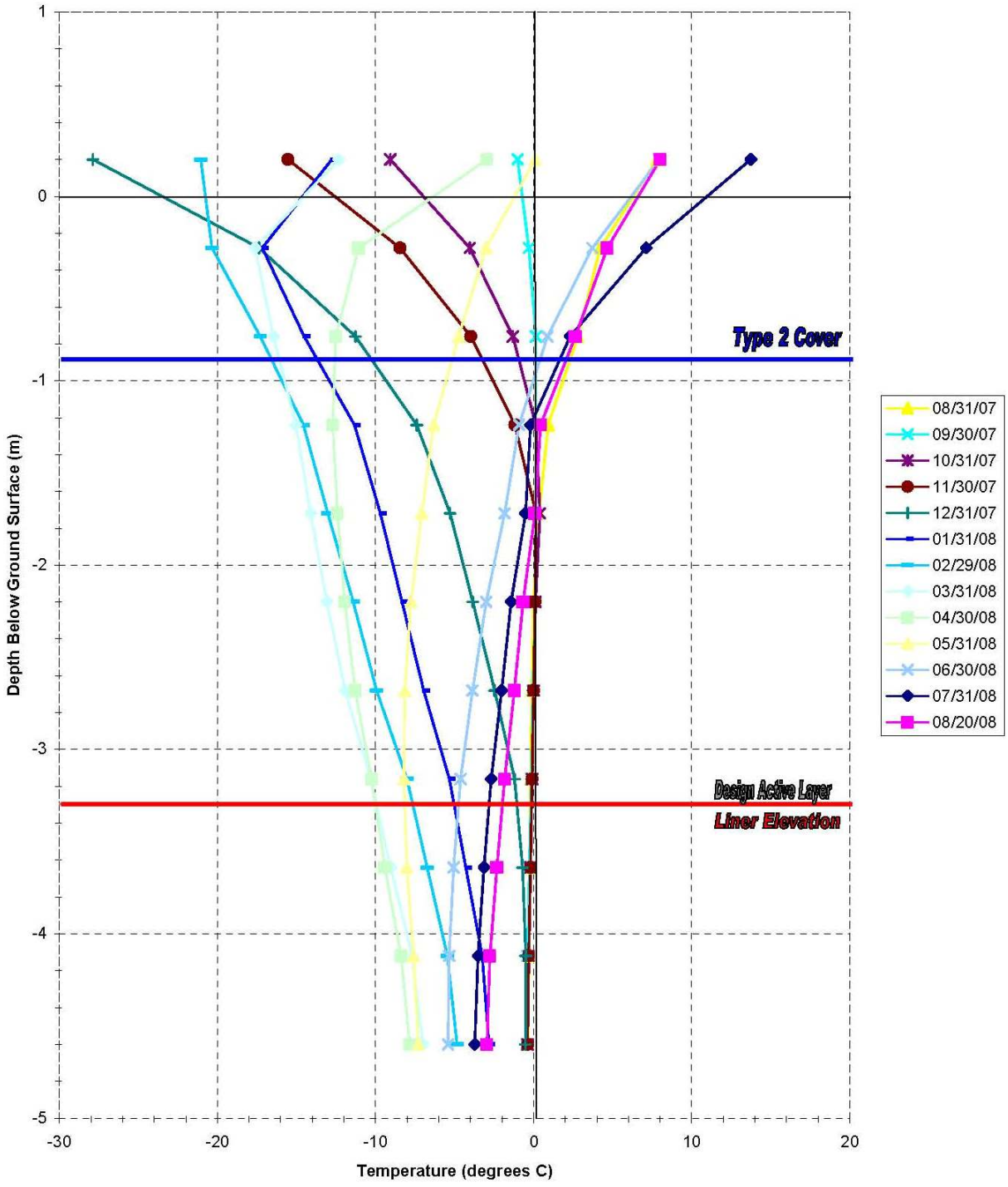
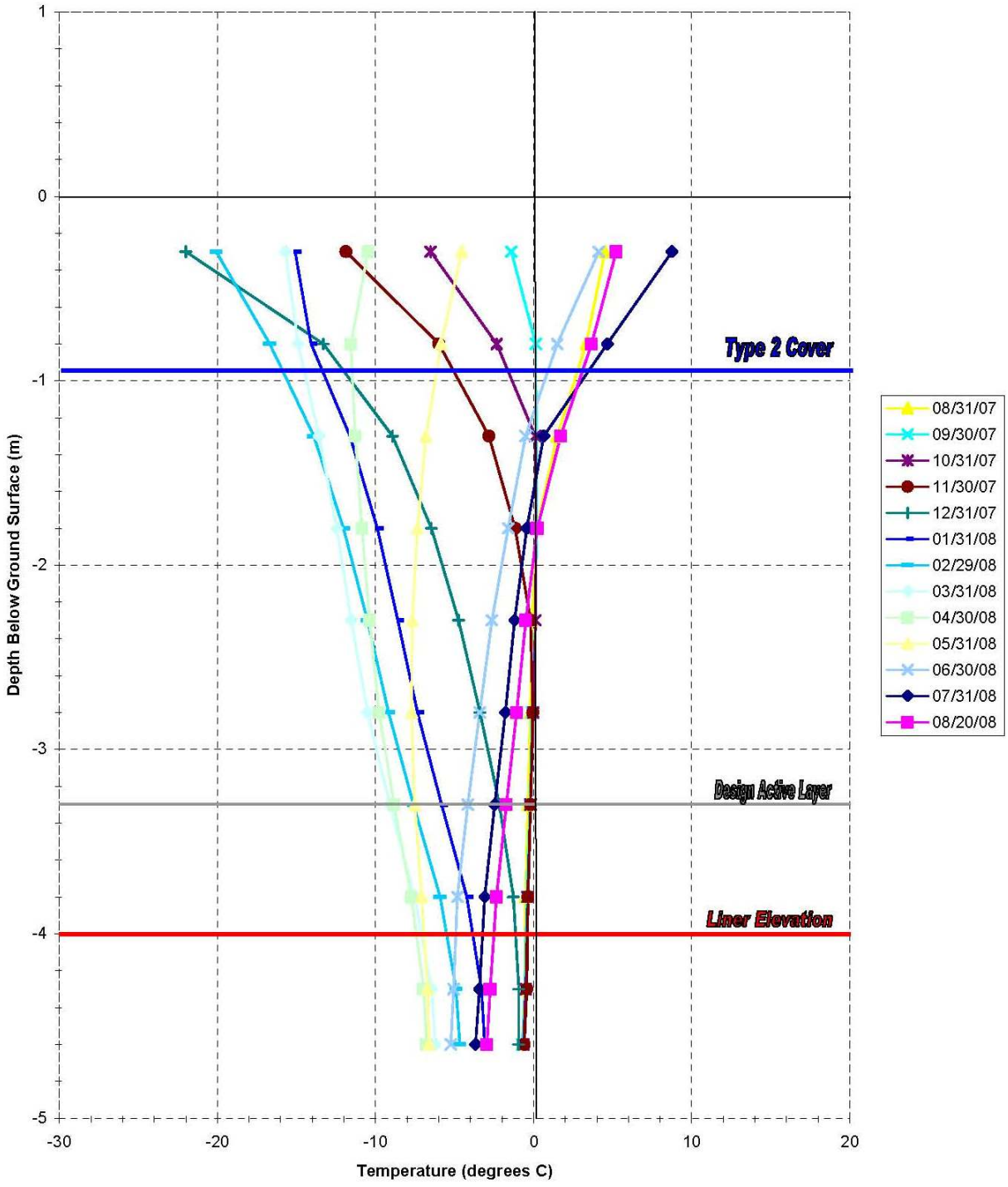


Figure 11 : FOX-5 Broughton Island VT-8



4.8 SOIL SAMPLE ANALYTICAL DATA

The soil chemical analysis results for the 2008 Main Landfill samples are presented in Table XV and evaluated in Table XVI, enclosed in the following pages.

Table XV : Soil Chemical Analysis Results – Main Landfill

Sample #	Location	Depth (cm)	Cu [mg/L]	Ni [mg/L]	Co [mg/L]	Cd [mg/L]	Pb [mg/L]	Zn [mg/L]	Cr [mg/L]	As [mg/L]	Hg [mg/L]	PCBs [mg/L]	F1 C_8-C_{10}	F2 C_{10}-C_{16}	F3 C_{16}-C_{32}
200808-116-FOX5	MW-11	0-10	12	13	6	<0.5	12	53	28	4.0	<0.1	<0.02	<20	<20	<20
200808-117-FOX5	MW-11	40-50	11	12	5	<0.5	16	42	27	2.8	<0.1	<0.02	<20	<20	<20
200808-119-FOX5	MW-12	0-10	10	8	4	<0.5	11	57	17	2.2	<0.1	<0.02	<20	<20	<20
200808-120-FOX5	MW-12	0-10	10	14	4	<0.5	14	57	31	1.8	<0.1	<0.02	<20	<20	<20
200808-121-FOX5	MW-12	40-50	11	14	5	<0.5	17	59	32	3.0	<0.1	<0.02	<20	<20	<20
200808-122-FOX5	MW-13	0-10	11	15	5	<0.5	11	52	30	1.9	<0.1	<0.02	<20	<20	47
200808-123-FOX5	MW-13	40-50	7	25	3	<0.5	7	35	56	<1.0	<0.1	<0.02	<20	<20	<20
200808-125-FOX5	MW-14	0-10	8	10	4	<0.5	10	41	20	1.1	<0.1	<0.02	<20	<20	<20
200808-126-FOX5	MW-14	40-50	9	12	4	<0.5	11	43	24	1.3	<0.1	<0.02	<20	<20	<20
200808-128-FOX5	MW-10	0-10	11	14	5	<0.5	10	44	28	2.0	<0.1	<0.02	<20	<20	1,750
200808-129-FOX5	MW-10	40-50	13	24	7	<0.5	10	60	54	2.3	<0.1	<0.02	<20	<20	<20

Table XVI : Evaluation of Soil Chemical Analysis Results – Main Landfill

Parameter	Arithmetic Mean (+/- 95% Conf.)	Maximum Baseline (mg/kg)	2008	Comments
Copper	8.5 +/- 1.3	23	Majority of results are elevated slightly above the baseline mean, however well below the observed baseline maximum concentration.	Concentrations ranged between 7-13 mg/kg with a mean of 10.1, slightly above the baseline mean.
Nickel	<5.0	11	Detectable concentrations were noted at all sample locations, with the majority of concentrations exceeding the observed baseline maximum.	Concentrations ranged between 8-25 mg/kg with a mean of 14.3. The highest concentrations of 24 mg/kg and 25 mg/kg were noted at depth at MW-10 and MW-13, respectively.
Cobalt	<5.0	5.2	Majority of sample results were consistent or equal with the reported baseline mean, with two exceptions.	The shallow sample at MW-11 and depth sample at MW-10 exhibited concentrations of 6 mg/kg and 7 mg/kg, respectively. The arithmetric mean of all samples was 4.7 mg/kg.
Cadmium	<1.0	1	All concentrations are consistent with the baseline mean (non-detect).	
Lead	<10	25	Detectable concentrations were noted at all sample locations, with several concentrations equal to or exceeding the baseline mean. All concentrations were below the observed baseline maximum.	Concentrations ranged between 7-17 mg/kg with a mean of 11.2. The highest concentrations of 16 mg/kg and 17 mg/kg were noted at depth at MW-11 and MW-12, respectively.

Table XVI (continued): Evaluation of Soil Chemical Analysis Results – Main Landfill

Parameter	Arithmetic Mean (+/- 95% Conf.)	Maximum Baseline (mg/kg)	2008	Comments
Zinc	38.5 +/- 8.9	180	With one exception, all sample results exceeded the baseline mean. Of the exceedances, approximately half were also noted to slightly exceed the 95% confidence limit. All concentrations were well below the reported baseline maximum.	Concentrations ranged between 35-60 mg/kg with a mean of 47.9 mg/kg. Shallow samples collected at MW-11 (53 mg/kg) and MW-13 (52 mg/kg), depth sample at MW-10 (60 mg/kg) and both samples at MW-12 (57 and 59 mg/kg) exceeded the 95% confidence limit.
Chromium	<20		Detectable concentrations (including one at and one below the reported baseline detection limit), were noted at all sample locations.	Concentrations ranged between 17-56 mg/kg with a mean of 29.5. The highest concentrations of 54 mg/kg and 56 mg/kg were noted at depth at MW-10 and MW-13, respectively
Arsenic	2.2 +/- 0.5	5.8	Concentrations are consistent or below with the baseline mean, with three exceptions. All results were below the reported baseline maximum concentration.	Concentrations ranged between <1.0 -4.0 mg/kg with a mean of 1.8 mg/kg. Depth sample at MW-12 and both samples at MW-11 reported concentrations in excess of the 95% confidence limit.
Mercury	<0.10		All concentrations are consistent with the baseline mean (non-detect).	
PCBs	<0.0030	0.26	All concentrations are consistent with the baseline mean (non-detect).	
TPH	<10	740	Concentrations are consistent with the baseline mean (non-detect), with two exceptions.	Shallow samples at MW-13 and MW-10 reported concentrations of 47 mg/kg and 1,750 mg/kg, respectively. The concentration at MW-10 is well in excess of the reported baseline maximum.

4.9 GROUNDWATER SAMPLE ANALYTICAL DATA

The groundwater chemical analysis results for the 2008 Main Landfill samples are presented in Table XVII and evaluated in Table XVIII, enclosed in the following pages. As noted above, MW-14 was dry at the time of inspection and consequently no samples were collected at this location.

4.10 MONITORING WELL SAMPLING/INSPECTION LOGS

The monitoring well sampling logs for MW-10 to MW-14 are presented in Appendix F.

Table XVII : Groundwater Chemical Analysis Results

Sample #	Location	Cu [µg/L]	Ni [µg/L]	Co [µg/L]	Cd [µg/L]	Pb [µg/L]	Zn [µg/L]	Cr [µg/L]	As [µg/L]	Hg [µg/L]	PCBs [µg/L]	F1 C_6-C_{10}	F2 C_{10}-C_{16}	F3 C_{16}-C_{34}
200808-118-FOX5	MW-11	0.002	0.006	0.0003	0.0006	<0.001	0.01	0.007	<0.001	<0.0001	<0.1	<0.2	<0.2	<0.2
200808-124-FOX5	MW-13	0.075	0.023	0.0013	0.0003	0.004	0.07	0.083	<0.001	<0.0001	<0.1	<0.2	<0.2	<0.2
200808-127-FOX5	MW-12	0.010	0.005	0.0004	0.0014	0.001	0.02	0.012	<0.001	<0.0001	<0.1	<0.2	<0.2	<0.2
200808-130-FOX5	MW-10	0.001	<0.005	<0.0002	0.0001	<0.001	0.01	0.001	<0.001	<0.0001	<0.1	<0.2	<0.2	<0.2
200808-131-FOX5	MW-16	0.005	<0.005	0.0016	0.0003	0.004	0.07	0.004	<0.001	<0.0001	<0.1	<0.2	0.3	0.3

Table XVIII : Evaluation of 2008 Groundwater Analytical Data - Main Landfill

Parameter	2008	Comments
Copper	Detectable concentrations were noted at all sample locations, ranging between 0.001 (detection limit) – 0.075 mg/L.	The lowest concentration was noted at MW-10 (upgradient) whereas the highest result was noted at MW-13, downgradient of the landfill.
Nickel	Detectable concentrations were noted at all sample locations, with one exception. Results ranged between <0.005 – 0.023 mg/L.	The lowest concentration was noted at MW-10 (upgradient) whereas the highest result was noted at MW-13, downgradient of the landfill.
Cobalt	Detectable concentrations were noted at all sample locations, with one exception. Results ranged between <0.0002 – 0.0013 mg/L.	The lowest concentration was noted at MW-10 (upgradient) whereas the highest result was noted at MW-13, downgradient of the landfill.
Cadmium	Detectable concentrations were noted at all sample locations, ranging between 0.0001 (detection limit) – 0.0014 mg/L.	The lowest concentration was noted at MW-10 (upgradient) whereas the highest result was noted at MW-12, downgradient of the landfill.
Lead	Detectable concentrations were noted at two sample locations, ranging between 0.001 (detection limit) – 0.004 mg/L.	The lowest concentrations were noted at MW-10 (upgradient) and MW-11 (downgradient) and the highest result was noted at MW-13, also downgradient of the landfill.
Zinc	Detectable concentrations were noted at all sample locations, ranging between 0.01 (detection limit) – 0.07 mg/L.	The lowest concentration was noted at MW-10 (upgradient) and MW-11 (downgradient) and the highest result was noted at MW-13, also downgradient of the landfill.
Chromium	Detectable concentrations were noted at all sample locations, ranging between 0.001 (detection limit) – 0.083 mg/L.	The lowest concentration was noted at MW-10 (upgradient) whereas the highest result was noted at MW-13, downgradient of the landfill.
Arsenic	All concentrations were below the method detection limit of 0.001 mg/L	
Mercury	All concentrations were below the method detection limit of 0.0001 mg/L	
PCBs	All concentrations were below the method detection limit of 0.1 ug/L	
TPH	All concentrations were below the method detection limit of 0.2 mg/L	

5 MIDDLE SITE TIER II DISPOSAL FACILITY / NON-HAZARDOUS WASTE LANDFILL

5.1 BACKGROUND AND MONITORING PROGRAM

The Middle Site Tier II Soil Disposal Facility/Non-Hazardous Waste Landfill (Middle Site Tier II DF/NHWLF) is located along the road between the main station and the community of Qikiqtarjuaq. Before construction, the area had no visual or olfactory indication of contamination or debris. The conjoined facility was constructed to contain non-hazardous debris derived from demolition and surface debris pickup, and to dispose of Tier II level contaminated soil.

The landfill was constructed with two separate cells, based on difffering containment requirements. The Non-Hazardous Waste cell was constructed of compacted perimeter berms, with the placement of a cover of compacted granular fill over the landfilled material. The Tier II cell was constructed with the placement of low-permeability, saturated, compacted berms, the installation of a liner system over the berms and along the landfill base, and the placement of a surface liner system over the landfill contents with the placement of overlying sufficient granular fill to promote freezeback of landfill contents. Five groundwater monitoring wells were installed at the landfill perimeter, and four thermistors were installed in the Tier II Facility cell.

The long term monitoring plan consists of visual monitoring, the collection of soil and groundwater samples, and monitoring of subsurface ground temperatures of the landfill.

The 2008 monitoring of this landfill includes visual inspection to verify for evidence of settlement or erosion and collection of soil and groundwater samples to monitor for the presence of leachate. Groundwater monitoring well locations, as well as soil sample and thermistor installation locations, are identified on Figure 12 Location Plan of Middle Site Tier II Disposal Facility / NHWLF.

The soil and groundwater analytical data are presented in the following sections. Soil at all stations was sampled as specified. Groundwater from each of the monitoring wells was sampled for all parameters as per the ToR (reference B).

5.2 VISUAL INSPECTION REPORT

The visual inspection of the Middle Site Tier II DF / NHLWLF was conducted on August 21, 2008. The Visual Inspection Checklist/Report has been completed as per the ToR and is included as Table XIX of this report.

Settlement

A subtle depression was noted on the southwest corner of the NHWLF cell. The depression was consistent with that observed during the 2007 inspection with no apparent changes. A small isolated depression was also noted along the toe of the slope break of the NHWLF further to the southeast.

Indications of differential settlement were noted at two locations along the toe of the slope break between the Tier II and NHWLF cells. Numerous small tension cracks were observed at each location, extending up to 3 mm in width and 2 cm in depth with orientations between 0 and 45 degrees to the slope break.

An area of settlement was noted on the far north corner of the NHWLF where the surface transitions from Type I to Type II cover material. Settlement in this may have potentially resulted from a lack of compaction near the crest of the landfill. No photos from the 2007 inspection were available for comparison.

Erosion

Minor erosion of the capping material was noted at several new locations on the Tier II DF and one existing location on the NHWLF. The minor erosion channel previously noted on the northwest face of the NHWLF was consistent with that observed during the 2007 inspection with no apparent changes.

Channelling of surface runoff on the Tier II DF has resulted in development of minor rills that extend across the central area of the cell. Runoff has resulted in a meandering erosion pattern that extends in a west direction towards the southwest face of the facility. Surface runoff has also resulted in the development of four new erosional features, extending from the crest to the toe on the southwest face of the Tier II DF. These features extended up to 2.5 m in width and 0.15 m in depth.

Frost Action

Evidence of frost action were not noted.

Evidence of Burrowing Animals

Indications of burrowing animals were not noted.

Re-establishment of Vegetation

Based on the regional setting of this landfill re-establishment of vegetation is not likely.

Staining

Areas of natural surface staining were observed at the time of the inspection, including naturally patchy and mottled reddish discoloration at eastern extent of the NHWLF covering an area of approximately 580 m^2. Similar discolouration also noted in vicinity of VT-12.

Seepage Points

There were no seepage points observed at this landfill.

Debris

Surface or exposed debris was not noted at this landfill.

Presence/Condition of Monitoring Instruments

All monitoring wells and thermistor locations were in good condition with no evidence of frost action observed.

Discussion

The Middle Site Tier II DF / NHLWLF performance with respect to containment of debris and soil within the landfill is rated as acceptable. Visual inspection report, including supporting photos and drawing, is presented hereinafter.

It was noted that surface runoff has resulted in the development of small rills across the surface with more pronounced channelling on the southwest face of the Tier II DF. Although these features are currently noted as acceptable, it is anticipated that erosion of these areas will continue and should be monitored closely.

Table XIX : Visual Inspection Checklist – Inspection Report – Middle Site Tier II DF / NHLWLF

SITE NAME:	MIDDLE SITE TIER II DISPOSAL FACITILY / NON-HAZARDOUS WASTE LANDFILL
LANDFILL DESIGNATION:	
DATE OF INSPECTION:	AUGUST 21, 2008
DATE OF PREVIOUS INSPECTION:	AUGUST 19-21, 2007
INSPECTED BY:	A. PASSALIS
REPORT PREPARED BY:	SILA REMEDIATION INC.
The inspector/reporter represents to the best of the their knowledge, the following statements and observations are true and correct and to the best of the preparer's actual knowledge, no material facts have been suppressed or misstated.	

Table XX : Inspection Sheet - Middle Site Tier II Disposal Facility / Non-hazardous Waste Landfill

Checklist Item	Present (Yes/No)	Location	Length	Width	Depth	Extent	Description	Photographic Record	Severity Rating	Additional Comments
Settlement	Yes	Feature E See Figure 12	~ 5 m	~ 2 m	< 3 cm	Isolated	Subtle depression		Acceptable	Subtle depression on surface of NHWLF grading slightly to the northwest. There is potential for additional settlement and water ponding to occur as the landfill contents settle over time. No apparent change to since 07 inspection.
		Feature P See Figure 12	14 m x 1.5 m and 3 m x 1 m	1 to 3 mm	1 to 2 cm	Occasional	Minor tension cracks (2 areas)	F5_08-0707, 0708 F5_08-0710	Acceptable	15519E, 9819N and 15535E, 9807N: Minor tension cracks observed extending parallel to 45° along toe of slope between Tier II Facility and NHWLF. Cracks likely resulting from differential settlement between facilities.
		Feature Q See Figure 12	0.7 m	0.7 m	5 cm	Isolated	Depression	F5_08-0709	Acceptable	15530E, 9811N: Isolated depression situated at the toe of the slope break between Tier II and NHWLF.
		Feature R See Figure 12	~ 4 m	~ 3 m	0.15 m	Isolated	Minor settlement	F5_08-0692	Acceptable	15518E, 9859N : Settlement on the north corner of the NHWLF potentially due to lack of compaction near the crest of the landfill. No photos from 07 inspection for comparison.
Erosion	Yes	Feature F See Figure 12	~ 18 m	<0.5 m	~ 0.15 m	Isolated	Minor erosion	F5_08-0701 and 0702	Acceptable	15496E, 9840N: Minor erosion along northwest slope of landfill due to channeling of surface runoff. Cobbles and boulders are present on the slope and provide natural armouring. No apparent changes from 07 inspection.
		Feature S See Figure 12	4 x ~ 15 m	0.6 to 2.5 m	0.05 to 0.15 m	Isolated	Minor erosion	F5_08-0719 to 0722 and 0729 to 0733	Acceptable	Between 15481E, 9759N and 15475E, 9776N: Minor erosion along southwest slope of landfill due to channeling of surface runoff from the Tier II Facility. Erosion will likely continue to occur at these locations from ongoing channeling across the surface of the facility.
		Feature T See Figure 12	~ 40 m	1 to 1.5 m	0 to 3 cm	Occasional	Minor erosion	F5_08-0736 and 0737	Acceptable	Between 15523E, 9787N and 15483E, 9784N: Minor erosion along the central and north surface of Tier II Facility due to channeling of surface runoff. Meandering erosional pattern flowing in a west direction towards Feature P.

