THE COLLECTION OF LANDFILL MONITORING DATA AT THE FORMER FOX-M DEW LINE SITE

Hall Beach, Nunavut

FINAL REPORT – 2010 SEASON

(O/Ref.: CD8177) (Y/Ref.: DLC MON (Qikiq 08))

DEFENCE CONSTRUCTION CANADA

February 2011

Biogenie, a division of EnGlobe Corp.
4495 Wilfrid-Hamel blvd, suite 200
Quebec City, Quebec
G1P 2J7 CANADA

Tel.: 418-653-4422
Fax: 418-653-3583

THE COLLECTION OF LANDFILL MONITORING DATA AT THE FORMER FOX-M DEW LINE SITE

FINAL REPORT – 2010 SEASON

Hall Beach, Nunavut

(Y/Ref.: DLC MON (Qikiq 08) (O/Ref.: CD8177)

DEFENCE CONSTRUCTION CANADA

February 2011

Presented to: Nahed Farah
Defence Construction Canada

Written by: for
Andrew Passalis, P. Eng.
Project Engineer

Verified by:
Jean-Pierre Pelletier, B. Sc.
Team Leader

Approved by:
Renald Gauthier, P. Geol.
Project Manager

REGISTERED PROFESSIONAL GEOLOGIST
R. GAUTHIER
LICENSEE
NWT/NU

TABLE OF CONTENTS

TABLE OF CONTENTS (CONT.)

TABLE OF CONTENTS (CONT.)

LIST OF TABLES

LIST OF TABLES (CONT.)

LIST OF FIGURES

LIST OF APPENDICES

1 INTRODUCTION

1.1 LOCATION AND SITE FEATURES

The FOX-M Hall Beach DEW Line site is located on the Melville Peninsula's east coast at 68º 46' N and 81º 12' W. The community of Hall Beach is approximately 2 km north of the site.

FOX-M was originally a main site within the original Distant Early Warning (DEW) Line system and was decommissioned in 1989 to become a North Warning System (NWS) Long Range Radar (LRR) station and Logistical Support Site (LSS). The environmental clean-up and demolition of facilities, not required for the LRR site operations, commenced in 2003 and were completed in 2007.

The clean-up included the closure and remediation of 6 existing landfills, the construction of new landfills for the disposal of non-hazardous wastes generated from demolition and collection of site debris as well as a second facility to contain Tier II contaminated soils. Monitoring activities were carried out at the following landfill areas as shown on Figure FOX-M.1:

- Non-Hazardous Waste Landfill (NHWLF)
- G217 – West Landfill
- Billboards Landfill
- Hazmat Storage – East Landfill
- Communications North Landfill
- Communications Northwest Landfill
- Tier II Soil Disposal Facility
- East Beach Landfill

In accordance with the Department of National Defence (DND) – Nunavut Tunngavik Incorporated (NTI) Cooperation Agreement, landfill monitoring is carried out following the site clean-up. Table I hereafter provides a synopsis of field activities performed during the 2010 Landfill Monitoring Program at FOX-M.

Table I: 2010 Monitoring Requirements for FOX-M Landfills

Landfill	Visual Inspection	Soil Sampling	Groundwater Sampling	Thermal Monitoring
Non-Hazardous Waste Landfill	✓	✓	✓	
G217 – West Landfill	✓	✓		
Billboards Landfill	✓	✓		
Hazmat Storage – East Landfill	✓	✓		
Communications North Landfill	✓	✓		
Communications Northwest Landfill	✓	✓		
Tier II Disposal Facility	✓	✓	✓	✓
East Beach Landfill	✓	✓	✓	✓

1.2 OBJECTIVES AND SCOPE OF WORK

The objective of the Defence Construction Canada (DCC) Landfill Monitoring Program is to collect sufficient information to assess landfill performances from geotechnical and environmental perspectives. DCC has specified the requirements for the Landfill Monitoring Program in the document *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. (ToR, reference B).

The scope of work for the Landfill Monitoring Program is defined in the ToR and in Biogenie's 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-M Landfills
- Visual inspection
- Soil and groundwater sampling
- Thermal monitoring (Tier II Disposal Facility and East Beach Landfill)
- Create photographic record
- Draft and Final reports

1.3 REPORT FORMAT

This report describes the work carried out in August 2010 at eight landfill sites at FOX-M. Results from soil and groundwater sampling, thermal monitoring, and visual inspection of the sites are also presented in the formats described in the ToR. An electronic version of the report and its component tables, figures and data files is included in an Addendum DVD-ROM, which is appended to 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 during the 2010 Landfill Monitoring Program. The following information is provided for each landfill:

- Visual inspection check-list
- Visual inspection drawing mark-up
- A selection of visual inspection photos
- Thermal monitoring summary (where applicable)
- Summary of 2010 soil analytical data
- Evaluation of 2010 soil analytical data
- Summary of 2010 groundwater analytical data (where applicable)
- Monitoring well development/sampling reports (where applicable)

The printed copy of the report's photographic record includes only an index and thumbnail image of photos for each of the landfill areas. The actual photos are included in electronic format in the Addendum DVD-ROM to the report. Certificates of analysis, QA/QC analytical results and field notes are included in appendices.

1.4 PROJECT REFERENCES

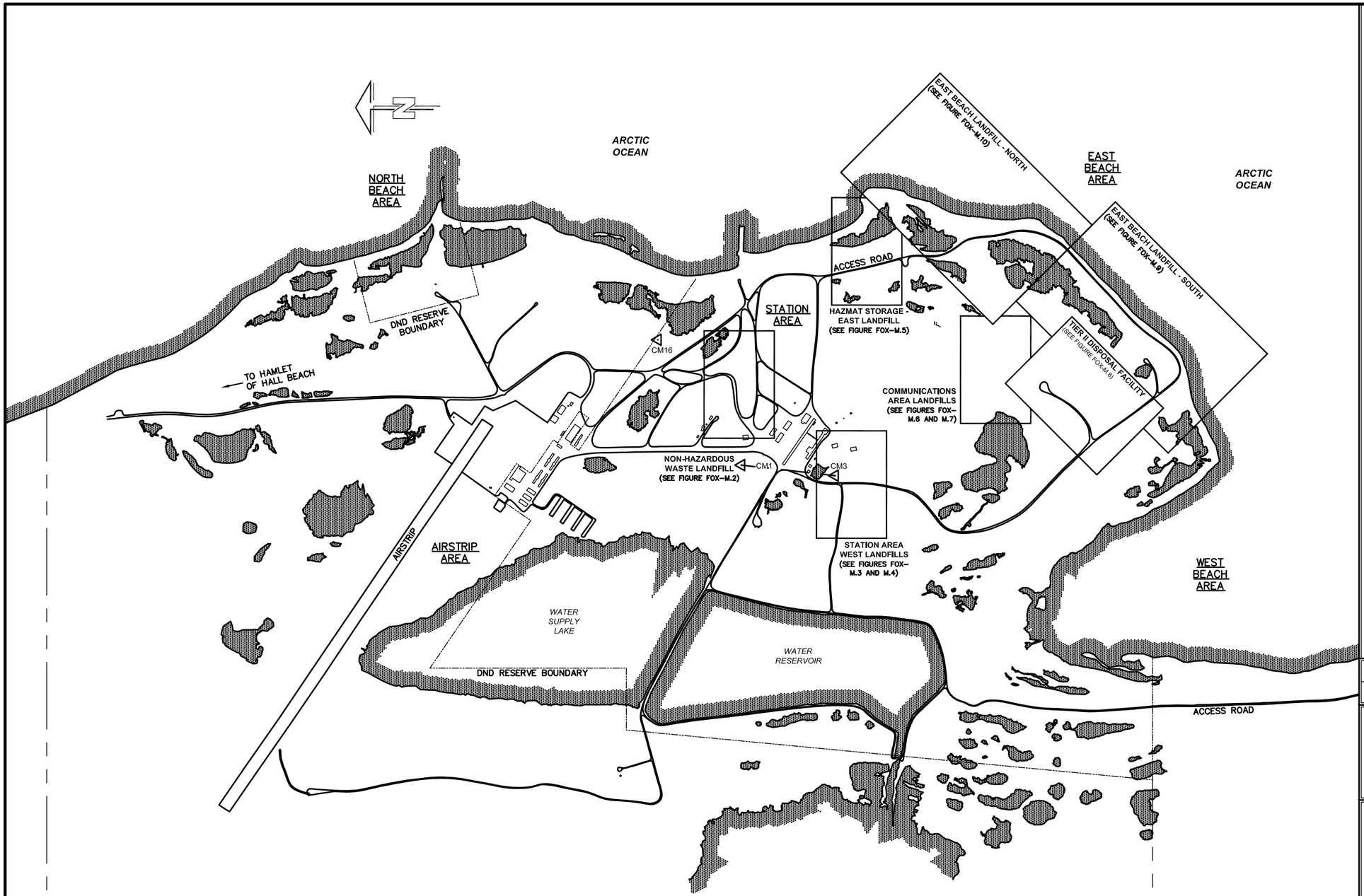
The following references are specifically relevant to the 2010 Landfill Monitoring activities:

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-M Landfill Monitoring 2010,* September 1, 2010.



LEGEND

△ SURVEY CONTROL MONUMENT

0 150m 300m 450m 600m 750m

NO.	VERSION	DATE	BY	VERIF.	APPR.
A	FINAL	11-02-09	P.L.	A.P.	R.G.

Construction de Défense Canada
Defence Construction Canada

FINAL REPORT
COLLECTION OF LANDFILL MONITORING DATA
FOX-M, HALL BEACH, NUNAVUT

OVERALL SITE PLAN

SITE REMEDIATION SOLUTIONS

Biogenie, a division of EnGlobe Corp.
4495 Wilfrid-Hamel Blvd., Suite 200
Quebec (Quebec) CANADA G1P 2J7
Phone: (418) 653-4422 Fax.: (418) 653-3583

MEASUREMENT UNIT	SCALE:	DATE (month-year):
Metre	1 : 15,000	FEBRUARY 2011
DRAWN BY:	VERIFIED BY:	APPROVED BY:
P. LÉGARÉ	A. PASSALIS	R. GAUTHIER
PROJECT NO:	DRAWING NO:	PAGE
CD8177_005_101	CD8177_005_101-FOX-M_A	LS

FIGURE FOX-M.1

G:\CD8177\003\2010\FOX-M\FINAL\CD8177_005_101-FOX-M_A.dwg, LS, 2011-02-11 3:18:35 PM

2 OUTLINE AND METHODOLOGY

2.1 FIELD PROGRAM STAFF

The 2010 on-site field program at FOX-M took place from August 25 to 28, 2010. Biogenie sub-contracted Sila Remediation Inc. (Sila) from Igloolik, Nunavut to perform the field work. The Sila field program was executed by Mr. Andrew Passalis and five local Inuit representatives.

The team was made up of the following individuals:

- Andrew Passalis, Project Engineer
- Peter Anguratsiak, Field Technician
- Mike Ammaklak, Field Technician
- Robert Innuksuk, Field Technician
- Jaypetee Audlakiak, Wildlife Monitor
- Lily Arnaqjuaq, Wildlife Monitor

2.2 WEATHER CONDITIONS

Seasonal weather conditions were observed during the FOX-M monitoring event, with relatively consistent daily temperatures between 4-6ºC during the four days on site. Skies were mostly cloudy throughout the monitoring event with periods of light rain/drizzle on the mornings of August 25, 26 and 27. Clear skies were noted starting mid-morning on the final day on site. Winds were generally from the north-northeast, moderate and ranging between 10 to 30 km/h over the first three days and increasing to 25-40 km/h on the final day on site.

2.3 VISUAL INSPECTION

Data and information collected during the visual inspection of the FOX-M 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 DSC-TX5 10.2 megapixel (MP) digital camera. Full resolution digital jpg copies are furnished on a DVD-ROM appended with the report. The photo log, including the local coordinates from where the photo was taken, orientation (relative to map north), feature of note and picture numbers are included with each landfill report.

2.4 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, Dec 93 (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, Dec 93 (CCME catalogue - http://www.ccme.ca/pdfs/cat_eng.pdf)
- Reference method for the Determination of Petroleum Hydrocarbons in Soil – Tier I Method, 2001
- CCME Subsurface Assessment Handbook for Contaminated Sites, March 1994, EPC-NCSRP-48E (http://www.ccme.ca/publications/ceqg_rcqe.html)

For the 2010 monitoring event, 44 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 taken at each sampling station. No frozen ground or frost was encountered at the soil stations during the August 2010 sampling survey.

As specified in the ToR, the following 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 taken and sent to a second laboratory for quality control purposes
- An additional ten percent of soil samples taken 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 (F1-F3), total metals and PCBs) as specified by DCC. Table II below summarizes the soil sampling at FOX-M during the August 2010 field program.

Table II: Summary of Soil Sampling at FOX-M, August 2010

Landfill Site	**Soil Sample Locations**					
Non-Hazardous Waste Landfill	FM-12	FM-13	FM-14	FM-15	FM-16	
G217-West Landfill	FM-5	FM-6	FM-7	FM-8		
Billboards Landfill	FM-1	FM-2	FM-3	FM-4		
Hazmat Storage-East Landfill	FM-9	FM-10	FM-11	FM-12		
Communications Northwest Landfill	FM-13	FM-14	FM-15	FM-16		
Communications North Landfill	FM-17	FM-18	FM-19	FM-20	FM-21	FM-22
Tier II Disposal Facility	MW-1	MW-2	MW-3	MW-4	MW-5	
East Beach Landfill	MW-20	MW-21	MW-22	MW-23	MW-24	MW-25
	MW-26	MW-27	MW-28	MW-29	MW-30	MW-31

Notes:
Soil samples annotated as "MW" were collected as per the ToR between 2-4 metres from monitoring wells.
All soil samples were collected from two depths (0-15 cm and 40-50 cm). For 2010 sampling, total no. of soil samples = 112 samples (44 samples x 2 depths + 8 QA/QC + 8 (Inter-laboratory comparison) + 8 for Owner's Representative (ESG Archives)

2.5 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, Dec 93 (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, Dec 93 (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).

The 2010 field program included sampling only 9 of the 22 monitoring wells at FOX-M. Twelve well locations were dry or contained insufficient water volumes at the time of monitoring and consequently could not be sampled. One well located at the Non-Hazardous Waste Landfill was also vandalized and could not be sampled. A summary of the sampled monitoring wells is presented in Table III.

Free phase hydrocarbon product was not detected at any of the monitoring well locations. Monitoring Well Development and Sampling Record forms are included in appropriate sections in this report.

Table III: Summary of Groundwater Sampling at FOX-M, August 2010

Landfill Site	**Groundwater Sample Locations**				
Non-Hazardous Waste Landfill	MW-13	MW-15			
Tier II Disposal Facility	MW-1	MW-2	MW-3	MW-4	MW-5
East Beach Landfill	MW-29	MW-30			

Notes:
All monitoring wells were inspected and found to be in good condition with the exception of MW-14 at the NHWLF (casing damaged and well vandalized), MW-21 (casing collar loose) and MW-24 (casing cover broken).
For 2010 sampling, total no. of water samples = 11 samples (9 monitoring well samples + 1 blind duplicate + 1 inter-laboratory duplicate) + 1 field blank + 1 travel blank.

2.6 THERMAL MONITORING

All thermistors at the Tier II Disposal Facility and East Beach Landfill were inspected and found to be in good condition with no significant concerns identified. All analogues/thermocouples were observed to be functioning properly. Data from all functioning thermistors was successfully retrieved and battery levels were noted to be in good condition. Internal memories were reset and clocks were synchronized using the Prolog software.

Specific detailed information regarding temperature data is contained in the report section on the Tier II Disposal Facility and East Beach Landfill.

2.7 FIELD NOTES AND DATA

Field notes from the 2010 landfill monitoring program are included in Appendix B for reference. Notes were written on waterproof field sheets and in field books and the notes 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 Oregon 300 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.

2.8 QUALITY CONTROL

Sila implemented standard sample collection techniques to decrease the likelihood of compromising collected samples. The methods used for sample collection are summarized in Sections 2.4 and 2.5 of this report. The following measures were taken to minimize sample cross-contamination:

- All samples were placed directly into the appropriate laboratory-supplied containers (for the particular analysis)
- Soil samples were collected with the use of decontaminated sampling equipment and/or single-use nitrile gloves
- Water samples were collected through the use of dedicated Waterra foot valves and tubing
- All samples were stored in chilled coolers/refrigerators throughout the field program and chilled coolers during subsequent transfer to the commercial airlines and respective laboratories.

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

2.9 QA/QC PROCEDURES

Sila used standard QA/QC procedures as specified in the ToR and CCME Guidance Documents for this project. The following is a summary table of the analytical QA/QC samples collected:

- 10% Blind Duplicate Samples of soil and water were sent to Exova
- 10% Inter-laboratory 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 inter-laboratory duplicates can be found in Appendix C as actual values and relative percent differences
- 10% Archival Samples of soil to ESG.

Exova has QA/QC measures for sample analysis. Exova QC samples will typically be introduced into the analytical stream on a batch basis, normally comprising 20% – 30% of the total sample throughout. 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 and is used to monitor for process contamination.

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

3 NON-HAZARDOUS WASTE LANDFILL

3.1 BACKGROUND AND MONITORING PROGRAM

The NHWLF is located immediately north of the main station area, approximately 200 m north of the Station POL and 250 m northeast of the module train. The landfill, including granular cover, encompasses a footprint of approximately 17,800 m^2 with the final cover extending between 2.75 to 3.0 m above the surrounding grade. This landfill was constructed for the disposal of non-hazardous wastes derived during site clean-up. Landfill materials are contained by a granular perimeter berm and cover. Four groundwater monitoring wells are installed at the landfill perimeter and another one west of the landfill

The long-term monitoring plan consists of visual monitoring and periodic collection of soil and groundwater samples. The 2010 monitoring of this landfill includes collection of soil and groundwater samples to monitor for the presence of leachate and visual inspection to assess landfill performance. Groundwater monitoring well and soil sample locations are identified on Figure FOX-M.2.

3.2 VISUAL INSPECTION REPORT

The visual inspection of the NHWLF was conducted on August 26, 2010. The Visual Inspection Checklist/Report has been completed as per the ToR and is included as Table IV of this report.

Settlement
Evidence of settlement was not noted.

Erosion
Evidence of erosion 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
Evidence of vegetation was not noted.

Staining
Evidence of staining was not noted on the landfill.

Seepage Points
Evidence of seepage was not noted.

Debris
Evidence of surface debris was not noted on the landfill.

Presence/Condition of Monitoring Instruments
All monitoring well installations appeared to be in good condition at the landfill, with the exception of MW-14 on which the protective casing cover was damaged and monitoring well vandalized (gravel in well).

Other Features of Note

Numerous vehicle tracks were observed on the surface and side slopes of the landfill cover, including several deeper ruts noted along the northwest, north and east side slopes and on the northwest corner of the landfill cover (Feature A). The vehicle tracks/ruts typically extended between 0.1 to 0.3 m in depth and covered approximately 2% of the landfill surface. Minor debris (plywood and geotextile fabric) were also noted in proximity to the landfill's north and northeast sides.

Discussion

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

Table IV: Visual Inspection Checklist / Report – NHWLF

DEW LINE CLEAN-UP: POST-CONSTRUCTION - LANDFILL MONITORING
VISUAL INSPECTION CHECKLIST
INSPECTION REPORT – PAGE 1 of 2

SITE NAME: FOX-M HALL BEACH
LANDFILL DESIGNATION: NON-HAZARDOUS WASTE LANDFILL
DATE OF INSPECTION: AUGUST 26, 2010
DATE OF PREVIOUS INSPECTION: SEPTEMBER 6, 2009
INSPECTED BY: A. PASSALIS
REPORT PREPARED BY: A. PASSALIS
The inspector/reporter represents to the best of his/her knowledge that 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.

LANDFILL VISUAL INSPECTION

Site Name: Fox-M, Hall Beach
Landfill: Non-Hazardous Waste Landfill
Designation: New Landfill
Date Inspected: August 26, 2010
Inspected by: Andrew Passalis, P.Eng.

Signature: 

TABLE IV: Landfill Visual Inspection Checklist / Report - NHWLF

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	N/A	N/A
Erosion	No	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Frost Action	No	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Animal Burrows	No	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Vegetation	No	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Staining	No	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Vegetation Stress	No	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Seepage Points	No	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Debris Exposed	No	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Presence/Condition of Monitoring Instruments	Yes	See Figure FOX-M.2 and Photographic Record	N/A	N/A	N/A	N/A	MW-12, 13, 14, 15, 16	NHWLF-12W, 13W, 14W, 15W, 16W	N/A	Monitoring wells MW-12, 13 and 15 in good condition. Protective well cover and J-plug damaged at MW-14, gravel debris suspected in well Protective casing appears to have settled or well heaved at MW-16.
Other Features of Note	Yes	FEATURE A See Figure FOX-M.2 (numerous locations)	1 - 50 m	0.2-0.4 m	10 - 30 cm	Occasional (2%)	Vehicle tracks / ruts	NHWLF-1, 3, 4, 5, 10, 11, 12	Acceptable	Random tire track marks on surface and side slopes of landfill.
		See Figure FOX-M.2 (north side)	N/A	N/A	N/A	Isolated (2 locations)	Plywood and geotextile surface debris	NHWLF-11, 17	N/A	Isolated pieces of surface debris located north and northeast of landfill.
Additional Photos	Yes	See Figure FOX-M.2 and Photographic Record	N/A	N/A	N/A	N/A	General Photographic Record	N/A	N/A	General photos for documentation, no features of note.
Overall Landfill Performance:	**Acceptable**									

3.3 PRELIMINARY STABILITY ASSESSMENT

The Preliminary Stability Assessment for NHWLF has been completed as per the ToR and is included as Table V hereafter.

Table V: Preliminary Stability Assessment – NHWLF

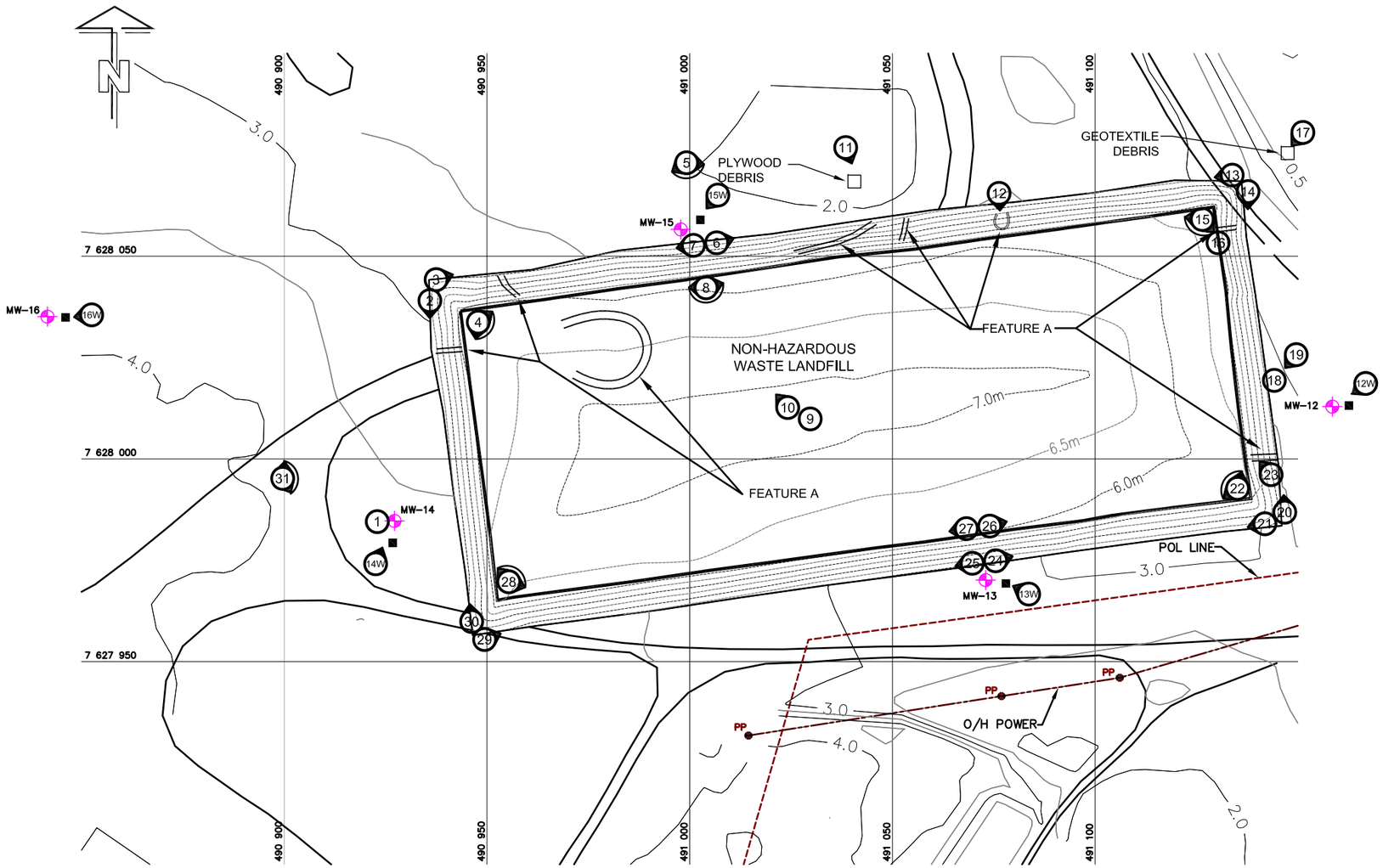
Feature	Severity Rating	Extent
Settlement	Not observed	None
Erosion	Not observed	None
Frost Action	Not observed	None
Staining	Not observed	None
Vegetation Stress	Not observed	None
Seepage/Ponded Water	Not observed	None
Debris exposure	Not observed	None
Overall Landfill Performance	**Acceptable**	

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.
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

3.4 LOCATION PLAN

The Location Plan for the NHWLF has been completed as per the ToR and is presented in the following page as Figure FOX-M.2.



LEGEND

- MONITORING WELL LOCATION
- SOIL SAMPLING LOCATION
- PHOTOGRAPH VIEWPOINT LOCATION
- PANORAMIC VIEW
- VEHICLE TRACKS/RUTS (NTS)

0 12.5m 25m 37.5m 50m 62.5m

NO.	VERSION	DATE	BY	VERIF.	APPR.
A	FINAL	11-02-09	P.L.	A.P.	R.G.

Construction de Défense Canada
Defence Construction Canada

FINAL REPORT
COLLECTION OF LANDFILL MONITORING DATA
FOX-M, HALL BEACH, NUNAVUT

NON-HAZARDOUS WASTE LANDFILL

SITE REMEDIATION SOLUTIONS

Biogenie, a division of EnGlobe Corp.
4495 Wilfrid-Hamel Blvd., Suite 200
Quebec (Quebec) CANADA G1P 2J7
Phone: (418) 653-4422 Fax.: (418) 653-3583

MEASUREMENT UNIT	SCALE:	DATE (month-year):
Metre	1 : 1,250	FEBRUARY 2011
DRAWN BY: P. LÉGARÉ	VERIFIED BY: A. PASSALIS	APPROVED BY: R. GAUTHIER
PROJECT NO: CD8177_005_101	DRAWING NO: CD8177_005_101-FOX-M_B	PAGE PL

FIGURE FOX-M.2

G:\CD8177\003\2010\FOX-M\FINAL\CD8177_005_101-FOX-M_B.dwg, PL, 2011-02-11 3:20:44 PM

3.5 PHOTOGRAPHIC RECORDS

The Photographic Record for NHWLF has been completed as per the ToR and is presented in the following pages as Table VI. The Photographic Record contains only an index and "thumbnail" photographs. Full size photographs are contained in the Addendum DVD-ROM.

Table VI: Landfill Visual Inspection Photo Log - NHWLF
Site Name: FOX-M, Hall Beach
Landfill: Non-Hazardous Waste Landfill
Date Inspected: August 26, 2010
Inspected by: Andrew Passalis, P.Eng.

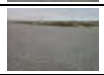
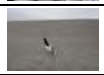
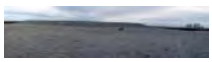
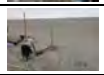
Photo (NHWLF-)	Thumbnail	Filename	Size (KB)	Date	Vantage Point		Caption
					Easting	Northing	
1		FM10_1400	4,338 KB	26/08/2010	490924	7627984	MW-14 located on southwest side of NHWLF. Protective well cover broken.
2		FM10_1403	4,414 KB	26/08/2010	490936	7628039	View S along west toe from northwest corner of landfill
3		FM10_1404	4,409 KB	26/08/2010	490938	7628043	View E along north toe from northwest corner of landfill
4		FM10_1405	1,469 KB	26/08/2010	490948	7628034	Panoramic view ENE to S across surface from northwest corner of landfill
5		FM10_1408	1,114 KB	26/08/2010	490999	7628073	Panoramic view E to SW at north side slope from north side of landfill. MW-15 visible in foreground.
6		FM10_1409	4,311 KB	26/08/2010	491006	7628053	View ENE along north toe of landfill
7		FM10_1410	4,449 KB	26/08/2010	491000	7628053	View WSW along north toe of landfill
8		FM10_1412	2,250 KB	26/08/2010	491004	7628042	Panoramic view ENE to WSW across surface from midway along north crest of landfill. Note tire tracks on surface.
9		FM10_1413	4,302 KB	26/08/2010	491030	7628010	Commemorative plaque in central cover area
10		FM10_1414	4,330 KB	26/08/2010	491025	7628012	View NW at tire tracks/ruts on surface of landfill
11		FM10_1415	4,399 KB	26/08/2010	491038	7628077	View SSE at piece of plywood debris located north of landfill (1.5m L, 1m W)
12		FM10_1416	4,282 KB	26/08/2010	491076	7628065	View S at typical tire tracks/ruts on surface and side slopes of landfill (8m L, 10cm D)
13		FM10_1417	4,399 KB	26/08/2010	491133	7628070	View WSW along north toe from northeast corner of landfill
14		FM10_1418	4,419 KB	26/08/2010	491138	7628066	View SSE along east toe from northeast corner of landfill
15		FM10_1419	1,474 KB	26/08/2010	491127	7628059	Panoramic view SE to W across surface from northeast corner of landfill
16		FM10_1420	4,347 KB	26/08/2010	491131	7628054	Typical vehicle tracks/ruts on northeast crest of landfill
17		FM10_1422	4,412 KB	26/08/2010	491151	7628080	View SW at piece of geomembrane debris northeast of landfill (0.5m x 0.5 m)
18		FM10_1425	4,137 KB	26/08/2010	491145	7628019	Thermistor string installed at 30 degree angle near east toe of landfill
19		FM10_1426	4,370 KB	26/08/2010	491150	7628025	View SW at thermistor string installed at east toe of landfill
20		FM10_1429	4,295 KB	26/08/2010	491147	7627986	View N along east toe from southeast corner of landfill
21		FM10_1430	4,371 KB	26/08/2010	491143	7627984	View WSW along south toe from southeast corner of landfill
22		FM10_1431	1,490 KB	26/08/2010	491135	7627993	Panoramic view SW to NNE across surface from southeast corner of landfill
23		FM10_1432	4,325 KB	26/08/2010	491144	7627996	View NW at tire tracks/ruts on southeast side slope of landfill (6m L, 5-10 cm D)

Table VI: Landfill Visual Inspection Photo Log - NHWLF
Site Name: FOX-M, Hall Beach
Landfill: Non-Hazardous Waste Landfill
Date Inspected: August 26, 2010
Inspected by: Andrew Passalis, P.Eng.

Photo (NHWLF-)	Thumbnail	Filename	Size (KB)	Date	Vantage Point		Caption
					Easting	Northing	
24		FM10_1435	4,392 KB	26/08/2010	491074	7627975	View ENE along south toe of landfill
25		FM10_1436	4,310 KB	26/08/2010	491071	7627974	View WSW along south toe of landfill
26		FM10_1437	4,344 KB	26/08/2010	491072	7627983	View ENE along south crest of landfill
27		FM10_1438	4,429 KB	26/08/2010	491070	7627983	View WSW along south crest of landfill
28		FM10_1439	1,800 KB	26/08/2010	490955	7627970	Panoramic view NW to ESE across surface from southwest corner of landfill
29		FM10_1440	4,361 KB	26/08/2010	490950	7627955	View ENE along south toe from southwest corner of landfill
30		FM10_1441	4,327 KB	26/08/2010	490947	7627958	View NNW along west toe from southwest corner of landfill
31		FM10_1442	1,223 KB	26/08/2010	490902	7627992	Panoramic view NE to SE at west side slope from west side of landfill
Soil Sampling							
MW-12		FM10_1427	4,459 KB	26/08/2010	491163	7628013	Sampling location FM-12W located on east side of NHWLF
12W		FM10_1428	4,331 KB	26/08/2010	491166	7628018	View SW at FM-12W soil sample location
MW-13		FM10_1433	4,268 KB	26/08/2010	491078	7627969	Sampling location FM-13W located on south side of NHWLF
13W		FM10_1434	4,414 KB	26/08/2010	491084	7627966	View NW at FM-13W soil sample location
MW-14		FM10_1401	4,402 KB	26/08/2010	490927	7627980	Sampling location FM-14W located on southwest side of NHWLF
14W		FM10_1402	4,361 KB	26/08/2010	490923	7627974	View NNE at FM-14W soil sample location
MW-15		FM10_1406	4,380 KB	26/08/2010	491003	7628059	Sampling location FM-15W located on north side of NHWLF
15W		FM10_1407	4,349 KB	26/08/2010	491006	7628064	View SW at FM-15W soil sample location
MW-16		FM10_1444	4,425 KB	26/08/2010	490846	7628035	Sampling location FM-16W located west (upgradient) of NHWLF
16W		FM10_1445	4,384 KB	26/08/2010	490852	7628036	View W at FM-16W soil sample location

3.6 SOIL SAMPLE ANALYTICAL DATA

The soil chemical analysis results and evaluation of analytical data for the 2010 NHWLF samples are presented in Tables VII and VIII respectively. Certificates of analysis results of field duplicates collected as part of the QA/QC program are presented in Appendix C.

Table VII: Soil Chemical Analysis Results – NHWLF

Sample #	Location	Depth (cm)	Cu [mg/kg]	Ni [mg/kg]	Co [mg/kg]	Cd [mg/kg]	Pb [mg/kg]	Zn [mg/kg]	Cr [mg/kg]	As [mg/kg]	Hg [mg/kg]	PCBs [mg/kg]	F1 C_6-C_{10} [mg/kg]	F2 C_{10}-C_{16} [mg/kg]	F3 C_{16}-C_{34} [mg/kg]	TPH C_6-C_{34} [mg/kg]
FM10-12WA	MW-12	0-15	5	13	3	<0.5	28	13	16	1	<0.1	<0.02	<10	14	<20	14
FM10-12WB		40-50	4	12	2	<0.5	14	10	15	1	<0.1	<0.1*	<10	13	<20	13
FM10-13WA	MW-13	0-15	4	9	2	<0.5	42	10	12	1	<0.1	<0.1*	<10	<10	25	25
FM10-13WB		40-50	4	11	2	<0.5	27	9	14	1	<0.1	<0.02	<10	<10	<20	ND
FM10-14WA	MW-14	0-15	25	13	2	<0.5	8	10	15	2	<0.1	<0.1*	<10	<10	33	33
FM10-14WB		40-50	4	15	2	<0.5	6	9	23	2	<0.1	<0.02	<10	<10	<20	ND
FM10-15WA	MW-15	0-15	6	13	2	<0.5	14	11	18	2	<0.1	<0.02	<10	15	<20	15
FM10-15WB		40-50	5	13	2	<0.5	6	10	18	3	<0.1	<0.02	<10	18	<20	18
FM10-16WA	MW-16	0-15	6	10	2	<0.5	41	14	13	2	<0.1	<0.02	<10	<10	72	72
FM10-16WB		40-50	4	11	2	<0.5	13	9	16	2	<0.1	<0.02	<10	<10	<20	ND
FM10-BD4	FM10-12WA	0-15	5	12	2	<0.5	27	11	18	2	<0.1	<0.2*	<10	12	<20	12

TPH: Sum of the concentrations of F1, F2 and F3. Concentrations below method detection limits are excluded from the total.

ND: Not detected

*MRL elevated due to matrix interference.

S:\P\CD\8177\FOX-M\T\[10- Soil and GW results FOX-M.xlsx]Soil - NHWLF

Table VIII: Evaluation of 2010 Soil Analytical Data – NHWLF

Parameter	2010
Copper	Concentrations ranged between 4-25 mg/kg with a mean concentration of 6.7 mg/kg. The highest concentration was observed at surface at MW-14, with concentrations at the remaining sample locations ranging between 4-6 mg/kg.
Nickel	Concentrations ranged between 9-15 mg/kg with detectable concentrations at all sample locations and a mean concentration of 12.0 mg/kg. The most elevated concentrations were observed at MW-14 (13 mg/kg - surface, 15 mg/kg - depth), MW-12 (13 mg/kg - surface) and MW-15 (13 mg/kg - surface and depth). The lowest concentration was observed at surface at MW-13.
Cobalt	Concentrations ranged between 2-3 mg/kg with a mean of 2.1 with detectable concentrations noted at all locations. The highest concentration was observed at surface at MW-12, and a concentration of 2 mg/kg at the remaining sample locations.
Cadmium	All reported concentrations were less than the method detection limit (0.5 mg/kg).
Lead	Concentrations ranged between 6-42 mg/kg with a mean of 19.9. The highest concentrations were noted at surface at MW-13 (42 mg/kg) and MW-16 (41 mg/kg), whereas the lowest concentrations were noted at MW-14 (8 mg/kg - surface, 6 mg/kg - depth). Slightly elevated concentrations were also noted at surface at MW-12 (28 mg/kg) and depth at MW-13 (27 mg/kg).
Zinc	Concentrations ranged between 9-14 mg/kg with a mean of 10.5 mg/kg. Slightly elevated concentrations were noted at surface at MW-12 (13 mg/kg) and MW-16 (14 mg/kg), with concentrations at the remaining sample locations ranging between 9-11 mg/kg.
Chromium	Concentrations ranged between 12-23 mg/kg with a mean of 16.0 mg/kg. The highest concentrations were observed at MW-14 (23 mg/kg – depth) and MW-15 (18 mg/kg – surface and depth). The lowest concentration was noted at MW-13 (surface).
Arsenic	Concentrations ranged between 1-3 mg/kg with a mean of 1.7 mg/kg.. The highest concentration was noted at depth at MW-15, with concentrations at the remaining sample locations ranging between 1-2 mg/kg.
Mercury	All reported concentrations were less than the method detection limit (0.1 mg/kg).
PCBs	All reported concentrations were less than the method detection limit (0.02-0.1 mg/kg).
TPH	Concentrations ranged between ND-72 mg/kg with detectable concentrations noted at both surface and depth sample locations at MW-12 and MW-15 and at surface sample locations MW-13, MW-14 and MW-16. The highest TPH concentrations were noted in the surface sample at MW-16 (72 mg/kg) depth.

3.7 GROUNDWATER SAMPLE ANALYTICAL DATA

The groundwater chemical analysis results and evaluation of analytical data for the 2010 NHWLF samples are presented in Tables IX and X. Certificates of analysis and groundwater samples collected as part of the QA/QC program are presented in Appendix C.

Table IX: Groundwater Chemical Analysis Results – NHWLF

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 [µg/L]	F1 C_6-C_{10} [mg/L]	F2 C_{10}-C_{16} [mg/L]	F3 C_{16}-C_{34} [mg/L]	TPH C_6-C_{34} [mg/L]
FM10-13W	MW-13	0.003	0.01	0.0005	0.0001	<0.001	<0.01	0.004	<0.001	<0.0001	<0.1	<0.1	<0.1	<0.2	ND
FM10-15W	MW-15	0.002	0.01	0.0004	<0.0001	<0.001	<0.01	0.004	<0.001	<0.0001	<0.1	<0.1	<0.1	<0.2	ND

TPH: Sum of the concentrations of F1, F2 and F3. Concentrations below method detection limits are excluded from the total.
ND: Not detected

S:\P\CD\8177\FOX-M\T\[10- Soil and GW results FOX-M.xlsx]GW - NHWLF

Table X: Evaluation of 2010 Groundwater Analytical Data – NHWLF

Parameter	2010
Copper	Concentrations ranged between 0.002-0.003 mg/L, with the highest concentration noted at MW-13.
Nickel	Concentrations of 0.01 mg/L were detected in samples collected from both MW-13 and MW-15.
Cobalt	Concentrations ranged between 0.0004-0.0005 mg/L, with the highest concentration noted at MW-13.
Cadmium	Concentrations ranged between <0.0001-0.0001 mg/L, with detectable concentrations noted at only one well location, MW-13.
Lead	All reported concentrations were less than the method detection limit (0.001 mg/L).
Zinc	All reported concentrations were less than the method detection limit (0.01 mg/L).
Chromium	Concentrations of 0.004 mg/L were detected in samples collected from both MW-3 and MW-15.
Arsenic	All reported concentrations were less than the method detection limit (0.001 mg/L).
Mercury	All reported concentrations were less than the method detection limit (0.0001 mg/L).
PCBs	All reported concentrations were less than the method detection limit (0.1 µg/L).
TPH	All reported concentrations were less than the method detection limit.

3.8 MONITORING WELL SAMPLING / INSPECTION LOGS

The monitoring well sampling and inspection logs for MW-12, MW-13, MW-14, MW-15 and MW-16 are included in this section.

2010 Monitoring Well Sampling Log (MW-12)

Site name:	FOX-M
Date of sampling event:	26-Aug-10
Names of samplers:	Andrew Passalis
Monitoring well ID:	MW-12
Facility:	Non-Hazardous Waste Landfill

Known Data	
Depth of installation* (m):	3.00
Length of screened section (m):	1.50
Depth to top of screen* (m):	0.48

Measured Data			
Condition of well:	Good	Procedure/Equipment:	Interface Meter
Procedure/Equipment:	Measuring Tape	Depth to water surface (m):	- (dry)
Well height above ground (m):	0.48	Depth to bottom (m):	1.48
Diameter of well (m):	0.04	Free product thickness (mm):	-

Calculations		Notes	
Depth of water (m):	-	Evidence of sludge:	no
Well volume of water (L):	-	Evidence of freezing/siltation:	no
Static water level* (m):	-		
Length of screen collecting water (m):	-		

Development/Purging Information

Equipment: n/a

Date & Time	Volume Removed (L)	Temperature (^{o}C)	pH	Conductivity (µS/cm)	Turbidity (NTU)	Description of Water
-	-	-	-	-	-	-

Water Sampling		Soil Sampling	
Date & Time Collected:		Date and Time Collected:	26-Aug-10
Sample Number - Water:		Sample Number - Soil:	FM10-12WA + intra dup
			FM10-BD4 (12WA)
			FM10-12WB
Sample Containers:		Sample Containers:	2x500mL, 5x125 mL
			2x500mL glass
			2x500mL glass
Procedure/Equipment:	n/a	Procedure/Equipment:	Steel & Plastic Trowels
Water Description:	n/a	Soil Description:	Light brown sand and gravel, trace fines
Sampling Equipment Decontamination (Y/N):	n/a	Sampling Equipment Decontamination (Y/N):	Y
Number Washes:	-	Number Washes:	1
Number Rinses:	-	Number Rinses:	1

*From ground surface. Unless this is stated, all measurments are assumed to be from the top of the casing.
n/a=not applicable
LDPE=Low Density Polyethylene
SS=Stainless Steel
C&C = Clear & Colourless
N/O = No Odour

2010 Monitoring Well Sampling Log (MW-13)

Site name:	FOX-M
Date of sampling event:	26-Aug-10
Names of samplers:	Andrew Passalis
Monitoring well ID:	MW-13
Facility:	Non-Hazardous Waste Landfill

Known Data

Depth of installation* (m):	3.00
Length of screened section (m):	1.50
Depth to top of screen* (m):	0.49

Measured Data

Condition of well:	Good	Procedure/Equipment:	Interface Meter
Procedure/Equipment:	Measuring Tape	Depth to water surface (m):	1.29
Well height above ground (m):	0.45	Depth to bottom (m):	1.75
Diameter of well (m):	0.04	Free product thickness (mm):	-

Calculations		Notes	
Depth of water (m):	0.47	Evidence of sludge:	no
Well volume of water (L):	0.72	Evidence of freezing/siltation:	no
Static water level* (m):	0.84		
Length of screen collecting water (m):	0.47		

Development/Purging Information

Equipment: Dedicated waterra tubing and foot valve

Date & Time	Volume Removed (L)	Temperature (^{o}C)	pH	Conductivity (µS/cm)	Turbidity (NTU)	Description of Water
26-Aug-10	0.9	2.3	7.9	1541	132	C&C, N/O

Water Sampling		Soil Sampling	
Date & Time Collected:	26-Aug-10	Date and Time Collected:	26-Aug-10
Sample Number - Water:	FM10-13W	Sample Number - Soil:	FM10-13WA
			FM10-13WB
Sample Containers:	1x250 mL plastic	Sample Containers:	2x250mL glass
	2x1L amber		3x250mL glass
	3x40 mL vials		
Procedure/Equipment:	Waterra tubing & foot valve Hanna HI9828 Mulitmeter, Hach 2100P Turbidimeter	Procedure/Equipment:	Steel & Plastic Trowels
Water Description:	C&C, N/O	Soil Description:	Light brown sand and gravel, well graded
Sampling Equipment Decontamination (Y/N):	N, dedicated	Sampling Equipment Decontamination (Y/N):	Y
Number Washes:	0	Number Washes:	1
Number Rinses:	0	Number Rinses:	1

*From ground surface. Unless this is stated, all measurments are assumed to be from the top of the casing.
n/a=not applicable
LDPE=Low Density Polyethylene
SS=Stainless Steel
C&C = Clear & Colourless
N/O = No Odour

2010 Monitoring Well Sampling Log (MW-14)

Site name:	FOX-M
Date of sampling event:	26-Aug-10
Names of samplers:	Andrew Passalis
Monitoring well ID:	MW-14
Facility:	Non-Hazardous Waste Landfill

Known Data

Depth of installation* (m):	3.00
Length of screened section (m):	1.50
Depth to top of screen* (m):	0.47

Measured Data

Condition of well:	Damaged, well plug needs to be replaced	Procedure/Equipment:	Interface Meter
Procedure/Equipment:	Measuring Tape	Depth to water surface (m):	- (dry)
Well height above ground (m):	0.40	Depth to bottom (m):	1.12
Diameter of well (m):	0.04	Free product thickness (mm):	-

Calculations		Notes	
Depth of water (m):	-	Evidence of sludge:	no
Well volume of water (L):	-	Evidence of freezing/siltation:	no
Static water level* (m):	-	Well casing damaged, well suspected to be vandalized (filled with sand and gravel).	
Length of screen collecting water (m):	-		

Development/Purging Information

Equipment:	n/a

Date & Time	Volume Removed (L)	Temperature (^{o}C)	pH	Conductivity (µS/cm)	Turbidity (NTU)	Description of Water
-	-	-	-	-	-	-

Water Sampling		Soil Sampling	
Date & Time Collected:		Date and Time Collected:	26-Aug-10
Sample Number - Water:		Sample Number - Soil:	FM10-14WA
			FM10-14WB
Sample Containers:		Sample Containers:	2x250mL glass
			3x250mL glass
Procedure/Equipment:	n/a	Procedure/Equipment:	Steel & Plastic Trowels
Water Description:	n/a	Soil Description:	Brown sand and gravel, med-cs grained
Sampling Equipment Decontamination (Y/N):	n/a	Sampling Equipment Decontamination (Y/N):	Y
Number Washes:	-	Number Washes:	1
Number Rinses:	-	Number Rinses:	1

*From ground surface. Unless this is stated, all measurments are assumed to be from the top of the casing.
n/a=not applicable
LDPE=Low Density Polyethylene
SS=Stainless Steel
C&C = Clear & Colourless
N/O = No Odour

2010 Monitoring Well Sampling Log (MW-15)

Site name:	FOX-M
Date of sampling event:	26-Aug-10
Names of samplers:	Andrew Passalis
Monitoring well ID:	MW-15
Facility:	Non-Hazardous Waste Landfill

Known Data

Depth of installation* (m):	3.00
Length of screened section (m):	1.50
Depth to top of screen* (m):	0.43

Measured Data

Condition of well:	Good	Procedure/Equipment:	Interface Meter
Procedure/Equipment:	Measuring Tape	Depth to water surface (m):	1.00
Well height above ground (m):	0.49	Depth to bottom (m):	1.75
Diameter of well (m):	0.04	Free product thickness (mm):	-

Calculations		Notes	
Depth of water (m):	0.75	Evidence of sludge:	no
Well volume of water (L):	1.16	Evidence of freezing/siltation:	no
Static water level* (m):	0.51		
Length of screen collecting water (m):	0.75		

Development/Purging Information

Equipment: Dedicated waterra tubing and foot valve

Date & Time	Volume Removed (L)	Temperature (^{o}C)	pH	Conductivity (µS/cm)	Turbidity (NTU)	Description of Water
26-Aug-10	1.2	2.2	8.0	1582	45	C&C, N/O

Water Sampling		Soil Sampling	
Date & Time Collected:	26-Aug-10	Date and Time Collected:	26-Aug-10
Sample Number - Water:	FM10-15W	Sample Number - Soil:	FM10-15WA
			FM10-15WB
Sample Containers:	1x250 mL plastic	Sample Containers:	2x500mL glass
	2x1L amber		2x500mL glass
	3x40 mL vials		
Procedure/Equipment:	Waterra tubing & foot valve Hanna HI9828 Mulitmeter, Hach 2100P Turbidimeter	Procedure/Equipment:	Steel & Plastic Trowels
Water Description:	C&C, N/O	Soil Description:	Brown/grey gravel, some coarse sand, blk org @ 0.1-0.4 m
Sampling Equipment Decontamination (Y/N):	N, dedicated	Sampling Equipment Decontamination (Y/N):	Y
Number Washes:	0	Number Washes:	1
Number Rinses:	0	Number Rinses:	1

*From ground surface. Unless this is stated, all measurments are assumed to be from the top of the casing.
n/a=not applicable
LDPE=Low Density Polyethylene
SS=Stainless Steel
C&C = Clear & Colourless
N/O = No Odour

2010 Monitoring Well Sampling Log (MW-16)

Site name:	FOX-M
Date of sampling event:	26-Aug-10
Names of samplers:	Andrew Passalis
Monitoring well ID:	MW-16
Facility:	Non-Hazardous Waste Landfill

Known Data

Depth of installation* (m):	3.00
Length of screened section (m):	1.50
Depth to top of screen* (m):	0.46

Measured Data

Condition of well:	Good, protective casing appears to have settled	Procedure/Equipment:	Interface Meter
Procedure/Equipment:	Measuring Tape	Depth to water surface (m):	- (dry)
Well height above ground (m):	0.60	Depth to bottom (m):	1.50
Diameter of well (m):	0.04	Free product thickness (mm):	-

Calculations		Notes	
Depth of water (m):	-	Evidence of sludge:	no
Well volume of water (L):	-	Evidence of freezing/siltation:	no
Static water level* (m):	-		
Length of screen collecting water (m):	-		

Development/Purging Information

Equipment: n/a

Date & Time	Volume Removed (L)	Temperature (^{o}C)	pH	Conductivity (µS/cm)	Turbidity (NTU)	Description of Water
-	-	-	-	-	-	-

Water Sampling		Soil Sampling	
Date & Time Collected:		Date and Time Collected:	26-Aug-10
Sample Number - Water:		Sample Number - Soil:	FM10-16WA
			FM10-16WB
Sample Containers:		Sample Containers:	2x250mL glass
			3x250mL glass
Procedure/Equipment:		Procedure/Equipment:	Steel & Plastic Trowels
Water Description:		Soil Description:	Brown sand, med-cs grained, and gravel
Sampling Equipment Decontamination (Y/N):	n/a	Sampling Equipment Decontamination (Y/N):	Y
Number Washes:	-	Number Washes:	1
Number Rinses:	-	Number Rinses:	1

*From ground surface. Unless this is stated, all measurments are assumed to be from the top of the casing.
n/a=not applicable
LDPE=Low Density Polyethylene
SS=Stainless Steel
C&C = Clear & Colourless
N/O = No Odour

4 G217 – WEST LANDFILL

4.1 BACKGROUND AND MONITORING PROGRAM

The G217 – West Landfill is located immediately west of the main access road, approximately 150 m west of the communication billboards and 200 m southwest of the main station area. The landfill, including granular cover, encompasses a footprint of approximately 5,700 m^2 with the final cover extending between 0.75 m to 1.5 m above the surrounding grade. Based on existing information regarding this landfill as a source of contamination, its potential migration pathways and receptors, the G217 – West Landfill was classified as low potential environmental risk. The remediation consisted of removal of surface debris and regrading with the placement of additional granular fill.

