THE COLLECTION OF LANDFILL MONITORING DATA AT THE FORMER CAM-1 DEW LINE SITE

Jenny Lind Island, Nunavut

DRAFT REPORT – 2012 SEASON
Monitoring Event – 2

(O/Ref.: CD9229) (Y/Ref.: DLC MON (Kitik 09)

DEFENCE CONSTRUCTION CANADA

March 2013

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DEFENCE CONSTRUCTION CANADA

March 2013

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1 INTRODUCTION

1.1 LOCATION AND SITE FEATURES

The CAM-1 Jenny Lind Island DEW Line site is located on the east central side of Jenny Lind Island within the Queen Maud Gulf in Nunavut 68º 40' 17" N and 101º 43' 39" W. The site is located approximately 140 km southeast of the community of Ikaluktutiak (Cambridge Bay).

The CAM-1 site is a former auxiliary radar site within the original DEW Line system that was operated until the early 1990s, when it was decommissioned and replaced with a remotely operated Short Range Radar (SRR) station as part of the North American Aerospace Defence Modernization Program. CAM-1A was constructed approximately 12 kilometers northwest of the site. The environmental cleanup and demolition of facilities at CAM-1 commenced in 2007 and was completed in summer of 2009.

Liquid and solid waste materials from the environmental cleanup remain in a temporary storage area near the shoreline. These materials are scheduled to be removed from the CAM-1 site in fall of 2013.

The clean-up included the closure and remediation of eight existing landfills, the construction of a landfill for the disposal of non-hazardous wastes generated from demolition and collection of site debris (NHWLF) as well as the construction of a second facility to contain Tier II soils. Monitoring activities were carried out at the following landfill areas, as shown on the overall site plan (Figure CAM-1.1) at the end of this section:

- Borrow Area North Landfill
- Northeast Landfill
- Station West Landfill
- Non-Hazardous Waste Landfill
- Tier II Soil Disposal Facility
- Southeast Landfill
- Station East Landfill
- Main Landfill
- USAF Landfill
- East Landing Landfill

In accordance with the NTI-DND Cooperation Agreement, landfill monitoring is carried out following the site clean-up. Table I hereafter provides a synopsis of field activities performed during the 2012 Landfill Monitoring Program at CAM-1 – Jenny Lind Island.

Table I: 2012 Monitoring Requirements for CAM-1 Landfills

Landfill	Visual Inspection	Soil Sampling	Groundwater Sampling	Thermal Monitoring
Borrow Area North Landfill	✓	✓		
Northeast Landfill	✓	✓		
Station West Landfill	✓	✓		
Non-Hazardous Waste Landfill	✓	✓	✓	
Tier II Soil Disposal Facility	✓	✓	✓	✓
Southeast Landfill	✓	✓		
Station East Landfill	✓	✓		
Main Landfill	✓	✓		
USAF Landfill	✓	✓		
East Landing Landfill	✓	✓		

1.2 OBJECTIVES AND SCOPE OF WORK

The objective of the DCC Landfill Monitoring Program is to collect sufficient information to assess the landfill's performance from geotechnical and environmental perspectives. DCC has specified the requirements for the Landfill Monitoring Program in the document *Terms of Reference (ToR) – Consulting Services for the Collection of Landfill Monitoring Data – PIN-3 Lady Franklin Point, PIN-4 Byron Bay, CAM-1 Jenny Lind Island, CAM-2 Gladman Point*, *CAM-2 Shepherd Bay, and CAM-4 Pelly Bay DEW LINE SITES, NUNAVUT TERRITORY, KITIKMEOT REGION DCC PROJECT #: DLC MON*, October 7, 2008. (ToR, reference B).

The scope of work for the Landfill Monitoring Program is defined in the ToR and in Biogénie's accepted proposal dated April 2009 (reference C) that was submitted to DCC. The scope of work generally includes the following activities:

- Landfill Monitoring for each of the CAM-1 Landfills;
- Visual inspection;
- Soil and groundwater sampling (Tier II Soil Disposal Facility);
- Thermal monitoring (DCC Tier II Soil Disposal Facility);
- Create photographic record;
- Draft and Final reports.

1.3 REPORT FORMAT

This report describes the work carried out in August 2012 on ten landfill sites located at CAM-1 Jenny Lind Island. Results from soil and groundwater sampling, thermal monitoring, and visual inspection of the sites are also presented in the formats described in the ToR. 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 gathered for that landfill during the 2012 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 2012 soil analytical data (where applicable);
- Summary of 2012 groundwater analytical data (where applicable);
- Monitoring well development/sampling reports (where applicable).

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

1.4 PROJECT REFERENCES

The following references are specifically relevant to the 2012 Landfill Monitoring activities:

A. *Request for Abbreviated Proposal- Consultant Services – Collection of Landfill Monitoring Data for the DEW Line Sites: PIN-3 Lady Franklin Point, PIN-4 Byron Bay, CAM-1 Jenny Lind Island, CAM-2 Gladman Point, CAM-3 Shepherd Bay, and CAM-4 Pelly Bay, Nunavut Territory - Kitikmeot Region. DCC Project # DLC MON (Kitik 09)*, February 19, 2008.

B. *Terms of Reference – Consulting Services for the Collection of Landfill Monitoring Data – PIN-3 Lady Franklin Point, PIN-4 Byron Bay, CAM-1 Jenny Lind Island, CAM-2 Gladman Point, CAM-3 Shepherd Bay, and CAM-4 Pelly Bay DEW LINE SITES, NUNAVUT TERRITORY, KITIKMEOT REGION DCC PROJECT #: DLC MON*, October 7, 2008.

C. *Technical Proposal – The Collection of Landfill Monitoring Data for the DEW Line Sites: PIN-3 Lady Franklin Point, PIN-4 Byron Bay, CAM-1 Jenny Lind Island, CAM-2 Gladman Point, CAM-3 Shepherd Bay, and CAM-4 Pelly Bay DEW LINE SITES, Kitikmeot Region, Nunavut. Project Ref 6121-060,* February 2009.

D. *Post-Field Progress Report, CAM-1 Landfill Monitoring 2012*, August 26 2012.

N

387 500 E

389 000 E

390 500 E

7 620 500 N

7 619 000 N

ACCESS ROAD

A1

BM-1

BORROW AREA NORTH LANDFILL
SEE FIGURE CAM-1.2

NORTHEAST LANDFILL
SEE FIGURE CAM-1.3

A2

STATION AREA

A3

A4

BM-2

A5

STATION WEST LANDFILL
SEE FIGURE CAM-1.4

NON-HAZARDOUS WASTE LANDFILL
SEE FIGURE CAM-1.5

BM-4

STATION EAST LANDFILL
SEE FIGURE CAM-1.8

TIER II DISPOSAL FACILITY
SEE FIGURE CAM-1.6

A7

A6

BM-3

A8

MAIN LANDFILL
SEE FIGURE CAM-1.8

SOUTHEAST LANDFILL
SEE FIGURE CAM-1.7

CLOSED LANDFARM

APPROXIMATE LIMIT OF
DND RESERVE BOUNDARY

A9

ACCESS ROAD

USAF LANDFILL
SEE FIGURE CAM-1.9

AIRSTRIP AREA

AIRSTRIP

CM101

EAST LANDING LANDFILL
SEE FIGURE CAM-1.10

FORMER SUMMER
WATER SUPPLY
LAKE

JENNY

BEACH AREA

LEGEND

- CM101 — SURVEY CONTROL MONUMENT
- BM-1 — PERMANENT BENCHMARK LOCATION (4)
- COMMEMORATIVE PLAQUE LOCATION
- APPROXIMATE LOCATION OF PROPERTY BOUNDARY
- BODY OF WATER
- A1 — AERIAL PHOTOGRAPH

0 150m 300m 450m 600m 750m

NO.	VERSION	DATE	P.L.	A.P.	A.L.
A	FINAL	13-03-08	P.L.	A.P.	A.L.

Construction de Défense Canada
Defence Construction Canada

COLLECTION OF LANDFILL MONITORING DATA

CAM-1, JENNY LIND ISLAND, NUNAVUT

LOCATION PLAN

SITE REMEDIATION SOLUTIONS

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FIGURE CAM-1.1

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2 OUTLINE AND METHODOLOGY

2.1 FIELD PROGRAM STAFF

The 2012 on-site field program at CAM-1 Jenny Lind Island took place from August 15 to 17, 2012. Biogénie sub-contracted Sila Remediation Inc. from Igloolik, Nunavut to perform the field work. The Sila field program was executed by Mr. Andrew Passalis and four local Inuit representatives.

The team was made up of the following individuals:

- Andrew Passalis, Project Engineer
- Kaylene Epilon, Field Technician
- Danny Hanak, Field Technician
- Graeme Mala, Field Technician
- Joe Koaha, Wildlife Monitor

2.2 2012 WEATHER CONDITIONS

Seasonally warm weather conditions were observed during the CAM-1 Jenny Lind Island monitoring event with daytime temperatures ranging between 3-5ºC with evening and night time temperatures dropping to between 0-2ºC. Skies were generally overcast throughout the monitoring period with light to moderate winds out of the northwest ranging between 10-30 km/h. Periods of light snow and freezing rain extended from the afternoon of August 15th into the morning of August 16th. Approximately 25mm of snowfall also occurred during early morning on August 17th.

2.3 VISUAL INSPECTION

Data and information collected during the visual inspection of the CAM-1 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.

Some photos are provided for supplemental purposes only and do not warrant placement on the Figures (i.e., they are not specifically referenced in the report or within the tables).

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 final report. The photo log, including the local coordinates from where the photo was taken, orientation (relative to map north), feature of note and picture 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 2012 monitoring event, 43 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 2012 sampling.

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 (10%) 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 CAM-1 during the August, 2012 field program.

Table II: Summary of Soil Sampling at CAM-1 – August 2012

Landfill Site	Soil Sample Locations				
Borrow Area North Landfill	C1-1	C1-2	C1-3	C1-4	C1-5
Northeast Landfill	C1-6	C1-7	C1-8	C1-9	
Station West Landfill	C1-10	C1-11	C1-12	C1-13	
Non-Hazardous Waste Landfill	MW-1	MW-2	MW-3	MW-4	
Tier II Disposal Facility	MW-5	MW-6	MW-7	MW-8	
Southeast Landfill	C1-14	C1-15	C1-16	C1-17	C1-18
Station East Landfill	C1-19	C1-20	C1-21	C1-22	
Main Landfill	C1-23	C1-24	C1-25	C1-26	
USAF Landfill	C1-27	C1-28	C1-29	C1-30	C1-31
East Landing Landfill	C1-32	C1-33	C1-34	C1-35	

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 2012 sampling, total no. of soil samples = 110 samples (43 locations x 2 depths + 8 QA/QC + 8 (Inter-laboratory comparison) + 8 for Owner's Representative (ESG Archives))

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).

2.5 GROUNDWATER SAMPLING

The 2012 field program included the monitoring of 8 locations at CAM-1. All four wells at the Tier II Soil Disposal Facility were dry at the time of monitoring and consequently could not be sampled. A summary of the status of the monitoring wells and the attempts made are summarized in Table III below.

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

Table III: Summary of Groundwater Sampling at CAM-1 – August 2012

Landfill Site	Groundwater Sample Locations			
Non-Hazardous Waste Landfill	MW-1 (dry)	MW-2(ltd quantities)	MW-3	MW-4
Tier II Soil Disposal Facility	MW-5 (dry)	MW-6 (dry)	MW-7 (dry)	MW-8 (dry)

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

2.6 THERMAL MONITORING

All thermistors at the Tier II Soil 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. 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 Soil Disposal Facility. Raw data retrieved directly from the dataloggers were provided to DCC with the field progress report on August 26, 2012. The manual thermal monitoring data is presented in tabular form on the thermistor inspection sheets for each landfill

2.7 FIELD NOTES AND DATA

Field notes from the 2012 landfill monitoring program, including soil and water sampling are included in Appendix B for reference. Notes were written on waterproof field sheet 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 were 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 nitrile gloves that were used only once;
- All samples were stored in chilled coolers/refrigerators throughout the field program and chilled coolers during subsequent transfer to the respective laboratory.

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

2.9 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 of the analytical QA/QC samples collected:

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

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

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

3 BORROW AREA NORTH LANDFILL

3.1 BACKGROUND AND MONITORING PROGRAM

The Borrow Area North Landfill is located along the road heading north of the station area, approximately 500 m north of the former station infrastructure pad. The landfill is located within a relatively flat lying area that historically had been used for material borrow. The landfill has three regrade areas, including engineered cover, which encompasses a footprint of approximately 9,300 m^2 with the final cover extending approximately 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 Borrow Area North Landfill was classified as low potential environmental risk, except for Lobe 3 which was classified at a moderate potential environmental risk due to the presence of surface soil contamination. The remediation consisted of regrading with the placement of additional granular fill at all lobes.

The 2012 monitoring of this landfill includes a visual inspection to assess landfill performance and the collection of soil samples to monitor for the presence of leachate. Locations of soil samples are identified on Figure CAM-1.2. Soil at all stations was sampled as per the ToR.

3.2 VISUAL INSPECTION REPORT

The visual inspection of the Borrow Area North Landfill was conducted on August 16, 2012. The Visual Inspection Checklist/Report has been completed as per the ToR and is included as Table IV of this report.

Settlement

Indications of minor settlement were noted at two locations, consisting of a 1m by 1m localized depression on the southeast side slope of Lobes 1&2 (Feature A), and a linear depression on the northwest side slope of Lobe 3 (Feature B). Feature A was not noted during the previous inspection, whereas Feature B was marginally wider than previously noted in 2011.

Erosion

One area of minor erosion was noted on the southeast side slope of the Lobes 4&5 regrade (Feature C). The erosion consisted of fines washing along approximately 25 linear meters of the toe of slope. Erosion appears to be the result of seasonal ponding along the southeast side of the lobe. This feature was dry at the time of the 2012 inspection and appears to be self-armouring with an acceptable severity rating. This feature was consistent with the previous 2011 inspection.

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 on the landfill.

Staining

Two areas of discoloration (staining) were noted during the 2012 inspection, including one relatively small area on the north side slope of the Lobe 4&5 regrade (Feature D) and a larger area associated with a wetted area immediately east of Lobe 3 (Feature E). There were no odours noted with either area at the time of the 2012 inspection and observations at both areas were consistent with the previous 2011 inspection.

Seepage Points

No areas of seepage were noted at the landfill.

Debris

Evidence of debris was not noted at the landfill.

Presence/Condition of Monitoring Instruments

There is no monitoring instrumentation installed at this landfill.

Other Features of Note

Significant ponding was noted along the northeast side of Lobe 3 during the 2012 inspection. This area was consistent with findings from the 2002 site investigation and 2010 and 2011 landfill inspections and included observations of rust-colored staining in wetted areas along the toe of the lobe. Direct seepage from the landfill was not observed.

One discontinuous tension crack was noted on the southeast corner of Lobes 4&5 (Feature F). The crack was noted to extend approximately 16 m in a northeast-southwest direction just below the crest and varied between 1-3 mm in width. The crack was not noted during the previous 2011 inspection.

Discussion

The Borrow Area 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 IV: Visual Inspection Checklist / Report – Borrow Area North Landfill

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

SITE NAME: CAM-1 – Jenny Lind Island
LANDFILL DESIGNATION: Borrow Area North Landfill (Regrade Landfill)
DATE OF INSPECTION: August 16, 2012
DATE OF PREVIOUS INSPECTION: August 13, 2011
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.

Checklist Item	Present (Yes/No)	Location	Length	Width	Depth	Extent	Description	Photographic Record	Severity Rating	Additional Comments
Settlement	Yes	FEATURE A See Figure CAM-1.2 (Lobes 1&2 - S side slope - New Obs)	1 m	1 m	0.1 m	Isolated (<1%)	Localized depression on side slope	BANLF-4, 5	Acceptable	Cover and slopes appear stable.
		FEATURE B See Figure CAM-1.2 (Lobe 3 - NW side slope)	4 m	1 m	0.1 m	Isolated (<1%)	Minor lineal depression	BANLF-11	Acceptable	Cover and slopes appear stable.
Erosion	Yes	FEATURE C See Figure CAM-1.2 (Lobes 4&5 - SE side)	25 m	2 m	0.05 m	Isolated (<2%)	Minor washing of fines along side slope and toe of lobe	BANLF-28, 30, 31	Acceptable	Seasonal ponding and surface runoff from lobe. Cover and slopes appear stable.
Frost Action	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Animal Burrows	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Vegetation	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Staining	Yes	FEATURE D See Figure CAM-1.2 (Lobe 3 - E side)	18 m	6 m	Unknown	N/A	Rust coloured staining east of Lobe 3	BANLF-15,16	Acceptable	Not in contact with landfill.
		FEATURE E See Figure CAM-1.2 (Lobes 4&5 - N side)	4 m	1 - 3 m	Unknown	Isolated (<1%)	Minor staining of cover material on side slope	BANLF-24	Acceptable	N/A
Vegetation Stress	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Seepage Points	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Debris Exposed	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Presence/Condition of Monitoring Instruments	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Other Features of Note:	Yes	See Figure CAM-1.2 (Lobe 3 - E and NE sides)	Varies	Varies	Unknown	N/A	Water ponding along toe	BANLF-6,13,14	Acceptable	Ponding consistent with observations prior to landfill regrading and 2011 inspection. Slopes appear stable.
		FEATURE F See Figure CAM-1.2 (Lobes 4&5- SE corner - New Obs.)	16 m	1 - 3 mm	Unknown	Isolated (<1%)	Single discontinous tension crack	BANLF-29,30	Acceptable	Ponding consistent with observations prior to landfill regrading and 2011 inspection. Slopes appear stable.
Additional Photos	Yes	See Figure CAM-1.2 and Photographic Record	N/A	N/A	N/A	N/A	General Photographic Record	N/A	Not Observable	General photos for documentation, no features of note.
Overall Landfill Performance:	**Acceptable**									

3.3 PRELIMINARY STABILITY ASSESSMENT

The Preliminary Stability Assessment for Borrow Area North Landfill has been completed as per the ToR and is included as Table V below.

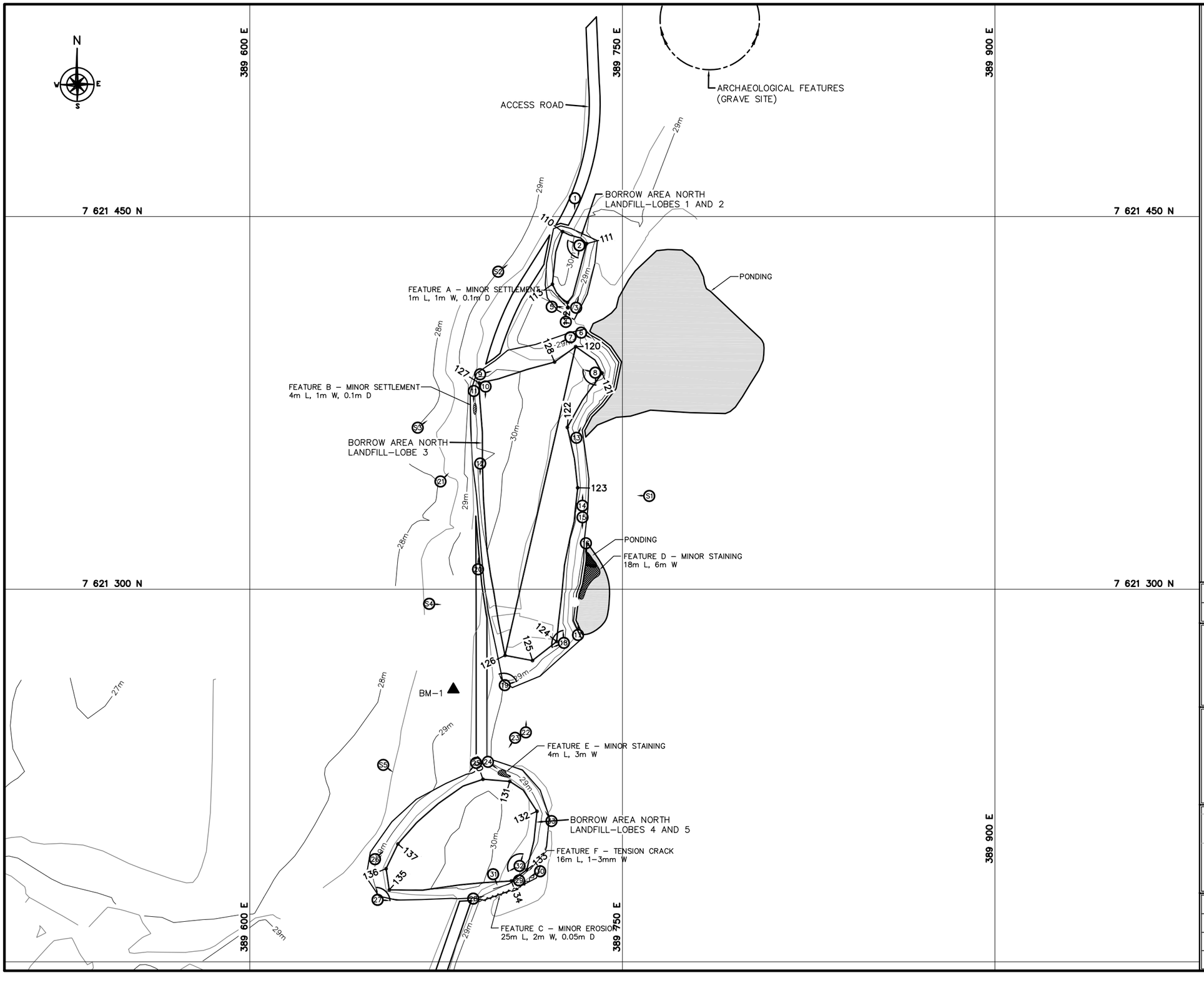
Table V: Preliminary Stability Assessment – Borrow Area North Landfill

Feature	Severity Rating	Extent
Settlement	Acceptable	Isolated
Erosion	Acceptable	Isolated
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

3.4 LOCATION PLAN

The Location Plan for the Borrow Area North Landfill has been completed as per the ToR and is presented in Figure CAM-1.2.



LEGEND

- BM–1 — PERMANENT BENCHMARK LOCATION (1)
- 110 — COORDINATE POINT
- 6 — APPROX. PHOTOGRAPHIC VIEWPOINT
- BODY OF WATER
- MINOR SETTLEMENT (NTS)
- STAINING (NTS)
- MINOR EROSION (NTS)

0 15m 30m 45m 60m 75m

NO.	VERSION	DATE	PAR	VERIF.	APPR.
A	FINAL	13–03–08	P.L.	A.P.	A.L.

Construction de Défense Canada
Defence Construction Canada

COLLECTION OF LANDFILL MONITORING DATA

CAM-1, JENNY LIND ISLAND, NUNAVUT

BORROW AREA NORTH LANDFILL

SITE REMEDIATION SOLUTIONS

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MEASUREMENT UNIT	SCALE:	DATE (month–year):
Metre	1 : 1,500	MARCH 2013
DRAWN BY:	VERIFIED BY:	APPROVED BY:
P. LÉGARÉ	A. PASSALIS	A. LECLAIR P. ENG
PROJECT NO:	DRAWING NO:	PAGE
CD9229_004_160	CD9229_004_160-CAM-1.2-PL	PL

FIGURE CAM-1.2

3.5 PHOTOGRAPHIC RECORDS

The Photographic Record for the Borrow Area North Landfill has been completed as per the ToR and is included as Table VI hereafter. The Photographic Record contains only an index and “thumbnail” photographs. Full sized photographs are contained in the Addendum DVD-ROM.

Table VI: Landfill Visual Inspection Photo Log – Borrow Area North Landfill

Photo (BANLF-)	Thumbnail	Filename	Size (KB)	Date	Vantage Point		Caption
					Easting	Northing	
Lobes 1 & 2							
1		C112_7201	4,353 KB	2012-08-16	389731	7621457	View looking south at BANLF - Lobes 1&2
2		C112_7202	2,988 KB	2012-08-16	389734	7621438	Panoramic view looking south to west-northwest across BANLF - Lobes 1&2
3		C112_7203	4,454 KB	2012-08-16	389731	7621413	View looking north along east toe of BANLF - Lobes 1&2
4		C112_7204	4,326 KB	2012-08-16	389727	7621408	View looking north at minor depression on southeast corner of Lobes 1&2 (1m L, 1m W, 0.1m D) - FEATURE A
5		C112_7205	4,429 KB	2012-08-16	389721	7621414	View looking east at minor depression on southeast corner of Lobes 1&2 (1m L, 1m W, 0.1m D) - FEATURE A
Lobe 3							
6		C112_7206	4,401 KB	2012-08-16	389733	7621403	View looking southeast at ponded area along northeast toe of BANLF- Lobe 3
7		C112_7207	4,286 KB	2012-08-16	389730	7621402	View looking southwest along north toe of BANLF - Lobe 3
8		C112_7208	3,060 KB	2012-08-16	389739	7621387	Panoramic view looking south to west-northwestt from the northeast corner across BANLF - Lobe 3
9		C112_7209	4,398 KB	2012-08-16	389693	7621387	View looking northeast along north toe of BANLF - Lobe 3
10		C112_7210	4,439 KB	2012-08-16	389695	7621381	View looking south along west toe of BANLF - Lobe 3.
11		C112_7212	4,292 KB	2012-08-16	389691	7621380	View looking south at minor depression on west toe of BANLF - Lobe 3 (4m L, 1m W, 0.1m D) - FEATURE B
12		C112_7213	4,372 KB	2012-08-16	389692	7621351	View looking south along west toe of BANLF - Lobe 3.
13		C112_7214	4,349 KB	2012-08-16	389731	7621361	View looking northeast at ponded area on northeast corner of BANLF - Lobe 3
14		C112_7215	4,436 KB	2012-08-16	389734	7621333	View looking north along east toe of BANLF - Lobe 3
15		C112_7216	4,407 KB	2012-08-16	389734	7621331	View looking south along east toe of BANLF - Lobe 3. Note minor staining along toe (18m L, 6m W) - Feature D
16		C112_7217	4,359 KB	2012-08-16	389735	7621318	View looking south at minor ponding and rust coloured staining (18m L, 6m W) in wet area located immediately southeast of BANLF - Lobe 3 - Feature D
17		C112_7218	4,359 KB	2012-08-16	389732	7621282	View looking north along former ponded area located southeast of BANLF - Lobe 3
18		C112_7219	3,106 KB	2012-08-16	389726	7621278	Panoramic view looking southwest to north from the southeast corner across BANLF - Lobe 3
19		C112_7220	3,021 KB	2012-08-16	389703	7621262	Panoramic view looking northwest to northeast from the south end across BANLF - Lobe 3
20		C112_7221	4,338 KB	2012-08-16	389692	7621308	View looking north along west side of BANLF - Lobe 3
21		C112_7222	4,243 KB	2012-08-16	389677	7621344	View looking northeast at west side of BANLF - Lobe 3
22		C112_7233	4,361 KB	2012-08-16	389711	7621242	View looking north at south end of BANLF - Lobe 3

Photo (BANLF-)	Thumbnail	Filename	Size (KB)	Date	Vantage Point		Caption
					Easting	Northing	
Lobes 4 & 5							
23		C112_7234	4,344 KB	2012-08-16	389708	7621241	View looking southwest at northeast side of BANLF - Lobes 4&5
24		C112_7235	4,366 KB	2012-08-16	389696	7621230	View looking southeast at stained minor staining (4m L, 3m W) north side slope of BANLF - Lobes 4&5 - Feature C
25		C112_7236	4,332 KB	2012-08-16	389691	7621230	View looking southwest along west toe of BANLF - Lobes 4&5
26		C112_7237	4,421 KB	2012-08-16	389651	7621191	View looking northeast along west toe of BANLF - Lobes 4&5
27		C112_7238	2,803 KB	2012-08-16	389652	7621175	Panoramic view looking north to east from southwest corner across BANLF - Lobes 4&5
28		C112_7243	4,296 KB	2012-08-16	389691	7621176	View looking east-northeast along southeast side slope of BANLF - Lobes 4&5. Start of single discontinuous crack (16m L, 1-3mm W) - FEATURE F
29		C112_7242	4,301 KB	2012-08-16	389709	7621183	View of single discontinuous crack along southeast corner of BANLF Lobes 4&5 (16m L, 1-3mm W) - FEATURE F
30		C112_7239	4,372 KB	2012-08-16	389717	7621186	View looking southeast at minor erosion (25m L, 2m W, 0.05m D) - Feature B on southeast side slope of BANLF - Lobes 4&5.
31		C112_7244	4,389 KB	2012-08-16	389698	7621185	View south-southeast along southeast side of BANLF Lobes 4&5. Minor erosion on slope (3m L, 0.02m D) - FEATURE C
32		C112_7240	3,005 KB	2012-08-16	389708	7621188	Panoramic view looking southwest to north-northeast to from southeast corner across BANLF - Lobes 4&5
33		C112_7245	4,342 KB	2012-08-16	389721	7621207	View northwest along northeast side slope of BANLF Lobes 4&5.
Soil Sampling							
		C112_7229	4,457 KB	2012-08-16	389751	7621338	Sampling location C112-1 located upgradient of BANLF Lobe 3
S1		C112_7230	4,387 KB	2012-08-16	389758	7621338	View west at C112-1 soil sample location
		C112_7223	4,347 KB	2012-08-16	389708	7621432	Sampling location C112-2 located downgradient of BANLF Lobes 1&2
S2		C112_7224	4,130 KB	2012-08-16	389700	7621429	View northeast at C112-2 soil sample location
		C112_7225	4,422 KB	2012-08-16	389675	7621369	Sampling location C112-3 located downgradient of BANLF Lobe 3
S3		C112_7226	4,257 KB	2012-08-16	389669	7621366	View northeast at C112-3 soil sample location
		C112_7227	4,406 KB	2012-08-16	389681	7621294	Sampling location C112-4 located downgradient of BANLF Lobe 3
S4		C112_7228	4,354 KB	2012-08-16	389672	7621295	View east at C112-4 soil sample location
		C112_7231	4,390 KB	2012-08-16	389661	7621224	Sampling location C112-5 located downgradient of BANLF Lobes 4&5
S5		C112_7232	4,442 KB	2012-08-16	389654	7621229	View southeast at C112-5 soil sample location

3.6 SOIL SAMPLE ANALYTICAL DATA

The soil chemical analysis results and the evaluation of analytical data for the 2012 Borrow Area North Landfill samples are presented in Tables VII and VIII below. Field and inter-laboratory duplicates collected as part of the QA/QC program are presented in Appendix C at the end of this report.

Table VII: Soil Chemical Analysis Results – Borrow Area North Landfill

Sample Name	Sample Location	Depth Below Grade (cm)	Parameters									
			As [mg/kg]	Cd [mg/kg]	Cr [mg/kg]	Co [mg/kg]	Cu [mg/kg]	Pb [mg/kg]	Hg [mg/kg]	Ni [mg/kg]	Zn [mg/kg]	PCBs [mg/kg]
C112-1A	Borrow Area North Landfill C1-1	0-15	2.5	<0.10	<1.0	1	7.9	3.3	<0.050	1.7	<10	<0.01
C112-1B		40-50	4.6	<0.10	1.7	1.7	<5.0	8	<0.050	1.9	<10	<0.01
C112-2A	Borrow Area North Landfill C1-2	0-15	2.6	<0.10	1.7	1	<5.0	3	<0.050	1.2	<10	<0.01
C112-2B		40-50	3.3	<0.10	4.8	2.3	9.1	4.6	<0.050	3.8	<10	<0.01
C112-3A	Borrow Area North Landfill C1-3	0-15	3.5	<0.10	3.8	2.1	<5.0	4.1	<0.050	2.8	<10	<0.01
C112-3B		40-50	6.8	<0.10	3.6	3.1	<5.0	6.2	<0.050	3.4	<10	<0.01
C112-4A	Borrow Area North Landfill C1-4	0-15	<1.0	<0.10	<1.0	<1.0	<5.0	1.3	<0.050	<1.0	<10	<0.01
C112-4B		40-50	1.8	0.14	2.7	1.5	<5.0	4.6	<0.050	1.9	<10	<0.01
C112-5A	Borrow Area North Landfill C1-5	0-15	1.6	<0.10	<1.0	<1.0	<5.0	1.8	<0.050	<1.0	<10	<0.01
C112-5B		40-50	<1.0	<0.10	<1.0	<1.0	<5.0	1.2	<0.050	<1.0	<10	<0.01

Sample Name	Sample Location	Depth Below Grade [cm]	Parameters			
			PHC(F1) [mg/kg]	PHC(F2) [mg/kg]	PHC(F3) [mg/kg]	TPH [mg/kg]
C112-1A	Borrow Area North Landfill C1-1	0-15	<12	<10	27	27
C112-1B		40-50	<12	<10	17	17
C112-2A	Borrow Area North Landfill C1-2	0-15	<12	<10	<10	<10
C112-2B		40-50	<12	<10	<10	<10
C112-3A	Borrow Area North Landfill C1-3	0-15	<12	<10	16	16
C112-3B		40-50	<12	<10	<10	<10
C112-4A	Borrow Area North Landfill C1-4	0-15	<12	<10	22	22
C112-4B		40-50	<12	<10	<10	<10
C112-5A	Borrow Area North Landfill C1-5	0-15	<12	<10	<10	<10
C112-5B		40-50	<12	<10	<10	<10

PHC (F1): Petroleum hydrocarbon C6 to C10, does not include BTEX fractions
PHC (F2): Petroleum hydrocarbon $C_{>10}$ to C_{16}
PHC (F3): Petroleum hydrocarbon $C_{>16}$ to C_{34}
TPH: Total Petroleum Hydrocarbons (C_6 to C_{34})

Table VIII: Evaluation of 2012 Soil Analytical Data – Borrow Area North Landfill

Parameter	2012
Copper	Concentrations above the detection limit of 5 mg/kg were noted at two locations: one surface sample at C1-1 (7.9 mg/kg) located upgradient of Lobe 3; and one depth sample at C1-2 (9.1 mg/kg) located downgradient of Lobes 1&2. All other reported concentrations were lower than the method detection limit (5 mg/kg).
Nickel	Detectable concentrations were noted at all but three sample locations, ranging between 1.2-3.8 mg/kg with a mean of 1.8. The highest concentrations were observed at depth at downgradient locations C1-3 (3.4 mg/kg) and C1-2 (3.8 mg/kg), whereas the lowest concentrations (<1 mg/kg) were observed at surface at C1-4 and surface and depth at C1-5 locations.
Cobalt	Concentrations ranged between <1-3.1 mg/kg with a mean of 1.4. The highest concentrations were observed at depth at downgradient locations C1-2 (2.3 mg/kg) and C1-3 (3.1 mg/kg), whereas the lowest concentrations (<1 mg/kg) were observed at surface at C1-4 and surface and depth at C1-5 locations.
Lead	Concentrations ranged between 1.2-8 mg/kg with a mean of 3.8. Trace concentrations were observed at all locations with higher concentrations noted at depth at C1-1 (8mg/kg) upgradient and C1-3 (6.2 mg/kg) downgradient of Lobe 3 Detectable concentrations at all other locations ranged between 1.2-4.6 mg/kg.
Zinc	All reported concentrations lower than the method detection limit of 10 mg/kg.
Chromium	Concentrations ranged between <1-4.8 mg/kg with a mean of 2.0. Slightly higher concentrations were observed at depth at downgradient locations C1-2 (4.8 mg/kg) and surface and depth at C1-3 (3.8 and 3.6 mg/kg). Concentrations at all other locations ranged between <1-2.7 mg/kg.
Arsenic	Detectable concentrations were noted at all but two sample locations, ranging between 1.6-6.8 mg/kg with a mean of 3.3. The highest concentrations were observed at depth at downgradient locations C1-1 (4.6 mg/kg) and C1-3 (6.8 mg/kg), whereas the lowest concentrations (<1 mg/kg) were observed at surface at C1-4 and depth at C1-5 locations.
Mercury	All reported concentrations were lower than the method detection limit (0.05 mg/kg).
PCBs	All reported concentrations were lower than the method detection limit (0.01 mg/kg).
TPH	Detectable concentrations of hydrocarbons were noted at four sample locations, including: C1-1 (surface – 27 mg/kg, depth – 22 mg,kg); C1-3 (surface – 16 mg/kg); and C1-4 (surface – 22 mg/kg). All other concentrations were lower than the method detection limit (10-12 mg/kg).

4 NORTHEAST LANDFILL

4.1 BACKGROUND AND MONITORING PROGRAM

The Northeast Landfill is located immediately to the northwest of the former pallet line, approximately 400 m of the former station infrastructure pad. The landfill is located within a relatively flat lying area west of the service road extending north of the station. The landfill has two regrade areas, including engineered cover, which encompasses a footprint of approximately 3,900 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 Northeast Landfill was classified as low potential environmental risk. The remediation consisted of regrading with the placement of additional granular fill at all lobes.

The long term monitoring plan consists of visual monitoring and collection of soil samples.

The 2012 monitoring of this landfill includes a visual inspection to assess landfill performance and the collection of soil samples to monitor for the presence of leachate. Locations of soil samples are identified on Figure CAM-1.3. Soil at all stations was sampled as per the ToR.

4.2 VISUAL INSPECTION REPORT

The visual inspection of the Northeast Landfill was conducted on August 16, 2012. The Visual Inspection Checklist/Report has been completed as per the ToR and is included as Table IX of this report.

Settlement

An indication of minor settlement was noted at one location, consisting of a linear depression on the north inside corner of Lobes 1&3 regrade (Feature A). The 2 m by 1 m depression extended in a north-south direction and was 0.2 m deep. This feature was consistent with the previous 2011 inspection.

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 on the landfill.

Staining

Evidence of staining was not noted.

Seepage Points

No areas of seepage were noted at the landfill.

Debris

Evidence of debris was not noted at the landfill.

Presence/Condition of Monitoring Instruments

There is no monitoring instrumentation installed at this landfill.

Other Features of Note

One 4 m by 4 m area of uneven side slope was noted on the northwest corner of the Lobes 1&3 regrade. A similar notation was made in the 2010/11 inspection reports. The uneven slope does not appear to be associated with settlement or erosion.

Discussion

The Northeast 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 IX: Visual Inspection Checklist / Report – Northeast Landfill

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

SITE NAME: CAM-1 – Jenny Lind Island
LANDFILL DESIGNATION: Northeast Landfill (Regrade Landfill)
DATE OF INSPECTION: August 16, 2012
DATE OF PREVIOUS INSPECTION: August 13, 2011
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.

Checklist Item	Present (Yes/No)	Location	Length	Width	Depth	Extent	Description	Photographic Record	Severity Rating	Additional Comments
Settlement	Yes	FEATURE A See Figure CAM-1.3 (Lobes 1 & 3 - N side slope)	2 m	1 m	0.2 m	Isolated (<1%)	Minor settlement on inside corner slope	NELF-12, 13, 14	Acceptable	Cover and slopes appear stable.
Erosion	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Frost Action	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Animal Burrows	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Vegetation	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Staining	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Vegetation Stress	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Seepage Points	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Debris Exposed	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Presence/Condition of Monitoring Instruments	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Other Features of Note:	Yes	FEATURE B See Figure CAM-1.3 (Lobes 1&3 - NW corner side slope)	4 m	4 m	N/A	Isolated (<1%)	Uneven side slope	NELF-19, 20	N/A	N/A
Additional Photos	Yes	See Figure CAM-1.3 and Photographic Record	N/A	N/A	N/A	N/A	General Photographic Record	N/A	Not Observable	General photos for documentation, no features of note.
Overall Landfill Performance:	**Acceptable**									

4.3 PRELIMINARY STABILITY ASSESSMENT

The Preliminary Stability Assessment for the Northeast Landfill has been completed as per the ToR and is included as Table X below.

Table X: Preliminary Stability Assessment – Northeast Landfill

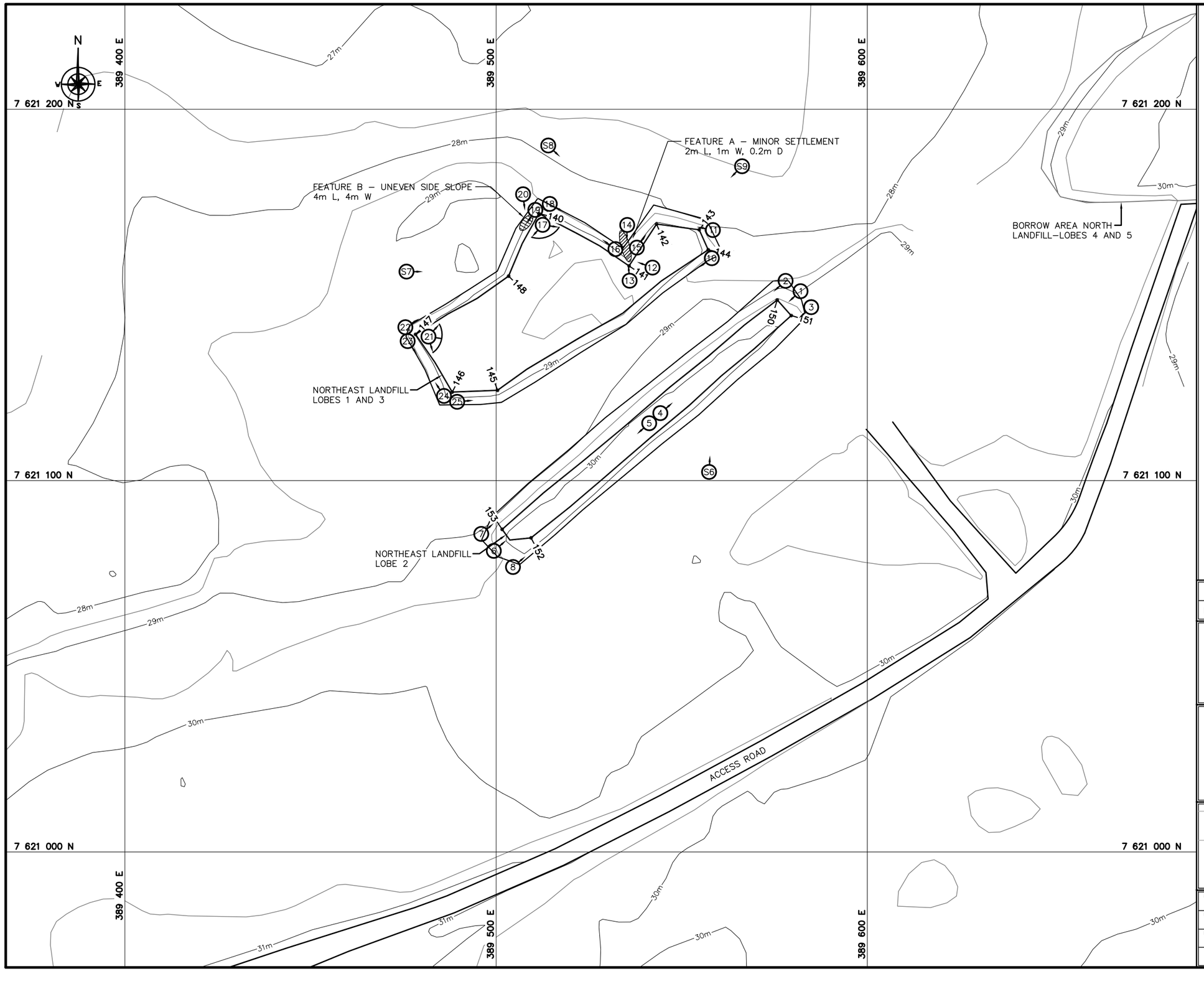
Feature	Severity Rating	Extent
Settlement	Acceptable	Isolated
Erosion	Not observed	None
Frost Action	Not observed	None
Staining	Not observed	None
Vegetation Stress	Not observed	None
Seepage/Ponded Water	Not observed	None
Debris exposure	Not observed	None
Overall Landfill Performance	**Acceptable**	

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 Northeast Landfill has been completed as per the ToR and is presented in Figure CAM-1.3.



LEGEND

- 140 — COORDINATE POINT
- MONITORING SITE FEATURE
- 6 — APPROX. PHOTOGRAPHIC VIEWPOINT
- MINOR SETTLEMENT (NTS)
- UNEVEN SIDE SLOPE (NTS)

0 10m 20m 30m 40m 50m

NO.	VERSION	DATE	PAR	VERIF.	APPR.
A	FINAL	13–03–08	P.L.	A.P.	A.L.

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COLLECTION OF LANDFILL MONITORING DATA

CAM-1, JENNY LIND ISLAND, NUNAVUT

NORTHEAST 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	MARCH 2013
DRAWN BY: P. LÉGARÉ	VERIFIED BY: A. PASSALIS	APPROVED BY: A. LECLAIR P. ENG
PROJECT NO: CD9229_004_160	DRAWING NO: CD9229_004_160-CAM-1.3-PL	PAGE PL

FIGURE CAM-1.3

G:\CD9229\2012\CAM-1\FINAL\CD9229_004_160-CAM-1.3-PL.dwg, PL, 2013-03-27 2:05:28 PM

4.5 PHOTOGRAPHIC RECORDS

The Photographic Record for the Northeast Landfill has been completed as per the ToR and is included as Table XI hereafter. The Photographic Record contains only an index and “thumbnail” photographs. Full sized photographs are contained in the Addendum DVD-ROM.

Table XI: Landfill Visual Inspection Photo Log – Northeast Landfill

Photo (NELF-)	Thumbnail	Filename	Size (KB)	Date	Vantage Point		Caption
					Easting	Northing	
Lobes 1 & 3							
9		C112_7260	2,847 KB	2012-08-16	389532	7621196	Panoramic view looking southwest to southeast from north of NE Landfill - Lobes 1 & 3
10		C112_7261	4,431 KB	2012-08-16	389558	7621160	View looking southwest along east toe of NE Landfill - Lobes 1 & 3
11		C112_7262	4,398 KB	2012-08-16	389558	7621168	View looking west along north toe of NE Landfill - Lobes 1 & 3
12		C112_7265	4,378 KB	2012-08-16	389542	7621158	View looking northwest at minor settlement on inside side slope (2m L x 1m W x 0.2m D) - FEATURE A
13		C112_7266	4,369 KB	2012-08-16	389537	7621154	View looking north at minor settlement on inside side slope (2m L x 1m W x 0.2m D) - FEATURE A
14		C112_7281	4,381 KB	2012-08-16	389535	7621169	View looking south at minor settlement on inside side slope (2m L x 1m W x 0.2m D) - FEATURE A
15		C112_7267	4,461 KB	2012-08-16	389538	7621162	View looking northeast along west toe of NE Landfill - Lobes 1 & 3
16		C112_7268	4,396 KB	2012-08-16	389532	7621162	View looking northwest along north toe of NE Landfill - Lobes 1 & 3
17		C112_7269	3,080 KB	2012-08-16	389512	7621169	Panoramic view looking east to southwest from north side across NE Landfill - Lobes 1 & 3
18		C112_7270	4,303 KB	2012-08-16	389515	7621175	View looking southeast along north toe of NE Landfill - Lobes 1 & 3
19		C112_7272	4,373 KB	2012-08-16	389510	7621173	View looking southeast along west toe of NE Landfill - Lobes 1 & 3
20		C112_7273	4,329 KB	2012-08-16	389507	7621177	View looking south at uneven side slope on northwest corner of NE Landfill - Lobes 1 & 3 (4m L, 4m W) - FEATURE B
21		C112_7276	3,107 KB	2012-08-16	389482	7621139	Panoramic view looking northeast to southeast from southwest corner across NE Landfill - Lobes 1 & 3
22		C112_7277	4,410 KB	2012-08-16	389476	7621141	View looking northeast along west toe of NE Landfill - Lobes 1 & 3
23		C112_7278	4,335 KB	2012-08-16	389477	7621139	View looking southeast along south toe of NE Landfill - Lobes 1 & 3
24		C112_7279	4,418 KB	2012-08-16	389486	7621123	View looking northwest along south toe of NE Landfill - Lobes 1 & 3
25		C112_7280	4,460 KB	2012-08-16	389489	7621122	View looking northeast along east toe of NE Landfill - Lobes 1 & 3
Lobe 2							
1		C112_7249	4,201 KB	2012-08-16	389582	7621151	View looking southwest along centerline of NE Landfill - Lobe 2
2		C112_7250	4,370 KB	2012-08-16	389578	7621153	View looking southwest along west toe of NE Landfill - Lobe 2
3		C112_7251	4,415 KB	2012-08-16	389585	7621146	View looking southwest along east toe of NE Landfill - Lobe 2
4		C112_7254	4,321 KB	2012-08-16	389544	7621118	View looking northeast along centerline of NE Landfill - Lobe 2
5		C112_7255	4,440 KB	2012-08-16	389542	7621116	View looking southwest along centerline of NE Landfill - Lobe 2
6		C112_7257	4,327 KB	2012-08-16	389499	7621081	View looking northeast along centerline of NE Landfill - Lobe 2
7		C112_7258	4,281 KB	2012-08-16	389496	7621086	View looking northeast along west toe of NE Landfill - Lobe 2
8		C112_7259	4,428 KB	2012-08-16	389505	7621077	View looking northeast along east toe of NE Landfill - Lobe 2
Soil Sampling							
		C112-7252	4,332 KB	2012-08-16	389557,1	7621109	Sampling location C112-6 located upgradient of NELF Lobe 2
S6		C112-7253	4,469 KB	2012-08-16	389557,1	7621103,1	View north at C112-6 soil sample location
		C112-7274	4,410 KB	2012-08-16	389482,9	7621157,2	Sampling location C112-7 located downgradient of NELF Lobes 1 & 3
S7		C112-7275	4,369 KB	2012-08-16	389476,3	7621156	View east at C112-7 soil sample location
		C112-7282	4,410 KB	2012-08-16	389520,8	7621184,5	Sampling location C112-8 located downgradient of NELF Lobes 1 & 3
S8		C112-7283	4,201 KB	2012-08-16	389514,8	7621190	View southeast at C112-8 soil sample location
		C112-7284	4,291 KB	2012-08-16	389559,1	7621178,5	Sampling location C112-9 located downgradient of NELF Lobes 1 & 3
S9		C112-7285	4,355 KB	2012-08-16	389565,3	7621183,7	View southwest at C112-9 soil sample location

4.6 SOIL SAMPLE ANALYTICAL DATA

The soil chemical analysis results and the evaluation of analytical data for the 2012 Northeast Landfill samples are presented in Tables XII and XIII below. Field and inter-laboratory duplicates collected as part of the QA/QC program are presented in Appendix C at the end of this report.

Table XII: Soil Chemical Analysis Results – Northeast Landfill

Sample Name	Sample Location	Depth Below Grade (cm)	Parameters									
			As [mg/kg]	Cd [mg/kg]	Cr [mg/kg]	Co [mg/kg]	Cu [mg/kg]	Pb [mg/kg]	Hg [mg/kg]	Ni [mg/kg]	Zn [mg/kg]	PCBs [mg/kg]
C112-6A	**North East Landfill C1-6**	0-15	11	<0.10	2.2	1.7	7.9	15	<0.050	2.5	<10	<0.01
C112-6B		40-50	16	<0.10	2.7	2.4	5.7	27	<0.050	3.3	<10	<0.01
C112-7A	**North East Landfill C1-7**	0-15	3.6	<0.10	2.3	1.1	<5.0	6.4	<0.050	1.6	<10	<0.01
C112-7B		40-50	3.6	<0.10	2.3	1.1	9.1	6.7	<0.050	1.6	<10	<0.01
C112-8A	**North East Landfill C1-8**	0-15	1.9	<0.10	1.8	<1.0	<5.0	2.9	<0.050	1.1	<10	<0.01
C112-8B		40-50	10	<0.10	2.7	1.7	8	12	<0.050	2.5	<10	<0.01
C112-9A	**North East Landfill C1-9**	0-15	2.6	0.18	36	<1.0	10	110	<0.050	2.7	<10	<0.01
C112-9B		40-50	7.8	0.14	3	2.2	12	13	<0.050	3.3	<10	<0.01

Sample Name	Sample Location	Depth Below Grade [cm]	Parameters			
			PHC(F1) [mg/kg]	PHC(F2) [mg/kg]	PHC(F3) [mg/kg]	TPH [mg/kg]
C112-6A	**North East Landfill C1-6**	0-15	<12	<10	12	27
C112-6B		40-50	<12	17	55	17
C112-7A	**North East Landfill C1-7**	0-15	<12	<10	<10	<10
C112-7B		40-50	<12	<10	<10	<10
C112-8A	**North East Landfill C1-8**	0-15	<12	<10	16	16
C112-8B		40-50	<12	<10	<10	<10
C112-9A	**North East Landfill C1-9**	0-15	<12	<10	22	22
C112-9B		40-50	<12	<10	<10	<10

Table XIII: Evaluation of 2012 Soil Analytical Data – Northeast Landfill

Parameter	2012
Copper	Concentrations above the detection limit of 5 mg/kg were noted at four locations: one upgradient sample at C1-6 (surface - 5.7 mg/kg); and three downgradient samples at C1-8 (depth – 8 mg/kg) and C1-9 (surface – 10 mg/kg, depth – 12 mg/kg). All other reported concentrations were lower than the method detection limit (5 mg/kg).
Nickel	Detectable concentrations were noted at all sample locations, ranging between 1.1-3.3 mg/kg with a mean of 2.3. The highest concentration (3.3 mg/kg) was observed at depth at upgradient location C1-6 and downgradient location C1-9, whereas the lowest concentration (1.1 mg/kg) was observed at surface at downgradient location C1-8.
Cobalt	Concentrations ranged between <1-2.4 mg/kg with a mean of 1.4. The highest concentrations were observed at depth at upgradient location C1-6 (2.4 mg/kg) and downgradient location C1-9 (2.2 mg/kg), whereas the lowest concentrations (<1 mg/kg) were observed at surface at downgradient locations C1-8 and C1-9.
Lead	Concentrations ranged between 2.9-110 mg/kg with a mean of 24.1. Trace concentrations were observed at all locations with one elevated concentration noted at surface at C1-9 (110 mg/kg) downgradient of Lobes 1&3. Slightly higher concentrations were also noted at upgradient location C1-6 (surface – 15 mg/kg, depth – 27 mg/kg). Detectable concentrations at all other locations ranged between 12.9-13 mg/kg.
Zinc	All reported concentrations were lower than the method detection limit of 10 mg/kg.
Chromium	Concentrations ranged between 1.8-36 mg/kg with a mean of 6.6. Trace concentrations were observed at all locations with one high concentration noted at surface at C1-9 (36 mg/kg) downgradient of Lobes 1&3. Concentrations at all other locations ranged between 1.8-3 mg/kg.
Arsenic	Concentrations ranged between 1.9-16 mg/kg with a mean of 7.1. The highest concentrations were observed at upgradient location C1-6 (surface – 11 mg/kg, depth – 16 mg/kg) and downgradient locations C1-8 (depth – 10 mg/kg) and C1-9 (depth – 7.8 mg/kg). Concentrations at all other locations ranged between 1.9-2.6 mg/kg.
Mercury	All reported concentrations were lower than the method detection limit (0.05 mg/kg).
PCBs	All reported concentrations were lower than the method detection limit (0.01 mg/kg).
TPH	Detectable concentrations of hydrocarbons were noted at two sample locations, including: upgradient location C1-6 (surface – 12 mg/kg, depth – 72 mg/kg) and downgradient location C1-9 (surface – 57 mg/kg, depth – 24 mg/kg). All other concentrations were lower than the method detection limit (10-12 mg/kg).

5 STATION WEST LANDFILL

5.1 BACKGROUND AND MONITORING PROGRAM

The Station West Landfill is located approximately 175 m west of the Non-Hazardous Waste Landfill. The landfill forms a slight topographic high within a relatively flat lying area west of the former station infrastructure pad. The landfill has a single regrade area encompassing a footprint of approximately 2,400 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 Station West Landfill was classified as moderate potential environmental risk. The remediation consisted of excavation of Tier II contaminated soil, removal of debris and regrading with the placement of additional granular fill.

The 2012 monitoring of this landfill includes a visual inspection to assess landfill performance and the collection of soil samples to monitor for the presence of leachate. Locations of soil samples are identified on Figure CAM-1.4. Soil at all stations was sampled as per the ToR.

5.2 VISUAL INSPECTION REPORT

The visual inspection of the Station West Landfill was conducted on August 16, 2012. The Visual Inspection Checklist/Report has been completed as per the ToR and is included as Table XIV of this report.

Settlement

Indications of minor settlement were noted in three general areas (Features A, B and C) on the landfill surface, including: five relatively small sized (round and linear) depressions situated on the northeast side slope (Feature A); three small depressions on the north cover and northwest side slope areas (Feature B); and a moderate sized uneven area on the east corner of the landfill (Feature C). All three features have an acceptable severity rating. All areas of settlement were noted to be relatively consistent with the previous 2011 inspection.

Erosion

Two areas (Features D and E) of erosion were noted on the surface, side slopes and/or margins of the Station West Landfill during the 2012 inspection. Feature D consisted of a shallow linear runoff feature extending down the east side slope, whereas Feature E consisted of a larger area extending along the north margin of the landfill where seasonal ponding has resulted in minor erosion along the toe and side slope. Both areas appear stable and have an acceptable severity rating. Observations appear consistent with the previous 2011 inspection.

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 on the landfill.

Staining

Two localized areas of rust-colored staining were noted on the southwest cover area of the landfill (Feature F). The stains range in size from 2-4 m long and 0.2-0.3 m wide. The southern smaller stained area was not noted during the previous 2011 inspection.

Seepage Points

No areas of seepage were noted at the landfill.

Debris

Evidence of debris was not noted at the landfill.

Presence/Condition of Monitoring Instruments

There is no monitoring instrumentation installed at this landfill.

Other Features of Note

Two parallel and one single tension crack were noted on the southeast corner of the landfill (Feature G). The cracks ranged in length from 4 to 7 m long, were typically 3 to 5 mm wide and extended in a perpendicular direction to the slope. The location and frequency of cracks on the southeast corner appears consistent with findings from the previous 2010/11 inspections. Two additional tension cracks (Feature H) were also noted on the northeast side slope of the landfill during the 2012 inspection. The cracks ranged in length from 1.5 to 15 m long and 3 to 10 mm in width. Based on observations made during the 2012 inspection, the landfill surface appears stable and has an acceptable severity rating.

Discussion

The Station 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 XIV: Visual Inspection Checklist / Report – Station West Landfill

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

SITE NAME: CAM-1 – Jenny Lind Island
LANDFILL DESIGNATION: Station West Landfill (Regrade Landfill)
DATE OF INSPECTION: August 16, 2012
DATE OF PREVIOUS INSPECTION: August 13, 2011
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.

Checklist Item	Present (Yes/No)	Location	Length	Width	Depth	Extent	Description	Photographic Record	Severity Rating	Additional Comments
Settlement	Yes	FEATURE A See Figure CAM-1.4 (E side slope)	2 - 0.2 m	0.1 - 0.2 m	0.05 - 0.1 m	Isolated (<1%)	Minor depressions	WLF-4, 5, 10	Acceptable	Side slope appears stable.
		FEATURE B See Figure CAM-1.4 (E side slope & N cover)	0.7 - 1.5 m	0.1 - 0.3 m	0.05 - 0.1 m	Isolated (<1%)	Minor depressions	WLF-11, 13	Acceptable	Cover and slopes appear stable.
		FEATURE C See Figure CAM-1.4 (SW corner)	5 m	5 m	0.05 - 0.15 m	Isolated (<2%)	Uneven surface	WLF-17	Acceptable	Cover appears stable.
Erosion	Yes	FEATURE D See Figure CAM-1.4 (E side slope)	2 m	0.1 m	0.05 m	Isolated (<1%)	Minor erosion	WLF-2, 3	Acceptable	Washing of fines in cover material
		FEATURE E See Figure CAM-1.4 (N corner)	7 m	4 m	0.05 - 0.1 m	Isolated (<2%)	Minor erosion	WLF-5, 7, 8	Acceptable	Washing of fines on slope from seasonal ponding
Frost Action	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Animal Burrows	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Vegetation	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Staining	Yes	FEATURE F See Figure CAM-1.4 (SW cover - 2 areas - 1 New Obs)	2 - 4 m	0.2 - 0.3 m	Unknown	Isolated (<1%)	Linear rust coloured stains	WLF-16, 21	Acceptable	N/A
Vegetation Stress	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Seepage Points	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Debris Exposed	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Presence/Condition of Monitoring Instruments	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Other Features of Note:	Yes	FEATURE G See Figure CAM-1.4 (Tension Cracks - SE corner)	4 - 7 m	3 - 5 mm	Unknown	Isolated (<1%)	Parallel and single tension cracks on side slope	WLF-20, 23, 24	Acceptable	N/A
		FEATURE H See Figure CAM-1.4 (Tension Cracks - NE side slope - New Obs.)	1.5 - 15 m	3 - 10 mm	Unknown	Isolated (<1%)	Continuous single tension cracks on side slope	WLF-5, 6	Acceptable	N/A
Additional Photos	Yes	See Figure CAM-1.4 and Photographic Record	N/A	N/A	N/A	N/A	General Photographic Record	N/A	Not Observable	General photos for documentation, no features of note.
Overall Landfill Performance:	**Acceptable**									

5.3 PRELIMINARY STABILITY ASSESSMENT

The Preliminary Stability Assessment for Station West Landfill has been completed as per the ToR and is included as Table XV below.

Table XV: Preliminary Stability Assessment – Station West Landfill

Feature	Severity Rating	Extent
Settlement	Acceptable	Isolated
Erosion	Acceptable	Isolated
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 Station West Landfill has been completed as per the ToR and is presented in Figure CAM-1.4.

7 621 000 N

389 000 E

389 100 E

7 620 900 N

FEATURE H – TENSION CRACKS
1.5–15m L, 3–10mm W

FEATURE B – MINOR DEPRESSIONS
0.7–1m L, 0.2–0.3m W, 0.05–0.1m D

FEATURE E – MINOR EROSION/SETTLEMENT
7m L, 4m W, 0.05–0.1m D

FEATURE A – MINOR DEPRESSIONS
0.2–2m L, 0.1–0.2m W, 0.05–0.1m D

FEATURE D – MINOR EROSION
2m L, 0.1m W, 0.03m D

EQUIPMENT TRACKS/RUTS

STATION WEST LANDFILL

FEATURE F – STAINING
4m L, 0.3m W

FEATURE C – UNEVEN SURFACE
5m L, 5m W, 0.05–0.15m D

FEATURE G – TENSION CRACKS
4–7 L, 3–5mm W

26m

24m

201 202 203 204 205 206 207

S10 S11 S12 S13

LEGEND

- COORDINATE POINT
- APPROX. PHOTOGRAPHIC VIEWPOINT
- MINOR SETTLEMENT (NTS)
- STAINING (NTS)
- EQUIPMENT TRACKS/RUTS (NTS)
- UNEVEN SIDE SLOPE (NTS)
- MINOR EROSION (NTS)
- TENSION CRACK(s) (NTS)

0 5m 10m 15m 20m 25m

NO.	VERSION	DATE	DRAWN	VERIF.	APPR.
A	FINAL	13-02-14	P.L.	A.P.	A.L.

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Defence Construction Canada

COLLECTION OF
LANDFILL MONITORING DATA
CAM-1, JENNY LIND ISLAND, NUNAVUT

STATION WEST LANDFILL

SITE REMEDIATION SOLUTIONS
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MEASUREMENT UNIT	SCALE:	DATE (month-year):
Metre	1 : 500	FEBRUARY 2013
DRAWN BY: P. LÉGARÉ	VERIFIED BY: A. PASSALIS	APPROVED BY: A. LECLAIR P. ENG
PROJECT NO: CD9229_004_160	DRAWING NO: CD9229_004_160-CAM-1.4-PL	PAGE PL

FIGURE CAM-1.4

G:\CD9229\2012\CAM-1\FINAL\CD9229_004_160-CAM-1.4-PL.dwg, PL, 2013-03-27 2:06:41 PM

5.5 PHOTOGRAPHIC RECORDS

The Photographic Record for the Station West Landfill has been completed as per the ToR and is included as Table XVI hereafter. The Photographic Record contains only an index and “thumbnail” photographs. Full sized photographs are contained in the Addendum DVD-ROM.