Table XX (continued): Inspection Sheet - Middle Site Tier II Disposal Facility / Non-hazardous Waste Landfill

Checklist Item	Present (Yes/No)	Location	Length	Width	Depth	Extent	Description	Photographic Record	Severity Rating	Additional Comments
Frost Action	No	N/A	N/A	N/A	N/A	None	N/A	N/A	Not observed	N/A
Animal Burrows	No	N/A	N/A	N/A	N/A	None	N/A	N/A	Not observed	N/A
Vegetation	No	N/A	N/A	N/A	N/A	None	N/A	N/A	Not observed	N/A
Staining	Yes	Feature G See Figure 12	30 m	20 m	N/A	Isolated	Subtle discolouration (2 locations)	N/A	Acceptable	Naturally patchy and mottled reddish discoloration on surface of landfill at eastern extent of NHWLF. Area covers approximately 580 m^2. Similar discolouration also noted in vicinity of VT-12.
Vegetation Stress	No	N/A	N/A	N/A	N/A	None	N/A	N/A	Not observed	N/A
Seepage Points	No	N/A	N/A	N/A	N/A	None	N/A	N/A	Not observed	N/A
Debris Exposed	No	N/A	N/A	N/A	N/A	None	N/A	N/A	Not observed	N/A
Presence/Condition of Monitoring Instruments	Yes	See Figure 12 VT-9 to VT-12	N/A	N/A	N/A	N/A	N/A	F5_08-0661, 0671, 0711, 0735	Acceptable	Successfully downloaded ground temperature data from loggers.
Other Features of Note:	No	N/A	N/A	N/A	N/A	None	N/A	N/A	Not observed	N/A
Overall Landfill Performance	**Acceptable**									

5.3 PRELIMINARY STABILITY ASSESSMENT

The Preliminary Stability Assessment for Middle Site Tier II DF / NHLWLF has been completed as per the Terms of Reference and is included as Table XXI of this report.

Table XXI : Preliminary Stability Assessment – Middle Site Tier II DF / NHLWLF

Feature	Severity Rating	Extent
Settlement	Acceptable	Isolated
Erosion	Acceptable	Isolated
Frost Action	Not observed	None
Staining	Acceptable	Occasional
Vegetation Stress	Not observed	None
Seepage/Ponded Water	Not observed	None
Debris exposure	Not observed	None
Overall Landfill Performance	**Acceptable**	

Performance/ Severity Rating	Description
Acceptable	Noted features are of little consequence. The landfill is performing as designed. Minor deviations in environmental or physical performance may be observed, such as isolated areas of erosion, settlement.
Marginal	Physical/environmental performance appears to be deteriorating with time. Observations may include an increase in size or number of features of note, such as differential settlement, erosion or cracking. No significant impact on landfill stability to date, but potential for failure is assessed as low or moderate.
Significant	Significant or potentially significant changes affecting landfill stability, such as significant changes in slope geometry, significant erosion or differential settlement; scarp development. The potential for failure is assessed as imminent.

Table XXI (continued): Preliminary Stability Assessment – Middle Site
Tier II DF / NHLWLF

Unacceptable	Stability of landfill is compromised to the extent that ability to contain waste materials is compromised. Examples may include:
	• Debris exposed in erosion channels or areas of differential settlement.
	• Liner exposed.
	• Slope failure.

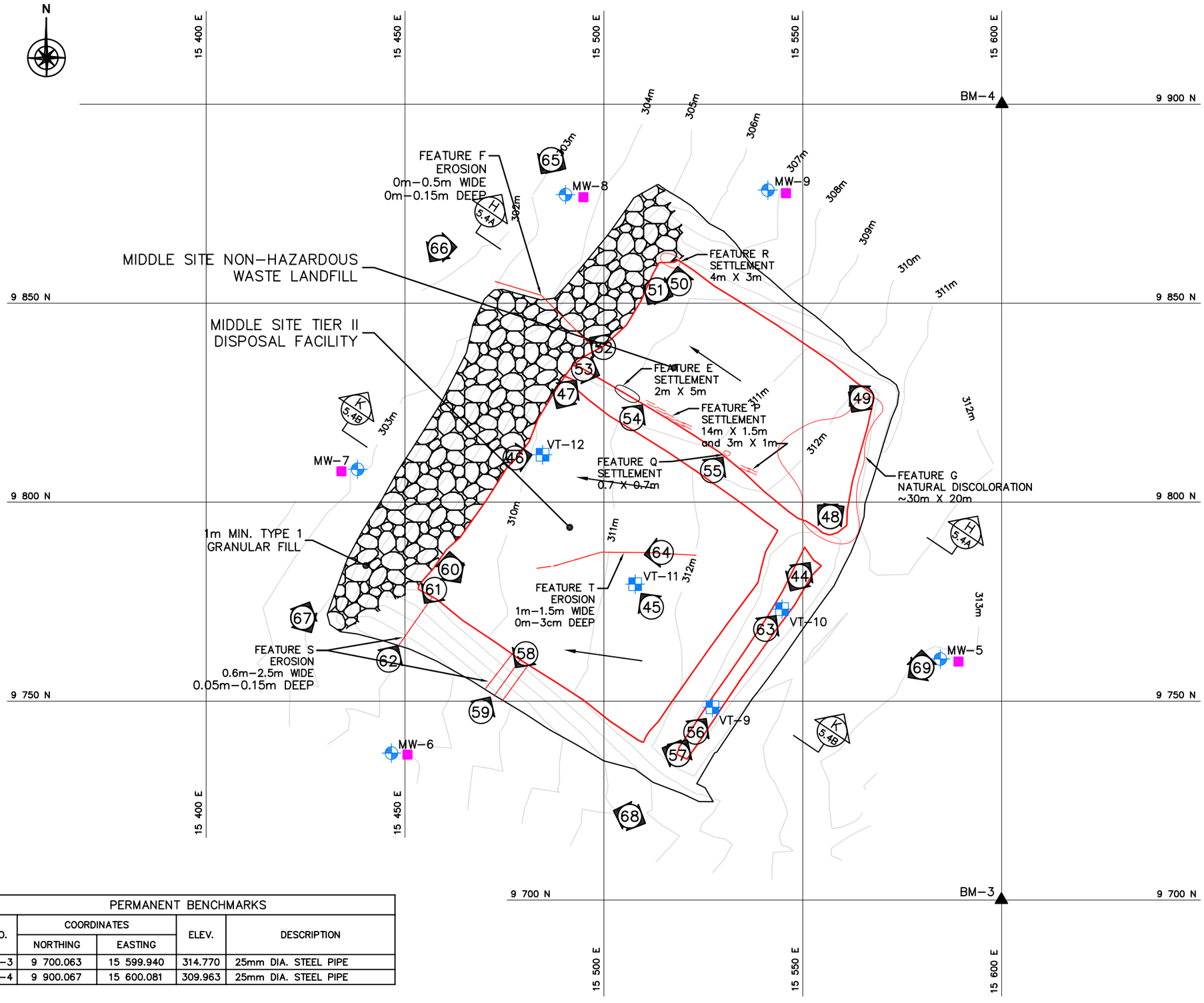
Extent	Description
Isolated	Singular feature
Occasional	Features of note occurring at irregular intervals/locations
Numerous	Many features of note, impacted less than 50% of the surface area of the landfill
Extensive	Impacting greater than 50% of the surface area of the landfill

5.4 LOCATION PLAN

The Location Plan for the Middle Site Tier II DF / NHLWLF has been completed as per the Terms of Reference and is included in the following page as Figure 12 Location Plan of Middle Site Tier II DF / NHLWLF.

5.5 PHOTOGRAPHIC RECORDS

The Photographic Record for Middle Site Tier II DF / NHLWLF has been completed as per the Terms of Reference and is included in the following page as Table XXII. The Photographic Record in Table XXII only contains an index and “thumbnail” photographs; full sized photographs are contained in the Addendum CD-ROM.



LEGEND

- TBM4 — TEMPORARY BENCHMARK
- BM–1 — PERMANENT BENCHMARK
- 101 — COORDINATE POINT
- MONITORING SOIL SAMPLE LOCATION
- MONITORING WELL LOCATION
- VERTICAL THERMISTOR LOCATION

COORDINATE POINTS (AS–BUILT) VERTICAL THERMISTORS

NO.	NORTHING	EASTING
VT–9	9 748.5	15 527.3
VT–10	9 773.1	15 544.8
VT–11	9 779.4	15 507.9
VT–12	9 811.9	15 484.6

COORDINATE POINTS (AS BUILT) MONITORING WELLS

NO.	NORTHING	EASTING	ELEV.
MW–5	9 760.6	15 584.6	313.23
MW–6	9 736.9	15 446.6	305.89
MW–7	9 808.2	15 438.1	303.13
MW–8	9 877.3	15 490.4	303.48
MW–9	9 878.4	15 541.2	306.69

0 10m 20m 30m 40m 50m

PERMANENT BENCHMARKS

NO.	COORDINATES		ELEV.	DESCRIPTION
	NORTHING	EASTING		
BM–3	9 700.063	15 599.940	314.770	25mm DIA. STEEL PIPE
BM–4	9 900.067	15 600.081	309.963	25mm DIA. STEEL PIPE

NO.	VERSION	DATE	BY	VERIF.	APPR.
A	FINAL VERSION	08–12–18	P.L.	J.P.P.	J.P.P.

Construction de Défense Canada
Defence Construction Canada

DRAFT FINAL REPORT
COLLECTION OF LANDFILL MONITORING DATA
FOX–5, BROUGHTON ISLAND (NUNAVUT)
MIDDLE SITE NON–HAZARDOUS WASTE LANDFILL AND TIER II DISPOSAL FACILITY

SITE REMEDIATION SOLUTIONS
Biogenie S.R.D.C. inc.
4495 Wilfrid–Hamel Blvd., Suite 200
Quebec (Quebec) CANADA G1P 2J7
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MEASUREMENT UNIT	SCALE:	DATE (month–year):
Meter	1 : 1,000	DECEMBER 2008
DRAWN BY: P. LÉGARÉ	VERIFIED BY: J.–P. PELLETIER	APPROVED BY: J.–P. PELLETIER
PROJECT NO: CD8177_001_160	DRAWING NO: CD8177_001_160–PL4	PAGE PL

FIGURE 12

Table XXII : Photographic Record - Middle Site Tier II DF / NHLWLF

Photo	Thumbnail	Filename	Date	Vantage Point		Caption
				Easting	Northing	
44		F5_08-0659-0664	21/08/2008	15546E	9787N	180 panoramic view SW to NE through N of top of Tier II Facility from VT-10. VT-9 in background. Standing on east corner of Tier II Facility.
45		F5_08-0671	21/08/2008	15508E	9779N	View NW at VT-11, VT-12 in background.
46		F5_08-0672	21/08/2008	15482E	7626N	View E at VT-12.
47		F5_08-0673-0679	21/08/2008	15482E	7626N	180 panoramic view NE to SW through S at NHWLF and Tier II Facility. Standing on west corner of NHWLF.
48		F5_08-0680-0683	21/08/2008	15554E	9789N	90 panoramic view NW to NE at discolouration on surface of NHWLF. Standing on south corner of NHWLF
49		F5_08-0687-0691	21/08/2008	15568E	9828N	90 panoramic view NW to SW from east corner of NHWLF.
50		F5_08-0692	21/08/2008	15517E	9859N	View N at settlement feature on north corner of NHWLF (3 x 3 m x 0.2 m deep).

All photo locations in local coordinates unless otherwise noted.

Table XXII (continued): Photographic Record – Middle Site Tier II DF / NHLWLF

Photo	Thumbnail	Filename	Date	Vantage Point		Caption
				Easting	Northing	
51		F5_08-0693-0697	21/08/2008	15517E	9859N	90 panoramic view SE to SW from north corner of NHWLF.
52		F5_08-0700	21/08/2008	15497E	9840N	View NW at drainage feature on northwest face near NHWLF and Tier II partition. Feature F.
53		F5_08-0703	21/08/2008	15495E	9835N	View SE along NHWLF (left) and Tier II slope break.
54		F5_08-0707	21/08/2008	15519E	9818N	Minor tension cracks along toe of NHWLF and Tier slope break. Cracks 14 x 2 m, parallel and up to 45^{o} from breakline.
55		F5_08-0709	21/08/2008	15530E	9811N	Isolated depression along toe of slope break. 0.7 x 0.7 m.
56		F5_08-0711	21/08/2008	15526E	9747N	View NE at VT-9 on south corner of Tier II Facility. VT-10 in background.
57		F5_08-0712-0717	21/08/2008	15522E	9737N	120 panoramic view NE to W from south corner of Tier II Facility.

All photo locations in local coordinates unless otherwise noted.

Table XXII (continued): Photographic Record – Middle Site Tier II DF / NHLWLF

Photo	Thumbnail	Filename	Date	Vantage Point		Caption
				Easting	Northing	
58		F5_08-0719-0721	21/08/2008	15481E	9759N	View SW at shallow erosion features extending down southwest face of Tier II Facility.
59		F5_08-0722	21/08/2008	15466E	9749N	View NE at shallow erosion features extending down southwest face of Tier II Facility.
60		F5_08-0723-0729	21/08/2008	15455E	9780N	150 panoramic view N to SE through E from west corner of Tier II Facility.
61		F5_08-0731	21/08/2008	15455E	9776N	View SW at shallow erosion features extending down west corner face of Tier II Facility.
62		F5_08-0732	21/08/2008	15445E	9759N	View SW at shallow erosion features extending down west corner face of Tier II Facility.
63		F5_08-0735	21/08/2008	15545E	9773N	Manual reading and downloading data at VT-10.
64		F5_08-0737	21/08/2008	15509E	9787N	View W at shallow erosional features extending from middle to west corner of Tier II Facility.

All photo locations in local coordinates unless otherwise noted.

Table XXII (continued): Photographic Record – Middle Site Tier II DF / NHLWLF

Photo	Thumbnail	Filename	Date	Vantage Point		Caption
				Easting	Northing	
65		F5_08-0745-0748	21/08/2008	15486E	9887N	90 panoramic view SE to SW at northwest face of NHWLF/Tier II Facility.
66		F5_08-0749-0751	21/08/2008	15458E	9863N	120 panoramic view E to SW at northwest face of NHWLF/Tier II Facility.
67		F5_08-0756-0759	21/08/2008	15426E	9770N	120 panoramic view N to SE through E along northwest and southwest toe of Tier II Facility.
68		F5_08-0764-0771	21/08/2008	15506E	9722N	180 panoramic view NW to SE through E at draiange channel along southwest side of Tier II Facility.
69		F5_08-0775-0779	21/08/2008	15585E	9749N	120 panoramic view SW to N at Tier II / NHWLF from MW-5.
70		F5_08-0780-0781	21/08/2008	15482E	10073N	30 panoramic view S to SW at NHWLF / Tier II Facility.

All photo locations in local coordinates unless otherwise noted.

5.6 THERMAL MONITORING DATA

All thermistors at the Middle Site Tier II DF / NHLWLF were inspected and found to be in good condition with no significant concerns identified. Data from all thermistors were successfully retrieved. With the exception two sensor readings (analogs #2 and #5) at VT-10, all analogues/thermocouples were observed to be functioning properly at the time of the inspection. All clocks exhibited slight drift and were syncronized using the Prolog software.

No datalogger batteries were replaced during the landfill inspection. All dataloggers had batteries that are expected to be functional until the summer of 2011.

5.7 LANDFILL TEMPERATURE DATA FROM DATALOGGERS

Manual resistive and temperature data readings were collected from the thermistor strings as per the Terms of Reference. Manual readings and inspection results for each thermistor are presented on the Thermistor Annual Maintenance Reports included in Appendix E. A complete datalogger RAW data set for 2007-2008 period has been forwarded to DCC as per the Terms of Reference.

Figures 13 to 16 in the following pages summarize temperature data obtained from the dataloggers. This data is a representative sampling of monthly data points downloaded from thermistor dataloggers for the 2007-2008 period.

5.8 SOIL SAMPLE ANALYTICAL DATA

The soil chemical analysis results for the 2008 Middle Site Tier II DF / NHLWLF samples are presented in Table XXIII and evaluated in Table XXIV, enclosed in the following pages.