The long-term monitoring plan consists of visual monitoring and periodic collection of soil samples. The 2010 monitoring of this landfill includes collection of soil samples to monitor for the presence of leachate and visual inspection to assess landfill performance. There is no instrumentation installed at this landfill.

4.2 VISUAL INSPECTION REPORT

The visual inspection of the G217 – West Landfill was conducted on August 25, 2010. The Visual Inspection Checklist/Report has been completed as per the ToR and is included as Table XI of this report.

Settlement
Evidence of settlement was not noted.

Erosion
Evidence of erosion 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
Evidence of vegetation was not noted.

Staining
Evidence of staining was not noted on the landfill.

Seepage Points
Evidence of seepage was not noted.

Debris
Evidence of surface debris was not noted on the landfill.

Presence/Condition of Monitoring Instruments
There are no monitoring instruments installed at this landfill.

Other Features of Note

Several vehicle tracks/ruts were observed on the northeast and southeast corners of the landfill cover (Feature A). The vehicle tracks/ruts extended between 0.05 to 0.1 m in depth and covered approximately 2% of the landfill surface. Ponded water was also noted in proximity to the north and south sides of the landfill.

Discussion

The G217 - West Landfill performance with respect to containment of the debris within the landfill is rated as acceptable. A visual inspection report, including supporting photos and drawing, is presented in the following pages.

Table XI: Visual Inspection Checklist / Report – G217 - West Landfill

DEW LINE CLEAN-UP: POST-CONSTRUCTION - LANDFILL MONITORING
VISUAL INSPECTION CHECKLIST
INSPECTION REPORT – PAGE 1 of 2

SITE NAME: FOX-M HALL BEACH
LANDFILL DESIGNATION: G217 - WEST LANDFILL
DATE OF INSPECTION: AUGUST 25, 2010
DATE OF PREVIOUS INSPECTION: SEPTEMBER 6, 2009
INSPECTED BY: A. PASSALIS
REPORT PREPARED BY: A. PASSALIS
The inspector/reporter represents to the best of his/her knowledge that 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.

LANDFILL VISUAL INSPECTION

Site Name: Fox-M, Hall Beach
Landfill: G217 West Landfill
Designation: Regrade Landfill
Date Inspected: August 25, 2010
Inspected by: Andrew Passalis, P.Eng.

Signature: 

TABLE XI: Landfill Visual Checklist / Report - West Landfill

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	N/A	N/A
Erosion	No	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Frost Action	No	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Animal Burrows	No	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Vegetation	No	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Staining	No	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Vegetation Stress	No	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Seepage Points	No	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Debris Exposed	No	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Presence/Condition of Monitoring Instruments	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Other Features of Note	Yes	FEATURE A See Figure FOX-M.3 (northeast and southeast corners of landfill)	4 - 20 m	0.2-0.3 m	5 - 10 cm	Occasional	Vehicle tracks / ruts	G217-1, 3, 11-13, 15, 16	Acceptable	Vehicle tracks / ruts on surface and sides of landfill.
	Yes	See Figure FOX-M.3 (northwest and southwest sides of landfill)	N/A	N/A	N/A	Occasional	Ponded water along north and south sides of landfill	G217-5, 8	Acceptable	Ponded water along northwest and southwest sides of landfill.
Additional Photos	Yes	See Figure FOX-M.3 and Photographic Record	N/A	N/A	N/A	N/A	General Photographic Record	N/A	N/A	General photos for documentation, no features of note.
Overall Landfill Performance:	**Acceptable**									

4.3 PRELIMINARY STABILITY ASSESSMENT

The Preliminary Stability Assessment for G217 – West Landfill has been completed as per the ToR and is included as Table XII hereafter.

Table XII: Preliminary Stability Assessment – G217 - West Landfill

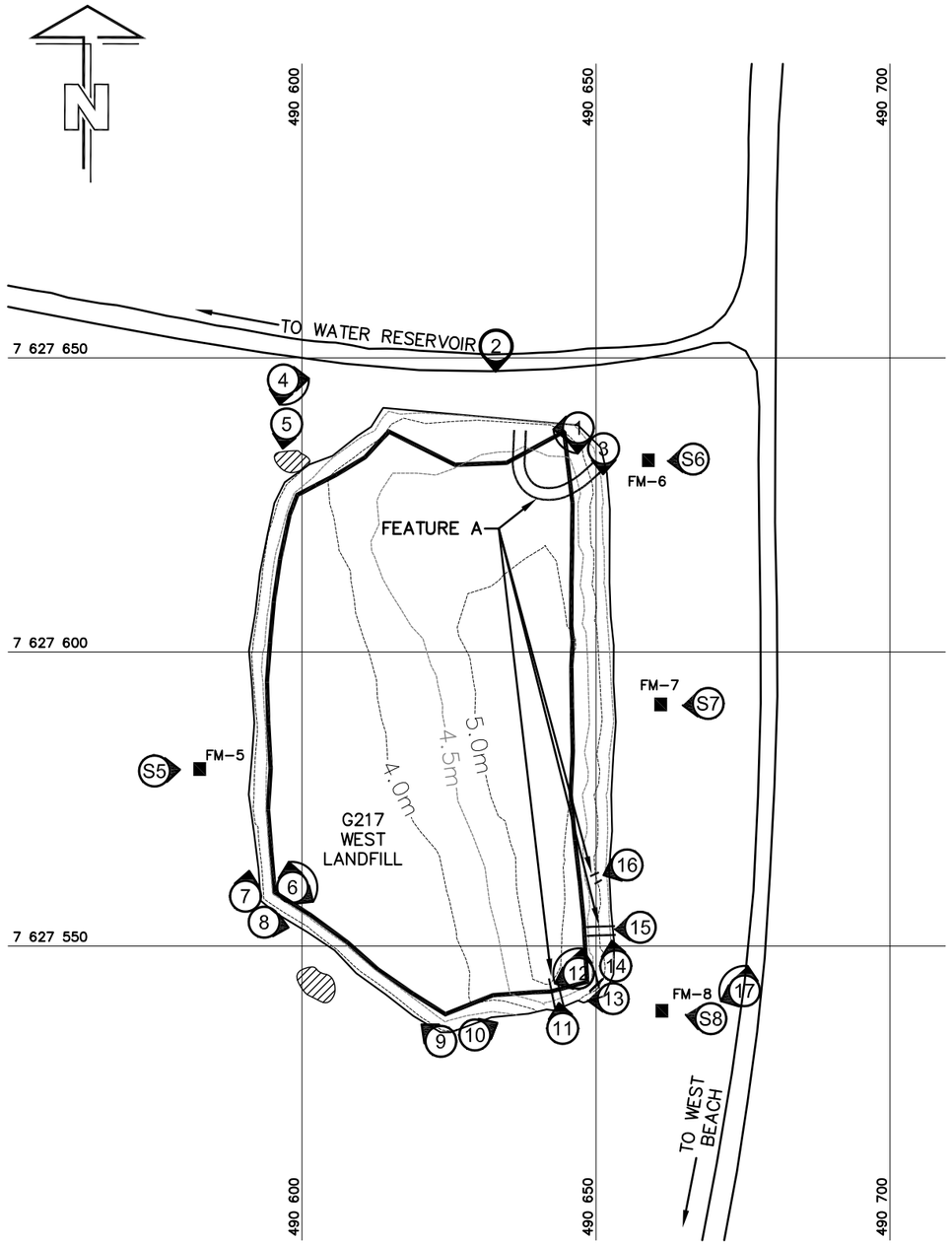
Feature	Severity Rating	Extent
Settlement	Not observed	None
Erosion	Not observed	None
Frost Action	Not observed	None
Staining	Not observed	None
Vegetation Stress	Not observed	None
Seepage/Ponded Water	Not observed	None
Debris exposure	Not observed	None
Overall Landfill Performance	**Acceptable**	

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.
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 G217 – West Landfill has been completed as per the ToR and is presented as Figure FOX-M.3.



LEGEND

- SOIL SAMPLING LOCATION
- PHOTOGRAPH VIEWPOINT LOCATION
- PANORAMIC VIEW
- PONDED WATER
- VEHICLE TRACKS/RUTS (NTS)

0 10m 20m 30m 40m 50m

NO.	VERSION	DATE	BY	VERIF.	APPR.
A	FINAL	11–02–09	P.L.	A.P.	R.G.

Construction de Défense Canada
Defence Construction Canada

FINAL REPORT
COLLECTION OF LANDFILL MONITORING DATA
FOX-M, HALL BEACH, NUNAVUT

G217 - WEST LANDFILL

SITE REMEDIATION SOLUTIONS

Biogenie, a division of EnGlobe Corp.
4495 Wilfrid-Hamel Blvd., Suite 200
Quebec (Quebec) CANADA G1P 2J7
Phone: (418) 653-4422 Fax.: (418) 653-3583

MEASUREMENT UNIT	SCALE:	DATE (month–year):
Metre	1 : 1,000	FEBRUARY 2011
DRAWN BY: P. LÉGARÉ	VERIFIED BY: A. PASSALIS	APPROVED BY: R. GAUTHIER
PROJECT NO: CD8177_005_101	DRAWING NO: CD8177_005_101-FOX-M_C	PAGE PL

FIGURE FOX-M.3

G:\CD8177\003\2010\FOX-M\FINAL\CD8177_005_101-FOX-M_C.dwg, PL, 2011-02-18 12:54:16 PM

4.5 PHOTOGRAPHIC RECORDS

The Photographic Record for G217 – West Landfill has been completed as per the ToR and is presented in the following page as Table XIII. The Photographic Record contains only an index and “thumbnail” photographs. Full-size photographs are contained in the Addendum DVD-ROM.

Table XIII: Landfill Visual Inspection Photo Log - G217 - West Landfill
Site Name: FOX-M, Hall Beach
Landfill: G217 West Landfill
Date Inspected: August 25, 2010
Inspected by: Andrew Passalis, P.Eng.

Photo (G217-)	Thumbnail	Filename	Size (KB)	Date	Vantage Point		Caption
					Easting	Northing	
1		FM10_1270	1,199 KB	25/08/2010	490647	7627638	Panoramic view S to W across surface from northeast corner of landfill
2		FM10_1271	4,289 KB	25/08/2010	490634	7627651	View S at north end of landfill
3		FM10_1272	4,387 KB	25/08/2010	490651	7627634	View S at vehicle tracks/ruts on northeast corner of landfill
4		FM10_1273	1,021 KB	25/08/2010	490597	7627646	Panoramic view E to S from northwest of landfill
5		FM10_1274	4,353 KB	25/08/2010	490598	7627639	View S at ponded water located on northwest corner of landfill
6		FM10_1275	1,522 KB	25/08/2010	490599	7627560	Panoramic view N to SE across surface from southwest corner of landfill
7		FM10_1276	4,473 KB	25/08/2010	490590	7627558	View NNE along west toe from southwest corner of landfill
8		FM10_1277	4,460 KB	25/08/2010	490594	7627554	View SE along southwest toe from southwest corner of landfill
9		FM10_1278	4,273 KB	25/08/2010	490624	7627533	View NW along southwest toe from south end of landfill
10		FM10_1279	4,279 KB	25/08/2010	490630	7627534	View ENE along south toe from south end of landfill
11		FM10_1281	4,334 KB	25/08/2010	490645	7627536	View N at tire tracks/ruts on south side slope of landfill (5m L, 5-10cm D)
12		FM10_1282	1,399 KB	25/08/2010	490648	7627546	Panoramic view WSW to N across surface from southeast corner of landfill. Note vehicle tracks/ruts on left.
13		FM10_1283	4,276 KB	25/08/2010	490653	7627541	View W along south toe from southeast corner of landfill
14		FM10_1284	4,270 KB	25/08/2010	490654	7627546	View N along east toe from southeast corner of landfill
15		FM10_1285	4,416 KB	25/08/2010	490657	7627553	View W at vehicle tracks/ruts on east side slope of landfill (4m L, 5-1cm D)
16		FM10_1286	4,363 KB	25/08/2010	490654	7627564	View SW at vehicle tracks/ruts on east side slope of landfill (0.3m L, 15cm D)
17		FM10_1291	1,352 KB	25/08/2010	490675	7627542	Panoramic view W to N from access road southeast of landfill
Soil Sampling							
FM-5		FM10_1268	4,376 KB	25/08/2010	490583	7627580	Sampling location FM-5 located on west side of G217 West Landfill
S5		FM10_1269	4,371 KB	25/08/2010	490575	7627580	View E at FM-5 soil sample location
FM-6		FM10_1287	4,396 KB	25/08/2010	490660	7627633	Sampling location FM-6 located on northeast side of G217 West Landfill
S6		FM10_1288	4,387 KB	25/08/2010	490668	7627632	View W at FM-6 soil sample location
FM-7		FM10_1289	4,449 KB	25/08/2010	490660	7627591	Sampling location FM-7 located on east side of G217 West Landfill
S7		FM10_1290	4,333 KB	25/08/2010	490669	7627591	View W at FM-7 soil sample location
FM-8		FM10_1292	4,403 KB	25/08/2010	490661	7627539	Sampling location FM-8 located on southeast side of G217 West Landfill
S8		FM10_1293	4,417 KB	25/08/2010	490670	7627538	View WNW at FM-8 soil sample location

4.6 SOIL SAMPLE ANALYTICAL DATA

The soil chemical analysis results and evaluation of analytical data for the 2010 G217 – West Landfill samples are presented in Tables XIV and XV below. Certificates of analysis and results of field duplicates collected as part of the QA/QC program are presented in Appendix C.

Table XIV: Soil Chemical Analysis Results – G217 – West Landfill

Sample #	Location	Depth (cm)	Cu [mg/kg]	Ni [mg/kg]	Co [mg/kg]	Cd [mg/kg]	Pb [mg/kg]	Zn [mg/kg]	Cr [mg/kg]	As [mg/kg]	Hg [mg/kg]	PCBs [mg/kg]	F1 C_6-C_{10} [mg/kg]	F2 C_{10}-C_{16} [mg/kg]	F3 C_{16}-C_{34} [mg/kg]	TPH C_6-C_{34} [mg/kg]
FM10-5A	FM-5	0-15	5	11	3	<0.5	4	12	12	2	<0.1	<0.02	<10	<10	<20	ND
FM10-5B		40-50	6	12	3	<0.5	5	14	13	3	<0.1	<0.02	<10	<10	47	47
FM10-6A	FM-6	0-15	7	11	3	<0.5	23	483	14	2	<0.1	<0.1*	<10	<10	<20	ND
FM10-6B		40-50	7	9	2	<0.5	11	52	11	2	<0.1	<0.1*	<10	<10	51	51
FM10-7A	FM-7	0-15	7	12	3	<0.5	56	40	23	3	<0.1	<0.02	<10	10	<20	10
FM10-7B		40-50	2	5	1	<0.5	3	8	8	<1	<0.1	<0.02	<10	<10	<20	ND
FM10-8A	FM-8	0-15	5	10	2	<0.5	4	11	12	2	<0.1	<0.02	<10	12	<20	12
FM10-8B		40-50	6	24	2	<0.5	4	9	43	3	<0.1	<0.4*	<10	<10	<20	ND

TPH: Sum of the concentrations of F1, F2 and F3. Concentrations below method detection limits are excluded from the total.

ND: Not detected

* MRL elevated due to matrix interference

S:\P\CD\8177\FOX-M\T\[10- Soil and GW results FOX-M.xlsx]Soil - G217 West LF

Table XV: Evaluation of 2010 Soil Analytical Data – G217 – West Landfill

Parameter	2010
Copper	Concentrations ranged between 2-7 mg/kg with a mean concentration of 5.6 mg/kg. The highest concentration was observed at FM-6 (surface and depth) and FM-7 (surface), whereas the lowest concentration was observed at depth at FM-7. Concentrations at the remaining sample locations ranged between 5-6 mg/kg.
Nickel	Concentrations ranged between 5-24 mg/kg with a mean concentration of 11.8 mg/kg. The highest and lowest concentrations were observed at depth at FM-8 and FM-7, respectively. Concentrations at the remaining sample locations ranged between 9-12 mg/kg.
Cobalt	Concentrations ranged between 1-3 mg/kg with a mean of 2.4 with detectable concentrations noted at all locations. The highest concentration was observed at surface at FM-5 (surface and depth), FM-6 (surface) and FM-7 (surface). The lowest concentration was noted at depth at FM-7.
Cadmium	All reported concentrations were less than the method detection limit (0.5 mg/kg).
Lead	Concentrations ranged between 3-56 mg/kg with a mean of 13.8. The highest concentrations were noted at surface at FM-6 (23 mg/kg) and FM-7 (56 mg/kg), with a slightly elevated concentration also noted at depth at FM-6 (11 mg/kg). Concentrations at the remaining sample locations ranged between 3-5 mg/kg.
Zinc	Concentrations ranged between 8-483 mg/kg with the highest concentration noted at surface at FM-6, an order of magnitude greater than the next highest concentrations observed at depth at FM-6 (52 mg/kg) and surface at FM-7 (40 mg/kg). Concentrations at the remaining sample locations ranging between 8-14 mg/kg.
Chromium	Concentrations ranged between 8-43 mg/kg with a mean of 17.0 mg/kg. The highest concentrations were observed at FM-7 (23 mg/kg – surface) and FM-8 (43 mg/kg –depth). The lowest concentration was noted at FM-7 (depth), with concentrations at the remaining sample locations ranging between 11-14 mg/kg.
Arsenic	Concentrations ranged between <1-3 mg/kg with detectable concentrations observed at all but one sample location, FM-7 (depth). The highest concentrations were noted at depth at FM-5 and FM-8 and at surface at FM-7.
Mercury	All reported concentrations were less than the method detection limit (0.1 mg/kg).
PCBs	All reported concentrations were less than the method detection limits (0.02-0.4 mg/kg).
TPH	Concentrations ranged between ND-51 mg/kg with detectable concentrations noted at FM-5 (47 mg/kg – depth), FM-6 (51 mg/kg – depth), FM-7 (10 mg/kg – surface) and FM-8 (12 mg/kg – surface). All other TPH concentrations were below the method detection limits.

5 BILLBOARDS LANDFILL

5.1 BACKGROUND AND MONITORING PROGRAM

The Billboards Landfill is located immediately west of the communication billboards on the east side of the main station area. The landfill, including granular cover, encompasses a footprint of approximately 2,500 m^2 with the final cover extending between 0.75 m to 1.0 m above the surrounding grade. Based on existing information regarding this landfill as a source of contamination, its potential migration pathways and receptors, the Billboards Landfill was classified as low potential environmental risk. The remediation consisted of removal of surface debris and regrading with the placement of additional granular fill.

The long-term monitoring plan consists of visual monitoring and periodic collection of soil samples. The 2010 monitoring of this landfill includes collection of soil samples to monitor for the presence of leachate and visual inspection to assess landfill performance. There is no instrumentation installed at this landfill.

5.2 VISUAL INSPECTION REPORT

The visual inspection of the Billboards Landfill was conducted on August 25, 2010. The Visual Inspection Checklist/Report has been completed as per the ToR and is included as Table XVI of this report.

Settlement
Evidence of settlement was not noted.

Erosion
Evidence of erosion 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
Evidence of vegetation was not noted.

Staining
Evidence of staining was at one location along the northwest toe of the landfill (Feature A). The staining consisted of an approximately 1.5m x 1.5m area of rust-coloured soil associated with a low lying ponded area bordering the toe of the landfill. Seepage from the landfill was not observed at the time of the inspection. This feature was not noted during the previous 2009 inspection.

Seepage Points
Evidence of seepage was not noted.

Debris
Evidence of surface debris was not noted on the landfill.

Presence/Condition of Monitoring Instruments
There are no monitoring instruments installed at this landfill.

Other Features of Note

The landfill is located within a low lying area bordered by the station access road to the west and communication pads to the north and east. Ponded water was observed in proximity along the north and south sides of the landfill.

Discussion

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

Table XVI: Visual Inspection Checklist / Report – Billboards Landfill

DEW LINE CLEAN-UP: POST-CONSTRUCTION - LANDFILL MONITORING
VISUAL INSPECTION CHECKLIST
INSPECTION REPORT – PAGE 1 of 2

SITE NAME: FOX-M HALL BEACH
LANDFILL DESIGNATION: BILLBOARDS LANDFILL
DATE OF INSPECTION: AUGUST 25, 2010
DATE OF PREVIOUS INSPECTION: SEPTEMBER 6, 2009
INSPECTED BY: A. PASSALIS
REPORT PREPARED BY: A. PASSALIS
The inspector/reporter represents to the best of his/her knowledge that 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.

LANDFILL VISUAL INSPECTION

Site Name: Fox-M, Hall Beach
Landfill: Billboards Landfill
Designation: Regrade Landfill
Date Inspected: August 25, 2010
Inspected by: Andrew Passalis, P.Eng.
Sila Remediation Inc.

Signature: 

Table XVI: Landfill Visual Inspection Checklist / Report - Billboards Landfill

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	N/A	N/A
Erosion	No	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Frost Action	No	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Animal Burrows	No	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Vegetation	No	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Staining	Yes	Feature A See Figure FOX-M.4 (northwest side) NEW OBS.	1.5 m	1.5 m	Unknown	Isolated	Rust-coloured staining along toe	BLF-3	Acceptable	Minor staining associated with ponded area on northwest toe of landfill
Vegetation Stress	No	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Seepage Points	No	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Debris Exposed	No	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Presence/Condition of Monitoring Instruments	No	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Other Features of Note	Yes	See Figure FOX-M.4 (north and south sides of landfill)	N/A	N/A	0.1 -0.15 m	Occasional	Ponded water along north and south sides of landfill	BLF-1, 2-4, 7, 8	Acceptable	Ponded water along north and south sides of landfill.
Additional Photos	Yes	See Figure FOX-M.4 and Photographic Record	N/A	N/A	N/A	N/A	General Photographic Record	N/A	N/A	General photos for documentation, no features of note.
Overall Landfill Performance:	**Acceptable**									

5.3 PRELIMINARY STABILITY ASSESSMENT

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

Table XVII: Preliminary Stability Assessment – Billboards Landfill

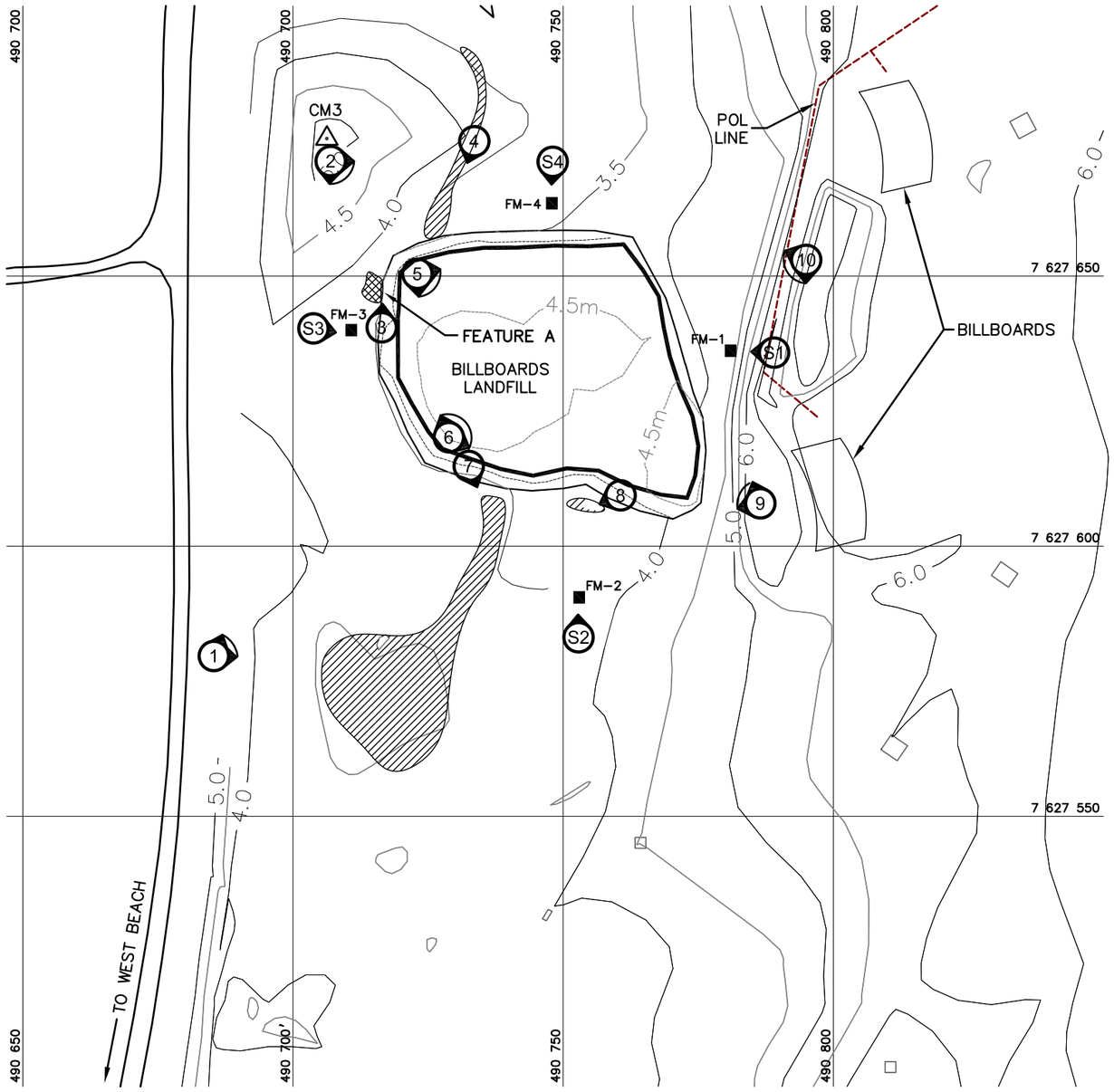
Feature	Severity Rating	Extent
Settlement	Not observed	None
Erosion	Not observed	None
Frost Action	Not observed	None
Staining	Acceptable	Isolated
Vegetation Stress	Not observed	None
Seepage/Ponded Water	Not observed	None
Debris exposure	Not observed	None
Overall Landfill Performance	**Acceptable**	

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.
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 Billboards Landfill has been completed as per the ToR and is presented as Figure FOX-M.4.



LEGEND

- SURVEY CONTROL MONUMENT
- SOIL SAMPLING LOCATION
- PHOTOGRAPH VIEWPOINT LOCATION
- PANORAMIC VIEW
- PONDED WATER
- STAINING

0 10m 20m 30m 40m 50m

NO.	VERSION	DATE	BY	VERIF.	APPR.
A	FINAL	11-02-09	P.L.	A.P.	R.G.

Construction de Défense Canada
Defence Construction Canada

FINAL REPORT
COLLECTION OF LANDFILL MONITORING DATA
FOX-M, HALL BEACH, NUNAVUT

BILLBOARDS LANDFILL

SITE REMEDIATION SOLUTIONS

Biogenie, a division of EnGlobe Corp.
4495 Wilfrid-Hamel Blvd., Suite 200
Quebec (Quebec) CANADA G1P 2J7
Phone: (418) 653-4422 Fax.: (418) 653-3583

MEASUREMENT UNIT	SCALE:	DATE (month-year):
Metre	1 : 1,000	FEBRUARY 2011
DRAWN BY:	VERIFIED BY:	APPROVED BY:
P. LÉGARÉ	A. PASSALIS	R. GAUTHIER
PROJECT NO:	DRAWING NO:	PAGE
CD8177_005_101	CD8177_005_101-FOX-M_D	PL

FIGURE FOX-M.4

G:\CD8177\003\2010\FOX-M\FINAL\CD8177_005_101-FOX-M_D.dwg, PL, 2011-02-11 3:22:57 PM

5.5 PHOTOGRAPHIC RECORDS

The Photographic Record for the Billboards Landfill has been completed as per the ToR and is presented in the following page as Table XVIII. The Photographic Record contains only an index and “thumbnail” photographs. Full size photographs are contained in the Addendum DVD-ROM.

Table XVIII: Landfill Visual Inspection Photo Log - Billboards landfill
Site Name: FOX-M, Hall Beach
Landfill: Billboards Landfill
Date Inspected: August 25, 2010
Inspected by: Andrew Passalis, P.Eng.

Photo (BLF-)	Thumbnail	Filename	Size (KB)	Date	Vantage Point		Caption
					Easting	Northing	
Billboards Landfill							
1		FM10_1294	4,339 KB	25/08/2010	490685	7627579	View NE to E from access road southwest of landfill
2		FM10_1295	744 KB	25/08/2010	490707	7627671	Panoramic view E to S from northwest of landfill
3		FM10_1296	4,418 KB	25/08/2010	490717	7627640	View N at minor rust-coloured staining at edge of ponded area (1.5m L, 1.5m W)
4		FM10_1299	4,130 KB	25/08/2010	490734	7627674	View SW along drainage feature extending from northwest corner of landfill
		FM10_1302	1,211 KB	25/08/2010	490776	7627655	Panoramic view SE to W across surface from northeast corner of landfill
5		FM10_1303	1,216 KB	25/08/2010	490723	7627651	Panoramic view E to S across surface from northwest corner of landfill
		FM10_1304	4,357 KB	25/08/2010	490720	7627646	View W at minor rust-coloured staining at edge of ponded area (1.5m L, 1.5m W)
6		FM10_1305	1,328 KB	25/08/2010	490729	7627620	Panoramic view NW to SE across surface from southwest corner of landfill
7		FM10_1306	4,372 KB	25/08/2010	490733	7627615	View SSE at drainage feature extending from southwest corner of landfill
8		FM10_1307	4,355 KB	25/08/2010	490761	7627609	View SW at ponded water along south toe of landfill
9		FM10_1308	988 KB	25/08/2010	490786	7627608	Panoramic view W to NNW from southeast of landfill
10		FM10_1311	1,086 KB	25/08/2010	490795	7627653	Panoramic view SSW to W from northeast of landfill
Soil Sampling							
FM-1		FM10_1309	4,448 KB	25/08/2010	490781	7627636	Sampling location FM-1 located on east side of Billboards Landfill
S1		FM10_1310	4,339 KB	25/08/2010	490789	7627636	View W at FM-1 soil sample location
FM-2		FM10_1312	4,448 KB	25/08/2010	490753	7627591	Sampling location FM-2 located on south side of Billboards Landfill
S2		FM10_1313	4,365 KB	25/08/2010	490753	7627583	View N at FM-2 soil sample location
FM-3		FM10_1297	4,376 KB	25/08/2010	490711	7627639	Sampling location FM-3 located on west side of Billboards Landfill
S3		FM10_1298	4,340 KB	25/08/2010	490704	7627640	View E at FM-3 soil sample location
FM-4		FM10_1300	4,401 KB	25/08/2010	490748	7627663	Sampling location FM-4 located on north side of Billboards Landfill
S4		FM10_1301	4,332 KB	25/08/2010	490748	7627671	View S at FM-4 soil sample location

5.6 SOIL SAMPLE ANALYTICAL DATA

The soil chemical analysis results and evaluation of analytical data for the 2010 Billboards Landfill samples are presented in Tables XIX and XX below. Certificates of analysis and results of field duplicates collected as part of the QA/QC program are presented in Appendix C.

Table XIX: Soil Chemical Analysis Results – Billboards Landfill

Sample #	Location	Depth (cm)	Cu [mg/kg]	Ni [mg/kg]	Co [mg/kg]	Cd [mg/kg]	Pb [mg/kg]	Zn [mg/kg]	Cr [mg/kg]	As [mg/kg]	Hg [mg/kg]	PCBs [mg/kg]	F1 C_6-C_{10} [mg/kg]	F2 C_{10}-C_{16} [mg/kg]	F3 C_{16}-C_{34} [mg/kg]	TPH C_6-C_{34} [mg/kg]
FM10-1A	FM-1	0-15	3	8	2	<0.5	7	17	10	2	<0.1	<0.02	<10	<10	<20	ND
FM10-1B		40-50	6	13	3	<0.5	7	19	16	2	<0.1	<0.1*	<10	36	40	76
FM10-2A	FM-2	0-15	286	294	4	<0.5	8	76	15	2	<0.1	<0.02	<10	<10	<20	ND
FM10-2B		40-50	13	18	4	<0.5	7	18	23	2	<0.1	<0.02	<10	<10	295	295
FM10-3A	FM-3	0-15	8	19	3	<0.5	6	16	27	3	<0.1	<0.02	<10	<10	<20	ND
FM10-3B		40-50	6	17	2	<0.5	4	11	27	2	<0.1	<0.1*	<10	11	<20	11
FM10-4A	FM-4	0-15	2	5	1	<0.5	2	6	7	1	<0.1	<0.1*	<10	11	<20	11
FM10-4B		40-50	3	9	2	<0.5	2	7	13	2	<0.1	<0.1*	<10	<10	<20	ND
FM10-BD1	FM10-4B	40-50	3	13	2	<0.5	3	7	26	1	<0.1	<0.02	<10	<10	<20	ND
FM10-BD3	FM10-1A	0-15	3	15	2	<0.5	5	11	28	2	<0.1	<0.2*	<10	<10	<20	ND

TPH: Sum of the concentrations of F1, F2 and F3. Concentrations below method detection limits are excluded from the total.

ND: Not detected

* MRL elevated due to matrix interference

S:\P\CD\8177\FOX-M\T\[10- Soil and GW results FOX-M.xlsx]Soil - Billboards LF

Table XX: Evaluation of 2010 Soil Analytical Data – Billboards West Landfill

Parameter	2010
Copper	Concentrations ranged between 2-286 mg/kg with the highest concentration noted at surface at FM-2, an order of magnitude greater than the next highest concentration observed at depth at FM-2 (13 mg/kg). Concentrations at the remaining sample locations ranging between 2-8 mg/kg.
Nickel	Concentrations ranged between 5-294 mg/kg with the highest concentration noted at surface at FM-2, an order of magnitude greater than the next highest concentrations observed at surface at FM-3 (19 mg/kg). Concentrations at the remaining sample locations ranging between 5-18 mg/kg.
Cobalt	Concentrations ranged between 1-4 mg/kg with a mean of 2.6 with detectable concentrations noted at all locations. The highest concentration was observed at FM-2 (4 mg/kg – surface and depth). Concentrations at the remaining sample locations ranged between 1-3 mg/kg.
Cadmium	All reported concentrations were less than the method detection limit (0.5 mg/kg).
Lead	Concentrations ranged between 2-8 mg/kg with a mean of 5.4. The highest concentrations were noted at FM-1 (7 mg/kg – surface and depth) and FM-2 (8 mg/kg – surface, 7 mg/kg – depth), whereas the lowest concentration was observed at FM-4 (2 mg/kg – surface and depth).
Zinc	Concentrations ranged between 6-76 mg/kg with a mean of 21.3 mg/kg. The highest concentration was observed at surface at FM-2, whereas the lowest concentrations were observed at FM-4 (6 mg/kg – surface, 7 mg/kg – depth) Concentrations at the remaining sample locations ranged between 11-19 mg/kg.
Chromium	Concentrations ranged between 7-27 mg/kg with a mean of 17.3 mg/kg. The highest concentrations were observed at FM-2 (23 mg/kg – depth) and FM-3 (27 mg/kg – surface and depth). The lowest concentration was noted at FM-4 (surface), with concentrations at the remaining sample locations ranging between 13-16 mg/kg.
Arsenic	Concentrations ranged between 1-3 mg/kg with the highest and lowest concentrations observed at surface at FM-3 and FM-1, respectively.
Mercury	All reported concentrations were less than the method detection limit (0.1 mg/kg).
PCBs	All reported concentrations were less than the method detection limits (0.02-0.1 mg/kg).
TPH	Concentrations ranged between ND-295 mg/kg with detectable concentrations noted in depth sample locations, FM-1 (76 mg/kg), FM-2 (295 mg/kg) and FM-3 (11 mg/kg) and at surface sample FM-4 (11 mg/kg). All other TPH concentrations were below the method detection limits.

6 HAZMAT STORAGE – EAST LANDFILL

6.1 BACKGROUND AND MONITORING PROGRAM

The Hazmat Storage – East Landfill is located on the east side of the East Beach area access road approximately 550 m east of the main station area and 100 m southeast of the intersection with the east-west station connection road. The landfill, including granular cover, encompasses a footprint of approximately 2,300 m^2 with the final cover extending approximately 0.75 m above the surrounding grade. Based on existing information regarding this landfill as a source of contamination, its potential migration pathways and receptors, the Hazmat Storage – East Landfill was classified as low potential environmental risk. The remediation consisted of removal of surface debris and regrading with the placement of additional granular fill.

The long-term monitoring plan consists of visual monitoring and periodic collection of soil samples. The 2010 monitoring of this landfill includes collection of soil samples to monitor for the presence of leachate and visual inspection to assess landfill performance. There is no instrumentation installed at this landfill.

6.2 VISUAL INSPECTION REPORT

The visual inspection of the Hazmat Storage – East Landfill was conducted on August 26, 2010. The Visual Inspection Checklist/Report has been completed as per the ToR and is included as Table XXI of this report.

Settlement
Evidence of settlement was not noted.

Erosion
Evidence of erosion 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
Evidence of vegetation was not noted.

Staining
Evidence of staining was not noted on the landfill.

Seepage Points
Evidence of seepage was not noted.

Debris
Evidence of debris was noted adjacent to the east and northeast sides of the landfill (Feature A). The debris consisted primarily of surface and partially buried metal debris, including corrugated sheet metal, rebar, wire and plywood.

Presence/Condition of Monitoring Instruments
There are no monitoring instruments installed at this landfill.

Other Features of Note
Pairs of vehicle tracks/ruts were observed on the east and northwest corners of the landfill (Feature B). The vehicle tracks/ruts generally extended 0.1 m in depth and covered less than 1% of the landfill surface.

The landfill is located within a low lying area bordered by the East Beach access road to the west and the beach ridge to the east. At the time of the inspection, ponded water surrounded approximately 70% of the landfill perimeter, including the west, south and east sides of the landfill. There was no evidence of erosion or staining associated with the ponded water.

Discussion
The Hazmat Storage - East Landfill performance with respect to containment of the debris within the landfill is rated as acceptable. A visual inspection report, including supporting photos and drawing, is presented in the following pages.

Table XXI: Visual Inspection Checklist / Report – Hazmat Storage – East Landfill

DEW LINE CLEAN-UP: POST-CONSTRUCTION - LANDFILL MONITORING
VISUAL INSPECTION CHECKLIST
INSPECTION REPORT – PAGE 1 of 2

SITE NAME: FOX-M HALL BEACH
LANDFILL DESIGNATION: HAZMAT STORAGE - EAST LANDFILL
DATE OF INSPECTION: AUGUST 26, 2010
DATE OF PREVIOUS INSPECTION: SEPTEMBER 6, 2009
INSPECTED BY: A. PASSALIS
REPORT PREPARED BY: A. PASSALIS
The inspector/reporter represents to the best of his/her knowledge that 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.

LANDFILL VISUAL INSPECTION

Site Name: Fox-M, Hall Beach
Landfill: Hazmat Storage- East Landfill
Designation: Regrade Landfill
Date Inspected: August 26, 2010
Inspected by: Andrew Passalis, P.Eng.

Signature: 

TABLE XXI: Landfill Visual Inspection Checklist / Report - Hazmat Storage - East Landfill

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	N/A	N/A
Erosion	No	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Frost Action	No	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Animal Burrows	No	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Vegetation	No	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Staining	No	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Vegetation Stress	No	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Seepage Points	No	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Debris Exposed	Yes	FEATURE A See Figure FOX-M.5 (east and northeast sides)	various	various	Majority at surface or partially buried	N/A	Corrugated sheet metal, rebar, wire, plywood	HELF-13, 16-18	Acceptable	Localized surface and shallow buried debris. Located outside margins of landfill
Presence/Condition of Monitoring Instruments	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Other Features of Note	Yes	FEATURE B See Figure FOX-M.5 (east and northwest corners of landfill)	1 m	0.2-0.3 m	10 cm	Isolated	Vehicle tracks / ruts	HELF-6, 14	Acceptable	Vehicle tracks / ruts on side of landfill.
		See Figure FOX-M.5 (east, west and south sides of landfill)	Irregular 75-100 m	Irregular 4-25 m	0.2-0.4 m	Extensive (surrounding ~70% of landfill)	Ponded water along east, west and south sides of the landfill	HELF- 1, 7, 8, 10, 12, 14-16	Acceptable	N/A
Additional Photos	Yes	See Figure FOX-M.5 and Photographic Record	N/A	N/A	N/A	N/A	General Photographic Record	N/A	N/A	General photos for documentation, no features of note.
Overall Landfill Performance:	**Acceptable**									

6.3 PRELIMINARY STABILITY ASSESSMENT

The Preliminary Stability Assessment for Hazmat Storage - East Landfill has been completed as per the ToR and is included as Table XXII hereafter.

Table XXII: Preliminary Stability Assessment – Hazmat Storage - East Landfill

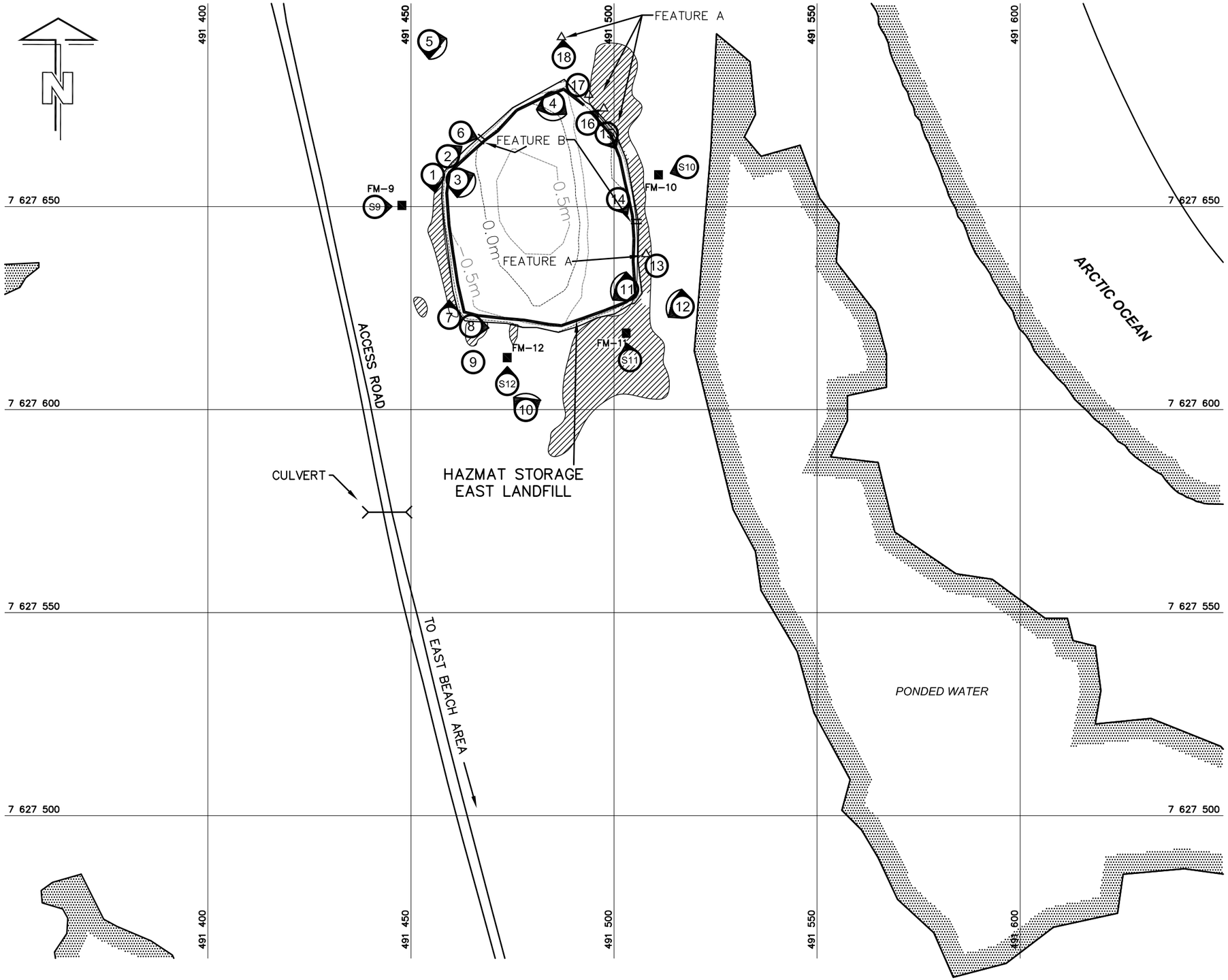
Feature	Severity Rating	Extent
Settlement	Not observed	None
Erosion	Not observed	None
Frost Action	Not observed	None
Staining	Not observed	None
Vegetation Stress	Not observed	None
Seepage/Ponded Water	Acceptable	Extensive (perimeter only)
Debris exposure	Acceptable	Occassional (perimeter only)
Overall 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

6.4 LOCATION PLAN

The Location Plan for the Hazmat Storage - East Landfill has been completed as per the ToR and is included in Figure FOX-M.5.



LEGEND

- SOIL SAMPLING LOCATION
- PHOTOGRAPH VIEWPOINT LOCATION
- PANORAMIC VIEW
- PONDED WATER
- VEHICLE TRACKS / RUTS (NTS)
- DEBRIS (NTS)

0 10m 20m 30m 40m 50m

NO.	VERSION	DATE	BY	VERIF.	APPR.
A	FINAL	11-02-09	P.L.	A.P.	R.G.

Construction de Défense Canada
Defence Construction Canada

FINAL REPORT
COLLECTION OF LANDFILL MONITORING DATA
FOX-M, HALL BEACH, NUNAVUT

HAZMAT STORAGE - EAST LANDFILL

SITE REMEDIATION SOLUTIONS

Biogenie, a division of EnGlobe Corp.
4495 Wilfrid-Hamel Blvd., Suite 200
Quebec (Quebec) CANADA G1P 2J7
Phone: (418) 653-4422 Fax.: (418) 653-3583

MEASUREMENT UNIT	SCALE:	DATE (month-year):
Metre	1 : 1,000	FEBRUARY 2011
DRAWN BY: P. LÉGARÉ	VERIFIED BY: A. PASSALIS	APPROVED BY: R. GAUTHIER
PROJECT NO: CD8177_005_101	DRAWING NO: CD8177_005_101-FOX-M_E	PAGE PL

FIGURE FOX-M.5

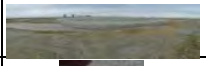
G:\CD8177\003\2010\FOX-M\FINAL\CD8177_005_101-FOX-M_E.dwg, PL, 2011-02-11 3:23:44 PM

6.5 PHOTOGRAPHIC RECORDS

The Photographic Record for Hazmat Storage - East Landfill has been completed as per the ToR and is presented in the following page as Table XXIII. The Photographic Record contains only an index and “thumbnail” photographs. Full-size photographs are contained in the Addendum DVD-ROM.

Table XXIII: Landfill Visual Inspection Photo Log - Hazmat Storage - East Landfill

Site Name: FOX-M, Hall Beach
Landfill: Hazmat Storage - East Landfill
Date Inspected: August 26, 2010
Inspected by: Andrew Passalis, P.Eng.