Table XVI: Landfill Visual Inspection Photo Log – Station West Landfill

Photo (SWLF-)	Thumbnail	Filename	Size (KB)	Date	Vantage Point		Caption
					Easting	Northing	
1		C112_7286	3190	2012-08-16	389053	7620924	Panoramic view looking southwest to northwest from east side across Station West Landfill
2		C112_7287	4292	2012-08-16	389051	7620935	View looking north-northwest at localized depressions (0.15-2m L, 0.1-0.2m W, 0.05-0.1m D) - Feature A; and minor erosion (2m L, 0.1m W, 0.05m D) - Feature D on east side slope of Station West Landfill
3		C112_7288	4310	2012-08-16	389055	7620943	View looking west-southwest at localized depressions (0.15-2m L, 0.1-0.2m W, 0.05-0.1m D) - Feature A; and minor erosion (2m L, 0.1m W, 0.05m D) - Feature D on east side slope of Station West Landfill
4		C112_7289	4372	2012-08-16	389040	7620940	View looking northeast at minor depressions on side slope (2m L, 0.1m W, 0.05m D) - FEATURE A
5		C112_7291	4339	2012-08-16	389043	7620945	View looking norhwest at erosion from seasonal ponding on northeast side of Station West Landfill (6m L, 4m W, 0.05m D) with minor settlement (3m L, 0.3-0.5m W, 0.05-0.1m D) - FEATURE E. Start of single tension crack (15m L, 3-10 mm W) - FEATURE H
6		C112_7293	4376	2012-08-16	389040	7620955	Single crack extending across northeast side slope (15m L, 3-10 mm W) - FEATURE H
7		C112_7296	4339	2012-08-16	389046	7620958	View looking west at erosion from seasonal ponding on northeast side of Station West Landfill (7m L, 4m W, 0.05m D) with minor settlement (3m L, 0.3-0.5m W, 0.05-0.1m D) - FEATURE E
8		C112_7297	4349	2012-08-16	389031	7620965	View looking southeast at erosion from seasonal ponding on northeast side of Station West Landfill (7m L, 4m W, 0.05m D) with minor settlement (3m L, 0.3-0.5m W, 0.05-0.1m D) - FEATURE E
9		C112_7298	4283	2012-08-16	389033	7620959	Single crack extending 1 m up from northeast toe (1.5m L, 3mm W) - FEATURE H
10		C112_7299	4306	2012-08-16	389034	7620951	View east at minor depression on top slope on northeast corner of Station West Landfill (1.5m L, 0.2m W, 0.05m D) - FEATURE A
11		C112_7300	4415	2012-08-16	389026	7620959	View looking south at isolated depression 2m in from crest on north side of Station West Landfill (1m L, 0.1-0.15m W, 0.05m D) - FEATURE B
12		C112_7302	4387	2012-08-16	389029	7620962	View looking west-southwest along north side slope of Station West Landfill
13		C112_7303	4341	2012-08-16	389013	7620956	View looking south-southwest along west side slope of Station West Landfill
14		C112_7304	3368	2012-08-16	389030	7620956	Panoramic view looking southwest to east from north side across Station West Landfill
15		C112_7307	4301	2012-08-16	389013	7620944	View looking southwest at heavy equipment tracks west of Station West Landfill
16		C112_7312	4350	2012-08-16	389012	7620925	View looking east at linear stain on surface of Station West Landfill (4m L, 0.3m W) - Feature F
17		C112_7313	4280	2012-08-16	389011	7620921	View looking west at uneven surface on southwest corner of Station West Landfill (5m L, 5m W, 0.05-0.15m D) - Feature C
18		C112_7314	3031	2012-08-16	389003	7620920	Panoramic view looking northeast to southeast from southwest corner across Station West Landfill
19		C112_7315	4342	2012-08-16	389002	7620917	View looking southeast along south side slope of Station West Landfill
20		C112_7316	4276	2012-08-16	388999	7620921	View looking north-northeast along west side slope of Station West Landfill
21		C112_7318	4421	2012-08-16	389023	7620916	View looking southwest at rust coloured staining on southwest cover of Station West Landfill (2m L, 0.2m W) - FEATURE F
22		C112_7319	4313	2012-08-16	389023	7620906	View looking east-southeast at parallel cracks on south side slope of Station West Landfill (16m L, 3-10mm W) - FEATURE G
23		C112_7320	4397	2012-08-16	389029	7620905	Single crack on south side slope of Station West Landfill (4m L, 2-4mm W) - Feature G
24		C112_7321	4383	2012-08-16	389036	7620902	View looking west-northwest at parallel cracks on south side slope of Station West Landfill (7m L, 3-5mm W) - Feature G
25		C112_7322	3148	2012-08-16	389039	7620906	Panoramic view looking northwest to northeast from south side across Station West Landfill
26		C112_7323	4214	2012-08-16	389038	7620891	View looking north at area with cracks on south side slope of Station West Landfill
Soil Sampling							
		C112_7294	4382	2012-08-16	389059	7620901	Sampling location C112-10 located upgradient of Station West LF
S-10		C112_7295	4252	2012-08-16	389065	7620897	View northwest at C112-10 soil sample location
		C112_7308	4350	2012-08-16	388988	7620922	Sampling location C112-11 located downgradient of Station West LF
S-11		C112_7309	4439	2012-08-16	388981	7620922	View east at C112-11 soil sample location
		C112_7310	4336	2012-08-16	389002	7620957	Sampling location C112-12 located downgradient of Station West LF
S-12		C112_7311	4333	2012-08-16	388996	7620961	View southeast at C112-12 soil sample location
		C112_7324	4319	2012-08-16	389045	7620969	Sampling location C112-13 located downgradient of Station West LF
S-13		C112_7325	4239	2012-08-16	389046	7620975	View south-southwest at C112-13 soil sample location

5.6 SOIL SAMPLE ANALYTICAL DATA

The soil chemical analysis results and the evaluation of analytical data for the 2012 Station West Landfill samples are presented in Tables XVII and XIVII below. Field and inter-laboratory duplicates collected as part of the QA/QC program are presented in Appendix C at the end of this report.

Table XVII: Soil Chemical Analysis Results – Station West Landfill

Sample Name	Sample Location	Depth Below Grade (cm)	Parameters									
			As [mg/kg]	Cd [mg/kg]	Cr [mg/kg]	Co [mg/kg]	Cu [mg/kg]	Pb [mg/kg]	Hg [mg/kg]	Ni [mg/kg]	Zn [mg/kg]	PCBs [mg/kg]
C112-10A	**Station West Landfill C1-10**	0-15	1.8	<0.10	1.4	<1.0	<5.0	2.6	<0.050	1.1	<10	<0.01
C112-10B		40-50	4.7	<0.10	2.3	1	<5.0	5.9	<0.050	2	<10	<0.01
C112-11A	**Station West Landfill C1-11**	0-15	<1.0	<0.10	1.2	<1.0	<5.0	<1.0	<0.050	1.4	<10	<0.01
C112-11B		40-50	<1.0	<0.10	2.8	<1.0	<5.0	1.4	<0.050	1.9	<10	<0.01
C112-12A	**Station West Landfill C1-12**	0-15	<1.0	<0.10	1.3	<1.0	<5.0	1.4	<0.050	<1.0	<10	<0.01
C112-12B		40-50	<1.0	<0.10	2.6	<1.0	<5.0	1.1	<0.050	1.7	<10	<0.01
C112-13A	**Station West Landfill C1-13**	0-15	<1.0	<0.10	2	<1.0	<5.0	1.4	<0.050	1.1	<10	<0.01
C112-13B		40-50	<1.0	<0.10	1.6	<1.0	<5.0	1.4	<0.050	<1.0	<10	<0.01

Sample Name	Sample Location	Depth Below Grade [cm]	Parameters			
			PHC(F1) [mg/kg]	PHC(F2) [mg/kg]	PHC(F3) [mg/kg]	TPH [mg/kg]
C112-10A	**Station West Landfill C1-10**	0-15	<12	<10	11	11
C112-10B		40-50	<12	<10	<10	<10
C112-11A	**Station West Landfill C1-11**	0-15	<12	<10	<10	<10
C112-11B		40-50	<12	<10	<10	<10
C112-12A	**Station West Landfill C1-12**	0-15	<12	<10	<10	<10
C112-12B		40-50	<12	<10	<10	<10
C112-13A	**Station West Landfill C1-13**	0-15	<12	<10	<10	<10
C112-13B		40-50	<12	<10	<10	<10

PHC (F1): Petroleum hydrocarbon C_6 to C_{10}, does not include BTEX fractions
PHC (F2): Petroleum hydrocarbon $C_{>10}$ to C_{16}
PHC (F3): Petroleum hydrocarbon $C_{>16}$ to C_{34}
TPH: Total Petroleum Hydrocarbons (C_6 to C_{34})

Table XVIII: Evaluation of 2012 Soil Analytical Data – Station West Landfill

Parameter	2012
Copper	All reported concentrations lower than the method detection limit of 5 mg/kg.
Nickel	Detectable concentrations were noted at all but two sample locations, ranging between 1.1-2.0 mg/kg with a mean of 1.5. The highest concentration were observed at depth at upgradient location C1-10 (2.0 mg/kg) and downgradient location C1-11 (1.9 mg/kg), whereas the lowest concentrations (<1.0 mg/kg) were observed at downgradient locations C1-12 (surface) and C1-13 (depth).
Cobalt	A detectable concentration of 1.0 mg/kg was noted a one depth sample location, C1-10. All other reported concentrations were lower than the method detection limit of 10 mg/kg.
Lead	Concentrations ranged between <1-5.9 mg/kg with a mean of 1.4. Trace concentrations were observed at all locations with one slightly higher concentration noted at depth at C1-10 (5.9 mg/kg) upgradient of the landfill. Detectable concentrations at other locations ranged between 1.1-2.6 mg/kg. Concentrations, lower than the method detection limit of 1 mg/kg, were noted at surface at downgradient locations C1-11 and C1-12.
Zinc	All reported concentrations were lower than the method detection limit of 10 mg/kg.
Chromium	Concentrations ranged between 1.2-2.8 mg/kg with a mean of 1.8. Trace concentrations were observed at all locations with marginally higher concentrations noted at depth at C1-11 (2.8 mg/kg) and C1-12 (2.6 mg/kg).
Arsenic	Detectable concentrations were only noted at the upgradient sample location, C1-10 (surface – 1.8 mg/kg, depth – 4.7 mg/kg). All other reported concentrations were lower than the method detection limit of 1 mg/kg.
Mercury	All reported concentrations were lower than the method detection limit (0.05 mg/kg).
PCBs	All reported concentrations were lower than the method detection limit (0.01 mg/kg).
TPH	Detectable concentrations of hydrocarbons were noted at two sample locations, including: upgradient location C1-10 (surface – 18 mg/kg, depth – 11 mg/kg) and downgradient location C1-11 (surface – 11 mg/kg. All other concentrations were lower than the method detection limit (10-12 mg/kg).

6 NON-HAZARDOUS WASTE LANDFILL

6.1 BACKGROUND AND MONITORING PROGRAM

The Non-Hazardous Waste Landfill (NHWLF) is located immediately adjacent the former station infrastructure pad. The landfill is bound to the southwest by the former pad and southeast by the access road leading north from the former station area. The landfill, including granular cover, encompasses a footprint of approximately 5,850 m^2 with the final cover extending between 1 to 3.5 m above the surrounding grade. This landfill was constructed for the disposal of non-hazardous wastes, site debris and DCC Tier I and Type A hydrocarbon impacted soil. Landfill materials are contained by a granular perimeter berm and cover. Four groundwater monitoring wells are installed at the landfill perimeter.

The long term monitoring plan consists of visual monitoring, and periodic collection of soil and groundwater samples.

The 2012 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. Locations of groundwater monitoring wells and soil samples are identified on Figure CAM-1.5.

Soil at all stations was sampled as specified. Inspection and monitoring was carried out at each of the monitoring wells as per the ToR. The background monitoring well location was dry at the time of sampling and consequently was not sampled.

6.2 VISUAL INSPECTION REPORT

The visual inspection of the NHWLF was conducted on August 17, 2012. The Visual Inspection Checklist/Report has been completed as per the ToR and is included as Table XIX of this report.

Settlement

One area of minor settlement (Feature A) was noted on the southwest cover of the landfill, consisting of an isolated depression measuring 1.5 m long, 0.3-0.5 m wide and 0.1 m deep. This feature was not noted during the previous inspection.

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

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

Seepage Points

There was no seepage point observed at this landfill.

Debris

Three areas of partially exposed black geotextile material were noted on the northeast, east and west sides of the landfill surface (Feature A). This feature appears unchanged from the previous 2010/11 inspections. There was no other indication of debris at the landfill.

Presence/Condition of Monitoring Instruments

All monitoring well installations were found to be in good condition at the landfill.

Other Features of Note

There was no other feature noted.

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 XIX: Visual Inspection Checklist / Report – NHWLF

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

SITE NAME: CAM-1 Jenny Lind Island
LANDFILL DESIGNATION: NHWLF (New Landfill)
DATE OF INSPECTION: August 17, 2012
DATE OF PREVIOUS INSPECTION: August 13, 2011
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.

Checklist Item	Present (Yes/No)	Location	Length	Width	Depth	Extent	Description	Photographic Record	Severity Rating	Additional Comments
Settlement	Yes	FEATURE A See Figure CAM-1.5 (SW cover - New Obs.)	1.5 m	0.3 - 0.5 m	0.1 m	Isolated (<1%)	Minor depression	NHWLF-6	Acceptable	Cover appears stable
Erosion	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Frost Action	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Animal Burrows	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Vegetation	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Staining	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Vegetation Stress	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Seepage Points	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Debris Exposed	Yes	FEATURE B See Figure CAM-1.5 (NE, E and W cover)	0.1 - 0.3 m	0.1 - 0.2 m	Unknown	Isolated (<1%)	Exposed geotextile material	NHWLF-4, 5, 11, 12, 16, 17	Acceptable	N/A
Presence/Condition of Monitoring Instruments	Yes	See Figure CAM-1.5 (S, NE, N and NW)	N/A	N/A	N/A	N/A	MW-01 to -04	NHWLF-1W, 2W, 3W, 4W	N/A	All monitoring wells appear in good condition.
Other Features of Note:	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Additional Photos	Yes	See Figure CAM-1.5 and Photographic Record	N/A	N/A	N/A	N/A	General Photographic Record	N/A	Not Observable	General photos for documentation, no features of note.
Overall Landfill Performance:	**Acceptable**									

6.3 PRELIMINARY STABILITY ASSESSMENT

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

Table XX: Preliminary Stability Assessment – NHWLF

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	Not observed	None
Debris exposure	Acceptable	Isolated
Overall Landfill Performance	**Acceptable**	

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

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

6.4 LOCATION PLAN

The Location Plan for the NHWLF has been completed as per the ToR and is presented in Figure CAM-1.5.

N

ACCESS ROAD

389 200 E

389 300 E

389 400 E

7 621 000 N

7 620 900 N

BM–2

MW–01 B

MW–02

MW–03

MW–04

711

713

FEATURE B – EXPOSED GEOTEXTILE
0.1–0.3m L x 0.1–0.2m W

FEATURE A – LOCALIZED DEPRESSION
1.5m L, 0.36–0.5m W, 0.05m D

NON–HAZARDOUS
WASTE LANDFILL

TYPE 2A GRANULAR FILL

26m 27m 28m 29m 30m 31m 32m 33m

LEGEND

- BM–2 — PERMANENT BENCHMARK LOCATION (1)
- 710 — COORDINATE POINT
- MONITORING WELL LOCATION (3)
- B — BACKGROUND MONITORING WELL LOCATION (1)
- 6 — APPROX. PHOTOGRAPHIC VIEWPOINT
- BODY OF WATER
- MINOR SETTLEMENT (NTS)
- EXPOSED GEOTEXTILE (NTS)

0 10m 20m 30m 40m 50m

A	FINAL	13–04–02	L.L.	A.P.	A.L.
NO.	VERSION	DATE	PAR	VERIF.	APPR.

Construction de Défense Canada
Defence Construction Canada

COLLECTION OF LANDFILL MONITORING DATA

CAM-1, JENNY LIND ISLAND, NUNAVUT

NON-HAZARDOUS WASTE LANDFILL

SITE REMEDIATION SOLUTIONS

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MEASUREMENT UNIT	SCALE:	DATE (month–year):
Metre	1 : 1,000	MARCH 2013
DRAWN BY: P. LÉGARÉ	VERIFIED BY: A. PASSALIS	APPROVED BY: A. LECLAIR P. ENG
PROJECT NO: CD9229_004_160	DRAWING NO: CD9229_004_160-CAM-1.5-PL	PAGE PL

FIGURE CAM-1.5

6.5 PHOTOGRAPHIC RECORDS

The Photographic Record for the Non-Hazardous Waste Landfill has been completed as per the ToR and is included as Table XXI hereafter. The Photographic Record contains only an index and “thumbnail” photographs. Full sized photographs are contained in the Addendum DVD-ROM.

Table XXI: Landfill Visual Inspection Photo Log – NHWLF

Photo (NHWLF-)	Thumbnail	Filename	Size (KB)	Date	Vantage Point		Caption
					Easting	Northing	
1		C112_7527	3,074 KB	2012-08-17	389245	7620945	Panoramic view looking northeast to southeast from west corner across NHWLF
2		C112_7528	4,266 KB	2012-08-17	389242	7620942	View looking southeast along southwest side of NHWLF
3		C112_7529	4,292 KB	2012-08-17	389240	7620947	View looking northeast along northwest side slope of NHWLF
4		C112_7530	4,433 KB	2012-08-17	389254	7620936	Exposed geotextile material on west cover area of NHWLF - Feature B
5		C112_7531	4,323 KB	2012-08-17	389250	7620940	View looking southeast at exposed geotextile material on west cover area of NHWLF - Feature B
6		C112_7532	4,384 KB	2012-08-17	389275	7620912	View looking northwest at localized depression near transition from Type 1 and Type 2 cover materials (1.5 m L, 0.3-0.5m W, 0.1 m D) - FEATURE A
7		C112_7533	2,559 KB	2012-08-17	389283	7620901	Panoramic view looking northwest to northeast from south corner across NHWLF.
8		C112_7534	3,223 KB	2012-08-17	389323	7620937	Panoramic view looking southwest to northwest from east corner across NHWLF. Note exposed geotextile material in foreground.
9		C112_7535	4,388 KB	2012-08-17	389333	7620942	View looking northwest along northeast side slope of NHWLF
10		C112_7536	4,259 KB	2012-08-17	389334	7620938	View looking southwest along southeast side slope of NHWLF
11		C112_7537	4,391 KB	2012-08-17	389318	7620940	Exposed geotextile material on east cover area of NHWLF - Feature B
12		C112_7538	4,345 KB	2012-08-17	389320	7620946	View looking sout-southwest at exposed geotextile material on east cover area of NHWLF - Feature B
13		C112_7551	4,419 KB	2012-08-17	389279	7621003	View looking southwest along northwest side slope of NHWLF
14		C112_7552	4,409 KB	2012-08-17	389284	7621003	View looking southeast along northeast side slope of NHWLF
15		C112_7553	3,163 KB	2012-08-17	389280	7620982	Panoramic view looking southeast to southwest from north corner across NHWLF
16		C112_7554	4,352 KB	2012-08-17	389296	7620956	Exposed geotextile material on northeast cover area of NHWLF - Feature A
17		C112_7555	4,370 KB	2012-08-17	389299	7620962	View looking southeast at exposed geotextile material on northeast cover area of NHWLF - Feature A
Soil Sampling							
		C112_7539	4,366 KB	2012-08-17	389277	7620889	Sampling location C112-1W located upgradient of NHWLF
1W		C112_7540	4,462 KB	2012-08-17	389278	7620885	View north at C112-1W soil sample location
		C112_7543	4,359 KB	2012-08-17	389334	7620963	Sampling location C112-2W located downgradient of NHWLF
2W		C112_7544	4,252 KB	2012-08-17	389334	7620957	View north at C112-2W soil sample location
		C112_7547	4,297 KB	2012-08-17	389287	7620999	Sampling location C112-3W located downgradient of NHWLF
3W		C112_7548	4,308 KB	2012-08-17	389288	7620994	View north at C112-3W soil sample location
		C112_7556	4,280 KB	2012-08-17	389256	7620990	Sampling location C112-4W located downgradient of NHWLF
4W		C112_7557	4,308 KB	2012-08-17	389252	7620993	View southeast at C112-4W soil sample location

6.6 SOIL SAMPLE ANALYTICAL DATA

The soil chemical analysis results and the evaluation of analytical data for the 2012 Non-Hazardous Waste Landfill samples are presented in Tables XXII and XXIII below. Field and inter-laboratory duplicates collected as part of the QA/QC program are presented in Appendix C at the end of this report.

Table XXII: Soil Chemical Analysis Results – NHWLF

Sample Name	Sample Location	Depth Below Grade (cm)	Parameters									
			As [mg/kg]	Cd [mg/kg]	Cr [mg/kg]	Co [mg/kg]	Cu [mg/kg]	Pb [mg/kg]	Hg [mg/kg]	Ni [mg/kg]	Zn [mg/kg]	PCBs [mg/kg]
C112-1WA	**NHWL MW-01**	0-15	3.9	0.11	2.9	<1.0	<5.0	10	<0.050	1.7	<10	0.039
C112-1WB		40-50	4.8	<0.10	3.3	1.2	<5.0	10	<0.050	2.7	<10	0.025
C112-2WA	**NHWL MW-02**	0-15	4	<0.10	2.3	<1.0	<5.0	11	<0.050	1.6	<10	<0.01
C112-2WB		40-50	5.4	<0.10	1.8	<1.0	<5.0	16	<0.050	1.4	<10	<0.01
C112-3WA	**NHWL MW-03**	0-15	1.3	<0.10	3.1	1	<5.0	2.5	<0.050	2.3	<10	<0.01
C112-3WB		40-50	2.7	<0.10	3	1.2	<5.0	5.7	<0.050	2	<10	0.12
C112-4WA	**NHWL MW-04**	0-15	4.2	<0.10	3	<1.0	<5.0	11	<0.050	1.7	<10	<0.01
C112-4WB		40-50	21	<0.10	2.7	1.3	6.2	38	<0.050	2.7	<10	<0.01

Sample Name	Sample Location	Depth Below Grade [cm]	Parameters			
			PHC(F1) [mg/kg]	PHC(F2) [mg/kg]	PHC(F3) [mg/kg]	TPH [mg/kg]
C112-1WA	**NHWL MW-01**	0-15	<12	<10	31	31
C112-1WB		40-50	<12	<10	28	28
C112-2WA	**NHWL MW-02**	0-15	<12	<10	<10	<10
C112-2WB		40-50	<12	<10	<10	<10
C112-3WA	**NHWL MW-03**	0-15	<12	<10	<10	<10
C112-3WB		40-50	<12	<10	<10	<10
C112-4WA	**NHWL MW-04**	0-15	<12	<10	<10	<10
C112-4WB		40-50	<12	<10	<10	<10

PHC (F1): Petroleum hydrocarbon C_6 to C_{10}, does not include BTEX fractions
PHC (F2): Petroleum hydrocarbon $C_{>10}$ to C_{16}
PHC (F3): Petroleum hydrocarbon $C_{>16}$ to C_{34}
TPH: Total Petroleum Hydrocarbons (C_6 to C_{34})

Table XXIII: Evaluation of 2012 Soil Analytical Data – NHWLF

Parameter	2012
Copper	Detectable concentration of 6.2 mg/kg was noted in one depth sample collected at MW-4 located downgradient of the landfill. All other reported concentrations were lower than the method detection limit (5 mg/kg).
Nickel	Detectable concentrations were noted at all sample locations, ranging between 1.4-2.7 mg/kg with a mean of 1.9. The highest concentrations were observed at upgradient location MW-1 (surface – 2.7 mg/kg) and downgradient locations MW-3 (surface – 2.3 mg/kg) and MW-4 (depth – 2.7 mg/kg). Concentrations at all other locations ranged between 1.7-2.0 mg/kg.
Cobalt	Concentrations ranged between <1-1.3 mg/kg with detectable concentrations noted at half of the soil sample locations. Marginally higher concentrations were noted at depth at upgradient location MW-1 (1.2 mg/kg) and downgradient locations MW-3 (1.2 mg/kg) and MW-4 (1.3 mg/kg).
Lead	Concentrations ranged between 2.5-38 mg/kg with a mean of 10.5. Trace concentrations were observed at all locations with the highest and lowest concentrations were noted at downgradient location MW-4 (depth – 38 mg/kg) and MW-3 (surface – 2.5 mg/kg). Concentrations at all other locations ranged between 5.7-16 mg/kg.
Zinc	All reported concentrations were lower than the method detection limit of 10 mg/kg.
Chromium	Concentrations ranged between 1.8-3.3 mg/kg with a mean of 3.0. Slightly higher concentrations were observed at upgradient location MW-1 (depth – 3.3 mg/kg) and downgradient location MW-2 (surface – 3.1 mg/kg). Concentrations at all other locations ranged between 1.8-3.0 mg/kg.
Arsenic	Detectable concentrations were noted at all sample locations, ranging between 1.3-21 mg/kg and having a mean of 4.1. The highest and lowest concentrations were noted at downgradient locations MW-4 (depth – 21 mg/kg) and MW-3 (surface – 1.3 mg/kg), respectively. Concentrations at all other locations ranged between 13.9*-5.4 mg/kg.
Mercury	All reported concentrations were lower than the method detection limit (0.05 mg/kg).
PCBs	Detectable concentrations of PCBs were noted at upgradient location MW-1 (surface – 0.039 mg/kg, depth 0.025 mg/kg) and downgradient location MW-3 (depth – 0.12 mg/kg). All other reported concentrations were lower than the method detection limit (0.05 mg/kg)
TPH	All reported concentrations were lower than the method detection limit (10-12 mg/kg).

6.7 GROUNDWATER SAMPLE ANALYTICAL DATA

The groundwater chemical analysis results and the evaluation of analytical data for the 2012 Non-Hazardous Waste Landfill samples are presented in Tables XXIV and XXV below. As noted in Section 2.5 and the Monitoring Well Sampling Logs below, MW-1 was reported dry and MW-2 had limited quantities of water at the time of sampling. Field and inter-laboratory duplicates collected as part of the QA/QC program are presented in Appendix C at the end of this report.

Table XXIV: Groundwater Chemical Analysis Results – NHWLF

Sample Name	Sample Location	Parameters									
		As [mg/L]	Cd [mg/L]	Cr [mg/L]	Co [mg/L)	Cu [mg/L]	Pb [mg/L]	Hg [µg/L]	Ni [mg/L]	Zn [mg/L]	PCBs [mg/L]
C112-2W	**NHWL MW-02**	--	--	--	--	--	--	--	--	--	<0.0001
C112-3W	**NHWL MW-03**	0.0026	0.026	0.031	0.00057	0.004	0.0012	<0.002	0.014	<0.0030	<0.00005
C112-4W	**NHWL MW-04**	0.023	0.14	0.55	0.00038	0.055	0.015	0.0047	0.27	0.024	<0.00005

Sample Name	Sample Location		Parameters			
			PHC(F1) [µg/L]	PHC(F2) [mg/L]	PHC(F3) [mg/L]	TPH [mg/L]
C112-3W	**NHWL**	**MW-03**	<100	<0.1	<0.1	<0.1
C112-4W	**NHWL**	**MW-04**	<100	<0.1	<0.1	<0.1

PHC (F1): Petroleum hydrocarbon C_6 to C_{10}, does not include BTEX fractions
PHC (F2): Petroleum hydrocarbon $C_{>10}$ to C_{16}
PHC (F3): Petroleum hydrocarbon $C_{>16}$ to C_{34}
TPH: Total Petroleum Hydrocarbons (C_6 to C_{34})

Table XXV: Evaluation of 2012 Groundwater Analytical Data – NHWLF

Parameter	2012
Copper	Detectable concentration was noted at both downgradient sample locations, ranging from 0.004 mg/L at MW-3 to 0.055 mg/L at MW-4.
Nickel	Detectable concentration was noted at both downgradient sample locations, ranging from 0.014 mg/L at MW-3 to 0.27 mg/L at MW-4.
Cobalt	Detectable concentration was noted at both downgradient sample locations, ranging from 0.00057 mg/L at MW-3 to 0.0073 mg/L at MW-4.
Lead	Detectable concentration was noted at both downgradient sample locations, ranging from 0.0012 mg/L at MW-3 to 0.015 mg/L at MW-4.
Zinc	Detectable concentrations were noted at downgradient location MW-4 (0.024 mg/L), whereas the concentration at MW-3 was lower than the method detection limit of 0.003 mg/L.
Chromium	Detectable concentration was noted at both downgradient sample locations, ranging from 0.031mg/L at MW-3 to 0.55 mg/L at MW-4.
Arsenic	Detectable concentration was noted at both downgradient sample locations, ranging from 0.0026 mg/L at MW-3 to 0.023 mg/L at MW-4.
Mercury	A detectable concentration of 0.0000047 mg/L was noted at downgradient location MW-4. The concentration at MW-3 was lower than the method detection limit (0.000002 mg/L).
PCBs	Concentrations at all three downgradient locations (MW-2, MW-3 and MW-4) were reported lower than the method detection limit of 0.00005 mg/L.
TPH	All reported concentrations were lower than the method detection limit (0.1 mg/L).

Overall, the majority of metal parameter concentrations at MW-4 were an order of magnitude higher than the concentrations at MW-3.

6.8 MONITORING WELL SAMPLING/INSPECTION LOGS

The monitoring well sampling and inspection logs for MW-1 to MW-4 are presented in this section. As discussed above, a limited quantity of water was present in MW-2 and readings for temperature, pH, turbidity and conductivity could not be recorded.

2012 Monitoring Well Sampling Log (MW-1)

Site name:	CAM-1					
Date of sampling event:	2012-08-17					
Names of samplers:	Andrew Passalis					
Monitoring well ID:	MW-1					
Facility:	Non-Hazardous Waste Landfill					
Known Data						
Depth of installation* (m):	4.40					
Length of screened section (m):	3.00					
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):	- (dry)		
Well height above ground (m):	0.52		Depth to bottom (m):	2.22		
Diameter of well (m):	0.40		Free product thickness (mm):	-		
Calculations			**Notes**			
Depth of water (m):	-		Evidence of sludge:	no		
Well volume of water (L):	-		Evidence of freezing/siltation:	frozen		
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:	2012-08-17		
Sample Number - Water:			Sample Number - Soil:	C112-1WA		
				C112-1WB		
Sample Containers:			Sample Containers:	1x500mL glass\1xbag		
				1x500mL glass\1xbag		
Procedure/Equipment:			Procedure/Equipment:	Steel & Plastic Trowels		
Water Description:			Soil Description:	brown/grey sand and gravel, some silt and cobbles, dry		
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

2012 Monitoring Well Sampling Log (MW-2)

Site name:	CAM-1		
Date of sampling event:	2012-08-17		
Names of samplers:	Andrew Passalis		
Monitoring well ID:	MW-2		
Facility:	Non-Hazardous Waste Landfill		
Known Data			
Depth of installation* (m):	3.50		
Length of screened section (m):	3.00		
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):	1.60
Well height above ground (m):	0.35	Depth to bottom (m):	1.89
Diameter of well (m):	0.40	Free product thickness (mm):	-
Calculations		**Notes**	
Depth of water (m):	0.30	Evidence of sludge:	no
Well volume of water (L):	0.37	Evidence of freezing/siltation:	no
Static water level* (m):	1.25		
Length of screen collecting water (m):	0.30		

Development/Purging Information

Equipment: Dedicated waterra tubing and foot valve

Date & Time	Volume Removed (L)	Temperature (°C)	pH	Conductivity (µS/cm)	Turbidity (NTU)	Description of Water
2012-08-17	N/A	N/A	N/A	N/A	N/A	C&C, N/O

Water Sampling		**Soil Sampling**	
Date & Time Collected:	2012-08-17	Date and Time Collected:	2012-08-17
Sample Number - Water:	C112-2W	Sample Number - Soil:	C112-2WA (BD8)
	Insufficient sample volume		C112-2WB
Sample Containers:	1x500mL amber	Sample Containers:	4x500mL glass/2xbag
			1x500mL glass/1xbag
Procedure/Equipment:		Procedure/Equipment:	Steel & Plastic Trowels
Water Description:	Clear & colourless, no odour	Soil Description:	light brown sand, f-m grained, some gravel dry, bedrock at 0.3m
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

2012 Monitoring Well Sampling Log (MW-3)

Site name:	CAM-1					
Date of sampling event:	2012-08-17					
Names of samplers:	Andrew Passalis					
Monitoring well ID:	MW-3					
Facility:	Non-Hazardous Waste Landfill					
Known Data						
Depth of installation* (m):	4.80					
Length of screened section (m):	3.00					
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):	1.31	
Well height above ground (m):	0.36			Depth to bottom (m):	2.24	
Diameter of well (m):	0.40			Free product thickness (mm):	-	
Calculations				**Notes**		
Depth of water (m):	0.92			Evidence of sludge:	no	
Well volume of water (L):	1.16			Evidence of freezing/siltation:	no	
Static water level* (m):	0.95					
Length of screen collecting water (m):	0.92					
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
2012-08-17	1.2	1.8	9.0	2370	29	C&C, N/O
Water Sampling				**Soil Sampling**		
Date & Time Collected:	2012-08-17			Date and Time Collected:	2012-08-17	
Sample Number - Water:	C112-3W & intra lab dup			Sample Number - Soil:	C112-3WA	
	C112-BDW1				C112-3WB	
Sample Containers:	6x500 mL amber			Sample Containers:	1x500mL glass/1xbag	
	6x250 mL amber				1x500mL glass/1xbag	
	3x200 mL plastic, 9x40 mL					
Procedure/Equipment:				Procedure/Equipment:	Steel & Plastic Trowels	
Water Description:				Soil Description:	brown sand, with gravel f-m grained, some cbls dry	
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

2012 Monitoring Well Sampling Log (MW-4)

Site name:	CAM-1
Date of sampling event:	2012-08-17
Names of samplers:	Andrew Passalis
Monitoring well ID:	MW-4
Facility:	Non-Hazardous Waste Landfill

Known Data

Depth of installation* (m):	4.90
Length of screened section (m):	3.00
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):	1.53
Well height above ground (m):	0.37	Depth to bottom (m):	2.11
Diameter of well (m):	0.04	Free product thickness (mm):	-

Calculations		Notes	
Depth of water (m):	0.58	Evidence of sludge:	no
Well volume of water (L):	0.73	Evidence of freezing/siltation:	no
Static water level* (m):	1.16		
Length of screen collecting water (m):	0.58		

Development/Purging Information

Equipment:	Dedicated waterra tubing and foot valve

Date & Time	Volume Removed (L)	Temperature (°C)	pH	Conductivity (µS/cm)	Turbidity (NTU)	Description of Water
2012-08-17	0.8	2.1	11.8	2	84	C&C, N/O

Water Sampling		Soil Sampling	
Date & Time Collected:	2012-08-17	Date and Time Collected:	2012-08-17
Sample Number - Water:	C112-4W	Sample Number - Soil:	C112-4WA
			C112-4WB
Sample Containers:	1x500 mL amber	Sample Containers:	1x500mL glass/\1xbag
	1x250 mL amber		1x500mL glass/\1xbag
	1x250 mL plastic, 3x40 mL		
Procedure/Equipment:		Procedure/Equipment:	Steel & Plastic Trowels
Water Description:	clear & colourless, no odour	Soil Description:	brown sand, with gravel dry, fractured bedrock at 0.4m, slight oxid
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

7 TIER II SOIL DISPOSAL FACILITY

7.1 BACKGROUND AND MONITORING PROGRAM

The Tier II Soil Disposal Facility is constructed on the west side of the access road, southwest of the former station infrastructure pad. The landfill was constructed with a double containment system consisting of a geomembrane liner system and the placement of sufficient surface fill to promote freezing of the landfill contents. The facility encompasses a footprint of approximately 8,900 m^2 with the final cover extending between 6-7.5 m above the surrounding grade.

Four groundwater monitoring wells are installed at the landfill perimeter, and four 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 2012 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 CAM-1.6.

Soil at all stations was sampled as specified. Inspection and monitoring was carried out at each of the monitoring wells as per the ToR. All monitoring well locations were dry at the time of sampling and consequently were not sampled.

7.2 VISUAL INSPECTION REPORT

The visual inspection of the Tier II Soil Disposal Facility was conducted on August 16-17, 2012. The Visual Inspection Checklist/Report has been completed as per the ToR and is included as Table XXVI of this report.

Settlement

An indication of minor settlement was noted at a single location near the northwest crest of the landfill cover (Feature A), consisting of an isolated linear depression measuring 1.2 m long, 0.25 m wide and 0.1 m in depth. Indications of settlement in this area were not noted during the previous 2011 inspection.

Erosion

Evidence of minor surface erosion was noted at two locations on the northwest facing slope (Feature B) of the facility. All locations consisted of shallow surface erosion that extended between 7 to 10 m down slope from the crest. The areas affected appear to be self-armouring and have an acceptable severity rating. Overall, the facility cover appears stable. Recent observations indicate the two erosional areas have increased marginally in width from 0.15 to 0.3 m since the previous 2011 inspection.

Frost Action

Indications of frost action were not noted.

Evidence of Burrowing Animals

Indications of burrowing animals were not noted.

Re-establishment of Vegetation

Indications of vegetation were not noted.

Staining

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

Seepage Points

Evidence of seepage was not noted

Debris

Evidence of exposed debris was not noted.

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

There were no other features of note.

Discussion

The Tier II Soil Disposal Facility 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 XXVI: Visual Inspection Checklist / Report – Tier II Soil Disposal Facility

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

SITE NAME: CAM-1 Jenny Lind Island
LANDFILL DESIGNATION: Tier II Soil Disposal Facility (New Landfill)
DATE OF INSPECTION: August 16-17, 2012
DATE OF PREVIOUS INSPECTION: August 13, 2011
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.

Checklist Item	Present (Yes/No)	Location	Length	Width	Depth	Extent	Description	Photographic Record	Severity Rating	Additional Comments
Settlement	Yes	FEATURE A See Figure CAM-1.6 (W crest - New Obs.)	1.2 m	0.25 m	0.1 m	Isolated (<1%)	Linear depression below crest	Tier II -24	Acceptable	Cover appears stable.
Erosion	Yes	FEATURE B See Figure CAM-1.6 (NW side slope)	7-10 m	0.1 - 0.3 m	0.03 m	Isolated (<1%)	Minor erosion	Tier II-21, 22, 23	Acceptable	Slope appears stable. Minor washing of fines.
Frost Action	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Animal Burrows	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Vegetation	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Staining	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Vegetation Stress	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Seepage Points	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Debris Exposed	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Presence/Condition of Monitoring Instruments	Yes	See Figure CAM-1.6	N/A	N/A	N/A	N/A	VT-1 to -4 MW-05 to -08	Tier II-1 to 5, 9, 25 Tier II-5W, 6W, 7W, 8W	N/A	All locations in good condition. Monitored and sampled in 2011.
Other Features of Note:	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Additional Photos	Yes	See Figure CAM-1.6 and Photographic Record	N/A	N/A	N/A	N/A	General Photographic Record	N/A	Not Observable	General photos for documentation, no features of note.
Overall Landfill Performance:	**Acceptable**									

7.3 PRELIMINARY STABILITY ASSESSMENT

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

Table XXVII: Preliminary Stability Assessment – Tier II Soil Disposal Facility

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

7.4 LOCATION PLAN

The Location Plan for the Tier II Soil Disposal Facility has been completed as per the ToR and is included in the following page as Figure CAM-1.6.

N

389 000 E

389 100 E

389 200 E

7 620 800 N

7 620 700 N

MW-01 B

MW-06

MW-07

MW-08

MW-B

VT-1

VT-2

VT-3

VT-4

BM-3

FEATURE A – MINOR DEPRESSION
1.2m L, 0.25m W, 0.1m D

FEATURE B – MINOR EROSION
7–10m L, 0.1–0.3m W, 0.03m D

TIER II DISPOSAL FACILITY

TYPE 2A GRANULAR FILL

ACCESS ROAD

25m 26m 27m 28m 29m 30m 31m 32m 33m 36m

LEGEND

- BM–3 — PERMANENT BENCHMARK LOCATION (1)
- 810 — COORDINATE POINT
- COMMEMORATIVE PLAQUE LOCATION
- MONITORING WELL LOCATION (3)
- B — BACKGROUND MONITORING WELL LOCATION (1)
- VERTICAL THERMISTOR LOCATION (4)
- MONITORING SOIL SAMPLE LOCATION (4)
- 6 — APPROX. PHOTOGRAPHIC VIEWPOINT
- MINOR SETTLEMENT (NTS)
- MINOR EROSION (NTS)

0 10m 20m 30m 40m 50m

A	FINAL	13–03–08	P.L.	A.P.	A.L.
NO.	VERSION	DATE	PAR	VERIF.	APPR.

Construction de Défense Canada
Defence Construction Canada

COLLECTION OF LANDFILL MONITORING DATA

CAM-1, JENNY LIND ISLAND, NUNAVUT

TIER II DISPOSAL FACILITY

SITE REMEDIATION SOLUTIONS

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Phone: (418) 653-4422 Fax.: (418) 653-3583

MEASUREMENT UNIT	SCALE:	DATE (month–year):
Metre	1 : 1,000	MARCH 2013
DRAWN BY: P. LÉGARÉ	VERIFIED BY: A. PASSALIS	APPROVED BY: A. LECLAIR P.ENG
PROJECT NO: CD9229_004_160	DRAWING NO: CD9229_004_160-CAM-1.6-PL	PAGE PL

FIGURE CAM-1.6

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7.5 PHOTOGRAPHIC RECORDS

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

Table XXVIII: Landfill Visual Inspection Photo Log – Tier II Soil Disposal Facility

Photo (Tier II-)	Thumbnail	Filename	Size (KB)	Date	Vantage Point		Caption
					Easting	Northing	
1		C112_7391	4,468 KB	2012-08-16	389088	7620739	View looking south at VT-1 on southwest corner of Tier II DF
2		C112_7392	4,325 KB	2012-08-16	389087	7620733	View of thermistor monitoring equipment at VT-1 on southwest cover of Tier II DF
3		C112_7394	4,281 KB	2012-08-16	389101	7620758	View northeast at VT-2 on central cover of Tier II DF
4		C112_7395	4,270 KB	2012-08-16	389121	7620743	View north-northeast at VT-4 on east cover of Tier II DF
5		C112_7396	4,277 KB	2012-08-16	389141	7620768	View north-northwest at VT-3 on northeast cover of Tier II DF
6		C112_7476	4,316 KB	2012-08-17	389176	7620717	View looking west-northwest at east side of Tier II DF
7		C112_7477	2,629 KB	2012-08-17	389184	7620731	Panoramic view looking southwest to northeast at east side of Tier II DF
8		C112_7478	3,009 KB	2012-08-17	389146	7620771	Panoramic view looking south to northwest from east corner across Tier II DF
9		C112_7479	4,385 KB	2012-08-17	389144	7620771	View looking northwest at VT-3 located on east cover of Tier II DF
10		C112_7480	4,468 KB	2012-08-17	389145	7620765	View looking south-southeast at MW-05 located on southeast side of Tier II DF
11		C112_7481	4,389 KB	2012-08-17	389164	7620774	View looking southwest along east side slope of Tier II DF
12		C112_7482	4,360 KB	2012-08-17	389163	7620777	View looking northwest along north side slope of Tier II DF
13		C112_7483	4,317 KB	2012-08-17	389176	7620776	View looking southwest along east toe of Tier II DF
14		C112_7484	4,413 KB	2012-08-17	389175	7620779	View looking northwest along north toe of Tier II DF
15		C112_7486	4,452 KB	2012-08-17	389155	7620818	View looking southwest at north side of Tier II DF
16		C112_7491	4,414 KB	2012-08-17	389100	7620821	View looking southwest along west toe of Tier II DF
17		C112_7492	4,442 KB	2012-08-17	389102	7620822	View looking southeast along north toe of Tier II DF
18		C112_7493	4,385 KB	2012-08-17	389103	7620808	View looking southwest along west side slope of Tier II DF
19		C112_7494	4,418 KB	2012-08-17	389106	7620809	View looking southeast along north side slope of Tier II DF
20		C112_7495	3,400 KB	2012-08-17	389113	7620787	Panoramic view looking east to southwest from north corner across Tier II DF

Photo (Tier II-)	Thumbnail	Filename	Size (KB)	Date	Vantage Point		Caption
					Easting	Northing	
21		C112_7496	4,294 KB	2012-08-17	389113	7620782	View looking northwest at minor erosion on northwest side slope of Tier II DF (6m L, 0.3m W, 0.03m D) - Feature B
22		C112_7497	4,408 KB	2012-08-17	389110	7620778	View looking northwest at minor erosion on northwest side slope of Tier II DF (10m L, 0.15-0.2m W, 0.03m D) - Feature B
23		C112_7498	4,335 KB	2012-08-17	389093	7620788	View looking southeast at minor erosion on northwest side slope of Tier II DF (10m L, 0.15-0.2m W, 0.03m D) - Feature B
24		C112_7499	4,380 KB	2012-08-17	389102	7620770	View looking northeast at minor depression below crest on west side of Tier II DF (1.2m L, 0.25m W, 0.1m D) - FEATURE A
25		C112_7500	4,398 KB	2012-08-17	389098	7620764	View looking southeast at VT-2 (foreground) and VT-4 (background)
26		C112_7505	4,384 KB	2012-08-17	389039	7620784	View looking southeast at west side of Tier II DF
27		C112_7508	4,299 KB	2012-08-17	389057	7620728	View looking southeast along south toe of Tier II DF
28		C112_7509	4,421 KB	2012-08-17	389056	7620731	View looking northeast along west toe of Tier II DF
29		C112_7510	4,275 KB	2012-08-17	389072	7620731	View looking southeast along south side slope of Tier II DF
30		C112_7511	4,351 KB	2012-08-17	389070	7620733	View looking northeast along west side slope of Tier II DF
31		C112_7512	3,262 KB	2012-08-17	389083	7620737	Panoramic view looking northeast to southeast from west corner across Tier II DF. VT-1 visible on right
32		C112_7513	4,287 KB	2012-08-17	389081	7620736	View looking west-southwest down slope on west corner of Tier II DF
33		C112_7514	3,170 KB	2012-08-17	389117	7620721	Panoramic view looking west to northeast from south corner across Tier II DF
34		C112_7515	4,340 KB	2012-08-17	389120	7620716	View looking south-southeast down slope on south corner of Tier II DF
35		C112_7516	4,439 KB	2012-08-17	389121	7620702	View looking northwest along south side slope of Tier II DF
36		C112_7517	4,371 KB	2012-08-17	389123	7620703	View looking northeast along east side slope of Tier II DF
37		C112_7518	4,424 KB	2012-08-17	389128	7620688	View looking northwest along south toe of Tier II DF
38		C112_7519	4,402 KB	2012-08-17	389131	7620689	View looking northeast along east toe of Tier II DF
39		C112_7520	4,282 KB	2012-08-17	389080	7620684	View looking northeast at south side of Tier II DF
Soil Sampling							
		C112_7474	4,332 KB	2012-08-17	389155,1	7620725,4	Sampling location C112-5W located upgradient of Tier II DF
5W		C112_7475	4,254 KB	2012-08-17	389155,3	7620721,3	View north at C112-5W soil sample location
		C112_7489	4,366 KB	2012-08-17	389132,9	7620816,4	Sampling location C112-6W located downgradient of Tier II DF
6W		C112_7490	4,439 KB	2012-08-17	389136,3	7620819,5	View southwest at C112-6W soil sample location
		C112_7503	4,298 KB	2012-08-17	389064,7	7620775,4	Sampling location C112-7W located downgradient of Tier II DF
7W		C112_7504	4,306 KB	2012-08-17	389058,9	7620773,1	View northeast at C112-7W soil sample location
		C112_7521	4,243 KB	2012-08-17	389051,5	7620732,8	Sampling location C112-8W located downgradient of Tier II DF
8W		C112_7522	4,307 KB	2012-08-17	389052,2	7620739,6	View south at C112-8W soil sample location

7.6 THERMAL MONITORING DATA

All thermistors at the Tier II Soil Disposal Facility were inspected and found to be in good condition with no significant concerns identified. Data from all thermistors was successfully retrieved. Analogues/thermocouples at all locations were observed to be functioning properly at the time of the inspection. Further review of the downloaded data identified no significant errors in temperature readings during the recording period with the exception of periodic errors with a single bead (#15) at VT-2. All clocks exhibited slight drifts and were synchronized using the Prolog software.

Good to excellent battery levels were noted at all locations with no battery replacements anticipated for the 2013 monitoring period.

7.7 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 Inspection Reports included in the report. Instantaneous temperature readings were not available at VT-2 at the time of data retrieval. A complete datalogger RAW data set for 2011-2012 period has been forwarded to DCC as per the ToR.

7.8 SOIL SAMPLE ANALYTICAL DATA

The soil chemical analysis results and the evaluation of analytical data for the 2012 Tier II Soil Disposal Facility samples are presented in Tables XXIX and XXX below. Field and inter-laboratory duplicates collected as part of the QA/QC program are presented in Appendix C at the end of this report.

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

Sample Name	Sample Location	Depth Below Grade (cm)	Parameters									
			As [mg/kg]	Cd [mg/kg]	Cr [mg/kg]	Co [mg/kg]	Cu [mg/kg]	Pb [mg/kg]	Hg [mg/kg]	Ni [mg/kg]	Zn [mg/kg]	PCBs [mg/kg]
C112-5WA	**Tier II MW-05**	0-15	1.4	<0.10	2.3	<1.0	<5.0	4.2	<0.050	1.5	<10	0.067
C112-5WB		40-50	1.4	<0.10	3.2	<1.0	<5.0	4.3	<0.050	1.9	<10	0.015
C112-6WA	**Tier II MW-06**	0-15	1.2	<0.10	2.1	<1.0	<5.0	2.6	<0.050	2.1	<10	<0.01
C112-6WB		40-50	2.4	<0.10	3.1	1.3	<5.0	3.7	<0.050	2.4	<10	<0.01
C112-7WA	**Tier II MW-07**	0-15	1.9	<0.10	1.8	<1.0	<5.0	3.1	<0.050	1.3	<10	<0.01
C112-7WB		40-50	1.9	<0.10	2.8	1.1	<5.0	3.2	<0.050	1.9	<10	<0.01
C112-8WA	**Tier II MW-08**	0-15	<1.0	<0.10	1.7	<1.0	<5.0	1.9	<0.050	1.1	<10	<0.01
C112-8WB		40-50	1.8	<0.10	4.3	1.5	<5.0	3.2	<0.050	3.2	<10	<0.01

Sample Name	Sample Location	Depth Below Grade [cm]	Parameters			
			PHC(F1) [mg/kg]	PHC(F2) [mg/kg]	PHC(F3) [mg/kg]	TPH [mg/kg]
C112-5WA	**Tier II MW-05**	0-15	<12	<10	<10	<10
C112-5WB		40-50	<12	<10	<10	<10
C112-6WA	**Tier II MW-06**	0-15	<12	<10	12	12
C112-6WB		40-50	<12	17	55	72
C112-7WA	**Tier II MW-07**	0-15	<12	<10	<10	<10
C112-7WB		40-50	<12	<10	<10	<10
C112-8WA	**Tier II MW-08**	0-15	<12	<10	<10	<10
C112-8WB		40-50	<12	<10	<10	<10

PHC (F1): Petroleum hydrocarbon C_6 to C_{10}, does not include BTEX fractions
PHC (F2): Petroleum hydrocarbon $C_{>10}$ to C_{16}
PHC (F3): Petroleum hydrocarbon $C_{>16}$ to C_{34}
TPH: Total Petroleum Hydrocarbons (C_6 to C_{34})

Table XXX: Evaluation of 2012 Soil Analytical Data – Tier II Soil Disposal Facility

Parameter	2012
Copper	All reported concentrations were lower than the method detection limit (5 mg/kg).
Nickel	Detectable concentrations were noted at all sample locations, ranging between 1.1-3.2 mg/kg with a mean of 1.9. The highest concentration (3.2 mg/kg) was observed at depth at MW-8 (downgradient location). Concentrations at the upgradient location and remaining downgradient locations ranged between 1.1-2.4 mg/kg.
Cobalt	Concentrations ranged between <1-1.5 mg/kg with detectable concentrations noted at depth at three downgradient sample locations, including: MW-6 (1.3 mg/kg), MW-7 (1.1 mg/kg) and MW-8 (1.5 mg/kg). All other reported concentrations were lower than the method detection limit (0.05 mg/kg).
Lead	Concentrations ranged between 1.9-4.3 mg/kg with a mean of 3.3. Trace concentrations were observed at all locations with higher concentrations noted at upgradient location MW-5 (surface – 4.2 mg/kg, depth – 4.3 mg/kg). Detectable concentrations at all other locations ranged between 1.9-2.7 mg/kg.
Zinc	All reported concentrations were lower than the method detection limit (10 mg/kg).
Chromium	Concentrations ranged between 1.7-4.3 mg/kg with a mean of 2.7. The highest concentrations were generally noted at depth at all location, including MW-5 (3.2 mg/kg), MW-6 (3.1 mg/kg), MW-7 (2.8 mg/kg) and MW-8 (4.3 mg/kg). Concentrations at all other locations ranged between 1.7-2.3 mg/kg.
Arsenic	Detectable concentrations were noted at all but one sample location (MW-8 (surface)), ranging between 1.2-2.4 mg/kg and having a mean of 1.7. The highest concentration of 2.4 mg/kg was noted at depth at MW-6 (downgradient location).
Mercury	All reported concentrations were lower than the method detection limit (0.05 mg/kg).
PCBs	Detectable concentrations of 0.067 mg/kg (surface) and 0.015 mg/kg (depth) were noted at MW-5, located upgradient of the facility. All other reported concentrations were lower than the method detection limit (0.05 mg/kg)
TPH	Detectable concentrations of PHC F3 fraction were noted at all surface sample locations, including MW-5 (21 mg/kg), MW-6 (23 mg/kg), MW-7 (12 mg/kg) and MW-8 (12 mg/kg). Detectable concentrations were also noted at one depth location, MW-5 (13 mg/kg).

7.9 GROUNDWATER SAMPLE ANALYTICAL DATA

As noted above, all monitoring wells at the Tier II Soil Disposal Facility were dry at the time of monitoring and consequently were not sampled during the 2012 field program.

7.10 MONITORING WELL SAMPLING/INSPECTION LOGS

The monitoring well sampling and inspection logs for MW-5 to MW-8 are presented in this section.

2012 Monitoring Well Sampling Log (MW-5)

Site name:	CAM-1
Date of sampling event:	2012-08-17
Names of samplers:	Andrew Passalis
Monitoring well ID:	MW-5
Facility:	Tier II Disposal Facility

Known Data

Depth of installation* (m):	4.60
Length of screened section (m):	3.00
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):	- (dry)
Well height above ground (m):	0.30	Depth to bottom (m):	1.58
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:	frozen
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:	2012-08-17
Sample Number - Water:		Sample Number - Soil:	C112-5WA
			C112-5WB
Sample Containers:		Sample Containers:	1x500mL glass/1xbag
			1x500mL glass/1xbag
Procedure/Equipment:		Procedure/Equipment:	Steel & Plastic Trowels
Water Description:		Soil Description:	Rust coloured sand, with gravel (fractured bedrock), dry
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

2012 Monitoring Well Sampling Log (MW-6)

Site name:	CAM-1		
Date of sampling event:	2012-08-17		
Names of samplers:	Andrew Passalis		
Monitoring well ID:	MW-6		
Facility:	Tier II Disposal Facility		
Known Data			
Depth of installation* (m):	4.65		
Length of screened section (m):	3.00		
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):	- (dry)
Well height above ground (m):	0.54	Depth to bottom (m):	1.66
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:	bentonite at base
Static water level* (m):	-		
Length of screen collecting water (m):	-		

Development/Purging Information

Equipment: N/A

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

Water Sampling		**Soil Sampling**	
Date & Time Collected:	-	Date and Time Collected:	2012-08-17
Sample Number - Water:		Sample Number - Soil:	C112-6WA
			C112-6WB
Sample Containers:		Sample Containers:	1x500mL glass/1xbag
			1x500mL glass/1xbag
Procedure/Equipment:		Procedure/Equipment:	Steel & Plastic Trowels
Water Description:		Soil Description:	Dark brown/grey sand with gravel, trace org. dry
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

2012 Monitoring Well Sampling Log (MW-7)

Site name:	CAM-1					
Date of sampling event:	2012-08-17					
Names of samplers:	Andrew Passalis					
Monitoring well ID:	MW-7					
Facility:	Tier II Disposal Facility					
Known Data						
Depth of installation* (m):	4.70					
Length of screened section (m):	3.00					
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):	- (dry)	
Well height above ground (m):	0.50			Depth to bottom (m):	1.55	
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:	frozen	
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:	2012-08-17	
Sample Number - Water:				Sample Number - Soil:	C112-7WA	
					C112-7WB	
Sample Containers:				Sample Containers:	1x500mL glass/1xbag	
					1x500mL glass/1xbag	
Procedure/Equipment:				Procedure/Equipment:	Steel & Plastic Trowels	
Water Description:				Soil Description:	brown sand, with gravel f-m grained, cobbles, dry	
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

2012 Monitoring Well Sampling Log (MW-8)

Site name:	CAM-1
Date of sampling event:	2012-08-17
Names of samplers:	Andrew Passalis
Monitoring well ID:	MW-8
Facility:	Tier II Disposal Facility

Known Data

Depth of installation* (m):	4.80
Length of screened section (m):	3.00
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):	- (dry)
Well height above ground (m):	0.48	Depth to bottom (m):	1.60
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:	frozen
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:	2012-08-17
Sample Number - Water:		Sample Number - Soil:	C112-8WA (BD7)
			C112-8WB
Sample Containers:		Sample Containers:	4x500mL glass/2xbag
			1x500mL glass/1xbag
Procedure/Equipment:		Procedure/Equipment:	Steel & Plastic Trowels
Water Description:		Soil Description:	Brown/grey sand and gravel, f-m grained dry
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

7.11 THERMISTOR INSPECTION REPORTS

The thermistor inspection reports VT-1 to VT-4 are presented in this section.

Thermistor Inspection Report – VT-1

Contractor Name:	**Sila Remediation Inc.**	Inspection Date:	**2012-08-16**
Prepared By:	**A.Passalis**		

Thermistor Information

Site Name:	**CAM-1**		Thermistor Location		**Tier II Disposal Facility**		
Thermistor Number:	**VT-1**		Inclination		**Vertical**		
Install Date:	**2009-XX-XX**		First Date Event		**2009-XX-XX**	Last Date Event	**2011-08-13**
Coordinates and Elevation		N	**7620734.0**	E	**389089.0**	Elev	**35.9**
Length of Cable (m)	**11.7**		Cable Lead Above Ground (m)	**3.25**	Nodal Points		**16**
Datalogger Serial #	**07060015**				Cable Serial Number		**07060015**

Thermistor Inspection

	Good	Needs Maintenance
Casing	**Yes**	**No**
Cover	**Yes**	**No**
Data Logger	**Yes**	**No**
Cable	**Yes**	**No**
Beads	**Yes**	**No**
Battery Installation Date	**2009-XX-XX**	
Battery Levels	Main **11.34 V**	Aux **13.26**

Manual Ground Temperature Readings

Bead	ohms	Degrees C
1	13.048	4.6051
2	13.745	3.5692
3	14.974	1.872
4	16.673	-0.255
5	17.86	-1.5893
6	19.318	-3.0843
7	20.28	-4.0729
8	21.23	-4.9506

Bead	ohms	Degrees C
9	22.24	-5.8304
10	23.12	-6.5579
11	23.91	-7.1784
12	24.57	-7.7268
13	25.23	-8.2107
14	25.73	-8.5552
15	26.32	-8.9782
16	26.67	-9.2336

Observations and Proposed Maintenance

Download File: SITE_001_07050015_Aug_16_2012

Thermistor Inspection Report – VT-2

Contractor Name:	**Sila Remediation Inc.**	Inspection Date:	**2012-08-16**
Prepared By:	**A.Passalis**		

Thermistor Information

Site Name:	**CAM-1**		Thermistor Location		**Tier II Disposal Facility**		
Thermistor Number:	**VT-2**		Inclination		**Vertical**		
Install Date:	**2009-XX-XX**		First Date Event		**2009-XX-XX**	Last Date Event	**2011-08-13**
Coordinates and Elevation		N	**7620759.5**	E	**389105.5**	Elev	**36.5**
Length of Cable (m)	**11.7**		Cable Lead Above Ground (m)	**6.3**	Nodal Points		**16**
Datalogger Serial #	**07050030**				Cable Serial Number		**07050030**

Thermistor Inspection

	Good	Needs Maintenance	
Casing	**Yes**	**No**	
Cover	**Yes**	**No**	
Data Logger	**Yes**	**No**	
Cable	**Yes**	**No**	
Beads	**Yes**	**No**	Data indicates periodic data errors with bead #
Battery Installation Date	**2009-XX-XX**		
Battery Levels	Main **11.34 V**	Aux **12.53**	

Manual Ground Temperature Readings

Bead	ohms	Degrees C
1	12.585	N/A
2	12.61	N/A
3	12.445	N/A
4	12.637	N/A
5	12.549	N/A
6	13.146	N/A
7	13.38	N/A
8	13.848	N/A

Bead	ohms	Degrees C
9	15.04	N/A
10	16.647	N/A
11	17.803	N/A
12	18.854	N/A
13	20.35	N/A
14	21.49	N/A
15	22.42	N/A
16	22.67	N/A

Observations and Proposed Maintenance

Download File: SITE_001_07050030_Aug_16_2012

Temperature readings not available at time of inpsection.

Thermistor Inspection Report VT-3

Contractor Name:	**Sila Remediation Inc.**	Inspection Date:	**2012-08-16**
Prepared By:	**A.Passalis**		

Thermistor Information

Site Name:	**CAM-1**		Thermistor Location		**Tier II Disposal Facility**		
Thermistor Number:	**VT-3**		Inclination		**Vertical**		
Install Date:	**2009-XX-XX**		First Date Event		**2009-XX-XX**	Last Date Event	**2011-08-13**
Coordinates and Elevation		N	**7620735.5**	E	**389140.5**	Elev	**36.4**
Length of Cable (m)	**11.7**		Cable Lead Above Ground (m)	**3.3**	Nodal Points		**16**
Datalogger Serial #	**07050003**				Cable Serial Number		**07050003**

Thermistor Inspection

	Good	Needs Maintenance
Casing	**Yes**	**No**
Cover	**Yes**	**No**
Data Logger	**Yes**	**No**
Cable	**Yes**	**No**
Beads	**Yes**	**No**
Battery Installation Date	**2009-XX-XX**	
Battery Levels	Main **11.34 V**	Aux **13.26**

Manual Ground Temperature Readings

Bead	ohms	Degrees C
1	13.24	4.3331
2	13.808	3.4992
3	15.224	1.5681
4	16.66	-0.2068
5	17.79	-1.5098
6	19.321	-3.0609
7	20.38	-4.165
8	21.46	-5.1583

Bead	ohms	Degrees C
9	22.05	-5.7256
10	23.1	-6.4981
11	23.87	-7.1122
12	24.51	-7.6106
13	25.15	-8.1214
14	25.72	-8.5018
15	26.25	-8.8905
16	26.44	-9.0433

Observations and Proposed Maintenance

Download File: SITE_001_default_Aug_16_2012

Thermistor Inspection Report – VT-4

Contractor Name:	**Sila Remediation Inc.**	Inspection Date:	**2012-08-16**
Prepared By:	**A.Passalis**		

Thermistor Information

Site Name:	**CAM-1**		Thermistor Location		**Tier II Disposal Facility**		
Thermistor Number:	**VT-4**		Inclination		**Vertical**		
Install Date:	**2009-XX-XX**		First Date Event		**2009-XX-XX**	Last Date Event	**2011-08-13**
Coordinates and Elevation		N	**7620749.0**	E	**389124.5**	Elev	**36.7**
Length of Cable (m)	**9.2**		Cable Lead Above Ground (m)	**3.45**	Nodal Points		**13**
Datalogger Serial #	**07050006**				Cable Serial Number		**07050006**

Thermistor Inspection

	Good	Needs Maintenance
Casing	**Yes**	**No**
Cover	**Yes**	**No**
Data Logger	**Yes**	**No**
Cable	**Yes**	**No**
Beads	**Yes**	**No**
Battery Installation Date	**2009-XX-XX**	
Battery Levels	Main **11.34 V**	Aux **13.14**

Manual Ground Temperature Readings

Bead	ohms	Degrees C	Bead	ohms	Degrees C
1	12.536	5.4509	9	18.97	-2.7235
2	12.75	5.0143	10	20.79	-4.5291
3	13.229	4.3521	11	21.99	-5.578
4	13.33	4.111	12	22.72	-6.1319
5	14.184	2.9318	13	23.51	-6.844
6	15.514	1.153	14	-	-
7	16.812	-0.3769	15	-	-
8	17.707	-1.3894	16	-	-

Observations and Proposed Maintenance

Download File: SITE_001_07050006_Aug_1_2012

8 SOUTHEAST LANDFILL

8.1 BACKGROUND AND MONITORING PROGRAM

The Southeast Landfill (SELF) area is located approximately 125 m to the southeast of the Tier II Soil Disposal Facility. The landfill has two separate regrade areas (labelled as Lobes 1 and 2), and including engineered cover, encompasses a footprint of approximately 2,900 m^2 with the final cover extending approximately 1.0 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 Southeast Landfill was classified as low potential environmental risk. The remediation consisted of removal of surface debris and localized contaminated areas, 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 2012 monitoring of this landfill includes a visual inspection and soil sample collection to assess landfill performance. There is no instrumentation installed at this landfill.

