THE COLLECTION OF LANDFILL MONITORING DATA AT THE FORMER CAM-2 DEW LINE SITE

Gladman Point, Nunavut

FINAL REPORT – 2010

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

DEFENCE CONSTRUCTION CANADA

February 2011

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1 INTRODUCTION

1.1 LOCATION AND SITE FEATURES

The CAM-2 Gladman Point Distand Early Warning (DEW) Line site is located on the south side of King William Island at 68° 40' N and 97° 49' W. The community of Gjoa Haven is located approximately 75 Km east, and the community of Ikaluktutiak (Cambridge Bay), 300 Km to the west.

The CAM-2 site is a former auxiliary radar site within the original DEW Line system that was operated until the early 1990s, at which time was converted to a North Warning System (NWS) Short Range Radar (SRR) site as part of the North American Aerospace Defence Modernization Program. The environmental cleanup and demolition of facilities, not required as part of the NWS SRR site, commenced in 2003 and was completed in summer of 2005.

The cleanup included the closure and remediation of four existing landfills as well as the construction of a landfill for the disposal of non-hazardous wastes generated from demolition and collection of site debris Non-Hazardous Waste Landfill (NHWLF) and a second facility to contain Tier II soils (Tier II Disposal Facility). Monitoring activities were carried out at the following landfill areas, as shown on the overall site plan, Figure CAM-2.1 at the end of this section:

- Station Landfill
- West Landfill – North
- West Landfill – South
- Airstrip Landfill (completely excavated, no monitoring required)
- Tier II Soil Disposal Facility
- Non-Hazardous Waste Landfill

In accordance with the Department of National Defence (DND) – Nunavut Tunngavik Incorporated (NTI) Cooperation Agreement, landfill monitoring will be carried out following the site cleanup. The following table provides a synopsis of field activities carried out during the 2010 CAM-2 Landfill Monitoring Program at CAM-2 Gladman Point.

Table I: 2010 Monitoring Requirements for CAM-2 Landfills

Landfill	Visual Inspection	Soil Sampling	Groundwater Sampling	Thermal Monitoring
Station Landfill	✓	✓		
West Landfill – North	✓	✓		
West Landfill – South	✓	✓		
Tier II Disposal Facility	✓	✓	✓	✓
Non-Hazardous Waste Landfill	✓	✓	✓	

1.2 OBJECTIVES AND SCOPE OF WORK

The objective of the Defence Construction Canada (DCC) Landfill Monitoring Program is to collect sufficient information to assess the landfill's performance, from a geotechnical and environmental perspective. DCC has specified the requirements for the Landfill Monitoring Program in the document *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-3 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 (reference B) and in Biogenie'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-2 Landfills
- Visual inspection
- Soil sampling
- Groundwater sampling
- Thermal monitoring (Tier II Disposal Facility)
- Create photographic record
- Draft and Final reports

1.3 REPORT FORMAT

This report describes the work carried out in August 2010 at five landfill sites at CAM-2 Gladman Point. Results from soil and groundwater sampling, thermal monitoring, and visual inspection of the sites are also presented in the formats described in the ToR (reference B). An electronic version of the report and its component tables, figures and data files is included in an Addendum CD-ROM, which is appended to the report.

The report is organized with a separate chapter for each of the landfill areas. Each chapter contains all relevant information for that landfill area, for the 2010 Landfill Monitoring Program. The following information is provided in each landfill section:

- Visual inspection checklist
- Visual inspection drawing mark-up
- A selection of visual inspection photos
- Thermal monitoring summary and inspection reports (where applicable)
- Summary of 2010 soil analytical data
- Summary of 2010 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 images of photos for each of the landfill areas. The full resolution photos are included in electronic format in the Addendum CD-ROM to the report. Certificates of Analysis, QA/QC analytical results and field notes are attached in appendices.

1.4 PROJECT REFERENCES

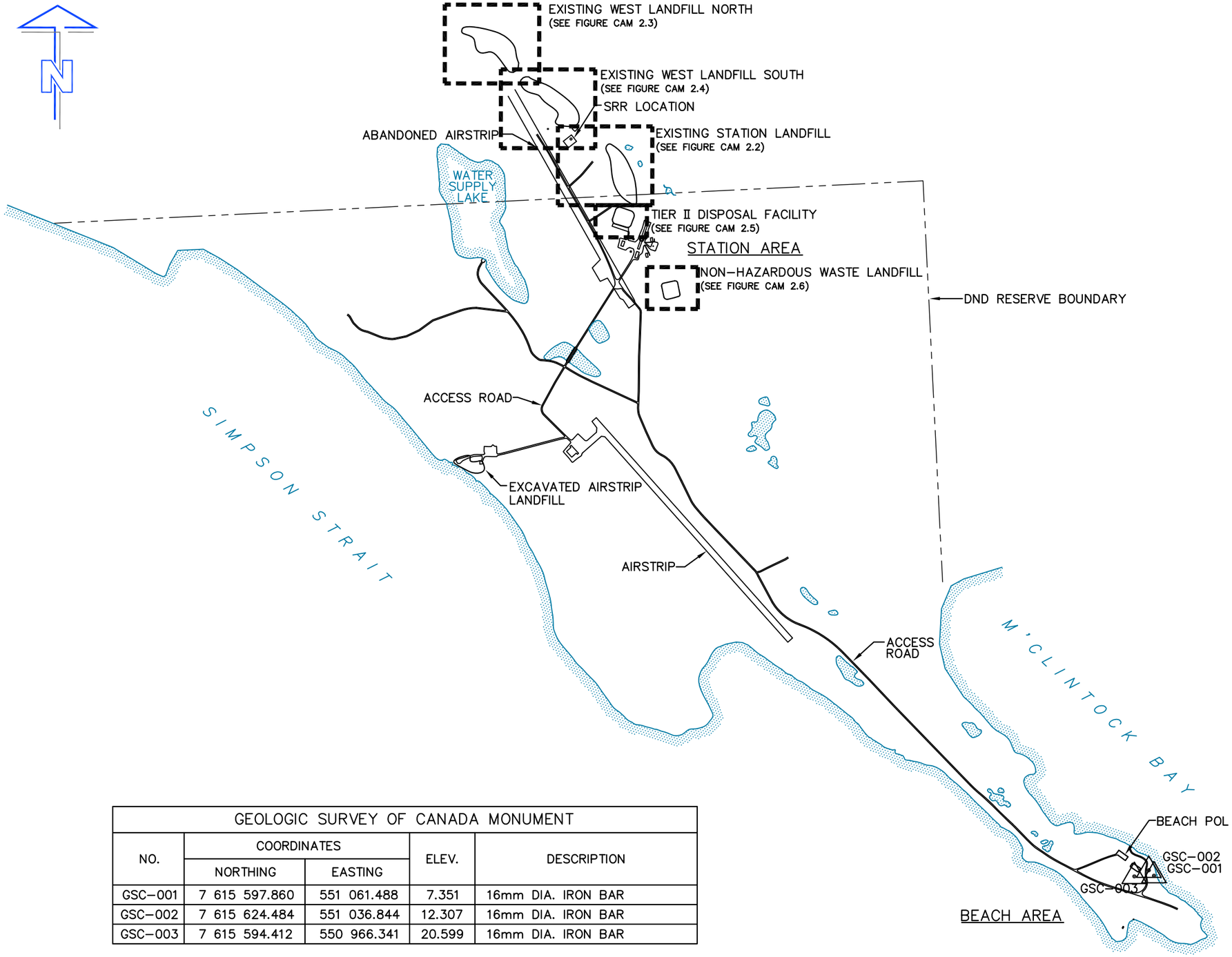
The following references are specifically relevant to the 2010 Landfill Monitoring activities:

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, 2009.

B. 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-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. 6121-061,* February 2008.

D. *Post-Field Progress Report, CAM-2 Landfill Monitoring 2010*, August 19, 2010.



LEGEND

CM2 △ SURVEY CONTROL MONUMENT

WATERBODY

0 200m 400m 600m 800m 1000m

GEOLOGIC SURVEY OF CANADA MONUMENT				
NO.	COORDINATES		ELEV.	DESCRIPTION
	NORTHING	EASTING		
GSC-001	7 615 597.860	551 061.488	7.351	16mm DIA. IRON BAR
GSC-002	7 615 624.484	551 036.844	12.307	16mm DIA. IRON BAR
GSC-003	7 615 594.412	550 966.341	20.599	16mm DIA. IRON BAR

NO.	VERSION	DATE	P.L. PAR	A.P. VERIF.	J.P.P. APPR.
A	FINAL	11-02-08			

Construction de Défense Canada
Defence Construction Canada

FINAL REPORT
COLLECTION OF LANDFILL MONITORING DATA

CAM-2, GLADMAN POINT, NUNAVUT

OVERALL SITE PLAN

SITE REMEDIATION SOLUTIONS

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MEASUREMENT UNIT	SCALE:	DATE (month-year):
Meter	1 : 20,000	FEBRUARY 2011
DRAWN BY: P. LÉGARÉ	VERIFIED BY: A. PASSALIS	APPROVED BY: J.-P. PELLETIER
PROJECT NO: CD9229_002_160	DRAWING NO: CD9229_002_160-CAM-2_1	PAGE LS

FIGURE CAM-2.1

2 OUTLINE AND METHODOLOGY

2.1 FIELD PROGRAM STAFF

The 2010 on-site field program at CAM-2 Gladman Point took place from August 12 to 15, 2010. Biogenie sub-contracted Sila Remediation Inc. (Sila) from Igloolik, Nunavut to perform the field work. The Sila field program was executed by Mr. Andrew Passalis and five (5) local Inuit representatives.

The team was made up of the following individuals:

- Andrew Passalis, Project Engineer
- Robert Maksagak, Field Technician
- Dustin Maksagak, Field Technician
- Kalene Epilon, Field Technician
- Joe Koaha, Wildlife Monitor
- Bella Akhok, Cook / Camp Attendant

2.2 2010 WEATHER CONDITIONS

Seasonably colder weather conditions were observed during the 2010 CAM-2 monitoring event, consisting of daily temperatures between 0-4ºC (early morning lows) with 5-6ºC (daytime highs) during the four days on site. Skies were mostly cloudy throughout the monitoring period with light rain and snow encountered on August 13 and 15, respectively. Localized fog was also observed during periods of precipitation. Winds were generally from the northwest, ranging between 20 to 30 km/h

2.3 VISUAL INSPECTION

Data and information collected during the visual inspection of the CAM-2 landfills are included in the visual inspection datasheets. These data sheets include such inspection data as the location of settlement, erosion, frost action, sloughing and cracking, animal burrows, vegetation cover and stress, staining, seepage points, exposed debris, and any other features of note.

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

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

The photos were taken with a Sony DSC-TX5 10.2 megapixel (MP) digital camera. Full resolution digital jpg copies are furnished on a CD-ROM appended with the report. The photo log, including the local coordinates from where the photo was taken, orientation (relative to map north), feature of note and picture numbers are included with each landfill report.

2.4 SOIL SAMPLING

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

- CCME Guidance Document on the Management of Contaminated Sites In Canada, April 1997, CCME PN 1279. (CCME catalogue - http://www.ccme.ca/pdfs/cat_eng.pdf)
- CCME EPC-NCS62E Guidance Manual on Sampling, Analysis, and Data Management for Contaminated Sites - Volume I: Main Report, Dec 93 (CCME catalogue - http://www.ccme.ca/pdfs/cat_eng.pdf)
- CCME EPC-NCS66E Guidance Manual on Sampling, Analysis, and Data Management for Contaminated Sites - Volume II: Analytical Method Summaries, Dec. 93 (CCME catalogue - http://www.ccme.ca/pdfs/cat_eng.pdf)
- Reference method for the Determination of Petroleum Hydrocarbons in Soil – Tier I Method, 2001
- CCME Subsurface Assessment Handbook for Contaminated Sites, March 1994, EPC-NCSRP-48E (CCME catalogue - "http://www.ccme.ca/pdfs/cat_eng.pdf").

For the 2010 monitoring event, 22 soil-sampling stations were visited. One surface sample (0-15 cm depth below surface) and one subsurface sample (40-50 cm depth below surface) were taken at each sampling station. No frozen ground or frost was encountered at the soil stations during the August 2010 sampling.

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

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

The soil samples were analyzed for requested parameters (TPH (F1-F3), total metals and PCBs) as specified by DCC. Table II below summarizes the soil sampling at CAM-2 during the August, 2010 field program.

Table II: Summary of Soil Sampling at CAM-2, August 2010

Landfill Site	**Soil Sample Locations**				
Station Landfill	C2-1	C2-2	C2-3	C2-4	C2-5
West Landfill - North	C2-6	C2-7	C2-8	C2-9	C2-10
West Landfill - South	C2-11	C2-12	C2-13	C2-14	
Tier II Disposal Facility	MW-1	MW-2	MW-3	MW-4	
Non-Hazardous Waste Landfill	MW-5	MW-6	MW-7	MW-8	

Notes:
Soil samples annotated as "MW" were collected as per the ToR (reference B) between 2-4 metres from monitoring wells. All soil samples were collected from two depths (0-15 cm and 40-50 cm). For 2010 sampling, total no. of soil samples = 48 samples (22 samples x 2 depths + 4 QA/QC (Intra + Inter-laboratory comparison) + 4 for Owner's Representative (ESG Archives).

2.5 GROUNDWATER SAMPLING

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

- CCME EPC-NCS62E Guidance Manual on Sampling, Analysis, and Data Management for Contaminated Sites - Volume I: Main Report, Dec 93 (CCME catalogue - http://www.ccme.ca/pdfs/cat_eng.pdf)
- CCME EPC-NCS66E Guidance Manual on Sampling, Analysis, and Data Management for Contaminated Sites - Volume II: Analytical Method Summaries, Dec 93 (CCME catalogue - "http://www.ccme.ca/pdfs/cat_eng.pdf").

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

The 2010 field program included sampling 8 monitoring wells at CAM-2. A summary of the groundwater sampling undertaken at CAM-2 is summarized in Table III.

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

Table III: Summary of Groundwater Sampling at CAM-2, August 2010

Landfill Site	**Groundwater Sample Locations**			
Tier II Disposal Facility	MW-1	MW-2	MW-3	MW-4
Non-Hazardous Waste Landfill	MW-5	MW-6	MW-7	MW-8

Notes:
All monitoring wells were inspected and found to be in good condition with no significant concerns identified.
For 2010 sampling, total no. of water samples = 11 samples (8 monitoring well samples + 3 QA/QC (inter and intra-laboratory duplicates + 1 field blank) + 1 travel blank (TPH only).

2.6 THERMAL MONITORING

All thermistors at the Tier II Disposal Facility were inspected and found to be in good condition with no significant concerns identified. With the exception of manual temperature readings at VT-2 (#12) and VT-4 (#16), all analogues/ thermocouples were observed to be functioning properly. Data from all thermistors was successfully retrieved, with the exception of VT-3 which encountered a communication error and could not be downloaded. The datalogger from VT-3 was subsequently retrieved from site and shipped to the manufacturer for diagnosis and repair. New batteries were installed in the remaining 3 dataloggers on September 12 to 15, 2010, as specified in the ToR. Internal memories were reset and clocks were synchronized using the Prolog software.

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

2.7 FIELD NOTES AND DATA

Field notes from the 2010 landfill monitoring program, including soil and water sampling are included in Appendix B for reference. Notes were written on waterproof sheets and field books. The notes were scanned to an Adobe pdf document for future reference and back up. Locations of all observations and features for the visual inspection were recorded using a hand-held Garmin Oregon 300 GPS device, which included a combination of continuous tracks and discrete waypoints. Data packages collected from the individual vertical thermistors was downloaded directly to a field laptop computer.

2.8 QUALITY CONTROL

Sila implemented standard sample collection techniques to decrease the likelihood of compromising collected samples. The methods used for sample collection are summarized in Sections 2.4 and 2.5 of this report. The following measures were taken to minimized 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;
- Water samples were collected through the use of dedicated Waterra foot valves and tubing

Chain of Custody (COC) forms were completed by the Project Engineer after sample collection. The samples were refrigerated prior to off-site shipment in chilled coolers by First Air Cargo directly to Maxxam in Calgary (via Yellowknife) and ESG in Kingston (via Ottawa) where they were checked in by laboratory representatives. QA soil and groundwater samples shipped to Exova in Edmonton were lost during transport and consequently were not received. 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 and water were sent to Maxxam. Results can be found in Appendix C.
- 10% Inter-laboratory Duplicate Samples were sent to Exova (looking for variation in procedures causing significant difference in analytical result). These samples were lost during air transportation and consequently, were not analyzed.
- 10% Archival Samples of soil to ESG.

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

Maxxam QA/QC reports can be found in Appendix C.

3 STATION LANDFILL

3.1 BACKGROUND AND MONITORING PROGRAM

The Station Landfill area is located approximately 200 m northwest of the main station area and is bound on the south side by the abandoned airstrip, to the south by the Tier II Disposal Facility and to the north by the SRR site. The landfill has five separate regrade areas (labeled as Lobes 1 through 5 for reference), and including engineered cover encompasses a footprint of approximately 19,000 m^2 with the final cover extending approximately 0.75 m to 2.0 m above the surrounding grade. Based on existing information regarding this landfill as a source of contamination, its potential migration pathways and receptors, the Station Landfill was classified as low potential environmental risk. The remediation consisted of excavation of surface contaminated soils, removal of large pieces of exposed debris and regrading with the placement of additional granular fill.

Five long-term soil monitoring sample locations are situated at up and downgradient locations relative to the individual landfill lobes.

The long term monitoring plan consists of visual monitoring and collection of soil samples. The 2010 monitoring of this landfill includes a visual inspection and soil sampling program to assess landfill performance. There is no instrumentation installed at this landfill.

3.2 VISUAL INSPECTION REPORT

The visual inspection of the Station Landfill was conducted on August 14, 2010. 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 (Feature A and B) on the landfill surface of Lobes 5 and 2, respectively. Feature A consisted of two small depressions (potholes) situated on the southwest surface of Lobe 5, with no observable change since the 2009 inspection. Feature B consisted of a single linear depression orientated parallel to the crest on the west side of Lobe 2 and was not noted during the previous 2009 inspection. Both features have an acceptable severity rating.

Erosion

Five general areas (Features C through G) of erosion were noted on the surface, side slopes and/or margins of the Station Landfill during the 2010 inspection. Several localized areas of shallow erosion were noted on the southwest facing slope of Lobe 3 (Feature C); and several larger areas of shallow erosion that extended across the top and side slopes on the southeast and east area of Lobe 2 (Features D, E and F).

Each of the larger features appears at the geometric inflection points where localized runoff converges on the surface of the landfill. All features appear to be self-armouring and have an acceptable severity rating.

Minor erosion was also noted along the base of the engineered drainage channel constructed along the north side of Lobe 2 (Feature G). The level of erosion appears consistent with observations from previous years and planned remedial measures to direct flow around the landfill. The erosion is not in direct contact with the landfill.

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 area of rust-coloured staining (Feature H) was observed on the northeast corner of Lobe 2, extending from the landfill toe to a nearby pond situated approximately 25 m to the east. Staining was consistent with observations made during the 2009 inspection, and appears to be a pre-existing feature at the landfill. There was no hydrocarbon sheen associated with the staining at the time of the inspection.

Seepage Points
One area of seepage associated with the rust-coloured staining (Feature H) was noted on the northeast side of Lobe 2. Wet and saturated soil conditions were observed on the downgradient slope within 5 m of the toe. Based on the location of the seepage, it is assumed that this feature is contributing to the ponded water and rust-coloured staining observed at the toe of the landfill.

Debris
There were no observations of exposed debris during the 2010 inspection.

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

Other Features of Note
Several thin tension/desiccation cracks were noted on the surface and/or side slopes of Lobes 3 (Feature I) and Lobe 2 (Features J, K and L). Feature I generally consisted of single cracks that extended perpendicular to the slope direction on the northwest and southeast sides of the lobe. Some areas of multi-directional cracking were also noted on the southwest side of the lobe. Features J and L on Lobe 2 consisted of relatively short parallel cracks that extended approximately 45 degrees to the slope direction. Feature K consisted of a longer single crack that was orientated in a NW/SE direction across the surface on the east side of the lobe. Feature I appeared consistent with observations made during the 2009 inspection, whereas Features J, K and L were new observations. Based on observations made during the 2010 inspection, the landfill surface appears stable and all features have an acceptable severity rating.

Discussion
The Station 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.

It was noted that surface runoff has resulted in minor erosional features on the southeast side of Lobe 3 and at the downgradient convergence points on the east side crests of Lobe 2. These features appear to be relatively consistent with findings from the 2009 inspection and appear to be self-armouring along the downgradient slope.

Table IV: Visual Inspection Checklist / Report – Station Landfill

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

SITE NAME: STATION LANDFILL
LANDFILL DESIGNATION: EXISTING REGRADE
DATE OF INSPECTION: AUGUST 14, 2010
DATE OF PREVIOUS INSPECTION: AUGUST 12-13, 2009
INSPECTED BY: A. PASSALIS
REPORT PREPARED BY: A. PASSALIS
The inspector/reporter represents to the best of his/her knowledge that the following statements and observations are true and correct and to the best of the preparer's actual knowledge, no material facts have been suppressed or misstated.

LANDFILL VISUAL INSPECTION

Site Name: CAM-2 Gladman Point
Landfill: Station Landfill
Designation: Existing Regrade Area
Date Inspected: August 14, 2010
Inspected by: Andrew Passalis, P.Eng.

Signature: 

TABLE IV: Visual Inspection Checklist / Report - Station Landfill

Checklist Item	Present (Yes/No)	Location	Length	Width	Depth	Extent	Description	Photographic Record	Severity Rating	Additional Comments
Settlement	Yes	FEATURE A See Figure CAM-2.2 (Lobe 5)	0.3 - 0.5 m	0.3 - 0.5 m	10 cm	Isolated 1%	Minor depressions	SLF-45	Acceptable	Two minor depressions on surface of lobe
		FEATURE B See Figure CAM-2.2 (Lobe 2) - NEW OBS.	1.2 m	0.2 m	5 cm	Isolated 1%	Minor depression	SLF-19, 20	Acceptable	Minor depression along crest of lobe
Erosion	Yes	FEATURE C See Figure CAM-2.2 (Lobe 3)	2.5 - 3.0 m	0.1 - 0.2 m	< 5 cm	Occassional 1 %	Minor surficial erosion	SLF-36, 37, 40, 41	Acceptable	Minor erosion noted at 6 locations on west side and 2 locations on east side lobe, typ. extending from top to toe
		FEATURE D See Figure CAM-2.2 (Lobe 2)	15 + 25 m 8 m New Obs.	2 m 0.15 m	2 - 7 cm 2 - 4 cm	Occassional <1 %	Minor surficial erosion	SLF-4, 9, 10	Acceptable	Minor erosion noted on surface of landfill (<1 cm), increasing to 4-7 cm depth on downgradient slope at 2 locations. Self armouring.
		FEATURE E See Figure CAM-2.2 (Lobe 2)	5 + 8 m	0.5 m	5 - 10 cm	Occassional <1 %	Minor surficial erosion	SLF-13. 14	Acceptable	Minor erosion noted on surface of landfill (2 cm), increasing to 5-10 cm depth on downgradient slope. Self armouring.
		FEATURE F See Figure CAM-2.2 (Lobe 2)	40 + 30 m	1.5 - 2 m 2 m	2 cm 5-15 cm	Occassional <1 %	Minor surficial erosion	SLF-15, 16, 17	Acceptable	Minor erosion noted on surface of landfill (2 cm), increasing to 5-15 cm depth on downgradient slope. Self armouring.
		FEATURE G See Figure CAM-2.2 (drainage channel on north side of Lobe 2)	60 m	1 m	10 - 15 cm	N/A	Minor erosion along base of engineered drainage channel	SLF-24, 25, 26	Acceptable	Minor erosion noted along drainage channel extending along north side of lobe. Self armouring.
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 H See Figure CAM-2.2 (northeast of Lobe 2)	25 m	15 m	unknown	N/A	Rust coloured staining	SLF-23	Acceptable	Rust coloured staining extending from NE toe of landfill to adjacent pond
Vegetation Stress	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not Observable	N/A
Seepage Points	Yes	FEATURE H See Figure CAM-2.2 (northeast area of Lobe 2)	8 m	4 m	N/A	Isolated <1%	Seepage along toe of slope	SLF-21, 23	Acceptable	Wetted area and minor seepage daylighting on northeast corner of lobe.
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 I See Figure CAM-2.2 (north and west sides of Lobe 3)	5 - 15 m	1-5 mm	unknown	Isolated <2%	Thin cracks extending along sideslope	SLF-33, 34, 35	Acceptable	Thin desication cracks extending along sideslope.
		FEATURE J See Figure CAM-2.2 (south end of Lobe 2) NEW OBS.	4 m	5-10 mm	unknown	Isolated <1%	Parallel cracks extending from crest in NE direction	SLF-5, 6	Acceptable	Thin tension cracks extending from crest on south end of lobe
		FEATURE K See Figure CAM-2.2 (crack on surface of Lobe 2) NEW OBS.	20 m	1 - 2 mm	unknown	Isolated <1%	Tension crack extending across surface of lobe	SLF-11, 12	Acceptable	Continuous crack extending in NW/SE direction across surface
		FEATURE L See Figure CAM-2.2 (cracks on west side of Lobe 2) NEW OBS.	4 m	2 - 3 mm	unknown	Isolated <1%	Parallel cracks extending from toe to crest across surface of lobe	SLF-30, 31	Acceptable	Thin tension cracks extending in NW/SE direction across side slope
Additional Photos	Yes	See Figure CAM-2.2 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 Station Landfill has been completed as per the ToR and is included as Table V hereafter.

Table V: Preliminary Stability Assessment – Station Landfill

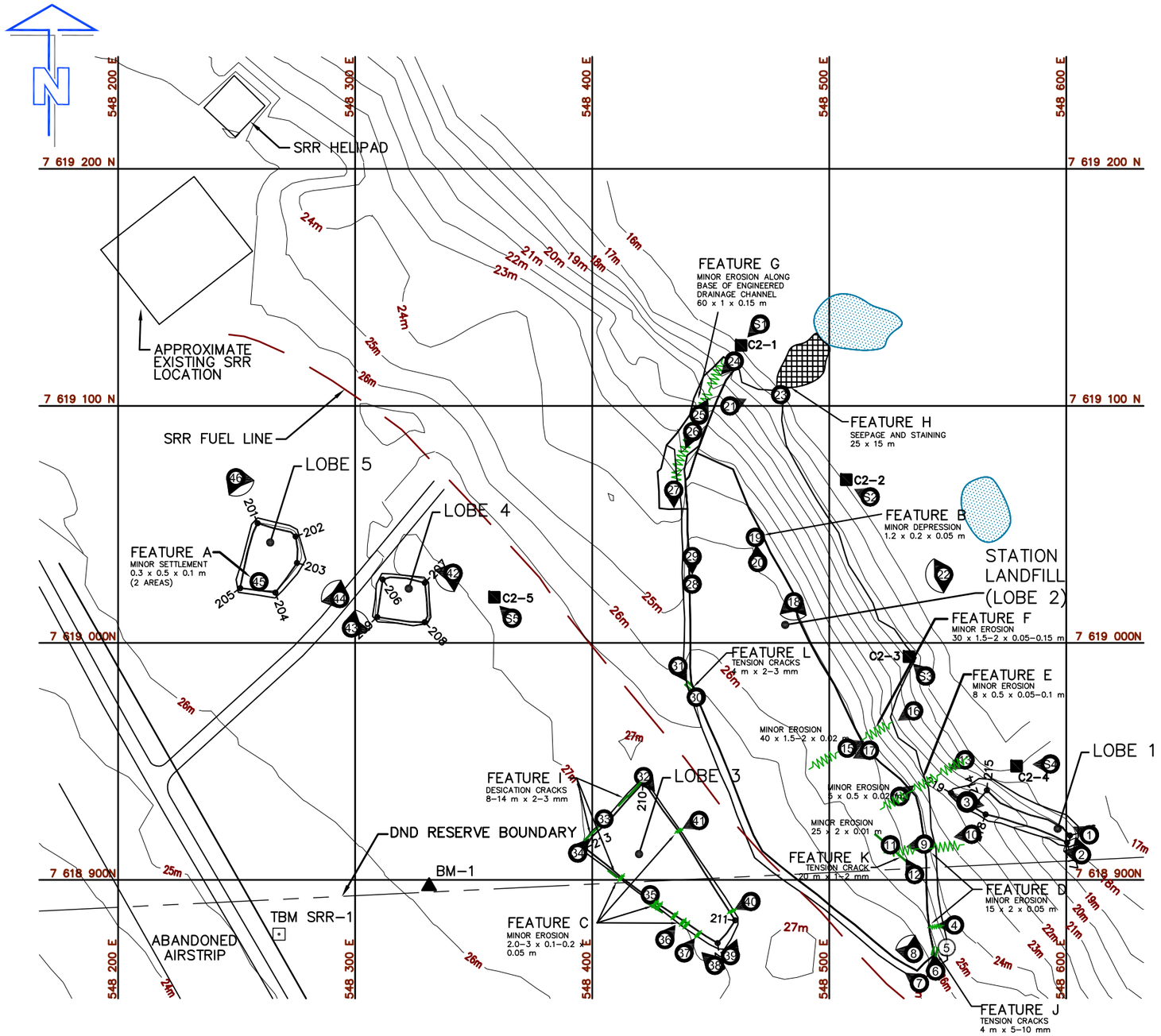
Feature	Severity Rating	Extent
Settlement	Acceptable	Isolated
Erosion	Acceptable	Isolated
Frost Action	Not observed	None
Staining	Acceptable	Isolated
Vegetation Stress	Not observed	None
Seepage/Ponded Water	Acceptable	Isolated
Debris exposure	Not observed	None
Overall Landfill Performance	**Acceptable**	

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 Station Landfill has been completed as per the ToR and is included in the following page as Figure CAM-2.2 Gladman Point – Station Landfill.



PERMANENT BENCHMARK				
NO.	COORDINATES		ELEV.	DESCRIPTION
	NORTHING	EASTING		
BM–1	7 618 897.363	548 331.191	26.595	25mm DIA. STEEL PIPE
SRR–1	7 618 877.108	548 267.873	24.975	16mm DIA. IRON BAR

LEGEND

- TBM4 — TEMPORARY BENCHMARK
- BM–1 — PERMANENT BENCHMARK
- 101 — COORDINATE POINT
- 20 — PHOTOGRAPH LOCATION
- SURFICIAL EROSION (NTS)
- SETTLEMENT (NTS)
- TENSION CRACK (NTS)
- SEEPAGE
- STAINING
- STAINING AND SEEPAGE
- POND

0 20m 40m 60m 80m 100m

NO.	VERSION	DATE	PAR	VERIF.	APPR.
A	FINAL	11–02–08	P.L.	A.P.	J.P.P.

Construction de Défense Canada
Defence Construction Canada

FINAL REPORT
COLLECTION OF LANDFILL MONITORING DATA
CAM-2, GLADMAN POINT, NUNAVUT

STATION 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):
Meter	1 : 2,000	FEBRUARY 2011
DRAWN BY: P. LÉGARÉ	VERIFIED BY: A. PASSALIS	APPROVED BY: J.–P. PELLETIER
PROJECT NO: CD9229_002_160	DRAWING NO: CD9229_002_160-CAM-2_2	PAGE PL

FIGURE CAM-2.2

3.5 PHOTOGRAPHIC RECORDS

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

Table VI: Landfill Visual Inspection Photo Log - Station Landfill
Site Name: CAM-2, Gladman Point
Landfill: Station Landfill
Date Inspected: August 14, 2010
Inspected by: Andrew Passalis, P.Eng.

Photo (SLF-)	Thumbnail	Filename	Size (KB)	Date	Vantage Point		Caption
					Easting	Northing	
Lobe 1							
1		C210_0109	4,376 KB	14/08/2010	548608	7618919	View NW along east and north side of Lobe 1
2		C210_0111	2,349 KB	14/08/2010	548605	7618911	Panoramic view NW to NNW from east end of Lobe 1
3		C210_0112	4,265 KB	14/08/2010	548558	7618933	View ESE along crown of Lobe 1 from west end
Lobe 2							
4		C210_0114	4,386 KB	14/08/2010	548552	7618881	View W at minor erosion on side slope of Lobe 2 (8m L, 0.15m W, 2-4cm D) - FEATURE D
5		C210_0115	4,382 KB	14/08/2010	548543	7618872	Parallel tension cracks extending along top of slope (5-10 mm W, 4m L) - FEATURE J
6		C210_0116	4,322 KB	14/08/2010	548543	7618872	View N along E side of Lobe 2. Note tension cracks near crest in foreground) - FEATURE J
7		C210_0117	4,233 KB	14/08/2010	548544	7618863	View NW along west side of Lobe 2
8		C210_0119	2,358 KB	14/08/2010	548544	7618863	Panoramic view NW to N across top of Lobe 2 from south end
9		C210_0120	4,376 KB	14/08/2010	548538	7618857	View WSW at minor erosion on surface of Lobe 2 (20m L, 2m W, 2-4cm D) - FEATURE D
10		C210_0121	4,300 KB	14/08/2010	548539	7618857	View WSW at minor erosion on E side of Lobe 2 (20m L, 1m W, 2-7cm D) - FEATURE D
11		C210_0123	4,428 KB	14/08/2010	548540	7618915	Minor crack extending across surface of Lobe 2 (1-2mm W, 20m L) - FEATURE K
12		C210_0124	4,253 KB	14/08/2010	548560	7618919	View NW along crack on surface of Lobe 2 - FEATURE K
13		C210_0127	4,359 KB	14/08/2010	548520	7618920	View SW at erosion on east side of Lobe 2 (8m L, 0.5m W, 5-10cm D) - FEATURE E
14		C210_0128	4,423 KB	14/08/2010	548526	7618915	View NE at 3 areas of erosion on east side of Lobe 2 (8m L, 0.5m W, 5-10cm D) - FEATURE E
15		C210_0129	4,314 KB	14/08/2010	548533	7618905	View SW at erosion on east side of Lobe 2 (30m L, 1-1.5m W, 5-15cm D) - FEATURE F
16		C210_0131	4,375 KB	14/08/2010	548558	7618951	View NE at erosion on east side of Lobe 2 from end of fines deposition at toe of slope - FEATURE F
17		C210_0134	4,279 KB	14/08/2010	548530	7618935	View SW at minor erosion on surface of Lobe 2, (40m L, 2m W, 2cm D) - FEATURE F
18		C210_0135	2,510 KB	14/08/2010	548485	7619017	Panoramic view SE to SW across surface of Lobe 2
19		C210_0136	4,406 KB	14/08/2010	548468	7619045	Minor depression near crest on east side of Lobe 2 (1.2m L, 20cm W, 5cm D) - FEATURE B
20		C210_0137	4,310 KB	14/08/2010	548470	7619034	View N at minor depression along crest on east side of Lobe 2 - FEATURE B
21		C210_0138	4,333 KB	14/08/2010	548457	7619099	View ENE at rust coloured staining extending from north toe of Lobe 2 - FEATURE H
22		C210_0141	3,071 KB	14/08/2010	548548	7619029	Panoramic view NW to S at east side of Lobe 2
23		C210_0142	4,451 KB	14/08/2010	548480	7619104	Ponding with rust coloured staining and sheen (bacterial) located near north end of Lobe 2 - FEATURE H
24		C210_0145	4,345 KB	14/08/2010	548460	7619119	View SW along drainage channel located at north end of Lobe 2 - FEATURE G
25		C210_0146	4,416 KB	14/08/2010	548445	7619096	View NE along drainage channel located at north end of Lobe 2 - FEATURE G
26		C210_0147	4,365 KB	14/08/2010	548443	7619088	View SW along drainage channel located at north end of Lobe 2 - FEATURE G
27		C210_0149	4,186 KB	14/08/2010	548434	7619064	View S at top of drainage channel at north end of Lobe 2
28		C210_0151	4,380 KB	14/08/2010	548442	7619025	Small crack extending N/S along west side on surface of Lobe 2 (1-2mm W, 13m L)
29		C210_0152	4,434 KB	14/08/2010	548443	7619036	View S at crack on west surface of Lobe 2

Table VI: Landfill Visual Inspection Photo Log - Station Landfill
Site Name: CAM-2, Gladman Point
Landfill: Station Landfill
Date Inspected: August 14, 2010
Inspected by: Andrew Passalis, P.Eng.

Photo (SLF-)	Thumbnail	Filename	Size (KB)	Date	Vantage Point		Caption
					Easting	Northing	
30		C210_0153	4,401 KB	14/08/2010	548445	7618977	Parallel cracks extending along west side slope of Lobe 2 (4m L, 2-3mm W) - FEATURE L
31		C210_0154	4,371 KB	14/08/2010	548437	7618987	View SE at crack on west side slope of Lobe 2 - FEATURE L
Lobe 3							
32		C210_0157	4,279 KB	14/08/2010	548422	7618943	View SE along east side of Lobe 3
33		C210_0161	4,362 KB	14/08/2010	548405	7618925	Small desciccation cracks extending along slope on north side of Lobe 3 (up to 5mm W) - FEATURE I
34		C210_0162	4,383 KB	14/08/2010	548394	7618911	View NE at descication cracks extending along north side slope of Lobe 3 - FEATURE I
35		C210_0165	4,308 KB	14/08/2010	548425	7618893	Multi directional descication cracks on west side slope of Lobe 3 - FEATURE I
36		C210_0167	4,443 KB	14/08/2010	548431	7618874	View SW at minor erosion on southeast corner of Lobe 3 - FEATURE C
37		C210_0168	4,298 KB	14/08/2010	548439	7618869	View SW at minor erosion on southeast corner of Lobe 3 - FEATURE C
38		C210_0169	4,334 KB	14/08/2010	548453	7618864	View NW along west side of Lobe 3
39		C210_0170	4,478 KB	14/08/2010	548458	7618868	View NE along south side of Lobe 3
40		C210_0172	4,316 KB	14/08/2010	548467	7618891	View SW at minor erosion on northeast corner of Lobe 3 - FEATURE C
41		C210_0173	4,443 KB	14/08/2010	548444	7618926	View SW at minor erosion on east side of Lobe 3 - FEATURE C
Lobe 4							
42		C210_0176	2,588 KB	14/08/2010	548342	7619029	Panoramic view W to S at Lobe 4
43		C210_0177	2,632 KB	14/08/2010	548299	7619005	Panoramic view N to E at Lobe 4
Lobe 5							
44		C210_0179	2,240 KB	14/08/2010	548294	7619018	Panoramic view W to N at Lobe 5
45		C210_0180	4,282 KB	14/08/2010	548259	7619026	2 small potholes in SW corner of Lobe 5 - FEATURE A
46		C210_0181	2,458 KB	14/08/2010	548250	7619070	Panoramic view E to S at Lobe 5
Soil Sampling							
C2-1		C210_0143	4,418 KB	14/08/2010	548463	7619126	Sampling location C2-1 located downgradient of Lobe 2
S1		C210_0144	4,267 KB	14/08/2010	548471	7619135	View SW at C2-1 soil sampling location
C2-2		C210_0155	4,462 KB	14/08/2010	548507	7619069	Sampling location C2-2 located downgradient of Lobe 2
S2		C210_0156	4,358 KB	14/08/2010	548517	7619061	View NW at C2-2 soil sampling location
C2-3		C210_0174	4,413 KB	14/08/2010	548534	7618994	Sampling location C2-3 located downgradient of Lobe 2
S3		C210_0175	4,357 KB	14/08/2010	548541	7618986	View NW at C2-3 soil sampling location
C2-4		C210_0125	4,355 KB	14/08/2010	548579	7618948	Sampling location C2-4 located downgradient of Lobes 1 and 2
S4		C210_0126	4,249 KB	14/08/2010	548592	7618949	View W at C2-4 soil sampling location
C2-5		C210_0185	4,315 KB	14/08/2010	548358	7619019	Sampling location C2-5 located downgradient of Lobes 4 and 5
S5		C210_0186	4,384 KB	14/08/2010	548367	7619010	View NW at C2-5 soil sampling location

3.6 SOIL SAMPLE ANALYTICAL DATA

The soil chemical analysis results and evaluation of analytical data for the 2010 Station Landfill samples are presented in Tables VII and VIII respectively. Certificates of analysis and results from field 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 – Station Landfill

Sample #	Location	Depth (cm)	Cu [mg/kg]	Ni [mg/kg]	Co [mg/kg]	Cd [mg/kg]	Pb [mg/kg]	Zn [mg/kg]	Cr [mg/kg]	As [mg/kg]	Hg [mg/kg]	PCBs [mg/kg]	F1 C_6-C_{10} [mg/kg]	F2 C_{10}-C_{16} [mg/kg]	F3 C_{16}-C_{34} [mg/kg]	TPH C_6-C_{34} [mg/kg]
C210-1A	C2-1	0-15	<5	3	1	<0.1	3	<10	5	<1	<0.05	<0.010	<12	<10	<10	ND
C210-1B		40-50	13	6	2	<0.1	6	13	11	3	<0.05	<0.010	<12	<10	<10	ND
C210-2A	C2-2	0-15	<5	2	<1	<0.1	2	<10	4	<1	<0.05	<0.010	<12	<10	<10	ND
C210-2B		40-50	<5	2	1	<0.1	3	<10	5	1	<0.05	<0.010	<12	<10	<10	ND
C210-3A	C2-3	0-15	9	4	2	0.2	2	<10	4	1	<0.05	<0.020	<61	<20 (1)	<20 (1)	ND
C210-3B		40-50	<5	2	1	<0.1	3	<10	4	1	<0.05	<0.010	<12	<10	<10	ND
C210-4A	C2-4	0-15	<5	2	<1	<0.1	2	<10	3	<1	<0.05	<0.010	<12	<10	<10	ND
C210-4B		40-50	<5	2	<1	<0.1	2	<10	3	<1	<0.05	<0.010	<12	<10	<10	ND
C210-5A	C2-5	0-15	<5	2	1	<0.1	2	<10	3	<1	<0.05	<0.010	<12	<10	<10	ND
C210-5B		40-50	7	2	1	<0.1	3	<10	4	1	<0.05	<0.010	<12	<10	<10	ND
C210-BD3	C210-5A	0-15	<5	2	<1	<0.1	2	<10	3	<1	<0.05	<0.010	<12	<10	<10	ND

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

ND: Not detected

(1) Detection limits raised due to high moisture content. (>50% moisture).