Photo (HELF-)	Thumbnail	Filename	Size (KB)	Date	Vantage Point		Caption
					Easting	Northing	
1		FM10_1364	4,375 KB	26/08/2010	491456	7627657	View S along west toe from northwest corner of landfill. Note ponding along toe
2		FM10_1365	4,407 KB	26/08/2010	491459	7627661	View NE along northwest toe from northwest corner of landfill
3		FM10_1366	1,701 KB	18/11/2010	491461	7627656	Panoramic view E to S across surface from northwest corner of landfill
4		FM10_1367	1,446 KB	18/11/2010	491486	7627676	Panoramic view SE to SW across surface from northeast corner of landfill
5		FM10_1368	1,095 KB	18/11/2010	491454	7627691	Panoramic view E to S from northwest of landfill
6		FM10_1369	4,285 KB	26/08/2010	491462	7627668	View ESE at vehicle tracks/ruts on northwest side slope of landfill (1m L, 0.2m W, 10cm D)
7		FM10_1372	4,314 KB	26/08/2010	491460	7627622	View N along west toe from southwest corner of landfill
8		FM10_1373	4,276 KB	26/08/2010	491465	7627621	View SE along southwest toe from southwest corner of landfill
9		FM10_1375	4,364 KB	26/08/2010	491466	7627612	Partially exposed metal debris (angle iron/plate) south of landfill (0.3m L, 0.15 W)
10		FM10_1376	1,116 KB	18/11/2010	491479	7627600	Panoramic view NW to NE from south of landfill
11		FM10_1381	1,510 KB	18/11/2010	491504	7627629	Panoramic view SW to N across surface from southeast corner of landfill
12		FM10_1384	956 KB	18/11/2010	491517	7627625	Panoramic view SW to N from southeast of landfill
13		FM10_1385	4,309 KB	26/08/2010	491510	7627635	Piece of aluminum sheeting in water on southeast side of landfill (0.2m L, 0.2m W)
14		FM10_1386	4,283 KB	26/08/2010	491501	7627652	View SSE at vehicle tracks/ruts on east crest of landfill (1m L, 0.3m W, 10cm D)
15		FM10_1387	4,280 KB	26/08/2010	491499	7627668	View SSE along east side of landfill
16		FM10_1388	4,424 KB	26/08/2010	491495	7627672	View NE at pieces of corrugated sheet metal in water along northeast toe of landfill (1.5m L, 0.6m W)
17		FM10_1391	4,388 KB	26/08/2010	491493	7627679	Piece of plywood debris along north toe of landfill
18		FM10_1392	4,377 KB	26/08/2010	491488	7627687	View N at partially buried rebar north of landfill (9m L)
Soil Sampling							
FM-9		FM10_1370	4,370 KB	26/08/2010	491448	7627650	Sampling location FM-9 located on west side of Hazmat Storage-East Landfill
S9		FM10_1371	4,345 KB	26/08/2010	491442	7627650	View E at FM-9 soil sample location
FM-10		FM10_1396	4,425 KB	26/08/2010	491511	7627658	Sampling location FM-10 located on east side of Hazmat Storage-East Landfill
S10		FM10_1397	4,411 KB	26/08/2010	491518	7627660	View WSW at FM-10 soil sample location
FM-11		FM10_1394	4,367 KB	26/08/2010	491503	7627619	Sampling location FM-11 located on southeast side of Hazmat Storage-East Landfill
S11		FM10_1395	4,364 KB	26/08/2010	491504	7627613	View WNW at FM-11 soil sample location
FM-12		FM10_1382	4,426 KB	26/08/2010	491474	7627613	Sampling location FM-12 located on south side of Hazmat Storage-East Landfill
S12		FM10_1383	4,320 KB	26/08/2010	491474	7627607	View N at FM-12 soil sample location

6.6 SOIL SAMPLE ANALYTICAL DATA

The soil chemical analysis results and evaluation of analytical data for the 2010 Hazmat Storage – East Landfill samples are presented in Tables XXIV and XXV respectively. Certificates of analysis and results of field duplicates collected as part of the QA/QC program are presented in Appendix C.

Table XXIV: Soil Chemical Analysis Results – Hazmat Storage - East Landfill

Sample #	Location	Depth (cm)	Cu [mg/kg]	Ni [mg/kg]	Co [mg/kg]	Cd [mg/kg]	Pb [mg/kg]	Zn [mg/kg]	Cr [mg/kg]	As [mg/kg]	Hg [mg/kg]	PCBs [mg/kg]	F1 C_6-C_{10} [mg/kg]	F2 C_{10}-C_{16} [mg/kg]	F3 C_{16}-C_{34} [mg/kg]	TPH C_6-C_{34} [mg/kg]
FM10-9A	FM-9	0-15	4	10	2	<0.5	3	11	11	2	<0.1	<0.2*	<10	<10	<20	ND
FM10-9B		40-50	4	11	3	<0.5	3	12	12	1	<0.1	<0.1*	<10	<10	<20	ND
FM10-10A	FM-10	0-15	5	9	2	<0.5	7	14	11	<1	<0.1	<0.1*	<10	<10	<20	ND
FM10-10B		40-50	3	8	2	<0.5	4	10	10	1	<0.1	<0.02	<10	<10	<20	ND
FM10-11A	FM-11	0-15	5	10	2	<0.5	9	53	12	<1	<0.1	<0.02	<10	<10	<20	ND
FM10-11B		40-50	4	10	2	<0.5	4	16	13	<1	<0.1	<0.02	<10	<10	<20	ND
FM10-12A	FM-12	0-15	9	9	2	<0.5	7	22	10	2	<0.1	<0.02	<10	10	<20	10
FM10-12B		40-50	4	10	3	<0.5	4	16	11	1	<0.1	<0.02	<10	<10	<20	ND
FM10-BD6	FM10-12A	0-15	6	14	3	<0.5	8	26	19	2	<0.1	<0.2*	<10	<10	<20	ND

TPH: Sum of the concentrations of F1, F2 and F3. Concentrations below method detection limits are excluded from the total.

ND: Not detected

* MRL elevated due to matrix interference

S:\P\CD\8177\FOX-M\T\[10- Soil and GW results FOX-M.xlsx]Soil - Hazmat Storage

Table XXV: Evaluation of 2010 Soil Analytical Data – Hazmat Storage - East Landfill

Parameter	2010
Copper	Concentrations ranged between 3-9 mg/kg with a mean of 4.8 mg/kg. The highest and lowest concentrations were noted at surface at FM-12 and at depth at MW-10, respectively. Concentrations at the remaining sample locations ranging between 4-5 mg/kg.
Nickel	Concentrations ranged between 8-11 mg/kg with a mean of 9.6 mg/kg. The highest and lowest concentrations were noted at depth at FM-9 and at depth at MW-10, respectively. Concentrations at the remaining sample locations ranging between 9-10 mg/kg.
Cobalt	Concentrations ranged between 2-3 mg/kg with a mean of 2.3 mg/kg. The highest concentrations were observed at depth at FM-9 and FM-12.
Cadmium	All reported concentrations were less than the method detection limit (0.5 mg/kg).
Lead	Concentrations ranged between 3-9 mg/kg with a mean of 5.1 mg/kg. The highest concentration was noted at surface at FM-11, whereas the lowest concentrations were noted at FM-9 (surface and depth). Concentrations at the remaining sample locations ranging between 4-7 mg/kg.
Zinc	Concentrations ranged between 10-53 mg/kg with a mean of 19.3 mg/kg. The highest concentration was observed at surface at FM-11, whereas the lowest concentrations were observed at FM-10 (10 mg/kg – depth) and FM-9 (11 mg/kg – surface, 12 mg/kg – depth).
Chromium	Concentrations ranged between 10-13 mg/kg with a mean of 11.3 mg/kg. The highest concentration was observed at FM-11(depth), whereas the lowest concentration was noted at FM-10 (depth) and FM-12 (surface).
Arsenic	Concentrations ranged between <1-2 mg/kg with detectable concentrations noted at all locations except FM-10 (surface) and FM-11 (surface and depth). The highest concentration was observed at surface at FM-9 and FM-12.
Mercury	All reported concentrations were less than the method detection limit (0.1 mg/kg).
PCBs	All reported concentrations were less than the method detection limits (0.02-0.1 mg/kg).
TPH	Trace concentrations were noted in one surface sample location, FM-12 (10 mg/kg). All other TPH concentrations were below the method detection limits.

7 COMMUNICATIONS NORTH LANDFILL

7.1 BACKGROUND AND MONITORING PROGRAM

The Communications North Landfill extends north-easterly off the north edge of the tropospheric communications infrastructure pad, approximately 650 m southeast of the main station area. The landfill, including granular cover, encompasses a footprint of approximately 7,000 m^2 with the final cover extending between 0.0 m (level with the communications infrastructure pad) to 0.75 m above the surrounding grade (north of the pad). Based on existing information regarding this landfill as a source of contamination, its potential migration pathways and receptors, the Communications North Landfill was classified as low potential environmental risk. The remediation consisted of removal of surface debris and regrading with the placement of additional granular fill.

The long term monitoring plan consists of visual monitoring and periodic collection of soil samples. The 2010 monitoring of this landfill includes collection of soil samples to monitor for the presence of leachate and visual inspection to assess landfill performance. There is no instrumentation installed at this landfill.

7.2 VISUAL INSPECTION REPORT

The visual inspection of the Communications North Landfill was conducted on August 25 and 26, 2010. The Visual Inspection Checklist/Report has been completed as per the ToR and is included as Table XXVI of this report.

Settlement
Evidence of settlement was not noted.

Erosion
Evidence of erosion 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
Evidence of vegetation was not noted.

Staining
Evidence of staining was not noted on the landfill.

Seepage Points
Evidence of seepage was not noted.

Debris
Evidence of surface and partially buried debris was noted in two general areas on and around the landfill, including: three small pieces of metal debris on the south end of the landfill cover (Feature A) and two pieces of metal debris (plate and pipe) in an area northeast of the landfill (Feature B). Both areas of debris were not observed during the previous 2009 inspection.

Presence/Condition of Monitoring Instruments
There are no monitoring instruments installed at this landfill.

Other Features of Note
Several vehicle tracks/ruts were observed on the southeast, east and southwest sides of the landfill (Feature C). The vehicle tracks/ruts extended between 0.1-0.2 m in depth and covered approximately 1% of the landfill surface.

In addition, an isolated area of ponded water was also noted along the southeast toe of the landfill. Evidence of erosion or staining was not observed within the ponded area.

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

Table XXVI: Visual Inspection Checklist / Report – Communications North Landfill

DEW LINE CLEAN-UP: POST-CONSTRUCTION - LANDFILL MONITORING
VISUAL INSPECTION CHECKLIST
INSPECTION REPORT – PAGE 1 of 2

SITE NAME: FOX-M HALL BEACH
LANDFILL DESIGNATION: COMMUNICATIONS NORTH LANDFILL
DATE OF INSPECTION: AUGUST 25-26, 2010
DATE OF PREVIOUS INSPECTION: SEPTEMBER 6, 2009
INSPECTED BY: A. PASSALIS
REPORT PREPARED BY: A. PASSALIS
The inspector/reporter represents to the best of his/her knowledge that 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.

LANDFILL VISUAL INSPECTION

Site Name: Fox-M, Hall Beach
Landfill: Communications North Landfill
Designation: Regrade Landfill
Date Inspected: August 25-26, 2010
Inspected by: Andrew Passalis, P.Eng.

Signature: 

TABLE XXVI: Landfill Visual Inspection Checklist / Report - Communications North Landfill

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	N/A	N/A
Erosion	No	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Frost Action	No	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Animal Burrows	No	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Vegetation	No	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Staining	No	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Vegetation Stress	No	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Seepage Points	No	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Debris Exposed	Yes	FEATURE A See Figure FOX-M.6 (south end of landfill) NEW OBS.	0.2 m	0.15 m	Unknown	Isolated (<1%)	Miscellaneous metal debris	CNLF-7, 8	N/A	Three pieces of partially buried metal debris
		FEATURE B See Figure FOX-M.6 (northeast of landfill) NEW OBS.	0.1 m 0.2 m	0.2 m 0.05 m	Unknown	Isolated (<1%)	Metal debris - plate and pipe	CNLF-13, 14	Acceptable	Two pieces of debris located outside margin of landfill
Presence/Condition of Monitoring Instruments	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Other Features of Note	Yes	FEATURE C See Figure FOX-M.6 (southeast, east and southwest sides of landfill)	2-5 m	0.2-0.3 m	0.1-0.2 m	Isolated	Vehicle tracks / ruts along southwest, northwest and southeast sides of landfill	CNLF-1, 5, 12	Acceptable	Vehicle tracks / ruts on side of landfill.
		See Figure FOX-M.6 (southeast)	7 m	3 m	0.1 m	Isolated	Ponded water along southeast toe	CNLF-4, 6	Acceptable	N/A
Additional Photos	Yes	See Figure FOX-M.6 and Photographic Record	N/A	N/A	N/A	N/A	General Photographic Record	N/A	N/A	General photos for documentation, no features of note.
Overall Landfill Performance:	**Acceptable**									

7.3 PRELIMINARY STABILITY ASSESSMENT

The Preliminary Stability Assessment for Communications North Landfill has been completed as per the ToR and is included as Table XXVII hereafter.

Table XXVII: Preliminary Stability Assessment – Communications North Landfill

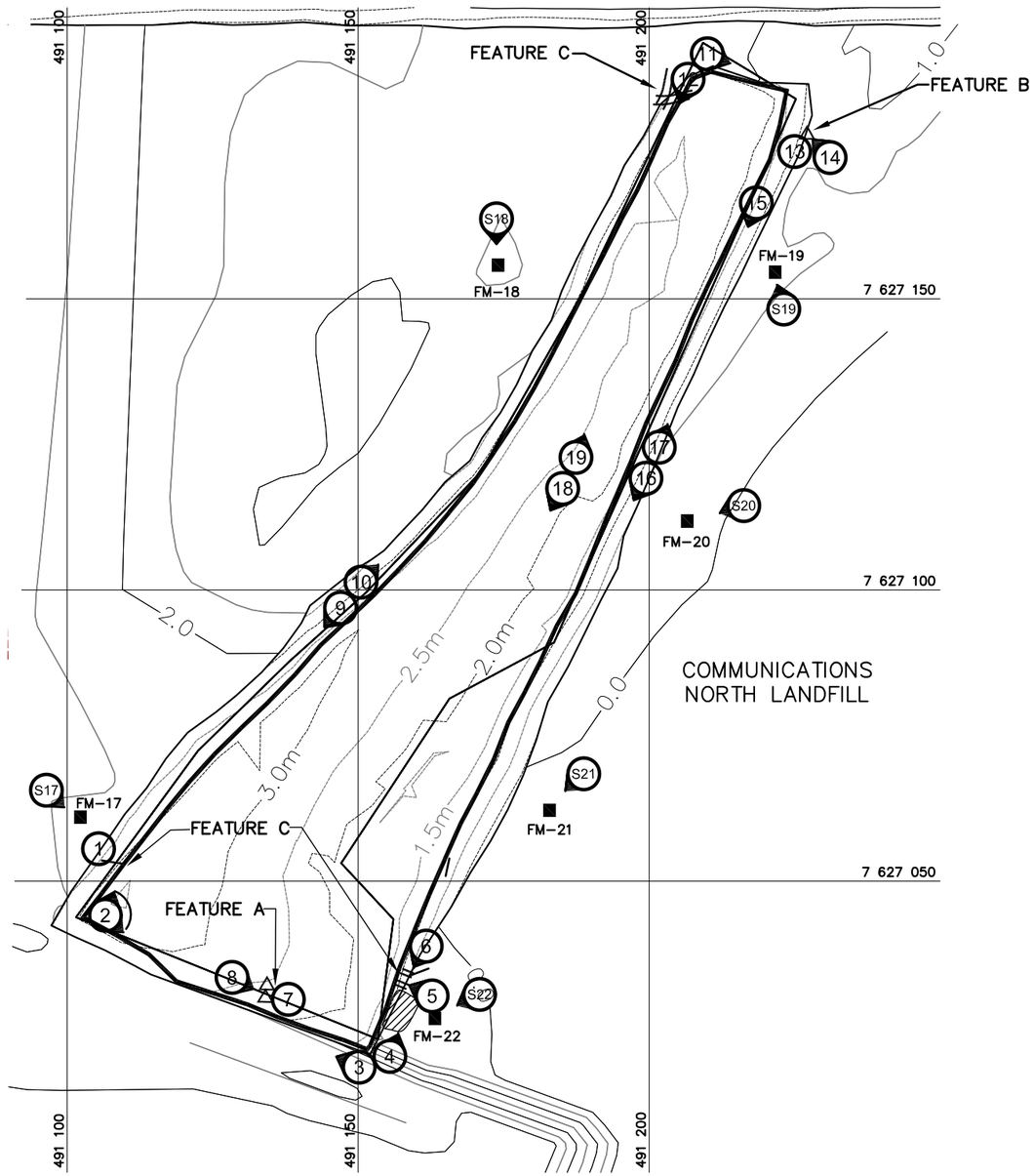
Feature	Severity Rating	Extent
Settlement	Not observed	None
Erosion	Not observed	None
Frost Action	Not observed	None
Staining	Not observed	None
Vegetation Stress	Not observed	None
Seepage/Ponded Water	Acceptable	Isolated (perimeter only)
Debris exposure	Acceptable	Isolated
Overall Landfill Performance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

7.4 LOCATION PLAN

The Location Plan for the Communications North Landfill has been completed as per the ToR and is included in Figure FOX-M.6.



LEGEND

- SOIL SAMPLING LOCATION
- PHOTOGRAPH VIEWPOINT LOCATION
- PANORAMIC VIEW
- PONDED WATER
- VEHICLE TRACKS / RUTS (NTS)
- DEBRIS (NTS)

0 10m 20m 30m 40m 50m

NO.	VERSION	DATE	BY	VERIF.	APPR.
A	FINAL	11–02–09	P.L.	A.P.	R.G.

Construction de Défense Canada
Defence Construction Canada

FINAL REPORT
COLLECTION OF LANDFILL MONITORING DATA
FOX-M, HALL BEACH, NUNAVUT

COMMUNICATIONS NORTH LANDFILL

SITE REMEDIATION SOLUTIONS

Biogenie, a division of EnGlobe Corp.
4495 Wilfrid-Hamel Blvd., Suite 200
Quebec (Quebec) CANADA G1P 2J7
Phone: (418) 653-4422 Fax.: (418) 653-3583

MEASUREMENT UNIT	SCALE:	DATE (month–year):
Metre	1 : 1,000	FEBRUARY 2011
DRAWN BY:	VERIFIED BY:	APPROVED BY:
P. LÉGARÉ	A. PASSALIS	R. GAUTHIER
PROJECT NO:	DRAWING NO:	PAGE
CD8177_005_101	CD8177_005_101-FOX-M_F	PL

FIGURE FOX-M.6

7.5 PHOTOGRAPHIC RECORDS

The Photographic Record for Communications North Landfill has been completed as per the ToR and is presented in the following pages as Table XXVIII. The Photographic Record contains only an index and “thumbnail” photographs. Full-size photographs are contained in the Addendum DVD-ROM.

Table XXVIII: Landfill Visual Inspection Photo Log - Communications North Landfill

Site Name: FOX-M, Hall Beach
Landfill: Communications North Landfill
Date Inspected: August 25-26, 2010
Inspected by: Andrew Passalis, P.Eng.

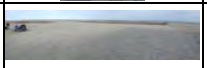
Photo (CNLF-)	Thumbnail	Filename	Size (KB)	Date	Vantage Point		Caption
					Easting	Northing	
Communications North Landfill							
1		FM10_1331	4,376 KB	25/08/2010	491105	7627055	View NE at single vehicle track/rut on southwest side slope of landfill (1.5m L, 0.6m W, 20cm D)
2		FM10_1332	1,025 KB	25/08/2010	491106	7627044	Panoramic view NNE to SE across surface from southwest corner of landfill. FM-17 soil sample location visible on left.
3		FM10_1333	4,334 KB	25/08/2010	491150	7627018	View WNW along south toe from southeast corner of landfill
4		FM10_1334	4,414 KB	25/08/2010	491156	7627020	View NE along east toe from southeast corner of landfill
5		FM10_1335	4,335 KB	25/08/2010	491162	7627031	View NW at vehicle tracks/ruts on southeast side slope (1-3m L, 0.4m W, 10-20cm D)
6		FM10_1336	4,440 KB	25/08/2010	491161	7627039	View SW at minor ponding along southeast toe
7		FM10_1337	4,446 KB	25/08/2010	491138	7627030	Partially exposed metal debris in cover material on south end of landfill (0.2m L, 0.15m W, 1cm D)
8		FM10_1339	4,329 KB	25/08/2010	491128	7627033	View SE at partially exposed and surface metal debris on south end of landfill
9		FM10_1342	4,392 KB	25/08/2010	491147	7627096	View SW along west side of landfill
10		FM10_1343	4,275 KB	25/08/2010	491150	7627100	View NE along west side of landfill
11		FM10_1345	4,369 KB	25/08/2010	491211	7627192	View ESE along north toe from northwest corner of landfill
12		FM10_1346	4,302 KB	25/08/2010	491207	7627188	View SSW at heavy equipment tracks in disturbed area on northwest corner of landfill
13		FM10_1347	4,343 KB	25/08/2010	491226	7627180	Partially buried metal debris near northeast corner of landfill (0.2m L, 0.2m W plate and 0.1m L, 5cm dia. pipe)
14		FM10_1348	4,313 KB	25/08/2010	491231	7627174	View NW at partially buried metal debris near northeast corner of landfill
15		FM10_1351	4,408 KB	25/08/2010	491218	7627167	View SW along east side of landfill
16		FM10_1354	4,353 KB	25/08/2010	491199	7627119	View SW along east side of landfill
17		FM10_1355	4,388 KB	25/08/2010	491202	7627125	View NE along east side of landfill
18		FM10_1356	4,363 KB	25/08/2010	491185	7627117	View SW along centerline of landfill
19		FM10_1357	4,386 KB	25/08/2010	491187	7627122	View NE along centerline of landfill

Table XXVIII: Landfill Visual Inspection Photo Log - Communications North Landfill

Site Name: FOX-M, Hall Beach
Landfill: Communications North Landfill
Date Inspected: August 25-26, 2010
Inspected by: Andrew Passalis, P.Eng.

Photo (CNLF-)	Thumbnail	Filename	Size (KB)	Date	Vantage Point		Caption
					Easting	Northing	
Soil Sampling							
FM-17		FM10_1340	4,454 KB	25/08/2010	491102	7627061	Sampling location FM-17 located on southwest side of Communications North Landfill
S17		FM10_1341	4,469 KB	25/08/2010	491097	7627066	View SE at FM-17 soil sample location
FM-18		FM10_1349	4,461 KB	25/08/2010	491174	7627156	Sampling location FM-18 located on northwest side of Communications North Landfill
S18		FM10_1350	4,299 KB	25/08/2010	491174	7627163	View S at FM-18 soil sample location
FM-19		FM10_1352	4,411 KB	25/08/2010	491222	7627154	Sampling location FM-19 located on northeast side of Communications North Landfill
S19		FM10_1353	4,392 KB	25/08/2010	491224	7627148	View NNW at FM-19 soil sample location
FM-20		FM10_1358	4,397 KB	26/08/2010	491207	7627112	Sampling location FM-20 located on east side of Communications North Landfill
S20		FM10_1359	4,367 KB	26/08/2010	491216	7627114	View SW at FM-20 soil sample location
FM-21		FM10_1360	4,371 KB	26/08/2010	491183	7627062	Sampling location FM-21 located on east side of Communications North Landfill
S21		FM10_1361	4,279 KB	26/08/2010	491188	7627068	View SW at FM-21 soil sample location
FM-22		FM10_1362	4,445 KB	26/08/2010	491163	7627026	Sampling location FM-22 located on southeast side of Communications North Landfill
S22		FM10_1363	4,382 KB	26/08/2010	491171	7627031	View SW at FM-22 soil sample location

7.6 SOIL SAMPLE ANALYTICAL DATA

The soil chemical analysis results and evaluation of analytical data for the 2010 Communications North Landfill samples are presented in Tables XXIX and XXX respectively. Certificates of analysis and results of field duplicates collected as part of the QA/QC program are presented in Appendix C.

Table XXIX: Soil Chemical Analysis Results – Communications North Landfill

Sample #	Location	Depth (cm)	Cu [mg/kg]	Ni [mg/kg]	Co [mg/kg]	Cd [mg/kg]	Pb [mg/kg]	Zn [mg/kg]	Cr [mg/kg]	As [mg/kg]	Hg [mg/kg]	PCBs [mg/kg]	F1 C_6-C_{10} [mg/kg]	F2 C_{10}-C_{16} [mg/kg]	F3 C_{16}-C_{34} [mg/kg]	TPH C_6-C_{34} [mg/kg]
FM10-17A	FM-17	0-15	6	15	3	<0.5	5	14	21	2	<0.1	<0.2*	<10	<10	<20	ND
FM10-17B		40-50	5	13	3	<0.5	4	12	15	2	<0.1	<0.02	<10	12	<20	12
FM10-18A	FM-18	0-15	4	11	2	<0.5	4	15	14	2	<0.1	<0.02	<10	<10	<20	ND
FM10-18B		40-50	4	12	3	<0.5	4	12	15	2	<0.1	<0.02	<10	<10	<20	ND
FM10-19A	FM-19	0-15	5	12	3	<0.5	4	10	16	1	<0.1	<0.02	<10	<10	<20	ND
FM10-19B		40-50	7	15	3	<0.5	4	22	20	1	<0.1	<0.2	<10	15	<20	15
FM10-20A	FM-20	0-15	5	14	3	<0.5	3	11	20	<1	<0.1	<0.02	<10	<10	<20	ND
FM10-20B		40-50	5	14	3	<0.5	3	13	16	<1	<0.1	<0.02	<10	<10	<20	ND
FM10-21A	FM-21	0-15	5	13	3	<0.5	5	12	14	1	<0.1	<0.02	<10	<10	<20	ND
FM10-21B		40-50	4	12	2	<0.5	3	9	15	<1	<0.1	<0.02	<10	<10	<20	ND
FM10-22A	FM-22	0-15	6	13	3	<0.5	4	12	14	2	<0.1	<0.2*	<10	<10	<20	ND
FM10-22B		40-50	5	12	2	<0.5	3	13	13	1	<0.1	<0.02	<10	<10	<20	ND
FM10-BD2	FM10-18A	0-15	4	17	2	<0.5	4	8	31	2	<0.1	<0.02	<10	<10	<20	ND

TPH: Sum of the concentrations of F1, F2 and F3. Concentrations below method detection limits are excluded from the total.

ND: Not detected

* MRL elevated due to matrix interference

S:\P\CD\8177\FOX-M\T\[10- Soil and GW results FOX-M.xlsx]Soil - Communications North LF

Table XXX: Evaluation of 2010 Soil Analytical Data – Communications North Landfill

Parameter	2010
Copper	Concentrations ranged between 4-7 mg/kg with a mean of 5.1 mg/kg. The highest concentration was noted at depth at FM-19, whereas the lowest concentration was noted at FM-18 (surface and depth) and at depth at FM-21. Concentrations at the remaining sample locations ranging between 5-6 mg/kg.
Nickel	Concentrations ranged between 11-15 mg/kg with a mean of 13.0 mg/kg. The highest concentration was observed at FM-17 (surface) and FM-19 (depth), whereas the lowest concentration was observed at FM-18 (surface).
Cobalt	Concentrations ranged between 2-3 mg/kg with a mean of 2.8 mg/kg. The lowest concentration was observed at depth at FM-21 and FM-22 and at surface at FM-18.
Cadmium	All reported concentrations were less than the method detection limit (0.5 mg/kg).
Lead	Concentrations ranged between 3-5 mg/kg with a mean of 3.8. The highest concentration was observed at surface at FM-17 and FM-21, whereas the lowest concentration was observed at FM-20 (surface and depth), FM-21 (depth) and FM-22 (depth).
Zinc	Concentrations ranged between 9-22 mg/kg with a mean of 12.9 mg/kg. The highest and lowest concentrations were observed at depth at FM-19 and FM-21, respectively. Concentrations at the remaining sample locations ranged between 10-15 mg/kg.
Chromium	Concentrations ranged between 13-21 mg/kg with a mean of 16.1 mg/kg. The highest concentrations were observed at FM-17 (21 mg/kg – surface), FM-19 (20 mg/kg – depth) and FM-20 (20 mg/kg – surface). Concentrations at the remaining sample locations ranging between 13-16 mg/kg.
Arsenic	Concentrations ranged between <1-2 mg/kg with detectable concentrations noted at all but three sample locations, FM-20 (surface and depth) and FM-21 (depth).
Mercury	All reported concentrations were less than the method detection limit (0.1 mg/kg).
PCBs	All reported concentrations were less than the method detection limits (0.02-0.2 mg/kg).
TPH	Trace concentrations were noted in two depth sample locations, FM-17 (12 mg/kg) and FM-19 (15 mg/kg). All other TPH concentrations were below the method detection limits.

8 COMMUNICATIONS NORTHWEST LANDFILL

8.1 BACKGROUND AND MONITORING PROGRAM

The Communications Northwest Landfill is located off the northwest corner of the tropospheric communications infrastructure pad, approximately 600 m south of the main station area. The landfill, including granular cover, encompasses a footprint of approximately 3,200 m^2 with the final cover extending between 0.5 m to 0.75 m above the surrounding grade. Based on existing information regarding this landfill as a source of contamination, its potential migration pathways and receptors, the Communications Northwest Landfill was classified as low potential environmental risk. The remediation consisted of removal of surface debris and regrading with the placement of additional granular fill.

The long term monitoring plan consists of visual monitoring and periodic collection of soil samples. The 2010 monitoring of this landfill includes collection of soil samples to monitor for the presence of leachate and visual inspection to assess landfill performance. There is no instrumentation installed at this landfill.

8.2 VISUAL INSPECTION REPORT

The visual inspection of the Communications Northwest Landfill was conducted on August 25, 2010. The Visual Inspection Checklist/Report has been completed as per the ToR and is included as Table XXXI of this report.

Settlement
Evidence of settlement was not noted.

Erosion
Evidence of erosion 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
Evidence of vegetation was not noted.

Staining
Evidence of staining was not noted on the landfill.

Seepage Points
Evidence of seepage was not noted.

Debris
Evidence of surface debris was not noted on the landfill.

Presence/Condition of Monitoring Instruments
There are no monitoring instruments installed at this landfill.

Other Features of Note

Several vehicle tracks/ruts were observed on the northeast, southeast and southwest sides of the landfill (Feature A). The vehicle tracks/ruts extended between 0.1 to 0.15 m in depth and covered approximately 3% of the landfill surface.

Discussion

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

Table XXXI: Visual Inspection Checklist / Report – Communications Northwest Landfill

DEW LINE CLEAN-UP: POST-CONSTRUCTION - LANDFILL MONITORING
VISUAL INSPECTION CHECKLIST
INSPECTION REPORT – PAGE 1 of 2

SITE NAME: FOX-M HALL BEACH
LANDFILL DESIGNATION: COMMUNICATIONS NORTHWEST LANDFILL
DATE OF INSPECTION: AUGUST 25, 2010
DATE OF PREVIOUS INSPECTION: SEPTEMBER 6, 2009
INSPECTED BY: A. PASSALIS
REPORT PREPARED BY: A. PASSALIS
The inspector/reporter represents to the best of his/her knowledge that 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.

LANDFILL VISUAL INSPECTION

Site Name: Fox-M, Hall Beach
Landfill: Communications Northwest Landfill
Designation: Regrade Landfill
Date Inspected: August 25, 20109
Inspected by: Andrew Passalis, P.Eng.

Signature: 

TABLE XXXI: Landfill Visual Inspection Checklist / Report - Communications Northwest Landfill

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	N/A	N/A
Erosion	No	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Frost Action	No	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Animal Burrows	No	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Vegetation	No	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Staining	No	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Vegetation Stress	No	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Seepage Points	No	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Debris Exposed	No	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Presence/Condition of Monitoring Instruments	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Other Features of Note	Yes	FEATURE A See Figure FOX-M.7 (southwest, northeast and southeast sides of landfill)	3-4 m	0.2-0.4 m	10 - 15 cm	Occasional (<3%)	Vehicle tracks / ruts along side slopes	CNWLF-2, 4, 5-7	Acceptable	Vehicle tracks / ruts on side of landfill.
Additional Photos	Yes	See Figure FOX-M.7 and Photographic Record	N/A	N/A	N/A	N/A	General Photographic Record	N/A	N/A	General photos for documentation, no features of note.
Overall Landfill Performance:	**Acceptable**									

8.3 PRELIMINARY STABILITY ASSESSMENT

The Preliminary Stability Assessment for Communications Northwest Landfill has been completed as per the ToR and is included as Table XXXII hereafter.

Table XXXII: Preliminary Stability Assessment – Communications Northwest Landfill

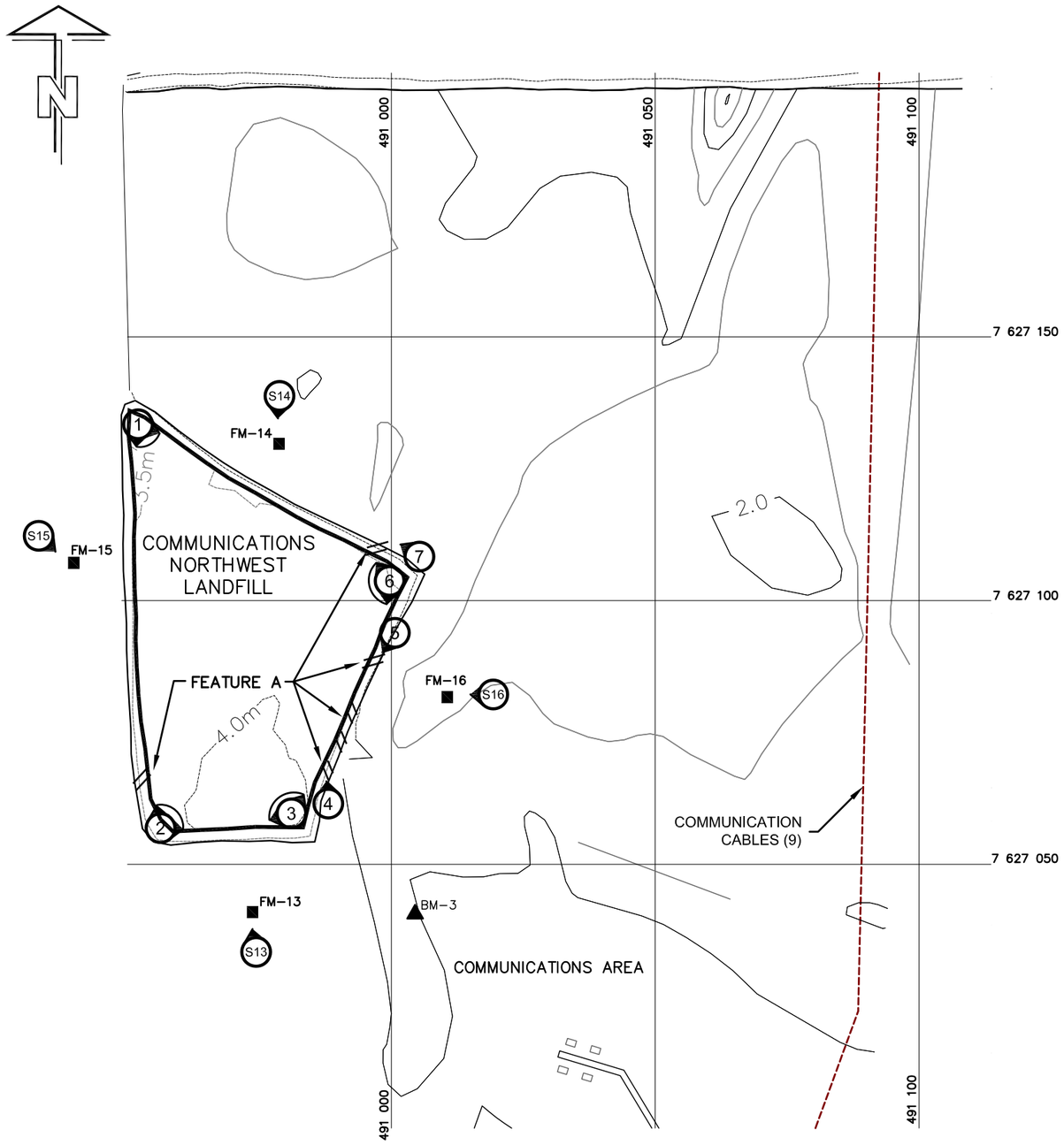
Feature	Severity Rating	Extent
Settlement	Not observed	None
Erosion	Not observed	None
Frost Action	Not observed	None
Staining	Not observed	None
Vegetation Stress	Not observed	None
Seepage/Ponded Water	Not observed	None
Debris exposure	Not observed	None
Overall Landfill Performance	**Acceptable**	

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.
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

8.4 LOCATION PLAN

The Location Plan for the Communications Northwest Landfill has been completed as per the ToR and is included in Figure FOX-M.7



LEGEND

- PERMANENT BENCHMARK
- SOIL SAMPLING LOCATION
- PHOTOGRAPH VIEWPOINT LOCATION
- PANORAMIC VIEW
- PONDED WATER
- VEHICLE TRACKS / RUTS (NTS)
- DEBRIS (NTS)

0 10m 20m 30m 40m 50m

NO.	VERSION	DATE	BY	VERIF.	APPR.
A	FINAL	11–02–09	P.L.	A.P.	R.G.

Construction de Défense Canada
Defence Construction Canada

FINAL REPORT
COLLECTION OF LANDFILL MONITORING DATA
FOX-M, HALL BEACH, NUNAVUT

COMMUNICATIONS NORTHWEST LANDFILL

SITE REMEDIATION SOLUTIONS

Biogenie, a division of EnGlobe Corp.
4495 Wilfrid-Hamel Blvd., Suite 200
Quebec (Quebec) CANADA G1P 2J7
Phone: (418) 653-4422 Fax.: (418) 653-3583

MEASUREMENT UNIT	SCALE:	DATE (month–year):
Metre	1 : 1,000	FEBRUARY 2011
DRAWN BY: P. LÉGARÉ	VERIFIED BY: A. PASSALIS	APPROVED BY: R. GAUTHIER
PROJECT NO: CD8177_005_101	DRAWING NO: CD8177_005_101-FOX-M_G	PAGE PL

FIGURE FOX-M.7

G:\CD8177\003\2010\FOX-M\FINAL\CD8177_005_101-FOX-M_G.dwg, PL, 2011-02-11 3:25:09 PM

8.5 PHOTOGRAPHIC RECORDS

The Photographic Record for Communications Northwest Landfill has been completed as per the ToR and is presented in the following page as Table XXXIII. The Photographic Record contains only an index and “thumbnail” photographs. Full-size photographs are contained in the Addendum DVD-ROM.

Table XXXIII: Landfill Visual Inspection Photo Log - Communications Northwest Landfill

Site Name: FOX-M, Hall Beach
Landfill: Communications Northwest Landfill
Date Inspected: August 25, 2010
Inspected by: Andrew Passalis, P.Eng.

Photo (CNWLF-)	Thumbnail	Filename	Size (KB)	Date	Vantage Point		Caption
					Easting	Northing	
1		FM10_1314	944 KB	25/08/2010	490952.1	7627133.4	Panoramic view SE to S across surface from northwest corner of landfill
2		FM10_1315	1,220 KB	25/08/2010	490956.3	7627056.2	Panoramic view N to E across surface from southwest corner of landfill
3		FM10_1316	1,144 KB	25/08/2010	490981.3	7627059.9	Panoramic view W to NNE across surface from southeast corner of landfill
4		FM10_1317	4,288 KB	25/08/2010	490987.8	7627061.5	View N at successive vehicle tracks/ruts on east side slope of landfill
5		FM10_1318	4,409 KB	25/08/2010	491001.2	7627093.3	View SW at vehicle tracks/ruts on east side slope of landfill
6		FM10_1321	1,522 KB	25/08/2010	490999.5	7627103.9	Panoramic view SW to NW across surface from northeast corner of landfill
7		FM10_1322	4,282 KB	25/08/2010	491005.6	7627107.7	View NW at vehicle tracks/ruts on northeast side slope of landfill
Soil Sampling							
FM-13		FM10_1329	4,360 KB	25/08/2010	490973.4	7627040.4	Sampling location FM-13 located on south side of Communications Northwest Landfill
S13		FM10_1330	4,269 KB	25/08/2010	490974.3	7627034.4	View N at FM-13 soil sample location
FM-14		FM10_1324	4,415 KB	25/08/2010	490979	7627129.5	Sampling location FM-14 located on north side of Communications Northwest Landfill
S14		FM10_1325	4,393 KB	25/08/2010	490979.3	7627139.1	View S at FM-14 soil sample location
FM-15		FM10_1319	4,391 KB	25/08/2010	490939.8	7627106.5	Sampling location FM-15 located on west side of Communications Northwest Landfill
S15		FM10_1320	4,442 KB	25/08/2010	490932.8	7627111.8	View SE at FM-15 soil sample location
FM-16		FM10_1327	4,428 KB	25/08/2010	491010.2	7627081.8	Sampling location FM-16 located on east side of Communications Northwest Landfill
S16		FM10_1328	4,347 KB	25/08/2010	491019.5	7627081.2	View W at FM-16 soil sample location

8.6 SOIL SAMPLE ANALYTICAL DATA

The soil chemical analysis results and evaluation of analytical data for the 2010 Communications Northwest Landfill samples are presented in Tables XXXIV and XXXV respectively. Certificates of analysis and results of field duplicates collected as part of the QA/QC program are presented in Appendix C.

Table XXXIV: Soil Chemical Analysis Results – Communications Northwest Landfill

Sample #	Location	Depth (cm)	Cu [mg/kg]	Ni [mg/kg]	Co [mg/kg]	Cd [mg/kg]	Pb [mg/kg]	Zn [mg/kg]	Cr [mg/kg]	As [mg/kg]	Hg [mg/kg]	PCBs [mg/kg]	F1 C_6-C_{10} [mg/kg]	F2 C_{10}-C_{16} [mg/kg]	F3 C_{16}-C_{34} [mg/kg]	TPH C_6-C_{34} [mg/kg]
FM10-13A	FM-13	0-15	5	9	2	<0.5	9	15	10	2	<0.1	<0.2*	<10	<10	<20	ND
FM10-13B		40-50	5	11	3	<0.5	5	12	11	2	<0.1	<0.1*	<10	13	<20	13
FM10-14A	FM-14	0-15	8	10	2	<0.5	6	11	9	2	<0.1	<0.1*	<10	11	<20	11
FM10-14B		40-50	4	8	2	<0.5	10	11	9	2	<0.1	<0.1*	<10	<10	<20	ND
FM10-15A	FM-15	0-15	3	7	1	<0.5	3	6	7	2	<0.1	<0.2*	<10	<10	29	29
FM10-15B		40-50	4	8	2	<0.5	3	9	9	1	<0.1	<0.02	<10	<10	<20	ND
FM10-16A	FM-16	0-15	7	12	2	<0.5	4	13	14	<1	<0.1	<0.1*	<10	13	26	39
FM10-16B		40-50	9	17	2	<0.5	5	12	27	2	<0.1	<0.02	<10	11	23	34

TPH: Sum of the concentrations of F1, F2 and F3. Concentrations below method detection limits are excluded from the total.

ND: Not detected

*MRL elevated due to matrix interference

S:\P\CD\8177\FOX-M\T\[10- Soil and GW results FOX-M.xlsx]Soil - Communications Northwest LF

Table XXXV: Evaluation of 2010 Soil Analytical Data – Communications Northwest Landfill

Parameter	2010
Copper	Concentrations ranged between 3-9 mg/kg with a mean of 5.6 mg/kg. The highest concentrations were noted at surface at FM-14 (8 mg/kg) and at depth at FM-16 (9 mg/kg), whereas the lowest concentration was noted at FM-13 (surface). Concentrations at the remaining sample locations ranging between 4-7 mg/kg.
Nickel	Concentrations ranged between 7-17 mg/kg with a mean of 10.3 mg/kg. The highest and lowest concentrations were observed at FM-16 (depth) and FM-15 (surface), respectively. Concentrations at the remaining sample locations ranged between 8-12 mg/kg.
Cobalt	Concentrations ranged between 1-3 mg/kg with a mean of 2.0 and detectable concentrations noted at all locations. The highest and lowest concentrations were observed at FM-13 (depth) and FM-15 (surface), respectively.
Cadmium	All reported concentrations were less than the method detection limit (0.5 mg/kg).
Lead	Concentrations ranged between 3-10 mg/kg with a mean of 5.6. The highest concentrations were observed at surface at FM-13 (9 mg/kg) and at depth at FM-14 (10 mg/kg), whereas the lowest concentration was observed at FM-15 (surface and depth). Concentrations at the remaining sample locations ranged between 4-6 mg/kg.
Zinc	Concentrations ranged between 6-15 mg/kg with a mean of 11.1 mg/kg. The highest and lowest concentrations were observed at surface at FM-13 and FM-15, respectively. Concentrations at the remaining sample locations ranged between 9-13 mg/kg.
Chromium	Concentrations ranged between 7-27 mg/kg with a mean of 12.0 mg/kg. The highest and lowest concentrations were observed at depth at FM-16 and at surface at FM-15, respectively. Concentrations at the remaining sample locations ranged between 9-14 mg/kg.
Arsenic	Concentrations ranged between <1-2 mg/kg with detectable concentrations noted at all but one surface sample location, FM-16.
Mercury	All reported concentrations were less than the method detection limit (0.1 mg/kg).
PCBs	All reported concentrations were less than the method detection limits (0.02-0.2 mg/kg).
TPH	Concentrations ranged between ND-39 mg/kg with detectable concentrations at FM-13 (13 mg/kg – depth), FM-14 (11 mg/kg – surface), FM-15 (29 mg/kg – surface) and FM-16 (26 mg/kg – surface and 23 mg/kg depth). All other TPH concentrations were below the method detection limits.

9 TIER II DISPOSAL FACILITY

9.1 BACKGROUND AND MONITORING PROGRAM

The Tier II Disposal Facility is situated south of the tropospheric communications infrastructure pad and west of the East Beach Landfill, approximately 800 m south of the main station area. The landfill was constructed with two separate cells, each cell comprised of a double containment system consisting of low permeable saturated clay and geomembrane liner system and the placement of sufficient surface fill to promote freezing of the landfill contents.

The facility encompasses a footprint of approximately 29,000 m^2 with the final cover extending between 3.5-4.0 m above the surrounding grade. Five groundwater monitoring wells are installed at the landfill perimeter, and five thermistors are installed within the landfill footprint to monitor freeze back conditions.

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

The 2010 monitoring of this landfill includes visual inspection to verify for evidence of settlement or erosion, collection of soil and groundwater samples to monitor for the presence of leachate and retrieval of data from the thermistors. Locations of groundwater monitoring wells, soil samples and thermistor installations are identified on Figure FOX-M.8. Soil at all stations was sampled as specified. Groundwater from each of the monitoring wells was sampled as per the ToR.

9.2 VISUAL INSPECTION REPORT

The visual inspection of the Tier II Disposal Facility was conducted on August 26, 2010. The Visual Inspection Checklist/Report has been completed as per the ToR and is included as Table XXXVI of this report.

Settlement
Evidence of minor settlement was noted at one location on the east side of the facility (Feature A). Feature A consisted of a subtle surface depression 1 m west of the crest north of VT-03 along the east side of the facility. This feature was not noted during the previous 2009 inspection.

Erosion
Evidence of erosion was not noted.

Frost Action
Evidence of frost action was not observed.

Evidence of Burrowing Animals
Indications of burrowing animals were not noted.

Re-establishment of Vegetation
Indications of vegetation were not noted.

Staining
Evidence of staining was not observed.

Seepage Points
Indications of seepage were not noted.

Debris
One piece of exposed non-woven black geotextile was noted on the northwest side slope of the facility (Feature B). The geotextile material was used in construction of the facility liner system. In addition, one piece of miscellaneous surface metal debris (steel spring) was also noted on the northwest side of the facility.

Presence/Condition of Monitoring Instruments
All monitoring well and thermistor installations were found to be in good condition at the facility.

Other Features of Note
Numerous vehicle tracks/ruts were observed around VT-02 and VT-04 on the surface of the facility (Feature C) and along the north and south side slopes (Feature D). The vehicle tracks/ruts extended between 0.1 to 0.25 m in depth and covered less than 2% of the landfill surface.

Areas of continuous and discontinuous areas of ponded water were present along the south and northeast sides of the facility. Ponded areas along the south side of the facility were associated with active surface runoff and drainage channel extending from the area to the northwest of the access road, whereas ponding along the northeast side appeared to be localized, possibly resulting from former borrow activities that occurred in the area.

Discussion
The Tier II Disposal Facility performance with respect to containment of the debris within the landfill is rated as acceptable. A visual inspection report, including supporting photos and drawing, is presented in the following pages.

Table XXXVI: Visual Inspection Checklist / Report – Tier II Disposal Facility

DEW LINE CLEAN-UP: POST-CONSTRUCTION - LANDFILL MONITORING
VISUAL INSPECTION CHECKLIST
INSPECTION REPORT – PAGE 1 of 2

SITE NAME: FOX-M HALL BEACH
LANDFILL DESIGNATION: TIER II DISPOSAL FACILITY
DATE OF INSPECTION: AUGUST 26, 2010
DATE OF PREVIOUS INSPECTION: AUGUST 4-6, 2009
INSPECTED BY: A. PASSALIS
REPORT PREPARED BY: A. PASSALIS
The inspector/reporter represents to the best of his/her knowledge that 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.

LANDFILL VISUAL INSPECTION

Site Name: Fox-M, Hall Beach
Landfill: Tier II Soil Disposal Facility
Designation: New Landfill
Date Inspected: August 26, 2010
Inspected by: Andrew Passalis, P.Eng.

Signature: 

TABLE XXXVI: Landfill Visual Inspection Checklist / Report - Tier II Disposal Facility

Checklist Item	Present (Yes/No)	Location	Length	Width	Depth	Extent	Description	Photographic Record	Severity Rating	Additional Comments
Settlement	Yes	FEATURE A See Figure FOX-M.8 (east crest) NEW OBS.	1 m	0.5 m	10 cm	Isolated	Minor depression on surface	TierII-30, 32	Acceptable	Subtle depression 1 m west of crest
Erosion	No	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Frost Action	No	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Animal Burrows	No	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Vegetation	No	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Staining	No	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Vegetation Stress	No	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Seepage Points	No	N/A	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A
Debris Exposed	Yes	FEATURE B See Figure FOX-M.8 (west side)	0.15 m 0.1 m	0.05 m 0.03 m	Unknown Surface	Isolated (<<1%)	Exposed piece of black geotextile. Metal surface debris	TierII-9, 14, 15	Acceptable	Geotextile material used in construction of containment liner system. Surface debris consists of steel spring.
Presence/Condition of Monitoring Instruments	Yes	See Figure FOX-M.8 and Photographic Record	N/A	N/A	N/A	N/A	VT-01, VT-02, VT-03,VT-04,VT-05 MW-1, MW-2, MW-3, MW-4, MW-5	TierII-24, 22, 31, 12, 13, 17 TierII-1W, 2W, 3W, 4W, 5W	N/A	Ground temperature cables and data loggers were in good condition and all data was downloaded. The protective casings for thermistors cables and monitoring wells were also in acceptable condition.
Other Features of Note	Yes	FEATURE C See Figure FOX-M.8 (cover around VT-02 and VT-04)	10-25 m	0.2-0.4 m	0.1-0.2 m	Occasional (<2%)	Vehicle tracks / ruts on surface of facility	TierII-11-13, 22, 23	Acceptable	Minor rutting from vehicle traffic on facility
		FEATURE D See Figure FOX-M.8 (numerous locations)	4-20 m	0.2-0.4 m	0.1-0.25 m	Occasional (<2%)	Vehicle tracks / ruts on side slopes of facility	TierII-4, 14, 15, 18, 23, 27, 29, 40	Acceptable	Ponded water in low lying area around perimeter of facility and in vicinity of MWs-2. 3, 5
		See Figure FOX-M.8 (northeast, south and southeast sides)	80-200 m	2-20 m	Unknown	N/A	Ponded water in low lying area around perimeter of facility.	TierII-2, 4, 20, 21, 25, 30	N/A	Ponded water in low lying area around perimeter of facility and in vicinity of MWs-2. 4, 5
Additional Photos	Yes	See Figure FOX-M.8 and Photographic Record	N/A	N/A	N/A	N/A	General Photographic Record	N/A	N/A	General photos for documentation, no features of note.
Overall Landfill Performance:	**Acceptable**									

9.3 PRELIMINARY STABILITY ASSESSMENT

The Preliminary Stability Assessment for Tier II Disposal Facility has been completed as per the ToR and is included as Table XXXVII hereafter.