8.2 VISUAL INSPECTION REPORT

The visual inspection of the Southeast Landfill was conducted on August 17, 2012. The Visual Inspection Checklist/Report has been completed as per the ToR and is included as Table XXXI of this report.

Settlement

Indications of minor localized settlement were noted at two areas on the Southeast Landfill, including one linear depression on the north side slope of Lobe 2 (Feature A) and one oval-shaped depression near the crest on the east side of Lobe 1 (Feature B). Feature B was not previously noted, whereas Feature A was consistent with observations made during the previous 2011 inspection. The settlement features have an acceptable severity rating.

Erosion

Observations of minor erosion were noted on the southeast cover and side slope of Lobe 1 (Feature C). The erosion consisted of a narrow (5-7 cm wide) and shallow channel where fines had washed from the granular cover. The erosion extended approximately 15 m south-southeast from the north central area of the lobe to the southeast side slope.

Frost Action

Indications of frost action were not noted.

Evidence of Burrowing Animals

Indications of burrowing animals were not noted.

Re-establishment of Vegetation

Evidence of vegetation was not noted on the landfill.

Staining

No areas of staining were noted at the landfill.

Seepage Points

Evidence of specific seepage points was not noted.

Debris

Evidence of debris was not noted at the landfill.

Presence/Condition of Monitoring Instruments

There are no monitoring instruments installed at this landfill.

Other Features of Note

A pair of shallow vehicle tracks/ruts was observed on the west corner of Lobe 1. The vehicle tracks/ruts extended 0.05 m in depth and covered less than 1% of the landfill surface. These vehicle tracks were consistent with the previous 2011 inspection.

Discussion

The Southeast 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 – Southeast Landfill

DEW LINE CLEANUP: POST-CONSTRUCTION - LANDFILL MONITORING
VISUAL INSPECTION CHECKLIST
INSPECTION REPORT – PAGE 1 OF 2

SITE NAME: CAM-1 Jenny Lind Island
LANDFILL DESIGNATION: Southeast Landfill (Regrade Landfill)
DATE OF INSPECTION: August 17, 2012
DATE OF PREVIOUS INSPECTION: August 13, 2011
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.

Checklist Item	Present (Yes/No)	Location	Length	Width	Depth	Extent	Description	Photographic Record	Severity Rating	Additional Comments
Settlement	Yes	FEATURE A See Figure CAM-1.7 (N side slope - Lobe 2)	2.5 m	0.15 m	0.03 - 0.05 m	Isolated (<1%)	Minor depression	SELF-20, 21	Acceptable	Side slope appears stable.
		FEATURE B See Figure CAM-1.7 (SE crest - Lobe 1. New Obs.)	0.5 m	0.15 m	0.03 m	Isolated (<1%)	Minor depression	SELF-16	Acceptable	Cover appears stable.
Erosion	Yes	FEATURE C See Figure CAM-1.7 (E cover - Lobe 1 - New Obs.)	15 m	0.05 - 0.07 m	0.01 - 0.03 m	Localized (<2%)	Minor erosion, washing of fines	SELF-11, 12	Acceptable	Cover and side slope appears stable
Frost Action	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Animal Burrows	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Vegetation	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Staining	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Vegetation Stress	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Seepage Points	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Debris Exposed	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Presence/Condition of Monitoring Instruments	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Other Features of Note:	Yes	See Figure CAM-1.7 (W side slope - Lobe 1)	1 - 3 m	0.15 m	0.05 m	Isolated (<1%)	Vehicle ruts	SELF-4, 5	Acceptable	N/A
Additional Photos	Yes	See Figure CAM-1.7 and Photographic Record	N/A	N/A	N/A	N/A	General Photographic Record	N/A	Not Observable	General photos for documentation, no features of note.
Overall Landfill Performance:	**Acceptable**									

8.3 PRELIMINARY STABILITY ASSESSMENT

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

Table XXXII: Preliminary Stability Assessment – Southeast Landfill

Feature	Severity Rating	Extent
Settlement	Acceptable	Isolated
Erosion	Acceptable	Isolated
Frost Action	Not observed	None
Staining	Not observed	None
Vegetation Stress	Not observed	None
Seepage/Ponded Water	Not observed	None
Debris exposure	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 Southeast Landfill has been completed as per the ToR and is presented in Figure CAM-1.7.

N

389 200 E

389 250 E

389 300 E

7 620 600 N

7 620 550 N

ACCESS TRAIL

FEATURE A – MINOR DEPRESSION
2.5m L, 0.15m W, 0.03–0.05m D

SOUTHEAST
LANDFILL–LOBE 2

SOUTHEAST
LANDFILL–LOBE 1

FEATURE B – SMALL DEPRESSION
0.5m L, 0.15m W, 0.03m D

VEHICLE RUTS
1–3m L, 0.15m W, 0.05m D

FEATURE C – MINOR EROSION
15m L, 0.05–.07m W, 0.01–0.02m D

30m

31m

29m

28m

LEGEND

- 270 — COORDINATE POINT
- 6 — APPROX. PHOTOGRAPHIC VIEWPOINT
- MINOR SETTLEMENT (NTS)
- VEHICULE RUTS
- MINOR EROSION (NTS)

0 5m 10m 15m 20m 25m

NO.	VERSION	DATE	P.L.	A.P.	A.L.
A	FINAL	13–03–08	PAR	VERIF.	APPR.

Construction de Défense Canada
Defence Construction Canada

COLLECTION OF LANDFILL MONITORING DATA

CAM-1, JENNY LIND ISLAND, NUNAVUT

SOUTHEAST 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 : 500	MARCH 2013
DRAWN BY: P. LÉGARÉ	VERIFIED BY: A. PASSALIS	APPROVED BY: A. LECLAIR P. ENG
PROJECT NO: CD9229_004_160	DRAWING NO: CD9229_004_160-CAM-1.7-PL	PAGE PL

FIGURE CAM-1.7

G:\CD9229\2012\CAM-1\FINAL\CD9229_004_160-CAM-1.7-PL.dwg, PL, 2013-03-27 2:09:34 PM

8.5 PHOTOGRAPHIC RECORDS

The Photographic Record for the Southeast Landfill has been completed as per the ToR and is included as Table XXXIII hereafter. The Photographic Record contains only an index and "thumbnail" photographs. Full-sized photographs are contained in the Addendum DVD-ROM.

Table XXXIII: Landfill Visual Inspection Photo Log – Southeast Landfill

Photo (SELF-)	Thumbnails	Filename	Size (KB)	Date	Vantage Point		Caption
					Easting	Northing	
Lobe 1							
1		C112_7326	3,345 KB	2012-08-16	389244	7620586	Panoramic view looking east to southwest from northwest corner across Lobe 1
2		C112_7327	4,457 KB	2012-08-16	389242	7620591	View looking southwest along northwest toe of Lobe 1
3		C112_7328	4,278 KB	2012-08-16	389243	7620591	View looking east-southeast along north toe of Lobe 1
4		C112_7329	4,352 KB	2012-08-16	389213	7620562	View looking northwest at vehicle ruts on west side slope of Lobe 1 (1-3m L, 0.15m W, 0.05m D)
5		C112_7330	4,271 KB	2012-08-16	389208	7620568	View looking southeast at vehicle ruts on west side slope of Lobe 1 (1-3m L, 0.15m W, 0.05m D)
6		C112_7331	4,344 KB	2012-08-16	389207	7620564	View looking northeast along northwest toe of Lobe 1
7		C112_7332	4,422 KB	2012-08-16	389207	7620562	View looking south along west toe of Lobe 1
8		C112_7335	2,738 KB	2012-08-16	389210	7620538	Panoramic view looking north-northwest to east from south corner across Lobe 1
9		C112_7336	4,401 KB	2012-08-16	389204	7620535	View looking north along west toe of Lobe 1
10		C112_7337	4,318 KB	2012-08-16	389206	7620533	View looking northeast along southeast toe of Lobe 1
11		C112_7340	4,441 KB	2012-08-16	389249	7620574	View looking southeast at minor erosion on cover of Lobe 1 (15m L, 0.05-0.07m W, 0.01-0.02m D) - FEATURE C
12		C112_7341	4,416 KB	2012-08-16	389254	7620556	View looking northwest at minor erosion on cover of Lobe 1 (15m L, 0.05-0.07m W, 0.01-0.02m D) - FEATURE C
13		C112_7342	3,133 KB	2012-08-16	389269	7620570	Panoramic view looking southwest to north from east corner across Lobe 1
14		C112_7343	4,354 KB	2012-08-16	389271	7620566	View looking southwest along southeast toe of Lobe 1
15		C112_7344	4,371 KB	2012-08-16	389265	7620582	View looking southwest from northeast side along centerline of Lobe 1
16		C112_7345	4,312 KB	2012-08-16	389269	7620568	View looking southwest at minor depression near southeast crest of Lobe 1 (0.5m L, 0.15m W, 0.03m D) - FEATURE B
Lobe 2							
17		C112_7348	3,004 KB	2012-08-16	389227	7620631	Panoramic view looking southeast to southwest from north corner across Lobe 2
18		C112_7349	4,322 KB	2012-08-16	389226	7620634	View looking south-southwest along west toe of Lobe 2
19		C112_7350	4,418 KB	2012-08-16	389227	7620635	View looking southeast along northeast toe of Lobe 2
20		C112_7351	4,322 KB	2012-08-16	389231	7620632	View looking northwest at minor depression on north side slope of Lobe 2 (2.5m L, 0.15m W, 0.03-0.05m D) - Feature A
21		C112_7352	4,372 KB	2012-08-16	389230	7620635	View looking southwest at minor depression on north side slope of Lobe 2 (2.5m L, 0.15m W, 0.03-0.05m D) - Feature A
22		C112_7355	4,387 KB	2012-08-16	389242	7620624	View looking northwest along northeast toe of Lobe 2
23		C112_7356	4,272 KB	2012-08-16	389242	7620622	View looking south along east toe of Lobe 2
24		C112_7357	4,309 KB	2012-08-16	389242	7620609	View looking north along east toe of Lobe 2
25		C112_7358	4,335 KB	2012-08-16	389241	7620608	View looking west along south toe of Lobe 2
26		C112_7359	3,192 KB	2012-08-16	389238	7620611	Panoramic view looking southwest to north-northeast from south corner across Lobe 2

Photo (SELF-)	Thumbnails	Filename	Size (KB)	Date	Vantage Point		Caption
					Easting	Northing	
Soil Sampling							
S14		C112_7353	4,408 KB	2012-08-16	389246	7620633	Sampling location C112-14 located upgradient of Southeast LF - Lobe 2
		C112_7354	4,376 KB	2012-08-16	389246	7620635	View south at C112-14 soil sample location
S15		C112_7361	4,359 KB	2012-08-16	389236	7620599	Sampling location C112-15 located downgradient of Southest LF - Lobe 2
		C112_7362	4,434 KB	2012-08-16	389236	7620596	View north at C112-15 soil sample location
S16		C112_7346	4,369 KB	2012-08-16	389264	7620553	Sampling location C112-16 located downgradient of Southest LF - Lobe 1
		C112_7347	4,315 KB	2012-08-16	389268	7620553	View west at C112-16 soil sample location
S17		C112_7338	4,407 KB	2012-08-16	389231	7620533	Sampling location C112-17 located downgradient of Southest LF - Lobe 1
		C112_7339	4,319 KB	2012-08-16	389233	7620531	View northwest at C112-17 soil sample location
S18		C112_7333	4,261 KB	2012-08-16	389196	7620532	Sampling location C112-18 located downgradient of Southeast LF - Lobe 1
		C112_7334	4,298 KB	2012-08-16	389195	7620529	View north-northeast at C112-18 soil sample location

8.6 SOIL SAMPLE ANALYTICAL DATA

The soil chemical analysis results and the evaluation of analytical data for the 2012 Southeast Landfill samples are presented in Tables XXXIV and XXXV below. Field and inter-laboratory duplicates collected as part of the QA/QC program are presented in Appendix C at the end of this report.

Table XXXIV: Soil Chemical Analysis Results – Southeast Landfill

Sample Name	Sample Location	Depth Below Grade (cm)	Parameters									
			As [mg/kg]	Cd [mg/kg]	Cr [mg/kg]	Co [mg/kg]	Cu [mg/kg]	Pb [mg/kg]	Hg [mg/kg]	Ni [mg/kg]	Zn [mg/kg]	PCBs [mg/kg]
C112-14A	South East Landfill C1-14	0-15	3	<0.10	2.9	<1.0	<5.0	18	<0.050	1.7	<10	<0.01
C112-14B		40-50	1.6	<0.10	2.3	<1.0	<5.0	2.9	<0.050	3.3	<10	<0.01
C112-15A	South East Landfill C1-15	0-15	1.6	<0.10	2.2	<1.0	<5.0	4.5	<0.050	1.3	<10	<0.01
C112-15B		40-50	1.5	<0.10	1.5	<1.0	<5.0	3.3	<0.050	1.1	<10	<0.01
C112-16A	South East Landfill C1-16	0-15	<1.0	<0.10	1.6	<1.0	<5.0	1.8	<0.050	<1.0	<10	<0.01
C112-16B		40-50	1.4	<0.10	1.3	<1.0	<5.0	4.6	<0.050	<1.0	<10	<0.01
C112-17A	South East Landfill C1-17	0-15	1	<0.10	1.8	<1.0	<5.0	2.2	<0.050	1.2	<10	<0.01
C112-17B		40-50	14	<0.10	1.9	1.2	5.5	41	<0.050	1.9	<10	<0.01
C112-18A	South East Landfill C1-18	0-15	<1.0	<0.10	1.6	<1.0	<5.0	1.4	<0.050	1.7	<10	<0.01
C112-18B		40-50	<1.0	<0.10	1	<1.0	<5.0	<1.0	<0.050	<1.0	<10	<0.01

Sample Name	Sample Location	Depth Below Grade [cm]	Parameters			
			PHC(F1) [mg/kg]	PHC(F2) [mg/kg]	PHC(F3) [mg/kg]	TPH [mg/kg]
C112-14A	South East Landfill C1-14	0-15	<12	<10	<10	<10
C112-14B		40-50	<12	<10	<10	<10
C112-15A	South East Landfill C1-15	0-15	<12	<10	<10	<10
C112-15B		40-50	<12	<10	<10	<10
C112-16A	South East Landfill C1-16	0-15	<12	<10	<10	<10
C112-16B		40-50	<12	13	19	32
C112-17A	South East Landfill C1-17	0-15	<12	<10	<10	<10
C112-17B		40-50	<12	<10	<10	<10
C112-18A	South East Landfill C1-18	0-15	<12	<10	<10	<10
C112-18B		40-50	<12	<10	<10	<10

PHC (F1): Petroleum hydrocarbon C_6 to C_{10}, does not include BTEX fractions
PHC (F2): Petroleum hydrocarbon $C_{>10}$ to C_{16}
PHC (F3): Petroleum hydrocarbon $C_{>16}$ to C_{34}
TPH: Total Petroleum Hydrocarbons (C_6 to C_{34})

Table XXXV: Evaluation of 2012 Soil Analytical Data – Southeast Landfill

Parameter	2012
Copper	All reported concentrations were lower than the method detection limit of 5 mg/kg with the exception of one depth sample at downgradient location C1-17 (5.5 mg/kg).
Nickel	Concentrations ranged between <1-3.3 mg/kg with a mean of 1.4. The highest concentration was observed at depth at upgradient location C1-14 (3.3 mg/kg). Reported concentrations lower than the method detection limit of 1 mg/kg were noted at downgradient locations C1-16 (surface and depth) and C1-18 (depth). Detectable concentrations at all other locations ranged between 1.1-1.9 mg/kg.
Cobalt	All reported concentrations were lower than the method detection limit of 1 mg/kg with the exception of one depth sample at downgradient location C1-17 (1.2 mg/kg).
Lead	Concentrations ranged between <1-41 mg/kg with a mean of 8.0. Trace concentrations were observed at the majority of locations with slightly higher concentrations noted at upgradient location C1-14 (surface - 18 mg/kg) and downgradient location C-17 (depth – 41 mg/kg). Detectable concentrations at all other locations ranged between 1.4-4.6 mg/kg.
Zinc	All reported concentrations were lower than the method detection limit of 10 mg/kg.
Chromium	Concentrations ranged between 1.0-2.9 mg/kg with a mean of 1.8. Trace concentrations were observed at all locations with slightly higher concentrations noted at upgradient location C1-14 (surface – 2.9 mg/kg, depth – 2.3) and downgradient location C1-19 (surface – 2.2 mg/kg). Concentrations at all other locations ranged between 1.0-1.9 mg/kg.
Arsenic	Concentrations ranged between <1-14 mg/kg with non-detectable concentrations noted at three downgradient sample locations, including C1-16 (surface) and C1-18 (surface and depth). One slightly higher concentration was noted at downgradient location C1-17 (depth – 14 mg/kg). Concentrations at all other locations ranged between 1.0-3.0 mg/kg.
Mercury	All reported concentrations were lower than the method detection limit (0.05 mg/kg).
PCBs	All reported concentrations were lower than the method detection limit (0.01 mg/kg).
TPH	Detectable concentrations of hydrocarbons were noted in one depth sample from downgradient location C1-16 (PHC F2 – 13 mg/kg and PHC F3 – 19 mg/kg). All other reported concentrations were lower than the method detection limit (10-12 mg/kg).

9 MAIN LANDFILL

9.1 BACKGROUND AND MONITORING PROGRAM

The Main Landfill is located approximately 300 m east-southeast of the former station infrastructure pad and 75 m to the southwest of the Station East Landfill. The landfill forms a slight topographic high within a relatively flat lying area east of the former station. The landfill has a single regrade area encompassing a footprint of approximately 12,500 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 Main Landfill was classified as low potential environmental risk. The remediation consisted of regrading with the placement of additional granular fill.

The long term monitoring plan consists of visual monitoring and collection of soil samples.

The 2012 monitoring of this landfill includes a visual inspection to assess landfill performance and the collection of soil samples to monitor for the presence of leachate. Locations of soil samples are identified on Figure CAM-1.8. Soil at all stations was sampled as per the ToR. There is no instrumentation installed at this landfill.

9.2 VISUAL INSPECTION REPORT

The visual inspection of the Main Landfill was conducted on August 17, 2012. The Visual Inspection Checklist/Report has been completed as per the ToR and is included as Table XXXVI of this report.

Settlement

Indications of minor settlement were noted at four isolated locations on the west and northwest cover and northwest and east side slopes (Feature C). The linear shaped depressions ranged in size from 0.8 to 3 m in length, 0.2 to 0.7 m in width and 5 to 10 cm in depth. These features were not noted during the previous 2011 inspection.

Erosion

Indications of minor erosion were noted in three general areas (Features D, E and F) on the northwest, southwest and northeast margins of the landfill, ranging from 1.5 to 30 m in length. At each area, the erosion generally consisted of fines washing along the toe of slope and appears to be the result of localized seasonal ponding along the margins of the landfill. These features were dry at the time of the 2012 inspection and appear to be self-armouring with an acceptable severity rating. Two new areas of

minor erosion associated with Feature E were also noted on the southwest side slope. These features were not noted during the previous 2011 inspection.

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 on the landfill.

Staining

One moderate sized area of discoloured granular material was noted in the central cover area of the landfill (Feature G). The area measures approximately 25 m by 20 m with no evidence of seepage or ponding in the immediate area. This feature was not noted during the previous 2011 inspection.

Seepage Points

No areas of seepage were noted at the landfill.

Debris

Evidence of debris was not noted at the landfill.

Presence/Condition of Monitoring Instruments

There is no monitoring instrumentation installed at this landfill.

Other Features of Note

No other features were noted at the landfill.

Discussion

The Main 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 XXXVI: Visual Inspection Checklist / Report – Main Landfill

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

SITE NAME: CAM-1 – Jenny Lind Island
LANDFILL DESIGNATION: Main Landfill (Regrade Landfill)
DATE OF INSPECTION: August 17, 2012
DATE OF PREVIOUS INSPECTION: August 13, 2011
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.

Checklist Item	Present (Yes/No)	Location	Length	Width	Depth	Extent	Description	Photographic Record	Severity Rating	Additional Comments
Settlement	Yes	FEATURE C See Figure CAM-1.8 (W and NW cover, NW and E side slopes - New Obs)	0.8 - 3 m	0.2 - 0.7 m	0.05 - 0.1 m	Occasional (<1%)	Minor depressions	MLF-3, 25, 33, 34	Acceptable	Cover and side slopes appear stable
Erosion	Yes	FEATURE D See Figure CAM-1.8 (NW side slope and corner)	4 - 25 m	0.3 - 0.5 m	0.03 - 0.15 m	Isolated (<1%)	Minor erosion along toe and northwest corner	MLF-4, 5, 7	Acceptable	Washing of fines from seasonal ponding. Slope appears stable
		FEATURE E See Figure CAM-1.8 (SW toe - 2 New Obs on SW side slope)	1.5 - 30 m	0.05 - 1 m	0.03 - 0.05 m	Isolated (<3%)	Minor erosion along toe	MLF-11, 13, 14, 16, 17	Acceptable	Washing of fines from seasonal ponding. Slope appears stable
		FEATURE F See Figure CAM-1.8 (NE side slope and toe)	6 - 12 m	0.1 - 1.5 m	0.02 - 0.05 m	Isolated (<1%)	Minor erosion on side slope and along toe	MLF-29, 30, 31	Acceptable	Washing of fines from seasonal ponding. Slope appears stable
Frost Action	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Animal Burrows	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Vegetation	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Staining	Yes	FEATURE G See Figure CAM-1.8 (Central cover - New Obs)	25 m	20 m	Unknown	Isolated (<3%)	Slight discoloration of granular cover material	MLF-32	Acceptable	N/A
Vegetation Stress	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Seepage Points	Yes	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Debris Exposed	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Presence/Condition of Monitoring Instruments	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Other Features of Note:	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Additional Photos	Yes	See Figure CAM-1.8 and Photographic Record	N/A	N/A	N/A	N/A	General Photographic Record	N/A	Not Observable	General photos for documentation, no features of note.
Overall Landfill Performance:	**Acceptable**									

9.3 PRELIMINARY STABILITY ASSESSMENT

The Preliminary Stability Assessment for Main Landfill has been completed as per the ToR and is included as Table XXXVII below.

Table XXXVII: Preliminary Stability Assessment – Main Landfill

Feature	Severity Rating	Extent
Settlement	Acceptable	Occasional
Erosion	Acceptable	Isolated
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

9.4 LOCATION PLAN

The Location Plan for the Main Landfill has been completed as per the ToR and is presented in Figure CAM-1.8.

N

389 600 E

389 750 E

389 900 E

7 620 700 N

7 620 550 N

ACCESS ROAD

MODULE TRAIN DEBRIS AREA LOBE 2

BM–4

STATION EAST LANDFILL LOBES 1 AND 2

MAIN LANDFILL LOBES 1 AND 2

FEATURE A – MINOR SETTLEMENT
0.5–4m L, 0.1–0.3m W, 0.05–0.07m D

FEATURE B – MINOR EROSION
3m L, 1.5m W, 0.03m D

FEATURE C – MINOR SETTLEMENT
0.8–3m L, 0.3–0.7m W, 0.05–0.1m D

FEATURE D – MINOR EROSION
4–25m L, 0.3–0.5m W, 0.03–0.15m D

FEATURE E – MINOR EROSION
1.5–30m L, 0.05–1m W, 0.03–0.05m D

FEATURE F – MINOR EROSION
6–12m L, 0.1–1.5m W, 0.02–0.05m D

FEATURE G – DISCOLORATION
25m L, 20m W

LEGEND

- BM–4 — PERMANENT BENCHMARK LOCATION (1)
- 310 — COORDINATE POINT
- 6 — APPROX. PHOTOGRAPHIC VIEWPOINT
- MINOR SETTLEMENT (NTS)
- MINOR EROSION (NTS)
- STAINING (NTS)

0 15m 30m 45m 60m 75m

NO.	VERSION	DATE	P.L.	A.P.	A.L.
A	FINAL	13–03–08			

Construction de Défense Canada
Defence Construction Canada

COLLECTION OF LANDFILL MONITORING DATA

CAM–1, JENNY LIND ISLAND, NUNAVUT

STATION EAST LANDFILL AND MAIN LANDFILL

SITE REMEDIATION SOLUTIONS

Biogenie, a division of EnGlobe Corp.
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MEASUREMENT UNIT	SCALE:	DATE (month–year):
Metre	1 : 1,500	MARCH 2013
DRAWN BY: P. LÉGARÉ	VERIFIED BY: A. PASSALIS	APPROVED BY: A. LECLAIR
PROJECT NO: CD9229_004_160	DRAWING NO: CD9229_004_160-CAM-1.8-PL	PAGE PL

FIGURE CAM-1.8

G:\CD9229\2012\CAM-1\FINAL\CD9229_004_160-CAM-1.8-PL.dwg, PL, 2013-03-27 2:10:28 PM

9.5 PHOTOGRAPHIC RECORDS

The Photographic Record for the Main Landfill has been completed as per the ToR and is included as Table XXXVIII hereafter. The Photographic Record contains only an index and “thumbnail” photographs. Full sized photographs are contained in the Addendum DVD-ROM.

Table XXXVIII: Landfill Visual Inspection Photo Log – Main Landfill

Photo (MLF-)	Thumbnail	Filename	Size (KB)	Date	Vantage Point		Caption
					Easting	Northing	
1		C112_7428	4,424 KB	2012-08-17	389659	7620722	View looking northeast along northwest side slope of Main LF
2		C112_7429	4,337 KB	2012-08-17	389656	7620720	View looking southwest along northwest side slope of Main LF
3		C112_7430	4,414 KB	2012-08-17	389645	7620719	View looking southeast at minor depression on northwest side slope of Main LF (1.5mL, 0.2m W, 0.05m D) - FEATURE C
4		C112_7431	4,338 KB	2012-08-17	389643	7620711	View looking southwest along northwest side slope of Main LF. Note minor erosion (fines washing) along toe from seasonal ponding (25m L, 0.4m W, 0.03m D) - Feature D
5		C112_7432	4,381 KB	2012-08-17	389617	7620689	View looking northeast along northwest side slope of Main LF. Note minor erosion (fines washing) along toe from seasonal ponding (25m L, 0.4m W, 0.03m D) - Feature D
6		C112_7433	4,427 KB	2012-08-17	389618	7620685	View looking south along west toe of Main LF
7		C112_7434	4,437 KB	2012-08-17	389621	7620681	Erosion on northwest corner of Main LF (4m L, 0.5m W, 0.1-.15m D) - Feature D
8		C112_7436	3,194 KB	2012-08-17	389624	7620685	Panoramic view looking northeast to south from west corner across Main LF
9		C112_7437	4,413 KB	2012-08-17	389623	7620672	View looking south along west toe of Main LF. Note minor erosion (fines washing) along toe from seasonal ponding (25m L, 0.5m W, 0.02m D) - FEATURE D
10		C112_7438	4,374 KB	2012-08-17	389616	7620626	View looking north along west toe of Main LF
11		C112_7439	4,264 KB	2012-08-17	389619	7620625	View looking east-northeast along southwest toe of Main LF. Note minor erosion (fines washing) along toe from seasonal ponding (30m L, 0.3m W, 0.03m D) - FEATURE E
12		C112_7440	2,891 KB	2012-08-17	389621	7620630	Panoramic view looking north to southeast from west side across Main LF
13		C112_7441	4,314 KB	2012-08-17	389643	7620627	View looking north at minor erosion on southwest side slope of Main LF (1.5m L, 0.05-0.5m W, 0.05m D) - FEATURE E
14		C112_7442	4,351 KB	2012-08-17	389647	7620635	View of minor erosion on southwest side slope of Main LF (1.5m L, 0.05-0.5m W, 0.05m D) - FEATURE E
15		C112_7443	4,411 KB	2012-08-17	389658	7620620	View looking south along west toe of Main LF
16		C112_7444	4,352 KB	2012-08-17	389655	7620623	View looking west along southwest toe of Main LF. Note minor erosion (fines washing) along toe from seasonal ponding (30m L, 0.3m W, 0.03m D) - Feature E
17		C112_7445	4,455 KB	2012-08-17	389654	7620621	View looking northeast at minor erosion on southwest side slope of Main LF (2.5m L, 0.65-1m W, 0.03m D) - FEATURE E
18		C112_7446	3,170 KB	2012-08-17	389666	7620594	Panoramic view looking north to east from south side across Main LF
19		C112_7447	4,418 KB	2012-08-17	389690	7620590	View looking northeast along south to of Main LF
20		C112_7448	4,439 KB	2012-08-17	389687	7620589	View looking west along south toe of Main LF. Note deposition of gravel and cobbles along toe from seasonal ponding

Photo (MLF-)	Thumbnail	Filename	Size (KB)	Date	Vantage Point		Caption
					Easting	Northing	
21		C112_7449	4,393 KB	2012-08-17	389702	7620611	View looking southwest along south to of Main LF
22		C112_7450	4,276 KB	2012-08-17	389706	7620611	View looking southeast along south side slope of Main LF
23		C112_7451	4,301 KB	2012-08-17	389747	7620595	View looking northwest at southeast end of Main LF
24		C112_7456	4,262 KB	2012-08-17	389735	7620621	View northeast along east side slope of Main LF
25		C112_7457	4,367 KB	2012-08-17	389739	7620618	View looking west at minor depressoion on inside corner (3m L, 0.5m W, 0.05-0.1m D) - FEATURE C
26		C112_7458	3,014 KB	2012-08-17	389744	7620654	Panoramic view looking south to northwest from west side across Main LF
27		C112_7459	4,310 KB	2012-08-17	389722	7620689	View looking northwest along northeast side slope of Main LF
28		C112_7460	4,339 KB	2012-08-17	389724	7620687	View looking southeast along northeast side slope of Main LF
29		C112_7461	4,354 KB	2012-08-17	389713	7620700	View looking northwest along northeast toe of Main LF. Note minor erosion (fines washing) along toe from seasonal ponding (12m L, 0.5-1.5m W, 0.02-0.05m D) - FEATURE F
30		C112_7462	4,435 KB	2012-08-17	389687	7620713	View looking northeast at minor erosion near northeast corner of Main LF (6m L, 0.2m W, 0.02m D) - FEATURE F
31		C112_7463	4,420 KB	2012-08-17	389690	7620723	View looking southeast along northeast toe of Main LF. Note minor erosion (fines washing) along toe from seasonal ponding (12m L, 0.5-1.5m W, 0.02-0.05m D) - FEATURE F
32		C112_7466	2,817 KB	2012-08-17	389675	7620641	Panoramic view looking north to east at discoloured area on cover of Main LF (25m L, 20m W) - FEATURE G
33		C112_7467	4,369 KB	2012-08-17	389643	7620650	View looking south-southeast at minor depression on west cover of Main LF (1m L, 0.3m W, 0.05m D) - FEATURE C
34		C112_7468	4,334 KB	2012-08-17	389654	7620687	View looking northwest at minor depression on northwest cover of Main LF (0.8m L, 0.7m W, 0.05-0.1m D) - FEATURE C
Soil Sampling							
		C112_7470	4,341 KB	2012-08-17	389629	7620719	Sampling location C112-23 located downgradient of Main LF
S23		C112_7471	4,380 KB	2012-08-17	389631	7620727	View south at C112-23 soil sample location
		C112_7452	4,389 KB	2012-08-17	389752	7620609	Sampling location C112-24 located upgradient of Main LF
S24		C112_7453	4,442 KB	2012-08-17	389763	7620609	View west at C112-24 soil sample location
		C112_7454	4,363 KB	2012-08-17	389700	7620575	Sampling location C112-25 located downgradient of Main LF
S25		C112_7455	4,306 KB	2012-08-17	389704	7620570	View northwest at C112-25 soil sample location
		C112_7464	4,376 KB	2012-08-17	389646	7620604	Sampling location C112-26 located downgradient of Main LF
S26		C112_7465	4,415 KB	2012-08-17	389645	7620596	View north at C112-26 soil sample location

9.6 SOIL SAMPLE ANALYTICAL DATA

The soil chemical analysis results and the evaluation of analytical data for the 2012 Main Landfill samples are presented in Tables XXXIX and XL below. Field and inter-laboratory duplicates collected as part of the QA/QC program are presented in Appendix C at the end of this report.

Table XXXIX: Soil Chemical Analysis Results – Main Landfill

Sample Name	Sample Location	Depth Below Grade (cm)	Parameters									
			As [mg/kg]	Cd [mg/kg]	Cr [mg/kg]	Co [mg/kg]	Cu [mg/kg]	Pb [mg/kg]	Hg [mg/kg]	Ni [mg/kg]	Zn [mg/kg]	PCBs [mg/kg]
C112-23A	**Main Landfill C1-23**	0-15	38	<0.10	1.9	1.4	<5.0	42	<0.050	2.6	<10	<0.01
C112-23B		40-50	39	<0.10	1.6	1.2	<5.0	42	<0.050	2	<10	<0.01
C112-24A	**Main Landfill C1-24**	0-15	2.9	<0.10	2.3	<1.0	<5.0	5.5	<0.050	1	<10	<0.01
C112-24B		40-50	6.4	<0.10	2.7	<1.0	<5.0	9.5	<0.050	1.7	<10	<0.01
C112-25A	**Main Landfill C1-25**	0-15	1.7	<0.10	2.5	3.8	34	3.1	<0.050	1.8	<10	<0.01
C112-25B		40-50	3	<0.10	3.7	1	5.3	4.6	<0.050	2.1	<10	<0.01
C112-26A	**Main Landfill C1-26**	0-15	1.5	<0.10	3.4	<1.0	<5.0	3.9	<0.050	1.6	<10	<0.01
C112-26B		40-50	2.2	<0.10	3.4	<1.0	5.8	3.7	<0.050	1.9	<10	<0.01

Sample Name	Sample Location	Depth Below Grade [cm]	Parameters			
			PHC(F1) [mg/kg]	PHC(F2) [mg/kg]	PHC(F3) [mg/kg]	TPH [mg/kg]
C112-23A	**Main Landfill C1-23**	0-15	<12	<10	<10	<10
C112-23B		40-50	<12	<10	12	12
C112-24A	**Main Landfill C1-24**	0-15	<12	<10	<10	<10
C112-24B		40-50	<12	<10	<10	<10
C112-25A	**Main Landfill C1-25**	0-15	<12	<10	<10	<10
C112-25B		40-50	<12	13	<10	<10
C112-26A	**Main Landfill C1-26**	0-15	<12	<10	<10	<10
C112-26B		40-50	<12	<10	<10	<10

PHC (F1): Petroleum hydrocarbon C_6 to C_{10}, does not include BTEX fractions
PHC (F2): Petroleum hydrocarbon $C_{>10}$ to C_{16}
PHC (F3): Petroleum hydrocarbon $C_{>16}$ to C_{34}
TPH: Total Petroleum Hydrocarbons (C_6 to C_{34})

Table XL: Evaluation of 2012 Soil Analytical Data – Main Landfill

Parameter	2012
Copper	Detectable concentrations were noted at three sample locations, including downgradient locations C1-25 (surface – 34 mg/kg, depth – 5.3 mg/kg) and C1-26 (depth – 5.8 mg/kg). All other concentrations were lower than the method detection limit of 5 mg/kg.
Nickel	Detectable concentrations were noted at all sample locations, ranging between 1.0-2.6 mg/kg with a mean of 1.9. The highest concentration was observed at surface at upgradient location C1-23 (2.6 mg/kg). Concentrations at all other locations ranged between 1.0-2.1 mg/kg.
Cobalt	Detectable concentrations were noted at two sample locations, including upgradient location C1-23 (surface – 1.4 mg/kg, depth – 1.2 mg/kg) and downgradient location C1-25 (surface – 3.8 mg/kg, depth – 1.0 mg/kg). All other concentrations were lower than the method detection limit of 1 mg/kg.
Lead	Concentrations ranged between 3.1-42 mg/kg with a mean of 5.1. Trace concentrations were observed at the majority of locations with higher concentrations noted at upgradient location C1-23 (surface and depth - 42 mg/kg). Concentrations at all other locations ranged between 3.1-9.5 mg/kg.
Zinc	All reported concentrations were lower than the method detection limit of 10 mg/kg.
Chromium	Concentrations ranged between 1.6-3.7 mg/kg with a mean of 2.6. Trace concentrations were observed at all locations with slightly higher concentrations noted at downgradient locations C1-24 (depth - 2.7 mg/kg), C1-25 (depth - 3.7 mg/kg) and C1-26 (surface and depth – 3.4 mg/kg). Concentrations at all other locations ranged between 1.6-2.5 mg/kg.
Arsenic	Concentrations ranged between 1.5-39 mg/kg with detectable concentrations noted at all sample locations. Higher concentrations were noted at upgradient location C1-23 (surface 38 mg/kg, depth – 39 mg/kg). Concentrations at all downgradient locations ranged between 1.6-6.4 mg/kg.
Mercury	All reported concentrations were lower than the method detection limit (0.05 mg/kg).
PCBs	All reported concentrations were lower than the method detection limit (0.01 mg/kg).
TPH	Detectable concentrations of hydrocarbons were noted in one depth sample from upgradient location C1-23 (PHC F3 – 12 mg/kg). All other reported concentrations were lower than the method detection limit (10-12 mg/kg).

10 STATION EAST LANDFILL

10.1 BACKGROUND AND MONITORING PROGRAM

The Station East Landfill is located approximately 350 m east of the former station infrastructure pad and 75 m to the northeast of the Main Landfill. The landfill forms a slight topographic high within a relatively flat lying area east of the former station. The landfill has a single regrade area encompassing a footprint of approximately 2,400 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 Station 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 collection of soil samples.

The 2012 monitoring of this landfill includes a visual inspection to assess landfill performance and the collection of soil samples to monitor for the presence of leachate. Locations of soil samples are identified on Figure CAM-1.8. Soil at all stations was sampled as per the ToR. There is no instrumentation installed at this landfill.

10.2 VISUAL INSPECTION REPORT

The visual inspection of the Station East Landfill was conducted on August 16-17, 2012. The Visual Inspection Checklist/Report has been completed as per the ToR and is included as Table XLI of this report.

Settlement

Indications of minor settlement were noted in five general areas (Feature A) on the north and southwest sides of the landfill surface. The feature consisted of two shallow linear depressions near the north crest, one localized small depression on the northeast cover area, two elliptical depressions on the southwest cover and one linear depression on the southwest side slope. This feature has an acceptable severity rating. The depressions on the north crest and northeast cover were consistent with findings from the 2011 inspection, whereas the depressions on the southwest cover and side slope were not noted during the previous 2011 inspection.

Erosion

One area of minor erosion was noted along the west margin of the landfill (Feature B). The erosion consisted of fines washing along approximately 3 linear meters of the toe of slope. Erosion appears to be the result of seasonal ponding along the west side of the lobe. This feature was dry at the time of the 2012 inspection and appears to be self-armouring with an acceptable severity rating. This feature was consistent with findings from the previous 2011 inspection.

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 on the landfill.

Staining

No areas of staining were noted at the landfill.

Seepage Points

No areas of seepage were noted at the landfill.

Debris

Evidence of debris was not noted at the landfill.

Presence/Condition of Monitoring Instruments

There is no monitoring instrumentation installed at this landfill.

Other Features of Note

No other features were noted at the landfill.

Discussion

The Station 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 XLI: Visual Inspection Checklist / Report – Station East Landfill

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

SITE NAME: CAM-1 – Jenny Lind Island
LANDFILL DESIGNATION: Station East Landfill (Regrade Landfill)
DATE OF INSPECTION: August 16-17, 2012
DATE OF PREVIOUS INSPECTION: August 13, 2011
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.

Checklist Item	Present (Yes/No)	Location	Length	Width	Depth	Extent	Description	Photographic Record	Severity Rating	Additional Comments
Settlement	Yes	FEATURE A See Figure CAM-1.8 (N and SW sides - 3 New Obs)	0.4 - 4 m L	0.1 - 0.5 m	0.03 - 0.1 m	Occasional (<2%)	Minor depressions	ELF-9, 10, 13, 24-27	Acceptable	Cover appears stable.
Erosion	Yes	FEATURE B See Figure CAM-1.8 (W toe)	3 m	1.5 m	0.03 m	Isolated (<1%)	Minor erosion	ELF-3	Acceptable	Minor washing of fines along toe resulting from seasonal ponding
Frost Action	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Animal Burrows	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Vegetation	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Staining	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Vegetation Stress	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Seepage Points	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Debris Exposed	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Presence/Condition of Monitoring Instruments	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Other Features of Note:	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Additional Photos	Yes	See Figure CAM-1.8 and Photographic Record	N/A	N/A	N/A	N/A	General Photographic Record	N/A	Not Observable	General photos for documentation, no features of note.
Overall Landfill Performance:	**Acceptable**									

10.3 PRELIMINARY STABILITY ASSESSMENT

The Preliminary Stability Assessment for Station East Landfill has been completed as per the ToR and is included as Table XLII below.

Table XLII: Preliminary Stability Assessment – Station East Landfill

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

10.4 LOCATION PLAN

The Location Plan for the Station East Landfill has been completed as per the ToR and is presented in Figure CAM-1.8.

N

389 600 E

389 750 E

389 900 E

7 620 700 N

7 620 550 N

ACCESS ROAD

MODULE TRAIN DEBRIS AREA LOBE 2

BM–4

STATION EAST LANDFILL LOBES 1 AND 2

MAIN LANDFILL LOBES 1 AND 2

FEATURE A – MINOR SETTLEMENT
0.5–4m L, 0.1–0.3m W, 0.05–0.07m D

FEATURE B – MINOR EROSION
3m L, 1.5m W, 0.03m D

FEATURE C – MINOR SETTLEMENT
0.8–3m L, 0.3–0.7m W, 0.05–0.1m D

FEATURE D – MINOR EROSION
4–25m L, 0.3–0.5m W, 0.03–0.15m D

FEATURE E – MINOR EROSION
1.5–30m L, 0.05–1m W, 0.03–0.05m D

FEATURE F – MINOR EROSION
6–12m L, 0.1–1.5m W, 0.02–0.05m D

FEATURE G – DISCOLORATION
25m L, 20m W

LEGEND

- BM–4 — PERMANENT BENCHMARK LOCATION (1)
- 310 — COORDINATE POINT
- 6 — APPROX. PHOTOGRAPHIC VIEWPOINT
- MINOR SETTLEMENT (NTS)
- MINOR EROSION (NTS)
- STAINING (NTS)

0 15m 30m 45m 60m 75m

NO.	VERSION	DATE	P.L.	A.P.	A.L.
A	FINAL	13–03–08			

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COLLECTION OF LANDFILL MONITORING DATA

CAM–1, JENNY LIND ISLAND, NUNAVUT

STATION EAST LANDFILL AND MAIN LANDFILL

SITE REMEDIATION SOLUTIONS

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MEASUREMENT UNIT	SCALE:	DATE (month–year):
Metre	1 : 1,500	MARCH 2013
DRAWN BY: P. LÉGARÉ	VERIFIED BY: A. PASSALIS	APPROVED BY: A. LECLAIR
PROJECT NO: CD9229_004_160	DRAWING NO: CD9229_004_160-CAM-1.8-PL	PAGE PL

FIGURE CAM-1.8

G:\CD9229\2012\CAM-1\FINAL\CD9229_004_160-CAM-1.8-PL.dwg, PL, 2013-03-27 2:10:28 PM

10.5 PHOTOGRAPHIC RECORDS

The Photographic Record for the Station East Landfill has been completed as per the ToR and is included as Table XLIII hereafter. The Photographic Record contains only an index and “thumbnail” photographs. Full sized photographs are contained in the Addendum DVD-ROM.

Table XLIII: Landfill Visual Inspection Photo Log – Station East Landfill

Photo (ELF-)	Thumbnail	Filename	Size (KB)	Date	Vantage Point		Caption
					Easting	Northing	
1		C112_7363	4,305 KB	2012-08-16	389748	7620755	View looking northeast along west toe of Station East Landfill. Note minor erosion of fines (3m L, 1.5m W, 0.03m D) - Feature E
2		C112_7364	4,395 KB	2012-08-16	389749	7620752	View looking southeast along southwest toe of Station East Landfill
3		C112_7365	4,334 KB	2012-08-16	389756	7620760	View of minor erosion of fines along west toe of Station East Landfill (3m L, 1.5m W, 0.03m D) - Feature B
4		C112_7366	4,265 KB	2012-08-16	389765	7620788	View looking northeast along northwest toe of Station East Landfill
5		C112_7367	4,352 KB	2012-08-16	389763	7620785	View looking south along west toe of Station East Landfill
6		C112_7368	3,034 KB	2012-08-16	389769	7620783	Panoramic view looking northeast to south from west side across Station East Landfill
7		C112_7369	4,407 KB	2012-08-16	389804	7620804	View looking southwest along northwest toe of Station East Landfill
8		C112_7370	4,289 KB	2012-08-16	389808	7620803	View looking east-southeast along north toe of Station East Landfill
9		C112_7371	4,427 KB	2012-08-16	389821	7620792	View looking northwest at area of linear depressions on north side of Station East Landfill (4m L, 0.1-0.15m W, 0.05m D) - Feature A
10		C112_7372	4,286 KB	2012-08-16	389806	7620797	View looking east-southeast along north toe of Station East Landfill. Note linear depressions on right (4m L, 0.1-0.15m W, 0.05m D) - Feature A
11		C112_7373	4,335 KB	2012-08-16	389850	7620785	View looking southeast along northeast toe of Station East Landfill
12		C112_7374	4,372 KB	2012-08-16	389848	7620788	View looking northwest along north toe of Station East Landfill
13		C112_7375	4,289 KB	2012-08-16	389836	7620775	View looking east at minor depression on northeast cover area of Station East Landfill (0.5m L, 0.5m W, 0.07 m D) - Feature A
14		C112_7378	4,339 KB	2012-08-16	389867	7620760	View looking northwest along northeast toe of Station East Landfill
15		C112_7379	4,400 KB	2012-08-16	389868	7620755	View looking south along east toe of Station East Landfill
16		C112_7380	4,336 KB	2012-08-16	389866	7620739	View looking southwest along southeast toe of Station East Landfill
17		C112_7381	3,110 KB	2012-08-16	389826	7620715	Panoramic view looking northwest to northeast from southeast side across Station East Landfill
18		C112_7382	4,362 KB	2012-08-16	389801	7620663	View looking northeast along southeast side sloope of Station East Landfill
19		C112_7383	4,265 KB	2012-08-16	389798	7620659	View looking west along south toe of Station East Landfill
20		C112_7384	3,174 KB	2012-08-16	389796	7620665	Panoramic view looking west to northeast from south corner across Station East Landfill
21		C112_7385	4,343 KB	2012-08-16	389776	7620660	View looking north-northeast along west side slope of Station East Landfill
22		C112_7386	4,277 KB	2012-08-16	389789	7620715	View looking northwest along southwest side slope of Station East Landfill
23		C112_7387	4,248 KB	2012-08-16	389791	7620712	View looking south along west side slope of Station East Landfill
24		C112_7421	4,417 KB	2012-08-17	389781	7620735	View looking southwest at linear depression on side slope on southwest side of Station East Landfill (0.6m L, 0.4m W, 0.03m D) - FEATURE A
25		C112_7422	4,467 KB	2012-08-17	389770	7620726	View looking northeast at linear depression on side slope on southwest side of Station East Landfill (0.6m L, 0.4m W, 0.03m D) - FEATURE A
26		C112_7423	4,378 KB	2012-08-17	389765	7620736	View looking northeast at localized depression near crest on southwest side of Station East Landfill (0.4m L, 0.3m W, 0.03m D) - FEATURE A
27		C112_7424	4,304 KB	2012-08-17	389798	7620733	View looking south at linear depression on cover southwest side of Station East Landfill (1.5m L, 0.5m W, 0.1m D) - FEATURE A
28		C112_7427	2,668 KB	2012-08-17	389756	7620653	Panoramic view looking northwest to northeast from southeast side across Station East Landfill

Photo (ELF-)	Thumbnail	Filename	Size (KB)	Date	Vantage Point		Caption
					Easting	Northing	
Soil Sampling							
		C112_7376	4,320 KB	2012-08-16	389772	7620805	Sampling location C112-19 located upgradient of Station East LF
S19		C112_7377	4,355 KB	2012-08-16	389766	7620811	View southeast at C112-19 soil sample location
		C112_7388	4,348 KB	2012-08-16	389877	7620723	Sampling location C112-20 located downgradient of Station East LF
S20		C112_7389	4,393 KB	2012-08-16	389883	7620719	View northwest at C112-20 soil sample location
		C112_7419	4,245 KB	2012-08-17	389834	7620688	Sampling location C112-21 located downgradient of Station East LF
S21		C112_7420	4,255 KB	2012-08-17	389841	7620681	View northwest at C112-21 soil sample location
		C112_7425	4,365 KB	2012-08-17	389796	7620646	Sampling location C112-22 located downgradient of Station East LF
S22		C112_7426	4,284 KB	2012-08-17	389802	7620640	View northwest at C112-22 soil sample location

10.6 SOIL SAMPLE ANALYTICAL DATA

The soil chemical analysis results and the evaluation of analytical data for the 2012 Station East Landfill samples are presented in Tables XLIV and XLV below. Field and inter-laboratory duplicates collected as part of the QA/QC program are presented in Appendix C at the end of this report.

Table XLIV: Soil Chemical Analysis Results – Station East Landfill

Sample Name	Sample Location	Depth Below Grade (cm)	Parameters									
			As [mg/kg]	Cd [mg/kg]	Cr [mg/kg]	Co [mg/kg]	Cu [mg/kg]	Pb [mg/kg]	Hg [mg/kg]	Ni [mg/kg]	Zn [mg/kg]	PCBs [mg/kg]
C112-19A	**Station East Landfill C1-19**	0-15	4.4	<0.10	3.1	<1.0	<5.0	7.2	<0.050	1.9	<10	<0.01
C112-19B		40-50	1.7	<0.10	2.8	<1.0	<5.0	4	<0.050	1.2	<10	<0.01
C112-20A	**Station East Landfill C1-20**	0-15	7.6	<0.10	2.7	<1.0	<5.0	9.9	<0.050	2	<10	<0.01
C112-20B		40-50	26	<0.10	2.7	1.1	<5.0	26	<0.050	2.2	<10	<0.01
C112-21A	**Station East Landfill C1-21**	0-15	8.4	<0.10	2.8	<1.0	<5.0	11	<0.050	1.9	<10	<0.01
C112-21B		40-50	8.3	<0.10	3	<1.0	<5.0	12	<0.050	2	<10	<0.01
C112-22A	**Station East Landfill C1-22**	0-15	5.4	<0.10	3.5	<1.0	9	9.2	<0.050	1.9	<10	<0.01
C112-22B		40-50	3.7	<0.10	2.2	<1.0	<5.0	7	<0.050	1.1	<10	<0.01

Sample Name	Sample Location	Depth Below Grade [cm]	Parameters			
			PHC(F1) [mg/kg]	PHC(F2) [mg/kg]	PHC(F3) [mg/kg]	TPH [mg/kg]
C112-19A	**Station East Landfill C1-19**	0-15	<12	<10	<10	<10
C112-19B		40-50	<12	<10	<10	<10
C112-20A	**Station East Landfill C1-20**	0-15	<12	<10	21	21
C112-20B		40-50	<12	<10	<10	<10
C112-21A	**Station East Landfill C1-21**	0-15	<12	<10	<10	<10
C112-21B		40-50	<12	13	<10	<10
C112-22A	**Station East Landfill C1-22**	0-15	<12	<10	40	40
C112-22B		40-50	<12	<10	<10	<10

PHC (F1): Petroleum hydrocarbon C_6 to C_{10}, does not include BTEX fractions
PHC (F2): Petroleum hydrocarbon $C_{>10}$ to C_{16}
PHC (F3): Petroleum hydrocarbon $C_{>16}$ to C_{34}
TPH: Total Petroleum Hydrocarbons (C_6 to C_{34})

Table XLV: Evaluation of 2012 Soil Analytical Data – Station East Landfill

Parameter	2012
Copper	All reported concentrations were lower than the method detection limit of 5 mg/kg, with the exception of one surface sample at downgradient location, C1-22 (9.0 mg/kg).
Nickel	Detectable concentrations were noted at all sample locations, ranging between 1.1-2.2 mg/kg with a mean of 1.9. Slightly higher concentrations were observed at downgradient locations C1-20 (surface – 2.0 mg/kg, depth – 2.2 mg/kg) and C1-21 (depth – 2.0 mg/kg).
Cobalt	All reported concentrations were lower than the method detection limit of 1 mg/kg, with the exception of one depth sample at downgradient location, C1-20 (1.1 mg/kg).
Lead	Concentrations ranged between 4-26 mg/kg with a mean of 9.6. Slightly higher concentrations were noted at downgradient locations C1-20 (depth – 26 mg/kg) and C1-21 (surface – 11 mg/kg, depth – 12 mg/kg). Concentrations at all other locations ranged between 4.0-9.2 mg/kg.
Zinc	All reported concentrations were lower than the method detection limit of 10 mg/kg.
Chromium	Concentrations ranged between 2.2-3.5mg/kg with a mean of 2.8. Trace concentrations were observed at all locations with marginally higher concentrations noted at upgradient location C1-19 (surface – 3.1 mg/kg) and downgradient locations C1-21 (depth – 3.0 mg/kg) and C1-22 (depth – 3.5 mg/kg).
Arsenic	Concentrations ranged between 1.7-26 mg/kg with a mean of 6.5. Higher concentrations were noted at downgradient locations C1-20 (depth – 26 mg/kg and C1-21 (surface 8.4 mg/kg, depth – 8.3 mg/kg). Concentrations at all other locations ranged between 1.7-7.6 mg/kg.
Mercury	All reported concentrations were lower than the method detection limit (0.05 mg/kg).
PCBs	All reported concentrations were lower than the method detection limit (0.01 mg/kg).
TPH	Detectable concentrations of hydrocarbons were noted in two surface samples from downgradient locations C1-20 (PHC F3 – 21 mg/kg) and C1-22 (PHC F3 – 40 mg/kg). All other reported concentrations were lower than the method detection limit (10-12 mg/kg).

11 USAF LANDFILL

11.1 BACKGROUND AND MONITORING PROGRAM

The USAF Landfill is located approximately 550 m to the north of the west end of the airstrip. The landfill is located within a relatively flat lying area east of the main access road connecting the airstrip to the main station area. The landfill has two regrade areas, and, including engineered cover, encompasses a footprint of approximately 3,000 m^2 with the final cover extending approximately 0.5 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 USAF Landfill was classified as low potential environmental risk.

The remediation consisted of regrading with the placement of additional granular fill at all lobes. The long term monitoring plan consists of visual monitoring and collection of soil samples.

The 2012 monitoring of this landfill includes a visual inspection to assess landfill performance and the collection of soil samples to monitor for the presence of leachate. Locations of soil samples are identified on Figure CAM-1.9. Soil at all stations was sampled as per the ToR. There is no instrumentation installed at this landfill.

11.2 VISUAL INSPECTION REPORT

The visual inspection of the USAF Landfill was conducted on August 15, 2012. The Visual Inspection Checklist/Report has been completed as per the ToR and is included as Table XLVI of this report.

Settlement

Indications of settlement were not noted.

Erosion

Indications of erosion were 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 on the landfill.

Staining

No areas of staining were noted at the landfill.

Seepage Points

No areas of seepage were noted at the landfill.

Debris

Evidence of debris was not noted at the landfill.

Presence/Condition of Monitoring Instruments

There is no monitoring instrumentation installed at this landfill.

Other Features of Note

No other features were noted at the landfill.

Discussion

The USAF 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 XLVI: Visual Inspection Checklist / Report – USAF Landfill

DEW LINE CLEANUP: POST-CONSTRUCTION - LANDFILL MONITORING
VISUAL INSPECTION CHECKLIST
INSPECTION REPORT – PAGE 1 OF 2

SITE NAME: CAM-1 Jenny Lind Island
LANDFILL DESIGNATION: USAF Landfill (Regrade Landfill)
DATE OF INSPECTION: August 15, 2012
DATE OF PREVIOUS INSPECTION: August 13, 2011
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.

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	N/A	N/A	N/A	Not Observable	N/A
Erosion	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Frost Action	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Animal Burrows	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Vegetation	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Staining	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Vegetation Stress	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Seepage Points	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Debris Exposed	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Presence/Condition of Monitoring Instruments	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Other Features of Note:	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Additional Photos	Yes	See Figure CAM-1.9 and Photographic Record	N/A	N/A	N/A	N/A	General Photographic Record	N/A	Not Observable	General photos for documentation, no features of note.
Overall Landfill Performance:	**Acceptable**									

11.3 PRELIMINARY STABILITY ASSESSMENT

The Preliminary Stability Assessment for the USAF Landfill has been completed as per the ToR and is included as Table XLVII hereafter.

Table XLVII: Preliminary Stability Assessment – USAF Landfill

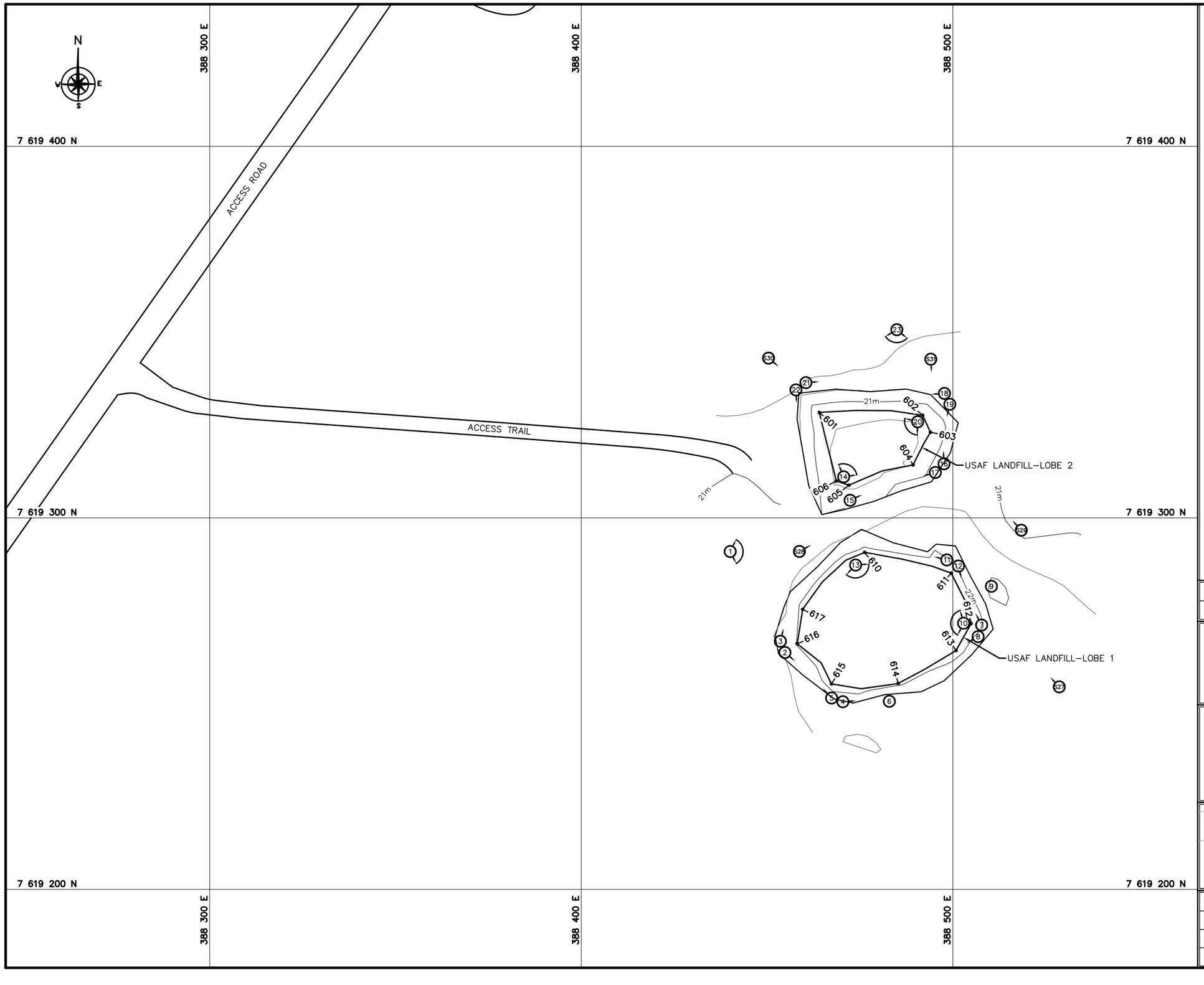
Feature	Severity Rating	Extent
Settlement	Not observed	None
Erosion	Not observed	None
Frost Action	Not observed	None
Staining	Not observed	None
Vegetation Stress	Not observed	None
Seepage/Ponded Water	Not observed	None
Debris exposure	Acceptable	Isolated
Overall Landfill Performance	**Acceptable**	

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

11.4 LOCATION PLAN

The Location Plan for the USAF Landfill has been completed as per the ToR and is presented in Figure CAM-1.9.



LEGEND

- 601 — COORDINATE POINT
- 6 — APPROX. PHOTOGRAPHIC VIEWPOINT

0 10m 20m 30m 40m 50m

NO.	VERSION	DATE	P.L.	A.P.	A.L.
A	FINAL	13-03-08	P.L.	A.P.	A.L.

Construction de Défense Canada
Defence Construction Canada

COLLECTION OF LANDFILL MONITORING DATA

CAM-1, JENNY LIND ISLAND, NUNAVUT

USAF LANDFILL

SITE REMEDIATION SOLUTIONS

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4495 Wilfrid-Hamel blvd, Suite 200
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Phone: (418) 653-4422 Fax.: (418) 653-3583

MEASUREMENT UNIT	SCALE:	DATE (month–year):
Metre	1 : 1,000	MARCH 2013
DRAWN BY: P. LÉGARÉ	VERIFIED BY: A. PASSALIS	APPROVED BY: A. LECLAIR P. ENG
PROJECT NO: CD9229_004_160	DRAWING NO: CD9229_004_160-CAM-1.9-PL	PAGE PL

FIGURE CAM-1.9

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11.5 PHOTOGRAPHIC RECORDS

The Photographic Record for the USAF Landfill has been completed as per the ToR and is included as Table XLVIII hereafter. The Photographic Record only contains an index and “thumbnail” photographs. Full-sized photographs are contained in the Addendum DVD-ROM.