S/P/CD/9229/T/10-Soil and GW-results CAM-2(Soil - Station Landfill).xls

Table VIII: Evaluation of 2010 Soil Analytical Data – Station Landfill

Parameter	2010
Copper	Concentrations ranged between <5-13 mg/kg with detectable concentrations observed at only 3 sample locations, including C2-1 (depth), C2-3 (surface) and C2-5 (depth). The highest concentration was observed at C2-1 (13 mg/kg), located downgradient of the drainage channel on the northeast corner of Lobe 2. Other detectable concentrations were noted at C2-3 (9 mg/kg) and C2-5 (7 mg/kg) located downgradient of Lobes 2 and 4, respectively.
Nickel	Concentrations ranged between 2-6 mg/kg with a mean of 2.7. The highest concentration was observed at depth at C2-1, downgradient of the drainage channel on the northeast corner of Lobe 2. Slightly raised concentrations were also noted at surface at C2-3 (4 mg/kg), downgradient of Lobe 2, with detectable concentrations between 2-3 mg/kg observed at all other locations.
Cobalt	Concentrations ranged between <1-2 mg/kg with a mean of 1.1. The highest concentration was observed at depth at C2-1, downgradient of the drainage channel on the northeast corner of Lobe 2. Slightly raised concentrations were also noted at surface at C2-3 (2 mg/kg), downgradient of Lobe 2. All remaining sample concentrations were less than or equal to the detection limit of 1 mg/kg.
Cadmium	All reported concentrations were less than the method detection limit (0.1 mg/kg), with the exception of the surface sample collected at C2-3 (0.2 mg/kg), located downgradient of Lobe 2.
Lead	Concentrations ranged between 2-6 mg/kg with a mean of 2.8. The highest concentration was observed at depth at C2-1, downgradient of the drainage channel on the northeast corner of Lobe 2, with detectable concentrations between 2-3 mg/kg observed at all other locations.
Zinc	With the exception of the depth sample at C2-1 (13 mg/kg), all reported concentrations were less than the method detection limit (10 mg/kg). C2-1 is located downgradient of the drainage channel on the northeast corner of Lobe 2.
Chromium	Concentrations ranged between 3-11 mg/kg with a mean of 4.6. The highest concentrations were observed at surface (5 mg/kg) and depth (11 mg/kg) at C2-1, downgradient of the drainage channel on the northeast corner of Lobe 2. Detectable concentrations between 3-4 mg/kg observed at all other locations.
Arsenic	Concentrations ranged between <1-3 mg/kg with detectable concentrations noted at half of the sample locations. The highest concentration was observed at depth at C2-1, downgradient of the drainage channel on the northeast corner of Lobe 2. All remaining sample concentrations were less than or equal to the detection limit of 1 mg/kg.
Mercury	All reported concentrations were less than the method detection limit (0.05 mg/kg).
PCBs	All reported concentrations were less than the method detection limit (0.01 mg/kg), with the exception of the surface sample at C2-3 which reported a concentration less than a detection limit of 0.02 mg/kg (MDL raised due to high moisture (>50%) in the sample).
TPH	All reported concentrations were less than the method detection limit (12 mg/kg), with the exception of the surface sample at C2-3 which reported a concentration less than a detection limit of 61 mg/kg (MDL raised due to high moisture (>50%) in the sample).

4 WEST LANDFILL - NORTH

4.1 BACKGROUND AND MONITORING PROGRAM

The West Landfill – North area is located approximately 1 km northwest of the main station area and is bound on the west side by an abandoned airstrip. The landfill includes seven regraded debris lobes (Lobes 1 to 7) ranging in size from 140 m^2 to 6,300 m^2. With cover material, the landfill encompasses a footprint of approximately 16,500 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 West Landfill – North was classified as low potential environmental risk. The remediation consisted of excavation of contaminated soils and regrading with the placement of additional granular fill.

Five long-term soil monitoring sample locations (C2-6 through C2-10) are situated at up and downgradient locations relative to the individual landfill lobes.

The long term monitoring plan consists of visual monitoring and collection of soil samples. The 2010 monitoring of this landfill includes a visual inspection and soil sampling program to assess landfill performance. There is no instrumentation installed at this landfill.

4.2 VISUAL INSPECTION REPORT

The visual inspection of the West Landfill – North area was conducted on August 14, 2010. The Visual Inspection Checklist/Report has been completed as per the ToR and is included as Table IX of this report.

Settlement
No indications of settlement were noted.

Erosion
Minor surface erosion was noted along a runoff channel that extends between two closely spaced lobes (Lobes 4 and 5) in the central area of the landfill (Feature A). The erosion was noted to extend along the toe of Lobe 4 and is not in direct contact with the landfill.

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
No seepage points were observed at this landfill.

Debris
There was no evidence of exposed debris at this landfill.

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

Other Features of Note
A single area of ponding was noted at the toe of one of the downgradient lobes. The ponded water was contained to a small dug-out area located immediately adjacent to Lob 6.

Discussion
The West Landfill – North area 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 – West Landfill – North

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

SITE NAME: WEST LANDFILL - NORTH
LANDFILL DESIGNATION: EXISTING REGRADE
DATE OF INSPECTION: AUGUST 14, 2010
DATE OF PREVIOUS INSPECTION: AUGUST 12, 2009
INSPECTED BY: A. PASSALIS
REPORT PREPARED BY: A. PASSALIS
The inspector/reporter represents to the best of his/her knowledge that the following statements and observations are true and correct and to the best of the preparer's actual knowledge, no material facts have been suppressed or misstated.

LANDFILL VISUAL INSPECTION

Site Name: CAM-2 Gladman Point
Landfill: West Landfill - North
Designation: Existing Regrade Area
Date Inspected: August 14, 2010
Inspected by: Andrew Passalis, P.Eng.

Signature: 

TABLE IX: Visual Inspection Checklist / Report - West Landfill - North

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	Yes	FEATURE A See Figure CAM-2.3 (between Lobes 4 and 5)	20 m	0.4 m	5 cm	Isolated <1%	Minor erosion beteen regrade lobes	WLFN-14, 15	Acceptable	Runoff channel located between regrade areas, extending along toe of Lobe 4.
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-2.3 (ponding)	3 m	2 m	0.2 m	<1	Isolated	WLFN-25	Acceptable	547955E, 7619615N, dug-out area at edge of regrade area
Additional Photos	Yes	See Figure CAM-2.3 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 West Landfill – North has been completed as per the ToR and is included as Table X hereafter.

Table X: Preliminary Stability Assessment – West Landfill – North

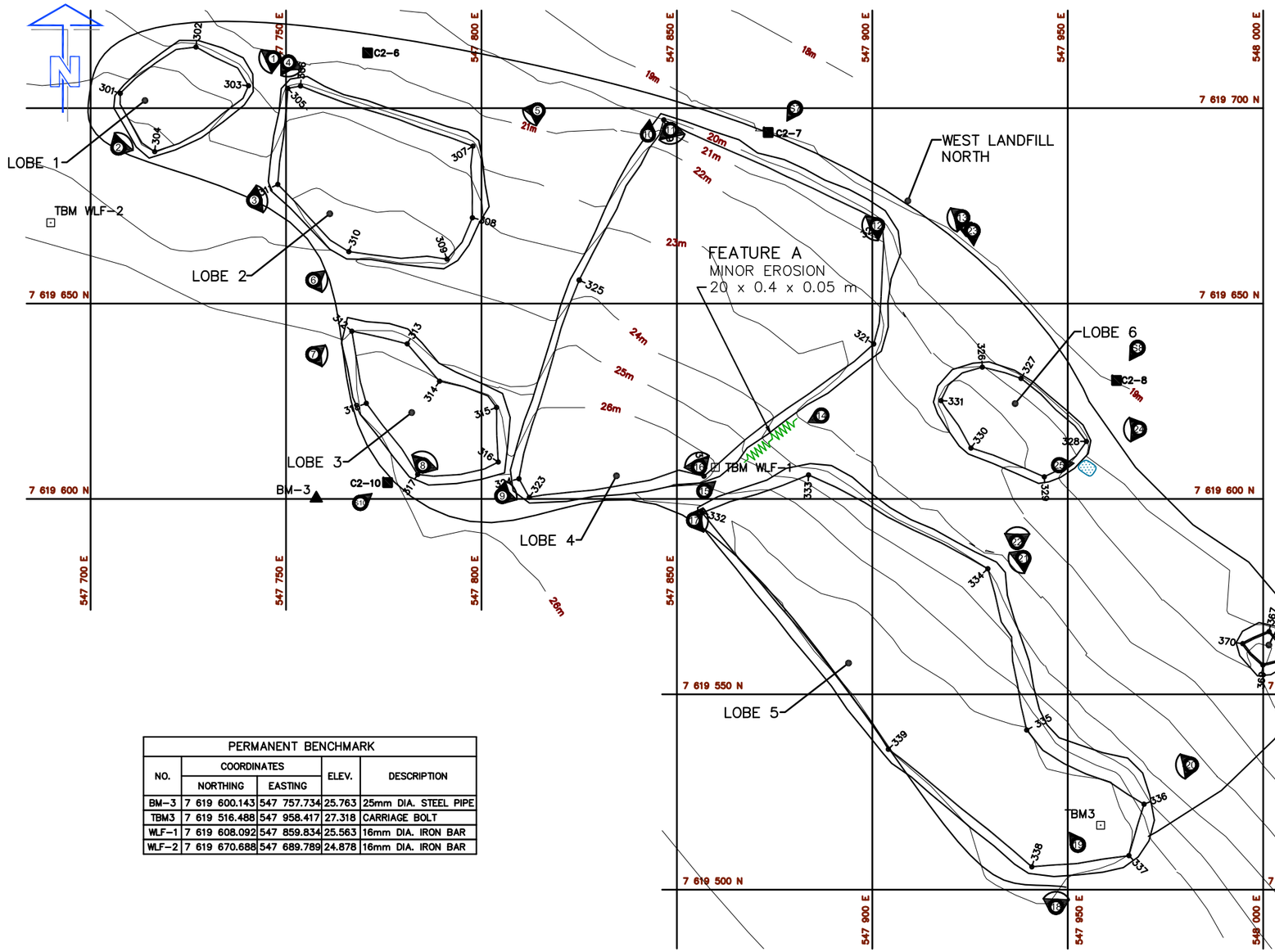
Feature	Severity Rating	Extent
Settlement	Not observed	None
Erosion	Acceptable	Isolated
Frost Action	Not observed	None
Staining	Not observed	None
Vegetation Stress	Not observed	None
Seepage/Ponded Water	Acceptable	Isolated
Debris exposure	Not observed	None
Overall Landfill Performance	**Acceptable**	

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 West Landfill – North has been completed as per the ToR and is included in the following page as Figure CAM-2.3 Gladman Point – West Landfill – North.



PERMANENT BENCHMARK				
NO.	COORDINATES		ELEV.	DESCRIPTION
	NORTHING	EASTING		
BM-3	7 619 600.143	547 757.734	25.763	25mm DIA. STEEL PIPE
TBM3	7 619 516.488	547 958.417	27.318	CARRIAGE BOLT
WLF-1	7 619 608.092	547 859.834	25.563	16mm DIA. IRON BAR
WLF-2	7 619 670.688	547 689.789	24.878	16mm DIA. IRON BAR

LEGEND

- TBM4 — TEMPORARY BENCHMARK
- BM-1 — PERMANENT BENCHMARK
- 101 — COORDINATE POINT
- MONITORING SOIL SAMPLE LOCATION
- 5 — PHOTOGRAPH LOCATION
- EROSION (NTS)
- POND

0 12.5m 25m 37.5m 50m 62.5m

NO.	VERSION	DATE	P.L.	A.P.	J.P.P.
A	FINAL	11-02-08	PAR	VERIF.	APPR.

Construction de Défense Canada
Defence Construction Canada

FINAL REPORT
COLLECTION OF LANDFILL MONITORING DATA
CAM-2, GLADMAN POINT, NUNAVUT

WEST LANDFILL-NORTH

SITE REMEDIATION SOLUTIONS

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MEASUREMENT UNIT	SCALE:	DATE (month-year):
Meter	1 : 1,250	FEBRUARY 2011
DRAWN BY:	VERIFIED BY:	APPROVED BY:
P. LÉGARÉ	A. PASSALIS	J.-P. PELLETIER
PROJECT NO:	DRAWING NO:	PAGE
CD9229_002_160	CD9229_002_160-CAM-2_3	PL

FIGURE CAM-2.3

4.5 PHOTOGRAPHIC RECORDS

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

Table XI: Landfill Visual Inspection Photo Log - West Landfill - North

Site Name: CAM-2, Gladman Point
Landfill: West Landfill - North
Date Inspected: August 14, 2010
Inspected by: Andrew Passalis, P.Eng.

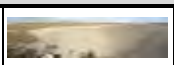
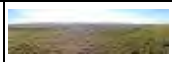
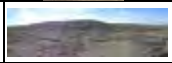
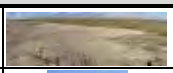
Photo (WLFN-)	Thumbnail	Filename	Size (KB)	Date	Vantage Point		Caption
					Easting	Northing	
Lobe 1							
1		C210_0258	2,472 KB	14/08/2010	547747	7619713	Panoramic view N to SW from northeast of Lobe 1
2		C210_0259	2,682 KB	14/08/2010	547707	7619690	Panoramic view N to E from southwest corner of Lobe 1
Lobe 2							
3		C210_0260	2,671 KB	14/08/2010	547742	7619676	Panoramic view N to SE from southwest of Lobe 2
4		C210_0257	2,919 KB	14/08/2010	547751	7619711	Panoramic view ESE to SSW from northwest corner of Lobe 2
5		C210_0256	2,716 KB	14/08/2010	547815	7619699	Panoramic view S to NW from southeast of Lobe 2
Lobe 3							
6		C210_0262	2,581 KB	14/08/2010	547757	7619656	Panoramic view NE to SE between Lobes 2 and 3
7		C210_0263	2,608 KB	14/08/2010	547757	7619637	Panoramic view NE to SE from west of Lobe 3
8		C210_0264	2,782 KB	14/08/2010	547785	7619608	Panoramic view NW to E from south end of Lobe 3
Lobe 4							
9		C210_0265	2,421 KB	14/08/2010	547843	7619693	Panoramic view NNE to E from southwest corner of Lobe 4
10		C210_0255	4,307 KB	14/08/2010	547848	7619695	View N at area adjacent to north toe of Lobe 4. No ponding evident.
11		C210_0254	3,169 KB	14/08/2010	547901	7619670	Panoramic view SE to SW from north corner of Lobe 4
12		C210_0247	3,173 KB	14/08/2010	547923	7619672	Panoramic view NW to S from east side of Lobe 4
13		C210_0245	2,554 KB	14/08/2010	547887	7619621	Panoramic view NW to SW from east of Lobe 4
14		C210_0248	4,300 KB	14/08/2010	547857	7619602	View SW along minor drainage/erosion feature between Lobes 4 and 5 - FEATURE A
15		C210_0249	4,398 KB	14/08/2010	547856	7619609	View NE along minor drainage/erosion feature between Lobes 4 and 5 - FEATURE A
16		C210_0251	3,010 KB	14/08/2010	547855	7619594	Panoramic view W to NE from south side of Lobe 4
Lobe 5							
17		C210_0250	2,701 KB	14/08/2010	547947	7619495	Panoramic view SE to NE from northwest corner of Lobe 5
18		C210_0239	2,630 KB	14/08/2010	547952	7619511	Panoramic view NE to NW from south end of Lobe 5
19		C210_0240	4,393 KB	14/08/2010	547982	7619532	View NW across top of Lobe 5
20		C210_0238	2,529 KB	14/08/2010	547938	7619585	Panoramic view NW to SW from south end of Lobe 5
21		C210_0235	2,594 KB	14/08/2010	547937	7619588	Panoramic view NW to S from east side of Lobe 5

Table XI: Landfill Visual Inspection Photo Log - West Landfill - North

Site Name: CAM-2, Gladman Point
Landfill: West Landfill - North
Date Inspected: August 14, 2010
Inspected by: Andrew Passalis, P.Eng.

Photo (WLFN-)	Thumbnail	Filename	Size (KB)	Date	Vantage Point		Caption
					Easting	Northing	
Lobe 6							
22		C210_0234	2,277 KB	14/08/2010	547925	7619669	Panoramic view NE to NW at Lobe 6. C2-8 sample location in background.
23		C210_0246	4,267 KB	14/08/2010	547968	7619618	View S at Lobe 6
Lobe 7							
26		C210_0244	4,234 KB	14/08/2010	547948	7619609	View SW at Lobe 7 from C2-9 sample location
Soil Sampling							
S6		C210_0261	4,452 KB	14/08/2010	547771	7619714	Sampling location C2-6 located downgradient of Lobe 2
C2-7		C210_0252	4,407 KB	14/08/2010	547873	7619693	Sampling location C2-7 located downgradient of Lobe 4
S7		C210_0253	4,407 KB	14/08/2010	547880	7619700	View SW at C2-7 soil sample location
C2-8		C210_0236	4,374 KB	14/08/2010	547962	7619630	Sampling location C2-8 located downgradient of Lobe 6
S8		C210_0237	4,428 KB	14/08/2010	547967	7619636	View SW at C2-8 soil sample location
C2-9		C210_0242	4,444 KB	14/08/2010	548021	7619573	Sampling location C2-9 located downgradient of Lobe 7
26		C210_0243	4,437 KB	14/08/2010	548028	7619578	View SW at C2-9 soil sample location
C2-10		C210_0267	4,243 KB	14/08/2010	547776	7619604	Sampling location C2-10 located upgradient of Lobe 3
S10		C210_0268	4,359 KB	14/08/2010	547769	7619599	View NE at C2-10 soil sample location

4.6 SOIL SAMPLE ANALYTICAL DATA

The soil chemical analysis results and evaluation of analytical data for the 2010 West Landfill – North area samples are presented in Tables XII and XIII hereafter. Certificates of analysis and results from field 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 – West Landfill – North

Sample #	Location	Depth (cm)	Cu [mg/kg]	Ni [mg/kg]	Co [mg/kg]	Cd [mg/kg]	Pb [mg/kg]	Zn [mg/kg]	Cr [mg/kg]	As [mg/kg]	Hg [mg/kg]	PCBs [mg/kg]	F1 C_6-C_{10} [mg/kg]	F2 C_{10}-C_{16} [mg/kg]	F3 C_{16}-C_{34} [mg/kg]	TPH C_6-C_{34} [mg/kg]
C210-6A	C2-6	0-15	<5	1	<1	<0.1	1	<10	3	<1	<0.05	<0.010	<12	<10	<10	ND
C210-6B		40-50	<5	1	<1	<0.1	1	<10	2	<1	<0.05	<0.010	<12	<10	<10	ND
C210-7A	C2-7	0-15	7	2	<1	<0.1	2	<10	4	<1	<0.05	<0.020	<61	<20 (1)	<20 (1)	ND
C210-7B		40-50	<5	1	<1	<0.1	1	<10	3	<1	<0.05	<0.010	<12	<10	<10	ND
C210-8A	C208	0-15	<5	2	1	<0.1	2	<10	4	1	<0.05	<0.010	<12	<10	<10	ND
C210-8B		40-50	18	11	5	<0.1	10	28	19	3	<0.05	<0.010	<12	<10	<10	ND
C210-9A	C2-7	0-15	<5	2	1	<0.1	2	<10	4	1	<0.05	<0.010	<12	<10	<10	ND
C210-9B		40-50	12	6	3	<0.1	5	17	13	3	<0.05	<0.010	<12	<10	<10	ND
C210-10A	C208	0-15	<5	2	1	<0.1	2	<10	4	<1	<0.05	<0.010	<12	<10	<10	ND
C210-10B		40-50	14	5	3	<0.1	6	13	8	2	<0.05	<0.010	<12	<10	<10	ND
C210-BD4	C210-10A	0-15	<5	2	1	<0.1	2	<10	3	<1	<0.05	<0.010	<12	<10	<10	ND

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

ND: Not detected

(1) Detection limits raised due to high moisture content. (>50% moisture).

S/P/CD/9229/T/10-Soil and GW-results CAM-2(Soil - West Landfill - North).xls

Table XIII: Evaluation of 2010 Soil Analytical Data – West Landfill – North

Parameter	2010
Copper	Concentrations ranged between <5-18 mg/kg with detectable concentrations observed at depth in 4 sample locations, including one surface sample at C2-7 (7 mg/kg) located downgradient of Lobe 4 and three depth samples at C2-8 (18 mg/kg) located downgradient of Lobe 6, C2-9 (12 mg/kg) located downgradient of Lobe 7 and C2-10 (14 mg/kg) located upgradient of Lobe 3. All remaining sample concentrations were less than detection limit of 5 mg/kg.
Nickel	Concentrations ranged between 2-11 mg/kg with a mean of 3.3. The highest concentration was observed at depth at C2-8, downgradient of Lobe 6, with slightly raised concentrations also noted at depth at C2-9 (6 mg/kg) downgradient of Lobe 7 and C2-10 (5 mg/kg) located upgradient of Lobe 3. All remaining sample concentrations ranged between 1-2 mg/kg.
Cobalt	Concentrations ranged between <1-5 mg/kg with a mean of 1.6. The highest concentration was observed at depth at C2-8, downgradient of Lobe 6. Slightly raised concentrations were also noted at depth at C2-9 (3 mg/kg) downgradient of Lobe 7 and C2-10 (3 mg/kg) located upgradient of Lobe 3. All remaining sample concentrations ranged between <1-1 mg/kg.
Cadmium	All reported concentrations were less than the method detection limit (0.1 mg/kg).
Lead	Concentrations ranged between 1-10 mg/kg with a mean of 3.2. The highest concentration was observed at depth at C2-8, downgradient Lobe 6. Slightly raised concentrations were also noted at depth at C2-9 (5 mg/kg) downgradient of Lobe 7 and C2-10 (6 mg/kg) located upgradient of Lobe 3. All remaining sample concentrations ranged between 1-2 mg/kg.
Zinc	Concentrations ranged between <10-28 mg/kg with detectable concentrations observed at depth in 3 sample locations, including depth samples at C2-8 (28 mg/kg) located downgradient of Lobe 6, C2-9 (17 mg/kg) located downgradient of Lobe 7 and C2-10 (13 mg/kg) located upgradient of Lobe 3. All remaining sample concentrations were less than detection limit of 10 mg/kg.
Chromium	Concentrations ranged between 2-19 mg/kg with a mean of 6.4. The highest concentration was observed at depth at C2-8, downgradient of Lobe 6, with slightly raised concentrations also noted at depth at C2-9 (13 mg/kg) downgradient of Lobe 7 and C2-10 (8 mg/kg) located upgradient of Lobe 3. Detectable concentrations between 2-4 mg/kg were observed at all other locations.
Arsenic	Concentrations ranged between <1-3 mg/kg with detectable concentrations noted at approximately half of the sample locations. The highest concentration was observed at depth at C2-8 and C2-9, located downgradient of Lobes 6 and 7, respectively. A slightly raised concentration of 2 mg/kg was also noted at depth at C2-10 (2 mg/kg) located upgradient of Lobe 3. All remaining sample concentrations were less than or equal to the detection limit of 1 mg/kg.
Mercury	All reported concentrations were less than the method detection limit (0.05 mg/kg).
PCBs	All reported concentrations were less than the method detection limit (0.01 mg/kg), with the exception of the surface sample at C2-7 which reported a concentration less than a detection limit of 0.02 mg/kg (MDL raised due to high moisture (>50%) in the sample).
TPH	All reported concentrations were less than the method detection limit (12 mg/kg), with the exception of the surface sample at C2-7 which reported a concentration less than a detection limit of 61 mg/kg (MDL raised due to high moisture (>50%) in the sample).

5 WEST LANDFILL – SOUTH

5.1 BACKGROUND AND MONITORING PROGRAM

The West Landfill – South area is located approximately 700 m northwest of the main station area and is bound on the south by the SRR site and west by an abandoned airstrip. The landfill includes four regraded debris lobes (Lobes 8 through 11) ranging in size from 575 m^2 to 9,1225 m^2. With cover material, the landfill encompasses a footprint of approximately 12,600 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 West Landfill – South was classified as low potential environmental risk. The remediation consisted of excavation of contaminated soils and regrading with the placement of additional granular fill.

Four long-term soil monitoring sample locations (C2-11 through C2-14) are situated at up and downgradient locations relative to the individual landfill lobes.

The long term monitoring plan consists of visual monitoring and collection of soil samples. The 2010 monitoring of this landfill includes a visual inspection and soil sampling program to assess landfill performance. There is no instrumentation installed at this landfill.

5.2 VISUAL INSPECTION REPORT

The visual inspection of the West Landfill – South area was conducted on August 14, 2010. 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 one area (Feature A) on Lobe 8. Feature A consisted of three small closely spaced depressions (potholes) situated on the east surface of the lobe. Feature A was not noted during the previous 2009 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
No seepage points were observed at this landfill.

Debris
There was one notation of debris in the area immediately south of the landfill, including a piece partially exposed black geotextile material (Feature B). The length and depth of the debris is not known, however it is suspected the geotexile may be associated with the engineered drainage channel constructed immediately to the west. The piece of debris appeared to be isolated and outside the landfill regrade area. A single piece of metal debris was also noted on surface immediately east of Lobe 11.

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

Other Features of Note
A single area of ponding was noted in a low lying area extending between Lobe 11 and adjacent Lobe 10 to the north. There were no seepage points or staining associated with the ponded water.

Discussion
The West Landfill – South area 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 – West Landfill – South

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

SITE NAME: WEST LANDFILL – SOUTH
LANDFILL DESIGNATION: EXISTING REGRADE
DATE OF INSPECTION: AUGUST 14, 2010
DATE OF PREVIOUS INSPECTION: AUGUST 12, 2009
INSPECTED BY: A. PASSALIS
REPORT PREPARED BY: A. PASSALIS
The inspector/reporter represents to the best of his/her knowledge that the following statements and observations are true and correct and to the best of the preparer's actual knowledge, no material facts have been suppressed or misstated.

LANDFILL VISUAL INSPECTION

Site Name: CAM-2 Gladman Point
Landfill: West Landfill - South
Designation: Existing Regrade Area
Date Inspected: August 14, 2010
Inspected by: Andrew Passalis, P.Eng.

Signature: 

TABLE XIV: Visual Inspection Checklist / Report - West Landfill - South

Checklist Item	Present (Yes/No)	Location	Length	Width	Depth	Extent	Description	Photographic Record	Severity Rating	Additional Comments
Settlement	Yes	FEATURE A See Figure CAM-2.4 (east side of Lobe 8) NEW OBS.	0.5 - 0.8 m	0.5 - 0.8 m	10 cm	Isolated <1%	Three small depresssions (potholes) on surface of lobe	WLFS-3, 4	Acceptable	Lobe surface 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-2.4 (east end of drainage channel - Lobe 11)	0.3 m	0.4 m	Unknow	Isolated <1%	Black geotextile fabric	WLFS-23	Acceptable	548268E, 7619265N, similar material used in construction of drainage channel
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-2.4 (ponding north of Lobe 11)	25 m	4 - 10 m	5 - 10 cm	N/A	Ponding in downgradient area north of Lobe 11	WLFS-10. 13, 15	Acceptable	Localized ponding between lobes
		See Figure CAM-2.4 (east side of Lobe 11) NEW OBS.	0.9 m	5 cm	1 cm	Isolated <1%	Miscellaneous piece of metal debris on surface	WLFS-25	Acceptable	Located at toe of lobe
Additional Photos	Yes	See Figure CAM-2.4 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 West Landfill – South has been completed as per the ToR and is included as Table XV hereafter.

Table XV: Preliminary Stability Assessment – West Landfill – South

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

5.4 LOCATION PLAN

The Location Plan for the West Landfill – South has been completed as per the ToR and is included in the following page as Figure CAM-2.4 Gladman Point – West Landfill – South.

Located 15m north of displayed location

548 000 E
548 050 E
548 100 E
548 500 E
548 200 E
548 250 E
7 619 450 N
7 619 400 N
7 619 350 N
7 619 300 N
7 619 250 N

LOBE 8
LOBE 9
LOBE 10
LOBE 11

C2-11
C2-12
C2-13
C2-14

FEATURE A
MINOR DEPRESSIONS
0.5–0.8 m x 0.1 m

FEATURE B
EXPOSED DEBRIS
GEOTEXTILE

20m
21m
22m
23m
24m
25m
26m

LEGEND

- TBM4 — TEMPORARY BENCHMARK
- BM–1 — PERMANENT BENCHMARK
- 101 — COORDINATE POINT
- MONITORING SOIL SAMPLE LOCATION
- PHOTOGRAPH LOCATION
- SETTLEMENT (NTS)
- POND

0 10m 20m 30m 40m 50m

NO.	VERSION	DATE	P.L.	A.P.	J.P.P.
A	FINAL	11–02–08	PAR	VERIF.	APPR.

Construction de Défense Canada
Defence Construction Canada

FINAL REPORT
COLLECTION OF LANDFILL MONITORING DATA

CAM-2, GLADMAN POINT, NUNAVUT

WEST LANDFILL-SOUTH

SITE REMEDIATION SOLUTIONS

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MEASUREMENT UNIT	SCALE:	DATE (month–year):
Meter	1 : 1,000	FEBRUARY 2011
DRAWN BY:	VERIFIED BY:	APPROVED BY:
P. LÉGARÉ	A. PASSALIS	J.–P. PELLETIER
PROJECT NO:	DRAWING NO:	PAGE
CD9229_002_160	CD9229_002_160-CAM-2_4	PL

FIGURE CAM-2.4

5.5 PHOTOGRAPHIC RECORDS

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

Table XVI: Landfill Visual Inspection Photo Log - West Landfill - South

Site Name: CAM-2, Gladman Point
Landfill: West Landfill - South
Date Inspected: August 14, 2010
Inspected by: Andrew Passalis, P.Eng.

Photo (WLFS-)	Thumbnail	Filename	Size (KB)	Date	Vantage Point		Caption
					Easting	Northing	
Lobe 8							
1		C210_0230	4,430 KB	14/08/2010	548005	7619484	View S from north of Lobe 8
2		C210_0229	2,617 KB	14/08/2010	547991	7619438	Panoramic view NE to SE from west side of Lobe 8
3		C210_0228	4,307 KB	14/08/2010	548022	7619447	View E at depressions on east side of Lobe 8 - FEATURE A
4		C210_0227	4,439 KB	14/08/2010	548029	7619446	View of 3 small depressions (potholes) on east side of Lobe 8 (0.5-0.8m L,0.5-0.8m W, 0.1m D) - FEATURE A
5		C210_0226	2,508 KB	14/08/2010	548053	7619437	Panoramic view SW to NW at Lobe 8
Lobe 9							
6		C210_0225	4,305 KB	14/08/2010	548056	7619439	View E at Lobe 9
7		C210_0219	4,394 KB	14/08/2010	548088	7619397	View NE at Lobe 9
8		C210_0218	2,704 KB	14/08/2010	548116	7619395	Panoramic view WNW to NE at Lobe 9
Lobe 10							
9		C210_0217	4,434 KB	14/08/2010	548121	7619394	View SE along east side of Lobe 10
10		C210_0215	2,719 KB	14/08/2010	548150	7619341	Panoramic view NW to NE from southwest of Lobe 10
11		C210_0216	4,444 KB	14/08/2010	548164	7619372	View NW along east side of Lobe 10
12		C210_0214	2,798 KB	14/08/2010	548181	7619387	Panoramic view SW to NW at Lobes 10 and 9 (background)
Lobe 11							
13		C210_0206	4,404 KB	14/08/2010	548184	7619384	View SW at ponded area near toe of Lobes 10 (right) and 11 (left)
14		C210_0205	3,226 KB	14/08/2010	548199	7619372	Panoramic view SE to W from north end of Lobe 11
15		C210_0204	4,383 KB	14/08/2010	548171	7619359	View N at ponded area located north of Lobe 11. Toe of Lobe 10 on left.
16		C210_0201	4,155 KB	14/08/2010	548172	7619324	View N along west side of Lobe 11
17		C210_0202	4,273 KB	14/08/2010	548172	7619320	View S along west side of Lobe 11
18		C210_0203	2,884 KB	14/08/2010	548178	7619323	Panoramic view SSW to NE across surface of Lobe 11
19		C210_0200	4,290 KB	14/08/2010	548163	7619297	View S along west side of Lobe 11
20		C210_0190	2,512 KB	14/08/2010	548156	7619257	Panoramic view N to E from southwest corner of Lobe 11
21		C210_0191	4,385 KB	14/08/2010	548234	7619253	View W along south side of Lobe 11 from top of drainage feature
22		C210_0192	4,320 KB	14/08/2010	548238	7619253	View E along south side of Lobe 11 from top of drainage feature
23		C210_0195	4,421 KB	14/08/2010	548273	7619263	View WSW from base of drainage feature extending along southeast side of Lobe 11
24		C210_0194	4,411 KB	14/08/2010	548268	7619265	Piece of exposed black geotextile near base of drainage feature - FEATURE B
25		C210_0197	4,323 KB	14/08/2010	548259	7619307	Piece of metal surface debris near east toe of Lobe 11 (0.9m L,0.05m W, 1cm D)
26		C210_0199	3,128 KB	14/08/2010	548256	7619331	Panoramic view S to NW from mid east side of Lobe 11

Table XVI: Landfill Visual Inspection Photo Log - West Landfill - South

Site Name: CAM-2, Gladman Point
Landfill: West Landfill - South
Date Inspected: August 14, 2010
Inspected by: Andrew Passalis, P.Eng.

Photo (WLFS-)	Thumbnail	Filename	Size (KB)	Date	Vantage Point		Caption
					Easting	Northing	
Soil Sampling							
C2-11		C210_0223	4,409 KB	14/08/2010	548130	7619437	Sampling location C2-11 located downgradient of Lobe 10
S11		C210_0224	4,331 KB	14/08/2010	548139	7619442	View SW at C2-11 soil sample location
C2-12		C210_0209	4,319 KB	14/08/2010	548221	7619369	Sampling location C2-12 located downgradient of Lobe 11
S12		C210_0210	4,389 KB	14/08/2010	548222	7619376	View SSW at C2-12 soil sample location
C2-13		C210_0212	4,447 KB	14/08/2010	548264	7619317	Sampling location C2-13 located downgradient of Lobe 11
S13		C210_0213	4,249 KB	14/08/2010	548267	7619323	View SW at C2-13 soil sample location
C2-14		C210_0207	4,371 KB	14/08/2010	548151	7619266	Sampling location C2-14 located upgradient of Lobe 11
S14		C210_0208	4,361 KB	14/08/2010	548148	7619273	View SE at C2-14 soil sample location

5.6 SOIL SAMPLE ANALYTICAL DATA

The soil chemical analysis results and evaluation of 2010 analytical data for the 2010 West Landfill – South area samples are presented in Tables XVII and XVIII respectively. Certificates of analysis and results from field 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 – West Landfill – South

Sample #	Location	Depth (cm)	Cu [mg/kg]	Ni [mg/kg]	Co [mg/kg]	Cd [mg/kg]	Pb [mg/kg]	Zn [mg/kg]	Cr [mg/kg]	As [mg/kg]	Hg [mg/kg]	PCBs [mg/kg]	F1 C_6-C_{10} [mg/kg]	F2 C_{10}-C_{16} [mg/kg]	F3 C_{16}-C_{34} [mg/kg]	TPH C_6-C_{34} [mg/kg]
C210-11A	C2-7	0-15	<5	1	<1	<0.1	<1	<10	2	<1	<0.05	<0.010	<12	<10	<10	ND
C210-11B		40-50	<5	2	<1	<0.1	1	<10	3	<1	<0.05	<0.010	<12	<10	<10	ND
C210-12A	C208	0-15	<5	1	<1	<0.1	<1	<10	2	<1	<0.05	<0.010	<12	<10	<10	ND
C210-12B		40-50	<5	2	<1	<0.1	1	<10	3	<1	<0.05	<0.010	<12	<10	<10	ND
C210-13A	C2-7	0-15	<5	3	1	<0.1	2	<10	6	<1	<0.05	<0.010	<12	<10	<10	ND
C210-13B		40-50	12	10	5	<0.1	9	24	18	2	<0.05	<0.010	<12	<10	<10	ND
C210-14A	C208	0-15	<5	2	<1	<0.1	2	<10	3	<1	<0.05	<0.010	<12	<10	<10	ND
C210-14B		40-50	10	3	2	<0.1	4	<10	5	1	<0.05	<0.010	<12	<10	<10	ND

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

ND: Not detected

S/P/CD/9229/T/10-Soil and GW-results CAM-2(Soil - West Landfill - South).xls

Table XVIII: Evaluation of 2010 Soil Analytical Data – West Landfill – South

Parameter	2010
Copper	Concentrations ranged between <5-12 mg/kg with detectable concentrations observed at depth in 2 sample locations, including C2-13 (12 mg/kg) and C2-14 (10 mg/kg) located downgradient and upgradient of Lobe 11, respectively. All remaining sample concentrations were less than detection limit of 5 mg/kg.
Nickel	Concentrations ranged between 1-10 mg/kg with a mean of 3.0. The highest concentration was observed at depth at C2-13, downgradient of Lobe 11. All remaining sample concentrations ranged between 1-3 mg/kg.
Cobalt	Concentrations ranged between <1-5 mg/kg with detectable concentrations observed in one surface sample (C2-13) and two depth sample locations C2-3 and C2-14). The highest concentration was observed at depth at C2-13, downgradient of Lobe 11. All remaining sample concentrations were less than detection limit of 1 mg/kg
Cadmium	All reported concentrations were less than the method detection limit (0.1 mg/kg).
Lead	Concentrations ranged between <1-9 mg/kg with a mean of 2.5. The highest concentration was observed at depth at C2-13, downgradient of Lobe 11. A slightly raised concentration of 4 mg/kg was also noted at depth at C2-14, upgradient of Lobe 11. All remaining sample concentrations ranged between <1-2 mg/kg.
Zinc	With the exception of the depth sample at C2-13 (24 mg/kg), all reported concentrations were less than the method detection limit (10 mg/kg). C2-13 is located downgradient of Lobe 11.
Chromium	Concentrations ranged between 2-18 mg/kg with a mean of 5.3. The highest concentrations were observed at surface (6 mg/kg) and depth (18 mg/kg) at C2-13, downgradient of Lobe 11. A slightly raised concentration of 5 mg/kg was also noted at depth at C2-14, upgradient of Lobe 11. Detectable concentrations between 2-3 mg/kg observed at all other locations.
Arsenic	Concentrations ranged between <1-2 mg/kg with detectable concentrations observed at depth in 2 sample locations, including C2-13 (2 mg/kg) and C2-14 (1 mg/kg) located downgradient and upgradient of Lobe 11, respectively. All remaining sample concentrations were less than detection limit of 1 mg/kg.
Mercury	All reported concentrations were less than the method detection limit (0.05 mg/kg).
PCBs	All reported concentrations were less than the method detection limit (0.01 mg/kg).
TPH	All reported concentrations were less than the method detection limit (12 mg/kg).