Table XXXVII: Preliminary Stability Assessment – Tier II Disposal Facility

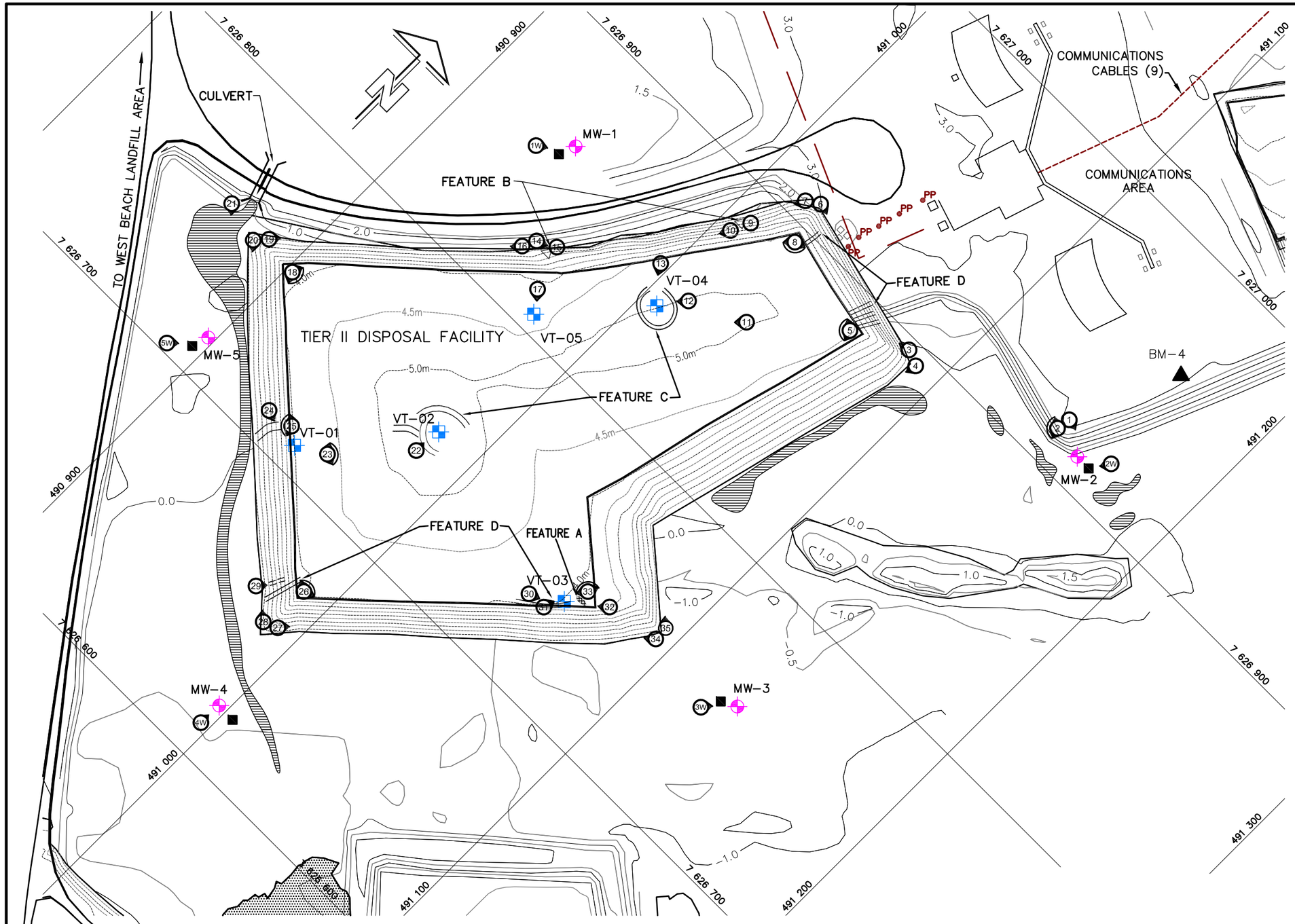
Feature	Severity Rating	Extent
Settlement	Acceptable	Isolated
Erosion	Not observed	None
Frost Action	Not observed	None
Staining	Not observed	None
Vegetation Stress	Not observed	None
Seepage/Ponded Water	Acceptable	Occasional (perimeter only)
Debris exposure	Acceptable	Isolated
Overall Landfill Performance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

9.4 LOCATION PLAN

The Location Plan for the Tier II Disposal Facility has been completed as per the ToR and is included in Figure FOX-M.8.



LEGEND

- PERMANENT BENCHMARK
- SOIL SAMPLING LOCATION
- MONITORING WELL LOCATION
- VERTICAL THERMISTOR LOCATION
- PHOTOGRAPH VIEWPOINT LOCATION
- PANORAMIC VIEW
- PONDED WATER
- SETTLEMENT (NTS)
- VEHICLE TRACKS / RUTS (NTS)
- DEBRIS (NTS)

0 15m 30m 45m 60m 75m

NO.	VERSION	DATE	BY	VERIF.	APPR.
A	FINAL	11-02-09	P.L.	A.P.	R.G.

Construction de Défense Canada
Defence Construction Canada

FINAL REPORT
COLLECTION OF LANDFILL MONITORING DATA
FOX-M, HALL BEACH, NUNAVUT

TIER II DISPOSAL FACILITY

SITE REMEDIATION SOLUTIONS

Biogenie, a division of EnGlobe Corp.
4495 Wilfrid-Hamel Blvd., Suite 200
Quebec (Quebec) CANADA G1P 2J7
Phone: (418) 653-4422 Fax.: (418) 653-3583

MEASUREMENT UNIT	SCALE:	DATE (month-year):
Metre	1 : 1,500	FEBRUARY 2011
DRAWN BY: P. LÉGARÉ	VERIFIED BY: A. PASSALIS	APPROVED BY: R. GAUTHIER
PROJECT NO: CD8177_005_101	DRAWING NO: CD8177_005_101-FOX-M_H	PAGE PL

FIGURE FOX-M.8

G:\CD8177\003\2010\FOX-M\FINAL\CD8177_005_101-FOX-M_H.dwg, PL, 2011-02-11 3:27:11 PM

9.5 PHOTOGRAPHIC RECORDS

The Photographic Record for Tier II Disposal Facility has been completed as per the ToR and is included in the following pages as Table XXXVIII. The Photographic Record contains only an index and “thumbnail” photographs. Full-size photographs are contained in the Addendum DVD-ROM.

Table XXXVIII: Landfill Visual Inspection Photo Log - Tier II Disposal Facility
Site Name: FOX-M, Hall Beach
Landfill: Tier II Disposal Facility
Date Inspected: August 26, 2010
Inspected by: Andrew Passalis, P.Eng.

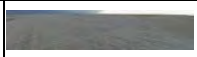
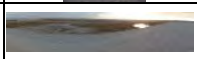
Photo (TierII-)	Thumbnail	Filename	Size (KB)	Date	Vantage Point		Caption
					Easting	Northing	
1		FM10_1453	4,324 KB	26/08/2010	491145	7626919	View ESE at MW-2 located at SE toe of communication pad
2		FM10_1454	1,152 KB	26/08/2010	491144	7626914	Panoramic view SSE to WNW at Tier II Disposal Facility from southeast corner of communication pad (MW-2 area)
3		FM10_1478	4,319 KB	26/08/2010	491084	7626895	View S at vehicle tracks/ruts along northeast side slope near northeast corner of facility
4		FM10_1479	4,430 KB	26/08/2010	491091	7626894	View SSW along east toe from northeast corner of facility
5		FM10_1477	1,313 KB	26/08/2010	491064	7626885	Panoramic view SSE to NNW across surface from northeast corner of facility
6		FM10_1449	4,458 KB	26/08/2010	491023	7626910	View ESE along north side slope from northwest corner of landfill
7		FM10_1448	4,392 KB	26/08/2010	491018	7626907	View SW along northeast side slope from northwest corner of landfill
8		FM10_1450	1,336 KB	26/08/2010	491026	7626894	Panoramic view E to SW across surface from northwest corner of landfill
9		FM10_1480	4,321 KB	26/08/2010	491010	7626886	Partially buried metal debris (spring) in cover on northwest side slope of facility
10		FM10_1481	4,287 KB	26/08/2010	491006	7626880	View SW along northwest side slope on west side of facility. Note vehicle tracks extending along slope.
11		FM10_1476	4,319 KB	26/08/2010	491034	7626860	View SSW at vehicle tracks/ruts around VT-04 on northwest area of facility. VT-5 visible in background.
12		FM10_1482	4,264 KB	26/08/2010	491014	7626850	View SW at VT-04. VT-05 visible in background.
13		FM10_1483	4,421 KB	26/08/2010	490996	7626853	View SE at vehicle tracks/ruts around VT-04 on northwest area of facility (10cm D)
14		FM10_1484	4,299 KB	26/08/2010	490958	7626826	View NE at quad tracks/ruts on northwest side slope. Piece of geotextile fabric exposed in foreground (15cm L, 5cm W) and VT-4 visible in background.
15		FM10_1485	4,458 KB	26/08/2010	490965	7626830	Piece of geotextile fabric exposed in foreground (15cm L, 5cm W)
16		FM10_1487	4,391 KB	26/08/2010	490956	7626821	View SW along northwest toe of facility.
17		FM10_1489	4,407 KB	26/08/2010	490972	7626814	View SE at VT-5. VT-02 and VT-03 visible on right and left, respectively
18		FM10_1495	1,543 KB	26/08/2010	490902	7626754	Panoramicv view NE to SE across surface from southwest corner of facility
19		FM10_1497	4,441 KB	26/08/2010	490888	7626757	View NE along northwest toe from southwest corner of facility
20		FM10_1496	4,408 KB	26/08/2010	490884	7626753	View SE along southwest toe from southwest corner of facility
21		FM10_1498	4,335 KB	26/08/2010	490868	7626756	View SE at ponded water in vicinity of southwest corner of facility
22		FM10_1491	4,425 KB	26/08/2010	490982	7626740	View N at VT-02. VT-05 visible in background.
23		FM10_1492	1,760 KB	26/08/2010	490959	7626716	Panoramic view NW to E from VT-01 area. Note vehicle tracks/ruts around VT-05.
24		FM10_1493	4,384 KB	26/08/2010	490933	7626712	View E at vehicle tracks/ruts on southwest side slope below VT-01 (10m L, 15cm D)
25		FM10_1494	991 KB	26/08/2010	490942	7626714	Panoramic view NW to SSE at area along southwest toe of facility
26		FM10_1472	1,473 KB	26/08/2010	490989	7626675	Panoramic view NW to NE across surface from southeast corner of facility

Table XXXVIII: Landfill Visual Inspection Photo Log - Tier II Disposal Facility
Site Name: FOX-M, Hall Beach
Landfill: Tier II Disposal Facility
Date Inspected: August 26, 2010
Inspected by: Andrew Passalis, P.Eng.

Photo (TierII-)	Thumbnail	Filename	Size (KB)	Date	Vantage Point		Caption
					Easting	Northing	
27		FM10_1473	4,344 KB	26/08/2010	490992	7626658	View NE along southeast toe from southeast corner of facility
28		FM10_1474	4,344 KB	26/08/2010	490986	7626656	View NW along southwest toe from southeast corner of facility
29		FM10_1475	4,413 KB	26/08/2010	490976	7626663	View NE at quad tracks/ruts on southwest side slope near southeast corner of facility (4x0.3m L, 0.2m W, 10-15cm D)
30		FM10_1471	4,387 KB	26/08/2010	491048	7626732	View ENE at vehicle tracks/ruts near VT-03 on east crest of facility (20m L, 10cm D)
31		FM10_1465	4,306 KB	26/08/2010	491056	7626732	View NNE at VT-03 located on east side of facility. Note vehicle tracks/ruts along crest.
32		FM10_1470	4,368 KB	26/08/2010	491069	7626746	View SW at minor depression on east crest of facility (1m L, 0.5m W, 10cm D)
33		FM10_1467	969 KB	26/08/2010	491063	7626748	Panoramic view SW to NE across surface from east corner of facility. VT-3 visible on far left.
34		FM10_1469	4,370 KB	26/08/2010	491093	7626753	View SW along southeast toe from east corner of facility
35		FM10_1468	4,354 KB	26/08/2010	491093	7626760	View NW along northeast toe from east corner of facility
Soil Sampling							
MW-1		FM10_1446	4,351 KB	26/08/2010	490941	7626855	Sampling location MW-1 located on west (upgradient) side of Tier II Disposal Facility
1W		FM10_1447	4,353 KB	26/08/2010	490933	7626852	View NE at MW-1 soil sample location
MW-2		FM10_1451	4,375 KB	26/08/2010	491163	7626911	Sampling location MW-2 located on northeast (downgradient) side of Tier II Disposal Facility
2W		FM10_1452	4,249 KB	26/08/2010	491166	7626918	View SW at MW-2 soil sample location
MW-3		FM10_1463	4,416 KB	26/08/2010	491127	7626754	Sampling location MW-3 located on east (downgradient) side of Tier II Disposal Facility
3W		FM10_1464	4,357 KB	26/08/2010	491124	7626748	View NE at MW-4 soil sample location
MW-4		FM10_1457	4,349 KB	26/08/2010	491004	7626622	Sampling location MW-4 located on south (downgradient) side of Tier II Disposal Facility
4W		FM10_1458	4,360 KB	26/08/2010	490997	7626613	View N at MW-4 soil sample location
MW-5		FM10_1455	4,386 KB	26/08/2010	490895	7626709	Sampling location MW-5 located on southwest (downgradient) side of Tier II Disposal Facility
5W		FM10_1456	4,291 KB	26/08/2010	490889	7626703	View NE at MW-5 soil sample location

9.6 THERMAL MONITORING DATA

All thermistors at the Tier II Disposal Facility were inspected and found to be in good condition with no significant concerns identified. Data from all thermistors was successfully retrieved and all analogues/thermocouples were observed to be functioning properly at the time of inspection. Further review of the downloaded data identified no anomalous temperature readings from any of the thermistor sensors. All clocks exhibited slight drift and were synchronized using the Prolog software.

Battery levels at all thermistor locations were noted as being good with the exception of VT-04 which exhibited "fair" battery levels. Batteries in VT-04 should be changed out during the next scheduled monitoring event. Internal memories were reset and clocks were synchronized using the Prolog software.

9.7 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 section 9.10. A complete datalogger RAW data set for 2009-2010 period has been forwarded to DCC as per the ToR.

9.8 SOIL SAMPLE ANALYTICAL DATA

The soil chemical analysis results and evaluation of analytical data for the 2010 Tier II Disposal Facility samples are presented in Tables XXXIX and XL respectively. Certificates of analysis and results of field duplicates collected as part of the QA/QC program are presented in Appendix C.

Table XXXIX: Soil Chemical Analysis Results – Tier II Disposal Facility

Sample #	Location	Depth (cm)	Cu [mg/kg]	Ni [mg/kg]	Co [mg/kg]	Cd [mg/kg]	Pb [mg/kg]	Zn [mg/kg]	Cr [mg/kg]	As [mg/kg]	Hg [mg/kg]	PCBs [mg/kg]	F1 C_6-C_{10} [mg/kg]	F2 C_{10}-C_{16} [mg/kg]	F3 C_{16}-C_{34} [mg/kg]	TPH C_6-C_{34} [mg/kg]
FM10-1WA	MW-1	0-15	4	12	2	<0.5	3	8	16	2	<0.1	<0.2*	<10	<10	<20	ND
FM10-1WB		40-50	4	11	2	<0.5	3	9	13	2	<0.1	<0.2*	<10	<10	<20	ND
FM10-2WA	MW-2	0-15	7	13	3	<0.5	7	15	16	1	<0.1	<0.2*	<10	<10	<20	ND
FM10-2WB		40-50	5	15	3	<0.5	4	15	19	<1	<0.1	<0.02	<10	<10	<20	ND
FM10-3WA	MW-3	0-15	5	14	3	<0.5	5	12	18	2	<0.1	<0.02	<10	<10	<20	ND
FM10-3WB		40-50	5	13	3	<0.5	4	9	15	<1	<0.1	<0.1*	<10	<10	<20	ND
FM10-4WA	MW-4	0-15	6	13	3	<0.5	4	13	17	1	<0.1	<0.02	<10	<10	<20	ND
FM10-4WB		40-50	4	9	2	<0.5	2	8	10	1	<0.1	<0.02	<10	<10	<20	ND
FM10-5WA	MW-5	0-15	4	13	3	<0.5	4	13	18	2	<0.1	<0.1*	<10	<10	<20	ND
FM10-5WB		40-50	4	11	3	<0.5	3	12	14	<1	<0.1	<0.02	<10	<10	<20	ND
FM10-BD5	FM10-5WB	0-15	4	11	3	<0.5	3	13	13	1	<0.1	<0.2*	<10	<10	<20	ND

TPH: Sum of the concentrations of F1, F2 and F3. Concentrations below method detection limits are excluded from the total.

ND: Not detected

* MRL elevated due to matrix interference

S:\P\CD\8177\FOX-M\T\[10- Soil and GW results FOX-M.xlsx]Soil - Tier II

Table XL: Evaluation of 2010 Soil Analytical Data – Tier II Disposal Facility

Parameter	2010
Copper	Concentrations ranged between 4-7 mg/kg with a mean concentration of 4.8 mg/kg. The highest concentrations were observed at surface at MW-2, whereas the lowest concentrations were observed in surface and depth samples at MW-1, depth sample from MW-4 and surface sample from MW-5.
Nickel	Concentrations ranged between 9-15 mg/kg with a mean concentration of 12.4 mg/kg. The most elevated concentrations were observed at depth at MW-2 (15 mg/kg) and at surface at MW-3 (14 mg/kg). The lowest concentration was observed at depth at MW-4.
Cobalt	Concentrations ranged between 2-3 mg/kg with a mean of 2.7 and detectable concentrations noted at all locations.
Cadmium	All reported concentrations were less than the method detection limit (0.5 mg/kg).
Lead	Concentrations ranged between 2-7 mg/kg with a mean of 3.9. Trace concentrations were observed at all locations with the highest and lowest concentrations observed at MW-2 (surface) and MW-4 (depth), respectively.
Zinc	Concentrations ranged between 8-15 mg/kg with a mean of 11.4 mg/kg. The highest concentration was observed at MW-2 (surface and depth), whereas the lowest concentration was observed at MW-1 (surface) and MW-4 (depth). Concentrations at the remaining soil sample locations ranged between 9-13 mg/kg.
Chromium	Concentrations ranged between 10-19 mg/kg with a mean of 15.6 mg/kg. The highest and lowest concentrations were observed at depth at MW-2 and MW-4, respectively.
Arsenic	Concentrations ranged between <1-2 mg/kg with detectable concentrations noted at all sample locations with the exception of the depth samples at MW-2, MW-3 and MW-5.
Mercury	All reported concentrations were less than the method detection limit (0.1 mg/kg).
PCBs	All reported concentrations were less than the method detection limits (0.02-0.2 mg/kg).
TPH	All reported concentrations were less than the method detection limit.

9.9 GROUNDWATER SAMPLE ANALYTICAL DATA

The groundwater chemical analysis results and evaluation of analytical data for the 2010 Tier II Disposal Facility samples are presented in Tables XLI and XLII respectively. Certificates of analysis and groundwater samples collected as part of the QA/QC program are presented in Appendix C.

Table XLI: Groundwater Chemical Analysis Results – Tier II Disposal Facility

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 [µg/L]	F1 C_6-C_{10} [mg/L]	F2 C_{10}-C_{16} [mg/L]	F3 C_{16}-C_{34} [mg/L]	TPH C_6-C_{34} [mg/L]
FM10-1W	MW-1	0.002	0.006	0.0014	<0.0001	<0.001	<0.01	0.009	<0.005*	<0.0001	<0.1	<0.1	<0.1	<0.2	ND
FM10-2W	MW-2	0.001	<0.005	<0.0002	0.0001	<0.001	0.04	0.003	<0.001	<0.0001	<0.1	<0.1	<0.1	<0.2	ND
FM10-3W	MW-3	0.002	<0.005	<0.0002	<0.0001	<0.001	<0.01	0.008	<0.005*	<0.0001	<0.1	<0.1	<0.1	<0.2	ND
FM10-4W	MW-4	0.002	0.007	<0.0002	<0.0001	<0.001	<0.01	0.006	<0.001	<0.0001	<0.1	<0.1	<0.1	<0.2	ND
FM10-5W	MW-5	0.003	0.026	0.0006	<0.0001	<0.001	<0.01	0.026	<0.005*	<0.0001	<0.1	<0.1	<0.1	<0.2	ND
FM10-BDW1	MW-2	0.002	0.006	<0.0002	<0.0001	<0.001	0.04	0.005	<0.001	<0.0001	<0.1	<0.1	<0.1	<0.2	ND

TPH: Sum of the concentrations of F1, F2 and F3. Concentrations below method detection limits are excluded from the total.

ND: Not detected

* MRL elevated due to matrix interference

S:\P\CD\8177\FOX-M\T\[10- Soil and GW results FOX-M.xlsx]GW - Tier II

Table XLII: Evaluation of 2010 Groundwater Analytical Data – Tier II Disposal Facility

Parameter	2010
Copper	Concentrations ranged between 0.001-0.003 mg/L, with the highest and lowest concentrations noted at MW-5 and MW-2, respectively.
Nickel	Concentrations ranged between <0.005-0.026 mg/L, with detectable concentrations noted three sample locations, including MW-1, MW-4 and MW-5. The highest concentration was observed at MW-5, approximately 4 times higher than the other detectable concentrations.
Cobalt	Concentrations ranged between <0.0002-0.0014 mg/L, with detectable concentrations noted at two well locations, MW-1 (0.0014 mg/L) and MW-5 (0.0006 mg/L).
Cadmium	Concentrations ranged between <0.0001-0.0001 mg/L, with detectable concentrations noted at only one well location, MW-2.
Lead	All reported concentrations were less than the method detection limit (0.001 mg/L).
Zinc	Concentrations ranged between <0.01-0.04 mg/L, with detectable concentrations noted at only one well location, MW-2.
Chromium	Concentrations ranged between 0.003-0.026 mg/L, with detectable concentrations noted at all locations. The highest concentration was noted at MW-5, approximately 3-9 times higher that the other sample locations.
Arsenic	All reported concentrations were less than the method detection limits (0.001-0.005 mg/L).
Mercury	All reported concentrations were less than the method detection limit (0.0001 mg/L).
PCBs	All reported concentrations were less than the method detection limit (0.1 µg/L).
TPH	All reported concentrations were less than the method detection limit.

9.10 THERMISTOR ANNUAL MAINTENANCE REPORTS

The thermistor annual maintenance reports for VT-1 to VT-5 are presented in this section.

Thermistor Annual Maintenance Report

Contractor Name:	**Sila Remediation Inc.**	Inspection Date:	**26-Aug-10**
Prepared By:	**A.Passalis**		

Thermistor Information

Site Name:	**FOX-M**		Thermistor Location		**Tier II Disposal Facility**		
Thermistor Number:	**VT-1**		Inclination		**Vertical**		
Install Date:	**23-Aug-07**		First Date Event		**25-Aug-07**	Last Date Event	**04-Sep-09**
Coordinates and Elevation		N	**7626709**	E	**490947**	Elev	**0**
Length of Cable (m)	**9.23**	Cable Lead Above Ground (m)	**4.20**	Nodal Points			**11**
Datalogger Serial #	**07050014**			Cable Serial Number			**TS07050014 B-9.2**

Thermistor Inspection

	Good	Needs Maintenance		
Casing	**Yes**	**No**		
Cover	**Yes**	**No**		
Data Logger	**Yes**	**No**		
Cable	**Yes**	**No**		
Beads	**Yes**	**No**		
Battery Installation Date		**1-Jul-07**		
Battery Levels	Main	**11.34**	Aux	**12.53**

Manual Ground Temperature Readings

Bead	ohms	Degrees C
1	11.545	7.1619
2	12.045	6.2521
3	13.390	4.1385
4	15.186	1.6309
5	16.700	-0.2068
6	17.545	-1.1796
7	18.359	-2.0879
8	19.625	-2.9778

Bead	ohms	Degrees C
9	19.925	-3.7091
10	20.70	-4.4419
11	21.49	-5.1770

Observations and Proposed Maintenance

Thermistor Annual Maintenance Report

Contractor Name:	**Sila Remediation Inc.**	Inspection Date:	**26-Aug-10**
Prepared By:	**A.Passalis**		

Thermistor Information

Site Name:	**FOX-M**		Thermistor Location		**Tier II Disposal Facility**		
Thermistor Number:	**VT-2**		Inclination		**Vertical**		
Install Date:	**23-Aug-07**		First Date Event		**25-Aug-07**	Last Date Event	**04-Sep-09**
Coordinates and Elevation		N	**7626747**	E	**490982**	Elev	**0**
Length of Cable (m)	**7.32**	Cable Lead Above Ground (m)	**4.32**	Nodal Points			**7**
Datalogger Serial #	**07060009**			Cable Serial Number			**TS07060009 B-7.2**

Thermistor Inspection

	Good	Needs Maintenance	
Casing	**Yes**	**No**	
Cover	**Yes**	**No**	
Data Logger	**Yes**	**No**	
Cable	**Yes**	**No**	
Beads	**Yes**	**No**	
Battery Installation Date		**1-Jun-07**	
Battery Levels	Main	**11.34**	Aux **12.77**

Manual Ground Temperature Readings

Bead	ohms	Degrees C
1	12.286	5.8032
2	13.847	3.4343
3	16.045	0.4871
4	16.307	-0.9626
5	18.371	-2.1446
6	19.834	-3.5851
7	20.70	-4.4630

Bead	ohms	Degrees C

Observations and Proposed Maintenance

Thermistor Annual Maintenance Report

Contractor Name:	**Sila Remediation Inc.**	Inspection Date:	**26-Aug-10**
Prepared By:	**A.Passalis**		

Thermistor Information

Site Name:	**FOX-M**		Thermistor Location		**Tier II Disposal Facility**		
Thermistor Number:	**VT-3**		Inclination		**Vertical**		
Install Date:	**23-Aug-07**		First Date Event		**25-Aug-07**	Last Date Event	**04-Sep-09**
Coordinates and Elevation		N	**7626738**	E	**491057**	Elev	**0**
Length of Cable (m)	**9.21**	Cable Lead Above Ground (m)		**4.20**	Nodal Points		**11**
Datalogger Serial #	**06030090**				Cable Serial Number		**TS06030090 B-9.2**

Thermistor Inspection

	Good	Needs Maintenance
Casing	**Yes**	**No**
Cover	**Yes**	**No**
Data Logger	**Yes**	**No**
Cable	**Yes**	**No**
Beads	**Yes**	**No**
Battery Installation Date	**1-Jun-07**	
Battery Levels	Main **11.34**	Aux **12.17**

Manual Ground Temperature Readings

Bead	ohms	Degrees C
1	12.037	6.1674
2	13.612	3.7565
3	15.523	1.1328
4	16.922	-0.5295
5	17.880	1.6175
6	18.697	-2.4750
7	19.486	-3.2692
8	20.08	-3.8942

Bead	ohms	Degrees C
9	20.93	-4.6773
10	21.68	-5.3558
11	22.20	-5.8089

Observations and Proposed Maintenance

Thermistor Annual Maintenance Report

Contractor Name:	**Sila Remediation Inc.**	Inspection Date:	**26-Aug-10**
Prepared By:	**A.Passalis**		

Thermistor Information

Site Name:	**FOX-M**		Thermistor Location		**Tier II Disposal Facility**		
Thermistor Number:	**VT-4**		Inclination		**Vertical**		
Install Date:	**23-Aug-07**		First Date Event		**25-Aug-07**	Last Date Event	**04-Sep-09**
Coordinates and Elevation		N	**7626841**	E	**491005**	Elev	**0**
Length of Cable (m)	**7.32**	Cable Lead Above Ground (m)		**4.32**	Nodal Points		**7**
Datalogger Serial #	**07060020**				Cable Serial Number		**TS07060020**

Thermistor Inspection

	Good	Needs Maintenance
Casing	**Yes**	**No**
Cover	**Yes**	**No**
Data Logger	**Yes**	**No**
Cable	**Yes**	**No**
Beads	**Yes**	**No**
Battery Installation Date	**1-Jun-07**	
Battery Levels	Main **11.34**	Aux **11.60**

Manual Ground Temperature Readings

Bead	ohms	Degrees C
1	11.966	6.2896
2	13.336	2.1385
3	15.474	1.1328
4	16.743	-0.3515
5	17.769	-1.5098
6	18.679	-2.4569
7	19.517	-3.3083

Bead	ohms	Degrees C

Observations and Proposed Maintenance

Datalogger batteries should be changed in 2011.

Thermistor Annual Maintenance Report

Contractor Name:	**Sila Remediation Inc.**	Inspection Date:	**26-Aug-10**
Prepared By:	**A.Passalis**		

Thermistor Information

Site Name:	**FOX-M**		Thermistor Location		**Tier II Disposal Facility**		
Thermistor Number:	**VT-5**		Inclination		**Vertical**		
Install Date:	**23-Aug-07**		First Date Event		**25-Aug-07**	Last Date Event	**04-Sep-09**
Coordinates and Elevation		N	**7626809**	E	**490979**	Elev	**0**
Length of Cable (m)	**7.33**	Cable Lead Above Ground (m)		**4.33**	Nodal Points		**7**
Datalogger Serial #	**07060023**				Cable Serial Number		**TS07060023 B-7.2**

Thermistor Inspection

	Good	Needs Maintenance	
Casing	**Yes**	**No**	
Cover	**Yes**	**No**	
Data Logger	**Yes**	**No**	
Cable	**Yes**	**No**	
Beads	**Yes**	**No**	
Battery Installation Date		**1-Jun-07**	
Battery Levels	Main	**11.34**	Aux **12.90**

Manual Ground Temperature Readings

Bead	ohms	Degrees C
1	11.627	6.9443
2	13.468	3.9687
3	15.764	0.8682
4	17.036	-0.6363
5	18.367	-2.1059
6	19.238	-2.9778
7	19.940	-3.7500

Bead	ohms	Degrees C

Observations and Proposed Maintenance

9.11 MONITORING WELL SAMPLING/INSPECTION LOGS

The monitoring well sampling and inspection logs for MW-1, MW-2, MW-3, MW-4 and MW-5 are included in this section.

2010 Monitoring Well Sampling Log (MW-1)

Site name:	FOX-M
Date of sampling event:	26-Aug-10
Names of samplers:	Andrew Passalis
Monitoring well ID:	MW-1
Facility:	Tier II Disposal Facility

Known Data

Depth of installation* (m):	3.00
Length of screened section (m):	1.50
Depth to top of screen* (m):	0.54

Measured Data

Condition of well:	Good	Procedure/Equipment:	Interface Meter
Procedure/Equipment:	Measuring Tape	Depth to water surface (m):	1.02
Well height above ground (m):	0.48	Depth to bottom (m):	1.95
Diameter of well (m):	0.04	Free product thickness (mm):	-

Calculations

Depth of water (m):	0.93
Well volume of water (L):	1.41
Static water level* (m):	0.54
Length of screen collecting water (m):	0.93

Notes

Evidence of sludge:	no
Evidence of freezing/siltation:	no

Development/Purging Information

Equipment: Dedicated waterra tubing and foot valve

Date & Time	Volume Removed (L)	Temperature (^{o}C)	pH	Conductivity (uS/cm)	Turbidity (NTU)	Description of Water
26-Aug-10	1.5	2.7	7.8	2396	39	C&C, N/O

Water Sampling

Date & Time Collected:	26-Aug-10
Sample Number - Water:	FM10-1W
Sample Containers:	1x250 mL plastic
	2x1L amber
	3x40 mL vials
Procedure/Equipment:	Waterra tubing & foot valve Hanna HI9828 Mulitmeter, Hach 2100P Turbidimeter
Water Description:	C&C, N/O
Sampling Equipment Decontamination (Y/N):	N, dedicated
Number Washes:	0
Number Rinses:	0

Soil Sampling

Date and Time Collected:	26-Aug-10
Sample Number - Soil:	FM10-1WA
	FM10-1WB
Sample Containers:	2x250mL glass
	3x250mL glass
Procedure/Equipment:	Steel & Plastic Trowels
Soil Description:	Light brown/grey gravel with coarse sand
Sampling Equipment Decontamination (Y/N):	Y
Number Washes:	1
Number Rinses:	1

*From ground surface. Unless this is stated, all measurments are assumed to be from the top of the casing.
n/a=not applicable
SS=Stainless Steel
C&C = Clear & Colourless
N/O = No Odour

2010 Monitoring Well Sampling Log (MW-2)

Site name:	FOX-M
Date of sampling event:	26-Aug-10
Names of samplers:	Andrew Passalis
Monitoring well ID:	MW-2
Facility:	Tier II Disposal Facility

Known Data

Depth of installation* (m):	3.00
Length of screened section (m):	1.50
Depth to top of screen* (m):	0.50

Measured Data

Condition of well:	Good	Procedure/Equipment:	Interface Meter
Procedure/Equipment:	Measuring Tape	Depth to water surface (m):	1.00
Well height above ground (m):	0.45	Depth to bottom (m):	2.07
Diameter of well (m):	0.04	Free product thickness (mm):	-

Calculations

Depth of water (m):	1.07
Well volume of water (L):	1.66
Static water level* (m):	0.55
Length of screen collecting water (m):	1.07

Notes

Evidence of sludge:	no
Evidence of freezing/siltation:	no

Development/Purging Information

Equipment: Dedicated waterra tubing and foot valve

Date & Time	Volume Removed (L)	Temperature (^{o}C)	pH	Conductivity (uS/cm)	Turbidity (NTU)	Description of Water
26-Aug-10	1.8	3.2	7.8	948	19	C&C, N/O

Water Sampling

Date & Time Collected:	26-Aug-10
Sample Number - Water:	FM10-2W
	FM10-BDW1
Sample Containers:	2x250 mL plastic
	4x1L amber
	6x40 mL vials
Procedure/Equipment:	Waterra tubing & foot valve Hanna HI9828 Mulitmeter, Hach 2100P Turbidimeter
Water Description:	C&C, N/O
Sampling Equipment Decontamination (Y/N):	N, dedicated
Number Washes:	0
Number Rinses:	0

Soil Sampling

Date and Time Collected:	26-Aug-10
Sample Number - Soil:	FM10-2WA
	FM10-2WB
Sample Containers:	2x250mL glass
	3x250mL glass
Procedure/Equipment:	Steel & Plastic Trowels
Soil Description:	Light grey sand and gravel, coarse grained, tr black org to 0.05
Sampling Equipment Decontamination (Y/N):	Y
Number Washes:	1
Number Rinses:	1

*From ground surface. Unless this is stated, all measurments are assumed to be from the top of the casing.
n/a=not applicable
SS=Stainless Steel
C&C = Clear & Colourless
N/O = No Odour

2010 Monitoring Well Sampling Log (MW-3)

Site name:	FOX-M
Date of sampling event:	26-Aug-10
Names of samplers:	Andrew Passalis
Monitoring well ID:	MW-3
Facility:	Tier II Disposal Facility

Known Data

Depth of installation* (m):	3.00
Length of screened section (m):	1.50
Depth to top of screen* (m):	0.50

Measured Data

Condition of well:	Good	Procedure/Equipment:	Interface Meter
Procedure/Equipment:	Measuring Tape	Depth to water surface (m):	0.95
Well height above ground (m):	0.52	Depth to bottom (m):	2.22
Diameter of well (m):	0.04	Free product thickness (mm):	-

Calculations

Depth of water (m):	1.27
Well volume of water (L):	1.97
Static water level* (m):	0.43
Length of screen collecting water (m):	1.20

Notes

Evidence of sludge:	no
Evidence of freezing/siltation:	no

Development/Purging Information

Equipment: Dedicated waterra tubing and foot valve

Date & Time	Volume Removed (L)	Temperature (^{o}C)	pH	Conductivity (uS/cm)	Turbidity (NTU)	Description of Water
26-Aug-10	2.0	3.3	10.7	2626	174	white precip, N/O

Water Sampling

Date & Time Collected:	26-Aug-10
Sample Number - Water:	FM10-3W
Sample Containers:	1x250 mL plastic
	2x1L amber
	3x40 mL vials
Procedure/Equipment:	Waterra tubing & foot valve Hanna HI9828 Mulitmeter, Hach 2100P Turbidimeter
Water Description:	C&C, N/O
Sampling Equipment Decontamination (Y/N):	N, dedicated
Number Washes:	0
Number Rinses:	0

Soil Sampling

Date and Time Collected:	26-Aug-10
Sample Number - Soil:	FM10-3WA
	FM10-3WB
Sample Containers:	2x250mL glass
	3x250mL glass
Procedure/Equipment:	Steel & Plastic Trowels
Soil Description:	Brown gravel to 0.3, grey below, trace cs sand, wet at 0.4 m
Sampling Equipment Decontamination (Y/N):	Y
Number Washes:	1
Number Rinses:	1

*From ground surface. Unless this is stated, all measurments are assumed to be from the top of the casing.
n/a=not applicable
SS=Stainless Steel
C&C = Clear & Colourless
N/O = No Odour

2010 Monitoring Well Sampling Log (MW-4)

Site name:	FOX-M
Date of sampling event:	26-Aug-10
Names of samplers:	Andrew Passalis
Monitoring well ID:	MW-4
Facility:	Tier II Disposal Facility

Known Data

Depth of installation* (m):	3.00
Length of screened section (m):	1.50
Depth to top of screen* (m):	0.47

Measured Data

Condition of well:	Good, well is jacking out of ground	Procedure/Equipment:	Interface Meter
Procedure/Equipment:	Measuring Tape	Depth to water surface (m):	0.69
Well height above ground (m):	0.70	Depth to bottom (m):	2.16
Diameter of well (m):	0.04	Free product thickness (mm):	-

Calculations

Depth of water (m):	1.47
Well volume of water (L):	2.28
Static water level* (m):	-0.01
Length of screen collecting water (m):	0.99

Notes

Evidence of sludge:	no
Evidence of freezing/siltation:	no

Development/Purging Information

Equipment: Dedicated waterra tubing and foot valve

Date & Time	Volume Removed (L)	Temperature (^{o}C)	pH	Conductivity (uS/cm)	Turbidity (NTU)	Description of Water
26-Aug-10	2.4	3.6	7.1	1040	74	C&C, N/O

Water Sampling

Date & Time Collected:	26-Aug-10
Sample Number - Water:	FM10-4W
Sample Containers:	1x250 mL plastic 2x1L amber 3x40 mL vials
Procedure/Equipment:	Waterra tubing & foot valve Hanna HI9828 Mulitmeter, Hach 2100P Turbidimeter
Water Description:	C&C, N/O
Sampling Equipment Decontamination (Y/N):	N, dedicated
Number Washes:	0
Number Rinses:	0

Soil Sampling

Date and Time Collected:	26-Aug-10
Sample Number - Soil:	FM10-4WA FM10-4WB
Sample Containers:	2x250mL glass 3x250mL glass
Procedure/Equipment:	Steel & Plastic Trowels
Soil Description:	Grey gravel, some sand, some silt/clay, wet at 0.2 m
Sampling Equipment Decontamination (Y/N):	Y
Number Washes:	1
Number Rinses:	1

*From ground surface. Unless this is stated, all measurments are assumed to be from the top of the casing.
n/a=not applicable
SS=Stainless Steel
C&C = Clear & Colourless
N/O = No Odour

2010 Monitoring Well Sampling Log (MW-5)

Site name:	FOX-M
Date of sampling event:	26-Aug-10
Names of samplers:	Andrew Passalis
Monitoring well ID:	MW-5
Facility:	Tier II Disposal Facility

Known Data

Depth of installation* (m):	3.00
Length of screened section (m):	1.50
Depth to top of screen* (m):	0.54

Measured Data

Condition of well:	Good	Procedure/Equipment:	Interface Meter
Procedure/Equipment:	Measuring Tape	Depth to water surface (m):	0.79
Well height above ground (m):	0.56	Depth to bottom (m):	2.79
Diameter of well (m):	0.04	Free product thickness (mm):	-

Calculations		Notes	
Depth of water (m):	2.01	Evidence of sludge:	no
Well volume of water (L):	3.10	Evidence of freezing/siltation:	no
Static water level* (m):	0.23		
Length of screen collecting water (m):	1.69		

Development/Purging Information

Equipment: Dedicated waterra tubing and foot valve

Date & Time	Volume Removed (L)	Temperature (^{o}C)	pH	Conductivity (uS/cm)	Turbidity (NTU)	Description of Water
26-Aug-10	3.0	4.4	7.1	3316	42	C&C, N/O

Water Sampling		Soil Sampling	
Date & Time Collected:	26-Aug-10	Date and Time Collected:	26-Aug-10
Sample Number - Water:	FM10-5W & intra lab dup	Sample Number - Soil:	FM10-5WA
			FM10-5WB + intra dup
			FM10-BD5 (5WB)
Sample Containers:	2x250 mL plastic	Sample Containers:	2x250mL glass
	3x1L, 2x250 mL amber		2x250mL, 3x125mL
	6x40 mL vials		2x250mL glass
Procedure/Equipment:	Waterra tubing & foot valve Hanna HI9828 Mulitmeter, Hach 2100P Turbidimeter	Procedure/Equipment:	Steel & Plastic Trowels
Water Description:	C&C, N/O	Soil Description:	Lt. brown/grey gravel, some med-cs sand, wet at 0.3 m
Sampling Equipment Decontamination (Y/N):	N, dedicated	Sampling Equipment Decontamination (Y/N):	Y
Number Washes:	0	Number Washes:	1
Number Rinses:	0	Number Rinses:	1

*From ground surface. Unless this is stated, all measurments are assumed to be from the top of the casing.
n/a=not applicable
SS=Stainless Steel
C&C = Clear & Colourless

10 EAST BEACH LANDFILL

10.1 BACKGROUND AND MONITORING PROGRAM

The East Beach Landfill is located southeast of the main station and extends approximately 1.2 km parallel to the ocean shoreline between the Hazardous Materials Storage Area and south end of the site. The landfill consists of two lobes: a main lobe (south) with engineered containment cover encompassing a footprint of approximately 65,500 m^2 and final cover extending approximately 1.25 to 2.0 m above the surrounding grade; and a north lobe with engineered containment cover encompassing a footprint of approximately 6,100 m^2 and final cover extending between 1.5 to 2.0 m above the surrounding grade.

Based on existing information regarding this landfill as a source of contamination, its potential migration pathways and receptors, the landfill was classified as a moderate potential environmental risk. The remediation consisted of partial excavation of the debris within 30 m of the shoreline. The containment system design consisted of the installation of a synthetic liner system anchored into the saturated permafrost around the toe of the landfill and regraded with sufficient granular fill at surface to cause aggradations of permafrost through the landfill contents.

Twelve groundwater monitoring wells are installed at the landfill perimeter, and six thermistors are installed within the landfill footprint to monitor freeze-back conditions.

The long term monitoring plan consists of visual monitoring, collection of soil and groundwater samples and monitoring of subsurface ground temperatures. The 2010 monitoring of this landfill includes visual inspection to verify for evidence of settlement or erosion, collection of soil and groundwater samples to monitor for the presence of leachate and collection of ground temperature data from the thermistors. Locations of groundwater monitoring wells, soil samples and thermistor installations are identified on Figures FOX-M.9 and FOX-M.10.

Soil at all stations was sampled as specified. Where encountered, groundwater from each of the monitoring wells was sampled for all parameters as per the ToR. Insufficient groundwater volumes (dry conditions) were noted at all but two monitoring well locations, including MW-29 and MW-30.

10.2 VISUAL INSPECTION REPORT

The visual inspection of the East Beach Landfill was conducted on August 27, 2010. The Visual Inspection Checklist/Report has been completed as per the ToR and is included as Table XLIII of this report.

Settlement
Evidence of minor settlement was noted at one location on the southwest corner of the landfill (Feature A). Feature A consisted of a 2 m long by 1 m wide surface depression west of the crest on the southwest corner of the landfill. This feature was not noted during the previous 2009 inspection.

Erosion
Evidence of erosion was not noted.

Frost Action
Evidence of frost action was not observed.

Evidence of Burrowing Animals
Indications of burrowing animals were not noted.

Re-establishment of Vegetation
Indications of vegetation were not noted.

Staining
Evidence of staining was not observed.

Seepage Points
Indications of seepage were not noted.

Debris
One piece of partially exposed wire was noted on the west side slope of the landfill (Feature B). In addition, one piece of surface metal debris (rusted bolt cutter) was also noted in the immediate vicinity of the exposed wire. The debris associated with Feature B was not noted during the previous 2009 inspection.

Presence/Condition of Monitoring Instruments
All monitoring well and thermistor installations were found to be in good condition, with the exception of broken protective well covers at MW-21 and MW-24 along the east side of the landfill. Several lock sets were found to be heavily rusted and inoperable and were subsequently replaced with new. All existing lock sets were lubricated at the time of monitoring.

Other Features of Note
Localized vehicle tracks were observed on the surface and side slopes of the landfill, including several deeper ruts noted along the south, east and west sides of the south lobe (Feature C) and northwest and south sides of the north lobe (Feature D). The vehicle ruts typically extended between 0.1 to 0.2 m in depth and are occasional in nature.

Partially buried or exposed debris were observed within 20 m of the landfill toe, including various pieces of metal and wire debris within the east beach ridge, east of the landfill. Debris included an engine block, cable, wood, pipe, wire, tubing, radiator, miscellaneous metal pieces, drum lid. Numerous small pieces of metal surface debris and a partially exposed 1" diameter braided steel cable were also noted south and east of MW-20, respectively.

Relatively continuous and extensive areas of ponded water were present along the west side of the landfill. Ponded areas appear consistent with previous observations. There were no points of seepage or staining noted to be associated with any of the ponded areas.

Discussion
The East Beach 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.

Table XLIII: Visual Inspection Checklist / Report – East Beach Landfill

DEW LINE CLEAN-UP: POST-CONSTRUCTION - LANDFILL MONITORING
VISUAL INSPECTION CHECKLIST
INSPECTION REPORT – PAGE 1 of 2

SITE NAME: FOX-M HALL BEACH
LANDFILL DESIGNATION: EAST BEACH LANDFILL (North & South)
DATE OF INSPECTION: AUGUST 27, 2010
DATE OF PREVIOUS INSPECTION: AUGUST 5, 2009
INSPECTED BY: A. PASSALIS
REPORT PREPARED BY: A. PASSALIS
The inspector/reporter represents to the best of his/her knowledge that 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.

LANDFILL VISUAL INSPECTION

Site Name: Fox-M, Hall Beach
Landfill: East Beach Landfill (North & South)
Designation: Regrade Landfill
Date Inspected: August 27, 2010
Inspected by: Andrew Passalis, P.Eng.

Signature: 

TABLE XLIII: Landfill Visual Inspection Checklist / Report - East Beach Landfill

Checklist Item	Present (Yes/No)	Location	Length	Width	Depth	Extent	Description	Photographic Record	Severity Rating	Additional Comments
Settlement	Yes	FEATURE A See Figure FOX-M.9 (southwest corner) NEW OBS.	2 m	1 m	20 cm	Isolated	Minor depression on side slope	N/A	Not Observed	Minor depression west of southwest crest
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 B See Figure FOX-M.9 (west side) NEW OBS.	3 m	0.02 m	Unknown	Isolated	Partially exposed wire in side slope	EBLFS-44	Acceptable	Partially exposed guy wire and rusted bolt cutters (surface)
Presence/Condition of Monitoring Instruments	Yes	See Figure FOX-M.9 & FOX-M.10	N/A	N/A	N/A	N/A	VT-06 through -11 MW-20 through -31	EBLFS- 4, 24, 31 EBLFN-19, 13, 14 EBLFS-24W to 30W EBLFN-20W to 23W, 31W	N/A	The protective casings for thermistors cables and monitoring wells were in acceptable condition, with the exception of MW-21 and MW-24 which had broken well covers. Several lock sets were found to be heavily rusted and inoperable and were subsequently replaced with new. All existing lock sets were lubricated. Ground temperature cables and data loggers were in good condition.
Other Features of Note	Yes	FEATURE C See Figure FOX-M.9 (numerous locations)	2 - 4 m	2 - 4 m	10 - 20 cm	Occasional	Vehicle tracks / ruts on side of landfill	EBLFS-9 to 12, 23, 27, 38, 41, 47	Acceptable	Vehicle tracks / ruts at various locations on side slopes. No significant rutting noted on surface.
		FEATURE D See Figure FOX-M.10 (numerous locations)	1.5 - 5 m	1 - 3 m	10 - 15 cm	Occasional	Vehicle tracks / ruts on side of landfill	EBLFN-3, 11, 15, 16	Acceptable	Vehicle tracks / ruts at various locations on side slopes. No significant rutting noted on surface.
		FEATURE E See Figure FOX-M.9 (west crest)	6 m	2 - 3 mm	Unknown	Isolated	Tension crack	EBLFS-39, 40	Acceptable	Continuous tension crack extending parallel to west crest
		See Figure FOX-M.10 (northwest (new), MW-20 area, northeast of MW-22)	0.1 - 1 m	0.02 - 0.7 m	Surface and partially buried	N/A (east of landfill)	Surface and partially buried debris. Outside landfill.	EBLFN-7 , 9, 10, 30, 31	Acceptable	Various pieces of metal and wire debris on east side of beach ridge, east of landfill. Debris includes engine block, cable, wood, pipe, wire, tubing, radiator, miscellaneous metal pieces, drum lid. Partially exposed 1"" diameter braided steel cable in beach ridge east of MW-20. Numerous small pieces of metal surface debris south of MW-20.
		See Figure FOX-M.9 and FOX- M.10	Irregular	Irregular	0.1-0.3	Extensive	Ponded water along west side of landfill	EBLFS-5, 8, 31-33, 35-37, 41-43, 48 EBLFN-	Acceptable	Extensive water ponding along the west side of South Lobe and west and north sides of North Lobe
Additional Photos	Yes	See Figure FOX-M.9 and FOX-M.10 and Photographic Record	N/A	N/A	N/A	N/A	General Photographic Record	N/A	N/A	General photos for documentation, no features of note.
Overall Landfill Performance:	**Acceptable**									

10.3 PRELIMINARY STABILITY ASSESSMENT

The Preliminary Stability Assessment for East Beach Landfill has been completed as per the ToR and is included as Table XLIV hereafter.