Table XLVIII: Landfill Visual Inspection Photo Log – USAF Landfill

Photo (USAF-)	Thumbnail	Filename	Size (KB)	Date	Vantage Point		Caption
					Easting	Northing	
Lobe 1							
1		C112_7166	3,039 KB	2012-08-15	388440	7619291	Panoramic view looking northeast to southeast from west of USAF LF - Lobe 1
2		C112_7167	4,289 KB	2012-08-15	388455	7619264	View looking southeast along southwest side slope of USAF LF - Lobe 1
3		C112_7168	4,451 KB	2012-08-15	388454	7619266	View looking north-northeast along west side slope of USAF LF - Lobe 1
4		C112_7169	4,263 KB	2012-08-15	388470	7619250	View looking east along south toe of USAF LF - Lobe 1
5		C112_7170	4,435 KB	2012-08-15	388468	7619251	View looking northwest along southwest toe of USAF LF - Lobe 1
6		C112_7171	4,430 KB	2012-08-15	388483	7619251	Corner marker post for USAF landfill located south of
7		C112_7172	4,326 KB	2012-08-15	388508	7619271	View looking northwest along east side slope of USAF LF - Lobe 1. Note landfill marker post on right of photo
8		C112_7173	4,305 KB	2012-08-15	388507	7619268	View looking southwest along southeast side slope of USAF LF - Lobe 1
9		C112_7174	4,252 KB	2012-08-15	388510	7619281	Corner marker post for USAF landfill located east of USAF LF - Lobe 1
10		C112_7175	2,874 KB	2012-08-15	388503	7619272	Panoramic view looking southwest to northwest from east side of USAF LF - Lobe 1
11		C112_7176	4,407 KB	2012-08-15	388499	7619288	View looking west-northwest along north toe of USAF LF - Lobe 1
12		C112_7177	4,392 KB	2012-08-15	388501	7619288	View looking south-southeast along east side slope of USAF LF - Lobe 1
13		C112_7178	3,134 KB	2012-08-15	388474	7619287	Panoramic view looking east to southwest from north side of USAF LF - Lobe 1
Lobe 2							
14		C112_7181	3,099 KB	2012-08-15	388470	7619311	Panoramic view looking northwest to east from southwest corner of USAF LF - Lobe 2
15		C112_7182	4,333 KB	2012-08-15	388473	7619305	View looking northeast along south side slope of USAF LF - Lobe 2
16		C112_7183	4,450 KB	2012-08-15	388497	7619314	View looking north along east side slope of USAF LF - Lobe 2
17		C112_7184	4,295 KB	2012-08-15	388496	7619313	View looking southwest along south side slope of USAF LF - Lobe 2
18		C112_7185	4,331 KB	2012-08-15	388498	7619333	View looking west along north side slope of USAF LF - Lobe 2
19		C112_7186	4,430 KB	2012-08-15	388499	7619331	View looking south-southwest along east side slope of USAF LF - Lobe 2
20		C112_7187	3,039 KB	2012-08-15	388491	7619326	Panoramic view looking south to northwest from northeast corner of USAF LF - Lobe 2
21		C112_7188	4,336 KB	2012-08-15	388460	7619336	View looking east along north side slope of USAF LF - Lobe 2
22		C112_7189	4,441 KB	2012-08-15	388458	7619335	View looking south along west toe of USAF LF - Lobe 2
23		C112_7190	2,727 KB	2012-08-15	388485	7619351	Panoramic view looking southeast to southwest from north of USAF LF - Lobe 2

Photo (USAF-)	Thumbnail	Filename	Size (KB)	Date	Vantage Point		Caption
					Easting	Northing	
Soil Sampling							
		C112_7197	4,367 KB	2012-08-15	388525	7619258	Sampling location C112-27 located upgradient of USAF LF Lobe 1
S27		C112_7198	4,488 KB	2012-08-15	388528	7619255	View northwest at C112-27 soil sample location
		C112_7193	4,351 KB	2012-08-15	388463	7619293	Sampling location C112-28 located downgradient of USAF LF Lobe 1
S28		C112_7194	4,299 KB	2012-08-15	388460	7619291	View northeast at C112-28 soil sample location
		C112_7195	4,453 KB	2012-08-15	388514	7619301	Sampling location C112-29 located downgradient of USAF LF Lobe 1
S29		C112_7196	4,433 KB	2012-08-15	388518	7619297	View northwest at C112-29 soil sample location
		C112_7191	4,360 KB	2012-08-15	388455	7619339	Sampling location C112-30 located downgradient of USAF LF Lobe 2
S30		C112_7192	4,368 KB	2012-08-15	388451	7619343	View southeast at C112-30 soil sample location
		C112_7179	4,387 KB	2012-08-15	388494	7619337	Sampling location C112-31 located downgradient of USAF LF Lobe 2
S31		C112_7180	4,345 KB	2012-08-15	388494	7619342	View south at C112-31 soil sample location

11.6 SOIL SAMPLE ANALYTICAL DATA

The soil chemical analysis results and the evaluation of analytical data for the 2012 USAF Landfill samples are presented in Tables XLIX and L below. Field and inter-laboratory duplicates collected as part of the QA/QC program are presented in Appendix C at the end of this report.

Table XLIX: Soil Chemical Analysis Results – USAF Landfill

Sample Name	Sample Location	Depth Below Grade (cm)	Parameters									
			As [mg/kg]	Cd [mg/kg]	Cr [mg/kg]	Co [mg/kg]	Cu [mg/kg]	Pb [mg/kg]	Hg [mg/kg]	Ni [mg/kg]	Zn [mg/kg]	PCBs [mg/kg]
C112-27A	**USAF Landfill C1-27**	0-15	1.3	<0.10	2.5	<1.0	<5.0	4.9	<0.050	2	<10	<0.01
C112-27B		40-50	1.6	<0.10	3.5	1.2	<5.0	2.6	<0.050	3	<10	<0.01
C112-28A	**USAF Landfill C1-28**	0-15	2.2	<0.10	9.1	2.7	6.2	4.7	<0.050	6.8	<10	<0.01
C112-28B		40-50	2.3	<0.10	11	2.9	21	4.6	<0.050	7.9	13	<0.01
C112-29A	**USAF Landfill C1-29**	0-15	1.4	<0.10	3.2	<1.0	<5.0	2.3	<0.050	2.2	<10	<0.01
C112-29B		40-50	1.3	<0.10	5.6	1.1	<5.0	2.6	<0.050	3.5	<10	<0.01
C112-30A	**USAF Landfill C1-30**	0-15	<1.0	<0.10	2.8	<1.0	6	1.8	<0.050	2.2	<10	<0.01
C112-30B		40-50	<1.0	<0.10	3.6	<1.0	<5.0	1.6	<0.050	2	<10	<0.01
C112-31A	**USAF Landfill C1-31**	0-15	<1.0	<0.10	2.7	<1.0	<5.0	1.4	<0.050	1.4	<10	<0.01
C112-31B		40-50	<1.0	<0.10	3.4	<1.0	<5.0	1.5	<0.050	2.1	<10	<0.01

Sample Name	Sample Location	Depth Below Grade [cm]	Parameters			
			PHC(F1) [mg/kg]	PHC(F2) [mg/kg]	PHC(F3) [mg/kg]	TPH [mg/kg]
C112-27A	**USAF Landfill C1-27**	0-15	<12	<10	37	37
C112-27B		40-50	<12	<10	<10	<10
C112-28A	**USAF Landfill C1-28**	0-15	<12	<10	<10	<10
C112-28B		40-50	<12	<10	<10	<10
C112-29A	**USAF Landfill C1-29**	0-15	<12	<10	<10	<10
C112-29B		40-50	<12	13	<10	<10
C112-30A	**USAF Landfill C1-30**	0-15	<12	<10	<10	<10
C112-30B		40-50	<12	<10	<10	<10
C112-31A	**USAF Landfill C1-31**	0-15	<12	<10	<10	<10
C112-31B		40-50	<12	<10	<10	<10

PHC (F1): Petroleum hydrocarbon C_6 to C_{10}, does not include BTEX fractions
PHC (F2): Petroleum hydrocarbon $C_{>10}$ to C_{16}
PHC (F3): Petroleum hydrocarbon $C_{>16}$ to C_{34}
TPH: Total Petroleum Hydrocarbons (C_6 to C_{34})

Table L: Evaluation of 2012 Soil Analytical Data – USAF Landfill

Parameter	2012
Copper	Detectable concentrations were noted at two sample locations, including downgradient locations C1-28 (surface – 6.2 mg/kg, depth – 21 mg/kg) and C1-30 (depth – 6.0 mg/kg). All other concentrations were lower than the method detection limit of 5 mg/kg.
Nickel	Detectable concentrations were noted at all sample locations, ranging between 1.4-7.9 mg/kg with a mean of 3.3. The highest concentrations were observed downgradient of Lobe 1 at location C1-28 (surface – 6.8 mg/kg, depth – 7.9 mg/kg). Concentrations at all other locations ranged between 1.4-3.5 mg/kg.
Cobalt	Detectable concentrations were noted at three sample locations, including upgradient location C1-27 (depth – 1.2 mg/kg) and downgradient locations C1-28 (surface – 2.7 mg/kg, depth – 2.9 mg/kg) and C1-29 (depth – 1.1 mg/kg). All other concentrations were lower than the method detection limit of 1 mg/kg.
Lead	Concentrations ranged between 1.4-4.9 mg/kg with a mean of 2.8. Slightly higher concentrations were noted at upgradient location C1-27 (surface – 4.9 mg/kg), and downgradient location C1-28 (surface – 4.7 mg/kg, depth – 4.6 mg/kg). Concentrations at all other locations ranged between 1.4-2.6 mg/kg.
Zinc	All reported concentrations lower than the method detection limit of 10 mg/kg with the exception of one sample collected at downgradient location C1-28 (depth – 13 mg/kg).
Chromium	Concentrations ranged between 2.5-11 mg/kg with a mean of 4.7. Marginally higher concentrations were observed at downgradient locations C1-28 (surface – 9.1 mg/kg, depth - 11 mg/kg) and C1-29 (depth – 5.6 mg/kg). Concentrations at all other locations ranged between 2.5-3.6 mg/kg.
Arsenic	Concentrations ranged between <1-2.3 mg/kg with detectable concentrations noted at three sample locations (C1-27, C1-28 and C1-29). The highest concentrations were noted at downgradient location C1-28 (surface – 2.2 mg/kg, depth – 2.3 mg/kg). Detectable concentrations at the remaining sample locations ranged between 1.3-1.6 mg/kg.
Mercury	All reported concentrations were lower than the method detection limit (0.05 mg/kg).
PCBs	All reported concentrations were lower than the method detection limit (0.01 mg/kg).
TPH	Detectable concentrations of hydrocarbons were noted at two surface sample locations, including upgradient location C1-27 (PHC F3 – 37 mg/kg) and downgradient location C1-20 (PHC F3 – 20 mg/kg). All other reported concentrations were lower than the method detection limit (10-12 mg/kg).

12 EAST LANDING LANDFILL

12.1 BACKGROUND AND MONITORING PROGRAM

The East Landing Landfill is located approximately 200 m southeast of the beach SRR POL refuel tanks and ranges between 20 to 40 m from the ocean's edge. With cover material, the single regrade area of the landfill encompasses a footprint of approximately 2,200 m^2 with the final cover extending approximately 0.75 m to 3.0 m above the surrounding grade. Based on existing information regarding this landfill as a source of contamination, its potential migration pathways and receptors, the East Landing Landfill was classified as low potential environmental risk. The remediation consisted of regrading with the placement of additional granular fill and erosion protection along the downgradient slope.

The long term monitoring plan consists of visual monitoring and periodic collection of soil samples. The 2012 monitoring of this landfill includes a visual inspection and soil sample collection to assess landfill performance. There is no instrumentation installed at this landfill.

12.2 VISUAL INSPECTION REPORT

The visual inspection of the East Landing Landfill was conducted on August 15, 2012. The Visual Inspection Checklist/Report has been completed as per the ToR and is included as Table LI of this report.

Settlement

An indication of minor settlement was noted at one location, consisting of a linear depression on the southwest side slope of the landfill (Feature A). The 1.5 m long by 0.3-0.6 m wide depression extended in an east-west direction and was 5-10 cm deep. This feature was not noted during the previous 2011 inspection.

Erosion

Indications of erosion were 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

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

Seepage Points

There is no seepage point observed at this landfill.

Debris

There was no debris noted.

Presence/Condition of Monitoring Instruments

There is no monitoring instrument installed at this landfill.

Other Features of Note

One continuous tension crack was noted on the southeast cover area of the landfill (Feature B). The crack was noted to extend approximately 25 m in an east-west direction just north of the crest and varied between 5-10 mm in width. The crack was not noted during the previous 2011 inspection.

Discussion

The East Landing 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 LI: Visual Inspection Checklist / Report – East Landing Landfill

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

SITE NAME: CAM-1 Jenny Lind Island
LANDFILL DESIGNATION: East Landing Landfill (Regrade Landfill)
DATE OF INSPECTION: August 15, 2012
DATE OF PREVIOUS INSPECTION: August 14, 2011
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.

Checklist Item	Present (Yes/No)	Location	Length	Width	Depth	Extent	Description	Photographic Record	Severity Rating	Additional Comments
Settlement	Yes	FEATURE A See Figure CAM-1.10 (SW side slope - New Obs)	1.5 m	0.3 - 0.6 m	0.05 - 0.1 m	Isolated (<1%)	Minor depression	ELLF-18, 19	Acceptable	Side slope appear stable
Erosion	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Frost Action	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Animal Burrows	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Vegetation	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Staining	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Vegetation Stress	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Seepage Points	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Debris Exposed	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Presence/Condition of Monitoring Instruments	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Other Features of Note:	Yes	FEATURE B See Figure CAM-1.10 (SE cover - New Obs)	25 m	5 - 10 mm	Unknown	Isolated (<2%)	Continuous tension crack	ELLF-20 - 24	Acceptable	Partially infilled
Additional Photos	Yes	See Figure CAM-1.10 and Photographic Record	N/A	N/A	N/A	N/A	General Photographic Record	N/A	Not Observable	General photos for documentation, no features of note.
Overall Landfill Performance:	**Acceptable**									

12.3 PRELIMINARY STABILITY ASSESSMENT

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

Table LII: Preliminary Stability Assessment – East Landing 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	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

12.4 LOCATION PLAN

The Location Plan for the East Landing Landfill has been completed as per the ToR and is presented in Figure CAM-1.10.

N

388 150 E

388 200 E

388 250 E

7 618 250 N

7 618 200 N

5m

3m

4m

2m

1m

6m

510

511

512

513

514

515

516

FEATURE A – MINOR DEPRESSION
1.5m L, 0.3–0.6m W, 0.05–0.1m D

FEATURE B – TENSION CRACK
25m L, 5–10mm W

EAST LANDING LANDFILL
LOBES 4 AND 5

JENNY LIND BAY

LEGEND

- 510 — COORDINATE POINT
- 6 — APPROX. PHOTOGRAPHIC VIEWPOINT
- BODY OF WATER
- MINOR SETTLEMENT (NTS)
- TENSION CRACK(s) (NTS)

0 5m 10m 15m 20m 25m

NO.	VERSION	DATE	P.L.	A.P.	A.L.
A	FINAL	13-03-08			

Construction de Défense Canada
Defence Construction Canada

COLLECTION OF LANDFILL MONITORING DATA

CAM-1, JENNY LIND ISLAND, NUNAVUT

EAST LANDING 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 : 500	MARCH 2013
DRAWN BY:	VERIFIED BY:	APPROVED BY:
P. LÉGARÉ	A. PASSALIS	A. LECLAIR P. ENG
PROJECT NO:	DRAWING NO:	PAGE
CD9229_004_160	CD9229_004_160-CAM-1.10-PL	PL

FIGURE CAM-1.10

G:\CD9229\2012\CAM-1\FINAL\CD9229_004_160-CAM-1.10-PL.dwg, PL, 2013-03-27 2:12:12 PM

12.5 PHOTOGRAPHIC RECORDS

The Photographic Record for the East Landing Landfill has been completed as per the ToR and is included as Table LIII hereafter. The Photographic Record contains only an index and “thumbnail” photographs. Full-sized photographs are contained in the Addendum DVD-ROM.

Table LIII: Landfill Visual Inspection Photo Log – East Landing Landfill

Photo (ELLF-)	Thumbnail	Filename	Size (KB)	Date	Vantage Point		Caption
					Easting	Northing	
1		C112_7137	4,073 KB	2012-08-15	388141	7618272	View looking southeast from northwest of East Landing Landfill
2		C112_7138	4,218 KB	2012-08-15	388148	7618244	View looking east along north toe of East Landing Landfill
3		C112_7139	4,139 KB	2012-08-15	388148	7618243	View looking south along west toe of East Landing Landfill
4		C112_7140	4,396 KB	2012-08-15	388156	7618233	View looking east along north crest of East Landing Landfill
5		C112_7141	4,407 KB	2012-08-15	388154	7618233	View looking south along west crest of East Landing Landfill
6		C112_7142	4,307 KB	2012-08-15	388152	7618218	View looking east along south crest of East Landing Landfill
7		C112_7143	4,331 KB	2012-08-15	388151	7618220	View looking north along west crest of East Landing Landfill
8		C112_7144	4,376 KB	2012-08-15	388144	7618211	View looking east-southeast along side slope of East Landing Landfill
9		C112_7145	4,287 KB	2012-08-15	388127	7618205	View looking northeast from southwest of East Landing Landfill
10		C112_7146	4,343 KB	2012-08-15	388160	7618200	View looking east along toe of East Landing Landfill
11		C112_7147	4,293 KB	2012-08-15	388167	7618204	View looking northeast at rip rap erosion protection on south slope of East Landing Landfill
12		C112_7150	4,267 KB	2012-08-15	388205	7618197	View northwest along south toee of East Landing Landfill
13		C112_7151	4,285 KB	2012-08-15	388206	7618197	View north along east toe of East Landing Landfill
14		C112_7152	4,223 KB	2012-08-15	388215	7618202	View looking west-northwest at east end of East Landing Landfill
15		C112_7153	4,376 KB	2012-08-15	388213	7618228	View west along north toe of East Landing Landfill
16		C112_7154	2,830 KB	2012-08-15	388203	7618221	Panoramic view looking south to northwest from northeast corner of East Landing Landfill
17		C112_7155	4,329 KB	2012-08-15	388154	7618225	View looking east-southeast along centerline of East Landing Landfill
18		C112_7156	4,371 KB	2012-08-15	388153	7618207	View looking east at minor depression on southwest side slope of East Landing Landfill (1.5m L, 0.3-0.6m W, 0.05-0.1m D) - FEATURE A
19		C112_7157	4,357 KB	2012-08-15	388157	7618209	View looking south at minor depression on southwest side slope of East Landing Landfill (1.5m L, 0.3-0.6m W, 0.05-0.1m D) - FEATURE A
20		C112_7162	4,319 KB	2012-08-15	388177	7618214	View looking east-southeast at start of continuous crack extending across southeast cover of East Landing Landfill (25m L, 5-10mm W) - FEATURE B
21		C112_7163	4,311 KB	2012-08-15	388183	7618213	View of continuous crack extending across southeast cover of East Landing Landfill (25m L, 5-10mm W) - FEATURE B
22		C112_7164	4,337 KB	2012-08-15	388204	7618207	View looking west-northwest at start of continuous crack extending across southeast cover of East Landing Landfill (25m L, 5-10mm W) - FEATURE B
23		C112_7165	4,329 KB	2012-08-15	388190	7618211	View of continuous crack extending across southeast cover of East Landing Landfill (25m L, 5-10mm W) - FEATURE B

Photo (ELLF-)	Thumbnail	Filename	Size (KB)	Date	Vantage Point		Caption
					Easting	Northing	
Soil Sampling							
		C112_7135	4,321 KB	2012-08-15	388197	7618243	Sampling location C112-32 located upgradient of East Landing LF
S32		C112_7136	4,191 KB	2012-08-15	388198	7618245	View southwest at C112-32 soil sample location
		C112_7160	4,375 KB	2012-08-15	388173	7618197	Sampling location C112-33 located downgradient of East Landing LF
S33		C112_7161	4,381 KB	2012-08-15	388174	7618194	View northeast at C112-33 soil sample location
		C112_7158	4,362 KB	2012-08-15	388143	7618205	Sampling location C112-34 located downgradient of East Landing LF
S34		C112_7159	4,329 KB	2012-08-15	388140	7618204	View east at C112-34 soil sample location
		C112_7148	4,324 KB	2012-08-15	388139	7618239	Sampling location C112-35 located downgradient of East Landing LF
S35		C112_7149	4,466 KB	2012-08-15	388137	7618239	View east at C112-35 soil sample location

12.6 SOIL SAMPLE ANALYTICAL DATA

The soil chemical analysis results and the evaluation of analytical data for the 2012 East Landing Landfill samples are presented in Tables LIV and LV below. Field and inter-laboratory duplicates collected as part of the QA/QC program are presented in Appendix C at the end of this report.

Table LIV: Soil Chemical Analysis Results – East Landing Landfill

Sample Name	Sample Location	Depth Below Grade (cm)	Parameters									
			As [mg/kg]	Cd [mg/kg]	Cr [mg/kg]	Co [mg/kg]	Cu [mg/kg]	Pb [mg/kg]	Hg [mg/kg]	Ni [mg/kg]	Zn [mg/kg]	PCBs [mg/kg]
C112-32A	East Landing Landfill C1-32	0-15	2	<0.10	9.6	2	7.3	4.3	<0.050	5.7	<10	<0.01
C112-32B		40-50	2.2	<0.10	7.2	2.2	7.2	5.1	<0.050	5.2	<10	<0.01
C112-33A	East Landing Landfill C1-33	0-15	6.4	<0.10	6.2	2.5	<5.0	18	<0.050	5	<10	<0.01
C112-33B		40-50	7	<0.10	8.5	3.1	12	23	<0.050	7.1	13	<0.01
C112-34A	East Landing Landfill C1-34	0-15	4.7	<0.10	5.9	2.1	57	22	<0.050	4.8	19	<0.01
C112-34B		40-50	4	<0.10	11	2.8	19	11	<0.050	7.3	<10	<0.01
C112-35A	East Landing Landfill C1-35	0-15	5.4	<0.10	7.9	2.4	6.9	12	<0.050	5.6	<10	<0.01
C112-35B		40-50	2.3	<0.10	4	1.2	<5.0	7.4	<0.050	2.5	<10	<0.01

Sample Name	Sample Location	Depth Below Grade [cm]	Parameters			
			PHC(F1) [mg/kg]	PHC(F2) [mg/kg]	PHC(F3) [mg/kg]	TPH [mg/kg]
C112-32A	East Landing Landfill C1-32	0-15	<12	<10	40	40
C112-32B		40-50	<12	<10	33	33
C112-33A	East Landing Landfill C1-33	0-15	<12	<10	<10	<10
C112-33B		40-50	<12	<10	<10	<10
C112-34A	East Landing Landfill C1-34	0-15	<12	<10	<10	<10
C112-34B		40-50	<12	<10	<10	<10
C112-35A	East Landing Landfill C1-35	0-15	<12	<10	<10	<10
C112-35B		40-50	<12	<10	<10	<10

PHC (F1): Petroleum hydrocarbon C6 to C10, does not include BTEX fractions
PHC (F2): Petroleum hydrocarbon $C_{>10}$ to C_{16}
PHC (F3): Petroleum hydrocarbon $C_{>16}$ to C_{34}
TPH: Total Petroleum Hydrocarbons (C_6 to C_{34})

Table LV: Evaluation of 2012 Soil Analytical Data – East Landing Landfill

Parameter	2012
Copper	Concentrations ranged between <5-57 mg/kg with a mean of 7.3. Detectable concentrations were noted at sample locations with the exception of downgradient locations C1-33 (surface) and C1-25 (depth). Higher concentrations were noted at downgradient location C1-34 (surface 57 mg/kg, depth 19 mg/kg). Detectable oncentrations at all other locations ranged between 6.9-12 mg/kg.
Nickel	Detectable concentrations were noted at all sample locations, ranging between 2.5-7.3 mg/kg with a mean of 5.4. The highest concentrations were observed at depth at downgradient locations C1-33 (7.1 mg/kg) and C1-34 (7.3 mg/kg). Concentrations at all other locations ranged between 2.5-5.7 mg/kg.
Cobalt	Concentrations ranged between 1.2-3.1 mg/kg with a mean of 2.3. The highest concentrations were observed at depth at downgradient locations C1-33 (3.1 mg/kg) and C1-34 (2.8 mg/kg). Concentrations at all other locations ranged between 1.2-2.5 mg/kg.
Lead	Concentrations ranged between 4.3-23 mg/kg with a mean of 11.5. Slightly higher concentrations were noted at downgradient locations C1-33 (surface – 18 mg/kg) and C1-34 (surface – 23 mg/kg, depth – 22 mg/kg). Concentrations at all other locations ranged between 4.3-12 mg/kg.
Zinc	All reported concentrations were lower than the method detection limit of 10 mg/kg with the exception of one sample collected at downgradient location C1-34 (surface – 19 mg/kg).
Chromium	Concentrations ranged between 4-11 mg/kg with a mean of 7.6. Slightly higher concentrations were observed at upgradient location C1-32 (surface – 9.6 mg/kg) and downgradient locations C1-33 (depth – 8.5 mg/kg) and C1-34 (depth – 11 mg/kg). Concentrations at all other locations ranged between 4.0-7.9 mg/kg.
Arsenic	Concentrations ranged between 2-7 mg/kg with a mean of 4.4. The highest concentrations were noted at downgradient location C1-33 (surface – 6.4 mg/kg, depth – 7.0 mg/kg). Detectable concentrations at the remaining sample locations ranged between 2.0-5.4 mg/kg.
Mercury	All reported concentrations were lower than the method detection limit (0.05 mg/kg).
PCBs	All reported concentrations were lower than the method detection limit (0.01 mg/kg).
TPH	Detectable concentrations of PHC F3 hydrocarbons were noted at the upgradient sample location C1-32 (surface – 40 mg/kg, depth - 33 mg/kg). All other reported concentrations were lower than the method detection limit (10-12 mg/kg).

13 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 Biogénie 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 Maxxam for intra-laboratory analysis, with additional duplicate samples were sent to Exova for interlaboratory comparison purposes. Both laboratories are situated in Edmonton, Alberta.

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).

13.1 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 Maxxam and Exova metals and PHC 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 (112% for lead and 364% for nickel) were outside the acceptable range when inter-laboratory duplicates were compared, however, the results from the Maxxam laboratory were less than five times the MDL. The soil chemical analysis results and the evaluation of analytical data for the 2012 QA/QC samples are presented in Table LVI below.

All of PCB concentrations were below the MDL in the intra- and inter laboratory samples.

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.

Table LVI: Evaluation of 2012 Soil Analytical Data – QA/QC

Sample Name	Sample Location	Depth Below Grade	Parameters									
			Maxxam									
		(cm)	As [mg/kg]	Cd [mg/kg]	Cr [mg/kg]	Co [mg/kg]	Cu [mg/kg]	Pb [mg/kg]	Hg [mg/kg]	Ni [mg/kg]	Zn [mg/kg]	PCBs [mg/kg]
C112-BD1	**C112-33A**	0-15	7.5	na	6.7	2.8	5.2	24	<0.050	6.7	<10	<0.01
C112-BD2	**C112-27A**	0-15	1.3	na	3.9	<1.0	<5.0	2.5	<0.050	2.1	<10	<0.01
C112-BD3	**C112-8A**	0-15	1.5	na	1.3	<1.0	<5.0	2.4	<0.050	<1	<10	<0.01
C112-BD4	**C112-12B**	40-50	<1	na	1.8	<1.0	<5.0	<1	<0.050	1.2	<10	<0.01
C112-BD5	**C112-21A**	0-15	7.9	na	2.8	<1.0	<5.0	11	<0.050	1.8	<10	<0.01
C112-BD6	**C112-25A**	0-15	1.6	na	2.4	3.5	26	3.4	<0.050	1.5	<10	<0.01
C112-BD7	**C112-8WA**	0-15	<1	na	2.5	<1.0	<5.0	1.4	<0.050	1.8	<10	<0.01
C112-BD8	**C112-2WA**	0-15	4.6	na	2	<1.0	<5.0	13	<0.050	1.1	<10	<0.01

Sample Name	Sample Location	Depth Below Grade	Parameters									
			Exova									
		(cm)	As [mg/kg]	Cd [mg/kg]	Cr [mg/kg]	Co [mg/kg]	Cu [mg/kg]	Pb [mg/kg]	Hg [mg/kg]	Ni [mg/kg]	Zn [mg/kg]	PCBs [mg/kg]
C112-BD1	**C112-33A**	0-15	5.2	0.01	6.5	3.2	5	21.9	<0.01	5.6	5	<0.1
C112-BD2	**C112-27A**	0-15	1.5	0.03	4.1	1	3	3.6	0.01	4.2	3	<0.1
C112-BD3	**C112-8A**	0-15	2.5	0.01	1.9	0.8	1	5.1	<0.01	1.4	5	<0.1
C112-BD4	**C112-12B**	40-50	0.5	<0.01	2.3	0.5	1	1	<0.01	1.9	2	<0.1
C112-BD5	**C112-21A**	0-15	7.4	0.01	3.5	1	2	12	<0.01	1.5	4	<0.1
C112-BD6	**C112-25A**	0-15	1.8	<0.01	3.3	4.8	44	4.1	<0.01	3	5	<0.1
C112-BD7	**C112-8WA**	0-15	0.7	<0.01	2.3	0.7	1	2	<0.01	2	4	<0.1
C112-BD8	**C112-2WA**	0-15	4	0.01	2.7	0.8	2	13.1	<0.01	5.1	4	<0.1

na: not analyzed

Sample Name	Sample Location	Depth Below Grade [cm]	Parameters Maxxam PHC(F1) [mg/kg]	PHC(F2) [mg/kg]	PHC(F3) [mg/kg]	TPH [mg/kg]	Parameters Exova PHC(F1) [mg/kg]	PHC(F2) [mg/kg]	PHC(F3) [mg/kg]	TPH [mg/kg]
C112-BD1	**C112-33A**	0-15	<12	<10	<10	<10	<10	<50	<50	<50
C112-BD2	**C112-27A**	0-15	<12	<10	35	<10	<10	<50	<50	<50
C112-BD3	**C112-8A**	0-15	<12	<10	<10	<10	<10	<50	<50	<50
C112-BD4	**C112-12B**	40-50	<12	<10	<10	<10	<10	<50	<50	<50
C112-BD5	**C112-21A**	0-15	<12	<10	<10	<10	<10	<50	<50	<50
C112-BD6	**C112-25A**	0-15	<12	<10	<10	<10	<10	<50	<50	<50
C112-BD7	**C112-8WA**	0-15	<12	<10	21	<10	<10	<50	<50	<50
C112-BD8	**C112-2WA**	0-15	<12	<10	<10	<10	<10	<50	<50	<50

PHC (F1): Petroleum hydrocarbon C_6 to C_{10}, does not include BTEX fractions
PHC (F2): Petroleum hydrocarbon $C_{>10}$ to C_{16}
PHC (F3): Petroleum hydrocarbon $C_{>16}$ to C_{34}
TPH: Total Petroleum Hydrocarbons (C_6 to C_{34})

13.2 GROUNDWATER SAMPLES

In case of groundwater samples, one blind duplicate sample was submitted for intra- and inter-laboratory comparisons. Review of results indicated relatively minor differences in concentrations within the Maxxam and Exova metals results when duplicates were compared, with individual intra-laboratory RPDs ranging between 41% to 50%, and considered marginally within acceptable limits. Higher RPDs between 72% and 186% were noted on the majority of parameters when inter-laboratory duplicates were compared, suggesting variability in sample turbidity. It is important to note that all detected concentrations were relatively low, consequently, the high RPD do not necessarily equal high concentrations. The groundwater chemical analysis results and the evaluation of analytical data for the 2012 QA/QC samples are presented in Table LVII below.

All of TPH and PCB concentrations were below the MDL in the intra- and inter laboratory samples.

Overall, the groundwater sample results are coherent and within the same range of results for intra- and inter-laboratory samples. In general, the reliability of groundwater analytical results is considered as good.

Table LVII: Evaluation of 2012 Groundwater Analytical Data – QA/QC

Sample Name	Sample Location	Parameters									
		As [mg/L]	Cd [µg/L]	Cr [mg/L]	Co [mg/L)	Cu [mg/L]	Pb [mg/L]	Hg [µg/L]	Ni [mg/L]	Zn [mg/L]	PCBs [mg/L]
						Maxxam					
C112-BDW1	NHWL MW-03	0.0019	0.018	0.021	0.00038	0.0028	0.00085	<0.002	0.0093	<0.003	<0.00005
C112-FB	Field Blank	<0.0002	<0.005	<0.001	<0.0003	<0.002	<0.002	<0.002	<0.0005	<0.003	<0.00005
TRIP BLANK	Trip Blank	<0.0002	<0.005	<0.001	<0.0003	<0.002	<0.002	<0.002	<0.0005	<0.003	<0.00005
						Exova					
C112-3W	NHWL MW-03	0.0042	0.02	0.039	0.001	0.008	0.002	<0.1	0.016	0.004	<0.00001

Sample Name	Sample Location	Parameters			
		PHC(F1) [µg/L]	PHC(F2) [mg/L]	PHC(F3) [mg/L]	TPH [mg/L]
			Maxxam		
C112-BDW1	NHWL MW-03	<100	<0.1	<0.1	<0.1
C112-FB	Field Blank	<100	<0.1	<0.1	<0.1
TRIP BLANK	Trip Blank	<100	<0.1	<0.1	<0.1
			Exova		
C112-3W	NHWL MW-03	na	na	na	0.2

PHC (F1): Petroleum hydrocarbon C_6 to C_{10}, does not include BTEX fractions
PHC (F2): Petroleum hydrocarbon $C_{>10}$ to C_{16}
PHC (F3): Petroleum hydrocarbon $C_{>16}$ to C_{34}
TPH: Total Petroleum Hydrocarbons (C_6 to C_{34})
na: not anlyzed

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 Biogénie, a division of EnGlobe Corp. ("Biogénie") 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 Biogénie 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.

Biogénie 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, Biogénie 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.

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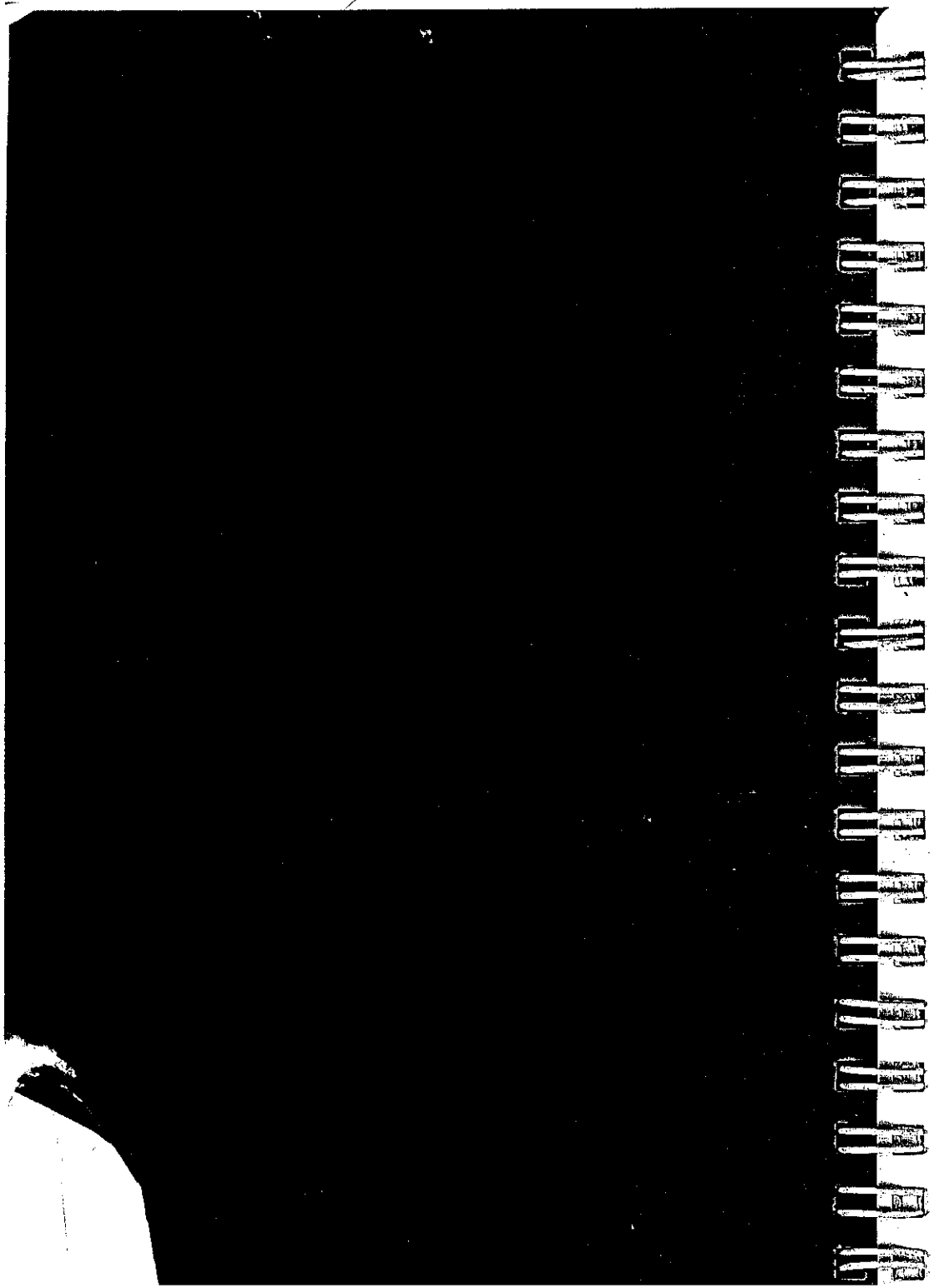
No provision of the Report shall be construed as or considered to be a legal opinion of Biogénie’s.

APPENDIX B

Field Notes



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CAM-1

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CAM-1 JENNY LIND ISLAND

AUGUST 15, 2012

OVERCAST, 4°C, 20KM/H NW.

0845 - 1130 TRAVEL VIA TWIN OTTER FROM CAMBRIDGE BAY TO JENNY LIND.

SET UP CAMP

JOE KOAHA
KAYLENE EPILON.
GRAEME MALA
DANNY HANAK.

EAST LANDING LANDFILL
C112-32 to 35.

WP
75 W-SW

C112-32 WP 76
0-10 BLK ORG
10- GREY SILT, W. FG SAND, WET @ 0.3M

A-0-15
B-40-50

F

(2)

WP - 77. | C112-35

0 - BRN SAND + GRAVEL, DRY, W.Gr

A - 0-15

B - 40-50

WP 91 . C112-34.

0 - BRN CS SAND + GRAVEL, LITTLE TO NO FINES, DRY → 40 - SOME SILT/CLAY/SAND.

WP 93 . C112-33.

SOUTH SIDE OF LF.

0 - BROWN CS SAND, WITH GRAVEL

BD-1 A - 0-15. 7x250.

B 40-50.

16:40 - SNOW / FREEZING RAIN (3)

WP	
78	V - SE → SAMPLING @ 35.
79	V - E, S @ TOE NW CRNR
80	V - E, S - @ TOP NW CRNR
81	V - ESE, N & SW TOP
82	V - SE ALONG TOE
83	V - NE FROM ▽
84	V - SE ALONG TOE
85	V - NE ON UPPER BENCH
86	V - WNW, N @ SE TOE.
87	V - WNW @ E END
88	V - W ALONG TOE
89	PAN + W + S. ACROSS TOP - NE CRNR
90	V - ESE ALONG @

NO EVIDENCE OF EROSION, SETTLEMENT

EXCEPT

92 MINOR SETTLEMENT, 1.5m L E-W, 30-60 W, 5-10 ↓ ON SW SLOPE.
V - E, S.

94 SLIGHT SINKHOLE CRACK, E-W ALONG SE TOP.
V - E, V 5-10 mm W

95 - END. V - W 25m LONG, P. INFILLED upto. 3cm ↓

2x close ups @ 4 + 10m E.

FIE

USAF - LANDFILL

(SOUTH LOBE)

97 PAN SE - NE SIDE SLOPE
98 V - SE, NW "
99. V - E, NW "
160 MARKER POST
101 V - N / SW "
102 MARKER POST
103. PAN N - SSW. ACROSS TOP
104 V - WNW, SSE "
105 PAN SW - E. ACROSS TOP

(NORTH LOBE)

108 PAN E - NNE
109 V. ENE SIDE SLOPES
110 V - N, WSW "
111 V - WNW, S
112 PAN WNW - SSE
113 V. E, S.
114 PAN SW - SE

JAR, - 1 BAG - PER LOCATION

WP 106 C112-31 NE CNR
LT BRN SAND, F - MED GR, DAMP
P.G. SOME GRAVEL.
A - 0-15
B - 40-50

WP 107 C112-30. NW CNR
0-10 BLK ORG. + SAND
10-50 LT BRN SAND, F. MED
GR, SOME GRAVEL, DAMP, P.G.
A - 0-15 B - 40-50

WP 115 C112-28. W - BLW LOBE
0-50 LT BRN SAND + GRAVEL,
TR SHELLS, DRW, TR CBLS.
A - 0-15 B - 40-50

WP 116 C112-29 E - BLW LOBE
0 - LT BRN SAND, MED GR,
P.G. WITH GRAVEL, TR CBLS.
A - 0-15, B - 40-50

FI

WP 117 CL 12 = 27 S. OF LOBES

0-10 BLK ORG + SAND

10 - MED GR. LT BRN SAND

WITH GRAVEL, TR CBLDS, MMP

302 - A 0-15

B 40-50

LT SNOW FLURRIES & RAIN MOST OF NIGHT

LOW -0°C

AUGUST 16, 2012

0°C, SNOW FLURRIES, CLEARING @ 7:30 TO P. CLOUDY, 20-30 km/h NW

BORROW AREA NORTH (LOBE 1 & 2)

WP
118 V-S @ N END
119 PAN W-S ACROSS TOP
120 V-N ALONG E SLOPE
121 MINOR SETTLEMENT / DEPR. ON SE CRN
1m x 1m x 10 ↓ V-N / E

(LOBE 3)
122 V- SE / SW
123 PAN W-S
124 V- ENE / S
125 V-S MINOR DEPR. ON SIDE SLOPE
4m L x 1m W x 10 ↓
127 V- S ALONG W TOE
128 V- NE ALONG TOE @ POND.
129 V- N / S. E - SIDE
130 FORMER WETTED AREA, ONLY 1x3 Ⅱ @ TOE. V-S, IRON STAINING THROUGHOUT AREA, SAME AS 2011.
131 V- N @ FORMER Ⅱ AREA.

FIE

WP 126 C112-2 W OF LOBES 1+2

BANKF.

0- BRN SAND, MED GR W. GRAVEL, DRY

A- 0-15 B- 40-50

WP 136 C112-3 NW OF LOBE 3.

0- BRN SAND, WITH GRAVEL, W.G., DRY, SOME CBLS.

A- 0-15 B- 40-50

WP 137 C112-4 W OF LOBE 3.

0- BRN/GREY SAND, MED GR P.G., WITH GRAVEL, DRY, TR ORG

15- BRN AS ABOVE, NO ORG

A 0-15 B 40-50

WP 138 C112-1 E OF LOBE 3

0- LT BRN SAND + FRACTURED B/R LST, DRY, DAMP, TR ORG 0-10

A 0-15 B 40-50

WP 140 C112-5 W OF LOBES 4/5

0- LT BRN SAND, MED GR, P.G., UNIFORM. (TR ORG 0-10)

A- 0-15 B- 40-50

132	PAN N-SW ACROSS TOP
133	PAN NE-NW
134	V-N ALONG W SLOPE
135	V-NE @ W SIDE SLOPE
139	BM-1.
141	V-N AT S END
	(LOBES 4-5)
141	V-SW AT NE SIDE
142	V- ESE C SL. STAINING ON SUR[illegible] SAME AS [illegible]
143	V- ESW AT SIDE SL
144	V- NE ALONG W SIDE SL
145	PAN- NE-NW FROM S END
146	V- WSW AT MINOR EROSION AL[illegible] TOE + SIDE SLOPE/ WASHING OF F[illegible] UP TO 5↓ ON SE CRNR SLOPE 2mL AT TOE 2mW FOREGRND
147	PAN NNE-SW
148	START OF SMALL CRACK ALONG [illegible] TOP SLOPE, DISCONT, 1-3 mm V- SW, 16mL, 149 END - ALSO MIN EROSION ON SLOPE 20m↓ 3mL FROM TOE, V-SSE
150	V-NW ALONG SIDE SLOPE
151	PAN E-N FROM S W CRNR
152	V-N ALONG W SIDE SLOPE F[illegible]

(10)

NORTHEAST LANDFILL 1030 LT RAIN/ SNOW

(LOBE 2)

153 V- SW ALONG ℄
- W SIDE
- E SIDE

155 V- NE/SW ALONG CL.

~~155~~ MISSING WP V- NE ALONG CL
- W SIDE
- E SIDE

(LOBES 1&3)

157 PAN S-E

158 V- SW ALONG E SIDE

159 V- W ALONG N SIDE

~~160~~ NO WP: V- WNW @ SETTLEMENT INSIDE CORNER 1x2x 0.2 ↓ SAME
ALSO V- NE/NW ALONG SIDES

160 PAN SW-E ACROSS TOP

161 V- SE ALONG S SIDE SL.
V- SW/SE UNEVEN SETTLEMENT ON CRNR SLOPE 4 L x 4 W, 5-10 ↓

162 PAN S-NE, V- NE/SE

163 V- NW, ENE ALONG SIDE SL.
ALSO SEE PHOTO OF FEAT. A VS

(11)

WP 154

C112-6 E SIDE OF LOBE 2
0- GRAVEL + CBLS, SOME BRN SAND, F-MED GR, DAMP, B/R REFUSAL @ 0.4
A- 0-15 B- 35-40

WP 156 C112-7 SW SIDE OF LOBE
0- BRN GRAVEL, SOME MED SAND, DRY
A- 0-15 B- 40-50

WP 164 C112-8 NW SIDE OF L 1/3
BD3
0-15 BRN/GREY MED SAND + TR + GRAVEL, DAMP
A- 0-15
15- GRAVEL, LT BRN, SOME SAND
B-40-50

WP 165 C112-9 N SIDE OF L 1/3
0-15 DK BRN/BLK SAND, MED GR, SOME ORG, DRY, SOME GRAVEL
15- LT BRN FRACT B/R, SOME SAND
A- 0-15 B- 40-50

STATION WEST LANDFILL

C112-10 , WP 166
0-10 BRN/GREY SAND WITH GRAVEL, TR ORG,
10- BRN (LT) GRAVEL, SOME F-MED SAND
A - 0-15 , B- 40-50

C112-11. WP 181.
0-10 F-M. GR. BRN/GREY SAND, TR GRAVEL + ORG, DAMP.
10-50 AS ABOVE, LT BRN
A - 0-15 B- 40-50

C112-12. WP 182
0- LT. BRN. SAND, F-M GR, P.G, DAMP, TR ORG 0-5,
A - 0-15 B - 40-50 BD4

C112-13 WP - 193
0- LT. BRN/GREY SAND med gr. TR GRAVEL, P.G.
A- 0-15 B. 40-50

WP
167 PAN NW-S. EWSW.
168 V- NW/ AT EROSION ON SLOPE
2 x 0.1 x 0.05↓ SAME
169 4 MINOR DEPRESSIONS ON SL
15-2M L, 10-20 W, 0.05-0.1↓
V-E SAME.
170 V- NW ALONG SIDE SLOPE
171 START OF SINGLE CRACKS, V- NW
15m L, 172 END. 3-10mm W
CLOSE UP - MID DEPTH 10...
TOP OF SLOPE AT EDGE OF LOW ARE
(FORMER BORROW) + FORM. SEASONAL PONDING
173 EROSION ON FACE FROM ADJ. SEASO
PONDING V- SW 7m L, 4m W
PARABOLIC W/ SOME SETTLEMENT
ON SLOPE 3m L, 30-50 W, 5-10↓
174 Single crack, 1m up toe 1.5m L, 3m
V- SE (at W end of erosion), close u
175 minor settlement on top near crest
V- E, 1.5m L, 20cm W, 5↓, ORIENT
176 DEPRESSION 2m in FROM CREST
1m L, 10-15 W, 5 D↓ V-SE

1:30 FLURRIES

177 V- SE/SW ALONG TOE ⅓ PAN W-SE → TOP
178 V- SSW
179 DEPRESSION BELOW CREST
0.5 L; 0.2 W; 0.07 ↓
180 V- W AT UNEVEN GND | RUTS IN
SAND NEAR LF.

183 - V- E C LINEAR STAINING, RUST
COLORED 4 m L x 0.3 W
184 V- W AT DEPRESSION ON SW CRNR
5 m x 5 m x 5-15 ↓ UNEVEN SURF?
185 PAN SE-NE ACROSS TOP
186 V- SE/NE ALONG SIDE SLOPES.
187 V- NW AT UNEVEN CRNR
189 STAINING/RUST, 1.5 m UP FROM
CREST; 2 m L, 20 W.
188 START OF 2 // CRACKS ALONG
SIDE SLOPE, V- ~~ESE~~ ESE 2-10 mm W
↳ 190 END. V- ~~E~~ W
WRAPS AROUND CRNR 16 m L
30-60 cm APART 0.5 m Below Crest
190 PAN NE-W- ACROSS TOP
192 V.T. N @ S END

SOUTHEAST LANDFILL

C112-18 WP 194
0-15 BRN SAND F-med gr
p.g. dry
15-25 - w/ blk org
25-50 LT BRN SAND, TR GRAVE
A- 0-15 , B- 40-50

C112-17 WP 199
0-20 BRN/GREY GRAVEL, W/
SAND, F-MED GR. DRY BR
20 RUST COLOURED SAND, FRACT
A- 0-15 B- 40-50

C112-16 WP 206
0- LT BRN SAND, SOME GRAVEL
F-MED GR., P.G., DRY - DAMP
TR OXID + ORG
A- ~~0~~ 0-15 B- 40-50

C112-14 WP 209
0- BRN GREY SAND + GRAVEL,
WF, DRY.
A- 0-15 B- 40-50

F

(16)

(SOUTH LOBE)

195 PAN SW - E ACROSS TOP
~~196~~ V - SW / E ALONG SIDE SLOPES
196 VEHICLE RUTS - SAME , V - NW/SE
V - NE / S ALONG SIDE SLOPES
197 PAN E - N FROM S END
198 V - N /NE ALONG SIDE SLOPES
200 START OF MINOR EROSION.
V - SSE : 15m L, 5-7cm W, 1-2cm ↓
WASHING FINES V NNW @ 201
202 PAN N - SW. SAMPLING @ 16
203 V. SW ALONG SIDE SLOPE
204 V. SW ALONG ℄
205 MINOR DEPRESSION ON CREST.
5 x 15 x 3↓ , V - ~~SW~~ NE
OTHER SW/NE 30cm IN FROM TOP.

(NORTH LOBE)

207 PAN SW - E ; SAMPLING @ 14
V - SSW, SE ALONG SIDE SLOPES
208 LIN. DEPRS. ⊥ TO SLOPE
2m L, 0.15m W, 3-5↓. V - NW/SW
210 V. NW/S ALONG SLOPE.
211 V - N/W " "

(17)

212 PAN NNE - SW ACROSS TOP

C112 - 15 WP 213.
O - LT. BRN SAND, ~~SOME~~ W/ TR GRAVEL, WG, DRY
A - 0-15 B - 40-50

STATION EAST LANDFILL.

WP
214 V - NNE ALONG TOE, SE "
215 MIN. EROSION NEAR TOE, FINES
DEP. SAME 3 x 1.5 x 3↓
V. SW ; LOW SPOT - SEASONAL
RUNOFF ALONG TOE.
216 V - NE/S ALONG SLOPE.
PAN - SSW - NE ACROSS TOP
217 V - SW/ESE " SLOPES.
218 V - WNW AT LINEAR DEPRESSION
- 3-5 m UP FROM CREST
4m L x 0.1-0.15 W, 5cm ↓ , V - SE
@ 219.
220 V. SE, WNW.

221 ~~50~~ x ~~50~~ cm POTHOLE x 7cm ↓
V-E / SAMPLE C19

C12-19 WP 229
0-10 dk brn sand, 5% gravel
F- Med gr, d comp. some org
10- LT BRN, NO org
A- 0-15 B- 40-50

223 V- NW/S ALONG SIDE SLOPES
~~224~~ V- SW (SEE 15)
224 PAN NE-SW ACROSS TOP
225 V- NE/W SIDES, PAN NE/-W. TOP
226 V- NNE
227 V- NW/ SSW @ SIDE SLOPES

C12-20 WP 228
0 - BRN GRAVEL, SOME SAND,
F-MED GR, TROR, 0-10
A- 0-15 B- 30-40
40 BIR Refusal

PCB AREA INSPECTION

234 VIEW SW FROM RD
235 WSW @ SIGNAGE
236 NW "
237 NE "
238 SE, SIGNAGE MISSING/BLOWN DOWN

DAMAGE TO N SIDE OF 248254.
10cm hole @ base
ALSO SE SIDE BASE, 30cm LONG

2186555 - gauge on E side 20cm L
40cm above floor

2086427 - puncture ~~grouting~~ on west side
6cm L, 20cm above bench floor

239 V WNW ALONG S END
240 V- E DOWN CENTER ISLE
~~241~~ V- WSW ALONG N END.
241 V- WNW @ OVERPACKS
242 V ENE " "
243 V- SE @ SOIL BOXES.
244 V- NE @ " "

FIEL

LRG
MAJORITY OF SOIL BOXES MISSING PCB LABELS
SEE SHEET

245 V- WIND @ SOIL BOX AREA

NO EVID. OF LEAKAGE / SPILLS.

88	77	48	9	34	18	39	40	
89	78	12	60	14	55	52	99	
90	79	76	54	51	101	7	107	
91	85	104	10	102	109	2	115	
92	1	12	103	110	117	100	123	
93		120	111	118	125	108	131	
94		140	119	126	133	116		
95			127	134		124		
						132		

↑ BOXES W/ MISSING LABELS

6⁰⁰ CALM, P.SUNNY (OVERCAST)

AUGUST 17, 2012

1" SNOW OVERNIGHT, MOSTLY MELTED BY 7AM

P.SUNNY, 2°C IN AM, 5-10KM E
(P.CLOUDY 9AM

C112-21 WP 246
0- LT BRN SAND, SOME GRAVEL, DRY, F-Med gr;
0.2 FRACT. B/R, TR. SAND AS ABOVE, AS Refusal
BDS A- 0-15 B - 35-45

C112-22 WP 250
0- LT BRN SAND WITH GRAVEL, F-MED GR, P.G, TR-ORG @ 0-10.
A - 0-15 B- 40-50

WP
247 LOCAL DEPRESSION NEAR TOP SLOPE
60 x 30 x .5↓ N-S. V-SW/NE
248 LOCAL DEPRESSION " "
30 x 40 x 3↓ E-W. V - NE

249 DEPRESSION ON COVER. 1.5m NE/SW
x 0.5m W x 10↓, POC. POND?
V-5.

251 PAN E-NNW

MAIN LANDFILL.

252 V- ENE/SW - SLOPES

253 V- SE @ MIN. DEPR. ON SIDE
SLOPE 1.5mL x 0.2 x .5↓

254 V- SW AT MIN. (PAST OF FINES
ALONG TOE (IN 2011) - SLOPE.

255 V- NE/S - SLOPES

256 EROSION ON CRNR. 4mL x 50W x
5-15↓ V-NE/SW
PAN SE-N.

257 V - SW @ WASHED FINES ON TOE

258 V-ENE/N - SLOPES
PAN SE-N.

259 SEASONAL PONDING, EROSION
ON SLOPE, V-N, SAME.

260 TOP SLOPE, EROSION 1mL, 30-5W.
TAPERING, 5↓, V. N.

261 V. SW - SLOPES, SEAS PONDING

V-NE MIN. EROSION SLOPE - 2.5mL IN AREA 1mW x 3W

262 PAN E-NW ACROSS TOP.

263 V. NE/W - SLOPES

264 V SW/ESE - SLOPES.

265 V- NW AT END

C12-24 WP 266.
0-15 BRN SAND, MED GR, P.G.
AND GRAVEL, TR ORGS 0-10
15- ROCK/GRAVEL, TR SAND
A- 0-15 B - 40-50

C12-25 WP 267.
0- BRN/GRY SAND, F. MED GR,
P.G. DRY, TR ORGS 0-10.
WITH GRAVEL/BLR, REFUSAL @ 45.

BDG A - 0-15 B - 35-45.

268 V- NE - SLOPE
V. W @ MIN DEPRESSION ON INSIDE
CRNR 3mW x 0.5mW, 5-10↓
SOME DEP. OF FINES TOP-TOE.

269 PAN NW-S ACROSS TOP

270 V- NW/SE - SLOPES.

FIELD

271 V-NW - MIN EROSION ALONG SIDE SLOPE - SEASONAL PONDING WASHING ENDS < 10cm ONLY.

272 LIN. EROSION 6mL x 20W x 0.02V. V-NE

273 END OF SEASONAL WORK. V-SE

C112-26 WP 274.

6 - GREY/BRN SAND. F-MED GR, DAMP, ORG 0-10. 35 REFUSAL ON BLR A-0-15, B-25-35.

275 PAN - E-N @ DISCOL. AREA ON COVER, SEE TRACK → 278 695 - 696.

697 MIN DEPR. ON COVER, 1m x 0.3x 5cm V. SSE.

698 MIN DEPR. ON COVER, 0.8x0.7 x .5m ↓ V-NW

699 - SPRING POLAR BEAR TRACK @ TOE OF LF

C112-23. WP 700

RUST COLORED SAND WITH RO GRAVEL, DRY, A- 0-45 B- 40-50.

TIER II DISPOSAL FACILITY

MW-05 SLUP - 0.13m WP 702 ∇ - 1.58 (dry). FROZEN. diameter = 1 3/4" 4m SE, WELL IN GOOD COND. L(703)

V-WNW

704 PAN N-SW AT SIDE SLOPE

705 PAN NW-S FROM E CRNR V-WNW @ VT-3

V-S @ MW-5 See ⑥.

706 V-SW/NW MID SLOPE

707 " " TOE SLOPE

708 V-SW @ N. SLOPE

709 MW-6

711 V-SW/SE @ TOE

712 " " @ MID SLOPE

713 PAN SW-E-N CRNR

V-NW @ MIN EROSION ON SLOPE FR TOP - 6mL, 30W, 35↓

FIEL

MW-6W slup = 0.54

∇ - 1.655, BENT ON TIP
(= dry) └ bottom

TP - 4m NE (710)

0 - dk brn/grey sand with gravel
dry f-med gr., tr. org.

15 - Brn, as above

A - 0-15 B - 40-50

MW-7W slup = 50

∇ dry bott. 1.545
frozen

TP 4m W - brn sand, with
gravel, f-med gr, dry, cbls.
A - 0-15, B - 35-45
45 - refusal on bdr.

MW-8 slup = 0.48 m

∇ dry bottom = 1.595 KE
frozen

TP. 4m. N

0 - BRN/GREY SAND + GRAVEL
F. Med gr., dry

0.15 - BRN

A - 0-15 B - 40-50

ISE @ 716.

715 V - NW @ MIN. EROSION TOP →
10m L, 3 D, 15-20 W
fines deposited mid slope

717 MN SETT (DEPRESSION) JUST BELOW
CREST (L. slope) .2m L, 25 W, 10 ↓
(V - NE)

718 V - SE @ VT-2, VT-4 IN BKGND
719 MW-7
720 V - SE @ SIDE SLOPE
721 MW-8
722 V - SE / NE @ TOE
723 " " @ MIDSLOPE
724 PAN SE - N FROM W CRNR
725 PAN ENE - W FROM S CRNR
V - SSW DOWN SLOPE
726 V - NW/NE @ MIDSLOPE
727 " " @ TOE
728 V NE @ S END / SLOPE

NON-HAZARDOUS WASTE L.F.

729 - BMW-01
SLUP · 0.52
Σ dry bottom - 2.22
frozen
TP - 4MS, BRN/GRY SAND + GRAVEL
SOME SILT, + CBLS DRY
A-0-15 B- 40-50

730 PAN SE-N FROM W CRNR
V- SE ALONG SIDE
V- NE " "

731 V- NE ALONG TOE.

732 PIECE OF GEOTEXTILE, V-SE
SAME.

733 LOCAL DEPRESSION @ EDGE OF COVER/
RIPRAP. 1.5mL x 0.3-0.5W, 10ft
V- NW

734 PAN ENE-NW ACROSS TOP

735 PAN NNW-SSW " " E CRNR

736 V- SW/NW FROM E CRNR TOE

737 EXP GEOTEXTILE (SAME). V-NS

738 MW-2.

740 S: MW-3.

741 MW-4.

MW-2
SLUP 35 Σ 1.595
TOTAL = 1.89 HW = 0.295
O-LT BRN SAND, F-M GR, P.G.
SOME GRAVEL, B/RC 30.
A-1-0-15 BDB.
TRY 4 OTHER LOCATIONS + B/R BW 0.27 0.3
ONLY 1x500 mL AMBER BROWN, LT BRN
INSUFF - SAMPLE VOLUME
1x500 PM

MW-3 (BDW1) TP - 3MS
SLUP 0.36 Σ 1.312
TOTAL 2235 HW =
CSC
T = 3.2/1.8 C = 1.906 mS/ 2.37 PH 8.54/ 8.95
TURB
↳ 36/29.
6x500 mL AM 3x250 PL
6x250 mL AM 9x40 mL

O - BRN SAND, W/ TRC GRAVEL,
F-MEDGR, DRY, SOME CBLS
A-0-15 B- 40-50.

MW-4 | TD 3m NE

Slup = 0.37 ⊻ 1.528
bottom - 2.105 MW =

T = 2.4°C / 2.1
Cond 1.627 mS / 1.741
pH 12.45 / 11.82
Turb 07 / 84.

1x250PL
2x250AM
2x500AM
3x40mL

0 - BRN SAND, WITH GRAVEL, DRY
FROST. BIRE 0.4m, ISL-OXID
A - 0-15 - B - 40-50

742 - V. SE/SW. ALONG TOE FROM N. END.
743 PAN W-ESE ACROSS TOP.
744 EXP GEOTEXTILE, SAME. V-SSW.

* OVERALL - SUBTLE UNDULATIONS ACROSS SURFACE, UP TO 5cm ↓

BD1	33A	-5	21A
2	27A	-6	25A
3	8A	-7	8WA
4	12B	-8	2WA

AUGUST 18, 2012
- Weathered in CAMBRIDGE BAY

AUGUST 19, 2012
- Weathered in CAMBRIDGE BAY
? OUT OF TALOYOAK / GJOA HAVEN (REFUEL)

AUGUST 20, 2012
- FOG IN CAMBRIDGE BAY ALL DAY

AUGUST 21, 2012

8[30] TRAVEL TO CAM-1, PICKUP QUAD CAMPING EQUIP. → TRAVEL TO CAM-3 FOGGED IN, → LAND AT ABAND. AIRS @ BEACH POL

FIE

APPENDIX C

Maxxam and Exova QA/QC Reports and Certificates of Analysis

Your P.O. #: 2012 KITIKMEOT
Your Project #: DLCU/LANDFILL MONITORING
Site Location: CAM-1 JENNY LIND ISLAND
Your C.O.C. #: 324000

Attention: ANDREW PASSALIS
EGE ENGINEERING LTD.
511 PEPPERLOAF CRESCENT
WINNIPEG, MB
CANADA R3R 1E6

Report Date: 2012/08/28

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B274498
Received: 2012/08/20, 18:00

Sample Matrix: Soil
Samples Received: 78

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
BTEX/F1 by HS GC/MS (MeOH extract) (1)	20	2012/08/22	2012/08/24	AB SOP-00039	CCME, EPA 8260C
BTEX/F1 by HS GC/MS (MeOH extract) (1)	40	2012/08/22	2012/08/25	AB SOP-00039	CCME, EPA 8260C
BTEX/F1 by HS GC/MS (MeOH extract) (1)	1	2012/08/22	2012/08/27	AB SOP-00039	CCME, EPA 8260C
BTEX/F1 by HS GC/MS (MeOH extract)	1	2012/08/22	2012/08/28	AB SOP-00039	CCME, EPA 8260C
BTEX/F1 by HS GC/MS (MeOH extract) (1)	16	2012/08/23	2012/08/25	AB SOP-00039	CCME, EPA 8260C
CCME Hydrocarbons (F2-F4 in soil)	6	2012/08/22	2012/08/24	AB SOP-00040 AB SOP-00036	CCME PHC-CWS
CCME Hydrocarbons (F2-F4 in soil)	34	2012/08/22	2012/08/25	AB SOP-00040 AB SOP-00036	CCME PHC-CWS
CCME Hydrocarbons (F2-F4 in soil)	22	2012/08/22	2012/08/27	AB SOP-00040 AB SOP-00036	CCME PHC-CWS
CCME Hydrocarbons (F2-F4 in soil)	2	2012/08/23	2012/08/25	AB SOP-00040 AB SOP-00036	CCME PHC-CWS
CCME Hydrocarbons (F2-F4 in soil)	9	2012/08/23	2012/08/26	AB SOP-00040 AB SOP-00036	CCME PHC-CWS
CCME Hydrocarbons (F2-F4 in soil)	5	2012/08/23	2012/08/27	AB SOP-00040 AB SOP-00036	CCME PHC-CWS
Elements by ICPMS - Soils	78	2012/08/24	2012/08/26	AB SOP-00043	EPA 200.8
Moisture	78	N/A	2012/08/23	AB SOP-00002	CCME PHC-CWS
Polychlorinated Biphenyls	3	2012/08/25	2012/08/25	CAL SOP-00149	EPA 3550B, EPA 8082A
Polychlorinated Biphenyls	37	2012/08/25	2012/08/27	CAL SOP-00149	EPA 3550B, EPA 8082A
Polychlorinated Biphenyls	38	2012/08/25	2012/08/28	CAL SOP-00149	EPA 3550B, EPA 8082A

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

(1) This test was performed by Maxxam Edmonton Environmental

../2

Your P.O. #: 2012 KITIKMEOT
Your Project #: DLCU/LANDFILL MONITORING
Site Location: CAM-1 JENNY LIND ISLAND
Your C.O.C. #: 324000

Attention: ANDREW PASSALIS
EGE ENGINEERING LTD.
511 PEPPERLOAF CRESCENT
WINNIPEG, MB
CANADA R3R 1E6

Report Date: 2012/08/28

CERTIFICATE OF ANALYSIS

Encryption Key

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

Ioana Stoica, Project Manager
Email: IStoica@maxxam.ca
Phone# (403) 291-3077

==========

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

Maxxam Job #: B274498
Report Date: 2012/08/28

EGE ENGINEERING LTD.
Client Project #: DLCU/LANDFILL MONITORING
Site Location: CAM-1 JENNY LIND ISLAND
Your P.O. #: 2012 KITIKMEOT
Sampler Initials: AP

RESULTS OF CHEMICAL ANALYSES OF SOIL

Maxxam ID		EG5287	EG5288	EG5289	EG5290	EG5291	EG5292		
Sampling Date		2012/08/16	2012/08/16	2012/08/16	2012/08/16	2012/08/16	2012/08/16		
COC Number		324000	324000	324000	324000	324000	324000		
	UNITS	**C112-1A**	**C112-1B**	**C112-2A**	**C112-2B**	**C112-3A**	**C112-3B**	**RDL**	**QC Batch**
Physical Properties									
Moisture	%	22	14	6.0	2.6	3.2	2.4	0.30	6108910

RDL = Reportable Detection Limit

Maxxam ID		EG5293	EG5294	EG5296	EG5297	EG5298	EG5302		
Sampling Date		2012/08/16	2012/08/16	2012/08/16	2012/08/16	2012/08/16	2012/08/16		
COC Number		324000	324000	324000	324000	324000	324000		
	UNITS	**C112-4A**	**C112-4B**	**C112-5A**	**C112-5B**	**C112-6A**	**C112-6B**	**RDL**	**QC Batch**
Physical Properties									
Moisture	%	9.6	6.7	4.9	2.9	8.9	11	0.30	6108910

RDL = Reportable Detection Limit

Maxxam ID		EG5303	EG5304	EG5305	EG5306		EG5346		
Sampling Date		2012/08/16	2012/08/16	2012/08/16	2012/08/16		2012/08/16		
COC Number		324000	324000	324000	324000		324000		
	UNITS	**C112-7A**	**C112-7B**	**C112-8A**	**C112-8B**	**QC Batch**	**C112-9A**	**RDL**	**QC Batch**
Physical Properties									
Moisture	%	6.5	6.1	7.0	5.5	6108910	23	0.30	6109529

RDL = Reportable Detection Limit

Maxxam ID		EG5347	EG5348	EG5349	EG5350	EG5351	EG5352		
Sampling Date		2012/08/16	2012/08/16	2012/08/16	2012/08/16	2012/08/16	2012/08/16		
COC Number		324000	324000	324000	324000	324000	324000		
	UNITS	**C112-9B**	**C112-10A**	**C112-10B**	**C112-11A**	**C112-11B**	**C112-12A**	**RDL**	**QC Batch**
Physical Properties									
Moisture	%	11	8.3	6.7	9.9	2.8	4.6	0.30	6109529

RDL = Reportable Detection Limit

Maxxam Job #: B274498
Report Date: 2012/08/28

EGE ENGINEERING LTD.
Client Project #: DLCU/LANDFILL MONITORING
Site Location: CAM-1 JENNY LIND ISLAND
Your P.O. #: 2012 KITIKMEOT
Sampler Initials: AP

RESULTS OF CHEMICAL ANALYSES OF SOIL

Maxxam ID		EG5353	EG5354	EG5355	EG5356	EG5357	EG5358		
Sampling Date		2012/08/16	2012/08/16	2012/08/16	2012/08/16	2012/08/16	2012/08/16		
COC Number		324000	324000	324000	324000	324000	324000		
	UNITS	**C112-12B**	**C112-13A**	**C112-13B**	**C112-14A**	**C112-14B**	**C112-15A**	**RDL**	**QC Batch**
Physical Properties									
Moisture	%	5.2	2.6	2.4	2.6	1.8	12	0.30	6109529

RDL = Reportable Detection Limit

Maxxam ID		EG5359	EG5360	EG5361	EG5362	EG5363	EG5364		
Sampling Date		2012/08/16	2012/08/16	2012/08/16	2012/08/16	2012/08/16	2012/08/16		
COC Number		324000	324000	324000	324000	324000	324000		
	UNITS	**C112-15B**	**C112-16A**	**C112-16B**	**C112-17A**	**C112-17B**	**C112-18A**	**RDL**	**QC Batch**
Physical Properties									
Moisture	%	2.4	2.3	2.9	3.9	3.6	5.8	0.30	6109529

RDL = Reportable Detection Limit

Maxxam ID		EG5365	EG5366	EG5367		EG5368		EG5369		
Sampling Date		2012/08/16	2012/08/16	2012/08/16		2012/08/16		2012/08/16		
COC Number		324000	324000	324000		324000		324000		
	UNITS	**C112-18B**	**C112-19A**	**C112-19B**	**QC Batch**	**C112-20A**	**QC Batch**	**C112-20B**	**RDL**	**QC Batch**
Physical Properties										
Moisture	%	3.0	14	4.5	6108865	17	6109356	8.3	0.30	6109110

RDL = Reportable Detection Limit

Maxxam ID		EG5370	EG5371	EG5372	EG5373	EG5374	EG5375		
Sampling Date		2012/08/17	2012/08/17	2012/08/17	2012/08/17	2012/08/17	2012/08/17		
COC Number		324000	324000	324000	324000	324000	324000		
	UNITS	**C112-21A**	**C112-21B**	**C112-22A**	**C112-22B**	**C112-23A**	**C112-23B**	**RDL**	**QC Batch**
Physical Properties									
Moisture	%	5.8	5.1	31	8.4	9.0	7.7	0.30	6111702

RDL = Reportable Detection Limit

Maxxam Job #: B274498
Report Date: 2012/08/28

EGE ENGINEERING LTD.
Client Project #: DLCU/LANDFILL MONITORING
Site Location: CAM-1 JENNY LIND ISLAND
Your P.O. #: 2012 KITIKMEOT
Sampler Initials: AP

RESULTS OF CHEMICAL ANALYSES OF SOIL

Maxxam ID		EG5376	EG5381	EG5382	EG5383	EG5384	EG5385		
Sampling Date		2012/08/17	2012/08/17	2012/08/17	2012/08/17	2012/08/17	2012/08/17		
COC Number		324000	324000	324000	324000	324000	324000		
	UNITS	**C112-24A**	**C112-24B**	**C112-25A**	**C112-25B**	**C112-26A**	**C112-26B**	**RDL**	**QC Batch**
Physical Properties									
Moisture	%	10	9.4	7.7	6.1	11	9.3	0.30	6111702

RDL = Reportable Detection Limit

Maxxam ID		EG5386	EG5387	EG5388	EG5389	EG5390	EG5401		
Sampling Date		2012/08/15	2012/08/15	2012/08/15	2012/08/15	2012/08/15	2012/08/15		
COC Number		324000	324000	324000	324000	324000	324000		
	UNITS	**C112-27A**	**C112-27B**	**C112-28A**	**C112-28B**	**C112-29A**	**C112-29B**	**RDL**	**QC Batch**
Physical Properties									
Moisture	%	15	3.3	4.4	7.0	4.0	5.6	0.30	6111702

RDL = Reportable Detection Limit

Maxxam ID		EG5402		EG5403	EG5404	EG5405	EG5406		
Sampling Date		2012/08/15		2012/08/15	2012/08/15	2012/08/15	2012/08/15		
COC Number		324000		324000	324000	324000	324000		
	UNITS	**C112-30A**	**QC Batch**	**C112-30B**	**C112-31A**	**C112-31B**	**C112-32A**	**RDL**	**QC Batch**
Physical Properties									
Moisture	%	16	6111702	4.4	2.7	3.6	14	0.30	6111716

RDL = Reportable Detection Limit

Maxxam ID		EG5407	EG5408	EG5409	EG5410	EG5411	EG5412		
Sampling Date		2012/08/15	2012/08/15	2012/08/15	2012/08/15	2012/08/15	2012/08/15		
COC Number		324000	324000	324000	324000	324000	324000		
	UNITS	**C112-32B**	**C112-33A**	**C112-33B**	**C112-34A**	**C112-34B**	**C112-35A**	**RDL**	**QC Batch**
Physical Properties									
Moisture	%	15	3.1	2.9	3.1	7.7	5.9	0.30	6111716

RDL = Reportable Detection Limit

Maxxam Job #: B274498
Report Date: 2012/08/28

EGE ENGINEERING LTD.
Client Project #: DLCU/LANDFILL MONITORING
Site Location: CAM-1 JENNY LIND ISLAND
Your P.O. #: 2012 KITIKMEOT
Sampler Initials: AP

RESULTS OF CHEMICAL ANALYSES OF SOIL

Maxxam ID		EG5413	EG5415	EG5416		EG5417	EG5418		
Sampling Date		2012/08/15	2012/08/15	2012/08/15		2012/08/16	2012/08/16		
COC Number		324000	324000	324000		324000	324000		
	UNITS	**C112-35B**	**C112-BD1**	**C112-BD2**	**QC Batch**	**C112-BD3**	**C112-BD4**	**RDL**	**QC Batch**
Physical Properties									
Moisture	%	4.5	2.7	13	6111716	6.6	5.5	0.30	6108759

RDL = Reportable Detection Limit

Maxxam ID		EG5419	EG5420	EG5421	EG5422		
Sampling Date		2012/08/17	2012/08/17	2012/08/17	2012/08/17		
COC Number		324000	324000	324000	324000		
	UNITS	**C112-BD5**	**C112-BD6**	**C112-BD7**	**C112-BD8**	**RDL**	**QC Batch**
Physical Properties							
Moisture	%	6.0	8.7	7.6	2.7	0.30	6111716

RDL = Reportable Detection Limit

Maxxam Job #: B274498
Report Date: 2012/08/28

EGE ENGINEERING LTD.
Client Project #: DLCU/LANDFILL MONITORING
Site Location: CAM-1 JENNY LIND ISLAND
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Sampler Initials: AP

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		EG5287	EG5288	EG5289	EG5290	EG5291	EG5292		
Sampling Date		2012/08/16	2012/08/16	2012/08/16	2012/08/16	2012/08/16	2012/08/16		
COC Number		324000	324000	324000	324000	324000	324000		
	UNITS	**C112-1A**	**C112-1B**	**C112-2A**	**C112-2B**	**C112-3A**	**C112-3B**	**RDL**	**QC Batch**
Ext. Pet. Hydrocarbon									
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	<10	<10	<10	<10	<10	10	6113541
F3 (C16-C34 Hydrocarbons)	mg/kg	27	17	<10	<10	16	<10	10	6113541
Reached Baseline at C50	mg/kg	Yes	Yes	Yes	Yes	Yes	Yes		6113541
Surrogate Recovery (%)									
O-TERPHENYL (sur.)	%	95	98	99	101	107	107		6113541

RDL = Reportable Detection Limit

Maxxam ID		EG5293	EG5294	EG5296	EG5297	EG5298	EG5302		
Sampling Date		2012/08/16	2012/08/16	2012/08/16	2012/08/16	2012/08/16	2012/08/16		
COC Number		324000	324000	324000	324000	324000	324000		
	UNITS	**C112-4A**	**C112-4B**	**C112-5A**	**C112-5B**	**C112-6A**	**C112-6B**	**RDL**	**QC Batch**
Ext. Pet. Hydrocarbon									
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	<10	<10	<10	<10	17	10	6113541
F3 (C16-C34 Hydrocarbons)	mg/kg	22	<10	<10	<10	12	55	10	6113541
Reached Baseline at C50	mg/kg	Yes	Yes	Yes	Yes	Yes	Yes		6113541
Surrogate Recovery (%)									
O-TERPHENYL (sur.)	%	92	96	98	101	99	98		6113541

RDL = Reportable Detection Limit

Maxxam Job #: B274498
Report Date: 2012/08/28

EGE ENGINEERING LTD.
Client Project #: DLCU/LANDFILL MONITORING
Site Location: CAM-1 JENNY LIND ISLAND
Your P.O. #: 2012 KITIKMEOT
Sampler Initials: AP

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		EG5303	EG5304	EG5305	EG5306	EG5346	EG5347		
Sampling Date		2012/08/16	2012/08/16	2012/08/16	2012/08/16	2012/08/16	2012/08/16		
COC Number		324000	324000	324000	324000	324000	324000		
	UNITS	**C112-7A**	**C112-7B**	**C112-8A**	**C112-8B**	**C112-9A**	**C112-9B**	**RDL**	**QC Batch**
Ext. Pet. Hydrocarbon									
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	<10	<10	<10	<10	<10	10	6113541
F3 (C16-C34 Hydrocarbons)	mg/kg	<10	<10	<10	<10	57	24	10	6113541
Reached Baseline at C50	mg/kg	Yes	Yes	Yes	Yes	Yes	Yes		6113541
Surrogate Recovery (%)									
O-TERPHENYL (sur.)	%	93	97	95	93	94	94		6113541

RDL = Reportable Detection Limit

Maxxam ID		EG5348	EG5349		EG5350	EG5351	EG5352		
Sampling Date		2012/08/16	2012/08/16		2012/08/16	2012/08/16	2012/08/16		
COC Number		324000	324000		324000	324000	324000		
	UNITS	**C112-10A**	**C112-10B**	**QC Batch**	**C112-11A**	**C112-11B**	**C112-12A**	**RDL**	**QC Batch**
Ext. Pet. Hydrocarbon									
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	<10	6113541	<10	<10	<10	10	6113620
F3 (C16-C34 Hydrocarbons)	mg/kg	18	11	6113541	11	<10	<10	10	6113620
Reached Baseline at C50	mg/kg	Yes	Yes	6113541	Yes	Yes	Yes		6113620
Surrogate Recovery (%)									
O-TERPHENYL (sur.)	%	101	90	6113541	106	100	94		6113620

RDL = Reportable Detection Limit

Maxxam Job #: B274498
Report Date: 2012/08/28

EGE ENGINEERING LTD.
Client Project #: DLCU/LANDFILL MONITORING
Site Location: CAM-1 JENNY LIND ISLAND
Your P.O. #: 2012 KITIKMEOT
Sampler Initials: AP

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		EG5353	EG5354	EG5355	EG5356	EG5357	EG5358		
Sampling Date		2012/08/16	2012/08/16	2012/08/16	2012/08/16	2012/08/16	2012/08/16		
COC Number		324000	324000	324000	324000	324000	324000		
	UNITS	**C112-12B**	**C112-13A**	**C112-13B**	**C112-14A**	**C112-14B**	**C112-15A**	**RDL**	**QC Batch**
Ext. Pet. Hydrocarbon									
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	<10	<10	<10	<10	<10	10	6113620
F3 (C16-C34 Hydrocarbons)	mg/kg	<10	<10	<10	<10	<10	<10	10	6113620
Reached Baseline at C50	mg/kg	Yes	Yes	Yes	Yes	Yes	Yes		6113620
Surrogate Recovery (%)									
O-TERPHENYL (sur.)	%	100	103	102	102	103	98		6113620

RDL = Reportable Detection Limit

Maxxam ID		EG5359	EG5360	EG5361	EG5362	EG5363	EG5364		
Sampling Date		2012/08/16	2012/08/16	2012/08/16	2012/08/16	2012/08/16	2012/08/16		
COC Number		324000	324000	324000	324000	324000	324000		
	UNITS	**C112-15B**	**C112-16A**	**C112-16B**	**C112-17A**	**C112-17B**	**C112-18A**	**RDL**	**QC Batch**
Ext. Pet. Hydrocarbon									
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	<10	13	<10	<10	<10	10	6113620
F3 (C16-C34 Hydrocarbons)	mg/kg	<10	<10	19	<10	<10	<10	10	6113620
Reached Baseline at C50	mg/kg	Yes	Yes	Yes	Yes	Yes	Yes		6113620
Surrogate Recovery (%)									
O-TERPHENYL (sur.)	%	101	98	98	102	104	99		6113620

RDL = Reportable Detection Limit

Maxxam Job #: B274498
Report Date: 2012/08/28

EGE ENGINEERING LTD.
Client Project #: DLCU/LANDFILL MONITORING
Site Location: CAM-1 JENNY LIND ISLAND
Your P.O. #: 2012 KITIKMEOT
Sampler Initials: AP

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		EG5365	EG5366	EG5367	EG5368	EG5369		
Sampling Date		2012/08/16	2012/08/16	2012/08/16	2012/08/16	2012/08/16		
COC Number		324000	324000	324000	324000	324000		
	UNITS	**C112-18B**	**C112-19A**	**C112-19B**	**C112-20A**	**C112-20B**	**RDL**	**QC Batch**
Ext. Pet. Hydrocarbon								
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	<10	<10	<10	<10	10	6113620
F3 (C16-C34 Hydrocarbons)	mg/kg	<10	<10	<10	21	<10	10	6113620
Reached Baseline at C50	mg/kg	Yes	Yes	Yes	Yes	Yes		6113620
Surrogate Recovery (%)								
O-TERPHENYL (sur.)	%	102	101	100	111	106		6113620

RDL = Reportable Detection Limit

Maxxam ID		EG5370	EG5371	EG5372	EG5373	EG5374	EG5375		
Sampling Date		2012/08/17	2012/08/17	2012/08/17	2012/08/17	2012/08/17	2012/08/17		
COC Number		324000	324000	324000	324000	324000	324000		
	UNITS	**C112-21A**	**C112-21B**	**C112-22A**	**C112-22B**	**C112-23A**	**C112-23B**	**RDL**	**QC Batch**
Ext. Pet. Hydrocarbon									
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	<10	<10	<10	<10	<10	10	6114283
F3 (C16-C34 Hydrocarbons)	mg/kg	<10	<10	40	<10	<10	12	10	6114283
Reached Baseline at C50	mg/kg	Yes	Yes	Yes	Yes	Yes	Yes		6114283
Surrogate Recovery (%)									
O-TERPHENYL (sur.)	%	96	97	101	99	97	100		6114283

RDL = Reportable Detection Limit

Maxxam Job #: B274498
Report Date: 2012/08/28

EGE ENGINEERING LTD.
Client Project #: DLCU/LANDFILL MONITORING
Site Location: CAM-1 JENNY LIND ISLAND
Your P.O. #: 2012 KITIKMEOT
Sampler Initials: AP

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		EG5376	EG5381	EG5382	EG5383	EG5384	EG5385		
Sampling Date		2012/08/17	2012/08/17	2012/08/17	2012/08/17	2012/08/17	2012/08/17		
COC Number		324000	324000	324000	324000	324000	324000		
	UNITS	**C112-24A**	**C112-24B**	**C112-25A**	**C112-25B**	**C112-26A**	**C112-26B**	**RDL**	**QC Batch**
Ext. Pet. Hydrocarbon									
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	<10	<10	<10	<10	<10	10	6114283
F3 (C16-C34 Hydrocarbons)	mg/kg	<10	<10	<10	<10	<10	<10	10	6114283
Reached Baseline at C50	mg/kg	Yes	Yes	Yes	Yes	Yes	Yes		6114283
Surrogate Recovery (%)									
O-TERPHENYL (sur.)	%	99	104	100	94	99	95		6114283

RDL = Reportable Detection Limit

Maxxam ID		EG5386	EG5387	EG5388	EG5389	EG5390	EG5401		
Sampling Date		2012/08/15	2012/08/15	2012/08/15	2012/08/15	2012/08/15	2012/08/15		
COC Number		324000	324000	324000	324000	324000	324000		
	UNITS	**C112-27A**	**C112-27B**	**C112-28A**	**C112-28B**	**C112-29A**	**C112-29B**	**RDL**	**QC Batch**
Ext. Pet. Hydrocarbon									
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	<10	<10	<10	<10	<10	10	6115504
F3 (C16-C34 Hydrocarbons)	mg/kg	37	<10	<10	<10	<10	<10	10	6115504
Reached Baseline at C50	mg/kg	Yes	Yes	Yes	Yes	Yes	Yes		6115504
Surrogate Recovery (%)									
O-TERPHENYL (sur.)	%	106	106	99	96	92	96		6115504

RDL = Reportable Detection Limit

Maxxam Job #: B274498
Report Date: 2012/08/28

EGE ENGINEERING LTD.
Client Project #: DLCU/LANDFILL MONITORING
Site Location: CAM-1 JENNY LIND ISLAND
Your P.O. #: 2012 KITIKMEOT
Sampler Initials: AP

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		EG5402	EG5403	EG5404	EG5405	EG5406	EG5407		
Sampling Date		2012/08/15	2012/08/15	2012/08/15	2012/08/15	2012/08/15	2012/08/15		
COC Number		324000	324000	324000	324000	324000	324000		
	UNITS	**C112-30A**	**C112-30B**	**C112-31A**	**C112-31B**	**C112-32A**	**C112-32B**	**RDL**	**QC Batch**
Ext. Pet. Hydrocarbon									
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	<10	<10	<10	<10	<10	10	6115504
F3 (C16-C34 Hydrocarbons)	mg/kg	20	<10	<10	<10	40	33	10	6115504
Reached Baseline at C50	mg/kg	Yes	Yes	Yes	Yes	Yes	Yes		6115504
Surrogate Recovery (%)									
O-TERPHENYL (sur.)	%	102	90	94	99	96	94		6115504

RDL = Reportable Detection Limit

Maxxam ID		EG5408	EG5409	EG5410	EG5411	EG5412	EG5413		
Sampling Date		2012/08/15	2012/08/15	2012/08/15	2012/08/15	2012/08/15	2012/08/15		
COC Number		324000	324000	324000	324000	324000	324000		
	UNITS	**C112-33A**	**C112-33B**	**C112-34A**	**C112-34B**	**C112-35A**	**C112-35B**	**RDL**	**QC Batch**
Ext. Pet. Hydrocarbon									
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	<10	<10	<10	<10	<10	10	6115504
F3 (C16-C34 Hydrocarbons)	mg/kg	<10	<10	<10	<10	<10	<10	10	6115504
Reached Baseline at C50	mg/kg	Yes	Yes	Yes	Yes	Yes	Yes		6115504
Surrogate Recovery (%)									
O-TERPHENYL (sur.)	%	94	105	106	97	98	96		6115504

RDL = Reportable Detection Limit

Maxxam Job #: B274498
Report Date: 2012/08/28

EGE ENGINEERING LTD.
Client Project #: DLCU/LANDFILL MONITORING
Site Location: CAM-1 JENNY LIND ISLAND
Your P.O. #: 2012 KITIKMEOT
Sampler Initials: AP

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		EG5415	EG5416		EG5417	EG5418	EG5419		
Sampling Date		2012/08/15	2012/08/15		2012/08/16	2012/08/16	2012/08/17		
COC Number		324000	324000		324000	324000	324000		
	UNITS	**C112-BD1**	**C112-BD2**	**QC Batch**	**C112-BD3**	**C112-BD4**	**C112-BD5**	**RDL**	**QC Batch**
Ext. Pet. Hydrocarbon									
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	<10	6115504	<10	<10	<10	10	6114283
F3 (C16-C34 Hydrocarbons)	mg/kg	<10	35	6115504	<10	<10	<10	10	6114283
Reached Baseline at C50	mg/kg	Yes	Yes	6115504	Yes	Yes	Yes		6114283
Surrogate Recovery (%)									
O-TERPHENYL (sur.)	%	103	93	6115504	99	100	96		6114283

RDL = Reportable Detection Limit

Maxxam ID		EG5420		EG5421	EG5422		
Sampling Date		2012/08/17		2012/08/17	2012/08/17		
COC Number		324000		324000	324000		
	UNITS	**C112-BD6**	**QC Batch**	**C112-BD7**	**C112-BD8**	**RDL**	**QC Batch**
Ext. Pet. Hydrocarbon							
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	6114283	<10	<10	10	6115793
F3 (C16-C34 Hydrocarbons)	mg/kg	<10	6114283	21	<10	10	6115793
Reached Baseline at C50	mg/kg	Yes	6114283	Yes	Yes		6115793
Surrogate Recovery (%)							
O-TERPHENYL (sur.)	%	93	6114283	84	89		6115793

RDL = Reportable Detection Limit

Maxxam Job #: B274498
Report Date: 2012/08/28

EGE ENGINEERING LTD.
Client Project #: DLCU/LANDFILL MONITORING
Site Location: CAM-1 JENNY LIND ISLAND
Your P.O. #: 2012 KITIKMEOT
Sampler Initials: AP

POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

Maxxam ID		EG5287	EG5288	EG5289	EG5290	EG5291		
Sampling Date		2012/08/16	2012/08/16	2012/08/16	2012/08/16	2012/08/16		
COC Number		324000	324000	324000	324000	324000		
	UNITS	**C112-1A**	**C112-1B**	**C112-2A**	**C112-2B**	**C112-3A**	**RDL**	**QC Batch**
Polychlorinated Biphenyls								
Aroclor 1016	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115753
Aroclor 1221	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115753
Aroclor 1232	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115753
Aroclor 1242	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115753
Aroclor 1248	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115753
Aroclor 1254	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115753
Aroclor 1260	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115753
Aroclor 1262	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115753
Aroclor 1268	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115753
Total Aroclors	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115753
Surrogate Recovery (%)								
NONACHLOROBIPHENYL (sur.)	%	119	112	123	108	116		6115753

RDL = Reportable Detection Limit

Maxxam Job #: B274498
Report Date: 2012/08/28

EGE ENGINEERING LTD.
Client Project #: DLCU/LANDFILL MONITORING
Site Location: CAM-1 JENNY LIND ISLAND
Your P.O. #: 2012 KITIKMEOT
Sampler Initials: AP

POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

Maxxam ID		EG5292	EG5293	EG5294	EG5296	EG5297		
Sampling Date		2012/08/16	2012/08/16	2012/08/16	2012/08/16	2012/08/16		
COC Number		324000	324000	324000	324000	324000		
	UNITS	**C112-3B**	**C112-4A**	**C112-4B**	**C112-5A**	**C112-5B**	**RDL**	**QC Batch**
Polychlorinated Biphenyls								
Aroclor 1016	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115753
Aroclor 1221	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115753
Aroclor 1232	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115753
Aroclor 1242	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115753
Aroclor 1248	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115753
Aroclor 1254	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115753
Aroclor 1260	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115753
Aroclor 1262	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115753
Aroclor 1268	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115753
Total Aroclors	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115753
Surrogate Recovery (%)								
NONACHLOROBIPHENYL (sur.)	%	114	119	115	95	118		6115753

RDL = Reportable Detection Limit

Maxxam Job #: B274498
Report Date: 2012/08/28

EGE ENGINEERING LTD.
Client Project #: DLCU/LANDFILL MONITORING
Site Location: CAM-1 JENNY LIND ISLAND
Your P.O. #: 2012 KITIKMEOT
Sampler Initials: AP

POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

Maxxam ID		EG5298	EG5302	EG5303	EG5304	EG5305		
Sampling Date		2012/08/16	2012/08/16	2012/08/16	2012/08/16	2012/08/16		
COC Number		324000	324000	324000	324000	324000		
	UNITS	**C112-6A**	**C112-6B**	**C112-7A**	**C112-7B**	**C112-8A**	**RDL**	**QC Batch**
Polychlorinated Biphenyls								
Aroclor 1016	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115753
Aroclor 1221	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115753
Aroclor 1232	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115753
Aroclor 1242	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115753
Aroclor 1248	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115753
Aroclor 1254	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115753
Aroclor 1260	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115753
Aroclor 1262	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115753
Aroclor 1268	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115753
Total Aroclors	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115753
Surrogate Recovery (%)								
NONACHLOROBIPHENYL (sur.)	%	120	116	121	121	119		6115753

RDL = Reportable Detection Limit

Maxxam Job #: B274498
Report Date: 2012/08/28

EGE ENGINEERING LTD.
Client Project #: DLCU/LANDFILL MONITORING
Site Location: CAM-1 JENNY LIND ISLAND
Your P.O. #: 2012 KITIKMEOT
Sampler Initials: AP

POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

Maxxam ID		EG5306	EG5346	EG5347	EG5348	EG5349		
Sampling Date		2012/08/16	2012/08/16	2012/08/16	2012/08/16	2012/08/16		
COC Number		324000	324000	324000	324000	324000		
	UNITS	**C112-8B**	**C112-9A**	**C112-9B**	**C112-10A**	**C112-10B**	**RDL**	**QC Batch**
Polychlorinated Biphenyls								
Aroclor 1016	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115753
Aroclor 1221	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115753
Aroclor 1232	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115753
Aroclor 1242	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115753
Aroclor 1248	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115753
Aroclor 1254	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115753
Aroclor 1260	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115753
Aroclor 1262	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115753
Aroclor 1268	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115753
Total Aroclors	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115753
Surrogate Recovery (%)								
NONACHLOROBIPHENYL (sur.)	%	121	114	123	124	117		6115753

RDL = Reportable Detection Limit

Maxxam Job #: B274498
Report Date: 2012/08/28

EGE ENGINEERING LTD.
Client Project #: DLCU/LANDFILL MONITORING
Site Location: CAM-1 JENNY LIND ISLAND
Your P.O. #: 2012 KITIKMEOT
Sampler Initials: AP

POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

Maxxam ID		EG5350	EG5351	EG5352	EG5353	EG5354		
Sampling Date		2012/08/16	2012/08/16	2012/08/16	2012/08/16	2012/08/16		
COC Number		324000	324000	324000	324000	324000		
	UNITS	**C112-11A**	**C112-11B**	**C112-12A**	**C112-12B**	**C112-13A**	**RDL**	**QC Batch**
Polychlorinated Biphenyls								
Aroclor 1016	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115816
Aroclor 1221	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115816
Aroclor 1232	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115816
Aroclor 1242	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115816
Aroclor 1248	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115816
Aroclor 1254	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115816
Aroclor 1260	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115816
Aroclor 1262	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115816
Aroclor 1268	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115816
Total Aroclors	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115816
Surrogate Recovery (%)								
NONACHLOROBIPHENYL (sur.)	%	119	69	81	123	118		6115816

RDL = Reportable Detection Limit

Maxxam Job #: B274498
Report Date: 2012/08/28

EGE ENGINEERING LTD.
Client Project #: DLCU/LANDFILL MONITORING
Site Location: CAM-1 JENNY LIND ISLAND
Your P.O. #: 2012 KITIKMEOT
Sampler Initials: AP

POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

Maxxam ID		EG5355	EG5356	EG5357	EG5358	EG5359		
Sampling Date		2012/08/16	2012/08/16	2012/08/16	2012/08/16	2012/08/16		
COC Number		324000	324000	324000	324000	324000		
	UNITS	**C112-13B**	**C112-14A**	**C112-14B**	**C112-15A**	**C112-15B**	**RDL**	**QC Batch**
Polychlorinated Biphenyls								
Aroclor 1016	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115816
Aroclor 1221	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115816
Aroclor 1232	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115816
Aroclor 1242	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115816
Aroclor 1248	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115816
Aroclor 1254	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115816
Aroclor 1260	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115816
Aroclor 1262	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115816
Aroclor 1268	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115816
Total Aroclors	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115816
Surrogate Recovery (%)								
NONACHLOROBIPHENYL (sur.)	%	105	118	103	110	118		6115816

RDL = Reportable Detection Limit

Maxxam Job #: B274498
Report Date: 2012/08/28

EGE ENGINEERING LTD.
Client Project #: DLCU/LANDFILL MONITORING
Site Location: CAM-1 JENNY LIND ISLAND
Your P.O. #: 2012 KITIKMEOT
Sampler Initials: AP

POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

Maxxam ID		EG5360	EG5361	EG5362	EG5363	EG5364		
Sampling Date		2012/08/16	2012/08/16	2012/08/16	2012/08/16	2012/08/16		
COC Number		324000	324000	324000	324000	324000		
	UNITS	**C112-16A**	**C112-16B**	**C112-17A**	**C112-17B**	**C112-18A**	**RDL**	**QC Batch**
Polychlorinated Biphenyls								
Aroclor 1016	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115816
Aroclor 1221	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115816
Aroclor 1232	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115816
Aroclor 1242	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115816
Aroclor 1248	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115816
Aroclor 1254	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115816
Aroclor 1260	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115816
Aroclor 1262	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115816
Aroclor 1268	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115816
Total Aroclors	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115816
Surrogate Recovery (%)								
NONACHLOROBIPHENYL (sur.)	%	120	106	117	125	124		6115816

RDL = Reportable Detection Limit

Maxxam Job #: B274498
Report Date: 2012/08/28

EGE ENGINEERING LTD.
Client Project #: DLCU/LANDFILL MONITORING
Site Location: CAM-1 JENNY LIND ISLAND
Your P.O. #: 2012 KITIKMEOT
Sampler Initials: AP

POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

Maxxam ID		EG5365	EG5366		EG5367	EG5368	EG5369		
Sampling Date		2012/08/16	2012/08/16		2012/08/16	2012/08/16	2012/08/16		
COC Number		324000	324000		324000	324000	324000		
	UNITS	**C112-18B**	**C112-19A**	**QC Batch**	**C112-19B**	**C112-20A**	**C112-20B**	**RDL**	**QC Batch**
Polychlorinated Biphenyls									
Aroclor 1016	mg/kg	<0.010	<0.010	6115816	<0.010	<0.010	<0.010	0.010	6116118
Aroclor 1221	mg/kg	<0.010	<0.010	6115816	<0.010	<0.010	<0.010	0.010	6116118
Aroclor 1232	mg/kg	<0.010	<0.010	6115816	<0.010	<0.010	<0.010	0.010	6116118
Aroclor 1242	mg/kg	<0.010	<0.010	6115816	<0.010	<0.010	<0.010	0.010	6116118
Aroclor 1248	mg/kg	<0.010	<0.010	6115816	<0.010	<0.010	<0.010	0.010	6116118
Aroclor 1254	mg/kg	<0.010	<0.010	6115816	<0.010	<0.010	<0.010	0.010	6116118
Aroclor 1260	mg/kg	<0.010	<0.010	6115816	<0.010	<0.010	<0.010	0.010	6116118
Aroclor 1262	mg/kg	<0.010	<0.010	6115816	<0.010	<0.010	<0.010	0.010	6116118
Aroclor 1268	mg/kg	<0.010	<0.010	6115816	<0.010	<0.010	<0.010	0.010	6116118
Total Aroclors	mg/kg	<0.010	<0.010	6115816	<0.010	<0.010	<0.010	0.010	6116118
Surrogate Recovery (%)									
NONACHLOROBIPHENYL (sur.)	%	112	124	6115816	111	106	115		6116118

RDL = Reportable Detection Limit

Maxxam Job #: B274498
Report Date: 2012/08/28

EGE ENGINEERING LTD.
Client Project #: DLCU/LANDFILL MONITORING
Site Location: CAM-1 JENNY LIND ISLAND
Your P.O. #: 2012 KITIKMEOT
Sampler Initials: AP

POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

Maxxam ID		EG5370	EG5371	EG5372	EG5373	EG5374		
Sampling Date		2012/08/17	2012/08/17	2012/08/17	2012/08/17	2012/08/17		
COC Number		324000	324000	324000	324000	324000		
	UNITS	**C112-21A**	**C112-21B**	**C112-22A**	**C112-22B**	**C112-23A**	**RDL**	**QC Batch**
Polychlorinated Biphenyls								
Aroclor 1016	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6116118
Aroclor 1221	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6116118
Aroclor 1232	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6116118
Aroclor 1242	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6116118
Aroclor 1248	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6116118
Aroclor 1254	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6116118
Aroclor 1260	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6116118
Aroclor 1262	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6116118
Aroclor 1268	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6116118
Total Aroclors	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6116118
Surrogate Recovery (%)								
NONACHLOROBIPHENYL (sur.)	%	113	111	109	107	112		6116118

RDL = Reportable Detection Limit

Maxxam Job #: B274498
Report Date: 2012/08/28

EGE ENGINEERING LTD.
Client Project #: DLCU/LANDFILL MONITORING
Site Location: CAM-1 JENNY LIND ISLAND
Your P.O. #: 2012 KITIKMEOT
Sampler Initials: AP

POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

Maxxam ID		EG5375	EG5376	EG5381	EG5382		EG5383		
Sampling Date		2012/08/17	2012/08/17	2012/08/17	2012/08/17		2012/08/17		
COC Number		324000	324000	324000	324000		324000		
	UNITS	**C112-23B**	**C112-24A**	**C112-24B**	**C112-25A**	**QC Batch**	**C112-25B**	**RDL**	**QC Batch**
Polychlorinated Biphenyls									
Aroclor 1016	mg/kg	<0.010	<0.010	<0.010	<0.010	6116118	<0.010	0.010	6116206
Aroclor 1221	mg/kg	<0.010	<0.010	<0.010	<0.010	6116118	<0.010	0.010	6116206
Aroclor 1232	mg/kg	<0.010	<0.010	<0.010	<0.010	6116118	<0.010	0.010	6116206
Aroclor 1242	mg/kg	<0.010	<0.010	<0.010	<0.010	6116118	<0.010	0.010	6116206
Aroclor 1248	mg/kg	<0.010	<0.010	<0.010	<0.010	6116118	<0.010	0.010	6116206
Aroclor 1254	mg/kg	<0.010	<0.010	<0.010	<0.010	6116118	<0.010	0.010	6116206
Aroclor 1260	mg/kg	<0.010	<0.010	<0.010	<0.010	6116118	<0.010	0.010	6116206
Aroclor 1262	mg/kg	<0.010	<0.010	<0.010	<0.010	6116118	<0.010	0.010	6116206
Aroclor 1268	mg/kg	<0.010	<0.010	<0.010	<0.010	6116118	<0.010	0.010	6116206
Total Aroclors	mg/kg	<0.010	<0.010	<0.010	<0.010	6116118	<0.010	0.010	6116206
Surrogate Recovery (%)									
NONACHLOROBIPHENYL (sur.)	%	105	126	112	117	6116118	111		6116206

RDL = Reportable Detection Limit

Maxxam Job #: B274498
Report Date: 2012/08/28

EGE ENGINEERING LTD.
Client Project #: DLCU/LANDFILL MONITORING
Site Location: CAM-1 JENNY LIND ISLAND
Your P.O. #: 2012 KITIKMEOT
Sampler Initials: AP

POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

Maxxam ID		EG5384	EG5385	EG5386	EG5387	EG5388		
Sampling Date		2012/08/17	2012/08/17	2012/08/15	2012/08/15	2012/08/15		
COC Number		324000	324000	324000	324000	324000		
	UNITS	**C112-26A**	**C112-26B**	**C112-27A**	**C112-27B**	**C112-28A**	**RDL**	**QC Batch**
Polychlorinated Biphenyls								
Aroclor 1016	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6116206
Aroclor 1221	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6116206
Aroclor 1232	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6116206
Aroclor 1242	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6116206
Aroclor 1248	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6116206
Aroclor 1254	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6116206
Aroclor 1260	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6116206
Aroclor 1262	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6116206
Aroclor 1268	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6116206
Total Aroclors	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6116206
Surrogate Recovery (%)								
NONACHLOROBIPHENYL (sur.)	%	99	102	107	113	101		6116206

RDL = Reportable Detection Limit

Maxxam Job #: B274498
Report Date: 2012/08/28

EGE ENGINEERING LTD.
Client Project #: DLCU/LANDFILL MONITORING
Site Location: CAM-1 JENNY LIND ISLAND
Your P.O. #: 2012 KITIKMEOT
Sampler Initials: AP

POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

Maxxam ID		EG5389	EG5390	EG5401	EG5402	EG5403		
Sampling Date		2012/08/15	2012/08/15	2012/08/15	2012/08/15	2012/08/15		
COC Number		324000	324000	324000	324000	324000		
	UNITS	**C112-28B**	**C112-29A**	**C112-29B**	**C112-30A**	**C112-30B**	**RDL**	**QC Batch**
Polychlorinated Biphenyls								
Aroclor 1016	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6116206
Aroclor 1221	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6116206
Aroclor 1232	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6116206
Aroclor 1242	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6116206
Aroclor 1248	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6116206
Aroclor 1254	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6116206
Aroclor 1260	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6116206
Aroclor 1262	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6116206
Aroclor 1268	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6116206
Total Aroclors	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6116206
Surrogate Recovery (%)								
NONACHLOROBIPHENYL (sur.)	%	117	111	104	118	117		6116206

RDL = Reportable Detection Limit

Maxxam Job #: B274498
Report Date: 2012/08/28

EGE ENGINEERING LTD.
Client Project #: DLCU/LANDFILL MONITORING
Site Location: CAM-1 JENNY LIND ISLAND
Your P.O. #: 2012 KITIKMEOT
Sampler Initials: AP

POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

Maxxam ID		EG5404	EG5405	EG5406	EG5407	EG5408		
Sampling Date		2012/08/15	2012/08/15	2012/08/15	2012/08/15	2012/08/15		
COC Number		324000	324000	324000	324000	324000		
	UNITS	**C112-31A**	**C112-31B**	**C112-32A**	**C112-32B**	**C112-33A**	**RDL**	**QC Batch**
Polychlorinated Biphenyls								
Aroclor 1016	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6116206
Aroclor 1221	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6116206
Aroclor 1232	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6116206
Aroclor 1242	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6116206
Aroclor 1248	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6116206
Aroclor 1254	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6116206
Aroclor 1260	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6116206
Aroclor 1262	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6116206
Aroclor 1268	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6116206
Total Aroclors	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6116206
Surrogate Recovery (%)								
NONACHLOROBIPHENYL (sur.)	%	111	110	120	130	101		6116206

RDL = Reportable Detection Limit

Maxxam Job #: B274498
Report Date: 2012/08/28

EGE ENGINEERING LTD.
Client Project #: DLCU/LANDFILL MONITORING
Site Location: CAM-1 JENNY LIND ISLAND
Your P.O. #: 2012 KITIKMEOT
Sampler Initials: AP

POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

Maxxam ID		EG5409	EG5410	EG5411	EG5412		EG5413		
Sampling Date		2012/08/15	2012/08/15	2012/08/15	2012/08/15		2012/08/15		
COC Number		324000	324000	324000	324000		324000		
	UNITS	**C112-33B**	**C112-34A**	**C112-34B**	**C112-35A**	**QC Batch**	**C112-35B**	**RDL**	**QC Batch**
Polychlorinated Biphenyls									
Aroclor 1016	mg/kg	<0.010	<0.010	<0.010	<0.010	6116206	<0.010	0.010	6116207
Aroclor 1221	mg/kg	<0.010	<0.010	<0.010	<0.010	6116206	<0.010	0.010	6116207
Aroclor 1232	mg/kg	<0.010	<0.010	<0.010	<0.010	6116206	<0.010	0.010	6116207
Aroclor 1242	mg/kg	<0.010	<0.010	<0.010	<0.010	6116206	<0.010	0.010	6116207
Aroclor 1248	mg/kg	<0.010	<0.010	<0.010	<0.010	6116206	<0.010	0.010	6116207
Aroclor 1254	mg/kg	<0.010	<0.010	<0.010	<0.010	6116206	<0.010	0.010	6116207
Aroclor 1260	mg/kg	<0.010	<0.010	<0.010	<0.010	6116206	<0.010	0.010	6116207
Aroclor 1262	mg/kg	<0.010	<0.010	<0.010	<0.010	6116206	<0.010	0.010	6116207
Aroclor 1268	mg/kg	<0.010	<0.010	<0.010	<0.010	6116206	<0.010	0.010	6116207
Total Aroclors	mg/kg	<0.010	<0.010	<0.010	<0.010	6116206	<0.010	0.010	6116207
Surrogate Recovery (%)									
NONACHLOROBIPHENYL (sur.)	%	116	112	126	127	6116206	123		6116207

RDL = Reportable Detection Limit

Maxxam Job #: B274498
Report Date: 2012/08/28

EGE ENGINEERING LTD.
Client Project #: DLCU/LANDFILL MONITORING
Site Location: CAM-1 JENNY LIND ISLAND
Your P.O. #: 2012 KITIKMEOT
Sampler Initials: AP

POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

Maxxam ID		EG5415	EG5416	EG5417	EG5418	EG5419		
Sampling Date		2012/08/15	2012/08/15	2012/08/16	2012/08/16	2012/08/17		
COC Number		324000	324000	324000	324000	324000		
	UNITS	**C112-BD1**	**C112-BD2**	**C112-BD3**	**C112-BD4**	**C112-BD5**	**RDL**	**QC Batch**
Polychlorinated Biphenyls								
Aroclor 1016	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6116207
Aroclor 1221	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6116207
Aroclor 1232	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6116207
Aroclor 1242	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6116207
Aroclor 1248	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6116207
Aroclor 1254	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6116207
Aroclor 1260	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6116207
Aroclor 1262	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6116207
Aroclor 1268	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6116207
Total Aroclors	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6116207
Surrogate Recovery (%)								
NONACHLOROBIPHENYL (sur.)	%	111	112	119	120	121		6116207

RDL = Reportable Detection Limit

Maxxam Job #: B274498
Report Date: 2012/08/28

EGE ENGINEERING LTD.
Client Project #: DLCU/LANDFILL MONITORING
Site Location: CAM-1 JENNY LIND ISLAND
Your P.O. #: 2012 KITIKMEOT
Sampler Initials: AP

POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

Maxxam ID		EG5420	EG5421	EG5422		
Sampling Date		2012/08/17	2012/08/17	2012/08/17		
COC Number		324000	324000	324000		
	UNITS	**C112-BD6**	**C112-BD7**	**C112-BD8**	**RDL**	**QC Batch**
Polychlorinated Biphenyls						
Aroclor 1016	mg/kg	<0.010	<0.010	<0.010	0.010	6116207
Aroclor 1221	mg/kg	<0.010	<0.010	<0.010	0.010	6116207
Aroclor 1232	mg/kg	<0.010	<0.010	<0.010	0.010	6116207
Aroclor 1242	mg/kg	<0.010	<0.010	<0.010	0.010	6116207
Aroclor 1248	mg/kg	<0.010	<0.010	<0.010	0.010	6116207
Aroclor 1254	mg/kg	<0.010	<0.010	<0.010	0.010	6116207
Aroclor 1260	mg/kg	<0.010	<0.010	<0.010	0.010	6116207
Aroclor 1262	mg/kg	<0.010	<0.010	<0.010	0.010	6116207
Aroclor 1268	mg/kg	<0.010	<0.010	<0.010	0.010	6116207
Total Aroclors	mg/kg	<0.010	<0.010	<0.010	0.010	6116207
Surrogate Recovery (%)						
NONACHLOROBIPHENYL (sur.)	%	116	111	114		6116207

RDL = Reportable Detection Limit

Maxxam Job #: B274498
Report Date: 2012/08/28

EGE ENGINEERING LTD.
Client Project #: DLCU/LANDFILL MONITORING
Site Location: CAM-1 JENNY LIND ISLAND
Your P.O. #: 2012 KITIKMEOT
Sampler Initials: AP

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		EG5287	EG5288	EG5289	EG5290	EG5291	EG5292		
Sampling Date		2012/08/16	2012/08/16	2012/08/16	2012/08/16	2012/08/16	2012/08/16		
COC Number		324000	324000	324000	324000	324000	324000		
	UNITS	**C112-1A**	**C112-1B**	**C112-2A**	**C112-2B**	**C112-3A**	**C112-3B**	**RDL**	**QC Batch**
Elements									
Total Arsenic (As)	mg/kg	2.5	4.6	2.6	3.3	3.5	6.8	1.0	6116386
Total Chromium (Cr)	mg/kg	<1.0	1.7	1.7	4.8	3.8	3.6	1.0	6116386
Total Cobalt (Co)	mg/kg	1.0	1.7	1.0	2.3	2.1	3.1	1.0	6116386
Total Copper (Cu)	mg/kg	7.9	<5.0	<5.0	9.1	<5.0	<5.0	5.0	6116386
Total Lead (Pb)	mg/kg	3.3	8.0	3.0	4.6	4.1	6.2	1.0	6116386
Total Mercury (Hg)	mg/kg	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	6116386
Total Nickel (Ni)	mg/kg	1.7	1.9	1.2	3.8	2.8	3.4	1.0	6116386
Total Zinc (Zn)	mg/kg	<10	<10	<10	<10	<10	<10	10	6116386

RDL = Reportable Detection Limit

Maxxam ID		EG5293	EG5294	EG5296	EG5297	EG5298	EG5302		
Sampling Date		2012/08/16	2012/08/16	2012/08/16	2012/08/16	2012/08/16	2012/08/16		
COC Number		324000	324000	324000	324000	324000	324000		
	UNITS	**C112-4A**	**C112-4B**	**C112-5A**	**C112-5B**	**C112-6A**	**C112-6B**	**RDL**	**QC Batch**
Elements									
Total Arsenic (As)	mg/kg	<1.0	1.8	1.6	<1.0	11	16	1.0	6116386
Total Chromium (Cr)	mg/kg	<1.0	2.7	<1.0	<1.0	2.2	2.7	1.0	6116386
Total Cobalt (Co)	mg/kg	<1.0	1.5	<1.0	<1.0	1.7	2.4	1.0	6116386
Total Copper (Cu)	mg/kg	<5.0	<5.0	<5.0	<5.0	<5.0	5.7	5.0	6116386
Total Lead (Pb)	mg/kg	1.3	4.6	1.8	1.2	15	27	1.0	6116386
Total Mercury (Hg)	mg/kg	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	6116386
Total Nickel (Ni)	mg/kg	<1.0	1.9	<1.0	<1.0	2.5	3.3	1.0	6116386
Total Zinc (Zn)	mg/kg	<10	<10	<10	<10	<10	<10	10	6116386

RDL = Reportable Detection Limit

Maxxam Job #: B274498
Report Date: 2012/08/28

EGE ENGINEERING LTD.
Client Project #: DLCU/LANDFILL MONITORING
Site Location: CAM-1 JENNY LIND ISLAND
Your P.O. #: 2012 KITIKMEOT
Sampler Initials: AP

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		EG5303	EG5304	EG5305	EG5306	EG5346	EG5347		
Sampling Date		2012/08/16	2012/08/16	2012/08/16	2012/08/16	2012/08/16	2012/08/16		
COC Number		324000	324000	324000	324000	324000	324000		
	UNITS	**C112-7A**	**C112-7B**	**C112-8A**	**C112-8B**	**C112-9A**	**C112-9B**	**RDL**	**QC Batch**
Elements									
Total Arsenic (As)	mg/kg	3.6	3.6	1.9	10	2.6	7.8	1.0	6116386
Total Chromium (Cr)	mg/kg	2.3	2.3	1.8	2.7	36	3.0	1.0	6116386
Total Cobalt (Co)	mg/kg	1.1	1.1	<1.0	1.7	<1.0	2.2	1.0	6116386
Total Copper (Cu)	mg/kg	<5.0	<5.0	<5.0	8.0	10	12	5.0	6116386
Total Lead (Pb)	mg/kg	6.4	6.7	2.9	12	110	13	1.0	6116386
Total Mercury (Hg)	mg/kg	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	6116386
Total Nickel (Ni)	mg/kg	1.6	1.6	1.1	2.5	2.7	3.3	1.0	6116386
Total Zinc (Zn)	mg/kg	<10	<10	<10	<10	<10	<10	10	6116386

RDL = Reportable Detection Limit

Maxxam ID		EG5348	EG5349		EG5350	EG5351	EG5352		
Sampling Date		2012/08/16	2012/08/16		2012/08/16	2012/08/16	2012/08/16		
COC Number		324000	324000		324000	324000	324000		
	UNITS	**C112-10A**	**C112-10B**	**QC Batch**	**C112-11A**	**C112-11B**	**C112-12A**	**RDL**	**QC Batch**
Elements									
Total Arsenic (As)	mg/kg	1.8	4.7	6116386	<1.0	<1.0	<1.0	1.0	6116387
Total Chromium (Cr)	mg/kg	1.4	2.3	6116386	1.2	2.8	1.3	1.0	6116387
Total Cobalt (Co)	mg/kg	<1.0	1.0	6116386	<1.0	<1.0	<1.0	1.0	6116387
Total Copper (Cu)	mg/kg	<5.0	<5.0	6116386	<5.0	<5.0	<5.0	5.0	6116387
Total Lead (Pb)	mg/kg	2.6	5.9	6116386	<1.0	1.4	<1.0	1.0	6116387
Total Mercury (Hg)	mg/kg	<0.050	<0.050	6116386	<0.050	<0.050	<0.050	0.050	6116387
Total Nickel (Ni)	mg/kg	1.1	2.0	6116386	1.4	1.9	<1.0	1.0	6116387
Total Zinc (Zn)	mg/kg	<10	<10	6116386	<10	<10	<10	10	6116387

RDL = Reportable Detection Limit

Maxxam Job #: B274498
Report Date: 2012/08/28

EGE ENGINEERING LTD.
Client Project #: DLCU/LANDFILL MONITORING
Site Location: CAM-1 JENNY LIND ISLAND
Your P.O. #: 2012 KITIKMEOT
Sampler Initials: AP

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		EG5353	EG5354	EG5355	EG5356	EG5357	EG5358		
Sampling Date		2012/08/16	2012/08/16	2012/08/16	2012/08/16	2012/08/16	2012/08/16		
COC Number		324000	324000	324000	324000	324000	324000		
	UNITS	**C112-12B**	**C112-13A**	**C112-13B**	**C112-14A**	**C112-14B**	**C112-15A**	**RDL**	**QC Batch**
Elements									
Total Arsenic (As)	mg/kg	<1.0	<1.0	<1.0	3.0	1.6	1.6	1.0	6116387
Total Chromium (Cr)	mg/kg	2.6	2.0	1.6	2.9	2.3	2.2	1.0	6116387
Total Cobalt (Co)	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	6116387
Total Copper (Cu)	mg/kg	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.0	6116387
Total Lead (Pb)	mg/kg	1.1	1.4	1.4	18	2.9	4.5	1.0	6116387
Total Mercury (Hg)	mg/kg	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	6116387
Total Nickel (Ni)	mg/kg	1.7	1.1	<1.0	1.7	3.3	1.3	1.0	6116387
Total Zinc (Zn)	mg/kg	<10	<10	<10	<10	<10	<10	10	6116387

RDL = Reportable Detection Limit

Maxxam ID		EG5359	EG5360	EG5361	EG5362	EG5363	EG5364		
Sampling Date		2012/08/16	2012/08/16	2012/08/16	2012/08/16	2012/08/16	2012/08/16		
COC Number		324000	324000	324000	324000	324000	324000		
	UNITS	**C112-15B**	**C112-16A**	**C112-16B**	**C112-17A**	**C112-17B**	**C112-18A**	**RDL**	**QC Batch**
Elements									
Total Arsenic (As)	mg/kg	1.5	<1.0	1.4	1.0	14	<1.0	1.0	6116387
Total Chromium (Cr)	mg/kg	1.5	1.6	1.3	1.8	1.9	1.6	1.0	6116387
Total Cobalt (Co)	mg/kg	<1.0	<1.0	<1.0	<1.0	1.2	<1.0	1.0	6116387
Total Copper (Cu)	mg/kg	<5.0	<5.0	<5.0	<5.0	5.5	<5.0	5.0	6116387
Total Lead (Pb)	mg/kg	3.3	1.8	4.6	2.2	41	1.4	1.0	6116387
Total Mercury (Hg)	mg/kg	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	6116387
Total Nickel (Ni)	mg/kg	1.1	<1.0	<1.0	1.2	1.9	1.7	1.0	6116387
Total Zinc (Zn)	mg/kg	<10	<10	<10	<10	<10	<10	10	6116387

RDL = Reportable Detection Limit

Maxxam Job #: B274498
Report Date: 2012/08/28

EGE ENGINEERING LTD.
Client Project #: DLCU/LANDFILL MONITORING
Site Location: CAM-1 JENNY LIND ISLAND
Your P.O. #: 2012 KITIKMEOT
Sampler Initials: AP

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		EG5365	EG5366	EG5367	EG5368	EG5369		
Sampling Date		2012/08/16	2012/08/16	2012/08/16	2012/08/16	2012/08/16		
COC Number		324000	324000	324000	324000	324000		
	UNITS	**C112-18B**	**C112-19A**	**C112-19B**	**C112-20A**	**C112-20B**	**RDL**	**QC Batch**
Elements								
Total Arsenic (As)	mg/kg	<1.0	4.4	1.7	7.6	26	1.0	6116387
Total Chromium (Cr)	mg/kg	1.0	3.1	2.8	2.7	2.7	1.0	6116387
Total Cobalt (Co)	mg/kg	<1.0	<1.0	<1.0	<1.0	1.1	1.0	6116387
Total Copper (Cu)	mg/kg	<5.0	<5.0	<5.0	<5.0	<5.0	5.0	6116387
Total Lead (Pb)	mg/kg	<1.0	7.2	4.0	9.9	26	1.0	6116387
Total Mercury (Hg)	mg/kg	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	6116387
Total Nickel (Ni)	mg/kg	<1.0	1.9	1.2	2.0	2.2	1.0	6116387
Total Zinc (Zn)	mg/kg	<10	<10	<10	<10	<10	10	6116387

RDL = Reportable Detection Limit

Maxxam ID		EG5370	EG5371	EG5372	EG5373	EG5374	EG5375		
Sampling Date		2012/08/17	2012/08/17	2012/08/17	2012/08/17	2012/08/17	2012/08/17		
COC Number		324000	324000	324000	324000	324000	324000		
	UNITS	**C112-21A**	**C112-21B**	**C112-22A**	**C112-22B**	**C112-23A**	**C112-23B**	**RDL**	**QC Batch**
Elements									
Total Arsenic (As)	mg/kg	8.4	8.3	5.4	3.7	38	39	1.0	6116337
Total Chromium (Cr)	mg/kg	2.8	3.0	3.5	2.2	1.9	1.6	1.0	6116337
Total Cobalt (Co)	mg/kg	<1.0	<1.0	<1.0	<1.0	1.4	1.2	1.0	6116337
Total Copper (Cu)	mg/kg	<5.0	<5.0	9.0	<5.0	<5.0	<5.0	5.0	6116337
Total Lead (Pb)	mg/kg	11	12	9.2	7.0	42	42	1.0	6116337
Total Mercury (Hg)	mg/kg	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	6116337
Total Nickel (Ni)	mg/kg	1.9	2.0	1.9	1.1	2.6	2.0	1.0	6116337
Total Zinc (Zn)	mg/kg	<10	<10	<10	<10	<10	<10	10	6116337

RDL = Reportable Detection Limit

Maxxam Job #: B274498
Report Date: 2012/08/28

EGE ENGINEERING LTD.
Client Project #: DLCU/LANDFILL MONITORING
Site Location: CAM-1 JENNY LIND ISLAND
Your P.O. #: 2012 KITIKMEOT
Sampler Initials: AP

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		EG5376	EG5381	EG5382	EG5383	EG5384	EG5385		
Sampling Date		2012/08/17	2012/08/17	2012/08/17	2012/08/17	2012/08/17	2012/08/17		
COC Number		324000	324000	324000	324000	324000	324000		
	UNITS	**C112-24A**	**C112-24B**	**C112-25A**	**C112-25B**	**C112-26A**	**C112-26B**	**RDL**	**QC Batch**
Elements									
Total Arsenic (As)	mg/kg	2.9	6.4	1.7	3.0	1.5	2.2	1.0	6116337
Total Chromium (Cr)	mg/kg	2.3	2.7	2.5	3.7	3.4	3.4	1.0	6116337
Total Cobalt (Co)	mg/kg	<1.0	<1.0	3.8	1.0	<1.0	<1.0	1.0	6116337
Total Copper (Cu)	mg/kg	<5.0	<5.0	34	5.3	<5.0	5.8	5.0	6116337
Total Lead (Pb)	mg/kg	5.5	9.5	3.1	4.6	3.9	3.7	1.0	6116337
Total Mercury (Hg)	mg/kg	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	6116337
Total Nickel (Ni)	mg/kg	1.0	1.7	1.8	2.1	1.6	1.9	1.0	6116337
Total Zinc (Zn)	mg/kg	<10	<10	<10	<10	<10	<10	10	6116337

RDL = Reportable Detection Limit

Maxxam ID		EG5386	EG5387	EG5388	EG5389	EG5390	EG5401		
Sampling Date		2012/08/15	2012/08/15	2012/08/15	2012/08/15	2012/08/15	2012/08/15		
COC Number		324000	324000	324000	324000	324000	324000		
	UNITS	**C112-27A**	**C112-27B**	**C112-28A**	**C112-28B**	**C112-29A**	**C112-29B**	**RDL**	**QC Batch**
Elements									
Total Arsenic (As)	mg/kg	1.3	1.6	2.2	2.3	1.4	1.3	1.0	6116337
Total Chromium (Cr)	mg/kg	2.5	3.5	9.1	11	3.2	5.6	1.0	6116337
Total Cobalt (Co)	mg/kg	<1.0	1.2	2.7	2.9	<1.0	1.1	1.0	6116337
Total Copper (Cu)	mg/kg	<5.0	<5.0	6.2	21	<5.0	<5.0	5.0	6116337
Total Lead (Pb)	mg/kg	4.9	2.6	4.7	4.6	2.3	2.6	1.0	6116337
Total Mercury (Hg)	mg/kg	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	6116337
Total Nickel (Ni)	mg/kg	2.0	3.0	6.8	7.9	2.2	3.5	1.0	6116337
Total Zinc (Zn)	mg/kg	<10	<10	<10	13	<10	<10	10	6116337

RDL = Reportable Detection Limit

Maxxam Job #: B274498
Report Date: 2012/08/28

EGE ENGINEERING LTD.
Client Project #: DLCU/LANDFILL MONITORING
Site Location: CAM-1 JENNY LIND ISLAND
Your P.O. #: 2012 KITIKMEOT
Sampler Initials: AP

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		EG5402	EG5403		EG5404	EG5405	EG5406		
Sampling Date		2012/08/15	2012/08/15		2012/08/15	2012/08/15	2012/08/15		
COC Number		324000	324000		324000	324000	324000		
	UNITS	**C112-30A**	**C112-30B**	**QC Batch**	**C112-31A**	**C112-31B**	**C112-32A**	**RDL**	**QC Batch**
Elements									
Total Arsenic (As)	mg/kg	<1.0	<1.0	6116337	<1.0	<1.0	2.0	1.0	6116385
Total Chromium (Cr)	mg/kg	2.8	3.6	6116337	2.7	3.4	9.6	1.0	6116385
Total Cobalt (Co)	mg/kg	<1.0	<1.0	6116337	<1.0	<1.0	2.0	1.0	6116385
Total Copper (Cu)	mg/kg	6.0	<5.0	6116337	<5.0	<5.0	7.3	5.0	6116385
Total Lead (Pb)	mg/kg	1.8	1.6	6116337	1.4	1.5	4.3	1.0	6116385
Total Mercury (Hg)	mg/kg	<0.050	<0.050	6116337	<0.050	<0.050	<0.050	0.050	6116385
Total Nickel (Ni)	mg/kg	2.2	2.0	6116337	1.4	2.1	5.7	1.0	6116385
Total Zinc (Zn)	mg/kg	<10	<10	6116337	<10	<10	<10	10	6116385

RDL = Reportable Detection Limit

Maxxam ID		EG5407	EG5408	EG5409	EG5410	EG5411	EG5412		
Sampling Date		2012/08/15	2012/08/15	2012/08/15	2012/08/15	2012/08/15	2012/08/15		
COC Number		324000	324000	324000	324000	324000	324000		
	UNITS	**C112-32B**	**C112-33A**	**C112-33B**	**C112-34A**	**C112-34B**	**C112-35A**	**RDL**	**QC Batch**
Elements									
Total Arsenic (As)	mg/kg	2.2	6.4	7.0	4.7	4.0	5.4	1.0	6116385
Total Chromium (Cr)	mg/kg	7.2	6.2	8.5	5.9	11	7.9	1.0	6116385
Total Cobalt (Co)	mg/kg	2.2	2.5	3.1	2.1	2.8	2.4	1.0	6116385
Total Copper (Cu)	mg/kg	7.2	<5.0	12	57	19	6.9	5.0	6116385
Total Lead (Pb)	mg/kg	5.1	18	23	22	11	12	1.0	6116385
Total Mercury (Hg)	mg/kg	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	6116385
Total Nickel (Ni)	mg/kg	5.2	5.0	7.1	4.8	7.3	5.6	1.0	6116385
Total Zinc (Zn)	mg/kg	<10	<10	<10	19	<10	<10	10	6116385

RDL = Reportable Detection Limit

Maxxam Job #: B274498
Report Date: 2012/08/28

EGE ENGINEERING LTD.
Client Project #: DLCU/LANDFILL MONITORING
Site Location: CAM-1 JENNY LIND ISLAND
Your P.O. #: 2012 KITIKMEOT
Sampler Initials: AP

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		EG5413	EG5415	EG5416	EG5417	EG5418	EG5419		
Sampling Date		2012/08/15	2012/08/15	2012/08/15	2012/08/16	2012/08/16	2012/08/17		
COC Number		324000	324000	324000	324000	324000	324000		
	UNITS	**C112-35B**	**C112-BD1**	**C112-BD2**	**C112-BD3**	**C112-BD4**	**C112-BD5**	**RDL**	**QC Batch**
Elements									
Total Arsenic (As)	mg/kg	2.3	7.5	1.3	1.5	<1.0	7.9	1.0	6116385
Total Chromium (Cr)	mg/kg	4.0	6.7	3.9	1.3	1.8	2.8	1.0	6116385
Total Cobalt (Co)	mg/kg	1.2	2.8	<1.0	<1.0	<1.0	<1.0	1.0	6116385
Total Copper (Cu)	mg/kg	<5.0	5.2	<5.0	<5.0	<5.0	<5.0	5.0	6116385
Total Lead (Pb)	mg/kg	7.4	24	2.5	2.4	<1.0	11	1.0	6116385
Total Mercury (Hg)	mg/kg	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	6116385
Total Nickel (Ni)	mg/kg	2.5	6.7	2.1	<1.0	1.2	1.8	1.0	6116385
Total Zinc (Zn)	mg/kg	<10	<10	<10	<10	<10	<10	10	6116385

RDL = Reportable Detection Limit

Maxxam ID		EG5420	EG5421	EG5422		
Sampling Date		2012/08/17	2012/08/17	2012/08/17		
COC Number		324000	324000	324000		
	UNITS	**C112-BD6**	**C112-BD7**	**C112-BD8**	**RDL**	**QC Batch**
Elements						
Total Arsenic (As)	mg/kg	1.6	<1.0	4.6	1.0	6116385
Total Chromium (Cr)	mg/kg	2.4	2.5	2.0	1.0	6116385
Total Cobalt (Co)	mg/kg	3.5	<1.0	<1.0	1.0	6116385
Total Copper (Cu)	mg/kg	26	<5.0	<5.0	5.0	6116385
Total Lead (Pb)	mg/kg	3.4	1.4	13	1.0	6116385
Total Mercury (Hg)	mg/kg	<0.050	<0.050	<0.050	0.050	6116385
Total Nickel (Ni)	mg/kg	1.5	1.8	1.1	1.0	6116385
Total Zinc (Zn)	mg/kg	<10	<10	<10	10	6116385

RDL = Reportable Detection Limit

Maxxam Job #: B274498
Report Date: 2012/08/28

EGE ENGINEERING LTD.
Client Project #: DLCU/LANDFILL MONITORING
Site Location: CAM-1 JENNY LIND ISLAND
Your P.O. #: 2012 KITIKMEOT
Sampler Initials: AP

VOLATILE ORGANICS BY GC-MS (SOIL)

Maxxam ID		EG5287	EG5288	EG5289	EG5290	EG5291		
Sampling Date		2012/08/16	2012/08/16	2012/08/16	2012/08/16	2012/08/16		
COC Number		324000	324000	324000	324000	324000		
	UNITS	**C112-1A**	**C112-1B**	**C112-2A**	**C112-2B**	**C112-3A**	**RDL**	**QC Batch**
Volatiles								
F1 (C6-C10) - BTEX	mg/kg	<12	<12	<12	<12	<12	12	6110965
(C6-C10)	mg/kg	<12	<12	<12	<12	<12	12	6110965
Surrogate Recovery (%)								
1,4-Difluorobenzene (sur.)	%	97	101	90	95	118		6110965
4-BROMOFLUOROBENZENE (sur.)	%	93	85	83	65	81		6110965
D10-ETHYLBENZENE (sur.)	%	103	108	104	76	109		6110965
D4-1,2-DICHLOROETHANE (sur.)	%	93	92	88	178 (1)	111		6110965

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

Maxxam ID		EG5292	EG5293	EG5294	EG5296	EG5297		
Sampling Date		2012/08/16	2012/08/16	2012/08/16	2012/08/16	2012/08/16		
COC Number		324000	324000	324000	324000	324000		
	UNITS	**C112-3B**	**C112-4A**	**C112-4B**	**C112-5A**	**C112-5B**	**RDL**	**QC Batch**
Volatiles								
F1 (C6-C10) - BTEX	mg/kg	<12	<12	<12	<12	<12	12	6110965
(C6-C10)	mg/kg	<12	<12	<12	<12	<12	12	6110965
Surrogate Recovery (%)								
1,4-Difluorobenzene (sur.)	%	108	111	110	110	107		6110965
4-BROMOFLUOROBENZENE (sur.)	%	79	77	79	79	80		6110965
D10-ETHYLBENZENE (sur.)	%	98	97	104	103	102		6110965
D4-1,2-DICHLOROETHANE (sur.)	%	110	101	108	111	108		6110965

RDL = Reportable Detection Limit

Maxxam Job #: B274498
Report Date: 2012/08/28

EGE ENGINEERING LTD.
Client Project #: DLCU/LANDFILL MONITORING
Site Location: CAM-1 JENNY LIND ISLAND
Your P.O. #: 2012 KITIKMEOT
Sampler Initials: AP

VOLATILE ORGANICS BY GC-MS (SOIL)

Maxxam ID		EG5298	EG5302	EG5303	EG5304	EG5305		
Sampling Date		2012/08/16	2012/08/16	2012/08/16	2012/08/16	2012/08/16		
COC Number		324000	324000	324000	324000	324000		
	UNITS	**C112-6A**	**C112-6B**	**C112-7A**	**C112-7B**	**C112-8A**	**RDL**	**QC Batch**
Volatiles								
F1 (C6-C10) - BTEX	mg/kg	<12	<12	<12	<12	<12	12	6110965
(C6-C10)	mg/kg	<12	<12	<12	<12	<12	12	6110965
Surrogate Recovery (%)								
1,4-Difluorobenzene (sur.)	%	113	99	115	117	107		6110965
4-BROMOFLUOROBENZENE (sur.)	%	90	93	87	93	77		6110965
D10-ETHYLBENZENE (sur.)	%	102	82	104	106	106		6110965
D4-1,2-DICHLOROETHANE (sur.)	%	112	158 (1)	109	114	99		6110965

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

Maxxam ID		EG5306		EG5346		EG5347	EG5348		
Sampling Date		2012/08/16		2012/08/16		2012/08/16	2012/08/16		
COC Number		324000		324000		324000	324000		
	UNITS	**C112-8B**	**QC Batch**	**C112-9A**	**QC Batch**	**C112-9B**	**C112-10A**	**RDL**	**QC Batch**
Volatiles									
F1 (C6-C10) - BTEX	mg/kg	<12	6110965	<12	6116521	<12	<12	12	6110965
(C6-C10)	mg/kg	<12	6110965	<12	6116521	<12	<12	12	6110965
Surrogate Recovery (%)									
1,4-Difluorobenzene (sur.)	%	111	6110965	102	6116521	116	109		6110965
4-BROMOFLUOROBENZENE (sur.)	%	87	6110965	98	6116521	86	84		6110965
D10-ETHYLBENZENE (sur.)	%	104	6110965	96	6116521	108	102		6110965
D4-1,2-DICHLOROETHANE (sur.)	%	108	6110965	89	6116521	107	107		6110965

RDL = Reportable Detection Limit

Maxxam Job #: B274498
Report Date: 2012/08/28

EGE ENGINEERING LTD.
Client Project #: DLCU/LANDFILL MONITORING
Site Location: CAM-1 JENNY LIND ISLAND
Your P.O. #: 2012 KITIKMEOT
Sampler Initials: AP

VOLATILE ORGANICS BY GC-MS (SOIL)

Maxxam ID		EG5349		EG5350	EG5351	EG5352		
Sampling Date		2012/08/16		2012/08/16	2012/08/16	2012/08/16		
COC Number		324000		324000	324000	324000		
	UNITS	**C112-10B**	**QC Batch**	**C112-11A**	**C112-11B**	**C112-12A**	**RDL**	**QC Batch**
Volatiles								
F1 (C6-C10) - BTEX	mg/kg	<12	6110965	<12	<12	<12	12	6110971
(C6-C10)	mg/kg	<12	6110965	<12	<12	<12	12	6110971
Surrogate Recovery (%)								
1,4-Difluorobenzene (sur.)	%	112	6110965	109	104	106		6110971
4-BROMOFLUOROBENZENE (sur.)	%	83	6110965	99	98	98		6110971
D10-ETHYLBENZENE (sur.)	%	106	6110965	101	105	104		6110971
D4-1,2-DICHLOROETHANE (sur.)	%	106	6110965	92	92	91		6110971

RDL = Reportable Detection Limit

Maxxam ID		EG5353	EG5354	EG5355	EG5356	EG5357		
Sampling Date		2012/08/16	2012/08/16	2012/08/16	2012/08/16	2012/08/16		
COC Number		324000	324000	324000	324000	324000		
	UNITS	**C112-12B**	**C112-13A**	**C112-13B**	**C112-14A**	**C112-14B**	**RDL**	**QC Batch**
Volatiles								
F1 (C6-C10) - BTEX	mg/kg	<12	<12	<12	<12	<12	12	6110971
(C6-C10)	mg/kg	<12	<12	<12	<12	<12	12	6110971
Surrogate Recovery (%)								
1,4-Difluorobenzene (sur.)	%	107	104	107	103	104		6110971
4-BROMOFLUOROBENZENE (sur.)	%	98	98	98	97	98		6110971
D10-ETHYLBENZENE (sur.)	%	104	100	105	98	98		6110971
D4-1,2-DICHLOROETHANE (sur.)	%	91	92	91	92	93		6110971

RDL = Reportable Detection Limit

Maxxam Job #: B274498
Report Date: 2012/08/28

EGE ENGINEERING LTD.
Client Project #: DLCU/LANDFILL MONITORING
Site Location: CAM-1 JENNY LIND ISLAND
Your P.O. #: 2012 KITIKMEOT
Sampler Initials: AP

VOLATILE ORGANICS BY GC-MS (SOIL)

Maxxam ID		EG5358	EG5359	EG5360	EG5361	EG5362		
Sampling Date		2012/08/16	2012/08/16	2012/08/16	2012/08/16	2012/08/16		
COC Number		324000	324000	324000	324000	324000		
	UNITS	**C112-15A**	**C112-15B**	**C112-16A**	**C112-16B**	**C112-17A**	**RDL**	**QC Batch**
Volatiles								
F1 (C6-C10) - BTEX	mg/kg	<12	<12	<12	<12	<12	12	6110971
(C6-C10)	mg/kg	<12	<12	<12	<12	<12	12	6110971
Surrogate Recovery (%)								
1,4-Difluorobenzene (sur.)	%	108	104	106	104	105		6110971
4-BROMOFLUOROBENZENE (sur.)	%	100	99	99	97	99		6110971
D10-ETHYLBENZENE (sur.)	%	105	101	101	102	100		6110971
D4-1,2-DICHLOROETHANE (sur.)	%	95	94	94	92	93		6110971

RDL = Reportable Detection Limit

Maxxam ID		EG5363	EG5364	EG5365	EG5366	EG5367		
Sampling Date		2012/08/16	2012/08/16	2012/08/16	2012/08/16	2012/08/16		
COC Number		324000	324000	324000	324000	324000		
	UNITS	**C112-17B**	**C112-18A**	**C112-18B**	**C112-19A**	**C112-19B**	**RDL**	**QC Batch**
Volatiles								
F1 (C6-C10) - BTEX	mg/kg	<12	<12	<12	<12	<12	12	6110971
(C6-C10)	mg/kg	<12	<12	<12	<12	<12	12	6110971
Surrogate Recovery (%)								
1,4-Difluorobenzene (sur.)	%	106	108	104	108	105		6110971
4-BROMOFLUOROBENZENE (sur.)	%	100	100	99	98	98		6110971
D10-ETHYLBENZENE (sur.)	%	102	100	100	99	102		6110971
D4-1,2-DICHLOROETHANE (sur.)	%	97	96	94	94	93		6110971

RDL = Reportable Detection Limit

Maxxam Job #: B274498
Report Date: 2012/08/28

EGE ENGINEERING LTD.
Client Project #: DLCU/LANDFILL MONITORING
Site Location: CAM-1 JENNY LIND ISLAND
Your P.O. #: 2012 KITIKMEOT
Sampler Initials: AP

VOLATILE ORGANICS BY GC-MS (SOIL)

Maxxam ID		EG5368	EG5369		EG5370	EG5371		
Sampling Date		2012/08/16	2012/08/16		2012/08/17	2012/08/17		
COC Number		324000	324000		324000	324000		
	UNITS	**C112-20A**	**C112-20B**	**QC Batch**	**C112-21A**	**C112-21B**	**RDL**	**QC Batch**
Volatiles								
F1 (C6-C10) - BTEX	mg/kg	<12	<12	6110971	<12	<12	12	6110986
(C6-C10)	mg/kg	<12	<12	6110971	<12	<12	12	6110986
Surrogate Recovery (%)								
1,4-Difluorobenzene (sur.)	%	112	109	6110971	97	107		6110986
4-BROMOFLUOROBENZENE (sur.)	%	98	97	6110971	104	100		6110986
D10-ETHYLBENZENE (sur.)	%	104	103	6110971	84	116		6110986
D4-1,2-DICHLOROETHANE (sur.)	%	94	95	6110971	136	94		6110986

RDL = Reportable Detection Limit

Maxxam ID		EG5372	EG5373	EG5374	EG5375	EG5376		
Sampling Date		2012/08/17	2012/08/17	2012/08/17	2012/08/17	2012/08/17		
COC Number		324000	324000	324000	324000	324000		
	UNITS	**C112-22A**	**C112-22B**	**C112-23A**	**C112-23B**	**C112-24A**	**RDL**	**QC Batch**
Volatiles								
F1 (C6-C10) - BTEX	mg/kg	<12	<12	<12	<12	<12	12	6110986
(C6-C10)	mg/kg	<12	<12	<12	<12	<12	12	6110986
Surrogate Recovery (%)								
1,4-Difluorobenzene (sur.)	%	120	110	110	109	110		6110986
4-BROMOFLUOROBENZENE (sur.)	%	100	101	99	101	100		6110986
D10-ETHYLBENZENE (sur.)	%	119	117	118	117	116		6110986
D4-1,2-DICHLOROETHANE (sur.)	%	95	96	95	96	95		6110986

RDL = Reportable Detection Limit

Maxxam Job #: B274498
Report Date: 2012/08/28

EGE ENGINEERING LTD.
Client Project #: DLCU/LANDFILL MONITORING
Site Location: CAM-1 JENNY LIND ISLAND
Your P.O. #: 2012 KITIKMEOT
Sampler Initials: AP

VOLATILE ORGANICS BY GC-MS (SOIL)

Maxxam ID		EG5381	EG5382	EG5383	EG5384	EG5385		
Sampling Date		2012/08/17	2012/08/17	2012/08/17	2012/08/17	2012/08/17		
COC Number		324000	324000	324000	324000	324000		
	UNITS	**C112-24B**	**C112-25A**	**C112-25B**	**C112-26A**	**C112-26B**	**RDL**	**QC Batch**
Volatiles								
F1 (C6-C10) - BTEX	mg/kg	<12	<12	<12	<12	<12	12	6110986
(C6-C10)	mg/kg	<12	<12	<12	<12	<12	12	6110986
Surrogate Recovery (%)								
1,4-Difluorobenzene (sur.)	%	108	108	108	111	110		6110986
4-BROMOFLUOROBENZENE (sur.)	%	99	100	101	99	99		6110986
D10-ETHYLBENZENE (sur.)	%	115	116	116	118	121		6110986
D4-1,2-DICHLOROETHANE (sur.)	%	97	100	97	95	94		6110986

RDL = Reportable Detection Limit

Maxxam ID		EG5386	EG5387	EG5388	EG5389	EG5390		
Sampling Date		2012/08/15	2012/08/15	2012/08/15	2012/08/15	2012/08/15		
COC Number		324000	324000	324000	324000	324000		
	UNITS	**C112-27A**	**C112-27B**	**C112-28A**	**C112-28B**	**C112-29A**	**RDL**	**QC Batch**
Volatiles								
F1 (C6-C10) - BTEX	mg/kg	<12	<12	<12	<12	<12	12	6110986
(C6-C10)	mg/kg	<12	<12	<12	<12	<12	12	6110986
Surrogate Recovery (%)								
1,4-Difluorobenzene (sur.)	%	112	103	105	108	95		6110986
4-BROMOFLUOROBENZENE (sur.)	%	100	101	100	99	104		6110986
D10-ETHYLBENZENE (sur.)	%	111	110	109	112	81		6110986
D4-1,2-DICHLOROETHANE (sur.)	%	98	100	98	97	123		6110986

RDL = Reportable Detection Limit

Maxxam Job #: B274498
Report Date: 2012/08/28

EGE ENGINEERING LTD.
Client Project #: DLCU/LANDFILL MONITORING
Site Location: CAM-1 JENNY LIND ISLAND
Your P.O. #: 2012 KITIKMEOT
Sampler Initials: AP

VOLATILE ORGANICS BY GC-MS (SOIL)

Maxxam ID		EG5401	EG5402	EG5403		EG5404		
Sampling Date		2012/08/15	2012/08/15	2012/08/15		2012/08/15		
COC Number		324000	324000	324000		324000		
	UNITS	**C112-29B**	**C112-30A**	**C112-30B**	**QC Batch**	**C112-31A**	**RDL**	**QC Batch**
Volatiles								
F1 (C6-C10) - BTEX	mg/kg	<12	<12	<12	6110986	<12	12	6110993
(C6-C10)	mg/kg	<12	<12	<12	6110986	<12	12	6110993
Surrogate Recovery (%)								
1,4-Difluorobenzene (sur.)	%	108	111	107	6110986	105		6110993
4-BROMOFLUOROBENZENE (sur.)	%	100	100	101	6110986	99		6110993
D10-ETHYLBENZENE (sur.)	%	110	111	113	6110986	104		6110993
D4-1,2-DICHLOROETHANE (sur.)	%	96	98	98	6110986	97		6110993

RDL = Reportable Detection Limit

Maxxam ID		EG5405	EG5406	EG5407	EG5408	EG5409		
Sampling Date		2012/08/15	2012/08/15	2012/08/15	2012/08/15	2012/08/15		
COC Number		324000	324000	324000	324000	324000		
	UNITS	**C112-31B**	**C112-32A**	**C112-32B**	**C112-33A**	**C112-33B**	**RDL**	**QC Batch**
Volatiles								
F1 (C6-C10) - BTEX	mg/kg	<12	<12	<12	<12	<12	12	6110993
(C6-C10)	mg/kg	<12	<12	<12	<12	<12	12	6110993
Surrogate Recovery (%)								
1,4-Difluorobenzene (sur.)	%	107	112	110	107	106		6110993
4-BROMOFLUOROBENZENE (sur.)	%	102	100	100	101	99		6110993
D10-ETHYLBENZENE (sur.)	%	113	111	113	109	107		6110993
D4-1,2-DICHLOROETHANE (sur.)	%	96	96	96	95	99		6110993

RDL = Reportable Detection Limit

Maxxam Job #: B274498
Report Date: 2012/08/28

EGE ENGINEERING LTD.
Client Project #: DLCU/LANDFILL MONITORING
Site Location: CAM-1 JENNY LIND ISLAND
Your P.O. #: 2012 KITIKMEOT
Sampler Initials: AP

VOLATILE ORGANICS BY GC-MS (SOIL)

Maxxam ID		EG5410	EG5411	EG5412	EG5413	EG5415		
Sampling Date		2012/08/15	2012/08/15	2012/08/15	2012/08/15	2012/08/15		
COC Number		324000	324000	324000	324000	324000		
	UNITS	**C112-34A**	**C112-34B**	**C112-35A**	**C112-35B**	**C112-BD1**	**RDL**	**QC Batch**
Volatiles								
F1 (C6-C10) - BTEX	mg/kg	<12	<12	<12	<12	<12	12	6110993
(C6-C10)	mg/kg	<12	<12	<12	<12	<12	12	6110993
Surrogate Recovery (%)								
1,4-Difluorobenzene (sur.)	%	107	110	110	107	108		6110993
4-BROMOFLUOROBENZENE (sur.)	%	99	100	99	100	99		6110993
D10-ETHYLBENZENE (sur.)	%	108	111	108	107	112		6110993
D4-1,2-DICHLOROETHANE (sur.)	%	98	97	95	97	96		6110993

RDL = Reportable Detection Limit

Maxxam ID		EG5416	EG5417	EG5418	EG5419	EG5420		
Sampling Date		2012/08/15	2012/08/16	2012/08/16	2012/08/17	2012/08/17		
COC Number		324000	324000	324000	324000	324000		
	UNITS	**C112-BD2**	**C112-BD3**	**C112-BD4**	**C112-BD5**	**C112-BD6**	**RDL**	**QC Batch**
Volatiles								
F1 (C6-C10) - BTEX	mg/kg	<12	<12	<12	<12	<12	12	6110993
(C6-C10)	mg/kg	<12	<12	<12	<12	<12	12	6110993
Surrogate Recovery (%)								
1,4-Difluorobenzene (sur.)	%	112	108	98	109	109		6110993
4-BROMOFLUOROBENZENE (sur.)	%	99	99	104	99	100		6110993
D10-ETHYLBENZENE (sur.)	%	112	113	86	118	112		6110993
D4-1,2-DICHLOROETHANE (sur.)	%	97	98	139	98	101		6110993

RDL = Reportable Detection Limit

Maxxam Job #: B274498
Report Date: 2012/08/28

EGE ENGINEERING LTD.
Client Project #: DLCU/LANDFILL MONITORING
Site Location: CAM-1 JENNY LIND ISLAND
Your P.O. #: 2012 KITIKMEOT
Sampler Initials: AP

VOLATILE ORGANICS BY GC-MS (SOIL)

Maxxam ID		EG5421	EG5422		
Sampling Date		2012/08/17	2012/08/17		
COC Number		324000	324000		
	UNITS	**C112-BD7**	**C112-BD8**	**RDL**	**QC Batch**
Volatiles					
F1 (C6-C10) - BTEX	mg/kg	<12	<12	12	6110993
(C6-C10)	mg/kg	<12	<12	12	6110993
Surrogate Recovery (%)					
1,4-Difluorobenzene (sur.)	%	109	105		6110993
4-BROMOFLUOROBENZENE (sur.)	%	100	100		6110993
D10-ETHYLBENZENE (sur.)	%	115	108		6110993
D4-1,2-DICHLOROETHANE (sur.)	%	98	109		6110993

RDL = Reportable Detection Limit

Maxxam Job #: B274498
Report Date: 2012/08/28

EGE ENGINEERING LTD.
Client Project #: DLCU/LANDFILL MONITORING
Site Location: CAM-1 JENNY LIND ISLAND
Your P.O. #: 2012 KITIKMEOT
Sampler Initials: AP

General Comments

Sample EG5386-01: Sample extracted from a jar with headspace for BTEX/F1.

Sample EG5406-01: Sample extracted from jar with headspace for BTEX/F1.

Sample EG5412-01: Sample extracted from jar with headspace for BTEX/F1.

Sample EG5416-01: Sample extracted from jar with headspace for BTEX/F1.

Results relate only to the items tested.

EGE ENGINEERING LTD.
Attention: ANDREW PASSALIS
Client Project #: DLCU/LANDFILL MONITORING
P.O. #: 2012 KITIKMEOT
Site Location: CAM-1 JENNY LIND ISLAND

Quality Assurance Report

Maxxam Job Number: CB274498

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
6108759	AN0	Method Blank	Moisture	2012/08/23	<0.30		%	
		RPD	Moisture	2012/08/23	0.5		%	20
6108865	AN0	Method Blank	Moisture	2012/08/23	<0.30		%	
		RPD [EG5365-01]	Moisture	2012/08/23	3.3		%	20
6108910	AN0	Method Blank	Moisture	2012/08/23	<0.30		%	
		RPD	Moisture	2012/08/23	2.7		%	20
6109110	AN0	Method Blank	Moisture	2012/08/23	<0.30		%	
		RPD	Moisture	2012/08/23	6.4		%	20
6109356	AN0	Method Blank	Moisture	2012/08/23	<0.30		%	
		RPD	Moisture	2012/08/23	10.5		%	20
6109529	AN0	Method Blank	Moisture	2012/08/23	<0.30		%	
		RPD [EG5346-01]	Moisture	2012/08/23	2.2		%	20
6110965	PS7	Matrix Spike						
		[EG5293-01]	1,4-Difluorobenzene (sur.)	2012/08/25		90	%	60 - 140
			4-BROMOFLUOROBENZENE (sur.)	2012/08/25		90	%	60 - 140
			D10-ETHYLBENZENE (sur.)	2012/08/25		81	%	60 - 130
			D4-1,2-DICHLOROETHANE (sur.)	2012/08/25		146 (1)	%	60 - 140
			(C6-C10)	2012/08/25		109	%	60 - 140
		Spiked Blank	1,4-Difluorobenzene (sur.)	2012/08/25		106	%	60 - 140
			4-BROMOFLUOROBENZENE (sur.)	2012/08/25		91	%	60 - 140
			D10-ETHYLBENZENE (sur.)	2012/08/25		99	%	60 - 130
			D4-1,2-DICHLOROETHANE (sur.)	2012/08/25		116	%	60 - 140
			(C6-C10)	2012/08/25		114	%	60 - 140
		Method Blank	1,4-Difluorobenzene (sur.)	2012/08/25		107	%	60 - 140
			4-BROMOFLUOROBENZENE (sur.)	2012/08/25		88	%	60 - 140
			D10-ETHYLBENZENE (sur.)	2012/08/25		102	%	60 - 130
			D4-1,2-DICHLOROETHANE (sur.)	2012/08/25		108	%	60 - 140
			F1 (C6-C10) - BTEX	2012/08/25	<12		mg/kg	
			(C6-C10)	2012/08/25	<12		mg/kg	
		RPD [EG5293-01]	F1 (C6-C10) - BTEX	2012/08/25	NC		%	50
			(C6-C10)	2012/08/25	NC		%	50
6110971	KE4	Matrix Spike						
		[EG5363-01]	1,4-Difluorobenzene (sur.)	2012/08/24		101	%	60 - 140
			4-BROMOFLUOROBENZENE (sur.)	2012/08/24		101	%	60 - 140
			D10-ETHYLBENZENE (sur.)	2012/08/24		103	%	60 - 130
			D4-1,2-DICHLOROETHANE (sur.)	2012/08/24		90	%	60 - 140
			(C6-C10)	2012/08/24		137	%	60 - 140
		Spiked Blank	1,4-Difluorobenzene (sur.)	2012/08/24		102	%	60 - 140
			4-BROMOFLUOROBENZENE (sur.)	2012/08/24		101	%	60 - 140
			D10-ETHYLBENZENE (sur.)	2012/08/24		104	%	60 - 130
			D4-1,2-DICHLOROETHANE (sur.)	2012/08/24		92	%	60 - 140
			(C6-C10)	2012/08/24		121	%	60 - 140
		Method Blank	1,4-Difluorobenzene (sur.)	2012/08/24		102	%	60 - 140
			4-BROMOFLUOROBENZENE (sur.)	2012/08/24		99	%	60 - 140
			D10-ETHYLBENZENE (sur.)	2012/08/24		103	%	60 - 130
			D4-1,2-DICHLOROETHANE (sur.)	2012/08/24		91	%	60 - 140
			F1 (C6-C10) - BTEX	2012/08/24	<12		mg/kg	
			(C6-C10)	2012/08/24	<12		mg/kg	
		RPD [EG5363-01]	F1 (C6-C10) - BTEX	2012/08/24	NC		%	50
			(C6-C10)	2012/08/24	NC		%	50
6110986	KE4	Matrix Spike						
		[EG5370-01]	1,4-Difluorobenzene (sur.)	2012/08/25		107	%	60 - 140
			4-BROMOFLUOROBENZENE (sur.)	2012/08/25		102	%	60 - 140
			D10-ETHYLBENZENE (sur.)	2012/08/25		114	%	60 - 130
			D4-1,2-DICHLOROETHANE (sur.)	2012/08/25		98	%	60 - 140

EGE ENGINEERING LTD.
Attention: ANDREW PASSALIS
Client Project #: DLCU/LANDFILL MONITORING
P.O. #: 2012 KITIKMEOT
Site Location: CAM-1 JENNY LIND ISLAND

Quality Assurance Report (Continued)

Maxxam Job Number: CB274498

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
6110986	KE4	Matrix Spike						
		[EG5370-01]	(C6-C10)	2012/08/25		105	%	60 - 140
		Spiked Blank	1,4-Difluorobenzene (sur.)	2012/08/25		104	%	60 - 140
			4-BROMOFLUOROBENZENE (sur.)	2012/08/25		98	%	60 - 140
			D10-ETHYLBENZENE (sur.)	2012/08/25		116	%	60 - 130
			D4-1,2-DICHLOROETHANE (sur.)	2012/08/25		96	%	60 - 140
			(C6-C10)	2012/08/25		97	%	60 - 140
		Method Blank	1,4-Difluorobenzene (sur.)	2012/08/25		104	%	60 - 140
			4-BROMOFLUOROBENZENE (sur.)	2012/08/25		98	%	60 - 140
			D10-ETHYLBENZENE (sur.)	2012/08/25		115	%	60 - 130
			D4-1,2-DICHLOROETHANE (sur.)	2012/08/25		102	%	60 - 140
			F1 (C6-C10) - BTEX	2012/08/25	<12		mg/kg	
			(C6-C10)	2012/08/25	<12		mg/kg	
		RPD [EG5370-01]	F1 (C6-C10) - BTEX	2012/08/25	NC		%	50
			(C6-C10)	2012/08/25	NC		%	50
6110993	RPA	Matrix Spike						
		[EG5413-01]	1,4-Difluorobenzene (sur.)	2012/08/26		95	%	60 - 140
			4-BROMOFLUOROBENZENE (sur.)	2012/08/26		94	%	60 - 140
			D10-ETHYLBENZENE (sur.)	2012/08/26		103	%	60 - 130
			D4-1,2-DICHLOROETHANE (sur.)	2012/08/26		94	%	60 - 140
			(C6-C10)	2012/08/26		88	%	60 - 140
		Spiked Blank	1,4-Difluorobenzene (sur.)	2012/08/25		104	%	60 - 140
			4-BROMOFLUOROBENZENE (sur.)	2012/08/25		101	%	60 - 140
			D10-ETHYLBENZENE (sur.)	2012/08/25		118	%	60 - 130
			D4-1,2-DICHLOROETHANE (sur.)	2012/08/25		98	%	60 - 140
			(C6-C10)	2012/08/25		91	%	60 - 140
		Method Blank	1,4-Difluorobenzene (sur.)	2012/08/25		104	%	60 - 140
			4-BROMOFLUOROBENZENE (sur.)	2012/08/25		101	%	60 - 140
			D10-ETHYLBENZENE (sur.)	2012/08/25		123	%	60 - 130
			D4-1,2-DICHLOROETHANE (sur.)	2012/08/25		103	%	60 - 140
			F1 (C6-C10) - BTEX	2012/08/25	<12		mg/kg	
			(C6-C10)	2012/08/25	<12		mg/kg	
		RPD [EG5413-01]	F1 (C6-C10) - BTEX	2012/08/25	NC		%	50
			(C6-C10)	2012/08/25	NC		%	50
6111702	JA7	Method Blank	Moisture	2012/08/23	<0.30		%	
		RPD [EG5376-01]	Moisture	2012/08/23	18.9		%	20
6111716	JA7	Method Blank	Moisture	2012/08/23	<0.30		%	
		RPD [EG5404-01]	Moisture	2012/08/23	0		%	20
6113541	DO1	Matrix Spike						
		[EG5293-01]	O-TERPHENYL (sur.)	2012/08/24		89	%	50 - 130
			F2 (C10-C16 Hydrocarbons)	2012/08/24		85	%	50 - 130
			F3 (C16-C34 Hydrocarbons)	2012/08/24		89	%	50 - 130
		Spiked Blank	O-TERPHENYL (sur.)	2012/08/24		90	%	50 - 130
			F2 (C10-C16 Hydrocarbons)	2012/08/24		86	%	70 - 130
			F3 (C16-C34 Hydrocarbons)	2012/08/24		89	%	70 - 130
		Method Blank	O-TERPHENYL (sur.)	2012/08/24		96	%	50 - 130
			F2 (C10-C16 Hydrocarbons)	2012/08/24	<10		mg/kg	
			F3 (C16-C34 Hydrocarbons)	2012/08/24	<10		mg/kg	
		RPD [EG5293-01]	F2 (C10-C16 Hydrocarbons)	2012/08/24	NC		%	50
			F3 (C16-C34 Hydrocarbons)	2012/08/24	NC		%	50
6113620	DO1	Matrix Spike						
		[EG5352-01]	O-TERPHENYL (sur.)	2012/08/24		88	%	50 - 130
			F2 (C10-C16 Hydrocarbons)	2012/08/24		88	%	50 - 130
			F3 (C16-C34 Hydrocarbons)	2012/08/24		93	%	50 - 130
		Spiked Blank	O-TERPHENYL (sur.)	2012/08/24		88	%	50 - 130

EGE ENGINEERING LTD.
Attention: ANDREW PASSALIS
Client Project #: DLCU/LANDFILL MONITORING
P.O. #: 2012 KITIKMEOT
Site Location: CAM-1 JENNY LIND ISLAND

Quality Assurance Report (Continued)

Maxxam Job Number: CB274498

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
6113620	DO1	Spiked Blank	F2 (C10-C16 Hydrocarbons)	2012/08/24		83	%	70 - 130
			F3 (C16-C34 Hydrocarbons)	2012/08/24		89	%	70 - 130
		Method Blank	O-TERPHENYL (sur.)	2012/08/24		96	%	50 - 130
			F2 (C10-C16 Hydrocarbons)	2012/08/24	<10		mg/kg	
			F3 (C16-C34 Hydrocarbons)	2012/08/24	<10		mg/kg	
		RPD [EG5352-01]	F2 (C10-C16 Hydrocarbons)	2012/08/24	NC		%	50
			F3 (C16-C34 Hydrocarbons)	2012/08/24	NC		%	50
6114283	LQ	Matrix Spike						
		[EG5371-01]	O-TERPHENYL (sur.)	2012/08/26		92	%	50 - 130
			F2 (C10-C16 Hydrocarbons)	2012/08/26		92	%	50 - 130
			F3 (C16-C34 Hydrocarbons)	2012/08/26		95	%	50 - 130
		Spiked Blank	O-TERPHENYL (sur.)	2012/08/26		91	%	50 - 130
			F2 (C10-C16 Hydrocarbons)	2012/08/26		87	%	70 - 130
			F3 (C16-C34 Hydrocarbons)	2012/08/26		95	%	70 - 130
		Method Blank	O-TERPHENYL (sur.)	2012/08/26		102	%	50 - 130
			F2 (C10-C16 Hydrocarbons)	2012/08/26	<10		mg/kg	
			F3 (C16-C34 Hydrocarbons)	2012/08/26	<10		mg/kg	
		RPD [EG5371-01]	F2 (C10-C16 Hydrocarbons)	2012/08/26	NC		%	50
			F3 (C16-C34 Hydrocarbons)	2012/08/26	NC		%	50
6115504	DO1	Matrix Spike						
		[EG5405-01]	O-TERPHENYL (sur.)	2012/08/27		93	%	50 - 130
			F2 (C10-C16 Hydrocarbons)	2012/08/27		92	%	50 - 130
			F3 (C16-C34 Hydrocarbons)	2012/08/27		98	%	50 - 130
		Spiked Blank	O-TERPHENYL (sur.)	2012/08/27		85	%	50 - 130
			F2 (C10-C16 Hydrocarbons)	2012/08/27		86	%	70 - 130
			F3 (C16-C34 Hydrocarbons)	2012/08/27		91	%	70 - 130
		Method Blank	O-TERPHENYL (sur.)	2012/08/26		97	%	50 - 130
			F2 (C10-C16 Hydrocarbons)	2012/08/26	<10		mg/kg	
			F3 (C16-C34 Hydrocarbons)	2012/08/26	<10		mg/kg	
		RPD [EG5405-01]	F2 (C10-C16 Hydrocarbons)	2012/08/27	NC		%	50
			F3 (C16-C34 Hydrocarbons)	2012/08/27	NC		%	50
6115753	JC7	Matrix Spike						
		[EG5293-01]	NONACHLOROBIPHENYL (sur.)	2012/08/25		95	%	30 - 130
			Aroclor 1260	2012/08/25		65	%	30 - 130
		Spiked Blank	NONACHLOROBIPHENYL (sur.)	2012/08/25		113	%	30 - 130
			Aroclor 1260	2012/08/25		92	%	30 - 130
		Method Blank	NONACHLOROBIPHENYL (sur.)	2012/08/25		105	%	30 - 130
			Aroclor 1016	2012/08/25	<0.010		mg/kg	
			Aroclor 1221	2012/08/25	<0.010		mg/kg	
			Aroclor 1232	2012/08/25	<0.010		mg/kg	
			Aroclor 1242	2012/08/25	<0.010		mg/kg	
			Aroclor 1248	2012/08/25	<0.010		mg/kg	
			Aroclor 1254	2012/08/25	<0.010		mg/kg	
			Aroclor 1260	2012/08/25	<0.010		mg/kg	
			Aroclor 1262	2012/08/25	<0.010		mg/kg	
			Aroclor 1268	2012/08/25	<0.010		mg/kg	
			Total Aroclors	2012/08/25	<0.010		mg/kg	
		RPD [EG5293-01]	Aroclor 1016	2012/08/25	NC		%	50
			Aroclor 1221	2012/08/25	NC		%	50
			Aroclor 1232	2012/08/25	NC		%	50
			Aroclor 1242	2012/08/25	NC		%	50
			Aroclor 1248	2012/08/25	NC		%	50
			Aroclor 1254	2012/08/25	NC		%	50
			Aroclor 1260	2012/08/25	NC		%	50
			Aroclor 1262	2012/08/25	NC		%	50

EGE ENGINEERING LTD.
Attention: ANDREW PASSALIS
Client Project #: DLCU/LANDFILL MONITORING
P.O. #: 2012 KITIKMEOT
Site Location: CAM-1 JENNY LIND ISLAND

Quality Assurance Report (Continued)

Maxxam Job Number: CB274498

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
6115753	JC7	RPD [EG5293-01]	Aroclor 1268	2012/08/25	NC		%	50
			Total Aroclors	2012/08/25	NC		%	50
6115793	DO1	Matrix Spike	O-TERPHENYL (sur.)	2012/08/25		81	%	50 - 130
			F2 (C10-C16 Hydrocarbons)	2012/08/25		88	%	50 - 130
			F3 (C16-C34 Hydrocarbons)	2012/08/25		88	%	50 - 130
		Spiked Blank	O-TERPHENYL (sur.)	2012/08/25		87	%	50 - 130
			F2 (C10-C16 Hydrocarbons)	2012/08/25		87	%	70 - 130
			F3 (C16-C34 Hydrocarbons)	2012/08/25		90	%	70 - 130
		Method Blank	O-TERPHENYL (sur.)	2012/08/25		97	%	50 - 130
			F2 (C10-C16 Hydrocarbons)	2012/08/25	<10		mg/kg	
			F3 (C16-C34 Hydrocarbons)	2012/08/25	<10		mg/kg	
		RPD	F2 (C10-C16 Hydrocarbons)	2012/08/25	NC		%	50
			F3 (C16-C34 Hydrocarbons)	2012/08/25	NC		%	50
6115816	JC7	Matrix Spike						
		[EG5352-01]	NONACHLOROBIPHENYL (sur.)	2012/08/28		107	%	30 - 130
			Aroclor 1260	2012/08/28		68	%	30 - 130
		Spiked Blank	NONACHLOROBIPHENYL (sur.)	2012/08/28		114	%	30 - 130
			Aroclor 1260	2012/08/28		77	%	30 - 130
		Method Blank	NONACHLOROBIPHENYL (sur.)	2012/08/28		116	%	30 - 130
			Aroclor 1016	2012/08/28	<0.010		mg/kg	
			Aroclor 1221	2012/08/28	<0.010		mg/kg	
			Aroclor 1232	2012/08/28	<0.010		mg/kg	
			Aroclor 1242	2012/08/28	<0.010		mg/kg	
			Aroclor 1248	2012/08/28	<0.010		mg/kg	
			Aroclor 1254	2012/08/28	<0.010		mg/kg	
			Aroclor 1260	2012/08/28	<0.010		mg/kg	
			Aroclor 1262	2012/08/28	<0.010		mg/kg	
			Aroclor 1268	2012/08/28	<0.010		mg/kg	
			Total Aroclors	2012/08/28	<0.010		mg/kg	
		RPD [EG5352-01]	Aroclor 1016	2012/08/28	NC		%	50
			Aroclor 1221	2012/08/28	NC		%	50
			Aroclor 1232	2012/08/28	NC		%	50
			Aroclor 1242	2012/08/28	NC		%	50
			Aroclor 1248	2012/08/28	NC		%	50
			Aroclor 1254	2012/08/28	NC		%	50
			Aroclor 1260	2012/08/28	NC		%	50
			Aroclor 1262	2012/08/28	NC		%	50
			Aroclor 1268	2012/08/28	NC		%	50
			Total Aroclors	2012/08/28	NC		%	50
6116118	JC7	Matrix Spike						
		[EG5375-01]	NONACHLOROBIPHENYL (sur.)	2012/08/28		107	%	30 - 130
			Aroclor 1260	2012/08/28		99	%	30 - 130
		Spiked Blank	NONACHLOROBIPHENYL (sur.)	2012/08/27		107	%	30 - 130
			Aroclor 1260	2012/08/27		86	%	30 - 130
		Method Blank	NONACHLOROBIPHENYL (sur.)	2012/08/27		103	%	30 - 130
			Aroclor 1016	2012/08/27	<0.010		mg/kg	
			Aroclor 1221	2012/08/27	<0.010		mg/kg	
			Aroclor 1232	2012/08/27	<0.010		mg/kg	
			Aroclor 1242	2012/08/27	<0.010		mg/kg	
			Aroclor 1248	2012/08/27	<0.010		mg/kg	
			Aroclor 1254	2012/08/27	<0.010		mg/kg	
			Aroclor 1260	2012/08/27	<0.010		mg/kg	
			Aroclor 1262	2012/08/27	<0.010		mg/kg	
			Aroclor 1268	2012/08/27	<0.010		mg/kg	
			Total Aroclors	2012/08/27	<0.010		mg/kg	

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Attention: ANDREW PASSALIS
Client Project #: DLCU/LANDFILL MONITORING
P.O. #: 2012 KITIKMEOT
Site Location: CAM-1 JENNY LIND ISLAND

Quality Assurance Report (Continued)

Maxxam Job Number: CB274498

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
6116118 JC7	RPD [EG5375-01]	Aroclor 1016	2012/08/28	NC		%	50
		Aroclor 1221	2012/08/28	NC		%	50
		Aroclor 1232	2012/08/28	NC		%	50
		Aroclor 1242	2012/08/28	NC		%	50
		Aroclor 1248	2012/08/28	NC		%	50
		Aroclor 1254	2012/08/28	NC		%	50
		Aroclor 1260	2012/08/28	NC		%	50
		Aroclor 1262	2012/08/28	NC		%	50
		Aroclor 1268	2012/08/28	NC		%	50
		Total Aroclors	2012/08/28	NC		%	50
6116206 JC7	Matrix Spike						
	[EG5405-01]	NONACHLOROBIPHENYL (sur.)	2012/08/27		115	%	30 - 130
		Aroclor 1260	2012/08/27		82	%	30 - 130
	Spiked Blank	NONACHLOROBIPHENYL (sur.)	2012/08/27		109	%	30 - 130
		Aroclor 1260	2012/08/27		82	%	30 - 130
	Method Blank	NONACHLOROBIPHENYL (sur.)	2012/08/27		105	%	30 - 130
		Aroclor 1016	2012/08/27	<0.010		mg/kg	
		Aroclor 1221	2012/08/27	<0.010		mg/kg	
		Aroclor 1232	2012/08/27	<0.010		mg/kg	
		Aroclor 1242	2012/08/27	<0.010		mg/kg	
		Aroclor 1248	2012/08/27	<0.010		mg/kg	
		Aroclor 1254	2012/08/27	<0.010		mg/kg	
		Aroclor 1260	2012/08/27	<0.010		mg/kg	
		Aroclor 1262	2012/08/27	<0.010		mg/kg	
		Aroclor 1268	2012/08/27	<0.010		mg/kg	
		Total Aroclors	2012/08/27	<0.010		mg/kg	
	RPD [EG5405-01]	Aroclor 1016	2012/08/27	NC		%	50
		Aroclor 1221	2012/08/27	NC		%	50
		Aroclor 1232	2012/08/27	NC		%	50
		Aroclor 1242	2012/08/27	NC		%	50
		Aroclor 1248	2012/08/27	NC		%	50
		Aroclor 1254	2012/08/27	NC		%	50
		Aroclor 1260	2012/08/27	NC		%	50
		Aroclor 1262	2012/08/27	NC		%	50
		Aroclor 1268	2012/08/27	NC		%	50
		Total Aroclors	2012/08/27	NC		%	50
6116207 JC7	Matrix Spike	NONACHLOROBIPHENYL (sur.)	2012/08/28		124	%	30 - 130
		Aroclor 1260	2012/08/28		93	%	30 - 130
	Spiked Blank	NONACHLOROBIPHENYL (sur.)	2012/08/28		118	%	30 - 130
		Aroclor 1260	2012/08/28		95	%	30 - 130
	Method Blank	NONACHLOROBIPHENYL (sur.)	2012/08/28		110	%	30 - 130
		Aroclor 1016	2012/08/28	<0.010		mg/kg	
		Aroclor 1221	2012/08/28	<0.010		mg/kg	
		Aroclor 1232	2012/08/28	<0.010		mg/kg	
		Aroclor 1242	2012/08/28	<0.010		mg/kg	
		Aroclor 1248	2012/08/28	<0.010		mg/kg	
		Aroclor 1254	2012/08/28	<0.010		mg/kg	
		Aroclor 1260	2012/08/28	<0.010		mg/kg	
		Aroclor 1262	2012/08/28	<0.010		mg/kg	
		Aroclor 1268	2012/08/28	<0.010		mg/kg	
		Total Aroclors	2012/08/28	<0.010		mg/kg	
	RPD	Aroclor 1016	2012/08/28	NC		%	50
		Aroclor 1221	2012/08/28	NC		%	50
		Aroclor 1232	2012/08/28	NC		%	50
		Aroclor 1242	2012/08/28	NC		%	50

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Attention: ANDREW PASSALIS
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Quality Assurance Report (Continued)

Maxxam Job Number: CB274498

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
6116207	JC7	RPD	Aroclor 1248	2012/08/28	NC		%	50
			Aroclor 1254	2012/08/28	NC		%	50
			Aroclor 1260	2012/08/28	NC		%	50
			Aroclor 1262	2012/08/28	NC		%	50
			Aroclor 1268	2012/08/28	NC		%	50
			Total Aroclors	2012/08/28	NC		%	50
6116337	PW3	Matrix Spike						
		[EG5370-01]	Total Arsenic (As)	2012/08/26		93	%	75 - 125
			Total Chromium (Cr)	2012/08/26		96	%	75 - 125
			Total Cobalt (Co)	2012/08/26		91	%	75 - 125
			Total Copper (Cu)	2012/08/26		91	%	75 - 125
			Total Lead (Pb)	2012/08/26		84	%	75 - 125
			Total Mercury (Hg)	2012/08/26		90	%	75 - 125
			Total Nickel (Ni)	2012/08/26		94	%	75 - 125
			Total Zinc (Zn)	2012/08/26		86	%	75 - 125
		QC Standard	Total Arsenic (As)	2012/08/26		109	%	50 - 150
			Total Chromium (Cr)	2012/08/26		104	%	41 - 159
			Total Cobalt (Co)	2012/08/26		92	%	75 - 125
			Total Copper (Cu)	2012/08/26		95	%	72 - 127
			Total Lead (Pb)	2012/08/26		97	%	54 - 146
			Total Nickel (Ni)	2012/08/26		103	%	61 - 139
			Total Zinc (Zn)	2012/08/26		104	%	72 - 128
		Spiked Blank	Total Arsenic (As)	2012/08/26		95	%	75 - 125
			Total Chromium (Cr)	2012/08/26		91	%	75 - 125
			Total Cobalt (Co)	2012/08/26		86	%	75 - 125
			Total Copper (Cu)	2012/08/26		91	%	75 - 125
			Total Lead (Pb)	2012/08/26		92	%	75 - 125
			Total Mercury (Hg)	2012/08/26		88	%	75 - 125
			Total Nickel (Ni)	2012/08/26		91	%	75 - 125
			Total Zinc (Zn)	2012/08/26		96	%	75 - 125
		Method Blank	Total Arsenic (As)	2012/08/26	<1.0		mg/kg	
			Total Chromium (Cr)	2012/08/26	<1.0		mg/kg	
			Total Cobalt (Co)	2012/08/26	<1.0		mg/kg	
			Total Copper (Cu)	2012/08/26	<5.0		mg/kg	
			Total Lead (Pb)	2012/08/26	<1.0		mg/kg	
			Total Mercury (Hg)	2012/08/26	<0.050		mg/kg	
			Total Nickel (Ni)	2012/08/26	<1.0		mg/kg	
			Total Zinc (Zn)	2012/08/26	<10		mg/kg	
		RPD [EG5370-01]	Total Arsenic (As)	2012/08/26	5.0		%	35
			Total Chromium (Cr)	2012/08/26	NC		%	35
			Total Cobalt (Co)	2012/08/26	NC		%	35
			Total Copper (Cu)	2012/08/26	NC		%	35
			Total Lead (Pb)	2012/08/26	0.6		%	35
			Total Mercury (Hg)	2012/08/26	NC		%	35
			Total Nickel (Ni)	2012/08/26	NC		%	35
			Total Zinc (Zn)	2012/08/26	NC		%	35
6116385	PW3	Matrix Spike						
		[EG5404-01]	Total Arsenic (As)	2012/08/26		92	%	75 - 125
			Total Chromium (Cr)	2012/08/26		92	%	75 - 125
			Total Cobalt (Co)	2012/08/26		88	%	75 - 125
			Total Copper (Cu)	2012/08/26		86	%	75 - 125
			Total Lead (Pb)	2012/08/26		88	%	75 - 125
			Total Mercury (Hg)	2012/08/26		89	%	75 - 125
			Total Nickel (Ni)	2012/08/26		88	%	75 - 125
			Total Zinc (Zn)	2012/08/26		89	%	75 - 125

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Attention: ANDREW PASSALIS
Client Project #: DLCU/LANDFILL MONITORING
P.O. #: 2012 KITIKMEOT
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Quality Assurance Report (Continued)

Maxxam Job Number: CB274498

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
6116385	PW3	QC Standard	Total Arsenic (As)	2012/08/26		107	%	50 - 150
			Total Chromium (Cr)	2012/08/26		98	%	41 - 159
			Total Cobalt (Co)	2012/08/26		92	%	75 - 125
			Total Copper (Cu)	2012/08/26		91	%	72 - 127
			Total Lead (Pb)	2012/08/26		97	%	54 - 146
			Total Nickel (Ni)	2012/08/26		99	%	61 - 139
			Total Zinc (Zn)	2012/08/26		100	%	72 - 128
		Spiked Blank	Total Arsenic (As)	2012/08/26		94	%	75 - 125
			Total Chromium (Cr)	2012/08/26		90	%	75 - 125
			Total Cobalt (Co)	2012/08/26		92	%	75 - 125
			Total Copper (Cu)	2012/08/26		92	%	75 - 125
			Total Lead (Pb)	2012/08/26		94	%	75 - 125
			Total Mercury (Hg)	2012/08/26		97	%	75 - 125
			Total Nickel (Ni)	2012/08/26		92	%	75 - 125
			Total Zinc (Zn)	2012/08/26		91	%	75 - 125
		Method Blank	Total Arsenic (As)	2012/08/26	<1.0		mg/kg	
			Total Chromium (Cr)	2012/08/26	<1.0		mg/kg	
			Total Cobalt (Co)	2012/08/26	<1.0		mg/kg	
			Total Copper (Cu)	2012/08/26	<5.0		mg/kg	
			Total Lead (Pb)	2012/08/26	<1.0		mg/kg	
			Total Mercury (Hg)	2012/08/26	<0.050		mg/kg	
			Total Nickel (Ni)	2012/08/26	<1.0		mg/kg	
			Total Zinc (Zn)	2012/08/26	<10		mg/kg	
		RPD [EG5404-01]	Total Arsenic (As)	2012/08/26	NC		%	35
			Total Chromium (Cr)	2012/08/26	NC		%	35
			Total Cobalt (Co)	2012/08/26	NC		%	35
			Total Copper (Cu)	2012/08/26	NC		%	35
			Total Lead (Pb)	2012/08/26	NC		%	35
			Total Mercury (Hg)	2012/08/26	NC		%	35
			Total Nickel (Ni)	2012/08/26	NC		%	35
			Total Zinc (Zn)	2012/08/26	NC		%	35
6116386	PW3	Matrix Spike [EG5287-01]	Total Arsenic (As)	2012/08/26		97	%	75 - 125
			Total Chromium (Cr)	2012/08/26		93	%	75 - 125
			Total Cobalt (Co)	2012/08/26		89	%	75 - 125
			Total Copper (Cu)	2012/08/26		94	%	75 - 125
			Total Lead (Pb)	2012/08/26		88	%	75 - 125
			Total Mercury (Hg)	2012/08/26		93	%	75 - 125
			Total Nickel (Ni)	2012/08/26		94	%	75 - 125
			Total Zinc (Zn)	2012/08/26		93	%	75 - 125
		QC Standard	Total Arsenic (As)	2012/08/26		112	%	50 - 150
			Total Chromium (Cr)	2012/08/26		102	%	41 - 159
			Total Cobalt (Co)	2012/08/26		94	%	75 - 125
			Total Copper (Cu)	2012/08/26		97	%	72 - 127
			Total Lead (Pb)	2012/08/26		93	%	54 - 146
			Total Nickel (Ni)	2012/08/26		102	%	61 - 139
			Total Zinc (Zn)	2012/08/26		101	%	72 - 128
		Spiked Blank	Total Arsenic (As)	2012/08/26		100	%	75 - 125
			Total Chromium (Cr)	2012/08/26		95	%	75 - 125
			Total Cobalt (Co)	2012/08/26		92	%	75 - 125
			Total Copper (Cu)	2012/08/26		98	%	75 - 125
			Total Lead (Pb)	2012/08/26		95	%	75 - 125
			Total Mercury (Hg)	2012/08/26		99	%	75 - 125
			Total Nickel (Ni)	2012/08/26		98	%	75 - 125
			Total Zinc (Zn)	2012/08/26		100	%	75 - 125

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Attention: ANDREW PASSALIS
Client Project #: DLCU/LANDFILL MONITORING
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Quality Assurance Report (Continued)

Maxxam Job Number: CB274498

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
6116386	PW3	Method Blank	Total Arsenic (As)	2012/08/26	<1.0		mg/kg	
			Total Chromium (Cr)	2012/08/26	<1.0		mg/kg	
			Total Cobalt (Co)	2012/08/26	<1.0		mg/kg	
			Total Copper (Cu)	2012/08/26	<5.0		mg/kg	
			Total Lead (Pb)	2012/08/26	<1.0		mg/kg	
			Total Mercury (Hg)	2012/08/26	<0.050		mg/kg	
			Total Nickel (Ni)	2012/08/26	<1.0		mg/kg	
			Total Zinc (Zn)	2012/08/26	<10		mg/kg	
		RPD [EG5287-01]	Total Arsenic (As)	2012/08/26	NC		%	35
			Total Chromium (Cr)	2012/08/26	NC		%	35
			Total Cobalt (Co)	2012/08/26	NC		%	35
			Total Copper (Cu)	2012/08/26	NC		%	35
			Total Lead (Pb)	2012/08/26	NC		%	35
			Total Mercury (Hg)	2012/08/26	NC		%	35
			Total Nickel (Ni)	2012/08/26	NC		%	35
			Total Zinc (Zn)	2012/08/26	NC		%	35
6116387	PW3	Matrix Spike [EG5350-01]	Total Arsenic (As)	2012/08/26		93	%	75 - 125
			Total Chromium (Cr)	2012/08/26		90	%	75 - 125
			Total Cobalt (Co)	2012/08/26		85	%	75 - 125
			Total Copper (Cu)	2012/08/26		88	%	75 - 125
			Total Lead (Pb)	2012/08/26		88	%	75 - 125
			Total Mercury (Hg)	2012/08/26		92	%	75 - 125
			Total Nickel (Ni)	2012/08/26		89	%	75 - 125
			Total Zinc (Zn)	2012/08/26		98	%	75 - 125
		QC Standard	Total Arsenic (As)	2012/08/26		110	%	50 - 150
			Total Chromium (Cr)	2012/08/26		103	%	41 - 159
			Total Cobalt (Co)	2012/08/26		92	%	75 - 125
			Total Copper (Cu)	2012/08/26		96	%	72 - 127
			Total Lead (Pb)	2012/08/26		99	%	54 - 146
			Total Nickel (Ni)	2012/08/26		102	%	61 - 139
			Total Zinc (Zn)	2012/08/26		108	%	72 - 128
		Spiked Blank	Total Arsenic (As)	2012/08/26		97	%	75 - 125
			Total Chromium (Cr)	2012/08/26		93	%	75 - 125
			Total Cobalt (Co)	2012/08/26		89	%	75 - 125
			Total Copper (Cu)	2012/08/26		94	%	75 - 125
			Total Lead (Pb)	2012/08/26		95	%	75 - 125
			Total Mercury (Hg)	2012/08/26		99	%	75 - 125
			Total Nickel (Ni)	2012/08/26		94	%	75 - 125
			Total Zinc (Zn)	2012/08/26		100	%	75 - 125
		Method Blank	Total Arsenic (As)	2012/08/26	<1.0		mg/kg	
			Total Chromium (Cr)	2012/08/26	<1.0		mg/kg	
			Total Cobalt (Co)	2012/08/26	<1.0		mg/kg	
			Total Copper (Cu)	2012/08/26	<5.0		mg/kg	
			Total Lead (Pb)	2012/08/26	<1.0		mg/kg	
			Total Mercury (Hg)	2012/08/26	<0.050		mg/kg	
			Total Nickel (Ni)	2012/08/26	<1.0		mg/kg	
			Total Zinc (Zn)	2012/08/26	<10		mg/kg	
		RPD [EG5350-01]	Total Arsenic (As)	2012/08/26	NC		%	35
			Total Chromium (Cr)	2012/08/26	NC		%	35
			Total Cobalt (Co)	2012/08/26	NC		%	35
			Total Copper (Cu)	2012/08/26	NC		%	35
			Total Lead (Pb)	2012/08/26	NC		%	35
			Total Mercury (Hg)	2012/08/26	NC		%	35
			Total Nickel (Ni)	2012/08/26	NC		%	35

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Attention: ANDREW PASSALIS
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Quality Assurance Report (Continued)

Maxxam Job Number: CB274498

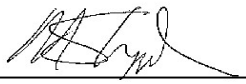
QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
6116387	PW3	RPD [EG5350-01]	Total Zinc (Zn)	2012/08/26	NC		%	35
6116521	RSA	Matrix Spike	1,4-Difluorobenzene (sur.)	2012/08/27		106	%	60 - 140
			4-BROMOFLUOROBENZENE (sur.)	2012/08/27		103	%	60 - 140
			D10-ETHYLBENZENE (sur.)	2012/08/27		100	%	60 - 130
			D4-1,2-DICHLOROETHANE (sur.)	2012/08/27		92	%	60 - 140
			(C6-C10)	2012/08/27		98	%	60 - 140
		Spiked Blank	1,4-Difluorobenzene (sur.)	2012/08/27		106	%	60 - 140
			4-BROMOFLUOROBENZENE (sur.)	2012/08/27		103	%	60 - 140
			D10-ETHYLBENZENE (sur.)	2012/08/27		107	%	60 - 130
			D4-1,2-DICHLOROETHANE (sur.)	2012/08/27		98	%	60 - 140
			(C6-C10)	2012/08/27		108	%	60 - 140
		Method Blank	1,4-Difluorobenzene (sur.)	2012/08/27		102	%	60 - 140
			4-BROMOFLUOROBENZENE (sur.)	2012/08/27		98	%	60 - 140
			D10-ETHYLBENZENE (sur.)	2012/08/27		111	%	60 - 130
			D4-1,2-DICHLOROETHANE (sur.)	2012/08/27		90	%	60 - 140
			F1 (C6-C10) - BTEX	2012/08/27	<12		mg/kg	
			(C6-C10)	2012/08/27	<12		mg/kg	
		RPD	F1 (C6-C10) - BTEX	2012/08/27	NC		%	50
			(C6-C10)	2012/08/27	NC		%	50

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

Validation Signature Page

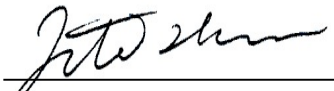
Maxxam Job #: B274498

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



Michael Sheppard, Organics Supervisor

Daniel Reslan, Volatiles Supervisor



Lili Zhou, Senior analyst, Inorganic department.

Luba Shymushovska, Senior Analyst, Organic Department

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

Maxxam

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9331 - 48th Street, Edmonton, Alberta Canada T6B 2R4 Tel:(780) 577-7100 Toll-free:800-653-6266 Fax:780-450-4187 www.maxxam.ca

CHAIN OF CUSTODY RECORD

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name:	#4781 SILA REMEDIATION	Company Name:	#25854 EGE ENGINEERING LTD.	Quotation #:	A90192	MAXXAM JOB #: B274498	BOTTLE ORDER #: 324000
Contact Name:	ACCOUNTS PAYABLE	Contact Name:	ANDREW PASSALIS	P.O. #:	2012 KITIKMEOT		
Address:	4495 WILFRID-HAMEL BLVD, SUITE 200, QUEBE	Address:	511 PEPPERLOAF CRESCENT	Project #:	DLCU/Landfill Monitoring	CHAIN OF CUSTODY #: C#324000-01-01	PROJECT MANAGER: Tanya Eugine
	QUEBEC PQ G1P 2T7		WINNIPEG MB R3R 1E6	Project Name:			
Phone:	(418)653-4422 x5485 Fax:	Phone:	(204)791-4938 Fax: (204)837-6473	Site #:	CAM-1 JENNY LIND ISLAND		
Email:		Email:	apassalis@mts.net; avallieres@biogenie-env.com	Sampled By:	AP		

REGULATORY CRITERIA:
- ☐ ATI
- ☐ CCME
- ☐ OTHER

SPECIAL INSTRUCTIONS

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: ☒
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests are > 5 days - contact your Project Manager for details

Job Specific Rush TAT (if applies to entire submission) ☐
Date Required: _____
Rush Confirmation Number: _____ *(call lab for #)*

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Metals Field Filtered ? (Y / N)	~~BTEX/VPH~~ F1-F3	REGULATED METALS PKG - SOIL (See List)	~~ATI METALS~~ and F1-F4 in Water (F1-(C6-C32))	Total Metals and Total Mercury - WATER (See List)	PCB	# of Bottles	Comments
1		C112-1A	16/8/12		SOIL		X	X			X	1+1 bag	
2		-1B					X	X			X		
3		-2A					X	X			X		
4		-2B					X	X			X		
5		-3A					X	X			X		
6		-3B					X	X			X		
7		-4A					X	X			X		
8		-4B					X	X			X		
9		-5A					X	X			X		
10		-5B					X	X			X		

Metals / As Co Cr Cu Pb Ni Hg Zn

ARRIVED AT DEPOT:
AUG 20 2012
TEMP: 8.9 / 6.00

*RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	# Jars Used and Not Submitted	Laboratory Use Only: Time Sensitive	Temperature (°C) on Receipt	Custody Seal Intact on Cooler?
	12/8/18	11:00	Josh Kingsbury	2012/08/21	16:52		☐		☐ Yes ☐ No

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. ALL INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.
** ALL SAMPLES ARE HELD FOR 60 DAYS AFTER SAMPLE RECEIPT. FOR SPECIAL REQUESTS CONTACT YOUR PROJECT MANAGER

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CHAIN OF CUSTODY RECORD

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:	
Company Name:	#4781 SILA REMEDIATION	Company Name:	#25854 EGE ENGINEERING LTD.	Quotation #:	A90192
Contact Name:	ACCOUNTS PAYABLE	Contact Name:	ANDREW PASSALIS	P.O. #:	2012 KITIKMEOT
Address:	4495 WILFRID-HAMEL BLVD, SUITE 200, QUEBE	Address:	511 PEPPERLOAF CRESCENT	Project #:	DLCU/Landfill Monitoring
	QUEBEC PQ GIP 2T7		WINNIPEG MB R3R 1E6	Project Name:	
Phone:	(418)653-4422 x5485 Fax:	Phone:	(204)791-4938 Fax: (204)837-6473	Site #:	CAM-1 JENNY LIND ISLAND
Email:		Email:	apassalis@mts.net; avallieres@biogenie-env.com	Sampled By:	AP.

Laboratory Use Only:

MAXXAM JOB #:	BOTTLE ORDER #:
B274498	324000
CHAIN OF CUSTODY #:	PROJECT MANAGER:
C#324000-01-01	Tanya Eugine

REGULATORY CRITERIA:

- ☐ ATI
- ☐ CCME
- ☐ OTHER

SPECIAL INSTRUCTIONS

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: ☒
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests are > 5 days - contact your Project Manager for details

Job Specific Rush TAT (if applies to entire submission) ☐
Date Required: ______
Rush Confirmation Number: ______ *(call lab for #)*

ANALYSIS REQUESTED (Please be specific):

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Metals Field Filtered ? (Y / N)	~~BTEX F1-F4~~ F1-F3	REGULATED METALS PKG - SOIL See List	AT1 BTEX and F1-F4 in Water	Total Metals and Total Mercury - WATER	PCB						# of Bottles	Comments
1		C112-6A	16/8/12		SOIL		X	X			X						1+1	bag.
2		-6B			"		X	X			X							
3		-7A					X	X			X							
4		-7B					X	X			X							
5		-8A					X	X			X							
6		-8B					X	X			X							
7		-9A					X	X			X							
8		-9B					X	X			X							
9		-10A					X	X			X							
10		-10B					X	X			X							

ARRIVED AT DEPOT: AUG 20 2012
TEMP: 9/9/8

*RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	# Jars Used and Not Submitted	Time Sensitive	Temperature (°C) on Receipt	Custody Seal Intact on Cooler?
[signature]	12/8/18	1100	Bosh Kingsbury [signature]	2012/08/21	16:52		☐		☐ Yes ☐ No

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.
** ALL SAMPLES ARE HELD FOR 60 DAYS AFTER SAMPLE RECEIPT, FOR SPECIAL REQUESTS CONTACT YOUR PROJECT MANAGER

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CHAIN OF CUSTODY RECORD

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name:	#4781 SILA REMEDIATION	Company Name:	#25854 EGE ENGINEERING LTD.	Quotation #:	A90192	MAXXAM JOB #: B274498	BOTTLE ORDER #: 324000
Contact Name:	ACCOUNTS PAYABLE	Contact Name:	ANDREW PASSALIS	P.O. #:	2012 KITIKMEOT		
Address:	4495 WILFRID-HAMEL BLVD, SUITE 200, QUEBE	Address:	511 PEPPERLOAF CRESCENT	Project #:	DLCU/Landfill Monitoring	CHAIN OF CUSTODY #: C#324000-01-01	PROJECT MANAGER: Tanya Eugine
	QUEBEC PQ G1P 2T7		WINNIPEG MB R3R 1E6	Project Name:			
Phone:	(418)653-4422 x5485 Fax:	Phone:	(204)791-4938 Fax: (204)837-6473	Site #:	CAM-1 JENNY LIND ISLAND		
Email:		Email:	apassalis@mts.net; avallieres@biogenie-env.com	Sampled By:	AP		

REGULATORY CRITERIA:
- ☐ ATI
- ☐ CCME
- ☐ OTHER

SPECIAL INSTRUCTIONS

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: ☒
(will be applied if Rush TAT is not specified)
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests are > 5 days - contact your Project Manager for details

Job Specific Rush TAT (if applies to entire submission) ☐
Date Required: _____
Rush Confirmation Number: _____ *(call lab for #)*

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Metals Field Filtered ? (Y / N)	~~BTEX F1-F4~~ F1-F3	REGULATED METALS PKG - SOIL See List	AT1 BTEX and F1-F4 in Water	Total Metals and Total Mercury - WATER	PCB	# of Bottles	Comments
1		C112-11A	16/8/12		SOIL		X	X			X	1+1 bag	
2		-11B			"		X	X			X		
3		-12A					X	X			X		
4		-12B					X	X			X		
5		-13A					X	X			X		
6		-13B					X	X			X		
7		-14A					X	X			X		
8		-14B					X	X			X		
9		-15A					X	X			X		
10		-15B					X	X			X		

ARRIVED AT DEPOT:
AUG 2 0 2012
TEMP: 8.9/8.1

*RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	# Jars Used and Not Submitted	Laboratory Use Only: Time Sensitive	Temperature (°C) on Receipt	Custody Seal Intact on Cooler?
	12/8/15	11:00	JOSH KINGSBURY	2012/08/21	16:52		☐		☐ Yes ☐ No

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

** ALL SAMPLES ARE HELD FOR 30 DAYS AFTER SAMPLE RECEIPT, FOR SPECIAL REQUESTS CONTACT YOUR PROJECT MANAGER

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CHAIN OF CUSTODY RECORD

INVOICE INFORMATION:

Company Name: #4781 SILA REMEDIATION
Contact Name: ACCOUNTS PAYABLE
Address: 4495 WILFRID-HAMEL BLVD, SUITE 200, QUEBE
QUEBEC PQ G1P 2T7
Phone: (418)653-4422 x5485 Fax:
Email:

REPORT INFORMATION (if differs from invoice):

Company Name: #25854 EGE ENGINEERING LTD.
Contact Name: ANDREW PASSALIS
Address: 511 PEPPERLOAF CRESCENT
WINNIPEG MB R3R 1E6
Phone: (204)791-4938 Fax: (204)837-6473
Email: apassalis@mts.net; avallieres@biogenie-env.com

PROJECT INFORMATION:

Quotation #: A90192
P.O. #: 2012 KITIKMEOT
Project #: DLCU/Landfill Monitoring
Project Name:
Site #: CAM-1 JENNY LIND ISLAND
Sampled By: A.P.

Laboratory Use Only:

MAXXAM JOB #: B274498
BOTTLE ORDER #: 324000
CHAIN OF CUSTODY #: C#324000-01-01
PROJECT MANAGER: Tanya Eugine

REGULATORY CRITERIA:
- [ ] ATI
- [ ] CCME
- [ ] OTHER

SPECIAL INSTRUCTIONS

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Metals Field Filtered ? (Y / N)	~~BTEX F1-F4~~ F1-F3	REGULATED METALS PKG - SOIL See List	AT1 BTEX and F1-F4 in Water	Total Metals and Total Mercury - WATER	PCB	# of Bottles	Comments
1		C112-16A	16/8/12		SOIL		X	X			X	1+1 bag	
2		-16B			"		X	X			X		
3		-17A					X	X			X		
4		-17B					X	X			X		
5		-18A					X	X			X		
6		-18B					X	X			X		
7		-19A					X	X			X		
8		-19B					X	X			X		
9		-20A					X	X			X		
10		-20B					X	X			X		

ARRIVED AT DEPOT:
AUG 2 8 2012
TEMP: 8, 9, 8,
6:01 P.M.

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: [X]
(will be applied if Rush TAT is not specified)
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests are > 5 days - contact your Project Manager for details

Job Specific Rush TAT (if applies to entire submission) [ ]
Date Required: _____
Rush Confirmation Number: _____ *(call lab for #)*

*RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	# Jars Used and Not Submitted
	12/8/18	11:00		2012/08/24	16:52	

Laboratory Use Only: Time Sensitive [ ] | Temperature (°C) on Receipt | Custody Seal Intact on Cooler? [ ] Yes [ ] No

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.
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CHAIN OF CUSTODY RECORD

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name:	#4781 SILA REMEDIATION	Company Name:	#25854 EGE ENGINEERING LTD.	Quotation #:	A90192	MAXXAM JOB #:	BOTTLE ORDER #:
Contact Name:	ACCOUNTS PAYABLE	Contact Name:	ANDREW PASSALIS	P.O. #:	2012 KITIKMEOT	B274498	324000
Address:	4495 WILFRID-HAMEL BLVD, SUITE 200, QUEBE	Address:	511 PEPPERLOAF CRESCENT	Project #:	DLCU/Landfill Monitoring	CHAIN OF CUSTODY #:	PROJECT MANAGER:
	QUEBEC PQ G1P 2T7		WINNIPEG MB R3R 1E6	Project Name:		C#324000-01-01	Tanya Eugine
Phone:	(418)653-4422 x5485 Fax:	Phone:	(204)791-4938 Fax: (204)837-6473	Site #:	CAM-1 JENNY LIND ISLAND		
Email:		Email:	apassalis@mts.net; avallieres@biogenie-env.com	Sampled By:	A.P		

REGULATORY CRITERIA:
- ☐ ATI
- ☐ CCME
- ☐ OTHER

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Job Specific Rush TAT (if applies to entire submission) ☐
Date Required: _____
Rush Confirmation Number: _____ *(call lab for #)*

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Metals Field Filtered ? (Y / N)	~~BTEX F1-F4~~ F1-F4	REGULATED METALS PKG - SOIL See List	AT1 BTEX and F1-F4 in Water	Total Metals and Total Mercury - WATER	PCB	# of Bottles	Comments
1		C112-21BA	17/8/12		SOIL		X	X			X	1+1	bags
2		-21B					X	X			X		
3		-22A					X	X			X		
4		-22B					X	X			X		
5		-23A					X	X			X		
6		-23B					X	X			X		ARRIVED AT DEPOT
7		-24A					X	X			X		
8		-24B					X	X			X		TEMP: 8 / 9 / 8 /
9		-25A					X	X			X		6:00 PM
10		-25B					X	X			X		

*RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	# Jars Used and Not Submitted	Laboratory Use Only: Time Sensitive	Temperature (°C) on Receipt	Custody Seal Intact on Cooler?
	12/8/18	11:00		2012/08/21	16:52		☐		☐ Yes ☐ No

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CHAIN OF CUSTODY RECORD

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Company Name:	#4781 SILA REMEDIATION	Company Name:	#25854 EGE ENGINEERING LTD.	Quotation #:	A90192	MAXXAM JOB #:	BOTTLE ORDER #:
Contact Name:	ACCOUNTS PAYABLE	Contact Name:	ANDREW PASSALIS	P.O. #:	2012 KITIKMEOT	B274498	324000
Address:	4495 WILFRID-HAMEL BLVD, SUITE 200, QUEBE	Address:	511 PEPPERLOAF CRESCENT	Project #:	DLCU/Landfill Monitoring	CHAIN OF CUSTODY #:	PROJECT MANAGER:
	QUEBEC PQ G1P 2T7		WINNIPEG MB R3R 1E6	Project Name:		C#324000-01-01	Tanya Eugine
Phone:	(418)653-4422 x5485 Fax:	Phone:	(204)791-4938 Fax: (204)837-6473	Site #:	CAM-1 JENNY LIND ISLAND		
Email:		Email:	apassalis@mts.net; avallieres@biogenie-env.com	Sampled By:	AP		

REGULATORY CRITERIA:
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- ☐ OTHER

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Date Required: _____
Rush Confirmation Number: _____ *(call lab for #)*

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Metals Field Filtered ? (Y / N)	~~BTEX F1-F4~~ F1-F4	REGULATED METALS PKG - SOIL See List	AT1 BTEX and F1-F4 in Water	Total Metals and Total Mercury - WATER	PCB	# of Bottles	Comments
1		C112-26A	17/8/12		SOIL		X	X			X	1+1 bag	
2		-26B	"				X	X			X	"	
3		-27A	15/8/12				X	X			X	2	
4		-27B					X	X			X		
5		-28A					X	X			X		
6		-28B					X	X			X		
7		-29A					X	X			X		
8		-29B					X	X			X		
9		-30A					X	X			X		
10		-30B					X	X			X		

ARRIVED AT DEPOT:
AUG 20 2012
TEMP: 8/9/8/
6:00 P.M.

*RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	# Jars Used and Not Submitted	Laboratory Use Only: Time Sensitive	Temperature (°C) on Receipt	Custody Seal Intact on Cooler?
	12/8/18	11:00	JOSH KINGSBURY	2012/08/21	16:52		☐		☐ Yes ☐ No

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** ALL SAMPLES ARE HELD FOR [illegible] DAYS AFTER SAMPLE RECEIPT. FOR SPECIAL REQUESTS CONTACT YOUR PROJECT MANAGER

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CHAIN OF CUSTODY RECORD

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Company Name:	#4781 SILA REMEDIATION	Company Name:	#25854 EGE ENGINEERING LTD.	Quotation #:	A90192	MAXXAM JOB #: B274458	BOTTLE ORDER #: 324000
Contact Name:	ACCOUNTS PAYABLE	Contact Name:	ANDREW PASSALIS	P.O. #:	2012 KITIKMEOT		
Address:	4495 WILFRID-HAMEL BLVD, SUITE 200, QUEBE	Address:	511 PEPPERLOAF CRESCENT	Project #:	DLCU/Landfill Monitoring	CHAIN OF CUSTODY #: C#324000-01-01	PROJECT MANAGER: Tanya Eugine
	QUEBEC PQ G1P 2T7		WINNIPEG MB R3R 1E6	Project Name:			
Phone:	(418)653-4422 x5485 Fax:	Phone:	(204)791-4938 Fax: (204)837-6473	Site #:	CAM-1 JENNY LIND ISLAND		
Email:		Email:	apassalis@mts.net; avallieres@biogenie-env.com	Sampled By:	A.P		

REGULATORY CRITERIA:
- ☐ ATI
- ☐ CCME
- ☐ OTHER

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Job Specific Rush TAT (if applies to entire submission) ☐
Date Required: _____
Rush Confirmation Number: _____ *(call lab for #)*

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Metals Field Filtered ? (Y / N)	~~BTEX F1-F4~~ F1-F3	REGULATED METALS PKG - SOIL See List	AT1 BTEX and F1-F4 in Water	Total Metals and Total Mercury - WATER	PCB	# of Bottles	Comments
1		C112-31A	15/8/12		SOIL		X	X			X	2 ~~1 Bag~~	
2		-31B					X	X			X		
3		-32A					X	X			X		
4		-32B					X	X			X		
5		-33A					X	X			X		
6		-33B					X	X			X		
7		-34A					X	X			X		
8		-34B					X	X			X		
9		-35A					X	X			X		
10		-35B					X	X			X		

ARRIVED AT DEPOT
TEMP: 3, 9, 8, 1
6:00 pm

*RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	# Jars Used and Not Submitted	Laboratory Use Only: Time Sensitive	Temperature (°C) on Receipt	Custody Seal Intact on Cooler?
	12/8/18	11:00	Robert Kinzbrunner	2012/08/21	16:52		☐		☐ Yes ☐ No

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.
** ALL SAMPLES ARE HELD FOR 60 DAYS AFTER SAMPLE RECEIPT. FOR SPECIAL REQUESTS CONTACT YOUR PROJECT MANAGER.

White: Maxxam Yellow: Client

Maxxam

Maxxam Analytics International Corporation o/a Maxxam Analytics
9331 - 48th Street, Edmonton, Alberta Canada T6B 2R4 Tel:(780) 577-7100 Toll-free:800-653-6266 Fax:780-450-4187 www.maxxam.ca

CHAIN OF CUSTODY RECORD

INVOICE INFORMATION:

Company Name:	#4781 SILA REMEDIATION
Contact Name:	ACCOUNTS PAYABLE
Address:	4495 WILFRID-HAMEL BLVD, SUITE 200, QUEBE
	QUEBEC PQ G1P 2T7
Phone:	(418)653-4422 x5485 Fax:
Email:	

REPORT INFORMATION (if differs from invoice):

Company Name:	#25854 EGE ENGINEERING LTD.
Contact Name:	ANDREW PASSALIS
Address:	511 PEPPERLOAF CRESCENT
	WINNIPEG MB R3R 1E6
Phone:	(204)791-4938 Fax: (204)837-6473
Email:	apassalis@mts.net; avallieres@biogenie-env.com

PROJECT INFORMATION:

Quotation #:	A90192
P.O. #:	2012 KITIKMEOT
Project #:	DLCU/Landfill Monitoring
Project Name:	
Site #:	CAM-1 JENNY LIND ISLAND
Sampled By:	A.P.

Laboratory Use Only:

MAXXAM JOB #:	BOTTLE ORDER #:
B224498	324000
CHAIN OF CUSTODY #:	PROJECT MANAGER:
C#324000-01-01	Tanya Eugine

REGULATORY CRITERIA:
- [ ] ATI
- [ ] CCME
- [ ] OTHER

SPECIAL INSTRUCTIONS

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Metals Field Filtered ? (Y / N)	~~BTEX/F1-F4~~ F1-F3	REGULATED METALS PKG - SOIL See List	~~ATI BTEX and F1-F4 in Water~~ T2	Total Metals and Total Mercury - WATER	PCB	# of Bottles	Comments
1		C112-BD1	15/8/12		SOIL		X	X			X	1	
2		-BD2	"				X	X			X	1	
3		-BD3	16/8/12				X	X			X	1+1bag	
4		-BD4	"				X	X			X		
5		-BD5	17/8/12				X	X			X		
6		-BD6					X	X			X		
7		-BD7					X	X			X		
8		-BD8					X	X			X		
9													
10													

Metals (Cr) Pb (Ni) Cd (Cu) As Hg Zn

ARRIVED AT DEPOT:
AUG 20 2012
TEMP: 8 / 9 / 3
6:00
A.M.

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: [X]
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests are > 5 days - contact your Project Manager for details

Job Specific Rush TAT (if applies to entire submission) [ ]
Date Required: _____
Rush Confirmation Number: _____ *(call lab for #)*

*RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	# Jars Used and Not Submitted
	12/8/18	11:00	SSH Kingsbury	2012/08/21	16:52	

Laboratory Use Only

Time Sensitive	Temperature (°C) on Receipt	Custody Seal Intact on Cooler?
[ ]		[ ] Yes [ ]

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

** ALL SAMPLES ARE HELD FOR 30 DAYS AFTER SAMPLE RECEIPT, FOR SPECIAL REQUESTS CONTACT YOUR PROJECT MANAGER.

White

Success Through Science®

Your P.O. #: 2012 KITIKMEOT
Your Project #: DLCU/LANDFILL MONITORING
Site Location: CAM-1 JENNY LIND ISLAND
Your C.O.C. #: 324000-01-01

Attention: ANDREW PASSALIS
EGE ENGINEERING LTD.
511 PEPPERLOAF CRESCENT
WINNIPEG, MB
CANADA R3R 1E6

Report Date: 2012/11/12
This report supersedes all previous reports with the same Maxxam job number

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B274455
Received: 2012/08/20, 18:00

Sample Matrix: Soil
Samples Received: 16

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
BTEX/F1 by HS GC/MS (MeOH extract)	16	2012/08/22	2012/08/26	AB SOP-00039	CCME, EPA 8260C
CCME Hydrocarbons (F2-F4 in soil)	16	2012/08/22	2012/08/25	AB SOP-00040 AB SOP-00036	CCME PHC-CWS
Elements by ICPMS - Soils	12	2012/08/23	2012/08/24	AB SOP-00043	EPA 200.8
Elements by ICPMS - Soils	4	2012/08/24	2012/08/24	AB SOP-00043	EPA 200.8
Moisture	16	N/A	2012/08/23	AB SOP-00002	CCME PHC-CWS
Polychlorinated Biphenyls	11	2012/08/25	2012/08/27	CAL SOP-00149	EPA 3550B, EPA 8082A
Polychlorinated Biphenyls	5	2012/08/25	2012/08/28	CAL SOP-00149	EPA 3550B, EPA 8082A

* Results relate only to the items tested.

Encryption Key

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

Ioana Stoica, Project Manager
Email: IStoica@maxxam.ca
Phone# (403) 291-3077

==========

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 #: B274455
Report Date: 2012/11/12

EGE ENGINEERING LTD.
Client Project #: DLCU/LANDFILL MONITORING
Site Location: CAM-1 JENNY LIND ISLAND
Your P.O. #: 2012 KITIKMEOT
Sampler Initials: AP

AT1 BTEX AND F1-F4 IN SOIL (SOIL)

Maxxam ID		EG4698	EG4753	EG4754	EG4755	EG4756	EG4757		
Sampling Date		2012/08/17	2012/08/17	2012/08/17	2012/08/17	2012/08/17	2012/08/17		
COC#		324000-01-01	324000-01-01	324000-01-01	324000-01-01	324000-01-01	324000-01-01		
	UNITS	**C112-1WA**	**C112-1WB**	**C112-2WA**	**C112-2WB**	**C112-3WA**	**C112-3WB**	**RDL**	**QC Batch**
Physical Properties									
Moisture	%	5.7	5.4	2.4	2.5	2.6	5.0	0.30	6109583
Ext. Pet. Hydrocarbon									
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	<10	<10	<10	<10	<10	10	6112923
F3 (C16-C34 Hydrocarbons)	mg/kg	31	28	<10	<10	<10	<10	10	6112923
Reached Baseline at C50	mg/kg	YES	YES	YES	YES	YES	YES		6112923
Surrogate Recovery (%)									
O-TERPHENYL (sur.)	%	90	90	91	96	90	94		6112923
Volatiles									
Benzene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6112544
Toluene	mg/kg	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	6112544
Ethylbenzene	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6112544
Xylenes (Total)	mg/kg	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	0.040	6112544
m & p-Xylene	mg/kg	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	0.040	6112544
o-Xylene	mg/kg	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	6112544
F1 (C6-C10) - BTEX	mg/kg	<12	<12	<12	<12	<12	<12	12	6112544
(C6-C10)	mg/kg	<12	<12	<12	<12	<12	<12	12	6112544
Surrogate Recovery (%)									
1,4-Difluorobenzene (sur.)	%	108	96	93	92	103	92		6112544
4-BROMOFLUOROBENZENE (sur.)	%	96	98	97	92	103	99		6112544
D10-ETHYLBENZENE (sur.)	%	87	93	99	99	98	94		6112544
D4-1,2-DICHLOROETHANE (sur.)	%	118	116	111	115	118	116		6112544

RDL = Reportable Detection Limit

Maxxam Job #: B274455
Report Date: 2012/11/12

EGE ENGINEERING LTD.
Client Project #: DLCU/LANDFILL MONITORING
Site Location: CAM-1 JENNY LIND ISLAND
Your P.O. #: 2012 KITIKMEOT
Sampler Initials: AP

AT1 BTEX AND F1-F4 IN SOIL (SOIL)

Maxxam ID		EG4758	EG4759	EG4760	EG4761	EG4762		
Sampling Date		2012/08/17	2012/08/17	2012/08/17	2012/08/17	2012/08/17		
COC#		324000-01-01	324000-01-01	324000-01-01	324000-01-01	324000-01-01		
	UNITS	**C112-4WA**	**C112-4WB**	**C112-5WA**	**C112-5WB**	**C112-6WA**	**RDL**	**QC Batch**
Physical Properties								
Moisture	%	9.4	7.6	7.5	2.4	13	0.30	6109583
Ext. Pet. Hydrocarbon								
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	<10	<10	<10	<10	10	6112923
F3 (C16-C34 Hydrocarbons)	mg/kg	<10	<10	21	13	23	10	6112923
Reached Baseline at C50	mg/kg	YES	YES	YES	YES	YES		6112923
Surrogate Recovery (%)								
O-TERPHENYL (sur.)	%	89	88	89	89	86		6112923
Volatiles								
Benzene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6112544
Toluene	mg/kg	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	6112544
Ethylbenzene	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6112544
Xylenes (Total)	mg/kg	<0.040	<0.040	<0.040	<0.040	<0.040	0.040	6112544
m & p-Xylene	mg/kg	<0.040	<0.040	<0.040	<0.040	<0.040	0.040	6112544
o-Xylene	mg/kg	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	6112544
F1 (C6-C10) - BTEX	mg/kg	<12	<12	<12	<12	<12	12	6112544
(C6-C10)	mg/kg	<12	<12	<12	<12	<12	12	6112544
Surrogate Recovery (%)								
1,4-Difluorobenzene (sur.)	%	98	98	100	98	97		6112544
4-BROMOFLUOROBENZENE (sur.)	%	95	100	99	96	94		6112544
D10-ETHYLBENZENE (sur.)	%	90	91	92	97	92		6112544
D4-1,2-DICHLOROETHANE (sur.)	%	111	113	117	113	114		6112544

RDL = Reportable Detection Limit

Maxxam Job #: B274455
Report Date: 2012/11/12

EGE ENGINEERING LTD.
Client Project #: DLCU/LANDFILL MONITORING
Site Location: CAM-1 JENNY LIND ISLAND
Your P.O. #: 2012 KITIKMEOT
Sampler Initials: AP

AT1 BTEX AND F1-F4 IN SOIL (SOIL)

Maxxam ID		EG4763	EG4772	EG4784	EG4786	EG4787		
Sampling Date		2012/08/17	2012/08/17	2012/08/17	2012/08/17	2012/08/17		
COC#		324000-01-01	324000-01-01	324000-01-01	324000-01-01	324000-01-01		
	UNITS	**C112-6WB**	**C112-7WA**	**C112-7WB**	**C112-8WA**	**C112-8WB**	**RDL**	**QC Batch**
Physical Properties								
Moisture	%	4.0	9.3	6.8	7.4	4.2	0.30	6109583
Ext. Pet. Hydrocarbon								
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	<10	<10	<10	<10	10	6112923
F3 (C16-C34 Hydrocarbons)	mg/kg	<10	12	<10	12	<10	10	6112923
Reached Baseline at C50	mg/kg	YES	YES	YES	YES	YES		6112923
Surrogate Recovery (%)								
O-TERPHENYL (sur.)	%	84	91	85	94	89		6112923
Volatiles								
Benzene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6112544
Toluene	mg/kg	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	6112544
Ethylbenzene	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6112544
Xylenes (Total)	mg/kg	<0.040	<0.040	<0.040	<0.040	<0.040	0.040	6112544
m & p-Xylene	mg/kg	<0.040	<0.040	<0.040	<0.040	<0.040	0.040	6112544
o-Xylene	mg/kg	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	6112544
F1 (C6-C10) - BTEX	mg/kg	<12	<12	<12	<12	<12	12	6112544
(C6-C10)	mg/kg	<12	<12	<12	<12	<12	12	6112544
Surrogate Recovery (%)								
1,4-Difluorobenzene (sur.)	%	102	98	102	96	95		6112544
4-BROMOFLUOROBENZENE (sur.)	%	103	94	104	94	99		6112544
D10-ETHYLBENZENE (sur.)	%	91	91	88	89	89		6112544
D4-1,2-DICHLOROETHANE (sur.)	%	118	113	110	114	121		6112544

RDL = Reportable Detection Limit

Maxxam Job #: B274455
Report Date: 2012/11/12

EGE ENGINEERING LTD.
Client Project #: DLCU/LANDFILL MONITORING
Site Location: CAM-1 JENNY LIND ISLAND
Your P.O. #: 2012 KITIKMEOT
Sampler Initials: AP

POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

Maxxam ID		EG4698	EG4753	EG4754	EG4755	EG4756	EG4757	EG4758		
Sampling Date		2012/08/17	2012/08/17	2012/08/17	2012/08/17	2012/08/17	2012/08/17	2012/08/17		
COC#		324000-01-01	324000-01-01	324000-01-01	324000-01-01	324000-01-01	324000-01-01	324000-01-01		
	UNITS	**C112-1WA**	**C112-1WB**	**C112-2WA**	**C112-2WB**	**C112-3WA**	**C112-3WB**	**C112-4WA**	**RDL**	**QC Batch**
Polychlorinated Biphenyls										
Aroclor 1016	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115750
Aroclor 1221	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115750
Aroclor 1232	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115750
Aroclor 1242	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115750
Aroclor 1248	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115750
Aroclor 1254	mg/kg	0.039	0.025	<0.010	<0.010	<0.010	0.12	<0.010	0.010	6115750
Aroclor 1260	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115750
Aroclor 1262	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115750
Aroclor 1268	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115750
Total Aroclors	mg/kg	0.039	0.025	<0.010	<0.010	<0.010	0.12	<0.010	0.010	6115750
Surrogate Recovery (%)										
NONACHLOROBIPHENYL (sur.)	%	100	102	105	102	107	77	102		6115750

Maxxam ID		EG4759	EG4760	EG4761	EG4762	EG4763		
Sampling Date		2012/08/17	2012/08/17	2012/08/17	2012/08/17	2012/08/17		
COC#		324000-01-01	324000-01-01	324000-01-01	324000-01-01	324000-01-01		
	UNITS	**C112-4WB**	**C112-5WA**	**C112-5WB**	**C112-6WA**	**C112-6WB**	**RDL**	**QC Batch**
Polychlorinated Biphenyls								
Aroclor 1016	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115750
Aroclor 1221	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115750
Aroclor 1232	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115750
Aroclor 1242	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115750
Aroclor 1248	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115750
Aroclor 1254	mg/kg	<0.010	0.067	0.015	<0.010	<0.010	0.010	6115750
Aroclor 1260	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115750
Aroclor 1262	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115750
Aroclor 1268	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	6115750
Total Aroclors	mg/kg	<0.010	0.067	0.015	<0.010	<0.010	0.010	6115750
Surrogate Recovery (%)								
NONACHLOROBIPHENYL (sur.)	%	109	112	109	101	99		6115750

RDL = Reportable Detection Limit

Maxxam Job #: B274455
Report Date: 2012/11/12

EGE ENGINEERING LTD.
Client Project #: DLCU/LANDFILL MONITORING
Site Location: CAM-1 JENNY LIND ISLAND
Your P.O. #: 2012 KITIKMEOT
Sampler Initials: AP

POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

Maxxam ID		EG4772		EG4784	EG4786	EG4787		
Sampling Date		2012/08/17		2012/08/17	2012/08/17	2012/08/17		
COC#		324000-01-01		324000-01-01	324000-01-01	324000-01-01		
	UNITS	**C112-7WA**	**QC Batch**	**C112-7WB**	**C112-8WA**	**C112-8WB**	**RDL**	**QC Batch**
Polychlorinated Biphenyls								
Aroclor 1016	mg/kg	<0.010	6115750	<0.010	<0.010	<0.010	0.010	6115816
Aroclor 1221	mg/kg	<0.010	6115750	<0.010	<0.010	<0.010	0.010	6115816
Aroclor 1232	mg/kg	<0.010	6115750	<0.010	<0.010	<0.010	0.010	6115816
Aroclor 1242	mg/kg	<0.010	6115750	<0.010	<0.010	<0.010	0.010	6115816
Aroclor 1248	mg/kg	<0.010	6115750	<0.010	<0.010	<0.010	0.010	6115816
Aroclor 1254	mg/kg	<0.010	6115750	<0.010	<0.010	<0.010	0.010	6115816
Aroclor 1260	mg/kg	<0.010	6115750	<0.010	<0.010	<0.010	0.010	6115816
Aroclor 1262	mg/kg	<0.010	6115750	<0.010	<0.010	<0.010	0.010	6115816
Aroclor 1268	mg/kg	<0.010	6115750	<0.010	<0.010	<0.010	0.010	6115816
Total Aroclors	mg/kg	<0.010	6115750	<0.010	<0.010	<0.010	0.010	6115816
Surrogate Recovery (%)								
NONACHLOROBIPHENYL (sur.)	%	113	6115750	116	111	113		6115816

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		EG4698	EG4753	EG4754	EG4755	EG4756	EG4757		
Sampling Date		2012/08/17	2012/08/17	2012/08/17	2012/08/17	2012/08/17	2012/08/17		
COC#		324000-01-01	324000-01-01	324000-01-01	324000-01-01	324000-01-01	324000-01-01		
	UNITS	**C112-1WA**	**C112-1WB**	**C112-2WA**	**C112-2WB**	**C112-3WA**	**C112-3WB**	**RDL**	**QC Batch**
Elements									
Total Arsenic (As)	mg/kg	3.9	4.8	4.0	5.4	1.3	2.7	1.0	6112757
Total Cadmium (Cd)	mg/kg	0.11	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	6112757
Total Chromium (Cr)	mg/kg	2.9	3.3	2.3	1.8	3.1	3.0	1.0	6112757
Total Cobalt (Co)	mg/kg	<1.0	1.2	<1.0	<1.0	1.0	1.2	1.0	6112757
Total Copper (Cu)	mg/kg	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.0	6112757
Total Lead (Pb)	mg/kg	10	10	11	16	2.5	5.7	1.0	6112757
Total Mercury (Hg)	mg/kg	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	6112757
Total Nickel (Ni)	mg/kg	1.7	2.7	1.6	1.4	2.3	2.0	1.0	6112757
Total Zinc (Zn)	mg/kg	<10	<10	<10	<10	<10	<10	10	6112757

RDL = Reportable Detection Limit

Maxxam Job #: B274455
Report Date: 2012/11/12

EGE ENGINEERING LTD.
Client Project #: DLCU/LANDFILL MONITORING
Site Location: CAM-1 JENNY LIND ISLAND
Your P.O. #: 2012 KITIKMEOT
Sampler Initials: AP

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		EG4758	EG4759	EG4760	EG4761	EG4762		
Sampling Date		2012/08/17	2012/08/17	2012/08/17	2012/08/17	2012/08/17		
COC#		324000-01-01	324000-01-01	324000-01-01	324000-01-01	324000-01-01		
	UNITS	**C112-4WA**	**C112-4WB**	**C112-5WA**	**C112-5WB**	**C112-6WA**	**RDL**	**QC Batch**
Elements								
Total Arsenic (As)	mg/kg	4.2	21	1.4	1.4	1.2	1.0	6112757
Total Cadmium (Cd)	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	6112757
Total Chromium (Cr)	mg/kg	3.0	2.7	2.3	3.2	2.1	1.0	6112757
Total Cobalt (Co)	mg/kg	<1.0	1.3	<1.0	<1.0	<1.0	1.0	6112757
Total Copper (Cu)	mg/kg	<5.0	6.2	<5.0	<5.0	<5.0	5.0	6112757
Total Lead (Pb)	mg/kg	11	38	4.2	4.3	2.6	1.0	6112757
Total Mercury (Hg)	mg/kg	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	6112757
Total Nickel (Ni)	mg/kg	1.7	2.7	1.5	1.9	2.1	1.0	6112757
Total Zinc (Zn)	mg/kg	<10	<10	<10	<10	<10	10	6112757

Maxxam ID		EG4763		EG4772	EG4784	EG4786	EG4787		
Sampling Date		2012/08/17		2012/08/17	2012/08/17	2012/08/17	2012/08/17		
COC#		324000-01-01		324000-01-01	324000-01-01	324000-01-01	324000-01-01		
	UNITS	**C112-6WB**	**QC Batch**	**C112-7WA**	**C112-7WB**	**C112-8WA**	**C112-8WB**	**RDL**	**QC Batch**
Elements									
Total Arsenic (As)	mg/kg	2.4	6112757	1.9	1.9	<1.0	1.8	1.0	6113291
Total Cadmium (Cd)	mg/kg	<0.10	6112757	<0.10	<0.10	<0.10	<0.10	0.10	6113291
Total Chromium (Cr)	mg/kg	3.1	6112757	1.8	2.8	1.7	4.3	1.0	6113291
Total Cobalt (Co)	mg/kg	1.3	6112757	<1.0	1.1	<1.0	1.5	1.0	6113291
Total Copper (Cu)	mg/kg	<5.0	6112757	<5.0	<5.0	<5.0	<5.0	5.0	6113291
Total Lead (Pb)	mg/kg	3.7	6112757	3.1	3.2	1.9	3.2	1.0	6113291
Total Mercury (Hg)	mg/kg	<0.050	6112757	<0.050	<0.050	<0.050	<0.050	0.050	6113291
Total Nickel (Ni)	mg/kg	2.4	6112757	1.3	1.9	1.1	3.2	1.0	6113291
Total Zinc (Zn)	mg/kg	<10	6112757	<10	<10	<10	<10	10	6113291

RDL = Reportable Detection Limit

Maxxam Job #: B274455
Report Date: 2012/11/12

EGE ENGINEERING LTD.
Client Project #: DLCU/LANDFILL MONITORING
Site Location: CAM-1 JENNY LIND ISLAND
Your P.O. #: 2012 KITIKMEOT
Sampler Initials: AP

Package 1	8.3°C

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

General Comments

Maxxam Job #: B274455
Report Date: 2012/11/12

EGE ENGINEERING LTD.
Client Project #: DLCU/LANDFILL MONITORING
Site Location: CAM-1 JENNY LIND ISLAND
Your P.O. #: 2012 KITIKMEOT
Sampler Initials: AP

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
6109583	Moisture	2012/08/23					<0.30	%	1.1	20		
6112544	1,4-Difluorobenzene (sur.)	2012/08/26	111	60 - 140	102	60 - 140	104	%				
6112544	4-BROMOFLUOROBENZENE (sur.)	2012/08/26	102	60 - 140	106	60 - 140	108	%				
6112544	D10-ETHYLBENZENE (sur.)	2012/08/26	94	60 - 130	100	60 - 130	100	%				
6112544	D4-1,2-DICHLOROETHANE (sur.)	2012/08/26	111	60 - 140	105	60 - 140	130	%				
6112544	Benzene	2012/08/26	100	60 - 140	95	60 - 140	<0.0050	mg/kg	NC	50		
6112544	Toluene	2012/08/26	97	60 - 140	94	60 - 140	<0.020	mg/kg	NC	50		
6112544	Ethylbenzene	2012/08/26	93	60 - 140	100	60 - 140	<0.010	mg/kg	NC	50		
6112544	m & p-Xylene	2012/08/26	86	60 - 140	94	60 - 140	<0.040	mg/kg	NC	50		
6112544	o-Xylene	2012/08/26	84	60 - 140	93	60 - 140	<0.020	mg/kg	NC	50		
6112544	(C6-C10)	2012/08/26	75	60 - 140	78	60 - 140	<12	mg/kg	NC	50		
6112544	Xylenes (Total)	2012/08/26					<0.040	mg/kg	NC	50		
6112544	F1 (C6-C10) - BTEX	2012/08/26					<12	mg/kg	NC	50		
6112757	Total Arsenic (As)	2012/08/24	86	75 - 125	102	75 - 125	<1.0	mg/kg	NC	35	116	50 - 150
6112757	Total Cadmium (Cd)	2012/08/24	94	75 - 125	97	75 - 125	<0.10	mg/kg	NC	35		
6112757	Total Chromium (Cr)	2012/08/24	103	75 - 125	102	75 - 125	<1.0	mg/kg	2.1	35	115	41 - 159
6112757	Total Cobalt (Co)	2012/08/24	99	75 - 125	102	75 - 125	<1.0	mg/kg	1.5	35	110	75 - 125
6112757	Total Copper (Cu)	2012/08/24	90	75 - 125	103	75 - 125	<5.0	mg/kg	NC	35	104	72 - 127
6112757	Total Lead (Pb)	2012/08/24	91	75 - 125	97	75 - 125	<1.0	mg/kg	1.9	35	104	54 - 146
6112757	Total Mercury (Hg)	2012/08/24	100	75 - 125	104	75 - 125	<0.050	mg/kg	NC	35		
6112757	Total Nickel (Ni)	2012/08/24	99	75 - 125	103	75 - 125	<1.0	mg/kg	7.4	35	115	61 - 139
6112757	Total Zinc (Zn)	2012/08/24	NC	75 - 125	104	75 - 125	<10	mg/kg	0.1	35	105	72 - 128
6112923	O-TERPHENYL (sur.)	2012/08/25	84	50 - 130	81	50 - 130	91	%				
6112923	F2 (C10-C16 Hydrocarbons)	2012/08/25	94	50 - 130	88	70 - 130	<10	mg/kg	NC	50		
6112923	F3 (C16-C34 Hydrocarbons)	2012/08/25	99	50 - 130	91	70 - 130	<10	mg/kg	NC	50		
6113291	Total Arsenic (As)	2012/08/24	99	75 - 125	103	75 - 125	<1.0	mg/kg	0.6	35	116	50 - 150
6113291	Total Cadmium (Cd)	2012/08/24	99	75 - 125	101	75 - 125	<0.10	mg/kg	NC	35		
6113291	Total Chromium (Cr)	2012/08/24	NC	75 - 125	100	75 - 125	<1.0	mg/kg	3.9	35	100	41 - 159
6113291	Total Cobalt (Co)	2012/08/24	97	75 - 125	98	75 - 125	<1.0	mg/kg	21.1	35	97	75 - 125
6113291	Total Copper (Cu)	2012/08/24	97	75 - 125	102	75 - 125	<5.0	mg/kg	NC	35	100	72 - 127
6113291	Total Lead (Pb)	2012/08/24	96	75 - 125	100	75 - 125	<1.0	mg/kg	4.4	35	100	54 - 146
6113291	Total Mercury (Hg)	2012/08/24	99	75 - 125	102	75 - 125	<0.050	mg/kg	NC	35		
6113291	Total Nickel (Ni)	2012/08/24	NC	75 - 125	102	75 - 125	<1.0	mg/kg	4.3	35	106	61 - 139
6113291	Total Zinc (Zn)	2012/08/24	NC	75 - 125	105	75 - 125	<10	mg/kg	1.3	35	106	72 - 128
6115750	NONACHLOROBIPHENYL (sur.)	2012/08/27	107	30 - 130	113	30 - 130	109	%				
6115750	Aroclor 1260	2012/08/27	78	30 - 130	83	30 - 130	<0.010	mg/kg	NC	50		
6115750	Aroclor 1016	2012/08/27					<0.010	mg/kg	NC	50		
6115750	Aroclor 1221	2012/08/27					<0.010	mg/kg	NC	50		
6115750	Aroclor 1232	2012/08/27					<0.010	mg/kg	NC	50		

Maxxam Job #: B274455
Report Date: 2012/11/12

EGE ENGINEERING LTD.
Client Project #: DLCU/LANDFILL MONITORING
Site Location: CAM-1 JENNY LIND ISLAND
Your P.O. #: 2012 KITIKMEOT
Sampler Initials: AP

QUALITY ASSURANCE REPORT

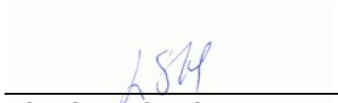
			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
6115750	Aroclor 1242	2012/08/27					<0.010	mg/kg	NC	50		
6115750	Aroclor 1248	2012/08/27					<0.010	mg/kg	NC	50		
6115750	Aroclor 1254	2012/08/27					<0.010	mg/kg	NC	50		
6115750	Aroclor 1262	2012/08/27					<0.010	mg/kg	NC	50		
6115750	Aroclor 1268	2012/08/27					<0.010	mg/kg	NC	50		
6115750	Total Aroclors	2012/08/27					<0.010	mg/kg	NC	50		
6115816	NONACHLOROBIPHENYL (sur.)	2012/08/28	107	30 - 130	114	30 - 130	116	%				
6115816	Aroclor 1260	2012/08/28	68	30 - 130	77	30 - 130	<0.010	mg/kg	NC	50		
6115816	Aroclor 1016	2012/08/28					<0.010	mg/kg	NC	50		
6115816	Aroclor 1221	2012/08/28					<0.010	mg/kg	NC	50		
6115816	Aroclor 1232	2012/08/28					<0.010	mg/kg	NC	50		
6115816	Aroclor 1242	2012/08/28					<0.010	mg/kg	NC	50		
6115816	Aroclor 1248	2012/08/28					<0.010	mg/kg	NC	50		
6115816	Aroclor 1254	2012/08/28					<0.010	mg/kg	NC	50		
6115816	Aroclor 1262	2012/08/28					<0.010	mg/kg	NC	50		
6115816	Aroclor 1268	2012/08/28					<0.010	mg/kg	NC	50		
6115816	Total Aroclors	2012/08/28					<0.010	mg/kg	NC	50		

N/A = Not Applicable
RPD = Relative Percent Difference
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.

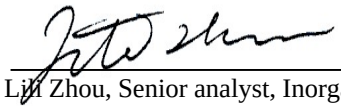
Validation Signature Page

Maxxam Job #: B274455

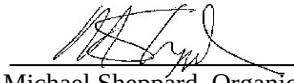
The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Luba Shymushovska, Senior Analyst, Organic Department



Lili Zhou, Senior analyst, Inorganic department.



Michael Sheppard, Organics Supervisor

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

Maxxam Analytics International Corporation o/a Maxxam Analytics

9331 - 48th Street, Edmonton, Alberta Canada T6B 2R4 Tel:(780) 577-7100 Toll-free:800-653-6266 Fax:780-450-4187 www.maxxam.ca

CHAIN OF CUSTODY RECORD

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name:	#4781 SILA REMEDIATION	Company Name:	#25854 EGE ENGINEERING LTD.	Quotation #:	A90192	MAXXAM JOB #:	BOTTLE ORDER #:
Contact Name:	ACCOUNTS PAYABLE	Contact Name:	ANDREW PASSALIS	P.O. #:	2012 KITIKMEOT	B274455	324000
Address:	4495 WILFRID-HAMEL BLVD, SUITE 200, QUEBE	Address:	511 PEPPERLOAF CRESCENT	Project #:	DLCU/Landfill Monitoring	CHAIN OF CUSTODY #:	PROJECT MANAGER:
	QUEBEC PQ G1P 2T7		WINNIPEG MB R3R 1E6	Project Name:		C#324000-01-01	Tanya Eugine
Phone:	(418)653-4422 x5485 Fax:	Phone:	(204)791-4938 Fax: (204)837-6473	Site #:	CAM-1 JENNY LIND ISLAND		
Email:		Email:	apassalis@mts.net; avallieres@biogenie-env.com	Sampled By:	A.P.		

REGULATORY CRITERIA

- ☐ ATI
- ☐ CCME
- ☐ OTHER

SPECIAL INSTRUCTIONS

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: ☒
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests are > 5 days - contact your Project Manager for details

Job Specific Rush TAT (if applies to entire submission) ☐
Date Required: _____
Rush Confirmation Number: _____ *(call lab for #)*

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Metals Field Filtered ? (Y / N)	~~BTEX F1-F4~~ F1-F3	REGULATED METALS PKG - SOIL see List	AT1 BTEX and F1-F4 in Water	Total Metals and Total Mercury - WATER	PCB	# of Bottles	Comments
1		C112-1WA	17/8/12		SOIL		X	X			X	1+1	bcg
2		-1WB					X	X			X		
3		-2WA					X	X			X		
4		-2WB					X	X			X		
5		-3WA					X	X			X		
6		-3WB					X	X			X		
7		-4WA					X	X			X		
8		-4WB					X	X			X		
9		-5WA					X	X			X		
10		-5WB					X	X			X		

Metals (Cr, Ni) (Cr) (Cr) Pb. As, Co, Zn, Hg.

ARRIVED AT DEPOT: AUG 20 2012 TEMP: 8, 9, 8,

6:00 pm

*RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	# Jars Used and Not Submitted	Laboratory Use Only: Time Sensitive	Temperature (°C) on Receipt	Custody Seal Intact on Cooler?
	12/8/19	11:00	JOSH KINGSBURY	2012/08/21	16:52		☐		☐ Yes ☐ No

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

** ALL SAMPLES ARE HELD FOR 60 DAYS AFTER INITIAL RECEIPT. FOR SPECIAL REQUESTS CONTACT YOUR PROJECT MANAGER.

White: Maxxam Yellow: Client

Maxxam Analytics International Corporation o/a Maxxam Analytics
9331 - 48th Street, Edmonton, Alberta Canada T6B 2R4 Tel:(780) 577-7100 Toll-free:800-653-6266 Fax:780-450-4187 www.maxxam.ca

CHAIN OF CUSTODY RECORD

Page 2 of 2

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:	
Company Name:	#4781 SILA REMEDIATION	Company Name:	#25854 EGE ENGINEERING LTD.	Quotation #:	A90192
Contact Name:	ACCOUNTS PAYABLE	Contact Name:	ANDREW PASSALIS	P.O. #:	2012 KITIKMEOT
Address:	4495 WILFRID-HAMEL BLVD, SUITE 200, QUEBE QUEBEC PQ GIP 2T7	Address:	511 PEPPERLOAF CRESCENT WINNIPEG MB R3R 1E6	Project #:	DLCU/Landfill Monitoring
				Project Name:	
Phone:	(418)653-4422 x5485 Fax:	Phone:	(204)791-4938 Fax: (204)837-6473	Site #:	CAM-1 JENNY LIND ISLAND
Email:		Email:	apassalis@mts.net; avallieres@biogenie-env.com	Sampled By:	AP

Laboratory Use Only:

MAXXAM JOB #:	BOTTLE ORDER #:
B274455	324000
CHAIN OF CUSTODY #:	PROJECT MANAGER:
C#324000-01-01	Tanya Eugine

REGULATORY CRITERIA:

- ☐ ATI
- ☐ CCME
- ☐ OTHER

SPECIAL INSTRUCTIONS

SAMPLES MUST BE KEPT COOL (< 10ºC) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: ☐
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests are > 5 days - contact your Project Manager for details

Job Specific Rush TAT (if applies to entire submission) ☐
Date Required: ______
Rush Confirmation Number: ______ (call lab for #)

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Metals Field Filtered ? (Y / N)	~~BTEX F1-F4~~ F1-F3	REGULATED METALS PKG - SOIL See List	AT1 BTEX and F1-F4 in Water	Total Metals and Total Mercury - WATER	PCB						# of Bottles	Comments
1		C112-6WA	17/8/12		SOIL		X	X			X						1+1 bag	
2		-6WB					X	X			X							
3		-7WA					X	X			X							
4		-7WB					X	X			X							
5		-8WA					X	X			X							
6		-8WB					X	X			X							
7																		
8																		
9																		
10																		

ARRIVED AT DEPOT:
AUG 20 2012
TEMP: 8/9/10 / 1,0,0
A.m

*RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	# Jars Used and Not Submitted
[signature]	12/8/18	11:00	JOSH KINGSBURY [signature]	2012/08/21	10:52	

Laboratory Use Only

Time Sensitive	Temperature (°C) on Receipt	Custody Seal Intact on Cooler?
☐		☐ Yes ☐ No

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.
** ALL SAMPLES ARE HELD FOR 60 DAYS AFTER SAMPLE RECEIPT, FOR SPECIAL REQUESTS CONTACT YOUR PROJECT MANAGER

White: Maxxam Yellow: Client

Success Through Science®

Your P.O. #: 2012 KITIKMEOT
Your Project #: DLCU/LANDFILL MONITORING
Site Location: CAM-1 JENNY LIND ISLAND

Attention: ANDREW PASSALIS
EGE ENGINEERING LTD.
511 PEPPERLOAF CRESCENT
WINNIPEG, MB
CANADA R3R 1E6

Report Date: 2012/11/12
This report supersedes all previous reports with the same Maxxam job number

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B274602
Received: 2012/08/20, 18:00

Sample Matrix: Water
Samples Received: 6

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
BTEX/F1 in Water by HS GC/MS	4	N/A	2012/08/25	AB SOP-00039	CCME, EPA 8260C
BTEX/F1 in Water by HS GC/MS	1	N/A	2012/08/27	AB SOP-00039	CCME, EPA 8260C
Cadmium - low level CCME (Total)	5	2012/11/12	2012/11/12	AB SOP-00043	EPA 200.8
CCME Hydrocarbons (F2-F4 in water)	5	2012/08/24	2012/08/24	AB SOP-00040 AB SOP-00037	EPA3510C/CCME PHCCWS
Mercury (Total-LowLevel) by CVAF (1)	5	2012/08/28	2012/08/28	65-A-011	EPA 1631B
Elements by ICPMS - Total	5	2012/08/24	2012/08/25	AB SOP-00043	EPA 200.8
Polychlorinated Biphenyls	6	2012/08/23	2012/08/24	CAL SOP-00149	EPA 3510C, EPA 8082A

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

(1) This test was performed by Maxxam Vancouver

Encryption Key

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

Ioana Stoica, Project Manager
Email: IStoica@maxxam.ca
Phone# (403) 291-3077

==========

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 #: B274602
Report Date: 2012/11/12

EGE ENGINEERING LTD.
Client Project #: DLCU/LANDFILL MONITORING
Site Location: CAM-1 JENNY LIND ISLAND
Your P.O. #: 2012 KITIKMEOT
Sampler Initials: AP

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		EG5821	EG5870	EG5871	EG5872	EG5873		
Sampling Date		2012/08/17	2012/08/17	2012/08/17	2012/08/17	2012/08/17		
	UNITS	**C112-3W**	**C112-4W**	**C112-BDW1**	**C112-FB**	**TRIP BLANK**	**RDL**	**QC Batch**
Low Level Elements								
Total Cadmium (Cd)	ug/L	0.026	0.14	0.018	<0.0050	<0.0050	0.0050	6336056

RDL = Reportable Detection Limit

Maxxam Job #: B274602
Report Date: 2012/11/12

EGE ENGINEERING LTD.
Client Project #: DLCU/LANDFILL MONITORING
Site Location: CAM-1 JENNY LIND ISLAND
Your P.O. #: 2012 KITIKMEOT
Sampler Initials: AP

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		EG5821	EG5870	EG5871	EG5872	EG5873		
Sampling Date		2012/08/17	2012/08/17	2012/08/17	2012/08/17	2012/08/17		
	UNITS	**C112-3W**	**C112-4W**	**C112-BDW1**	**C112-FB**	**TRIP BLANK**	**RDL**	**QC Batch**
Ext. Pet. Hydrocarbon								
F2 (C10-C16 Hydrocarbons)	mg/L	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	6106573
F3 (C16-C34 Hydrocarbons)	mg/L	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	6106573
F4 (C34-C50 Hydrocarbons)	mg/L	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	6106573
Reached Baseline at C50	mg/L	Yes	Yes	Yes	Yes	Yes		6106573
Surrogate Recovery (%)								
O-TERPHENYL (sur.)	%	112	94	106	109	112		6106573

RDL = Reportable Detection Limit

Maxxam Job #: B274602
Report Date: 2012/11/12

EGE ENGINEERING LTD.
Client Project #: DLCU/LANDFILL MONITORING
Site Location: CAM-1 JENNY LIND ISLAND
Your P.O. #: 2012 KITIKMEOT
Sampler Initials: AP

POLYCHLORINATED BIPHENYLS BY GC-ECD (WATER)

Maxxam ID		EG5800		EG5821	EG5870	EG5871		
Sampling Date		2012/08/17		2012/08/17	2012/08/17	2012/08/17		
	UNITS	**C112-2W**	**RDL**	**C112-3W**	**C112-4W**	**C112-BDW1**	**RDL**	**QC Batch**
Polychlorinated Biphenyls								
Aroclor 1016	mg/L	<0.00010	0.00010	<0.000050	<0.000050	<0.000050	0.000050	6109256
Aroclor 1221	mg/L	<0.00010	0.00010	<0.000050	<0.000050	<0.000050	0.000050	6109256
Aroclor 1232	mg/L	<0.00010	0.00010	<0.000050	<0.000050	<0.000050	0.000050	6109256
Aroclor 1242	mg/L	<0.00010	0.00010	<0.000050	<0.000050	<0.000050	0.000050	6109256
Aroclor 1248	mg/L	<0.00010	0.00010	<0.000050	<0.000050	<0.000050	0.000050	6109256
Aroclor 1254	mg/L	<0.00010	0.00010	<0.000050	<0.000050	<0.000050	0.000050	6109256
Aroclor 1260	mg/L	<0.00010	0.00010	<0.000050	<0.000050	<0.000050	0.000050	6109256
Aroclor 1262	mg/L	<0.00010	0.00010	<0.000050	<0.000050	<0.000050	0.000050	6109256
Aroclor 1268	mg/L	<0.00010	0.00010	<0.000050	<0.000050	<0.000050	0.000050	6109256
Total Aroclors	mg/L	<0.00010	0.00010	<0.000050	<0.000050	<0.000050	0.000050	6109256
Surrogate Recovery (%)								
NONACHLOROBIPHENYL (sur.)	%	118		114	114	113		6109256

RDL = Reportable Detection Limit

Maxxam ID		EG5872	EG5873		
Sampling Date		2012/08/17	2012/08/17		
	UNITS	**C112-FB**	**TRIP BLANK**	**RDL**	**QC Batch**
Polychlorinated Biphenyls					
Aroclor 1016	mg/L	<0.000050	<0.000050	0.000050	6109256
Aroclor 1221	mg/L	<0.000050	<0.000050	0.000050	6109256
Aroclor 1232	mg/L	<0.000050	<0.000050	0.000050	6109256
Aroclor 1242	mg/L	<0.000050	<0.000050	0.000050	6109256
Aroclor 1248	mg/L	<0.000050	<0.000050	0.000050	6109256
Aroclor 1254	mg/L	<0.000050	<0.000050	0.000050	6109256
Aroclor 1260	mg/L	<0.000050	<0.000050	0.000050	6109256
Aroclor 1262	mg/L	<0.000050	<0.000050	0.000050	6109256
Aroclor 1268	mg/L	<0.000050	<0.000050	0.000050	6109256
Total Aroclors	mg/L	<0.000050	<0.000050	0.000050	6109256
Surrogate Recovery (%)					
NONACHLOROBIPHENYL (sur.)	%	121	115		6109256

RDL = Reportable Detection Limit

Maxxam Job #: B274602
Report Date: 2012/11/12

EGE ENGINEERING LTD.
Client Project #: DLCU/LANDFILL MONITORING
Site Location: CAM-1 JENNY LIND ISLAND
Your P.O. #: 2012 KITIKMEOT
Sampler Initials: AP

MERCURY BY COLD VAPOR (WATER)

Maxxam ID		EG5821	EG5870	EG5871	EG5872	EG5873		
Sampling Date		2012/08/17	2012/08/17	2012/08/17	2012/08/17	2012/08/17		
	UNITS	**C112-3W**	**C112-4W**	**C112-BDW1**	**C112-FB**	**TRIP BLANK**	**RDL**	**QC Batch**
Elements								
Total Mercury (Hg)	ug/L	<0.0020	0.0047	<0.0020	<0.0020	<0.0020	0.0020	6123251

RDL = Reportable Detection Limit

Maxxam Job #: B274602
Report Date: 2012/11/12

EGE ENGINEERING LTD.
Client Project #: DLCU/LANDFILL MONITORING
Site Location: CAM-1 JENNY LIND ISLAND
Your P.O. #: 2012 KITIKMEOT
Sampler Initials: AP

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Maxxam ID		EG5821	EG5870	EG5871	EG5872	EG5873		
Sampling Date		2012/08/17	2012/08/17	2012/08/17	2012/08/17	2012/08/17		
	UNITS	**C112-3W**	**C112-4W**	**C112-BDW1**	**C112-FB**	**TRIP BLANK**	**RDL**	**QC Batch**
Elements								
Total Arsenic (As)	mg/L	0.0026	0.023	0.0019	<0.00020	<0.00020	0.00020	6113061
Total Chromium (Cr)	mg/L	0.031	0.55	0.021	<0.0010	<0.0010	0.0010	6113061
Total Cobalt (Co)	mg/L	0.00057	0.0073	0.00038	<0.00030	<0.00030	0.00030	6113061
Total Copper (Cu)	mg/L	0.0040	0.055	0.0028	<0.00020	<0.00020	0.00020	6113061
Total Lead (Pb)	mg/L	0.0012	0.015	0.00085	<0.00020	<0.00020	0.00020	6113061
Total Nickel (Ni)	mg/L	0.014	0.27	0.0093	<0.00050	<0.00050	0.00050	6113061
Total Zinc (Zn)	mg/L	<0.0030	0.024	<0.0030	<0.0030	<0.0030	0.0030	6113061

RDL = Reportable Detection Limit

Maxxam Job #: B274602
Report Date: 2012/11/12

EGE ENGINEERING LTD.
Client Project #: DLCU/LANDFILL MONITORING
Site Location: CAM-1 JENNY LIND ISLAND
Your P.O. #: 2012 KITIKMEOT
Sampler Initials: AP

VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		EG5821	EG5870	EG5871	EG5872		
Sampling Date		2012/08/17	2012/08/17	2012/08/17	2012/08/17		
	UNITS	**C112-3W**	**C112-4W**	**C112-BDW1**	**C112-FB**	**RDL**	**QC Batch**
Volatiles							
Benzene	ug/L	<0.40	<0.40	<0.40	<0.40	0.40	6112918
Toluene	ug/L	<0.40	<0.40	<0.40	<0.40	0.40	6112918
Ethylbenzene	ug/L	<0.40	<0.40	<0.40	<0.40	0.40	6112918
o-Xylene	ug/L	<0.40	<0.40	<0.40	<0.40	0.40	6112918
m & p-Xylene	ug/L	<0.80	<0.80	<0.80	<0.80	0.80	6112918
Xylenes (Total)	ug/L	<0.80	<0.80	<0.80	<0.80	0.80	6112918
F1 (C6-C10) - BTEX	ug/L	<100	<100	<100	<100	100	6112918
(C6-C10)	ug/L	<100	<100	<100	<100	100	6112918
Surrogate Recovery (%)							
1,4-Difluorobenzene (sur.)	%	101	103	97	103		6112918
4-BROMOFLUOROBENZENE (sur.)	%	102	98	102	103		6112918
D4-1,2-DICHLOROETHANE (sur.)	%	117	124	123	126		6112918

RDL = Reportable Detection Limit

Maxxam Job #: B274602
Report Date: 2012/11/12

EGE ENGINEERING LTD.
Client Project #: DLCU/LANDFILL MONITORING
Site Location: CAM-1 JENNY LIND ISLAND
Your P.O. #: 2012 KITIKMEOT
Sampler Initials: AP

VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		EG5873		
Sampling Date		2012/08/17		
	UNITS	**TRIP BLANK**	**RDL**	**QC Batch**
Volatiles				
Benzene	ug/L	<0.40	0.40	6115297
Toluene	ug/L	<0.40	0.40	6115297
Ethylbenzene	ug/L	<0.40	0.40	6115297
o-Xylene	ug/L	<0.40	0.40	6115297
m & p-Xylene	ug/L	<0.80	0.80	6115297
Xylenes (Total)	ug/L	<0.80	0.80	6115297
F1 (C6-C10) - BTEX	ug/L	<100	100	6115297
(C6-C10)	ug/L	<100	100	6115297
Surrogate Recovery (%)				
1,4-Difluorobenzene (sur.)	%	98		6115297
4-BROMOFLUOROBENZENE (sur.)	%	95		6115297
D4-1,2-DICHLOROETHANE (sur.)	%	102		6115297

RDL = Reportable Detection Limit

Maxxam Job #: B274602
Report Date: 2012/11/12

EGE ENGINEERING LTD.
Client Project #: DLCU/LANDFILL MONITORING
Site Location: CAM-1 JENNY LIND ISLAND
Your P.O. #: 2012 KITIKMEOT
Sampler Initials: AP

POLYCHLORINATED BIPHENYLS BY GC-ECD (WATER) Comments

Sample EG5800-01 Polychlorinated Biphenyls: Detection limits raised due to matrix interference.