Figure 13 : FOX-5 Broughton Island VT-9

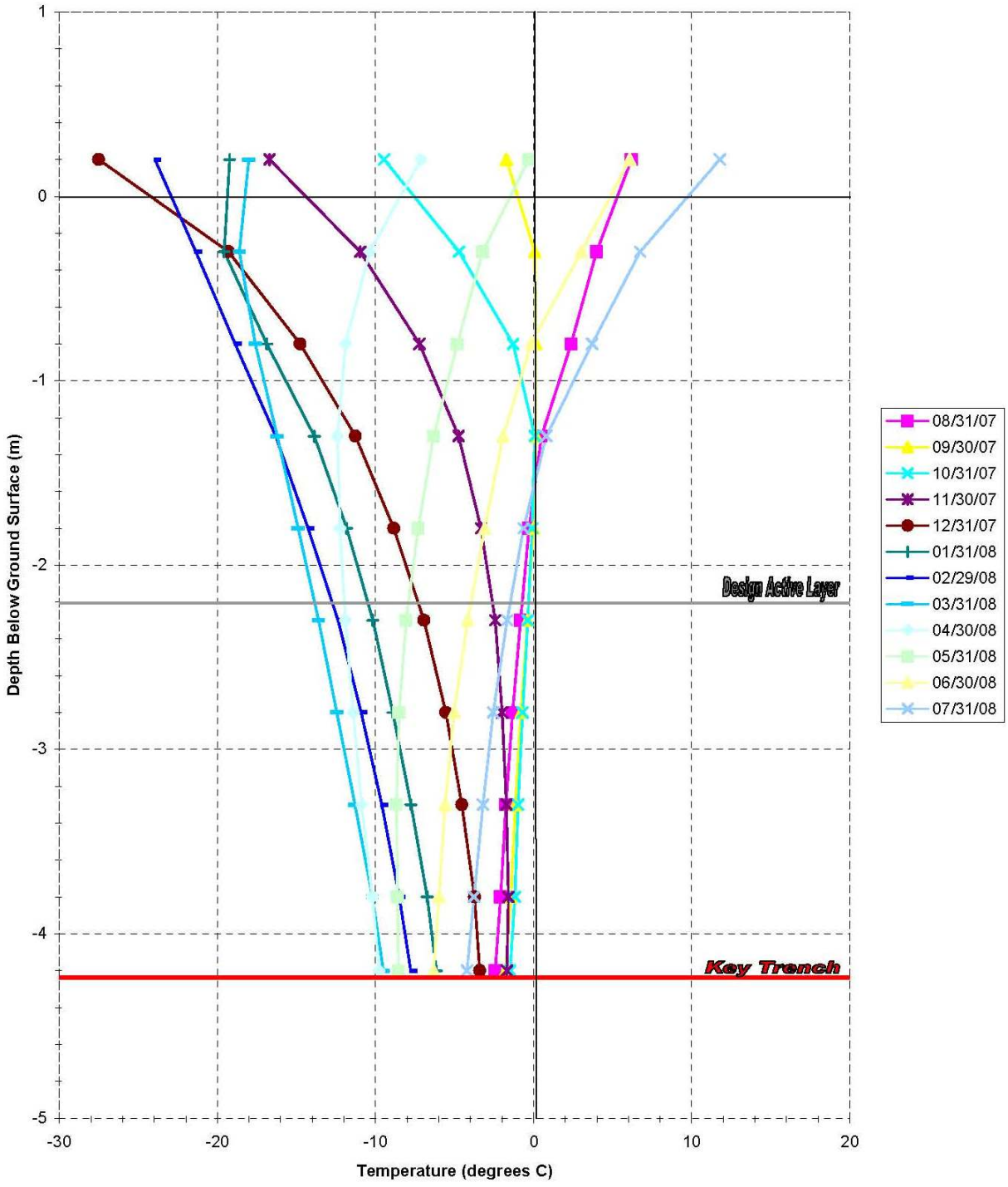

Figure 14 : FOX-5 Broughton Island VT-10

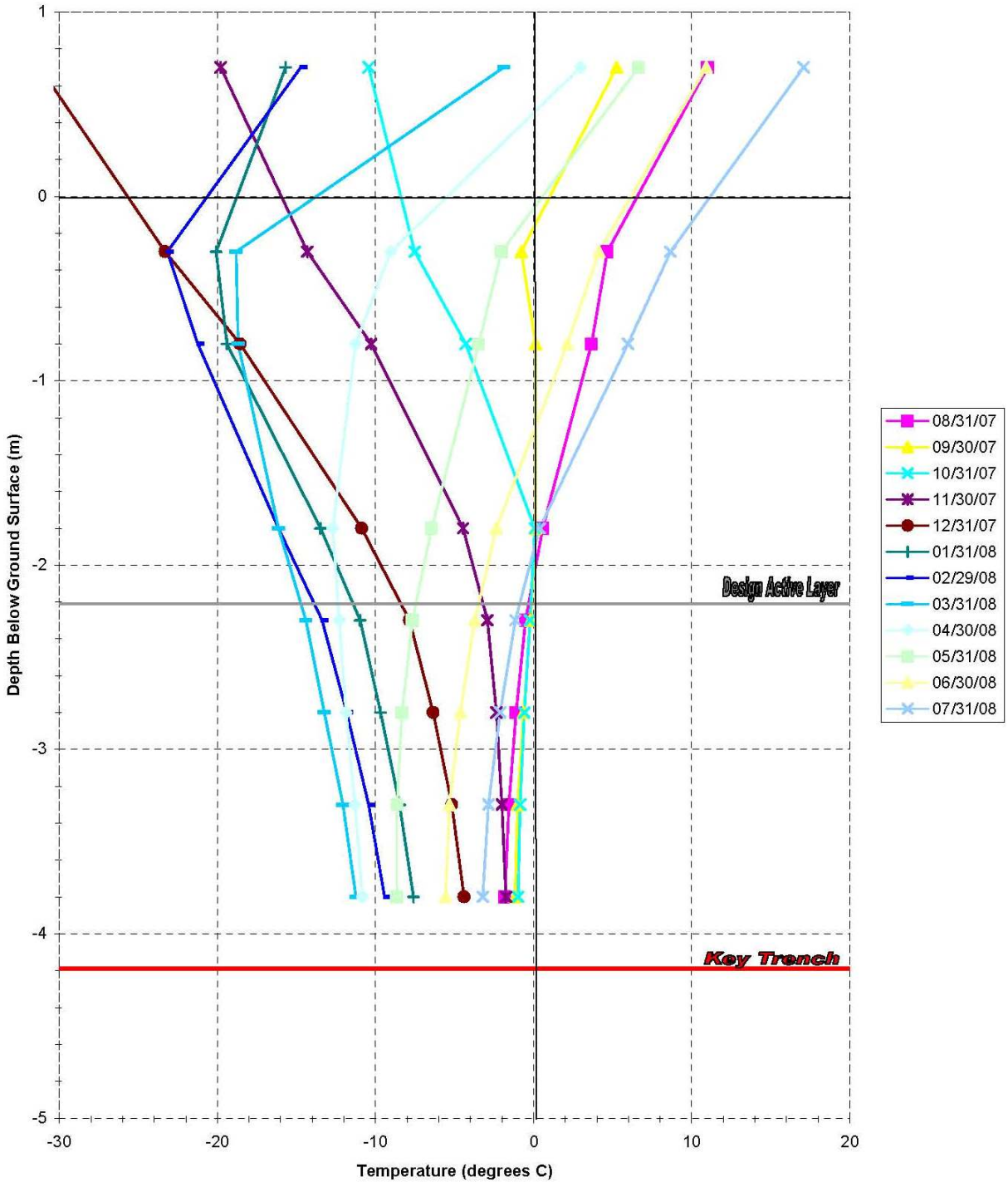

Figure 15 : Broughton Island VT-11

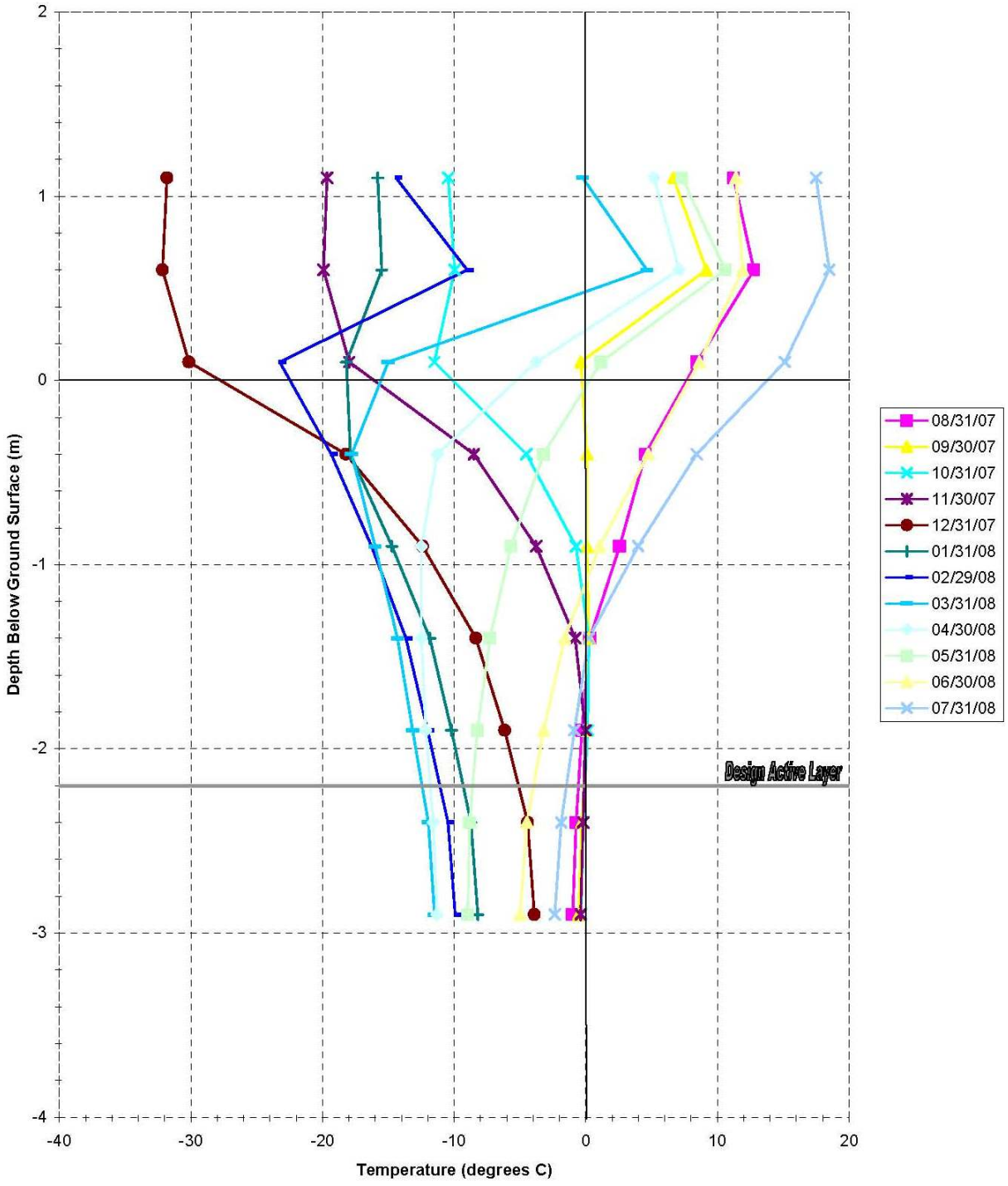

Figure 16 : FOX-5 Broughton Island VT-12

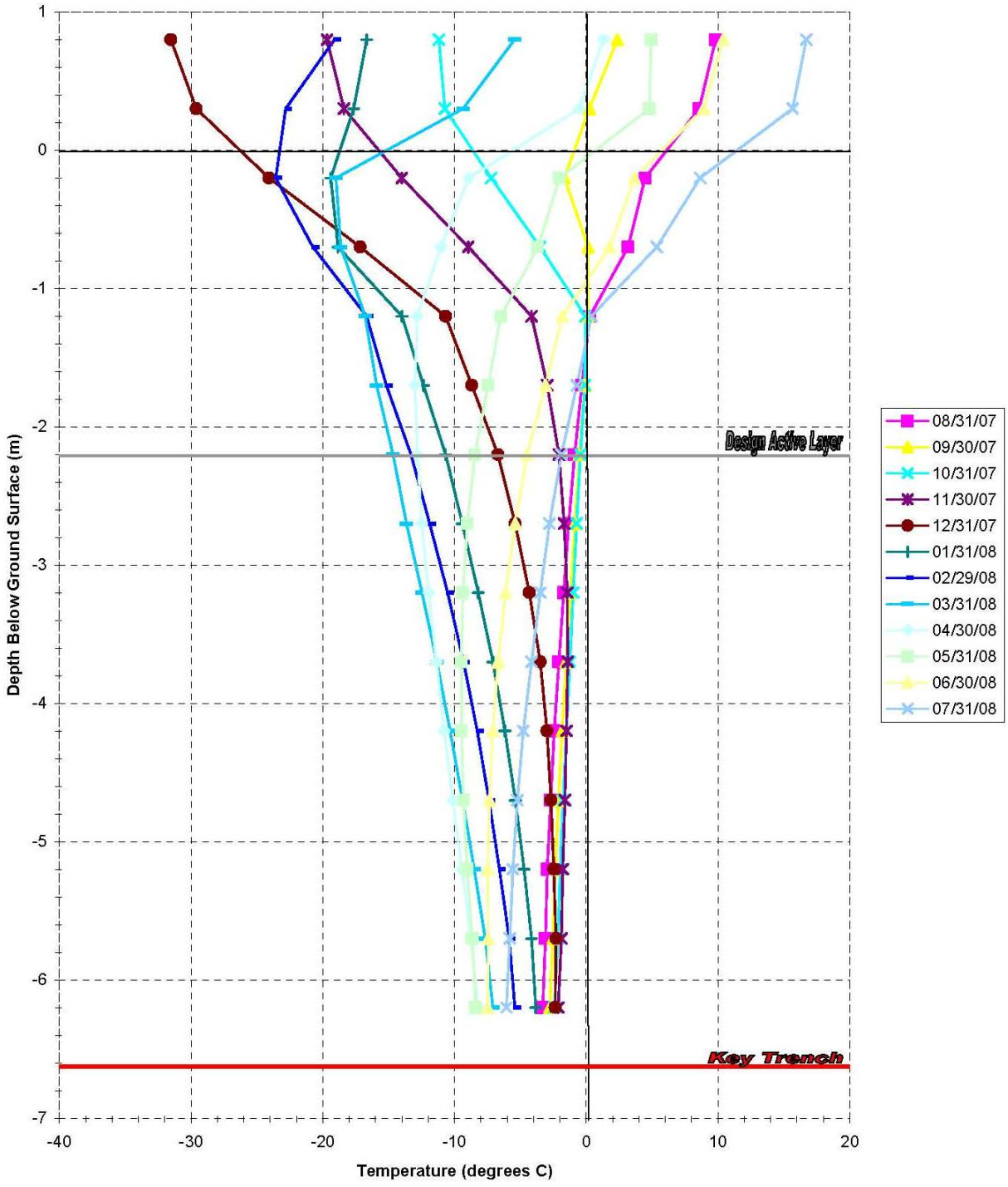

Table XXIII : Soil Chemical Analysis Results – Middle Site Tier II DF / NHLWLF

Sample #	Location	Depth (cm)	Cu [mg/L]	Ni [mg/L]	Co [mg/L]	Cd [mg/L]	Pb [mg/L]	Zn [mg/L]	Cr [mg/L]	As [mg/L]	Hg [mg/L]	PCBs [mg/L]	F1 C_8-C_{10}	F2 C_{10}-C_{16}	F3 C_{16}-C_{32}
210808-132-FOX5	MW-9	0-10	9	9	5	<0.5	7	42	20	3.1	<0.1	<0.02	<20	<20	<20
210808-133-FOX5	MW-9	40-50	11	10	5	<0.5	6	40	22	3.0	<0.1	<0.02	<20	<20	<20
210808-135-FOX5	MW-8	0-10	9	7	5	<0.5	6	34	15	3.4	<0.1	<0.02	<20	<20	27
210808-136-FOX5	MW-8	40-50	10	11	5	<0.5	7	35	24	2.7	<0.1	<0.02	<20	<20	<20
210808-139-FOX5	MW-7	0-10	10	11	5	<0.5	7	40	22	<1.0	<0.1	<0.02	<20	<20	<20
210808-140-FOX5	MW-7	0-10	11	18	56	<0.5	7	48	37	1.5	<0.1	<0.02	<20	<20	<20
210808-141-FOX5	MW-7	40-50	12	14	7	<0.5	8	57	30	2.0	<0.1	<0.02	<20	<20	<20
210808-143-FOX5	MW-6	0-10	11	11	6	<0.5	8	44	23	1.7	<0.1	<0.02	<20	<20	30
210808-144-FOX5	MW-6	40-50	10	12	6	<0.5	8	52	26	2.1	<0.1	<0.02	<20	<20	<20
210808-146-FOX6	MW-5	0-10	16	13	8	<0.5	10	63	29	2.7	<0.1	<0.02	<20	<20	<20
210808-147-FOX5	MW-5	40-50	16	17	7	<0.5	11	59	41	2.5	<0.1	<0.02	<20	<20	<20

Table XXIV : Evaluation of 2008 Soil Analytical Results - Middle Site Tier II DF / NHLWLF

Parameter	Baseline		2008	Comments
	Arithmetic Mean (+/- 95% Conf.)	Maximum (mg/kg)		
Copper	7.6 +/- 0.4	11	All concentrations exceed the 95% confidence limit. Three samples exceeded the observed baseline maximum.	Concentrations ranged between 9-16 mg/kg with a mean of 11.2. The highest concentrations of 16 mg/kg were noted in the shallow and depth sample at MW-5, upgradient of the landfill.
Nickel	5.2 +/- 0.6	8.3	All concentrations exceed the 95% confidence limit and with the exception of one sample, also exceeded the observed baseline maximum.	Concentrations ranged between 7-18 mg/kg with a mean of 11.5. The highest concentrations of 17 mg/kg and 18 mg/kg were noted in the depth sample at MW-5 and the duplicate shallow sample at MW-7, respectively.
Cobalt	<5.0	7.5	Detectable concentrations were noted at all sample locations, with one sample result exceeding the observed baseline maximum.	Concentrations ranged between 5-8 mg/kg with a mean of 5.9. The highest concentrations of 7 mg/kg and 8 mg/kg were noted in the depth and shallow samples at MW-5, upgradient of the landfill.
Cadmium	<1.0		All concentrations are consistent with the baseline mean (non-detect).	
Lead	<10		Detectable concentrations at or below the baseline mean were reported, with one exception.	Concentrations ranged between 7-11 mg/kg with a mean of 7.7. The highest concentrations of 10 mg/kg and 11 mg/kg were noted in the shallow and depth samples collected at MW-5, respectively.
Zinc	31.7 +/- 2.1	46	All concentrations exceed the 95% confidence limit including approximately half that exceed the observed baseline maximum.	Concentrations ranged between 34-63 mg/kg with a mean of 46 mg/kg, equal to the baseline maximum. Shallow and depth samples collected at MW-5 and MW7 and a depth sample collected at MW-6 exceeded the baseline maximum.

Table XXIV (continued): Evaluation of 2008 Soil Analytical Results - Middle Site Tier II DF / NHLWLF

Parameter	Baseline		2008	Comments
	Arithmetic Mean (+/- 95% Conf.)	Maximum (mg/kg)		
Chromium	<20		Detectable concentrations (including one at and one below the reported baseline detection limit), were noted at all sample locations.	Concentrations ranged between 15-41 mg/kg with a mean of 25.1. The highest concentration of 41 mg/kg was noted in the depth sample MW-5, upgradient of the landfill.
Arsenic	2.0+/- 0.2	3.5	Approximately half of the concentrations are consistent with the baseline mean and within the 95% confidence limit. The remaining results exceed the 95% confidence limit and are below the observed baseline maximum.	Concentrations ranged between <1.0 -3.4 mg/kg with a mean of 2.3 mg/kg. Shallow and depth samples at MW-5, MW-8 and MW-9 all reported concentrations in excess of the 95% confidence limit.
Mercury	<0.10		All concentrations are consistent with the baseline mean (non-detect).	
PCBs	<0.0030	<0.1	All concentrations are consistent with the baseline mean (non-detect).	
TPH	16 +/- 2	28	Concentrations are non-detect, with two exceptions.	Shallow samples at MW-6 and MW-8 reported concentrations of 27 mg/kg and 30 mg/kg, respectively, consistent with the observed baseline maximum.

5.9 GROUNDWATER SAMPLE ANALYTICAL DATA

The groundwater chemical analysis results for the 2008 Middle Site Tier II DF / NHLWLF samples are presented in Table XXV and evaluated in Table XXVI, enclosed in the following pages. As noted above, MW-14 was dry at the time of inspection and consequently no samples were collected at this location.

5.10 MONITORING WELL SAMPLING/INSPECTION LOGS

The monitoring well sampling logs for MW-5 to MW-9 are included in Appendix F.

Table XXV : Groundwater Chemical Analysis Results – Middle Site Tier II DF / NHLWLF

Sample #	Location	Cu [mg/L]	Ni [mg/L]	Co [mg/L]	Cd [mg/L]	Pb [mg/L]	Zn [mg/L]	Cr [mg/L]	As [mg/L]	Hg [mg/L]	PCBs [mg/L]	F1 C_8-C_{10}	F2 C_{10}-C_{16}	F3 C_{16}-C_{32}
210808-134-FOX5	MW-9	0.007	<0.005	0.0005	0.0002	<0.001	0.02	<0.001	<0.001	<0.0001	<0.1	<0.2	<0.2	<0.2
210808-137-FOX5	MW-8	0.003	<0.005	<0.0002	0.0002	<0.001	0.03	0.001	<0.001	<0.0001	<0.1	<0.2	<0.2	<0.2
210808-138-FOX5	MW-8	0.003	<0.005	<0.0002	0.0001	<0.001	0.01	<0.001	<0.001	<0.0001	<0.1	<0.2	<0.2	<0.2
210808-142-FOX5	MW-7	0.006	<0.005	<0.0004	<0.0001	<0.001	<0.01	0.002	<0.001	<0.0001	<0.1	<0.2	<0.2	<0.2
210808-145-FOX5	MW-6	0.001	<0.005	<0.0002	<0.0001	<0.001	<0.01	<0.001	<0.001	<0.0001	<0.1	<0.2	<0.2	<0.2
210808-148-FOX5	MW-5	0.011	<0.005	0.0006	<0.0001	0.002	0.02	0.002	<0.001	<0.0001	<0.1	<0.2	<0.2	<0.2
TRIP BLANK		<0.001	<0.005	<0.0002	<0.0001	<0.001	<0.01	<0.001	<0.001	<0.0001	<0.1	<0.2	<0.2	<0.2

Table XXVI : Evaluation of 2008 Groundwater Analytical Data - Middle Tier II DF / NHLWLF

Parameter	2008	Comments
Copper	Detectable concentrations were noted at all sample locations, ranging between 0.001 (detection limit) – 0.011 mg/L.	The lowest concentration was noted at MW-6 whereas the highest result was noted at MW-5, downgradient of the landfill.
Nickel	All concentrations were below the method detection limit of 0.005 mg/L.	
Cobalt	Detectable concentrations were noted at three sample locations ranging between 0.0004 – 0.0006 mg/L.	Non-detect readings (<0.0002 mg/L) were noted at MW-6 and MW-8, whereas the highest result was noted at MW-5, upgradient of the landfill.
Cadmium	Trace concentrations of 0.0002 mg/L (detection limit) were noted at two sample locations.	Trace concentations were noted at MW-8 and MW-9, downgradient of the landfill.
Lead	Detectable concentrations were noted at two sample locations, ranging between 0.001 (detection limit) – 0.002 mg/L.	Non-detect levels were noted at MW-7, MW-8 and MW-9 (downgradient), whereas the highest result was noted at MW-5, upgradient of the landfill.
Zinc	Detectable concentrations were noted at all sample locations, with two exceptions. Detectable results ranged between 0.01 – 0.03 mg/L.	Non-detect levels were noted at MW-6 and MW-7 (downgradient), whereas the highest result was noted at MW-8, also located downgradient of the landfill. Detectable concentrations of 0.02 mg/kg were noted at MW-5. upgradient of the landfill.
Chromium	Trace concentrations were noted at all sample locations, with two exceptions. Detectable results ranged between 0.001 – 0.002 mg/L.	Non-detect levels were noted at MW-6 and MW-9, whereas the highest results was noted at MW-5 located upgradient of the landfill.
Arsenic	All concentrations were below the method detection limit of 0.001 mg/L	
Mercury	All concentrations were below the method detection limit of 0.0001 mg/L	
PCBs	All concentrations were below the method detection limit of 0.1 ug/L	
TPH	All concentrations were below the method detection limit of 0.2 mg/L	

APPENDIX A
Range of the Report and Limitation of Responsibilities

RANGE OF THE REPORT AND LIMITATION OF RESPONSIBILITIES

A – Recipient and Use

This report ("Report") was prepared by Biogenie S.R.D.C. Inc. ("Biogenie") at the request and for the sole benefit of the Client ("Client"), and is intended to be used exclusively by the Client.

B –Site Conditions

Any description of the target site ("Site"), soil and/or groundwater included in the Report is only provided as an indication to the Client, and unless otherwise specifically mentioned in the Report such description shall not at any time and under any circumstances be used for purposes other than to gain a better understanding of the Site and to fulfil the requirements of the mandate assigned to Biogenie by the Client ("Mandate").

All information, including but not limiting the comprehensiveness of the data, charts, descriptions, drawings, tables, analysis results, compilations, and any conclusion and recommendation included in the Report, shall arise from the direct observation of the Site during a specific period, namely the fulfilment of the Mandate, and from the interpretation of such information and data available during the same period.

The content of the Report shall not apply in any way or to any part of the Site or to any parameter, material or analysis excluded from the Mandate.

Biogenie shall not be held responsible for the presence of any substance or material of a different nature, or of a similar nature but with different concentrations, as those indicated in the Report, and this in any part or parts of the Site excluded from the Mandate.

The content of the Report, including its conclusions and recommendations, shall not apply to any period preceding or following the Mandate. The physiochemical conditions of the Site, and the type and degree of contamination identified on the Site, may vary within a given period depending on a number of factors, especially the current activities taking place on the Site and/or on lands adjacent to the Site.

A review of the Report and/or changes in the parameters, conclusions and/or recommendations may prove to be necessary in the event of a change in the Site conditions or the discovery of pertinent information subsequent to the production of the Report.

C - Legislation, Regulations, Guidelines and Policies

The interpretation of the data and observations concerning the Site, as well as the conclusions and recommendations resulting from these, shall take into account the laws, regulations, standards, policies and/or guidelines applicable to the Project and that are in effect at the time of the fulfilment of the Mandate. In the event no current law, regulation, policy, guideline or standard applies to the project, Biogenie shall take into account proven environmental and professional rules and practices when drawing up the Report.

Any change in the legislation, regulations, standards, policies and/or guidelines applicable to the project may result in the need to review the Report and/or modify its parameters, conclusions and/or recommendations.

D – Use of Report

The Report is intended for the exclusive use of the Client and shall only be used for the purpose it was meant for.

The content of the Report and its conclusions and recommendations only apply to the Site and may not, at any time and under any circumstances, apply to any land adjacent to the Site or to any other land located in the vicinity of the Site.

Any reproduction in any form whatsoever and any distribution or use of the Report, in whole or in part, by a person other that the Client, is strictly forbidden without the prior written consent of Biogenie. Biogenie makes no declaration and pledges no responsibility towards any person other than the Client with regard to the content of the Report and the conclusions and recommendations expressed therein.

Biogenie is in no way responsible for any loss, fine or penalty, or for any expense, damage or other prejudice of any type whatsoever, sustained by a person other than the Client as a result of the unauthorized use of the Report.

No provision of the Report shall be construed as or considered to be a legal opinion of Biogenie’s.

APPENDIX B
Certificates of Analysis

Client: **Sila Remediation Inc.**
200-4495 Boul. Wilfrid-Hamel
Quebec, QC
G1P 2J7
Attention: **Mr. Jean-Pierre Pelletier**

Report Number: 2821238
Date: 2008-12-17
Date Submitted: 2008-08-25

Project: FOX-5

P.O. Number: 280128
Matrix: Soil

Chain of Custody Number: **89809**

			LAB ID:	653459	653460	653461	653462	653463	GUIDELINE		
			Sample Date:	2008-08-20	2008-08-20	2008-08-21	2008-08-21	2008-08-21			
			Sample ID:	200808-128-FOX5	200808-129-FOX5	210808-132-FOX5	210808-133-FOX5	210808-135-FOX5			
PARAMETER	UNITS	MRL							TYPE	LIMIT	UNITS
Moisture	%	0.1		4.7	9.2	10.4	10.7	11.1			
Arsenic	ug/g	1.0		2.0	2.3	3.1	3.0	3.4			
Cadmium	ug/g	0.5		<0.5	<0.5	<0.5	<0.5	<0.5			
Chromium	ug/g	1		28	54	20	22	15			
Cobalt	ug/g	1		5	7	5	5	5			
Copper	ug/g	1		11	13	9	11	9			
Lead	ug/g	1		10	10	7	6	6			
Mercury	ug/g	0.1		<0.1	<0.1	<0.1	<0.1	<0.1			
Nickel	ug/g	1		14	24	9	10	7			
Zinc	ug/g	1		44	60	42	40	34			

MRL = Method Reporting Limit INC = Incomplete AO = Aesthetic Objective OG = Operational Guideline MAC = Maximum Allowable Concentration IMAC = Interim Maximum Allowable Concentration

Comment: This is an amendment and supercedes all previous copies of this report. QC Data has been added.

APPROVAL: _____
Lorna Wilson
Agriculture Lab Supervisor

Client: **Sila Remediation Inc.**
200-4495 Boul. Wilfrid-Hamel
Quebec, QC
G1P 2J7
Attention: **Mr. Jean-Pierre Pelletier**

Report Number: 2821238
Date: 2008-12-17
Date Submitted: 2008-08-25

Project: FOX-5

P.O. Number: 280128
Matrix: Soil

Chain of Custody Number: 89809

			LAB ID:	653464	653465	653466	653467	653468	GUIDELINE		
			Sample Date:	2008-08-21	2008-08-21	2008-08-21	2008-08-21	2008-08-21			
			Sample ID:	210808-136-FOX5	210808-139-FOX5	210808-140-FOX5	210808-141-FOX5	210808-143-FOX5			
PARAMETER	UNITS	MRL							TYPE	LIMIT	UNITS
Moisture	%	0.1		14.2	6.2	7.9	8.4	10.0			
Arsenic	ug/g	1.0		2.7	<1.0	1.5	2.0	1.7			
Cadmium	ug/g	0.5		<0.5	<0.5	<0.5	<0.5	<0.5			
Chromium	ug/g	1		24	22	37	30	23			
Cobalt	ug/g	1		5	5	6	7	6			
Copper	ug/g	1		10	10	11	12	11			
Lead	ug/g	1		7	7	7	8	8			
Mercury	ug/g	0.1		<0.1	<0.1	<0.1	<0.1	<0.1			
Nickel	ug/g	1		11	11	18	14	11			
Zinc	ug/g	1		35	40	48	57	44			

MRL = Method Reporting Limit INC = Incomplete AO = Aesthetic Objective OG = Operational Guideline MAC = Maximum Allowable Concentration IMAC = Interim Maximum Allowable Concentration
Comment:

APPROVAL: _____
Lorna Wilson
Agriculture Lab Supervisor

Client: **Sila Remediation Inc.**
200-4495 Boul. Wilfrid-Hamel
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G1P 2J7
Attention: **Mr. Jean-Pierre Pelletier**

Report Number: 2821238
Date: 2008-12-17
Date Submitted: 2008-08-25
Project: FOX-5
P.O. Number: 280128
Matrix: Soil

Chain of Custody Number: **89809**

			LAB ID:	653469	653470	653471			GUIDELINE		
			Sample Date:	2008-08-21	2008-08-21	2008-08-21					
			Sample ID:	210808-144-FOX5	210808-146-FOX5	210808-147-FOX5					
PARAMETER	**UNITS**	**MRL**							**TYPE**	**LIMIT**	**UNITS**
Moisture	%	0.1		13.2	12.1	10.1					
Arsenic	ug/g	1.0		2.1	2.7	2.5					
Cadmium	ug/g	0.5		<0.5	<0.5	<0.5					
Chromium	ug/g	1		26	29	41					
Cobalt	ug/g	1		6	8	7					
Copper	ug/g	1		10	16	16					
Lead	ug/g	1		8	10	11					
Mercury	ug/g	0.1		<0.1	<0.1	<0.1					
Nickel	ug/g	1		12	13	17					
Zinc	ug/g	1		52	63	59					

MRL = Method Reporting Limit INC = Incomplete AO = Aesthetic Objective OG = Operational Guideline MAC = Maximum Allowable Concentration IMAC = Interim Maximum Allowable Concentration
Comment:

APPROVAL: _____
Lorna Wilson
Agriculture Lab Supervisor

Client: **Sila Remediation Inc.**
200-4495 Boul. Wilfrid-Hamel
Quebec, QC
G1P 2J7
Attention: **Mr. Jean-Pierre Pelletier**

Report Number: 2821238
Date: 2008-12-17
Date Submitted: 2008-08-25

Project: FOX-5

P.O. Number: 280128
Matrix: Soil

Chain of Custody Number: **89809**

			LAB ID:					GUIDELINE		
			Sample Date:							
			Sample ID:	LAB BLANK	LAB QC % RECOVERY	QC RECOVERY RANGE	DATE ANALYSED			
PARAMETER	**UNITS**	**MRL**						**TYPE**	**LIMIT**	**UNITS**
Moisture	%	0.1		<0.1	100	80-120	2008-08-28			
Arsenic	ug/g	1.0		<1.0	129	50-150	2008-08-26			
Cadmium	ug/g	0.5		<0.5	106	50-150	2008-08-26			
Chromium	ug/g	1		<1	93	70-130	2008-08-26			
Cobalt	ug/g	1		<1	86	70-130	2008-08-26			
Copper	ug/g	1		<1	90	80-120	2008-08-26			
Lead	ug/g	1		<1	85	74-126	2008-08-26			
Mercury	ug/g	0.1		<0.1	80	70-130	2008-08-27			
Nickel	ug/g	1		<1	90	68-132	2008-08-26			
Zinc	ug/g	1		<1	107	84-116	2008-08-26			

MRL = Method Reporting Limit INC = Incomplete AO = Aesthetic Objective OG = Operational Guideline MAC = Maximum Allowable Concentration IMAC = Interim Maximum Allowable Concentration
Comment:

APPROVAL: _____
Herb Yu
QA Coordinator

Client: **Sila Remediation Inc.**
200-4495 Boul. Wilfrid-Hamel
Quebec, QC
G1P 2J7
Attention: **Mr. Jean-Pierre Pelletier**

Report Number: 2821238
Date: 2008-12-17
Date Submitted: 2008-08-25

Project: FOX-5

P.O. Number: 280128
Matrix: Soil

Chain of Custody Number: 89809

			LAB ID:	653459	653460	653461	653462	653463	GUIDELINE		
			Sample Date:	2008-08-20	2008-08-20	2008-08-21	2008-08-21	2008-08-21			
			Sample ID:	200808-128-FOX5	200808-129-FOX5	210808-132-FOX5	210808-133-FOX5	210808-135-FOX5			
PARAMETER	**UNITS**	**MRL**							**TYPE**	**LIMIT**	**UNITS**
Polychlorinated Biphenyls - PCBs											
Polychlorinated Biphenyls (PCBs)	ug/g	0.02		<0.02	<0.02	<0.02	<0.02	<0.02			

MRL = Method Reporting Limit INC = Incomplete AO = Aesthetic Objective OG = Operational Guideline MAC = Maximum Allowable Concentration IMAC = Interim Maximum Allowable Concentration

Comment: This is an amendment and supercedes all previous copies of this report. QC Data has been added.