Table XLIV: Preliminary Stability Assessment – East Beach Landfill

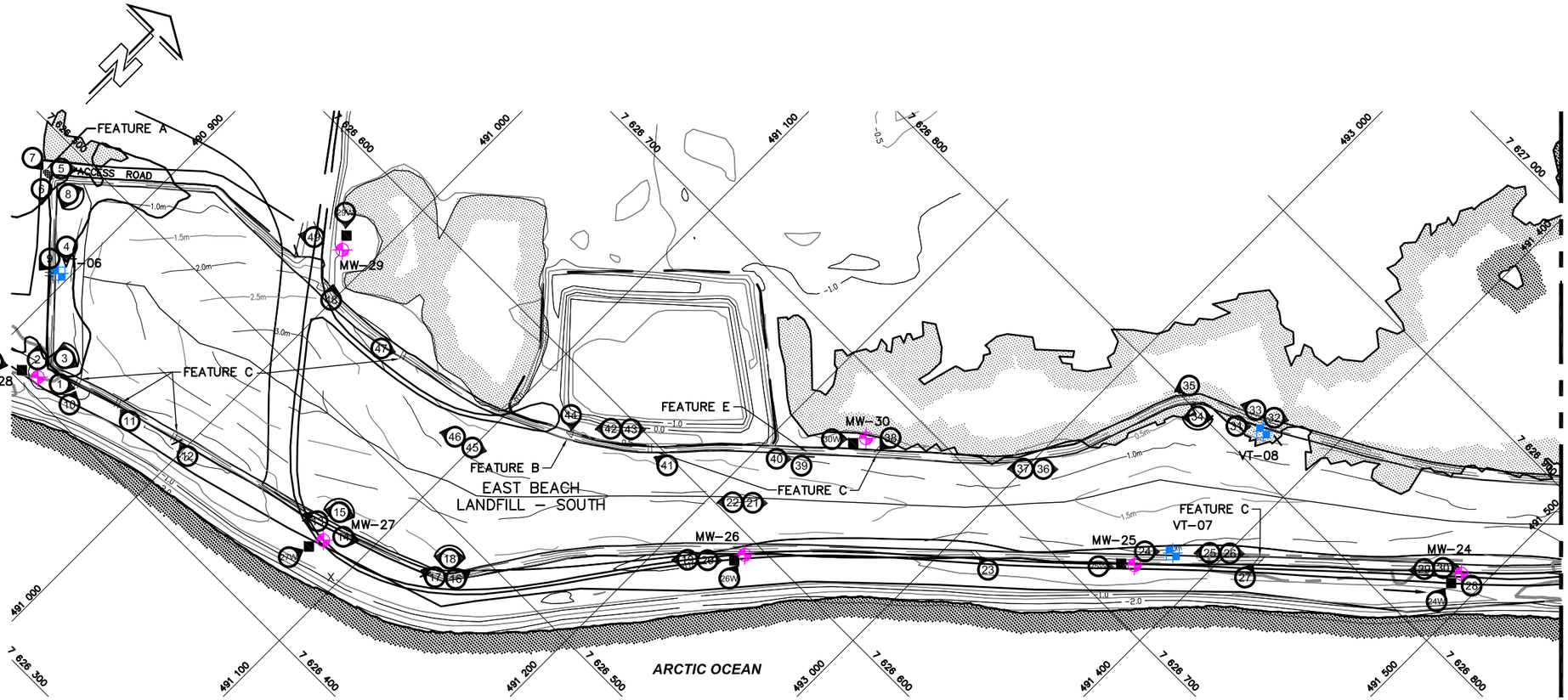
Feature	Severity Rating	Extent
Settlement	Acceptable	Isolated
Erosion	Not observed	None
Frost Action	Not observed	None
Staining	Not observed	None
Vegetation Stress	Not observed	None
Seepage/Ponded Water	Acceptable	Extensive (perimeter only)
Debris exposure	Acceptable	Isolated
Overall Landfill Performance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

10.4 LOCATION PLAN

The Location Plan for the East Beach Landfill has been completed as per the ToR and is included in Figures FOX-M.9 and FOX-M.10.



LEGEND

- SOIL SAMPLING LOCATION
- MONITORING WELL LOCATION
- VERTICAL THERMISTOR LOCATION
- PHOTOGRAPH VIEWPOINT LOCATION
- PANORAMIC VIEW
- VEHICLE TRACKS / RUTS (NTS)
- TENSION CRACK (NTS)
- MINOR SETTLEMENT (NTS)
- PARTIALLY EXPOSED DEBRIS (NTS)

NO.	VERSION	DATE	BY	VERIF.	APPR.
A	FINAL	11–02–09	P.L.	A.P.	R.G.

Construction de Défense Canada
Defence Construction Canada

FINAL REPORT
COLLECTION OF LANDFILL MONITORING DATA
FOX-5, HALL BEACH, NUNAVUT

EAST BEACH LANDFILL SOUTH

SITE REMEDIATION SOLUTIONS

Biogenie, a division of EnGlobe Corp.
4495 Wilfrid-Hamel Blvd., Suite 200
Quebec (Quebec) CANADA G1P 2J7
Phone: (418) 653-4422 Fax.: (418) 653-3583

MEASUREMENT UNIT	SCALE:	DATE (month–year):
Metre	1 : 2,500	FEBRUARY 2011
DRAWN BY: P. LÉGARÉ	VERIFIED BY: A. PASSALIS	APPROVED BY: R. GAUTHIER
PROJECT NO: CD8177_005_101	DRAWING NO: CD8177_005_101-FOX-M_I	PAGE PL

FIGURE FOX-M.9

G:\CD8177\003\2010\FOX-M\FINAL\CD8177_005_101-FOX-M_I.dwg, PL, 2011-02-11 3:27:52 PM

G:\CD8177\003\2010\FOX-M\FINAL\CD8177_005_101-FOX-M_J.dwg, PL, 2011-02-11 3:28:47 PM

LEGEND

■ SOIL SAMPLING LOCATION

⊕ MONITORING WELL LOCATION

▣ VERTICAL THERMISTOR LOCATION

① PHOTOGRAPH VIEWPOINT LOCATION

⑩ PANORAMIC VIEW

= VEHICLE TRACKS / RUTS (NTS)

△ PARTIALLY EXPOSED/SURFACE DEBRIS (NTS)

0 25m 50m 75m 100m 125m

A	FINAL	11-02-09	P.L.	A.P.	R.G.
NO.	VERSION	DATE	BY	VERIF.	APPR.

Construction de Défense Canada
Defence Construction Canada

FINAL REPORT
COLLECTION OF LANDFILL MONITORING DATA
FOX-M, HALL BEACH, NUNAVUT

EAST BEACH LANDFILL
NORTH

SITE REMEDIATION SOLUTIONS

Biogénie

Biogenie, a division of EnGlobe Corp.
4495 Wilfrid-Hamel Blvd., Suite 200
Quebec (Quebec) CANADA G1P 2J7
Phone: (418) 653-4422 Fax.: (418) 653-3583

MEASUREMENT UNIT	SCALE:	DATE (month-year):
Metre	1 : 2,500	FEBRUARY 2011
DRAWN BY: P. LÉGARÉ	VERIFIED BY: A. PASSALIS	APPROVED BY: R. GAUTHIER
PROJECT NO: CD8177_005_101	DRAWING NO: CD8177_005_101-FOX-M_J	PAGE PL

FIGURE FOX-M.10

10.5 PHOTOGRAPHIC RECORDS

The Photographic Record for East Beach Landfill has been completed as per the ToR and is included in the following pages as Table XLV. The Photographic Record contains only an index and “thumbnail” photographs. Full size photographs are contained in the Addendum DVD-ROM.

Table XLV: Landfill Visual Inspection Photo Log - East Beach Landfill
Site Name: FOX-M, Hall Beach
Landfill: East Beach Landfill
Date Inspected: August 27, 2010
Inspected by: Andrew Passalis, P.Eng.

Photo (EBLFS-)	Thumbnail	Filename	Size (KB)	Date	Vantage Point		Caption
					Easting	Northing	
East Beach Landfill - South							
1		FM10_1499	4,359 KB	27/08/2010	490934	7626413	View NE along southeast toe from south end of landfill
2		FM10_1500	4,388 KB	27/08/2010	490917	7626413	View NW along southwest toe from south end of landfill. VT-06 visible in background.
3		FM10_1501	1,713 KB	18/11/2010	490926	7626422	Panoramic view NW to NE across surface from south end of landfill
4		FM10_1502	4,393 KB	27/08/2010	490888	7626464	View SE at VT-06 located at south end of landfill. MW-28 visible in background.
5		FM10_1504	4,298 KB	27/08/2010	490860	7626488	View NE along northwest toe from southwest corner of landfill
6		FM10_1505	4,338 KB	27/08/2010	490860	7626474	View SE along southwest toe from southwest corner of landfill. VT-06 visible in background.
7		FM10_1506	4,383 KB	27/08/2010	490846	7626482	View E at minor depression on sooouthwest corner of landfill (2m L, 1m W, 20cm D)
8		FM10_1507	1,956 KB	18/11/2010	490871	7626482	Panoramic view NE to SE across surface from southwest corner of landfill
9		FM10_1510	4,343 KB	27/08/2010	490886	7626453	View S at vehicle tracks/ruts on southwest side slope below VT-06
10		FM10_1513	4,463 KB	27/08/2010	490944	7626408	View NW at vehicle tracks/rusts on southeast side slope of landfill (4m L. 2.5m W, 10-20cm D)
11		FM10_1515	4,338 KB	27/08/2010	490970	7626424	View W at vehicle tracks/rusts on southeast side slope of landfill (4m L. 2.5m W, 10-20cm D)
12		FM10_1516	4,340 KB	27/08/2010	491002	7626432	View WNW at vehicle tracks/rusts on southeast side slope of landfill (4m L. 2.5m W, 10-20cm D)
13		FM10_1517	4,323 KB	27/08/2010	491073	7626456	View SW along southeast toe from MW-27 area
14		FM10_1518	4,317 KB	27/08/2010	491088	7626459	View NE along southeast toe from MW-27 area
15		FM10_1519	1,846 KB	18/11/2010	491076	7626466	Panoramic view SW to ENE across surface from west of MW-27 on east side of landfill
16		FM10_1522	4,369 KB	27/08/2010	491140	7626483	View NE along southeast toe from PT 218 on east side of landfill
17		FM10_1523	4,436 KB	27/08/2010	491133	7626476	View SW along southeast toe from PT 218 on east side of landfill
18		FM10_1524	2,059 KB	18/11/2010	491130	7626488	Panoramic view SW to NE across surface from PT 218 on east side of landfill
19		FM10_1525	4,278 KB	27/08/2010	491214	7626570	View SW along southeast toe south of MW-26 on east side of landfill
20		FM10_1526	4,374 KB	27/08/2010	491221	7626577	View NE along southeast toe on east side of landfill. MW-26 visible in foreground.
21		FM10_1527	4,412 KB	27/08/2010	491218	7626613	View SW along centreline of landfill from west of MW-26
22		FM10_1528	4,274 KB	27/08/2010	491210	7626606	View NE along centreline of landfill from west of MW-26
23		FM10_1533	4,361 KB	27/08/2010	491322	7626673	View W at vehicle tracks/rusts on southeast side slope of landfill (4m L. 10-15cm D)
24		FM10_1534	4,290 KB	27/08/2010	491370	7626733	View NE at VT-07 located on east crest of landfill
25		FM10_1538	4,356 KB	27/08/2010	491395	7626754	View SW along southeast crest of landfill. VT-07 and MW-25 visible in background.
26		FM10_1539	4,330 KB	27/08/2010	491401	7626761	View NE along southeast crest of landfill. MW-24 visible in far background.

Table XLV: Landfill Visual Inspection Photo Log - East Beach Landfill
Site Name: FOX-M, Hall Beach
Landfill: East Beach Landfill
Date Inspected: August 27, 2010
Inspected by: Andrew Passalis, P.Eng.

Photo (EBLFS-)	Thumbnail	Filename	Size (KB)	Date	Vantage Point		Caption
					Easting	Northing	
27		FM10_1540	4,465 KB	27/08/2010	491414	7626759	View N at vehicle tracks/ruts on east side of landfill (4m L, 10-15cm D)
28		FM10_1541	4,320 KB	27/08/2010	491496	7626834	Broken well cover at MW-24
29		FM10_1543	4,446 KB	27/08/2010	491475	7626824	View SW along southeast toe of landfill. MW-25 visible in background.
30		FM10_1544	4,303 KB	27/08/2010	491480	7626831	View NE along southeast toe of landfill. MW-24 visible in foreground.
31		FM10_1598	4,443 KB	27/08/2010	491359	7626808	View NE at VT-08 located on east crest of landfill
32		FM10_1600	4,417 KB	27/08/2010	491369	7626824	View NE along west toe west of VT-08
33		FM10_1601	4,456 KB	27/08/2010	491359	7626821	View SW along west toe west of VT-08
34		FM10_1602	1,579 KB	18/11/2010	491342	7626798	Panoramic view NE to SW across surface from west side of landfill. VT-08 visible on left.
35		FM10_1604	4,303 KB	27/08/2010	491329	7626806	View SSW along west toe of landfill. MW-30 visible in far background.
36		FM10_1605	4,439 KB	27/08/2010	491306	7626725	View NE along west crest of landfill. VT-08 visible in far background.
37		FM10_1606	4,323 KB	27/08/2010	491299	7626719	View SW along west crest of landfill. MW-30 visible in background
38		FM10_1609	4,418 KB	27/08/2010	491242	7626683	View S at vehicle tracks/ruts on west side slope adjacent to MW-30 (2m L, 1.5m W, 15-20cm D)
39		FM10_1610	4,411 KB	27/08/2010	491220	7626645	Tension crack extending parallel to crest on west side of landfill (6m L, 2-3mm W)
40		FM10_1611	4,329 KB	27/08/2010	491210	7626638	View NE at tension crack extending parallel to crest on west side of landfill (6m L, 2-3mm W)
41		FM10_1612	4,378 KB	27/08/2010	491172	7626601	View SW at vehicle tracks/ruts on west side slope of landfill (4m L, 4m W, 10-15cm D)
42		FM10_1613	4,378 KB	27/08/2010	491148	7626596	View SW along west toe east of the former lagoon area
43		FM10_1614	4,431 KB	27/08/2010	491142	7626588	View NE along west toe east of the former lagoon area. MW-30 visible in background.
44		FM10_1615	4,408 KB	27/08/2010	491123	7626581	View SE at partially exposed cable and rusted bolt cutters (surface) on west side slope of landfill. (3m L)
45		FM10_1618	4,399 KB	27/08/2010	491100	7626534	View SW along centreline of landfill from east of PT 523
46		FM10_1619	4,412 KB	27/08/2010	491090	7626532	View NE along centreline of landfill from east of PT 523
47		FM10_1622	4,434 KB	27/08/2010	491034	7626538	View ENE at vehicle tracks/ruts on north facing side slope east of MW-29 (10cm D)
48		FM10_1623	4,368 KB	27/08/2010	490998	7626537	View NW along east side of south access road. MW-29 visible in background.
49		FM10_1626	4,381 KB	27/08/2010	490971	7626552	View WSW at north side of west end of South Lobe from access road
Soil Sampling							
MW-24		FM10_1545	4,368 KB	27/08/2010	491488	7626828	Sampling location MW-24 located on east (downgradient) side of East Beach Landfill - South
24W		FM10_1546	4,371 KB	27/08/2010	491489	7626816	View N at MW-24 soil sample location
MW-25		FM10_1536	4,468 KB	27/08/2010	491366	7626719	Sampling location MW-25 located on east (downgradient) side of East Beach Landfill - South

Table XLV: Landfill Visual Inspection Photo Log - East Beach Landfill
Site Name: FOX-M, Hall Beach
Landfill: East Beach Landfill
Date Inspected: August 27, 2010
Inspected by: Andrew Passalis, P.Eng.

Photo (EBLFS-)	Thumbnail	Filename	Size (KB)	Date	Vantage Point		Caption
					Easting	Northing	
25W		FM10_1537	4,312 KB	27/08/2010	491360	7626712	View NE at MW-27 soil sample location
MW-26		FM10_1529	4,381 KB	27/08/2010	491230	7626586	Sampling location MW-26 located on east (downgradient) side of East Beach Landfill - South
26W		FM10_1530	4,449 KB	27/08/2010	491235	7626579	View N at MW-26 soil sample location
MW-27		FM10_1520	4,345 KB	27/08/2010	491078	7626444	Sampling location MW-27 located on east (downgradient) side of East Beach Landfill - South
27W		FM10_1521	4,394 KB	27/08/2010	491074	7626432	View NNE at MW-27 soil sample location
MW-28		FM10_1511	4,298 KB	27/08/2010	490917	7626404	Sampling location MW-28 located on southeast (downgradient) side of East Beach Landfill - South
28W		FM10_1512	4,381 KB	27/08/2010	490903	7626398	View NE at MW-28 soil sample location
MW-29		FM10_1624	4,395 KB	27/08/2010	490982	7626564	Sampling location MW-29 located on southwest (upgradient) side of East Beach Landfill - South
29W		FM10_1625	4,380 KB	27/08/2010	490973	7626571	View SE at MW-29 soil sample location
MW-30		FM10_1607	4,448 KB	27/08/2010	491231	7626669	Sampling location MW-30 located on west (upgradient) side of East Beach Landfill - South
30W		FM10_1608	4,305 KB	27/08/2010	491223	7626663	View NE at MW-30 soil sample location
East Beach Landfill - North							
1		FM10_1548	4,321 KB	27/08/2010	491651	7627364	View W along north toe of North Lobe
2		FM10_1549	1,957 KB	18/11/2010	491645	7627355	Panoramic view SE to W across surface from northeast corner of North Lobe
3		FM10_1550	4,353 KB	27/08/2010	491667	7627364	View SW at vehicle tracks/ruts on northeast side slope and crest of North Lobe (1.5m L, 1m W, 10cm D)
4		FM10_1551	2,000 KB	18/11/2010	491603	7627353	Panoramic view ENE to WSW across surface from northwest corner of North Lobe
5		FM10_1553	4,279 KB	27/08/2010	491598	7627363	View SW along northwest toe from northwest corner of North Lobe
6		FM10_1554	4,365 KB	27/08/2010	491575	7627352	View SSW along west toe from northwest side of North Lobe
7		FM10_1556	4,454 KB	27/08/2010	491572	7627365	Partially exposed crushed barrel located 15 m northwest of North Lobe
8		FM10_1558	1,302 KB	18/11/2010	491560	7627377	Panoramic view E to S from northwest of North Lobe. Note barrel debris in immediate foreground.
9		FM10_1561	4,353 KB	27/08/2010	491682	7627347	View W at partially exposed cable debris in ridge east of MW-20 (0.6m L, 2.5cm dia.)
10		FM10_1563	4,402 KB	27/08/2010	491661	7627313	View N at miscellaneous pieces of metal debris south of MW-20. Cable visible in background east of MW-20
11		FM10_1564	4,449 KB	27/08/2010	491621	7627295	View SW at vehicle tracks/ruts on southeast corner of North Lobe (3m L, 2m W, 15-20cm D). VT-10 in photo centre.
12		FM10_1565	1,291 KB	18/11/2010	491595	7627253	Panoramic view NW to NE from south of North Lobe (MW-21)
13		FM10_1567	4,333 KB	27/08/2010	491614	7627275	View NW at VT-10 located on southeast corner of North Lobe. VT-11 visible in background.
14		FM10_1569	4,381 KB	27/08/2010	491567	7627328	View SSE at VT-11 located on west side of North Lobe. VT-10 visible on left background.
15		FM10_1570	4,321 KB	27/08/2010	491561	7627319	View SSW at vehicle tracks/ruts on west side slope south of VT-11

Table XLV: Landfill Visual Inspection Photo Log - East Beach Landfill
Site Name: FOX-M, Hall Beach
Landfill: East Beach Landfill
Date Inspected: August 27, 2010
Inspected by: Andrew Passalis, P.Eng.

Photo (EBLFS-)	Thumbnail	Filename	Size (KB)	Date	Vantage Point		Caption
					Easting	Northing	
16		FM10_1572	4,377 KB	27/08/2010	491569	7627304	View SW at vehicle tracks/ruts on west side slope of North Lobe
17		FM10_1573	1,935 KB	18/11/2010	491565	7627284	Panoramic view N to SE across surface from southwest corner of North Lobe
18		FM10_1579	4,418 KB	27/08/2010	491606	7627249	Broken well collar on MW-21 (securing rivets rusted out).
19		FM10_1580	4,285 KB	27/08/2010	491590	7627028	View NW at VT-09 located on northeast corner of South Lobe
20		FM10_1583	4,417 KB	27/08/2010	491587	7627044	View NW at vehicle tracks/ruts northeast of VT-09 on northeast slope of landfill (5m L, 15cm D)
21		FM10_1588	2,116 KB	18/11/2010	491580	7627031	Panoramic view S to NE across surface from northeast corner of South Lobe. VT-09 visible on right.
22		FM10_1590	4,297 KB	27/08/2010	491517	7626957	View N along west side of South Lobe from north of MW-31
23		FM10_1591	4,209 KB	27/08/2010	491514	7626946	View SSW along west side of South Lobe. MW-31 visible on left.
24		FM10_1592	4,260 KB	27/08/2010	491527	7626939	View SW along west creast of South Lobe east of MW-31
25		FM10_1593	4,260 KB	27/08/2010	491525	7626928	View N along west crest of South Lobe from east of MW-31
26		FM10_1628	4,396 KB	27/08/2010	491572	7626927	View NNE at miscellaneous metal debris scattered around MW-23
27		FM10_1629	1,529 KB	18/11/2010	491567	7626894	Panoramic view SW to N from shoreline east of South Lobe. MW-23 visible on far right
28		FM10_1630	4,374 KB	27/08/2010	491559	7626954	View N along centreline of landfill west of MW-23
29		FM10_1631	4,277 KB	27/08/2010	491555	7626943	View SW along centreline of landfill west of MW-23
30		FM10_1632	4,372 KB	27/08/2010	491607	7627061	View SW at partially exposed metal debris (drum, wire) in beach ridge northeast of MW-22
31		FM10_1633	4,404 KB	27/08/2010	491595	7627058	View N at partially exposed and scattered metal debris (vehicle parts) in beach ridge northeast of MW-22
Soil Sampling							
MW-20		FM10_1559	4,415 KB	27/08/2010	491660	7627341	Sampling location MW-20 located on east (downgradient) side of East Beach Landfill - North Lobe
20W		FM10_1560	4,327 KB	27/08/2010	491660	7627329	View N at MW-20 soil sample location
MW-21		FM10_1576	4,423 KB	27/08/2010	491601	7627242	Sampling location MW-21 located on southeast (downgradient) side of East Beach Landfill - North
21W		FM10_1577	4,290 KB	27/08/2010	491602	7627228	View N at MW-21 soil sample location
MW-22		FM10_1586	4,373 KB	27/08/2010	491604	7627042	Sampling location MW-22 located on northeast (downgradient) side of East Beach Landfill - South
22W		FM10_1587	4,394 KB	27/08/2010	491614	7627042	View WNW at MW-22 soil sample location
MW-23		FM10_1634	4,350 KB	27/08/2010	491576	7626939	Sampling location MW-23 located on east (downgradient) side of East Beach Landfill - South
23W		FM10_1635	4,450 KB	27/08/2010	491582	7626951	View SW at MW-23 soil sample location
MW-31		FM10_1595	4,425 KB	27/08/2010	491511	7626928	Sampling location MW-31 located on west (upgradient) side of East Beach Landfill - South
31W		FM10_1596	4,412 KB	27/08/2010	491510	7626916	View N at MW-31 soil sample location

10.6 THERMAL MONITORING DATA

All thermistors at the East Beach Landfill were inspected and found to be in good condition with no significant concerns identified. Data from all thermistors was successfully retrieved and all analogues/thermocouples were observed to be functioning properly at the time of the inspection. Further review of the downloaded data identified no anomalous temperature readings. All clocks exhibited slight drift and were synchronized using the Prolog software.

No batteries were replaced in 2010 as battery levels at all thermistor locations were noted as being "good".

10.7 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 section 10.10. A complete datalogger RAW data set for the 2009-2010 period has been forwarded to DCC as per the ToR.

10.8 SOIL SAMPLE ANALYTICAL DATA

The soil chemical analysis results and evaluation of analytical data for the 2010 East Beach Landfill samples are presented in Tables XLVI and XLVII respectively. Certificates of analysis and results of field duplicates collected as part of the QA/QC program are presented in Appendix C.

Table XLVI: Soil Chemical Analysis Results – East Beach Landfill

Sample #	Location	Depth (cm)	Cu [mg/kg]	Ni [mg/kg]	Co [mg/kg]	Cd [mg/kg]	Pb [mg/kg]	Zn [mg/kg]	Cr [mg/kg]	As [mg/kg]	Hg [mg/kg]	PCBs [mg/kg]	F1 C_6-C_{10} [mg/kg]	F2 C_{10}-C_{16} [mg/kg]	F3 C_{16}-C_{34} [mg/kg]	TPH C_6-C_{34} [mg/kg]
FM10-20WA	MW-20	0-15	9	18	2	<0.5	11	13	30	2	<0.1	<0.02	<10	<10	<20	ND
FM10-20WB		40-50	6	13	3	<0.5	7	13	15	1	<0.1	<0.02	<10	<10	<20	ND
FM10-21WA	MW-21	0-15	4	11	2	<0.5	4	8	16	2	<0.1	<0.02	<10	<10	<20	ND
FM10-21WB		40-50	4	11	2	<0.5	4	18	14	1	<0.1	<0.1*	<10	<10	<20	ND
FM10-22WA	MW-22	0-15	56	13	3	<0.5	82	47	16	2	<0.1	<0.02	<10	<10	21	21
FM10-22WB		40-50	19	13	3	<0.5	50	29	16	2	<0.1	<0.02	<10	<10	<20	ND
FM10-23WA	MW-23	0-15	5	14	3	<0.5	5	11	14	4	<0.1	<0.02	<10	<10	22	22
FM10-23WB		40-50	5	13	3	<0.5	5	11	14	4	<0.1	<0.02	<10	<10	<20	ND
FM10-24WA	MW-24	0-15	16	13	3	<0.5	31	30	16	2	<0.1	<0.02	<10	13	<20	13
FM10-24WB		40-50	14	13	3	<0.5	28	32	15	2	<0.1	<0.02	<10	<10	23	23
FM10-25WA	MW-25	0-15	5	12	2	<0.5	45	11	13	2	<0.1	<0.02	<10	<10	<20	ND
FM10-25WB		40-50	5	13	3	<0.5	91	12	15	2	<0.1	<0.02	<10	<10	<20	ND
FM10-26WA	MW-26	0-15	16	14	3	<0.5	30	23	14	3	<0.1	<0.02	<10	<10	<20	ND
FM10-26WB		40-50	18	14	3	<0.5	33	24	15	3	<0.1	<0.02	<10	<10	<20	ND
FM10-27WA	MW-27	0-15	15	13	3	<0.5	21	18	17	2	<0.1	<0.02	<10	<10	<20	ND
FM10-27WB		40-50	5	13	3	<0.5	6	12	14	4	<0.1	<0.2*	<10	<10	<20	ND
FM10-28WA	MW-28	0-15	14	14	3	<0.5	13	14	18	2	<0.1	<0.2*	<10	<10	<20	ND
FM10-28WB		40-50	34	15	3	<0.5	41	74	18	3	<0.1	<0.02	<10	<10	<20	ND
FM10-29WA	MW-29	0-15	6	11	2	<0.5	4	13	11	1	<0.1	<0.02	<10	<10	<20	ND
FM10-29WB		40-50	5	12	2	<0.5	8	9	17	2	<0.1	<0.02	<10	<10	<20	ND
FM10-30WA	MW-30	0-15	5	12	3	<0.5	4	10	16	2	<0.1	<0.02	<10	<10	<20	ND
FM10-30WB		40-50	5	14	3	<0.5	5	10	19	2	<0.1	<0.02	<10	<10	<20	ND
FM10-31WA	MW-31	0-15	4	9	2	<0.5	5	10	11	2	<0.1	<0.02	<10	<10	<20	ND
FM10-31WB		40-50	4	10	2	<0.5	6	14	15	2	<0.1	<0.02	<10	<10	<20	ND
FM10-BD7	FM10-23WB	0-15	5	15	3	<0.5	3	12	18	4	<0.1	<0.2*	<10	<10	<20	ND
FM10-BD8	FM10-21WB	40-50	3	8	2	<0.5	3	9	11	2	<0.1	<0.02	<10	<10	<20	ND

TPH: Sum of the concentrations of F1, F2 and F3. Concentrations below method detection limits are excluded from the total.

ND: Not detected

* MRL elevated due to matrix interference

S:\P\CD\8177\FOX-M\T\[10- Soil and GW results FOX-M.xlsx]Soil - East Beach LF

Table XLVII: Evaluation of 2010 Soil Analytical Data – East Beach Landfill

Parameter	2010
Copper	Concentrations ranged between 4-56 mg/kg with a mean concentration of 11.6 mg/kg. Elevated concentrations were observed at downgradient locations MW-22 (56 mg/kg – surface) and MW-28 (34 mg/kg – depth). Concentrations at all upgradient locations were between 4-6 mg/kg.
Nickel	Concentrations ranged between 9-18 mg/kg with detectable concentrations at all sample locations and a mean concentration of 12.8 mg/kg. The highest concentrations were observed at depth and surface at MW-20 and MW-31 respectively. Concentrations at the remaining upgradient locations ranged between 10-14 mg/kg.
Cobalt	Concentrations ranged between 2-3 mg/kg with a mean of 2.7 with detectable concentrations noted at all locations.
Cadmium	All reported concentrations were less than the method detection limit (0.5 mg/kg).
Lead	Concentrations ranged between 4-91 mg/kg with a mean of 22.5 with detectable concentrations noted at all locations. The most elevated concentrations were noted at downgradient locations MW-22 (82 mg/kg – surface, 50 mg/kg – depth), MW-25 (45 mg/kg – surface, 91 mg/kg – depth) and MW-28 (41 mg/kg – depth). Concentrations at upgradient locations ranged between 4-8 mg/kg.
Zinc	Concentrations ranged between 8-74 mg/kg with a mean of 19.4 with detectable concentrations noted at all locations. The most elevated concentrations were noted at downgradient locations MW-22 (47 mg/kg - surface) and MW-28 (74 mg/kg - depth). Concentrations at upgradient locations ranged between 9-14 mg/kg.
Chromium	Concentrations ranged between 11-30 mg/kg with a mean of 15.8 mg/kg. Slightly elevated concentrations were observed at downgradient locations MW-20 (30 mg/kg – surface) and MW-28 (18 mg/kg – surface and depth). Concentrations at upgradient locations ranged between 11-19 mg/kg.
Arsenic	Concentrations ranged between 1-4 mg/kg with a mean concentration of 2.3 mg/kg. The highest concentration was observed at downgradient locations MW-23 (surface and depth) and MW-27 (depth). Concentrations at upgradient locations ranged between 1-2 mg/kg.
Mercury	All reported concentrations were less than the method detection limit (0.1 mg/kg).
PCBs	All reported concentrations were less than the method detection limits (0.02-0.2 mg/kg).
TPH	All reported concentrations were less than the method detection limit (10-20 mg/kg) with the exception of samples collected at downgradient locations MW-22 (21 mg/kg - surface), MW-23 (22 mg/kg - surface) and MW-24 (13 mg/kg – surface, 23 mg/kg – depth).

10.9 GROUNDWATER SAMPLE ANALYTICAL DATA

The groundwater chemical analysis results and evaluation of analytical data for the 2010 East Beach Landfill samples are presented in Tables XLVIII and XLIX hereafter. As noted above, all of the downgradient wells and upgradient well MW-31 contained insufficient sample volumes (dry conditions) to complete the specified analysis. Certificates of analysis and groundwater samples collected as part of the QA/QC program are presented in Appendix C.

Table XLVIII: Groundwater Chemical Analysis Results – East Beach Landfill

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 [µg/L]	F1 C_6-C_{10} [mg/L]	F2 C_{10}-C_{16} [mg/L]	F3 C_{16}-C_{34} [mg/L]	TPH C_6-C_{34} [mg/L]
FM10-29W	MW-29	0.002	0.006	0.0003	<0.0001	<0.001	<0.01	0.013	<0.005*	<0.0001	<0.1	<0.1	<0.1	<0.2	ND
FM10-30W	MW-30	0.001	0.014	0.0002	<0.0001	<0.001	<0.01	0.002	<0.01*	<0.0001	<0.1	<0.1	<0.1	<0.2	ND

TPH: Sum of the concentrations of F1, F2 and F3. Concentrations below method detection limits are excluded from the total.

ND: Not detected

*MRL elevated due to matrix interference

S:\P\CD\8177\FOX-M\T\[10- Soil and GW results FOX-M.xlsx]GW - East Beach LF

Table XLIX: Evaluation of 2010 Groundwater Analytical Data – East Beach Landfill

Parameter	2010
Copper	Concentrations ranged between 0.001-0.002 mg/L, with the higher concentration noted at MW-29.
Nickel	Concentrations ranged between 0.006-0.014 mg/L, with the most elevated concentration noted at MW-30.
Cobalt	Concentrations ranged between 0.0002-0.0003 mg/L, with the higher concentration noted at MW-29.
Cadmium	All reported concentrations were less than the method detection limit (0.0001 mg/L).
Lead	All reported concentrations were less than the method detection limit (0.001 mg/L).
Zinc	All reported concentrations were less than the method detection limit (0.01 mg/L).
Chromium	Concentrations ranged between 0.002-0.013 mg/L, with the higher concentration noted at MW-29.
Arsenic	All reported concentrations were less than the method detection limits (0.005-0.01 mg/L).
Mercury	All reported concentrations were less than the method detection limit (0.0001 mg/L).
PCBs	All reported concentrations were less than the method detection limit (0.1 µg/L).
TPH	All reported concentrations were less than the method detection limit.

10.10 THERMISTOR ANNUAL MAINTENANCE REPORTS

The thermistor annual maintenance reports for VT-6 to VT-11 are presented in this section.

Thermistor Annual Maintenance Report

Contractor Name:	**Sila Remediation Inc.**	Inspection Date:	**27-Aug-10**
Prepared By:	**A.Passalis**		

Thermistor Information

Site Name:	**FOX-M**		Thermistor Location		**East Beach Landfill South Lobe**		
Thermistor Number:	**VT-6**		Inclination		**Vertical**		
Install Date:	**24-Aug-07**		First Date Event		**25-Aug-07**	Last Date Event	**05-Sep-09**
Coordinates and Elevation		N	**7626449**	E	**490895**	Elev	**0**
Length of Cable (m)	**8.23**	Cable Lead Above Ground (m)	**4.23**	Nodal Points			**9**
Datalogger Serial #	**07060018**			Cable Serial Number			**TS07060018**

Thermistor Inspection

	Good	Needs Maintenance
Casing	**Yes**	**No**
Cover	**Yes**	**No**
Data Logger	**Yes**	**No**
Cable	**Yes**	**No**
Beads	**Yes**	**No**
Battery Installation Date	**1-Jun-07**	
Battery Levels	Main **11.34**	Aux **12.53**

Manual Ground Temperature Readings

Bead	ohms	Degrees C
1	13.135	4.4903
2	13.323	4.2308
3	13.976	3.2344
4	16.250	0.2797
5	17.002	-0.5956
6	17.763	-1.4483
7	18.547	-2.2942
8	19.457	-3.2093

Bead	ohms	Degrees C
9	20.19	-3.9572

Observations and Proposed Maintenance

Thermistor Annual Maintenance Report

Contractor Name:	**Sila Remediation Inc.**	Inspection Date:	**27-Aug-10**
Prepared By:	**A.Passalis**		

Thermistor Information

Site Name:	**FOX-M**		Thermistor Location		**East Beach Landfill South Lobe**		
Thermistor Number:	**VT-7**		Inclination		**Vertical**		
Install Date:	**24-Aug-07**		First Date Event		**25-Aug-07**	Last Date Event	**05-Sep-09**
Coordinates and Elevation		N	**7626740**	E	**491378**	Elev	**0**
Length of Cable (m)	**8.22**	Cable Lead Above Ground (m)	**4.22**	Nodal Points			**9**
Datalogger Serial #	**07019996**			Cable Serial Number			**TS07010006 B 8.2**

Thermistor Inspection

	Good	Needs Maintenance	
Casing	**Yes**	**No**	
Cover	**Yes**	**No**	
Data Logger	**Yes**	**No**	
Cable	**Yes**	**No**	
Beads	**Yes**	**No**	
Battery Installation Date	**1-Jun-07**		
Battery Levels	Main **11.34**	Aux **12.77**	

Manual Ground Temperature Readings

Bead	ohms	Degrees C
1	12.954	4.6748
2	13.19	4.4105
3	13.733	3.6092
4	15.520	1.1706
5	16.733	-0.2957
6	17.538	-1.2078
7	18.482	-2.2142
8	19.356	-3.1026

Bead	ohms	Degrees C
9	20.23	-4.0203

Observations and Proposed Maintenance

Thermistor Annual Maintenance Report

Contractor Name:	**Sila Remediation Inc.**	Inspection Date:	**27-Aug-10**
Prepared By:	**A.Passalis**		

Thermistor Information

Site Name:	**FOX-M**		Thermistor Location		**East Beach Landfill South Lobe**		
Thermistor Number:	**VT-8**		Inclination		**Vertical**		
Install Date:	**24-Aug-07**		First Date Event		**25-Aug-07**	Last Date Event	**05-Sep-09**
Coordinates and Elevation		N	**7626818**	E	**491372**	Elev	**0**
Length of Cable (m)	**8.32**	Cable Lead Above Ground (m)	**4.32**	Nodal Points			**9**
Datalogger Serial #	**07040022**			Cable Serial Number			**TS070400022 B 8.2**

Thermistor Inspection

	Good	Needs Maintenance	
Casing	**Yes**	**No**	
Cover	**Yes**	**No**	
Data Logger	**Yes**	**No**	
Cable	**Yes**	**No**	
Beads	**Yes**	**No**	
Battery Installation Date		**1-Jun-07**	
Battery Levels	Main	**11.34**	Aux **12.98**

Manual Ground Temperature Readings

Bead	ohms	Degrees C
1	11.727	6.7468
2	12.614	5.2588
3	14.007	3.1819
4	16.006	0.5351
5	17.019	-0.7178
6	17.952	-1.6996
7	18.832	-2.6017
8	19.692	-3.5041

Bead	ohms	Degrees C
9	20.33	-4.1413

Observations and Proposed Maintenance

Thermistor Annual Maintenance Report

Contractor Name:	**Sila Remediation Inc.**	Inspection Date:	**27-Aug-10**
Prepared By:	**A.Passalis**		

Thermistor Information

Site Name:	**FOX-M**		Thermistor Location		**East Beach Landfill South Lobe**		
Thermistor Number:	**VT-9**		Inclination		**Vertical**		
Install Date:	**22-Aug-07**		First Date Event		**25-Aug-07**	Last Date Event	**05-Sep-09**
Coordinates and Elevation		N	**7627038**	E	**491574**	Elev	**0**
Length of Cable (m)	**8.22**	Cable Lead Above Ground (m)		**4.22**	Nodal Points		**9**
Datalogger Serial #	**RDHM 070609**				Cable Serial Number		**TS07060017**

Thermistor Inspection

	Good	Needs Maintenance	
Casing	**Yes**	**No**	
Cover	**Yes**	**No**	Padlock rusted, replaced with new key set
Data Logger	**Yes**	**No**	
Cable	**Yes**	**No**	
Beads	**Yes**	**No**	
Battery Installation Date	**1-Jun-07**		
Battery Levels	Main **11.34**	Aux **12.98**	

Manual Ground Temperature Readings

Bead	ohms	Degrees C
1	12.484	5.3910
2	12.681	5.1714
3	13.208	4.2957
4	14.541	2.4562
5	16.463	-0.0012
6	17.159	-0.7560
7	18.068	-1.7792
8	18.794	-2.5215

Bead	ohms	Degrees C
9	19.596	-3.3344

Observations and Proposed Maintenance

Thermistor Annual Maintenance Report

Contractor Name:	**Sila Remediation Inc.**	Inspection Date:	**27-Aug-10**
Prepared By:	**A.Passalis**		

Thermistor Information

Site Name:	**FOX-M**		Thermistor Location		**East Beach Landfill North Lobe**		
Thermistor Number:	**VT-10**		Inclination		**Vertical**		
Install Date:	**24-Aug-07**		First Date Event		**25-Aug-07**	Last Date Event	**05-Sep-09**
Coordinates and Elevation		N	**7627282**	E	**491605**	Elev	**0**
Length of Cable (m)	**8.22**	Cable Lead Above Ground (m)		**4.22**	Nodal Points		**9**
Datalogger Serial #	**07060003**				Cable Serial Number		**TS07060003 B-8.2**

Thermistor Inspection

	Good	Needs Maintenance	
Casing	**Yes**	**No**	
Cover	**Yes**	**No**	Padlock rusted, replaced with new key set
Data Logger	**Yes**	**No**	
Cable	**Yes**	**No**	
Beads	**Yes**	**No**	
Battery Installation Date		**1-Jun-07**	
Battery Levels	Main	**11.34**	Aux **12.17**

Manual Ground Temperature Readings

Bead	ohms	Degrees C
1	6.000	5.3136
2	13.184	4.3930
3	14.091	3.0568
4	15.728	0.9237
5	16.812	-0.3668
6	17.653	-1.3510
7	18.603	-2.3380
8	19.408	-3.1598

Bead	ohms	Degrees C
9	20.11	-3.8942

Observations and Proposed Maintenance

Thermistor Annual Maintenance Report

Contractor Name:	**Sila Remediation Inc.**	Inspection Date:	**27-Aug-10**
Prepared By:	**A.Passalis**		

Thermistor Information

Site Name:	**FOX-M**		Thermistor Location		**East Beach Landfill North Lobe**		
Thermistor Number:	**VT-11**		Inclination		**Vertical**		
Install Date:	**24-Aug-07**		First Date Event		**25-Aug-07**	Last Date Event	**05-Sep-09**
Coordinates and Elevation		N	**7627318**	E	**491566**	Elev	**0**
Length of Cable (m)	**8.22**	Cable Lead Above Ground (m)		**4.22**	Nodal Points		**9**
Datalogger Serial #	**07060002**				Cable Serial Number		**TS07060002**

Thermistor Inspection

	Good	Needs Maintenance	
Casing	**Yes**	**No**	
Cover	**Yes**	**No**	Padlock rusted, replaced with new key set
Data Logger	**Yes**	**No**	
Cable	**Yes**	**No**	
Beads	**Yes**	**No**	
Battery Installation Date	**1-Jun-07**		
Battery Levels	Main **11.34**	Aux **13.14**	

Manual Ground Temperature Readings

Bead	ohms	Degrees C
1	12.349	5.7104
2	12.687	5.1540
3	13.767	3.5514
4	15.421	1.2738
5	16.813	-0.3769
6	17.671	-1.3689
7	18.624	-2.3768
8	19.531	-3.2692

Bead	ohms	Degrees C
9	20.27	-4.1413

Observations and Proposed Maintenance

10.11 MONITORING WELL SAMPLING/INSPECTION LOGS

The monitoring well sampling and inspection logs for MW-20 through MW-31 are presented in this section

2010 Monitoring Well Sampling Log (MW-20)

Site name:	FOX-M
Date of sampling event:	27-Aug-10
Names of samplers:	Andrew Passalis
Monitoring well ID:	MW-20
Facility:	East Beach Landfill

Known Data	
Depth of installation* (m):	3.50
Length of screened section (m):	1.50
Depth to top of screen* (m):	0.46

Measured Data			
Condition of well:	Good	Procedure/Equipment:	Interface Meter
Procedure/Equipment:	Tape Measure	Depth to water surface (m):	- (dry)
Well height above ground (m):	0.39	Depth to bottom (m):	1.14
Diameter of well (m):	0.04	Free product thickness (mm):	-

Calculations		Notes	
Depth of water (m):	-	Evidence of sludge:	no
Well volume of water (L):	-	Evidence of freezing/siltation:	no
Static water level* (m):	-		
Length of screen collecting water (m):	-		

Development/Purging Information

Equipment: n/a

Date & Time	Volume Removed (L)	Temperature (^{o}C)	pH	Conductivity (µS/cm)	Turbidity (NTU)	Description of Water
-	-	-	-	-	-	-

Water Sampling		Soil Sampling	
Date & Time Collected:		Date and Time Collected:	27-Aug-10
Sample Number - Water:		Sample Number - Soil:	FM10-20WA
			FM10-20WB
Sample Containers:		Sample Containers:	2x250mL glass
			2x250mL glass
Procedure/Equipment:		Procedure/Equipment:	Steel & Plastic Trowels
Water Description:		Soil Description:	Brown gravel, some coarse sand
Sampling Equipment Decontamination (Y/N):	n/a	Sampling Equipment Decontamination (Y/N):	Y
Number Washes:	-	Number Washes:	1
Number Rinses:	-	Number Rinses:	1

*From ground surface. Unless this is stated, all measurments are assumed to be from the top of the casing.
n/a=not applicable
LDPE=Low Density Polyethylene
SS=Stainless Steel
C&C = Clear & Colourless
N/O = No Odour

2010 Monitoring Well Sampling Log (MW-21)

Site name:	FOX-M
Date of sampling event:	27-Aug-10
Names of samplers:	Andrew Passalis
Monitoring well ID:	MW-21
Facility:	East Beach Landfill

Known Data

Depth of installation* (m):	3.00
Length of screened section (m):	1.50
Depth to top of screen* (m):	0.60

Measured Data

Condition of well:	Good	Procedure/Equipment:	Interface Meter
Procedure/Equipment:	Tape Measure	Depth to water surface (m):	- (dry)
Well height above ground (m):	0.46	Depth to bottom (m):	1.41
Diameter of well (m):	0.04	Free product thickness (mm):	-

Calculations		**Notes**	
Depth of water (m):	-	Evidence of sludge:	no
Well volume of water (L):	-	Evidence of freezing/siltation:	no
Static water level* (m):	-	Protective well cover broken. Collar rivets rusted.	
Length of screen collecting water (m):	-		

Development/Purging Information

Equipment: n/a

Date & Time	Volume Removed (L)	Temperature (^{o}C)	pH	Conductivity (µS/cm)	Turbidity (NTU)	Description of Water
-	-	-	-	-	-	-

Water Sampling		**Soil Sampling**	
Date & Time Collected:		Date and Time Collected:	27-Aug-10
Sample Number - Water:		Sample Number - Soil:	FM10-21WA
			FM10-21WB
			FM10-BD8 (21WB)
Sample Containers:		Sample Containers:	2x250mL glass
			2x250mL glass
			2x250mL glass
Procedure/Equipment:		Procedure/Equipment:	Steel & Plastic Trowels
Water Description:		Soil Description:	Light brown sand, med-cs grained, some gravel
Sampling Equipment Decontamination (Y/N):	n/a	Sampling Equipment Decontamination (Y/N):	Y
Number Washes:	-	Number Washes:	1
Number Rinses:	-	Number Rinses:	1

*From ground surface. Unless this is stated, all measurments are assumed to be from the top of the casing.
n/a=not applicable
LDPE=Low Density Polyethylene
SS=Stainless Steel
C&C = Clear & Colourless
N/O = No Odour

2010 Monitoring Well Sampling Log (MW-22)

Site name:	FOX-M
Date of sampling event:	27-Aug-10
Names of samplers:	Andrew Passalis
Monitoring well ID:	MW-22
Facility:	East Beach Landfill

Known Data	
Depth of installation* (m):	3.00
Length of screened section (m):	1.50
Depth to top of screen* (m):	0.60

Measured Data			
Condition of well:	Well collar cracked, rivets rusted	Procedure/Equipment:	Interface Meter
Procedure/Equipment:	Tape Measure	Depth to water surface (m):	- (dry)
Well height above ground (m):	0.54	Depth to bottom (m):	0.68
Diameter of well (m):	0.04	Free product thickness (mm):	-

Calculations		Notes	
Depth of water (m):	-	Evidence of sludge:	no
Well volume of water (L):	-	Evidence of freezing/siltation:	yes, gravel in well
Static water level* (m):	-	Protective collar broken and well accessible	
Length of screen collecting water (m):	-		

Development/Purging Information

Equipment: n/a

Date & Time	Volume Removed (L)	Temperature (^{o}C)	pH	Conductivity (µS/cm)	Turbidity (NTU)	Description of Water
-	-	-	-	-	-	-

Water Sampling		Soil Sampling	
Date & Time Collected:		Date and Time Collected:	27-Aug-10
Sample Number - Water:		Sample Number - Soil:	FM10-22WA
			FM10-22WB
Sample Containers:		Sample Containers:	2x250mL glass
			2x250mL glass
Procedure/Equipment:		Procedure/Equipment:	Steel & Plastic Trowels
Water Description:		Soil Description:	Light brown gravel, with coarse sand
Sampling Equipment Decontamination (Y/N):	n/a	Sampling Equipment Decontamination (Y/N):	Y
Number Washes:	-	Number Washes:	1
Number Rinses:	-	Number Rinses:	1

*From ground surface. Unless this is stated, all measurments are assumed to be from the top of the casing.
** Based on site specifications. Not recorded on original installation log.
n/a=not applicable
SS=Stainless Steel
C&C = Clear & Colourless
N/O = No Odour

2010 Monitoring Well Sampling Log (MW-23)

Site name:	FOX-M
Date of sampling event:	27-Aug-10
Names of samplers:	Andrew Passalis
Monitoring well ID:	MW-23
Facility:	East Beach Landfill

Known Data	
Depth of installation* (m):	3.00
Length of screened section (m):	1.50
Depth to top of screen* (m):	0.60

Measured Data			
Condition of well:	Good	Procedure/Equipment:	Interface Meter
Procedure/Equipment:	Tape Measure	Depth to water surface (m):	- (dry)
Well height above ground (m):	0.40	Depth to bottom (m):	1.30
Diameter of well (m):	0.04	Free product thickness (mm):	-

Calculations		Notes	
Depth of water (m):	-	Evidence of sludge:	no
Well volume of water (L):	-	Evidence of freezing/siltation:	no
Static water level* (m):	-		
Length of screen collecting water (m):	-		