Results relate only to the items tested.

EGE ENGINEERING LTD.
Attention: ANDREW PASSALIS
Client Project #: DLCU/LANDFILL MONITORING
P.O. #: 2012 KITIKMEOT
Site Location: CAM-1 JENNY LIND ISLAND

Quality Assurance Report

Maxxam Job Number: CB274602

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
6106573	LQ	Matrix Spike	O-TERPHENYL (sur.)	2012/08/23		77	%	50 - 130
			F2 (C10-C16 Hydrocarbons)	2012/08/23		67	%	50 - 130
			F3 (C16-C34 Hydrocarbons)	2012/08/23		65	%	50 - 130
			F4 (C34-C50 Hydrocarbons)	2012/08/23		66	%	50 - 130
		Spiked Blank	O-TERPHENYL (sur.)	2012/08/23		98	%	50 - 130
			F2 (C10-C16 Hydrocarbons)	2012/08/23		83	%	70 - 130
			F3 (C16-C34 Hydrocarbons)	2012/08/23		78	%	70 - 130
			F4 (C34-C50 Hydrocarbons)	2012/08/23		75	%	70 - 130
		Method Blank	O-TERPHENYL (sur.)	2012/08/24		104	%	50 - 130
			F2 (C10-C16 Hydrocarbons)	2012/08/24	<0.10		mg/L	
			F3 (C16-C34 Hydrocarbons)	2012/08/24	<0.10		mg/L	
			F4 (C34-C50 Hydrocarbons)	2012/08/24	<0.10		mg/L	
		RPD	F2 (C10-C16 Hydrocarbons)	2012/08/23	NC		%	40
			F3 (C16-C34 Hydrocarbons)	2012/08/23	NC		%	40
			F4 (C34-C50 Hydrocarbons)	2012/08/23	NC		%	40
6109256	JC7	Spiked Blank	NONACHLOROBIPHENYL (sur.)	2012/08/24		127	%	30 - 130
			Aroclor 1260	2012/08/24		98	%	30 - 130
		Method Blank	NONACHLOROBIPHENYL (sur.)	2012/08/24		130	%	30 - 130
			Aroclor 1016	2012/08/24	<0.000050		mg/L	
			Aroclor 1221	2012/08/24	<0.000050		mg/L	
			Aroclor 1232	2012/08/24	<0.000050		mg/L	
			Aroclor 1242	2012/08/24	<0.000050		mg/L	
			Aroclor 1248	2012/08/24	<0.000050		mg/L	
			Aroclor 1254	2012/08/24	<0.000050		mg/L	
			Aroclor 1260	2012/08/24	<0.000050		mg/L	
			Aroclor 1262	2012/08/24	<0.000050		mg/L	
			Aroclor 1268	2012/08/24	<0.000050		mg/L	
			Total Aroclors	2012/08/24	<0.000050		mg/L	
6112918	RSU	Matrix Spike	1,4-Difluorobenzene (sur.)	2012/08/25		99	%	70 - 130
			4-BROMOFLUOROBENZENE (sur.)	2012/08/25		104	%	70 - 130
			D4-1,2-DICHLOROETHANE (sur.)	2012/08/25		119	%	70 - 130
			Benzene	2012/08/25		93	%	70 - 130
			Toluene	2012/08/25		91	%	70 - 130
			Ethylbenzene	2012/08/25		93	%	70 - 130
			o-Xylene	2012/08/25		84	%	70 - 130
			m & p-Xylene	2012/08/25		88	%	70 - 130
			(C6-C10)	2012/08/25		84	%	70 - 130
		Spiked Blank	1,4-Difluorobenzene (sur.)	2012/08/25		100	%	70 - 130
			4-BROMOFLUOROBENZENE (sur.)	2012/08/25		111	%	70 - 130
			D4-1,2-DICHLOROETHANE (sur.)	2012/08/25		124	%	70 - 130
			Benzene	2012/08/25		87	%	70 - 130
			Toluene	2012/08/25		96	%	70 - 130
			Ethylbenzene	2012/08/25		101	%	70 - 130
			o-Xylene	2012/08/25		92	%	70 - 130
			m & p-Xylene	2012/08/25		96	%	70 - 130
			(C6-C10)	2012/08/25		83	%	70 - 130
		Method Blank	1,4-Difluorobenzene (sur.)	2012/08/25		99	%	70 - 130
			4-BROMOFLUOROBENZENE (sur.)	2012/08/25		101	%	70 - 130
			D4-1,2-DICHLOROETHANE (sur.)	2012/08/25		120	%	70 - 130
			Benzene	2012/08/25	<0.40		ug/L	
			Toluene	2012/08/25	<0.40		ug/L	
			Ethylbenzene	2012/08/25	<0.40		ug/L	
			o-Xylene	2012/08/25	<0.40		ug/L	
			m & p-Xylene	2012/08/25	<0.80		ug/L	
			Xylenes (Total)	2012/08/25	<0.80		ug/L	

EGE ENGINEERING LTD.
Attention: ANDREW PASSALIS
Client Project #: DLCU/LANDFILL MONITORING
P.O. #: 2012 KITIKMEOT
Site Location: CAM-1 JENNY LIND ISLAND

Quality Assurance Report (Continued)

Maxxam Job Number: CB274602

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
6112918	RSU	Method Blank	F1 (C6-C10) - BTEX	2012/08/25	<100		ug/L	
			(C6-C10)	2012/08/25	<100		ug/L	
6113061	PW3	Matrix Spike	Total Arsenic (As)	2012/08/25		115	%	80 - 120
			Total Chromium (Cr)	2012/08/25		112	%	80 - 120
			Total Cobalt (Co)	2012/08/25		113	%	80 - 120
			Total Copper (Cu)	2012/08/25		114	%	80 - 120
			Total Lead (Pb)	2012/08/25		114	%	80 - 120
			Total Nickel (Ni)	2012/08/25		113	%	80 - 120
			Total Zinc (Zn)	2012/08/25		119	%	80 - 120
		Spiked Blank	Total Arsenic (As)	2012/08/25		97	%	80 - 120
			Total Chromium (Cr)	2012/08/25		95	%	80 - 120
			Total Cobalt (Co)	2012/08/25		96	%	80 - 120
			Total Copper (Cu)	2012/08/25		97	%	80 - 120
			Total Lead (Pb)	2012/08/25		97	%	80 - 120
			Total Nickel (Ni)	2012/08/25		97	%	80 - 120
			Total Zinc (Zn)	2012/08/25		97	%	80 - 120
		Method Blank	Total Arsenic (As)	2012/08/25	<0.00020		mg/L	
			Total Chromium (Cr)	2012/08/25	<0.0010		mg/L	
			Total Cobalt (Co)	2012/08/25	<0.00030		mg/L	
			Total Copper (Cu)	2012/08/25	<0.00020		mg/L	
			Total Lead (Pb)	2012/08/25	<0.00020		mg/L	
			Total Nickel (Ni)	2012/08/25	<0.00050		mg/L	
			Total Zinc (Zn)	2012/08/25	<0.0030		mg/L	
		RPD	Total Arsenic (As)	2012/08/25	NC		%	20
			Total Chromium (Cr)	2012/08/25	NC		%	20
			Total Cobalt (Co)	2012/08/25	NC		%	20
			Total Copper (Cu)	2012/08/25	NC		%	20
			Total Lead (Pb)	2012/08/25	NC		%	20
			Total Nickel (Ni)	2012/08/25	NC		%	20
			Total Zinc (Zn)	2012/08/25	NC		%	20
6115297	MZ	Matrix Spike	1,4-Difluorobenzene (sur.)	2012/08/25		93	%	70 - 130
			4-BROMOFLUOROBENZENE (sur.)	2012/08/25		96	%	70 - 130
			D4-1,2-DICHLOROETHANE (sur.)	2012/08/25		94	%	70 - 130
			Benzene	2012/08/25		96	%	70 - 130
			Toluene	2012/08/25		103	%	70 - 130
			Ethylbenzene	2012/08/25		99	%	70 - 130
			o-Xylene	2012/08/25		100	%	70 - 130
			m & p-Xylene	2012/08/25		102	%	70 - 130
			(C6-C10)	2012/08/25		89	%	70 - 130
		Spiked Blank	1,4-Difluorobenzene (sur.)	2012/08/25		92	%	70 - 130
			4-BROMOFLUOROBENZENE (sur.)	2012/08/25		95	%	70 - 130
			D4-1,2-DICHLOROETHANE (sur.)	2012/08/25		86	%	70 - 130
			Benzene	2012/08/25		93	%	70 - 130
			Toluene	2012/08/25		100	%	70 - 130
			Ethylbenzene	2012/08/25		98	%	70 - 130
			o-Xylene	2012/08/25		97	%	70 - 130
			m & p-Xylene	2012/08/25		99	%	70 - 130
			(C6-C10)	2012/08/25		114	%	70 - 130
		Method Blank	1,4-Difluorobenzene (sur.)	2012/08/25		99	%	70 - 130
			4-BROMOFLUOROBENZENE (sur.)	2012/08/25		93	%	70 - 130
			D4-1,2-DICHLOROETHANE (sur.)	2012/08/25		98	%	70 - 130
			Benzene	2012/08/25	<0.40		ug/L	
			Toluene	2012/08/25	<0.40		ug/L	
			Ethylbenzene	2012/08/25	<0.40		ug/L	
			o-Xylene	2012/08/25	<0.40		ug/L	

EGE ENGINEERING LTD.
Attention: ANDREW PASSALIS
Client Project #: DLCU/LANDFILL MONITORING
P.O. #: 2012 KITIKMEOT
Site Location: CAM-1 JENNY LIND ISLAND

Quality Assurance Report (Continued)

Maxxam Job Number: CB274602

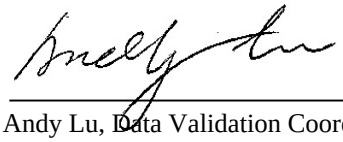
QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
6115297	MZ	Method Blank	m & p-Xylene	2012/08/25	<0.80		ug/L	
			Xylenes (Total)	2012/08/25	<0.80		ug/L	
			F1 (C6-C10) - BTEX	2012/08/25	<100		ug/L	
			(C6-C10)	2012/08/25	<100		ug/L	
		RPD	Benzene	2012/08/25	NC		%	40
			Toluene	2012/08/25	NC		%	40
			Ethylbenzene	2012/08/25	NC		%	40
			o-Xylene	2012/08/25	NC		%	40
			m & p-Xylene	2012/08/25	NC		%	40
			Xylenes (Total)	2012/08/25	NC		%	40
			F1 (C6-C10) - BTEX	2012/08/25	NC		%	40
			(C6-C10)	2012/08/25	NC		%	40
6123251	EF1	Matrix Spike	Total Mercury (Hg)	2012/08/28		90	%	80 - 120
		Spiked Blank	Total Mercury (Hg)	2012/08/28		86	%	80 - 120
		Method Blank	Total Mercury (Hg)	2012/08/28	<0.0020		ug/L	
		RPD	Total Mercury (Hg)	2012/08/28	NC		%	20

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.
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 (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.

Validation Signature Page

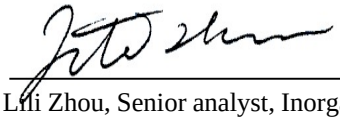
Maxxam Job #: B274602

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

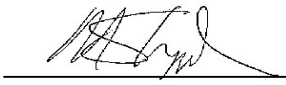


Andy Lu, Data Validation Coordinator

Luba Shymushovska, Senior Analyst, Organic Department



Lili Zhou, Senior analyst, Inorganic department.



Michael Sheppard, Organics Supervisor

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

CONFIRMATION-RECEIPT OF SAMPLES FOR ANALYSIS

Maxxam Job # B274602

Client Project #: DLCU/LANDFILL MONITORING 6 Samples
PO #: 2012 KITIKMEOT
Site Location: CAM-1 JENNY LIND ISLAND

Samples Received 2012/08/20
Client Confirmation 2012/08/21
Expected Report Delivery 2012/08/28 18:00

Report will be sent to:
ANDREW PASSALIS
EGE ENGINEERING LTD.
511 PEPPERLOAF CRESCENT
WINNIPEG
R3R 1E6
Ph 204-226-7378
Fax 204-837-6473
apassalis@mts.net

Invoice will be sent to:
ACCOUNTS PAYABLE
SILA REMEDIATION
QUEBEC
GIP 2T7

Copy of Report will be sent to:
AVALLIERES

We have received the following samples:

C112-2W Sampled 2012/08/17 Matrix: WATER
Maxxam #: EG5800
Environmental Sample Disposal Fee
Polychlorinated Biphenyls

C112-3W Sampled 2012/08/17
Maxxam #: EG5821
AT1 BTEX and F1-F4 in Water
Acid Digestion for Total Metals - Waters
*Elements by ICPMS - Total
Environmental Sample Disposal Fee
Mercury - Low Level (Total)
Polychlorinated Biphenyls

C112-4W Sampled 2012/08/17
Maxxam #: EG5870
AT1 BTEX and F1-F4 in Water
Acid Digestion for Total Metals - Waters
*Elements by ICPMS - Total
Environmental Sample Disposal Fee
Mercury - Low Level (Total)
Polychlorinated Biphenyls

C112-BDW1 Sampled 2012/08/17
Maxxam #: EG5871
AT1 BTEX and F1-F4 in Water
Acid Digestion for Total Metals - Waters
*Elements by ICPMS - Total
Environmental Sample Disposal Fee
Mercury - Low Level (Total)

Polychlorinated Biphenyls

C112-FB Sampled 2012/08/17

Maxxam #: EG5872

AT1 BTEX and F1-F4 in Water
Acid Digestion for Total Metals - Waters
*Elements by ICPMS - Total
Environmental Sample Disposal Fee
Mercury - Low Level (Total)
Polychlorinated Biphenyls

TRIP BLANK Sampled 2012/08/17

Maxxam #: EG5873

AT1 BTEX and F1-F4 in Water
Acid Digestion for Total Metals - Waters
*Elements by ICPMS - Total
Environmental Sample Disposal Fee
Mercury - Low Level (Total)
Polychlorinated Biphenyls

Comments:

- Unless special storage arrangements are made, all samples will be discarded 60 days after receipt of samples.
- Non-regular samples are flagged as (C) Composite by lab, (H) Hold, or (L) Leachate.
- If there are any problems with the submitted samples, a Sample Integrity Form (SIF) detailing conditions will be included in this confirmation.
- For revisions please contact your Maxxam Project Management team at Ph (403) 291-3077 or Fax (403) 291-9468. Your Project Manager is: Ioana Stoica

Fundamental Laboratory Acceptance Guideline

Invoice To:
SILA REMEDIATION
4495 BL. WILFRED-HAMEL BUR 100
ATTN: ACCOUNTS PAYABLE
QUEBEC, PQ
CANADA GIP 2T7
Client Contact:
ANDREW PASSALIS

Report To:
EGE ENGINEERING LTD.
ATTN: ANDREW PASSALIS
511 PEPPERLOAF CRESCENT
WINNIPEG, MB
CANADA R3R 1E6

Maxxam Job #:	B274602
Date Received:	2012/08/20
Your Project #:	DLCU/LANDFILL MONITORING
Your P.O. #:	2012 KITIKMEOT
Maxxam Project Manager:	Ioana Stoica

[x] Chain of Custody information incomplete

Report Comments
5. Sampling dates and times not indicated on the COC

Received Date: 2012/08/20 **(Time):** 18:00 **By:** JK4

Inspected Date: 2012/08/21 **(Time):** 17:00 **By:** SCM

FLAG Created Date: 2012/08/24 **(Time):** 11:10 **By:** CM0

Maxxam

Maxxam Analytics International Corporation o/a Maxxam Analytics
9331 - 48th Street, Edmonton, Alberta Canada T6B 2R4 Tel:(780) 577-7100 Toll-free:800-653-6266 Fax:780-450-4187 www.maxxam.ca

CHAIN OF CUSTODY RECORD

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:	
Company Name:	#4781 SILA REMEDIATION	Company Name:	#25854 EGE ENGINEERING LTD.	Quotation #:	A90192
Contact Name:	ACCOUNTS PAYABLE	Contact Name:	ANDREW PASSALIS	P.O. #:	2012 KITIKMEOT
Address:	4495 WILFRID-HAMEL BLVD, SUITE 200, QUEBE	Address:	511 PEPPERLOAF CRESCENT	Project #:	DLCU/Landfill Monitoring
	QUEBEC PQ GIP 2T7		WINNIPEG MB R3R 1E6	Project Name:	
Phone:	(418)653-4422 x5485 Fax:	Phone:	(204)791-4938 Fax: (204)837-6473	Site #:	CAM-1 JENNY LIND ISLAND
Email:		Email:	apassalis@mts.net; avallieres@biogenie-env.com	Sampled By:	A.P

Laboratory Use Only:

MAXXAM JOB #:	BOTTLE ORDER #:
B274602	324000
CHAIN OF CUSTODY #:	PROJECT MANAGER:
C#324000-01-01	Tanya Eugine

REGULATORY CRITERIA: ☐ ATI ☐ CCME ☐ OTHER

SPECIAL INSTRUCTIONS:

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: ☒
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests are > 5 days - contact your Project Manager for details

Job Specific Rush TAT (if applies to entire submission) ☐
Date Required:
Rush Confirmation Number: (call lab for #)

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Metals Field Filtered ? (Y / N)	BTEX F1-F4	REGULATED METALS PKG - SOIL	~~AT1 BTEX and F1-F4 in Water~~ TEH (C6-C32)	Total Metals and Total Mercury - WATER (See List)	PCB						# of Bottles	Comments
1					~~SOIL~~				~~X~~									
2		C112-2W			W				~~X~~	~~X~~	X							TOTAL METALS As, Co, Cu, Cr, Hg, Ni, Pb, Zn.
3		C112-3W			W				X	X	X							
4		C112-4W			W				X	X	X							
5		C112-BDW1			W				X	X	X							
6		C112-FB			W				X	X	X							
7		TRIP BLANK			W				X	X	X							
8																		
9																		
10																		

ARRIVED AT DEPOT:
AUG 20 2012
TEMP: 8/9/8/1
6:00
M.M

*RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	# Jars Used and Not Submitted
[signature]	12/8/18	11:00	SOBH KINGSBURY [signature]	2012/08/21	16:52	

Laboratory Use Only		
Time Sensitive ☐	Temperature (°C) on Receipt	Custody Seal Intact on Cooler? ☐ Yes ☐ No

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

** ALL SAMPLES ARE HELD FOR 60 DAYS AFTER SAMPLE RECEIPT, FOR SPECIAL REQUESTS CONTACT YOUR PROJECT MANAGER

White: Maxxam Yellow: Client

MAXXAM ANALYTICS
4000 19st N.E
Calgary, Alberta, T2E 6P8
Phone: (403) 291-3077
Fax: (403) 291-9468

SILA REMEDIATION - 4495 BL.
WILFRED-HAMEL BUR 100
Maxxam PM Ioana Stoica

SUBCONTRACTING REQUEST FORM

To: Maxxam Vancouver

Job# B274602

☐ Yes ☐ No International Sample/BioHazard (if yes, add copy of Movement Cert., heat treat is required prior to disposal)
☐ Yes ☐ No Special Protocol (if yes, Protocol _____)

Sample ID	Matrix	Test(s) Required	Container	Date Sampled	Date Required
EG5821-01R \ C112-3W	WATER	Mercury (Total-LowLevel) by CVAF	1(M)	2012/08/17	2012/08/28
EG5870-01R \ C112-4W	WATER	Mercury (Total-LowLevel) by CVAF	1(M)	2012/08/17	2012/08/28
EG5871-01R \ C112-BDW1	WATER	Mercury (Total-LowLevel) by CVAF	1(M)	2012/08/17	2012/08/28
EG5872-01R \ C112-FB	WATER	Mercury (Total-LowLevel) by CVAF	1(M)	2012/08/17	2012/08/28
EG5873-01R \ TRIP BLANK	WATER	Mercury (Total-LowLevel) by CVAF	2(M)	2012/08/17	2012/08/28

NR AUG 28 12

	Temp. 1	Temp. 2	Temp. 3			
Cooler #1	4	4	5	Custody Seal Present	(YES)	NO
				Custody Seal Intact	(YES)	NO
				Ice Present Upon Receipt	(YES)	NO
Cooler #2				Custody Seal Present	YES	NO
				Custody Seal Intact	YES	NO
				Ice Present Upon Receipt	YES	NO
Cooler #3				Custody Seal Present	YES	NO
				Custody Seal Intact	YES	NO
				Ice Present Upon Receipt	YES	NO

Receiving Maxxam Location: Maxxam Vancouver JOB # B274602

Relinquished by (Sign) _____ (Print) JISK Courier Date and Time 2012/08/27 1400

Received by (Sign) _____ (Print) Laurel Berthier Date and Time 2012/08/28 08:40

NOTES:
1) Please call us if due date cannot be met. Please reference Sample ID on your report.
2) Include copy of this completed form, Client COC & signed final report to **calgarycustomerservice@maxxamanalytics.com**

Reporting Requirements:
National:
Regional:

B274602

MAXXAM ANALYTICS
4000 19st N.E
Calgary, Alberta, T2E 6P8
Phone: (403) 291-3077
Fax: (403) 291-9468

SILA REMEDIATION - 4495 BL.
WILFRED-HAMEL BUR 100
Maxxam PM Ioana Stoica

Maxxam

SUBCONTRACTING REQUEST FORM

B274602

SHIPPING INSTRUCTIONS

☐ Ship Immediately (highlight Yellow)
☐ Requires 9am
☐ Requires Sat. Delivery
☐ Regular Ship next available day
☐ Ship Cold
☐ Ship Room Temp
☐ Ship Frozen
☐ COC Must be Attached

Sender (Print) _____ Initial _____

SHIPPING DEPARTMENT CHECKLIST

☐ Correct Shipping location
☐ Correct Sample Ids (Paperwork vs Bottles)
☐ Yes ☐ No Special-Cooler, Ice, Tape-custody seal, Date&Sign

Date Shipped _____ Number of coolers _____
Shipper (Print) _____ Initial _____

Maxxam

Maxxam Analytics International Corporation o/a Maxxam Analytics

9331 - 48th Street, Edmonton, Alberta Canada T6B 2R4 Tel (780) 577-7100 Toll-free 800-563-6266 Fax 780-450-4187 www.maxxam.ca

CHAIN OF CUSTODY RECORD

Page 1 of 1

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:	
Company Name:	#4781 SILA REMEDIATION	Company Name:	#25864 EGE ENGINEERING LTD.	Quotation #:	A80192
Contact Name:	ACCOUNTS PAYABLE	Contact Name:	ANDREW PASSALIS	P.O. #:	2012 KITIKMEOT
Address:	4495 WILFRID-HAMEL BLVD, SUITE 200, QUEBE	Address:	511 PEPPERLOAF CRESCENT	Project #:	DLCU/Landfill Monitoring
	QUEBEC PQ G1P 2T7		WINNIPEG MB R3R 1E6	Project Name:	
Phone:	(418)653-4422 x5485 Fax:	Phone:	(204)791-4938 Fax: (204)837-6473	Site #:	CAM-1 JENNY LIND ISLAND
Email:		Email:	apassalis@mts.net; avalleres@biogenie-env.com	Sampled By:	A.P

Laboratory Use Only:	
MAXXAM JOB #:	BOTTLE ORDER #:
B274602	324000
CHAIN OF CUSTODY #:	PROJECT MANAGER:
C#324000-01-01	Tanya Eugene

REGULATORY CRITERIA

- [ ] AT1
- [ ] CCME
- [ ] OTHER

SPECIAL INSTRUCTIONS

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific)

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: [X]
(will be applied if Rush TAT is not specified)
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests are > 5 days - contact your Project Manager for details

Job Specific Rush TAT (if applies to entire submission) [ ]
Date Required: ______
Rush Confirmation Number: ______ (call lab for #)

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Metals-Field Filtered ? (Y / N)	BTEX F1-F4	REGULATED METALS PKG - SOIL	~~AT1-BTEX and F1-F4 in Water~~ TEH (C6-C32)	Total Metals and Total Mercury - WATER (See List)	PCB					# of Bottles	Comments
1					~~W~~				~~X~~								
2		C112-2W			(W)				~~X~~	~~X~~	X						
3		C112-3W							X	X	X						TOTAL METALS As, Co, Cu, Cr, Hg, Ni, Pb, Zn.
4		C112-4W							X	X	X						
5		C112-BDW1							X	X	X						
6		C112-FB							X	X	X						
7		TRIP BLANK							X	X	X						
8																	
9																	
10																	

ARRIVED AT DEPOT:
AUG 2 [illegible]
TEMP: 9/9/8/
6:00 a.m

B274602

*RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	# Jars Used and Not Submitted	Time Sensitive	Temperature (°C) on Receipt	Custody Seal Intact on Cooler?
[signature]	12/8/18	1100	Sobh Kenczuk [signature]	2012/08/21	1655		[ ]		[ ] Yes [ ] No

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

** ALL SAMPLES [illegible] AFTER SAMPLE RECEIPT. FOR SPECIAL REQUESTS CONTACT YOUR PROJECT MANAGER

White: Maxxam Yellow: Client

Exova
7217 Roper Road NW
Edmonton, Alberta
T6B 3J4, Canada

T: +1 (780) 438-5522
F: +1 (780) 438-0396
E: Edmonton@exova.com
W: www.exova.com

Exova

Analytical Report

Bill To:	Sila Remediation Inc.	Project:	
Report To:	EGE	ID:	DC9229
	511 Pepperloaf Cres.	Name:	CAM-1
	Winnipeg, MB, Canada	Location:	Jenny Lind Island
	R3R 1E6	LSD:	
Attn:	A Passalis	P.O.:	
Sampled By:	A. Passalis	Acct code:	
Company:	EGE		

Lot ID:	**888943**
Control Number:	
Date Received:	Aug 22, 2012
Date Reported:	Aug 30, 2012
Report Number:	1760385

Reference Number	888943-1	888943-2	888943-3
Sample Date	Aug 16, 2012	Aug 16, 2012	Aug 17, 2012
Sample Time	NA	NA	NA
Sample Location			
Sample Description	CAM-1 / C112-8A	CAM-1 / C112-12B	CAM-1 / C112-21A
Matrix	Soil	Soil	Soil

Analyte		Units	Results	Results	Results	Nominal Detection Limit
Hot Water Soluble						
Boron	Hot Water Soluble	mg/kg	0.59	0.22	0.43	0.2
Metals Strong Acid Digestion						
Mercury	Strong Acid Extractable	mg/kg	<0.01	<0.01	<0.01	0.01
Antimony	Strong Acid Extractable	mg/kg	<0.2	<0.2	<0.2	0.2
Arsenic	Strong Acid Extractable	mg/kg	2.5	0.5	7.4	0.2
Barium	Strong Acid Extractable	mg/kg	5	6	4	1
Beryllium	Strong Acid Extractable	mg/kg	<0.1	<0.1	0.2	0.1
Cadmium	Strong Acid Extractable	mg/kg	0.01	<0.01	0.01	0.01
Chromium	Strong Acid Extractable	mg/kg	1.9	2.3	3.5	0.5
Cobalt	Strong Acid Extractable	mg/kg	0.8	0.5	1	0.1
Copper	Strong Acid Extractable	mg/kg	1	1	2	1
Lead	Strong Acid Extractable	mg/kg	5.1	1.0	12.0	0.1
Molybdenum	Strong Acid Extractable	mg/kg	<1	<1	3	1
Nickel	Strong Acid Extractable	mg/kg	1.4	1.9	1.5	0.5
Selenium	Strong Acid Extractable	mg/kg	<0.3	<0.3	<0.3	0.3
Silver	Strong Acid Extractable	mg/kg	0.3	0.3	0.2	0.1
Thallium	Strong Acid Extractable	mg/kg	<0.05	<0.05	0.11	0.05
Tin	Strong Acid Extractable	mg/kg	3	3	3	1
Uranium	Strong Acid Extractable	mg/kg	<0.5	<0.5	<0.5	0.5
Vanadium	Strong Acid Extractable	mg/kg	5.0	3.4	7.9	0.1
Zinc	Strong Acid Extractable	mg/kg	5	2	4	1
Mono-Aromatic Hydrocarbons - Soil						
Extraction Date			22-Aug-12	22-Aug-12	22-Aug-12	
Benzene	Dry Weight	mg/kg	<0.005	<0.005	<0.005	0.005
Toluene	Dry Weight	mg/kg	<0.02	<0.02	<0.02	0.02
Ethylbenzene	Dry Weight	mg/kg	<0.01	<0.01	<0.01	0.010
Total Xylenes (m,p,o)	Dry Weight	mg/kg	<0.03	<0.03	<0.03	0.03
Volatile Petroleum Hydrocarbons - Soil						
Extraction Date			22-Aug-12	22-Aug-12	22-Aug-12	
F1 C6-C10	Dry Weight	mg/kg	<10	<10	<10	10
F1 -BTEX	Dry Weight	mg/kg	<10	<10	<10	10
Extractable Petroleum Hydrocarbons - Soil						
Extraction Date			23-Aug-12	23-Aug-12	23-Aug-12	
F2c C10-C16	Dry Weight	mg/kg	<50	<50	<50	50
F3c C16-C34	Dry Weight	mg/kg	<50	<50	<50	50
F4c C34-C50	Dry Weight	mg/kg	<100	<100	<100	100

Exova
7217 Roper Road NW
Edmonton, Alberta
T6B 3J4, Canada

T: +1 (780) 438-5522
F: +1 (780) 438-0396
E: Edmonton@exova.com
W: www.exova.com

Analytical Report

Bill To:	Sila Remediation Inc.	Project:		Lot ID:	**888943**
Report To:	EGE	ID:	DC9229	Control Number:	
	511 Pepperloaf Cres.	Name:	CAM-1	Date Received:	Aug 22, 2012
	Winnipeg, MB, Canada	Location:	Jenny Lind Island	Date Reported:	Aug 30, 2012
	R3R 1E6	LSD:		Report Number:	1760385
Attn:	A Passalis	P.O.:			
Sampled By:	A. Passalis	Acct code:			
Company:	EGE				

		Reference Number	888943-1	888943-2	888943-3	
		Sample Date	Aug 16, 2012	Aug 16, 2012	Aug 17, 2012	
		Sample Time	NA	NA	NA	
		Sample Location				
		Sample Description	CAM-1 / C112-8A	CAM-1 / C112-12B	CAM-1 / C112-21A	
		Matrix	Soil	Soil	Soil	
Analyte		**Units**	**Results**	**Results**	**Results**	Nominal Detection Limit
Extractable Petroleum Hydrocarbons - Soil - Continued						
F4HTGCc C34-C50+	Dry Weight	mg/kg	<100	<100	<100	100
% C50+		%	<5	<5	<5	
Silica Gel Cleanup						
Silica Gel Cleanup			Done	Done	Done	
Soil % Moisture						
Moisture	Soil % Moisture	% by weight	6.91	4.47	5.05	
Polychlorinated Biphenyls - Soil						
Aroclor 1016	Dry Weight	mg/kg	<0.1	<0.1	<0.1	0.1
Aroclor 1221	Dry Weight	mg/kg	<0.1	<0.1	<0.1	0.1
Aroclor 1232	Dry Weight	mg/kg	<0.1	<0.1	<0.1	0.1
Aroclor 1242	Dry Weight	mg/kg	<0.1	<0.1	<0.1	0.1
Aroclor 1248	Dry Weight	mg/kg	<0.1	<0.1	<0.1	0.1
Aroclor 1254	Dry Weight	mg/kg	<0.1	<0.1	<0.1	0.1
Aroclor 1260	Dry Weight	mg/kg	<0.1	<0.1	<0.1	0.1
Aroclor 1262	Dry Weight	mg/kg	<0.1	<0.1	<0.1	0.1
Aroclor 1268	Dry Weight	mg/kg	<0.1	<0.1	<0.1	0.1
Total PCBs	Dry Weight	mg/kg	<0.1	<0.1	<0.1	0.1
Polychlorinated Biphenyls - Soil - Surrogate						
Decachlorobiphenyl	Surrogate	%	130	130	130	50-150

Exova
7217 Roper Road NW
Edmonton, Alberta
T6B 3J4, Canada

T: +1 (780) 438-5522
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E: Edmonton@exova.com
W: www.exova.com

Exova

Analytical Report

Bill To:	Sila Remediation Inc.	Project:	
Report To:	EGE	ID:	DC9229
	511 Pepperloaf Cres.	Name:	CAM-1
	Winnipeg, MB, Canada	Location:	Jenny Lind Island
	R3R 1E6	LSD:	
Attn:	A Passalis	P.O.:	
Sampled By:	A. Passalis	Acct code:	
Company:	EGE		

Lot ID:	**888943**
Control Number:	
Date Received:	Aug 22, 2012
Date Reported:	Aug 30, 2012
Report Number:	1760385

Reference Number		888943-4	888943-5	888943-6
Sample Date		Aug 17, 2012	Aug 15, 2012	Aug 15, 2012
Sample Time		NA	NA	NA
Sample Location				
Sample Description		CAM-1 / C112-25A	CAM-1 / C112-27A	CAM-1 / C112-33A
Matrix		Soil	Soil	Soil

Analyte		Units	Results	Results	Results	Nominal Detection Limit
Hot Water Soluble						
Boron	Hot Water Soluble	mg/kg	0.42	0.96	0.21	0.2
Metals Strong Acid Digestion						
Mercury	Strong Acid Extractable	mg/kg	<0.01	0.01	<0.01	0.01
Antimony	Strong Acid Extractable	mg/kg	<0.2	<0.2	<0.2	0.2
Arsenic	Strong Acid Extractable	mg/kg	1.8	1.5	5.2	0.2
Barium	Strong Acid Extractable	mg/kg	14	10	8	1
Beryllium	Strong Acid Extractable	mg/kg	0.1	0.1	0.3	0.1
Cadmium	Strong Acid Extractable	mg/kg	<0.01	0.03	0.01	0.01
Chromium	Strong Acid Extractable	mg/kg	3.3	4.1	6.5	0.5
Cobalt	Strong Acid Extractable	mg/kg	4.8	1.0	3.2	0.1
Copper	Strong Acid Extractable	mg/kg	44	3	5	1
Lead	Strong Acid Extractable	mg/kg	4.1	3.6	21.9	0.1
Molybdenum	Strong Acid Extractable	mg/kg	<1	<1	<1	1
Nickel	Strong Acid Extractable	mg/kg	3.0	4.2	5.6	0.5
Selenium	Strong Acid Extractable	mg/kg	<0.3	<0.3	<0.3	0.3
Silver	Strong Acid Extractable	mg/kg	0.2	0.4	<0.1	0.1
Thallium	Strong Acid Extractable	mg/kg	0.06	<0.05	0.07	0.05
Tin	Strong Acid Extractable	mg/kg	3	3	3	1
Uranium	Strong Acid Extractable	mg/kg	<0.5	<0.5	0.5	0.5
Vanadium	Strong Acid Extractable	mg/kg	7.8	7.4	13.6	0.1
Zinc	Strong Acid Extractable	mg/kg	5	3	5	1
Mono-Aromatic Hydrocarbons - Soil						
Extraction Date			22-Aug-12	22-Aug-12	22-Aug-12	
Benzene	Dry Weight	mg/kg	<0.005	<0.005	<0.005	0.005
Toluene	Dry Weight	mg/kg	<0.02	<0.02	<0.02	0.02
Ethylbenzene	Dry Weight	mg/kg	<0.01	<0.01	<0.01	0.010
Total Xylenes (m,p,o)	Dry Weight	mg/kg	<0.03	<0.03	<0.03	0.03
Volatile Petroleum Hydrocarbons - Soil						
Extraction Date			22-Aug-12	22-Aug-12	22-Aug-12	
F1 C6-C10	Dry Weight	mg/kg	<10	<10	<10	10
F1 -BTEX	Dry Weight	mg/kg	<10	<10	<10	10
Extractable Petroleum Hydrocarbons - Soil						
Extraction Date			23-Aug-12	23-Aug-12	23-Aug-12	
F2c C10-C16	Dry Weight	mg/kg	<50	<50	<50	50
F3c C16-C34	Dry Weight	mg/kg	<50	<50	<50	50
F4c C34-C50	Dry Weight	mg/kg	<100	<100	<100	100

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Analytical Report

Bill To:	Sila Remediation Inc.	Project:	
Report To:	EGE	ID:	DC9229
	511 Pepperloaf Cres.	Name:	CAM-1
	Winnipeg, MB, Canada	Location:	Jenny Lind Island
	R3R 1E6	LSD:	
Attn:	A Passalis	P.O.:	
Sampled By:	A. Passalis	Acct code:	
Company:	EGE		

Lot ID:	**888943**
Control Number:	
Date Received:	Aug 22, 2012
Date Reported:	Aug 30, 2012
Report Number:	1760385

		Reference Number	888943-4	888943-5	888943-6	
		Sample Date	Aug 17, 2012	Aug 15, 2012	Aug 15, 2012	
		Sample Time	NA	NA	NA	
		Sample Location				
		Sample Description	CAM-1 / C112-25A	CAM-1 / C112-27A	CAM-1 / C112-33A	
		Matrix	Soil	Soil	Soil	
Analyte		**Units**	**Results**	**Results**	**Results**	Nominal Detection Limit
Extractable Petroleum Hydrocarbons - Soil - Continued						
F4HTGCc C34-C50+	Dry Weight	mg/kg	<100	<100	<100	100
% C50+		%	<5	<5	<5	
Silica Gel Cleanup						
Silica Gel Cleanup			Done	Done	Done	
Soil % Moisture						
Moisture	Soil % Moisture	% by weight	7.60	18.30	2.98	
Polychlorinated Biphenyls - Soil						
Aroclor 1016	Dry Weight	mg/kg	<0.1	<0.1	<0.1	0.1
Aroclor 1221	Dry Weight	mg/kg	<0.1	<0.1	<0.1	0.1
Aroclor 1232	Dry Weight	mg/kg	<0.1	<0.1	<0.1	0.1
Aroclor 1242	Dry Weight	mg/kg	<0.1	<0.1	<0.1	0.1
Aroclor 1248	Dry Weight	mg/kg	<0.1	<0.1	<0.1	0.1
Aroclor 1254	Dry Weight	mg/kg	<0.1	<0.1	<0.1	0.1
Aroclor 1260	Dry Weight	mg/kg	<0.1	<0.1	<0.1	0.1
Aroclor 1262	Dry Weight	mg/kg	<0.1	<0.1	<0.1	0.1
Aroclor 1268	Dry Weight	mg/kg	<0.1	<0.1	<0.1	0.1
Total PCBs	Dry Weight	mg/kg	<0.1	<0.1	<0.1	0.1
Polychlorinated Biphenyls - Soil - Surrogate						
Decachlorobiphenyl	Surrogate	%	130	140	120	50-150

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Analytical Report

Bill To:	Sila Remediation Inc.	Project:		Lot ID:	**888943**
Report To:	EGE	ID:	DC9229	Control Number:	
	511 Pepperloaf Cres.	Name:	CAM-1	Date Received:	Aug 22, 2012
	Winnipeg, MB, Canada	Location:	Jenny Lind Island	Date Reported:	Aug 30, 2012
	R3R 1E6	LSD:		Report Number:	1760385
Attn:	A Passalis	P.O.:			
Sampled By:	A. Passalis	Acct code:			
Company:	EGE				

Reference Number	888943-7	888943-8
Sample Date	Aug 17, 2012	Aug 17, 2012
Sample Time	NA	NA
Sample Location		
Sample Description	CAM-1 / C112-2WA	CAM-1 / C112-8WA
Matrix	Soil	Soil

Analyte		Units	Results	Results	Results	Nominal Detection Limit
Hot Water Soluble						
Boron	Hot Water Soluble	mg/kg	<0.20	0.52		0.2
Metals Strong Acid Digestion						
Mercury	Strong Acid Extractable	mg/kg	<0.01	<0.01		0.01
Antimony	Strong Acid Extractable	mg/kg	<0.2	<0.2		0.2
Arsenic	Strong Acid Extractable	mg/kg	4.0	0.7		0.2
Barium	Strong Acid Extractable	mg/kg	6	7		1
Beryllium	Strong Acid Extractable	mg/kg	<0.1	<0.1		0.1
Cadmium	Strong Acid Extractable	mg/kg	0.01	<0.01		0.01
Chromium	Strong Acid Extractable	mg/kg	2.7	2.3		0.5
Cobalt	Strong Acid Extractable	mg/kg	0.8	0.7		0.1
Copper	Strong Acid Extractable	mg/kg	2	1		1
Lead	Strong Acid Extractable	mg/kg	13.1	2.0		0.1
Molybdenum	Strong Acid Extractable	mg/kg	2	<1		1
Nickel	Strong Acid Extractable	mg/kg	5.1	2.0		0.5
Selenium	Strong Acid Extractable	mg/kg	0.3	<0.3		0.3
Silver	Strong Acid Extractable	mg/kg	0.3	0.3		0.1
Thallium	Strong Acid Extractable	mg/kg	<0.05	<0.05		0.05
Tin	Strong Acid Extractable	mg/kg	3	3		1
Uranium	Strong Acid Extractable	mg/kg	<0.5	<0.5		0.5
Vanadium	Strong Acid Extractable	mg/kg	6.7	3.8		0.1
Zinc	Strong Acid Extractable	mg/kg	4	4		1
Mono-Aromatic Hydrocarbons - Soil						
Extraction Date			22-Aug-12	22-Aug-12		
Benzene	Dry Weight	mg/kg	<0.005	<0.005		0.005
Toluene	Dry Weight	mg/kg	<0.02	<0.02		0.02
Ethylbenzene	Dry Weight	mg/kg	<0.01	<0.01		0.010
Total Xylenes (m,p,o)	Dry Weight	mg/kg	<0.03	<0.03		0.03
Volatile Petroleum Hydrocarbons - Soil						
Extraction Date			22-Aug-12	22-Aug-12		
F1 C6-C10	Dry Weight	mg/kg	<10	<10		10
F1 -BTEX	Dry Weight	mg/kg	<10	<10		10
Extractable Petroleum Hydrocarbons - Soil						
Extraction Date			23-Aug-12	23-Aug-12		
F2c C10-C16	Dry Weight	mg/kg	<50	<50		50
F3c C16-C34	Dry Weight	mg/kg	<50	<50		50
F4c C34-C50	Dry Weight	mg/kg	<100	<100		100

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Analytical Report

Bill To:	Sila Remediation Inc.	Project:		Lot ID:	**888943**
Report To:	EGE	ID:	DC9229	Control Number:	
	511 Pepperloaf Cres.	Name:	CAM-1	Date Received:	Aug 22, 2012
	Winnipeg, MB, Canada	Location:	Jenny Lind Island	Date Reported:	Aug 30, 2012
	R3R 1E6	LSD:		Report Number:	1760385
Attn:	A Passalis	P.O.:			
Sampled By:	A. Passalis	Acct code:			
Company:	EGE				

Reference Number	888943-7	888943-8
Sample Date	Aug 17, 2012	Aug 17, 2012
Sample Time	NA	NA
Sample Location		
Sample Description	CAM-1 / C112-2WA	CAM-1 / C112-8WA
Matrix	Soil	Soil

Analyte		Units	Results	Results	Results	Nominal Detection Limit
Extractable Petroleum Hydrocarbons - Soil - Continued						
F4HTGCc C34-C50+	Dry Weight	mg/kg	<100	<100		100
% C50+		%	<5	<5		
Silica Gel Cleanup						
Silica Gel Cleanup			Done	Done		
Soil % Moisture						
Moisture	Soil % Moisture	% by weight	2.42	6.11		
Polychlorinated Biphenyls - Soil						
Aroclor 1016	Dry Weight	mg/kg	<0.1	<0.1		0.1
Aroclor 1221	Dry Weight	mg/kg	<0.1	<0.1		0.1
Aroclor 1232	Dry Weight	mg/kg	<0.1	<0.1		0.1
Aroclor 1242	Dry Weight	mg/kg	<0.1	<0.1		0.1
Aroclor 1248	Dry Weight	mg/kg	<0.1	<0.1		0.1
Aroclor 1254	Dry Weight	mg/kg	<0.1	<0.1		0.1
Aroclor 1260	Dry Weight	mg/kg	<0.1	<0.1		0.1
Aroclor 1262	Dry Weight	mg/kg	<0.1	<0.1		0.1
Aroclor 1268	Dry Weight	mg/kg	<0.1	<0.1		0.1
Total PCBs	Dry Weight	mg/kg	<0.1	<0.1		0.1
Polychlorinated Biphenyls - Soil - Surrogate						
Decachlorobiphenyl	Surrogate	%	120	140		50-150

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Analytical Report

Bill To:	Sila Remediation Inc.	Project:		Lot ID:	**888943**
Report To:	EGE	ID:	DC9229	Control Number:	
	511 Pepperloaf Cres.	Name:	CAM-1	Date Received:	Aug 22, 2012
	Winnipeg, MB, Canada	Location:	Jenny Lind Island	Date Reported:	Aug 30, 2012
	R3R 1E6	LSD:		Report Number:	1760385
Attn:	A Passalis	P.O.:			
Sampled By:	A. Passalis	Acct code:			
Company:	EGE				

Reference Number	888943-9
Sample Date	Aug 17, 2012
Sample Time	NA
Sample Location	
Sample Description	CAM-1 / C112-3W / 3.5°C
Matrix	Water

Analyte		Units	Results	Results	Results	Nominal Detection Limit
Metals Total						
Aluminum	Total	mg/L	19.7			0.02
Calcium	Total	mg/L	151			0.2
Iron	Total	mg/L	4.01			0.05
Magnesium	Total	mg/L	103			0.1
Manganese	Total	mg/L	<0.01			0.005
Potassium	Total	mg/L	16			0.4
Silicon	Total	mg/L	2.87			0.05
Sodium	Total	mg/L	225			0.4
Sulfur	Total	mg/L	116			0.3
Mercury	Total	mg/L	<0.0001			0.0001
Antimony	Total	mg/L	0.0025			0.0002
Arsenic	Total	mg/L	0.0042			0.0002
Barium	Total	mg/L	0.034			0.001
Beryllium	Total	mg/L	0.0002			0.0001
Bismuth	Total	mg/L	<0.001			0.0005
Boron	Total	mg/L	1.44			0.002
Cadmium	Total	mg/L	0.00002			0.00001
Chromium	Total	mg/L	0.0390			0.0005
Cobalt	Total	mg/L	0.001			0.0001
Copper	Total	mg/L	0.008			0.001
Lead	Total	mg/L	0.002			0.0001
Lithium	Total	mg/L	0.01			0.001
Molybdenum	Total	mg/L	0.006			0.001
Nickel	Total	mg/L	0.016			0.0005
Selenium	Total	mg/L	<0.0004			0.0002
Silver	Total	mg/L	<0.00002			0.00001
Strontium	Total	mg/L	0.798			0.001
Thallium	Total	mg/L	0.0002			0.00005
Tin	Total	mg/L	<0.002			0.001
Titanium	Total	mg/L	0.453			0.0005
Uranium	Total	mg/L	<0.001			0.0005
Vanadium	Total	mg/L	0.016			0.0001
Zinc	Total	mg/L	0.004			0.001
Zirconium	Total	mg/L	0.01			0.001
Extractable Hydrocarbons (C40) - Water						
Total C11-C40+		mg/L	0.2			0.1

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Analytical Report

Bill To:	Sila Remediation Inc.	Project:		Lot ID:	**888943**
Report To:	EGE	ID:	DC9229	Control Number:	
	511 Pepperloaf Cres.	Name:	CAM-1	Date Received:	Aug 22, 2012
	Winnipeg, MB, Canada	Location:	Jenny Lind Island	Date Reported:	Aug 30, 2012
	R3R 1E6	LSD:		Report Number:	1760385
Attn:	A Passalis	P.O.:			
Sampled By:	A. Passalis	Acct code:			
Company:	EGE				

Reference Number	888943-9
Sample Date	Aug 17, 2012
Sample Time	NA
Sample Location	
Sample Description	CAM-1 / C112-3W / 3.5°C
Matrix	Water

Analyte		Units	Results	Results	Results	Nominal Detection Limit
Polychlorinated Biphenyls - Water						
Aroclor 1016		ug/L	<0.1			0.1
Aroclor 1221		ug/L	<0.1			0.1
Aroclor 1232		ug/L	<0.1			0.1
Aroclor 1242		ug/L	<0.1			0.1
Aroclor 1248		ug/L	<0.1			0.1
Aroclor 1254		ug/L	<0.1			0.1
Aroclor 1260		ug/L	<0.1			0.1
Aroclor 1262		ug/L	<0.1			0.1
Aroclor 1268		ug/L	<0.1			0.1
Total PCBs		ug/L	<0.1			0.1
Polychlorinated Biphenyls - Water - Surrogate						
Decachlorobiphenyl	Surrogate	%	84			50-150

Approved by:

Anthony Neumann, MSc
Laboratory Operations Manager

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Methodology and Notes

Bill To:	Sila Remediation Inc.	Project:	
Report To:	EGE	ID:	DC9229
	511 Pepperloaf Cres.	Name:	CAM-1
	Winnipeg, MB, Canada	Location:	Jenny Lind Island
	R3R 1E6	LSD:	
Attn:	A Passalis	P.O.:	
Sampled By:	A. Passalis	Acct code:	
Company:	EGE		

Lot ID:	**888943**
Control Number:	
Date Received:	Aug 22, 2012
Date Reported:	Aug 30, 2012
Report Number:	1760385

Method of Analysis

Method Name	Reference		Method	Date Analysis Started	Location
Boron in general soil	McKeague	*	Hot Water Soluble Boron - Azomethine -H Method, 4.61	23-Aug-12	Exova Edmonton
BTEX-CCME - Soil	CCME	*	Reference Method for Canada-Wide Standard for PHC in Soil, CWS PHCS TIER 1	23-Aug-12	Exova Calgary
BTEX-CCME - Soil	US EPA	*	US EPA method, 8260B/5035	23-Aug-12	Exova Calgary
Mercury (Hot Block) in Soil	US EPA	*	Determination of Hg in Sediment by Cold Vapor Atomic Absorption Spec, 245.5	23-Aug-12	Exova Edmonton
Mercury (Hot Block) in Soil	US EPA	*	Determination of Hg in Sediment by Cold Vapor Atomic Absorption Spec, 245.5	27-Aug-12	Exova Edmonton
Mercury (Total) in water	US EPA	*	Determination of Hg in Sediment by Cold Vapor Atomic Absorption Spec, 245.5	23-Aug-12	Exova Edmonton
Metals ICP-MS (Hot Block) in soil	SW-846	*	Acid Digestion of Sediments, Sludges, and Soils, EPA 3050B	23-Aug-12	Exova Edmonton
Metals ICP-MS (Hot Block) in soil	SW-846	*	Acid Digestion of Sediments, Sludges, and Soils, EPA 3050B	27-Aug-12	Exova Edmonton
Metals ICP-MS (Total) in water	APHA/USEPA	*	Metals By Inductively Coupled Plasma/Mass Spectrometry, APHA 3125 B / USEPA 200.8	23-Aug-12	Exova Edmonton
Metals Trace (Total) in water	APHA	*	Inductively Coupled Plasma (ICP) Method, 3120 B	23-Aug-12	Exova Edmonton
PCB - Soil	US EPA	*	Polychlorinated Biphenyls (PCBs) by Gas Chromatography, 8082A	24-Aug-12	Exova Calgary
PCB - Water	US EPA	*	Polychlorinated Biphenyls (PCBs) by Gas Chromatography, 8082A	27-Aug-12	Exova Calgary
TEH - Water	MMCA	*	Petroleum Hydrocarbons in Water, A108.0	23-Aug-12	Exova Calgary
TEH-CCME-Soil (Shake)	CCME	*	Reference Method for Canada-Wide Standard for PHC in Soil, CWS PHCS TIER 1	23-Aug-12	Exova Calgary

** Reference Method Modified*

References

APHA	Standard Methods for the Examination of Water and Wastewater
CCME	Canadian Council of Ministers of the Environment
McKeague	Manual on Soil Sampling and Methods of Analysis
MMCA	Methods Manual for Chemical Analysis of Trace Orgs.
SW-846	Test Methods for Evaluating Solid Waste
US EPA	US Environmental Protection Agency Test Methods

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Methodology and Notes

Bill To:	Sila Remediation Inc.	Project:		Lot ID:	**888943**
Report To:	EGE	ID:	DC9229	Control Number:	
	511 Pepperloaf Cres.	Name:	CAM-1	Date Received:	Aug 22, 2012
	Winnipeg, MB, Canada	Location:	Jenny Lind Island	Date Reported:	Aug 30, 2012
	R3R 1E6	LSD:		Report Number:	1760385
Attn:	A Passalis	P.O.:			
Sampled By:	A. Passalis	Acct code:			
Company:	EGE				

Comments:

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Analytical Report

Bill To:	Sila Remediation Inc.	Project:		Lot ID:	**888943**
Report To:	EGE	ID:	DC9229	Control Number:	
	511 Pepperloaf Cres.	Name:	CAM-1	Date Received:	Aug 22, 2012
	Winnipeg, MB, Canada	Location:	Jenny Lind Island	Date Reported:	Aug 30, 2012
	R3R 1E6	LSD:		Report Number:	1760385
Attn:	A Passalis	P.O.:			
Sampled By:	A. Passalis	Acct code:			
Company:	EGE				

Petroleum Hydrocarbons in Soil

Batch Notes

1. The method used complies with the Reference Method for the Canada Wide Standards for Petroleum Hydrocarbons in Soil - Tier 1, April 2001, including Addendum 1, and is accredited for use in Exova.
2. Modifications of the method: See Notes and Methodology for nonconformances (if applicable).
3. Qualifications on results: See Notes and Methodology for nonconformances (if applicable).
4. Silica gel treatment is performed for fractions F2, F3, F4.
5. F1-BTEX: BTEX has been subtracted from the F1 fraction.
6. If analyzed, naphthalene has been subtracted from fraction F2 and selected PAHs have been subtracted from fraction F3.
7. F4HTGC is reported when more than 5% of the total carbon envelope elutes past C_{50}.
8. Exova does not routinely report Gravimetric Heavy Hydrocarbons (F4G or F4G-sg), F4HTGC through extended range high temperature GC is reported instead.
9. When both F4(C_{34}-C_{50}) and F4HTGC are reported, F4HTGC is the final F4 that is to be used for interpreting the CWS.
10. Quality criteria met for the batch: Data is reported in Quality Control Section of report (if requested).
    -nC_6 and nC_{10} response factors (RF) are within 30% of RF for toluene
    -nC_{10}, nC_{16} and nC_{34} RFs are within 10% of each other
    -nC_{50} RF is within 30% of the average RF for nC_{10}+nC_{16}+nC_{34}
    -linearity is within 15% for each of the calibrated carbon ranges
11. Batch data for analytical quality control are available on request.
12. Extraction and analysis holding times were met: See Notes and Methodology for nonconformances (if applicable).

Approved by:

Anthony Neumann, MSc
Laboratory Operations Manager

No Chain of Custody Available.

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Confirmation of Service Request

Lot ID: **888943**
Number of Samples: 9
Printed Date: Aug 23, 2012

Please verify the following service request. If you have corrections or questions, please contact Client Services.

Main Contact:	***Primary Administrator:***	***Invoice Delivery To:***	***Bill Paid by:***
Attn: A Passalis	Attn: A Passalis	Attn: Accounts Payable	Attn: Accounts Payable
EGE	EGE	Sila Remediation Inc.	Sila Remediation Inc.
511 Pepperloaf Cres.	511 Pepperloaf Cres.	200,4495 Boul. Wilfrid-Hamel	200,4495 Boul. Wilfrid-Hamel
Winnipeg, MB R3R 1E6	Winnipeg, MB R3R 1E6	Quebec City, QC G1P 2J7	Quebec City, QC G1P 2J7
Phone: (204) 837-6473	Phone: (204) 837-6473	Phone: (418) 653-4422	Phone: (418) 653-4422
Fax: (204) 837-6473	Fax: (204) 837-6473	Fax: (418) 653-3583	Fax: (418) 653-3583

Agreement Id	90921	**Well Name**	
Project Id	DC9229	**Well Location**	
Project Name	CAM-1	**Field**	
Project Location	Jenny Lind Island	**Formation**	
Project Legal		**Elevation KB**	
PO#		**Elevation GR**	
Proj. Acct. Code		**Drilling License**	
Control Id		**Sampled By**	A. Passalis
Report Due	Aug 30, 2012	**Sampling Company**	EGE
Received Date	Aug 22, 2012	**Est. Disposal Date**	Sep 29, 2012

Service Information

Sample Id	**1**
	4156866
Date Sampled	08-16-2012
Priority	Normal
Site I.D.	CAM-1
Sample Description	C112-8A

Service		Service Name
05		Drying and Grinding
PCB2	**B**	PCBs in soil or sediments
TT44		CCME metals in soil
DISP		Environmental Disposal Fee
CCMEC	**B**	CCME Petroleum Hydrocarbons in Soil by Cold Extraction

Sample Id	**2**
	4156867
Date Sampled	08-16-2012
Priority	Normal
Site I.D.	CAM-1
Sample Description	C112-12B

Service		Service Name
05		Drying and Grinding
PCB2	**B**	PCBs in soil or sediments
TT44		CCME metals in soil
DISP		Environmental Disposal Fee
CCMEC	**B**	CCME Petroleum Hydrocarbons in Soil by Cold Extraction

Sample Id	**3**
	4156868
Date Sampled	08-17-2012
Priority	Normal
Site I.D.	CAM-1
Sample Description	C112-21A

Service		Service Name
05		Drying and Grinding
PCB2	**B**	PCBs in soil or sediments
TT44		CCME metals in soil
DISP		Environmental Disposal Fee
CCMEC	**B**	CCME Petroleum Hydrocarbons in Soil by Cold Extraction

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Confirmation of Service Request

Lot ID: **888943**
Number of Samples: 9
Printed Date: Aug 23, 2012

Please verify the following service request. If you have corrections or questions, please contact Client Services.

Sample Id	4 4156869	Service	Service Name
Date Sampled	08-17-2012	05	Drying and Grinding
Priority	Normal	PCB2	**B** PCBs in soil or sediments
Site I.D.	CAM-1	TT44	CCME metals in soil
Sample Description	C112-25A	DISP	Environmental Disposal Fee
		CCMEC	**B** CCME Petroleum Hydrocarbons in Soil by Cold Extraction

Sample Id	5 4156870	Service	Service Name
Date Sampled	08-15-2012	05	Drying and Grinding
Priority	Normal	PCB2	**B** PCBs in soil or sediments
Site I.D.	CAM-1	TT44	CCME metals in soil
Sample Description	C112-27A	DISP	Environmental Disposal Fee
		CCMEC	**B** CCME Petroleum Hydrocarbons in Soil by Cold Extraction

Sample Id	6 4156871	Service	Service Name
Date Sampled	08-15-2012	05	Drying and Grinding
Priority	Normal	PCB2	**B** PCBs in soil or sediments
Site I.D.	CAM-1	TT44	CCME metals in soil
Sample Description	C112-33A	DISP	Environmental Disposal Fee
		CCMEC	**B** CCME Petroleum Hydrocarbons in Soil by Cold Extraction

Sample Id	7 4156872	Service	Service Name
Date Sampled	08-17-2012	05	Drying and Grinding
Priority	Normal	PCB2	**B** PCBs in soil or sediments
Site I.D.	CAM-1	TT44	CCME metals in soil
Sample Description	C112-2WA	DISP	Environmental Disposal Fee
		CCMEC	**B** CCME Petroleum Hydrocarbons in Soil by Cold Extraction

Sample Id	8 4156873	Service	Service Name
Date Sampled	08-17-2012	05	Drying and Grinding
Priority	Normal	PCB2	**B** PCBs in soil or sediments
Site I.D.	CAM-1	TT44	CCME metals in soil
Sample Description	C112-8WA	DISP	Environmental Disposal Fee
		CCMEC	**B** CCME Petroleum Hydrocarbons in Soil by Cold Extraction

Sample Id	9 4157293	Service	Service Name
Date Sampled	08-17-2012	TEH4	**B** TEH in water
Priority	Normal	HG	Total Hg
Site I.D.	CAM-1	TW22	Total metals - water
Sample Description	C112-3W	PCB3	**B** PCBs in water
		DISP	Environmental Disposal Fee

Other Billable Services	Service	Service Name	Quantity

Sample Service Count

Service Name	Service Code	Service Quantity
CCME metals in soil	TT44	8

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Exova

Confirmation of Service Request

Lot ID: **888943**
Number of Samples: 9
Printed Date: Aug 23, 2012

Please verify the following service request. If you have corrections or questions, please contact Client Services.

Sample Service Count

Service Name	Service Code	Service Quantity
CCME Petroleum Hydrocarbons in Soil by Cold Extraction	CCMEC	8
Drying and Grinding	05	8
Environmental Disposal Fee	DISP	9
PCBs in soil or sediments	PCB2	8
PCBs in water	PCB3	1
TEH in water	TEH4	1
Total Hg	HG	1
Total metals - water	TW22	1

Notes

If required for invoice approval, please sign and return to the address indicated at the top of the page.

(Signature) _____

Report Delivery Plan

Contact	Company	Address
JP Pelletiere	Sila Remediation Inc.	200,4495 Boul. Wilfrid-Hamel Quebec City, QC G1P 2J7 Phone: (418) 653-4422 Fax: (418) 653-3583 Email: jppelletier@biogenie-env.com

Copies	Delivery	Format
1	Email - Merge Reports	PDF

Contact	Company	Address
A Passalis	EGE	511 Pepperloaf Cres. Winnipeg, MB R3R 1E6 Phone: (204) 837-6473 Fax: (204) 837-6473 Email: apassalis@mts.net

Copies	Delivery	Format
1	Email - Merge Reports	PDF