APPROVAL: _____
Mina Nasirai
Organic Lab Supervisor

Client: **Sila Remediation Inc.**
200-4495 Boul. Wilfrid-Hamel
Quebec, QC
G1P 2J7
Attention: **Mr. Jean-Pierre Pelletier**

Report Number: 2821238
Date: 2008-12-17
Date Submitted: 2008-08-25
Project: FOX-5
P.O. Number: 280128
Matrix: Soil

Chain of Custody Number: **89809**

			LAB ID:	653464	653465	653466	653467	653468	GUIDELINE		
			Sample Date:	2008-08-21	2008-08-21	2008-08-21	2008-08-21	2008-08-21			
			Sample ID:	210808-136-FOX5	210808-139-FOX5	210808-140-FOX5	210808-141-FOX5	210808-143-FOX5			
PARAMETER	UNITS	MRL							TYPE	LIMIT	UNITS
Polychlorinated Biphenyls - PCBs											
Polychlorinated Biphenyls (PCBs)	ug/g	0.02		<0.02	<0.02	<0.02	<0.02	<0.02			

MRL = Method Reporting Limit INC = Incomplete AO = Aesthetic Objective OG = Operational Guideline MAC = Maximum Allowable Concentration IMAC = Interim Maximum Allowable Concentration
Comment:

APPROVAL: _____
Mina Nasirai
Organic Lab Supervisor

Client: **Sila Remediation Inc.**
200-4495 Boul. Wilfrid-Hamel
Quebec, QC
G1P 2J7
Attention: **Mr. Jean-Pierre Pelletier**

Report Number: 2821238
Date: 2008-12-17
Date Submitted: 2008-08-25
Project: FOX-5
P.O. Number: 280128
Matrix: Soil

Chain of Custody Number: 89809

			LAB ID:	653469	653470	653471			GUIDELINE		
			Sample Date:	2008-08-21	2008-08-21	2008-08-21					
			Sample ID:	210808-144-FOX5	210808-146-FOX5	210808-147-FOX5					
PARAMETER	UNITS	MRL							TYPE	LIMIT	UNITS
Polychlorinated Biphenyls - PCBs											
Polychlorinated Biphenyls (PCBs)	ug/g	0.02		<0.02	<0.02	<0.02					

MRL = Method Reporting Limit INC = Incomplete AO = Aesthetic Objective OG = Operational Guideline MAC = Maximum Allowable Concentration IMAC = Interim Maximum Allowable Concentration
Comment:

APPROVAL: _____
Mina Nasirai
Organic Lab Supervisor

Client: **Sila Remediation Inc.**
200-4495 Boul. Wilfrid-Hamel
Quebec, QC
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P.O. Number: 280128
Matrix: Soil

Chain of Custody Number: **89809**

			LAB ID:					GUIDELINE		
			Sample Date:							
			Sample ID:	LAB BLANK	LAB QC % RECOVERY	QC RECOVERY RANGE	DATE ANALYSED			
PARAMETER	**UNITS**	**MRL**						**TYPE**	**LIMIT**	**UNITS**
Polychlorinated Biphenyls - PCBs										
Polychlorinated Biphenyls (PCBs)	ug/g	0.02	<0.02	96	60-140	2008-08-29				

MRL = Method Reporting Limit INC = Incomplete AO = Aesthetic Objective OG = Operational Guideline MAC = Maximum Allowable Concentration IMAC = Interim Maximum Allowable Concentration
Comment:

APPROVAL: _____
Herb Yu
QA Coordinator

Client: **Sila Remediation Inc.**
200-4495 Boul. Wilfrid-Hamel
Quebec, QC
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Attention: **Mr. Jean-Pierre Pelletier**

Report Number: 2821238
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Matrix: Soil

Chain of Custody Number: 89809

			LAB ID:	653459	653460	653461	653462	653463	GUIDELINE		
			Sample Date:	2008-08-20	2008-08-20	2008-08-21	2008-08-21	2008-08-21			
			Sample ID:	200808-128-FOX5	200808-129-FOX5	210808-132-FOX5	210808-133-FOX5	210808-135-FOX5			
PARAMETER	**UNITS**	**MRL**							**TYPE**	**LIMIT**	**UNITS**
PERCENT MOISTURE											
Moisture	%	0.1		4.7	9.2	10.4	10.7	11.1			
CCME Total Petroleum Hydrocarbons											
F1 (C6-C10)	ug/g	20		<20	<20	<20	<20	<20			
F2 (C10-C16)	ug/g	20		<20	<20	<20	<20	<20			
F3 (C16-C34)	ug/g	20		1750	<20	<20	<20	27			

MRL = Method Reporting Limit INC = Incomplete AO = Aesthetic Objective OG = Operational Guideline MAC = Maximum Allowable Concentration IMAC = Interim Maximum Allowable Concentration

Comment: This is an amendment and supercedes all previous copies of this report. QC Data has been added.
653459: GC/FID analysis indicated presence of F4 (C34-C50) at 339 ug/g.

APPROVAL: _____
Mina Nasirai
Organic Lab Supervisor

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Quebec, QC
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Project: FOX-5
P.O. Number: 280128
Matrix: Soil

Chain of Custody Number: **89809**

			LAB ID:	653464	653465	653466	653467	653468	GUIDELINE		
			Sample Date:	2008-08-21	2008-08-21	2008-08-21	2008-08-21	2008-08-21			
			Sample ID:	210808-136-FOX5	210808-139-FOX5	210808-140-FOX5	210808-141-FOX5	210808-143-FOX5			
PARAMETER	UNITS	MRL							TYPE	LIMIT	UNITS
PERCENT MOISTURE											
Moisture	%	0.1		14.2	6.2	7.9	8.4	10.0			
CCME Total Petroleum Hydrocarbons											
F1 (C6-C10)	ug/g	20		<20	<20	<20	<20	<20			
F2 (C10-C16)	ug/g	20		<20	<20	<20	<20	<20			
F3 (C16-C34)	ug/g	20		<20	<20	20	<20	30			

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Comment:

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Mina Nasirai
Organic Lab Supervisor

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Quebec, QC
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Matrix: Soil

Chain of Custody Number: **89809**

			LAB ID:	653469	653470	653471			GUIDELINE		
			Sample Date:	2008-08-21	2008-08-21	2008-08-21					
			Sample ID:	210808-144-FOX5	210808-146-FOX5	210808-147-FOX5					
PARAMETER	**UNITS**	**MRL**							**TYPE**	**LIMIT**	**UNITS**
PERCENT MOISTURE											
Moisture	%	0.1		13.2	12.1	10.1					
CCME Total Petroleum Hydrocarbons											
F1 (C6-C10)	ug/g	20		<20	<20	<20					
F2 (C10-C16)	ug/g	20		<20	<20	<20					
F3 (C16-C34)	ug/g	20		<20	<20	<20					

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APPROVAL: _____
Mina Nasirai
Organic Lab Supervisor

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Date Submitted: 2008-08-25

Project: FOX-5

P.O. Number: 280128
Matrix: Soil

Chain of Custody Number: **89809**

								GUIDELINE		
LAB ID:										
Sample Date:										
Sample ID:			LAB BLANK	LAB QC % RECOVERY	QC RECOVERY RANGE	DATE ANALYSED				
PARAMETER	**UNITS**	**MRL**						**TYPE**	**LIMIT**	**UNITS**
PERCENT MOISTURE										
Moisture	%	0.1	<0.1	100	80-120	2008-08-28				
CCME Total Petroleum Hydrocarbons										
F1 (C6-C10)	ug/g	20	<20	99	80-120	2008-08-29				
F2 (C10-C16)	ug/g	20	<20	77	50-120	2008-08-28				
F3 (C16-C34)	ug/g	20	<20	77	50-120	2008-08-28				

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Comment:

APPROVAL: _____
Herb Yu
QA Coordinator

REPORT OF ANALYSIS

Client: **Sila Remediation Inc.**
200-4495 Boul. Wilfrid-Hamel
Quebec, QC
G1P 2J7
Attention: **Mr. Jean-Pierre Pelletier**

Report Number: 2821218
Date: 2008-12-17
Date Submitted: 2008-08-25

Project: FOX-5

P.O. Number: 280128
Matrix: Water

Chain of Custody Number: **89811**

			LAB ID:	653373	653374	653375	653376	653377	GUIDELINE		
			Sample Date:	2008-08-19	2008-08-20	2008-08-19	2008-08-20	2008-08-20			
			Sample ID:	190808-103-FOX5	190808-106-FOX5	200808-109-FOX5	200808-112-FOX5	200808-115-FOX5			
PARAMETER	UNITS	MRL							TYPE	LIMIT	UNITS
Arsenic	mg/L	0.001		<0.001	<0.001	<0.001	<0.001	<0.001			
Cadmium	mg/L	0.0001		0.0003	<0.0001	<0.0001	<0.0001	0.0002			
Chromium	mg/L	0.001		0.007	0.018	<0.001	0.003	0.058			
Cobalt	mg/L	0.0002		0.0018	0.0010	<0.0002	0.0011	0.0033			
Copper	mg/L	0.001		0.011	0.043	0.002	0.004	0.115			
Lead	mg/L	0.001		0.010	0.002	<0.001	0.001	0.006			
Mercury	mg/L	0.0001		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001			
Nickel	mg/L	0.005		<0.005	0.013	<0.005	<0.005	0.128			
Zinc	mg/L	0.01		0.08	0.01	0.03	0.01	0.11			

MRL = Method Reporting Limit INC = Incomplete AO = Aesthetic Objective OG = Operational Guideline MAC = Maximum Allowable Concentration IMAC = Interim Maximum Allowable Concentration

Comment: This is an amendment and supercedes all previous copies of this report. QC Data has been added as per client request.

APPROVAL: _____
Lorna Wilson
Agriculture Lab Supervisor

Client: **Sila Remediation Inc.**
200-4495 Boul. Wilfrid-Hamel
Quebec, QC
G1P 2J7
Attention: **Mr. Jean-Pierre Pelletier**

Report Number: 2821218
Date: 2008-12-17
Date Submitted: 2008-08-25
Project: FOX-5
P.O. Number: 280128
Matrix: Water

Chain of Custody Number: **89811**

			LAB ID:	653378	653379	653380	653381	653382	GUIDELINE		
			Sample Date:	2008-08-20	2008-08-20	2008-08-20	2008-08-20	2008-08-19			
			Sample ID:	200808-118-FOX5	200808-124-FOX5	200808-127-FOX5	200808-130-FOX5	190808-131-FOX5			
PARAMETER	UNITS	MRL							TYPE	LIMIT	UNITS
Arsenic	mg/L	0.001		<0.001	<0.001	<0.001	<0.001	<0.001			
Cadmium	mg/L	0.0001		0.0006	0.0003	0.0014	0.0001	0.0003			
Chromium	mg/L	0.001		0.007	0.083	0.012	0.001	0.004			
Cobalt	mg/L	0.0002		0.0003	0.0013	0.0004	<0.0002	0.0016			
Copper	mg/L	0.001		0.002	0.075	0.010	0.001	0.005			
Lead	mg/L	0.001		<0.001	0.004	0.001	<0.001	0.004			
Mercury	mg/L	0.0001		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001			
Nickel	mg/L	0.005		0.006	0.023	0.005	<0.005	<0.005			
Zinc	mg/L	0.01		0.01	0.07	0.02	0.01	0.07			

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Comment:

APPROVAL: _____
Lorna Wilson
Agriculture Lab Supervisor

Client: **Sila Remediation Inc.**
200-4495 Boul. Wilfrid-Hamel
Quebec, QC
G1P 2J7
Attention: **Mr. Jean-Pierre Pelletier**

Report Number: 2821218
Date: 2008-12-17
Date Submitted: 2008-08-25

Project: FOX-5

P.O. Number: 280128
Matrix: Water

Chain of Custody Number: 89811

			LAB ID:					GUIDELINE		
			Sample Date:							
			Sample ID:	LAB BLANK	LAB QC % RECOVERY	QC RECOVERY RANGE	DATE ANALYSED			
PARAMETER	**UNITS**	**MRL**						**TYPE**	**LIMIT**	**UNITS**
Arsenic	mg/L	0.001		<0.001	96	81-119	2008-08-27			
Cadmium	mg/L	0.0001		<0.0001	100	86-114	2008-08-27			
Chromium	mg/L	0.001		<0.001	104	89-111	2008-08-27			
Cobalt	mg/L	0.0002		<0.0002	105	88-112	2008-08-27			
Copper	mg/L	0.001		<0.001	104	86-114	2008-08-27			
Lead	mg/L	0.001		<0.001	105	89-111	2008-08-27			
Mercury	mg/L	0.0001		<0.0001	94	78-122	2008-08-26			
Nickel	mg/L	0.005		<0.005	105	92-108	2008-08-27			
Zinc	mg/L	0.01		<0.01	96	89-111	2008-08-27			

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Comment:

APPROVAL: _____
Herb Yu
QA Coordinator

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Report Number: 2821218
Date: 2008-12-17
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Project: FOX-5

P.O. Number: 280128
Matrix: Water

Chain of Custody Number: **89811**

			LAB ID:	653373	653374	653375	653376	653378	GUIDELINE		
			Sample Date:	2008-08-19	2008-08-20	2008-08-19	2008-08-20	2008-08-20			
			Sample ID:	190808-103-FOX5	190808-106-FOX5	200808-109-FOX5	200808-112-FOX5	200808-118-FOX5			
PARAMETER	**UNITS**	**MRL**							**TYPE**	**LIMIT**	**UNITS**
CCME Total Petroleum Hydrocarbons											
F1 (C6-C10)	mg/L	0.2		<0.2	<0.2	<0.2	<0.2	<0.2			
F2 (C10-C16)	mg/L	0.2		0.5	<0.2	<0.2	<0.2	<0.2			
F3 (C16-C34)	mg/L	0.2		0.3	<0.2	<0.2	0.3	<0.2			

MRL = Method Reporting Limit INC = Incomplete AO = Aesthetic Objective OG = Operational Guideline MAC = Maximum Allowable Concentration IMAC = Interim Maximum Allowable Concentration
Comment:

APPROVAL: _____
Mina Nasirai
Organic Lab Supervisor

Client: **Sila Remediation Inc.**
200-4495 Boul. Wilfrid-Hamel
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Attention: **Mr. Jean-Pierre Pelletier**

Report Number: 2821218
Date: 2008-12-17
Date Submitted: 2008-08-25

Project: FOX-5

P.O. Number: 280128
Matrix: Water

Chain of Custody Number: **89811**

			LAB ID:	653379	653380	653381	653382		GUIDELINE		
			Sample Date:	2008-08-20	2008-08-20	2008-08-20	2008-08-19				
			Sample ID:	200808-124-FOX5	200808-127-FOX5	200808-130-FOX5	190808-131-FOX5				
PARAMETER	**UNITS**	**MRL**							**TYPE**	**LIMIT**	**UNITS**
CCME Total Petroleum Hydrocarbons											
F1 (C6-C10)	mg/L	0.2		<0.2	<0.2	<0.2	<0.2				
F2 (C10-C16)	mg/L	0.2		<0.2	<0.2	<0.2	0.3				
F3 (C16-C34)	mg/L	0.2		<0.2	<0.2	<0.2	0.3				

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Comment:

APPROVAL: _____
Mina Nasirai
Organic Lab Supervisor

Client: **Sila Remediation Inc.**
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P.O. Number: 280128
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Chain of Custody Number: **89811**

			LAB ID:					GUIDELINE		
			Sample Date:							
			Sample ID:	LAB BLANK	LAB QC % RECOVERY	QC RECOVERY RANGE	DATE ANALYSED			
PARAMETER	**UNITS**	**MRL**						**TYPE**	**LIMIT**	**UNITS**
CCME Total Petroleum Hydrocarbons										
F1 (C6-C10)	mg/L	0.2	<0.2	99	80-120	2008-08-27				
F2 (C10-C16)	mg/L	0.2	<0.2	71	50-120	2008-08-27				
F3 (C16-C34)	mg/L	0.2	<0.2	71	50-120	2008-08-27				

MRL = Method Reporting Limit INC = Incomplete AO = Aesthetic Objective OG = Operational Guideline MAC = Maximum Allowable Concentration IMAC = Interim Maximum Allowable Concentration
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Herb Yu
QA Coordinator

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Matrix: Water

Chain of Custody Number: **89811**

			LAB ID:	653373	653374	653375	653376	653378	GUIDELINE		
			Sample Date:	2008-08-19	2008-08-20	2008-08-19	2008-08-20	2008-08-20			
			Sample ID:	190808-103-FOX5	190808-106-FOX5	200808-109-FOX5	200808-112-FOX5	200808-118-FOX5			
PARAMETER	UNITS	MRL							TYPE	LIMIT	UNITS
Polychlorinated Biphenyls - PCBs											
Polychlorinated Biphenyls (PCBs)	ug/L	0.1		<0.1	<0.1	<0.1	<0.1	<0.1			

MRL = Method Reporting Limit INC = Incomplete AO = Aesthetic Objective OG = Operational Guideline MAC = Maximum Allowable Concentration IMAC = Interim Maximum Allowable Concentration
Comment:

APPROVAL: _____
Mina Nasirai
Organic Lab Supervisor

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Chain of Custody Number: **89811**

			LAB ID:	653379	653380	653381	653382		GUIDELINE		
			Sample Date:	2008-08-20	2008-08-20	2008-08-20	2008-08-19				
			Sample ID:	200808-124-FOX5	200808-127-FOX5	200808-130-FOX5	190808-131-FOX5				
PARAMETER	UNITS	MRL							TYPE	LIMIT	UNITS
Polychlorinated Biphenyls - PCBs											
Polychlorinated Biphenyls (PCBs)	ug/L	0.1		<0.1	<0.1	<0.1	<0.1				

MRL = Method Reporting Limit INC = Incomplete AO = Aesthetic Objective OG = Operational Guideline MAC = Maximum Allowable Concentration IMAC = Interim Maximum Allowable Concentration
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Mina Nasirai
Organic Lab Supervisor

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			LAB ID:					GUIDELINE		
			Sample Date:							
			Sample ID:	LAB BLANK	LAB QC % RECOVERY	QC RECOVERY RANGE	DATE ANALYSED			
PARAMETER	**UNITS**	**MRL**						**TYPE**	**LIMIT**	**UNITS**
Polychlorinated Biphenyls - PCBs										
Polychlorinated Biphenyls (PCBs)	ug/L	0.1	<0.1	96	80-120	2008-08-28				

MRL = Method Reporting Limit INC = Incomplete AO = Aesthetic Objective OG = Operational Guideline MAC = Maximum Allowable Concentration IMAC = Interim Maximum Allowable Concentration
Comment:

APPROVAL: _____
Herb Yu
QA Coordinator

Client: **Sila Remediation Inc.**
200-4495 Boul. Wilfrid-Hamel
Quebec, QC
G1P 2J7
Attention: **Mr. Jean-Pierre Pelletier**

Report Number: 2821219
Date: 2008-12-17
Date Submitted: 2008-08-25

Project: FOX-5

P.O. Number: 280128
Matrix: Water

Chain of Custody Number: **89803**

			LAB ID:	653383	653384	653385	653386	653387	GUIDELINE		
			Sample Date:	2008-08-21	2008-08-21	2008-08-21	2008-08-21	2008-08-21			
			Sample ID:	210808-134-FOX5	210808-137-FOX5	210808-138-FOX5	210808-142-FOX5	210808-145-FOX5			
PARAMETER	UNITS	MRL							TYPE	LIMIT	UNITS
Arsenic	mg/L	0.001		<0.001	<0.001	<0.001	<0.001	<0.001			
Cadmium	mg/L	0.0001		0.0002	0.0002	0.0001	<0.0001	<0.0001			
Chromium	mg/L	0.001		<0.001	0.001	<0.001	0.002	<0.001			
Cobalt	mg/L	0.0002		0.0005	<0.0002	<0.0002	0.0004	<0.0002			
Copper	mg/L	0.001		0.007	0.003	0.003	0.006	0.001			
Lead	mg/L	0.001		<0.001	<0.001	<0.001	0.001	<0.001			
Mercury	mg/L	0.0001		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001			
Nickel	mg/L	0.005		<0.005	<0.005	<0.005	<0.005	<0.005			
Zinc	mg/L	0.01		0.02	0.03	0.01	<0.01	<0.01			

MRL = Method Reporting Limit INC = Incomplete AO = Aesthetic Objective OG = Operational Guideline MAC = Maximum Allowable Concentration IMAC = Interim Maximum Allowable Concentration

Comment: This is an amendment and supercedes all previous copies of this report. QC Data has been added as per client request.

APPROVAL: _____
Lorna Wilson
Agriculture Lab Supervisor

Client: **Sila Remediation Inc.**
200-4495 Boul. Wilfrid-Hamel
Quebec, QC
G1P 2J7
Attention: **Mr. Jean-Pierre Pelletier**

Report Number: 2821219
Date: 2008-12-17
Date Submitted: 2008-08-25

Project: FOX-5

P.O. Number: 280128
Matrix: Water

Chain of Custody Number: **89803**

			LAB ID:	653388	653389				GUIDELINE		
			Sample Date:	2008-08-21	2008-08-21						
			Sample ID:	210808-148-FOX5	TB						
PARAMETER	**UNITS**	**MRL**							**TYPE**	**LIMIT**	**UNITS**
Arsenic	mg/L	0.001		<0.001	<0.001						
Cadmium	mg/L	0.0001		<0.0001	<0.0001						
Chromium	mg/L	0.001		0.002	<0.001						
Cobalt	mg/L	0.0002		0.0006	<0.0002						
Copper	mg/L	0.001		0.011	<0.001						
Lead	mg/L	0.001		0.002	<0.001						
Mercury	mg/L	0.0001		<0.0001	<0.0001						
Nickel	mg/L	0.005		<0.005	<0.005						
Zinc	mg/L	0.01		0.02	<0.01						

MRL = Method Reporting Limit INC = Incomplete AO = Aesthetic Objective OG = Operational Guideline MAC = Maximum Allowable Concentration IMAC = Interim Maximum Allowable Concentration
Comment:

APPROVAL: _____
Lorna Wilson
Agriculture Lab Supervisor

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200-4495 Boul. Wilfrid-Hamel
Quebec, QC
G1P 2J7
Attention: **Mr. Jean-Pierre Pelletier**

Report Number: 2821219
Date: 2008-12-17
Date Submitted: 2008-08-25

Project: FOX-5

P.O. Number: 280128
Matrix: Water

Chain of Custody Number: 89803

			LAB ID:					GUIDELINE		
			Sample Date:							
			Sample ID:	LAB BLANK	LAB QC % RECOVERY	QC RECOVERY RANGE	DATE ANALYSED			
PARAMETER	**UNITS**	**MRL**						**TYPE**	**LIMIT**	**UNITS**
Arsenic	mg/L	0.001		<0.001	96	81-119	2008-08-27			
Cadmium	mg/L	0.0001		<0.0001	100	86-114	2008-08-27			
Chromium	mg/L	0.001		<0.001	104	89-111	2008-08-27			
Cobalt	mg/L	0.0002		<0.0002	105	88-112	2008-08-27			
Copper	mg/L	0.001		<0.001	104	86-114	2008-08-27			
Lead	mg/L	0.001		<0.001	105	89-111	2008-08-27			
Mercury	mg/L	0.0001		<0.0001	88	78-122	2008-08-29			
Nickel	mg/L	0.005		<0.005	105	92-108	2008-08-27			
Zinc	mg/L	0.01		<0.01	96	89-111	2008-08-27			

MRL = Method Reporting Limit INC = Incomplete AO = Aesthetic Objective OG = Operational Guideline MAC = Maximum Allowable Concentration IMAC = Interim Maximum Allowable Concentration
Comment:

APPROVAL: _____
Herb Yu
QA Coordinator

Client: **Sila Remediation Inc.**
200-4495 Boul. Wilfrid-Hamel
Quebec, QC
G1P 2J7
Attention: **Mr. Jean-Pierre Pelletier**

Report Number: 2821219
Date: 2008-12-17
Date Submitted: 2008-08-25
Project: FOX-5
P.O. Number: 280128
Matrix: Water

Chain of Custody Number: **89803**

			LAB ID:	653383	653384	653385	653386	653387	GUIDELINE		
			Sample Date:	2008-08-21	2008-08-21	2008-08-21	2008-08-21	2008-08-21			
			Sample ID:	210808-134-FOX5	210808-137-FOX5	210808-138-FOX5	210808-142-FOX5	210808-145-FOX5			
PARAMETER	UNITS	MRL							TYPE	LIMIT	UNITS
CCME Total Petroleum Hydrocarbons											
F1 (C6-C10)	mg/L	0.2		<0.2	<0.2	<0.2	<0.2	<0.2			
F2 (C10-C16)	mg/L	0.2		<0.2	<0.2	<0.2	<0.2	<0.2			
F3 (C16-C34)	mg/L	0.2		<0.2	<0.2	<0.2	<0.2	<0.2			

MRL = Method Reporting Limit INC = Incomplete AO = Aesthetic Objective OG = Operational Guideline MAC = Maximum Allowable Concentration IMAC = Interim Maximum Allowable Concentration
Comment:

APPROVAL: _____
Mina Nasirai
Organic Lab Supervisor

Client: **Sila Remediation Inc.**
200-4495 Boul. Wilfrid-Hamel
Quebec, QC
G1P 2J7
Attention: **Mr. Jean-Pierre Pelletier**

Report Number: 2821219
Date: 2008-12-17
Date Submitted: 2008-08-25
Project: FOX-5
P.O. Number: 280128
Matrix: Water