Development/Purging Information

Equipment: n/a

Date & Time	Volume Removed (L)	Temperature (^{o}C)	pH	Conductivity (µS/cm)	Turbidity (NTU)	Description of Water
-	-	-	-	-	-	-

Water Sampling		Soil Sampling	
Date & Time Collected:		Date and Time Collected:	27-Aug-10
Sample Number - Water:		Sample Number - Soil:	FM10-23WA + intra dup
			FM10-23WB
			FM10-BD7 (23WB)
Sample Containers:		Sample Containers:	2x250mL, 5x125 mL
			2x250mL glass
			2x250mL glass
Procedure/Equipment:		Procedure/Equipment:	Steel & Plastic Trowels
Water Description:		Soil Description:	Brown sand, coarse grained, with gravel
Sampling Equipment Decontamination (Y/N):	n/a	Sampling Equipment Decontamination (Y/N):	Y
Number Washes:	-	Number Washes:	1
Number Rinses:	-	Number Rinses:	1

*From ground surface. Unless this is stated, all measurments are assumed to be from the top of the casing.
** Based on site specifications. Not recorded on original installation log.
n/a=not applicable
SS=Stainless Steel
C&C = Clear & Colourless
N/O = No Odour

2010 Monitoring Well Sampling Log (MW-24)

Site name:	FOX-M
Date of sampling event:	27-Aug-10
Names of samplers:	Andrew Passalis
Monitoring well ID:	MW-24
Facility:	East Beach Landfill

Known Data

Depth of installation* (m):	3.00
Length of screened section (m):	1.50
Depth to top of screen* (m):	0.60

Measured Data

Condition of well:	Good	Procedure/Equipment:	Interface Meter
Procedure/Equipment:	Tape Measure	Depth to water surface (m):	- (dry)
Well height above ground (m):	0.50	Depth to bottom (m):	1.30
Diameter of well (m):	0.04	Free product thickness (mm):	-

Calculations		**Notes**	
Depth of water (m):	-	Evidence of sludge:	no
Well volume of water (L):	-	Evidence of freezing/siltation:	no
Static water level* (m):	-	Protective well cover broken. Secured with stainless steel straps	
Length of screen collecting water (m):	-		

Development/Purging Information

Equipment: n/a

Date & Time	Volume Removed (L)	Temperature (^{o}C)	pH	Conductivity (µS/cm)	Turbidity (NTU)	Description of Water
-	-	-	-	-	-	-

Water Sampling		**Soil Sampling**	
Date & Time Collected:		Date and Time Collected:	27-Aug-10
Sample Number - Water:		Sample Number - Soil:	FM10-24WA
			FM10-24WB
Sample Containers:		Sample Containers:	2x250mL glass
			2x250mL glass
Procedure/Equipment:		Procedure/Equipment:	Steel & Plastic Trowels
Water Description:		Soil Description:	Light brown gravel, some coarse sand
Sampling Equipment Decontamination (Y/N):	n/a	Sampling Equipment Decontamination (Y/N):	Y
Number Washes:	-	Number Washes:	1
Number Rinses:	-	Number Rinses:	1

*From ground surface. Unless this is stated, all measurments are assumed to be from the top of the casing.
** Based on site specifications. Not recorded on original installation log.
n/a=not applicable
SS=Stainless Steel
C&C = Clear & Colourless
N/O = No Odour

2010 Monitoring Well Sampling Log (MW-25)

Site name:	FOX-M
Date of sampling event:	27-Aug-10
Names of samplers:	Andrew Passalis
Monitoring well ID:	MW-25
Facility:	East Beach Landfill

Known Data	
Depth of installation* (m):	3.00
Length of screened section (m):	1.50
Depth to top of screen* (m):	0.60

Measured Data			
Condition of well:	Good	Procedure/Equipment:	Interface Meter
Procedure/Equipment:	Tape Measure	Depth to water surface (m):	- (dry)
Well height above ground (m):	0.42	Depth to bottom (m):	1.48
Diameter of well (m):	0.04	Free product thickness (mm):	-

Calculations		Notes	
Depth of water (m):	-	Evidence of sludge:	no
Well volume of water (L):	-	Evidence of freezing/siltation:	no
Static water level* (m):	-		
Length of screen collecting water (m):	-		

Development/Purging Information

Equipment: n/a

Date & Time	Volume Removed (L)	Temperature (^{o}C)	pH	Conductivity (µS/cm)	Turbidity (NTU)	Description of Water
-	-	-	-	-	-	-

Water Sampling		Soil Sampling	
Date & Time Collected:		Date and Time Collected:	27-Aug-10
Sample Number - Water:		Sample Number - Soil:	FM10-250WA
			FM10-25WB
Sample Containers:		Sample Containers:	2x250mL glass
			2x250mL glass
Procedure/Equipment:		Procedure/Equipment:	Steel & Plastic Trowels
Water Description:		Soil Description:	Brown gravel, some med-cs sand
Sampling Equipment Decontamination (Y/N):	n/a	Sampling Equipment Decontamination (Y/N):	Y
Number Washes:	-	Number Washes:	1
Number Rinses:	-	Number Rinses:	1

*From ground surface. Unless this is stated, all measurments are assumed to be from the top of the casing.
** Based on site specifications. Not recorded on original installation log.
n/a=not applicable
SS=Stainless Steel
C&C = Clear & Colourless
N/O = No Odour

2010 Monitoring Well Sampling Log (MW-26)

Site name:	FOX-M
Date of sampling event:	27-Aug-10
Names of samplers:	Andrew Passalis
Monitoring well ID:	MW-26
Facility:	East Beach Landfill

Known Data

Depth of installation* (m):	3.00
Length of screened section (m):	1.50
Depth to top of screen* (m):	0.60

Measured Data

Condition of well:	Good	Procedure/Equipment:	Interface Meter
Procedure/Equipment:	Tape Measure	Depth to water surface (m):	- (dry)
Well height above ground (m):	0.37	Depth to bottom (m):	1.31
Diameter of well (m):	0.04	Free product thickness (mm):	-

Calculations		Notes	
Depth of water (m):	-	Evidence of sludge:	no
Well volume of water (L):	-	Evidence of freezing/siltation:	no
Static water level* (m):	-		
Length of screen collecting water (m):	-		

Development/Purging Information

Equipment: n/a

Date & Time	Volume Removed (L)	Temperature (^{o}C)	pH	Conductivity (µS/cm)	Turbidity (NTU)	Description of Water
-	-	-	-	-	-	-

Water Sampling		Soil Sampling	
Date & Time Collected:		Date and Time Collected:	27-Aug-10
Sample Number - Water:		Sample Number - Soil:	FM10-26WA
			FM10-26WB
Sample Containers:		Sample Containers:	2x250mL glass
			2x250mL glass
Procedure/Equipment:		Procedure/Equipment:	Steel & Plastic Trowels
Water Description:		Soil Description:	Light brown gravel, some coarse sand
Sampling Equipment Decontamination (Y/N):	n/a	Sampling Equipment Decontamination (Y/N):	Y
Number Washes:	-	Number Washes:	1
Number Rinses:	-	Number Rinses:	1

*From ground surface. Unless this is stated, all measurments are assumed to be from the top of the casing.
** Based on site specifications. Not recorded on original installation log.
n/a=not applicable
SS=Stainless Steel
C&C = Clear & Colourless
N/O = No Odour

2010 Monitoring Well Sampling Log (MW-27)

Site name:	FOX-M
Date of sampling event:	27-Aug-10
Names of samplers:	Andrew Passalis
Monitoring well ID:	MW-27
Facility:	East Beach Landfill

Known Data

Depth of installation* (m):	3.00
Length of screened section (m):	1.50
Depth to top of screen* (m):	0.60

Measured Data

Condition of well:	Good	Procedure/Equipment:	Interface Meter
Procedure/Equipment:	Tape Measure	Depth to water surface (m):	- (dry)
Well height above ground (m):	0.40	Depth to bottom (m):	1.36
Diameter of well (m):	0.04	Free product thickness (mm):	-

Calculations		Notes	
Depth of water (m):	-	Evidence of sludge:	no
Well volume of water (L):	-	Evidence of freezing/siltation:	no
Static water level* (m):	-		
Length of screen collecting water (m):	-		

Development/Purging Information

Equipment: n/a

Date & Time	Volume Removed (L)	Temperature (^{o}C)	pH	Conductivity (µS/cm)	Turbidity (NTU)	Description of Water
-	-	-	-	-	-	-

Water Sampling		Soil Sampling	
Date & Time Collected:		Date and Time Collected:	27-Aug-10
Sample Number - Water:		Sample Number - Soil:	FM10-27WA
			FM10-27WB
Sample Containers:		Sample Containers:	2x250mL glass
			2x250mL glass
Procedure/Equipment:		Procedure/Equipment:	Steel & Plastic Trowels
Water Description:		Soil Description:	Light brown gravel, some coarse sand
Sampling Equipment Decontamination (Y/N):	n/a	Sampling Equipment Decontamination (Y/N):	Y
Number Washes:	-	Number Washes:	1
Number Rinses:	-	Number Rinses:	1

*From ground surface. Unless this is stated, all measurments are assumed to be from the top of the casing.
** Based on site specifications. Not recorded on original installation log.
n/a=not applicable
SS=Stainless Steel
C&C = Clear & Colourless
N/O = No Odour

2010 Monitoring Well Sampling Log (MW-28)

Site name:	FOX-M
Date of sampling event:	27-Aug-10
Names of samplers:	Andrew Passalis
Monitoring well ID:	MW-28
Facility:	East Beach Landfill

Known Data

Depth of installation* (m):	3.00
Length of screened section (m):	1.50
Depth to top of screen* (m):	0.60

Measured Data

Condition of well:	Good	Procedure/Equipment:	Interface Meter
Procedure/Equipment:	Tape Measure	Depth to water surface (m):	- (dry)
Well height above ground (m):	0.52	Depth to bottom (m):	1.34
Diameter of well (m):	0.04	Free product thickness (mm):	-

Calculations		Notes	
Depth of water (m):	-	Evidence of sludge:	no
Well volume of water (L):	-	Evidence of freezing/siltation:	no
Static water level* (m):	-		
Length of screen collecting water (m):	-		

Development/Purging Information

Equipment: n/a

Date & Time	Volume Removed (L)	Temperature (^{o}C)	pH	Conductivity (µS/cm)	Turbidity (NTU)	Description of Water
-	-	-	-	-	-	-

Water Sampling		Soil Sampling	
Date & Time Collected:		Date and Time Collected:	27-Aug-10
Sample Number - Water:		Sample Number - Soil:	FM10-28WA
			FM10-28WB
Sample Containers:		Sample Containers:	2x250mL glass
			2x250mL glass
Procedure/Equipment:		Procedure/Equipment:	Steel & Plastic Trowels
Water Description:		Soil Description:	Light brown gravel, with coarse sand
Sampling Equipment Decontamination (Y/N):	n/a	Sampling Equipment Decontamination (Y/N):	Y
Number Washes:	-	Number Washes:	1
Number Rinses:	-	Number Rinses:	1

*From ground surface. Unless this is stated, all measurments are assumed to be from the top of the casing.
** Based on site specifications. Not recorded on original installation log.
n/a=not applicable
SS=Stainless Steel
C&C = Clear & Colourless
N/O = No Odour

2010 Monitoring Well Sampling Log (MW-29)

Site name:	FOX-M
Date of sampling event:	27-Aug-10
Names of samplers:	Andrew Passalis
Monitoring well ID:	MW-29
Facility:	East Beach Landfill

Known Data

Depth of installation* (m):	3.00
Length of screened section (m):	1.50
Depth to top of screen* (m):	0.60

Measured Data

Condition of well:	Good	Procedure/Equipment:	Interface Meter
Procedure/Equipment:	Tape Measure	Depth to water surface (m):	0.77
Well height above ground (m):	0.40	Depth to bottom (m):	1.29
Diameter of well (m):	0.04	Free product thickness (mm):	-

Calculations		Notes	
Depth of water (m):	0.52	Evidence of sludge:	no
Well volume of water (L):	0.81	Evidence of freezing/siltation:	no
Static water level* (m):	0.37		
Length of screen collecting water (m):	0.29		

Development/Purging Information

Equipment:	Dedicated waterra tubing and foot valve

Date & Time	Volume Removed (L)	Temperature (^{o}C)	pH	Conductivity (µS/cm)	Turbidity (NTU)	Description of Water
27-Aug-10	0.8	2.8	7.0	2590	248	C&C, N/O

Water Sampling		Soil Sampling	
Date & Time Collected:	27-Aug-10	Date and Time Collected:	27-Aug-10
Sample Number - Water:	FM10-29W	Sample Number - Soil:	FM10-27WA + intra dup
			FM10-27WB
Sample Containers:	1x250 mL plastic	Sample Containers:	2x250mL, 3x125 mL
	2x1L amber		2x250mL glass
	3x40 mL vials		
Procedure/Equipment:	Waterra tubing & foot valve Hanna HI9828 Mulitmeter, Hach 2100P Turbidimeter	Procedure/Equipment:	Steel & Plastic Trowels
Water Description:	C&C, N/O	Soil Description:	Brown gravel, some med-cs sand, wet @ 0.3 m
Sampling Equipment Decontamination (Y/N):	N, dedicated	Sampling Equipment Decontamination (Y/N):	Y
Number Washes:	0	Number Washes:	1
Number Rinses:	0	Number Rinses:	1

*From ground surface. Unless this is stated, all measurments are assumed to be from the top of the casing.
n/a=not applicable
LDPE=Low Density Polyethylene
SS=Stainless Steel
C&C = Clear & Colourless
N/O = No Odour

2010 Monitoring Well Sampling Log (MW-30)

Site name:	FOX-M
Date of sampling event:	27-Aug-10
Names of samplers:	Andrew Passalis
Monitoring well ID:	MW-30
Facility:	East Beach Landfill

Known Data

Depth of installation* (m):	3.00
Length of screened section (m):	1.50
Depth to top of screen* (m):	0.60

Measured Data

Condition of well:	Good	Procedure/Equipment:	Interface Meter
Procedure/Equipment:	Tape Measure	Depth to water surface (m):	0.51
Well height above ground (m):	0.28	Depth to bottom (m):	1.35
Diameter of well (m):	0.04	Free product thickness (mm):	-

Calculations		Notes	
Depth of water (m):	0.84	Evidence of sludge:	no
Well volume of water (L):	1.30	Evidence of freezing/siltation:	no
Static water level* (m):	0.23		
Length of screen collecting water (m):	0.47		

Development/Purging Information

Equipment: Dedicated waterra tubing and foot valve

Date & Time	Volume Removed (L)	Temperature (^{o}C)	pH	Conductivity (µS/cm)	Turbidity (NTU)	Description of Water
27-Aug-10	1.4	3.2	8.1	5902	583	C&C, N/O

Water Sampling		Soil Sampling	
Date & Time Collected:	27-Aug-10	Date and Time Collected:	27-Aug-10
Sample Number - Water:	FM10-30W	Sample Number - Soil:	FM10-30WA
			FM10-30WB
Sample Containers:	1x250 mL plastic	Sample Containers:	2x250mL glass
	2x1L amber		2x250mL glass
	3x40 mL vials		
Procedure/Equipment:	Waterra tubing & foot valve Hanna HI9828 Mulitmeter, Hach 2100P Turbidimeter	Procedure/Equipment:	Steel & Plastic Trowels
Water Description:	C&C, N/O	Soil Description:	Brown gravel, some coarse sand, wet @ 0.25 m
Sampling Equipment Decontamination (Y/N):	N, dedicated	Sampling Equipment Decontamination (Y/N):	Y
Number Washes:	0	Number Washes:	1
Number Rinses:	0	Number Rinses:	1

*From ground surface. Unless this is stated, all measurments are assumed to be from the top of the casing.
n/a=not applicable
LDPE=Low Density Polyethylene
SS=Stainless Steel
C&C = Clear & Colourless
N/O = No Odour

2010 Monitoring Well Sampling Log (MW-31)

Site name:	FOX-M
Date of sampling event:	27-Aug-10
Names of samplers:	Andrew Passalis
Monitoring well ID:	MW-31
Facility:	East Beach Landfill

Known Data

Depth of installation* (m):	3.00
Length of screened section (m):	1.50
Depth to top of screen* (m):	0.60

Measured Data

Condition of well:	Good	Procedure/Equipment:	Interface Meter
Procedure/Equipment:	Tape Measure	Depth to water surface (m):	1.25
Well height above ground (m):	0.41	Depth to bottom (m):	1.29
Diameter of well (m):	0.04	Free product thickness (mm):	-

Calculations		**Notes**	
Depth of water (m):	0.03	Evidence of sludge:	no
Well volume of water (L):	0.05	Evidence of freezing/siltation:	no
Static water level* (m):	0.84		
Length of screen collecting water (m):	0.03		

Development/Purging Information

Equipment: Dedicated waterra tubing and foot valve

Date & Time	Volume Removed (L)	Temperature (^{o}C)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Description of Water
-	-	-	-	-	-	-

Water Sampling		**Soil Sampling**	
Date & Time Collected:		Date and Time Collected:	27-Aug-10
Sample Number - Water:	Insufficient water to collect	Sample Number - Soil:	FM10-31WA
	sample		FM10-31WB
Sample Containers:		Sample Containers:	2x250mL glass
			2x250mL glass
Procedure/Equipment:		Procedure/Equipment:	Steel & Plastic Trowels
Water Description:		Soil Description:	Lt.brown gravel, some coarse sand, wet at 0.5 m
Sampling Equipment Decontamination (Y/N):	n/a	Sampling Equipment Decontamination (Y/N):	Y
Number Washes:	-	Number Washes:	1
Number Rinses:	-	Number Rinses:	1

*From ground surface. Unless this is stated, all measurments are assumed to be from the top of the casing.
n/a=not applicable
LDPE=Low Density Polyethylene
SS=Stainless Steel
C&C = Clear & Colourless
N/O = No Odour

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, a division of EnGlobe Corp. ("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

Field Notes

FOX-M FM10 2010

AUGUST 25, 2010

LILY - MONITOR
PETER - TECH
ROBERT - TECH
MIKE - TECH

P. CLOUDY, 7°C, 20km/h NE

G217 LANDFILL - WEST

0-10 BLK ORG

FM10-5
A - 0-15
B - 40-50

Lt grey sand, some silt, with gravel, wet @ 5cm.

FM10-6
A 0-15
B 40-50

BROWN SAND + GRAVEL, W.G, TR FINES DAMP.

695 PAN. W-S. FROM NE CORNER
696 V.S. FROM ACROSS ROAD
697 V.S @ VEHICLE RUTS ACROSS NE CORNER, 5-10 x 15mL.
698 PAN S-W FROM RD.
699 M.N PONDING @ TOE - 4x5m.

V-S

LEVEL

(1) PAN SE-N FROM SW CORNER

700 V-NNE / SE ALONG TOE.

701 V-NW/E ALONG TOE (10/11)
MIN PONDING @ TOE 1x3.

702 TRACKS ON SIDE. 5mL x 5+10↓
V-N.

703 PAN N-WSW FROM SE CORNER

704 V-WSW/N ALONG TOE

705 MIN. TRACKS ON SIDE 4mL x
5-10↓ V-W

706 POTHOLES FROM VEHICLE 2,
20x30x15↓, V-SW

FM10-7

A - 0-15	BRN/GREY GRAVEL,
B - 40-50	SOME SAND, CS GR,
	∇@15, LITTLE-NO FINES

FM10-8

A - 0-15.	BRN SAND + GRAVEL,
B - 40-50	TR. FNES, W-S, ∇@
	45°.

707 PAN N-W FROM ROAD.

BILLBOARD LANDFILL

708 - V-NE @ BILLBOARD FROM LF ROAD

FM10-3

A 0-15	BROWN GRAVEL,
B 40-50	SOME CS. SAND, ∇@
	20, TR. BLK ORGS 0-10

710 - CM3 MONUMENT.
PAN S-E.

711 V-N @ MIN IRON STAINING AT EDGE OF PONDED AREA. 1.5x1.5m.
V-N/W

FM10-4

A 0-15	BRN/GREY SAND,
B 40-50 BD1	M-CSGR, SOME GRAVEL
	N. MAXXAM.

712 V-SW @ DR. FEATURE EXT. FROM NW CORNER OF LF

713 PAN. W-S FROM NE CORNER

714 PAN S-E FROM NW CORNER

715 PAN E-N FROM SW CORNER.

716 V-SSE @ DR. FEATURE AT TOE OF LF

717 V-SW AT MIN PONDING @ TOE, ALGAL GROWTH ON STAFF LEVEL

718 PAN N-W FROM NEAR S. BILLBOARD

FM10-1
A 0-15 BD3 BRN/GREY M-CS SAND, WITH GRAVEL,
B 40-50 W-G. DRY

719 PAN W-S FROM WAVEGUIDE.

FM10-2
A 0-15 LT BRN GRAVEL, WITH CS SAND, W-G.
B 40-50

COMMUNICATIONS NW-LANDFILL

⑳ PAN S-E. FROM NW CORNER
720 PAN E-N. FROM SW CORNER
721 PAN N-W " SE "
V-N/W

FM10-15
A-0-15 BROWN GRAVEL, SOME SAND, DC 45,
B-40-50. 35. TURNS GREY.

722 PAN W-S FROM NE CORNER
V- W/S ALONG TOE

FM10-14.
A-0-15 -MAXXAM PEA GRAVEL, TR. BROWN SAND +
B 40-50 BRN ORG

723 TIRE RUTS 45° 4m L x 15↓.
724 PAN NW-SW. @ NW LF. @ TIRE RUTS 45 TO EAST SIDE 3 SPOTS UP TO 15↓

FM10-16
A-0-15 LT BRN/GREY GRAVEL, SOME SAND. DAMP,
B 40-50 W-G

COMMUNICATIONS NORTH LANDFILL

725 TIRE RUT (SINGLE) 15 x 0.6 W x 20↓ V-NE
726 PAN-E-N FROM SW CORNER
727 V-W/N
728 V-W & E RUTS 1-3 L, 40 W x 10-15↓
V-SE PONDING ALONG TOE
729 EXP METAL DEBRIS 15x20x 1cm thick P. Buried, other metal debris on surface in area, V-E
3. small vehicle pts from? up to 10-15 x 5.

LEVEL

FM10-17

A - 0-15 BRN GRAVEL, SOME
B - 40-50 SAND, W.G., DAMP.
W.G

730 V-S/N ALONG TOE

FM10-18. BRN/GREY GRAVEL,
A - 0-15 BDZ TR. SAND, NO FINES
B - 40-50

731 V-S/E ALONG TOE / NOTE DISTURB OF SIDE SLOPE (W FACING) BY VEHICLE RUTS + GRADER (DOZER? , V-S. 732

734 P. BURIED METAL DEBRIS V-S/W 20x20x2 sheet, 10x5Φ pipe.
V-W @ DIST. N END W/ VEHICLE / DOZER UP TO 20↓

733 V-S. ALONG TOE

FM10-19. BROWN-GRAVEL, SOME CS SAND, W-G., DAMP

AUGUST 26, 2010
Cloudy, wind - NE @ 40-60 km/h.
Lt. rain in AM 6°C

FM10-20. BROWN GRAVEL, TR-
A 0-15 SOME SAND,
B 40-56

735 V-S/N ALONG TOE
736 V-S/N ALONG CL

FM10-21 BROWN PLATEY GRAVEL
A - 0-15 , TR CS SAND, BC 20.
B - 40-50

FM10-22 LT BRN SAND, WITH
A - 0-15 GRAVEL, PLATEY, W.G,
B 40-50 SOME ORG @ 0-5.

HAZMAT STORAGE EAST LANDFILL.

737 V-S/NE ALONG TOE, DONDITA @ WEST SIDE
738 PAN S-E ACROSS TOP.

LEVEL

739 PAN SW-SE

740 PAN S-SE

741 MINOR TIRE RUTS ON CREST
1M x 20 x 10↓ V-SE

FM10-9 GREY SAND+GRAVEL, W/ S,
A 0-15 PLATEY, TR-NO FINES
B 40-50

FM10-12 LT BRN CS SAND/FINE
~~B06~~ A 0-15 GRAVEL, Ø@15, TR FINES
B 40-50

742 V. N/SE ALONG TOE - PONDING

743 PAN. SE-N. ACROSS TOP

744 P. BURIED/EXP METAL DEBRIS ANGLE
1 RUN 1 PLATE 30x5 + 15x15.
7M W OF FM10-12

745 PAN NE-NW @ S END OF LF

746 V. E/W ALONG TOE

747 PAN N-SW FROM SE TOE

748 PAN NW-SW @ EAST S. TOE

749 PIECE OF ALUM SHEETING NX
20x20x1

751 RUTS ON SIDE SLOPE
1 x 30 x 10↓ V-S

752 V-SSE, NO SHEET METAL IN V
@ TOE AS IN 2009. 2 PIECES.

753 V-SE/NW @ SHEET METAL / PLY WOOD
@ TOE 3x6'

754 REBAR EXP. 1 PIECE. 9" L.

755 V-S ALONG SLOPE BREAK

FM10-11 LT BROWN GREY GRAVEL,
A 0-15 SOME SAND, Ø@20.
B 40-50

FM10-10 LT BRN/GREY GRAVEL,
A 0-15 SOME CS SAND,
B 40-50 Ø@25.

LEVEL

NON-HAZARDOUS WASTE LF.
2.8m S.

MW-14 , well cover broken off.
+ J-Plug damaged
SWP = 0.40
▽ - dry
bott 1.12 - rocks/gravel in well?

BROWN SAND + GRAVEL, W.G.,
M-CS gr, dry.
A - 0-15.
B - 40-50

755 PAN S-E ACROSS FROM NW CRNR
756 V- S/E ΔWSR TOE
3.1m NE. DIA 0.09.
MW-15 SWP 0.49
▽ 1.00
bott. 1.75

A- 0.15 some blk org
B 40-50

BROWN/GREY GRAVEL, SOME CS SAND
w/ BLK CRC @ 0.1-0.4 m
PID 0.45.

pH 9.42/8.47/7.96
Cond 1562/1604/1562
Temp 2.93/2.23/2.23
Turb 42/44/45

COLLECT
2 x 1L
1 x 250 mL
3 x 40 mL

TOTAL 1.2

757 PAN SW-SE AT N SIDE OF LP
758 V- E/W. ΔWSR TOE @ MW15
759 PAN W-E @ TOP. , SAME TIRE TRACKS AS IN 2009
760 V- E @ PLAQUE, NW AT TRACKS
761 V-S @ PLYWOOD DEBRIS 2009
762 V-S - TYP. QUAD TRACKS ON SIDE 8m L x 10 ↓.
763 V- W/S ΔWSR TOE - NE CRNR
764 - PAN W-S "
V-SE @ QUAD NUTS - AS IN 2009
2.8m E.
MW-12 SWP-0.48
▽ - dry
bott - 1.48m

LT BRN - SAND + GRAVEL, +R FINES
A - 0-15 BD
B 40-50

765 PIECE OF GEOMEMBRANE
V-SW- 50x50 piece

766 V- SSW o NHWLF, NO MW#?

767 THERMISTOR INS. ON E SIDE
30° ANGLE EBA 9+0 / LENGTH 10m
LEAD 1.5m

768 V- SW ALONG TOE

769 PAN S-W AT SE TOP.

770 V- NW @ QUAD NUTS 5+10
4mL. TYP.
2.8mE

MW-13 SLUP +0.45
▽ 1285 COLLECT
bott 1.75 2x1L
pH 8.74 / 8.15 / 7.88 1x250pL
Cond 1548 / 1550 / 1541 3x40mL
Temp 2.32 / 2.02 / 2.29
Turb. 110 / 127 / 132
TOTAL =0.9

A 0-15 LT. BRN SAND+GRAVEL
B- 40-50 W.G, CS, DAMP, W/G.

772 V- E/EW ALONG TOE

773 V- E/W TOP

774 PAN E-N, SW TOP

775 V- E/N: ALONG TOE.

776 PAN SE-NE @ west end

MW-16 SLUP 0.57 2.5m E.
▽ dry.
bott 1.53

CASING APEARS TO HAVE SETTLED OR WELL HEAVED, PUSHING UP

BROWN SAND (CS-M gr) + GRAVEL, W/G, DRY.

TIER II DISPOSAL FA

MW-1 SLUP 0.48m / 2.9m SE.
▽ - 1.02m
bott-1.945 COLLECT
pH 8.45 / 7.93 / 7.75 2x1L
cond 2414 / 2429 / 2396 1x250pL
temp 2.85 / 2.78 / 2.67 3x40
turb 48 / 39 / 39 TOTAL 1.5L
A- 0-15 B- 40-50
LT BRN/GREY GRAVEL, W CS SAND, W/G

LEVEL

777 V-S/E ALONG TOE
778 PAN S-E ACROSS TOP · CRNR NW

MW-2. S/Lp 0.45m +BDW1
▽ 1.00 COLLECT
bott. 2.07m 4x1L
pH 6.63/8.05/7.82 2x250 PL
Cond 938/932/948 6x40.
Temp 3.20/3.15/3.21 NO MAXXAM
TURB 27/21/19.
TOTAL 1.8L

- LT GREY SAND + GRAVEL, CS gr, w-g, ORG @ 0-5

PAN W-S FROM TOP OF PAD, SE CRNR

MW-5 S/Lp 0.56 2.2m SE
▽ 0.785
bott 2.79m
pH 8.25/7.78/7.53/7.09
Cond 5242/4619/3863/3316
Temp 3.62/4.36/4.63/4.44
Turb 54/43/41/42.
TOTAL 30L

A 0-15 LT BRN/GREY GRAVEL,
B 40-50 BDS SOME M-CS SAND, WG
▽ @ 30.

COLLECT 3x1L, 2x250 AMBER
2x250 PL, 6x40 ML
* MAXXAM INTRA DUP.

MW-4 S/Lp = 0.70. 2m E
▽ 0.69
bott. 2.16. COLLECT
pH 7.85/7.49/7.13 2x1L
Cond 1070/1034/1049 1x250 PL
Temp 3.97/4.11/3.56 3x40 ML
Turb. 30/40/74.
TOTAL 2.4L.

Grey gravel, some sand + silt/clay
wet @ 20 ▽
A - 0-15
B - 40-50

LEVEL

3.56 m s.

MW-3 SWL. 0.52
∇ - 0.95
bott 2.22

COLLECT
2x1L

pH 11.41/11.07/11.01/10.75 1x250 mL
cond 1531/3162/2641/2626 3x40
temp 3.51/2.36/3.19/3.25
turb 394/223/174 ← white precip?
TOT = 20 L Fe @ bottom - plast

0-30 BRN GRAVEL, TR SAND CS
W.G
30 - GREY GRAVEL, TR SAND + FINES,
W.G. PE 40.

A 0-15
B 40-50

003 PAN N-S @ NE CORNER.
004 V- W/S ALONG TOE.
005 MINOR SETTLEMENT 1M W of
CREST 1m x 50 x 10↓ V-S
006 TIRE (QUAD) RUTS ON CREST
20m x 10↓
007 PAN. NE-W @SE TOE
008 V- NE / W. ALONG TOE
009 QUAD RUTS 4 x 30 x 20 x 10-25↓
ON S. SLOPE.

V-SW AT RUTS AROUND UT-4.
011 PAN N-SW @ NE CORNER
012 V- W @ RUTS ON N SIDE, NUMER-
OUS 10↓-15↓
013 VIEW SW ALONG TOE
014 METAL DEBRIS, SPRING.
015 V- SW ALONG TOE, VEHICLE TRACK
⊥ SLOPE ½ WAY UP, 10↓
017 V- E @ TIRE RUTS. 5 w, 10-15↓ SEVERAL
ALSO BLK GEOTEXTILE 15 x 5 EXP.
ON SLOPE.
V- NE/SW ALONG TOE, S of geotex.
019 PAN E-W FROM S of UT-2
021 VEHICLE RUTS 45° TO SLOPE. 10 m L
x 15↓
PAN W-E BELOW LF. S TOE.
@ UT-1
022 PAN E-N FROM SW CORNER.
023 V- E/N ALONG TOE.
024 V- NE @ PONDING @ SW TOE.

DOWNLOAD ALL DATA @ TIER II D.F.

AUGUST 27, 2010, CLOUDY, OVERCST
4°C, 30-40km/h NE, LT RAIN.
- PLANE TO FOX-2 · 6[30]AM · FIRST AIR CARGO TODAY

EAST BEACH LANDFALL - SOUTH

MW-28 SLUP 0.52.
Σ day 2.8 m/s
bott 1.34m
A · 0-15, B · 40-50
- LT BRN GRAVEL, W/ CS SAND, DRY, W-S
025 - V-N/W ALONG TOE, SE CRNR
026 - PAN N-W @ TOP.
DOWNLOAD VT-6.
028 V-E/N ALONG TOE
029 PAN E/NW @ TOP.
2m x 1m settlement on corner x 20↓
2 x 1.5 x 20↓ depression on slope below VT-6., V-S, pass from vehicle, V-S/SE
<30 QUAD RUTS ON SIDE SLOPE
2.5 w x 10-20↓ TOP-BOTT-
031 " " V-W/SW
032 " " V-SW

MW-27 SLUP - 0.40m
Σ day 3.1m SSE
bott - 1.36
A - 0-15
B - 40-50
LT BRN GRAVEL, SOME CS SAND DRY/DAMP
033 V-N/S ALONG TOE W OF MW27
NOTE MINOR VEHICLE RUTS ON SLOPE IN FOREGND. 10↓
PAN N-S ALIGNMENT
034 V-N/S ALONG TOE
035 PAN N/-S TOP

MW-26 SLUP = 0.37m 2.6m/s
Σ - day
bott - 1.31
A 0-15
B - 40-50
LT BRN GRAVEL, SOME CS SAND, DRY/DAMP

036 V-S/N ALONG TOE
037 V-S/N ALONG ℄

038 V- S/N ALONG TOE
039 V- SW @ TIRE RUTS ON SLOPE
45° 10↓ 3ML.

MW-25 3.1m SSW @ MW-
SLOP=0.42
Σ dry
bott. 1.48
A- 0-15 B- 40-50
DOWNLOAD VT-7

BROWN GRAVEL, SOME M-CS SAND, WG.
DAMP

042 V- S/N ALONG CREST VT-7/MW-25
043 QUAD RUTS 10-15↓

MW-24. SLOP 050 COVER BROKEN
Σ dry CLOCK SET.
bott. 1.30
35m SSE
LT BRN GRAVEL, SOME CS SAND, WG
DAMP.

044 V- S/N- ALONG TOE
3.9m S.
MW-20 SLOP 039.
Σ dry
bott. 1.14
A- 0-15 B- 40-50
BROWN GRAVEL, SOME CS SAND, DAMP

045 V- S/W ALONG TOE - NE CORNER
046 PAN W-S TOP.
047 QUAD RUTS TOP CREST / SIDE
1.5x1x10↓ TYP.
048 PAN S-E.
049 V- NE/SW ALONG TOE
051 V- S/NE " "
050 PAN S-E, P-EXP. DRUM 15m N @
LE, SL CRUSH. /V-SE-, VT-11 IN
BKGND.
052 1"Ø BRAIDED CBL IN RIDGE E of
MW-20 60 EXP.; MISC. WOOD +
WIRE @ SURFACE - 2x V-N.
053 V-S @ SEV. QUAD TRACKS 3x2x15-
20↓

MW-21 7.8 m S. LT BRN SAND.
SLUP 0.46 m M-CS GR, SOME PEA GRAVEL, PG DAMP
▽ dry
bott. 1.41 m
A 0-15 B 40-50 BDS

055 PAN N-W ; VT-10 IN FORELAND
057 V-SW ALONG CREST, QUAT TRACKS. AUG ID ↓
058 V-S/N ALONG TOE/SLOPE MINOR RUTS S/S VT-11 @90
059 V-SW @ QUAD RUTS ON SLOPE 1 m L x 50 W x 15 ↓ @45.
060 PAN SE-N. - TOP. (SW)
061 V-N/SE ALONG TOE

MW-22 SLUP 0.50
▽ dry
bott 0.68
gravel in well, rivet sholding cover rusted out, NOT secure. Collar cracked.

A- 0-15 B- 40-50

LT BROWN GRAVEL, WITH CS SAND DAMP

063 V-S/N ALONG TOE CRNR (NE)
QUAD TRACKS @ TOP/SLOPE, V-W.
N. OF VT-9. UP TO 15 ↓
PAN W-S TOP

MW-31 SLUP 0.41 2.9 m S
▽ 1.25
bott. 1.285
INSUFF WATER for Sampling

064 V-N/S ALONG TOE NEAR MW-31
065 V-S/N @ TOP - WEST SIDE

BROWN GRAVEL, WITH CS SAND, DAMP.
TR. BLK ORG @ 20-25

068 V-N/S ALONG TOE @ VT-8
069 PAN S-N TOP
070 V-N/S ALONG TOE @ CORNER
071 V-S/N. " "

LEVEL

2.7m S

MW-30 SLUP 0.28
▽ 0.51
bott. 1.35.

COLLECT
2x1L
1x250pL
3x40mL

pH	10.01 / 8.33 / 8.13	
Cond	9054 / 6554 / 5902	
Temp	1.94 / 3.41 / 3.19	
Turb.	590 / 659 / 583	TOT = 14L

A- 0-15 B- 40-50

BROWN GRAVEL, TR-SOME CS SAND.
I ≤ 0.25.

072 V-SE @ DISTURBED AREA @ TOE NEAR MW-30 15-20↓

073 T. CRACK @ CREST, V-S/N. MW-30
6mL x 2-3mm W.

074 V-S @ DIST. - TRACKS ON SLOPE
10-15↓ TOP-BOT

075 V-S/N ALONG TOE

076 BURIED GUY WIRE EXP ON TOE
3mL.

077 V-S/N. ALONG TOE

078 " " ALONG ℄
V-NW @ TIER II

079 RUTS ON SIDE SLOPE 10↓

080 V-NE ALONG TOE
V-NW @ MW-29
2.3m WSW

MW-29 SLUP = 0.40
▽ 0.77
bott. 1.29.

COLLECT
2x1L
1x250pL
3x40mL

pH	7.55 / 7.10 / 6.99	
Cond	2625 / 2655 / 2590	
Temp	3.92 / 2.44 / 2.80	TOT = 0.8L
turb	217 / 276 / 248	

A- 0-15 B- 40-50
L>MAXAM ONLY
BROWN GRAVEL, TR-SOME M-CS SAND, W.G, ▽ @ 30

081 V-SW @ TOE - SW SIDE FROM RD

MW-23 SLUP = 40 2.9m N.
▽ dry
bott. 1.30.
Scattered misc metal debris @ surface 5x5x1 AVG. x5+.
V-S

082 pAn N-S ALONG E SIDE.
A-0-15 B-40-50 BD7

LEVEL

20 CAPITAL SUITES [illegible]
222 1857

MW+
23 BRN SAND, CS GR, WITH GRNEL, DEMO, W/G
A- 0.15 @ 40.50 BDS

083 V-N1S ALONG TOP @ MW 23 ⊥

084 DRUM LID + MISC METAL. P. BURIED IN RIDGE MW-22 IN BKGND

085 SCAT VEHICLE PART, TUBING, WIRE ETC IN TIDAL AREA - SCATT.

	ONLY AB	MAXXAM
BD1	- FM10- 14A	
BD2		18A ✓ +
BD3	?	1A ✓ comms
BD4		12WA ✓
BD5		5WB ✓
BD6		12A ✓
BD7		23WB ESLF. / 29WA MAXXAM ONLY
BD8	- FM10-	21 WB

ESG

FM10- 23WA
FM10- 1WA
FM10- 7B
- 19B
- 12WA
- 12A

ESG OPS 1 COOLER 22481885
MAXXAM 1 COOLER 22481874
EXOVA 7 COOLERS 22481863

APPENDIX C

Maxxam and Exova QA/QC Reports and Certificates of Analysis

QUALITY ASSURANCE / QUALITY CONTROL

The Quality Assurance/Quality Control (QA/QC) program was implemented to monitor the quality of the analytical results. The main objective of this QA/QC program is to insure that sampling data and analysis results are complete, precise, exact, representative and comparable. The review consisted of evaluating sample collection/handling methodology, general laboratory comments, field (blind) duplicate samples, and inter-laboratory duplicate samples. Samples collected during the monitoring program were submitted to laboratories accredited by the Canadian Association for Environmental Analytical Laboratories (CAEAL).

All samples were collected following strict Biogenie sampling procedures. Samples were uniquely labelled and control was maintained through use of chain of custody forms. All samples were collected in laboratory supplied containers and preserved in insulated coolers. Appropriate QA/QC procedures were adhered to at all times.

Blind duplicate samples were submitted to Exova for intra-laboratory analysis, with additional duplicate samples were sent to Maxxam for inter-laboratory comparison purposes. Both laboratories are situated in Ottawa, Ontario.

The relative percent difference (RPD) is used to evaluate the sample result variability. Average RPD values of less than 100% for soil samples and 30% for groundwater samples are considered an indication of acceptable duplicate sample variability. For groundwater samples, an RPD of greater than 30% may reflect difference in sample turbidity or variance in the sample procedures. Individual RPD values greater than 50% are not considered to reflect acceptable variability. RPD values are not used to evaluate those compounds that are present at concentrations less than five times the method detection limit (MDL).

SOIL SAMPLES

In case of soil samples, eight blind duplicate samples were submitted for intra and inter-laboratory comparisons. Review of results indicated relatively minor differences in concentrations within the Exova metals results when duplicates were compared, and considered to be within acceptable limits. It should be noted that many of individual parameter concentrations were less than five times the MDL. Two RPD values (120% and 127%) for copper were however outside the acceptable range when inter-laboratory duplicates were compared.

All of TPH and PCB concentrations were below the MDL with the exception of trace PCB and/or TPH concentrations in three inter-laboratory samples. The detectable PCB concentration and one TPH concentration were however below the MDL of corresponding inter-laboratory duplicate samples.

GROUNDWATER

In the case of groundwater samples, one blind duplicate sample was submitted for intra and inter-laboratory comparisons. The PCB and TPH duplicate results were below the MDL in both intra and inter-laboratory duplicate comparisons.

Comparisons of intra-laboratory results for total metals indicate RPDs outside acceptable limits for select parameters in both the intra and inter-laboratory duplicate comparisons. RPD values for chromium and copper were 3-4 times higher in the inter-laboratory comparison, when compared to the intra-laboratory results. The RPD for zinc in the inter-laboratory comparison was also outside the acceptable limit.

Results from one field blank indicated trace concentrations of copper with all other metal parameters less than the method detection limit (MDL).
Overall, the soil sample results are coherent and within the same range of results for intra and inter-laboratory samples. In general, the reliability of soil analytical results is considered as good. The laboratory comparisons for TPH and PCBs in groundwater are coherent, whereas the intra and inter-laboratory comparisons for a select number of total metals were outside the acceptable range, suggesting possible variances in turbidity of the samples.

REPORT OF ANALYSIS

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

Report Number: 1020909
Date: 2010-09-08
Date Submitted: 2010-08-30

Project: CD8177-FOX-M

P.O. Number:
Chain of Custody Number: 133346
Matrix: Soil

			LAB ID:	824395	824396	824397	824398	824399	GUIDELINE		
			Sample Date:	2010-08-25	2010-08-25	2010-08-25	2010-08-25	2010-08-25			
			Sample ID:	FM10-1A	FM10-1B	FM10-2A	FM10-2B	FM10-3A			
PARAMETER	**UNITS**	**MRL**							**TYPE**	**LIMIT**	**UNITS**
Moisture	%	0.1		3.7	3.4	5.0	4.7	5.3			
Arsenic	ug/g	1		2	2	2	2	3			
Cadmium	ug/g	0.5		<0.5	<0.5	<0.5	<0.5	<0.5			
Chromium	ug/g	1		10	16	15	23	27			
Cobalt	ug/g	1		2	3	4	4	3			
Copper	ug/g	1		3	6	286	13	8			
Lead	ug/g	1		7	7	8	7	6			
Mercury	ug/g	0.1		<0.1	<0.1	<0.1	<0.1	<0.1			
Nickel	ug/g	1		8	13	294	18	19			
Zinc	ug/g	2		17	19	76	18	16			

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

REPORT OF ANALYSIS

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

Report Number: 1020909
Date: 2010-09-08
Date Submitted: 2010-08-30

Project: CD8177-FOX-M

P.O. Number:
Chain of Custody Number: 133346
Matrix: Soil

			LAB ID:	824400	824401	824402	824403	824404	GUIDELINE		
			Sample Date:	2010-08-25	2010-08-25	2010-08-25	2010-08-25	2010-08-25			
			Sample ID:	FM10-3B	FM10-4A	FM10-4B	FM10-5A	FM10-5B			
PARAMETER	**UNITS**	**MRL**							**TYPE**	**LIMIT**	**UNITS**
Moisture	%	0.1		2.3	2.6	3.2	10.8	13.7			
Arsenic	ug/g	1		2	1	2	2	3			
Cadmium	ug/g	0.5		<0.5	<0.5	<0.5	<0.5	<0.5			
Chromium	ug/g	1		27	7	13	12	13			
Cobalt	ug/g	1		2	1	2	3	3			
Copper	ug/g	1		6	2	3	5	6			
Lead	ug/g	1		4	2	2	4	5			
Mercury	ug/g	0.1		<0.1	<0.1	<0.1	<0.1	<0.1			
Nickel	ug/g	1		17	5	9	11	12			
Zinc	ug/g	2		11	6	7	12	14			

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

REPORT OF ANALYSIS

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

Report Number: 1020909
Date: 2010-09-08
Date Submitted: 2010-08-30

Project: CD8177-FOX-M

P.O. Number:

Chain of Custody Number: 133346

Matrix: Soil

			LAB ID:	824405	824406	824407	824408	824409	GUIDELINE		
			Sample Date:	2010-08-25	2010-08-25	2010-08-25	2010-08-25	2010-08-25			
			Sample ID:	FM10-6A	FM10-6B	FM10-7A	FM10-7B	FM10-8A			
PARAMETER	**UNITS**	**MRL**							**TYPE**	**LIMIT**	**UNITS**
Moisture	%	0.1		5.1	6.1	2.5	6.8	2.6			
Arsenic	ug/g	1		2	2	3	<1	2			
Cadmium	ug/g	0.5		<0.5	<0.5	<0.5	<0.5	<0.5			
Chromium	ug/g	1		14	11	23	8	12			
Cobalt	ug/g	1		3	2	3	1	2			
Copper	ug/g	1		7	7	7	2	5			
Lead	ug/g	1		23	11	56	3	4			
Mercury	ug/g	0.1		<0.1	<0.1	<0.1	<0.1	<0.1			
Nickel	ug/g	1		11	9	12	5	10			
Zinc	ug/g	2		483	52	40	8	11			

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

REPORT OF ANALYSIS

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

Report Number: 1020909
Date: 2010-09-08
Date Submitted: 2010-08-30

Project: CD8177-FOX-M

P.O. Number:
Matrix: Soil

Chain of Custody Number: 133346

			LAB ID:	824410	824411	824412	824413	824414	GUIDELINE		
			Sample Date:	2010-08-25	2010-08-25	2010-08-25	2010-08-25	2010-08-25			
			Sample ID:	FM10-8B	FM10-9A	FM10-9B	FM10-10A	FM10-10B			
PARAMETER	**UNITS**	**MRL**							**TYPE**	**LIMIT**	**UNITS**
Moisture	%	0.1		3.7	6.8	5.6	5.7	8.6			
Arsenic	ug/g	1		3	2	1	<1	1			
Cadmium	ug/g	0.5		<0.5	<0.5	<0.5	<0.5	<0.5			
Chromium	ug/g	1		43	11	12	11	10			
Cobalt	ug/g	1		2	2	3	2	2			
Copper	ug/g	1		6	4	4	5	3			
Lead	ug/g	1		4	3	3	7	4			
Mercury	ug/g	0.1		<0.1	<0.1	<0.1	<0.1	<0.1			
Nickel	ug/g	1		24	10	11	9	8			
Zinc	ug/g	2		9	11	12	14	10			

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

REPORT OF ANALYSIS

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

Report Number: 1020909
Date: 2010-09-08
Date Submitted: 2010-08-30

Project: CD8177-FOX-M

P.O. Number:
Matrix: Soil

Chain of Custody Number: **133346**

			LAB ID:	824395	824396	824397	824398	824399	**GUIDELINE**		
			Sample Date:	2010-08-25	2010-08-25	2010-08-25	2010-08-25	2010-08-25			
			Sample ID:	FM10-1A	FM10-1B	FM10-2A	FM10-2B	FM10-3A			
PARAMETER	**UNITS**	**MRL**							**TYPE**	**LIMIT**	**UNITS**
PERCENT MOISTURE											
Moisture	%	0.1		3.7	3.4	5.0	4.7	5.3			
CCME Total Petroleum Hydrocarbons											
F1 (C6-C10)	ug/g	10		<10	<10	<10	<10	<10			
F2 (C10-C16)	ug/g	10		<10	36	<10	<10	<10			
F3 (C16-C34)	ug/g	20		<20	40	<20	295	<20			

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

REPORT OF ANALYSIS

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

Report Number: 1020909
Date: 2010-09-08
Date Submitted: 2010-08-30

Project: CD8177-FOX-M

P.O. Number:
Matrix: Soil

Chain of Custody Number: **133346**

			LAB ID:	824400	824401	824402	824403	824404	GUIDELINE		
			Sample Date:	2010-08-25	2010-08-25	2010-08-25	2010-08-25	2010-08-25			
			Sample ID:	FM10-3B	FM10-4A	FM10-4B	FM10-5A	FM10-5B			
PARAMETER	**UNITS**	**MRL**							**TYPE**	**LIMIT**	**UNITS**
PERCENT MOISTURE											
Moisture	%	0.1		2.3	2.6	3.2	10.8	13.7			
CCME Total Petroleum Hydrocarbons											
F1 (C6-C10)	ug/g	10		<10	<10	<10	<10	<10			
F2 (C10-C16)	ug/g	10		11	11	<10	<10	<10			
F3 (C16-C34)	ug/g	20		<20	<20	<20	<20	47			

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

REPORT OF ANALYSIS

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

Report Number: 1020909
Date: 2010-09-08
Date Submitted: 2010-08-30

Project: CD8177-FOX-M

P.O. Number:
Matrix: Soil

Chain of Custody Number: **133346**

			LAB ID:	824405	824406	824407	824408	824409	**GUIDELINE**		
			Sample Date:	2010-08-25	2010-08-25	2010-08-25	2010-08-25	2010-08-25			
			Sample ID:	FM10-6A	FM10-6B	FM10-7A	FM10-7B	FM10-8A			
PARAMETER	**UNITS**	**MRL**							**TYPE**	**LIMIT**	**UNITS**
PERCENT MOISTURE											
Moisture	%	0.1		5.1	6.1	2.5	6.8	2.6			
CCME Total Petroleum Hydrocarbons											
F1 (C6-C10)	ug/g	10		<10	<10	<10	<10	<10			
F2 (C10-C16)	ug/g	10		<10	<10	10	<10	12			
F3 (C16-C34)	ug/g	20		<20	51	<20	<20	<20			

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

REPORT OF ANALYSIS

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

Report Number: 1020909
Date: 2010-09-08
Date Submitted: 2010-08-30

Project: CD8177-FOX-M

P.O. Number:
Matrix: Soil

Chain of Custody Number: 133346

			LAB ID:	824410	824411	824412	824413	824414	GUIDELINE		
			Sample Date:	2010-08-25	2010-08-25	2010-08-25	2010-08-25	2010-08-25			
			Sample ID:	FM10-8B	FM10-9A	FM10-9B	FM10-10A	FM10-10B			
PARAMETER	**UNITS**	**MRL**							**TYPE**	**LIMIT**	**UNITS**
PERCENT MOISTURE											
Moisture	%	0.1		3.7	6.8	5.6	5.7	8.6			
CCME Total Petroleum Hydrocarbons											
F1 (C6-C10)	ug/g	10		<10	<10	<10	<10	<10			
F2 (C10-C16)	ug/g	10		<10	<10	<10	<10	<10			
F3 (C16-C34)	ug/g	20		<20	<20	<20	<20	<20			

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

REPORT OF ANALYSIS

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

Report Number: 1020909
Date: 2010-09-08
Date Submitted: 2010-08-30

Project: CD8177-FOX-M

P.O. Number:
Matrix: Soil

Chain of Custody Number: **133346**

			LAB ID:	824395	824396	824397	824398	824399	**GUIDELINE**		
			Sample Date:	2010-08-25	2010-08-25	2010-08-25	2010-08-25	2010-08-25			
			Sample ID:	FM10-1A	FM10-1B	FM10-2A	FM10-2B	FM10-3A			
PARAMETER	**UNITS**	**MRL**							**TYPE**	**LIMIT**	**UNITS**
Polychlorinated Biphenyls - PCBs											
Polychlorinated Biphenyls (PCBs)	ug/g	0.02		<0.02	<0.1	<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:

824396: PCB MRL elevated due to matrix interference.