6 TIER II DISPOSAL FACILITY

6.1 BACKGROUND AND MONITORING PROGRAM

The Tier II Disposal Facility is constructed at the northwest corner of the former station area and is bound to the west by an abandoned airstrip, the north by the Station Landfill and the southeast by the former module train 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 8,700 m^2 with the final cover extending approximately 5.25 m above the surrounding grade.

The long term monitoring plan consists of visual monitoring, collection of soil and groundwater samples and monitoring of subsurface ground temperatures. Four groundwater monitoring wells, MW-1 through MW-4 are installed at the landfill perimeter, and four thermistors, VT-1 through VT-4 are installed within the landfill footprint to monitor freeze-back conditions.

The 2010 monitoring of this landfill includes visual inspection to verify for evidence of settlement or erosion and collection of soil and groundwater samples to monitor for the presence of leachate. Locations of groundwater monitoring wells, soil samples and thermistor installations are identified on Figure CAM-2.5, CAM-2 Gladman Point – Tier II Disposal Facility.

The soil and groundwater analytical data are presented in Tables XXII and XXIV, respectively. Soil and groundwater from each of the monitoring well locations were sampled as per the ToR (reference B).

6.2 VISUAL INSPECTION REPORT

The visual inspection of the Tier II Disposal Facility was conducted on August 13 and 14, 2010. The Visual Inspection Checklist/Report has been completed as per the ToR and is included as Table XIX of this report.

Settlement
Indications of settlement were noted at four locations (Features A through D) on the facility surface. Feature A consists of subtle narrow linear depressions extending along the north central and southeast crests, whereas Features B, C and D consist of more localized depressions on the east facing slope, southeast corner and south central surface, respectively. The linear depression along the north crest (part of Feature A) and Features C and D were new observations during the 2010 inspection. All features have an acceptable severity rating.

Erosion
Evidence of minor surface erosion was noted at two locations on the surface of the facility, including Feature E located on the slope southwest of VT-4 and Feature F located on the northeast corner of the landfill. Both features extend perpendicular to the slope, appear to be self-armouring and have an acceptable severity rating. One additional area (Feature G) of minor erosion was noted along the northwest toe and is not in direct contact with the facility. Overall, the facility cover appears stable and relatively unchanged from the 2009 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
Indications of vegetation were not noted.

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

Seepage Points
Evidence of seepage (Feature H) was noted along the southwest, south and north side slopes of the facility with extensive wetted areas generally extending within 5 m of the toe in each affected area. The facility cover appears stable with no erosion noted. However, numerous tension cracks were also generally associated with these areas.

Debris
Evidence of debris was noted at one location on the northwest toe of the facility (Feature I), consisting of a partially exposed piece of 50 mm diameter steel pipe. The debris appeared to be isolated however the overall length and depth are unknown. This feature was referenced under the Station Landfill in the 2009 inspection report.

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

Other Features of Note
Numerous thin continuous and discontinuous tension/desiccation cracks were noted along the north, northeast, west and south slope of the facility cover (Feature J). The frequency and magnitude of cracks appears to be greater than previously observed in 2009, with several areas of newly developed parallel cracks along the north and west sides of the facility. Crack locations were generally located within the lower 5 m of the slope, with many of the cracks extending in the 4-5 m range up from the toe.

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

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

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

SITE NAME: CAM-2 GLADMAN POINT
LANDFILL DESIGNATION: TIER II DISPOSAL FACILITY
DATE OF INSPECTION: AUGUST 13-14, 2010
DATE OF PREVIOUS INSPECTION: AUGUST 12, 2009
INSPECTED BY: A. PASSALIS
REPORT PREPARED BY: A. PASSALIS
The inspector/reporter represents to the best of his/her knowledge that the following statements and observations are true and correct and to the best of the preparer's actual knowledge, no material facts have been suppressed or misstated.

LANDFILL VISUAL INSPECTION

Site Name: CAM-2 Gladman Point
Landfill: Tier II Disposal Facility
Designation: New Landfill
Date Inspected: August 13-14, 2010
Inspected by: Andrew Passalis, P.Eng.

Signature: 

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

Checklist Item	Present (Yes/No)	Location	Length	Width	Depth	Extent	Description	Photographic Record	Severity Rating	Additional Comments
Settlement	Yes	Feature A See Figure CAM-2.5 (north - NEW OBS. and south crests)	20 - 30 m	20 - 40 cm	5 - 10 cm	Isolated <2%	Linear depressions extending along north and south crests	Tier II-30, 36	Acceptable	Cover and slopes appear stable. Associated with small tension crack (1 mm) on north crest.
		Feature B See Figure CAM-2.5 (east of VT-3)	2 m	1.5 m	15 cm	Isolated <1%	Localized depression on slope perpendicular to toe	Tier II-28	Acceptable	Cover and slopes appear stable.
		Feature C See Figure CAM-2.5 (southeast corner) NEW OBS.	0.4 m	0.4 m	5 cm	Isolated <1%	Localized depression near top of slope	Tier II-40	Acceptable	Cover and slopes appear stable.
		Feature D See Figure CAM-2.5 (south of VT-4) NEW OBS.	1 m	5 - 15 cm	5 - 10 cm	Isolated <1%	Localized linear depression on surface	Tier II-31	Acceptable	Cover appears stable.
Erosion	Yes	Feature E See Figure CAM-2.5 (south of VT-4)	15	1 m	5 cm	Isolated <1%	Minor surficial erosion	Tier II-23, 24	Acceptable	Minor erosion noted on surface of landfill. Slope appears stable with minor change from 2009. Self armouring.
		Feature F See Figure CAM-2.5 (northeast corner)	15 m	0.5 m	5-10 cm	Isolated <1%	Minor surficial erosion	Tier II-5, 6	Acceptable	Minor erosion noted on surface of landfill. Cover eppears stable and unchanged from 2009. Self armouring.
		Feature G See Figure CAM-2.5 (northwest toe) NEW OBS.	10 m	0.5 m	2 cm	Isolated <1%	Minor surficial erosion	Tier II-12	Acceptable	Minor erosion noted along toe of landfill. Self armouring.
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	Yes	Feature H See Figure CAM-2.5 (southwest, south and north slopes)	10 - 60 m	3 - 7 m	N/A	Occasional	Wetted areas on side slopes	Tier II-1W, 19, 20, 25, 27	Acceptable	Wetted areas within 5 m of toe along southwest, south and north slopes.
Debris Exposed	Yes	Feature I See Figure CAM-2.5 (northwest toe) Feature noted under Station LF in 2009	0.3 m	5 cm	Unknown	Isolated <1%	Partially exposed steel pipe at toe of landfill	Tier II-14, 15	Acceptable	Partially exposed metal debris.
Presence/Condition of Monitoring Instruments	Yes	See Figure CAM-2.5	N/A	N/A	N/A	N/A	VT-1 to VT-4 MW-1 to MW-4	Tier II-1 to 4 !W, 2W, 3W, 4W	N/A	Sampled and monitored in 2010
Other Features of Note:	Yes	Feature J See Figure CAM-2.5 (north, northeast, west and south slopes)	Variable, 10 - 30m	1 - 10 mm	Unknown	Occasional <5%	Continous and discontinous tension cracks extending perpendicular to side slopes (majority within 1-5 m of toe)	Tier II-9, 10, 11, 16, 17, 18, 22, 26, 28, 34, 35, 38, 39	Acceptable	Cracks appear to be more frequent than observed in 2009, with partially infilling at previously observed locations. Slopes appear stable.
Additional Photos	Yes	See Figure CAM-2.5 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 Tier II Disposal Facility has been completed as per the ToR and is included as Table XX hereafter.

Table XX: Preliminary Stability Assessment – Tier II Disposal Facility

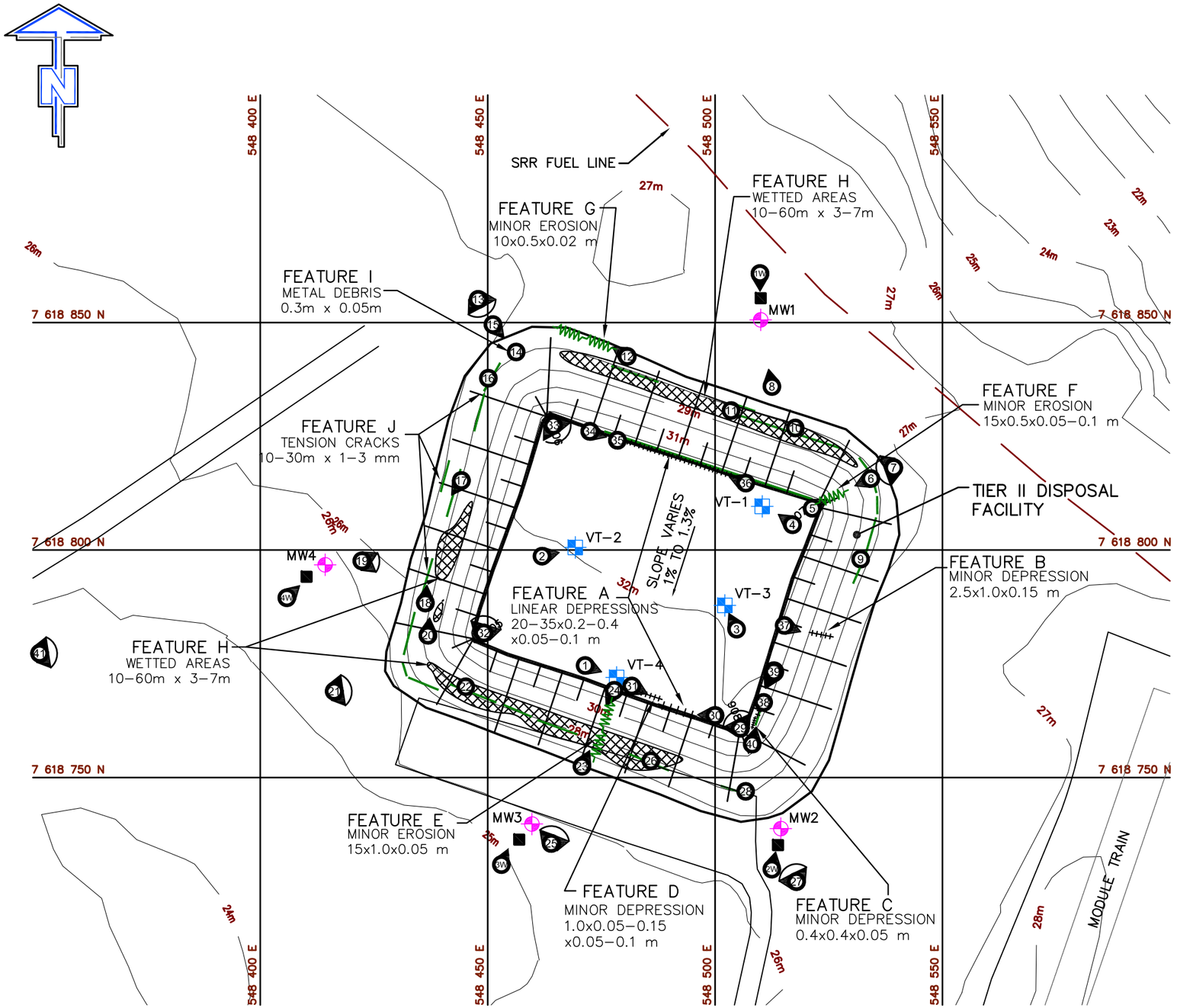
Feature	Severity Rating	Extent
Settlement	Acceptable	Isolated
Erosion	Acceptable	None
Frost Action	Not observed	None
Staining	Not observed	None
Vegetation Stress	Not observed	None
Seepage/Ponded Water	Acceptable	Numerous
Debris exposure	Acceptable	Isolated
Overall Landfill Performance	**Acceptable**	

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 Tier II Disposal Facility has been completed as per the ToR and is included in the following page as Figure CAM-2.5 Gladman Point – Tier II Disposal Facility.



LEGEND

- COORDINATE POINT
- MONITORING SOIL SAMPLE LOCATION
- MONITORING WELL LOCATION
- VERTICAL THERMISTOR LOCATION
- PHOTOGRAPH LOCATION
- EROSION (NTS)
- TENSION CRACK (NTS)
- SETTLEMENT
- SEEPAGE

0 10m 20m 30m 40m 50m

NO.	VERSION	DATE	PAR	VERIF.	APPR.
A	FINAL	11–02–08	P.L.	A.P.	J.P.P.

Construction de Défense Canada
Defence Construction Canada

FINAL REPORT
COLLECTION OF LANDFILL MONITORING DATA
CAM-2, GLADMAN POINT, NUNAVUT

TIER II DISPOSAL FACILITY

SITE REMEDIATION SOLUTIONS

Biogenie, a division of EnGlobe Corp.
4495 Wilfrid-Hamel Blvd., Suite 200
Quebec (Quebec) CANADA G1P 2J7
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MEASUREMENT UNIT	SCALE:	DATE (month–year):
Meter	1 : 1,000	FEBRUARY 2011
DRAWN BY:	VERIFIED BY:	APPROVED BY:
P. LÉGARÉ	A. PASSALIS	J.–P. PELLETIER
PROJECT NO:	DRAWING NO:	PAGE
CD9229_002_160	CD9229_002_160-CAM-2_5	PL

FIGURE CAM-2.5

6.5 PHOTOGRAPHIC RECORDS

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

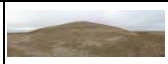
Table XXI: Landfill Visual Inspection Photo Log - Tier II Disposal Facility

Site Name: CAM-2, Gladman Point
Landfill: Tier II Disposal Facility
Date Inspected: August 13-14, 2010
Inspected by: Andrew Passalis, P.Eng.

Photo (Tier II-)	Thumbnail	Filename	Size (KB)	Date	Vantage Point Easting	Vantage Point Northing	Caption
Thermistors							
1		C210_0056	4,315 KB	13/08/2010	548472	7618774	View ESE at VT-4
2		C210_0059	4,361 KB	13/08/2010	548462	7618799	View NE at VT-2
3		C210_0060	4,290 KB	13/08/2010	548505	7618783	View N at VT-3
4		C210_0062	4,227 KB	13/08/2010	548517	7618805	View NW at VT-1
General Photos							
5		C210_0065	4,343 KB	13/08/2010	548522	7618809	View NE at minor eroson on NE corner of Tier II (15m L, 0.5m W, 5-10 cm D)
6		C210_0066	4,386 KB	13/08/2010	548534	7618816	View SW at minor eroson on NE corner of Tier II
7		C210_0067	2,151 KB	13/08/2010	548539	7618818	Panormamic view S to NW from northeast top of Tier II DF
8		C210_0068	4,290 KB	13/08/2010	548513	7618836	View N at MW-1 area. No observable ponding as previously seen in 2009.
9		C210_0069	4,372 KB	13/08/2010	548532	7618798	Small crack observed on north side slope of Tier II (1-2 mm W) - FEATURE J
10		C210_0070	4,295 KB	13/08/2010	548517	7618827	Crack extending along N side slope of Tier II (2mm W) - FEATURE J
11		C210_0071	4,413 KB	13/08/2010	548503	7618831	Upper crack extending along N side slope of Tier II (2mm W). Parallel cracks 0.5 to 1m apart, approximately 5 m up from toe. - FEATURE J
12		C210_0072	4,298 KB	13/08/2010	548481	7618842	View NW at minor erosion along north toe of Tier II DF (10m L, 5cm W, 2cm D) - FEATURE G
13		C210_0073	2,441 KB	13/08/2010	548448	7618855	Panoramic view E to SW from north of Tier II
14		C210_0074	4,305 KB	13/08/2010	548456	7618843	Partially exposed piece of 50 mm diameter steel pipe on NW corner of Tier II DF - FEATURE I
15		C210_0075	4,277 KB	13/08/2010	548451	7618849	View SE at exposed steel pipe on NW corner of Tier II DF - FEATURE I
16		C210_0076	4,424 KB	13/08/2010	548450	7618838	Crack extending along west toe of Tier II DF (1-2mm W) - FEATURE J
17		C210_0077	4,421 KB	13/08/2010	548444	7618815	View SW at parallel cracks extending along mid-west side of Tier II DF
18		C210_0078	4,398 KB	13/08/2010	548436	7618788	View NNE at parallel cracks extending along west toe of Tier II DF - FEATURE J
19		C210_0079	2,214 KB	13/08/2010	548422	7618798	Panoramic view NE to SE at wet areas on southwest side slope of Tier II DF Note wet areas on side slope. - FEATURE H
20		C210_0082	4,311 KB	13/08/2010	548437	7618781	View N at wet areas on west side slope of Tier II DF - FEATURE H
21		C210_0083	2,188 KB	13/08/2010	548417	7618768	Panoramic view NE to SE from southwest of Tier II DF
22		C210_0084	4,315 KB	13/08/2010	548445	7618770	Discontinous and partially infilled crack located 4-5m up from toe on southwest side of Tier II DF (2-3mm W x 30m L) - FEATURE J
23		C210_0085	4,327 KB	13/08/2010	548469	7618753	View NNE at minor eroson extending from top to toe below VT-4 (15m L, 1m W, 5cm D) - FEATURE E
24		C210_0086	4,313 KB	13/08/2010	548478	7618769	View SSW at minor eroson extending from top to toe below VT-4 (15m L, 1m W, 5cm D) - FEATURE E
25		C210_0088	2,467 KB	13/08/2010	548464	7618735	Panoramic view NW to NE at wet areas on south side slope of Tier II DF. FEATURE H

Table XXI: Landfill Visual Inspection Photo Log - Tier II Disposal Facility

Site Name: CAM-2, Gladman Point
Landfill: Tier II Disposal Facility
Date Inspected: August 13-14, 2010
Inspected by: Andrew Passalis, P.Eng.

Photo (Tier II-)	Thumbnail	Filename	Size (KB)	Date	Vantage Point		Caption
					Easting	Northing	
26		C210_0089	4,288 KB	13/08/2010	548486	7618753	Crack located 5m up from on southeast side slope of Tier II DF (2-5mm W, 8m L) - FEATURE J
27		C210_0090	2,396 KB	13/08/2010	548518	7618727	Panoramic view W to NE from southeast corner of Tier II DF. Note wet areas on side slope - FEATURE H
28		C210_0091	4,285 KB	13/08/2010	548507	7618747	Small crack observed on southeast slope of Tier II (1mm W, 6m L) - FEATURE J
29		C210_0094	2,790 KB	13/08/2010	548506	7618761	Panoramic view W to NE across surface from southeast corner of Tier II DF
30		C210_0095	4,275 KB	13/08/2010	548500	7618764	View W at linear depresson along south crest (15m L, 20cm W, 5-7cm D) - FEATURE A
31		C210_0096	4,434 KB	13/08/2010	548484	7618768	View ESE at minor depresson on surface south of VT-4 (1m L, 5-10cm W, 5cm D) - FEATURE D
32		C210_0098	2,542 KB	13/08/2010	548449	7618782	Panoramic view NW to NE across surface from southwest corner of Tier II DF
33		C210_0099	2,686 KB	13/08/2010	548464	7618827	Panoramic view E to SW across surface from northwest corner of Tier II DF
34		C210_0100	4,398 KB	13/08/2010	548472	7618826	View SE at crack extending along north crest of Tier II DF (1-2mm W, 50m L) - FEATURE J
35		C210_0101	4,299 KB	13/08/2010	548479	7618824	1-2mm W crack extending along north crest of Tier II DF - FEATURE J
36		C210_0102	4,382 KB	13/08/2010	548507	7618815	View NW at linear depression extending along north crest of Tier II DF (35m L, 0.2-0.4m W, 3-10cm D) - FEATURE A
37		C210_0103	4,315 KB	13/08/2010	548515	7618783	View SE at depression extending parallel to east side slope of Tier II DF (2.5m L, 1m W, 5cm D) - FEATURE B
38		C210_0106	4,284 KB	13/08/2010	548510	7618767	View of 10mm wide partially infilled crack located on southeast corner of Tier II DF - FEATURE J
39		C210_0107	4,405 KB	13/08/2010	548513	7618774	View SW at 10mm wide partially infilled crack extending parallel to crest on southeast corner of Tier II DF - FEATURE J
40		C210_0108	4,320 KB	13/08/2010	548508	7618757	View NNE at minor depression near southwest corner of Tier II DF (0.4m L, 0.4m W, 5cm D) - FEATURE C
41		C210_0189	4,439 KB	14/08/2010	548352	7618777	Panoramic view NE to SE from former abandoned airstrip located west of Tier II DF
Soil Sampling							
MW-1		C210_0052	4,369 KB	13/08/2010	548510	7618855	Sampling location C2-1W located upgradient of Tier II DF
1W		C210_0053	4,344 KB	13/08/2010	548510	7618861	View S at C2-1W soil sample location
MW-2		C210_0054	4,348 KB	13/08/2010	548514	7618735	Sampling location C2-2W located downgradient of Tier II DF
2W		C210_0055	4,288 KB	13/08/2010	548513	7618730	View NNE at C2-2W soil sample location
MW-3		C210_0048	4,341 KB	13/08/2010	548457	7618736	Sampling location C2-3W located downgradient of Tier II DF
3W		C210_0049	4,368 KB	13/08/2010	548453	7618731	View NE at C2-3W soil sample location
MW-4		C210_0050	4,395 KB	13/08/2010	548410	7618794	Sampling location C2-4W located downgradient of Tier II DF
4W		C210_0051	4,462 KB	13/08/2010	548406	7618790	View NE at C2-4W soil sample location

6.6 THERMAL MONITORING DATA

All thermistors at the Tier II Disposal Facility were inspected and found to be in good condition with no significant concerns identified. Data from all thermistors was successfully retrieved with the exception of VT-3 which had a communication error and would not download to the field computer. The datalogger from VT-3 was subsequently retrieved and shipped to the manufacturer for diagnosis and repair.

Manual resistive and temperature data readings were collected from the thermistor strings as per the ToR. All analogues/thermocouples were observed to be functioning properly at the time of the inspection, with the exception of the bottom sensors at VT-2 (#12) and VT-4 (#16), similar to observations during the previous 2009 inspection. Further review of the downloaded data identified a consistent error in temperature readings obtained from these sensors throughout the monitoring period.

Manual readings and inspection results for each thermistor are presented on the Thermistor Annual Maintenance Reports included in the report. A complete datalogger RAW data set for 2009-2010 period has been forwarded to DCC under separate cover, as per the ToR.

Batteries were replaced at the remaining datalogger locations (VT-1, VT-2 and VT-4) on August 19, 2010 as specified in the ToR. All clocks exhibited slight drift and were synchronized using the Prolog software.

6.7 SOIL SAMPLE ANALYTICAL DATA

The soil chemical analysis results and evaluation of the analytical data for the 2010 Tier II Disposal Facility samples are presented in Tables XXII and XXIII hereafter. Certificates of analysis and results of field 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 – Tier II Disposal Facility

Sample #	Location	Depth (cm)	Cu [mg/kg]	Ni [mg/kg]	Co [mg/kg]	Cd [mg/kg]	Pb [mg/kg]	Zn [mg/kg]	Cr [mg/kg]	As [mg/kg]	Hg [mg/kg]	PCBs [mg/kg]	F1 C_6-C_{10} [mg/kg]	F2 C_{10}-C_{16} [mg/kg]	F3 C_{16}-C_{34} [mg/kg]	TPH C_6-C_{34} [mg/kg]
C210-1WA	MW-1	0-15	<5	2	1	<0.1	3	<10	4	1	<0.05	<0.010	<12	<10	<10	ND
C210-1WB		40-50	<5	2	1	<0.1	2	<10	3	<1	<0.05	<0.010	<12	<10	<10	ND
C210-2WA	MW-2	0-15	<5	4	2	<0.1	5	<10	6	1	<0.05	<0.010	<12	<10	<10	ND
C210-2WB		40-50	<5	3	2	<0.1	2	<10	5	<1	<0.05	<0.010	<12	<10	<10	ND
C210-3WA	MW-3	0-15	<5	2	<1	<0.1	2	<10	4	<1	<0.05	<0.010	<12	<10	<10	ND
C210-3WB		40-50	<5	3	2	<0.1	4	<10	5	1	<0.05	<0.010	<12	<10	<10	ND
C210-4WA	MW-4	0-15	<5	2	1	<0.1	2	<10	6	1	<0.05	<0.010	<12	<10	<10	ND
C210-4WB		40-50	<5	2	1	<0.1	2	<10	4	<1	<0.05	<0.010	<12	<10	<10	ND
C210-BD2	C210-2WA	0-15	7	3	2	<0.1	5	<10	6	1	<0.05	<0.010	<12	<10	<10	ND

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

ND: Not detected

S/P/CD/9229/T/10-Soil and GW-results CAM-2(Soil - Tier II Disposal Facility).xls

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

Parameter	2010
Copper	All reported concentrations were less than the method detection limit (5 mg/kg)
Nickel	Concentrations ranged between 2-4 mg/kg with a mean of 2.5. The highest concentration was observed at surface in MW-2 (downgradient location), whereas detectable concentrations between 2-3 mg/kg were noted at all other locations.
Cobalt	Concentrations ranged between <1-2 mg/kg with a mean of 1.3. With the exception of the surface sample at MW-3, detectable concentrations were noted at all locations. The highest concentration was observed at downgradient locations MW-2 (surface and depth) and MW-3 (depth).
Cadmium	All reported concentrations were less than the method detection limit (0.1 mg/kg)
Lead	Concentrations ranged between 2-5 mg/kg with a mean of 2.8. Trace concentrations were noted at all locations with the highest concentrations noted at surface at MW-2 (5 mg/kg) and at depth at MW-3 (4 mg/kg), both downgradient locations.
Zinc	All reported concentrations were less than the method detection limit (10 mg/kg)
Chromium	Concentrations ranged between 3-6 mg/kg with a mean of 4.6. The highest concentrations were observed at surface at MW-2 and MW-4, with 5 mg/kg also noted at depth at MW-2 and MW-3. The highest concentrations were generally associated with the downgradient sample locations.
Arsenic	Concentrations ranged between <1-1 mg/kg with detectable concentrations noted at surface at MW-1, -2 and -4 and at depth at MW-3.
Mercury	All reported concentrations were less than the method detection limit (0.05 mg/kg)
PCBs	All reported concentrations were less than the method detection limit (0.01 mg/kg).
TPH	All reported concentrations were less than the method detection limit (12 mg/kg)

6.8 GROUNDWATER SAMPLE ANALYTICAL DATA

The groundwater chemical analysis results and evaluation for the analytical data for the 2010 Tier II Disposal Facility samples are presented in Tables XXIV and XXV hereafter. Certificates of analysis and results for groundwater samples collected as part of the QA/QC program are presented in Appendix C, at the end of the report.

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

Sample #	Location	Cu [mg/L]	Ni [mg/L]	Co [mg/L]	Cd [mg/L]	Pb [mg/L]	Zn [mg/L]	Cr [mg/L]	As [mg/L]	Hg [µg/L]	PCBs [µg/L]	F1 C_6-C_{10} [mg/L]	F2 C_{10}-C_{16} [mg/L]	F3 C_{16}-C_{34} [mg/L]	TPH C_6-C_{34} [mg/L]
C210-1W	MW-1	0.037	0.12	0.0041	0.0012	0.0065	24 (1)	0.98	0.0035	<0.002	<0.050	<0.100	0.5	<0.1	0.5
C210-2W	MW-2	0.0085	0.027	0.0053	0.00045	0.0016	42 (1)	0.013	0.0006	0.003	<0.050	<0.100	<0.1	<0.1	ND
C210-3W	MW-3	0.011	0.065	0.0008	0.000069	0.0010	0.47	0.007	0.0017	<0.002	<0.050	<0.100	<0.1	0.4	0.4
C210-4W	MW-4	0.01	0.036	0.012	0.00038	0.012	17 (1)	<0.01	0.0041	<0.002	<0.050	<0.100	<0.1	<0.1	ND
C210-BDW1	MW-2	0.011	0.032	0.0052	0.0011	0.0034	0.20	0.005	0.0007	0.003	<0.050	<0.100	<0.1	<0.1	ND

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

ND: Not detected

(1) Detection limits raised due to dilution to bring analyte within the calibrated range.

S/P/CD/9229/T/10-Soil and GW-results CAM-2(GW-Tier II Disposal Facility).xls

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

Parameter	2010
Copper	Concentrations ranged between 0.0085-0.037 mg/L, with the most elevated concentrations were noted at upgradient location MW-1 (0.037 mg/L) and downgradient locations MW-3 (0.011 mg/L) and MW-4 (0.010 mg/L). The lowest concentrations was noted at MW-2 (downgradient location)
Nickel	Concentrations ranged between 0.027-0.12 mg/L, with the highest and lowest concentrations noted at MW-1 (upgradient) and MW-2 (downgradient), respectively.
Cobalt	Concentrations ranged between 0.0008-0.012 mg/L, with the highest concentration observed at downgradient location MW-4.
Cadmium	Concentrations ranged between 0.000069-0.0012 mg/L. The highest concentration was noted at upgradient location MW-1, approximately 3 to 17 times greater concentrations observed at the downgradient locations.
Lead	Concentrations ranged between 0.0010-0.012 mg/L, with the highest concentration noted at MW-4 (downgradient location) and approximately 2 to 12 times greater than the other sample locations.
Zinc	Concentrations ranged between 0.47-42 mg/L. Elevated concentrations were noted at MW-1 (24 mg/L), MW-2 (42 mg/L) and MW-4 (17 mg/L), nearly two orders of magnitude higher than the concentration at MW-3 (0.47 mg/L).
Chromium	Concentrations ranged between 0.007-0.98 mg/L, with the highest concentration observed at the upgradient location MW-1 and lowest concentrations at downgradient location MW-3.
Arsenic	Concentrations ranged between 0.0006-0.0041 mg/L, with the highest and lowest concentrations noted at MW-4 and MW-2, respectively (both downgradient locations).
Mercury	Concentrations ranged between <0.002-0.003 µg/L, with detectable concentrations noted at one downgradient location, MW-2.
PCBs	All reported concentrations were less than the method detection limit (0.05 µg/L).
TPH	Trace concentrations of F2 (0.5 mg/L) were noted at MW-1 (upgradient location) and F3 (0.4 mg/L) at MW-3 (downgradient location). All remaining reported concentrations were less than the method detection limit (0.1 mg/L).

6.9 THERMISTOR ANNUAL MAINTENANCE REPORTS

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

Thermistor Annual Maintenance Report

Contractor Name:	**Sila Remediation Inc.**	Inspection Date:	**13/08/2010**
Prepared By:	**A.Passalis**		

Thermistor Information

Site Name:	**CAM-2**	Thermistor Location		**Tier II Disposal Facility**			
Thermistor Number:	**VT-1**	Inclination		**Vertical**			
Install Date:	**08/30/2005**	First Date Event		**08/22/2006**	Last Date Event		**12/08/2009**
Coordinates and Elevation	N	**7618811**	E	**548508.81**		Elev	**32.48**
Length of Cable (m)	**10.5**	Cable Lead Above Ground (m)	**3.60**	Nodal Points			**16**
Datalogger Serial #	**207019**			Cable Serial Number			**1690**

Thermistor Inspection

	Good	Needs Maintenance	
Casing	**Yes**	**No**	
Cover	**Yes**	**No**	
Data Logger	**Yes**	**No**	
Cable	**Yes**	**No**	
Beads	**Yes**	**No**	
Battery Installation Date	**19/08/2010**		
Battery Levels	Main **11.34 V** (9.46 V prior to change)	Aux **11.38 V** (9.49 V prior to change)	

Manual Ground Temperature Readings

Bead	ohms	Degrees C
1	13.279	4.3157
2	12.706	5.1340
3	11.011	8.0689
4	10.128	8.6493
5	11.848	6.4694
6	13.616	3.6791
7	17.378	-1.0442
8	18.697	-2.4750

Bead	ohms	Degrees C
9	19.93	-3.7081
10	20.84	-4.6111
11	21.75	-5.4387
12	22.63	-6.1919
13	22.96	-6.8440
14	24.26	-7.4835
15	25.10	-8.1214
16	25.64	-8.5131

Observations and Proposed Maintenance

Thermistor Annual Maintenance Report

Contractor Name:	**Sila Remediation Inc.**	Inspection Date:	**13/08/2010**
Prepared By:	**A.Passalis**		

Thermistor Information

Site Name:	**CAM-2**	Thermistor Location		**Tier II Disposal Facility**			
Thermistor Number:	**VT-2**	Inclination		**Vertical**			
Install Date:	**08/30/2005**	First Date Event		**08/22/2006**	Last Date Event		**12/08/2009**
Coordinates and Elevation	N	**7618799**	E	**548474.24**		Elev	**32.072**
Length of Cable (m)	**8.0**	Cable Lead Above Ground (m)	**2.75**	Nodal Points			**12**
Datalogger Serial #	**207107**			Cable Serial Number			**1691**

Thermistor Inspection

	Good	Needs Maintenance	
Casing	**Yes**	**No**	
Cover	**Yes**	**No**	
Data Logger	**Yes**	**No**	
Cable	**Yes**	**No**	
Beads	**Yes**	**No**	Bead 12 not responding
Battery Installation Date	**19/08/2010**		
Battery Levels	Main **11.34 V** (9.64 V prior to change)	Aux **11.38 V** (9.37 V prior to change)	

Manual Ground Temperature Readings

Bead	ohms	Degrees C
1	11.344	7.4247
2	10.823	8.3903
3	11.501	7.1444
4	13.436	3.9962
5	16.824	-0.4328
6	18.164	-1.9257
7	19.359	-3.1598
8	20.72	-4.5291

Bead	ohms	Degrees C
9	22.06	-5.6749
10	23.10	-6.5579
11	23.92	-7.2385
12	OL	-381.0742

Observations and Proposed Maintenance

Thermistor Annual Maintenance Report

Contractor Name:	**Sila Remediation Inc.**	Inspection Date:	**13/08/2010**
Prepared By:	**A.Passalis**		

Thermistor Information

Site Name:	**CAM-2**	Thermistor Location		**Tier II Disposal Facility**			
Thermistor Number:	**VT-3**	Inclination		**Vertical**			
Install Date:	**08/30/2005**	First Date Event		**08/22/2006**	Last Date Event		**12/08/2009**
Coordinates and Elevation	N	**7618792**	E	**548495.38**		Elev	**32.06**
Length of Cable (m)	**8.0**	Cable Lead Above Ground (m)	**2.90**	Nodal Points			**12**
Datalogger Serial #	**5070039**			Cable Serial Number			**1692**

Thermistor Inspection

	Good	Needs Maintenance	
Casing	**Yes**	**No**	
Cover	**Yes**	**No**	
Data Logger	**No**	**Yes**	Unable to read configuration file.
Cable	**Yes**	**No**	
Beads	**Yes**	**No**	Bead 12 not responding
Battery Installation Date	**08/25/2007**		
Battery Levels	Main **?**	Aux **?**	

Manual Ground Temperature Readings

Bead	ohms	Degrees C
1	11.495	
2	10.521	
3	10.766	
4	12.314	
5	16.029	
6	17.299	
7	18.729	
8	20.80	

Bead	ohms	Degrees C
9	94.87?	
10	23.26	
11	24.14	
12	OL	

Observations and Proposed Maintenance

Communication error reading the configuration file. Unable to download data.
Retrieve datalogger for off-site servicing.

Thermistor Annual Maintenance Report

Contractor Name:	**Sila Remediation Inc.**	Inspection Date:	**13/08/2010**
Prepared By:	**A.Passalis**		

Thermistor Information

Site Name:	**CAM-2**	Thermistor Location		**Tier II Disposal Facility**			
Thermistor Number:	**VT-4**	Inclination		**Vertical**			
Install Date:	**08/30/2005**	First Date Event		**08/22/2006**	Last Date Event		**12/08/2009**
Coordinates and Elevation	N	**7618772**	E	**548479.02**		Elev	**31.89**
Length of Cable (m)	**10.5**	Cable Lead Above Ground (m)	**3.50**	Nodal Points			**16**
Datalogger Serial #	**2020130**			Cable Serial Number			**1693**

Thermistor Inspection

	Good	Needs Maintenance	
Casing	**Yes**	**No**	
Cover	**Yes**	**No**	
Data Logger	**Yes**	**No**	
Cable	**Yes**	**No**	
Beads	**Yes**	**No**	Bead 16 not reading correct temperature
Battery Installation Date	**19/08/2010**		
Battery Levels	Main **11.34 V** (9.73 V prior to change)	Aux **11.38 V** (9.37 V prior to change)	

Manual Ground Temperature Readings

Bead	ohms	Degrees C
1	11.269	6.2121
2	11.758	6.2346
3	10.936	8.1066
4	11.183	7.6301
5	12.570	5.7174
6	16.761	-0.4151
7	17.699	-1.5098
8	18.662	-2.6244

Bead	ohms	Degrees C
9	19.760	-3.6243
10	20.61	-4.5000
11	21.51	-5.2890
12	22.33	-6.0028
13	22.67	-6.6286
14	23.84	-7.2385
15	24.18	-7.7683
16	25.13	-381.0742

Observations and Proposed Maintenance

6.10 MONITORING WELL SAMPLING / INSPECTION LOGS

The monitoring well sampling logs for MW-1 to MW-4 are presented in this section.