Chain of Custody Number: **89803**

			LAB ID:	653388	653389				GUIDELINE		
			Sample Date:	2008-08-21	2008-08-21						
			Sample ID:	210808-148-FOX5	TB						
PARAMETER	**UNITS**	**MRL**							**TYPE**	**LIMIT**	**UNITS**
CCME Total Petroleum Hydrocarbons											
F1 (C6-C10)	mg/L	0.2		<0.2	<0.2						
F2 (C10-C16)	mg/L	0.2		<0.2	<0.2						
F3 (C16-C34)	mg/L	0.2		<0.2	<0.2						

MRL = Method Reporting Limit INC = Incomplete AO = Aesthetic Objective OG = Operational Guideline MAC = Maximum Allowable Concentration IMAC = Interim Maximum Allowable Concentration
Comment:

APPROVAL: _____
Mina Nasirai
Organic Lab Supervisor

Client: **Sila Remediation Inc.**
200-4495 Boul. Wilfrid-Hamel
Quebec, QC
G1P 2J7
Attention: **Mr. Jean-Pierre Pelletier**

Report Number: 2821219
Date: 2008-12-17
Date Submitted: 2008-08-25
Project: FOX-5
P.O. Number: 280128
Matrix: Water

Chain of Custody Number: **89803**

			LAB ID:					GUIDELINE		
			Sample Date:							
			Sample ID:	LAB BLANK	LAB QC % RECOVERY	QC RECOVERY RANGE	DATE ANALYSED			
PARAMETER	**UNITS**	**MRL**						**TYPE**	**LIMIT**	**UNITS**
CCME Total Petroleum Hydrocarbons										
F1 (C6-C10)	mg/L	0.2	<0.2	99	80-120	2008-08-27				
F2 (C10-C16)	mg/L	0.2	<0.2	71	50-120	2008-08-27				
F3 (C16-C34)	mg/L	0.2	<0.2	71	50-120	2008-08-27				

MRL = Method Reporting Limit INC = Incomplete AO = Aesthetic Objective OG = Operational Guideline MAC = Maximum Allowable Concentration IMAC = Interim Maximum Allowable Concentration
Comment:

APPROVAL: _____
Herb Yu
QA Coordinator

Client: **Sila Remediation Inc.**
200-4495 Boul. Wilfrid-Hamel
Quebec, QC
G1P 2J7
Attention: **Mr. Jean-Pierre Pelletier**

Report Number: 2821219
Date: 2008-12-17
Date Submitted: 2008-08-25

Project: FOX-5

P.O. Number: 280128
Matrix: Water

Chain of Custody Number: **89803**

			LAB ID:	653383	653384	653385	653386	653387	GUIDELINE		
			Sample Date:	2008-08-21	2008-08-21	2008-08-21	2008-08-21	2008-08-21			
			Sample ID:	210808-134-FOX5	210808-137-FOX5	210808-138-FOX5	210808-142-FOX5	210808-145-FOX5			
PARAMETER	**UNITS**	**MRL**							**TYPE**	**LIMIT**	**UNITS**
Polychlorinated Biphenyls - PCBs											
Polychlorinated Biphenyls (PCBs)	ug/L	0.1		<0.1	<0.1	<0.1	<0.1	<0.1			

MRL = Method Reporting Limit INC = Incomplete AO = Aesthetic Objective OG = Operational Guideline MAC = Maximum Allowable Concentration IMAC = Interim Maximum Allowable Concentration
Comment:

APPROVAL: _____
Mina Nasirai
Organic Lab Supervisor

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200-4495 Boul. Wilfrid-Hamel
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Report Number: 2821219
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Project: FOX-5

P.O. Number: 280128
Matrix: Water

Chain of Custody Number: **89803**

			LAB ID:	653388	653389				GUIDELINE		
			Sample Date:	2008-08-21	2008-08-21						
			Sample ID:	210808-148-FOX5	TB						
PARAMETER	**UNITS**	**MRL**							**TYPE**	**LIMIT**	**UNITS**
Polychlorinated Biphenyls - PCBs											
Polychlorinated Biphenyls (PCBs)	ug/L	0.1	<0.1	<0.1							

MRL = Method Reporting Limit INC = Incomplete AO = Aesthetic Objective OG = Operational Guideline MAC = Maximum Allowable Concentration IMAC = Interim Maximum Allowable Concentration

Comment:

APPROVAL: _____
Mina Nasirai
Organic Lab Supervisor

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200-4495 Boul. Wilfrid-Hamel
Quebec, QC
G1P 2J7
Attention: **Mr. Jean-Pierre Pelletier**

Report Number: 2821219
Date: 2008-12-17
Date Submitted: 2008-08-25

Project: FOX-5

P.O. Number: 280128
Matrix: Water

Chain of Custody Number: **89803**

			LAB ID:					GUIDELINE		
			Sample Date:							
			Sample ID:	LAB BLANK	LAB QC % RECOVERY	QC RECOVERY RANGE	DATE ANALYSED			
PARAMETER	**UNITS**	**MRL**						**TYPE**	**LIMIT**	**UNITS**
Polychlorinated Biphenyls - PCBs										
Polychlorinated Biphenyls (PCBs)	ug/L	0.1	<0.1	96	80-120	2008-08-28				

MRL = Method Reporting Limit INC = Incomplete AO = Aesthetic Objective OG = Operational Guideline MAC = Maximum Allowable Concentration IMAC = Interim Maximum Allowable Concentration
Comment:

APPROVAL: _____
Herb Yu
QA Coordinator

Your Project #: FOX-5 MONITORING
Site: BROUGTON ISLAND
Your C.O.C. #: 00570041

Attention: Jean-Pierre Pelletier
Sila Remediation
4495 boul Wilfred Hamel bureau
Ville de Quebec, QC
CANADA J1P 2G7

Report Date: 2008/08/29

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: A894895
Received: 2008/08/25, 14:10

Sample Matrix: Soil
Samples Received: 4

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Petroleum Hydro. CCME F1 & BTEX in Soil	4	2008/08/27	2008/08/28	CAM SOP-00315	CCME CWS
Petroleum Hydrocarbons F2-F4 in Soil	4	2008/08/27	2008/08/28	CAM SOP-00316	CCME CWS
Mercury in Soil by CVAA	4	2008/08/28	2008/08/28	CAM SOP-00453	EPA 7470
Acid Extr. Metals (aqua regia) by ICPMS	4	2008/08/28	2008/08/28	CAM SOP-00447	EPA 6020
MOISTURE	4	N/A	2008/08/28	CAM SOP-00445	McKeague 2nd ed 1978
Polychlorinated Biphenyl in Soil	1	2008/08/27	2008/08/28	CAM SOP-00307	EPA 8082
Polychlorinated Biphenyl in Soil	3	2008/08/27	2008/08/29	CAM SOP-00307	EPA 8082

Sample Matrix: Water
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Petroleum Hydro. CCME F1 & BTEX in Water	2	2008/08/28	2008/08/29	CAM SOP-00315	CCME CWS
Petroleum Hydrocarbons F2-F4 in Water	2	2008/08/27	2008/08/28	CAM SOP-00316	CCME Hydrocarbons
Total Metals Analysis by ICPMS	2	N/A	2008/08/28	CAM SOP-00447	EPA 6020
Polychlorinated Biphenyl in Water	2	2008/08/27	2008/08/29	CAM SOP-00307	EPA 8081 modified

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

Encryption Key

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

MELISSA MORRISON, Project Manager
Email: Melissa.Morrison@maxxamanalytics.com
Phone# (613) 274-0573

==========

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section

Your Project #: FOX-5 MONITORING
Site: BROUGTON ISLAND
Your C.O.C. #: 00570041

Attention: Jean-Pierre Pelletier
Sila Remediation
4495 boul Wilfred Hamel bureau
Ville de Quebec, QC
CANADA J1P 2G7

Report Date: 2008/08/29

CERTIFICATE OF ANALYSIS

5.10.2 of ISO/IEC 17025:2005(E), signing the reports. SCC and CAEAL have approved this reporting process and electronic report format.

For Service Group specific validation please refer to the Validation Signature Page

Total cover pages: 2

6740 Campobello Road, Mississauga, Ontario Canada L5N 2L8 Tel: 905-817-5700 Toll free:800-563-6266 Fax: 905-817-5777

Maxxam Job #: A894895
Report Date: 2008/08/29

Sila Remediation
Client Project #: FOX-5 MONITORING
Project name: BROUGTON ISLAND
Sampler Initials: AP

RESULTS OF ANALYSES OF SOIL

Maxxam ID		AH2917	AH2918	AH2919	AH2920		
Sampling Date		2008/08/19	2008/08/20	2008/08/20	2008/08/21		
COC Number		00570041	00570041	00570041	00570041		
	Units	**190808-100-FOX-5**	**200808-107-FOX-5**	**200808-119-FOX-5**	**210808-128-FOX-5**	**RDL**	**QC Batch**
Inorganics							
Moisture	%	6.9	8.4	4.6	8.2	0.2	1598705

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: A894895
Report Date: 2008/08/29

Sila Remediation
Client Project #: FOX-5 MONITORING
Project name: BROUGTON ISLAND
Sampler Initials: AP

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		AH2917	AH2918	AH2919		
Sampling Date		2008/08/19	2008/08/20	2008/08/20		
COC Number		00570041	00570041	00570041		
	Units	**190808-100-FOX-5**	**200808-107-FOX-5**	**200808-119-FOX-5**	**RDL**	**QC Batch**
Metals						
Acid Extractable Mercury (Hg)	ug/g	ND	ND	ND	0.05	1598719
Acid Extractable Arsenic (As)	ug/g	1	1	2	1	1598716
Acid Extractable Cadmium (Cd)	ug/g	ND	ND	0.2	0.1	1598716
Acid Extractable Chromium (Cr)	ug/g	10	29	11	1	1598716
Acid Extractable Cobalt (Co)	ug/g	3.1	7.9	2.8	0.1	1598716
Acid Extractable Copper (Cu)	ug/g	8.3	18	6.0	0.5	1598716
Acid Extractable Lead (Pb)	ug/g	8	5	12	1	1598716
Acid Extractable Nickel (Ni)	ug/g	4.7	15	5.6	0.5	1598716
Acid Extractable Zinc (Zn)	ug/g	41	51	44	5	1598716

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		AH2920		
Sampling Date		2008/08/21		
COC Number		00570041		
	Units	**210808-128-FOX-5**	**RDL**	**QC Batch**
Metals				
Acid Extractable Mercury (Hg)	ug/g	ND	0.05	1598719
Acid Extractable Arsenic (As)	ug/g	2	1	1598716
Acid Extractable Cadmium (Cd)	ug/g	ND	0.1	1598716
Acid Extractable Chromium (Cr)	ug/g	13	1	1598716
Acid Extractable Cobalt (Co)	ug/g	3.8	0.1	1598716
Acid Extractable Copper (Cu)	ug/g	6.9	0.5	1598716
Acid Extractable Lead (Pb)	ug/g	7	1	1598716
Acid Extractable Nickel (Ni)	ug/g	6.3	0.5	1598716
Acid Extractable Zinc (Zn)	ug/g	39	5	1598716

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: A894895
Report Date: 2008/08/29

Sila Remediation
Client Project #: FOX-5 MONITORING
Project name: BROUGTON ISLAND
Sampler Initials: AP

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		AH2917	AH2918	AH2919		
Sampling Date		2008/08/19	2008/08/20	2008/08/20		
COC Number		00570041	00570041	00570041		
	Units	**190808-100-FOX-5**	**200808-107-FOX-5**	**200808-119-FOX-5**	**RDL**	**QC Batch**
BTEX & F1 Hydrocarbons						
F1 (C6-C10)	ug/g	ND	ND	ND	10	1598205
F1 (C6-C10) - BTEX	ug/g	ND	ND	ND	10	1598205
F2-F4 Hydrocarbons						
F2 (C10-C16 Hydrocarbons)	ug/g	ND	ND	ND	10	1598184
F3 (C16-C34 Hydrocarbons)	ug/g	36	ND	ND	10	1598184
Reached Baseline at C50	ug/g	Yes	Yes	Yes		1598184
Surrogate Recovery (%)						
1,4-Difluorobenzene	%	101	101	102		1598205
4-Bromofluorobenzene	%	97	95	96		1598205
D10-Ethylbenzene	%	95	97	97		1598205
D4-1,2-Dichloroethane	%	98	97	99		1598205
o-Terphenyl	%	86	86	87		1598184

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: A894895
Report Date: 2008/08/29

Sila Remediation
Client Project #: FOX-5 MONITORING
Project name: BROUGTON ISLAND
Sampler Initials: AP

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		AH2920		
Sampling Date		2008/08/21		
COC Number		00570041		
	Units	**210808-128-FOX-5**	**RDL**	**QC Batch**
BTEX & F1 Hydrocarbons				
F1 (C6-C10)	ug/g	ND	10	1598205
F1 (C6-C10) - BTEX	ug/g	ND	10	1598205
F2-F4 Hydrocarbons				
F2 (C10-C16 Hydrocarbons)	ug/g	ND	10	1598184
F3 (C16-C34 Hydrocarbons)	ug/g	660	10	1598184
Reached Baseline at C50	ug/g	Yes		1598184
Surrogate Recovery (%)				
1,4-Difluorobenzene	%	101		1598205
4-Bromofluorobenzene	%	95		1598205
D10-Ethylbenzene	%	94		1598205
D4-1,2-Dichloroethane	%	98		1598205
o-Terphenyl	%	86		1598184

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: A894895
Report Date: 2008/08/29

Sila Remediation
Client Project #: FOX-5 MONITORING
Project name: BROUGTON ISLAND
Sampler Initials: AP

POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

Maxxam ID		AH2917	AH2918	AH2919		
Sampling Date		2008/08/19	2008/08/20	2008/08/20		
COC Number		00570041	00570041	00570041		
	Units	**190808-100-FOX-5**	**200808-107-FOX-5**	**200808-119-FOX-5**	**RDL**	**QC Batch**
PCBs						
Aroclor 1262	ug/g	ND	ND	ND	0.01	1597931
Aroclor 1016	ug/g	ND	ND	ND	0.01	1597931
Aroclor 1221	ug/g	ND	ND	ND	0.01	1597931
Aroclor 1232	ug/g	ND	ND	ND	0.01	1597931
Aroclor 1242	ug/g	ND	ND	ND	0.01	1597931
Aroclor 1248	ug/g	ND	ND	ND	0.01	1597931
Aroclor 1254	ug/g	0.02	ND	0.01	0.01	1597931
Aroclor 1260	ug/g	ND	ND	ND	0.01	1597931
Aroclor 1268	ug/g	ND	ND	ND	0.01	1597931
Total PCB	ug/g	0.02	ND	0.01	0.01	1597931
Surrogate Recovery (%)						
2,4,5,6-Tetrachloro-m-xylene	%	69	77	83		1597931
Decachlorobiphenyl	%	76	110	83		1597931

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: A894895
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Sila Remediation
Client Project #: FOX-5 MONITORING
Project name: BROUGTON ISLAND
Sampler Initials: AP

POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

Maxxam ID		AH2920		
Sampling Date		2008/08/21		
COC Number		00570041		
	Units	**210808-128-FOX-5**	**RDL**	**QC Batch**
PCBs				
Aroclor 1262	ug/g	ND	0.01	1597931
Aroclor 1016	ug/g	ND	0.01	1597931
Aroclor 1221	ug/g	ND	0.01	1597931
Aroclor 1232	ug/g	ND	0.01	1597931
Aroclor 1242	ug/g	ND	0.01	1597931
Aroclor 1248	ug/g	ND	0.01	1597931
Aroclor 1254	ug/g	ND	0.01	1597931
Aroclor 1260	ug/g	ND	0.01	1597931
Aroclor 1268	ug/g	ND	0.01	1597931
Total PCB	ug/g	ND	0.01	1597931
Surrogate Recovery (%)				
2,4,5,6-Tetrachloro-m-xylene	%	91		1597931
Decachlorobiphenyl	%	96		1597931

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: A894895
Report Date: 2008/08/29

Sila Remediation
Client Project #: FOX-5 MONITORING
Project name: BROUGTON ISLAND
Sampler Initials: AP

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Maxxam ID		AH2921	AH2922		
Sampling Date		2008/08/19	2008/08/21		
COC Number		00570041	00570041		
	Units	**190808-103-FOX5**	**210808-137-FOX-5**	**RDL**	**QC Batch**
Metals					
Total Arsenic (As)	ug/L	ND	ND	1	1598680
Total Cadmium (Cd)	ug/L	0.3	ND	0.1	1598680
Total Chromium (Cr)	ug/L	ND	ND	5	1598680
Total Cobalt (Co)	ug/L	1.5	ND	0.5	1598680
Total Copper (Cu)	ug/L	4	4	1	1598680
Total Lead (Pb)	ug/L	3.2	0.5	0.5	1598680
Total Nickel (Ni)	ug/L	2	3	1	1598680
Total Zinc (Zn)	ug/L	62	11	5	1598680

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Project name: BROUGTON ISLAND
Sampler Initials: AP

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		AH2921		AH2922		
Sampling Date		2008/08/19		2008/08/21		
COC Number		00570041		00570041		
	Units	**190808-103-FOX5**	**QC Batch**	**210808-137-FOX-5**	**RDL**	**QC Batch**
BTEX & F1 Hydrocarbons						
F1 (C6-C10)	ug/L	ND	1598905	ND	100	1598905
F1 (C6-C10) - BTEX	ug/L	ND	1598905	ND	100	1598905
F2-F4 Hydrocarbons						
F2 (C10-C16 Hydrocarbons)	ug/L	410	1598134	ND	100	1598380
F3 (C16-C34 Hydrocarbons)	ug/L	270	1598134	ND	100	1598380
Reached Baseline at C50	ug/L	Yes	1598134	Yes		1598380
Surrogate Recovery (%)						
1,4-Difluorobenzene	%	98	1598905	98		1598905
4-Bromofluorobenzene	%	102	1598905	102		1598905
D10-Ethylbenzene	%	99	1598905	98		1598905
D4-1,2-Dichloroethane	%	103	1598905	103		1598905
o-Terphenyl	%	86	1598134	80		1598380

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Sila Remediation
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Project name: BROUGTON ISLAND
Sampler Initials: AP

POLYCHLORINATED BIPHENYLS BY GC-ECD (WATER)

Maxxam ID		AH2921	AH2922		
Sampling Date		2008/08/19	2008/08/21		
COC Number		00570041	00570041		
	Units	**190808-103-FOX5**	**210808-137-FOX-5**	**RDL**	**QC Batch**
PCBs					
Aroclor 1016	ug/L	ND	ND	0.05	1598303
Aroclor 1221	ug/L	ND	ND	0.05	1598303
Aroclor 1232	ug/L	ND	ND	0.05	1598303
Aroclor 1242	ug/L	ND	ND	0.05	1598303
Aroclor 1248	ug/L	ND	ND	0.05	1598303
Aroclor 1254	ug/L	ND	ND	0.05	1598303
Aroclor 1260	ug/L	ND	ND	0.05	1598303
Aroclor 1262	ug/L	ND	ND	0.05	1598303
Aroclor 1268	ug/L	ND	ND	0.05	1598303
Total PCB	ug/L	ND	ND	0.05	1598303
Surrogate Recovery (%)					
2,4,5,6-Tetrachloro-m-xylene	%	60	80		1598303
Decachlorobiphenyl	%	98	108		1598303

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Package 1	5.0°C

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

GENERAL COMMENTS

F1-BTEX Analysis: The BTEX results used for the F1-BTEX calculation were obtained from Headspace-GC analysis.

Sample AH2921-01: F2-F3 analysis was performed on unpreserved sample as per client request.

Sample AH2922-01: F2-F3 analysis was performed on unpreserved sample as per client request.

Results relate only to the items tested.

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Client Project #: FOX-5 MONITORING
P.O. #:
Project name: BROUGTON ISLAND

Quality Assurance Report

Maxxam Job Number: TA894895

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
1597931	LGA	MATRIX SPIKE	2,4,5,6-Tetrachloro-m-xylene	2008/08/28		60	%	40 - 130
			Decachlorobiphenyl	2008/08/28		104	%	40 - 130
			Aroclor 1260	2008/08/28		94	%	30 - 130
			Total PCB	2008/08/28		94	%	30 - 130
		Spiked Blank	2,4,5,6-Tetrachloro-m-xylene	2008/08/28		89	%	40 - 130
			Decachlorobiphenyl	2008/08/28		97	%	40 - 130
			Aroclor 1260	2008/08/28		87	%	30 - 130
			Total PCB	2008/08/28		87	%	30 - 130
		Method Blank	2,4,5,6-Tetrachloro-m-xylene	2008/08/28		96	%	40 - 130
			Decachlorobiphenyl	2008/08/28		103	%	40 - 130
			Aroclor 1262	2008/08/28	ND, RDL=0.01		ug/g	
			Aroclor 1016	2008/08/28	ND, RDL=0.01		ug/g	
			Aroclor 1221	2008/08/28	ND, RDL=0.01		ug/g	
			Aroclor 1232	2008/08/28	ND, RDL=0.01		ug/g	
			Aroclor 1242	2008/08/28	ND, RDL=0.01		ug/g	
			Aroclor 1248	2008/08/28	ND, RDL=0.01		ug/g	
			Aroclor 1254	2008/08/28	ND, RDL=0.01		ug/g	
			Aroclor 1260	2008/08/28	ND, RDL=0.01		ug/g	
			Aroclor 1268	2008/08/28	ND, RDL=0.01		ug/g	
			Total PCB	2008/08/28	ND, RDL=0.01		ug/g	
		RPD	Aroclor 1262	2008/08/28	NC		%	50
			Decachlorobiphenyl	2008/08/28	2.9		%	N/A
			Aroclor 1016	2008/08/28	NC		%	50
			Aroclor 1221	2008/08/28	NC		%	50
			Aroclor 1232	2008/08/28	NC		%	50
			Aroclor 1242	2008/08/28	NC		%	50
			Aroclor 1248	2008/08/28	NC		%	50
			Aroclor 1254	2008/08/28	NC		%	50
			Aroclor 1260	2008/08/28	NC		%	50
			Aroclor 1268	2008/08/28	NC		%	50
			Total PCB	2008/08/28	NC		%	50
1598134	JJE	MATRIX SPIKE	o-Terphenyl	2008/08/28		95	%	30 - 130
			F2 (C10-C16 Hydrocarbons)	2008/08/28		106	%	60 - 130
			F3 (C16-C34 Hydrocarbons)	2008/08/28		106	%	60 - 130
		Spiked Blank	o-Terphenyl	2008/08/29		91	%	30 - 130
			F2 (C10-C16 Hydrocarbons)	2008/08/29		103	%	60 - 130
			F3 (C16-C34 Hydrocarbons)	2008/08/29		103	%	60 - 130
		Method Blank	o-Terphenyl	2008/08/28		82	%	30 - 130
			F2 (C10-C16 Hydrocarbons)	2008/08/28	ND, RDL=100		ug/L	
			F3 (C16-C34 Hydrocarbons)	2008/08/28	ND, RDL=100		ug/L	
		RPD	F2 (C10-C16 Hydrocarbons)	2008/08/28	NC		%	50
			F3 (C16-C34 Hydrocarbons)	2008/08/28	NC		%	50
1598184	JJE	MATRIX SPIKE	o-Terphenyl	2008/08/27		89	%	30 - 130
			F2 (C10-C16 Hydrocarbons)	2008/08/27		97	%	60 - 130
			F3 (C16-C34 Hydrocarbons)	2008/08/27		97	%	60 - 130
		Spiked Blank	o-Terphenyl	2008/08/27		90	%	30 - 130
			F2 (C10-C16 Hydrocarbons)	2008/08/27		97	%	60 - 130
			F3 (C16-C34 Hydrocarbons)	2008/08/27		97	%	60 - 130
		Method Blank	o-Terphenyl	2008/08/27		89	%	30 - 130
			F2 (C10-C16 Hydrocarbons)	2008/08/27	ND, RDL=10		ug/g	
			F3 (C16-C34 Hydrocarbons)	2008/08/27	ND, RDL=10		ug/g	
		RPD	F2 (C10-C16 Hydrocarbons)	2008/08/27	NC		%	50
			F3 (C16-C34 Hydrocarbons)	2008/08/27	NC		%	50
1598205	DTI	MATRIX SPIKE	1,4-Difluorobenzene	2008/08/27		102	%	60 - 140
			4-Bromofluorobenzene	2008/08/27		99	%	60 - 140

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Client Project #: FOX-5 MONITORING
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Project name: BROUGTON ISLAND

Quality Assurance Report (Continued)

Maxxam Job Number: TA894895

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
1598205 DTI	MATRIX SPIKE	D10-Ethylbenzene	2008/08/27		103	%	30 - 130
		D4-1,2-Dichloroethane	2008/08/27		99	%	60 - 140
		F1 (C6-C10)	2008/08/27		95	%	60 - 140
	Spiked Blank	1,4-Difluorobenzene	2008/08/27		100	%	60 - 140
		4-Bromofluorobenzene	2008/08/27		99	%	60 - 140
		D10-Ethylbenzene	2008/08/27		98	%	30 - 130
		D4-1,2-Dichloroethane	2008/08/27		100	%	60 - 140
		F1 (C6-C10)	2008/08/27		82	%	60 - 140
	Method Blank	1,4-Difluorobenzene	2008/08/27		101	%	60 - 140
		4-Bromofluorobenzene	2008/08/27		95	%	60 - 140
		D10-Ethylbenzene	2008/08/27		97	%	30 - 130
		D4-1,2-Dichloroethane	2008/08/27		99	%	60 - 140
		F1 (C6-C10)	2008/08/27	ND, RDL=10		ug/g	
		F1 (C6-C10) - BTEX	2008/08/27	ND, RDL=10		ug/g	
	RPD	F1 (C6-C10)	2008/08/27	NC		%	50
		F1 (C6-C10) - BTEX	2008/08/27	NC		%	50
1598303 LGA	MATRIX SPIKE	2,4,5,6-Tetrachloro-m-xylene	2008/08/29		67	%	30 - 150
		Decachlorobiphenyl	2008/08/29		90	%	29 - 139
		Aroclor 1260	2008/08/29		77	%	30 - 130
		Total PCB	2008/08/29		77	%	30 - 130
	Spiked Blank	2,4,5,6-Tetrachloro-m-xylene	2008/08/29		74	%	30 - 150
		Decachlorobiphenyl	2008/08/29		89	%	29 - 139
		Aroclor 1260	2008/08/29		96	%	30 - 130
	RPD	Aroclor 1260	2008/08/29	6.4		%	40
	Spiked Blank	Total PCB	2008/08/29		96	%	30 - 130
	RPD	Total PCB	2008/08/29	6.4		%	40
	Method Blank	2,4,5,6-Tetrachloro-m-xylene	2008/08/29		99	%	30 - 150
		Decachlorobiphenyl	2008/08/29		108	%	29 - 139
		Aroclor 1016	2008/08/29	ND, RDL=0.05		ug/L	
		Aroclor 1221	2008/08/29	ND, RDL=0.05		ug/L	
		Aroclor 1232	2008/08/29	ND, RDL=0.05		ug/L	
		Aroclor 1242	2008/08/29	ND, RDL=0.05		ug/L	
		Aroclor 1248	2008/08/29	ND, RDL=0.05		ug/L	
		Aroclor 1254	2008/08/29	ND, RDL=0.05		ug/L	
		Aroclor 1260	2008/08/29	ND, RDL=0.05		ug/L	
		Aroclor 1262	2008/08/29	ND, RDL=0.05		ug/L	
		Aroclor 1268	2008/08/29	ND, RDL=0.05		ug/L	
		Total PCB	2008/08/29	ND, RDL=0.05		ug/L	
1598380 JKA	MATRIX SPIKE	o-Terphenyl	2008/08/28		87	%	30 - 130
		F2 (C10-C16 Hydrocarbons)	2008/08/28		89	%	60 - 130
		F3 (C16-C34 Hydrocarbons)	2008/08/28		89	%	60 - 130
	Spiked Blank	o-Terphenyl	2008/08/28		84	%	30 - 130
		F2 (C10-C16 Hydrocarbons)	2008/08/28		82	%	60 - 130
		F3 (C16-C34 Hydrocarbons)	2008/08/28		82	%	60 - 130
	Method Blank	o-Terphenyl	2008/08/28		76	%	30 - 130
		F2 (C10-C16 Hydrocarbons)	2008/08/28	ND, RDL=100		ug/L	
		F3 (C16-C34 Hydrocarbons)	2008/08/28	ND, RDL=100		ug/L	
	RPD	F2 (C10-C16 Hydrocarbons)	2008/08/28	NC		%	50
		F3 (C16-C34 Hydrocarbons)	2008/08/28	NC		%	50
1598680 JBW	MATRIX SPIKE	Total Arsenic (As)	2008/08/28		99	%	80 - 120
		Total Cadmium (Cd)	2008/08/28		101	%	80 - 120
		Total Chromium (Cr)	2008/08/28		94	%	80 - 120
		Total Cobalt (Co)	2008/08/28		93	%	80 - 120
		Total Copper (Cu)	2008/08/28		88	%	80 - 120
		Total Lead (Pb)	2008/08/28		92	%	80 - 120

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Quality Assurance Report (Continued)

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QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
1598680	JBW	MATRIX SPIKE	Total Nickel (Ni)	2008/08/28		91	%	80 - 120
			Total Zinc (Zn)	2008/08/28		88	%	80 - 120
		Spiked Blank	Total Arsenic (As)	2008/08/28		99	%	86 - 119
			Total Cadmium (Cd)	2008/08/28		105	%	85 - 116
			Total Chromium (Cr)	2008/08/28		97	%	80 - 120
			Total Cobalt (Co)	2008/08/28		96	%	82 - 117
			Total Copper (Cu)	2008/08/28		96	%	80 - 117
			Total Lead (Pb)	2008/08/28		99	%	80 - 120
			Total Nickel (Ni)	2008/08/28		96	%	81 - 117
			Total Zinc (Zn)	2008/08/28		98	%	80 - 120
		Method Blank	Total Arsenic (As)	2008/08/28	ND, RDL=1		ug/L	
			Total Cadmium (Cd)	2008/08/28	ND, RDL=0.1		ug/L	
			Total Chromium (Cr)	2008/08/28	ND, RDL=5		ug/L	
			Total Cobalt (Co)	2008/08/28	ND, RDL=0.5		ug/L	
			Total Copper (Cu)	2008/08/28	ND, RDL=1		ug/L	
			Total Lead (Pb)	2008/08/28	ND, RDL=0.5		ug/L	
			Total Nickel (Ni)	2008/08/28	ND, RDL=1		ug/L	
			Total Zinc (Zn)	2008/08/28	ND, RDL=5		ug/L	
		RPD	Total Arsenic (As)	2008/08/28	NC		%	25
			Total Cadmium (Cd)	2008/08/28	NC		%	25
			Total Chromium (Cr)	2008/08/28	NC		%	25
			Total Cobalt (Co)	2008/08/28	NC		%	25
			Total Copper (Cu)	2008/08/28	NC		%	25
			Total Lead (Pb)	2008/08/28	NC		%	25
			Total Nickel (Ni)	2008/08/28	3.2		%	25
			Total Zinc (Zn)	2008/08/28	NC		%	25
1598705	C_A	RPD [AH2920-01]	Moisture	2008/08/28	0		%	50
1598716	VIV	MATRIX SPIKE	Acid Extractable Arsenic (As)	2008/08/28		103	%	75 - 125
			Acid Extractable Cadmium (Cd)	2008/08/28		103	%	75 - 125
			Acid Extractable Chromium (Cr)	2008/08/28		103	%	75 - 125
			Acid Extractable Cobalt (Co)	2008/08/28		99	%	75 - 125
			Acid Extractable Copper (Cu)	2008/08/28		100	%	75 - 125
			Acid Extractable Lead (Pb)	2008/08/28		102	%	75 - 125
			Acid Extractable Nickel (Ni)	2008/08/28		100	%	75 - 125
			Acid Extractable Zinc (Zn)	2008/08/28		NC (1)	%	75 - 125
		QC STANDARD	Acid Extractable Arsenic (As)	2008/08/28		94	%	75 - 125
			Acid Extractable Cadmium (Cd)	2008/08/28		87	%	75 - 125
			Acid Extractable Chromium (Cr)	2008/08/28		98	%	75 - 125
			Acid Extractable Cobalt (Co)	2008/08/28		92	%	75 - 125
			Acid Extractable Copper (Cu)	2008/08/28		92	%	75 - 125
			Acid Extractable Lead (Pb)	2008/08/28		97	%	75 - 125
			Acid Extractable Nickel (Ni)	2008/08/28		91	%	75 - 125
			Acid Extractable Zinc (Zn)	2008/08/28		92	%	75 - 125
		Method Blank	Acid Extractable Arsenic (As)	2008/08/28	ND, RDL=1		ug/g	
			Acid Extractable Cadmium (Cd)	2008/08/28	ND, RDL=0.1		ug/g	
			Acid Extractable Chromium (Cr)	2008/08/28	ND, RDL=1		ug/g	
			Acid Extractable Cobalt (Co)	2008/08/28	ND, RDL=0.1		ug/g	
			Acid Extractable Copper (Cu)	2008/08/28	ND, RDL=0.5		ug/g	
			Acid Extractable Lead (Pb)	2008/08/28	ND, RDL=1		ug/g	
			Acid Extractable Nickel (Ni)	2008/08/28	ND, RDL=0.5		ug/g	
			Acid Extractable Zinc (Zn)	2008/08/28	ND, RDL=5		ug/g	
		RPD	Acid Extractable Arsenic (As)	2008/08/28	NC		%	35
			Acid Extractable Cadmium (Cd)	2008/08/28	NC		%	35
			Acid Extractable Chromium (Cr)	2008/08/28	9.7		%	35
			Acid Extractable Cobalt (Co)	2008/08/28	6.3		%	35

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Quality Assurance Report (Continued)

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QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
1598716	VIV	RPD	Acid Extractable Copper (Cu)	2008/08/28	3.0		%	35
			Acid Extractable Lead (Pb)	2008/08/28	6.8		%	35
			Acid Extractable Nickel (Ni)	2008/08/28	4.2		%	35
			Acid Extractable Zinc (Zn)	2008/08/28	4.1		%	35
1598719	LCH	MATRIX SPIKE	Acid Extractable Mercury (Hg)	2008/08/28		91	%	75 - 125
		QC STANDARD	Acid Extractable Mercury (Hg)	2008/08/28		103	%	75 - 125
		Method Blank	Acid Extractable Mercury (Hg)	2008/08/28	ND, RDL=0.05		ug/g	
		RPD	Acid Extractable Mercury (Hg)	2008/08/28	NC		%	35
1598905	GBA	MATRIX SPIKE	1,4-Difluorobenzene	2008/08/29		98	%	70 - 130
			4-Bromofluorobenzene	2008/08/29		102	%	70 - 130
			D10-Ethylbenzene	2008/08/29		106	%	70 - 130
			D4-1,2-Dichloroethane	2008/08/29		101	%	70 - 130
			F1 (C6-C10)	2008/08/29		98	%	70 - 130
		Spiked Blank	1,4-Difluorobenzene	2008/08/28		98	%	70 - 130
			4-Bromofluorobenzene	2008/08/28		102	%	70 - 130
			D10-Ethylbenzene	2008/08/28		101	%	70 - 130
			D4-1,2-Dichloroethane	2008/08/28		102	%	70 - 130
			F1 (C6-C10)	2008/08/28		111	%	70 - 130
		Method Blank	1,4-Difluorobenzene	2008/08/28		99	%	70 - 130
			4-Bromofluorobenzene	2008/08/28		101	%	70 - 130
			D10-Ethylbenzene	2008/08/28		98	%	70 - 130
			D4-1,2-Dichloroethane	2008/08/28		101	%	70 - 130
			F1 (C6-C10)	2008/08/28	ND, RDL=100		ug/L	
			F1 (C6-C10) - BTEX	2008/08/28	ND, RDL=100		ug/L	
		RPD	F1 (C6-C10)	2008/08/28	NC		%	40
			F1 (C6-C10) - BTEX	2008/08/28	NC		%	40

ND = Not detected
N/A = Not Applicable
NC = Non-calculable
RPD = Relative Percent Difference
QC Standard = Quality Control Standard
SPIKE = Fortified sample
(1) The recovery in the matrix spike was not calculated (NC). Because of the high concentration of this analyte in the parent sample, the relative difference between the spiked and unspiked concentrations is not sufficiently significant to permit a reliable recovery calculation.

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Validation Signature Page

Maxxam Job #: A894895

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

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==========

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. SCC and CAEAL have approved this reporting process and electronic report format.

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APPENDIX C
Field Notes

ABRÉVIATIONS ET SYMBOLES

△	Station de triangulation.	C.	Centre.
○	Station de polygonale.	℄	Axe ou ligne de centre
□	Station de stadia.	Cl.	Clou.
B.P.	Borne de pierre.	Bord.	Bordure.
M	Monument.	Puis.	Puisard.
T.F.	Tige de fer.	Reg.	Regard d'égout.
P	Piquet.	Tel.	Poteau de téléphone
P.F.	Point foré.	V.AV.	Visée avant.
R.N.	Repère de nivellement.	V.AR.	Visée arrière.
C.G.	Croix gravée.	P.T.	Point tournant.
—·—·—	Clôture.	H.I.	Hauteur d'instrument.
—x—x—x	Clôture de grillage.		
	Contours d'immeubles.		

No.....

Date..... AUG 19, 208- Page..... 1

5°C, CLEAR,

DEPART QIKITARJUAQ. @ 14:45

ARRIVE AT UPPER SITE @ 15:30.

DAILY SAFETY MEETING,

REVIEW DAILY WORK PLAN

SAL (WATER SAMPLING)

INSPECTION, DATA COLLECTION

16 GPS MW-16

17 MW-17

18 MW-18

19 MW-19

20 MW-15

21 PHOTO SE ALONG RD TO SITE (IMAGE 38).

PHOTO PLAQUE + BASE - SE

22. PHOTO NW (IMAGE 43)

23 PHOTO. S. FROM S CORNER OF USNHWLF. (IMAGE 38) - 360° PANORAMIC

24. PHOTO W FROM W SIDE OF USNHWLF 180 PANOR (IMAGE 57)

No.
Date Aug 19, 2008 Page 2

25. PHOTO N. (W TO E) 270°
PANORAMIC (IMAGE 41+42)

26 PHOTO E (360° PANOL).
(IMAGE 39+40)

27 CLS 2005 - R30 MONUMENT.
"7+302"

MW-16 1630.
TEST PIT - 2.9 m NW OF MW.
BROWN SAND, F-MED GR, TR GRAVEL, DAMP, PG.
NO ODOUR - SL. ODOUR @ 40+
SLUP = 0.40 m
Σ = 0.919 m F/P = Ø
bottom 2.2 m ICE
water = ~1.28 m

START.
T = 3.3°C TURB 242 NTU
ORP = 142 mV
PH = 5.11
Cond = 0.832 mS/cm

No.
Date Aug 19, 2008 Page 3

@ 2L
@ 1.5L T = 2.3°C / 2.5 / 2.1
ORP = 165 / 168 / 141
PH = 5.21 / 5.43 / 5.49
Cond = 0.444 / 0.390 / 0.382
TURB ~~210~~ 145 / 157 / 43.5 NTU
TOTAL 3L.

190808 - 100/101 @ 0-10
- 102 @ 40-50.
+ INTERLAB x2.
190808 - 103 WATER
WATER. 3x DUP + INTERLAB
3x40mL, 2x1L AMBER, 1x 125 plastic
1800
MW-17. TP 3.4 m N of MW.
BROWN F-med sand, p.g, trace gravel, damp, no odor.

190808 - 104 0-10
- 105 40-50
SLUP = 0.3
Σ = 1.693 F/P = 0
bottom = 1.99
water = 0.3+.

No.
Date AUG 19, 2008 Page 4

pH = 5.94 / 5.97 / 5.99
Cond = 0.151 / 0.132 / 0.135
T = 2.7 / 1.8 / 2.0
ORP = 145 / 136 / 135
TURB 17.7 / 128 / 104

TOTAL DGL

INSTRUMENTS – DEDICATED WATER TUBING + VALVE
INT. PROBE = HERON
MULT = HORIBA U22-TG
TURB = HANNA HI 97803

190808 - 106 WATER
2 x 1L AMBER, 3 x 40mL, 1 x 250 PLASTIC

22 - PHOTO OF PART. EXP BARREL
CRUSHED + STEEL (SS) CABLE
5-7m SW OF CLS MON.

1805 LEAVE SITE
1930 BACK IN TOWN.
UNPACK
ICE PACKS IN FREEZER

No.
Date AUGUST 20, 2008 Page 5

5°C, HIGH OVERCAST, SLIGHT BREEZE

800 MEET AT HOTEL, DIST. & CHECK
BATTERIES / RADIOS – OK.

200808-107 40 ml
200808-108 40 ml

920AM
MW-15 V OK. TP 4m. S.
S/up 45
Σ = 1.224 F/P = 0
Bottom 2.28 ICE.

T: 2.8 / 2.4 / 2.1
Cond 0.168 / 0.085 / 0.117
pH 5.87 / 5.58 / 5.56
ORP 151 / 187 / 226
TURB 301 / 339 / 63.4

WATER 200808-109
200808-107 0-10 + ACH.
-108 40-56
ADJ ESG 28660/61
BRN SAND F-MED GR., PEBBLES
SOME CS SAND + GRAVEL, DAMP,
NO ODOUR.
TOTAL 2.5L

40-50 km/h. E WIND

No.

Date AUG 20/08 Page 6

10:15

MW-19 USNHWLF

TP. 3.6 m SQ MW

SLUP = 35 cm

Σ = 0.481 F/P = 0

BOT 2.07 - ICE

T = 3.1 / 2.2 / 2.0

COND 0.084 / 0.074 / 0.075

pH 6.36 / 6.52 / 6.80

ORP 141 / 125 / 118

TURB 553 / > 1634 TOTAL = 2 L.

BRN - TURBID.

SILTATION ✓

SOIL - BROWN SAN - F-MED GR, TR GRAVEL, SOME COBS + BLDRS, DAMP, NO ODOUR

20C808 - 110 0-10

- 111 40-50

WATER - 112

No.

Date AUG 20/08 Page 7

MW-18 ✓ 10:45

TP - 2.7 m W SQ MW.

SLUP 0.35

Σ 1.758 F/P, 0

BOTTOM 1.875

T = 3.0

pH ~~7.68~~ 7.76

COND 0.132

ORP 110

TURB 546 - SL. TRACE

TOTAL 250 mL

SOIL - BROWN SAND F-MED GR, PG, DMP, TR-SOME GRAVEL + COBS

20C808 - 113 0-10

- 114 40-50

WATER - 115 ONLY METALS

No.
Date Aug 20/08 Page 8

MAIN LANDFILL

VT-8 ✓

Cable c/g 0,70.

SERIAL 82020259

MANUAL READINGS		12:00
1	12514	5.1939
2	13631	3.6566
3.	15004	1.6711
4	16154	0.1836
5	16760	-0.4939
6.	17269	-1.0647
7.	17825	-1.7381
8	18400	-2.4181
9	18758	-2.7468
10	18994	-2.9933

DOWNLOAD x2

40% , mon 11.34

AVX 12.90

Reset Clock

No.
Date Page 9

VT-7 height 0.9m.

Download:

Shot		
1	10757	8.9079
2	12983	4.6874
3	14.207	2.6741
4	16028	0.4390
5	15.501	0.2241
6	16.937	-0.6745
7	17304	-1.2078
8	17864	-1.8177
9	18345	-2.3122
10	18.~~5~~624	-2.8038
11	18917	-2.9596

Mem 40%, mon 11.34

AVX 12.41

No.
Date. Page. 10

WAYPT 28 p. exposed piece of cable 0.7m long
photo, w/ VT's in background

VT-6 MAIN LF. 1320.
height 0.75, lock rusting, nowe at the cap

SENSOR		
1	11689	6.8518
2	12844	4.9045
3	13802	3.4618
4	14719	2.1530
5	15701	0.8682
6	16498	-0.1586
7	16901	-0.6363
8	17530	-1.4073
9	17926	-1.9026
10	18253	-2.3768
11	18439	-2.4750

Item = 40%
Bat Main 11.34
AUX 12.077

No.
Date. Page. 11

PT 28 P. Exp steel strapping, 1m long x 5cm w. + small piece of misc blk metal sheet. 20cm x 30cm
~5m downslope of VT-5

VT-5 ✓. lock starting to rust
PANORAMIC N-E-S-W-N
Cable height 0.6m
mem 40%

SENSOR		
1	10067	
2	11.512	9.9768
3	13.124	6.9268
4	13.704	4.4479
5	15005	3.0393
6	15976	1.6108
7	16501	0.2241
8	17061	-0.3947
9	17519	-0.8554
10	17997	-1.4867
11	18564	-2.1059
		-2.5603

BAT
MAIN - 11.34
AUX. 13.14

No.
Date. Page. 12

Pt 30. Small piece of textile in rocks, VT-8 in bkgnd

31 - Looking along S sided LF.

32 - BM.

DRAINAGE (CHANNEL) BORDERING S SIDE OF LF
~15 m S of TOE. FLOW TO E
SAND, F.G IN CHANNEL
LF PROTECTED BY WALL OF BLDRS.
ALONG BOTTOM 60-70 N

33 END OF ROCK BERM, FLOW UNDER TO E DOWNSLOPE FLOWS W/IN 10 m of MW. 147

No.
Date. Page. 13

1446. TP
MW-11 2.8 m SE of mw
Slump 1.00 m
TOC 2.192 FIP. Ø
BOTTOM 2.81

SOIL FIBRN SAND F-CSGR
W.G. TP SILT, DAMP)
SOME GRAVEL + CBLS.
NO ODOR

200808-116 0-10
-117 40-50
WATER -118.

T 3.9 / 3.1 / 2.8
pH 7.14 / 7.17 / 7.15
Cond 0.097 / 0.069 / 0.056
ORP 135 / 170 / 175
TURB 27.4 / 43.6 / 23.7
TOTAL 2L

No.
Date 20-AUG/08 Page 14

36 MW-12 TP 3.2m W of MW

Slup = 0.35m

▽ DRY F/P = 0

BOTTOM 1.61 - ICE

SOIL. ~~BRN~~ BRN SAND, F-CSGR

TR-SOME CS, MOSTLY F-m

TR. SILT, DAMP, TR GRAVEL

20080811 9 DUP + INTER

0-10 (2 EACH)

-120 ~~40-50~~

-121 40-50

LATER - 122

DEBRIS / METAL IN AREA, MISC TIN CANS, FRP CBL, CRUSHED DRUM.

No.
Date 1 AUG 20/08 Page 15

FB

MW-13 16 00

TP 4.0m NE of MW

Slup = 0.50m

▽ - 1.385 F/P = 0

bottom = 1.77

T = 3.5 / 2.6

pH 6.75 / 6.84

cond 0.055 mS/cm / 0.048

ORP 194 / 239

TURB 86.7 NTU / 58.2

TOTAL 1L

WATER 200808-124

SOIL - BROWN SAND - F-MED GR, TR CBLS + GRAVEL - WITH

20080808 -122 0-10

-123 40-50

MW 14 TP 3.3m ENE OF MW

FT 37 1640

Slup = 0.45

▽ - 1.326 F/P = 0

BOTTOM - 2.65

SOIL 200808-125 0-10

-126 40-50

BRN SAND F-CS gr. w/ gl. damp. tr. gravel & cbls, no odour

No.
Date Aug 20 08 Page 16

T = 3.0/2.1/2.4
Cond 0.076/0.060/0.060
pH 7.47/~~6.87~~/6.72
ORP 184/214/222
TURB 46.1/16.2/63.8
TOTAL 35L
WATER 200808127
VT-4 height 1.1m agl
good cond.
17:10

SENSOR

1	9937	9.8577
2	9802	10.1795
3	9598	10.7868
4	11645	6.7868
5	12959	4.6051
6	13679	3.418
7	15078	1.6485
8	15936	0.3227
9	16412	-0.2068
? ✱ ? 10	16704	-22.3866 (-23.385?)
11	16745	-0.6363
12	17052	-0.8656
13	17350	-1.1617

No.
Date Aug 20 08 Page 17

MEM 40%
BAT MAIN 11.34
AUX. 13.02

1740 MW-10
TD - 2.9m W & mw.
slap = 0.30m
▽ 0.887 F/P - 0
bottom 2.38m.

SOIL BRN SAND, MED GR, P.G.,
DAMP TO WET @ 0.40
TR GRAVEL + CBLS, NO ODOR

200808-128 + ARCH. 0-10
200808-129 40-50
WATER-130,
T = 1.9/2.0/2.0
Cond 0.055/0.052/0.053
pH 6.62/6.47/6.32
ORP 232/226/226
TURB 44.2/84.5/64.4
TOTAL 4L

No.....
Date..Aug 20 08..Page..18

PT.

38 - 1m · g 14

39 1m · g 15.

40

41 DRAINAGE TOP ALONG SE SIDE, FLOWING UP TO 0.5 m deep, fanning to toe, up to 10m wide

VT - 2 1825

0.9 a/g - cable

men 402

1	10284	19.2942
2	12776	4.9319
3	13336	3.5787
4	14222	2.8142
5	15235	1.3896
6	16266	0.1456
7	16488	-0.1383
8	16563	-0.2957
9	16731	-0.5117
10	16817	-0.7000
11	16900	-0.8172
12		

BAT 11.34 13.26

AUX 13.50

No.....
Date..Aug 20 08..Page..19

DOWNLOAD x2

VT-1 cable length 0.95m

Sensor

1	10557	
2	11602	8.8531
3	13570	6.9493
4	14604	3.6566
5	15932	2.1530
6	16261	0.5073
7	16699	-0.0479
8	16704	-0.3337
9	17060	-0.7178
10	17321	-0.9217
11	17461	-1.1899
12	17527	-1.5098
		-1.5585.

BAT 11.34 men 402

AUX 13.50

No.

Date Aug 20/08 Page 20

VT-3

Surface

1	10382	B.7977
2	10.368	8.8153
3	10.329	9.0521
4	10.401	9.1353
5	10055	9.5063
6	12801	4.9045
7	13376	3.7740
8	14454	2.3760
9	15438	0.9867
10	15541	0.2797
11	16467	-0.3134
12	16029	-0.2728
13	16849	-0.6898
14	16852	-0.7790
15	17002	-0.9039

MAIN 11.34 Men 40%

AUX 1302

No.

Date Aug 20/08 Page 21

PT42 Bent & damaged channel piece & steel in erosion channel, pipe, wire

43 Start of erosion channel looking N

FINISH 21:00 -

BEAR MONITORS - 19:30

Soil

LIST OF FIELD DUPS & ARCHIVES

100-101	101
119-120 120	~~137~~
139-140	120
	139

Soil INTERLAB

100

~~120~~ 119

~~139~~ 107

128

WATER INTERLAB

103

137

~~DATA~~ DUP ← MAIN

103. 138

RELABEL DUPS 130

No.....

Date Aug 21/08 Page 22

HOURS:

DANNY	13	+ QUAD
MINA	13	+ QUAD
GEORGE	11.5	+ QUAD + RIFLE
ALLAN	11.5	+ RIFLE

No.....

Date Aug 21/08 Page 23

7°C, 40+km/h W, Sunny Clear Overcast @ 10 AM

LEAVE 830, ARRIVE @ MIDDLE SITE @ 9 AM.

GEORGE - BEAR MONITOR

DANNY + MINA - TECHNICIANS

TIER II / NHWLF:

PT 98 (IMAGE 49) - PANOR SW-NE @ VT-10.

PT 49 (IMAGE 52) - PANOR SW-NE

PT 50 @ VT-11 (IMAGE 50)

PT 51 @ VT-12 (" 51) + PANOR NE-SW.

PT 52-70 OUTLINE OF NATURAL DISCOLORATION ON SURFACE OF NHWLF

PT 71 N-E OF ~~SEEP~~ DISCOLOR (IMAGE 65)

PT 72 (IMAGE 67) NW-N. 74)

PT 73 (IMAGE 61) PAN NW-SW

PT 74 (IMAGE 62), PAN SE-SW + ALONG RIP RAP TO SW.

3 x 3 x 20 cm POS. SETTLEMENT ON N CORNER OF NHWLF - RIP RAP

No.
Date Aug 21/08 Page 74

Pt 75 FEATURE F, LOOK NE NW
MINOR ~~CRACK~~ CHANGE (IMAGE 63) +64
Pt 76 (IMAGE 70) NE, NO CHANGE
Pt 77 MINOR TENSION CRACKS.
// to slope edge + up to 45°.
Pt 78 N END 14m x 2m
Pt 79 ISOLAT. SETTLEM 0.7x0.7
DEPRESSION. TYP. ON NHWLF.
Pt 80 3m x 1m area - minor
tension cracks
Pt 81 VT-9 (IMAGE 48)
Pt 82 PAN NE - NW. (IMAGES
46, 47, 53)
Pt 83 3x EROSION CH FROM CREST
TO TOE 0.6 0.9m WIDE x 5-15cm
NEW 6M Stretch DEEP - entire slope each
Pt 84 IMAGE 45 PAN NW-S
EROSION CHANNEL 84-85
2.5m W x 10cm deep x Slope
only

No.
Date Aug 21/08 Page 75

UT-10 ✓ good cond.
Cable height 0.65m

Sensor		
1	10741	8.4733
2	- NO READING	381.0742 ON METER
3	12297	5.7378
4	12395	5.4708
5	14153 ?	(-96.1851)
6	14928	1.7741
7	16524	-0.2068
8	17277	-1.0442
9	17849	-1.7201
10	17821	-2.1059

COM COVER REQ'D. - BROKEN OFF
BAT 11.34 MEM 40%
AUX 12.90

RESET CLOCK + START

No.....
Date Aug 21/08 Page 26

VT-9

Cable height 0.65m

SENSOR		
1	12965	4.6700
2	12368	5.6505
3	13265	4.1709
4	14556	2.3766
5	16056	0.2418
6	16878	-0.6745
7	17623	-1.5765
8	18147	-2.2142
9	18572	-2.2665
10	19112	-3.0843

MAIN 11.34 MEM 40%
AUX 12.77

TEMP - 3-4°C

No.....
Date Aug 21/08 Page 27

VT 11 - cable height=0.60

Sensor		
1	10298	9.3724
2	10030	9.4103
3	11231	7.5706
4	12306	5.6904
5	13525	3.7465
6	14970	1.6309
7	16122	-0.1205
8	16876	-0.8835
9	17476	-1.3689

BAT 11.34
AUX 12.41

PT 88-89 EROSION CHANNEL MINOR ON SURFACE, 1-1.5m WIDE B/W PTS. ^ 1-3cm DEEP, VIEW SW

No.

Date Aug 21/08 Page 28

VT-12 cable height = 0.45m

Sensor		
1	10960	7.7103
2	10631	8.5110
3	12956	4.6051
4	13139	4.4105
5	15444	1.0925
6	16395	0.1763
7	17318	-1.1796
8	17910	-1.8640
9	18518	-2.5603
10	19107	-3.1598
11	19647	-4.2150
12	19677	-4.2598
13	19954	-4.8349
14	20157	-4.9108
15	20452	-5.3104

MAIN 11:39 AUX 12:29

FINISH DOWNLOADING @ 11 AM

NAT DISCOLORATION OF SOIL AROUND VT-12, PHOTO

No.

Date Aug 21/08 Page 29

11:30

MW-9 3.1m N @ MW.

SWL = 0.55

Σ = 1.592 F/P = 0

bottom 2.39 ICE

210808-132 0-10

-133 40-50

WATER -134

SOIL - BRN SAND, F-G, TR. FINES, SOME GRAVEL + CBLS, DAMP, NO ODOUR

T	1.9	1.7	1.6
pH	5.01	5.24	5.47
Cond.	0.391	0.092	0.065
ORP	198	197	198
TURB	77.9	34.4	74.0

TOTAL 2L

190808-103 → 131

BD

No.

Date Aug 21 08 Page 30

MW-8 12:00

TP 3m SW of MW-

SLUG = 0.5

∇ 1.303 FIP=0

bottom 2.51

SOIL: BRN SAND, F-G, SOME-GRAVEL, TR. FINES, DAMP, TR CBLS, NO ODOR.

210808-135 0-10

BD+INTERLAB -136 40-50

WATER -137/138

T = 2.1 / 1.6 / 1.7

Cond 0.137 / 0.088 / 0.088

pH 5.34 / 5.44 / 5.47

ORP 214 / 199 / 213

TURB 322 / 61.6 / 21.2

TOTAL 5L.

No.

Date Aug 21 08 Page 31

PT 92 1300

MW-7 TP 2.9m W of MW.

SLUG 0.60

∇ = 1.525 FIP. 0

BOTTOM = 2.560.

SOIL BRN SAND F-MED GR, SOME CS GRAVEL + CBLS, DAMP, NO ODOR, TR FINES

INTER

210808-139 x2 0-10

-140 0-10

-141 40-50

-142 WATER

T = 1.7 / 1.2 / 1.0

Cond = 0.188 / 0.201 / 0.208

pH = 5.5 / 5.83 / 6.19

ORP = 216 / 194 / 180

TURB = 140 / 192 / 102

TOTAL 3.5L

BRN-TRANSL.

No.....
Date Aug 21/08 Page 32

1345.

MW-6 TP 2.5m N of MW
Slug = 0.50
D = 1.385 F/P = 0
BOTTOM - 2.54 m

SOIL BRN SAND F-M gr damp, tr fines, some gravel + cbls, NO ODOR. rootlets to 0.15.

210808 - 143 0-10
-144 40-50
-145 WATER

T = 1.3/1.5/1.3
Cond = 0.144/0.103/0.099
pH = 6.24/6.43/6.20
ORP = 200/222/236
TURB = 45.1/68.6/56.1
TOTAL 3.5L

walk along drainage channel border of west side of Tier II
1m W x 0.2 m deep
PT 94 at top.

No.....
Date Aug 21/08 Page 33

PT 95 1430

MW-5 TP - 3m ENE of MW
Slug = 0.50
D = 1.244 F/P = 0
BOTTOM 2.45

SOIL = BRN SAND, F-CS gr WITH GRAVEL, DAMP, SOME CBLS, NO ODOUR

210808 - 146 0-10
-147 40-50
-148 - water

T 1.5/1.4/1.4
Cond 0.091/0.093/0.110
pH 6.02/5.90/6.02
ORP 247/253/254
TURB 182/163/108
SL. TURB
TOTAL = 4L.
FINISH 245 BACK TO QIK
$ 57.35 FUEL

APPENDIX D
QA/QC Reports

2008 Summary of Quality Control Sample Data, FOX-5 Broughton Island

Lab ID #	Sample #	Location	Depth [cm]	Date (yyyy-mm-dd)	Cu	Ni	Co	Cd	Pb	Zn	Cr	As	Hg	PCBs	F1 C_6-C_{10}	F2 C_{10}-C_{16}	F3 C_{16}-C_{34}	TPH C_6-C_{34}
Soil																		
Bodycote - 653434	200808-128	MW-10	0-10	2008-08-20	11	14	5	<0.5	10	44	28	2	<0.1	<0.02	<20	<20	1750	1750
Maxxam - AH2920					6.9	6.3	3.8	<0.1	7	39	13	2	<0.05	0.01	<10	<10	660	660
Inter-lab RSD					*32.4*	*53.6*	*19.3*	-	*25.0*	*8.5*	*51.7*	*0.0*	-	-	-	-	-	*64.0*
Bodycote - 653442	190808-119	MW-12	0-10	2008-08-20	10	8	4	<0.5	11	57	17	2.2	<0.1	<0.02	<20	<20	<20	<20
Bodycote - 653443	190808-120				10	14	4	<0.5	14	57	31	1.8	<0.1	<0.02	<20	<20	<20	<20
Maxxam - AH2919	190808-119				6	5.6	2.8	0.2	12	44	11	2	<0.05	0.02	<10	<10	<10	<10
Intra-lab RSD					*0.0*	*38.6*	*0.0*	-	*17.0*	*0.0*	*41.2*	*14.1*	-	-	-	-	-	-
Inter-lab RSD					*35.4*	*60.6*	*25.0*	-	*10.9*	*18.2*	*67.3*	*7.4*	-	-	-	-	-	-
Groundwater																		
Bodycote - 653384	210808-137	MW-8		2008-08-21	0.003	<0.005	<0.0002	0.0002	<0.001	0.03	0.001	<0.001	<0.0001	<0.0001	<0.2	<0.2	<0.2	<0.2
Bodycote - 653385	210808-138				0.003	<0.005	<0.0002	0.0001	<0.001	0.01	<0.001	<0.001	<0.0001	<0.0001	<0.2	<0.2	<0.2	<0.2
Maxxam - AH2922	210808-137				0.004	0.003	<0.0005	<0.0001	0.0005	0.011	<0.005	<0.001	-	<0.00005	<0.1	<0.1	<0.1	<0.1
Intra-lab RSD					*0.0*	-	-	*47.1*	-	*70.7*	-	-	-	-	-	-	-	-
Inter-lab RSD					*20.2*	-	-	*0.0*	-	*6.7*	-	-	-	-	-	-	-	-
Trip Blank																		
Bodycote - 653389	TB	Trip Blank		2008-08-22	<0.001	<0.005	<0.0002	<0.0001	<0.001	<0.01	<0.001	<0.001	<0.0001	<0.0001	<0.2	<0.2	<0.2	<0.2

Lab QA - Soil

Lab ID #	Cu	Ni	Co	Cd	Pb	Zn	Cr	As	Hg	PCBs
Bodycote - Lab Blank (ug/g)	<1	<1.0	<1	<0.5	<1	<1	<1	<1.0	<0.1	<0.02
Bodycote - Lab QC % Recovery	90	90	86	106	85	107	93	129	80	96
Maxxam - Matrix Spike (% Recovery)	100	100	99	103	102	NC	103	103	-	94
Maxxam - QC Standard (% Recovery)	92	91	92	87	97	92	98	94	-	87
Maxxam - Method Blank (mg/kg)	<0.001	<0.001	<0.0005	<0.0001	<0.0005	<0.005	<0.005	<0.001		<0.01

Lab QA - Water

Lab ID #	Cu	Ni	Co	Cd	Pb	Zn	Cr	As	Hg	PCBs
Bodycote - Lab Blank (mg/L)	<0.001	<0.005	<0.0002	<0.0001	<0.001	<0.01	<0.001	<0.001	<0.0001	<0.00001
Bodycote - Lab QC % Recovery	104	105	105	100	105	96	104	96	88	96
Maxxam - Matrix Spike (% Recovery)	88	91	93	101	92	88	94	99	-	77
Maxxam - Spiked Blank (% Recovery)	96	96	96	105	99	98	97	99	-	96
Maxxam - Method Blank (mg/L)	<0.001	<0.001	<0.0005	<0.0001	<0.0005	<0.005	<0.005	<0.001	-	<0.00005

RSD - Relative Standard Deviation expressed as a percent

All concentrations expressed as milligrams per kilogram based on a dry weight basis

NC - The recovery in the matrix spike was not calculated (NC). Because of the high concentration of this analyte in the parent sample, the relative difference between the spiked and unspiked concentrations is not sufficiently significant to permit a reliable recovery calculation.

APPENDIX E
Thermistor Annual Maintenance Reports

Thermistor Annual Maintenance Report

Contractor Name:	**Sila Remediation Inc.**	Inspection Date:	**20/08/2008**
Prepared By:	**A.Passalis**		

Thermistor Information

Site Name:	**FOX-5 Broughton**	Thermistor Location		**Upper Site Main Landfill**			
Thermistor Number:	**VT-1**	Inclination		**Vertical**			
Install Date:	**7//18/2006**	First Date Event		**8//08/2007**	Last Date Event		**8/19/2008**
Coordinates and Elevation	N	**5871**	E	**4671**	Elev		**490**
Length of Cable (m)	**8.6**	Cable Lead Above Ground (m)	**0.95**	Nodal Points			**12**
Datalogger Serial #	**0202064**			Cable Serial Number			**1695**

Thermistor Inspection

	Good	Needs Maintenance	
Casing	**Yes**	**No**	
Cover	**Yes**	**No**	
Data Logger	**Yes**	**No**	
Cable	**Yes**	**No**	
Beads	**Yes**	**No**	
Battery Installation Date	**09/01/2006**		
Battery Levels	Main **11.34**	Aux **13.50**	

Manual Ground Temperature Readings

Bead	ohms	Degrees C
1	10557	8.8531
2	11602	6.9493
3	13570	3.6566
4	14604	2.1530
5	15932	0.5073
6	16261	-0.0419
7	16699	-0.3337
8	16714	-0.7178

Bead	ohms	Degrees C
9	17060	-0.9217
10	17321	-1.1899
11	17461	-1.5098
12	17547	-1.5585

Observations and Proposed Maintenance

Thermistor Annual Maintenance Report

Contractor Name:	**Sila Remediation Inc.**	Inspection Date:	**20/08/2008**
Prepared By:	**A.Passalis**		

Thermistor Information

Site Name:	**FOX-5 Broughton**	Thermistor Location		**Upper Site Main Landfill**			
Thermistor Number:	**VT-2**	Inclination		**Vertical**			
Install Date:	**8//18/2006**	First Date Event		**8//21/2007**	Last Date Event		**8/19/2008**
Coordinates and Elevation	N	**5864**	E	**4658**	Elev		**494**
Length of Cable (m)	**8.6**	Cable Lead Above Ground (m)	**0.90**	Nodal Points			**11**
Datalogger Serial #	**02020228**			Cable Serial Number			**1696**

Thermistor Inspection

	Good	Needs Maintenance
Casing	**Yes**	**No**
Cover	**Yes**	**No**
Data Logger	**Yes**	**No**
Cable	**Yes**	**No**
Beads	**Yes**	**No**
Battery Installation Date	**09/01/2006**	
Battery Levels	Main **11.34**	Aux **13.26**

Manual Ground Temperature Readings

Bead	ohms	Degrees C
1	10284	9.2942
2	12776	4.9319
3	13336	3.5787
4	14222	2.8142
5	15235	1.3896
6	16266	0.1456
7	16488	-0.1383
8	16563	-0.2957

Bead	ohms	Degrees C
9	16731	-0.5117
10	16817	-0.7000
11	16900	-0.8172

Observations and Proposed Maintenance

Thermistor Annual Maintenance Report

Contractor Name:	**Sila Remediation Inc.**	Inspection Date:	**20/08/2008**
Prepared By:	**A.Passalis**		

Thermistor Information

Site Name:	**FOX-5 Broughton**	Thermistor Location	**Upper Site Main Landfill**			
Thermistor Number:	**VT-3**	Inclination	**Vertical**			
Install Date:	**8//18/2006**	First Date Event	**8//21/2007**	Last Date Event		**8/20/2008**
Coordinates and Elevation	N	**5856**	E	**4682**	Elev	**491**
Length of Cable (m)	**9.8**	Cable Lead Above Ground (m)	**0.85**	Nodal Points		**15**
Datalogger Serial #	**02020255**			Cable Serial Number		**1697**

Thermistor Inspection

	Good	Needs Maintenance
Casing	**Yes**	**No**
Cover	**Yes**	**No**
Data Logger	**Yes**	**No**
Cable	**Yes**	**No**
Beads	**Yes**	**No**
Battery Installation Date	**09/01/2006**	
Battery Levels	Main **11.34**	Aux **13.02**

Manual Ground Temperature Readings

Bead	ohms	Degrees C
1	10382	8.7977
2	10368	8.8153
3	10329	9.0521
4	10401	9.1353
5	10055	9.5063
6	12801	4.9045
7	13376	3.7740
8	14454	2.3760

Bead	ohms	Degrees C
9	15438	0.9867
10	15641	0.2797
11	16467	-0.3134
12	16029	-0.2728
13	16849	-0.6898
14	16852	-0.7790
15	17002	-0.9039

Observations and Proposed Maintenance

Thermistor Annual Maintenance Report

Contractor Name:	**Sila Remediation Inc.**	Inspection Date:	**20/08/2008**
Prepared By:	**A.Passalis**		

Thermistor Information

Site Name:	**FOX-5 Broughton**	Thermistor Location		**Upper Site Main Landfill**			
Thermistor Number:	**VT-4**	Inclination		**Vertical**			
Install Date:	**8//16/2006**	First Date Event		**8//21/2007**	Last Date Event		**8/20/2008**
Coordinates and Elevation	N	**5846**	E	**4669**	Elev		**494**
Length of Cable (m)	**9**	Cable Lead Above Ground (m)	**1.10**	Nodal Points			**13**
Datalogger Serial #	**02020265**			Cable Serial Number			**1698**

Thermistor Inspection

	Good	Needs Maintenance
Casing	**Yes**	**No**
Cover	**Yes**	**No**
Data Logger	**Yes**	**No**
Cable	**Yes**	**No**
Beads	**Yes**	**No**
Battery Installation Date	**09/01/2006**	
Battery Levels	Main **11.34**	Aux **13.02**

Manual Ground Temperature Readings

Bead	ohms	Degrees C
1	9937	9.8577
2	9802	10.1795
3	9598	10.7868
4	11645	6.7868
5	12959	4.6051
6	13679	3.4118
7	15078	1.6485
8	15936	0.3227

Bead	ohms	Degrees C
9	16412	-0.2068
10	16704	-23.3853
11	16745	-0.6363
12	17052	-0.8653
13	17350	-1.1617

Observations and Proposed Maintenance

Thermistor Annual Maintenance Report

Contractor Name:	**Sila Remediation Inc.**	Inspection Date:	**20/08/2008**
Prepared By:	**A.Passalis**		

Thermistor Information

Site Name:	**FOX-5 Broughton**	Thermistor Location		**Upper Site Main Landfill**			
Thermistor Number:	**VT-5**	Inclination		**Vertical**			
Install Date:	**8//16/2006**	First Date Event		**8//21/2007**	Last Date Event		**8/20/2008**
Coordinates and Elevation	N	**5833**	E	**4645**	Elev		**499**
Length of Cable (m)	**8**	Cable Lead Above Ground (m)	**0.60**	Nodal Points			**11**
Datalogger Serial #	**02020252**			Cable Serial Number			**1699**

Thermistor Inspection

	Good	Needs Maintenance	
Casing	**Yes**	**No**	
Cover	**Yes**	**No**	
Data Logger	**Yes**	**No**	
Cable	**Yes**	**No**	
Beads	**Yes**	**No**	
Battery Installation Date	**09/01/2006**		
Battery Levels	Main **11.34**	Aux **13.14**	

Manual Ground Temperature Readings

Bead	ohms	Degrees C
1	10067	9.9768
2	11512	6.9268
3	13124	4.4479
4	13704	3.0393
5	15005	1.6108
6	15976	0.2241
7	16501	-0.3947
8	17061	-0.8554

Bead	ohms	Degrees C
9	17519	-1.4867
10	17997	-2.1059
11	18564	-2.5603

Observations and Proposed Maintenance

Thermistor Annual Maintenance Report

Contractor Name:	**Sila Remediation Inc.**	Inspection Date:	**20/08/2008**
Prepared By:	**A.Passalis**		

Thermistor Information

Site Name:	**FOX-5 Broughton**	Thermistor Location		**Upper Site Main Landfill**			
Thermistor Number:	**VT-6**	Inclination		**Vertical**			
Install Date:	**8//17/2006**	First Date Event		**8//21/2007**	Last Date Event		**8/20/2008**
Coordinates and Elevation	N	**5812**	E	**4558**	Elev		**505**
Length of Cable (m)	**7.8**	Cable Lead Above Ground (m)	**0.75**	Nodal Points			**11**
Datalogger Serial #	**02020256**			Cable Serial Number			**1700**

Thermistor Inspection

	Good	Needs Maintenance
Casing	**Yes**	**No**
Cover	**Yes**	**No**
Data Logger	**Yes**	**No**
Cable	**Yes**	**No**
Beads	**Yes**	**No**
Battery Installation Date	**09/01/2006**	
Battery Levels	Main **11.34**	Aux **12.77**

Manual Ground Temperature Readings

Bead	ohms	Degrees C
1	11689	6.8518
2	12844	4.9045
3	13802	3.4618
4	14719	2.1530
5	15701	0.8682
6	16498	-0.1586
7	16901	-0.6363
8	17530	-1.4073

Bead	ohms	Degrees C
9	17926	-1.9026
10	18253	-2.3768
11	18439	-2.4750

Observations and Proposed Maintenance

Thermistor Annual Maintenance Report

Contractor Name:	**Sila Remediation Inc.**	Inspection Date:	**20/08/2008**
Prepared By:	**A.Passalis**		

Thermistor Information

Site Name:	**FOX-5 Broughton**	Thermistor Location		**Upper Site Main Landfill**			
Thermistor Number:	**VT-7**	Inclination		**Vertical**			
Install Date:	**8//16/2006**	First Date Event		**8//21/2007**	Last Date Event		**8/20/2008**
Coordinates and Elevation	N	**5751**	E	**4603**	Elev		**509**
Length of Cable (m)	**7.8**	Cable Lead Above Ground (m)	**0.90**	Nodal Points			**11**
Datalogger Serial #	**02020257**			Cable Serial Number			**1701**

Thermistor Inspection

	Good	Needs Maintenance	
Casing	**Yes**	**No**	
Cover	**Yes**	**No**	
Data Logger	**Yes**	**No**	
Cable	**Yes**	**No**	
Beads	**Yes**	**No**	
Battery Installation Date	**09/01/2006**		
Battery Levels	Main **11.34**	Aux **12.41**	

Manual Ground Temperature Readings

Bead	ohms	Degrees C
1	10757	8.4079
2	12983	4.6874
3	14207	2.6741
4	16028	0.4390
5	15501	0.2241
6	16937	-0.6745
7	17304	-1.2078
8	17864	-1.8177

Bead	ohms	Degrees C
9	18345	-2.3122
10	18624	-2.8038
11	18917	-2.9596

Observations and Proposed Maintenance

Thermistor Annual Maintenance Report

Contractor Name:	**Sila Remediation Inc.**	Inspection Date:	**20/08/2008**
Prepared By:	**A.Passalis**		

Thermistor Information

Site Name:	**FOX-5 Broughton**	Thermistor Location		**Upper Site Main Landfill**			
Thermistor Number:	**VT-8**	Inclination		**Vertical**			
Install Date:	**8//16/2006**	First Date Event		**8//21/2007**	Last Date Event		**8/20/2008**
Coordinates and Elevation	N	**5722**	E	**4516**	Elev		**510**
Length of Cable (m)	**7.3**	Cable Lead Above Ground (m)	**0.90**	Nodal Points			**10**
Datalogger Serial #	**02020259**			Cable Serial Number			**1702**

Thermistor Inspection

	Good	Needs Maintenance
Casing	**Yes**	**No**
Cover	**Yes**	**No**
Data Logger	**Yes**	**No**
Cable	**Yes**	**No**
Beads	**Yes**	**No**
Battery Installation Date	**09/01/2006**	
Battery Levels	Main **11.34**	Aux **12.90**

Manual Ground Temperature Readings

Bead	ohms	Degrees C
1	12514	5.1939
2	13631	3.6566
3	15004	1.6711
4	16154	0.1836
5	16760	-0.4939
6	17269	-1.0647
7	17825	-1.7381
8	18400	-2.4181

Bead	ohms	Degrees C
9	18758	-2.7468
10	18994	-2.9933

Observations and Proposed Maintenance

Thermistor Annual Maintenance Report

Contractor Name:	**Sila Remediation Inc.**	Inspection Date:	**21/08/2008**
Prepared By:	**A.Passalis**		

Thermistor Information

Site Name:	**FOX-5 Broughton**	Thermistor Location		**Middle Site Tier II Disposal Facility**			
Thermistor Number:	**VT-9**	Inclination		**Vertical**			
Install Date:	**09/01/2006**	First Date Event		**8//21/2007**	Last Date Event		**8/20/2008**
Coordinates and Elevation	N	**9749**	E	**15528**		Elev	**313**
Length of Cable (m)	**7.4**	Cable Lead Above Ground (m)	**0.65**	Nodal Points			**10**
Datalogger Serial #	**02020261**			Cable Serial Number			**1703**

Thermistor Inspection

	Good	Needs Maintenance	
Casing	**Yes**	**No**	
Cover	**Yes**	**No**	
Data Logger	**Yes**	**No**	
Cable	**Yes**	**No**	
Beads	**Yes**	**No**	
Battery Installation Date	**09/01/2006**		
Battery Levels	Main **11.34**	Aux **12.77**	

Manual Ground Temperature Readings

Bead	ohms	Degrees C
1	12965	4.6700
2	12368	5.6505
3	13265	4.1709
4	14556	2.3760
5	16056	0.2418
6	16878	-0.6745
7	17623	-1.5765
8	18147	-2.2142

Bead	ohms	Degrees C
9	18572	-2.2665
10	19112	-3.0843

Observations and Proposed Maintenance

Thermistor Annual Maintenance Report

Contractor Name:	**Sila Remediation Inc.**	Inspection Date:	**21/08/2008**
Prepared By:	**A.Passalis**		

Thermistor Information

Site Name:	**FOX-5 Broughton**	Thermistor Location		**Middle Site Tier II Disposal Facility**			
Thermistor Number:	**VT-10**	Inclination		**Vertical**			
Install Date:	**09/01/2006**	First Date Event		**8//21/2007**	Last Date Event		**8/20/2008**
Coordinates and Elevation	N	**9773**	E	**15545**	Elev		**314**
Length of Cable (m)	**7.4**	Cable Lead Above Ground (m)	**0.65**	Nodal Points			**10**
Datalogger Serial #	**02020230**			Cable Serial Number			**1704**

Thermistor Inspection

	Good	Needs Maintenance	
Casing	**Yes**	**No**	
Cover	**Yes**	**No**	
Data Logger	**Yes**	**No**	
Cable	**Yes**	**No**	
Beads	**Yes**	**No**	
Battery Installation Date	**09/01/2006**		
Battery Levels	Main **11.34**	Aux **12.90**	

Manual Ground Temperature Readings

Bead	ohms	Degrees C
1	10741	8.4733
2	381.0742	-
3	12297	5.7378
4	12395	5.4708
5	14153	-96.1851
6	14928	1.7741
7	16524	-0.2068
8	17277	-1.0442

Bead	ohms	Degrees C
9	17849	-1.7201
10	17821	-2.1059

Observations and Proposed Maintenance

Thermistor Annual Maintenance Report

Contractor Name:	**Sila Remediation Inc.**	Inspection Date:	**21/08/2008**
Prepared By:	**A.Passalis**		

Thermistor Information

Site Name:	**FOX-5 Broughton**	Thermistor Location		**Middle Site Tier II Disposal Facility**			
Thermistor Number:	**VT-11**	Inclination		**Vertical**			
Install Date:	**09/01/2006**	First Date Event		**8//21/2007**	Last Date Event		**8/20/2008**
Coordinates and Elevation	N	**9779**	E	**15508**	Elev		**311**
Length of Cable (m)	**6.8**	Cable Lead Above Ground (m)	**0.60**	Nodal Points			**9**
Datalogger Serial #	**02020120**			Cable Serial Number			**1705**

Thermistor Inspection

	Good	Needs Maintenance	
Casing	**Yes**	**No**	
Cover	**Yes**	**No**	
Data Logger	**Yes**	**No**	
Cable	**Yes**	**No**	
Beads	**Yes**	**No**	
Battery Installation Date		**09/01/2006**	
Battery Levels	Main	**11.34**	Aux **12.41**

Manual Ground Temperature Readings

Bead	ohms	Degrees C
1	10298	9.3724
2	10030	9.4103
3	11231	7.5700
4	12306	5.6904
5	13525	3.7165
6	14970	1.6309
7	16122	-0.1205
8	16876	-0.8835

Bead	ohms	Degrees C
9	17476	-1.3689

Observations and Proposed Maintenance

Thermistor Annual Maintenance Report

Contractor Name:	**Sila Remediation Inc.**	Inspection Date:	**21/08/2008**
Prepared By:	**A.Passalis**		

Thermistor Information

Site Name:	**FOX-5 Broughton**	Thermistor Location		**Middle Site Tier II Disposal Facility**			
Thermistor Number:	**VT-12**	Inclination		**Vertical**			
Install Date:	**09/01/2006**	First Date Event		**8//21/2007**	Last Date Event		**8/20/2008**
Coordinates and Elevation	N	**9812**	E	**15485**	Elev		**310**
Length of Cable (m)	**10**	Cable Lead Above Ground (m)	**0.45**	Nodal Points			**15**
Datalogger Serial #	**02020270**			Cable Serial Number			**1706**

Thermistor Inspection

	Good	Needs Maintenance	
Casing	**Yes**	**No**	
Cover	**Yes**	**No**	
Data Logger	**Yes**	**No**	
Cable	**Yes**	**No**	
Beads	**Yes**	**No**	
Battery Installation Date	**08/01/2006**		
Battery Levels	Main **11.34**	Aux **12.29**	

Manual Ground Temperature Readings

Bead	ohms	Degrees C
1	10960	7.7103
2	10631	8.5110
3	12956	4.6051
4	13139	4.4105
5	15444	1.0925
6	16395	0.1763
7	17318	-1.1796
8	17910	-1.8640

Bead	ohms	Degrees C
9	18518	-2.5603
10	19107	-3.1598
11	19647	-4.2150
12	19677	-4.2598
13	19954	-4.6349
14	20157	-4.9108
15	20452	-5.3104

Observations and Proposed Maintenance

APPENDIX F
Monitoring Well Sampling Logs

Development of Monitoring Wells

Site Name:	FOX-5	Broughton Island	
Date of Sampling Event:	21/08/2008	Time:	14:30
Names of Samplers:	A.Passalis		
Landfill Name:	Middle Site		
Monitoring Well ID:	BMW #5		
Sample Number:	200808-148		
Condition of Well:	Good		
Measured Data			
Well pipe height above ground (cm)=	50		
Diameter of well (cm)=	5		
Depth of well installation (cm)= (from ground surface)	460		
Length screened section (cm)=	300		
Depth to top of screen (cm)= (from ground surface)	60		
Depth to water surface (cm)= (from top of pipe)	124	Measurement method: (meter, tape, etc)	Heron Interface Meter
Static water level (cm)= (below ground surface)	74		
Measured well refusal depth (cm)= (from ground surface)	195	Evidence of sludge or siltation:	No
Thickness of water column (cm)=	121		
Static volume of water in well (mL)	2372		
Free product thickness (mm)=	0	Measurement method: (meter,	Heron Interface Meter
Purging: (Y/N)	Y	Purging/Sampling Equipment:	Waterra tubing & foot valve
Volume Purged Water (mL)=	4000		
Decontamination required: (Y/N)	N	dedicated sampling equipment	
Number washes:	na		
Number rinses:	na		
Final pH=	6.0		
Final Conductivity (uS/cm)=	110		
Final Temperature (degC)=	1.4		
Turbidity (NTU)=	108		

Development of Monitoring Wells

Site Name:	FOX-5	Broughton Island	
Date of Sampling Event:	21/08/2008	Time:	13:45
Names of Samplers:	A.Passalis		
Landfill Name:	Middle Site		
Monitoring Well ID:	MW #6		
Sample Number:	200808-145		
Condition of Well:	Good		
Measured Data			
Well pipe height above ground (cm)=	50		
Diameter of well (cm)=	5		
Depth of well installation (cm)= (from ground surface)	470		
Length screened section (cm)=	300		
Depth to top of screen (cm)= (from ground surface)	50		
Depth to water surface (cm)= (from top of pipe)	139	Measurement method: (meter, tape, etc)	Heron Interface Meter
Static water level (cm)= (below ground surface)	89		
Measured well refusal depth (cm)= (from ground surface)	204	Evidence of sludge or siltation:	No
Thickness of water column (cm)=	115		
Static volume of water in well (mL)	2254		
Free product thickness (mm)=	0	Measurement method: (meter,	Heron Interface Meter
Purging: (Y/N)	Y	Purging/Sampling Equipment:	Waterra tubing & foot valve
Volume Purged Water (mL)=	3500		
Decontamination required: (Y/N)	N	dedicated sampling equipment	
Number washes:	na		
Number rinses:	na		
Final pH=	6.2		
Final Conductivity (uS/cm)=	99		
Final Temperature (degC)=	1.3		
Turbidity (NTU)=	56		

Development of Monitoring Wells

Site Name:	FOX-5	Broughton Island	
Date of Sampling Event:	21/08/2008	Time:	13:00
Names of Samplers:	A.Passalis		
Landfill Name:	Middle Site		
Monitoring Well ID:	MW #7		
Sample Number:	200808-142		
Condition of Well:	Good		
Measured Data			
Well pipe height above ground (cm)=	60		
Diameter of well (cm)=	5		
Depth of well installation (cm)= (from ground surface)	460		
Length screened section (cm)=	300		
Depth to top of screen (cm)= (from ground surface)	40		
Depth to water surface (cm)= (from top of pipe)	153	Measurement method: (meter, tape, etc)	Heron Interface Meter
Static water level (cm)= (below ground surface)	93		
Measured well refusal depth (cm)= (from ground surface)	196	Evidence of sludge or siltation:	No
Thickness of water column (cm)=	103		
Static volume of water in well (mL)	2019		
Free product thickness (mm)=	0	Measurement method: (meter,	Heron Interface Meter
Purging: (Y/N)	Y	Purging/Sampling Equipment:	Waterra tubing & foot valve
Volume Purged Water (mL)=	3500		
Decontamination required: (Y/N)	N	dedicated sampling equipment	
Number washes:	na		
Number rinses:	na		
Final pH=	6.2		
Final Conductivity (uS/cm)=	208		
Final Temperature (degC)=	1.0		
Turbidity (NTU)=	102		

Development of Monitoring Wells

Site Name:	FOX-5	Broughton Island	
Date of Sampling Event:	21/08/2008	Time:	12:00
Names of Samplers:	A.Passalis		
Landfill Name:	Middle Site		
Monitoring Well ID:	MW #8		
Sample Number:	200808-137		
Condition of Well:	Good		
Measured Data			
Well pipe height above ground (cm)=	50		
Diameter of well (cm)=	5		
Depth of well installation (cm)= (from ground surface)	470		
Length screened section (cm)=	300		
Depth to top of screen (cm)= (from ground surface)	45		
Depth to water surface (cm)= (from top of pipe)	130	Measurement method: (meter, tape, etc)	Heron Interface Meter
Static water level (cm)= (below ground surface)	80		
Measured well refusal depth (cm)= (from ground surface)	201	Evidence of sludge or siltation:	No
Thickness of water column (cm)=	121		
Static volume of water in well (mL)	2372		
Free product thickness (mm)=	0	Measurement method: (meter,	Heron Interface Meter
Purging: (Y/N)	Y	Purging/Sampling Equipment:	Waterra tubing & foot valve
Volume Purged Water (mL)=	5000		
Decontamination required: (Y/N)	N	dedicated sampling equipment	
Number washes:	na		
Number rinses:	na		
Final pH=	5.5		
Final Conductivity (uS/cm)=	88		
Final Temperature (degC)=	1.7		
Turbidity (NTU)=	21		

Development of Monitoring Wells

Site Name:	FOX-5	Broughton Island	
Date of Sampling Event:	21/08/2008	Time:	11:30
Names of Samplers:	A.Passalis		
Landfill Name:	Middle Site		
Monitoring Well ID:	MW #9		
Sample Number:	200808-134		
Condition of Well:	Good		
Measured Data			
Well pipe height above ground (cm)=	55		
Diameter of well (cm)=	5		
Depth of well installation (cm)= (from ground surface)	460		
Length screened section (cm)=	300		
Depth to top of screen (cm)= (from ground surface)	50		
Depth to water surface (cm)= (from top of pipe)	159	Measurement method: (meter, tape, etc)	Heron Interface Meter
Static water level (cm)= (below ground surface)	104		
Measured well refusal depth (cm)= (from ground surface)	184	Evidence of sludge or siltation:	No
Thickness of water column (cm)=	80		
Static volume of water in well (mL)	1568		
Free product thickness (mm)=	0	Measurement method: (meter,	Heron Interface Meter
Purging: (Y/N)	Y	Purging/Sampling Equipment:	Waterra tubing & foot valve
Volume Purged Water (mL)=	200		
Decontamination required: (Y/N)	N	dedicated sampling equipment	
Number washes:	na		
Number rinses:	na		
Final pH=	5.5		
Final Conductivity (uS/cm)=	65		
Final Temperature (degC)=	1.6		
Turbidity (NTU)=	74		

Development of Monitoring Wells

Site Name:	FOX-5	Broughton Island	
Date of Sampling Event:	20/08/2008	Time:	18:00
Names of Samplers:	A.Passalis		
Landfill Name:	US Main Landfill		
Monitoring Well ID:	BMW #10		
Sample Number:	200808-130		
Condition of Well:	Good		
Measured Data			
Well pipe height above ground (cm)=	30		
Diameter of well (cm)=	5		
Depth of well installation (cm)= (from ground surface)	450		
Length screened section (cm)=	100		
Depth to top of screen (cm)= (from ground surface)	56		
Depth to water surface (cm)= (from top of pipe)	89	Measurement method: (meter, tape, etc)	Heron Interface Meter
Static water level (cm)= (below ground surface)	59		
Measured well refusal depth (cm)= (from ground surface)	208	Evidence of sludge or siltation:	No
Thickness of water column (cm)=	149		
Static volume of water in well (mL)	2920		
Free product thickness (mm)=	0	Measurement method: (meter,	Heron Interface Meter
Purging: (Y/N)	Y	Purging/Sampling Equipment:	Waterra tubing & foot valve
Volume Purged Water (mL)=	4000		
Decontamination required: (Y/N)	N	dedicated sampling equipment	
Number washes:	na		
Number rinses:	na		
Final pH=	6.3		
Final Conductivity (uS/cm)=	53		
Final Temperature (degC)=	2.0		
Turbidity (NTU)=	64		

Development of Monitoring Wells

Site Name:	FOX-5	Broughton Island	
Date of Sampling Event:	20/08/2008	Time:	14:45
Names of Samplers:	A.Passalis		
Landfill Name:	US Main Landfill		
Monitoring Well ID:	MW #11		
Sample Number:	200808-118		
Condition of Well:	Good		
Measured Data			
Well pipe height above ground (cm)=	100		
Diameter of well (cm)=	5		
Depth of well installation (cm)= (from ground surface)	470		
Length screened section (cm)=	300		
Depth to top of screen (cm)= (from ground surface)	60		
Depth to water surface (cm)= (from top of pipe)	219	Measurement method: (meter, tape, etc)	Heron Interface Meter
Static water level (cm)= (below ground surface)	119		
Measured well refusal depth (cm)= (from ground surface)	181	Evidence of sludge or siltation:	No
Thickness of water column (cm)=	62		
Static volume of water in well (mL)	1215		
Free product thickness (mm)=	0	Measurement method: (meter,	Heron Interface Meter
Purging: (Y/N)	Y	Purging/Sampling Equipment:	Waterra tubing & foot valve
Volume Purged Water (mL)=	2000		
Decontamination required: (Y/N)	N	dedicated sampling equipment	
Number washes:	na		
Number rinses:	na		
Final pH=	7.2		
Final Conductivity (uS/cm)=	56		
Final Temperature (degC)=	2.8		
Turbidity (NTU)=	24		

Development of Monitoring Wells

Site Name:	FOX-5	Broughton Island	
Date of Sampling Event:	20/08/2008	Time:	15:30
Names of Samplers:	A.Passalis		
Landfill Name:	US Main Landfill		
Monitoring Well ID:	MW #12		
Sample Number:	200808-122		
Condition of Well:	Good		
Measured Data			
Well pipe height above ground (cm)=	35		
Diameter of well (cm)=	5		
Depth of well installation (cm)= (from ground surface)	460		
Length screened section (cm)=	300		
Depth to top of screen (cm)= (from ground surface)	60		
Depth to water surface (cm)= (from top of pipe)	Dry	Measurement method: (meter, tape, etc)	Heron Interface Meter
Static water level (cm)= (below ground surface)	Dry		
Measured well refusal depth (cm)= (from ground surface)	126	Evidence of sludge or siltation:	na
Thickness of water column (cm)=	0		
Static volume of water in well (mL)	0		
Free product thickness (mm)=	0	Measurement method: (meter,	Heron Interface Meter
Purging: (Y/N)	Y	Purging/Sampling Equipment:	
Volume Purged Water (mL)=	na		
Decontamination required: (Y/N)	N	dedicated sampling equipment	
Number washes:	na		
Number rinses:	na		
Final pH=	na		
Final Conductivity (uS/cm)=	na		
Final Temperature (degC)=	na		
Turbidity (NTU)=	na		

Development of Monitoring Wells

Site Name:	FOX-5	Broughton Island	
Date of Sampling Event:	20/08/2008	Time:	16:00
Names of Samplers:	A.Passalis		
Landfill Name:	US Main Landfill		
Monitoring Well ID:	MW #13		
Sample Number:	200808-124		
Condition of Well:	Good		
Measured Data			
Well pipe height above ground (cm)=	50		
Diameter of well (cm)=	5		
Depth of well installation (cm)= (from ground surface)	460		
Length screened section (cm)=	300		
Depth to top of screen (cm)= (from ground surface)	60		
Depth to water surface (cm)= (from top of pipe)	139	Measurement method: (meter, tape, etc)	Heron Interface Meter
Static water level (cm)= (below ground surface)	89		
Measured well refusal depth (cm)= (from ground surface)	127	Evidence of sludge or siltation:	No
Thickness of water column (cm)=	38		
Static volume of water in well (mL)	745		
Free product thickness (mm)=	0	Measurement method: (meter,	Heron Interface Meter
Purging: (Y/N)	Y	Purging/Sampling Equipment:	Waterra tubing & foot valve
Volume Purged Water (mL)=	1000		
Decontamination required: (Y/N)	N	dedicated sampling equipment	
Number washes:	na		
Number rinses:	na		
Final pH=	6.8		
Final Conductivity (uS/cm)=	48		
Final Temperature (degC)=	2.6		
Turbidity (NTU)=	58		

Development of Monitoring Wells

Site Name:	FOX-5	Broughton Island	
Date of Sampling Event:	20/08/2008	Time:	16:00
Names of Samplers:	A.Passalis		
Landfill Name:	US Main Landfill		
Monitoring Well ID:	MW #14		
Sample Number:	200808-124		
Condition of Well:	Good		
Measured Data			
Well pipe height above ground (cm)=	50		
Diameter of well (cm)=	5		
Depth of well installation (cm)= (from ground surface)	460		
Length screened section (cm)=	300		
Depth to top of screen (cm)= (from ground surface)	60		
Depth to water surface (cm)= (from top of pipe)	139	Measurement method: (meter, tape, etc)	Heron Interface Meter
Static water level (cm)= (below ground surface)	89		
Measured well refusal depth (cm)= (from ground surface)	127	Evidence of sludge or siltation:	No
Thickness of water column (cm)=	38		
Static volume of water in well (mL)	745		
Free product thickness (mm)=	0	Measurement method: (meter,	Heron Interface Meter
Purging: (Y/N)	Y	Purging/Sampling Equipment:	Waterra tubing & foot valve
Volume Purged Water (mL)=	1000		
Decontamination required: (Y/N)	N	dedicated sampling equipment	
Number washes:	na		
Number rinses:	na		
Final pH=	6.8		
Final Conductivity (uS/cm)=	48		
Final Temperature (degC)=	2.6		
Turbidity (NTU)=	58		

Development of Monitoring Wells

Site Name:	FOX-5	Broughton Island	
Date of Sampling Event:	20/08/2008	Time:	9:20
Names of Samplers:	A.Passalis		
Landfill Name:	SNHWLF		
Monitoring Well ID:	BMW #15		
Sample Number:	200808-109		
Condition of Well:	Good		
Measured Data			
Well pipe height above ground (cm)=	45		
Diameter of well (cm)=	5		
Depth of well installation (cm)= (from ground surface)	455		
Length screened section (cm)=	100		
Depth to top of screen (cm)= (from ground surface)	52		
Depth to water surface (cm)= (from top of pipe)	122	Measurement method: (meter, tape, etc)	Heron Interface Meter
Static water level (cm)= (below ground surface)	77		
Measured well refusal depth (cm)= (from ground surface)	183	Evidence of sludge or siltation:	No
Thickness of water column (cm)=	106		
Static volume of water in well (mL)	2078		
Free product thickness (mm)=	0	Measurement method: (meter,	Heron Interface Meter
Purging: (Y/N)	Y	Purging/Sampling Equipment:	Waterra tubing & foot valve
Volume Purged Water (mL)=	2500		
Decontamination required: (Y/N)	N	dedicated sampling equipment	
Number washes:	na		
Number rinses:	na		
Final pH=	5.6		
Final Conductivity (uS/cm)=	117		
Final Temperature (degC)=	2.1		
Turbidity (NTU)=	63		

Development of Monitoring Wells

Site Name:	FOX-5	Broughton Island	
Date of Sampling Event:	19/08/2008	Time:	16:30
Names of Samplers:	A.Passalis		
Landfill Name:	SNHWLF		
Monitoring Well ID:	BMW #16		
Sample Number:	190808-103		
Condition of Well:	Good		
Measured Data			
Well pipe height above ground (cm)=	40		
Diameter of well (cm)=	5		
Depth of well installation (cm)= (from ground surface)	446		
Length screened section (cm)=	100		
Depth to top of screen (cm)= (from ground surface)	46		
Depth to water surface (cm)= (from top of pipe)	92	Measurement method: (meter, tape, etc)	Heron Interface Meter
Static water level (cm)= (below ground surface)	52		
Measured well refusal depth (cm)= (from ground surface)	180	Evidence of sludge or siltation:	No
Thickness of water column (cm)=	128		
Static volume of water in well (mL)	2509		
Free product thickness (mm)=	0	Measurement method: (meter,	Heron Interface Meter
Purging: (Y/N)	Y	Purging/Sampling Equipment:	Waterra tubing & foot valve
Volume Purged Water (mL)=	3000		
Decontamination required: (Y/N)	N	dedicated sampling equipment	
Number washes:	na		
Number rinses:	na		
Final pH=	5.5		
Final Conductivity (uS/cm)=	382		
Final Temperature (degC)=	2.1		
Turbidity (NTU)=	44		

Development of Monitoring Wells

Site Name:	FOX-5	Broughton Island	
Date of Sampling Event:	19/08/2008	Time:	18:00
Names of Samplers:	A.Passalis		
Landfill Name:	SNHWLF		
Monitoring Well ID:	MW #17		
Sample Number:	190808-106		
Condition of Well:	Good		
Measured Data			
Well pipe height above ground (cm)=	30		
Diameter of well (cm)=	5		
Depth of well installation (cm)= (from ground surface)	446		
Length screened section (cm)=	200		
Depth to top of screen (cm)= (from ground surface)	60		
Depth to water surface (cm)= (from top of pipe)	169	Measurement method: (meter, tape, etc)	Heron Interface Meter
Static water level (cm)= (below ground surface)	139		
Measured well refusal depth (cm)= (from ground surface)	169	Evidence of sludge or siltation:	No
Thickness of water column (cm)=	30		
Static volume of water in well (mL)	588		
Free product thickness (mm)=	0	Measurement method: (meter,	Heron Interface Meter
Purging: (Y/N)	Y	Purging/Sampling Equipment:	Waterra tubing & foot valve
Volume Purged Water (mL)=	900		
Decontamination required: (Y/N)	N	dedicated sampling equipment	
Number washes:	na		
Number rinses:	na		
Final pH=	6		
Final Conductivity (uS/cm)=	135		
Final Temperature (degC)=	2.0		
Turbidity (NTU)=	104		

Development of Monitoring Wells

Site Name:	FOX-5	Broughton Island	
Date of Sampling Event:	20/08/2008	Time:	11:00
Names of Samplers:	A.Passalis		
Landfill Name:	SNHWLF		
Monitoring Well ID:	MW #18		
Sample Number:	200808-115		
Condition of Well:	Good		
Measured Data			
Well pipe height above ground (cm)=	35		
Diameter of well (cm)=	5		
Depth of well installation (cm)= (from ground surface)	460		
Length screened section (cm)=	300		
Depth to top of screen (cm)= (from ground surface)	60		
Depth to water surface (cm)= (from top of pipe)	176	Measurement method: (meter, tape, etc)	Heron Interface Meter
Static water level (cm)= (below ground surface)	141		
Measured well refusal depth (cm)= (from ground surface)	153	Evidence of sludge or siltation:	No
Thickness of water column (cm)=	12		
Static volume of water in well (mL)	235		
Free product thickness (mm)=	0	Measurement method: (meter,	Heron Interface Meter
Purging: (Y/N)	Y	Purging/Sampling Equipment:	Waterra tubing & foot valve
Volume Purged Water (mL)=	250		
Decontamination required: (Y/N)	N	dedicated sampling equipment	
Number washes:	na		
Number rinses:	na		
Final pH=	7.8		
Final Conductivity (uS/cm)=	132		
Final Temperature (degC)=	3.0		
Turbidity (NTU)=	546		

Development of Monitoring Wells

Site Name:	FOX-5	Broughton Island	
Date of Sampling Event:	20/08/2008	Time:	10:15
Names of Samplers:	A.Passalis		
Landfill Name:	SNHWLF		
Monitoring Well ID:	MW #19		
Sample Number:	200808-112		
Condition of Well:	Good		
Measured Data			
Well pipe height above ground (cm)=	35		
Diameter of well (cm)=	5		
Depth of well installation (cm)= (from ground surface)	460		
Length screened section (cm)=	300		
Depth to top of screen (cm)= (from ground surface)	60		
Depth to water surface (cm)= (from top of pipe)	148.1	Measurement method: (meter, tape, etc)	Heron Interface Meter
Static water level (cm)= (below ground surface)	113.1		
Measured well refusal depth (cm)= (from ground surface)	172	Evidence of sludge or siltation:	Yes
Thickness of water column (cm)=	59		
Static volume of water in well (mL)	1154		
Free product thickness (mm)=	0	Measurement method: (meter,	Heron Interface Meter
Purging: (Y/N)	Y	Purging/Sampling Equipment:	Waterra tubing & foot valve
Volume Purged Water (mL)=	2000		
Decontamination required: (Y/N)	N	dedicated sampling equipment	
Number washes:	na		
Number rinses:	na		
Final pH=	6.8		
Final Conductivity (uS/cm)=	75		
Final Temperature (degC)=	2.0		
Turbidity (NTU)=	631		