APPROVAL:

Mina Nasirai
Organic Lab Supervisor

REPORT OF ANALYSIS

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

Report Number: 1020909
Date: 2010-09-08
Date Submitted: 2010-08-30

Project: CD8177-FOX-M

P.O. Number:
Matrix: Soil

Chain of Custody Number: 133346

			LAB ID:	824400	824401	824402	824403	824404	GUIDELINE		
			Sample Date:	2010-08-25	2010-08-25	2010-08-25	2010-08-25	2010-08-25			
			Sample ID:	FM10-3B	FM10-4A	FM10-4B	FM10-5A	FM10-5B			
PARAMETER	**UNITS**	**MRL**							**TYPE**	**LIMIT**	**UNITS**
Polychlorinated Biphenyls - PCBs											
Polychlorinated Biphenyls (PCBs)	ug/g	0.02		<0.1	<0.1	<0.1	<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:
824400: PCB MRL elevated due to matrix interference.
824401: PCB MRL elevated due to matrix interference.
824402: PCB MRL elevated due to matrix interference.

APPROVAL:
Mina Nasirai
Organic Lab Supervisor

REPORT OF ANALYSIS

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

Report Number: 1020909
Date: 2010-09-08
Date Submitted: 2010-08-30

Project: CD8177-FOX-M

P.O. Number:
Matrix: Soil

Chain of Custody Number: **133346**

			LAB ID:	824405	824406	824407	824408	824409	**GUIDELINE**		
			Sample Date:	2010-08-25	2010-08-25	2010-08-25	2010-08-25	2010-08-25			
			Sample ID:	FM10-6A	FM10-6B	FM10-7A	FM10-7B	FM10-8A			
PARAMETER	**UNITS**	**MRL**							**TYPE**	**LIMIT**	**UNITS**
Polychlorinated Biphenyls - PCBs											
Polychlorinated Biphenyls (PCBs)	ug/g	0.02		<0.1	<0.1	<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:
824405: PCB MRL elevated due to matrix interference.
824406: PCB MRL elevated due to matrix interference.

APPROVAL:

Mina Nasirai
Organic Lab Supervisor

REPORT OF ANALYSIS

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

Report Number: 1020909
Date: 2010-09-08
Date Submitted: 2010-08-30

Project: CD8177-FOX-M

P.O. Number:
Matrix: Soil

Chain of Custody Number: 133346

			LAB ID:	824410	824411	824412	824413	824414	GUIDELINE		
			Sample Date:	2010-08-25	2010-08-25	2010-08-25	2010-08-25	2010-08-25			
			Sample ID:	FM10-8B	FM10-9A	FM10-9B	FM10-10A	FM10-10B			
PARAMETER	**UNITS**	**MRL**							**TYPE**	**LIMIT**	**UNITS**
Polychlorinated Biphenyls - PCBs											
Polychlorinated Biphenyls (PCBs)	ug/g	0.02		<0.4	<0.2	<0.1	<0.1	<0.02			

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

Comment:
824410: PCB MRL elevated due to matrix interference.
824411: PCB MRL elevated due to matrix interference.
824412: PCB MRL elevated due to matrix interference.
824413: PCB MRL elevated due to matrix interference.

APPROVAL:
Mina Nasirai
Organic Lab Supervisor

REPORT OF ANALYSIS

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

Report Number: 1020910
Date: 2010-09-08
Date Submitted: 2010-08-30

Project: CD8177-FOX-M

P.O. Number:
Matrix: Soil

Chain of Custody Number: 133348

			LAB ID:	824415	824416	824417	824418	824419	GUIDELINE		
			Sample Date:	2010-08-26	2010-08-26	2010-08-26	2010-08-26	2010-08-25			
			Sample ID:	FM10-11A	FM10-11B	FM10-12A	FM10-12B	FM10-13A			
PARAMETER	**UNITS**	**MRL**							**TYPE**	**LIMIT**	**UNITS**
Moisture	%	0.1		8.4	5.3	5.4	6.2	4.5			
Arsenic	ug/g	1		<1	<1	2	1	2			
Cadmium	ug/g	0.5		<0.5	<0.5	<0.5	<0.5	<0.5			
Chromium	ug/g	1		12	13	10	11	10			
Cobalt	ug/g	1		2	2	2	3	2			
Copper	ug/g	1		5	4	9	4	5			
Lead	ug/g	1		9	4	7	4	9			
Mercury	ug/g	0.1		<0.1	<0.1	<0.1	<0.1	<0.1			
Nickel	ug/g	1		10	10	9	10	9			
Zinc	ug/g	2		53	16	22	16	15			

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

REPORT OF ANALYSIS

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

Report Number: 1020910
Date: 2010-09-08
Date Submitted: 2010-08-30

Project: CD8177-FOX-M

P.O. Number:

Chain of Custody Number: 133348

Matrix: Soil

			LAB ID:	824420	824421	824422	824423	824424	GUIDELINE		
			Sample Date:	2010-08-25	2010-08-25	2010-08-25	2010-08-25	2010-08-25			
			Sample ID:	FM10-13B	FM10-14A	FM10-14B	FM10-15A	FM10-15B			
PARAMETER	**UNITS**	**MRL**							**TYPE**	**LIMIT**	**UNITS**
Moisture	%	0.1		2.8	20.4	2.8	8.5	11.6			
Arsenic	ug/g	1		2	2	2	2	1			
Cadmium	ug/g	0.5		<0.5	<0.5	<0.5	<0.5	<0.5			
Chromium	ug/g	1		11	9	9	7	9			
Cobalt	ug/g	1		3	2	2	1	2			
Copper	ug/g	1		5	8	4	3	4			
Lead	ug/g	1		5	6	10	3	3			
Mercury	ug/g	0.1		<0.1	<0.1	<0.1	<0.1	<0.1			
Nickel	ug/g	1		11	10	8	7	8			
Zinc	ug/g	2		12	11	11	6	9			

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

REPORT OF ANALYSIS

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

Report Number: 1020910
Date: 2010-09-08
Date Submitted: 2010-08-30

Project: CD8177-FOX-M

P.O. Number:
Matrix: Soil

Chain of Custody Number: 133348

			LAB ID:	824425	824426	824427	824428	824429	GUIDELINE		
			Sample Date:	2010-08-25	2010-08-25	2010-08-25	2010-08-25	2010-08-25			
			Sample ID:	FM10-16A	FM10-16B	FM10-17A	FM10-17B	FM10-18A			
PARAMETER	**UNITS**	**MRL**							**TYPE**	**LIMIT**	**UNITS**
Moisture	%	0.1		9.2	8.0	2.7	4.9	1.9			
Arsenic	ug/g	1		<1	2	2	2	2			
Cadmium	ug/g	0.5		<0.5	<0.5	<0.5	<0.5	<0.5			
Chromium	ug/g	1		14	27	21	15	14			
Cobalt	ug/g	1		2	2	3	3	2			
Copper	ug/g	1		7	9	6	5	4			
Lead	ug/g	1		4	5	5	4	4			
Mercury	ug/g	0.1		<0.1	<0.1	<0.1	<0.1	<0.1			
Nickel	ug/g	1		12	17	15	13	11			
Zinc	ug/g	2		13	12	14	12	15			

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

REPORT OF ANALYSIS

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

Report Number: 1020910
Date: 2010-09-08
Date Submitted: 2010-08-30

Project: CD8177-FOX-M

P.O. Number:
Matrix: Soil

Chain of Custody Number: 133348

			LAB ID:	824430	824431	824432	824433	824434	GUIDELINE		
			Sample Date:	2010-08-25	2010-08-25	2010-08-25	2010-08-25	2010-08-25			
			Sample ID:	FM10-18B	FM10-19A	FM10-19B	FM10-20A	FM10-20B			
PARAMETER	**UNITS**	**MRL**							**TYPE**	**LIMIT**	**UNITS**
Moisture	%	0.1		2.0	2.1	1.9	2.4	3.2			
Arsenic	ug/g	1		2	1	1	<1	<1			
Cadmium	ug/g	0.5		<0.5	<0.5	<0.5	<0.5	<0.5			
Chromium	ug/g	1		15	16	20	20	16			
Cobalt	ug/g	1		3	3	3	3	3			
Copper	ug/g	1		4	5	7	5	5			
Lead	ug/g	1		4	4	4	3	3			
Mercury	ug/g	0.1		<0.1	<0.1	<0.1	<0.1	<0.1			
Nickel	ug/g	1		12	12	15	14	14			
Zinc	ug/g	2		12	10	22	11	13			

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

REPORT OF ANALYSIS

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

Report Number: 1020910
Date: 2010-09-08
Date Submitted: 2010-08-30

Project: CD8177-FOX-M

P.O. Number:
Matrix: Soil

Chain of Custody Number: **133348**

			LAB ID:	824415	824416	824417	824418	824419	**GUIDELINE**		
			Sample Date:	2010-08-26	2010-08-26	2010-08-26	2010-08-26	2010-08-25			
			Sample ID:	FM10-11A	FM10-11B	FM10-12A	FM10-12B	FM10-13A			
PARAMETER	**UNITS**	**MRL**							**TYPE**	**LIMIT**	**UNITS**
PERCENT MOISTURE											
Moisture	%	0.1		8.4	5.3	5.4	6.2	4.5			
CCME Total Petroleum Hydrocarbons											
F1 (C6-C10)	ug/g	10		<10	<10	<10	<10	<10			
F2 (C10-C16)	ug/g	10		<10	<10	10	<10	<10			
F3 (C16-C34)	ug/g	20		<20	<20	<20	<20	<20			

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

REPORT OF ANALYSIS

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

Report Number: 1020910
Date: 2010-09-08
Date Submitted: 2010-08-30

Project: CD8177-FOX-M

P.O. Number:
Matrix: Soil

Chain of Custody Number: **133348**

			LAB ID:	824420	824421	824422	824423	824424	**GUIDELINE**		
			Sample Date:	2010-08-25	2010-08-25	2010-08-25	2010-08-25	2010-08-25			
			Sample ID:	FM10-13B	FM10-14A	FM10-14B	FM10-15A	FM10-15B			
PARAMETER	**UNITS**	**MRL**							**TYPE**	**LIMIT**	**UNITS**
PERCENT MOISTURE											
Moisture	%	0.1		2.8	20.4	2.8	8.5	11.6			
CCME Total Petroleum Hydrocarbons											
F1 (C6-C10)	ug/g	10		<10	<10	<10	<10	<10			
F2 (C10-C16)	ug/g	10		13	11	<10	<10	<10			
F3 (C16-C34)	ug/g	20		<20	<20	<20	29	<20			

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

REPORT OF ANALYSIS

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

Report Number: 1020910
Date: 2010-09-08
Date Submitted: 2010-08-30

Project: CD8177-FOX-M

P.O. Number:
Matrix: Soil

Chain of Custody Number: 133348

			LAB ID:	824425	824426	824427	824428	824429	GUIDELINE		
			Sample Date:	2010-08-25	2010-08-25	2010-08-25	2010-08-25	2010-08-25			
			Sample ID:	FM10-16A	FM10-16B	FM10-17A	FM10-17B	FM10-18A			
PARAMETER	**UNITS**	**MRL**							**TYPE**	**LIMIT**	**UNITS**
PERCENT MOISTURE											
Moisture	%	0.1		9.2	8.0	2.7	4.9	1.9			
CCME Total Petroleum Hydrocarbons											
F1 (C6-C10)	ug/g	10		<10	<10	<10	<10	<10			
F2 (C10-C16)	ug/g	10		13	11	<10	12	<10			
F3 (C16-C34)	ug/g	20		26	23	<20	<20	<20			

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

REPORT OF ANALYSIS

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

Report Number: 1020910
Date: 2010-09-08
Date Submitted: 2010-08-30

Project: CD8177-FOX-M

P.O. Number:
Matrix: Soil

Chain of Custody Number: **133348**

			LAB ID:	824430	824431	824432	824433	824434	**GUIDELINE**		
			Sample Date:	2010-08-25	2010-08-25	2010-08-25	2010-08-25	2010-08-25			
			Sample ID:	FM10-18B	FM10-19A	FM10-19B	FM10-20A	FM10-20B			
PARAMETER	**UNITS**	**MRL**							**TYPE**	**LIMIT**	**UNITS**
PERCENT MOISTURE											
Moisture	%	0.1		2.0	2.1	1.9	2.4	3.2			
CCME Total Petroleum Hydrocarbons											
F1 (C6-C10)	ug/g	10		<10	<10	<10	<10	<10			
F2 (C10-C16)	ug/g	10		<10	<10	15	<10	<10			
F3 (C16-C34)	ug/g	20		<20	<20	<20	<20	<20			

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

REPORT OF ANALYSIS

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

Report Number: 1020910
Date: 2010-09-08
Date Submitted: 2010-08-30

Project: CD8177-FOX-M

P.O. Number:
Matrix: Soil

Chain of Custody Number: **133348**

			LAB ID:	824415	824416	824417	824418	824419	GUIDELINE		
			Sample Date:	2010-08-26	2010-08-26	2010-08-26	2010-08-26	2010-08-25			
			Sample ID:	FM10-11A	FM10-11B	FM10-12A	FM10-12B	FM10-13A			
PARAMETER	**UNITS**	**MRL**							**TYPE**	**LIMIT**	**UNITS**
Polychlorinated Biphenyls - PCBs											
Polychlorinated Biphenyls (PCBs)	ug/g	0.02		<0.02	<0.02	<0.02	<0.02	<0.2			

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

Comment:

824419: PCB MRL elevated due to matrix interference.

APPROVAL:

Mina Nasirai
Organic Lab Supervisor

REPORT OF ANALYSIS

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

Report Number: 1020910
Date: 2010-09-08
Date Submitted: 2010-08-30

Project: CD8177-FOX-M

P.O. Number:
Matrix: Soil

Chain of Custody Number: 133348

			LAB ID:	824420	824421	824422	824423	824424	GUIDELINE		
			Sample Date:	2010-08-25	2010-08-25	2010-08-25	2010-08-25	2010-08-25			
			Sample ID:	FM10-13B	FM10-14A	FM10-14B	FM10-15A	FM10-15B			
PARAMETER	**UNITS**	**MRL**							**TYPE**	**LIMIT**	**UNITS**
Polychlorinated Biphenyls - PCBs											
Polychlorinated Biphenyls (PCBs)	ug/g	0.02		<0.1	<0.1	<0.1	<0.2	<0.02			

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

Comment:
824420: PCB MRL elevated due to matrix interference.
824421: PCB MRL elevated due to matrix interference.
824422: PCB MRL elevated due to matrix interference.
824423: PCB MRL elevated due to matrix interference.

APPROVAL:
Mina Nasirai
Organic Lab Supervisor

REPORT OF ANALYSIS

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

Report Number: 1020910
Date: 2010-09-08
Date Submitted: 2010-08-30

Project: CD8177-FOX-M

P.O. Number:
Matrix: Soil

Chain of Custody Number: 133348

			LAB ID:	824425	824426	824427	824428	824429	GUIDELINE		
			Sample Date:	2010-08-25	2010-08-25	2010-08-25	2010-08-25	2010-08-25			
			Sample ID:	FM10-16A	FM10-16B	FM10-17A	FM10-17B	FM10-18A			
PARAMETER	**UNITS**	**MRL**							**TYPE**	**LIMIT**	**UNITS**
Polychlorinated Biphenyls - PCBs											
Polychlorinated Biphenyls (PCBs)	ug/g	0.02		<0.1	<0.02	<0.2	<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:
824425: PCB MRL elevated due to matrix interference.

824427: PCB MRL elevated due to matrix interference.

APPROVAL: _____
Mina Nasirai
Organic Lab Supervisor

REPORT OF ANALYSIS

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

Report Number: 1020910
Date: 2010-09-08
Date Submitted: 2010-08-30

Project: CD8177-FOX-M

P.O. Number:
Matrix: Soil

Chain of Custody Number: **133348**

			LAB ID:	824430	824431	824432	824433	824434	GUIDELINE		
			Sample Date:	2010-08-25	2010-08-25	2010-08-25	2010-08-25	2010-08-25			
			Sample ID:	FM10-18B	FM10-19A	FM10-19B	FM10-20A	FM10-20B			
PARAMETER	**UNITS**	**MRL**							**TYPE**	**LIMIT**	**UNITS**
Polychlorinated Biphenyls - PCBs											
Polychlorinated Biphenyls (PCBs)	ug/g	0.02		<0.02	<0.02	<0.2	<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:

824432: PCB MRL elevated due to matrix interference.

APPROVAL:

Mina Nasirai
Organic Lab Supervisor

REPORT OF ANALYSIS

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

Report Number: 1020911
Date: 2010-09-10
Date Submitted: 2010-08-30

Project: CD8177-FOX-M

P.O. Number:

Chain of Custody Number: 133350

Matrix: Soil

			LAB ID:	824435	824436	824437	824438	824439	GUIDELINE		
			Sample Date:	2010-08-26	2010-08-26	2010-08-26	2010-08-26	2010-08-26			
			Sample ID:	FM10-21A	FM10-21B	FM10-22A	FM10-22B	FM10-1WA			
PARAMETER	**UNITS**	**MRL**							**TYPE**	**LIMIT**	**UNITS**
Moisture	%	0.1		4.8	5.5	9.4	5.2	2.1			
Arsenic	ug/g	1		1	<1	2	1	2			
Cadmium	ug/g	0.5		<0.5	<0.5	<0.5	<0.5	<0.5			
Chromium	ug/g	1		14	15	14	13	16			
Cobalt	ug/g	1		3	2	3	2	2			
Copper	ug/g	1		5	4	6	5	4			
Lead	ug/g	1		5	3	4	3	3			
Mercury	ug/g	0.1		<0.1	<0.1	<0.1	<0.1	<0.1			
Nickel	ug/g	1		13	12	13	12	12			
Zinc	ug/g	2		12	9	12	13	8			

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

REPORT OF ANALYSIS

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

Report Number: 1020911
Date: 2010-09-10
Date Submitted: 2010-08-30

Project: CD8177-FOX-M

P.O. Number:
Matrix: Soil

Chain of Custody Number: 133350

			LAB ID:	824440	824441	824442	824443	824444	GUIDELINE		
			Sample Date:	2010-08-26	2010-08-26	2010-08-26	2010-08-26	2010-08-26			
			Sample ID:	FM10-1WB	FM10-2WA	FM10-2WB	FM10-3WA	FM10-3WB			
PARAMETER	**UNITS**	**MRL**							**TYPE**	**LIMIT**	**UNITS**
Moisture	%	0.1		5.7	4.5	4.8	2.1	4.0			
Arsenic	ug/g	1		2	1	<1	2	<1			
Cadmium	ug/g	0.5		<0.5	<0.5	<0.5	<0.5	<0.5			
Chromium	ug/g	1		13	16	19	18	15			
Cobalt	ug/g	1		2	3	3	3	3			
Copper	ug/g	1		4	7	5	5	5			
Lead	ug/g	1		3	7	4	5	4			
Mercury	ug/g	0.1		<0.1	<0.1	<0.1	<0.1	<0.1			
Nickel	ug/g	1		11	13	15	14	13			
Zinc	ug/g	2		9	15	15	12	9			

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

REPORT OF ANALYSIS

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

Report Number: 1020911
Date: 2010-09-10
Date Submitted: 2010-08-30

Project: CD8177-FOX-M

P.O. Number:
Matrix: Soil

Chain of Custody Number: 133350

			LAB ID:	824445	824446	824447	824448	824449	GUIDELINE		
			Sample Date:	2010-08-26	2010-08-26	2010-08-26	2010-08-26	2010-08-26			
			Sample ID:	FM10-4WA	FM10-4WB	FM10-5WA	FM10-5WB	FM10-12WA			
PARAMETER	**UNITS**	**MRL**							**TYPE**	**LIMIT**	**UNITS**
Moisture	%	0.1		12.7	10.6	4.7	4.5	3.7			
Arsenic	ug/g	1		1	1	2	<1	1			
Cadmium	ug/g	0.5		<0.5	<0.5	<0.5	<0.5	<0.5			
Chromium	ug/g	1		17	10	18	14	16			
Cobalt	ug/g	1		3	2	3	3	3			
Copper	ug/g	1		6	4	4	4	5			
Lead	ug/g	1		4	2	4	3	28			
Mercury	ug/g	0.1		<0.1	<0.1	<0.1	<0.1	<0.1			
Nickel	ug/g	1		13	9	13	11	13			
Zinc	ug/g	2		13	8	13	12	13			

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

REPORT OF ANALYSIS

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

Report Number: 1020911
Date: 2010-09-10
Date Submitted: 2010-08-30

Project: CD8177-FOX-M

P.O. Number:
Matrix: Soil

Chain of Custody Number: 133350

			LAB ID:	824450	824451	824452	824453	824454	GUIDELINE		
			Sample Date:	2010-08-26	2010-08-26	2010-08-26	2010-08-26	2010-08-26			
			Sample ID:	FM10-12WB	FM10-13WA	FM10-13WB	FM10-14WA	FM10-14WB			
PARAMETER	**UNITS**	**MRL**							**TYPE**	**LIMIT**	**UNITS**
Moisture	%	0.1		2.1	4.1	3.1	13.4	2.0			
Arsenic	ug/g	1		1	1	1	2	2			
Cadmium	ug/g	0.5		<0.5	<0.5	<0.5	<0.5	<0.5			
Chromium	ug/g	1		15	12	14	15	23			
Cobalt	ug/g	1		2	2	2	2	2			
Copper	ug/g	1		4	4	4	25	4			
Lead	ug/g	1		14	42	27	8	6			
Mercury	ug/g	0.1		<0.1	<0.1	<0.1	<0.1	<0.1			
Nickel	ug/g	1		12	9	11	13	15			
Zinc	ug/g	2		10	10	9	10	9			

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

REPORT OF ANALYSIS

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

Report Number: 1020911
Date: 2010-09-10
Date Submitted: 2010-08-30

Project: CD8177-FOX-M

P.O. Number:
Matrix: Soil

Chain of Custody Number: **133350**

			LAB ID:	824435	824436	824437	824438	824439	**GUIDELINE**		
			Sample Date:	2010-08-26	2010-08-26	2010-08-26	2010-08-26	2010-08-26			
			Sample ID:	FM10-21A	FM10-21B	FM10-22A	FM10-22B	FM10-1WA			
PARAMETER	**UNITS**	**MRL**							**TYPE**	**LIMIT**	**UNITS**
PERCENT MOISTURE											
Moisture	%	0.1		4.8	5.5	9.4	5.2	2.1			
CCME Total Petroleum Hydrocarbons											
F1 (C6-C10)	ug/g	10		<10	<10	<10	<10	<10			
F2 (C10-C16)	ug/g	10		<10	<10	<10	<10	<10			
F3 (C16-C34)	ug/g	20		<20	<20	<20	<20	<20			

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

REPORT OF ANALYSIS

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

Report Number: 1020911
Date: 2010-09-10
Date Submitted: 2010-08-30

Project: CD8177-FOX-M

P.O. Number:
Matrix: Soil

Chain of Custody Number: 133350

			LAB ID:	824440	824441	824442	824443	824444	GUIDELINE		
			Sample Date:	2010-08-26	2010-08-26	2010-08-26	2010-08-26	2010-08-26			
			Sample ID:	FM10-1WB	FM10-2WA	FM10-2WB	FM10-3WA	FM10-3WB			
PARAMETER	**UNITS**	**MRL**							**TYPE**	**LIMIT**	**UNITS**
PERCENT MOISTURE											
Moisture	%	0.1		5.7	4.5	4.8	2.1	4.0			
CCME Total Petroleum Hydrocarbons											
F1 (C6-C10)	ug/g	10		<10	<10	<10	<10	<10			
F2 (C10-C16)	ug/g	10		<10	<10	<10	<10	<10			
F3 (C16-C34)	ug/g	20		<20	<20	<20	<20	<20			

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

REPORT OF ANALYSIS

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

Report Number: 1020911
Date: 2010-09-10
Date Submitted: 2010-08-30

Project: CD8177-FOX-M

P.O. Number:
Matrix: Soil

Chain of Custody Number: 133350

			LAB ID:	824445	824446	824447	824448	824449	GUIDELINE		
			Sample Date:	2010-08-26	2010-08-26	2010-08-26	2010-08-26	2010-08-26			
			Sample ID:	FM10-4WA	FM10-4WB	FM10-5WA	FM10-5WB	FM10-12WA			
PARAMETER	**UNITS**	**MRL**							**TYPE**	**LIMIT**	**UNITS**
PERCENT MOISTURE											
Moisture	%	0.1		12.7	10.6	4.7	4.5	3.7			
CCME Total Petroleum Hydrocarbons											
F1 (C6-C10)	ug/g	10		<10	<10	<10	<10	<10			
F2 (C10-C16)	ug/g	10		<10	<10	<10	<10	14			
F3 (C16-C34)	ug/g	20		<20	<20	<20	<20	<20			

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

REPORT OF ANALYSIS

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

Report Number: 1020911
Date: 2010-09-10
Date Submitted: 2010-08-30

Project: CD8177-FOX-M

P.O. Number:
Matrix: Soil

Chain of Custody Number: 133350

			LAB ID:	824450	824451	824452	824453	824454	GUIDELINE		
			Sample Date:	2010-08-26	2010-08-26	2010-08-26	2010-08-26	2010-08-26			
			Sample ID:	FM10-12WB	FM10-13WA	FM10-13WB	FM10-14WA	FM10-14WB			
PARAMETER	**UNITS**	**MRL**							**TYPE**	**LIMIT**	**UNITS**
PERCENT MOISTURE											
Moisture	%	0.1		2.1	4.1	3.1	13.4	2.0			
CCME Total Petroleum Hydrocarbons											
F1 (C6-C10)	ug/g	10		<10	<10	<10	<10	<10			
F2 (C10-C16)	ug/g	10		13	<10	<10	<10	<10			
F3 (C16-C34)	ug/g	20		<20	25	<20	33	<20			

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

REPORT OF ANALYSIS

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

Report Number: 1020911
Date: 2010-09-10
Date Submitted: 2010-08-30

Project: CD8177-FOX-M

P.O. Number:
Matrix: Soil

Chain of Custody Number: 133350

			LAB ID:	824435	824436	824437	824438	824439	GUIDELINE		
			Sample Date:	2010-08-26	2010-08-26	2010-08-26	2010-08-26	2010-08-26			
			Sample ID:	FM10-21A	FM10-21B	FM10-22A	FM10-22B	FM10-1WA			
PARAMETER	**UNITS**	**MRL**							**TYPE**	**LIMIT**	**UNITS**
Polychlorinated Biphenyls - PCBs											
Polychlorinated Biphenyls (PCBs)	ug/g	0.02		<0.02	<0.02	<0.2	<0.02	<0.2			

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

Comment:

824437: PCB MRL elevated due to matrix interference.

824439: PCB MRL elevated due to matrix interference.

APPROVAL: _____
Mina Nasirai
Organic Lab Supervisor

REPORT OF ANALYSIS

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

Report Number: 1020911
Date: 2010-09-10
Date Submitted: 2010-08-30

Project: CD8177-FOX-M

P.O. Number:
Matrix: Soil

Chain of Custody Number: **133350**

			LAB ID:	824440	824441	824442	824443	824444	**GUIDELINE**		
			Sample Date:	2010-08-26	2010-08-26	2010-08-26	2010-08-26	2010-08-26			
			Sample ID:	FM10-1WB	FM10-2WA	FM10-2WB	FM10-3WA	FM10-3WB			
PARAMETER	**UNITS**	**MRL**							**TYPE**	**LIMIT**	**UNITS**
Polychlorinated Biphenyls - PCBs											
Polychlorinated Biphenyls (PCBs)	ug/g	0.02		<0.2	<0.2	<0.02	<0.02	<0.1			

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

Comment:
824440: PCB MRL elevated due to matrix interference.
824441: PCB MRL elevated due to matrix interference.

824444: PCB MRL elevated due to matrix interference.

APPROVAL:
Mina Nasirai
Organic Lab Supervisor

REPORT OF ANALYSIS

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

Report Number: 1020911
Date: 2010-09-10
Date Submitted: 2010-08-30

Project: CD8177-FOX-M

P.O. Number:
Matrix: Soil

Chain of Custody Number: 133350

			LAB ID:	824445	824446	824447	824448	824449	GUIDELINE		
			Sample Date:	2010-08-26	2010-08-26	2010-08-26	2010-08-26	2010-08-26			
			Sample ID:	FM10-4WA	FM10-4WB	FM10-5WA	FM10-5WB	FM10-12WA			
PARAMETER	**UNITS**	**MRL**							**TYPE**	**LIMIT**	**UNITS**
Polychlorinated Biphenyls - PCBs											
Polychlorinated Biphenyls (PCBs)	ug/g	0.02		<0.02	<0.02	<0.1	<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:

824447: PCB MRL elevated due to matrix interference.

APPROVAL:

Mina Nasirai
Organic Lab Supervisor

REPORT OF ANALYSIS

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

Report Number: 1020911
Date: 2010-09-10
Date Submitted: 2010-08-30

Project: CD8177-FOX-M

P.O. Number:
Matrix: Soil

Chain of Custody Number: 133350

			LAB ID:	824450	824451	824452	824453	824454	GUIDELINE		
			Sample Date:	2010-08-26	2010-08-26	2010-08-26	2010-08-26	2010-08-26			
			Sample ID:	FM10-12WB	FM10-13WA	FM10-13WB	FM10-14WA	FM10-14WB			
PARAMETER	**UNITS**	**MRL**							**TYPE**	**LIMIT**	**UNITS**
Polychlorinated Biphenyls - PCBs											
Polychlorinated Biphenyls (PCBs)	ug/g	0.02		<0.1	<0.1	<0.02	<0.1	<0.02			

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

Comment:
824450: PCB MRL elevated due to matrix interference.
824451: PCB MRL elevated due to matrix interference.

824453: PCB MRL elevated due to matrix interference.

APPROVAL:
Mina Nasirai
Organic Lab Supervisor

REPORT OF ANALYSIS

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

Report Number: 1020912
Date: 2010-09-10
Date Submitted: 2010-08-30

Project: CD8177-FOX-M

P.O. Number:

Chain of Custody Number: 133352

Matrix: Soil

			LAB ID:	824455	824456	824457	824458	824459	GUIDELINE		
			Sample Date:	2010-08-26	2010-08-26	2010-08-26	2010-08-26	2010-08-26			
			Sample ID:	FM10-15WA	FM10-15WB	FM10-16WA	FM10-16WB	FM10-20WA			
PARAMETER	**UNITS**	**MRL**							**TYPE**	**LIMIT**	**UNITS**
Moisture	%	0.1		12.7	14.9	3.4	2.8	3.9			
Arsenic	ug/g	1		2	3	2	2	2			
Cadmium	ug/g	0.5		<0.5	<0.5	<0.5	<0.5	<0.5			
Chromium	ug/g	1		18	18	13	16	30			
Cobalt	ug/g	1		2	2	2	2	2			
Copper	ug/g	1		6	5	6	4	9			
Lead	ug/g	1		14	6	41	13	11			
Mercury	ug/g	0.1		<0.1	<0.1	<0.1	<0.1	<0.1			
Nickel	ug/g	1		13	13	10	11	18			
Zinc	ug/g	2		11	10	14	9	13			

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

REPORT OF ANALYSIS

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

Report Number: 1020912
Date: 2010-09-10
Date Submitted: 2010-08-30

Project: CD8177-FOX-M

P.O. Number:

Chain of Custody Number: 133352

Matrix: Soil

			LAB ID:	824460	824461	824462	824463	824464	GUIDELINE		
			Sample Date:	2010-08-26	2010-08-26	2010-08-26	2010-08-26	2010-08-26			
			Sample ID:	FM10-20WB	FM10-21WA	FM10-21WB	FM10-22WA	FM10-22WB			
PARAMETER	**UNITS**	**MRL**							**TYPE**	**LIMIT**	**UNITS**
Moisture	%	0.1		2.6	2.2	2.3	2.9	3.9			
Arsenic	ug/g	1		1	2	1	2	2			
Cadmium	ug/g	0.5		<0.5	<0.5	<0.5	<0.5	<0.5			
Chromium	ug/g	1		15	16	14	16	16			
Cobalt	ug/g	1		3	2	2	3	3			
Copper	ug/g	1		6	4	4	56	19			
Lead	ug/g	1		7	4	4	82	50			
Mercury	ug/g	0.1		<0.1	<0.1	<0.1	<0.1	<0.1			
Nickel	ug/g	1		13	11	11	13	13			
Zinc	ug/g	2		13	8	18	47	29			

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

REPORT OF ANALYSIS

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

Report Number: 1020912
Date: 2010-09-10
Date Submitted: 2010-08-30

Project: CD8177-FOX-M

P.O. Number:
Chain of Custody Number: 133352
Matrix: Soil

			LAB ID:	824465	824466	824467	824468	824469	GUIDELINE		
			Sample Date:	2010-08-26	2010-08-26	2010-08-26	2010-08-26	2010-08-26			
			Sample ID:	FM10-23WA	FM10-23WB	FM10-24WA	FM10-24WB	FM10-25WA			
PARAMETER	**UNITS**	**MRL**							**TYPE**	**LIMIT**	**UNITS**
Moisture	%	0.1		3.1	3.4	2.7	2.7	4.5			
Arsenic	ug/g	1		4	4	2	2	2			
Cadmium	ug/g	0.5		<0.5	<0.5	<0.5	<0.5	<0.5			
Chromium	ug/g	1		14	14	16	15	13			
Cobalt	ug/g	1		3	3	3	3	2			
Copper	ug/g	1		5	5	16	14	5			
Lead	ug/g	1		5	5	31	28	45			
Mercury	ug/g	0.1		<0.1	<0.1	<0.1	<0.1	<0.1			
Nickel	ug/g	1		14	13	13	13	12			
Zinc	ug/g	2		11	11	30	32	11			

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

REPORT OF ANALYSIS

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

Report Number: 1020912
Date: 2010-09-10
Date Submitted: 2010-08-30

Project: CD8177-FOX-M

P.O. Number:

Chain of Custody Number: 133352

Matrix: Soil

			LAB ID:	824470	824471	824472	824473	824474	GUIDELINE		
			Sample Date:	2010-08-26	2010-08-26	2010-08-26	2010-08-26	2010-08-26			
			Sample ID:	FM10-25WB	FM10-26WA	FM10-26WB	FM10-27WA	FM10-27WB			
PARAMETER	**UNITS**	**MRL**							**TYPE**	**LIMIT**	**UNITS**
Moisture	%	0.1		5.4	3.2	3.9	1.8	2.7			
Arsenic	ug/g	1		2	3	3	2	4			
Cadmium	ug/g	0.5		<0.5	<0.5	<0.5	<0.5	<0.5			
Chromium	ug/g	1		15	14	15	17	14			
Cobalt	ug/g	1		3	3	3	3	3			
Copper	ug/g	1		5	16	18	15	5			
Lead	ug/g	1		91	30	33	21	6			
Mercury	ug/g	0.1		<0.1	<0.1	<0.1	<0.1	<0.1			
Nickel	ug/g	1		13	14	14	13	13			
Zinc	ug/g	2		12	23	24	18	12			

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

REPORT OF ANALYSIS

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

Report Number: 1020912
Date: 2010-09-10
Date Submitted: 2010-08-30

Project: CD8177-FOX-M

P.O. Number:
Matrix: Soil

Chain of Custody Number: 133352

			LAB ID:	824455	824456	824457	824458	824459	GUIDELINE		
			Sample Date:	2010-08-26	2010-08-26	2010-08-26	2010-08-26	2010-08-26			
			Sample ID:	FM10-15WA	FM10-15WB	FM10-16WA	FM10-16WB	FM10-20WA			
PARAMETER	**UNITS**	**MRL**							**TYPE**	**LIMIT**	**UNITS**
PERCENT MOISTURE											
Moisture	%	0.1		12.7	14.9	3.4	2.8	3.9			
CCME Total Petroleum Hydrocarbons											
F1 (C6-C10)	ug/g	10		<10	<10	<10	<10	<10			
F2 (C10-C16)	ug/g	10		15	18	<10	<10	<10			
F3 (C16-C34)	ug/g	20		<20	<20	72	<20	<20			

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

REPORT OF ANALYSIS

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

Report Number: 1020912
Date: 2010-09-10
Date Submitted: 2010-08-30

Project: CD8177-FOX-M

P.O. Number:
Matrix: Soil

Chain of Custody Number: 133352

			LAB ID:	824460	824461	824462	824463	824464	GUIDELINE		
			Sample Date:	2010-08-26	2010-08-26	2010-08-26	2010-08-26	2010-08-26			
			Sample ID:	FM10-20WB	FM10-21WA	FM10-21WB	FM10-22WA	FM10-22WB			
PARAMETER	**UNITS**	**MRL**							**TYPE**	**LIMIT**	**UNITS**
PERCENT MOISTURE											
Moisture	%	0.1		2.6	2.2	2.3	2.9	3.9			
CCME Total Petroleum Hydrocarbons											
F1 (C6-C10)	ug/g	10		<10	<10	<10	<10	<10			
F2 (C10-C16)	ug/g	10		<10	<10	<10	<10	<10			
F3 (C16-C34)	ug/g	20		<20	<20	<20	21	<20			

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

REPORT OF ANALYSIS

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

Report Number: 1020912
Date: 2010-09-10
Date Submitted: 2010-08-30

Project: CD8177-FOX-M

P.O. Number:
Matrix: Soil

Chain of Custody Number: 133352

			LAB ID:	824465	824466	824467	824468	824469	GUIDELINE		
			Sample Date:	2010-08-26	2010-08-26	2010-08-26	2010-08-26	2010-08-26			
			Sample ID:	FM10-23WA	FM10-23WB	FM10-24WA	FM10-24WB	FM10-25WA			
PARAMETER	**UNITS**	**MRL**							**TYPE**	**LIMIT**	**UNITS**
PERCENT MOISTURE											
Moisture	%	0.1		3.1	3.4	2.7	2.7	4.5			
CCME Total Petroleum Hydrocarbons											
F1 (C6-C10)	ug/g	10		<10	<10	<10	<10	<10			
F2 (C10-C16)	ug/g	10		<10	<10	13	<10	<10			
F3 (C16-C34)	ug/g	20		22	<20	<20	23	<20			

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

REPORT OF ANALYSIS

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

Report Number: 1020912
Date: 2010-09-10
Date Submitted: 2010-08-30

Project: CD8177-FOX-M

P.O. Number:
Matrix: Soil

Chain of Custody Number: 133352

			LAB ID:	824470	824471	824472	824473	824474	GUIDELINE		
			Sample Date:	2010-08-26	2010-08-26	2010-08-26	2010-08-26	2010-08-26			
			Sample ID:	FM10-25WB	FM10-26WA	FM10-26WB	FM10-27WA	FM10-27WB			
PARAMETER	**UNITS**	**MRL**							**TYPE**	**LIMIT**	**UNITS**
PERCENT MOISTURE											
Moisture	%	0.1		5.4	3.2	3.9	1.8	2.7			
CCME Total Petroleum Hydrocarbons											
F1 (C6-C10)	ug/g	10		<10	<10	<10	<10	<10			
F2 (C10-C16)	ug/g	10		<10	<10	<10	<10	<10			
F3 (C16-C34)	ug/g	20		<20	<20	<20	<20	<20			

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

REPORT OF ANALYSIS

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

Report Number: 1020912
Date: 2010-09-10
Date Submitted: 2010-08-30

Project: CD8177-FOX-M

P.O. Number:
Chain of Custody Number: 133352
Matrix: Soil

			LAB ID:	824455	824456	824457	824458	824459	GUIDELINE		
			Sample Date:	2010-08-26	2010-08-26	2010-08-26	2010-08-26	2010-08-26			
			Sample ID:	FM10-15WA	FM10-15WB	FM10-16WA	FM10-16WB	FM10-20WA			
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

REPORT OF ANALYSIS

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

Report Number: 1020912
Date: 2010-09-10
Date Submitted: 2010-08-30

Project: CD8177-FOX-M

P.O. Number:
Matrix: Soil

Chain of Custody Number: **133352**

			LAB ID:	824460	824461	824462	824463	824464	**GUIDELINE**		
			Sample Date:	2010-08-26	2010-08-26	2010-08-26	2010-08-26	2010-08-26			
			Sample ID:	FM10-20WB	FM10-21WA	FM10-21WB	FM10-22WA	FM10-22WB			
PARAMETER	**UNITS**	**MRL**							**TYPE**	**LIMIT**	**UNITS**
Polychlorinated Biphenyls - PCBs											
Polychlorinated Biphenyls (PCBs)	ug/g	0.02		<0.02	<0.02	<0.1	<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:

824462: PCB MRL elevated due to matrix interference.

APPROVAL:

Mina Nasirai
Organic Lab Supervisor

REPORT OF ANALYSIS

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

Report Number: 1020912
Date: 2010-09-10
Date Submitted: 2010-08-30

Project: CD8177-FOX-M

P.O. Number:
Matrix: Soil

Chain of Custody Number: 133352

			LAB ID:	824465	824466	824467	824468	824469	GUIDELINE		
			Sample Date:	2010-08-26	2010-08-26	2010-08-26	2010-08-26	2010-08-26			
			Sample ID:	FM10-23WA	FM10-23WB	FM10-24WA	FM10-24WB	FM10-25WA			
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

REPORT OF ANALYSIS

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

Report Number: 1020912
Date: 2010-09-10
Date Submitted: 2010-08-30

Project: CD8177-FOX-M

P.O. Number:
Matrix: Soil

Chain of Custody Number: **133352**

			LAB ID:	824470	824471	824472	824473	824474	**GUIDELINE**		
			Sample Date:	2010-08-26	2010-08-26	2010-08-26	2010-08-26	2010-08-26			
			Sample ID:	FM10-25WB	FM10-26WA	FM10-26WB	FM10-27WA	FM10-27WB			
PARAMETER	**UNITS**	**MRL**							**TYPE**	**LIMIT**	**UNITS**
Polychlorinated Biphenyls - PCBs											
Polychlorinated Biphenyls (PCBs)	ug/g	0.02		<0.02	<0.02	<0.02	<0.02	<0.2			

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

Comment:

824474: PCB MRL elevated due to matrix interference.

APPROVAL:

Mina Nasirai
Organic Lab Supervisor

REPORT OF ANALYSIS

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

Report Number: 1020913
Date: 2010-09-10
Date Submitted: 2010-08-30

Project: CD8177-FOX-M

P.O. Number:

Chain of Custody Number: 133354

Matrix: Soil

			LAB ID:	824475	824476	824477	824478	824479	GUIDELINE		
			Sample Date:	2010-08-27	2010-08-27	2010-08-27	2010-08-27	2010-08-27			
			Sample ID:	FM10-28WA	FM10-28WB	FM10-29WA	FM10-29WB	FM10-30WA			
PARAMETER	**UNITS**	**MRL**							**TYPE**	**LIMIT**	**UNITS**
Moisture	%	0.1		1.9	1.8	3.8	5.0	2.3			
Arsenic	ug/g	1		2	3	1	2	2			
Cadmium	ug/g	0.5		<0.5	<0.5	<0.5	<0.5	<0.5			
Chromium	ug/g	1		18	18	11	17	16			
Cobalt	ug/g	1		3	3	2	2	3			
Copper	ug/g	1		14	34	6	5	5			
Lead	ug/g	1		13	41	4	8	4			
Mercury	ug/g	0.1		<0.1	<0.1	<0.1	<0.1	<0.1			
Nickel	ug/g	1		14	15	11	12	12			
Zinc	ug/g	2		14	74	13	9	10			

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

REPORT OF ANALYSIS

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

Report Number: 1020913
Date: 2010-09-10
Date Submitted: 2010-08-30

Project: CD8177-FOX-M

P.O. Number:
Matrix: Soil

Chain of Custody Number: 133354

			LAB ID:	824480	824481	824482	824483	824484	GUIDELINE		
			Sample Date:	2010-08-27	2010-08-27	2010-08-27	2010-08-27	2010-08-27			
			Sample ID:	FM10-30WB	FM10-31WA	FM10-31WB	FM10-BD1	FM10-BD2			
PARAMETER	**UNITS**	**MRL**							**TYPE**	**LIMIT**	**UNITS**
Moisture	%	0.1		2.0	3.5	4.7	2.9	1.7			
Arsenic	ug/g	1		2	2	2	1	2			
Cadmium	ug/g	0.5		<0.5	<0.5	<0.5	<0.5	<0.5			
Chromium	ug/g	1		19	11	15	26	31			
Cobalt	ug/g	1		3	2	2	2	2			
Copper	ug/g	1		5	4	4	3	4			
Lead	ug/g	1		5	5	6	3	4			
Mercury	ug/g	0.1		<0.1	<0.1	<0.1	<0.1	<0.1			
Nickel	ug/g	1		14	9	10	13	17			
Zinc	ug/g	2		10	10	14	7	8			

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

REPORT OF ANALYSIS

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

Report Number: 1020913
Date: 2010-09-10
Date Submitted: 2010-08-30

Project: CD8177-FOX-M

P.O. Number:
Chain of Custody Number: 133354
Matrix: Soil

			LAB ID:	824485	824486	824487	824488	824489	GUIDELINE		
			Sample Date:	2010-08-27	2010-08-27	2010-08-27	2010-08-27	2010-08-27			
			Sample ID:	FM10-BD3	FM10-BD4	FM10-BD5	FM10-BD6	FM10-BD7			
PARAMETER	**UNITS**	**MRL**							**TYPE**	**LIMIT**	**UNITS**
Moisture	%	0.1		3.5	3.4	6.0	4.5	3.2			
Arsenic	ug/g	1		2	2	1	2	4			
Cadmium	ug/g	0.5		<0.5	<0.5	<0.5	<0.5	<0.5			
Chromium	ug/g	1		28	18	13	19	18			
Cobalt	ug/g	1		2	2	3	3	3			
Copper	ug/g	1		3	5	4	6	5			
Lead	ug/g	1		5	27	3	8	3			
Mercury	ug/g	0.1		<0.1	<0.1	<0.1	<0.1	<0.1			
Nickel	ug/g	1		15	12	11	14	15			
Zinc	ug/g	2		11	11	13	26	12			

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

REPORT OF ANALYSIS

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

Report Number: 1020913
Date: 2010-09-10
Date Submitted: 2010-08-30

Project: CD8177-FOX-M

P.O. Number:
Matrix: Soil

Chain of Custody Number: 133354

			LAB ID:	824490					**GUIDELINE**	
			Sample Date:	2010-08-27						
			Sample ID:	FM10-BD8						
PARAMETER	**UNITS**	**MRL**						**TYPE**	**LIMIT**	**UNITS**
Moisture	%	0.1	2.2							
Arsenic	ug/g	1	2							
Cadmium	ug/g	0.5	<0.5							
Chromium	ug/g	1	11							
Cobalt	ug/g	1	2							
Copper	ug/g	1	3							
Lead	ug/g	1	3							
Mercury	ug/g	0.1	<0.1							
Nickel	ug/g	1	8							
Zinc	ug/g	2	9							

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

REPORT OF ANALYSIS

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

Report Number: 1020913
Date: 2010-09-10
Date Submitted: 2010-08-30

Project: CD8177-FOX-M

P.O. Number:
Matrix: Soil

Chain of Custody Number: 133354

			LAB ID:	824475	824476	824477	824478	824479	GUIDELINE		
			Sample Date:	2010-08-27	2010-08-27	2010-08-27	2010-08-27	2010-08-27			
			Sample ID:	FM10-28WA	FM10-28WB	FM10-29WA	FM10-29WB	FM10-30WA			
PARAMETER	**UNITS**	**MRL**							**TYPE**	**LIMIT**	**UNITS**
PERCENT MOISTURE											
Moisture	%	0.1		1.9	1.8	3.8	5.0	2.3			
CCME Total Petroleum Hydrocarbons											
F1 (C6-C10)	ug/g	10		<10	<10	<10	<10	<10			
F2 (C10-C16)	ug/g	10		<10	<10	<10	<10	<10			
F3 (C16-C34)	ug/g	20		<20	<20	<20	<20	<20			

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

REPORT OF ANALYSIS

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

Report Number: 1020913
Date: 2010-09-10
Date Submitted: 2010-08-30

Project: CD8177-FOX-M

P.O. Number:
Matrix: Soil

Chain of Custody Number: 133354

			LAB ID:	824480	824481	824482	824483	824484	GUIDELINE		
			Sample Date:	2010-08-27	2010-08-27	2010-08-27	2010-08-27	2010-08-27			
			Sample ID:	FM10-30WB	FM10-31WA	FM10-31WB	FM10-BD1	FM10-BD2			
PARAMETER	**UNITS**	**MRL**							**TYPE**	**LIMIT**	**UNITS**
PERCENT MOISTURE											
Moisture	%	0.1		2.0	3.5	4.7	2.9	1.7			
CCME Total Petroleum Hydrocarbons											
F1 (C6-C10)	ug/g	10		<10	<10	<10	<10	<10			
F2 (C10-C16)	ug/g	10		<10	<10	<10	<10	<10			
F3 (C16-C34)	ug/g	20		<20	<20	<20	<20	<20			

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

REPORT OF ANALYSIS

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

Report Number: 1020913
Date: 2010-09-10
Date Submitted: 2010-08-30

Project: CD8177-FOX-M

P.O. Number:
Matrix: Soil

Chain of Custody Number: 133354

			LAB ID:	824485	824486	824487	824488	824489	GUIDELINE		
			Sample Date:	2010-08-27	2010-08-27	2010-08-27	2010-08-27	2010-08-27			
			Sample ID:	FM10-BD3	FM10-BD4	FM10-BD5	FM10-BD6	FM10-BD7			
PARAMETER	**UNITS**	**MRL**							**TYPE**	**LIMIT**	**UNITS**
PERCENT MOISTURE											
Moisture	%	0.1		3.5	3.4	6.0	4.5	3.2			
CCME Total Petroleum Hydrocarbons											
F1 (C6-C10)	ug/g	10		<10	<10	<10	<10	<10			
F2 (C10-C16)	ug/g	10		<10	12	<10	<10	<10			
F3 (C16-C34)	ug/g	20		<20	<20	<20	<20	<20			

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

REPORT OF ANALYSIS

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

Report Number: 1020913
Date: 2010-09-10
Date Submitted: 2010-08-30

Project: CD8177-FOX-M

P.O. Number:

Chain of Custody Number: **133354**

Matrix: Soil

			LAB ID:	824490					**GUIDELINE**	
			Sample Date:	2010-08-27						
			Sample ID:	FM10-BD8						
PARAMETER	**UNITS**	**MRL**							**TYPE**	**LIMIT**	**UNITS**
PERCENT MOISTURE											
Moisture	%	0.1	2.2								
CCME Total Petroleum Hydrocarbons											
F1 (C6-C10)	ug/g	10	<10								
F2 (C10-C16)	ug/g	10	<10								
F3 (C16-C34)	ug/g	20	<20								

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

REPORT OF ANALYSIS

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

Report Number: 1020913
Date: 2010-09-10
Date Submitted: 2010-08-30

Project: CD8177-FOX-M

P.O. Number:
Chain of Custody Number: 133354
Matrix: Soil

			LAB ID:	824475	824476	824477	824478	824479	GUIDELINE		
			Sample Date:	2010-08-27	2010-08-27	2010-08-27	2010-08-27	2010-08-27			
			Sample ID:	FM10-28WA	FM10-28WB	FM10-29WA	FM10-29WB	FM10-30WA			
PARAMETER	**UNITS**	**MRL**							**TYPE**	**LIMIT**	**UNITS**
Polychlorinated Biphenyls - PCBs											
Polychlorinated Biphenyls (PCBs)	ug/g	0.02		<0.2	<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:
824475: PCB MRL elevated due to matrix interference.