2010 Monitoring Well Sampling Log (MW-1)

Site name:	CAM-2
Date of sampling event:	13-Aug-10
Names of samplers:	Andrew Passalis
Monitoring well ID:	MW-1
Facility:	Tier ll Soil Disposal Facility

Known Data	
Depth of installation* (m):	3.50
Length of screened section (m):	1.87
Depth to top of screen* (m):	0.60

Measured Data			
Condition of well:	Good	Procedure/Equipment:	Interface Meter
Procedure/Equipment:	Measuring Tape	Depth to water surface (m):	1.43
Well height above ground (m):	0.50	Depth to bottom (m):	2.10
Diameter of well (m):	0.05	Free product thickness (mm):	-

Calculations		Notes	
Depth of water (m):	0.68	Evidence of sludge:	no
Well volume of water (L):	1.33	Evidence of freezing/siltation:	no
Static water level* (m):	0.93		
Length of screen collecting water (m):	0.68		

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
13-Aug-10	1.4	3.6	8.4	2340	842	C&C, N/O

Water Sampling		Soil Sampling	
Date & Time Collected:	13-Aug-10	Date and Time Collected:	13-Aug-10
Sample Number - Water:	C210-1W	Sample Number - Soil:	C210-1WA
			C210-1WB
Sample Containers:	2x500mL, 2x250 mL glass	Sample Containers:	3x125mL glass/bag
	1x250 plastic		3x125mL glass/bag
	3x40mL vials		
Procedure/Equipment:	Waterra tubing & foot valve Hanna HI9828 Mulitmeter, Hach 2100P Turbidimeter	Procedure/Equipment:	Steel & Plastic Trowels
Water Description:	C&C, N/O	Soil Description:	Brown/grey sand, with gravel, trace cobbles
Sampling Equipment Decontamination (Y/N):	N, dedicated	Sampling Equipment Decontamination (Y/N):	Y
Number Washes:	0	Number Washes:	1
Number Rinses:	0	Number Rinses:	1

*From ground surface. Unless this is stated, all measurments are assumed to be from the top of the casing.
n/a=not applicable
LDPE=Low Density Polyethylene
SS=Stainless Steel

2010 Monitoring Well Sampling Log (MW-2)

Site name:	CAM-2
Date of sampling event:	13-Aug-10
Names of samplers:	Andrew Passalis
Monitoring well ID:	MW-2
Facility:	Tier ll Soil Disposal Facility

Known Data

Depth of installation* (m):	3.50
Length of screened section (m):	1.85
Depth to top of screen* (m):	0.65

Measured Data

Condition of well:	Good	Procedure/Equipment:	Interface Meter
Procedure/Equipment:	Measuring Tape	Depth to water surface (m):	1.09
Well height above ground (m):	0.20	Depth to bottom (m):	1.64
Diameter of well (m):	0.05	Free product thickness (mm):	-

Calculations		Notes	
Depth of water (m):	0.55	Evidence of sludge:	no
Well volume of water (L):	1.08	Evidence of freezing/siltation:	no
Static water level* (m):	0.89		
Length of screen collecting water (m):	0.55		

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
13-Aug-10	1.4	3.6	8.4	2341	842	C&C, N/O

Water Sampling		Soil Sampling	
Date & Time Collected:	13-Aug-10	Date and Time Collected:	13-Aug-10
Sample Number - Water:	C210-2W	Sample Number - Soil:	C210-2WA + Intra dup
	C210-BDW1		C210-BD2 (2WA)
	C210-2W (Exova)		C210-2WB
Sample Containers:	4x500mL, 4x250 mL glass	Sample Containers:	8x125mL glass/bag
	3x250 plastic, 2x1L glass		3x125mL glass
	9x40mL vials		3x125mL glass/bag
Procedure/Equipment:	Waterra tubing & foot valve Hanna HI9828 Mulitmeter, Hach 2100P Turbidimeter	Procedure/Equipment:	Steel & Plastic Trowels
Water Description:	C&C, N/O	Soil Description:	Brown/grey sand, f-m grained, some gravel some cobbles, dry
Sampling Equipment Decontamination (Y/N):	N, dedicated	Sampling Equipment Decontamination (Y/N):	Y
Number Washes:	0	Number Washes:	1
Number Rinses:	0	Number Rinses:	1

*From ground surface. Unless this is stated, all measurments are assumed to be from the top of the casing.
n/a=not applicable
LDPE=Low Density Polyethylene
SS=Stainless Steel

2010 Monitoring Well Sampling Log (MW-3)

Site name:	CAM-2
Date of sampling event:	13-Aug-10
Names of samplers:	Andrew Passalis
Monitoring well ID:	MW-3
Facility:	Tier ll Soil Disposal Facility

Known Data

Depth of installation* (m):	3.60
Length of screened section (m):	2.00
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):	1.30
Well height above ground (m):	0.50	Depth to bottom (m):	1.83
Diameter of well (m):	0.05	Free product thickness (mm):	-

Calculations		Notes	
Depth of water (m):	0.53	Evidence of sludge:	no
Well volume of water (L):	1.04	Evidence of freezing/siltation:	no
Static water level* (m):	0.80		
Length of screen collecting water (m):	0.53		

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
13-Aug-10	1.6	3.6	11.5	2605	839	White, N/O

Water Sampling		Soil Sampling	
Date & Time Collected:	13-Aug-10	Date and Time Collected:	13-Aug-10
Sample Number - Water:	C210-3W	Sample Number - Soil:	C210-3WA
			C210-3WB
Sample Containers:	2x500mL, 2x250 mL glass	Sample Containers:	3x125mL glass/bag
	1x250 plastic		3x125mL glass/bag
	3x40mL vials		
Procedure/Equipment:	Waterra tubing & foot valve Hanna HI9828 Mulitmeter, Hach 2100P Turbidimeter	Procedure/Equipment:	Steel & Plastic Trowels
Water Description:	C&C, N/O	Soil Description:	Brown sand & gravel, well graded, seepage at 0.45 m
Sampling Equipment Decontamination (Y/N):	N, dedicated	Sampling Equipment Decontamination (Y/N):	Y
Number Washes:	0	Number Washes:	1
Number Rinses:	0	Number Rinses:	1

*From ground surface. Unless this is stated, all measurments are assumed to be from the top of the casing.
n/a=not applicable
LDPE=Low Density Polyethylene
SS=Stainless Steel

2010 Monitoring Well Sampling Log (MW-4)

Site name:	CAM-2
Date of sampling event:	13-Aug-10
Names of samplers:	Andrew Passalis
Monitoring well ID:	MW-4
Facility:	Tier ll Soil Disposal Facility

Known Data	
Depth of installation* (m):	3.30
Length of screened section (m):	1.00
Depth to top of screen* (m):	0.40

Measured Data			
Condition of well:	Good	Procedure/Equipment:	Interface Meter
Procedure/Equipment:	Measuring Tape	Depth to water surface (m):	1.49
Well height above ground (m):	0.72	Depth to bottom (m):	2.20
Diameter of well (m):	0.05	Free product thickness (mm):	-

Calculations		Notes	
Depth of water (m):	0.71	Evidence of sludge:	no
Well volume of water (L):	1.39	Evidence of freezing/siltation:	no
Static water level* (m):	0.77		
Length of screen collecting water (m):	0.71		

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
13-Aug-10	1.4	2.7	8.0	4310	117	C&C, N/O

Water Sampling		Soil Sampling	
Date & Time Collected:	13-Aug-10	Date and Time Collected:	13-Aug-10
Sample Number - Water:	C210-4W	Sample Number - Soil:	C210-4WA
			C210-4WB
Sample Containers:	2x500mL, 2x250 mL glass	Sample Containers:	3x125mL glass/bag
	1x250 plastic		3x125mL glass/bag
	3x40mL vials		
Procedure/Equipment:	Waterra tubing & foot valve Hanna HI9828 Mulitmeter, Hach 2100P Turbidimeter	Procedure/Equipment:	Steel & Plastic Trowels
Water Description:	C&C, N/O	Soil Description:	Grey/brown sand, m-cs grained, with gravel, trace cobbles
Sampling Equipment Decontamination (Y/N):	N, dedicated	Sampling Equipment Decontamination (Y/N):	Y
Number Washes:	0	Number Washes:	1
Number Rinses:	0	Number Rinses:	1

*From ground surface. Unless this is stated, all measurments are assumed to be from the top of the casing.
n/a=not applicable
LDPE=Low Density Polyethylene
SS=Stainless Steel

7 NON-HAZARDOUS WASTE LANDFILL (NHWLF)

7.1 BACKGROUND AND MONITORING PROGRAM

The NHWLF is located approximately 200 m southeast of the former station area and is bordered to the north by the former Station POL and to the east by a former borrow area. The landfill, including granular cover encompasses a footprint of approximately 5,500 m^2 with the final cover extending approximately 3.0 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, MW-5 through MW-8 are installed at the landfill perimeter.

The long term monitoring plan consists of visual monitoring and collection of soil and groundwater samples. The 2010 monitoring of this landfill includes visual inspection to verify for evidence of settlement or erosion and collection of soil and groundwater samples to monitor for the presence of leachate. Locations of groundwater monitoring wells and soil samples are identified on Figure CAM-2.6, CAM-2 Gladman Point – NHWLF.

The soil and groundwater analytical data are presented in Tables XXIX and XXXI, respectively. Soil and groundwater from each of the monitoring well locations were sampled as per the ToR.

7.2 VISUAL INSPECTION REPORT

The visual inspection of the NHWLF was conducted on August 13 and 14, 2010. The Visual Inspection Checklist/Report has been completed as per the ToR and is included as Table XXVI of this report.

Settlement
Indications of localized settlement were noted at three areas (Features A, B and C) on the landfill surface, including: two linear depressions extending parallel to the crest on the southwest and northeast corners of the landfill (Features A & C); and two isolated pot holes in a localized area on the southeast corner of the landfill surface. These features were noted previously and appear unchanged from the 2009 inspection. These features have an acceptable severity rating.

Erosion
Evidence of erosion was noted in three areas at the landfill, including: several (5) minor surface erosion channels extending along the south slope of the landfill cover (Feature D); a single erosion channel on the northeast slope (Feature F); and a minor erosion channel extending along the east toe of the landfill (Feature E). The level of erosion appears consistent with previous years observations (photos) and planned measures to direct flow around the landfill. All features appear to be self-armouring and have an acceptable severity rating. Overall, the facility cover appears stable with noted increases in depth and magnitude of erosional features (Feature D) along the south (downgradient) slope and the addition of a short feature (Feature F) on the northeast slope.

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 were no seepage points observed at this landfill.

Debris
Evidence of debris was not noted at one location on the southeast toe of the facility (Feature G), consisting of a partially exposed piece of 20 mm diameter steel rod. The debris appeared to be isolated however the overall length and depth are unknown. This feature does not appear to be in direct contact with 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
A discontinuous tension crack was noted extending approximately 0.4 m below and parallel to the east crest of the landfill cover (Feature H). Other cracks previously observed during the 2009 inspection were not noted in 2010, possibly due to partial/complete infilling. No further indications of desiccation/movement were noted.

Discussion
The NHWLF 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 – NHWLF

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

SITE NAME: CAM-2 GLADMAN POINT
LANDFILL DESIGNATION: NHWLF
DATE OF INSPECTION: AUGUST 13-14, 2010
DATE OF PREVIOUS INSPECTION: AUGUST 12, 2009
INSPECTED BY: A. PASSALIS
REPORT PREPARED BY: A. PASSALIS
The inspector/reporter represents to the best of his/her knowledge that the following statements and observations are true and correct and to the best of the preparer's actual knowledge, no material facts have been suppressed or misstated.

LANDFILL VISUAL INSPECTION

Site Name: CAM-2 Gladman Point
Landfill: Non-Hazardous Waste Landfill
Designation: New Landfill
Date Inspected: August 13 - 14, 2010
Inspected by: Andrew Passalis, P.Eng.

Signature: 

TABLE XXVI: Visual Inspection Checklist / Report - NHWLF

Checklist Item	Present (Yes/No)	Location	Length	Width	Depth	Extent	Description	Photographic Record	Severity Rating	Additional Comments
Settlement	Yes	Feature A See Figure CAM-2.6 (southwest corner)	3 m	2.5 m	15 cm	Isolated <1%	Linear depression	NHWLF-26	Acceptable	Subtle depression on south slope of NHWLF
		Feature B See Figure CAM-2.6 (southeast corner)	0.1 - 0.15 m	4 - 8 cm	10 cm	Isolated <1%	Isolated depressopms	NHWLF-17	Acceptable	Two isolated depressions (pot holes) on surface of NHWLF
		Feature C See Figure CAM-2.6 (northeast and northwest (NEW OBS.) corners)	2.0 - 2.5 m	0.3 - 0.4 m	5 - 15 cm	Isolated <1%	Linear depressions (2 locations)	NHWLF-10, 31	Acceptable	Subtle depressions on north side slope of NHWLF
Erosion	Yes	Feature D See Figure CAM-2.6 (5 areas on south slope) - 2 NEW OBS.	10 m	Variable, 0.2 - 2.0 m	2-15 cm	Isolated 2%	Minor surficial erosion	NHWLF-18-23, 28	Acceptable	Minor erosion noted on downgradient side slope of landfill. Cover appears stable with minor increases in depth and width from 2009
		Feature E See Figure CAM-2.6 (extending along east toe)	25 m	0.3 m	10 - 15 cm	Isolated <1%	Minor surficial erosion	NHWLF-17, 20	Acceptable	Runoff channel along toe of landfill. Self armouring.
		Feature F See Figure CAM-2.6 (east slope) NEW OBS.	4 m	0.1 - 0.2 m	5 cm	Isolated <1%	Minor surficial erosion	NHWLF-13	Acceptable	Minor eroson noted on lower east side slope of landfill. Self armouring.
Frost Action	No	N/A	N/A	N/A	N/A	None	N/A	N/A	Not Observable	N/A
Animal Burrows	No	N/A	N/A	N/A	N/A	None	N/A	N/A	Not Observable	N/A
Vegetation	No	N/A	N/A	N/A	N/A	None	N/A	N/A	Not Observable	N/A
Staining	No	N/A	N/A	N/A	N/A	None	N/A	N/A	Not Observable	N/A
Vegetation Stress	No	N/A	N/A	N/A	N/A	None	N/A	N/A	Not Observable	N/A
Seepage Points	No	N/A	N/A	N/A	N/A	None	N/A	N/A	Not Observable	N/A
Debris Exposed	Yes	Feature G See Figure CAM-2.6 (southeast toe) NEW OBS.	0.4 m	2 cm	Unknown	Isolated <1%	Partially exposed metal rod at toe of landfill	NHWLF-2	Acceptable	Metal debris
Presence/Condition of Monitoring Instruments	Yes	See Figure CAM-2.6 MW-5 to MW-8	N/A	N/A	N/A	None	Steel protective casings	NHWLF-5W to 8W	Acceptable	All monitoring wells in good condition
Other Features of Note:	Yes	Feature H See Figure CAM-2.5 (east slope, east crest)	Discontinous, 25 m	2 - 4 mm	Unknown	<2%	Tension cracks along east crest	NHWLF-11, 29, 30	Acceptable	Discontinous and partially infiled crack extending 0.4 m below crest on east side of landfill.
Additional Photos	Yes	See Figure CAM-2.6 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 NHWLF has been completed as per the ToR and is included as Table XXVII hereafter.

Table XXVII: Preliminary Stability Assessment – NHWLF

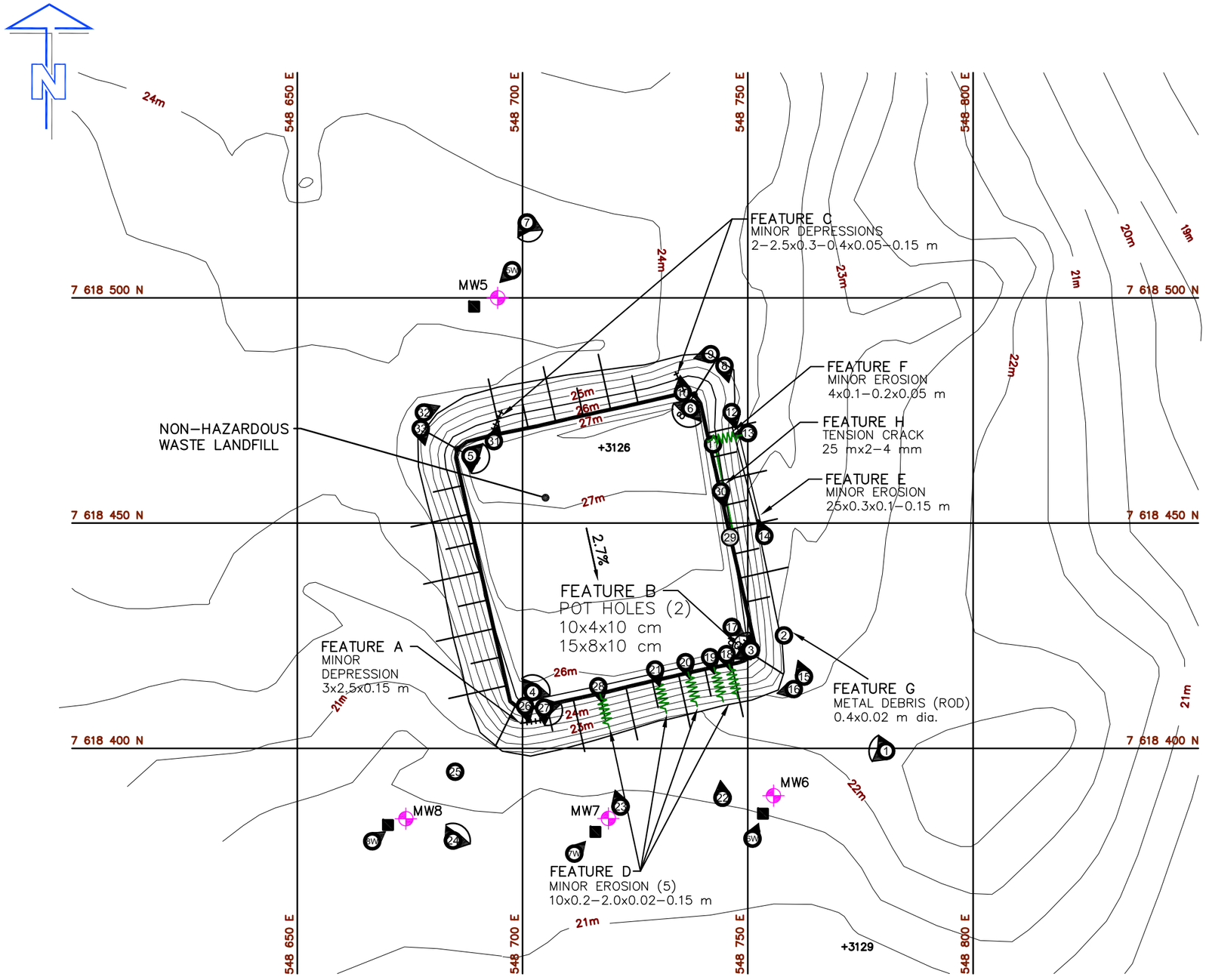
Feature	Severity Rating	Extent
Settlement	Acceptable	Occasional
Erosion	Acceptable	Occasional
Frost Action	Not observed	None
Staining	Not observed	None
Vegetation Stress	Not observed	None
Seepage/Ponded Water	Not observed	None
Debris Exposure	Acceptable	Isolated
Overall Landfill Performance	**Acceptable**	

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

7.4 LOCATION PLAN

The Location Plan for the NHWLF has been completed as per the ToR and is included in the following page as Figure CAM-2.6 Gladman Point – NHWLF.



LEGEND

- COORDINATE POINT
- MONITORING SOIL SAMPLE LOCATION
- MONITORING WELL LOCATION
- PHOTOGRAPH LOCATION
- EROSION (NTS)
- TENSION CRACK (NTS)
- SETTLEMENT (NTS)

0 10m 20m 30m 40m 50m

NO.	VERSION	DATE	P.L. PAR	A.P. VERIF.	J.P.P. APPR.
A	FINAL	11-02-08			

Construction de Défense Canada
Defence Construction Canada

FINAL REPORT
COLLECTION OF LANDFILL MONITORING DATA
CAM-2, GLADMAN POINT, NUNAVUT

NON-HAZARDOUS WASTE LANDFILL

SITE REMEDIATION SOLUTIONS

Biogenie, a division of EnGlobe Corp.
4495 Wilfrid-Hamel Blvd., Suite 200
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MEASUREMENT UNIT	SCALE:	DATE (month-year):
Meter	1 : 1,000	FEBRUARY 2011
DRAWN BY: P. LÉGARÉ	VERIFIED BY: A. PASSALIS	APPROVED BY: J.-P. PELLETIER
PROJECT NO: CD9229_002_160	DRAWING NO: CD9229_002_160-CAM-2_6	PAGE PL

FIGURE CAM-2.6

7.5 PHOTOGRAPHIC RECORDS

The Photographic Record for NHWLF has been completed as per the ToR and is included as in the following pages as Table XXVIII. The Photographic Record only contains an index and “thumbnail” photographs. Full-sized photographs are contained in the Addendum CD-ROM.

Table XXVIII: Landfill Visual Inspection Photo Log - NHWLF

Site Name: CAM-2, Gladman Point
Landfill: Non-Hazardous Waste Landfill
Date Inspected: August 13-14, 2010
Inspected by: Andrew Passalis, P.Eng.

Photo (NHWLF-)	Thumbnail	Filename	Size (KB)	Date	Vantage Point		Caption
					Easting	Northing	
1		C210_0041	2,530 KB	13/08/2010	548781	7618399	Panoramic view SW to NW from southeast of NHWLF. MW-6 visible on far left.
2		C210_0042	4,346 KB	13/08/2010	548758	7618425	Exposed metal debris (rod) at toe of NHWLF (0.4m L, 2cm dia.) - FEATURE G
3		C210_0043	2,383 KB	13/08/2010	548750	7618422	Panoramic view WSW to N across surface from southeast corner of NHWLF
4		C210_0045	2,798 KB	13/08/2010	548701	7618411	Panoramic view NW to ESE across surface from southwest corner of NHWLF
5		C210_0046	2,579 KB	13/08/2010	548688	7618465	Panoramic view NE to S across surface from northwest corner of NHWLF
6		C210_0047	2,739 KB	13/08/2010	548737	7618476	Panoramic view SE to WNW across surface from northeast corner of NHWLF
7		C210_0269	4,362 KB	14/08/2010	548701	7618517	Panoramic view SE to SW at north side of NHWLF
8		C210_0270	4,431 KB	14/08/2010	548744	7618486	View S along east toe of NHWLF
9		C210_0271	4,350 KB	14/08/2010	548743	7618487	View W along north toe of NHWLF
10		C210_0272	4,451 KB	14/08/2010	548736	7618478	View N at minor depression below northeast corner of NHWLF (2.5m L, 0.3m W, 15cm D) - FEATURE C
11		C210_0274	4,410 KB	14/08/2010	548742	7618467	Discontinous crack extending 0.4m below crest on east side of NHWLF (2-3mm W, 25m L) - FEATURE H
12		C210_0275	4,384 KB	14/08/2010	548747	7618475	View SSE at minor erosion extending along east toe of NHWLF (25m L, 0.3m W, 10-15cm D) - FEATURE E
13		C210_0276	4,303 KB	14/08/2010	548749	7618470	View WSW at minor eroson on east side slope of NHWLF (4m L, 0.1-0.2m W, 5cm D) - FEATURE F
14		C210_0277	4,410 KB	14/08/2010	548753	7618449	View NNW from south end of minor erosion extending along east toe of NHWLF (25m L, 0.3m W, 10-15cm D) - FEATURE E
15		C210_0279	4,335 KB	14/08/2010	548762	7618416	View NNW along east toe from southwest corner of NHWLF
16		C210_0280	4,294 KB	14/08/2010	548761	7618414	View WSW along west toe from southwest corner of NHWLF
17		C210_0281	4,389 KB	14/08/2010	548746	7618426	View ESE at two small depressions (potholes) noted below southeast top corner of NHWLF (10-15cm L, 4-8cm W, 10cm D) - FEATURE B
18		C210_0285	4,512 KB	14/08/2010	548745	7618421	View SSE at erosion extending from top to toe on southeast corner of NHWLF (10m L, 0.3-0.5m W, 3-5cm D) - FEATURE D
19		C210_0286	4,489 KB	14/08/2010	548742	7618420	View SSE at erosion extending from top to toe on south side of NHWLF (10m L, 0.8-2.0m W, 10-15cm D) - FEATURE D
20		C210_0287	4,350 KB	14/08/2010	548736	7618419	View SSE at erosion extending from top to toe on south side of NHWLF (10m L, 0.2-0.6m W, 3-5cm D) - FEATURE D
21		C210_0288	4,467 KB	14/08/2010	548729	7618417	View SSE at erosion extending from top to toe on south side of NHWLF (10m L, 0.1m W, 2-3cm D) - FEATURE D
22		C210_0289	4,395 KB	14/08/2010	548745	7618389	View NNW at four areas of eroson on south side of NHWLF
23		C210_0291	4,431 KB	14/08/2010	548722	7618387	View NNW at minor eroson on south side of NHWLF
24		C210_0292	2,193 KB	14/08/2010	548685	7618380	Panoramic view NNW to E from southwest of NHWLF. MW-7 and MW-6 visible on far right.
25		C210_0293	4,397 KB	14/08/2010	548685	7618395	Iron staining between areas of vegetation southwest of NHWLF (low lying area)
26		C210_0294	4,404 KB	14/08/2010	548700	7618410	Minor depression on southwest slope of NHWLF (3m L, 2.5m W, 15cm D) - FEATURE A

Table XXVIII: Landfill Visual Inspection Photo Log - NHWLF

Site Name: CAM-2, Gladman Point
Landfill: Non-Hazardous Waste Landfill
Date Inspected: August 13-14, 2010
Inspected by: Andrew Passalis, P.Eng.

Photo (NHWLF-)	Thumbnail	Filename	Size (KB)	Date	Vantage Point		Caption
					Easting	Northing	
27		C210_0296	2,490 KB	14/08/2010	548704	7618409	Panoramic view E to S at downgradient area on south side of NHWLF. No significant ponding noted.
28		C210_0297	4,500 KB	14/08/2010	548717	7618414	View SSE at erosion extending from top to toe on south side of NHWLF (10m L, 0.2-0.4m W, 5cm D) - FEATURE D
29		C210_0298	4,303 KB	14/08/2010	548746	7618447	Crack extending 0.4-0.6m below crest on east side of NHWLF (2-4mm W, 25m L) - FEATURE H
30		C210_0299	4,359 KB	14/08/2010	548744	7618458	View SSE at along crest on east side of NHWLF - FEATURE H
31		C210_0300	4,429 KB	14/08/2010	548694	7618468	View NE at two small depressions on north side of NHWLF (2m L, 0.4m W, 5cm D) - FEATURE C
32		C210_0302	4,433 KB	14/08/2010	548678	7618474	View ENE along north toe of NHWLF
33		C210_0303	4,340 KB	14/08/2010	548677	7618472	View SSE along west toe of NHWLF
Soil Sampling							
MW-5		C210_0031	4,420 KB	13/08/2010	548689	7618498	Sampling location C2-5W located upgradient of Tier II DF
5W		C210_0032	4,281 KB	13/08/2010	548698	7618506	View S at C2-5W soil sample location
MW-6		C210_0039	4,404 KB	13/08/2010	548753	7618385	Sampling location C2-6W located downgradient of Tier II DF
6W		C210_0040	4,457 KB	13/08/2010	548751	7618380	View NE at C2-6W soil sample location
MW-7		C210_0037	4,429 KB	13/08/2010	548716	7618382	Sampling location C2-7W located downgradient of Tier II DF
7W		C210_0038	4,338 KB	13/08/2010	548712	7618376	View NE at C2-7W soil sample location
MW-8		C210_0035	4,401 KB	13/08/2010	548670	7618383	Sampling location C2-8W located downgradient of Tier II DF
8W		C210_0036	4,384 KB	13/08/2010	548667	7618380	View NNE at C2-8W soil sample location

7.6 SOIL SAMPLE ANALYTICAL DATA

The soil chemical analysis results and evaluation of analytical data for the 2010 Non-Hazardous Waste Landfill samples are presented in Tables XXIX and XXX below. Certificates of analysis and results for field 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 – NHWLF

Sample #	Location	Depth (cm)	Cu [mg/kg]	Ni [mg/kg]	Co [mg/kg]	Cd [mg/kg]	Pb [mg/kg]	Zn [mg/kg]	Cr [mg/kg]	As [mg/kg]	Hg [mg/kg]	PCBs [mg/kg]	F1 C_6-C_{10} [mg/kg]	F2 C_{10}-C_{16} [mg/kg]	F3 C_{16}-C_{34} [mg/kg]	TPH C_6-C_{34} [mg/kg]
C210-5WA	MW-5	0-15	9	6	3	<0.1	6	12	9	2	<0.05	<0.010	<12	<10	<10	ND
C210-5WB		40-50	7	5	3	<0.1	6	<10	9	2	<0.05	<0.010	<12	<10	<10	ND
C210-6WA	MW-6	0-15	<5	1	<1	<0.1	<1	<10	2	<1	<0.05	<0.010	<12	<10	<10	ND
C210-6WB		40-50	11	5	3	<0.1	6	11	8	2	<0.05	<0.010	<12	<10	<10	ND
C210-7WA	MW-7	0-15	11	7	3	<0.1	5	12	11	2	<0.05	<0.010	<12	<10	<10	ND
C210-7WB		40-50	7	7	3	0.1	5	12	11	2	<0.05	<0.010	<12	<10	<10	ND
C210-8WA	MW-8	0-15	22	5	2	<0.1	5	12	8	2	<0.05	<0.010	<12	<10	<10	ND
C210-8WB		40-50	7	4	2	<0.1	5	<10	9	2	<0.05	<0.010	<12	<10	<10	ND
C210-BD1	C210-6WA	0-15	<5	1	<1	<0.1	1	<10	2	<1	<0.05	<0.010	<12	<10	<10	ND

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

ND: Not detected

S/P/CD/9229/T/10-Soil and GW-results CAM-2(Soil - NHWLF).xls

Table XXX: Evaluation of 2010 Soil Analytical Data – NHWLF

Parameter	2010
Copper	Concentrations ranged between <5-22 mg/kg with a mean of 9.6. The highest concentration was observed at surface in MW-8 (downgradient location), with slightly elevated concentrations of 11 mg/kg also noted at depth at MW-6 and surface at MW-7 (both downgradient locations).
Nickel	Concentrations ranged between 1-7 mg/kg with a mean of 5.0. The highest concentration was observed at surface in MW-7 (downgradient location), with slightly elevated concentrations of 6 mg/kg also noted at surface and depth at MW-5 (upgradient) and depth at MW-6 (downgradient).
Cobalt	Concentrations ranged between <1-3 mg/kg with a mean of 2.4. With the exception of the surface sample at MW-6, detectable concentrations were noted at all locations. The highest concentration was consistently observed at surface and depth at MW-5, MW-6 and MW-7 locations.
Cadmium	Detectable concentrations of 0.1 mg/kg were noted in one depth sample location at MW-7. All other reported concentrations were less than the method detection limit (0.1 mg/kg)
Lead	Concentrations ranged between <1-6 mg/kg with a mean of 4.8. With the exception of the surface sample at MW-6, detectable concentrations were noted at all locations. The highest concentrations were noted at surface and depth at MW-5 (upgradient) and depth at MW-6 (downgradient). Concentrations at all remaining locations was 5 mg/kg.
Zinc	Concentrations ranged between <10-12 mg/kg, with detectable concentrations reported at surface at MW-5, depth at MW-6, surface and depth at MW-7 and surface at MW-8.
Chromium	Concentrations ranged between 2-11 mg/kg with a mean of 8.4. The highest concentrations were observed at surface and depth at MW-7, with 9 mg/kg also noted at surface and depth at upgradient location MW-5 and at depth at location MW-8.
Arsenic	With the exception of a surface sample collected at MW-6 (<1 mg/kg), all other sample locations reported concentrations of 2 mg/kg.
Mercury	All reported concentrations were less than the method detection limit (0.05 mg/kg)
PCBs	All reported concentrations were less than the method detection limit (0.01 mg/kg).
TPH	All reported concentrations were less than the method detection limit (12 mg/kg)

7.7 GROUNDWATER SAMPLE ANALYTICAL DATA

The groundwater chemical analysis results and evaluation of analytical data for the 2010 Non-Hazardous Waste Disposal Facility samples are presented in Tables XXXI and XXXII. Certificates of analysis and results of groundwater samples collected as part of the QA/QC program are presented in Appendix C, at the end of the report.

Table XXXI: Groundwater Chemical Analysis Results – NHWLF

Sample #	Location	Cu [mg/L]	Ni [mg/L]	Co [mg/L]	Cd [mg/L]	Pb [mg/L]	Zn [mg/L]	Cr [mg/L]	As [mg/L]	Hg [µg/L]	PCBs [µg/L]	F1 C_6-C_{10} [mg/L]	F2 C_{10}-C_{16} [mg/L]	F3 C_{16}-C_{34} [mg/L]	TPH C_6-C_{34} [mg/L]
C210-5W	MW-5	0.0082	0.018	0.0036	0.00019	0.0032	0.20	0.019	0.0021	<0.002	<0.050	<0.100	<0.1	<0.1	ND
C210-6W	MW-6	0.014	0.019	0.0016	0.00022	0.0031	0.081	0.046	0.0031	<0.002	<0.050	<0.100	<0.1	0.3	0.3
C210-7W	MW-7	0.0067	0.025	0.0012	0.00017	0.0016	0.12	0.031	0.0024	0.002	<0.050	<0.100	<0.1	<0.1	ND
C210-8W	MW-8	0.0024	0.023	0.0041	0.000068	0.0017	0.058	<0.01	0.0021	<0.002	<0.050	<0.100	<0.1	0.5	0.5

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

ND: Not detected

S/P/CD/9229/T/10-Soil and GW-results CAM-2(GW-NHWLF).xls

Table XXXII: Evaluation of 2010 Groundwater Analytical Data – NHWLF

Parameter	2010
Copper	Concentrations ranged between 0.0024-0.014 mg/L, with the most elevated concentration noted at downgradient location MW-6. This concentration ranged between 2 to 6 times greater than the remaining upgradient and downgradient sample concentrations.
Nickel	Concentrations ranged between 0.018-0.025 mg/L, with the highest and lowest concentrations noted at MW-7 (downgradient) and MW-5 (upgradient), respectively.
Cobalt	Concentrations ranged between 0.0012-0.0041 mg/L, with the highest concentration observed at downgradient location MW-8.
Cadmium	Concentrations ranged between 0.000068-0.00022 mg/L. The lowest concentration was noted at downgradient location MW-8, approximately 3 times less than the remaining upgradient and downgradient sample concentrations.
Lead	Concentrations ranged between 0.0016-0.0032 mg/L, with the highest concentration noted at MW-5 (upgradient location).
Zinc	Concentrations ranged between 0.058-0.2 mg/L. Slightly elevated concentrations were noted at MW-5 (0.2 mg/L) and MW-7 (0.12 mg/L), approximately 2.5-3.5 times higher than the remaining downgradient sample concentrations.
Chromium	Concentrations ranged between <0.01-0.046 mg/L, with the highest concentration observed at the downgradient location MW-6 and lowest concentrations at downgradient location MW-8.
Arsenic	Concentrations ranged between 0.0021-0.0031 mg/L, with the highest concentration noted at MW-6 (downgradient) and the lowest concentration at MW-5 (upgradient) and MW-8 (downgradient).
Mercury	Concentrations ranged between <0.002-0.002 µg/L, with detectable concentrations noted at one downgradient location, MW-7.
PCBs	All reported concentrations were less than the method detection limit (0.05 µg/L).
TPH	Trace concentrations of F3 and were noted at downgradient locations MW-6 (0.3 mg/L) and MW-8 (0.5 mg/L). All remaining reported concentrations were less than the method detection limit (0.1 mg/L).

7.8 MONITORING WELL SAMPLING / INSPECTION LOGS

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

2010 Monitoring Well Sampling Log (MW-5)

Site name:	CAM-2
Date of sampling event:	13-Aug-10
Names of samplers:	Andrew Passalis
Monitoring well ID:	MW-5
Facility:	Non-Hazardous Waste Landfill

Known Data

Depth of installation* (m):	3.07
Length of screened section (m):	1.88
Depth to top of screen* (m):	0.78

Measured Data

Condition of well:	Good	Procedure/Equipment:	Interface Meter
Procedure/Equipment:	Measuring Tape	Depth to water surface (m):	0.74
Well height above ground (m):	0.17	Depth to bottom (m):	1.43
Diameter of well (m):	0.05	Free product thickness (mm):	-

Calculations		Notes	
Depth of water (m):	0.69	Evidence of sludge:	no
Well volume of water (L):	1.34	Evidence of freezing/siltation:	no
Static water level* (m):	0.57		
Length of screen collecting water (m):	0.48		

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
13-Aug-10	1.3	3.6	6.7	3285	93	C&C, N/O

Water Sampling		Soil Sampling	
Date & Time Collected:	13-Aug-10	Date and Time Collected:	13-Aug-10
Sample Number - Water:	C210-5W	Sample Number - Soil:	C210-5WA
			C210-5WB
Sample Containers:	2x500mL, 2x250 mL glass	Sample Containers:	3x125mL glass/bag
	1x250 plastic		3x125mL glass/bag
	3x40mL vials		
Procedure/Equipment:	Waterra tubing & foot valve Hanna HI9828 Mulitmeter, Hach 2100P Turbidimeter	Procedure/Equipment:	Steel & Plastic Trowels
Water Description:	C&C, N/O	Soil Description:	Black organics 0-10 Grey sandy silt with cobbles
Sampling Equipment Decontamination (Y/N):	N, dedicated	Sampling Equipment Decontamination (Y/N):	Y
Number Washes:	0	Number Washes:	1
Number Rinses:	0	Number Rinses:	1

*From ground surface. Unless this is stated, all measurments are assumed to be from the top of the casing.
n/a=not applicable
LDPE=Low Density Polyethylene
SS=Stainless Steel

2010 Monitoring Well Sampling Log (MW-6)

Site name:	CAM-2
Date of sampling event:	13-Aug-10
Names of samplers:	Andrew Passalis
Monitoring well ID:	MW-6
Facility:	Non-Hazardous Waste Landfill

Known Data

Depth of installation* (m):	3.70
Length of screened section (m):	1.88
Depth to top of screen* (m):	0.76

Measured Data

Condition of well:	Good	Procedure/Equipment:	Interface Meter
Procedure/Equipment:	Measuring Tape	Depth to water surface (m):	1.13
Well height above ground (m):	0.38	Depth to bottom (m):	1.60
Diameter of well (m):	0.05	Free product thickness (mm):	-

Calculations		Notes	
Depth of water (m):	0.48	Evidence of sludge:	no
Well volume of water (L):	0.93	Evidence of freezing/siltation:	no
Static water level* (m):	0.75		
Length of screen collecting water (m):	0.46		

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
13-Aug-10	1.1	2	9.0	3346	306	C&C, N/O

Water Sampling		Soil Sampling	
Date & Time Collected:	13-Aug-10	Date and Time Collected:	13-Aug-10
Sample Number - Water:	C210-6W	Sample Number - Soil:	C210-6WA + Intra dup
			C210-BD1 (6WA)
			C210-6WB
Sample Containers:	2x500mL, 2x250 mL glass	Sample Containers:	8x125mL glass/bag
	1x250 plastic		3x125mL glass
	3x40mL vials		3x125mL glass/bag
Procedure/Equipment:	Waterra tubing & foot valve Hanna HI9828 Mulitmeter, Hach 2100P Turbidimeter	Procedure/Equipment:	Steel & Plastic Trowels
Water Description:	C&C, N/O	Soil Description:	Light brown sand, f-m grained, poorly graded, some gravel, dry
Sampling Equipment Decontamination (Y/N):	N, dedicated	Sampling Equipment Decontamination (Y/N):	Y
Number Washes:	0	Number Washes:	1
Number Rinses:	0	Number Rinses:	1

*From ground surface. Unless this is stated, all measurments are assumed to be from the top of the casing.
n/a=not applicable
LDPE=Low Density Polyethylene
SS=Stainless Steel

2010 Monitoring Well Sampling Log (MW-7)

Site name:	CAM-2
Date of sampling event:	13-Aug-10
Names of samplers:	Andrew Passalis
Monitoring well ID:	MW-7
Facility:	Non-Hazardous Waste Landfill

Known Data

Depth of installation* (m):	3.80
Length of screened section (m):	1.73
Depth to top of screen* (m):	0.88

Measured Data

Condition of well:	Good	Procedure/Equipment:	Interface Meter
Procedure/Equipment:	Measuring Tape	Depth to water surface (m):	0.90
Well height above ground (m):	0.42	Depth to bottom (m):	1.46
Diameter of well (m):	0.05	Free product thickness (mm):	-

Calculations		Notes	
Depth of water (m):	0.56	Evidence of sludge:	no
Well volume of water (L):	1.10	Evidence of freezing/siltation:	no
Static water level* (m):	0.48		
Length of screen collecting water (m):	0.16		

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
13-Aug-10	1.2	2.1	8.2	9392	501	C&C, N/O

Water Sampling		Soil Sampling	
Date & Time Collected:	13-Aug-10	Date and Time Collected:	13-Aug-10
Sample Number - Water:	C210-7W	Sample Number - Soil:	C210-7WA
			C210-7WB
Sample Containers:	2x500mL, 2x250 mL glass	Sample Containers:	3x125mL glass/bag
	1x250 plastic		3x125mL glass/bag
	3x40mL vials		
Procedure/Equipment:	Waterra tubing & foot valve Hanna HI9828 Mulitmeter, Hach 2100P Turbidimeter	Procedure/Equipment:	Steel & Plastic Trowels
Water Description:	C&C, N/O	Soil Description:	Black organics 0-20 Tan sandy silt, some gravel/cobbles
Sampling Equipment Decontamination (Y/N):	N, dedicated	Sampling Equipment Decontamination (Y/N):	Y
Number Washes:	0	Number Washes:	1
Number Rinses:	0	Number Rinses:	1

*From ground surface. Unless this is stated, all measurments are assumed to be from the top of the casing.
n/a=not applicable
LDPE=Low Density Polyethylene
SS=Stainless Steel

2010 Monitoring Well Sampling Log (MW-8)

Site name:	CAM-2
Date of sampling event:	13-Aug-10
Names of samplers:	Andrew Passalis
Monitoring well ID:	MW-8
Facility:	Non-Hazardous Waste Landfill

Known Data

Depth of installation* (m):	3.70
Length of screened section (m):	1.88
Depth to top of screen* (m):	0.67

Measured Data

Condition of well:	Good	Procedure/Equipment:	Interface Meter
Procedure/Equipment:	Measuring Tape	Depth to water surface (m):	0.77
Well height above ground (m):	0.56	Depth to bottom (m):	1.19
Diameter of well (m):	0.05	Free product thickness (mm):	-

Calculations		Notes	
Depth of water (m):	0.43	Evidence of sludge:	no
Well volume of water (L):	0.83	Evidence of freezing/siltation:	no
Static water level* (m):	0.21		
Length of screen collecting water (m):	-0.04		

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
13-Aug-10	0.8	2.2	7.0	5049	481	C&C, N/O

Water Sampling		Soil Sampling	
Date & Time Collected:	13-Aug-10	Date and Time Collected:	13-Aug-10
Sample Number - Water:	C210-8W	Sample Number - Soil:	C210-8WA
			C210-8WB
Sample Containers:	2x500mL, 2x250 mL glass	Sample Containers:	3x125mL glass/bag
	1x250 plastic		3x125mL glass/bag
	3x40mL vials		
Procedure/Equipment:	Waterra tubing & foot valve Hanna HI9828 Mulitmeter, Hach 2100P Turbidimeter	Procedure/Equipment:	Steel & Plastic Trowels
Water Description:	C&C, N/O	Soil Description:	Black organics 0-15 Grey sandy silt, with cobbles, wet at 0.4 m
Sampling Equipment Decontamination (Y/N):	N, dedicated	Sampling Equipment Decontamination (Y/N):	Y
Number Washes:	0	Number Washes:	1
Number Rinses:	0	Number Rinses:	1

*From ground surface. Unless this is stated, all measurments are assumed to be from the top of the casing.
n/a=not applicable
LDPE=Low Density Polyethylene
SS=Stainless Steel

APPENDIX A

Range of the Report and Limitation of Responsibilities

RANGE OF THE REPORT AND LIMITATION OF RESPONSIBILITIES

A – Recipient and Use

This report ("Report") was prepared by Biogenie, a division of EnGlobe Corp. ("Biogenie") at the request and for the sole benefit of the Client ("Client"), and is intended to be used exclusively by the Client.

B –Site Conditions

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

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

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

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

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

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

C - Legislation, Regulations, Guidelines and Policies

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

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

D – Use of Report

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

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

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

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

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

APPENDIX B

Field Notes

KITIKMEOT LANDFILL
MONITORING - 2010

CAM-2
CAM-3
CAM-4

WATERPROOF

WL7
LEVEL

R.D. PENHALL LTD.
MADE IN CANADA

AUGUST 12, 2010.
OVERCAST, 5°C, 20-30 km/h NW.

FLIGHT FROM CB -> CAM-2
5 pm - 6¹⁵ ADLAIR (CRAIG)
SETUP CAMP ON FORMER
HANGAR PAD

CHECK CALIBRATION OF ALL EQUIPMENT
WELL SAMPLING EQUIP.
TURBIDIMETER - HACH 2100P.
T, pH, COND - HANNA HI 9828 w/
FLOW THROUGH CELL.

BELLA - COOK
JOE - MONITOR
ROBERT
DUSTIN } TECHNICANS
JALENE

AUGUST 13, 2010

5°C OVERCAST, 1000' CEILING
UNLIM VIS, 30km/h NW
FOG IN AM

NHWLF C2-SW

MW-5 SLUG 0.17m, 4m WSW
▽ - 0.72m A 0-15
bott - 1.425m B 40-50
pH 7.08/6.69/6.66
Cond 4.436 mS/ / 3.374/3285
T 5.62°C / 3.93/3.55
TURB 30.9 NTU / 69.5 / 93 3x40.
TOTAL 1.3L, 2x500, 2x250, 1x250 PL

MW-8 SLUG 0.56, 4m SW.
▽ - 0.765 m
bot. 1.19 m. A 0-15
B 40-50
pH 6.92/6.62/6.36/6.00
Cond 602/6156/5953/5099
Temp 3.62/1.72/2.35/2.15
TURB 229 / 511 / 481
purge 0.8L

MW-5 SOIL 0-10 BLK ORG., ROOTLETS
10-50 GREY SANDY SILT, W/GBLS TAN
SEEPe 40.

MW-8 SOIL 0-15 BLK ORG
15-50 GREY SANDY SILT, W/CBLS TAN

MW-7 2.9m SSW.
SLUG 0.42 A - 0-15
▽ 0.90 B 40-50
bott. 1.46m
pH 7.48 / 7.34 / 7.22
Cond 9111 / 9205 / 9392
T. 2.90/2.42/8.09
TURB 321/370/501
TOTAL 1.2L

2x500, 2x250, 1x250 PL
3x40

0-20 BLK ORG
20-50 TAN SANDY SILT, SOME GRAVEL W/CBLS.
▽ e 45cm

LEVEL

MW-6 SLUP : 0.38 3.8 mS
∇ : 1.125 A - BD1 0-15
BOTT 1.60 B - 40-50
pH 8.12/7.98/7.97
Cond 3581/3056/3346
T 3.01/2.39/2.01 0-50 LT
TURB. 262/228/306 BRN SAND,
TOTAL 1.1L F-M GR, PGr.
NO ∇ SOME
GRAVEL

WAYPOINT
29 PAN NNW-SW
30 Metal bar/debris 38cm x 2cm ϕ
exp @ toe
31 SE CORNER TOP - PAN NW-SW.
32 SW " PAN E-NNW
33 NW " PAN S-NE
34 NE " PAN W-SSE

TIER II D.F P.M. - MOSTLY CLOUDY
BRN @ 1000', 30 km N
4m SSW.
MW-3 SLUP: 0.50 A 0-15
∇ T 1.03 B 40-50
BOTT 1.83
pH 10.61/10.55/10.52 white dep. in ∇
Cond 2752/2974/2605
Temp 3.63/3.42/3.64
TURB 424/560/839
TOTAL 1.6L
2x500, 2x250, 1x250 pL, 3x40.
BROWN SAND + GRAVEL, w.g., ∇ @ 45cm
TR FINES.
2.7m W.
MW-4 SLUP 0.72m A - 0-15
∇ = 1.49m B - 40-50
BOTT = 2.20
pH 7.80/7.17/6.97
Cond 5403/4545/4310
Temp 2.37/1.91/2.68
Turb. 171/119/117 TOT. 1.4L.
2x500, 2x250, 1x200 pL, 3x40
GREY/BROWN SAND, Med-cs gr, with gravel
, tr cbls, damp, no ∇.

LEVEL

4mN

MW-1 Slug = 0.50m

K = 1.425

both 2.10

A- 0-15

B 40-50

pH 7.91/7.62/7.42

Cond 2253/2303/2341

Temp 3.66/4.00/3.61

Turb 151/800/842 TOTAL 1.4L

2×500, 2×250, 1×200, 3×40

BROWN/GREY SAND, MED-CS GR, WITH GRAVEL, TR-CBLS, W.G. NO SHEEN

3.5m SW.

MW-2 Slug = 0.2m

K = 1.09

both. 1.64

BD2

A- 0-15

B- 40-50

pH 7.77/7.58/7.39

Cond 2134/2084/2019

Temp 4.14/3.71/3.44

Turb 276/232/219

BRN/GREY SAND Fine gr, some grvl + cbls, NO SHEEN

BDW1 + EXOVA

DOWNLOAD

VT-4	2 Photos	S/N
VT-2	2 Photos	NNE/S
VT-3	2 Photos	N/S
VT-1	2	N/W

PROBLEM COMMUNICATING W/ CONFIGURATION FILE @ VT-3

WAYPOINT

37 NE Corner, PAN NW-S

MINOR EROSION 37-38, VIEW SE

38 VIEW NW - ↑ UP SLOPE

→ 15m × 0.5 × 0.1-0.05 NO CHANGE FROM 2009.

NO PONDING AROUND TIER II AS IN 2009.

39 PAN NW-S @ NE TOE

41 VIEW N @ MW-1 1-2mm

42 START OF T-CRACK EXT ↓ SLOPE ALONG N SIDE ~5m UP FROM TOE

43 START OF T-CRACK ON SE SIDE + WRAPS AROUND NE CORNER + ALONG E SIDE, 1mm

44 Photo 2mm wide ↓ Slope ~5m up

45 2 Parallel cracks 0.6m apart.
Upper 2mm, lower 1mm
lower ~ only ~ 3m long
UPPER, CONTINUOUS

46 Start @ lower 1mm wide crack
~3m up from toe, ~1m below
upper crack. only ~ 5m long. P.infill

47 Restart @ lower crack, running // to
upper 1-2mm wide

48 Photo - upper crack 2mm
0.5-1m apart.

49 P.infilled - 1mm. 2-3 //.
LOOK AT TRACKS. - END

50 VIEW NW @ MINOR EROSION 10m Long
x 5cm W x 2cm ↕ ⊥ to slope. ->51

52 PAN SW - SE, NE TOE

53 EXP 2"Ø STEEL PIPE 0.3 EXP. PH.
+ VIEW S.

54 START OF T. CRACK ⊥ slope. 1m 2009
1-2mm, VIEW SW

55 START OF 2 // 0.7m APART ← ½ B/W 54/55
3 // cracks 1-2mm
5m up from toe.

56 1m up from toe., 1mm small
⊥ slope.

57 photo of 3 //. cracks

58 Back to 2 //. cracks, 5m up. 1mm
p.infill

59/60 VIEW SE @ wet area on side of
slope, cracks throughout 1mm
↳ VIEW SE LOWER SIDE SLOPE.

61 2 - 1-2mm CRACKS.
4m up from TOE on S.W CORNER
EXTENDING AROUND CORNER.

62 PAN SE - NE. - NW toe

63 PH. OF P.INFILL CRACK ~4-5m up from
toe, sporatic / discont up to erosion
below VT-4.

64 VIEW NE @ EROSION TOP-BOT
1m W, up to 50cm ↓ -> 65 WP
IN CAT TRACKS. - REST. FINES WASHED
TO TOE.
- MW-3 VIEW. W.

65 PAN N-SE. OF WEST SIDE SHOWING
WETTED AREA + EROSION BELOW
VT-4

66 2mm 5m Crack ⊥ to slope ~5m up
from toe. ext. S., P. infill
↳ 67 stops @ end of wet area

BLANK

68 PAN E-NW from SW toe.

69 MIN OR 1mm CRACK ~8m UP from Corner to-W dir. ~6m long.

70 VIEW NW ALONG CREST e DEPRESSIONS SAME AS 2009, PAN E->W

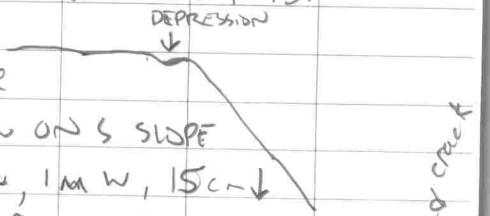
71 dep 5-15cm W, 5-10cm ↓ 1m long near crest S of VT-4

72 NW TOP PAN SE-NE (2 IMAGES) NE TOP PAN SW-SE.

73 CREST START OF 1-2mm TENSION CRACK

↳ 74 end (2 PM) -> 75 CONTINUES. RIGHT NE CORNER

75 VIEW NW ALONG TOP OF EAST SIDE DEPRESSION 11 TO CREST 20-40cm W, 5-10cm ↕ FROM VT-1 N TO WP 73.



76 VIEW SE e DEPRESSION ON S SLOPE 2.5m L, 1m W, 15cm ↓

77 10mm-20mm crack + depr. on SW corner near crest. 2m L. View NE, close up, SW.

78 - small dep. 40cm x 40cm x 5cm ↓ near top corner SW View from corner NE

AUGUST 14, 2010
5-6°C, FOG W/ BROKEN CLOUD IN AM, NW-20 km/h.

STATION LF - LOBE 1.

79 V-NW AT STA. LF

80 V NW AT UPGRAD SIDE (W).
PAN: N-W FROM S TOE.

81 V-SE ALONG LOBE 1
NO EVID OF EROS/SETT.

82 - LOBE 2
↳ V-E/W @ MIN. EROSION TOP-TOE
15cm W, 8m L, 2-4cm ↓
WASH OF FINES 5mm → 3m APART.

83 // T-CRACKS, 1cm W, 4m LONG @ CREST ORIENT NE DIR., V-NE.

84 V- NNW ALONG W SIDE
V- N ALONG S SIDE.
PAN FROM TOP CRNR -

85 MINOR EROS - WASHING ON SURFACE - SAME AS 2009, V-W. CREST + TOE - 86
2m W, 20m L @ CREST + BELOW, 2-7cm ↓
20m L UP, 1m W 2-4cm ↓
↳ TO 87, V-SE

88 START + CRACK 1-2mm → 89
V-N from send ~20m L. in dir of crack

C2-4 - 0-10 BLK ORG.
10- GREY SANDY SILT, SOME GRAVEL, WET, D @ 40.
A - 0-15
B - 40-50.

90 MIN EROSION: V-W/E TOE/TOP
3 channels 5-10cm ↓ 8m L, 30-50cm W each. does not extend ON TOP

91 EROSION TOP/TOE V-E/W.
↳ 92 V-N ALONG TOE / SSW ALONG TOE
5-15cm ↓, 1-1.5 W, 30m L.
VIEW TOP, 40m x 2m W x 2cm ↓
SAME AS IN 2009, V. W.

93 PAN W-SSE ACROSS TOP

94 MIN DEPR 1.2m L, 20cm W, 5cm ↓ @ CREST, V-N.

95 V-E. @ STAINING @ POND, WET AREA BUT 10m OFF LF

C2-3 VIEW SW/NW ALONG TOE.

96 PAN NW-S AT E SIDE OF LF
SPORATIC PONDING BELOW LF.
C2-2 TAGS IN DIFF LOCATION FROM DWG
SAMPLE AT TAGS
STAINING @ TOE - IRON + BACK SHEEN.
@ NW TO POND ONLY - PH

LEVEL

11AM. P.SUNNY, 8°C., 20 km/h N.

C2-1 0-15 BLK ORG
15-50 GREY SILTY SAND, WITH GRAVEL, SOME CBLS. WET

97 TOE OF EROSION CHANNEL
3m @ BASE, 1m W UPSLOPE.
0.15-0.1 ↓, V-SW

98 V - NE/SW.

99 TOP OF CHANNEL / V.- NE TOP
V- S ALONG W SIDE

DON S-E ACROSS TOP.

100 T-CRACK 1-2 mm V-SSE, 3m L. ↳ OS ALONG TOP

101 T. CRACKS // 2-3 mm W IN SE DIR FROM TOE-UP TO TOP V V-SE.

C2-2 0-5 BLK ORG

A-D-10 5- GREY F.SAND, PG, SOME

B-40-50 SILT + CBLS. WET;

LOBE 3

102 V- SE/SW ALONG SIDES FROM CNR

103 1-2m CRACKS ON SLOPE, PH TO CNR
EXT ALONG SLOPE ⊥ TO SW. 2-3mm

104 UP TO 5 mm W. PH. / V-NE

105/6 NW CORNER, PAN. SE-NE

107 2-3 T. CRACKS ALONG SIDESLOPE
↳ START 1-2 // PH - 5m SE of 107

108 PH, MULT-DIR. ON SLOPE, V-NE
↳ 109 END OF CRACKS

MINOR EROSION 2m S of 109,
10-20cm W, 2m L 2-5cm ↓ PH.
SAME AS IN 2009 ALSO @ 110/111.
SW CORNER. V NW/NE ALONG SIDES
V- NNW ALONG E SIDE FROM SE CNR

112 MINOR EROS 2m L, 10-15cm W, 2-3 cm ↓ PH SW

113 1.5m L, 10cm W, 3cm ↓ EROS. PH SW

C2-3 0- BROWN SAND, F.G, P.G, TR.

A-0-15 FINES + GRAVEL, BLK ORGC 15-20cm

B-40-50 OMM; @ 35.

LOBE 4 - NO EROS/SETT.

114 PAN W-S.

115 PAN E-N, V- NE ON TOP

LOBE 5

116 PAN N-E

117 2 small potholes as in 2009.
SW CORNER

LEVEL

PM - P. CLOUDY, 9°C

118 PAN S-E.

119 V- ESE / SSW ALONG SIDES

C2-5 0-10 DK-BRN SILTY SAND, TR ORG

A-0-15 10- LT BRN MED SAND, SOME

B-40-50 → GRAV + CBLS, TR FINES, DRY

BD-3

Photos @ TIER II - V-S

V-E PAN W/ GARAGE PAD

WEST LF SOUTH

LOBE 11

120 - PAN E-N FROM SW CORNER

121 V- E/W ALONG DRAINAGE CH.

NO SIG EROSION ALONG ↗

creek 122 EXP GEOTEXTILE AS IN 2004 PH.

↓ V- W UP CHANNEL, V-N ALONG TOE

123 SURFACE METAL DEBRIS 10cm W x 90cm x 1cm. PH., 2m W @ C2-13

123 PAN NW-SSE

125 V- SSW. ALONG N SIDE

126 V- SSW IN., PAN SE-NNE ACROSS TOP

127 V-N AT SMALL PONDED AREA NEAR TOE B/W LOBES 10/11.

SMALLER THAN 2004, LUSH GREEN VEG UPSLOPE.

128 PAN W-SE.

129 V- SW @ PONDING

C2-14 - BRN SAND, F-MED GR, P.G.,

A-0-15 SOME GRAV + CBLS, DRY,

B-40-50 SLIGHTLY TEXT.

C2-13 0-5 BLK ORG + FINE SAND

A 0-5 5- BRN/GREY SAND F-med gr,

B 40-50 P.g, wet, Some gravel, wet

@ 45.

C2-12 0 - BRN MED-CS SAND, NO ∇

A 0-15 LITTLE-NO FINES, P.G. TR GRAV

B 40-50

132 PAN NNW - W @ LOBES 9/10

133 PAN NE-NW @ LOBE 10

134 V- NW ALONG E SIDE OF LID.

135 V - SE " "

PAN N-NW

136 V- NE @ LOBE 9.

2- FIELDERS FROM BARGE

VIEW SW @ LOBE 10 FROM

C2-11.

LEVEL

C2-11 0-5 BLK ORG

A 0-15 5-50 GREY SAND F-CS gr,
B 40-50 SOME GRAVEL, TR-SOME FINES,
W.G.

137 - V-E @ LOBE 9.
PAN NW-W @ LOBE 8.

138 LOBE 8, 3 small potholes ON SE
SIDE 80×80, 2 - 50×50cm
×0.1 ×0.05-0.1
V-E

139 PAN SE-NE AT W SIDE OF LB

140 V. SE @ LOBE 8.

WEST LF N

C2-8. 0-5 BLK ORG

A-0-15 5- GREY SAND, F-CS gr, W.g,
B-40-50 Wet, some fines + gravel.

142 PAN NW-SW LOBE 6
← Photo - dug out ▽

143 PAN NE-NW LOBE 6

144 PAN - NE-NW LOBE 6 / NW-S @ LOBE 5

146 PAN NW-SW @ LOBE 5 SE END.

147 PAN NE-NW @ LOBE 5

148 V- SE NW AT TOP. E

149 V- NE @ LOBE 6 200m

C2-9 0-5 BLK ORG

A-0-5 5-50 GREY SILTY SAND,
B-40-50 SOME GRAVEL, F-med gr. wet
▽ @ 45.

150 PAN NW-SW @ LOBE 4
▽ - S @ LOBE 6

151 PAN. NW-SW. AT TOP LOBE 4.

152 V-SW DIP LOBES 4/5.

153 V-NE DOWN B/W LOBES MINOR
EROSION AS IN 2009.

154 PAN NE-SE

155 PAN NE-NW @ LOBE 4 (SE CORNER)

C2-7 0-5 BLK ORG

A-0-5 5-45 GREY SAND, F-CS Gr, WG
B-35-45 wet, SOME WITH GRAVEL, ▽ @ 35,
FROZEN @ 45

156 PAN SSW-E @ LOBE 4, NW CORNER
V-NW - NO SIG PONDING

157 PAN W-S @ LOBE 2.

160 PAN S-E @ LOBE 2
PAN W-S @ LOBE 1

161 PAN NW-NE ACROSS LOBE 1
162 PAN SE-N ACROSS LOBE 2

C2-6 0- LT BROWN SAND, F-medgr loose, some gravel. p.g.

163 PAN SE-NE BTW LOBES 2/3
164 PAN SE-NE @ LOBE 3.
165 PAN E-NW "
166 PAN E-N @ LOBE 4
167 " " TOP OF LOBE 4

C2-10. BROWN Med-CS sand, some gravel,

A-0-15
BDA
40 50
B-

NHWLF

168 V. S @ N FACE, NOTE MINOR DEPR @ NE CORNER
169 V. S/W ALONG TOE (NE TOE)
↳ MINOR DEPR. BELOW CREST ON NE CORNER, AS IN 2009, V-N
PAN - W-S FROM NE TOP
@ 45° slope 0.3 x 2.5 L x 0.15 ↓
170 MINOR DESSIC. CRACKING JUST BELOW CREST ON E SIDE (0.4m below)
ext. ⊥ to slope, 2-3mm wide
171 → discontinuous to 172.
173 EROSION ALONG TOE //. AS IN 2009.
174 MINOR EROS. ↑ slope, 4m L, 0.1-0.2W from toe 0.05↓
175 V-N ALONG E TOE END OF EROS
176 METAL BAR - EXP DEBRIS - SEE NOTE FROM 131810
177 V- N/W ALONG TOES
178 2- POTHOLES AS IN 2009 V.
179 MINOR EROSION TOP-TOE, V-S 30-50cm W, 3-5cm ↓
180 SIL EROS TOP-TOE, V-S. 80cm-2.0m W (TOE) IN CRATER TRACK MARKS 0.15-0.1 m ↓ TOP TOE.

LEVEL

181 MINOR EROS TOP-TOE V-S
20-60cm W, 3-5cm ↓
182 " " V-S
0.1m W 2-3cm ↓
183 V-N @ 4 PTS OF EROS ON S FACE
V-E @ MW-6
185 V-N & MINOR EROS ON SLOPE
NO PONDING ON SW CORNER
186 PAN N-E
187 IRON STAIN IN GRASS ON NW TOE
NO ~~V~~ LOW ARCHS
188 MINOR SETT BS IN 2007,
PAN E-N - SW CORNER
SW-SE @ TUNDRA & MW-5
189 MINOR EROSION TOP-TOE - V-S
20-40cm W, 5cm ↓
191 START OF T CRACK AT CREST //
40-60cm below top 2-4mm
192 PH. → 193 END PH-V-S
194 MINOR SETT ON N FACE
2x1.2mL x 40cm W x 5cm ↓
195 PAN S-E @ NW TOP
196 V-E/S @ TOE NW

AUGUST 15, 2010
OVERCAST, AM - 3°C, LT SNOW/SLEET
20km/h N, LIGHT FOG. PATCHES.

BACK UP SAMPLES / CAMP.

VT-3 BATTERIES DEAD,
BAD CONFIG FILE, TRY W/ NEW
BATTERIES.
BAD CLOCK/SAMPLE RATE....
UNABLE TO DOWNLOAD DATA
RETRIEVE FROM SITE
MULTIPLEXOR ERROR? MISSING BANK?

BACK UP CAMP

5:15 CHARTER ARRIVES
5 COOLERS → YK MAXAM
CAMPING SUPPLIES → CB 11 PIECES

APPENDIX C

Maxxam QA/QC Reports and Certificates of Analysis

QUALITY ASSURANCE / QUALITY CONTROL

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

All samples were collected following strict Biogenie sampling procedures. Samples were uniquely labeled 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 inter-laboratory comparison purposes. Both laboratories are situated in Edmonton, Alberta. Inter-laboratory samples were unfortunately lost during transit between Gladman Point and Cambridge Bay and were not analyzed.

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

SOIL SAMPLES

In case of soil samples, only two minor differences in concentrations were noted within the Maxxam metals results when duplicates were compared, and considered to be well within acceptable limits. It should be noted that the majority of individual parameter concentrations were less than five times the MDL. All TPH and PCB concentrations were below the MDL.

GROUNDWATER

In the case of groundwater samples, one blind duplicate sample was submitted for intra-laboratory comparison. The TPH and the PCB results were below the MDL in the intra-lab duplicate comparison. Comparison of intra-lab results (BDW1) for total metals indicate RPDs well within acceptable limits for the majority of parameters, with only slightly higher RPDs for cadmium and chromium.

Results from one field blank indicated all concentrations below the MDL with the exception of copper, lead, nickel and zinc which exhibited trace concentrations of 0.0069 mg/L, 0.0003 mg/L, 0.0026 mg/L and 0.012 mg/L, respectively.

Overall, the soil and groundwater sample results are coherent and within the same range of results for intra-laboratory samples. In general, the reliability of both the soil and groundwater analytical results is considered as good. The laboratory comparisons for TPH and PCBs in groundwater are coherent, whereas the intra-lab comparison for select total metals was outside the acceptable range, suggesting a possible variance in turbidity of the sample.

Maxxam

Calgary: 4000 19st St. NE, T2E 6P8. Ph: (403) 291-3077, Fax: (403) 735-2240, Toll free: (800) 386-7247
Edmonton: 9331 - 48 Street, T6B 2R4. Ph: (780) 577-7100, Fax: (780) 450-4187, Toll free: (877) 465-8889
www.maxxamanalytics.com

Chain of Custody A020232

	Invoice To: C/O Report Address ☐	Report To: Same as Invoice ☒	Report Distribution (E-Mail):	REGULATORY GUIDELINES:
Company:	SILA REMEDIATION INC		jppelletier@biogenie-enc.com	☐ AT1
Contact:	J.P. PELLETIER		apassalis@emts.net	☐ CCME
Address:	4495 WILFRID-HAMEL, SUITE 200			☐ Regulated Drinking Water
	Prov: QUEBEC CITY PC: G1E	Prov: PC:		☐ Other:
Contact #s:	Ph: 418 569-9677 Cell:	Ph: Cell:		

All samples are held for 60 calendar days after sample receipt, unless specified otherwise.

PO #:	
Project # / Name:	CAM-2 LANDFILL MON.
Site Location:	GLADMAN PT, NH
Quote #:	
Sampled By:	A. PASSALIS

SERVICE REQUESTED: ☐ **RUSH** (Contact lab to reserve) Date Required: _____ ☒ REGULAR (5 to 7 Days)

See reverse for package specifics

	Sample ID	Depth (unit)	Matrix GW / SW Soil	Date/Time Sampled YY/MM/DD 24:00	SOIL: BTEX F1-F4	Sieve (75 micron)	Regulated Metals (CCME / AT1)	Salinity 4	Assessment ICP Metals	Basic Class II Landfill	WATER: ☐BTEX F1 ☐VOCs	☐BTEX F1-F2 ☐BTEX F1-F4	☐ Routine Water ☐ Turb ☐ F	☐ TOC ☐ DOC	Regulated Metals (CCME / AT1): Total	Dissolved	Mercury	☐ Total ☐ Dissolved	Other Analysis: F1-F3 (TPH)	PCBs	T. METALS (Cu, Ni, Co, Cr, Cd, Pb, Zn, As, Hg)	HOLD - Do not Analyze	# of Containers Submitted
1	C210 - 1WA		S	10/8/13											*				X	X	X		4
2	- 1WB																		X	X	X		4
3	- 2WA																		X	X	X		4
4	- 2WB																		X	X	X		4
5	- 3WA																		X	X	X		4
6	- 3WB																		X	X	X		4
7	- 4WA																		X	X	X		4
8	- 4WB																		X	X	X		4
9	- 5WA																		X	X	X		4
10	- 5WB																		X	X	X		4
11	- 6WA																		X	X	X		4
12	- 6WB																		X	X	X		4

RETURNED AT DEPOT: AUG 17 2015 TEMP: 15 15 15 1

Please indicate Filtered, Preserved or Both (F, P, F/P) → F/P

Relinquished By (Signature/Print): A. PASSALIS	Date (YY/MM/DD): 10/8/15	Time (24:00):
Relinquished By (Signature/Print):	Date (YY/MM/DD):	Time (24:00):
Special Instructions: REPORT ONLY METALS SPECIFIED	# of Jars Used & Not Submitted	

LAB USE ONLY

Received By: 9709	Date: RECEIVED AUG 18 2015	Time:	Maxxam Job #: CB072933	
Lab Comments:			Custody Seal	Temperature / Ice

Maxxam

Calgary: 4000 19st St NE, T2E 6P8. Ph: (403) 291-3077, Fax: (403) 735-2240, Toll free: (800) 386-7247
Edmonton: 9331 - 48 Street, T6B 2R4. Ph: (780) 577-7100, Fax: (780) 450-4187, Toll free: (877) 465-8889
www.maxxamanalytics.com

Chain of Custody A020233

Page: 2 of 5

	Invoice To: C/O Report Address ☐	Report To: Same as Invoice ☐	Report Distribution (E-Mail):
Company:	SILA REMEDIATION INC		
Contact:			
Address:	Prov: PC:	Prov: PC:	
Contact #s:	Ph: Cell:	Ph: Cell:	

REGULATORY GUIDELINES:
☐ AT1
☐ CCME
☐ Regulated Drinking Water
☐ Other:

All samples are held for 60 calendar days after sample receipt, unless specified otherwise.

PO #:	
Project # / Name:	CAM-2 LANDFILL MON
Site Location:	GLADMAN PT, NU
Quote #:	
Sampled By:	A. PASSALIS

SERVICE REQUESTED: ☐ RUSH (Contact lab to reserve) Date Required: ____ ☒ REGULAR (5 to 7 Days)

See reverse for package specifics

	Sample ID	Depth (unit)	Matrix GW / SW Soil	Date/Time Sampled YY/MM/DD 24:00	SOIL: BTEX F1-F4	Sieve (75 micron)	Regulated Metals (CCME / AT1)	Salinity 4	Assessment ICP Metals	Basic Class II Landfill	WATER: ☐BTEX F1 ☐VOCs	☐BTEX F1-F2 ☐BTEX F1-F4	☐ Routine Water ☐ Turb ☐ F	☐ TOC ☐ DOC	Regulated Metals (CCME / AT1): Total	Dissolved	Mercury	☐ Total ☐ Dissolved	Other Analysis: F1-F3 (TPH)	PCBs	T. METALS (SEE LIST)	HOLD - Do not Analyze	# of Containers Submitted
1	C210-7WA		S	10/8/13															X	X	X		4
2	7WB																		X	X	X		4
3	8WA																		X	X	X		4
4	8WB																		X	X	X		4
5	C210-1A			10/8/14															X	X	X		4
6	1B																		X	X	X		4
7	2A																		X	X	X		4
8	2B																		X	X	X		4
9	3A																		X	X	X		4
10	3B																		X	X	X		4
11	4A																		X	X	X		4
12	4B																		X	X	X		4

ARRIVED AT DEPOT:
AUG 17 2013
TEMP: 5/4/5
Wet @ 8:50

Please indicate Filtered, Preserved or Both (F, P, F/P) → F/P

Relinquished By (Signature/Print): A. PASSALIS	Date (YY/MM/DD): 13/8/15.	Time (24:00):
Relinquished By (Signature/Print):	Date (YY/MM/DD):	Time (24:00):
Special Instructions:	# of Jars Used & Not Submitted	

LAB USE ONLY

Received By:	Date:	Time:	Maxxam Job #: CB072933
0700	RECEIVED AUG 18 2013		Custody Seal / Temperature / Ice
Lab Comments:			

Maxxam

Calgary: 4000 19st St. NE, T2E 6P8. Ph: (403) 291-3077, Fax: (403) 735-2240, Toll free: (800) 386-7247
Edmonton: 9331 - 48 Street, T6B 2R4. Ph: (780) 577-7100, Fax: (780) 450-4187, Toll free: (877) 485-8889
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Chain of Custody A020234

Page: 3 of 5

	Invoice To: C/O Report Address ☐	Report To: Same as Invoice ☐	Report Distribution (E-Mail):
Company:	SLA REMEDIATION		
Contact:			
Address:	Prov: PC:	Prov: PC:	
Contact #s:	Ph: Cell:	Ph: Cell:	

REGULATORY GUIDELINES:
☐ AT1
☐ CCME
☐ Regulated Drinking Water
☐ Other:

All samples are held for 60 calendar days after sample receipt, unless specified otherwise.

PO #:
Project # / Name: CAM-2 LANDFILL MON
Site Location: GLADMAN PT, NU
Quote #:
Sampled By: A. PASSALIS

SERVICE REQUESTED: ☐ RUSH (Contact lab to reserve) Date Required: ____ ☒ REGULAR (5 to 7 Days)

See reverse for package specifics

	Sample ID	Depth (unit)	Matrix GW / SW Soil	Date/Time Sampled YY/MM/DD 24:00	SOIL: BTEX F1-F4	Sieve (75 micron)	Regulated Metals (CCME / AT1)	Salinity 4	Assessment ICP Metals	Basic Class II Landfill	WATER: ☐VOCs ☐BTEX F1	☐BTEX F1-F2	☐BTEX F1-F4	☐ Routine Water ☐ Turb ☐ F	☐ TOC ☐ DOC	Regulated Metals (CCME / AT1) Total	Dissolved	Mercury	☐ Total ☐ Dissolved	Other Analysis: F1 - F3 (TPH)	PCBs	T. METALS (SEE LIST)	HOLD - Do not Analyze	# of Containers Submitted
1	C210-5A		S	10/8/14												*				X	X	X		4
2	5B																			X	X	X		4
3	6A																			X	X	X		4
4	6B																			X	X	X		4
5	7A																			X	X	X		4
6	7B																			X	X	X		4
7	8A																			X	X	X		4
8	8B																			X	X	X		4
9	9A																			X	X	X		4
10	9B																			X	X	X		4
11	10A																			X	X	X		4
12	10B																			X	X	X		4

ARRIVED AT DEPOT:
AUG 17 2010
TEMP 7 7 17 1
Weight 8.50

Please indicate Filtered, Preserved or Both (F, P, F/P) → F/P

Relinquished By (Signature/Print): A PASSALIS	Date (YY/MM/DD): 10/8/15	Time (24:00):
Relinquished By (Signature/Print):	Date (YY/MM/DD):	Time (24:00):
Special Instructions:	# of Jars Used & Not Submitted	

LAB USE ONLY

Received By:	Date:	Time:	Maxxam Job #: CB072933		
			Custody Seal	Temperature	Ice
Lab Comments: 0700	RECEIVED AUG 18 2010				

Maxxam

Calgary: 4000 19st St. NE, T2E 6P8. Ph: (403) 291-3077, Fax: (403) 735-2240, Toll free: (800) 386-7247
Edmonton: 9331 - 48 Street, T6B 2R4. Ph: (780) 577-7100, Fax: (780) 450-4187, Toll free: (877) 485-8889
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Chain of Custody A020235

Page: 4 of 5

	Invoice To: C/O Report Address ☐	Report To: Same as Invoice ☐	Report Distribution (E-Mail):
Company:	SILA REMEDIATION		
Contact:			
Address:			
	Prov: PC:	Prov: PC:	
Contact #s:	Ph: Cell:	Ph: Cell:	

REGULATORY GUIDELINES:
☐ AT1
☐ CCME
☐ Regulated Drinking Water
☐ Other:

All samples are held for 60 calendar days after sample receipt, unless specified otherwise.

PO #:
Project # / Name: CAM-2 LANDFILL MON
Site Location: CLAIRMAN DR, NU
Quote #:
Sampled By: A PASSALIS

SERVICE REQUESTED: ☐ RUSH (Contact lab to reserve) Date Required: ☒ REGULAR (5 to 7 Days)

See reverse for package specifics

	Sample ID	Depth (unit)	Matrix GW / SW Soil	Date/Time Sampled YY/MM/DD 24:00	SOIL: BTEX F1-F4	Sieve (75 micron)	Regulated Metals (CCME / AT1)	Salinity 4	Assessment ICP Metals	Basic Class II Landfill	WATER: ☐BTEX F1 ☐VOCs	☐BTEX F1-F2 ☐BTEX F1-F4	☐ Routine Water ☐ Turb ☐ F	☐ TOC ☐ DOC	Regulated Metals (CCME / AT1) Total	Dissolved	Mercury	☐ Total ☐ Dissolved	Other Analysis: F1-F3 (TPH)	PCBs	T-METALS (SEE LIST)	HOLD - Do not Analyze	# of Containers Submitted
1	C210-11A		S	10/8/14															X	X	X		4
2	11B																		X	X	X		4
3	12A																		X	X	X		4
4	12B																		X	X	X		4
5	13A																		X	X	X		4
6	13B																		X	X	X		4
7	C210-BD1			10/8/13															X	X	X		4
8	BD2			"															X	X	X		4
9	BD3			10/8/14															X	X	X		4
10	BD4			"															X	X	X		4
11	C210-14A																		X	X	X		4
12	14B																		X	X	X		4

ARRIVED AT DEPOT:
AUG 17 2010
TEMP: 9/9/16/
Weight 6.50

Please indicate Filtered, Preserved or Both (F, P, F/P) → F/P

Relinquished By (Signature/Print):	Date (YY/MM/DD):	Time (24:00):
A PASSALIS	10/08/15	
Relinquished By (Signature/Print):	Date (YY/MM/DD):	Time (24:00):

Special Instructions:

# of Jars Used & Not Submitted:

LAB USE ONLY

Received By: 070 Date: RECEIVED AUG 18 2010 Time:
Maxxam Job #: CB072933
Lab Comments:

Custody Seal	Temperature	Ice

Maxxam

Calgary: 4000 19st St. NE, T2E 6P8. Ph: (403) 291-3077, Fax: (403) 735-2240, Toll free: (800) 386-7247
Edmonton: 9331 - 48 Street, T6B 2R4. Ph: (780) 577-7100, Fax: (780) 450-4187, Toll free: (877) 485-8889
www.maxxamanalytics.com

Chain of Custody A020250

Page: 5 of 5

	Invoice To: C/O Report Address ☐	Report To: Same as Invoice ☐	Report Distribution (E-Mail):
Company:	SILA REMEDIATION		
Contact:			
Address:	Prov: PC:	Prov: PC:	
Contact #s:	Ph Cell:	Ph: Cell:	

REGULATORY GUIDELINES:
☐ AT1
☐ CCME
☐ Regulated Drinking Water
☐ Other:

All samples are held for 60 calendar days after sample receipt, unless specified otherwise.

PO #:	
Project # / Name:	CAM-2 LANDFILL MON
Site Location:	GLAISMAN MT, NU
Quote #:	
Sampled By:	A PASSALIS

SERVICE REQUESTED: ☐ RUSH (Contact lab to reserve) Date Required: ____ ☒ REGULAR (5 to 7 Days)

See reverse for package specifics

	Sample ID	Depth (unit)	Matrix GW / SW Soil	Date/Time Sampled YY/MM/DD 24:00	SOIL: BTEX F1-F4	Sieve (75 micron)	Regulated Metals (CCME / AT1)	Salinity 4	Assessment ICP Metals	Basic Class II Landfill	WATER: ☐BTEX F1 ☐VOCs	☐BTEX F1-F2 ☐BTEX F1-F4	☐ Routine Water ☐ Turb ☐ F	☐ TOC ☐ DOC	Regulated Metals (CCME / AT1) Total	Dissolved	Mercury ☐ Total ☐ Dissolved	Other Analysis: F1-F3 (TPH)	PCBs	T. METALS (SEE LIST)	HOLD - Do not Analyze	# of Containers Submitted
1	C210-1W		W	10/8/13														X	X	X		8
2	2W																	X	X	X		8
3	3W																	X	X	X		8
4	4W																	X	X	X		8
5	5W																	X	X	X		8
6	6W																	X	X	X		8
7	7W																	X	X	X		8
8	8W																	X	X	X		8
9	C210-BDW1																	X	X	X		8
10	C210-FB																	X	X	X		8
11	C210-TB																	X	X	X		8
12																		X				5

ARRIVED AT DEPOT: AUG 17 2013

TEMP: 6/5/6/1

8:50

Please indicate Filtered, Preserved or Both (F, P, F/P) → F/P

Relinquished By (Signature/Print): A. PASSALIS	Date (YY/MM/DD): 10/8/15	Time (24:00):
Relinquished By (Signature/Print):	Date (YY/MM/DD):	Time (24:00):
Special Instructions:	# of Jars Used & Not Submitted	

LAB USE ONLY

Received By:	Date:	Time:	Maxxam Job #: CB072933
Lab Comments:			Custody Seal / Temperature / Ice

RECEIVED AUG 16 2013

Your Project #: CAM-2 LANDFILL MON.
Site: GLADMAN PT, NU
Your C.O.C. #: A020232, A020233, A020234, A020235, A020250

Attention: JEAN-PIERRE PELLETIER
SILA REMEDIATION
4495 BL. WILFRED-HAMEL BUR 100
QUEBEC, PQ
CANADA GIP 2T7

Report Date: 2010/08/24

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B072933
Received: 2010/08/17, 8:50

Sample Matrix: Soil
Samples Received: 48

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
BTEX/F1 by HS GC/MS (MeOH extract)	11	2010/08/19	2010/08/20	CAL SOP-00190	EPA 8260C/CCME
BTEX/F1 by HS GC/MS (MeOH extract)	28	2010/08/19	2010/08/21	CAL SOP-00190	EPA 8260C/CCME
BTEX/F1 by HS GC/MS (MeOH extract)	8	2010/08/19	2010/08/22	CAL SOP-00190	EPA 8260C/CCME
BTEX/F1 by HS GC/MS (MeOH extract)	1	2010/08/19	2010/08/23	CAL SOP-00190	EPA 8260C/CCME
CCME Hydrocarbons (F2-F4 in soil)	34	2010/08/20	2010/08/21	CAL SOP-00086 AB WI-00016	CCME PHC-CWS
CCME Hydrocarbons (F2-F4 in soil)	14	2010/08/20	2010/08/22	CAL SOP-00086 AB WI-00016	CCME PHC-CWS
Elements by ICPMS - Soils	23	2010/08/21	2010/08/22	AB SOP-00043	EPA 200.8
Elements by ICPMS - Soils	20	2010/08/21	2010/08/23	AB SOP-00043	EPA 200.8
Elements by ICPMS - Soils	5	2010/08/22	2010/08/23	AB SOP-00043	EPA 200.8
Moisture	36	N/A	2010/08/20	CAL SOP-00023	McKeague MSSMA 2.411
Moisture	12	N/A	2010/08/21	CAL SOP-00023	McKeague MSSMA 2.411
Polychlorinated Biphenyls	12	2010/08/19	2010/08/22	CAL SOP-00149	EPA 3550B, EPA 8082A
Polychlorinated Biphenyls	28	2010/08/19	2010/08/23	CAL SOP-00149	EPA 3550B, EPA 8082A
Polychlorinated Biphenyls	8	2010/08/19	2010/08/24	CAL SOP-00149	EPA 3550B, EPA 8082A

Sample Matrix: Water
Samples Received: 11

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
BTEX/F1 in Water by HS GC/MS	10	N/A	2010/08/20	CAL SOP-00190	EPA 8260 C / CCME
BTEX/F1 in Water by HS GC/MS	1	N/A	2010/08/23	CAL SOP-00190	EPA 8260 C / CCME
CCME Hydrocarbons (F2-F4 in water)	11	2010/08/19	2010/08/20	CAL SOP-00086 AB WI-00017	EPA3510C/CCME PHCCWS
Mercury - Low Level (Total)	10	2010/08/19	2010/08/19	CAL SOP-00007	EPA 1631
Elements by ICP - Total	6	2010/08/20	2010/08/20	AB SOP-00042	EPA 200.7
Elements by ICP - Total	4	2010/08/20	2010/08/21	AB SOP-00042	EPA 200.7
Elements by ICPMS - Total	10	2010/08/20	2010/08/21	AB SOP-00043	EPA 200.8
Polychlorinated Biphenyls	10	2010/08/19	2010/08/22	CAL SOP-00149	EPA 3510C, EPA 8082A

../2

Your Project #: CAM-2 LANDFILL MON.
Site: GLADMAN PT, NU
Your C.O.C. #: A020232, A020233, A020234, A020235, A020250

Attention: JEAN-PIERRE PELLETIER
SILA REMEDIATION
4495 BL. WILFRED-HAMEL BUR 100
QUEBEC, PQ
CANADA GIP 2T7

Report Date: 2010/08/24

CERTIFICATE OF ANALYSIS

Encryption Key

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

LISA MCMANES, Sample Reception Supervisor
Email: lisa.mcmanes@maxxamanalytics.com
Phone# (403) 291-3077

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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.

Total cover pages: 2

Maxxam Job #: B072933
Report Date: 2010/08/24

SILA REMEDIATION
Client Project #: CAM-2 LANDFILL MON.
Site Reference: GLADMAN PT, NU
Sampler Initials: AP

RESULTS OF CHEMICAL ANALYSES OF SOIL

Maxxam ID		W30549	W30550	W30551	W30552	W30563	W30564		
Sampling Date		2010/08/13	2010/08/13	2010/08/13	2010/08/13	2010/08/13	2010/08/13		
COC Number		A020232	A020232	A020232	A020232	A020232	A020232		
	Units	**C210-1WA**	**C210-1WB**	**C210-2WA**	**C210-2WB**	**C210-3WA**	**C210-3WB**	**RDL**	**QC Batch**
Physical Properties									
Moisture	%	5.6	5.8	5.7	9.2	12	11	0.3	4197660

RDL = Reportable Detection Limit

Maxxam ID		W30565	W30566	W30567	W30568	W30574	W30575		
Sampling Date		2010/08/13	2010/08/13	2010/08/13	2010/08/13	2010/08/13	2010/08/13		
COC Number		A020232	A020232	A020232	A020232	A020232	A020232		
	Units	**C210-4WA**	**C210-4WB**	**C210-5WA**	**C210-5WB**	**C210-6WA**	**C210-6WB**	**RDL**	**QC Batch**
Physical Properties									
Moisture	%	8.1	7.8	8.8	11	3.8	7.8	0.3	4197660

RDL = Reportable Detection Limit

Maxxam ID		W30576	W30577	W30578	W30579	W30580	W30581		
Sampling Date		2010/08/13	2010/08/13	2010/08/13	2010/08/13	2010/08/14	2010/08/14		
COC Number		A020233	A020233	A020233	A020233	A020233	A020233		
	Units	**C210-7WA**	**C210-7WB**	**C210-8WA**	**C210-8WB**	**C210-1A**	**C210-1B**	**RDL**	**QC Batch**
Physical Properties									
Moisture	%	9.2	9.0	16	15	16	15	0.3	4197660

RDL = Reportable Detection Limit

Maxxam ID		W30582	W30583	W30584	W30586	W30587	W30588		
Sampling Date		2010/08/14	2010/08/14	2010/08/14	2010/08/14	2010/08/14	2010/08/14		
COC Number		A020233	A020233	A020233	A020233	A020233	A020233		
	Units	**C210-2A**	**C210-2B**	**C210-3A**	**C210-3B**	**C210-4A**	**C210-4B**	**RDL**	**QC Batch**
Physical Properties									
Moisture	%	16	12	52	13	24	11	0.3	4197742

RDL = Reportable Detection Limit

Maxxam Job #: B072933
Report Date: 2010/08/24

SILA REMEDIATION
Client Project #: CAM-2 LANDFILL MON.
Site Reference: GLADMAN PT, NU
Sampler Initials: AP

RESULTS OF CHEMICAL ANALYSES OF SOIL

Maxxam ID		W30589	W30601	W30605	W30606	W30607	W30608		
Sampling Date		2010/08/14	2010/08/14	2010/08/14	2010/08/14	2010/08/14	2010/08/14		
COC Number		A020234	A020234	A020234	A020234	A020234	A020234		
	Units	**C210-5A**	**C210-5B**	**C210-6A**	**C210-6B**	**C210-7A**	**C210-7B**	**RDL**	**QC Batch**
Physical Properties									
Moisture	%	6.4	3.2	5.8	2.9	55	17	0.3	4197742

RDL = Reportable Detection Limit

Maxxam ID		W30609	W30610	W30611	W30612	W30613	W30614		
Sampling Date		2010/08/14	2010/08/14	2010/08/14	2010/08/14	2010/08/14	2010/08/14		
COC Number		A020234	A020234	A020234	A020234	A020234	A020234		
	Units	**C210-8A**	**C210-8B**	**C210-9A**	**C210-9B**	**C210-10A**	**C210-10B**	**RDL**	**QC Batch**
Physical Properties									
Moisture	%	16	17	16	12	3.1	7.3	0.3	4197742

RDL = Reportable Detection Limit

Maxxam ID		W30615	W30618	W30620	W30621	W30622	W30623		
Sampling Date		2010/08/14	2010/08/14	2010/08/14	2010/08/14	2010/08/14	2010/08/14		
COC Number		A020235	A020235	A020235	A020235	A020235	A020235		
	Units	**C210-11A**	**C210-11B**	**C210-12A**	**C210-12B**	**C210-13A**	**C210-13B**	**RDL**	**QC Batch**
Physical Properties									
Moisture	%	22	13	8.3	4.8	19	13	0.3	4198359

RDL = Reportable Detection Limit

Maxxam ID		W30624	W30625	W30626	W30627	W30628	W30632		
Sampling Date		2010/08/13	2010/08/13	2010/08/14	2010/08/14	2010/08/14	2010/08/14		
COC Number		A020235	A020235	A020235	A020235	A020235	A020235		
	Units	**C210-BD1**	**C210-BD2**	**C210-BD3**	**C210-BD4**	**C210-14A**	**C210-14B**	**RDL**	**QC Batch**
Physical Properties									
Moisture	%	4.0	5.8	11	4.1	4.7	6.0	0.3	4198359

RDL = Reportable Detection Limit

Maxxam Job #: B072933
Report Date: 2010/08/24

SILA REMEDIATION
Client Project #: CAM-2 LANDFILL MON.
Site Reference: GLADMAN PT, NU
Sampler Initials: AP

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		W30549	W30550	W30551	W30552	W30563	W30564		
Sampling Date		2010/08/13	2010/08/13	2010/08/13	2010/08/13	2010/08/13	2010/08/13		
COC Number		A020232	A020232	A020232	A020232	A020232	A020232		
	Units	**C210-1WA**	**C210-1WB**	**C210-2WA**	**C210-2WB**	**C210-3WA**	**C210-3WB**	**RDL**	**QC Batch**
Ext. Pet. Hydrocarbon									
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	<10	<10	<10	<10	<10	10	4195362
F3 (C16-C34 Hydrocarbons)	mg/kg	<10	<10	<10	<10	<10	<10	10	4195362
F4 (C34-C50 Hydrocarbons)	mg/kg	<10	<10	<10	<10	<10	<10	10	4195362
Reached Baseline at C50	mg/kg	Yes	Yes	Yes	Yes	Yes	Yes		4195362
Surrogate Recovery (%)									
O-TERPHENYL (sur.)	%	104	103	105	100	102	98		4195362

RDL = Reportable Detection Limit

Maxxam ID		W30565	W30566	W30567	W30568	W30574	W30575		
Sampling Date		2010/08/13	2010/08/13	2010/08/13	2010/08/13	2010/08/13	2010/08/13		
COC Number		A020232	A020232	A020232	A020232	A020232	A020232		
	Units	**C210-4WA**	**C210-4WB**	**C210-5WA**	**C210-5WB**	**C210-6WA**	**C210-6WB**	**RDL**	**QC Batch**
Ext. Pet. Hydrocarbon									
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	<10	<10	<10	<10	<10	10	4195362
F3 (C16-C34 Hydrocarbons)	mg/kg	<10	<10	<10	<10	<10	<10	10	4195362
F4 (C34-C50 Hydrocarbons)	mg/kg	<10	<10	<10	<10	<10	<10	10	4195362
Reached Baseline at C50	mg/kg	Yes	Yes	Yes	Yes	Yes	Yes		4195362
Surrogate Recovery (%)									
O-TERPHENYL (sur.)	%	97	97	104	101	98	110		4195362

RDL = Reportable Detection Limit

Maxxam Job #: B072933
Report Date: 2010/08/24

SILA REMEDIATION
Client Project #: CAM-2 LANDFILL MON.
Site Reference: GLADMAN PT, NU
Sampler Initials: AP

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		W30576	W30577	W30578	W30579	W30580	W30581		
Sampling Date		2010/08/13	2010/08/13	2010/08/13	2010/08/13	2010/08/14	2010/08/14		
COC Number		A020233	A020233	A020233	A020233	A020233	A020233		
	Units	**C210-7WA**	**C210-7WB**	**C210-8WA**	**C210-8WB**	**C210-1A**	**C210-1B**	**RDL**	**QC Batch**
Ext. Pet. Hydrocarbon									
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	<10	<10	<10	<10	<10	10	4195362
F3 (C16-C34 Hydrocarbons)	mg/kg	<10	<10	<10	<10	<10	<10	10	4195362
F4 (C34-C50 Hydrocarbons)	mg/kg	<10	<10	<10	<10	<10	<10	10	4195362
Reached Baseline at C50	mg/kg	Yes	Yes	Yes	Yes	Yes	Yes		4195362
Surrogate Recovery (%)									
O-TERPHENYL (sur.)	%	106	101	98	105	109	103		4195362

RDL = Reportable Detection Limit

Maxxam ID		W30582	W30583			W30584		W30586		
Sampling Date		2010/08/14	2010/08/14			2010/08/14		2010/08/14		
COC Number		A020233	A020233			A020233		A020233		
	Units	**C210-2A**	**C210-2B**	**RDL**	**QC Batch**	**C210-3A**	**RDL**	**C210-3B**	**RDL**	**QC Batch**
Ext. Pet. Hydrocarbon										
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	<10	10	4195362	<20 (1)	20	<10	10	4198064
F3 (C16-C34 Hydrocarbons)	mg/kg	<10	<10	10	4195362	<20 (1)	20	<10	10	4198064
F4 (C34-C50 Hydrocarbons)	mg/kg	<10	<10	10	4195362	<20 (1)	20	<10	10	4198064
Reached Baseline at C50	mg/kg	Yes	Yes		4195362	Yes		Yes		4198064
Surrogate Recovery (%)										
O-TERPHENYL (sur.)	%	106	97		4195362	91		89		4198064

RDL = Reportable Detection Limit
(1) Detection limits raised due to high moisture content. (>50% moisture).

Maxxam Job #: B072933
Report Date: 2010/08/24

SILA REMEDIATION
Client Project #: CAM-2 LANDFILL MON.
Site Reference: GLADMAN PT, NU
Sampler Initials: AP

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		W30587	W30588	W30589	W30601	W30605	W30606		
Sampling Date		2010/08/14	2010/08/14	2010/08/14	2010/08/14	2010/08/14	2010/08/14		
COC Number		A020233	A020233	A020234	A020234	A020234	A020234		
	Units	**C210-4A**	**C210-4B**	**C210-5A**	**C210-5B**	**C210-6A**	**C210-6B**	**RDL**	**QC Batch**
Ext. Pet. Hydrocarbon									
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	<10	<10	<10	<10	<10	10	4198064
F3 (C16-C34 Hydrocarbons)	mg/kg	<10	<10	<10	<10	<10	<10	10	4198064
F4 (C34-C50 Hydrocarbons)	mg/kg	<10	<10	<10	<10	<10	<10	10	4198064
Reached Baseline at C50	mg/kg	Yes	Yes	Yes	Yes	Yes	Yes		4198064
Surrogate Recovery (%)									
O-TERPHENYL (sur.)	%	92	82	82	89	88	89		4198064

RDL = Reportable Detection Limit

Maxxam ID		W30607		W30608	W30609	W30610	W30611		
Sampling Date		2010/08/14		2010/08/14	2010/08/14	2010/08/14	2010/08/14		
COC Number		A020234		A020234	A020234	A020234	A020234		
	Units	**C210-7A**	**RDL**	**C210-7B**	**C210-8A**	**C210-8B**	**C210-9A**	**RDL**	**QC Batch**
Ext. Pet. Hydrocarbon									
F2 (C10-C16 Hydrocarbons)	mg/kg	<20 (1)	20	<10	<10	<10	<10	10	4198064
F3 (C16-C34 Hydrocarbons)	mg/kg	<20 (1)	20	<10	<10	<10	<10	10	4198064
F4 (C34-C50 Hydrocarbons)	mg/kg	<20 (1)	20	<10	<10	<10	<10	10	4198064
Reached Baseline at C50	mg/kg	Yes		Yes	Yes	Yes	Yes		4198064
Surrogate Recovery (%)									
O-TERPHENYL (sur.)	%	94		89	90	84	89		4198064

RDL = Reportable Detection Limit
(1) Detection limits raised due to high moisture content. (>50% moisture).

Maxxam Job #: B072933
Report Date: 2010/08/24

SILA REMEDIATION
Client Project #: CAM-2 LANDFILL MON.
Site Reference: GLADMAN PT, NU
Sampler Initials: AP

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		W30612	W30613	W30614	W30615	W30618	W30620		
Sampling Date		2010/08/14	2010/08/14	2010/08/14	2010/08/14	2010/08/14	2010/08/14		
COC Number		A020234	A020234	A020234	A020235	A020235	A020235		
	Units	**C210-9B**	**C210-10A**	**C210-10B**	**C210-11A**	**C210-11B**	**C210-12A**	**RDL**	**QC Batch**
Ext. Pet. Hydrocarbon									
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	<10	<10	<10	<10	<10	10	4198064
F3 (C16-C34 Hydrocarbons)	mg/kg	<10	<10	<10	<10	<10	<10	10	4198064
F4 (C34-C50 Hydrocarbons)	mg/kg	<10	<10	<10	<10	<10	<10	10	4198064
Reached Baseline at C50	mg/kg	Yes	Yes	Yes	Yes	Yes	Yes		4198064
Surrogate Recovery (%)									
O-TERPHENYL (sur.)	%	88	95	87	89	83	84		4198064

RDL = Reportable Detection Limit

Maxxam ID		W30621	W30622		W30623		W30624		
Sampling Date		2010/08/14	2010/08/14		2010/08/14		2010/08/13		
COC Number		A020235	A020235		A020235		A020235		
	Units	**C210-12B**	**C210-13A**	**QC Batch**	**C210-13B**	**QC Batch**	**C210-BD1**	**RDL**	**QC Batch**
Ext. Pet. Hydrocarbon									
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	<10	4196779	<10	4198064	<10	10	4196779
F3 (C16-C34 Hydrocarbons)	mg/kg	<10	<10	4196779	<10	4198064	<10	10	4196779
F4 (C34-C50 Hydrocarbons)	mg/kg	<10	<10	4196779	<10	4198064	<10	10	4196779
Reached Baseline at C50	mg/kg	Yes	Yes	4196779	Yes	4198064	Yes		4196779
Surrogate Recovery (%)									
O-TERPHENYL (sur.)	%	80	84	4196779	87	4198064	81		4196779

RDL = Reportable Detection Limit

Maxxam Job #: B072933
Report Date: 2010/08/24

SILA REMEDIATION
Client Project #: CAM-2 LANDFILL MON.
Site Reference: GLADMAN PT, NU
Sampler Initials: AP

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		W30625	W30626	W30627	W30628	W30632		
Sampling Date		2010/08/13	2010/08/14	2010/08/14	2010/08/14	2010/08/14		
COC Number		A020235	A020235	A020235	A020235	A020235		
	Units	**C210-BD2**	**C210-BD3**	**C210-BD4**	**C210-14A**	**C210-14B**	**RDL**	**QC Batch**
Ext. Pet. Hydrocarbon								
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	<10	<10	<10	<10	10	4196779
F3 (C16-C34 Hydrocarbons)	mg/kg	<10	<10	<10	<10	<10	10	4196779
F4 (C34-C50 Hydrocarbons)	mg/kg	<10	<10	<10	<10	<10	10	4196779
Reached Baseline at C50	mg/kg	Yes	Yes	Yes	Yes	Yes		4196779
Surrogate Recovery (%)								
O-TERPHENYL (sur.)	%	77	78	73	78	79		4196779

RDL = Reportable Detection Limit

Maxxam Job #: B072933
Report Date: 2010/08/24

SILA REMEDIATION
Client Project #: CAM-2 LANDFILL MON.
Site Reference: GLADMAN PT, NU
Sampler Initials: AP

POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

Maxxam ID		W30549	W30550	W30551	W30552	W30563		
Sampling Date		2010/08/13	2010/08/13	2010/08/13	2010/08/13	2010/08/13		
COC Number		A020232	A020232	A020232	A020232	A020232		
	Units	**C210-1WA**	**C210-1WB**	**C210-2WA**	**C210-2WB**	**C210-3WA**	**RDL**	**QC Batch**
Polychlorinated Biphenyls								
Aroclor 1016	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	4197139
Aroclor 1221	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	4197139
Aroclor 1232	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	4197139
Aroclor 1242	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	4197139
Aroclor 1248	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	4197139
Aroclor 1254	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	4197139
Aroclor 1260	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	4197139
Aroclor 1262	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	4197139
Aroclor 1268	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	4197139
Total Aroclors	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	4197139
Surrogate Recovery (%)								
NONACHLOROBIPHENYL (sur.)	%	78	81	62	79	82		4197139

RDL = Reportable Detection Limit

Maxxam ID		W30564	W30565	W30566	W30567	W30568		
Sampling Date		2010/08/13	2010/08/13	2010/08/13	2010/08/13	2010/08/13		
COC Number		A020232	A020232	A020232	A020232	A020232		
	Units	**C210-3WB**	**C210-4WA**	**C210-4WB**	**C210-5WA**	**C210-5WB**	**RDL**	**QC Batch**
Polychlorinated Biphenyls								
Aroclor 1016	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	4197139
Aroclor 1221	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	4197139
Aroclor 1232	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	4197139
Aroclor 1242	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	4197139
Aroclor 1248	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	4197139
Aroclor 1254	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	4197139
Aroclor 1260	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	4197139
Aroclor 1262	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	4197139
Aroclor 1268	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	4197139
Total Aroclors	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	4197139
Surrogate Recovery (%)								
NONACHLOROBIPHENYL (sur.)	%	84	76	83	71	85		4197139

RDL = Reportable Detection Limit

Maxxam Job #: B072933
Report Date: 2010/08/24

SILA REMEDIATION
Client Project #: CAM-2 LANDFILL MON.
Site Reference: GLADMAN PT, NU
Sampler Initials: AP

POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

Maxxam ID		W30574	W30575	W30576	W30577	W30578		
Sampling Date		2010/08/13	2010/08/13	2010/08/13	2010/08/13	2010/08/13		
COC Number		A020232	A020232	A020233	A020233	A020233		
	Units	**C210-6WA**	**C210-6WB**	**C210-7WA**	**C210-7WB**	**C210-8WA**	**RDL**	**QC Batch**
Polychlorinated Biphenyls								
Aroclor 1016	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	4197139
Aroclor 1221	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	4197139
Aroclor 1232	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	4197139
Aroclor 1242	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	4197139
Aroclor 1248	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	4197139
Aroclor 1254	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	4197139
Aroclor 1260	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	4197139
Aroclor 1262	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	4197139
Aroclor 1268	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	4197139
Total Aroclors	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	4197139
Surrogate Recovery (%)								
NONACHLOROBIPHENYL (sur.)	%	78	84	75	78	84		4197139

RDL = Reportable Detection Limit

Maxxam ID		W30579	W30580	W30581	W30582		W30583		
Sampling Date		2010/08/13	2010/08/14	2010/08/14	2010/08/14		2010/08/14		
COC Number		A020233	A020233	A020233	A020233		A020233		
	Units	**C210-8WB**	**C210-1A**	**C210-1B**	**C210-2A**	**QC Batch**	**C210-2B**	**RDL**	**QC Batch**
Polychlorinated Biphenyls									
Aroclor 1016	mg/kg	<0.010	<0.010	<0.010	<0.010	4197139	<0.010	0.010	4197602
Aroclor 1221	mg/kg	<0.010	<0.010	<0.010	<0.010	4197139	<0.010	0.010	4197602
Aroclor 1232	mg/kg	<0.010	<0.010	<0.010	<0.010	4197139	<0.010	0.010	4197602
Aroclor 1242	mg/kg	<0.010	<0.010	<0.010	<0.010	4197139	<0.010	0.010	4197602
Aroclor 1248	mg/kg	<0.010	<0.010	<0.010	<0.010	4197139	<0.010	0.010	4197602
Aroclor 1254	mg/kg	<0.010	<0.010	<0.010	<0.010	4197139	<0.010	0.010	4197602
Aroclor 1260	mg/kg	<0.010	<0.010	<0.010	<0.010	4197139	<0.010	0.010	4197602
Aroclor 1262	mg/kg	<0.010	<0.010	<0.010	<0.010	4197139	<0.010	0.010	4197602
Aroclor 1268	mg/kg	<0.010	<0.010	<0.010	<0.010	4197139	<0.010	0.010	4197602
Total Aroclors	mg/kg	<0.010	<0.010	<0.010	<0.010	4197139	<0.010	0.010	4197602
Surrogate Recovery (%)									
NONACHLOROBIPHENYL (sur.)	%	79	87	77	89	4197139	79		4197602

RDL = Reportable Detection Limit

Maxxam Job #: B072933
Report Date: 2010/08/24

SILA REMEDIATION
Client Project #: CAM-2 LANDFILL MON.
Site Reference: GLADMAN PT, NU
Sampler Initials: AP

POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

Maxxam ID		W30584		W30586	W30587	W30588	W30589		
Sampling Date		2010/08/14		2010/08/14	2010/08/14	2010/08/14	2010/08/14		
COC Number		A020233		A020233	A020233	A020233	A020234		
	Units	**C210-3A**	**RDL**	**C210-3B**	**C210-4A**	**C210-4B**	**C210-5A**	**RDL**	**QC Batch**
Polychlorinated Biphenyls									
Aroclor 1016	mg/kg	<0.020	0.020	<0.010	<0.010	<0.010	<0.010	0.010	4197602
Aroclor 1221	mg/kg	<0.020	0.020	<0.010	<0.010	<0.010	<0.010	0.010	4197602
Aroclor 1232	mg/kg	<0.020	0.020	<0.010	<0.010	<0.010	<0.010	0.010	4197602
Aroclor 1242	mg/kg	<0.020	0.020	<0.010	<0.010	<0.010	<0.010	0.010	4197602
Aroclor 1248	mg/kg	<0.020	0.020	<0.010	<0.010	<0.010	<0.010	0.010	4197602
Aroclor 1254	mg/kg	<0.020	0.020	<0.010	<0.010	<0.010	<0.010	0.010	4197602
Aroclor 1260	mg/kg	<0.020	0.020	<0.010	<0.010	<0.010	<0.010	0.010	4197602
Aroclor 1262	mg/kg	<0.020	0.020	<0.010	<0.010	<0.010	<0.010	0.010	4197602
Aroclor 1268	mg/kg	<0.020	0.020	<0.010	<0.010	<0.010	<0.010	0.010	4197602
Total Aroclors	mg/kg	<0.020	0.020	<0.010	<0.010	<0.010	<0.010	0.010	4197602
Surrogate Recovery (%)									
NONACHLOROBIPHENYL (sur.)	%	86		72	72	79	78		4197602

RDL = Reportable Detection Limit

Maxxam ID		W30601	W30605	W30606		W30607		
Sampling Date		2010/08/14	2010/08/14	2010/08/14		2010/08/14		
COC Number		A020234	A020234	A020234		A020234		
	Units	**C210-5B**	**C210-6A**	**C210-6B**	**RDL**	**C210-7A**	**RDL**	**QC Batch**
Polychlorinated Biphenyls								
Aroclor 1016	mg/kg	<0.010	<0.010	<0.010	0.010	<0.020	0.020	4197602
Aroclor 1221	mg/kg	<0.010	<0.010	<0.010	0.010	<0.020	0.020	4197602
Aroclor 1232	mg/kg	<0.010	<0.010	<0.010	0.010	<0.020	0.020	4197602
Aroclor 1242	mg/kg	<0.010	<0.010	<0.010	0.010	<0.020	0.020	4197602
Aroclor 1248	mg/kg	<0.010	<0.010	<0.010	0.010	<0.020	0.020	4197602
Aroclor 1254	mg/kg	<0.010	<0.010	<0.010	0.010	<0.020	0.020	4197602
Aroclor 1260	mg/kg	<0.010	<0.010	<0.010	0.010	<0.020	0.020	4197602
Aroclor 1262	mg/kg	<0.010	<0.010	<0.010	0.010	<0.020	0.020	4197602
Aroclor 1268	mg/kg	<0.010	<0.010	<0.010	0.010	<0.020	0.020	4197602
Total Aroclors	mg/kg	<0.010	<0.010	<0.010	0.010	<0.020	0.020	4197602
Surrogate Recovery (%)								
NONACHLOROBIPHENYL (sur.)	%	76	77	78		78		4197602

RDL = Reportable Detection Limit

Maxxam Job #: B072933
Report Date: 2010/08/24

SILA REMEDIATION
Client Project #: CAM-2 LANDFILL MON.
Site Reference: GLADMAN PT, NU
Sampler Initials: AP

POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

Maxxam ID		W30608	W30609	W30610	W30611	W30612		
Sampling Date		2010/08/14	2010/08/14	2010/08/14	2010/08/14	2010/08/14		
COC Number		A020234	A020234	A020234	A020234	A020234		
	Units	**C210-7B**	**C210-8A**	**C210-8B**	**C210-9A**	**C210-9B**	**RDL**	**QC Batch**
Polychlorinated Biphenyls								
Aroclor 1016	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	4197602
Aroclor 1221	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	4197602
Aroclor 1232	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	4197602
Aroclor 1242	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	4197602
Aroclor 1248	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	4197602
Aroclor 1254	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	4197602
Aroclor 1260	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	4197602
Aroclor 1262	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	4197602
Aroclor 1268	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	4197602
Total Aroclors	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	4197602
Surrogate Recovery (%)								
NONACHLOROBIPHENYL (sur.)	%	67	80	78	69	73		4197602

RDL = Reportable Detection Limit

Maxxam ID		W30613	W30614	W30615	W30618	W30620		
Sampling Date		2010/08/14	2010/08/14	2010/08/14	2010/08/14	2010/08/14		
COC Number		A020234	A020234	A020235	A020235	A020235		
	Units	**C210-10A**	**C210-10B**	**C210-11A**	**C210-11B**	**C210-12A**	**RDL**	**QC Batch**
Polychlorinated Biphenyls								
Aroclor 1016	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	4197602
Aroclor 1221	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	4197602
Aroclor 1232	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	4197602
Aroclor 1242	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	4197602
Aroclor 1248	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	4197602
Aroclor 1254	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	4197602
Aroclor 1260	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	4197602
Aroclor 1262	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	4197602
Aroclor 1268	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	4197602
Total Aroclors	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	4197602
Surrogate Recovery (%)								
NONACHLOROBIPHENYL (sur.)	%	69	78	85	81	69		4197602

RDL = Reportable Detection Limit

Maxxam Job #: B072933
Report Date: 2010/08/24

SILA REMEDIATION
Client Project #: CAM-2 LANDFILL MON.
Site Reference: GLADMAN PT, NU
Sampler Initials: AP

POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

Maxxam ID		W30621	W30622	W30623	W30624	W30625		
Sampling Date		2010/08/14	2010/08/14	2010/08/14	2010/08/13	2010/08/13		
COC Number		A020235	A020235	A020235	A020235	A020235		
	Units	**C210-12B**	**C210-13A**	**C210-13B**	**C210-BD1**	**C210-BD2**	**RDL**	**QC Batch**
Polychlorinated Biphenyls								
Aroclor 1016	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	4198408
Aroclor 1221	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	4198408
Aroclor 1232	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	4198408
Aroclor 1242	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	4198408
Aroclor 1248	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	4198408
Aroclor 1254	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	4198408
Aroclor 1260	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	4198408
Aroclor 1262	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	4198408
Aroclor 1268	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	4198408
Total Aroclors	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	4198408
Surrogate Recovery (%)								
NONACHLOROBIPHENYL (sur.)	%	72	79	75	79	49		4198408

RDL = Reportable Detection Limit

Maxxam ID		W30626	W30627	W30628	W30632		
Sampling Date		2010/08/14	2010/08/14	2010/08/14	2010/08/14		
COC Number		A020235	A020235	A020235	A020235		
	Units	**C210-BD3**	**C210-BD4**	**C210-14A**	**C210-14B**	**RDL**	**QC Batch**
Polychlorinated Biphenyls							
Aroclor 1016	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	4198408
Aroclor 1221	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	4198408
Aroclor 1232	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	4198408
Aroclor 1242	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	4198408
Aroclor 1248	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	4198408
Aroclor 1254	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	4198408
Aroclor 1260	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	4198408
Aroclor 1262	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	4198408
Aroclor 1268	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	4198408
Total Aroclors	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	4198408
Surrogate Recovery (%)							
NONACHLOROBIPHENYL (sur.)	%	76	77	76	74		4198408

RDL = Reportable Detection Limit

Maxxam Job #: B072933
Report Date: 2010/08/24

SILA REMEDIATION
Client Project #: CAM-2 LANDFILL MON.
Site Reference: GLADMAN PT, NU
Sampler Initials: AP

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		W30549	W30550	W30551	W30552	W30563	W30564		
Sampling Date		2010/08/13	2010/08/13	2010/08/13	2010/08/13	2010/08/13	2010/08/13		
COC Number		A020232	A020232	A020232	A020232	A020232	A020232		
	Units	**C210-1WA**	**C210-1WB**	**C210-2WA**	**C210-2WB**	**C210-3WA**	**C210-3WB**	**RDL**	**QC Batch**
Elements									
Total Arsenic (As)	mg/kg	1	<1	1	<1	<1	1	1	4198220
Total Cadmium (Cd)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	4198220
Total Chromium (Cr)	mg/kg	4	3	6	5	4	5	1	4198220
Total Cobalt (Co)	mg/kg	1	1	2	2	<1	2	1	4198220
Total Copper (Cu)	mg/kg	<5	<5	<5	<5	<5	<5	5	4198220
Total Lead (Pb)	mg/kg	3	2	5	2	2	4	1	4198220
Total Mercury (Hg)	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	4198220
Total Nickel (Ni)	mg/kg	2	2	4	3	2	3	1	4198220
Total Zinc (Zn)	mg/kg	<10	<10	<10	<10	<10	<10	10	4198220

RDL = Reportable Detection Limit

Maxxam ID		W30565	W30566	W30567	W30568	W30574	W30575		
Sampling Date		2010/08/13	2010/08/13	2010/08/13	2010/08/13	2010/08/13	2010/08/13		
COC Number		A020232	A020232	A020232	A020232	A020232	A020232		
	Units	**C210-4WA**	**C210-4WB**	**C210-5WA**	**C210-5WB**	**C210-6WA**	**C210-6WB**	**RDL**	**QC Batch**
Elements									
Total Arsenic (As)	mg/kg	1	<1	2	2	<1	2	1	4198220
Total Cadmium (Cd)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	4198220
Total Chromium (Cr)	mg/kg	6	4	9	9	2	8	1	4198220
Total Cobalt (Co)	mg/kg	1	1	3	3	<1	3	1	4198220
Total Copper (Cu)	mg/kg	<5	<5	9	7	<5	11	5	4198220
Total Lead (Pb)	mg/kg	2	2	6	6	<1	6	1	4198220
Total Mercury (Hg)	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	4198220
Total Nickel (Ni)	mg/kg	2	2	6	5	1	5	1	4198220
Total Zinc (Zn)	mg/kg	<10	<10	12	<10	<10	11	10	4198220

RDL = Reportable Detection Limit

Maxxam Job #: B072933
Report Date: 2010/08/24

SILA REMEDIATION
Client Project #: CAM-2 LANDFILL MON.
Site Reference: GLADMAN PT, NU
Sampler Initials: AP

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		W30576	W30577	W30578	W30579	W30580	W30581		
Sampling Date		2010/08/13	2010/08/13	2010/08/13	2010/08/13	2010/08/14	2010/08/14		
COC Number		A020233	A020233	A020233	A020233	A020233	A020233		
	Units	**C210-7WA**	**C210-7WB**	**C210-8WA**	**C210-8WB**	**C210-1A**	**C210-1B**	**RDL**	**QC Batch**
Elements									
Total Arsenic (As)	mg/kg	2	2	2	2	<1	3	1	4198220
Total Cadmium (Cd)	mg/kg	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	0.1	4198220
Total Chromium (Cr)	mg/kg	11	11	8	9	5	11	1	4198220
Total Cobalt (Co)	mg/kg	3	3	2	2	1	2	1	4198220
Total Copper (Cu)	mg/kg	11	7	22	7	<5	13	5	4198220
Total Lead (Pb)	mg/kg	5	5	5	5	3	6	1	4198220
Total Mercury (Hg)	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	4198220
Total Nickel (Ni)	mg/kg	7	7	5	4	3	6	1	4198220
Total Zinc (Zn)	mg/kg	12	12	12	<10	<10	13	10	4198220

RDL = Reportable Detection Limit

Maxxam ID		W30582	W30583		W30584	W30586	W30587	W30588		
Sampling Date		2010/08/14	2010/08/14		2010/08/14	2010/08/14	2010/08/14	2010/08/14		
COC Number		A020233	A020233		A020233	A020233	A020233	A020233		
	Units	**C210-2A**	**C210-2B**	**QC Batch**	**C210-3A**	**C210-3B**	**C210-4A**	**C210-4B**	**RDL**	**QC Batch**
Elements										
Total Arsenic (As)	mg/kg	<1	1	4198220	1	1	<1	<1	1	4198248
Total Cadmium (Cd)	mg/kg	<0.1	<0.1	4198220	0.2	<0.1	<0.1	<0.1	0.1	4198248
Total Chromium (Cr)	mg/kg	4	5	4198220	4	4	3	3	1	4198248
Total Cobalt (Co)	mg/kg	<1	1	4198220	2	1	<1	<1	1	4198248
Total Copper (Cu)	mg/kg	<5	<5	4198220	9	<5	<5	<5	5	4198248
Total Lead (Pb)	mg/kg	2	3	4198220	2	3	2	2	1	4198248
Total Mercury (Hg)	mg/kg	<0.05	<0.05	4198220	<0.05	<0.05	<0.05	<0.05	0.05	4198248
Total Nickel (Ni)	mg/kg	2	2	4198220	4	2	2	2	1	4198248
Total Zinc (Zn)	mg/kg	<10	<10	4198220	<10	<10	<10	<10	10	4198248

RDL = Reportable Detection Limit

Maxxam Job #: B072933
Report Date: 2010/08/24

SILA REMEDIATION
Client Project #: CAM-2 LANDFILL MON.
Site Reference: GLADMAN PT, NU
Sampler Initials: AP

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		W30589	W30601	W30605	W30606	W30607	W30608		
Sampling Date		2010/08/14	2010/08/14	2010/08/14	2010/08/14	2010/08/14	2010/08/14		
COC Number		A020234	A020234	A020234	A020234	A020234	A020234		
	Units	**C210-5A**	**C210-5B**	**C210-6A**	**C210-6B**	**C210-7A**	**C210-7B**	**RDL**	**QC Batch**
Elements									
Total Arsenic (As)	mg/kg	<1	1	<1	<1	<1	<1	1	4198248
Total Cadmium (Cd)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	4198248
Total Chromium (Cr)	mg/kg	3	4	3	2	4	3	1	4198248
Total Cobalt (Co)	mg/kg	1	1	<1	<1	<1	<1	1	4198248
Total Copper (Cu)	mg/kg	<5	7	<5	<5	7	<5	5	4198248
Total Lead (Pb)	mg/kg	2	3	1	1	2	1	1	4198248
Total Mercury (Hg)	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	4198248
Total Nickel (Ni)	mg/kg	2	2	1	1	2	1	1	4198248
Total Zinc (Zn)	mg/kg	<10	<10	<10	<10	<10	<10	10	4198248

RDL = Reportable Detection Limit

Maxxam ID		W30609	W30610	W30611	W30612	W30613	W30614		
Sampling Date		2010/08/14	2010/08/14	2010/08/14	2010/08/14	2010/08/14	2010/08/14		
COC Number		A020234	A020234	A020234	A020234	A020234	A020234		
	Units	**C210-8A**	**C210-8B**	**C210-9A**	**C210-9B**	**C210-10A**	**C210-10B**	**RDL**	**QC Batch**
Elements									
Total Arsenic (As)	mg/kg	1	3	1	3	<1	2	1	4198248
Total Cadmium (Cd)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	4198248
Total Chromium (Cr)	mg/kg	4	19	4	13	4	8	1	4198248
Total Cobalt (Co)	mg/kg	1	5	1	3	1	3	1	4198248
Total Copper (Cu)	mg/kg	<5	18	<5	12	<5	14	5	4198248
Total Lead (Pb)	mg/kg	2	10	2	5	2	6	1	4198248
Total Mercury (Hg)	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	4198248
Total Nickel (Ni)	mg/kg	2	11	2	6	2	5	1	4198248
Total Zinc (Zn)	mg/kg	<10	28	<10	17	<10	13	10	4198248

RDL = Reportable Detection Limit

Maxxam Job #: B072933
Report Date: 2010/08/24

SILA REMEDIATION
Client Project #: CAM-2 LANDFILL MON.
Site Reference: GLADMAN PT, NU
Sampler Initials: AP

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		W30615	W30618	W30620	W30621		W30622	W30623		
Sampling Date		2010/08/14	2010/08/14	2010/08/14	2010/08/14		2010/08/14	2010/08/14		
COC Number		A020235	A020235	A020235	A020235		A020235	A020235		
	Units	**C210-11A**	**C210-11B**	**C210-12A**	**C210-12B**	**QC Batch**	**C210-13A**	**C210-13B**	**RDL**	**QC Batch**
Elements										
Total Arsenic (As)	mg/kg	<1	<1	<1	<1	4198248	<1	2	1	4198247
Total Cadmium (Cd)	mg/kg	<0.1	<0.1	<0.1	<0.1	4198248	<0.1	<0.1	0.1	4198247
Total Chromium (Cr)	mg/kg	2	3	2	3	4198248	6	18	1	4198247
Total Cobalt (Co)	mg/kg	<1	<1	<1	<1	4198248	1	5	1	4198247
Total Copper (Cu)	mg/kg	<5	<5	<5	<5	4198248	<5	12	5	4198247
Total Lead (Pb)	mg/kg	<1	1	<1	1	4198248	2	9	1	4198247
Total Mercury (Hg)	mg/kg	<0.05	<0.05	<0.05	<0.05	4198248	<0.05	<0.05	0.05	4198247
Total Nickel (Ni)	mg/kg	1	2	1	2	4198248	3	10	1	4198247
Total Zinc (Zn)	mg/kg	<10	<10	<10	<10	4198248	<10	24	10	4198247

RDL = Reportable Detection Limit

Maxxam ID		W30624		W30625	W30626	W30627	W30628	W30632		
Sampling Date		2010/08/13		2010/08/13	2010/08/14	2010/08/14	2010/08/14	2010/08/14		
COC Number		A020235		A020235	A020235	A020235	A020235	A020235		
	Units	**C210-BD1**	**QC Batch**	**C210-BD2**	**C210-BD3**	**C210-BD4**	**C210-14A**	**C210-14B**	**RDL**	**QC Batch**
Elements										
Total Arsenic (As)	mg/kg	<1	4198247	1	<1	<1	<1	1	1	4198665
Total Cadmium (Cd)	mg/kg	<0.1	4198247	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	4198665
Total Chromium (Cr)	mg/kg	2	4198247	6	3	3	3	5	1	4198665
Total Cobalt (Co)	mg/kg	<1	4198247	2	<1	1	<1	2	1	4198665
Total Copper (Cu)	mg/kg	<5	4198247	7	<5	<5	<5	10	5	4198665
Total Lead (Pb)	mg/kg	1	4198247	5	2	2	2	4	1	4198665
Total Mercury (Hg)	mg/kg	<0.05	4198247	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	4198665
Total Nickel (Ni)	mg/kg	1	4198247	3	2	2	2	3	1	4198665
Total Zinc (Zn)	mg/kg	<10	4198247	<10	<10	<10	<10	<10	10	4198665

RDL = Reportable Detection Limit

Maxxam Job #: B072933
Report Date: 2010/08/24

SILA REMEDIATION
Client Project #: CAM-2 LANDFILL MON.
Site Reference: GLADMAN PT, NU
Sampler Initials: AP

VOLATILE ORGANICS BY GC-MS (SOIL)

Maxxam ID		W30549	W30550	W30551	W30552	W30563		
Sampling Date		2010/08/13	2010/08/13	2010/08/13	2010/08/13	2010/08/13		
COC Number		A020232	A020232	A020232	A020232	A020232		
	Units	**C210-1WA**	**C210-1WB**	**C210-2WA**	**C210-2WB**	**C210-3WA**	**RDL**	**QC Batch**
Volatiles								
Benzene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	4194327
Toluene	mg/kg	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	4194327
Ethylbenzene	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	4194327
Xylenes (Total)	mg/kg	<0.040	<0.040	<0.040	<0.040	<0.040	0.040	4194327
m & p-Xylene	mg/kg	<0.040	<0.040	<0.040	<0.040	<0.040	0.040	4194327
o-Xylene	mg/kg	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	4194327
F1 (C6-C10) - BTEX	mg/kg	<12	<12	<12	<12	<12	12	4194327
(C6-C10)	mg/kg	<12	<12	<12	<12	<12	12	4194327
Surrogate Recovery (%)								
4-BROMOFLUOROBENZENE (sur.)	%	91	92	91	91	90		4194327
D10-ETHYLBENZENE (sur.)	%	90	88	91	89	90		4194327
D4-1,2-DICHLOROETHANE (sur.)	%	106	105	101	107	105		4194327
D8-TOLUENE (sur.)	%	100	98	100	99	99		4194327

RDL = Reportable Detection Limit

Maxxam Job #: B072933
Report Date: 2010/08/24

SILA REMEDIATION
Client Project #: CAM-2 LANDFILL MON.
Site Reference: GLADMAN PT, NU
Sampler Initials: AP

VOLATILE ORGANICS BY GC-MS (SOIL)

Maxxam ID		W30564	W30565	W30566	W30567	W30568		
Sampling Date		2010/08/13	2010/08/13	2010/08/13	2010/08/13	2010/08/13		
COC Number		A020232	A020232	A020232	A020232	A020232		
	Units	**C210-3WB**	**C210-4WA**	**C210-4WB**	**C210-5WA**	**C210-5WB**	**RDL**	**QC Batch**
Volatiles								
Benzene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	4194327
Toluene	mg/kg	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	4194327
Ethylbenzene	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	4194327
Xylenes (Total)	mg/kg	<0.040	<0.040	<0.040	<0.040	<0.040	0.040	4194327
m & p-Xylene	mg/kg	<0.040	<0.040	<0.040	<0.040	<0.040	0.040	4194327
o-Xylene	mg/kg	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	4194327
F1 (C6-C10) - BTEX	mg/kg	<12	<12	<12	<12	<12	12	4194327
(C6-C10)	mg/kg	<12	<12	<12	<12	<12	12	4194327
Surrogate Recovery (%)								
4-BROMOFLUOROBENZENE (sur.)	%	91	85	90	91	92		4194327
D10-ETHYLBENZENE (sur.)	%	88	89	90	87	87		4194327
D4-1,2-DICHLOROETHANE (sur.)	%	106	95	110	110	108		4194327
D8-TOLUENE (sur.)	%	97	119	99	96	97		4194327

RDL = Reportable Detection Limit

Maxxam Job #: B072933
Report Date: 2010/08/24

SILA REMEDIATION
Client Project #: CAM-2 LANDFILL MON.
Site Reference: GLADMAN PT, NU
Sampler Initials: AP

VOLATILE ORGANICS BY GC-MS (SOIL)

Maxxam ID		W30574	W30575	W30576	W30577	W30578		
Sampling Date		2010/08/13	2010/08/13	2010/08/13	2010/08/13	2010/08/13		
COC Number		A020232	A020232	A020233	A020233	A020233		
	Units	**C210-6WA**	**C210-6WB**	**C210-7WA**	**C210-7WB**	**C210-8WA**	**RDL**	**QC Batch**
Volatiles								
Benzene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	4194327
Toluene	mg/kg	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	4194327
Ethylbenzene	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	4194327
Xylenes (Total)	mg/kg	<0.040	<0.040	<0.040	<0.040	<0.040	0.040	4194327
m & p-Xylene	mg/kg	<0.040	<0.040	<0.040	<0.040	<0.040	0.040	4194327
o-Xylene	mg/kg	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	4194327
F1 (C6-C10) - BTEX	mg/kg	<12	<12	<12	<12	<12	12	4194327
(C6-C10)	mg/kg	<12	<12	<12	<12	<12	12	4194327
Surrogate Recovery (%)								
4-BROMOFLUOROBENZENE (sur.)	%	90	95	92	91	91		4194327
D10-ETHYLBENZENE (sur.)	%	89	86	88	89	88		4194327
D4-1,2-DICHLOROETHANE (sur.)	%	109	110	108	108	110		4194327
D8-TOLUENE (sur.)	%	99	95	97	98	97		4194327

RDL = Reportable Detection Limit

Maxxam Job #: B072933
Report Date: 2010/08/24

SILA REMEDIATION
Client Project #: CAM-2 LANDFILL MON.
Site Reference: GLADMAN PT, NU
Sampler Initials: AP

VOLATILE ORGANICS BY GC-MS (SOIL)

Maxxam ID		W30579	W30580	W30581	W30582	W30583		
Sampling Date		2010/08/13	2010/08/14	2010/08/14	2010/08/14	2010/08/14		
COC Number		A020233	A020233	A020233	A020233	A020233		
	Units	**C210-8WB**	**C210-1A**	**C210-1B**	**C210-2A**	**C210-2B**	**RDL**	**QC Batch**
Volatiles								
Benzene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	4194327
Toluene	mg/kg	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	4194327
Ethylbenzene	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	4194327
Xylenes (Total)	mg/kg	<0.040	<0.040	<0.040	<0.040	<0.040	0.040	4194327
m & p-Xylene	mg/kg	<0.040	<0.040	<0.040	<0.040	<0.040	0.040	4194327
o-Xylene	mg/kg	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	4194327
F1 (C6-C10) - BTEX	mg/kg	<12	<12	<12	<12	<12	12	4194327
(C6-C10)	mg/kg	<12	<12	<12	<12	<12	12	4194327
Surrogate Recovery (%)								
4-BROMOFLUOROBENZENE (sur.)	%	90	90	91	91	92		4194327
D10-ETHYLBENZENE (sur.)	%	88	89	88	87	87		4194327
D4-1,2-DICHLOROETHANE (sur.)	%	112	111	111	109	109		4194327
D8-TOLUENE (sur.)	%	97	98	97	96	96		4194327

RDL = Reportable Detection Limit

Maxxam Job #: B072933
Report Date: 2010/08/24

SILA REMEDIATION
Client Project #: CAM-2 LANDFILL MON.
Site Reference: GLADMAN PT, NU
Sampler Initials: AP

VOLATILE ORGANICS BY GC-MS (SOIL)

Maxxam ID		W30584		W30586	W30587	W30588	W30589		
Sampling Date		2010/08/14		2010/08/14	2010/08/14	2010/08/14	2010/08/14		
COC Number		A020233		A020233	A020233	A020233	A020234		
	Units	**C210-3A**	**RDL**	**C210-3B**	**C210-4A**	**C210-4B**	**C210-5A**	**RDL**	**QC Batch**
Volatiles									
Benzene	mg/kg	<0.025	0.025	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	4194328
Toluene	mg/kg	<0.10	0.10	<0.020	<0.020	<0.020	<0.020	0.020	4194328
Ethylbenzene	mg/kg	<0.050	0.050	<0.010	<0.010	<0.010	<0.010	0.010	4194328
Xylenes (Total)	mg/kg	<0.20	0.20	<0.040	<0.040	<0.040	<0.040	0.040	4194328
m & p-Xylene	mg/kg	<0.20	0.20	<0.040	<0.040	<0.040	<0.040	0.040	4194328
o-Xylene	mg/kg	<0.10	0.10	<0.020	<0.020	<0.020	<0.020	0.020	4194328
F1 (C6-C10) - BTEX	mg/kg	<61	61	<12	<12	<12	<12	12	4194328
(C6-C10)	mg/kg	<61	61	<12	<12	<12	<12	12	4194328
Surrogate Recovery (%)									
4-BROMOFLUOROBENZENE (sur.)	%	84		89	85	81	88		4194328
D10-ETHYLBENZENE (sur.)	%	73		89	81	92	93		4194328
D4-1,2-DICHLOROETHANE (sur.)	%	102		102	103	100	104		4194328
D8-TOLUENE (sur.)	%	113		112	113	110	112		4194328

RDL = Reportable Detection Limit

Maxxam Job #: B072933
Report Date: 2010/08/24

SILA REMEDIATION
Client Project #: CAM-2 LANDFILL MON.
Site Reference: GLADMAN PT, NU
Sampler Initials: AP

VOLATILE ORGANICS BY GC-MS (SOIL)

Maxxam ID		W30601	W30605	W30606		W30607		
Sampling Date		2010/08/14	2010/08/14	2010/08/14		2010/08/14		
COC Number		A020234	A020234	A020234		A020234		
	Units	**C210-5B**	**C210-6A**	**C210-6B**	**RDL**	**C210-7A**	**RDL**	**QC Batch**
Volatiles								
Benzene	mg/kg	<0.0050	<0.0050	<0.0050	0.0050	<0.025	0.025	4194328
Toluene	mg/kg	<0.020	<0.020	<0.020	0.020	<0.10	0.10	4194328
Ethylbenzene	mg/kg	<0.010	<0.010	<0.010	0.010	<0.050	0.050	4194328
Xylenes (Total)	mg/kg	<0.040	<0.040	<0.040	0.040	<0.20	0.20	4194328
m & p-Xylene	mg/kg	<0.040	<0.040	<0.040	0.040	<0.20	0.20	4194328
o-Xylene	mg/kg	<0.020	<0.020	<0.020	0.020	<0.10	0.10	4194328
F1 (C6-C10) - BTEX	mg/kg	<12	<12	<12	12	<61	61	4194328
(C6-C10)	mg/kg	<12	<12	<12	12	<61	61	4194328
Surrogate Recovery (%)								
4-BROMOFLUOROBENZENE (sur.)	%	88	89	90		87		4194328
D10-ETHYLBENZENE (sur.)	%	97	97	96		70		4194328
D4-1,2-DICHLOROETHANE (sur.)	%	104	103	106		104		4194328
D8-TOLUENE (sur.)	%	112	110	115		110		4194328

RDL = Reportable Detection Limit

Maxxam Job #: B072933
Report Date: 2010/08/24

SILA REMEDIATION
Client Project #: CAM-2 LANDFILL MON.
Site Reference: GLADMAN PT, NU
Sampler Initials: AP

VOLATILE ORGANICS BY GC-MS (SOIL)

Maxxam ID		W30608	W30609	W30610	W30611	W30612		
Sampling Date		2010/08/14	2010/08/14	2010/08/14	2010/08/14	2010/08/14		
COC Number		A020234	A020234	A020234	A020234	A020234		
	Units	**C210-7B**	**C210-8A**	**C210-8B**	**C210-9A**	**C210-9B**	**RDL**	**QC Batch**
Volatiles								
Benzene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	4194328
Toluene	mg/kg	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	4194328
Ethylbenzene	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	4194328
Xylenes (Total)	mg/kg	<0.040	<0.040	<0.040	<0.040	<0.040	0.040	4194328
m & p-Xylene	mg/kg	<0.040	<0.040	<0.040	<0.040	<0.040	0.040	4194328
o-Xylene	mg/kg	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	4194328
F1 (C6-C10) - BTEX	mg/kg	<12	<12	<12	<12	<12	12	4194328
(C6-C10)	mg/kg	<12	<12	<12	<12	<12	12	4194328
Surrogate Recovery (%)								
4-BROMOFLUOROBENZENE (sur.)	%	87	91	88	88	88		4194328
D10-ETHYLBENZENE (sur.)	%	86	90	93	94	81		4194328
D4-1,2-DICHLOROETHANE (sur.)	%	104	105	102	107	99		4194328
D8-TOLUENE (sur.)	%	109	113	108	108	110		4194328

RDL = Reportable Detection Limit

Maxxam Job #: B072933
Report Date: 2010/08/24

SILA REMEDIATION
Client Project #: CAM-2 LANDFILL MON.
Site Reference: GLADMAN PT, NU
Sampler Initials: AP

VOLATILE ORGANICS BY GC-MS (SOIL)

Maxxam ID		W30613	W30614	W30615	W30618	W30620		
Sampling Date		2010/08/14	2010/08/14	2010/08/14	2010/08/14	2010/08/14		
COC Number		A020234	A020234	A020235	A020235	A020235		
	Units	**C210-10A**	**C210-10B**	**C210-11A**	**C210-11B**	**C210-12A**	**RDL**	**QC Batch**
Volatiles								
Benzene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	4194328
Toluene	mg/kg	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	4194328
Ethylbenzene	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	4194328
Xylenes (Total)	mg/kg	<0.040	<0.040	<0.040	<0.040	<0.040	0.040	4194328
m & p-Xylene	mg/kg	<0.040	<0.040	<0.040	<0.040	<0.040	0.040	4194328
o-Xylene	mg/kg	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	4194328
F1 (C6-C10) - BTEX	mg/kg	<12	<12	<12	<12	<12	12	4194328
(C6-C10)	mg/kg	<12	<12	<12	<12	<12	12	4194328
Surrogate Recovery (%)								
4-BROMOFLUOROBENZENE (sur.)	%	84	89	88	88	87		4194328
D10-ETHYLBENZENE (sur.)	%	83	80	77	82	82		4194328
D4-1,2-DICHLOROETHANE (sur.)	%	100	97	99	102	101		4194328
D8-TOLUENE (sur.)	%	108	107	109	107	108		4194328

RDL = Reportable Detection Limit

Maxxam Job #: B072933
Report Date: 2010/08/24

SILA REMEDIATION
Client Project #: CAM-2 LANDFILL MON.
Site Reference: GLADMAN PT, NU
Sampler Initials: AP

VOLATILE ORGANICS BY GC-MS (SOIL)

Maxxam ID		W30621		W30622	W30623	W30624		
Sampling Date		2010/08/14		2010/08/14	2010/08/14	2010/08/13		
COC Number		A020235		A020235	A020235	A020235		
	Units	**C210-12B**	**QC Batch**	**C210-13A**	**C210-13B**	**C210-BD1**	**RDL**	**QC Batch**
Volatiles								
Benzene	mg/kg	<0.0050	4194328	<0.0050	<0.0050	<0.0050	0.0050	4194330
Toluene	mg/kg	<0.020	4194328	<0.020	<0.020	<0.020	0.020	4194330
Ethylbenzene	mg/kg	<0.010	4194328	<0.010	<0.010	<0.010	0.010	4194330
Xylenes (Total)	mg/kg	<0.040	4194328	<0.040	<0.040	<0.040	0.040	4194330
m & p-Xylene	mg/kg	<0.040	4194328	<0.040	<0.040	<0.040	0.040	4194330
o-Xylene	mg/kg	<0.020	4194328	<0.020	<0.020	<0.020	0.020	4194330
F1 (C6-C10) - BTEX	mg/kg	<12	4194328	<12	<12	<12	12	4194330
(C6-C10)	mg/kg	<12	4194328	<12	<12	<12	12	4194330
Surrogate Recovery (%)								
4-BROMOFLUOROBENZENE (sur.)	%	88	4194328	87	81	82		4194330
D10-ETHYLBENZENE (sur.)	%	84	4194328	72	82	83		4194330
D4-1,2-DICHLOROETHANE (sur.)	%	100	4194328	95	104	95		4194330
D8-TOLUENE (sur.)	%	107	4194328	113	127	118		4194330

RDL = Reportable Detection Limit

Maxxam Job #: B072933
Report Date: 2010/08/24

SILA REMEDIATION
Client Project #: CAM-2 LANDFILL MON.
Site Reference: GLADMAN PT, NU
Sampler Initials: AP

VOLATILE ORGANICS BY GC-MS (SOIL)

Maxxam ID		W30625	W30626	W30627	W30628	W30632		
Sampling Date		2010/08/13	2010/08/14	2010/08/14	2010/08/14	2010/08/14		
COC Number		A020235	A020235	A020235	A020235	A020235		
	Units	**C210-BD2**	**C210-BD3**	**C210-BD4**	**C210-14A**	**C210-14B**	**RDL**	**QC Batch**
Volatiles								
Benzene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	4194330
Toluene	mg/kg	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	4194330
Ethylbenzene	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	4194330
Xylenes (Total)	mg/kg	<0.040	<0.040	<0.040	<0.040	<0.040	0.040	4194330
m & p-Xylene	mg/kg	<0.040	<0.040	<0.040	<0.040	<0.040	0.040	4194330
o-Xylene	mg/kg	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	4194330
F1 (C6-C10) - BTEX	mg/kg	<12	<12	<12	<12	<12	12	4194330
(C6-C10)	mg/kg	<12	<12	<12	<12	<12	12	4194330
Surrogate Recovery (%)								
4-BROMOFLUOROBENZENE (sur.)	%	82	86	86	76	86		4194330
D10-ETHYLBENZENE (sur.)	%	83	81	83	83	81		4194330
D4-1,2-DICHLOROETHANE (sur.)	%	95	92	95	96	112		4194330
D8-TOLUENE (sur.)	%	114	112	113	117	135		4194330

RDL = Reportable Detection Limit

Maxxam Job #: B072933
Report Date: 2010/08/24

SILA REMEDIATION
Client Project #: CAM-2 LANDFILL MON.
Site Reference: GLADMAN PT, NU
Sampler Initials: AP

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		W30633	W30678	W30679	W30680	W30682	W30683		
Sampling Date		2010/08/13	2010/08/13	2010/08/13	2010/08/13	2010/08/13	2010/08/13		
COC Number		A020250	A020250	A020250	A020250	A020250	A020250		
	Units	**C210-1W**	**C210-2W**	**C210-3W**	**C210-4W**	**C210-5W**	**C210-6W**	**RDL**	**QC Batch**
Extractable Hydrocarbons									
F2 (C10-C16 Hydrocarbons)	mg/L	0.5	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	4191412
F3 (C16-C34 Hydrocarbons)	mg/L	<0.1	<0.1	0.4	<0.1	<0.1	0.3	0.1	4191412
F4 (C34-C50 Hydrocarbons)	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	4191412
Reached Baseline at C50	mg/L	Yes	Yes	Yes	Yes	Yes	Yes		4191412
Surrogate Recovery (%)									
O-TERPHENYL (sur.)	%	100	101	102	102	101	101		4191412

RDL = Reportable Detection Limit

Maxxam ID		W30684	W30685	W30686	W30687	W30689		
Sampling Date		2010/08/13	2010/08/13	2010/08/13	2010/08/13	2010/08/13		
COC Number		A020250	A020250	A020250	A020250	A020250		
	Units	**C210-7W**	**C210-8W**	**C210-BDW1**	**C210-FB**	**C210-TB**	**RDL**	**QC Batch**
Extractable Hydrocarbons								
F2 (C10-C16 Hydrocarbons)	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	4191412
F3 (C16-C34 Hydrocarbons)	mg/L	<0.1	0.5	<0.1	<0.1	<0.1	0.1	4191412
F4 (C34-C50 Hydrocarbons)	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	4191412
Reached Baseline at C50	mg/L	Yes	Yes	Yes	Yes	Yes		4191412
Surrogate Recovery (%)								
O-TERPHENYL (sur.)	%	102	107	100	102	102		4191412

RDL = Reportable Detection Limit

Maxxam Job #: B072933
Report Date: 2010/08/24

SILA REMEDIATION
Client Project #: CAM-2 LANDFILL MON.
Site Reference: GLADMAN PT, NU
Sampler Initials: AP

POLYCHLORINATED BIPHENYLS BY GC-ECD (WATER)

Maxxam ID		W30633	W30678	W30679	W30680	W30682		
Sampling Date		2010/08/13	2010/08/13	2010/08/13	2010/08/13	2010/08/13		
COC Number		A020250	A020250	A020250	A020250	A020250		
	Units	**C210-1W**	**C210-2W**	**C210-3W**	**C210-4W**	**C210-5W**	**RDL**	**QC Batch**
Polychlorinated Biphenyls								
Aroclor 1016	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000050	4193554
Aroclor 1221	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000050	4193554
Aroclor 1232	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000050	4193554
Aroclor 1242	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000050	4193554
Aroclor 1248	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000050	4193554
Aroclor 1254	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000050	4193554
Aroclor 1260	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000050	4193554
Aroclor 1262	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000050	4193554
Aroclor 1268	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000050	4193554
Total Aroclors	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000050	4193554
Surrogate Recovery (%)								
NONACHLOROBIPHENYL (sur.)	%	71	77	76	82	74		4193554

RDL = Reportable Detection Limit

Maxxam ID		W30683	W30684	W30685	W30686	W30687		
Sampling Date		2010/08/13	2010/08/13	2010/08/13	2010/08/13	2010/08/13		
COC Number		A020250	A020250	A020250	A020250	A020250		
	Units	**C210-6W**	**C210-7W**	**C210-8W**	**C210-BDW1**	**C210-FB**	**RDL**	**QC Batch**
Polychlorinated Biphenyls								
Aroclor 1016	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000050	4193554
Aroclor 1221	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000050	4193554
Aroclor 1232	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000050	4193554
Aroclor 1242	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000050	4193554
Aroclor 1248	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000050	4193554
Aroclor 1254	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000050	4193554
Aroclor 1260	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000050	4193554
Aroclor 1262	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000050	4193554
Aroclor 1268	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000050	4193554
Total Aroclors	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000050	4193554
Surrogate Recovery (%)								
NONACHLOROBIPHENYL (sur.)	%	81	75	74	73	76		4193554

RDL = Reportable Detection Limit

Maxxam Job #: B072933
Report Date: 2010/08/24

SILA REMEDIATION
Client Project #: CAM-2 LANDFILL MON.
Site Reference: GLADMAN PT, NU
Sampler Initials: AP

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Maxxam ID		W30633		W30678		W30679		
Sampling Date		2010/08/13		2010/08/13		2010/08/13		
COC Number		A020250		A020250		A020250		
	Units	**C210-1W**	**RDL**	**C210-2W**	**RDL**	**C210-3W**	**RDL**	**QC Batch**
Elements								
Total Arsenic (As)	mg/L	0.0035	0.0002	0.0006	0.0002	0.0017	0.0002	4196105
Total Cadmium (Cd)	mg/L	0.0012	0.000005	0.00045	0.000005	0.000069	0.000005	4196105
Total Chromium (Cr)	mg/L	0.98	0.001	0.013	0.001	0.007	0.001	4196105
Total Cobalt (Co)	mg/L	0.0041	0.0003	0.0053	0.0003	0.0008	0.0003	4196105
Total Copper (Cu)	mg/L	0.037	0.0002	0.0085	0.0002	0.011	0.0002	4196105
Total Lead (Pb)	mg/L	0.0065	0.0002	0.0016	0.0002	0.0010	0.0002	4196105
Total Magnesium (Mg)	mg/L	180	0.2	130	0.2	100	0.2	4197603
Total Nickel (Ni)	mg/L	0.12	0.0005	0.027	0.0005	0.065	0.0005	4196105
Total Zinc (Zn)	mg/L	24 (1)	0.08	42 (1)	0.2	0.47	0.003	4196105
Low Level Elements								
Total Mercury (Hg)	ug/L	<0.002	0.002	0.003	0.002	<0.002	0.002	4191441

RDL = Reportable Detection Limit
(1) Detection limits raised due to dilution to bring analyte within the calibrated range.

Maxxam ID		W30680			W30682	W30683	W30684		
Sampling Date		2010/08/13			2010/08/13	2010/08/13	2010/08/13		
COC Number		A020250			A020250	A020250	A020250		
	Units	**C210-4W**	**RDL**	**QC Batch**	**C210-5W**	**C210-6W**	**C210-7W**	**RDL**	**QC Batch**
Elements									
Total Arsenic (As)	mg/L	0.0041	0.0002	4196105	0.0021	0.0031	0.0024	0.0002	4196105
Total Cadmium (Cd)	mg/L	0.00038	0.000005	4196105	0.00019	0.00022	0.00017	0.000005	4196105
Total Chromium (Cr)	mg/L	<0.01	0.01	4197603	0.019	0.046	0.031	0.001	4196105
Total Cobalt (Co)	mg/L	0.012	0.0003	4196105	0.0036	0.0016	0.0012	0.0003	4196105
Total Copper (Cu)	mg/L	0.010	0.0002	4196105	0.0082	0.014	0.0067	0.0002	4196105
Total Lead (Pb)	mg/L	0.012	0.0002	4196105	0.0032	0.0031	0.0016	0.0002	4196105
Total Magnesium (Mg)	mg/L	240	0.2	4197603	140	98	320	0.2	4197603
Total Nickel (Ni)	mg/L	0.036	0.0005	4196105	0.018	0.019	0.025	0.0005	4196105
Total Zinc (Zn)	mg/L	17 (1)	0.08	4196105	0.20	0.081	0.12	0.003	4196105
Low Level Elements									
Total Mercury (Hg)	ug/L	<0.002	0.002	4191441	<0.002	<0.002	0.002	0.002	4191441

RDL = Reportable Detection Limit
(1) Detection limits raised due to dilution to bring analyte within the calibrated range.

Maxxam Job #: B072933
Report Date: 2010/08/24

SILA REMEDIATION
Client Project #: CAM-2 LANDFILL MON.
Site Reference: GLADMAN PT, NU
Sampler Initials: AP

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Maxxam ID		W30685			W30686		W30687		
Sampling Date		2010/08/13			2010/08/13		2010/08/13		
COC Number		A020250			A020250		A020250		
	Units	**C210-8W**	**RDL**	**QC Batch**	**C210-BDW1**	**RDL**	**C210-FB**	**RDL**	**QC Batch**
Elements									
Total Arsenic (As)	mg/L	0.0021	0.0002	4196105	0.0007	0.0002	<0.0002	0.0002	4196105
Total Cadmium (Cd)	mg/L	0.000068	0.000005	4196105	0.0011	0.000005	0.000008	0.000005	4196105
Total Chromium (Cr)	mg/L	<0.01	0.01	4197603	0.005	0.001	<0.001	0.001	4196105
Total Cobalt (Co)	mg/L	0.0041	0.0003	4196105	0.0052	0.0003	<0.0003	0.0003	4196105
Total Copper (Cu)	mg/L	0.0024	0.0002	4196105	0.011	0.0002	0.0069	0.0002	4196105
Total Lead (Pb)	mg/L	0.0017	0.0002	4196105	0.0034	0.0002	0.0003	0.0002	4196105
Total Magnesium (Mg)	mg/L	250	0.2	4197603	120	0.2	<0.2	0.2	4197603
Total Nickel (Ni)	mg/L	0.023	0.0005	4196105	0.032	0.0005	0.0026	0.0005	4196105
Total Zinc (Zn)	mg/L	0.058	0.003	4196105	45 (1)	0.2	0.012	0.003	4196105
Low Level Elements									
Total Mercury (Hg)	ug/L	<0.002	0.002	4191441	0.003	0.002	<0.002	0.002	4191441

RDL = Reportable Detection Limit
(1) Detection limits raised due to dilution to bring analyte within the calibrated range.

Maxxam Job #: B072933
Report Date: 2010/08/24

SILA REMEDIATION
Client Project #: CAM-2 LANDFILL MON.
Site Reference: GLADMAN PT, NU
Sampler Initials: AP

VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		W30633	W30678	W30679	W30680	W30682		
Sampling Date		2010/08/13	2010/08/13	2010/08/13	2010/08/13	2010/08/13		
COC Number		A020250	A020250	A020250	A020250	A020250		
	Units	**C210-1W**	**C210-2W**	**C210-3W**	**C210-4W**	**C210-5W**	**RDL**	**QC Batch**
Volatiles								
Benzene	ug/L	<0.4	<0.4	<0.4	<0.4	<0.4	0.4	4191368
Toluene	ug/L	<0.4	<0.4	<0.4	<0.4	<0.4	0.4	4191368
Ethylbenzene	ug/L	<0.4	<0.4	<0.4	<0.4	<0.4	0.4	4191368
o-Xylene	ug/L	0.7	<0.4	<0.4	<0.4	<0.4	0.4	4191368
m & p-Xylene	ug/L	0.9	<0.8	<0.8	<0.8	<0.8	0.8	4191368
Xylenes (Total)	ug/L	1.6	<0.8	<0.8	<0.8	<0.8	0.8	4191368
F1 (C6-C10) - BTEX	ug/L	<100	<100	<100	<100	<100	100	4191368
(C6-C10)	ug/L	<100	<100	<100	<100	<100	100	4191368
Surrogate Recovery (%)								
4-BROMOFLUOROBENZENE (sur.)	%	98	91	89	88	89		4191368
D4-1,2-DICHLOROETHANE (sur.)	%	94	109	111	109	111		4191368
D8-TOLUENE (sur.)	%	96	99	97	97	98		4191368

RDL = Reportable Detection Limit

Maxxam Job #: B072933
Report Date: 2010/08/24

SILA REMEDIATION
Client Project #: CAM-2 LANDFILL MON.
Site Reference: GLADMAN PT, NU
Sampler Initials: AP

VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		W30683	W30684	W30685	W30686	W30687		
Sampling Date		2010/08/13	2010/08/13	2010/08/13	2010/08/13	2010/08/13		
COC Number		A020250	A020250	A020250	A020250	A020250		
	Units	**C210-6W**	**C210-7W**	**C210-8W**	**C210-BDW1**	**C210-FB**	**RDL**	**QC Batch**
Volatiles								
Benzene	ug/L	<0.4	<0.4	<0.4	<0.4	<0.4	0.4	4191368
Toluene	ug/L	<0.4	<0.4	<0.4	<0.4	4.0	0.4	4191368
Ethylbenzene	ug/L	<0.4	<0.4	<0.4	<0.4	<0.4	0.4	4191368
o-Xylene	ug/L	<0.4	<0.4	<0.4	<0.4	<0.4	0.4	4191368
m & p-Xylene	ug/L	<0.8	<0.8	<0.8	<0.8	1.4	0.8	4191368
Xylenes (Total)	ug/L	<0.8	<0.8	<0.8	<0.8	1.4	0.8	4191368
F1 (C6-C10) - BTEX	ug/L	<100	<100	<100	<100	<100	100	4191368
(C6-C10)	ug/L	<100	<100	<100	<100	<100	100	4191368
Surrogate Recovery (%)								
4-BROMOFLUOROBENZENE (sur.)	%	91	92	91	87	89		4191368
D4-1,2-DICHLOROETHANE (sur.)	%	108	110	110	109	109		4191368
D8-TOLUENE (sur.)	%	96	99	98	97	97		4191368

RDL = Reportable Detection Limit

Maxxam Job #: B072933
Report Date: 2010/08/24

SILA REMEDIATION
Client Project #: CAM-2 LANDFILL MON.
Site Reference: GLADMAN PT, NU
Sampler Initials: AP

VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		W30689		
Sampling Date		2010/08/13		
COC Number		A020250		
	Units	**C210-TB**	**RDL**	**QC Batch**
Volatiles				
Benzene	ug/L	<0.4	0.4	4191368
Toluene	ug/L	<0.4	0.4	4191368
Ethylbenzene	ug/L	<0.4	0.4	4191368
o-Xylene	ug/L	<0.4	0.4	4191368
m & p-Xylene	ug/L	<0.8	0.8	4191368
Xylenes (Total)	ug/L	<0.8	0.8	4191368
F1 (C6-C10) - BTEX	ug/L	<100	100	4191368
(C6-C10)	ug/L	<100	100	4191368
Surrogate Recovery (%)				
4-BROMOFLUOROBENZENE (sur.)	%	91		4191368
D4-1,2-DICHLOROETHANE (sur.)	%	112		4191368
D8-TOLUENE (sur.)	%	99		4191368

RDL = Reportable Detection Limit

Maxxam Job #: B072933
Report Date: 2010/08/24

SILA REMEDIATION
Client Project #: CAM-2 LANDFILL MON.
Site Reference: GLADMAN PT, NU
Sampler Initials: AP

POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL) Comments

Sample W30584-01 Polychlorinated Biphenyls: Detection limits raised due to high moisture content

Sample W30607-01 Polychlorinated Biphenyls: Detection limits raised due to high moisture content

VOLATILE ORGANICS BY GC-MS (SOIL) Comments

Sample W30584-01 BTEX/F1 by HS GC/MS (MeOH extract): Detection limits raised due to high moisture content. Sample dry weight <50% w/v.

Sample W30607-01 BTEX/F1 by HS GC/MS (MeOH extract): Detection limits raised due to high moisture content. Sample dry weight <50% w/v.

Results relate only to the items tested.

SILA REMEDIATION
Attention: JEAN-PIERRE PELLETIER
Client Project #: CAM-2 LANDFILL MON.
P.O. #:
Site Reference: GLADMAN PT, NU

Quality Assurance Report

Maxxam Job Number: CB072933

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
4191368 TD4	Matrix Spike	4-BROMOFLUOROBENZENE (sur.)	2010/08/20		105	%	70 - 130
		D4-1,2-DICHLOROETHANE (sur.)	2010/08/20		114	%	70 - 130
		D8-TOLUENE (sur.)	2010/08/20		98	%	70 - 130
		Benzene	2010/08/20		NC	%	70 - 130
		Toluene	2010/08/20		101	%	70 - 130
		Ethylbenzene	2010/08/20		104	%	70 - 130
		o-Xylene	2010/08/20		105	%	70 - 130
		m & p-Xylene	2010/08/20		103	%	70 - 130
	Spiked Blank	4-BROMOFLUOROBENZENE (sur.)	2010/08/20		105	%	70 - 130
		D4-1,2-DICHLOROETHANE (sur.)	2010/08/20		111	%	70 - 130
		D8-TOLUENE (sur.)	2010/08/20		100	%	70 - 130
		Benzene	2010/08/20		106	%	70 - 130
		Toluene	2010/08/20		100	%	70 - 130
		Ethylbenzene	2010/08/20		104	%	70 - 130
		o-Xylene	2010/08/20		104	%	70 - 130
		m & p-Xylene	2010/08/20		104	%	70 - 130
		(C6-C10)	2010/08/20		109	%	70 - 130
	Method Blank	4-BROMOFLUOROBENZENE (sur.)	2010/08/20		90	%	70 - 130
		D4-1,2-DICHLOROETHANE (sur.)	2010/08/20		111	%	70 - 130
		D8-TOLUENE (sur.)	2010/08/20		99	%	70 - 130
		Benzene	2010/08/20	<0.4		ug/L	
		Toluene	2010/08/20	<0.4		ug/L	
		Ethylbenzene	2010/08/20	<0.4		ug/L	
		o-Xylene	2010/08/20	<0.4		ug/L	
		m & p-Xylene	2010/08/20	<0.8		ug/L	
		Xylenes (Total)	2010/08/20	<0.8		ug/L	
		F1 (C6-C10) - BTEX	2010/08/20	<100		ug/L	
		(C6-C10)	2010/08/20	<100		ug/L	
	RPD	Benzene	2010/08/20	NC		%	40
		Toluene	2010/08/20	NC		%	40
		Ethylbenzene	2010/08/20	NC		%	40
		o-Xylene	2010/08/20	NC		%	40
		m & p-Xylene	2010/08/20	NC		%	40
		Xylenes (Total)	2010/08/20	NC		%	40
		F1 (C6-C10) - BTEX	2010/08/20	NC		%	40
		(C6-C10)	2010/08/20	NC		%	40
4191412 LSH	Matrix Spike	F2 (C10-C16 Hydrocarbons)	2010/08/19		108	%	70 - 130
		F3 (C16-C34 Hydrocarbons)	2010/08/19		88	%	70 - 130
		F4 (C34-C50 Hydrocarbons)	2010/08/19		90	%	70 - 130
		O-TERPHENYL (sur.)	2010/08/19		86	%	70 - 130
	Spiked Blank	F2 (C10-C16 Hydrocarbons)	2010/08/19		113	%	70 - 130
		F3 (C16-C34 Hydrocarbons)	2010/08/19		78	%	70 - 130
		F4 (C34-C50 Hydrocarbons)	2010/08/19		92	%	70 - 130
		O-TERPHENYL (sur.)	2010/08/19		101	%	70 - 130
	Method Blank	F2 (C10-C16 Hydrocarbons)	2010/08/19	<0.1		mg/L	
		F3 (C16-C34 Hydrocarbons)	2010/08/19	<0.1		mg/L	
		F4 (C34-C50 Hydrocarbons)	2010/08/19	<0.1		mg/L	
		O-TERPHENYL (sur.)	2010/08/19		101	%	70 - 130
	RPD [W30689-01]	F2 (C10-C16 Hydrocarbons)	2010/08/20	NC		%	40
		F3 (C16-C34 Hydrocarbons)	2010/08/20	NC		%	40
		F4 (C34-C50 Hydrocarbons)	2010/08/20	NC		%	40
4191441 FL1	Matrix Spike	Total Mercury (Hg)	2010/08/19		102	%	80 - 120
	Spiked Blank	Total Mercury (Hg)	2010/08/19		102	%	80 - 120
	Method Blank	Total Mercury (Hg)	2010/08/19	<0.002		ug/L	
	RPD	Total Mercury (Hg)	2010/08/19	NC		%	20

SILA REMEDIATION
Attention: JEAN-PIERRE PELLETIER
Client Project #: CAM-2 LANDFILL MON.
P.O. #:
Site Reference: GLADMAN PT, NU

Quality Assurance Report (Continued)

Maxxam Job Number: CB072933

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
4193554 SJ1	Spiked Blank	NONACHLOROBIPHENYL (sur.)	2010/08/22		75	%	30 - 130
		Aroclor 1260	2010/08/22		126	%	30 - 130
	Method Blank	NONACHLOROBIPHENYL (sur.)	2010/08/22		76	%	30 - 130
		Aroclor 1016	2010/08/22	<0.000050		mg/L	
		Aroclor 1221	2010/08/22	<0.000050		mg/L	
		Aroclor 1232	2010/08/22	<0.000050		mg/L	
		Aroclor 1242	2010/08/22	<0.000050		mg/L	
		Aroclor 1248	2010/08/22	<0.000050		mg/L	
		Aroclor 1254	2010/08/22	<0.000050		mg/L	
		Aroclor 1260	2010/08/22	<0.000050		mg/L	
		Aroclor 1262	2010/08/22	<0.000050		mg/L	
		Aroclor 1268	2010/08/22	<0.000050		mg/L	
		Total Aroclors	2010/08/22	<0.000050		mg/L	
4194327 RSA	Matrix Spike						
	[W30549-01]	4-BROMOFLUOROBENZENE (sur.)	2010/08/20		95	%	60 - 140
		D10-ETHYLBENZENE (sur.)	2010/08/20		90	%	30 - 130
		D4-1,2-DICHLOROETHANE (sur.)	2010/08/20		109	%	60 - 140
		D8-TOLUENE (sur.)	2010/08/20		99	%	60 - 140
		Benzene	2010/08/20		101	%	60 - 140
		Toluene	2010/08/20		101	%	60 - 140
		Ethylbenzene	2010/08/20		100	%	60 - 140
		m & p-Xylene	2010/08/20		100	%	60 - 140
		o-Xylene	2010/08/20		98	%	60 - 140
		(C6-C10)	2010/08/20		74	%	60 - 140
	Spiked Blank	4-BROMOFLUOROBENZENE (sur.)	2010/08/20		93	%	60 - 140
		D10-ETHYLBENZENE (sur.)	2010/08/20		94	%	30 - 130
		D4-1,2-DICHLOROETHANE (sur.)	2010/08/20		101	%	60 - 140
		D8-TOLUENE (sur.)	2010/08/20		104	%	60 - 140
		Benzene	2010/08/20		88	%	60 - 140
		Toluene	2010/08/20		90	%	60 - 140
		Ethylbenzene	2010/08/20		90	%	60 - 140
		m & p-Xylene	2010/08/20		91	%	60 - 140
		o-Xylene	2010/08/20		89	%	60 - 140
		(C6-C10)	2010/08/20		70	%	60 - 140
	Method Blank	4-BROMOFLUOROBENZENE (sur.)	2010/08/20		91	%	60 - 140
		D10-ETHYLBENZENE (sur.)	2010/08/20		90	%	30 - 130
		D4-1,2-DICHLOROETHANE (sur.)	2010/08/20		101	%	60 - 140
		D8-TOLUENE (sur.)	2010/08/20		99	%	60 - 140
		Benzene	2010/08/20	<0.0050		mg/kg	
		Toluene	2010/08/20	<0.020		mg/kg	
		Ethylbenzene	2010/08/20	<0.010		mg/kg	
		Xylenes (Total)	2010/08/20	<0.040		mg/kg	
		m & p-Xylene	2010/08/20	<0.040		mg/kg	
		o-Xylene	2010/08/20	<0.020		mg/kg	
		F1 (C6-C10) - BTEX	2010/08/20	<12		mg/kg	
		(C6-C10)	2010/08/20	<12		mg/kg	
	RPD [W30549-01]	Benzene	2010/08/20	NC		%	50
		Toluene	2010/08/20	NC		%	50
		Ethylbenzene	2010/08/20	NC		%	50
		Xylenes (Total)	2010/08/20	NC		%	50
		m & p-Xylene	2010/08/20	NC		%	50
		o-Xylene	2010/08/20	NC		%	50
		F1 (C6-C10) - BTEX	2010/08/20	NC		%	50
		(C6-C10)	2010/08/20	NC		%	50
4194328 VF	Matrix Spike						
	[W30588-01]	4-BROMOFLUOROBENZENE (sur.)	2010/08/21		93	%	60 - 140

SILA REMEDIATION
Attention: JEAN-PIERRE PELLETIER
Client Project #: CAM-2 LANDFILL MON.
P.O. #:
Site Reference: GLADMAN PT, NU

Quality Assurance Report (Continued)

Maxxam Job Number: CB072933

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
4194328	VF	Matrix Spike						
		[W30588-01]	D10-ETHYLBENZENE (sur.)	2010/08/21		94	%	30 - 130
			D4-1,2-DICHLOROETHANE (sur.)	2010/08/21		105	%	60 - 140
			D8-TOLUENE (sur.)	2010/08/21		113	%	60 - 140
			Benzene	2010/08/21		116	%	60 - 140
			Toluene	2010/08/21		116	%	60 - 140
			Ethylbenzene	2010/08/21		114	%	60 - 140
			m & p-Xylene	2010/08/21		132	%	60 - 140
			o-Xylene	2010/08/21		111	%	60 - 140
			(C6-C10)	2010/08/21		80	%	60 - 140
		Spiked Blank	4-BROMOFLUOROBENZENE (sur.)	2010/08/21		89	%	60 - 140
			D10-ETHYLBENZENE (sur.)	2010/08/21		86	%	30 - 130
			D4-1,2-DICHLOROETHANE (sur.)	2010/08/21		103	%	60 - 140
			D8-TOLUENE (sur.)	2010/08/21		110	%	60 - 140
			Benzene	2010/08/21		105	%	60 - 140
			Toluene	2010/08/21		105	%	60 - 140
			Ethylbenzene	2010/08/21		102	%	60 - 140
			m & p-Xylene	2010/08/21		124	%	60 - 140
			o-Xylene	2010/08/21		101	%	60 - 140
			(C6-C10)	2010/08/21		82	%	60 - 140
		Method Blank	4-BROMOFLUOROBENZENE (sur.)	2010/08/21		86	%	60 - 140
			D10-ETHYLBENZENE (sur.)	2010/08/21		96	%	30 - 130
			D4-1,2-DICHLOROETHANE (sur.)	2010/08/21		102	%	60 - 140
			D8-TOLUENE (sur.)	2010/08/21		109	%	60 - 140
			Benzene	2010/08/21	<0.0050		mg/kg	
			Toluene	2010/08/21	<0.020		mg/kg	
			Ethylbenzene	2010/08/21	<0.010		mg/kg	
			Xylenes (Total)	2010/08/21	<0.040		mg/kg	
			m & p-Xylene	2010/08/21	<0.040		mg/kg	
			o-Xylene	2010/08/21	<0.020		mg/kg	
			F1 (C6-C10) - BTEX	2010/08/21	<12		mg/kg	
			(C6-C10)	2010/08/21	<12		mg/kg	
		RPD [W30588-01]	Benzene	2010/08/21	NC		%	50
			Toluene	2010/08/21	NC		%	50
			Ethylbenzene	2010/08/21	NC		%	50
			Xylenes (Total)	2010/08/21	NC		%	50
			m & p-Xylene	2010/08/21	NC		%	50
			o-Xylene	2010/08/21	NC		%	50
			F1 (C6-C10) - BTEX	2010/08/21	NC		%	50
			(C6-C10)	2010/08/21	NC		%	50
4194330	RSA	Matrix Spike	4-BROMOFLUOROBENZENE (sur.)	2010/08/22		92	%	60 - 140
			D10-ETHYLBENZENE (sur.)	2010/08/22		80	%	30 - 130
			D4-1,2-DICHLOROETHANE (sur.)	2010/08/22		97	%	60 - 140
			D8-TOLUENE (sur.)	2010/08/22		118	%	60 - 140
			Benzene	2010/08/22		100	%	60 - 140
			Toluene	2010/08/22		100	%	60 - 140
			Ethylbenzene	2010/08/22		101	%	60 - 140
			m & p-Xylene	2010/08/22		124	%	60 - 140
			o-Xylene	2010/08/22		100	%	60 - 140
			(C6-C10)	2010/08/22		77	%	60 - 140
		Spiked Blank	4-BROMOFLUOROBENZENE (sur.)	2010/08/22		90	%	60 - 140
			D10-ETHYLBENZENE (sur.)	2010/08/22		83	%	30 - 130
			D4-1,2-DICHLOROETHANE (sur.)	2010/08/22		92	%	60 - 140
			D8-TOLUENE (sur.)	2010/08/22		126	%	60 - 140
			Benzene	2010/08/22		97	%	60 - 140

SILA REMEDIATION
Attention: JEAN-PIERRE PELLETIER
Client Project #: CAM-2 LANDFILL MON.
P.O. #:
Site Reference: GLADMAN PT, NU

Quality Assurance Report (Continued)

Maxxam Job Number: CB072933

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
4194330	RSA	Spiked Blank	Toluene	2010/08/22		98	%	60 - 140
			Ethylbenzene	2010/08/22		97	%	60 - 140
			m & p-Xylene	2010/08/22		122	%	60 - 140
			o-Xylene	2010/08/22		96	%	60 - 140
			(C6-C10)	2010/08/22		70	%	60 - 140
		Method Blank	4-BROMOFLUOROBENZENE (sur.)	2010/08/22		90	%	60 - 140
			D10-ETHYLBENZENE (sur.)	2010/08/22		85	%	30 - 130
			D4-1,2-DICHLOROETHANE (sur.)	2010/08/22		97	%	60 - 140
			D8-TOLUENE (sur.)	2010/08/22		120	%	60 - 140
			Benzene	2010/08/22	<0.0050		mg/kg	
			Toluene	2010/08/22	<0.020		mg/kg	
			Ethylbenzene	2010/08/22	<0.010		mg/kg	
			Xylenes (Total)	2010/08/22	<0.040		mg/kg	
			m & p-Xylene	2010/08/22	<0.040		mg/kg	
			o-Xylene	2010/08/22	<0.020		mg/kg	
			F1 (C6-C10) - BTEX	2010/08/22	<12		mg/kg	
			(C6-C10)	2010/08/22	<12		mg/kg	
		RPD	Benzene	2010/08/22	NC		%	50
			Toluene	2010/08/22	NC		%	50
			Ethylbenzene	2010/08/22	NC		%	50
			Xylenes (Total)	2010/08/22	NC		%	50
			m & p-Xylene	2010/08/22	NC		%	50
			o-Xylene	2010/08/22	NC		%	50
			F1 (C6-C10) - BTEX	2010/08/22	NC		%	50
			(C6-C10)	2010/08/22	NC		%	50
4195362	SDD	Matrix Spike						
		[W30552-01]	O-TERPHENYL (sur.)	2010/08/21		102	%	50 - 130
			F2 (C10-C16 Hydrocarbons)	2010/08/21		82	%	50 - 130
			F3 (C16-C34 Hydrocarbons)	2010/08/21		98	%	50 - 130
			F4 (C34-C50 Hydrocarbons)	2010/08/21		98	%	50 - 130
		Spiked Blank	O-TERPHENYL (sur.)	2010/08/21		97	%	50 - 130
			F2 (C10-C16 Hydrocarbons)	2010/08/21		87	%	80 - 120
			F3 (C16-C34 Hydrocarbons)	2010/08/21		109	%	80 - 120
			F4 (C34-C50 Hydrocarbons)	2010/08/21		101	%	80 - 120
		Method Blank	O-TERPHENYL (sur.)	2010/08/21		95	%	50 - 130
			F2 (C10-C16 Hydrocarbons)	2010/08/21	<10		mg/kg	
			F3 (C16-C34 Hydrocarbons)	2010/08/21	<10		mg/kg	
			F4 (C34-C50 Hydrocarbons)	2010/08/21	<10		mg/kg	
		RPD [W30552-01]	F2 (C10-C16 Hydrocarbons)	2010/08/21	NC		%	50
			F3 (C16-C34 Hydrocarbons)	2010/08/21	NC		%	50
			F4 (C34-C50 Hydrocarbons)	2010/08/21	NC		%	50
4196105	MB5	Matrix Spike	Total Arsenic (As)	2010/08/21		109	%	80 - 120
			Total Cadmium (Cd)	2010/08/21		97	%	80 - 120
			Total Chromium (Cr)	2010/08/21		100	%	80 - 120
			Total Cobalt (Co)	2010/08/21		99	%	80 - 120
			Total Copper (Cu)	2010/08/21		90	%	80 - 120
			Total Lead (Pb)	2010/08/21		93	%	80 - 120
			Total Nickel (Ni)	2010/08/21		95	%	80 - 120
			Total Zinc (Zn)	2010/08/21		NC	%	75 - 125
		Spiked Blank	Total Arsenic (As)	2010/08/21		88	%	80 - 107
			Total Cadmium (Cd)	2010/08/21		92	%	80 - 120
			Total Chromium (Cr)	2010/08/21		105	%	80 - 120
			Total Cobalt (Co)	2010/08/21		108	%	80 - 120
			Total Copper (Cu)	2010/08/21		104	%	80 - 120
			Total Lead (Pb)	2010/08/21		108	%	80 - 115

SILA REMEDIATION
Attention: JEAN-PIERRE PELLETIER
Client Project #: CAM-2 LANDFILL MON.
P.O. #:
Site Reference: GLADMAN PT, NU

Quality Assurance Report (Continued)

Maxxam Job Number: CB072933

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
4196105	MB5	Spiked Blank	Total Nickel (Ni)	2010/08/21		106	%	80 - 120
			Total Zinc (Zn)	2010/08/21		81	%	75 - 125
		Method Blank	Total Arsenic (As)	2010/08/21	<0.0002		mg/L	
			Total Cadmium (Cd)	2010/08/21	<0.000005		mg/L	
			Total Chromium (Cr)	2010/08/21	<0.001		mg/L	
			Total Cobalt (Co)	2010/08/21	<0.0003		mg/L	
			Total Copper (Cu)	2010/08/21	0.0003, RDL=0.0002		mg/L	
			Total Lead (Pb)	2010/08/21	<0.0002		mg/L	
			Total Nickel (Ni)	2010/08/21	<0.0005		mg/L	
			Total Zinc (Zn)	2010/08/21	0.004, RDL=0.003		mg/L	
		RPD	Total Arsenic (As)	2010/08/21	NC		%	20
			Total Chromium (Cr)	2010/08/21	NC		%	20
			Total Cobalt (Co)	2010/08/21	NC		%	20
			Total Copper (Cu)	2010/08/21	NC		%	20
			Total Lead (Pb)	2010/08/21	NC		%	20
			Total Nickel (Ni)	2010/08/21	NC		%	20
			Total Zinc (Zn)	2010/08/21	NC		%	20
4196779	SDD	Matrix Spike	O-TERPHENYL (sur.)	2010/08/20		103	%	50 - 130
			F2 (C10-C16 Hydrocarbons)	2010/08/20		108	%	50 - 130
			F3 (C16-C34 Hydrocarbons)	2010/08/20		110	%	50 - 130
			F4 (C34-C50 Hydrocarbons)	2010/08/20		109	%	50 - 130
		Spiked Blank	O-TERPHENYL (sur.)	2010/08/20		94	%	50 - 130
			F2 (C10-C16 Hydrocarbons)	2010/08/20		94	%	80 - 120
			F3 (C16-C34 Hydrocarbons)	2010/08/20		94	%	80 - 120
			F4 (C34-C50 Hydrocarbons)	2010/08/20		94	%	80 - 120
		Method Blank	O-TERPHENYL (sur.)	2010/08/20		91	%	50 - 130
			F2 (C10-C16 Hydrocarbons)	2010/08/20	<10		mg/kg	
			F3 (C16-C34 Hydrocarbons)	2010/08/20	<10		mg/kg	
			F4 (C34-C50 Hydrocarbons)	2010/08/20	<10		mg/kg	
		RPD	F2 (C10-C16 Hydrocarbons)	2010/08/20	NC		%	50
			F3 (C16-C34 Hydrocarbons)	2010/08/20	NC		%	50
			F4 (C34-C50 Hydrocarbons)	2010/08/20	NC		%	50
4197139	SJ1	Matrix Spike	NONACHLOROBIPHENYL (sur.)	2010/08/23		75	%	30 - 130
			Aroclor 1260	2010/08/23		81	%	30 - 130
		Spiked Blank	NONACHLOROBIPHENYL (sur.)	2010/08/23		97	%	30 - 130
			Aroclor 1260	2010/08/23		107	%	30 - 130
		Method Blank	NONACHLOROBIPHENYL (sur.)	2010/08/23		82	%	30 - 130
			Aroclor 1016	2010/08/23	<0.010		mg/kg	
			Aroclor 1221	2010/08/23	<0.010		mg/kg	
			Aroclor 1232	2010/08/23	<0.010		mg/kg	
			Aroclor 1242	2010/08/23	<0.010		mg/kg	
			Aroclor 1248	2010/08/23	<0.010		mg/kg	
			Aroclor 1254	2010/08/23	<0.010		mg/kg	
			Aroclor 1260	2010/08/23	<0.010		mg/kg	
			Aroclor 1262	2010/08/23	<0.010		mg/kg	
			Aroclor 1268	2010/08/23	<0.010		mg/kg	
			Total Aroclors	2010/08/23	<0.010		mg/kg	
		RPD	Aroclor 1016	2010/08/23	NC		%	50
			Aroclor 1221	2010/08/23	NC		%	50
			Aroclor 1232	2010/08/23	NC		%	50
			Aroclor 1242	2010/08/23	NC		%	50
			Aroclor 1248	2010/08/23	NC		%	50
			Aroclor 1254	2010/08/23	NC		%	50
			Aroclor 1260	2010/08/23	NC		%	50
			Aroclor 1262	2010/08/23	NC		%	50

SILA REMEDIATION
Attention: JEAN-PIERRE PELLETIER
Client Project #: CAM-2 LANDFILL MON.
P.O. #:
Site Reference: GLADMAN PT, NU

Quality Assurance Report (Continued)

Maxxam Job Number: CB072933

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
4197139	SJ1	RPD	Aroclor 1268	2010/08/23	NC		%	50
			Total Aroclors	2010/08/23	NC		%	50
4197602	SJ1	Matrix Spike						
		[W30588-01]	NONACHLOROBIPHENYL (sur.)	2010/08/22		74	%	30 - 130
			Aroclor 1260	2010/08/22		85	%	30 - 130
		Spiked Blank	NONACHLOROBIPHENYL (sur.)	2010/08/22		86	%	30 - 130
			Aroclor 1260	2010/08/22		95	%	30 - 130
		Method Blank	NONACHLOROBIPHENYL (sur.)	2010/08/22		77	%	30 - 130
			Aroclor 1016	2010/08/22	<0.010		mg/kg	
			Aroclor 1221	2010/08/22	<0.010		mg/kg	
			Aroclor 1232	2010/08/22	<0.010		mg/kg	
			Aroclor 1242	2010/08/22	<0.010		mg/kg	
			Aroclor 1248	2010/08/22	<0.010		mg/kg	
			Aroclor 1254	2010/08/22	<0.010		mg/kg	
			Aroclor 1260	2010/08/22	<0.010		mg/kg	
			Aroclor 1262	2010/08/22	<0.010		mg/kg	
			Aroclor 1268	2010/08/22	<0.010		mg/kg	
			Total Aroclors	2010/08/22	<0.010		mg/kg	
		RPD [W30588-01]	Aroclor 1016	2010/08/22	NC		%	50
			Aroclor 1221	2010/08/22	NC		%	50
			Aroclor 1232	2010/08/22	NC		%	50
			Aroclor 1242	2010/08/22	NC		%	50
			Aroclor 1248	2010/08/22	NC		%	50
			Aroclor 1254	2010/08/22	NC		%	50
			Aroclor 1260	2010/08/22	NC		%	50
			Aroclor 1262	2010/08/22	NC		%	50
			Aroclor 1268	2010/08/22	NC		%	50
			Total Aroclors	2010/08/22	NC		%	50
4197603	DP0	Matrix Spike	Total Chromium (Cr)	2010/08/20		87	%	80 - 120
			Total Magnesium (Mg)	2010/08/20		94	%	80 - 120
		Spiked Blank	Total Chromium (Cr)	2010/08/21		97	%	80 - 120
			Total Magnesium (Mg)	2010/08/21		100	%	80 - 120
		Method Blank	Total Chromium (Cr)	2010/08/21	<0.01		mg/L	
			Total Magnesium (Mg)	2010/08/21	<0.2		mg/L	
		RPD	Total Magnesium (Mg)	2010/08/20	NC		%	20
4197660	AJ7	RPD [W30567-01]	Moisture	2010/08/20	0		%	20
		RPD [W30581-01]	Moisture	2010/08/20	4.0		%	20
4197742	AJ7	RPD [W30605-01]	Moisture	2010/08/20	0		%	20
		RPD [W30614-01]	Moisture	2010/08/20	0		%	20
4198064	SDD	Matrix Spike						
		[W30586-01]	O-TERPHENYL (sur.)	2010/08/21		86	%	50 - 130
			F2 (C10-C16 Hydrocarbons)	2010/08/21		66	%	50 - 130
			F3 (C16-C34 Hydrocarbons)	2010/08/21		54	%	50 - 130
			F4 (C34-C50 Hydrocarbons)	2010/08/21		76	%	50 - 130
		Spiked Blank	O-TERPHENYL (sur.)	2010/08/21		92	%	50 - 130
			F2 (C10-C16 Hydrocarbons)	2010/08/21		83	%	80 - 120
			F3 (C16-C34 Hydrocarbons)	2010/08/21		101	%	80 - 120
			F4 (C34-C50 Hydrocarbons)	2010/08/21		95	%	80 - 120
		Method Blank	O-TERPHENYL (sur.)	2010/08/21		90	%	50 - 130
			F2 (C10-C16 Hydrocarbons)	2010/08/21	<10		mg/kg	
			F3 (C16-C34 Hydrocarbons)	2010/08/21	<10		mg/kg	
			F4 (C34-C50 Hydrocarbons)	2010/08/21	<10		mg/kg	
		RPD [W30586-01]	F2 (C10-C16 Hydrocarbons)	2010/08/21	NC		%	50
			F3 (C16-C34 Hydrocarbons)	2010/08/21	NC		%	50
			F4 (C34-C50 Hydrocarbons)	2010/08/21	NC		%	50

SILA REMEDIATION
Attention: JEAN-PIERRE PELLETIER
Client Project #: CAM-2 LANDFILL MON.
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Quality Assurance Report (Continued)

Maxxam Job Number: CB072933

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
4198220	VH2	Matrix Spike						
		[W30549-01]	Total Arsenic (As)	2010/08/22		88	%	75 - 125
			Total Cadmium (Cd)	2010/08/22		88	%	75 - 125
			Total Chromium (Cr)	2010/08/22		104	%	75 - 125
			Total Cobalt (Co)	2010/08/22		98	%	75 - 125
			Total Copper (Cu)	2010/08/22		83	%	75 - 125
			Total Lead (Pb)	2010/08/22		87	%	75 - 125
			Total Mercury (Hg)	2010/08/22		83	%	75 - 125
			Total Nickel (Ni)	2010/08/22		93	%	75 - 125
			Total Zinc (Zn)	2010/08/22		83	%	75 - 125
		QC Standard	Total Arsenic (As)	2010/08/22		102	%	50 - 150
			Total Chromium (Cr)	2010/08/22		132	%	41 - 159
			Total Cobalt (Co)	2010/08/22		114	%	75 - 125
			Total Copper (Cu)	2010/08/22		96	%	72 - 127
			Total Lead (Pb)	2010/08/22		90	%	54 - 146
			Total Mercury (Hg)	2010/08/22		103	%	75 - 125
			Total Nickel (Ni)	2010/08/22		115	%	61 - 139
			Total Zinc (Zn)	2010/08/22		96	%	72 - 128
		Spiked Blank	Total Arsenic (As)	2010/08/22		99	%	75 - 125
			Total Cadmium (Cd)	2010/08/22		101	%	75 - 125
			Total Chromium (Cr)	2010/08/22		112	%	75 - 125
			Total Cobalt (Co)	2010/08/22		108	%	75 - 125
			Total Copper (Cu)	2010/08/22		106	%	75 - 125
			Total Lead (Pb)	2010/08/22		105	%	75 - 125
			Total Mercury (Hg)	2010/08/22		95	%	80 - 120
			Total Nickel (Ni)	2010/08/22		108	%	75 - 125
			Total Zinc (Zn)	2010/08/22		101	%	75 - 125
		Method Blank	Total Arsenic (As)	2010/08/22	<1		mg/kg	
			Total Cadmium (Cd)	2010/08/22	<0.1		mg/kg	
			Total Chromium (Cr)	2010/08/22	<1		mg/kg	
			Total Cobalt (Co)	2010/08/22	<1		mg/kg	
			Total Copper (Cu)	2010/08/22	<5		mg/kg	
			Total Lead (Pb)	2010/08/22	<1		mg/kg	
			Total Mercury (Hg)	2010/08/22	<0.05		mg/kg	
			Total Nickel (Ni)	2010/08/22	<1		mg/kg	
			Total Zinc (Zn)	2010/08/22	<10		mg/kg	
		RPD [W30549-01]	Total Arsenic (As)	2010/08/22	NC		%	35
			Total Cadmium (Cd)	2010/08/22	NC		%	35
			Total Chromium (Cr)	2010/08/22	NC		%	35
			Total Cobalt (Co)	2010/08/22	NC		%	35
			Total Copper (Cu)	2010/08/22	NC		%	35
			Total Lead (Pb)	2010/08/22	NC		%	35
			Total Mercury (Hg)	2010/08/22	NC		%	35
			Total Nickel (Ni)	2010/08/22	NC		%	35
			Total Zinc (Zn)	2010/08/22	NC		%	35
4198247	VH2	Matrix Spike	Total Arsenic (As)	2010/08/22		83	%	75 - 125
			Total Cadmium (Cd)	2010/08/22		92	%	75 - 125
			Total Chromium (Cr)	2010/08/22		90	%	75 - 125
			Total Cobalt (Co)	2010/08/22		90	%	75 - 125
			Total Copper (Cu)	2010/08/22		79	%	75 - 125
			Total Lead (Pb)	2010/08/22		NC	%	75 - 125
			Total Mercury (Hg)	2010/08/22		90	%	75 - 125
			Total Nickel (Ni)	2010/08/22		NC	%	75 - 125
			Total Zinc (Zn)	2010/08/22		NC	%	75 - 125
		QC Standard	Total Arsenic (As)	2010/08/22		98	%	50 - 150

SILA REMEDIATION
Attention: JEAN-PIERRE PELLETIER
Client Project #: CAM-2 LANDFILL MON.
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Maxxam Job Number: CB072933

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
4198247	VH2	QC Standard	Total Chromium (Cr)	2010/08/22		109	%	41 - 159
			Total Cobalt (Co)	2010/08/22		104	%	75 - 125
			Total Copper (Cu)	2010/08/22		92	%	72 - 127
			Total Lead (Pb)	2010/08/22		90	%	54 - 146
			Total Mercury (Hg)	2010/08/22		125	%	75 - 125
			Total Nickel (Ni)	2010/08/22		104	%	61 - 139
			Total Zinc (Zn)	2010/08/22		91	%	72 - 128
		Spiked Blank	Total Arsenic (As)	2010/08/22		98	%	75 - 125
			Total Cadmium (Cd)	2010/08/22		97	%	75 - 125
			Total Chromium (Cr)	2010/08/22		98	%	75 - 125
			Total Cobalt (Co)	2010/08/22		100	%	75 - 125
			Total Copper (Cu)	2010/08/22		105	%	75 - 125
			Total Lead (Pb)	2010/08/22		109	%	75 - 125
			Total Mercury (Hg)	2010/08/22		102	%	80 - 120
			Total Nickel (Ni)	2010/08/22		101	%	75 - 125
			Total Zinc (Zn)	2010/08/22		112	%	75 - 125
		Method Blank	Total Arsenic (As)	2010/08/22	<1		mg/kg	
			Total Cadmium (Cd)	2010/08/22	<0.1		mg/kg	
			Total Chromium (Cr)	2010/08/22	<1		mg/kg	
			Total Cobalt (Co)	2010/08/22	<1		mg/kg	
			Total Copper (Cu)	2010/08/22	<5		mg/kg	
			Total Lead (Pb)	2010/08/22	<1		mg/kg	
			Total Mercury (Hg)	2010/08/22	<0.05		mg/kg	
			Total Nickel (Ni)	2010/08/22	<1		mg/kg	
			Total Zinc (Zn)	2010/08/22	<10		mg/kg	
		RPD	Total Mercury (Hg)	2010/08/22	NC		%	35
4198248	VH2	Matrix Spike						
		[W30584-01]	Total Arsenic (As)	2010/08/23		107	%	75 - 125
			Total Cadmium (Cd)	2010/08/23		106	%	75 - 125
			Total Chromium (Cr)	2010/08/23		115	%	75 - 125
			Total Cobalt (Co)	2010/08/23		113	%	75 - 125
			Total Copper (Cu)	2010/08/23		105	%	75 - 125
			Total Lead (Pb)	2010/08/23		107	%	75 - 125
			Total Mercury (Hg)	2010/08/23		91	%	75 - 125
			Total Nickel (Ni)	2010/08/23		109	%	75 - 125
			Total Zinc (Zn)	2010/08/23		101	%	75 - 125
		QC Standard	Total Arsenic (As)	2010/08/23		105	%	50 - 150
			Total Chromium (Cr)	2010/08/23		119	%	41 - 159
			Total Cobalt (Co)	2010/08/23		109	%	75 - 125
			Total Copper (Cu)	2010/08/23		98	%	72 - 127
			Total Lead (Pb)	2010/08/23		89	%	54 - 146
			Total Mercury (Hg)	2010/08/23		95	%	75 - 125
			Total Nickel (Ni)	2010/08/23		110	%	61 - 139
			Total Zinc (Zn)	2010/08/23		92	%	72 - 128
		Spiked Blank	Total Arsenic (As)	2010/08/23		99	%	75 - 125
			Total Cadmium (Cd)	2010/08/23		95	%	75 - 125
			Total Chromium (Cr)	2010/08/23		106	%	75 - 125
			Total Cobalt (Co)	2010/08/23		104	%	75 - 125
			Total Copper (Cu)	2010/08/23		107	%	75 - 125
			Total Lead (Pb)	2010/08/23		105	%	75 - 125
			Total Mercury (Hg)	2010/08/23		93	%	80 - 120
			Total Nickel (Ni)	2010/08/23		104	%	75 - 125
			Total Zinc (Zn)	2010/08/23		111	%	75 - 125
		Method Blank	Total Arsenic (As)	2010/08/23	<1		mg/kg	
			Total Cadmium (Cd)	2010/08/23	<0.1		mg/kg	

SILA REMEDIATION
Attention: JEAN-PIERRE PELLETIER
Client Project #: CAM-2 LANDFILL MON.
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Quality Assurance Report (Continued)

Maxxam Job Number: CB072933

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
4198248	VH2	Method Blank	Total Chromium (Cr)	2010/08/23	<1		mg/kg	
			Total Cobalt (Co)	2010/08/23	<1		mg/kg	
			Total Copper (Cu)	2010/08/23	<5		mg/kg	
			Total Lead (Pb)	2010/08/23	<1		mg/kg	
			Total Mercury (Hg)	2010/08/23	<0.05		mg/kg	
			Total Nickel (Ni)	2010/08/23	<1		mg/kg	
			Total Zinc (Zn)	2010/08/23	<10		mg/kg	
		RPD [W30584-01]	Total Arsenic (As)	2010/08/23	NC		%	35
			Total Cadmium (Cd)	2010/08/23	NC		%	35
			Total Chromium (Cr)	2010/08/23	NC		%	35
			Total Cobalt (Co)	2010/08/23	NC		%	35
			Total Copper (Cu)	2010/08/23	NC		%	35
			Total Lead (Pb)	2010/08/23	NC		%	35
			Total Mercury (Hg)	2010/08/23	NC		%	35
			Total Nickel (Ni)	2010/08/23	NC		%	35
			Total Zinc (Zn)	2010/08/23	NC		%	35
4198359	DSH	RPD	Moisture	2010/08/21	0		%	20
4198408	SJ1	Matrix Spike [W30632-01]	NONACHLOROBIPHENYL (sur.)	2010/08/22		72	%	30 - 130
			Aroclor 1260	2010/08/22		101	%	30 - 130
		Spiked Blank	NONACHLOROBIPHENYL (sur.)	2010/08/22		93	%	30 - 130
			Aroclor 1260	2010/08/22		124	%	30 - 130
		Method Blank	NONACHLOROBIPHENYL (sur.)	2010/08/22		80	%	30 - 130
			Aroclor 1016	2010/08/22	<0.010		mg/kg	
			Aroclor 1221	2010/08/22	<0.010		mg/kg	
			Aroclor 1232	2010/08/22	<0.010		mg/kg	
			Aroclor 1242	2010/08/22	<0.010		mg/kg	
			Aroclor 1248	2010/08/22	<0.010		mg/kg	
			Aroclor 1254	2010/08/22	<0.010		mg/kg	
			Aroclor 1260	2010/08/22	<0.010		mg/kg	
			Aroclor 1262	2010/08/22	<0.010		mg/kg	
			Aroclor 1268	2010/08/22	<0.010		mg/kg	
			Total Aroclors	2010/08/22	<0.010		mg/kg	
		RPD [W30632-01]	Aroclor 1016	2010/08/23	NC		%	50
			Aroclor 1221	2010/08/23	NC		%	50
			Aroclor 1232	2010/08/23	NC		%	50
			Aroclor 1242	2010/08/23	NC		%	50
			Aroclor 1248	2010/08/23	NC		%	50
			Aroclor 1254	2010/08/23	NC		%	50
			Aroclor 1260	2010/08/23	NC		%	50
			Aroclor 1262	2010/08/23	NC		%	50
			Aroclor 1268	2010/08/23	NC		%	50
			Total Aroclors	2010/08/23	NC		%	50
4198665	VH2	Matrix Spike	Total Arsenic (As)	2010/08/23		93	%	75 - 125
			Total Cadmium (Cd)	2010/08/23		95	%	75 - 125
			Total Chromium (Cr)	2010/08/23		108	%	75 - 125
			Total Cobalt (Co)	2010/08/23		98	%	75 - 125
			Total Copper (Cu)	2010/08/23		NC	%	75 - 125
			Total Lead (Pb)	2010/08/23		NC	%	75 - 125
			Total Mercury (Hg)	2010/08/23		91	%	75 - 125
			Total Nickel (Ni)	2010/08/23		NC	%	75 - 125
			Total Zinc (Zn)	2010/08/23		NC	%	75 - 125
		QC Standard	Total Arsenic (As)	2010/08/23		97	%	50 - 150
			Total Chromium (Cr)	2010/08/23		101	%	41 - 159
			Total Cobalt (Co)	2010/08/23		97	%	75 - 125

SILA REMEDIATION
Attention: JEAN-PIERRE PELLETIER
Client Project #: CAM-2 LANDFILL MON.
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Quality Assurance Report (Continued)

Maxxam Job Number: CB072933

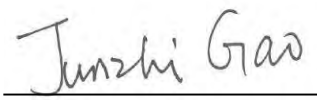
QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
4198665	VH2	QC Standard	Total Copper (Cu)	2010/08/23		92	%	72 - 127
			Total Lead (Pb)	2010/08/23		86	%	54 - 146
			Total Mercury (Hg)	2010/08/23		91	%	75 - 125
			Total Nickel (Ni)	2010/08/23		99	%	61 - 139
			Total Zinc (Zn)	2010/08/23		89	%	72 - 128
		Spiked Blank	Total Arsenic (As)	2010/08/23		99	%	75 - 125
			Total Cadmium (Cd)	2010/08/23		98	%	75 - 125
			Total Chromium (Cr)	2010/08/23		106	%	75 - 125
			Total Cobalt (Co)	2010/08/23		105	%	75 - 125
			Total Copper (Cu)	2010/08/23		106	%	75 - 125
			Total Lead (Pb)	2010/08/23		106	%	75 - 125
			Total Mercury (Hg)	2010/08/23		99	%	80 - 120
			Total Nickel (Ni)	2010/08/23		104	%	75 - 125
			Total Zinc (Zn)	2010/08/23		96	%	75 - 125
		Method Blank	Total Arsenic (As)	2010/08/23	<1		mg/kg	
			Total Cadmium (Cd)	2010/08/23	<0.1		mg/kg	
			Total Chromium (Cr)	2010/08/23	<1		mg/kg	
			Total Cobalt (Co)	2010/08/23	<1		mg/kg	
			Total Copper (Cu)	2010/08/23	<5		mg/kg	
			Total Lead (Pb)	2010/08/23	<1		mg/kg	
			Total Mercury (Hg)	2010/08/23	<0.05		mg/kg	
			Total Nickel (Ni)	2010/08/23	<1		mg/kg	
			Total Zinc (Zn)	2010/08/23	<10		mg/kg	
		RPD	Total Arsenic (As)	2010/08/23	2.5		%	35
			Total Cadmium (Cd)	2010/08/23	NC		%	35
			Total Chromium (Cr)	2010/08/23	1.4		%	35
			Total Cobalt (Co)	2010/08/23	0.03		%	35
			Total Copper (Cu)	2010/08/23	1.2		%	35
			Total Lead (Pb)	2010/08/23	3.2		%	35
			Total Mercury (Hg)	2010/08/23	NC		%	35
			Total Nickel (Ni)	2010/08/23	0.5		%	35
			Total Zinc (Zn)	2010/08/23	7.5		%	35

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.
QC Standard: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.
NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was not sufficiently significant to permit a reliable recovery calculation.
NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.

Validation Signature Page

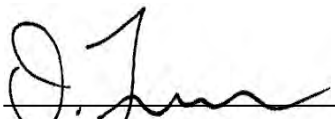
Maxxam Job #: B072933

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

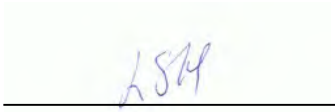


JANET GAO, Senior Analyst, Organics Department

RON VENZI, Scientific Specialist



ORLA JORGENSEN, Organics Supervisor



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.