APPROVAL:
Mina Nasirai
Organic Lab Supervisor

REPORT OF ANALYSIS

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

Report Number: 1020913
Date: 2010-09-10
Date Submitted: 2010-08-30

Project: CD8177-FOX-M

P.O. Number:
Matrix: Soil

Chain of Custody Number: **133354**

			LAB ID:	824480	824481	824482	824483	824484	GUIDELINE		
			Sample Date:	2010-08-27	2010-08-27	2010-08-27	2010-08-27	2010-08-27			
			Sample ID:	FM10-30WB	FM10-31WA	FM10-31WB	FM10-BD1	FM10-BD2			
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

REPORT OF ANALYSIS

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

Report Number: 1020913
Date: 2010-09-10
Date Submitted: 2010-08-30

Project: CD8177-FOX-M

P.O. Number:
Matrix: Soil

Chain of Custody Number: **133354**

			LAB ID:	824485	824486	824487	824488	824489	**GUIDELINE**		
			Sample Date:	2010-08-27	2010-08-27	2010-08-27	2010-08-27	2010-08-27			
			Sample ID:	FM10-BD3	FM10-BD4	FM10-BD5	FM10-BD6	FM10-BD7			
PARAMETER	**UNITS**	**MRL**							**TYPE**	**LIMIT**	**UNITS**
Polychlorinated Biphenyls - PCBs											
Polychlorinated Biphenyls (PCBs)	ug/g	0.02		<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:
824485: PCB MRL elevated due to matrix interference.
824486: PCB MRL elevated due to matrix interference.
824487: PCB MRL elevated due to matrix interference.
824488: PCB MRL elevated due to matrix interference.
824489: PCB MRL elevated due to matrix interference.

APPROVAL:
Mina Nasirai
Organic Lab Supervisor

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

Report Number: 1020913
Date: 2010-09-10
Date Submitted: 2010-08-30

Project: CD8177-FOX-M

P.O. Number:
Matrix: Soil

Chain of Custody Number: **133354**

			LAB ID:	824490					**GUIDELINE**	
			Sample Date:	2010-08-27						
			Sample ID:	FM10-BD8						
PARAMETER	**UNITS**	**MRL**							**TYPE**	**LIMIT**	**UNITS**
Polychlorinated Biphenyls - PCBs											
Polychlorinated Biphenyls (PCBs)	ug/g	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

REPORT OF ANALYSIS

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

Report Number: 1020914
Date: 2010-09-09
Date Submitted: 2010-08-30

Project: CD8177-FOX-M

P.O. Number:

Chain of Custody Number: 133355

Matrix: Water

			LAB ID:	824532	824533	824535	824536	824537	GUIDELINE		
			Sample Date:	2010-08-28	2010-08-28	2010-08-28	2010-08-28	2010-08-28			
			Sample ID:	FM10-1W	FM10-2W	FM10-3W	FM10-4W	FM10-5W	ODWSOG		
PARAMETER	**UNITS**	**MRL**							**TYPE**	**LIMIT**	**UNITS**
Arsenic	mg/L	0.001		<0.005	<0.001	<0.005	<0.001	<0.005	IMAC	0.025	mg/L
Cadmium	mg/L	0.0001		<0.0001	0.0001	<0.0001	<0.0001	<0.0001	MAC	0.005	mg/L
Chromium	mg/L	0.001		0.009	0.003	0.008	0.006	0.026	MAC	0.05	mg/L
Cobalt	mg/L	0.0002		0.0014	<0.0002	<0.0002	<0.0002	0.0006			
Copper	mg/L	0.001		0.002	0.001	0.002	0.002	0.003	AO	1.0	mg/L
Lead	mg/L	0.001		<0.001	<0.001	<0.001	<0.001	<0.001	MAC	0.010	mg/L
Mercury	mg/L	0.0001		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	MAC	0.001	mg/L
Nickel	mg/L	0.005		0.006	<0.005	<0.005	0.007	0.026			
Zinc	mg/L	0.01		<0.01	0.04	<0.01	<0.01	<0.01	AO	5.0	mg/L

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

Comment:

824532: Arsenic MRL elevated due to matrix interference.

824535: Arsenic MRL elevated due to matrix interference.

824537: Arsenic MRL elevated due to matrix interference.

APPROVAL:

Ewan McRobbie
Inorganic Lab Supervisor

REPORT OF ANALYSIS

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

Report Number: 1020914
Date: 2010-09-09
Date Submitted: 2010-08-30

Project: CD8177-FOX-M

P.O. Number:
Matrix: Water

Chain of Custody Number: 133355

			LAB ID:	824538	824539	824540	824541	824542	GUIDELINE		
			Sample Date:	2010-08-28	2010-08-28	2010-08-28	2010-08-28	2010-08-28			
			Sample ID:	FM10-13W	FM10-15W	FM10-29W	FM10-30W	FM10-BDWI	ODWSOG		
PARAMETER	**UNITS**	**MRL**							**TYPE**	**LIMIT**	**UNITS**
Arsenic	mg/L	0.001		<0.001	<0.001	<0.005	<0.01	<0.001	IMAC	0.025	mg/L
Cadmium	mg/L	0.0001		0.0001	<0.0001	<0.0001	<0.0001	<0.0001	MAC	0.005	mg/L
Chromium	mg/L	0.001		0.004	0.004	0.013	0.002	0.005	MAC	0.05	mg/L
Cobalt	mg/L	0.0002		0.0005	0.0004	0.0003	0.0002	<0.0002			
Copper	mg/L	0.001		0.003	0.002	0.002	0.001	0.002	AO	1.0	mg/L
Lead	mg/L	0.001		<0.001	<0.001	<0.001	<0.001	<0.001	MAC	0.010	mg/L
Mercury	mg/L	0.0001		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	MAC	0.001	mg/L
Nickel	mg/L	0.005		0.010	0.010	0.006	0.014	0.006			
Zinc	mg/L	0.01		<0.01	<0.01	<0.01	<0.01	0.04	AO	5.0	mg/L

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

Comment:

824540: Arsenic MRL elevated due to matrix interference.
824541: Arsenic MRL elevated due to matrix interference.

APPROVAL: _____
Ewan McRobbie
Inorganic Lab Supervisor

REPORT OF ANALYSIS

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

Report Number: 1020914
Date: 2010-09-09
Date Submitted: 2010-08-30

Project: CD8177-FOX-M

P.O. Number:

Chain of Custody Number: **133355**

Matrix: Water

			LAB ID:	824543					**GUIDELINE**	
			Sample Date:	2010-08-28						
			Sample ID:	FM10-FB					ODWSOG	
PARAMETER	**UNITS**	**MRL**							**TYPE**	**LIMIT**	**UNITS**
Arsenic	mg/L	0.001	<0.001						IMAC	0.025	mg/L
Cadmium	mg/L	0.0001	<0.0001						MAC	0.005	mg/L
Chromium	mg/L	0.001	<0.001						MAC	0.05	mg/L
Cobalt	mg/L	0.0002	<0.0002								
Copper	mg/L	0.001	0.009						AO	1.0	mg/L
Lead	mg/L	0.001	<0.001						MAC	0.010	mg/L
Mercury	mg/L	0.0001	<0.0001						MAC	0.001	mg/L
Nickel	mg/L	0.005	<0.005								
Zinc	mg/L	0.01	<0.01						AO	5.0	mg/L

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

Comment:

APPROVAL:

Ewan McRobbie
Inorganic Lab Supervisor

REPORT OF ANALYSIS

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

Report Number: 1020914
Date: 2010-09-09
Date Submitted: 2010-08-30

Project: CD8177-FOX-M

P.O. Number:
Matrix: Water

Chain of Custody Number: **133355**

			LAB ID:	824532	824533	824535	824536	824537	GUIDELINE		
			Sample Date:	2010-08-28	2010-08-28	2010-08-28	2010-08-28	2010-08-28			
			Sample ID:	FM10-1W	FM10-2W	FM10-3W	FM10-4W	FM10-5W	ODWSOG		
PARAMETER	**UNITS**	**MRL**							**TYPE**	**LIMIT**	**UNITS**
CCME Total Petroleum Hydrocarbons											
F1 (C6-C10)	mg/L	0.1		<0.1	<0.1	<0.1	<0.1	<0.1			
F2 (C10-C16)	mg/L	0.1		<0.1	<0.1	<0.1	<0.1	<0.1			
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

REPORT OF ANALYSIS

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

Report Number: 1020914
Date: 2010-09-09
Date Submitted: 2010-08-30

Project: CD8177-FOX-M

P.O. Number:
Matrix: Water

Chain of Custody Number: 133355

			LAB ID:	824538	824539	824540	824541	824542	GUIDELINE		
			Sample Date:	2010-08-28	2010-08-28	2010-08-28	2010-08-28	2010-08-28			
			Sample ID:	FM10-13W	FM10-15W	FM10-29W	FM10-30W	FM10-BDWI	ODWSOG		
PARAMETER	**UNITS**	**MRL**							**TYPE**	**LIMIT**	**UNITS**
CCME Total Petroleum Hydrocarbons											
F1 (C6-C10)	mg/L	0.1		<0.1	<0.1	<0.1	<0.1	<0.1			
F2 (C10-C16)	mg/L	0.1		<0.1	<0.1	<0.1	<0.1	<0.1			
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
Québec, QC
G1P 2J7
Attention: **Mr. Jean-Pierre Pelletier**

Report Number: 1020914
Date: 2010-09-09
Date Submitted: 2010-08-30

Project: CD8177-FOX-M

P.O. Number:

Chain of Custody Number: **133355**

Matrix: Water

			LAB ID:	824543	824544				**GUIDELINE**	
			Sample Date:	2010-08-28	2010-08-28					
			Sample ID:	FM10-FB	FM10-TB				ODWSOG	
PARAMETER	**UNITS**	**MRL**							**TYPE**	**LIMIT**	**UNITS**
CCME Total Petroleum Hydrocarbons											
F1 (C6-C10)	mg/L	0.1		<0.1	<0.1						
F2 (C10-C16)	mg/L	0.1		<0.1							
F3 (C16-C34)	mg/L	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:

824544: F2-F3 removed Sept 1-No Bottle submitted

APPROVAL:

Mina Nasirai
Organic Lab Supervisor

REPORT OF ANALYSIS

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

Report Number: 1020914
Date: 2010-09-09
Date Submitted: 2010-08-30

Project: CD8177-FOX-M

P.O. Number:
Matrix: Water

Chain of Custody Number: 133355

			LAB ID:	824532	824533	824535	824536	824537	GUIDELINE		
			Sample Date:	2010-08-28	2010-08-28	2010-08-28	2010-08-28	2010-08-28			
			Sample ID:	FM10-1W	FM10-2W	FM10-3W	FM10-4W	FM10-5W	ODWSOG		
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	IMAC	3	ug/L

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

REPORT OF ANALYSIS

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

Report Number: 1020914
Date: 2010-09-09
Date Submitted: 2010-08-30

Project: CD8177-FOX-M

P.O. Number:
Matrix: Water

Chain of Custody Number: 133355

			LAB ID:	824538	824539	824540	824541	824542	GUIDELINE		
			Sample Date:	2010-08-28	2010-08-28	2010-08-28	2010-08-28	2010-08-28			
			Sample ID:	FM10-13W	FM10-15W	FM10-29W	FM10-30W	FM10-BDWI	ODWSOG		
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	IMAC	3	ug/L

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

REPORT OF ANALYSIS

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

Report Number: 1020914
Date: 2010-09-09
Date Submitted: 2010-08-30

Project: CD8177-FOX-M

P.O. Number:

Chain of Custody Number: 133355

Matrix: Water

			LAB ID:	824543					**GUIDELINE**	
			Sample Date:	2010-08-28						
			Sample ID:	FM10-FB					ODWSOG	
PARAMETER	**UNITS**	**MRL**							**TYPE**	**LIMIT**	**UNITS**
Polychlorinated Biphenyls - PCBs											
Polychlorinated Biphenyls (PCBs)	ug/L	0.1	<0.1						IMAC	3	ug/L

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

Your P.O. #: CD8177
Your Project #: FOX-M 2010 LANDFILL MONITORING
Site: MALL BEACH, UN
Your C.O.C. #: A020193

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

Report Date: 2010/09/07

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B0B9577
Received: 2010/08/30, 11:30

Sample Matrix: Soil
Samples Received: 8

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Petroleum Hydro. CCME F1 & BTEX in Soil	8	2010/09/02	2010/09/03	CAM SOP-00315	CCME CWS
Petroleum Hydrocarbons F2-F4 in Soil	8	2010/09/02	2010/09/03	CAM SOP-00316	CCME CWS
Acid Extr. Metals (aqua regia) by ICPMS	8	2010/09/03	2010/09/03	CAM SOP-00447	EPA 6020
Moisture	8	N/A	2010/09/02	CAM SOP-00445	McKeague 2nd ed 1978
Polychlorinated Biphenyl in Soil	8	2010/09/02	2010/09/03	CAM SOP-00309	SW846 8082

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Petroleum Hydro. CCME F1 & BTEX in Water	1	N/A	2010/09/03	CAM SOP-00315	CCME CWS
Petroleum Hydrocarbons F2-F4 in Water	1	2010/09/02	2010/09/03	CAM SOP-00316	CCME Hydrocarbons
Mercury in Water by CVAA	1	2010/09/03	2010/09/03	CAM SOP-00453	EPA 7470
Total Metals Analysis by ICPMS	1	N/A	2010/09/03	CAM SOP-00447	EPA 6020
Polychlorinated Biphenyl in Water	1	2010/09/02	2010/09/03	CAM SOP-00309	SW846 8082

* 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.

JULIE CLEMENT, Ottawa Customer Service
Email: Julie.Clement@maxxamanalytics.com
Phone# (613) 274-3549

==========

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

Total cover pages: 1

Maxxam Job #: B0B9577
Report Date: 2010/09/07

Sila Remediation
Client Project #: FOX-M 2010 LANDFILL MONITORING
Project name: MALL BEACH, UN
Your P.O. #: CD8177

RESULTS OF ANALYSES OF SOIL

Maxxam ID		GZ7766	GZ7767	GZ7768	GZ7769	GZ7770	GZ7771	GZ7772		
Sampling Date		2010/08/25	2010/08/25	2010/08/25	2010/08/26	2010/08/26	2010/08/26	2010/08/27		
COC Number		A020193	A020193	A020193	A020193	A020193	A020193	A020193		
	Units	**FM10-14A**	**FM10-18A**	**FM10-1A**	**FM10-12WA**	**FM10-5WB**	**FM10-12A**	**FM10-23WB**	**RDL**	**QC Batch**
Inorganics										
Moisture	%	25	2	4	4	9	10	4	1	2254528

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		GZ7773		
Sampling Date		2010/08/27		
COC Number		A020193		
	Units	**FM10-29WA**	**RDL**	**QC Batch**
Inorganics				
Moisture	%	6	1	2254528

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B0B9577
Report Date: 2010/09/07

Sila Remediation
Client Project #: FOX-M 2010 LANDFILL MONITORING
Project name: MALL BEACH, UN
Your P.O. #: CD8177

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		GZ7766	GZ7767	GZ7768		GZ7769		
Sampling Date		2010/08/25	2010/08/25	2010/08/25		2010/08/26		
COC Number		A020193	A020193	A020193		A020193		
	Units	**FM10-14A**	**FM10-18A**	**FM10-1A**	**QC Batch**	**FM10-12WA**	**RDL**	**QC Batch**
Metals								
Acid Extractable Arsenic (As)	ug/g	3	3	2	2255356	2	1	2255353
Acid Extractable Cadmium (Cd)	ug/g	ND	ND	0.1	2255356	ND	0.1	2255353
Acid Extractable Chromium (Cr)	ug/g	7	10	8	2255356	8	1	2255353
Acid Extractable Cobalt (Co)	ug/g	1.4	1.9	1.4	2255356	1.4	0.1	2255353
Acid Extractable Copper (Cu)	ug/g	32	19	23	2255356	13	0.5	2255353
Acid Extractable Lead (Pb)	ug/g	5	5	7	2255356	27	1	2255353
Acid Extractable Nickel (Ni)	ug/g	6.9	8.4	5.1	2255356	6.5	2.5	2255353
Acid Extractable Zinc (Zn)	ug/g	16	16	22	2255356	13	5	2255353
Acid Extractable Mercury (Hg)	ug/g	ND	ND	ND	2255356	ND	0.05	2255353

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

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B0B9577
Report Date: 2010/09/07

Sila Remediation
Client Project #: FOX-M 2010 LANDFILL MONITORING
Project name: MALL BEACH, UN
Your P.O. #: CD8177

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		GZ7770	GZ7771	GZ7772	GZ7773		
Sampling Date		2010/08/26	2010/08/26	2010/08/27	2010/08/27		
COC Number		A020193	A020193	A020193	A020193		
	Units	**FM10-5WB**	**FM10-12A**	**FM10-23WB**	**FM10-29WA**	**RDL**	**QC Batch**
Metals							
Acid Extractable Arsenic (As)	ug/g	1	3	4	2	1	2255356
Acid Extractable Cadmium (Cd)	ug/g	ND	0.1	ND	ND	0.1	2255356
Acid Extractable Chromium (Cr)	ug/g	8	11	8	8	1	2255356
Acid Extractable Cobalt (Co)	ug/g	1.5	2.0	1.6	1.6	0.1	2255356
Acid Extractable Copper (Cu)	ug/g	18	17	11	14	0.5	2255356
Acid Extractable Lead (Pb)	ug/g	2	9	3	3	1	2255356
Acid Extractable Nickel (Ni)	ug/g	6.2	9.4	7.6	7.7	2.5	2255356
Acid Extractable Zinc (Zn)	ug/g	14	29	11	15	5	2255356
Acid Extractable Mercury (Hg)	ug/g	ND	ND	ND	ND	0.05	2255356

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

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B0B9577
Report Date: 2010/09/07

Sila Remediation
Client Project #: FOX-M 2010 LANDFILL MONITORING
Project name: MALL BEACH, UN
Your P.O. #: CD8177

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		GZ7766	GZ7767	GZ7768	GZ7769	GZ7770	GZ7771		
Sampling Date		2010/08/25	2010/08/25	2010/08/25	2010/08/26	2010/08/26	2010/08/26		
COC Number		A020193	A020193	A020193	A020193	A020193	A020193		
	Units	**FM10-14A**	**FM10-18A**	**FM10-1A**	**FM10-12WA**	**FM10-5WB**	**FM10-12A**	**RDL**	**QC Batch**
BTEX & F1 Hydrocarbons									
Benzene	ug/g	ND	ND	ND	ND	ND	ND	0.02	2254597
Toluene	ug/g	ND	ND	ND	ND	ND	ND	0.02	2254597
Ethylbenzene	ug/g	ND	ND	ND	ND	ND	ND	0.02	2254597
o-Xylene	ug/g	ND	ND	ND	ND	ND	ND	0.02	2254597
p+m-Xylene	ug/g	ND	ND	ND	ND	ND	ND	0.04	2254597
Total Xylenes	ug/g	ND	ND	ND	ND	ND	ND	0.04	2254597
F1 (C6-C10)	ug/g	ND	ND	ND	ND	ND	ND	10	2254597
F1 (C6-C10) - BTEX	ug/g	ND	ND	ND	ND	ND	ND	10	2254597
F2-F4 Hydrocarbons									
F2 (C10-C16 Hydrocarbons)	ug/g	ND	ND	ND	ND	ND	ND	10	2254580
F3 (C16-C34 Hydrocarbons)	ug/g	28	ND	19	26	ND	ND	10	2254580
Reached Baseline at C50	ug/g	Yes	Yes	Yes	Yes	Yes	Yes		2254580
Surrogate Recovery (%)									
1,4-Difluorobenzene	%	100	98	99	101	97	98		2254597
4-Bromofluorobenzene	%	101	101	101	100	101	101		2254597
D10-Ethylbenzene	%	114	100	102	109	103	111		2254597
D4-1,2-Dichloroethane	%	100	105	105	100	109	101		2254597
o-Terphenyl	%	88	92	88	97	93	86		2254580

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

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B0B9577
Report Date: 2010/09/07

Sila Remediation
Client Project #: FOX-M 2010 LANDFILL MONITORING
Project name: MALL BEACH, UN
Your P.O. #: CD8177

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		GZ7772	GZ7773		
Sampling Date		2010/08/27	2010/08/27		
COC Number		A020193	A020193		
	Units	**FM10-23WB**	**FM10-29WA**	**RDL**	**QC Batch**
BTEX & F1 Hydrocarbons					
Benzene	ug/g	ND	ND	0.02	2254597
Toluene	ug/g	ND	ND	0.02	2254597
Ethylbenzene	ug/g	ND	ND	0.02	2254597
o-Xylene	ug/g	ND	ND	0.02	2254597
p+m-Xylene	ug/g	ND	ND	0.04	2254597
Total Xylenes	ug/g	ND	ND	0.04	2254597
F1 (C6-C10)	ug/g	ND	ND	10	2254597
F1 (C6-C10) - BTEX	ug/g	ND	ND	10	2254597
F2-F4 Hydrocarbons					
F2 (C10-C16 Hydrocarbons)	ug/g	ND	ND	10	2254580
F3 (C16-C34 Hydrocarbons)	ug/g	ND	ND	10	2254580
Reached Baseline at C50	ug/g	Yes	Yes		2254580
Surrogate Recovery (%)					
1,4-Difluorobenzene	%	93	101		2254597
4-Bromofluorobenzene	%	103	101		2254597
D10-Ethylbenzene	%	98	105		2254597
D4-1,2-Dichloroethane	%	115	101		2254597
o-Terphenyl	%	85	86		2254580

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

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B0B9577
Report Date: 2010/09/07

Sila Remediation
Client Project #: FOX-M 2010 LANDFILL MONITORING
Project name: MALL BEACH, UN
Your P.O. #: CD8177

POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

Maxxam ID		GZ7766	GZ7767	GZ7768	GZ7769	GZ7770	GZ7771		
Sampling Date		2010/08/25	2010/08/25	2010/08/25	2010/08/26	2010/08/26	2010/08/26		
COC Number		A020193	A020193	A020193	A020193	A020193	A020193		
	Units	**FM10-14A**	**FM10-18A**	**FM10-1A**	**FM10-12WA**	**FM10-5WB**	**FM10-12A**	**RDL**	**QC Batch**
PCBs									
Total PCB	ug/g	0.07	ND	ND	ND	ND	ND	0.01	2254438
Surrogate Recovery (%)									
2,4,5,6-Tetrachloro-m-xylene	%	77	65	55	63	47	50		2254438
Decachlorobiphenyl	%	115	101	95	97	101	100		2254438

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

Maxxam ID		GZ7772	GZ7773		
Sampling Date		2010/08/27	2010/08/27		
COC Number		A020193	A020193		
	Units	**FM10-23WB**	**FM10-29WA**	**RDL**	**QC Batch**
PCBs					
Total PCB	ug/g	ND	ND	0.01	2254438
Surrogate Recovery (%)					
2,4,5,6-Tetrachloro-m-xylene	%	53	54		2254438
Decachlorobiphenyl	%	101	101		2254438

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

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B0B9577
Report Date: 2010/09/07

Sila Remediation
Client Project #: FOX-M 2010 LANDFILL MONITORING
Project name: MALL BEACH, UN
Your P.O. #: CD8177

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Maxxam ID		GZ7774		
Sampling Date		2010/08/26		
COC Number		A020193		
	Units	**FM10-5W**	**RDL**	**QC Batch**
Metals				
Mercury (Hg)	mg/L	ND	0.0001	2255149
Total Arsenic (As)	ug/L	ND	1	2254655
Total Cadmium (Cd)	ug/L	0.1	0.1	2254655
Total Chromium (Cr)	ug/L	500	5	2254655
Total Cobalt (Co)	ug/L	ND	0.5	2254655
Total Copper (Cu)	ug/L	10	1	2254655
Total Lead (Pb)	ug/L	0.5	0.5	2254655
Total Nickel (Ni)	ug/L	36	1	2254655
Total Zinc (Zn)	ug/L	6	5	2254655

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

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B0B9577
Report Date: 2010/09/07

Sila Remediation
Client Project #: FOX-M 2010 LANDFILL MONITORING
Project name: MALL BEACH, UN
Your P.O. #: CD8177

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		GZ7774		
Sampling Date		2010/08/26		
COC Number		A020193		
	Units	**FM10-5W**	**RDL**	**QC Batch**
BTEX & F1 Hydrocarbons				
Benzene	ug/L	ND	0.2	2254883
Toluene	ug/L	ND	0.2	2254883
Ethylbenzene	ug/L	ND	0.2	2254883
o-Xylene	ug/L	ND	0.2	2254883
p+m-Xylene	ug/L	ND	0.4	2254883
Total Xylenes	ug/L	ND	0.4	2254883
F1 (C6-C10)	ug/L	ND	100	2254883
F1 (C6-C10) - BTEX	ug/L	ND	100	2254883
F2-F4 Hydrocarbons				
F2 (C10-C16 Hydrocarbons)	ug/L	ND	1000	2255004
F3 (C16-C34 Hydrocarbons)	ug/L	ND	1000	2255004
Reached Baseline at C50	ug/L	Yes		2255004
Diesel (C11-C32)	ug/L	ND	100	2255004
Surrogate Recovery (%)				
1,4-Difluorobenzene	%	99		2254883
4-Bromofluorobenzene	%	96		2254883
D10-Ethylbenzene	%	101		2254883
D4-1,2-Dichloroethane	%	115		2254883
o-Terphenyl	%	113		2255004

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

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B0B9577
Report Date: 2010/09/07

Sila Remediation
Client Project #: FOX-M 2010 LANDFILL MONITORING
Project name: MALL BEACH, UN
Your P.O. #: CD8177

POLYCHLORINATED BIPHENYLS BY GC-ECD (WATER)

Maxxam ID		GZ7774		
Sampling Date		2010/08/26		
COC Number		A020193		
	Units	**FM10-5W**	**RDL**	**QC Batch**
PCBs				
Total PCB	ug/L	ND	0.05	2254650
Surrogate Recovery (%)				
2,4,5,6-Tetrachloro-m-xylene	%	32 (1)		2254650
Decachlorobiphenyl	%	56		2254650

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
(1) Surrogate recovery was below the lower control limit. This may represent a low bias in some results.

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B0B9577
Report Date: 2010/09/07

Sila Remediation
Client Project #: FOX-M 2010 LANDFILL MONITORING
Project name: MALL BEACH, UN
Your P.O. #: CD8177

Package 1	7.7°C

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

GENERAL COMMENTS

Sample GZ7774-01: Mercury Analysis: Samples were submitted in unpreserved bottles and analyzed by client request. Results may be biased low due to improper preservation. Results are not valid for regulatory compliance.
F2-F4 Analysis: Due to limited amount of sample available for analyses. a smaller than usual portion of the sample was used . Reporting limits were adjusted accordingly

Results relate only to the items tested.

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Sila Remediation
Attention: Jean-Pierre Pelletier
Client Project #: FOX-M 2010 LANDFILL MONITORING
P.O. #: CD8177
Project name: MALL BEACH, UN

Quality Assurance Report

Maxxam Job Number: MB0B9577

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
2254438	LPG	Matrix Spike						
		[GZ7772-02]	2,4,5,6-Tetrachloro-m-xylene	2010/09/03		57	%	40 - 130
			Decachlorobiphenyl	2010/09/03		123	%	40 - 130
			Total PCB	2010/09/03		123	%	30 - 130
		Spiked Blank	2,4,5,6-Tetrachloro-m-xylene	2010/09/03		87	%	40 - 130
			Decachlorobiphenyl	2010/09/03		124	%	40 - 130
			Total PCB	2010/09/03		108	%	30 - 130
		Method Blank	2,4,5,6-Tetrachloro-m-xylene	2010/09/03		86	%	40 - 130
			Decachlorobiphenyl	2010/09/03		118	%	40 - 130
			Total PCB	2010/09/03	ND, RDL=0.01		ug/g	
		RPD [GZ7772-02]	Total PCB	2010/09/03	NC		%	50
2254528	COP	RPD	Moisture	2010/09/02	11.8		%	20
2254580	ZZ	Matrix Spike	o-Terphenyl	2010/09/03		87	%	30 - 130
			F2 (C10-C16 Hydrocarbons)	2010/09/03		79	%	60 - 130
			F3 (C16-C34 Hydrocarbons)	2010/09/03		79	%	60 - 130
		Spiked Blank	o-Terphenyl	2010/09/03		88	%	30 - 130
			F2 (C10-C16 Hydrocarbons)	2010/09/03		79	%	60 - 130
			F3 (C16-C34 Hydrocarbons)	2010/09/03		79	%	60 - 130
		Method Blank	o-Terphenyl	2010/09/03		99	%	30 - 130
			F2 (C10-C16 Hydrocarbons)	2010/09/03	ND, RDL=10		ug/g	
			F3 (C16-C34 Hydrocarbons)	2010/09/03	ND, RDL=10		ug/g	
		RPD	F2 (C10-C16 Hydrocarbons)	2010/09/03	NC		%	50
			F3 (C16-C34 Hydrocarbons)	2010/09/03	NC		%	50
2254597	DCA	Matrix Spike	1,4-Difluorobenzene	2010/09/03		98	%	60 - 140
			4-Bromofluorobenzene	2010/09/03		100	%	60 - 140
			D10-Ethylbenzene	2010/09/03		101	%	30 - 130
			D4-1,2-Dichloroethane	2010/09/03		104	%	60 - 140
			Benzene	2010/09/03		85	%	60 - 140
			Toluene	2010/09/03		90	%	60 - 140
			Ethylbenzene	2010/09/03		93	%	60 - 140
			o-Xylene	2010/09/03		100	%	60 - 140
			p+m-Xylene	2010/09/03		92	%	60 - 140
			F1 (C6-C10)	2010/09/03		88	%	60 - 140
		Spiked Blank	1,4-Difluorobenzene	2010/09/03		101	%	60 - 140
			4-Bromofluorobenzene	2010/09/03		100	%	60 - 140
			D10-Ethylbenzene	2010/09/03		103	%	30 - 130
			D4-1,2-Dichloroethane	2010/09/03		101	%	60 - 140
			Benzene	2010/09/03		84	%	60 - 140
			Toluene	2010/09/03		90	%	60 - 140
			Ethylbenzene	2010/09/03		95	%	60 - 140
			o-Xylene	2010/09/03		96	%	60 - 140
			p+m-Xylene	2010/09/03		92	%	60 - 140
			F1 (C6-C10)	2010/09/03		93	%	60 - 140
		Method Blank	1,4-Difluorobenzene	2010/09/03		100	%	60 - 140
			4-Bromofluorobenzene	2010/09/03		100	%	60 - 140
			D10-Ethylbenzene	2010/09/03		99	%	30 - 130
			D4-1,2-Dichloroethane	2010/09/03		102	%	60 - 140
			Benzene	2010/09/03	ND, RDL=0.02		ug/g	
			Toluene	2010/09/03	ND, RDL=0.02		ug/g	
			Ethylbenzene	2010/09/03	ND, RDL=0.02		ug/g	
			o-Xylene	2010/09/03	ND, RDL=0.02		ug/g	
			p+m-Xylene	2010/09/03	ND, RDL=0.04		ug/g	
			Total Xylenes	2010/09/03	ND, RDL=0.04		ug/g	
			F1 (C6-C10)	2010/09/03	ND, RDL=10		ug/g	
			F1 (C6-C10) - BTEX	2010/09/03	ND, RDL=10		ug/g	

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Sila Remediation
Attention: Jean-Pierre Pelletier
Client Project #: FOX-M 2010 LANDFILL MONITORING
P.O. #: CD8177
Project name: MALL BEACH, UN

Quality Assurance Report (Continued)

Maxxam Job Number: MB0B9577

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
2254597	DCA	RPD	Benzene	2010/09/03	NC		%	50
			Toluene	2010/09/03	NC		%	50
			Ethylbenzene	2010/09/03	NC		%	50
			o-Xylene	2010/09/03	NC		%	50
			p+m-Xylene	2010/09/03	NC		%	50
			Total Xylenes	2010/09/03	NC		%	50
			F1 (C6-C10)	2010/09/03	NC		%	50
			F1 (C6-C10) - BTEX	2010/09/03	NC		%	50
2254650	JZ	Matrix Spike	2,4,5,6-Tetrachloro-m-xylene	2010/09/03		30 (1)	%	40 - 130
			Decachlorobiphenyl	2010/09/03		51	%	40 - 130
			Total PCB	2010/09/03		61	%	30 - 130
		Spiked Blank	2,4,5,6-Tetrachloro-m-xylene	2010/09/03		41 (1)	%	40 - 130
			Decachlorobiphenyl	2010/09/03		66	%	40 - 130
			Total PCB	2010/09/03		74	%	30 - 130
		RPD	Total PCB	2010/09/03	10.9		%	40
		Method Blank	2,4,5,6-Tetrachloro-m-xylene	2010/09/03		33 (1)	%	40 - 130
			Decachlorobiphenyl	2010/09/03		55	%	40 - 130
			Total PCB	2010/09/03	ND, RDL=0.05		ug/L	
2254655	JBW	Matrix Spike	Total Arsenic (As)	2010/09/03		101	%	80 - 120
			Total Cadmium (Cd)	2010/09/03		103	%	80 - 120
			Total Chromium (Cr)	2010/09/03		97	%	80 - 120
			Total Cobalt (Co)	2010/09/03		97	%	80 - 120
			Total Copper (Cu)	2010/09/03		96	%	80 - 120
			Total Lead (Pb)	2010/09/03		95	%	80 - 120
			Total Nickel (Ni)	2010/09/03		96	%	80 - 120
			Total Zinc (Zn)	2010/09/03		99	%	80 - 120
		Spiked Blank	Total Arsenic (As)	2010/09/03		100	%	85 - 115
			Total Cadmium (Cd)	2010/09/03		105	%	85 - 116
			Total Chromium (Cr)	2010/09/03		99	%	85 - 115
			Total Cobalt (Co)	2010/09/03		100	%	85 - 115
			Total Copper (Cu)	2010/09/03		100	%	85 - 115
			Total Lead (Pb)	2010/09/03		99	%	85 - 115
			Total Nickel (Ni)	2010/09/03		98	%	85 - 115
			Total Zinc (Zn)	2010/09/03		102	%	85 - 115
		Method Blank	Total Arsenic (As)	2010/09/03	ND, RDL=1		ug/L	
			Total Cadmium (Cd)	2010/09/03	ND, RDL=0.1		ug/L	
			Total Chromium (Cr)	2010/09/03	ND, RDL=5		ug/L	
			Total Cobalt (Co)	2010/09/03	ND, RDL=0.5		ug/L	
			Total Copper (Cu)	2010/09/03	ND, RDL=1		ug/L	
			Total Lead (Pb)	2010/09/03	ND, RDL=0.5		ug/L	
			Total Nickel (Ni)	2010/09/03	ND, RDL=1		ug/L	
			Total Zinc (Zn)	2010/09/03	ND, RDL=5		ug/L	
		RPD	Total Arsenic (As)	2010/09/03	NC		%	25
			Total Cadmium (Cd)	2010/09/03	NC		%	25
			Total Chromium (Cr)	2010/09/03	NC		%	25
			Total Cobalt (Co)	2010/09/03	NC		%	25
			Total Copper (Cu)	2010/09/03	NC		%	25
			Total Lead (Pb)	2010/09/03	NC		%	25
			Total Nickel (Ni)	2010/09/03	NC		%	25
			Total Zinc (Zn)	2010/09/03	NC		%	25
2254883	DCA	Matrix Spike	1,4-Difluorobenzene	2010/09/03		97	%	70 - 130
			4-Bromofluorobenzene	2010/09/03		101	%	70 - 130
			D10-Ethylbenzene	2010/09/03		109	%	70 - 130
			D4-1,2-Dichloroethane	2010/09/03		111	%	70 - 130
			Benzene	2010/09/03		106	%	70 - 130

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Sila Remediation
Attention: Jean-Pierre Pelletier
Client Project #: FOX-M 2010 LANDFILL MONITORING
P.O. #: CD8177
Project name: MALL BEACH, UN

Quality Assurance Report (Continued)

Maxxam Job Number: MB0B9577

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
2254883	DCA	Matrix Spike	Toluene	2010/09/03		111	%	70 - 130
			Ethylbenzene	2010/09/03		119	%	70 - 130
			o-Xylene	2010/09/03		119	%	70 - 130
			p+m-Xylene	2010/09/03		114	%	70 - 130
			F1 (C6-C10)	2010/09/03		79	%	70 - 130
		Spiked Blank	1,4-Difluorobenzene	2010/09/03		94	%	70 - 130
			4-Bromofluorobenzene	2010/09/03		101	%	70 - 130
			D10-Ethylbenzene	2010/09/03		110	%	70 - 130
			D4-1,2-Dichloroethane	2010/09/03		121	%	70 - 130
			Benzene	2010/09/03		114	%	70 - 130
			Toluene	2010/09/03		115	%	70 - 130
			Ethylbenzene	2010/09/03		121	%	70 - 130
			o-Xylene	2010/09/03		124	%	70 - 130
			p+m-Xylene	2010/09/03		117	%	70 - 130
			F1 (C6-C10)	2010/09/03		100	%	70 - 130
		Method Blank	1,4-Difluorobenzene	2010/09/03		100	%	70 - 130
			4-Bromofluorobenzene	2010/09/03		92	%	70 - 130
			D10-Ethylbenzene	2010/09/03		98	%	70 - 130
			D4-1,2-Dichloroethane	2010/09/03		110	%	70 - 130
			Benzene	2010/09/03	ND, RDL=0.2		ug/L	
			Toluene	2010/09/03	ND, RDL=0.2		ug/L	
			Ethylbenzene	2010/09/03	ND, RDL=0.2		ug/L	
			o-Xylene	2010/09/03	ND, RDL=0.2		ug/L	
			p+m-Xylene	2010/09/03	ND, RDL=0.4		ug/L	
			Total Xylenes	2010/09/03	ND, RDL=0.4		ug/L	
			F1 (C6-C10)	2010/09/03	ND, RDL=100		ug/L	
			F1 (C6-C10) - BTEX	2010/09/03	ND, RDL=100		ug/L	
		RPD	Benzene	2010/09/03	NC		%	40
			Toluene	2010/09/03	NC		%	40
			Ethylbenzene	2010/09/03	NC		%	40
			o-Xylene	2010/09/03	7.0		%	40
			p+m-Xylene	2010/09/03	6.4		%	40
			Total Xylenes	2010/09/03	6.6		%	40
			F1 (C6-C10)	2010/09/03	NC		%	40
			F1 (C6-C10) - BTEX	2010/09/03	NC		%	40
2255004	DPO	Matrix Spike	o-Terphenyl	2010/09/02		112	%	30 - 130
			F2 (C10-C16 Hydrocarbons)	2010/09/02		98	%	60 - 130
			F3 (C16-C34 Hydrocarbons)	2010/09/02		98	%	60 - 130
			Diesel (C11-C32)	2010/09/02		98	%	30 - 130
		Spiked Blank	o-Terphenyl	2010/09/02		114	%	30 - 130
			F2 (C10-C16 Hydrocarbons)	2010/09/02		101	%	60 - 130
			F3 (C16-C34 Hydrocarbons)	2010/09/02		101	%	60 - 130
			Diesel (C11-C32)	2010/09/02		101	%	30 - 130
		Method Blank	o-Terphenyl	2010/09/03		114	%	30 - 130
			F2 (C10-C16 Hydrocarbons)	2010/09/03	ND, RDL=100		ug/L	
			F3 (C16-C34 Hydrocarbons)	2010/09/03	ND, RDL=100		ug/L	
			Diesel (C11-C32)	2010/09/03	ND, RDL=100		ug/L	
		RPD	F2 (C10-C16 Hydrocarbons)	2010/09/03	NC		%	50
			F3 (C16-C34 Hydrocarbons)	2010/09/03	NC		%	50
2255149	MC	Matrix Spike	Mercury (Hg)	2010/09/03		105	%	75 - 125
		Spiked Blank	Mercury (Hg)	2010/09/03		106	%	80 - 120
		Method Blank	Mercury (Hg)	2010/09/03	ND, RDL=0.0001		mg/L	
		RPD	Mercury (Hg)	2010/09/03	NC		%	25
2255353	VIV	Matrix Spike	Acid Extractable Arsenic (As)	2010/09/03		97	%	75 - 125
			Acid Extractable Cadmium (Cd)	2010/09/03		104	%	75 - 125

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Sila Remediation
Attention: Jean-Pierre Pelletier
Client Project #: FOX-M 2010 LANDFILL MONITORING
P.O. #: CD8177
Project name: MALL BEACH, UN

Quality Assurance Report (Continued)

Maxxam Job Number: MB0B9577

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
2255353	VIV	Matrix Spike	Acid Extractable Chromium (Cr)	2010/09/03		97	%	75 - 125
			Acid Extractable Cobalt (Co)	2010/09/03		93	%	75 - 125
			Acid Extractable Copper (Cu)	2010/09/03		86	%	75 - 125
			Acid Extractable Lead (Pb)	2010/09/03		93	%	75 - 125
			Acid Extractable Nickel (Ni)	2010/09/03		91	%	75 - 125
			Acid Extractable Zinc (Zn)	2010/09/03		NC	%	75 - 125
			Acid Extractable Mercury (Hg)	2010/09/03		96	%	75 - 125
		QC Standard	Acid Extractable Arsenic (As)	2010/09/03		96	%	75 - 125
			Acid Extractable Cadmium (Cd)	2010/09/03		101	%	75 - 125
			Acid Extractable Chromium (Cr)	2010/09/03		99	%	75 - 125
			Acid Extractable Cobalt (Co)	2010/09/03		97	%	75 - 125
			Acid Extractable Copper (Cu)	2010/09/03		100	%	75 - 125
			Acid Extractable Lead (Pb)	2010/09/03		97	%	75 - 125
			Acid Extractable Nickel (Ni)	2010/09/03		99	%	75 - 125
			Acid Extractable Zinc (Zn)	2010/09/03		100	%	75 - 125
			Acid Extractable Mercury (Hg)	2010/09/03		94	%	75 - 125
		Method Blank	Acid Extractable Arsenic (As)	2010/09/03	ND, RDL=1		ug/g	
			Acid Extractable Cadmium (Cd)	2010/09/03	ND, RDL=0.1		ug/g	
			Acid Extractable Chromium (Cr)	2010/09/03	ND, RDL=1		ug/g	
			Acid Extractable Cobalt (Co)	2010/09/03	ND, RDL=0.1		ug/g	
			Acid Extractable Copper (Cu)	2010/09/03	ND, RDL=0.5		ug/g	
			Acid Extractable Lead (Pb)	2010/09/03	ND, RDL=1		ug/g	
			Acid Extractable Nickel (Ni)	2010/09/03	ND, RDL=0.5		ug/g	
			Acid Extractable Zinc (Zn)	2010/09/03	ND, RDL=5		ug/g	
			Acid Extractable Mercury (Hg)	2010/09/03	ND, RDL=0.05		ug/g	
		RPD	Acid Extractable Arsenic (As)	2010/09/03	NC		%	35
			Acid Extractable Cadmium (Cd)	2010/09/03	NC		%	35
			Acid Extractable Chromium (Cr)	2010/09/03	0.3		%	35
			Acid Extractable Cobalt (Co)	2010/09/03	3.1		%	35
			Acid Extractable Copper (Cu)	2010/09/03	9.9		%	35
			Acid Extractable Lead (Pb)	2010/09/03	1.9		%	35
			Acid Extractable Nickel (Ni)	2010/09/03	1.0		%	35
			Acid Extractable Zinc (Zn)	2010/09/03	0.4		%	35
			Acid Extractable Mercury (Hg)	2010/09/03	NC		%	35
2255356	VIV	Matrix Spike	Acid Extractable Arsenic (As)	2010/09/03		100	%	75 - 125
			Acid Extractable Cadmium (Cd)	2010/09/03		106	%	75 - 125
			Acid Extractable Chromium (Cr)	2010/09/03		100	%	75 - 125
			Acid Extractable Cobalt (Co)	2010/09/03		98	%	75 - 125
			Acid Extractable Copper (Cu)	2010/09/03		97	%	75 - 125
			Acid Extractable Lead (Pb)	2010/09/03		95	%	75 - 125
			Acid Extractable Nickel (Ni)	2010/09/03		98	%	75 - 125
			Acid Extractable Zinc (Zn)	2010/09/03		100	%	75 - 125
			Acid Extractable Mercury (Hg)	2010/09/03		99	%	75 - 125
		QC Standard	Acid Extractable Arsenic (As)	2010/09/03		99	%	75 - 125
			Acid Extractable Cadmium (Cd)	2010/09/03		104	%	75 - 125
			Acid Extractable Chromium (Cr)	2010/09/03		98	%	75 - 125
			Acid Extractable Cobalt (Co)	2010/09/03		98	%	75 - 125
			Acid Extractable Copper (Cu)	2010/09/03		100	%	75 - 125
			Acid Extractable Lead (Pb)	2010/09/03		96	%	75 - 125
			Acid Extractable Nickel (Ni)	2010/09/03		98	%	75 - 125
			Acid Extractable Zinc (Zn)	2010/09/03		103	%	75 - 125
			Acid Extractable Mercury (Hg)	2010/09/03		97	%	75 - 125
		Method Blank	Acid Extractable Arsenic (As)	2010/09/03	ND, RDL=1		ug/g	
			Acid Extractable Cadmium (Cd)	2010/09/03	ND, RDL=0.1		ug/g	
			Acid Extractable Chromium (Cr)	2010/09/03	ND, RDL=1		ug/g	

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Sila Remediation
Attention: Jean-Pierre Pelletier
Client Project #: FOX-M 2010 LANDFILL MONITORING
P.O. #: CD8177
Project name: MALL BEACH, UN

Quality Assurance Report (Continued)

Maxxam Job Number: MB0B9577

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
2255356	VIV	Method Blank	Acid Extractable Cobalt (Co)	2010/09/03	ND, RDL=0.1		ug/g	
			Acid Extractable Copper (Cu)	2010/09/03	ND, RDL=0.5		ug/g	
			Acid Extractable Lead (Pb)	2010/09/03	ND, RDL=1		ug/g	
			Acid Extractable Nickel (Ni)	2010/09/03	ND, RDL=0.5		ug/g	
			Acid Extractable Zinc (Zn)	2010/09/03	ND, RDL=5		ug/g	
			Acid Extractable Mercury (Hg)	2010/09/03	ND, RDL=0.05		ug/g	
		RPD	Acid Extractable Mercury (Hg)	2010/09/03	NC		%	35

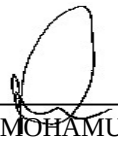
Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.
QC Standard: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.
NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was not sufficiently significant to permit a reliable recovery calculation.
NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.
(1) Surrogate recovery was below the lower control limit. This may represent a low bias in some results.

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

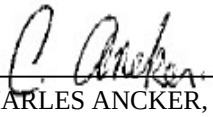
Validation Signature Page

Maxxam Job #: B0B9577

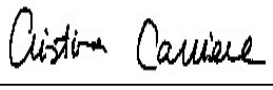
The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



ABDI MOHAMUD, Senior Analyst

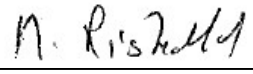


CHARLES ANCKER, B.Sc., M.Sc., C.Chem, Senior Analyst



CRISTINA CARRIERE, Scientific Services

JEEVARAJ JEEVARATRNAM, Senior Analyst



MEDHAT RISKALLAH, Manager, Hydrocarbon Department

==========

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

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca